



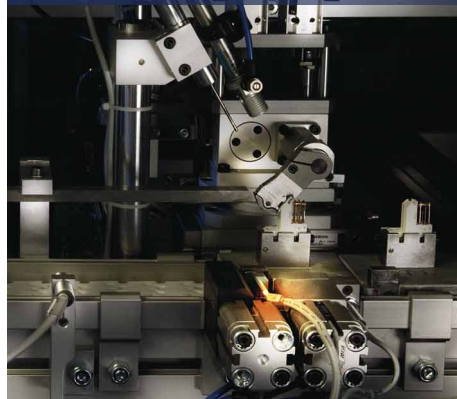
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2013 Catalogue





















PCB relays
 Industrial relays
 Relay interface modules
 Sockets and accessories
 Timers
 Monitoring relays
 Energy meters
 Surge protection devices
 Industrial thermostat
 Modular solid state relays
 Light dependent relays
 Electronic step relays
 Modular contactors
 Electronic staircase timers
 Time switches
 Dimmers
 PIR movement detectors
 Thermostats


















	Rated current	No. of Contacts	Features	Sockets
 30 Series	2 A	2 CO	Subminiature DIL relays - 2 Pole changeover contacts - Low level switching capability - Subminiature: - industry standard DIL package - Sensitive DC coil: 200 mW - Wash tight: RT III	
 32 Series	6 A	1 CO 1 NO	Subminiature PCB relays - 1 Pole changeover contacts or 1 Pole normally open contact - Subminiature, low profile package - Sensitive DC coil: 200 mW - Wash tight: RT III	
 34 Series	6 A	1 CO 1 NO	Ultra-slim Electromechanical PCB relays - Sensitive DC coil: 170 mW - 5 mm wide - 6kV (1.2/50 μ s) isolation, coil - contacts	 93 Series
	0.1 A 2 A	1 output (SSR)	Ultra-slim Solid State PCB relays - Sensitive DC input circuits - 5 mm wide - Silent, high speed switching with long electrical life	
 36 Series	10 A	1 CO 1 NO	Printed circuit relay - 1 Pole changeover contacts or 1 Pole normally open contact - Miniature "Sugar Cube" package - DC coil: 360 mW - Wash tight: RT III	
 40 Series	12 A 16 A	1 CO 1 NO	Miniature PCB relay - DC coils - 8mm, 6kV (1.2/50 μ s) isolation, coil - contacts - Flux proof: RT II standard - 3.5 or 5 mm pin pitch	 95 Series
	10 A 16 A	1 CO 1 NO	Miniature PCB/plug-in relay - DC coils & AC coils - 8mm, 6kV (1.2/50 μ s) isolation, coil - contacts - 3.5 or 5 mm pin pitch	
	8 A	2 CO 2 NO		
 41 Series	12 A 16 A	1 CO	Low profile electromechanical PCB relay - Low profile, 15.7 mm height - DC coils: 400mW - 8mm, 6kV (1.2/50 μ s) isolation, coil - contacts - Flux proof: RT II standard, (RT III option)	 93 Series
	8 A	2 CO		
	3 A 5 A	1 output (SSR)	Low profile Solid State PCB relay - Low profile, 15.7 mm height - Sensitive DC input circuits - Silent, high speed switching with long electrical life	
 43 Series	10 A 16 A	1 CO 1 NO	Low profile PCB relay - Low profile, 15.4 mm height - Sensitive DC coils: 250mW or 400mW - Very high coil contact isolation 10mm, 6kV (1.2/50 μ s) - Flux proof: RT II standard, (RT III option) - 3.2 or 5mm pin pitch	 95 Series
 44 Series	6 A 10 A	2 CO	Miniature PCB relay - High physical separation between adjacent contacts - DC coils - 8mm, 6kV (1.2/50 μ s) isolation, coil - contacts - Flux proof: RT II - 5mm pin pitch	 95 Series
 45 Series	16 A	1 NO 1 NC	Miniature PCB relay - Relay for +125°C ambient use - Contact gap \geq 3mm according to EN 60730-1 - 8mm, 6kV (1.2/50 μ s) isolation, coil - contacts - Sensitive DC coil: 360mW - PCB mounting + Faston 250	

	Rated current	No. of Contacts	Features	Sockets
 46 Series	8 A	2 CO	Miniature industrial relays - Socket mount or direct connection via Faston connectors - AC & DC coils - Available with lockable test button, mechanical flag & LED indicator - 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts	 97 Series
	16 A	1 CO		
 50 Series	8 A	2 CO	Safety relay (EN 50205) - 2 Pole changeover contacts - PCB Relay with forcibly guided contacts according to EN 50205 type B - High physical separation between adjacent contacts - 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts - Flux proof: RT II	
 55 Series	10 A	2 CO 3 CO	General purpose relays - AC & DC coils - PCB or Plug-in mounting - Available with lockable test button, mechanical flag & LED indicator	 94 Series
	7 A	4 CO		
 56 Series	12 A	2 CO 2 NO 4 CO 4 NO	Miniature power relays - PCB or Plug-in mounting - Flange mount option (Faston 187 termination) - AC & DC coils - Available with lockable test button, mechanical flag & LED indicator	 96 Series
 60 Series	6 A	2 CO	General purpose relays - 8 & 11 pin plug-in - Flange mount - AC & DC coils, "current sensing relays" or "intensity relays" - Available with lockable test button, mechanical flag & LED indicator - Version with bifurcated contacts for low level switching	 90 Series
	10 A	3 CO		
 62 Series	16 A	2 CO 2 NO 3 CO 3 NO	Power relays - PCB mount or Plug-in mount (Faston 187) or Flange mount (Faston 250) - AC & DC coils - NO contacts options, > 3mm contact gap - LED, mechanical indicator & test button options	 92 Series
 65 Series	20 A	1 NO + 1 NC	Power relays - AC & DC coils - PCB mount or Flange mount (Faston 250) - NO version, > 3mm contact gap	
	30 A	1 NO		
 66 Series	30 A	2 CO 2 NO	Power relays - PCB mount or Flange mount (Faston 250) - AC & DC coils - 8mm, 6kV (1.2/50 µs) isolation, coil - contacts	

	Rated current	No. of Contacts	Features
 38 Series	6 A 16 A	1 CO	Relay interface modules - 6.2mm or 14mm wide - DC or AC/DC coil versions - Special coil / input leakage current suppression types - Screw & screwless terminals (SSR = Solid state relay)
	8 A	2 CO	
	0.1 A 2 A	1 SSR	
	3 A / 5 A	1 SSR	
 39 Series	6 A	1 CO	Relay interface modules NEW - 6.2mm wide - DC or AC/DC coil versions - Special coil / input leakage current suppression types - Extra protection with replaceable fuse - Timer version with 8 functions - Screw terminals (SSR = Solid state relay)
	0.1 A 2 A	1 SSR	
 48 Series	10 A 16 A	1 CO	Relay interface modules - 15.8mm wide - AC or DC coils - Instant ejection of relay using plastic retaining clip - Supply status indication and EMC coil suppression module as standard - Screw and screwless terminals
	10 A 8 A	2 CO	
 49 Series	10 A 16 A	1 CO	Relay interface modules - 15.8mm wide - AC or DC coils - Instant ejection of relay using plastic retaining clip - Supply status indication and EMC coil suppression module as standard - Screw and screwless terminals
	8 A	2 CO	
 4C Series	10 A 16 A	1 CO	Relay interface modules - 15.8mm wide - AC or DC coils - Instant ejection of relay using plastic retaining clip - Supply status indication and EMC coil suppression module as standard - Screw and screwless terminals - Mechanical indicator & test button
	8 A	2 CO	
 58 Series	10 A	2 CO 3 CO	Relay interface modules - 27mm wide - AC or DC coils - Instant ejection of relay using plastic retaining clip - Supply status indication and EMC coil suppression module as standard - Mechanical indicator & test button
	7 A	4 CO	
 59 Series	10 A	2 CO	Relay interface modules - 27mm wide - AC or DC coils - Instant ejection of relay using plastic retaining clip - Supply status indication and EMC coil suppression module as standard - Screw and screwless terminals - Mechanical indicator & test button
	7 A	4 CO	
 99 Series			Coil indication and EMC suppression modules Depending on module selected, they can provide; <ul style="list-style-type: none"> - Suppression of coil back emf on switch-off - LED indication to show when the coil is energized. - Protection against reverse polarity applied across the coil terminals. - By-pass of troublesome leakage currents in the coil circuit.

	Rated current	Function & Features
	19 Series 1 A 5 A 16 A	<p>Status indicating modules Override control modules Analyse Override control module Power relay module</p> <p>Override & Status indicating modules</p> <ul style="list-style-type: none"> - Clear indication of the signal or equipment status - Easy to operate selection switches and potentiometers - Feedback contact; signals when switch is not in "Auto" position - Compact housing: 2 widths, 17.5 or 35 mm
	70 Series 6 A 10 A	<p>Over & Under voltage monitoring Electronic voltage monitoring for single and three-phase Electronic phase loss and rotation monitoring for three-phase Monitoring neutral loss</p> <p>Line monitoring relay NEW</p> <ul style="list-style-type: none"> - 1 CO relay output, 6 or 10 A - Modular housing, 17.5 or 35 mm wide - 35mm rail (EN 60715) mount
	71 Series 10 A	<p>Over & Under voltage monitoring Voltage or current detecting Phase asymmetry Phase rotation Phase loss Thermistor temperature sensing</p> <p>Monitoring relays</p> <ul style="list-style-type: none"> - 35 and 22.5mm wide - 1 or 3 phase systems - Adjustable or Fixed values - Positive safety logic - 35mm rail (EN 60715) mount
	72 Series 16 A	<p>Level control (Emptying or Filling)</p> <p>Monitoring relay</p> <ul style="list-style-type: none"> - For conductive liquids - Sensitivity fixed or adjustable (5...150kΩ)
	12 A	<p>Special relay for alternating loads, for applications with pumps, compressors, air conditioning or refrigeration units</p> <p>Priority change relay</p> <ul style="list-style-type: none"> - 35mm wide - 110...240 V and 24 V AC/DC supply versions - Multi-function (M1, ME, M2, M1)
	77 Series 5 A	<p>Zero-crossing switch-on Random switch-on</p> <p>Modular solid state relay (SSR)</p> <ul style="list-style-type: none"> - 17.5mm housing - Suggested for lamp load - 35 mm rail (EN 60715) mounting
	78 Series 12 W 36 W 60 W 50 W	<p>NEW Switch mode power supplies</p> <ul style="list-style-type: none"> - Small dimensions: 17.5 mm (1 module) or 70 mm (4-modules) wide, 60 mm deep - Short circuit protection: hiccup (auto-recovery) mode - High efficiency (up to 91%) - Low (< 0.4 W) stand-by power absorption - 35 mm rail (EN 60715) mounting
	7E Series 25 A 32 A 65 A (up to 1,500 A with CT)	<p>Energy meter</p> <p>kWh Energy meter</p> <ul style="list-style-type: none"> - 1 or 3 phase - Single or Double tariff - Pulse output for remote energy management; - SO interface (open collector) according DIN 43864 - LC-Display and Mechanical Display - 35 mm rail (EN 60715) mount
	7P Series —	<p>SPD Type 1, 2, 3</p> <p>Surge protection device (SPD)</p> <ul style="list-style-type: none"> - Surge arrester suitable for 230 V or 400 V system/applications or for surge arrester for protection on DC (420, 700 and 1,000 V) - Single phase systems or three-phase systems - Replaceable varistor module and encapsulated spark gap module - Visual and remote signalling of varistor status - 35mm rail (EN 60715) mount
	7S Series 6 A	<p>NEW Relay module with forcibly guided contacts</p> <ul style="list-style-type: none"> - Extended operating range (0.7...1.25) U_N - For safety applications, with class A forcibly guided contact relays (EN 50205) - For railway applications; materials compliant with fire and smoke characteristics (UNI 11170-3); mechanical and climatic characteristics compliant with EN 61373 and EN 50155 - Coil status visual indication with LED - 35mm rail (EN 60715) mount
	7T Series 10 A	<p>NEW Panel thermostat</p> <ul style="list-style-type: none"> - Small, compact size - Snap action thermostatic Bimetal sensor - Wide temperature setting range - Long electrical life - 35 mm rail (EN 60715) mount

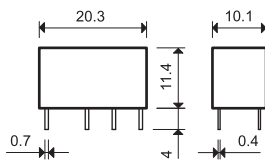
	Rated current	Function & Features	Sockets	
	1 A 16 A	Multi-functions or Mono-functions timer	Modular timers - 17.5mm wide - Six time scale from 0.1s to 24h - Multi-voltage - High input /output isolation - 1 pole - Relay output, 16A - Solid-state output, 1A	
	16 A	Multi-function and multi-voltage timer	Modular timers - 17.5 mm wide - Seven functions (4 with supply start and 3 with signal start with Reset function) - Six time ranges from 0.1s to 10h - 1 pole - 35 mm rail (EN 60715) mounting	
	8 A 10 A 16 A	Multi-functions or Mono-functions timer	Modular timers - 22.5mm wide - Eight time scale from 0.05s to 10 days - Multi-voltage - 1 pole - Special version: 2 timed contacts or 1 timed + 1 instantaneous contact	
	7 A 10 A	Multi-functions timer	Miniature plug-in timers - AC/DC supply non polarized - Seven time scales from 0.05s to 100h - 2, 3 or 4 pole	
	—	Multi-functions or Bi-functions timer	Timer modules - Multi-voltage - Time scale from 0.05s to 100h - Wide supply range in AC or DC coils	 90 Series 92 Series 94 Series 95 Series 96 Series 97 Series
	5 A 8 A	Multi-functions timer	Plug-in / Front of panel mount timers - 8 or 11 pin - Time scales from 0.05s to 100h - AC/DC supply - Version available with 2 timed contacts or 1 instantaneous + 1 timed	
	—	Multi-functions	Slim timed sockets - 6.2mm wide - 4 time scales from 0.1s to 6h - AC/DC supply - For use with 34.51 and 34.81 relays	

		Rated current	Function & Features	
	10 Series	12 A 16 A	Light dependent relay	Light dependent relay for pole or wall mounting <ul style="list-style-type: none"> - 1 or 2 contacts - Double break type - Double setting and Double contacts - Protection category IP54
	11 Series	12 A 16 A	Light dependent relay	Modular Light dependent relay <ul style="list-style-type: none"> - 1 contact - 35 mm wide - 230 VAC, available also with 12 and 24 VAC/DC - 35mm rail (EN 60715) mount
	12 Series	16 A	Daily time switch Weekly time switch "Astro" time switch	 Time switch <ul style="list-style-type: none"> - Mechanical or electronic version - 1 or 2 contacts - 35mm rail (EN 60715) mount
	13 Series	8 A 10 A 12 A 16 A	Electronic step relay Call & Reset Relay	 Electronic step and bistable relay <ul style="list-style-type: none"> - 35 mm rail (EN 60715) mount or panel mount - 1 or 2 contacts - Call relay with reset command - Longer mechanical and electrical life, and much quieter than electromechanical step relays
	14 Series	16 A	Electronic staircase timers	Modular electronic staircase timers <ul style="list-style-type: none"> - 17.5 mm wide - Multi-functions or Mono-function - Suitable for 3 or 4 wire systems - Version with "Switch-off early warning"
	15 Series	400 W 500 W	Dimmer	Dimmer for control of lighting levels <ul style="list-style-type: none"> - 35 mm rail (EN 60715) mount or panel mount - "Soft" On and Off transitions - Thermal protection against overload
	18 Series	10 A	Movement detector	PIR movement detector for internal or external installations - wall or ceiling mount <ul style="list-style-type: none"> - Special version: IP54 - Small size - Adjustable ambient light intervention threshold - Adjustable Light On Time
	20 Series	16 A	Step relay	Modular step relay <ul style="list-style-type: none"> - 17.5 mm wide - AC or DC coils - 1 or 2 contacts - Choice of 6 switching sequences - 35 mm rail (EN 60715) mount
	22 Series	25 A	Modular contactors	 Modular contactors <ul style="list-style-type: none"> - 17.5 and 35 mm wide - AC/DC silent coils - 2 or 4 contacts - 35 mm rail (EN 60715) mount
	26 Series	10 A	Step relay	Step relay with electrically separate coil and contact circuits <ul style="list-style-type: none"> - Panel mount - AC coils - 1 or 2 contacts - Choice of 6 switching sequences
	27 Series	10 A	Step relay	Step relay, for electrically common coil and contact circuits <ul style="list-style-type: none"> - Panel mount - AC coils - 1 or 2 contacts - Choice of 3 switching sequences

Features

Printed circuit mount 2 A signal relay

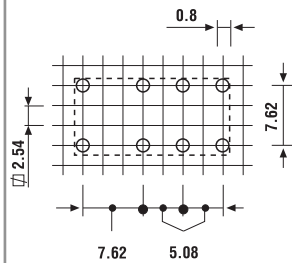
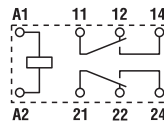
- 2 Pole changeover contacts
Low level switching capability
- Subminiature - industry standard DIL package
- Sensitive DC coil - 200 mW
- Wash tight: RT III
- Cadmium Free contact material



30.22



- Low coil power
- Au clad contacts
- PCB mount

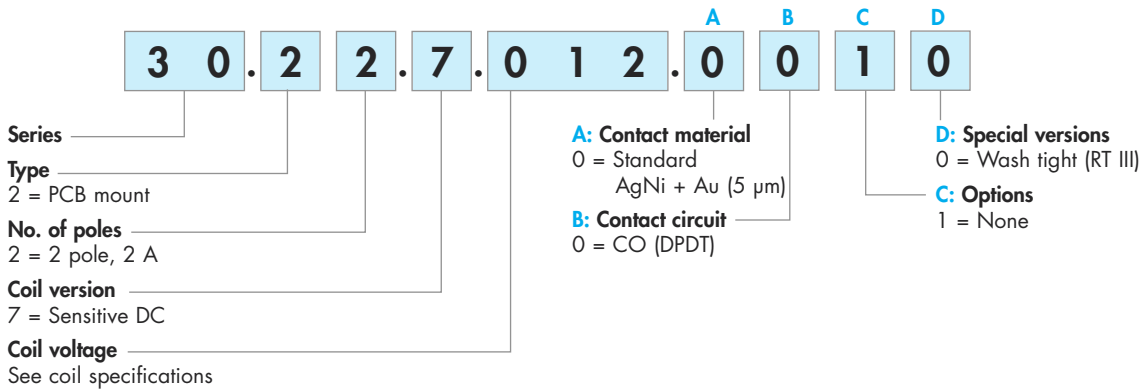


Copper side view

Contact specification		
Contact configuration		2 CO (DPDT)
Rated current/Maximum peak current	A	2/3
Rated voltage/Maximum switching voltage	V AC	125/250
Rated load AC1	VA	125
Rated load AC15 (230 V AC)	VA	25
Single phase motor rating (230 V AC)	kW	—
Breaking capacity DC1: 30/110/220 V	A	2/0.3/—
Minimum switching load	mW (V/mA)	10 (0.1/1)
Standard contact material		AgNi + Au
Coil specification		
Nominal voltage (U _N)	V AC (50/60 Hz)	—
	V DC	5 - 6 - 9 - 12 - 24 - 48
Rated power AC/DC	VA (50 Hz)/W	—/0.2
Operating range	AC	—
	DC	See table page 3
Holding voltage	AC/DC	—/0.35 U _N
Must drop-out voltage	AC/DC	—/0.05 U _N
Technical data		
Mechanical life AC/DC	cycles	—/10 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³
Operate/release time	ms	6/2
Insulation between coil and contacts (1.2/50 μs)	kV	1.5
Dielectric strength between open contacts	V AC	750
Ambient temperature range	°C	—40...+85
Environmental protection		RT III
Approvals (according to type)		

Ordering information

Example: 30 series PCB relay, 2 CO (DPDT) - 2 A contacts, 12 V sensitive DC coil.

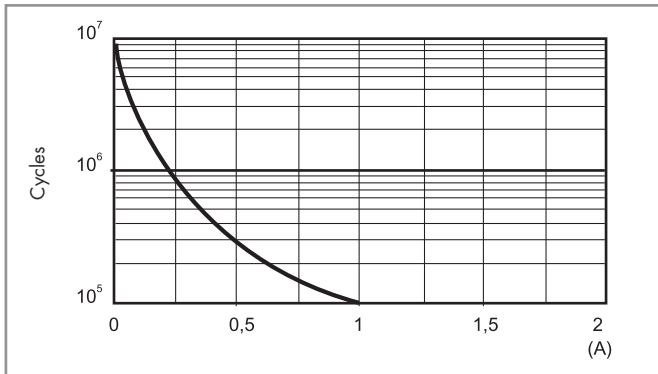


Technical data

Insulation according to EN 61810-1			
Nominal voltage of supply system	V AC	230/400	120...240 single phase
Rated insulation voltage	V AC	250	125
Pollution degree		1	2
Insulation between coil and contact set			
Type of insulation		Basic	Basic
Overvoltage category		I	II
Rated impulse voltage	kV (1.2/50 µs)	1.5	1.5
Dielectric strength	V AC	1,000	1,000
Insulation between adjacent contacts			
Type of insulation		Basic	Basic
Overvoltage category		I	II
Rated impulse voltage	kV (1.2/50 µs)	1.5	1.5
Dielectric strength	V AC	1,500	1,500
Insulation between open contacts			
Type of disconnection		Micro-disconnection	Micro-disconnection
Dielectric strength	V AC/kV (1.2/50 µs)	750/1	750/1
Other data			
Bounce time: NO/NC	ms	1/3	
Vibration resistance (5...55)Hz: NO/NC	g	15/15	
Shock resistance	g	16	
Power lost to the environment	without contact current	W	0.2
	with rated current	W	0.4
Recommended distance between relays mounted on PCB	mm	≥ 5	

Contact specification

F 30 - Electrical life (AC1) v contact current (125 V)



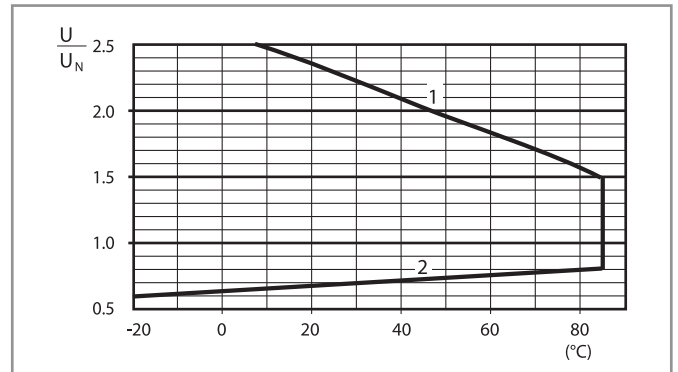
Note:
The rated current of 2 A corresponds to the limiting continuous current.

Coil specifications

DC coil data - 0.2 W sensitive

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
5	7.005	3.7	7.5	125	40
6	7.006	4.5	9	180	33
9	7.009	6.7	13.5	405	22
12	7.012	8.4	18	720	16
24	7.024	16.8	36	2,880	8.3
48	7.048	36	72	11,520	4.1

R 30 - DC coil operating range v ambient temperature

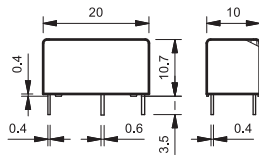


1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Features

Printed circuit mount 6 A relay

- 1 Pole changeover contacts or 1 Pole normally open contact
- Subminiature, low profile package
- Sensitive DC coil - 200 mW
- Wash tight: RT III
- Cadmium Free contact material option



32.21-x000

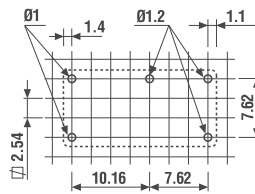
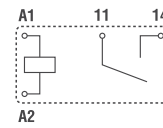
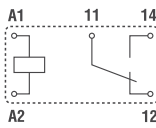


- 1 CO (SPDT), 6 A
- Low coil power
- PCB mount

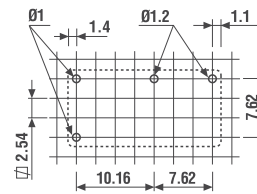
32.21-x300



- 1 NO (SPST-NO), 6 A
- Low coil power
- PCB mount



Copper side view

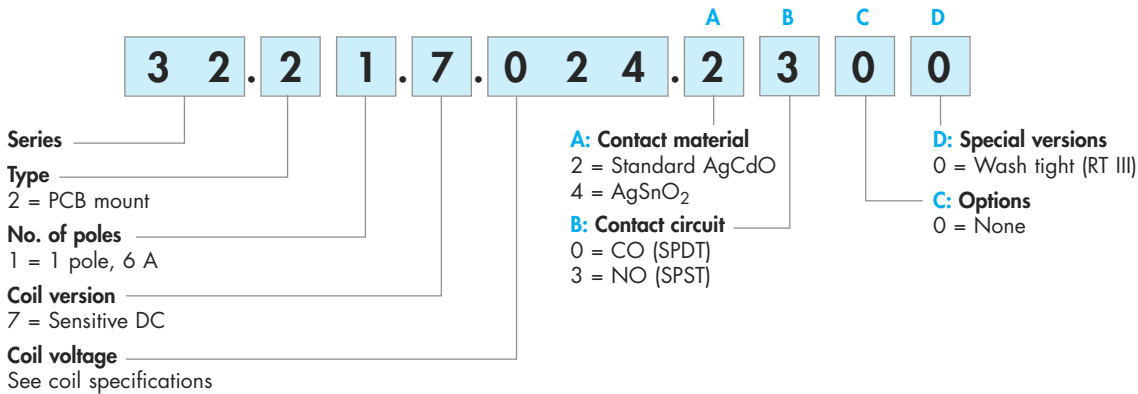


Copper side view

Contact specification			
Contact configuration		1 CO (SPDT)	1 NO (SPST-NO)
Rated current/Maximum peak current	A	6/15	6/15
Rated voltage/Maximum switching voltage V AC		250/400	250/400
Rated load AC1	VA	1,500	1,500
Rated load AC15 (230 V AC)	VA	250	250
Single phase motor rating (230 V AC)	kW	0.185	0.185
Breaking capacity DC1: 30/110/220 V	A	3/0.35/0.2	3/0.35/0.2
Minimum switching load	mW (V/mA)	500 (10/5)	500 (10/5)
Standard contact material		AgCdO	AgCdO
Coil specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	—	—
	V DC	5 - 12 - 24 - 48	5 - 12 - 24 - 48
Rated power AC/DC	VA (50 Hz)/W	—/0.2	—/0.2
Operating range	AC	—	—
	DC	(0.78...1.5)U _N	(0.78...1.5)U _N
Holding voltage	AC/DC	—/0.4 U _N	—/0.4 U _N
Must drop-out voltage	AC/DC	—/0.1 U _N	—/0.1 U _N
Technical data			
Mechanical life AC/DC	cycles	—/20 · 10 ⁶	—/20 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³
Operate/release time	ms	6/4	6/2
Insulation between coil and contacts (1.2/50 µs)	kV	5	5
Dielectric strength between open contacts V AC		1,000	1,000
Ambient temperature range	°C	−40...+85	−40...+85
Environmental protection		RT III	RT III
Approvals (according to type)			

Ordering information

Example: 32 series PCB, 1 NO (SPDT-NO) - 6 A contacts, 24 V sensitive DC coil.



Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold**.

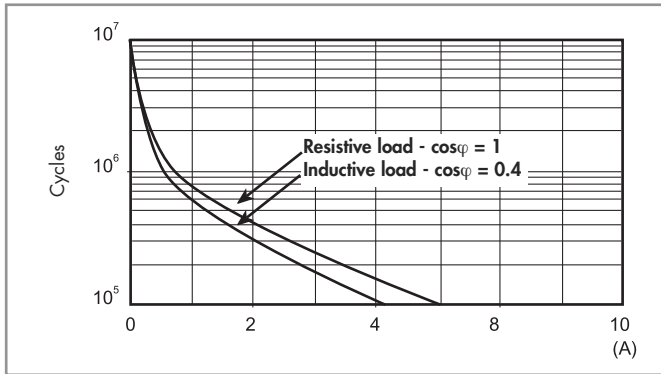
Type	Coil version	A	B	C	D
32.21	sens. DC	2 - 4	0 - 3	0	0

Technical data

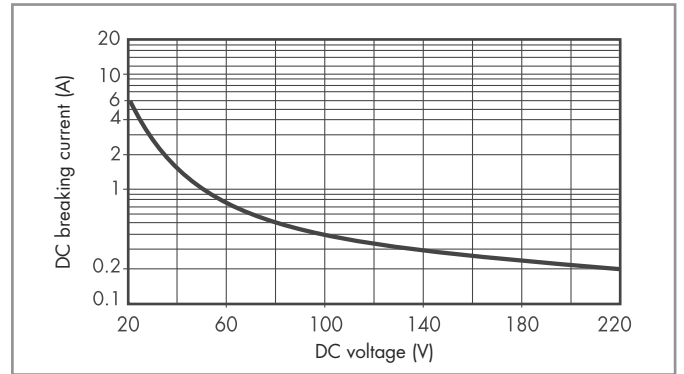
Insulation according to EN 61810-1			
Nominal voltage of supply system	V AC	230/400	
Rated insulation voltage	V AC	250	
Pollution degree		2	
Insulation between coil and contact set			
Type of insulation		Basic	
Overvoltage category		III	
Rated impulse voltage	kV (1.2/50 µs)	5	
Dielectric strength	V AC	4,000	
Insulation between open contacts			
Type of disconnection		Micro-disconnection	
Dielectric strength	V AC/kV (1.2/50 µs)	1,000/1.5	
Conducted disturbance immunity			
Burst (5...50)ns, 5 kHz, on A1 - A2	EN 61000-4-4	level 4 (4 kV)	
Surge (1.2/50 µs) on A1 - A2 (differential mode)	EN 61000-4-5	level 3 (2 kV)	
Other data			
Bounce time: NO/NC	ms	2/10 (changeover) 2/— (normally open)	
Vibration resistance (5...55)Hz: NO/NC	g	10/10 (changeover) 10/— (normally open)	
Shock resistance	g	20	
Power lost to the environment	without contact current	W	0.2
	with rated current	W	0.5
Recommended distance between relays mounted on PCB	mm	≥ 5	

Contact specification

F 32 - Electrical life (AC) v contact current



H 32 - Maximum DC1 breaking capacity



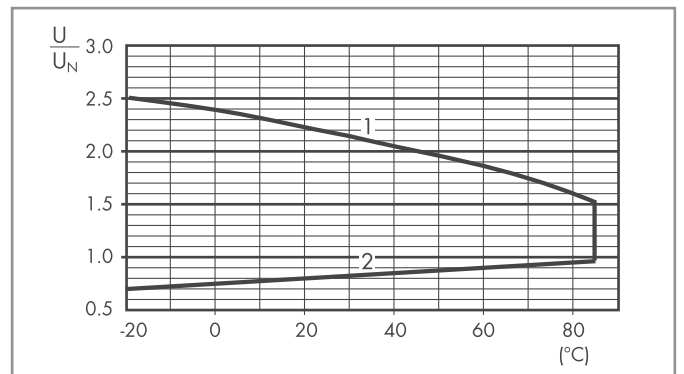
- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load. Note: the release time for the load will be increased.

Coil specifications

DC coil data - 0.2 W sensitive

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
5	7.005	3.9	7.5	125	40
12	7.012	9.4	18	720	16
24	7.024	18.7	36	2,880	8.3
48	7.048	37.4	72	11,520	4

R 32 - DC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Features

Ultra-slim 1 Pole - 6 A relay

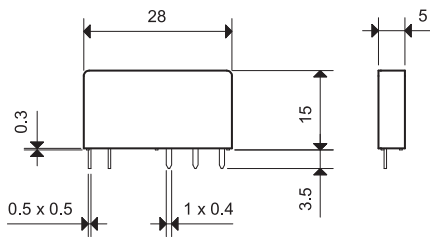
Printed circuit mount

- direct or via PCB socket

35 mm rail mount

- via screw or screwless sockets

- 1 Pole changeover contacts or 1 Pole normally open contact
- Ultra slim, 5 mm, package
- Sensitive DC coil - 170 mW (Dual AC/DC coil drive possible using 93 series sockets)
- UL Listing (certain relay/socket combinations)
- Cadmium Free contact materials
- 8/8 mm clearance/creepage distance
- 6 kV (1.2/50 μ s) insulation, coil-contacts



FOR UL RATINGS SEE:
"General technical information" page V

Contact specification

Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	6/10
Rated voltage/Maximum switching voltage V AC		250/400
Rated load AC1	VA	1,500
Rated load AC15 (230 V AC)	VA	300
Single phase motor rating (230 V AC)	kW	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12
Minimum switching load	mW (V/mA)	500 (12/10)
Standard contact material		AgNi

Coil specification

Nominal voltage (U_N)	V AC (50/60 Hz)	—
	V DC	5 - 12 - 24 - 48 - 60
Rated power AC/DC	VA (50 Hz)/W	—/0.17
Operating range	AC	—
	DC	$(0.7 \dots 1.5) U_N$
Holding voltage	AC/DC	—/0.4 U_N
Must drop-out voltage	AC/DC	—/0.05 U_N

Technical data

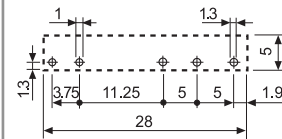
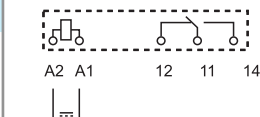
Mechanical life AC/DC	cycles	—/10 · 10 ⁶
Electrical life at rated load AC1	cycles	60 · 10 ³
Operate/release time	ms	5/3
Insulation between coil and contacts (1.2/50 μ s)	kV	6 (8 mm)
Dielectric strength between open contacts V AC		1,000
Ambient temperature range	°C	—40...+85
Environmental protection		RT II

Approvals (according to type)

34.51



- 5 mm wide
- Low coil power
- PCB or 93 series sockets



Copper side view

Features

Ultra-slim - Solid State Relays

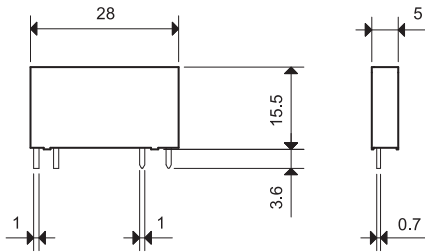
Printed circuit mount

- direct or via PCB socket

35 mm rail mount

- via screw or screwless sockets

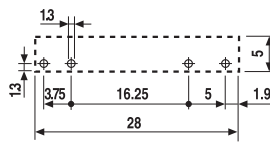
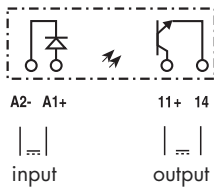
- Single circuit output switching options
 - 2 A 24 V DC
 - 0.1 A 48 V DC
 - 2 A 240 V AC
- Silent, high speed switching with long electrical life
- Ultra slim, 5 mm, package
- Sensitive DC Input circuits (Dual AC/DC input drive possible using 93 series sockets)
- UL Listing (certain relay/socket combinations)
- Wash tight: RT III
- 2,500 V insulation, input-output



34.81-9024



- 2 A, 24 V DC output switching
- PCB or 93 series sockets

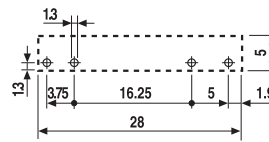
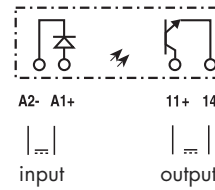


Copper side view

34.81-7048



- 0.1 A, 48 V DC output switching
- PCB or 93 series sockets

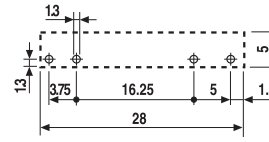
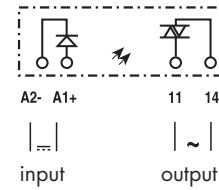


Copper side view

34.81-8240



- 2 A, 240 V AC output switching
- Zero crossing switching
- PCB or 93 series sockets



Copper side view

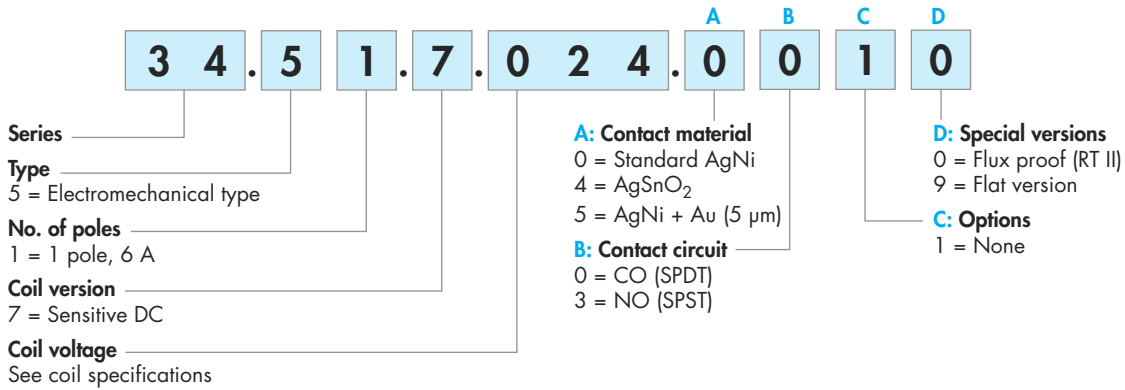
Output circuit											
Contact configuration		1 NO (SPST-NO)				1 NO (SPST-NO)		1 NO (SPST-NO)			
Rated current/Maximum peak current (10 ms) A		2/20				0.1/0.5		2/40			
Rated voltage/Maximum blocking voltage V		(24/33)DC				(48/60)DC		(240/275)AC			
Switching voltage range V		(1.5...24)DC				(1.5...48)DC		(12...240)AC			
Minimum switching current mA		1				0.05		22			
Max. "OFF-state" leakage current mA		0.001				0.001		1.5			
Max. "ON-state" voltage drop V		0.12				1		1.6			
Input circuit											
Nominal voltage V DC		5	12	24	60	24	60	5	12	24	60
Rated power AC/DC W		0.035	0.087	0.17	0.18	0.17	0.18	0.060	0.087	0.17	0.18
Operating range V DC		3.5...12	8...17	16...30	35...72	16...30	35...72	3.5...10	8...17	16...30	35...72
Control current mA		7	7.2	7	3	7	3	12	7.2	7	3
Release voltage V DC		1	4	10	20	10	20	1	4	10	20
Impedance Ω		715	1,940	3,200	21,300	3,200	21,300	416	1,940	3,200	21,300
Technical data											
Operate/release time ms		0.1/0.6*				0.04/0.6*		12/12*			
Dielectric strength between input/output V		2,500				2,500		2,500			
Ambient temperature range °C		-20...+60				-20...+60		-20...+60			
Environmental protection		RT III				RT III		RT III			
Approvals (according to type)											

* Note: all technical data relates to using the relay directly on PCB or PCB socket type 93.11.
 If the relay is used with 35 mm rail socket type 93.51, refer to the technical data of 38 Series; if used with types 93.61, 93.62, 93.63, 93.64 and 93.68, refer to the technical data of the MasterINTERFACE 39 Series.

Ordering information

Electromechanical relay (EMR)

Example: 34 series slim electromechanical relay, 1 CO (SPDT) 6 A contacts, 24 V sensitive DC coil.

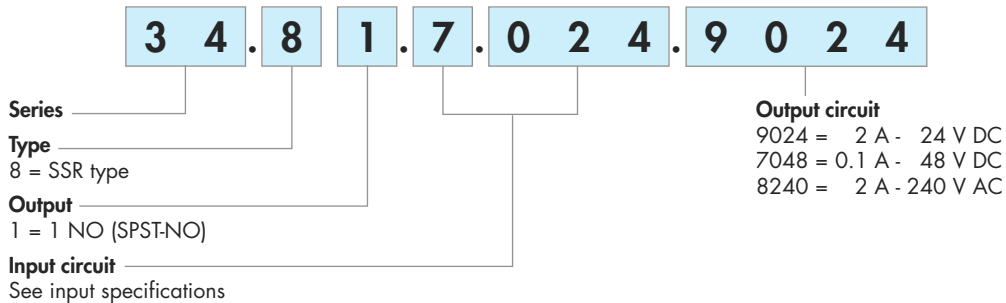


Selecting features and options: only combinations in the same row are possible. Preferred selections for best availability are shown in **bold**.

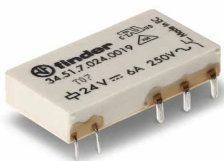
Type	Coil version	A	B	C	D
34.51	sens. DC	0 - 4 - 5	0 - 3	1	0
34.51	sens. DC	0 - 4 - 5	0	1	9

Solid state relay (SSR)

Example: 34 series SSR relay, 2 A output, 24 V DC supply.

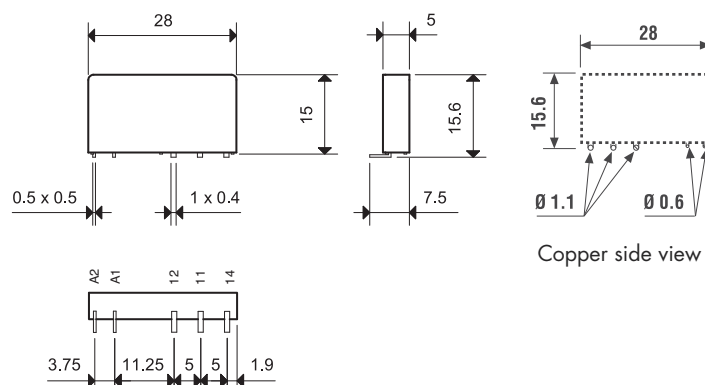


Flat pack version



Option = 34.51.7xxx.x019

Environmental protection RT I



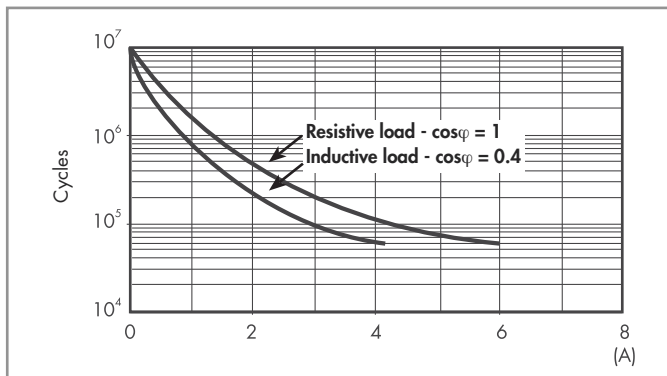
Electromechanical relay

Technical data

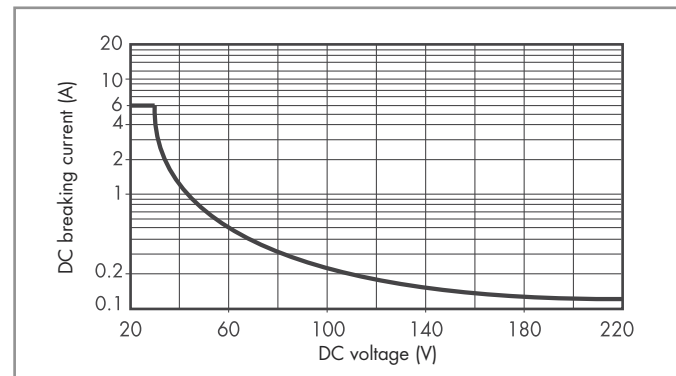
Insulation according to EN 61810-1			
Nominal voltage of supply system	V AC	230/400	
Rated insulation voltage	V AC	250	400
Pollution degree		3	2
Insulation between coil and contact set			
Type of insulation		Reinforced	
Overtoltage category		III	
Rated impulse voltage	kV (1.2/50 μ s)	6	
Dielectric strength	V AC	4,000	
Insulation between open contacts			
Type of disconnection		Micro-disconnection	
Dielectric strength	V AC/kV (1.2/50 μ s)	1,000/1.5	
Conducted disturbance immunity			
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4	level 4 (4 kV)
Surge (1.2/50 μ s) on A1 - A2 (differential mode)		EN 61000-4-5	level 3 (2 kV)
Other data			
Bounce time: NO/NC	ms	1/6	
Vibration resistance (5...55)Hz: NO/NC	g	10/5	
Shock resistance	g	20/14	
Power lost to the environment	without contact current	W	0.2
	with rated current	W	0.5
Recommended distance between relays mounted on PCB	mm	≥ 5	

Contact specification

F 34 - Electrical life (AC) v contact current



H 34 - Maximum DC1 breaking capacity



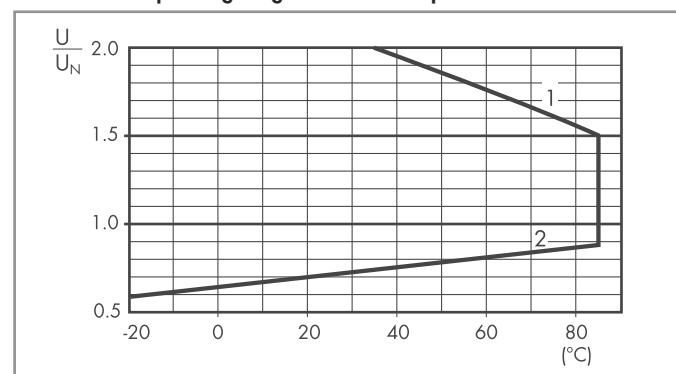
- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 60 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load. Note: the release time for the load will be increased.

Coil specifications

DC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
5	7.005	3.5	7.5	130	38.4
12	7.012	8.4	18	840	14.2
24	7.024	16.8	36	3,350	7.1
48	7.048	33.6	72	12,300	3.9
60	7.060	42	90	19,700	3

R 34 - DC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Solid state relay

Technical data

Other data			
Power lost to the environment	without output current	W	0.17
	with rated current	W	0.4

Input specification

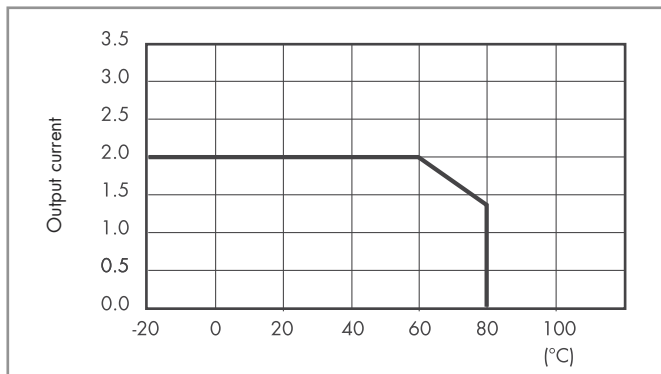
Input data - DC types

Nominal voltage U_N	Input code	Operating range		Release voltage	Impedance	Control current I at U_N
		U_{min}	U_{max}			
V		V	V	V	Ω	mA
5	7.005	3.5	12 (10*)	1	715 (416*)	7 (12*)
12	7.012	8	17	4	1,940	7.2
24	7.024	16	30	10	3,200	7
60	7.060	35	72	20	21,300	3

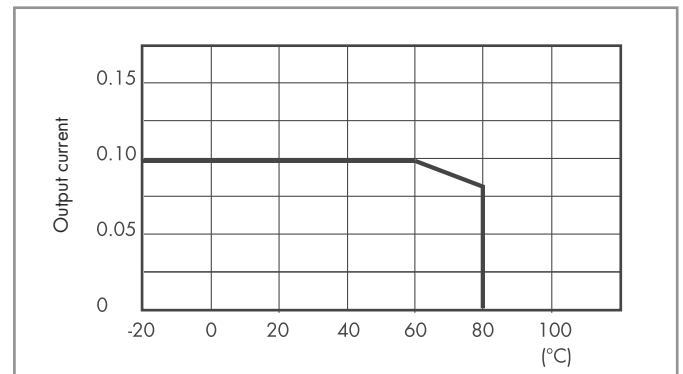
* AC Output version.

Output specification

L 34 - Output current v ambient temperature
SSR - 2 A DC & AC output types



L 34 - Output current v ambient temperature
SSR - 0.1 A DC output types





93.61

Screw terminal socket 35mm rail mounting (EN 60715) NEW

Common features

- Space saving 6.2 mm wide
- Connections for 16-way jumper link
- Integral coil indication and protection circuit
- Secure retention and easy ejection by plastic clip
- Dual screw head (blade+cross) terminals



93.62

For technical data and supply versions, refer to the *MasterINTERFACE 39 Series* – “Relay interface module”

Electromechanical Relay - EMR

Supply voltage	Relay type	Socket type (reference with the 39 Series)				
		MasterBASIC (39.11.....)	MasterPLUS (39.31.....)	MasterINPUT (39.41.....)	MasterOUTPUT (39.21.....)	MasterTIMER (39.81.....)
6 V AC/DC	34.51.7.005.xx10	93.61.7.024	93.63.7.024	93.64.0.024	93.62.7.024	—
12 V AC/DC	34.51.7.012.xx10	93.61.7.024	93.63.7.024	93.64.0.024	93.62.7.024	93.68.0.024
24 V AC/DC	34.51.7.024.xx10	93.61.7.024	93.63.7.024	93.64.0.024	93.62.7.024	93.68.0.024
60 V AC/DC	34.51.7.060.xx10	—	93.63.7.060	—	—	—
(110...125)V AC *	34.51.7.060.xx10	—	93.63.3.125	—	—	—
(220...240)V AC *	34.51.7.060.xx10	—	93.63.3.230	—	—	—
(110...125)V AC/DC	34.51.7.060.xx10	—	93.63.0.125	93.64.0.125	93.62.0.125	—
(220...240)V AC	34.51.7.060.xx10	93.61.8.230	93.63.8.230	93.64.8.230	93.62.8.230	—
(110...125) V DC	34.51.7.060.xx10	—	93.63.7.125	—	—	—
220 V DC	34.51.7.060.xx10	—	93.63.7.220	—	—	—

* Leakage current suppression



93.63



93.64

Solid State Relay - SSR

Supply voltage	Relay type	Socket type (reference with the 39 Series)				
		MasterBASIC (39.10.....)	MasterPLUS (39.30.....)	MasterINPUT (39.40.....)	MasterOUTPUT (39.20.....)	MasterTIMER (39.80.....)
12 V AC/DC	34.81.7.012.xxxx	—	—	—	—	93.68.0.024
24 V AC/DC	34.81.7.024.xxxx	—	93.63.0.024	93.64.0.024	—	93.68.0.024
(110...125)V AC *	34.81.7.060.xxxx	—	93.63.3.125	—	—	—
(220...240)V AC *	34.81.7.060.xxxx	—	93.63.3.230	—	—	—
(110...125)V AC/DC	34.81.7.060.xxxx	—	93.63.0.125	93.64.0.125	93.62.0.125	—
(220...240)V AC	34.81.7.060.xxxx	93.61.8.230	93.63.8.230	93.64.8.230	93.62.8.230	—
6 V DC	34.81.7.005.xxxx	93.61.7.024	93.63.7.024	93.64.0.024	93.62.7.024	—
12 V DC	34.81.7.012.xxxx	93.61.7.024	93.63.7.024	93.64.0.024	93.62.7.024	—
24 V DC	34.81.7.024.xxxx	93.61.7.024	93.63.7.024	93.64.0.024	93.62.7.024	—
60 V DC	34.81.7.060.xxxx	—	93.63.7.060	—	—	—
(110...125) V DC	34.81.7.060.xxxx	—	93.63.7.125	—	—	—
220 V DC	34.81.7.060.xxxx	—	93.63.7.220	—	—	—

* Leakage current suppression

Accessories

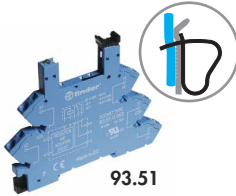
16-way jumper link	093.16 (blue), 093.16.0 (black), 093.16.1 (red)
Dual-purpose plastic separator	093.60
Sheet of marker tags	060.72

Technical data

Rated values	6 A – 250 V
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts
Protection category	IP20
Ambient temperature	°C –40...+70
Screw torque	Nm 0.5
Wire strip length	mm 10
Max wire size	Solid wire and stranded wire
	mm ² 1 x 2.5 / 2 x 1.5
	AWG 1 x 14 / 2 x 16

Approvals (according to type):





93.51

Approvals
(according to type):



RINA cUL[®] US

cUL[®] US Certain relay/socket combinations

Screw less terminal socket 35mm rail mounting (EN 60715)

Common features

- Space saving 6.2 mm wide
- Connections for 20-way jumper link
- Integral coil indication and protection circuit
- Secure retention and easy ejection by plastic clip

For technical data and supply versions, refer to the **38 Series** – “Relay interface module”

Electromechanical Relay - EMR and Solid State Relay - SSR

Supply voltage	Relay type (reference with the 38 Series)		Socket type
	Electromechanical relay - EMR (38.61.....)	Solid State Relay - SSR (38.81.....)	
12 V AC/DC	34.51.7.012.xx10	—	93.51.0.024
24 V AC/DC	34.51.7.024.xx10	—	93.51.0.024
(110...125)V AC/DC	34.51.7.060.xx10	34.81.7.060.xxxx	93.51.0.125
(220...240)V AC/DC	34.51.7.060.xx10	34.81.7.060.xxxx	93.51.0.240
(110...125)V AC/DC *	34.51.7.060.xx10	34.81.7.060.xxxx	93.51.3.125
(220...240)V AC *	34.51.7.060.xx10	34.81.7.060.xxxx	93.51.3.240
(220...240)V AC	34.51.7.060.xx10	34.81.7.060.xxxx	93.51.8.240
12 V DC	34.51.7.012.xx10	34.81.7.012.xxxx	93.51.7.024
24 V DC	34.51.7.024.xx10	34.81.7.024.xxxx	93.51.7.024
60 V DC	34.51.7.060.xx10	34.81.7.060.xxxx	93.51.7.060

* Leakage current suppression

Accessories

20-way jumper link	093.20
Plastic separator	093.01
Sheet of marker tags	093.64

Technical data

Rated values	6 A – 250 V	
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP20	
Ambient temperature (U _N ≤ 60 V / > 60 V)	°C	-40...+70 / -40...+55
Wire strip length	mm	10
Max wire size	Solid wire and stranded wire	
	mm ²	1 x 2.5 / 2 x 1.5
	AWG	1 x 14 / 2 x 16



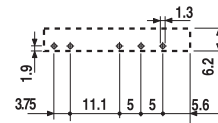
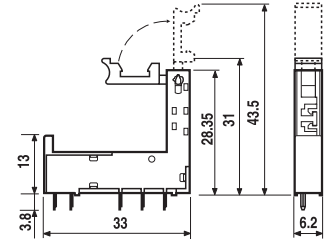
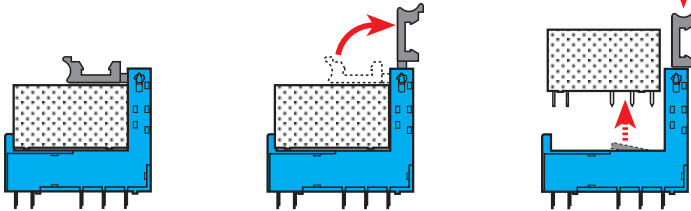
93.11

Approvals
(according to type):

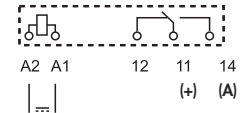


PCB socket with retaining and release clip	93.11 (blue)
For relay type	34.51, 34.81
Technical data	
Rated values	6 A - 250 V
Dielectric strength	≥ 6 kV (1.2/50 μ s) between coil and contacts
Protection category	IP 20
Ambient temperature	$^{\circ}\text{C}$ -40...+70

Retaining and release clip use:



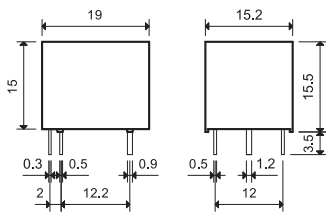
Copper side view



Features

Printed circuit mount 10 A relay

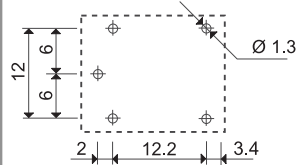
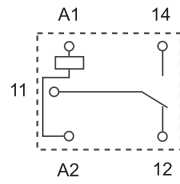
- New smaller size
- 1 Pole changeover contacts
- Miniature - "Sugar cube" package
- DC coil - 360 mW
- Wash tight: RT III
- Cadmium Free contact material
- RoHS conform



36.11-4011



- 1 CO (SPDT), 10 A
- Sugar cube size
- PCB mount

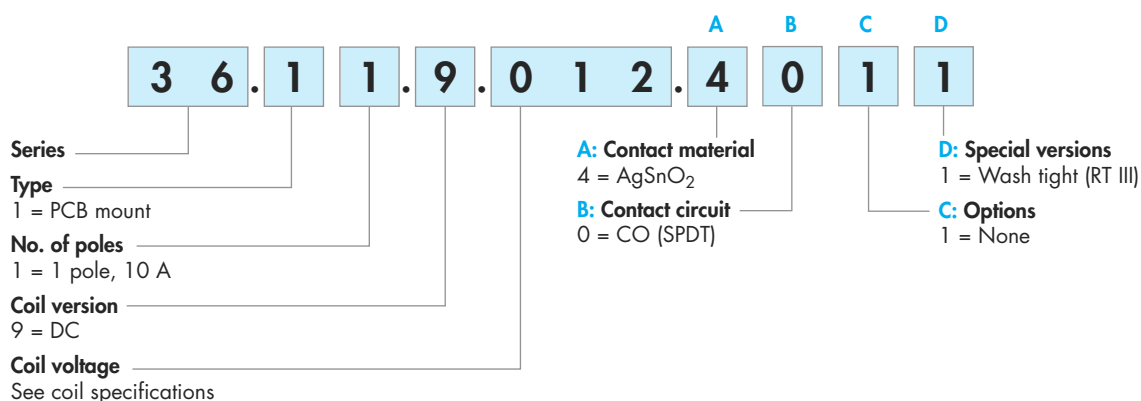


Copper side view

Contact specification		
Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	10/15
Rated voltage/Maximum switching voltage V AC		250/250
Rated load AC1	VA	2,500
Rated load AC15 (230 V AC)	VA	500
Single phase motor rating (230 V AC)	kW	0.37
Breaking capacity DC1: 30/110/220 V	A	10/0.3/0.12
Minimum switching load	mW (V/mA)	500 (5/100)
Standard contact material		AgSnO ₂
Coil specification		
Nominal voltage (U _N)	V AC (50/60 Hz)	—
	V DC	3 - 5 - 6 - 9 - 12 - 18 - 24 - 48
Rated power AC/DC	VA (50 Hz)/W	—/0.36
Operating range	AC	—
	DC	(0.75...1.3)U _N
Holding voltage	AC/DC	—/0.4 U _N
Must drop-out voltage	AC/DC	—/0.1 U _N
Technical data		
Mechanical life AC/DC	cycles	—/10 · 10 ⁶
Electrical life at rated load AC1	cycles	50 · 10 ³
Operate/release time	ms	10/5
Insulation between coil and contacts (1.2/50 μs)	kV	3
Dielectric strength between open contacts V AC		750
Ambient temperature range	°C	—40...+85
Environmental protection		RT III
Approvals (according to type)		

Ordering information

Example: 36 series miniature PCB relay, 1 CO (SPDT) - 10 A contacts, 12 V DC coil.



Selecting features and options: only combinations in the same row are possible.

Preferred selections for best availability are shown in **bold**.

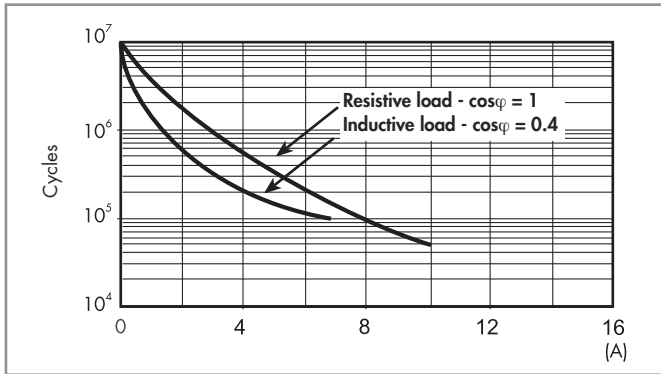
Type	Coil version	A	B	C	D
36.11	DC	4	0	1	1

Technical data

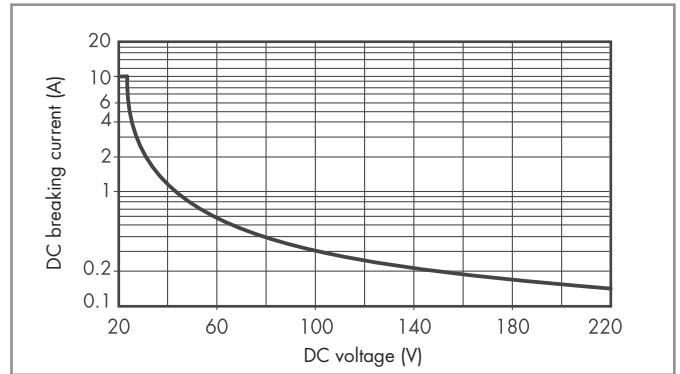
Insulation according to EN 61810-1		
Nominal voltage of supply system	V AC	230/400
Rated insulation voltage	V AC	250
Pollution degree		2
Insulation between coil and contact set		
Type of insulation		Basic
Overvoltage category		II
Rated impulse voltage	kV (1.2/50 µs)	3
Dielectric strength	V AC	2,500
Insulation between open contacts		
Type of disconnection		Micro-disconnection
Dielectric strength	V AC/kV (1.2/50 µs)	750/1.5
Other data		
Shock resistance	g	10
Bounce time: NO/NC	ms	1/6
Vibration resistance (5...55Hz): NO/NC	g	14/8
Power lost to the environment		
	without contact current	W 0.4
	with rated current	W 1.4
Recommended distance between relays mounted on PCB	mm	≥ 5

Contact specification

F 36 - Electrical life (AC) v contact current



H 36 - Maximum DC1 breaking capacity



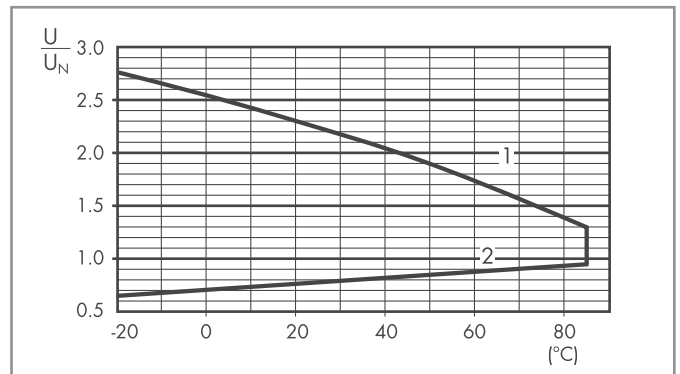
- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 50 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

DC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
3	9.003	2.2	3.9	25	120
5	9.005	3.7	6.5	70	72
6	9.006	4.5	7.8	100	60
9	9.009	6.7	11.7	225	40
12	9.012	9	15.6	400	30
18	9.018	13.5	23.4	900	20
24	9.024	18	31.2	1,600	15
48	9.048	36	62.4	6,400	7.5

R 36 - DC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

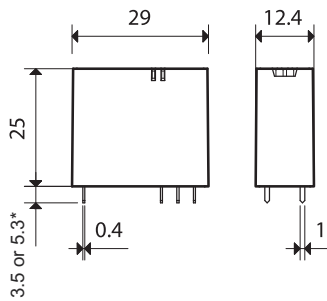
Features

1 Pole relay range

40.31 - 1 Pole 12 A (3.5 mm pin pitch)

40.61 - 1 Pole 16 A (5 mm pin pitch)

- Pin length 3.5 mm for pcb mount
- Pin length 5.3 mm as Plug-in relay
- DC standard (0.65 W) or sensitive (0.5 W) coils available
- Cadmium Free contact material available
- 6 kV (1.2/50 µs) isolation coil-contacts
- 8 mm creepage and clearance distances between coil and contacts
- Meets EN 60335-1 glow wire requirements
- Flux proof: RT II standard or wash tight RT III
- AC inductive load rating (related to AC15 utilisation category) 4 A 250 V approved according to EN 61810-1:2008 (Annex B tables B1, B2, B3)

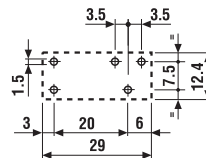
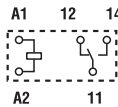


* (3.5 or 5.3) mm see ordering code

40.31



- 3.5 mm contact pin pitch
- 1 Pole 12 A

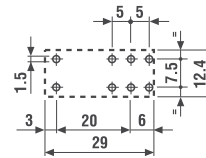
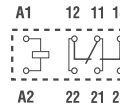


Copper side view

40.61



- 5 mm contact pin pitch
- 1 Pole 16 A



Copper side view

Contact specification			
Contact configuration		1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	12/20	16/30
Rated voltage/Maximum switching voltage V AC		250/400	250/400
Rated load AC1	VA	3,000	4,000
Rated load AC15 (230 V AC)	VA	1,000	1,000
Single phase motor rating (230 V AC)	kW	0.55	0.55
Breaking capacity DC1: 30/110/220 V	A	12/0.3/0.12	16/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	500 (10/5)
Standard contact material		AgNi	AgCdO
Coil specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	—	—
	V DC	12 - 24	12 - 24
Rated power DC/sensitive DC	W	0.65/0.5	0.65/0.5
Operating range	AC	—	—
	DC/sensitive DC	(0.73...1.5)U _N /(0.73...1.5)U _N	(0.73...1.5)U _N /(0.8...1.5)U _N
Holding voltage	DC	0.4 U _N	0.4 U _N
Must drop-out voltage	DC	0.1 U _N	0.1 U _N
Technical data			
Mechanical life AC/DC	cycles	10 · 10 ⁶	10 · 10 ⁶
Electrical life at rated load AC1	cycles	200 · 10 ³	100 · 10 ³
Operate/release time	ms	7/3 (10/3 sensitive)	7/3 (10/3 sensitive)
Insulation between coil and contacts (1.2/50 µs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts V AC		1,000	1,000
Ambient temperature range	°C	-40...+85	-40...+85
Environmental protection		RT II	RT II
Approvals (according to type)			RINA

Ordering information

Example: 40 series PCB relay, 1 CO (SPDT) - 12 A, 24 V DC coil.

4	0	.	3	.	1	.	7	.	0	2	4	.	A	1	B	0	C	2	D	0						
Series			Type			No. of poles			Coil version			Coil voltage			A: Contact material			B: Contact circuit			C: Options			D: Special versions		
40 = 40 Series			3 = PCB - 3.5 mm pinning 6 = PCB - 5 mm pinning			1 = 1 pole for: 40.31, 12 A 40.61, 16 A			7 = Sensitive DC 9 = Standard DC			012 = 12 V DC 024 = 24 V DC			0 = AgNi (40.31 Plug-in relays) 0 = AgCdO (40.61 Plug-in relays) 1 = AgNi (PCB relays) 2 = AgCdO (40.61 PCB relays)			0 = CO (SPDT) 3 = NO (SPST)			0 = Pins length 5.3 mm (Plug-in relays) 2 = Pins length 3.5 mm (PCB relays)			0 = Standard flux proof (RT II) 1 = Wash tight (RT III)		

Selecting features and options: only combinations in the same row are possible. Preferred selections for best availability are shown in **bold**.

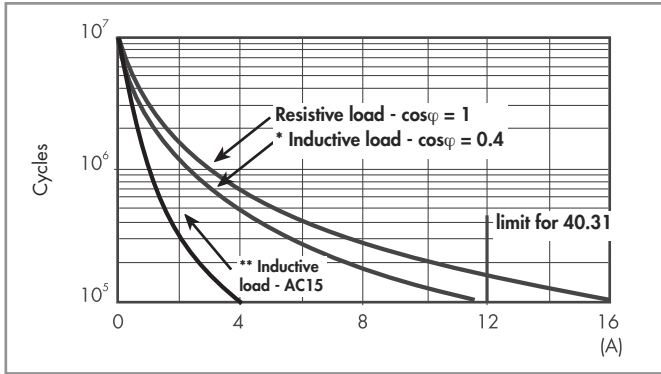
Terminal pin	Type	Coil version	A	B	C	D
PCB-relay, pin length 3.5 mm	40.31	DC/DC sensitive	1	0 - 3	2	0 - 1
PCB-relay, pin length 3.5 mm	40.61	DC/DC sensitive	1 - 2	0 - 3	2	0 - 1
Plug in relay, pin length 5.3 mm	40.31	DC/DC sensitive	0	0 - 3	0	0 - 1
Plug in relay, pin length 5.3 mm	40.61	DC/DC sensitive	0	0 - 3	0	0 - 1

Technical data

Insulation according to EN 61810-1			
Nominal voltage of supply system	V AC	230/400	
Rated insulation voltage	V AC	250	400
Pollution degree		3	2
Insulation between coil and contact set			
Type of insulation	Reinforced (8 mm)		
Overtoltage category	III		
Rated impulse voltage	kV (1.2/50 µs)	6	
Dielectric strength	V AC	4,000	
Insulation between open contacts			
Type of disconnection	Micro-disconnection		
Dielectric strength	V AC/kV (1.2/50 µs)	1,000/1.5	
Conducted disturbance immunity			
Burst (5...50)ns, 5 kHz, on A1 - A2	EN 61000-4-4		level 4 (4 kV)
Surge (1.2/50 µs) on A1 - A2 (differential mode)	EN 61000-4-5		level 3 (2 kV)
Other data			
Bounce time: NO/NC	ms	2/5	
Vibration resistance (10...200)Hz: NO/NC	g	20/5	
Shock resistance NO/NC	g	20/5	
Power lost to the environment	without contact current	W	0.5
	with rated current	W	1.2 (40.31) 1.8 (40.61)
Recommended distance between relays mounted on PCB	mm	≥ 5	

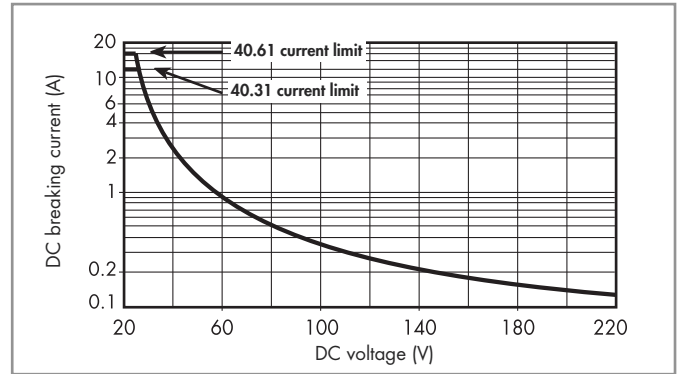
Contact specification

F 40 - Electrical life (AC) v contact current
Types 40.31/61



* Inductive load - $\cos\phi = 0.4$: inrush current = rated current
 ** Inductive load - AC15: inrush current = 10 x rated current

H 40 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
 Note: the release time for the load will be increased.

Coil specifications

DC coil data - 0.5 W sensitive (type 40.31)

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
12	7.012	8.8	18	288	42
24	7.024	17.5	36	1,150	21

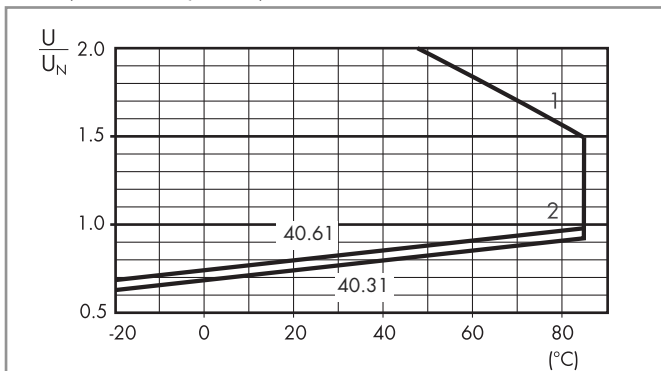
DC coil data - 0.5 W sensitive (type 40.61)

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
12	7.012	9.6	18	288	42
24	7.024	19.2	36	1,150	21

DC coil data - 0.65 W standard (types 40.31/61)

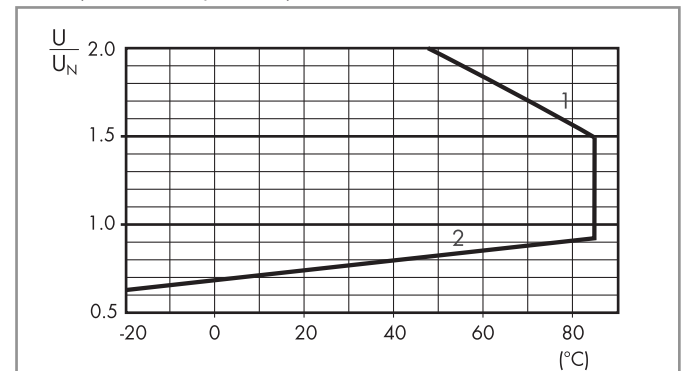
Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
12	9.012	8.8	18	220	55
24	9.024	17.5	36	900	27

R 40 - DC coil operating range v ambient temperature (sensitive coil, 0.5 W)



- 1 - Max. permitted coil voltage.
 2 - Min. pick-up voltage with coil at ambient temperature.

R 40 - DC coil operating range v ambient temperature (standard coil, 0.65 W)



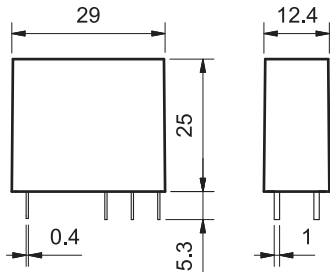
- 1 - Max. permitted coil voltage.
 2 - Min. pick-up voltage with coil at ambient temperature.

Features

- 1 & 2 Pole relay range**
 40.31 - 1 Pole 10 A (3.5 mm pin pitch)
 40.51 - 1 Pole 10 A (5 mm pin pitch)
 40.52 - 2 Pole 8 A (5 mm pin pitch)

- PCB mount**
 - direct or via PCB socket
35 mm rail mount
 - via screw and screwless sockets

- DC coils (standard or sensitive) & AC coils
- Cadmium Free contact material
- 8 mm, 6 kV (1.2/50 μs) isolation, coil-contacts
- UL Listing (certain relay/socket combinations)
- Flux proof: RT II standard, (RT III option)
- 95 series sockets
- Coil EMC suppression
- Timer accessories 86 series



FOR UL RATINGS SEE:
 "General technical information" page V

Contact specification

Contact configuration	1 CO (SPDT)	1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current A	10/20	10/20	8/15
Rated voltage/Maximum switching voltage V AC	250/400	250/400	250/400
Rated load AC1 VA	2,500	2,500	2,000
Rated load AC15 (230 V AC) VA	500	500	400
Single phase motor rating (230 V AC) kW	0.37	0.37	0.3
Breaking capacity DC1: 30/110/220 V A	10/0.3/0.12	10/0.3/0.12	8/0.3/0.12
Minimum switching load mW (V/mA)	300 (5/5)	300 (5/5)	300 (5/5)
Standard contact material	AgNi	AgNi	AgNi

Coil specification

Nominal voltage (U _N) V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240		
V DC	5 - 6 - 7 - 9 - 12 - 14 - 18 - 21 - 24 - 28 - 36 - 48 - 60 - 90 - 110 - 125		
Rated power AC/DC/sens. DC VA (50 Hz)/W/W	1.2/0.65/0.5	1.2/0.65/0.5	1.2/0.65/0.5
Operating range AC	(0.8...1.1)U _N	(0.8...1.1)U _N	(0.8...1.1)U _N
DC/sens. DC	(0.73...1.5)U _N /(0.73...1.75)U _N	(0.73...1.5)U _N /(0.73...1.75)U _N	(0.73...1.5)U _N /(0.73...1.75)U _N
Holding voltage AC/DC	0.8 U _N /0.4 U _N	0.8 U _N /0.4 U _N	0.8 U _N /0.4 U _N
Must drop-out voltage AC/DC	0.2 U _N /0.1 U _N	0.2 U _N /0.1 U _N	0.2 U _N /0.1 U _N

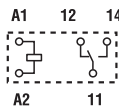
Technical data

Mechanical life AC/DC cycles	10 · 10 ⁶ /20 · 10 ⁶	10 · 10 ⁶ /20 · 10 ⁶	10 · 10 ⁶ /20 · 10 ⁶
Electrical life at rated load AC1 cycles	200 · 10 ³	200 · 10 ³	100 · 10 ³
Operate/release time ms	7/3 - (12/4 sensitive)	7/3 - (12/4 sensitive)	7/3 - (12/4 sensitive)
Insulation between coil and contacts (1.2/50 μs) kV	6 (8 mm)	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts V AC	1,000	1,000	1,000
Ambient temperature range °C	-40...+85	-40...+85	-40...+85
Environmental protection	RT II**	RT II**	RT II**

Approvals (according to type)



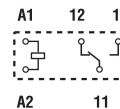
- 3.5 mm contact pin pitch
- 1 Pole 10 A
- PCB or 95 series sockets



Copper side view



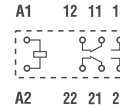
- 5 mm contact pin pitch
- 1 Pole 10 A
- PCB or 95 series sockets



Copper side view



- 5 mm contact pin pitch
- 2 Pole 8 A
- PCB or 95 series sockets



Copper side view



** See general technical information "Guidelines for automatic flow solder processes" page II .

Features

40.61 - 1 Pole 16 A (5 mm pin pitch)
40.xx.6 - Bistable versions of the 40.31, 40.51, 40.52 & 40.61 relays

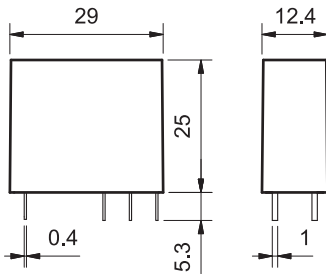
PCB mount

- direct or via PCB socket

35 mm rail mount

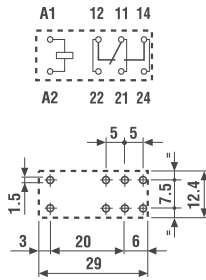
- via screw and screwless sockets

- DC coils & AC coils
- Cadmium Free option available
- 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts
- UL Listing (certain 40.61 relay/socket combinations)
- Flux proof: RT II standard, (RT III option)
- 95 series sockets
- Coil EMC suppression
- Timer accessories 86 series



- 5 mm contact pin pitch
- 1 Pole 16 A
- PCB or 95 series sockets

- Bistable (single coil) versions of 40.31/51/52/61
- PCB or 95 series sockets



Copper side view

Bistable version (1 coil) types:

- 40.31.6...
- 40.51.6...
- 40.52.6...
- 40.61.6...

For wiring diagrams see page 8

FOR UL RATINGS SEE:
 "General technical information" page V

Contact specification			
Contact configuration		1 CO (SPDT)	
Rated current/Maximum peak current	A	16/30*	
Rated voltage/Maximum switching voltage V AC		250/400	See relays
Rated load AC1	VA	4,000	40.31
Rated load AC15 (230 V AC)	VA	750	40.51
Single phase motor rating (230 V AC)	kW	0.55	40.52
Breaking capacity DC1: 30/110/220 V	A	16/0.3/0.12	40.61
Minimum switching load	mW (V/mA)	500 (10/5)	
Standard contact material		AgCdO	
Coil specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	6-12-24-48-60-110-120-230-240	5 - 6 - 12 - 24 - 48 - 110
	V DC	***See table	5 - 6 - 12 - 24 - 48 - 110
Rated power AC/DC/sens. DC	VA (50 Hz)/W/W	1.2/0.65/0.5	1.0/1.0/-
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC/sens. DC	(0.73...1.5)U _N /(0.8...1.5)U _N	(0.8...1.1)U _N /-
Holding voltage	AC/DC	0.8 U _N /0.4 U _N	-
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N	-
Technical data			
Mechanical life AC/DC	cycles	10 · 10 ⁶ /20 · 10 ⁶	See relays
Electrical life at rated load AC1	cycles	100 · 10 ³	40.31
Operate/release time	ms	7/3 - (12/4 sensitive)	40.51
Insulation between coil and contacts (1.2/50 µs)	kV	6 (8 mm)	40.52
Dielectric strength between open contacts V AC		1,000	40.61
Ambient temperature range	°C	-40...+85	Min. impulse duration
Environmental protection		RT II**	≥ 20 ms

* With the AgSnO₂ material the maximum peak current is 120 A - 5 ms on normally open contact.

*** Nominal voltage (U_N):
 5 - 6 - 7 - 9 - 12 - 14 - 18 - 21 - 24 - 28 - 36 - 48 - 60 - 90 - 110 - 125 V DC

Approvals (according to type)



Features

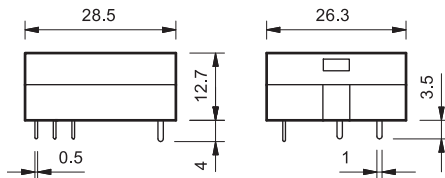
1 Pole relay range

- 40.11 - 1 Pole 10 A (Flat pack)
- 40.11-2016 - 1 Pole 16 A (Flat pack)
- 40.41 - 1 Pole 10 A (Vertical)

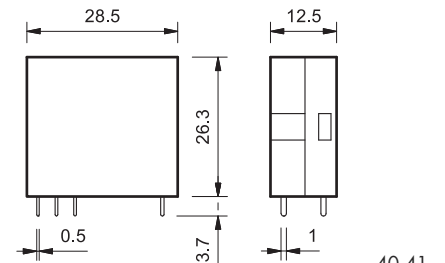
PCB mount

- direct or via PCB socket (40.41 version)

- DC coils
- Cadmium Free option available
- 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts
- 40.41 - NO version available



40.11



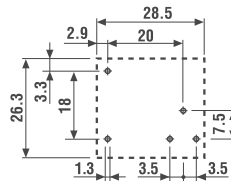
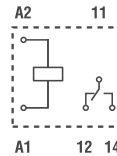
40.41

FOR UL RATINGS SEE:
"General technical information" page V

40.11



- 1 Pole 10 A
- Flat pack
- PCB mount

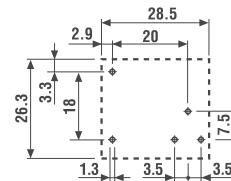
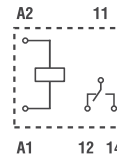


Copper side view

40.11-2016



- 1 Pole 16 A
- Flat pack
- PCB mount

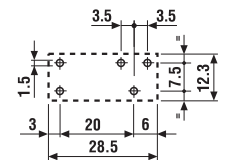
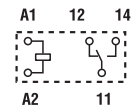


Copper side view

40.41



- 1 Pole 10 A
- Vertical
- PCB or 95 series socket



Copper side view

Contact specification				
Contact configuration		1 CO (SPDT)	1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	10/20	16/30	10/20
Rated voltage/Maximum switching voltage V AC		250/400	250/400	250/400
Rated load AC1	VA	2,500	4,000	2,500
Rated load AC15 (230 V AC)	VA	500	750	500
Single phase motor rating (230 V AC)	kW	0.37	0.55	0.37
Breaking capacity DC1: 30/110/220 V	A	10/0.3/0.12	16/0.3/0.12	10/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	500 (10/5)	300 (5/5)
Standard contact material		AgCdO	AgCdO	AgCdO
Coil specification				
Nominal voltage (U _N)	V AC (50/60 Hz)	—	—	—
	V DC	6 - 12 - 24 - 48 - 60	6 - 12 - 24 - 48	6 - 12 - 24 - 48 - 60
Rated power AC/DC/sens. DC	VA (50 Hz)/W/W	—/—/0.5	—/—/0.5	—/—/0.5
Operating range	AC	—	—	—
	DC/sens. DC	—/(0.73...1.75)U _N	—/(0.73...1.5)U _N	—/(0.73...1.75)U _N
Holding voltage	AC/DC	—/0.4 U _N	—/0.4 U _N	—/0.4 U _N
Must drop-out voltage	AC/DC	—/0.1 U _N	—/0.1 U _N	—/0.1 U _N
Technical data				
Mechanical life AC/DC	cycles	—/20 · 10 ⁶	—/20 · 10 ⁶	—/20 · 10 ⁶
Electrical life at rated load AC1	cycles	200 · 10 ³	50 · 10 ³	200 · 10 ³
Operate/release time	ms	12/4	12/4	12/4
Insulation between coil and contacts (1.2/50 µs)	kV	6 (8 mm)	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts V AC		1,000	1,000	1,000
Ambient temperature range	°C	−40...+70	−40...+70	−40...+70
Environmental protection		RT I	RT I	RT I

Approvals (according to type)



Ordering information

Example: 40 series PCB relay, 2 CO (DPDT), 230 V AC coil.

	4 0	. 5	2	. 8	. 2 3 0	. 0	A	B	C	D	0 0 0 0	
<p>Series _____</p> <p>Type _____</p> <p>1 = PCB - 3.5 mm pinning, flat</p> <p>3 = PCB - 3.5 mm pinning</p> <p>4 = PCB - 3.5 mm pinning</p> <p>5 = PCB - 5 mm pinning</p> <p>6 = PCB - 5 mm pinning</p> <p>No. of poles _____</p> <p>1 = 1 pole for: 40.11, 10 A/16 A</p> <p style="padding-left: 20px;">40.31, 10 A</p> <p style="padding-left: 20px;">40.41, 10 A</p> <p style="padding-left: 20px;">40.51, 10 A</p> <p style="padding-left: 20px;">40.61, 16 A</p> <p>2 = 2 pole for: 40.52, 8 A</p> <p>Coil version _____</p> <p>6 = AC/DC bistable</p> <p>7 = Sensitive DC</p> <p>8 = AC (50/60 Hz)</p> <p>9 = DC</p> <p>Coil voltage _____</p> <p>See coil specifications</p>						<p>A: Contact material</p> <p>0 = Standard AgNi for 40.31/51/52, AgCdO for 40.61</p> <p>2 = AgCdO (standard for 40.11/41)</p> <p>4 = AgSnO₂</p> <p>5 = AgNi + Au (5 µm)</p> <p>B: Contact circuit</p> <p>0 = CO (nPDT)</p> <p>3 = NO (nPST)</p>						<p>D: Special versions</p> <p>0 = Standard</p> <p>1 = Wash tight (RT III)</p> <p>3 = High temperature (+ 125 °C) wash tight</p> <p>C: Options</p> <p>0 = None</p> <p>16 = With rated current 16 A (for 40.11)</p>

Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold**.

Type	Coil version	A	B	C	D
40.11	sensitive DC	2 - 4	0	0	0
40.11	sensitive DC	2 - 4	0	16	/
40.41	sensitive DC	0 - 2	0 - 3	0	0
40.31*/51	AC-sens. DC	0 - 2 - 5	0 - 3	0	0 - 1
40.31/51	DC	0 - 2 - 5	0 - 3	0	0 - 1 - 3
40.52	AC-sens. DC	0 - 2 - 5	0 - 3	0	0 - 1
40.52	DC	0 - 2 - 5	0 - 3	0	0 - 1 - 3
40.61*	AC-sens. DC	0 - 4	0 - 3	0	0 - 1
40.61	DC	0 - 4	0 - 3	0	0 - 1 - 3
40.31/51/ 52/61	bistable	0	0	0	0

* As the result of a new production line and increased production capacity, the design/specification of the sensitive DC version will be changed to align with current PCB relay versions 40.31.7.0xx.xx20 and 40.61.7.0xx.xx20. This changeover will occur during the first quarter in 2013 for the types mentioned below.
For full technical data refer to data sheet: PCB/Plug-in relays 12 - 16 A.

<p>40.31 Obsolete 1 pole 10 A</p>	<p>40.31 New 1 pole 12 A</p>	<p>40.61 Obsolete 1 pole 16 A</p>	<p>40.61 New 1 pole 16 A</p>
<p>3.5 mm pin pitch For socket** or pcb mount pin length 5.3 mm</p>		<p>5 mm pin pitch For socket or pcb mount pin length 5.3 mm</p>	
<p>Code</p> <p>40.31.7.012.0000</p> <p>40.31.7.012.0001</p> <p>40.31.7.012.0300</p> <p>40.31.7.012.0301</p> <p>40.31.7.024.0000</p> <p>40.31.7.024.0001</p> <p>40.31.7.024.0300</p> <p>40.31.7.024.0301</p>		<p>Code</p> <p>40.61.7.012.0000</p> <p>40.61.7.012.0001</p> <p>40.61.7.012.0300</p> <p>40.61.7.012.0301</p> <p>40.61.7.024.0000</p> <p>40.61.7.024.0001</p> <p>40.61.7.024.0300</p> <p>40.61.7.024.0301</p>	

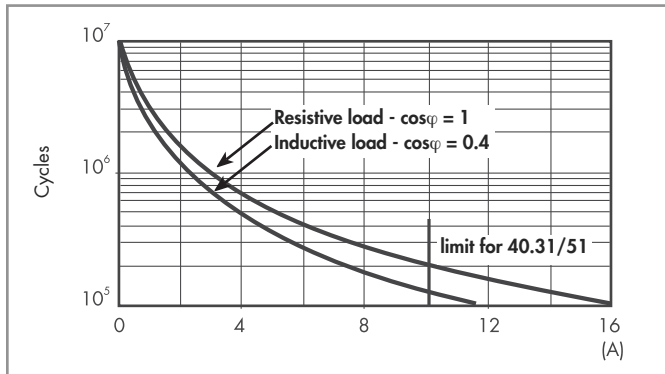
** For 40.31 relays mounted on sockets, the maximum rated current must be limited to 10 A.

Technical data

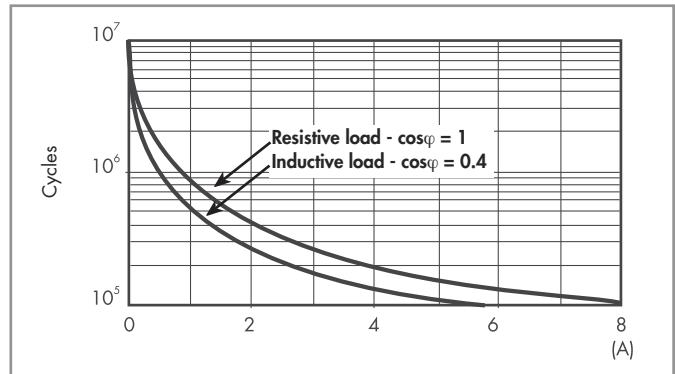
Insulation according to EN 61810-1				
		1 pole		2 pole
Nominal voltage of supply system	V AC	230/400		230/400
Rated insulation voltage	V AC	250	400	250 400
Pollution degree		3	2	3 2
Insulation between coil and contact set				
Type of insulation		Reinforced (8 mm)		Reinforced (8 mm)
Overvoltage category		III		III
Rated impulse voltage	kV (1.2/50 µs)	6		6
Dielectric strength	V AC	4,000		4,000
Insulation between adjacent contacts				
Type of insulation		—		Basic
Overvoltage category		—		II
Rated impulse voltage	kV (1.2/50 µs)	—		2.5
Dielectric strength	V AC	—		2,000
Insulation between open contacts				
Type of disconnection		Micro-disconnection		Micro-disconnection
Dielectric strength	V AC/kV (1.2/50 µs)	1,000/1.5		1,000/1.5
Conducted disturbance immunity				
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4		level 4 (4 kV)
Surge (1.2/50 µs) on A1 - A2 (differential mode)		EN 61000-4-5		level 3 (2 kV)
Other data				
Bounce time: NO/NC	ms	2/5		
Vibration resistance (5...55)Hz: NO/NC	g	10/4 (1 changeover)	15/3 (2 changeover)	
Shock resistance	g	13		
Power lost to the environment	without contact current	W	0.6	
	with rated current	W	1.2 (40.11/31/41/51)	2 (40.61/52/40.11-2016)
Recommended distance between relays mounted on PCB	mm	≥ 5		

Contact specification

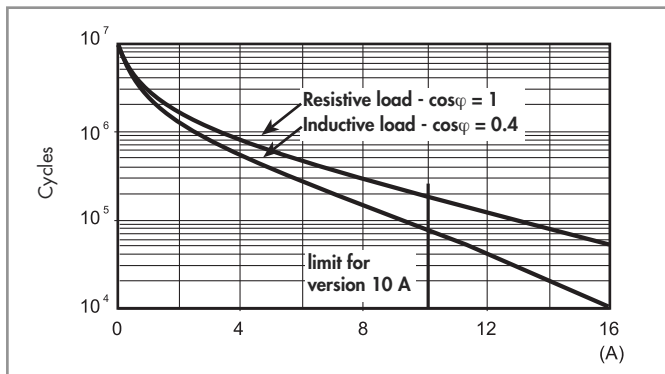
F 40 - Electrical life (AC) v contact current
Types 40.31/51/61



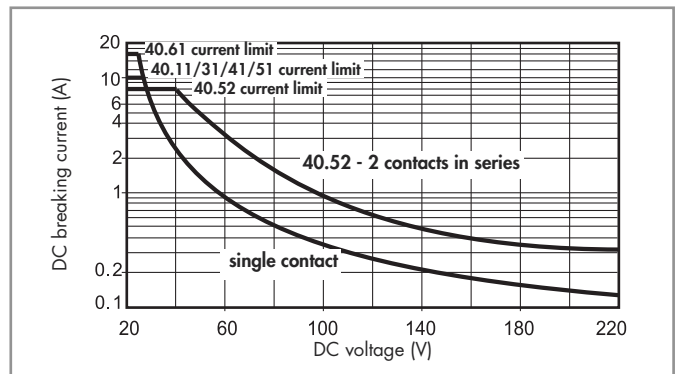
F 40 - Electrical life (AC) v contact current
Type 40.52



F 40 - Electrical life (AC) v contact current
Types 40.11/41



H 40 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

DC coil data - 0.65 W standard (types 40.31/51/52/61)

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
5	9.005	3.65	7.5	38	130
6	9.006	4.4	9	55	109
7	9.007	5.1	10.5	75	94
9	9.009	6.6	13.5	125	72
12	9.012	8.8	18	220	55
14	9.014	10.2	21	300	47
18	9.018	13.1	27	500	36
21	9.021	15.3	31.5	700	30
24	9.024	17.5	36	900	27
28	9.028	20.5	42	1,200	23
36	9.036	26.3	54	2,000	18
48	9.048	35	72	3,500	14
60	9.060	43.8	90	5,500	11
90	9.090	65.7	135	12,500	7.2
110	9.110	80.3	165	18,000	6.2
125	9.125	91.2	188	23,500	5.3

DC coil data - 0.5 W sensitive (types 40.31/51/52/61)

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min}^* V	U_{max}^{**} V		
5	7.005	3.7	8.8	50	100
6	7.006	4.4	10.5	75	80
7	7.007	5.1	12.2	100	70
9	7.009	6.6	15.8	160	56
12	7.012	8.8	21	288	42
14	7.014	10.2	24.5	400	35
18	7.018	13.2	31.5	650	27.7
21	7.021	15.4	36.9	900	23.4
24	7.024	17.5	42	1,150	21
28	7.028	20.5	49	1,600	17.5
36	7.036	26.3	63	2,600	13.8
48	7.048	35	84	4,800	10
60	7.060	43.8	105	7,200	8.4
90	7.090	65.7	157	16,200	5.6
110	7.110	80.3	192	23,500	4.7
125	7.125	91.2	219	32,000	3.9

* $U_{min} = 0.8 U_N$ for 40.61

** $U_{max} = 1.5 U_N$ for 40.61

DC coil data - 0.5 W sensitive (types 40.11/41)

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max}^* V		
6	7.006	4.4	10.5	75	80
12	7.012	8.8	21	300	40
24	7.024	17.5	42	1,200	20
48	7.048	35	84	4,600	10.4
60	7.060	43.8	105	7,200	8.3

* $U_{max} = 1.5 U_N$ for 40.11-2016

AC coil data (types 40.31/51/52/61)

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N (50Hz) mA
		U_{min} V	U_{max} V		
6	8.006	4.8	6.6	21	168
12	8.012	9.6	13.2	80	90
24	8.024	19.2	26.4	320	45
48	8.048	38.4	52.8	1,350	21
60	8.060	48	66	2,100	16.8
110	8.110	88	121	6,900	9.4
120	8.120	96	132	9,000	8.4
230	8.230	184	253	28,000	5
240	8.240	192	264	31,500	4.1

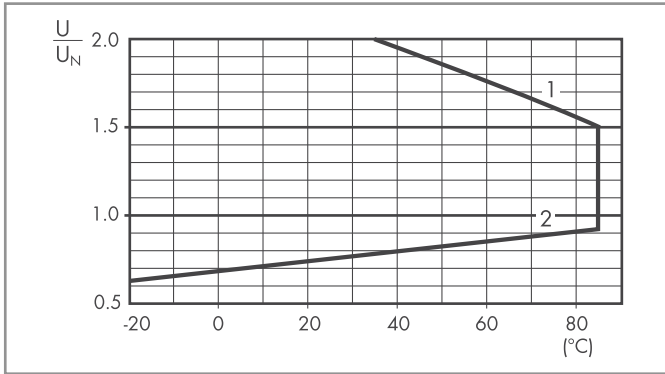
AC/DC coil data - bistable (types 40.31/51/52/61)

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA	DC: Release resistance** R_{DC} Ω
		U_{min} V	U_{max} V			
5	6.005	4	5.5	23	215	37
6	6.006	4.8	6.6	33	165	62
12	6.012	9.6	13.2	130	83	220
24	6.024	19.2	26.4	520	40	910
48	6.048	38.4	52.8	2,100	21	3,600
110	6.110	88	121	11,000	10	16,500

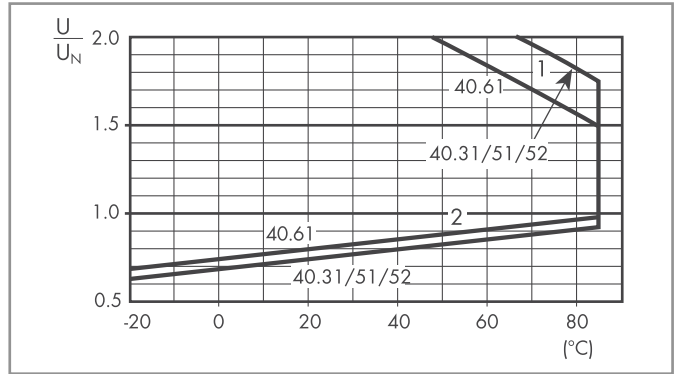
** R_{DC} = Resistance in DC, $R_{AC} = 1.3 \times R_{DC}$ 1W

Coil specifications

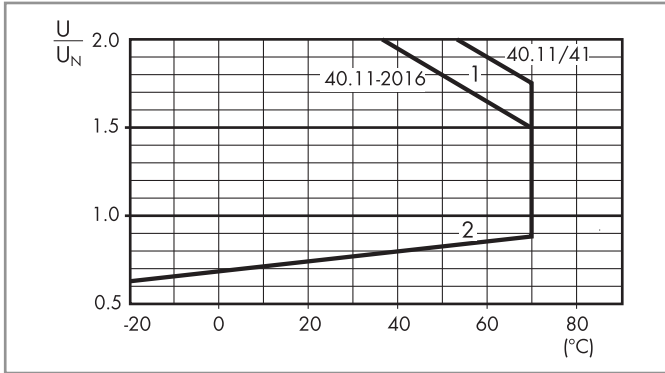
R 40 - DC coil operating range v ambient temperature
Standard coil



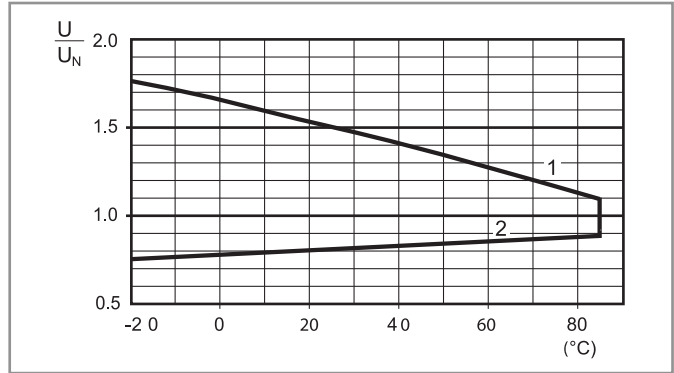
R 40 - DC coil operating range v ambient temperature
Sensitive coil, types 40.31/51/52/61



R 40 - DC coil operating range v ambient temperature
Sensitive coil, types 40.11/41



R 40 - AC coil operating range v ambient temperature

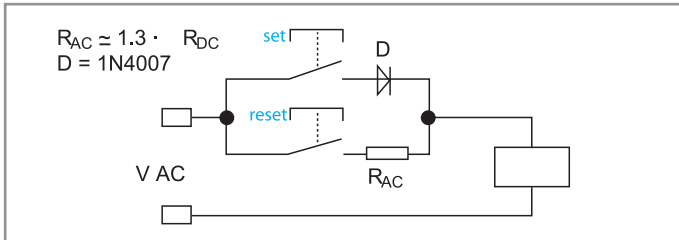


1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

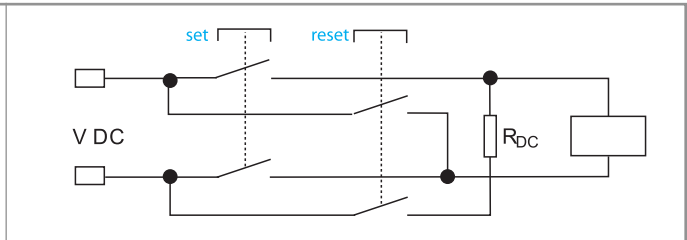
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Wiring diagram for 40 series bistable coil version

AC Operation



DC Operation



On momentary closure of the SET switch the relay is magnetised through the diode and the relay contacts transfer to the set position and remain in this position.

On momentary closure of the RESET switch the relay is demagnetised through limiting resistor (R_{AC}) and the contacts return to the reset position.

On momentary closure of the SET switch the relay is magnetised and the relay contacts transfer to the set position and remain in this position.


On momentary closure of the RESET switch the relay is demagnetised through limiting resistor (R_{DC}) and the contacts return to the reset position.

Notes: The minimum SET or RESET impulse time is 20 ms. The maximum time can be continuous. In practice, always ensure that the SET and RESET contacts cannot be operated simultaneously.



95.05
See page 10




Module	Socket	Relay	Description	Mounting	Accessories
99.02 	95.03	40.31	Screw terminal (Box clamp) socket - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Timer modules - Plastic retaining and release clip
		40.51			
		40.52			
		40.61			



95.85.3
See page 11




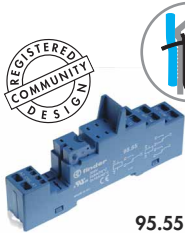
Module	Socket	Relay	Description	Mounting	Accessories
99.80 	95.83.3	40.31	Screw terminal (Box clamp) socket 95.83.3 wiring: - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Plastic retaining and release clip
		40.51			
		40.52			
		40.61			



95.95.3
See page 12




Module	Socket	Relay	Description	Mounting	Accessories
99.80 	95.93.3	40.31	Screw terminal (Box clamp) socket - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Plastic retaining and release clip
		40.51			
		40.52			
		40.61			



95.55
See page 13




Module	Socket	Relay	Description	Mounting	Accessories
99.02 	95.55	40.51	Screwless terminal socket - For fast cable connections - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Timer modules - Plastic retaining and release clip
		40.52			
		40.61			



95.55.3
See page 14




Module	Socket	Relay	Description	Mounting	Accessories
99.80 	95.55.3	40.51	Screwless terminal socket For fast cable connections - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Plastic retaining and release clip
		40.52			
		40.61			



95.63
See page 15



Module	Socket	Relay	Description	Mounting	Accessories
99.01 	95.63	40.31	Screw terminal (Box clamp) socket - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Metal retaining clip
—		40.51			
		40.61			



95.65
See page 15

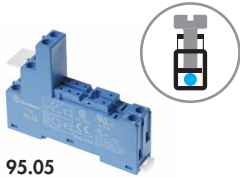


Module	Socket	Relay	Description	Mounting	Accessories
—	95.65	40.51	Screw terminal (Box clamp) socket	Panel or 35 mm rail (EN 60715) mount	- Metal retaining clip
—		40.52			
		40.61			



95.13.2
See page 16

Module	Socket	Relay	Description	Mounting	Accessories
—	95.13.2	40.31	PCB socket	PCB mounting	- Metal retaining clip - Plastic retaining clip
—		40.41			
—	95.15.2	40.51			
		40.52			
		40.61			



95.05

Approvals (according to type):



cULus Certain relay/socket combinations

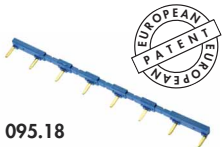
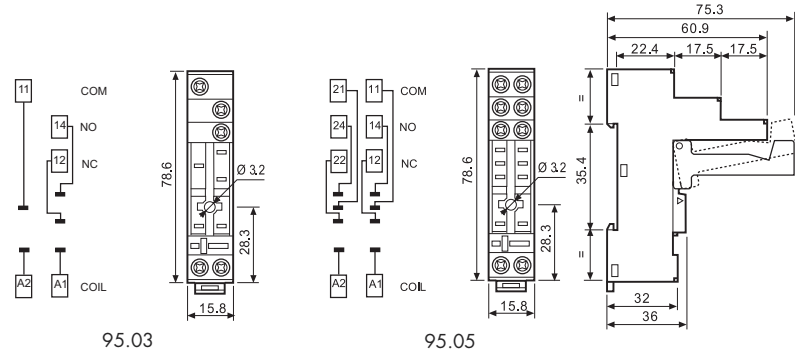
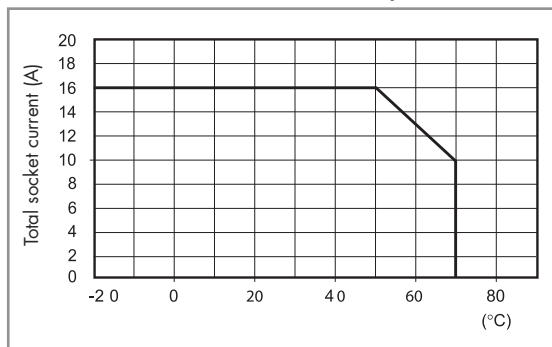


95.01



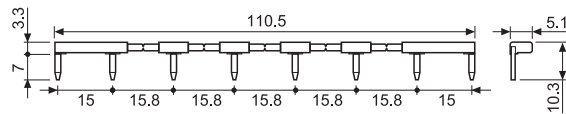
060.72

L 95 - Total socket current vs ambient temperature (95.05)



95.18

8-way jumper link for 95.03 and 95.05 sockets	95.18 (blue)	95.18.0 (black)
Rated values	10 A - 250 V	



86.30

86 series timer modules		
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s...100h)	86.30.0.024.0000	
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000	
(230...240)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.240.0000	

Approvals (according to type):



99.02

Approvals (according to type):



DC Modules with non-standard polarity (+A2) on request.

99.02 coil indication and EMC suppression modules for 95.03 and 95.05 sockets		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07



95.85.3

Approvals
(according to type):



095.91.3



060.72

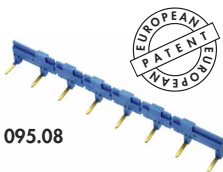
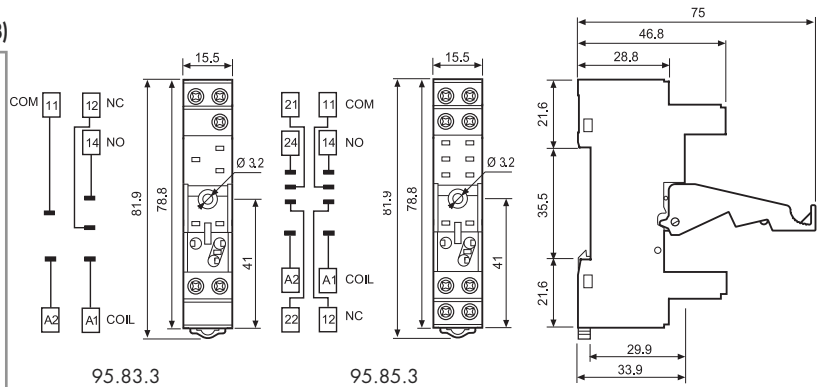
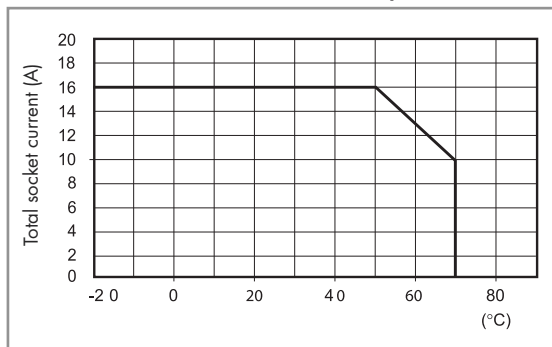
Screw terminal (Box clamp) socket panel or 35 mm rail mount	95.83.3 (blue)	95.83.30 (black)	95.85.3 (blue)	95.85.30 (black)
For relay type	40.31		40.51, 40.52, 40.61	

Accessories				
Metal retaining clip	095.71			
Plastic retaining and release clip (supplied with socket - packaging code SPA)	095.91.3	095.91.30	095.91.3	095.91.30
8-way jumper link	095.08	095.08.0	095.08	095.08.0
Identification tag	095.80.3			
Modules (see table below)	99.80			
Sheet of marker tags for retaining and release clip 095.91.3 plastic, 72 tags, 6x12 mm	060.72			

Technical data			
Rated values	10 A - 250 V *		
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts (95.83.3 only)		
Protection category	IP 20		
Ambient temperature	°C -40...+70 (see diagram L95)		
⊕ Screw torque	Nm 0.5		
Wire strip length	mm 7		
Max. wire size for 95.83.3 and 95.85.3 sockets		solid wire	stranded wire
	m ²	1x6 / 2x2.5	1x4 / 2x2.5
	AWG	1x10 / 2x14	1x12 / 2x14

* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).
With the relay 40.51 the change-over contact will be 21-12-14.

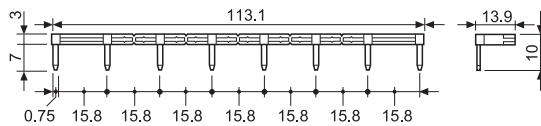
L 95 - Total socket current vs ambient temperature (95.85.3)



095.08



8-way jumper link for 95.83.3 and 95.85.3 sockets	095.08 (blue)	095.08.0 (black)
Rated values	10 A - 250 V	



99.80

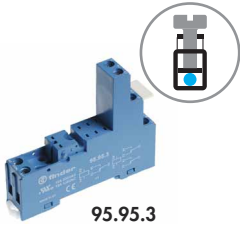
Approvals
(according to type):



99.80 coil indication and EMC suppression modules for 95.83.3 and 95.85.3 sockets		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.80.3.000.00
LED	(6...24)V DC/AC	99.80.0.024.59
LED	(28...60)V DC/AC	99.80.0.060.59
LED	(110...240)V DC/AC	99.80.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.80.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.80.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.80.9.220.99
LED + Varistor	(6...24)V DC/AC	99.80.0.024.98
LED + Varistor	(28...60)V DC/AC	99.80.0.060.98
LED + Varistor	(110...240)V DC/AC	99.80.0.230.98
RC circuit	(6...24)V DC/AC	99.80.0.024.09
RC circuit	(28...60)V DC/AC	99.80.0.060.09
RC circuit	(110...240)V DC/AC	99.80.0.230.09
Residual current by-pass	(110...240)V AC	99.80.8.230.07

* Modules in Black housing are available on request.

Green LED is standard.
Red LED available on request.



95.95.3

Approvals (according to type):



95.91.3

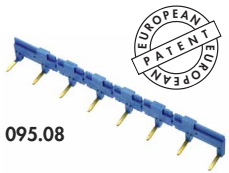
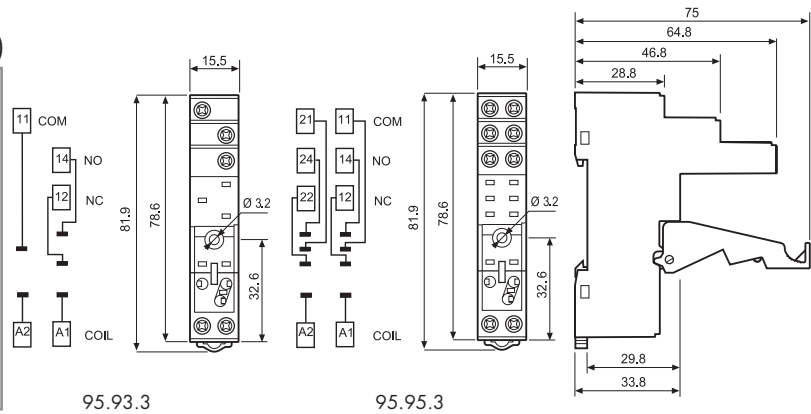
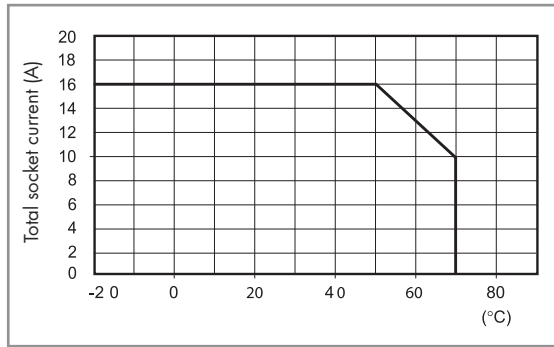


060.72

Screw (Box clamp) terminal socket panel or 35 mm rail mount	95.93.3 (blue)	95.93.30 (black)	95.95.3 (blue)	95.95.30 (black)
For relay type	40.31		40.51, 40.52, 40.61	
Accessories				
Metal retaining clip	095.71			
Plastic retaining and release clip	095.91.3	095.91.30	095.91.3	095.91.30
8-way jumper link	095.08	095.08.0	095.08	095.08.0
Identification tag	095.80.3			
Modules (see table below)	99.80			
Sheet of marker tags for retaining and release clip 095.91.3 plastic, 72 tags, 6x12 mm	060.72			
Technical data				
Rated values	10 A - 250 V *			
Dielectric strength	6 kV (1.2/50 µs) between coil and contacts			
Protection category	IP 20			
Ambient temperature	°C -40...+70 (see diagram L95)			
⊕ Screw torque	Nm	0.5		
Wire strip length	mm	8		
Max. wire size for 95.93.3 and 95.95.3 sockets		solid wire	stranded wire	
	m ²	1x6 / 2x2.5	1x4 / 2x2.5	
	AWG	1x10 / 2x14	1x12 / 2x14	

* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).
With the relay 40.51 the change-over contact will be 21-12-14.

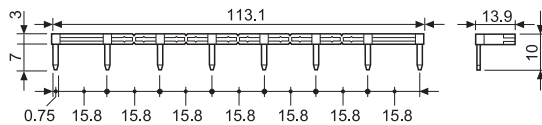
L 95 - Total socket current vs ambient temperature (95.95.3)



95.08



8-way jumper link for 95.93.3 and 95.95.3 sockets	095.08 (blue)	095.08.0 (black)
Rated values	10 A - 250 V	



99.80

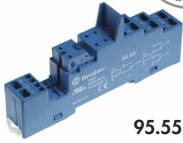
Approvals (according to type):



* Modules in Black housing are available on request.

Green LED is standard.
Red LED available on request.

99.80 coil indication and EMC suppression modules for 95.93.3 and 95.95.3 sockets		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.80.3.000.00
LED	(6...24)V DC/AC	99.80.0.024.59
LED	(28...60)V DC/AC	99.80.0.060.59
LED	(110...240)V DC/AC	99.80.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.80.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.80.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.80.9.220.99
LED + Varistor	(6...24)V DC/AC	99.80.0.024.98
LED + Varistor	(28...60)V DC/AC	99.80.0.060.98
LED + Varistor	(110...240)V DC/AC	99.80.0.230.98
RC circuit	(6...24)V DC/AC	99.80.0.024.09
RC circuit	(28...60)V DC/AC	99.80.0.060.09
RC circuit	(110...240)V DC/AC	99.80.0.230.09
Residual current by-pass	(110...240)V AC	99.80.8.230.07

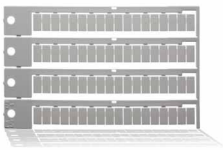


95.55

Approvals
(according to type):

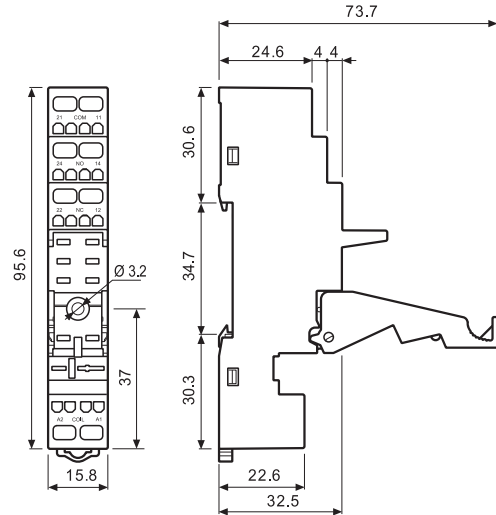
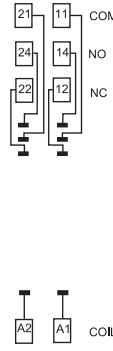
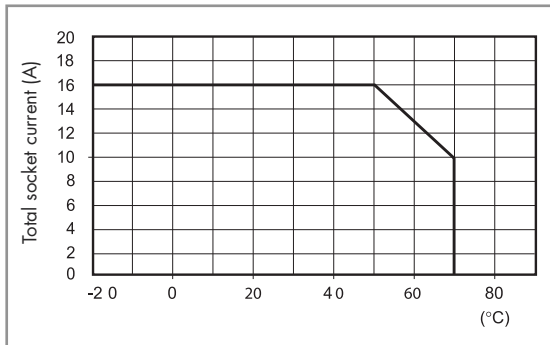


095.91.3



060.72

L 95 - Total socket current vs ambient temperature



Screwless terminal socket panel or 35 mm rail mount	95.55 (blue)	95.55.0 (black)
For relay type	40.51, 40.52, 40.61	

Accessories		
Metal retaining clip	095.71	
Plastic retaining and release clip (supplied with socket - packaging code SPA)	095.91.3	
Modules (see table below)	99.02	
Timer modules (see table below)	86.30	
Sheet of marker tags for retaining and release clip 095.91.3 plastic, 72 tags, 6x12 mm	060.72	

Technical data		
Rated values	10 A - 250 V *	
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP 20	
Ambient temperature	°C	-25...+70 (see diagram L95)
Wire strip length	mm	8
Max. wire size for 95.55 socket	solid wire	stranded wire
	mm ²	2x(0.2...1.5)
	AWG	2x(24...18)

* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).
With the relay 40.51 the change-over contact will be 21-12-14.



86.30

86 series timer modules		
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s...100h)	86.30.0.024.0000	
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000	
(230...240)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.240.0000	

Approvals
(according to type):



99.02

Approvals
(according to type):



99.02 coil indication and EMC suppression modules for 95.55 socket		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07

DC Modules with
non-standard polarity
(+A2) on request.



95.55.3

Approvals (according to type):

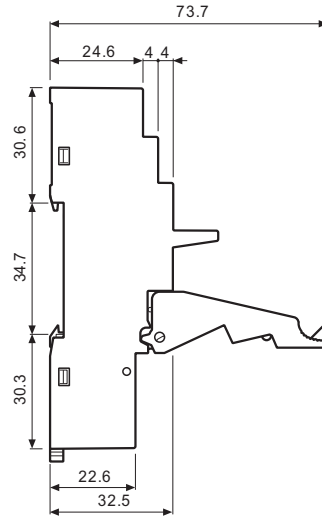
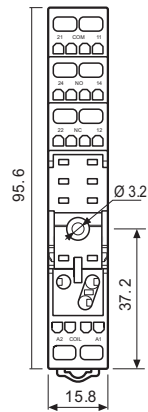
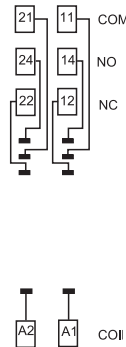
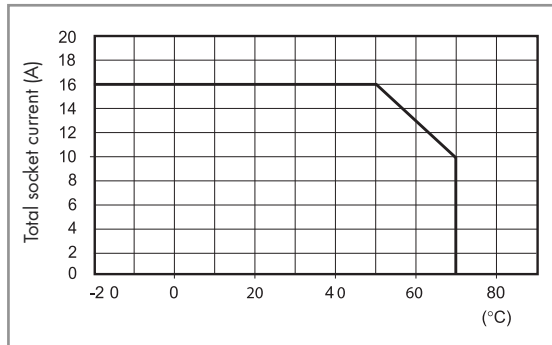


095.91.3



060.72

L 95 - Total socket current vs ambient temperature



99.80

Approvals (according to type):

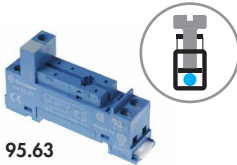


* Modules in Black housing are available on request.

Green LED is standard. Red LED available on request.

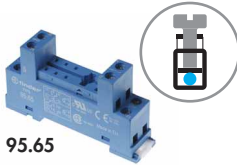
99.80 coil indication and EMC suppression modules for 95.55.3 socket

		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.80.3.000.00
LED	(6...24)V DC/AC	99.80.0.024.59
LED	(28...60)V DC/AC	99.80.0.060.59
LED	(110...240)V DC/AC	99.80.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.80.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.80.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.80.9.220.99
LED + Varistor	(6...24)V DC/AC	99.80.0.024.98
LED + Varistor	(28...60)V DC/AC	99.80.0.060.98
LED + Varistor	(110...240)V DC/AC	99.80.0.230.98
RC circuit	(6...24)V DC/AC	99.80.0.024.09
RC circuit	(28...60)V DC/AC	99.80.0.060.09
RC circuit	(110...240)V DC/AC	99.80.0.230.09
Residual current by-pass	(110...240)V AC	99.80.8.230.07



95.63

Approvals
(according to type):



95.65

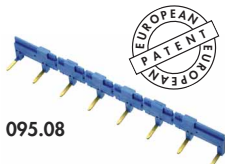
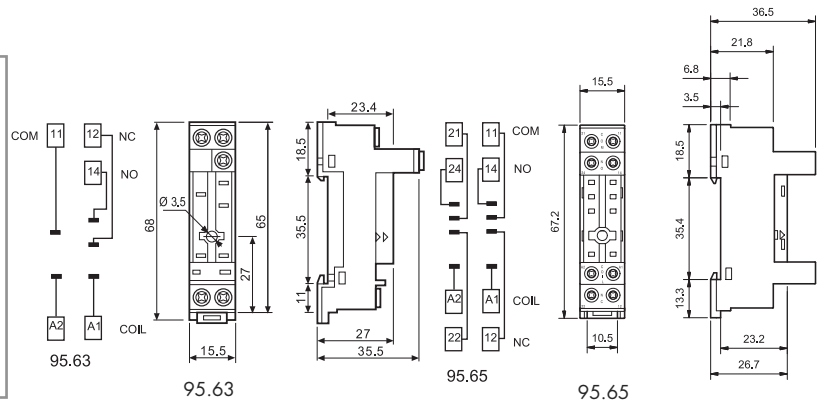
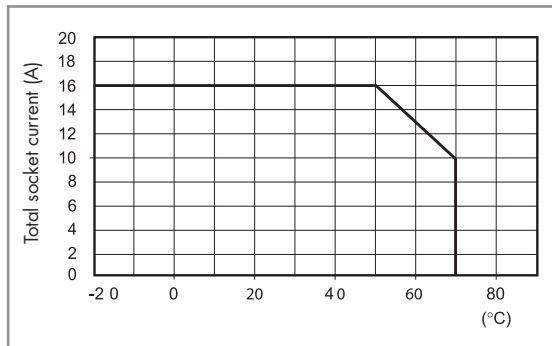
Approvals
(according to type):



Screw terminal (Box clamp) socket panel or 35 mm rail mount	95.63 (blue)	95.65 (blue)
For relay type	40.31	40.51, 40.52, 40.61
Accessories		
Metal retaining clip	095.71	
8-way jumper link	095.08	095.08
Modules (see table below)	99.01	—
Technical data		
Rated values	10 A - 250 V *	
Dielectric strength (between coil and contacts)	6 kV (1.2/50 μs)	2 kV AC
Protection category	IP 20	
Ambient temperature	°C -40...+70 (see diagram L95)	
⊕ Screw torque	Nm	0.5
Wire strip length	mm	7
Max. wire size for 95.63 and 95.65 sockets	solid wire	stranded wire
	m ²	1x6 / 2x2.5
	AWG	1x10 / 2x14

* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).
With the relay 40.51 the change-over contact will be 21-12-14.

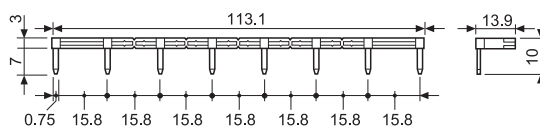
L 95 - Total socket current vs ambient temperature



095.08



8-way jumper link for 95.63 and 95.65 sockets	095.08 (blue)
Rated values	10 A - 250 V



99.01

Approvals
(according to type):



99.01 coil indication and EMC suppression modules for type 95.63 socket		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.01.3.000.00
Diode (+A2, non-standard polarity)	(6...220)V DC	99.01.2.000.00
LED	(6...24)V DC/AC	99.01.0.024.59
LED	(28...60)V DC/AC	99.01.0.060.59
LED	(110...240)V DC/AC	99.01.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.01.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.01.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.01.9.220.99
LED + Diode (+A2, non-standard polarity)	(6...24)V DC	99.01.9.024.79
LED + Diode (+A2, non-standard polarity)	(28...60)V DC	99.01.9.060.79
LED + Diode (+A2, non-standard polarity)	(110...220)V DC	99.01.9.220.79
LED + Varistor	(6...24)V DC/AC	99.01.0.024.98
LED + Varistor	(28...60)V DC/AC	99.01.0.060.98
LED + Varistor	(110...240)V DC/AC	99.01.0.230.98
RC circuit	(6...24)V DC/AC	99.01.0.024.09
RC circuit	(28...60)V DC/AC	99.01.0.060.09
RC circuit	(110...240)V DC/AC	99.01.0.230.09
Residual current by-pass	(110...240)V AC	99.01.8.230.07

* Modules in Black housing are available on request.

Green LED is standard.
Red LED available on request.



95.13.2



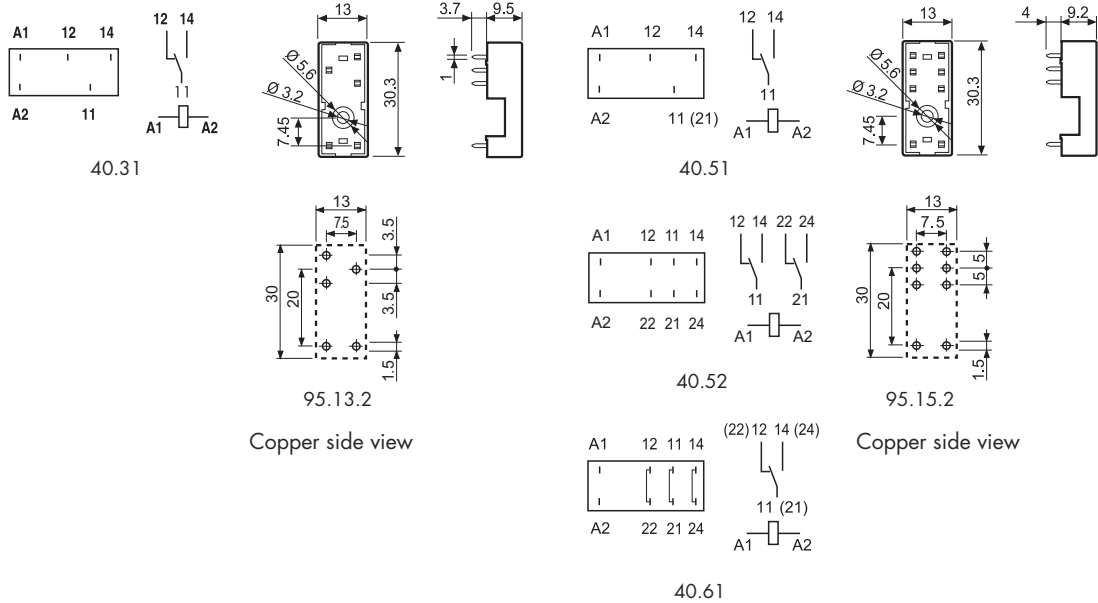
95.15.2

Approvals
(according to type):



PCB socket	95.13.2 (blue)	95.13.20 (black)	95.15.2 (blue)	95.15.20 (black)
For relay type	40.31, 40.41		40.51, 40.52, 40.61	
Accessories				
Metal retaining clip (supplied with socket - packaging code SMA)			095.51	
Plastic retaining clip			095.52	
Technical data				
Rated values	10 A - 250 V *			
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts			
Protection category	IP 20			
Ambient temperature	°C -40...+70			

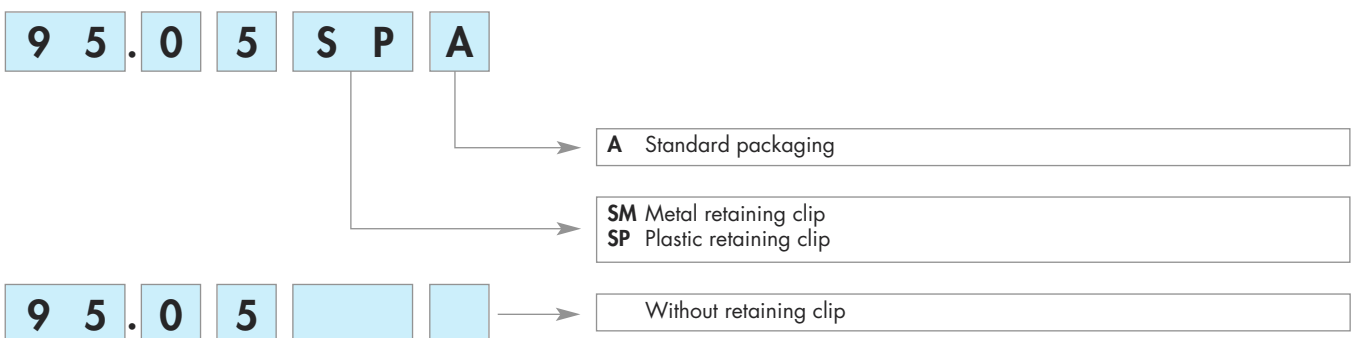
* For currents > 10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).
With the relay 40.51 the change-over contact will be 21-12-14.



Packaging codes

How to code and identify retaining clip and packaging options for sockets.

Example:



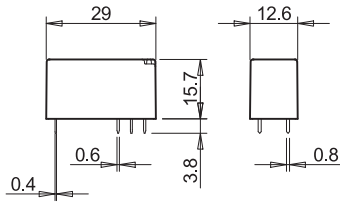
Features

- 1 & 2 Pole - Low profile (15.7 mm height)
- 41.31 - 1 Pole 12 A (3.5 mm pin pitch)
- 41.52 - 2 Pole 8 A (5 mm pin pitch)
- 41.61 - 1 Pole 16 A (5 mm pin pitch)

PCB mount

- direct or via PCB socket
- 35 mm rail mount**
- via screw and screwless sockets

- AC and DC coils
- 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts
- Cadmium Free contact materials
- Flux proof: RT II standard, (RT III option)



FOR UL RATINGS SEE:
"General technical information" page V

Contact specification

Contact configuration	1 CO (SPDT)	2 CO (DPDT)	1 CO (SPDT)
Rated current/Maximum peak current A	12/25	8/15	16/30
Rated voltage/Maximum switching voltage V AC	250/400	250/400	250/400
Rated load AC1 VA	3,000	2,000	4,000
Rated load AC15 (230 V AC) VA	600	400	750
Single phase motor rating (230 V AC) kW	0.5	0.3	0.5
Breaking capacity DC1: 30/110/220 V A	12/0.3/0.12	8/0.3/0.12	16/0.3/0.12
Minimum switching load mW (V/mA)	300 (5/5)	300 (5/5)	300 (5/5)
Standard contact material	AgNi	AgNi	AgNi

Coil specification

Nominal voltage (U _N)	V AC (50/60 Hz)	24 - 230	24 - 230	24 - 230
	V DC	5 - 6 - 12 - 24 - 48 - 60 - 110	5 - 6 - 12 - 24 - 48 - 60 - 110	5 - 6 - 12 - 24 - 48 - 60 - 110
Rated power AC/DC	VA (50 Hz)/W	0.75/0.4	0.75/0.4	0.75/0.4
Operating range	AC	(0.8... 1.1)U _N	(0.8... 1.1)U _N	(0.8... 1.1)U _N
	DC	(0.7... 1.5)U _N	(0.7... 1.5)U _N	(0.7... 1.5)U _N
Holding voltage	AC/DC	0.8/0.4U _N	0.8/0.4 U _N	0.8/0.4 U _N
Must drop-out voltage	AC/DC	0.15/0.1U _N	0.15/0.1 U _N	0.15/0.1 U _N

Technical data

Mechanical life AC/DC	cycles	10 · 10 ⁶ /10 · 10 ⁶	10 · 10 ⁶ /10 · 10 ⁶	10 · 10 ⁶ /10 · 10 ⁶
Electrical life at rated load AC1	cycles	60 · 10 ³	60 · 10 ³	50 · 10 ³
Operate/release time	ms	5/4	5/4	5/4
Insulation between coil and contacts (1.2/50 µs)	kV	6 (8 mm)	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000	1,000	1,000
Ambient temperature range	°C	-40...+70 (AC); +85 (DC)	-40...+70 (AC); +85 (DC)	-40...+70 (AC); +85 (DC)
Environmental protection		RT II	RT II	RT II

Approvals (according to type)



Features

Solid State Relays

Printed circuit mount:

- direct or via PCB socket

35 mm rail mount:

- via screw or screwless sockets

- Single circuit output switching options
 - 5 A 24 V DC
 - 3 A 240 V AC
- Silent, high speed switching with long electrical life
- LED indicator
- Low profile (15.7 mm)
- Wash tight: RT III
- 2,500 V AC insulation, input-output

41.81 - 9024

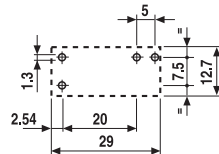
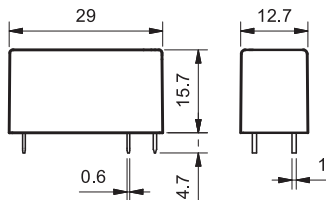
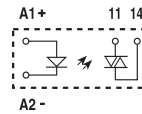
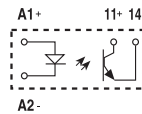


- 5 A, 24 V DC output switching
- PCB or 93 Series sockets

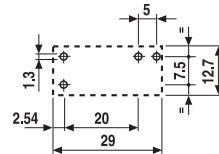
41.81 - 8240



- 3 A, 240 V AC output switching
- Zero crossing switching
- PCB or 93 Series sockets



Copper side view



Copper side view

Output circuit					
Contact configuration		1 NO (SPST-NO)		1 NO (SPST-NO)	
Rated current/Maximum peak current (10 ms) A		5/40		3/40	
Rated voltage/Maximum blocking voltage V		(24/35)DC		(240/275)AC	
Switching voltage range V		(1.5...24)DC		(12...240)AC	
Minimum switching current mA		1		50	
Max. "OFF-state" leakage current mA		0.01		1	
Max. "ON-state" voltage drop V		0.3		1.1	
Input circuit					
Nominal voltage V DC		12	24	12	24
Operating range V DC		8...17	14...32	8...17	14...32
Control current mA		5.5	9	8.8	9
Release voltage V DC		4	9	4	9
Impedance Ω		1,550	2,600	1,030	2,600
Technical data					
Operate/release time ms		0.05/0.25		10/10	
Dielectric strength between input/output V AC		2,500		2,500	
Ambient temperature range °C		-20...+60		-20...+60	
Environmental protection		RT III		RT III	
Approvals (according to type)					

Ordering information

Electromechanical relay (EMR)

Example: 41 series low-profile PCB relay, 2 CO (DPDT), 24 V DC coil.

4 1 . 5 2 . 9 . 0 2 4 . 0 0 1 0

A B C D

Series ————

Type ————
 3 = PCB - 3.5 mm pinning
 5 = PCB - 5 mm pinning
 6 = PCB - 5 mm pinning

No. of poles ————
 1 = 1 pole for
 41.31, 12 A
 41.61, 16 A
 2 = 2 pole for
 41.52, 8 A

Coil version ————
 8 = AC
 9 = DC

Coil voltage ————
 See coil specifications

A: Contact material
 0 = Standard AgNi
 4 = AgSnO₂
 5 = AgNi + Au (5 µm)

B: Contact circuit
 0 = CO (nPDT)
 3 = NO (nPST)

D: Special versions
 0 = Flux proof (RT II)
 1 = Wash tight (RT III)

C: Options
 0 = Production line 0
 1 = Production line 1

Selecting features and options: only combinations in the same row are possible.
 Preferred selections for best availability are shown in **bold**.

Type	Coil version	A	B	C	D
41.31	DC	0 - 4 - 5	0 - 3	1	0 - 1
41.52	DC	0 - 5	0 - 3	1	0 - 1
41.61	DC	0 - 4	0 - 3	1	0 - 1
41.31/52/61	AC	0	0	0	0

Solid state relay (SSR)

Example: 41 series SSR relay, 5 A output, 24 V DC supply.

4 1 . 8 1 . 7 . 0 2 4 . 9 0 2 4

Series ————

Type ————
 8 = SSR type

Output ————
 1 = 1 NO (SPST-NO)

Input circuit ————
 See input specifications

Output circuit
 9024 = 5 A - 24 V DC
 8240 = 3 A - 240 V AC

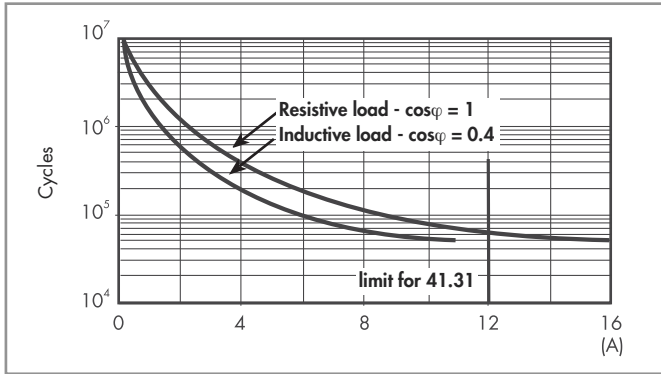
Electromechanical relay

Technical data

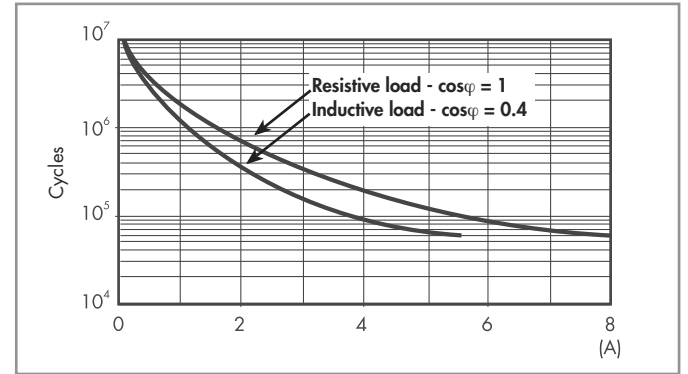
Insulation according to EN 61810-1					
		1 pole		2 pole	
Nominal voltage of supply system	V AC	230/400		230/400	
Rated insulation voltage	V AC	250	400	250	400
Pollution degree		3	2	3	2
Insulation between coil and contact set					
Type of insulation		Reinforced (8 mm)		Reinforced (8 mm)	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 µs)	6		6	
Dielectric strength	V AC	4,000		4,000	
Insulation between adjacent contacts					
Type of insulation		—		Basic	
Overvoltage category		—		III	
Rated impulse voltage	kV (1.2/50 µs)	—		4	
Dielectric strength	V AC	—		2,000	
Insulation between open contacts					
Type of disconnection		Micro-disconnection		Micro-disconnection	
Dielectric strength	V AC/kV (1.2/50 µs)	1,000/1.5		1,000/1.5	
Conducted disturbance immunity					
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4		level 4 (4 kV)	
Surge (1.2/50 µs) on A1 - A2 (differential mode)		EN 61000-4-5		level 3 (2 kV)	
Other data					
Bounce time: NO/NC	ms	2/5			
Vibration resistance (5...55)Hz: NO/NC	g	15/2			
Shock resistance	g	16			
Power lost to the environment	without contact current	W	0.4		
	with rated current	W	1.7 (41.31)	1.2 (41.52)	1.8 (41.61)
Recommended distance between relays mounted on PCB	mm	≥ 5			

Contact specification

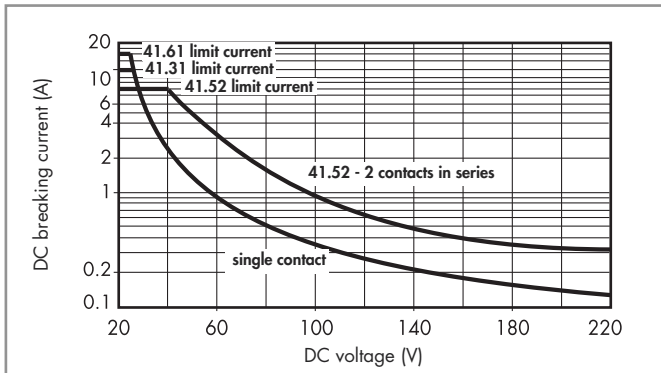
F 41 - Electrical life (AC) v contact current
Types 41.31/61



F 41 - Electrical life (AC) v contact current
Type 41.52



H 41- Maximum DC1 breaking capacity



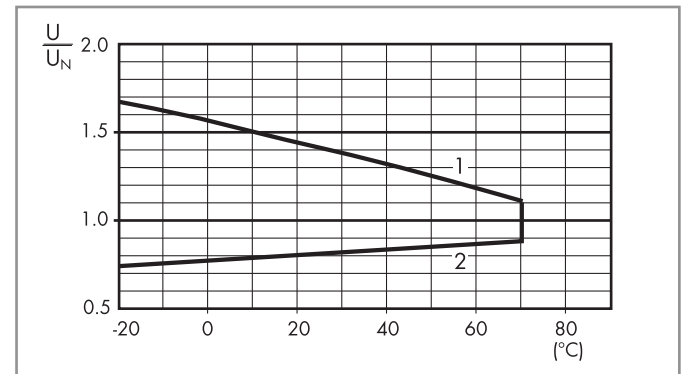
- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load. Note: the release time for the load will be increased.

Coil specifications

AC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
24	8.024	19.2	26.4	350	31.6
230	8.230	184	253	32,500	3.2

R 41 - AC coil operating range v ambient temperature

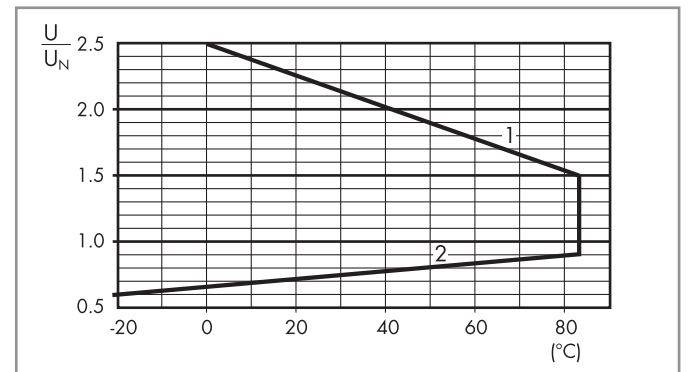


- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

DC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
5	9.005	3.5	7.5	62	80
6	9.006	4.2	9	90	66.7
12	9.012	8.4	18	360	33.3
24	9.024	16.8	36	1,440	16.7
48	9.048	33.6	72	5,760	8.3
60	9.060	42	90	9,000	6.6
110	9.110	77	165	24,200	4.5

R 41 - DC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Solid state relay

Technical data

Other data			41.81 - 9024	41.81 - 8240
Power lost to the environment	without current	W	0.25	0.25
	with maximum current	W	1.75	3.5

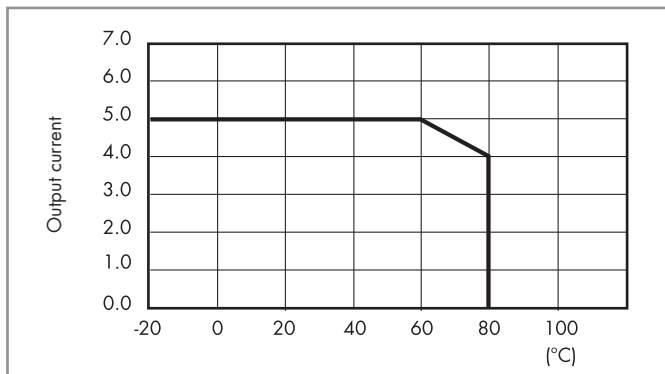
Input specification

Input data - DC types

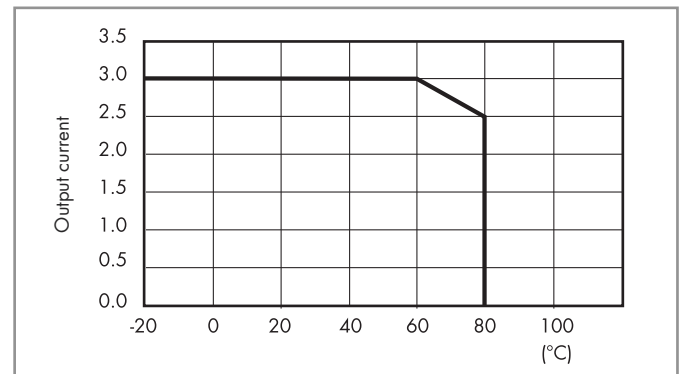
Nominal voltage U_N V	Input code	Operating range		Release voltage V	Impedance Ω	Control current I at U_N mA
		U_{min} V	U_{max} V			
12	7.012	8	17	4	1,550	5.5
24	7.024	14	32	9	2,600	9

Output specification

L 41 - Output current v ambient temperature
SSR - 5 A DC output types

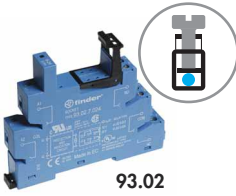


L 41 - Output current v ambient temperature
SSR - 3 A AC output types





93 Series - Sockets and accessories for 41 series relays



93.02

Approvals
(according to type):



Screw terminal socket 35 mm (EN 60715) mounting

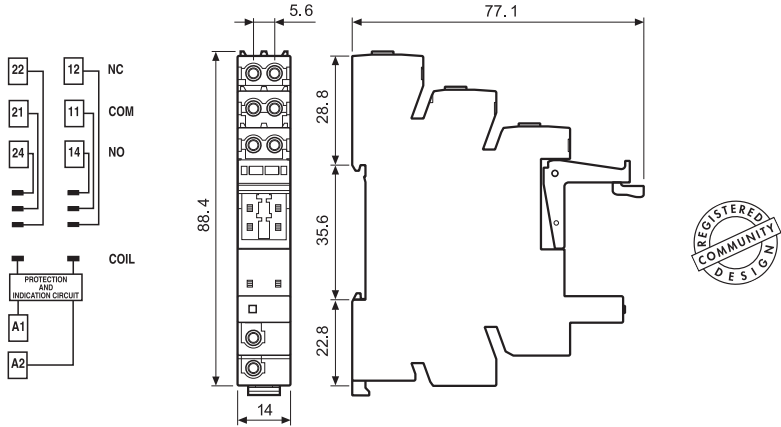
Supply voltage	Relay type	Socket type
6 V AC/DC	41.52.9.005.0010 or 41.61.9.005.0010	93.02.0.024
12 V AC/DC	41.52.9.012.0010 or 41.61.9.012.0010	93.02.0.024
24 V AC/DC	41.52/61.9.024.0010 or 41.81.7.024.xxxx	93.02.0.024
60 V AC/DC	41.52.9.060.0010 or 41.61.9.060.0010	93.02.0.060
(110...125)V AC/DC	41.52.9.110.0010 or 41.61.9.110.0010	93.02.0.125
(220...240)V AC/DC	41.52.9.110.0010 or 41.61.9.110.0010	93.02.0.240
(230...240)V AC	41.52.9.110.0010 or 41.61.9.110.0010	93.02.8.230
6 V DC	41.52.9.005.0010 or 41.61.9.005.0010	93.02.7.024
12 V DC	41.52/61.9.012.0010 or 41.81.7.012.xxxx	93.02.7.024
24 V DC	41.52/61.9.024.0010 or 41.81.7.024.xxxx	93.02.7.024
48 V DC	41.52.9.048.0010 or 41.61.9.048.0010	93.02.7.060
60 V DC	41.52.9.060.0010 or 41.61.9.060.0010	93.02.7.060

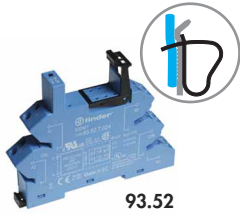
Accessories

8-way jumper link	093.08 (see specification next page)
Plastic separator	093.01 (see specification next page)
Sheet of marker tags, 72 tags	060.72 (see specification next page)

Technical data

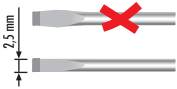
Rated values	10 A - 250 V	
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP 20	
Ambient temperature (U _N ≤ 60 V / > 60 V) °C	-40...+70 / -40...+55	
⊕ Screw torque	Nm	0.5
Wire strip length	mm	8
Max. wire size for 93.02 socket	solid wire	stranded wire
	mm ²	1x6 / 2x2.5
	AWG	1x10 / 2x14





93.52

Approvals
(according to type):



Screwless terminal socket 35 mm (EN 60715) mounting

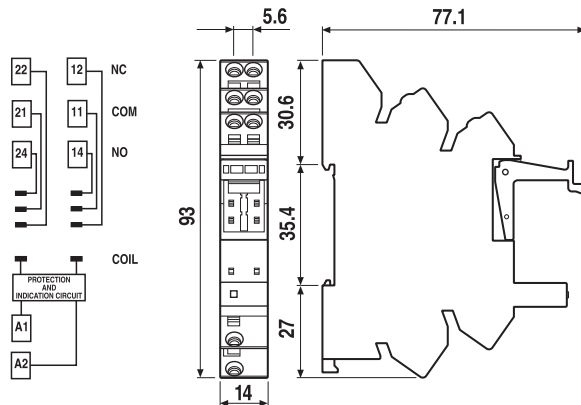
Supply voltage	Relay type	Socket type
6 V AC/DC	41.52.9.005.0010 or 41.61.9.005.0010	93.52.0.024
12 V AC/DC	41.52.9.012.0010 or 41.61.9.012.0010	93.52.0.024
24 V AC/DC	41.52/61.9.024.0010 or 41.81.7.024.xxxx	93.52.0.024
60 V AC/DC	41.52.9.060.0010 or 41.61.9.060.0010	93.52.0.060
(110...125)V AC/DC	41.52.9.110.0010 or 41.61.9.110.0010	93.52.0.125
(220...240)V AC/DC	41.52.9.110.0010 or 41.61.9.110.0010	93.52.0.240
(230...240)V AC	41.52.9.110.0010 or 41.61.9.110.0010	93.52.8.230
6 V DC	41.52.9.005.0010 or 41.61.9.005.0010	93.52.7.024
12 V DC	41.52/61.9.012.0010 or 41.81.7.012.xxxx	93.52.7.024
24 V DC	41.52/61.9.024.0010 or 41.81.7.024.xxxx	93.52.7.024
48 V DC	41.52.9.048.0010 or 41.61.9.048.0010	93.52.7.060
60 V DC	41.52.9.060.0010 or 41.61.9.060.0010	93.52.7.060

Accessories

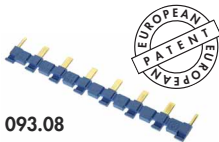
8-way jumper link	093.08 (see table below)
Plastic separator	093.01 (see table below)
Sheet of marker tags, 72 tags	060.72 (see table below)

Technical data

Rated values	10 A - 250 V		
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts		
Protection category	IP 20		
Ambient temperature (U _N ≤ 60 V / > 60 V) °C	-40...+70 / -40...+55		
Wire strip length	mm	8	
Max. wire size for 93.52 socket	solid wire	stranded wire	
	mm ²	1x2.5	1x2.5
	AWG	1x14	1x14



Accessories

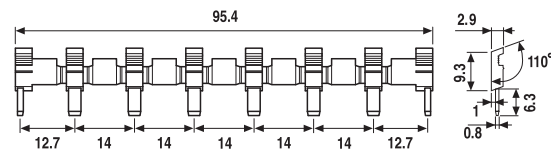


093.08

Approvals
(according to type):



8-way jumper link for 93.02 and 93.52 sockets	093.08 (blue)	093.08.0 (black)	093.08.1 (red)
Rated values	10 A - 250 V		

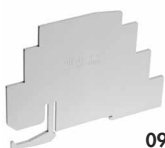


Plastic separator for 93.02 and 93.52 sockets	093.01
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Thickness 2 mm, required at the start and the end of a group of interfaces.

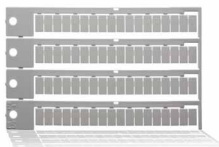
Can be used for visual separation group, must be used for:

- protective separation of different voltages of neighbouring PLC interfaces according to VDE 0106-101
- protection of cut jumper links



093.01

Sheet of marker tags for 38.x2, plastic, 72 tags, 6x12 mm	060.72
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060.72



95 Series - Sockets and accessories for 41 series relays



95.13.2



95.15.2

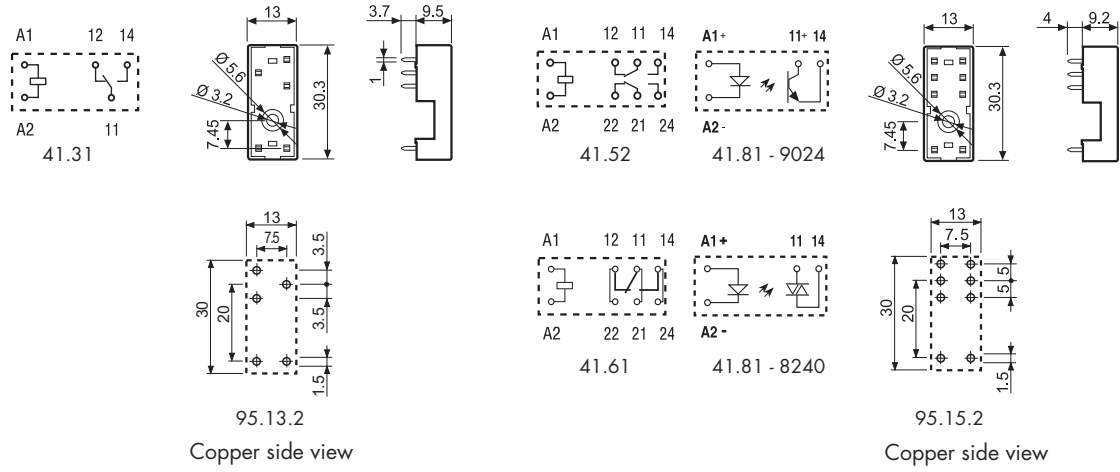
Approvals
(according to type):



PCB socket	95.13.2 (blue)	95.13.20 (black)	95.15.2 (blue)	95.15.20 (black)
For relay type	41.31		41.52, 41.61, 41.81 ⁽¹⁾	
Accessories	Plastic retaining clip 095.42			
Technical data	Rated values 10 A - 250 V *			
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts			
Protection category	IP 20			
Ambient temperature	°C -40...+70			

* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).

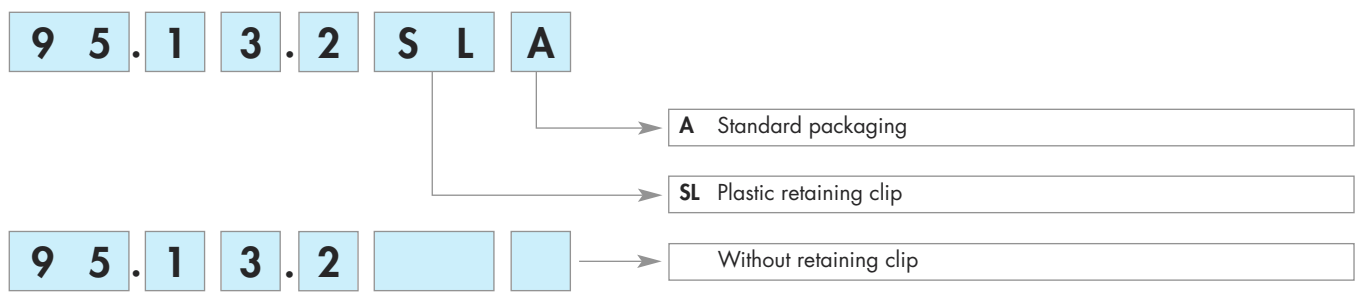
⁽¹⁾ With the relay 41.81 the NO change-over contact will be 11-14.



Packaging codes

How to code and identify retaining clip and packaging options for sockets.

Example:

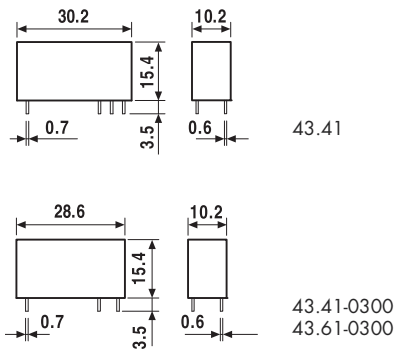


Features

- 1 Pole - Low profile (15.4 mm height)
- 43.41 - 1 Pole, 10 A (3.2 mm pin pitch)
- 43.41-0300 - 1 Pole NO, 10 A (5 mm pin pitch)
- 43.61-0300 - 1 Pole NO, 16 A (5 mm pin pitch)

PCB mount - direct or via PCB socket (43.41 version)

- Sensitive DC coil:
 - 250 mW (10 A version)
 - 400 mW (16 A version)
- Very high coil-contact isolation 10 mm, 6 kV (1.2/50 μ s)
- Cadmium Free contacts (preferred version)
- Flux proof: RT II standard, (RT III option)



FOR UL RATINGS SEE:
"General technical information" page 3

43.41



- 3.2 mm contact pin pitch
- 1 Pole CO, 10 A
- PCB direct or via socket

43.41-0300

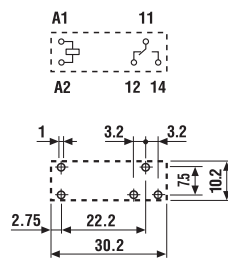


- 5 mm contact pin pitch
- 1 Pole NO, 10 A
- PCB mount

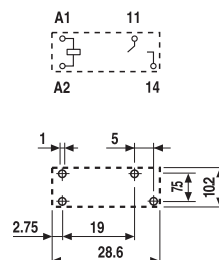
43.61-0300



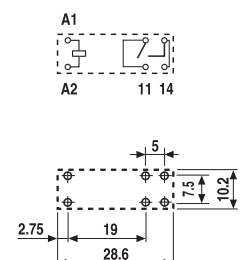
- 5 mm contact pin pitch
- 1 Pole NO, 16 A
- PCB mount



Copper side view



Copper side view



Copper side view

Contact specification				
Contact configuration		1 CO (SPDT)	1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current	A	10/15	10/15	16/25
Rated voltage/Maximum switching voltage	V AC	250/400	250/400	250/400
Rated load AC1	VA	2,500	2,500	4,000
Rated load AC15 (230 V AC)	VA	500	500	750
Single phase motor rating (230 V AC)	kW	—	—	—
Breaking capacity DC1: 30/110/220 V	A	10/0.3/0.12	10/0.3/0.12	16/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi	AgNi
Coil specification				
Nominal voltage (U _N)	V AC (50/60 Hz)	—	—	—
	V DC	3 - 6 - 9 - 12 - 18 - 24 - 36 - 48	3 - 6 - 9 - 12 - 18 - 24 - 36 - 48	12 - 24 - 48
Rated power AC/DC	VA (50 Hz)/W	—/0.25	—/0.25	—/0.4
Operating range	AC	—	—	—
	DC	(0.7...1.5)U _N	(0.7...1.5)U _N	(0.7...1.2)U _N
Holding voltage	AC/DC	—/0.4 U _N	—/0.4 U _N	—/0.4 U _N
Must drop-out voltage	AC/DC	—/0.05 U _N	—/0.05 U _N	—/0.05 U _N
Technical data				
Mechanical life AC/DC	cycles	—/10 · 10 ⁶	—/10 · 10 ⁶	—/10 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³	50 · 10 ³
Operate/release time	ms	6/4	6/2	6/2
Insulation between coil and contacts (1.2/50 μ s)	kV	6 (10 mm)	6 (10 mm)	6 (10 mm)
Dielectric strength between open contacts	V AC	1,000	1,000	1,000
Ambient temperature range	°C	—40...+85	—40...+85	—40...+85
Environmental protection		RT II	RT II	RT II
Approvals (according to type)				

Ordering information

Example: 43 series low-profile PCB relay, 1 CO (SPDT), 24 V DC coil.

4 3 . 4 1 . 7 . 0 2 4 . A B C D	
<p>Series</p> <p>Type 4 = PCB - 3.2 mm pinning (CO/SPDT, 10 A) PCB - 5 mm pinning (NO/SPST-NO, 10 A) 6 = PCB - 5 mm pinning (NO/SPST-NO, 16 A)</p> <p>No. of poles 1 = 1 pole</p> <p>Coil version 7 = Sensitive DC (only for 43.41) 9 = DC (only for 43.61)</p> <p>Coil voltage See coil specifications</p>	<p>A: Contact material 0 = AgNi 2 = AgCdO 4 = AgSnO₂ 5 = AgNi + Au (5 µm)</p> <p>B: Contact circuit 0 = CO (SPDT) - (for 43.41 only) 3 = NO (SPST)</p> <p>C: Options 0 = None</p> <p>D: Special versions 0 = Flux proof (RT II) 1 = Wash tight (RT III)</p>

Selecting features and options: only combinations in the same row are possible.
 Preferred selections for best availability are shown in **bold**.

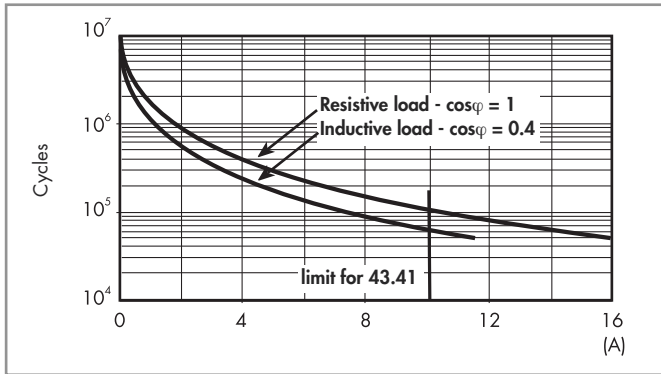
Type	Coil version	A	B	C	D
43.41	sensitive DC	0 - 2 - 4 - 5	0 - 3	0	0 - 1
43.61	DC	0 - 2 - 4	3	0	0

Technical data

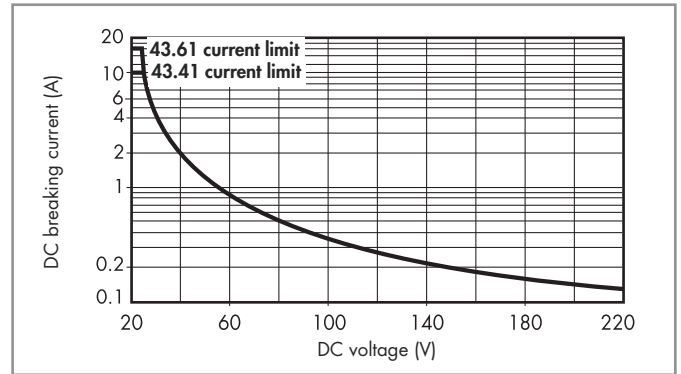
Insulation according to EN 61810-1					
Nominal voltage of supply system	V AC	230/400			
Rated insulation voltage	V AC	250	400		
Pollution degree		3	2		
Insulation between coil and contact set					
Type of insulation	Reinforced (10 mm)				
Overvoltage category	III				
Rated impulse voltage	kV (1.2/50 µs)	6			
Dielectric strength	V AC	4,000			
Insulation between open contacts					
Type of disconnection	Micro-disconnection				
Dielectric strength	V AC/kV (1.2/50 µs)	1,000/1.5			
Conducted disturbance immunity					
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4	level 4 (4 kV)		
Surge (1.2/50 µs) on A1 - A2 (differential mode)		EN 61000-4-5	level 3 (2 kV)		
Other data					
Bounce time: NO/NC	ms	3/6			
Vibration resistance (5...55)Hz: NO/NC	g	15/3			
Shock resistance	g	15			
Power lost to the environment	without contact current	W	0.25 (43.41)	0.4 (43.61)	
	with rated current	W	1.3 (43.41)	2 (43.61)	
Recommended distance between relays mounted on PCB	mm	≥ 5			

Contact specification

F 43 - Electrical life (AC) v contact current



H 43 - Maximum DC1 breaking capacity



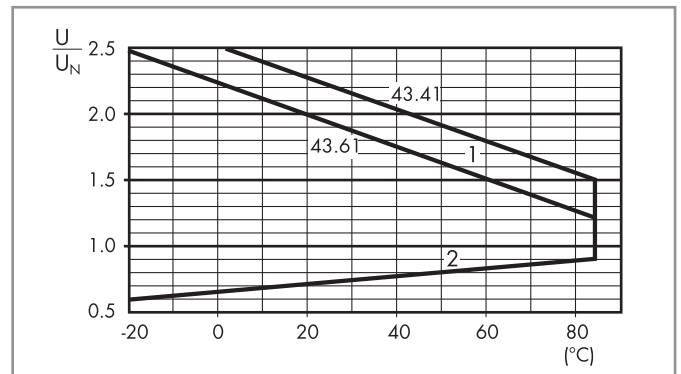
- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ for 43.41 and $\geq 50 \cdot 10^3$ for 43.61 can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

DC coil data - 0.25 W sensitive (type 43.41)

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
3	7.003	2.2	4.5	36	83.5
6	7.006	4.2	9	150	40
9	7.009	6.5	13.5	324	27.7
12	7.012	8.4	18	580	20.7
18	7.018	13	27	1,300	13.8
24	7.024	16.8	36	2,200	10.9
36	7.036	25.2	54	5,200	6.9
48	7.048	33.6	72	9,200	5.2

R 43 - DC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

DC coil data - 0.4 W standard (type 43.61)

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
12	9.012	8.4	14.4	360	33.3
24	9.024	16.8	28.8	1,400	17.1
48	9.048	33.6	57.6	5,760	8.3

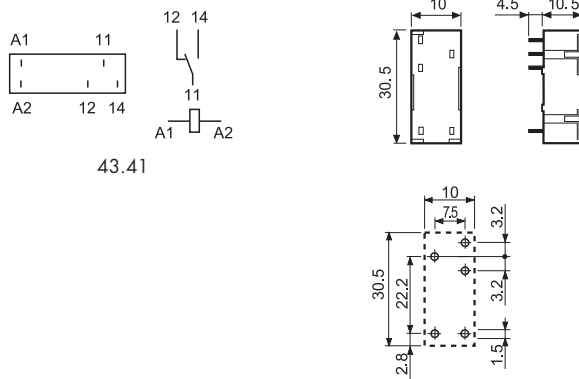


95.23

Approvals
(according to type):



PCB socket (for changeover contacts only)	95.23 (blue)	95.23.0 (black)
For relay type	43.41	43.41
Accessories		
Metal retaining clip (supplied with socket - packaging code SNA)	095.43	
Technical data		
Rated values	10 A - 250 V	
Insulation	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP 20	
Ambient temperature	°C -40...+70	



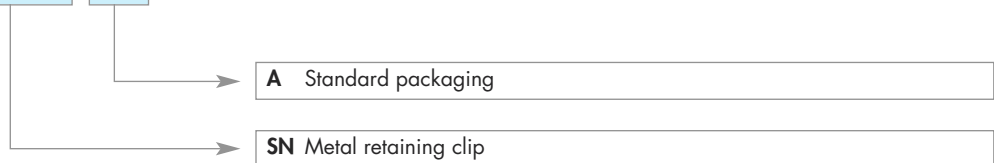
Copper side view

Packaging codes

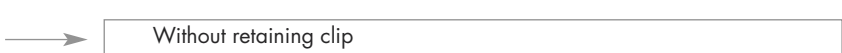
How to code and identify retaining clip and packaging options for sockets.

Example:

9 5 . 2 3 S N A



9 5 . 2 3 [] []



Features

2 Pole relay range

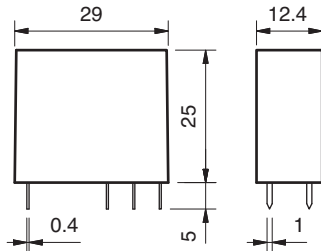
44.52 - 2 Pole 6 A (5 mm pin pitch)

44.62 - 2 Pole 10 A (5 mm pin pitch)

PCB mount - direct or via PCB socket

35 mm rail mount - via screw and screwless sockets

- High physical separation between adjacent contacts
- DC coils (Standard or sensitive)
- Cadmium Free contact materials
- 8 mm, 6 kV (1.2/50 μs) isolation, coil-contacts
- UL Listing (certain relay/socket combinations)
- Flux proof: RT II
- 95 series sockets
- Coil EMC suppression
- Timer accessories 86 series

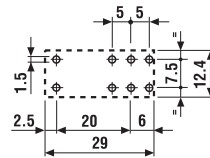
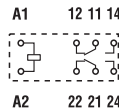


FOR UL RATINGS SEE:
"General technical information" page V

44.52



- 2 Pole, 6 A
- 5 mm contact pin pitch
- PCB or 95 series sockets

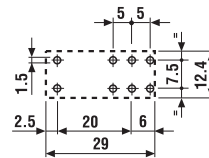
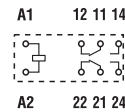


Copper side view

44.62



- 2 Pole, 10 A
- 5 mm contact pin pitch
- PCB or 95 series sockets



Copper side view

Contact specification		44.52	44.62
Contact configuration		2 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	6/10	10/20
Rated voltage/Maximum switching voltage V AC		250/400	250/400
Rated load AC1	VA	1,500	2,500
Rated load AC15 (230 V AC)	VA	250	500
Single phase motor rating (230 V AC)	kW	0.185	0.37
Breaking capacity DC1: 30/110/220 V	A	6/0.3/0.13	10/0.3/0.13
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Coil specification		44.52	44.62
Nominal voltage (U _N)	V AC (50/60 Hz)	—	—
	V DC	6 - 9 - 12 - 14 - 24 - 28 - 48 - 60 - 110 - 125	—
Rated power AC/DC/sens. DC	VA (50 Hz)/W/W	—/0.65/0.5	—/0.65/0.5
Operating range	AC	—	—
	DC/sens. DC	(0.73...1.5)U _N /(0.73...1.7)U _N	(0.73...1.5)U _N /(0.8...1.7)U _N
Holding voltage	AC/DC	—/0.4 U _N	—/0.4 U _N
Must drop-out voltage	AC/DC	—/0.1 U _N	—/0.1 U _N
Technical data		44.52	44.62
Mechanical life AC/DC	cycles	—/20 · 10 ⁶	—/20 · 10 ⁶
Electrical life at rated load AC1	cycles	150 · 10 ³	100 · 10 ³
Operate/release time	ms	8/5 - (12/5 sensitive)	8/5 - (12/5 sensitive)
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	−40...+85	−40...+85
Environmental protection		RT II	RT II
Approvals (according to type)			

Ordering information

Example: 44 series PCB relay, 2 CO (DPDT) 10 A contacts, 24 V DC coil.

	4	4	.	6	.	2	.	9	.	0	2	4	.	A	0	B	0	C	0	D	0
--	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------

Series _____

Type _____
5 = PCB - 5 mm pinning
6 = PCB - 5 mm pinning

No. of poles _____
2 = 2 pole for
44.52, 6 A
44.62, 10 A

Coil version _____
7 = Sensitive DC
9 = DC

Coil voltage _____
See coil specifications

A: Contact material
0 = Standard AgNi
4 = AgSnO₂
for 44.62 only
5 = AgNi + Au (5 μm)
for 44.52 only

B: Contact circuit
0 = CO (DPDT)

D: Special versions
0 = Flux proof (RT II)

C: Options
0 = None

Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold**.

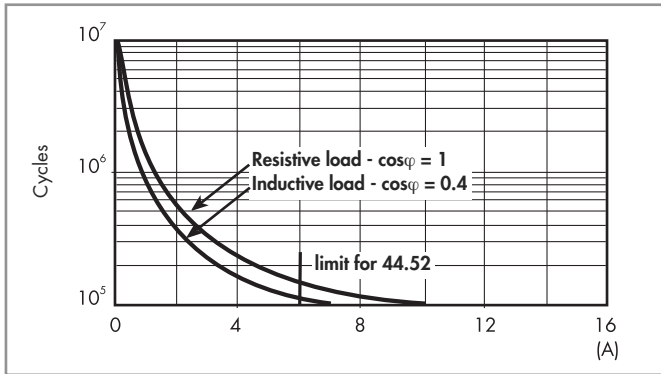
Type	Coil version	A	B	C	D
44.52	DC - sens. DC	0 - 5	0	0	0
44.62	DC - sens. DC	0 - 4	0	0	0

Technical data

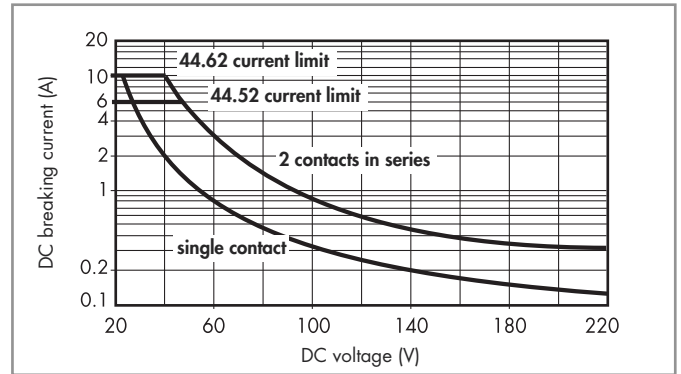
Insulation according to EN 61810-1			
Nominal voltage of supply system	V AC	230/400	
Rated insulation voltage	V AC	250	400
Pollution degree		3	2
Insulation between coil and contact set			
Type of Insulation		Reinforced (8 mm)	
Overvoltage category		III	
Rated impulse voltage	kV (1.2/50 μs)	6	
Dielectric strength	V AC	4,000	
Insulation between adjacent contacts			
Type of insulation		Basic	
Overvoltage category		III	
Rated impulse voltage	kV (1.2/50 μs)	4	
Dielectric strength	V AC	2,500	
Insulation between open contacts			
Type of disconnection		Micro-disconnection	
Dielectric strength	V AC/kV (1.2/50 μs)	1,000/1.5	
Conducted disturbance immunity			
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4	level 4 (4 kV)
Surge (1.2/50 μs) on A1 - A2 (differential mode)		EN 61000-4-5	level 3 (2 kV)
Other data			
Bounce time: NO/NC	ms	4/4	
Vibration resistance (5...55)Hz: NO/NC	g	15/12	
Shock resistance	g	16	
Power lost to the environment	without contact current	W	0.6
	with rated current	W	1.2 (44.52) 2.7 (44.62)
Recommended distance between relays mounted on PCB	mm	≥ 5	

Contact specification

F 44 - Electrical life (AC) v contact current



H 44 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

DC coil data - 0.65 W standard

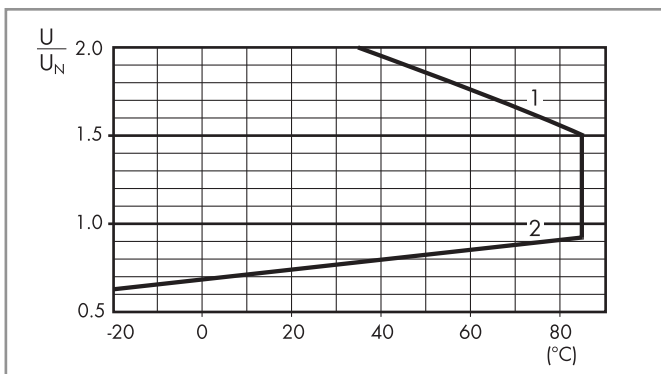
Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
6	9.006	4.4	9	55	109
9	9.009	6.6	13.5	125	72
12	9.012	8.8	18	220	55
14	9.014	10.2	21	300	47
24	9.024	17.5	36	900	27
28	9.028	20.5	42	1,200	23
48	9.048	35	72	3,500	14
60	9.060	43.8	90	5,500	11
110	9.110	80.3	165	18,000	6.2
125	9.125	91.2	188	23,500	5.3

DC coil data - 0.5 W sensitive

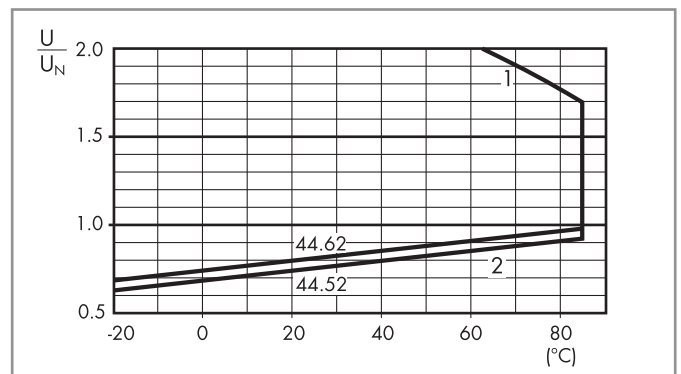
Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min}^* V	U_{max} V		
6	7.006	4.4	10.2	75	80
9	7.009	6.6	15.3	160	56
12	7.012	8.8	20.4	300	40
14	7.014	10.2	23.8	400	35
24	7.024	17.5	40.8	1,200	20
28	7.028	20.5	47.6	1,600	17.5
48	7.048	35	81.6	4,800	10
60	7.060	43.8	102	7,200	8.4
110	7.110	80.3	187	23,500	4.7
125	7.125	100	219	32,000	3.9

* $U_{min} = 0.8 U_N$ for 44.62

R 44 - DC coil operating range v ambient temperature
Standard coil



R 44 - DC coil operating range v ambient temperature
Sensitive coil



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

95 Series - Socket overview for 44 series relays



95.05
See page 5



Module	Socket	Relay	Description	Mounting	Accessories
99.02	95.05	44.52 44.62	Screw terminal (Box clamp) socket - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Timer modules - Plastic retaining and release clip



95.85.3
See page 6



Module	Socket	Relay	Description	Mounting	Accessories
99.80	95.85.3	44.52 44.62	Screw terminal (Box clamp) socket	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Plastic retaining and release clip



95.95.3
See page 7



Module	Socket	Relay	Description	Mounting	Accessories
99.80	95.95.3	44.52 44.62	Screw terminal (Box clamp) socket - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Plastic retaining and release clip



95.55
See page 8



Module	Socket	Relay	Description	Mounting	Accessories
99.02	95.55	44.52 44.62	Screwless terminal socket - For fast cable connections - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Timer modules - Plastic retaining and release clip



95.55.3
See page 9



Module	Socket	Relay	Description	Mounting	Accessories
99.80	95.55.3	44.52 44.62	Screwless terminal socket - For fast cable connections - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Plastic retaining and release clip



95.65
See page 10

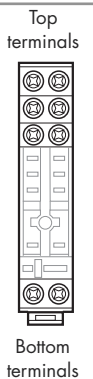


Module	Socket	Relay	Description	Mounting	Accessories
—	95.65	44.52 44.62	Screw terminal (Box clamp) socket	Panel or 35 mm rail (EN 60715) mount	- Metal retaining clip



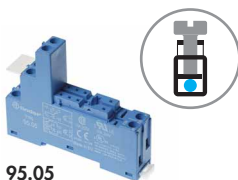
95.15.2
See page 11

Module	Socket	Relay	Description	Mounting	Accessories
—	95.15.2	44.52 44.62	PCB socket	PCB mounting	- Metal retaining clip





95 Series - Sockets and accessories for 44 series relays



95.05

Approvals (according to type):



cUL US Certain relay/socket combinations



095.01



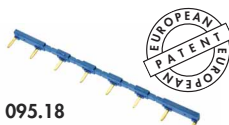
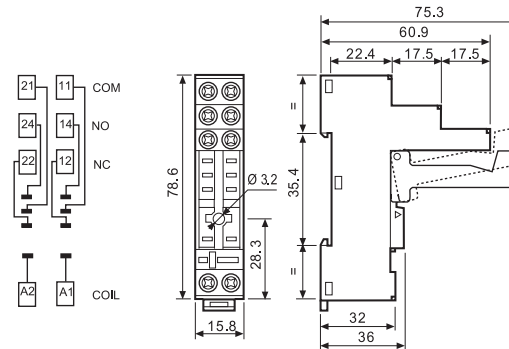
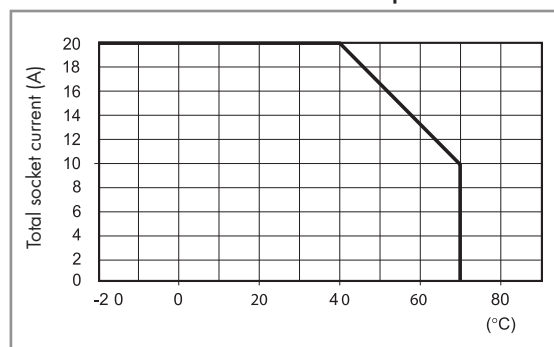
060.72

Screw terminal (Box clamp) socket panel or 35 mm rail mount	95.05 (blue)	95.05.0 (black)
For relay type	44.52, 44.62	

Accessories		
Metal retaining clip		095.71
Plastic retaining and release clip (supplied with socket - packaging code SPA)	095.01	095.01.0
8-way jumper link	095.18	095.18.0
Identification tag		095.00.4
Modules (see table below)		99.02
Timer modules (see table below)		86.30
Sheet of marker tags for retaining and release clip 095.01 plastic, 72 tags, 6x12 mm		060.72

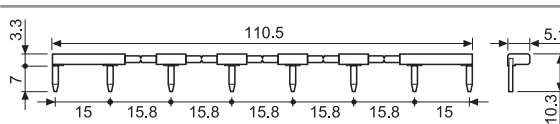
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP 20	
Ambient temperature	°C -40...+70 (see diagram L95)	
Screw torque	Nm	0.5
Wire strip length	mm	8
Max. wire size for 95.05 socket	solid wire	stranded wire
	mm ²	1x6 / 2x2.5
	AWG	1x10 / 2x14

L 95 - Total socket current vs ambient temperature



095.18

8-way jumper link for 95.05 socket	095.18 (blue)	095.18.0 (black)
Rated values	10 A - 250 V	



86 series timer modules		
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s... 100h)		86.30.0.024.0000

Approvals (according to type):



86.30

99.02 coil indication and EMC suppression modules for 95.05 socket

Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07



99.02

Approvals (according to type):



DC Modules with non-standard polarity (+A2) on request.

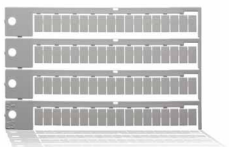


95.85.3

Approvals (according to type):

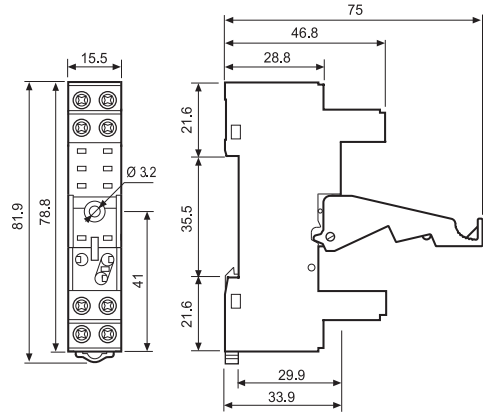
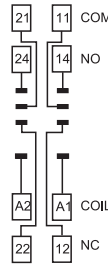
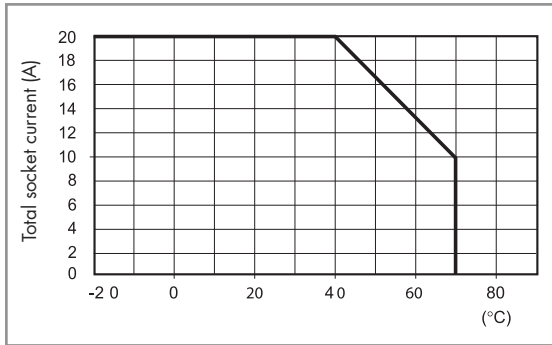


95.91.3

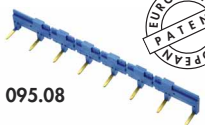


060.72

L 95 - Total socket current vs ambient temperature



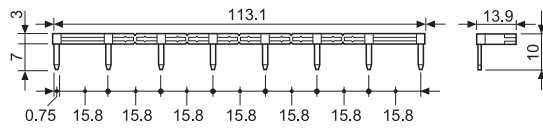
Screw terminal (Box clamp) socket panel or 35 mm rail mount	95.85.3 (blue)	95.85.30 (black)
For relay type	44.52, 44.62	
Accessories		
Metal retaining clip		095.71
Plastic retaining and release clip (supplied with socket - packaging code SPA)	095.91.3	095.91.30
8-way jumper link	095.08	095.08.0
Identification tag		095.80.3
Modules (see table below)		99.80
Sheet of marker tags for retaining and release clip 095.91.3 plastic, 72 tags, 6x12 mm		060.72
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP 20	
Ambient temperature	°C -40...+70 (see diagram L95)	
⊕ Screw torque	Nm	0.5
Wire strip length	mm	7
Max. wire size for 95.85.3 sockets		solid wire
	mm ²	1x6 / 2x2.5
	AWG	1x10 / 2x14
		stranded wire
		1x4 / 2x2.5
		1x12 / 2x14



95.08



8-way jumper link for 95.85.3 socket	095.08 (blue)	095.08.0 (black)
Rated values	10 A - 250 V	



99.80 coil indication and EMC suppression modules for 95.85.3 socket		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.80.3.000.00
LED	(6...24)V DC/AC	99.80.0.024.59
LED	(28...60)V DC/AC	99.80.0.060.59
LED	(110...240)V DC/AC	99.80.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.80.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.80.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.80.9.220.99
LED + Varistor	(6...24)V DC/AC	99.80.0.024.98
LED + Varistor	(28...60)V DC/AC	99.80.0.060.98
LED + Varistor	(110...240)V DC/AC	99.80.0.230.98
RC circuit	(6...24)V DC/AC	99.80.0.024.09
RC circuit	(28...60)V DC/AC	99.80.0.060.09
RC circuit	(110...240)V DC/AC	99.80.0.230.09
Residual current by-pass	(110...240)V AC	99.80.8.230.07



99.80

Approvals (according to type):



* Modules in Black housing are available on request.

Green LED is standard. Red LED available on request.



95 Series - Sockets and accessories for 44 series relays

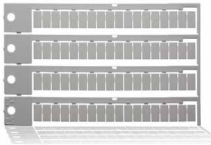


95.95.3

Approvals (according to type):



095.91.3



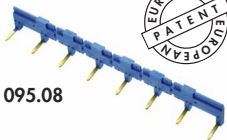
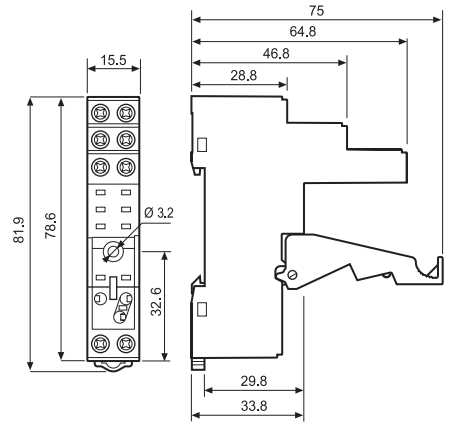
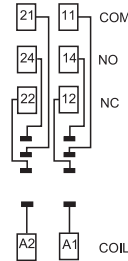
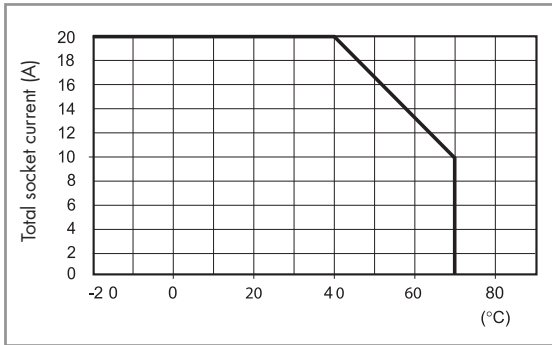
060.72

Screw terminal (Box clamp) socket panel or 35 mm rail mount	95.95.3 (blue)	95.95.30 (black)
For relay type	44.52, 44.62	

Accessories		
Metal retaining clip		095.71
Plastic retaining and release clip (supplied with socket - packaging code SPA)	095.91.3	095.91.30
8-way jumper link	095.08	095.08.0
Identification tag		095.80.3
Modules (see table below)		99.80
Sheet of marker tags for retaining and release clip 095.91.3 plastic, 72 tags, 6x12 mm		060.72

Technical data		
Rated values	10 A - 250 V	
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP 20	
Ambient temperature	°C	-40...+70 (see diagram L95)
Screw torque	Nm	0.5
Wire strip length	mm	8
Max. wire size for 95.95.3 sockets		solid wire
	m ²	1x6 / 2x2.5
	AWG	1x10 / 2x14
		stranded wire
	m ²	1x4 / 2x2.5
	AWG	1x12 / 2x14

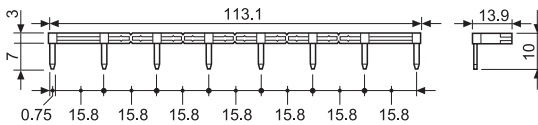
L 95 - Total socket current vs ambient temperature



095.08



8-way jumper link for 95.95.3 socket	095.08 (blue)	095.08.0 (black)
Rated values	10 A - 250 V	



99.80

Approvals (according to type):

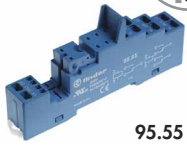


99.80 coil indication and EMC suppression modules for 95.95.3 socket

		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.80.3.000.00
LED	(6...24)V DC/AC	99.80.0.024.59
LED	(28...60)V DC/AC	99.80.0.060.59
LED	(110...240)V DC/AC	99.80.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.80.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.80.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.80.9.220.99
LED + Varistor	(6...24)V DC/AC	99.80.0.024.98
LED + Varistor	(28...60)V DC/AC	99.80.0.060.98
LED + Varistor	(110...240)V DC/AC	99.80.0.230.98
RC circuit	(6...24)V DC/AC	99.80.0.024.09
RC circuit	(28...60)V DC/AC	99.80.0.060.09
RC circuit	(110...240)V DC/AC	99.80.0.230.09
Residual current by-pass	(110...240)V AC	99.80.8.230.07

* Modules in Black housing are available on request.

Green LED is standard. Red LED available on request.



95.55

Approvals
(according to type):

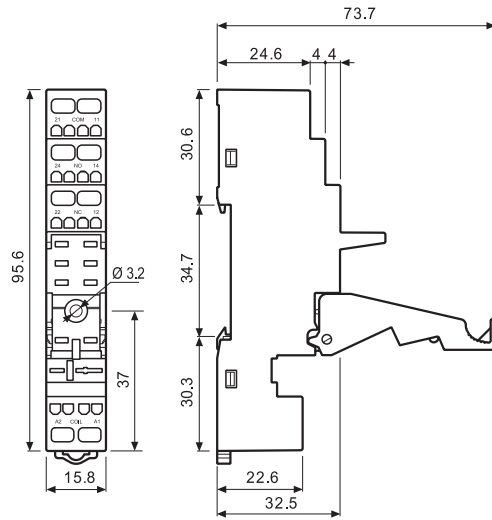
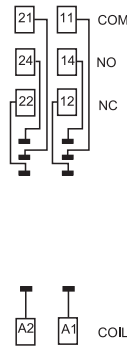
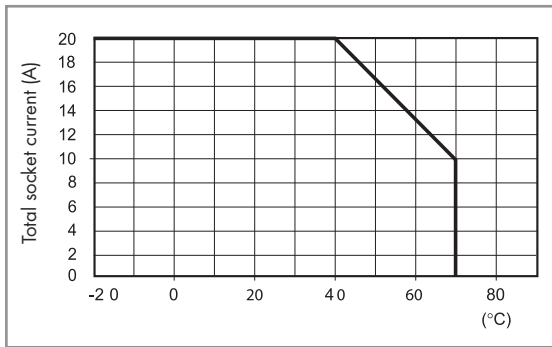


095.91.3



060.72

L 95 - Total socket current vs ambient temperature



Screwless terminal socket panel or 35 mm rail mount	95.55 (blue)	95.55.0 (black)
For relay type	44.52, 44.62	
Accessories		
Metal retaining clip		095.71
Plastic retaining and release clip (supplied with socket - packaging code SPA)		095.91.3
Modules (see table below)		99.02
Timer modules (see table below)		86.30
Sheet of marker tags for retaining and release clip 095.91.3 plastic, 72 tags, 6x12 mm		060.72
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP 20	
Ambient temperature	°C -25...+70 (see diagram L95)	
Wire strip length	mm	8
Max. wire size for 95.55 socket	solid wire	stranded wire
	mm ²	2x(0.2...1.5)
	AWG	2x(24...18)



86.30

86 series timer modules	
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s...100h)	86.30.0.024.0000

Approvals
(according to type):



99.02

Approvals
(according to type):



DC Modules with non-standard polarity (+A2) on request.

99.02 coil indication and EMC suppression modules for 95.55 socket		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07



95 Series - Sockets and accessories for 44 series relays

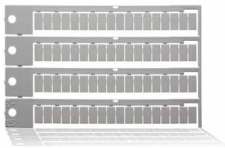


95.55.3

Approvals (according to type):



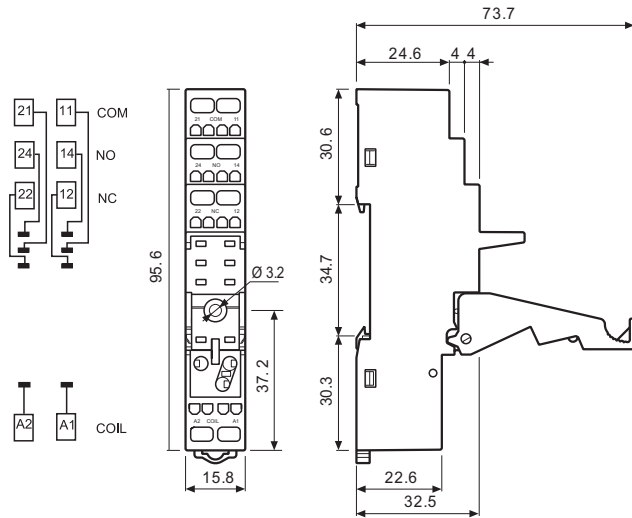
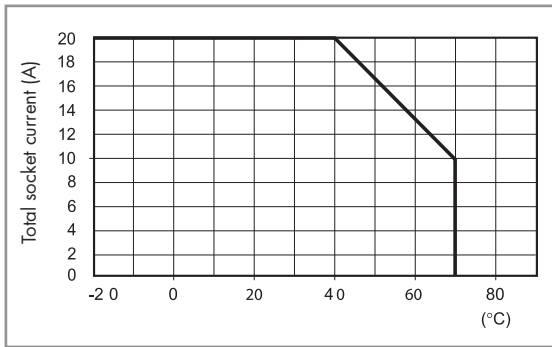
95.91.3



060.72

Screwless terminal socket panel or 35 mm rail mount	95.55.3 (blue)	95.55.30 (black)
For relay type	44.52, 44.62	
Accessories		
Metal retaining clip		095.71
Plastic retaining and release clip (supplied with socket - packaging code SPA)		095.91.3
Modules (see table below)		99.80
Sheet of marker tags for retaining and release clip 095.91.3 plastic, 72 tags, 6x12 mm		060.72
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP 20	
Ambient temperature	°C	-25...+70 (see diagram L95)
Wire strip length	mm	8
Max. wire size for 95.55.3 socket	solid wire	stranded wire
	mm ²	2x(0.2...1.5)
	AWG	2x(24...18)

L 95 - Total socket current vs ambient temperature



99.80

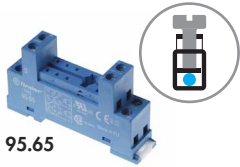
Approvals (according to type):



* Modules in Black housing are available on request.

Green LED is standard. Red LED available on request.

99.80 coil indication and EMC suppression modules for 95.55.3 socket		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.80.3.000.00
LED	(6...24)V DC/AC	99.80.0.024.59
LED	(28...60)V DC/AC	99.80.0.060.59
LED	(110...240)V DC/AC	99.80.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.80.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.80.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.80.9.220.99
LED + Varistor	(6...24)V DC/AC	99.80.0.024.98
LED + Varistor	(28...60)V DC/AC	99.80.0.060.98
LED + Varistor	(110...240)V DC/AC	99.80.0.230.98
RC circuit	(6...24)V DC/AC	99.80.0.024.09
RC circuit	(28...60)V DC/AC	99.80.0.060.09
RC circuit	(110...240)V DC/AC	99.80.0.230.09
Residual current by-pass	(110...240)V AC	99.80.8.230.07



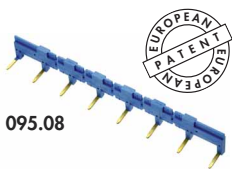
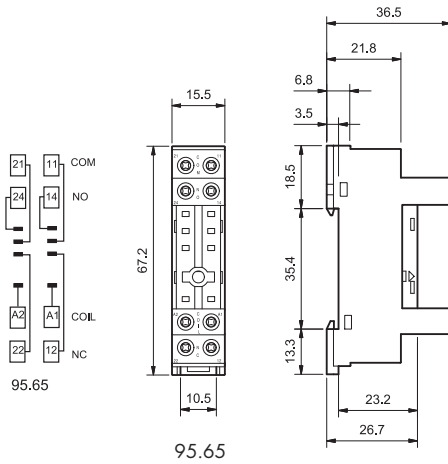
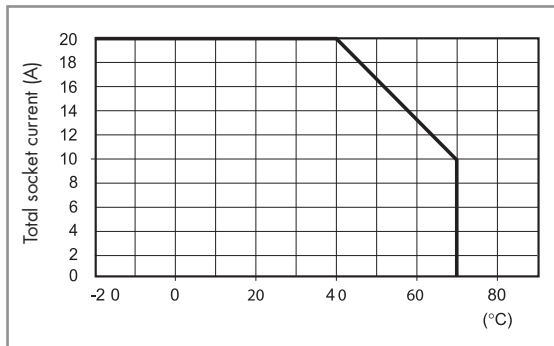
95.65

Approvals
(according to type):



Screw terminal (Box clamp) socket panel or 35 mm rail mount	95.65 (blue)		
For relay type	44.52, 44.62		
Accessories			
Metal retaining clip	095.71		
8-way jumper link	095.08		
Modules	—		
Technical data			
Rated values	10 A - 250 V		
Dielectric strength (between coil and contacts)	2 kV AC		
Protection category	IP 20		
Ambient temperature	°C	-40...+70 (see diagram L95)	
Screw torque	Nm	0.5	
Wire strip length	mm	7	
Max. wire size for 95.65 sockets	solid wire	stranded wire	
	m ²	1x6 / 2x2.5	1x4 / 2x2.5
	AWG	1x10 / 2x14	1x12 / 2x14

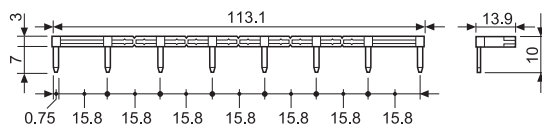
L 95 - Total socket current vs ambient temperature



095.08



8-way jumper link for 95.65 sockets	095.08 (blue)
Rated values	10 A - 250 V





95 Series - Sockets and accessories for 44 series relays

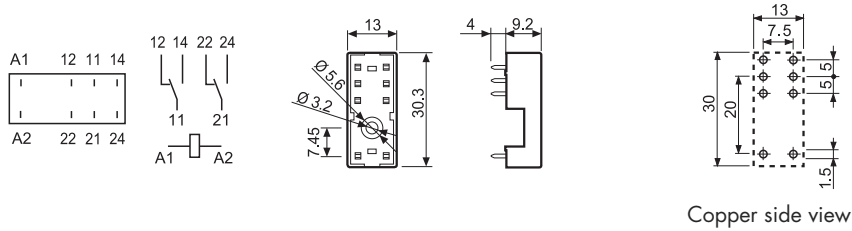


95.15.2

Approvals
(according to type):



PCB socket	95.15.2 (blue)	95.15.20 (black)
For relay type	44.52, 44.62	
Accessories		
Metal retaining clip (supplied with socket - packaging code SMA)		095.51
Plastic retaining clip		095.52
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP 20	
Ambient temperature	°C	-40...+70



Packaging codes

How to code and identify retaining clip and packaging options for sockets.

Example:



A Standard packaging

SM Metal retaining clip
SP Plastic retaining clip



Without retaining clip

Features

Relay for +105 °C ambient use
PCB mount - direct for coil and contact terminals
- 45.31, 1 Pole normally open
(≥ 3 mm contact gap)

Relays for +125 °C ambient use
PCB mount - Faston 250 contact connections
- 45.71, 1 Pole normally open or normally closed
- 45.91, 1 Pole normally open
(≥ 3 mm contact gap)

- Contact gap ≥ 3 mm according to EN 60730-1 (45.31 and 45.91 type)
- Sensitive DC coil - 360 mW
- Cadmium Free option available
- Reinforced insulation between coil and contacts according to EN 60335-1 (VDE 0700), with safe separation and 8 mm clearance and creepage distance
- 6 kV (1.2/50 μs) isolation, coil-contacts
- Flux proof: RT II standard, (RT III option)

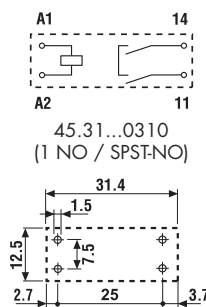
For outline drawing see page 3

FOR UL RATINGS SEE:
"General technical information" page V

NEW 45.31



- 1 NO (SPST-NO), ≥ 3 mm gap
- Max ambient temperature +105°C
- PCB mounting

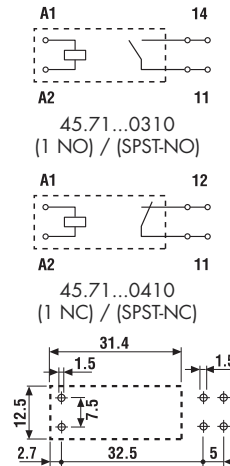


Copper side view

45.71



- 1 NO or 1 NC (SPST-NO or SPST-NC)
- Max ambient temperature +125°C
- PCB mounting + Faston 250

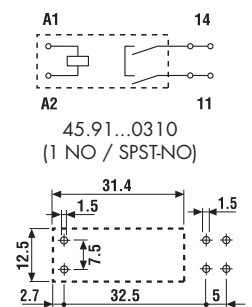


Copper side view

45.91



- 1 NO (SPST-NO), ≥ 3 mm gap
- Max ambient temperature +125°C
- PCB mounting + Faston 250



Copper side view

Contact specification				
Contact configuration		1NO (SPST-NO) ≥ 3 mm gap	1NO or 1NC (SPST-NO or SPST-NC)	1NO (SPST-NO) ≥ 3 mm gap
Rated current/Maximum peak current	A	16/30	16/30	16/30
Rated voltage/Maximum switching voltage V AC		250/400	250/400	250/400
Rated load AC1	VA	4,000	4,000	4,000
Rated load AC15 (230 V AC)	VA	750	750	750
Single phase motor rating (230 V AC)	kW	0.55	0.55	0.55
Breaking capacity DC1: 30/110/220 V	A	16/4/1	16/0.3/0.13	16/4/1
Minimum switching load	mW (V/mA)	500 (10/5)	500 (10/5)	500 (10/5)
Standard contact material		AgNi	AgCdO	AgNi
Coil specification				
Nominal voltage (U _N)	V AC (50/60 Hz)	—	—	—
	V DC	6 - 12 - 24 - 48 - 60	6 - 12 - 24 - 48 - 60	6 - 12 - 24 - 48 - 60
Rated power AC/DC	VA (50 Hz)/W	—/0.36	—/0.36	—/0.36
Operating range	AC	—	—	—
	DC	(0.7...1.2)U _N	(0.7...1.2)U _N	(0.7...1.2)U _N
Holding voltage	AC/DC	—/0.4 U _N	—/0.4 U _N	—/0.4 U _N
Must drop-out voltage	AC/DC	—/0.1 U _N	—/0.1 U _N	—/0.1 U _N
Technical data				
Mechanical life AC/DC	cycles	—/10 · 10 ⁶	—/10 · 10 ⁶	—/10 · 10 ⁶
Electrical life at rated load AC1	cycles	30 · 10 ³	100 · 10 ³	30 · 10 ³
Operate/release time	ms	12/2	10/2	12/2
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	2,500	1,000	2,500
Ambient temperature range	°C	−40...+105	−40...+125	−40...+125
Environmental protection		RT II	RT II	RT II
Approvals (according to type)				

Ordering information

Example: 45 series for PCB relay + Faston 250, 1 NO (SPST-NO), 12 V DC coil.

4 5 . 7 1 . 7 . 0 1 2 . 0 3 1 0	A B C D	
<p>Series _____</p> <p>Type _____ 3 = PCB mount, ≥ 3 mm contact gap 7 = PCB + Faston 250 mount 9 = PCB + Faston 250 mount, ≥ 3 mm contact gap</p> <p>No. of poles _____ 1 = 1 pole, 16 A</p> <p>Coil version _____ 7 = Sensitive DC</p> <p>Coil voltage _____ See coil specifications</p>	<p>A: Contact material 0 = Standard AgCdO for 45.71, Standard AgNi for 45.31 and 45.91 1 = AgNi 2 = AgCdO</p> <p>B: Contact circuit 3 = NO (SPST) 4 = NC (SPST) 45.71 only</p>	<p>D: Special versions 0 = Flux proof (RT II) 1 = Wash tight (RT III) 45.71 and 45.91 only</p> <p>C: Options 1 = None</p>

Selecting features and options: only combinations in the same row are possible.

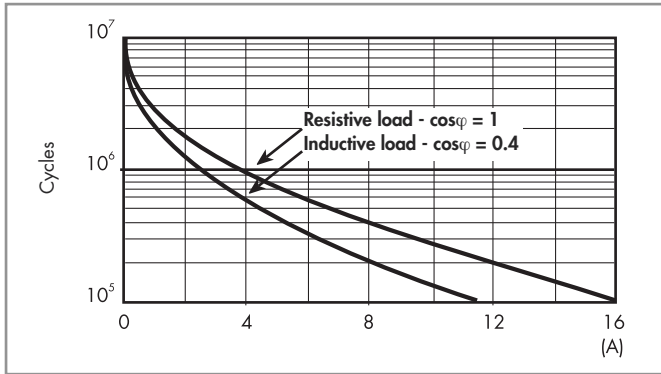
Type	Coil version	A	B	C	D
45.31	sensitive DC	0 - 2	3	1	0
45.71	sensitive DC	0 - 1	3 - 4	1	0 - 1
45.91	sensitive DC	0 - 2	3	1	0 - 1

Technical data

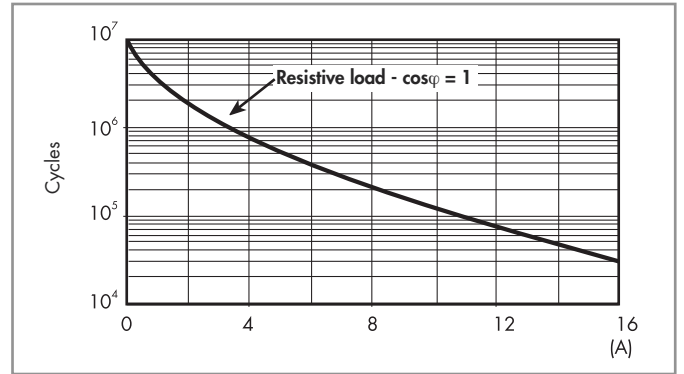
Insulation according to EN 61810-1		45.71		45.31 / 45.91	
Nominal voltage of supply system	V AC	230/400		230/400	
Rated insulation voltage	V AC	250	400	250	400
Pollution degree		3	2	3	2
Insulation between coil and contact set					
Type of insulation		Reinforced (8 mm)		Reinforced (8 mm)	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 µs)	6		6	
Dielectric strength	V AC	4,000		4,000	
Insulation between open contacts					
Type of disconnection		Micro-disconnection		Full-disconnection	
Overvoltage category		—		III	
Rated impulse voltage	kV (1.2/50 µs)	—		4	
Dielectric strength	V AC/kV (1.2/50 µs)	1,000/1.5		2,500/4	
Conducted disturbance immunity					
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4		level 4 (4 kV)	
Surge (1.2/50 µs) on A1 - A2 (differential mode)		EN 61000-4-5		level 3 (2 kV)	
Other data		45.71		45.31 / 45.91	
Bounce time: NO/NC	ms	3/3		2/—	
Vibration resistance (10...150)Hz: NO/NC	g	20/10		20/—	
Shock resistance	g	20			
Power lost to the environment	without contact current	W	0.4		
	with rated current	W	1.8		
Recommended distance between relays mounted on PCB	mm	≥ 5			

Contact specification

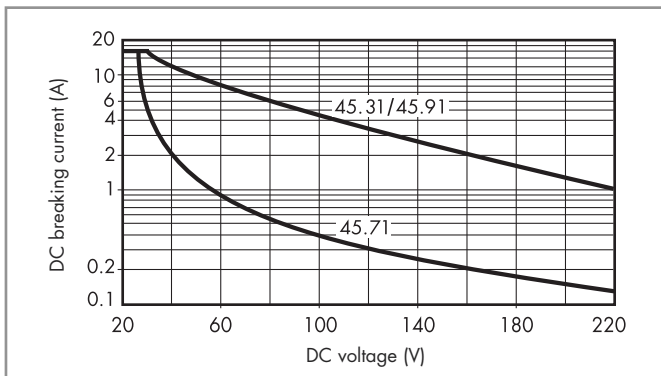
F 45 - Electrical life (AC) v contact current
Type 45.71



F 45 - Electrical life (AC) v contact current
Type 45.31 / 45.91



H 45 - Maximum DC1 breaking capacity



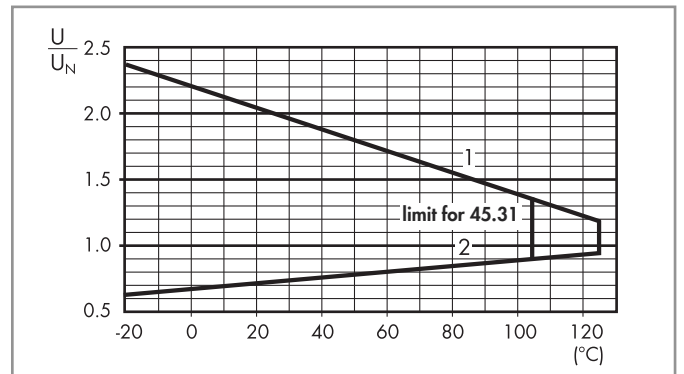
- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ cycles (45.71) and $\geq 30 \cdot 10^3$ cycles (45.31, 45.91) can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

DC coil data - 0.36 W sensitive

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
6	7.006	4.2	7.2	100	60
12	7.012	8.4	14.4	400	30
24	7.024	16.8	28.8	1,600	15
48	7.048	33.6	57.6	6,400	7.5
60	7.060	42	72	10,000	6

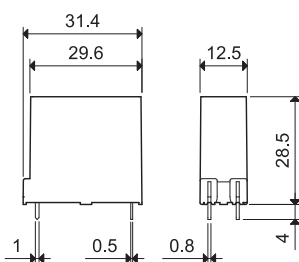
R 45 - DC coil operating range v ambient temperature



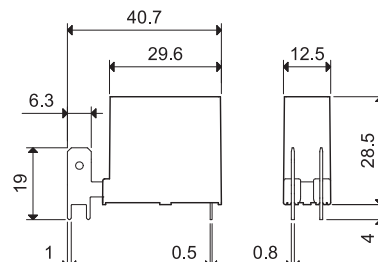
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Outline drawings

Type 45.31



Type 45.71 / 91

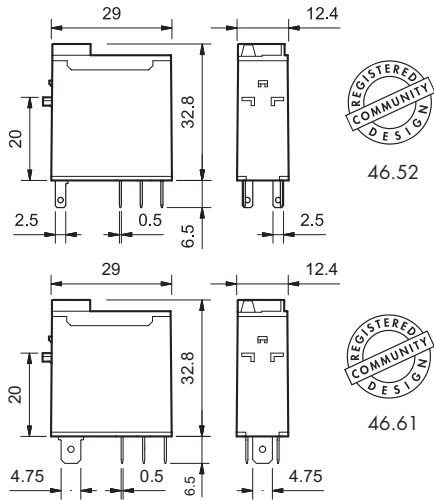


Features

1 & 2 Pole relay range

- 46.52 - 2 Pole 8 A
- 46.61 - 1 Pole 16 A

- Socket mount or direct connection via Faston connectors
- AC coils & DC coils
- Available with: lockable test button, mechanical indicator & LED indicator
- 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts
- Cadmium Free contacts
- European Patent



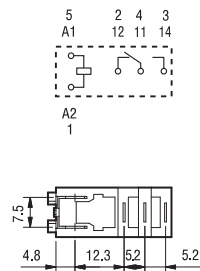
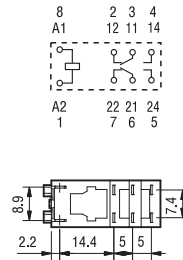
FOR UL RATINGS SEE:
"General technical information" page V



• 2 Pole CO, 8 A
• Plug-in/Solder terminals



• 1 Pole CO, 16 A
• Plug-in/Faston 187



Contact specification		46.52	46.61
Contact configuration		2 CO (DPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	8/15	16/25 *
Rated voltage/Maximum switching voltage	V AC	250/440	250/440
Rated load AC1	VA	2,000	4,000
Rated load AC15 (230 V AC)	VA	350	750
Single phase motor rating (230 V AC)	kW	0.37	0.55
Breaking capacity DC1: 30/110/220 V	A	6/0.5/0.15	12/0.5/0.15
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Coil specification		46.52	46.61
Nominal voltage (U _N)	V AC (50/60 Hz)	12 - 24 - 48 - 110 - 120 - 230 - 240	
	V DC	12 - 24 - 48 - 110 - 125	
Rated power	VA/W	1.2/0.5	1.2/0.5
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	(0.73...1.1)U _N	(0.73...1.1)U _N
Holding voltage	AC/DC	0.8U _N /0.4U _N	0.8U _N /0.4U _N
Must drop-out voltage	AC/DC	0.2U _N /0.1U _N	0.2U _N /0.1U _N
Technical data		46.52	46.61
Mechanical life AC/DC	cycles	10 · 10 ⁶	10 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³
Operate/release time	ms	10/3	15/5
Insulation between coil and contacts (1.2/50 µs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	-40 ... +70	-40 ... +70
Environmental protection		RT II	RT II

* With the AgSnO₂ material the maximum peak current is 80 A - 5 ms on normally open contact.

Approvals (according to type)



Ordering information

Example: 46 series Miniature industrial relay, 1 CO (SPDT), 24 V DC coil, lockable test button and mechanical indicator.

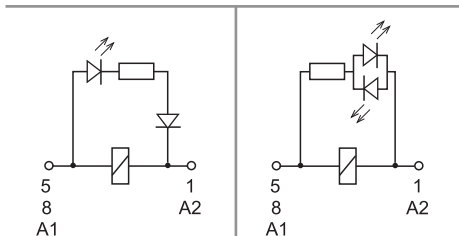
	4	6	6	1	9	0	2	4	0	0	4	0
									A	B	C	D
Series												
Type												
5 = Spade/blade solder terminal (2.5x0.5)mm												
6 = Spade/blade terminal Faston 187 (4.8x0.5)mm												
No. of poles												
1 = 1 pole, 16 A												
2 = 2 poles, 8 A												
Coil version												
9 = DC												
8 = AC (50/60 Hz)												
Coil voltage												
See coil specifications												
									A: Contact material		D: Special versions	
									0 = AgNi		0 = Standard	
									4 = AgSnO ₂ (46.61 only)		C: Options	
									5 = AgNi + Au (5 µm)		2 = Mechanical indicator	
									B: Contact circuit		4 = Lockable test button + mechanical indicator	
									0 = CO (nPDT)		54 = Lockable test button + LED (AC) + mechanical indicator	
											74 = Lockable test button + double LED (DC non-polarized) + mechanical indicator	

Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold**.

Type	Coil version	A	B	C	D
46.52	AC - DC	0 - 5	0	2 - 4	0
	AC	0 - 5	0	54	/
	DC	0 - 5	0	74	/
46.61	AC - DC	0 - 4 - 5	0	2 - 4	0
	AC	0 - 4 - 5	0	54	/
	DC	0 - 4 - 5	0	74	/

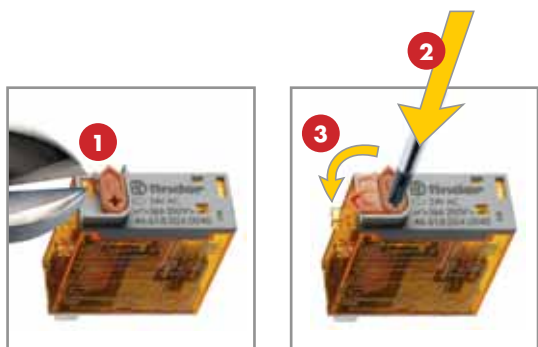
Special versions for Rail Applications on request

Descriptions: Options



C: Option 54
LED (AC)

C: Option 74
LED (DC, non-polarized)



Lockable test button and mechanical flag indicator (0040, 0054, 0074)

The dual-purpose Finder test button can be used in two ways:

Case 1) The plastic pip (located directly below the test button) remains intact. In this case, when the test button is pushed, the contacts operate. When the test button is released the contacts return to their former state.

Case 2) The plastic pip is broken-off (using an appropriate cutting tool). In this case, (in addition to the above function), when the test button is pushed and rotated, the contacts are latched in the operating state, and remain so until the test button is rotated back to its former position. In both cases ensure that the test button actuation is swift and decisive.

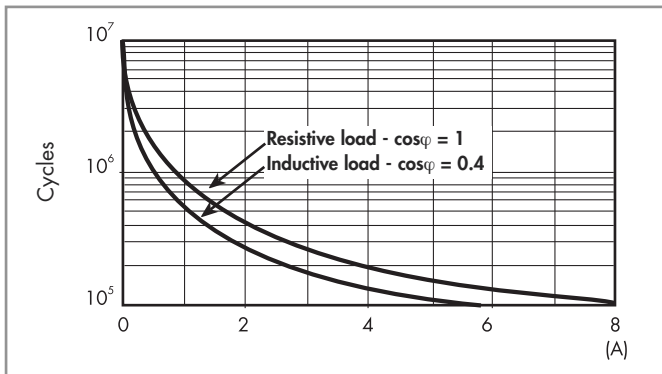


Technical data

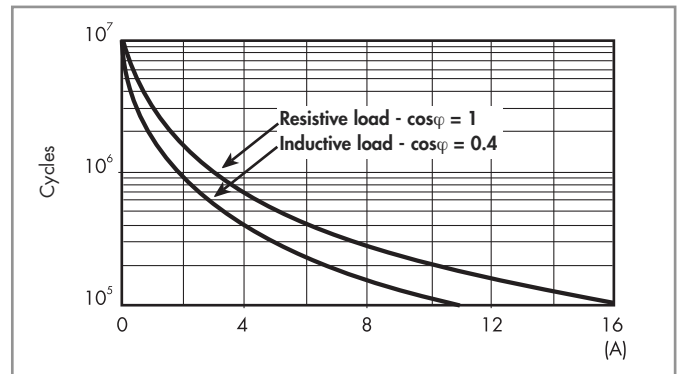
Insulation according to EN 61810-1		1 pole		2 pole	
Nominal voltage of supply system	V AC	230/400		230/400	
Rated insulation voltage	V AC	250	400	250	400
Pollution degree		3	2	3	2
Insulation between coil and contact set					
Type of insulation		Reinforced (8 mm)		Reinforced (8 mm)	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 μ s)	6		6	
Dielectric strength	V AC	4,000		4,000	
Insulation between adjacent contacts					
Type of insulation		—		Basic	
Overvoltage category		—		III	
Rated impulse voltage	kV (1.2/50 μ s)	—		4	
Dielectric strength	V AC	—		2,000	
Insulation between open contacts					
Type of disconnection		Micro-disconnection		Micro-disconnection	
Dielectric strength	V AC/kV (1.2/50 μ s)	1,000/1.5		1,000/1.5	
Conducted disturbance immunity					
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4		level 4 (4 kV)	
Surge (1.2/50 μ s) on A1 - A2 (differential mode)		EN 61000-4-5		level 3 (2 kV)	
Other data		46.61		46.52	
Bounce time: NO/NC	ms	2/6		1/4	
Vibration resistance (10...150)Hz: NO/NC	g	20/12		20/15	
Shock resistance	g	20		20	
Power lost to the environment	without contact current	W	0.6		0.6
	with rated current	W	1.6		2
Recommended distance between relays mounted on PCB	mm	≥ 5			

Contact specification

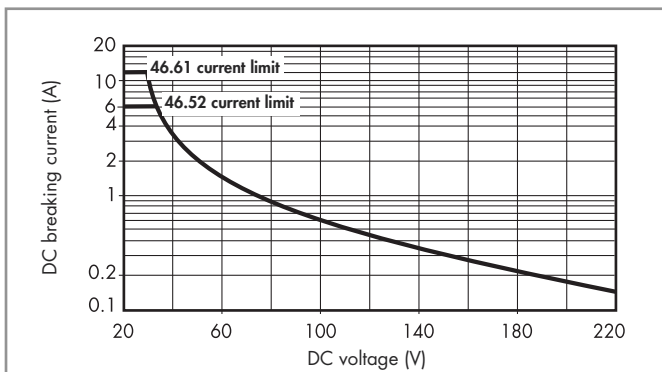
F 46 - Electrical life (AC) v contact current
Type 46.52



F 46 - Electrical life (AC) v contact current
Type 46.61



H 46 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

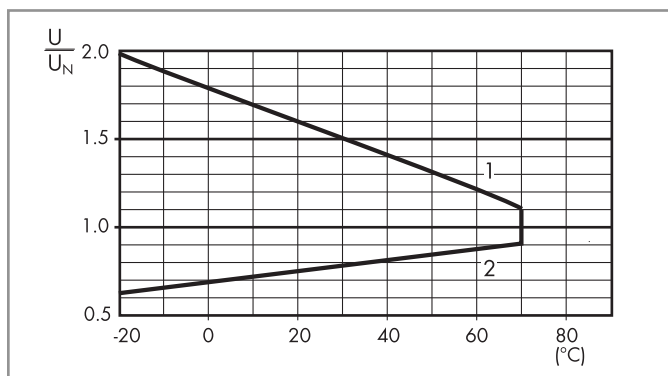
DC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
12	9.012	8.8	13.2	300	40
24	9.024	17.5	26.4	1,200	20
48	9.048	35	52.8	4,800	10
110	9.110	80	121	23,500	4.7
125	9.125	91.2	138	32,000	3.9

AC coil data

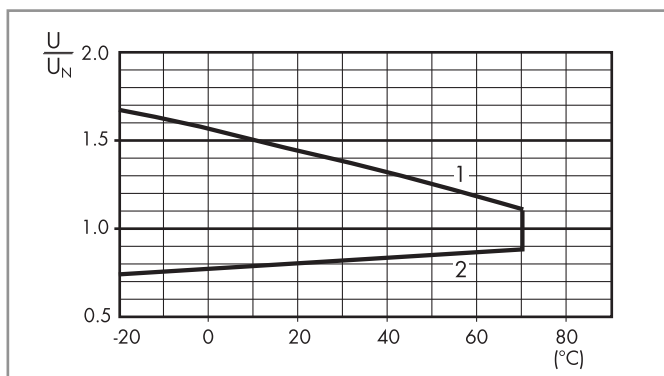
Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
12	8.012	9.6	13.2	80	90
24	8.024	19.2	26.4	320	45
48	8.048	38.4	52.8	1,350	21
110	8.110	88	121	6,900	9.4
120	8.120	96	132	9,000	8.4
230	8.230	184	253	28,000	5
240	8.240	192	264	31,500	4.1

R 46 - DC coil operating range v ambient temperature



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

R 46 - AC coil operating range v ambient temperature



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Accessories



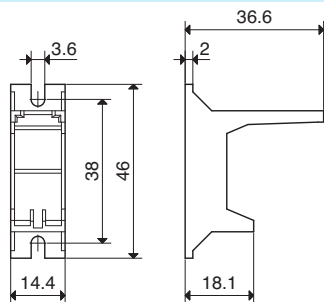
046.05



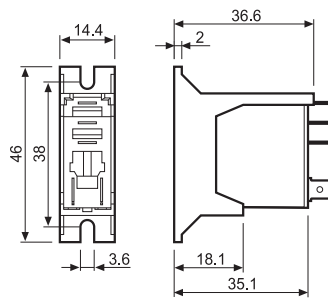
046.05 with relay

Flange mount adaptor for relays types 46.52 and 46.61

046.05



046.05



046.05 with relay



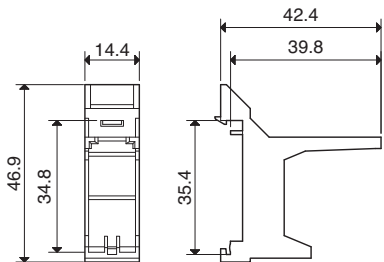
046.07



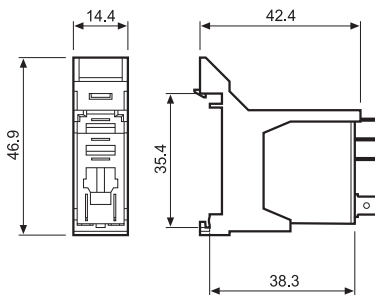
046.07 with relay

35 mm rail adaptor for relays types 46.52 and 46.61

046.07



046.07



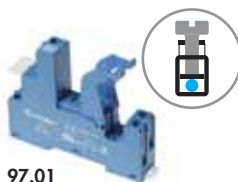
046.07 with relay

Sheet of marker tags for relays types 46.52 and 46.61 (72 tags), 6x12mm

060.72



060.72



97.01

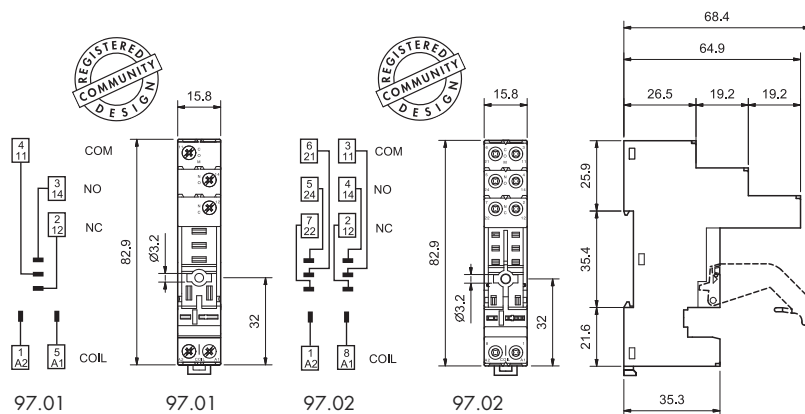
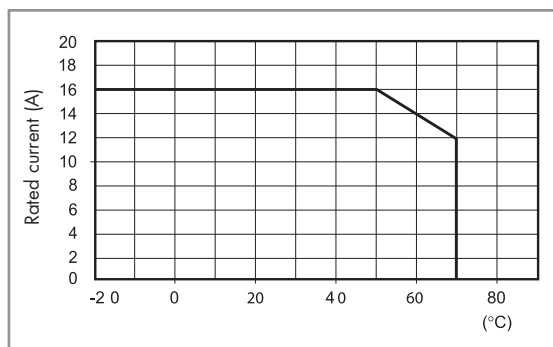
Approvals
(according to type):



97.01

Screw terminal socket panel or 35 mm rail (EN 60715) mount	97.01 (blue)	97.01.0 (black)	97.02 (blue)	97.02.0 (black)
For relay type	46.61		46.52	
Accessories				
Plastic retain and release clip (supplied with socket - packaging code SPA)			097.01	
Metal retaining clip			097.71	
Identification tag			095.00.4	
8-way jumper link	095.18 (blue)		095.18.0 (black)	
Modules (see table below)			99.02	
Timer modules (see table below)			86.30	
Technical data				
Rated current	16 A - 250 V AC		8 A - 250 V AC	
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts			
Protection category	IP 20			
Ambient temperature	°C -40...+70 (see diagram L97)			
⊕ Screw torque	Nm 0.8			
Wire strip length	mm 8			
Max. wire size for 97.01 and 97.02 sockets		solid wire	stranded wire	
	mm ²	1x6 / 2x2.5	1x4 / 2x2.5	
	AWG	1x10 / 2x14	1x12 / 2x14	

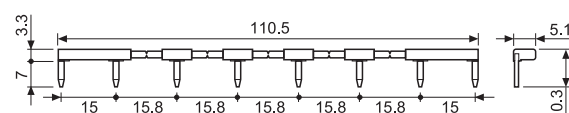
L 97 - Rated current vs ambient temperature (for 46.61 relay / 97.01 socket combination)



095.18



8-way jumper link for 97.01 and 97.02 sockets	095.18 (blue)	095.18.0 (black)
Rated values	10 A - 250 V	



86.30

86 series timer module	
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s...100h)	86.30.0.024.0000
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000
(230...240)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.240.0000

Approvals
(according to type):



99.02

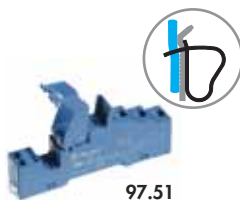
99.02 coil indication and EMC suppression modules for 97.01 and 97.02 sockets		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07

Approvals
(according to type):



DC Modules with non-standard polarity (+A2) on request.

97 Series - Sockets and accessories for 46 series relays

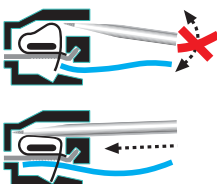
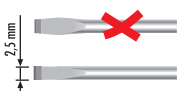


97.51

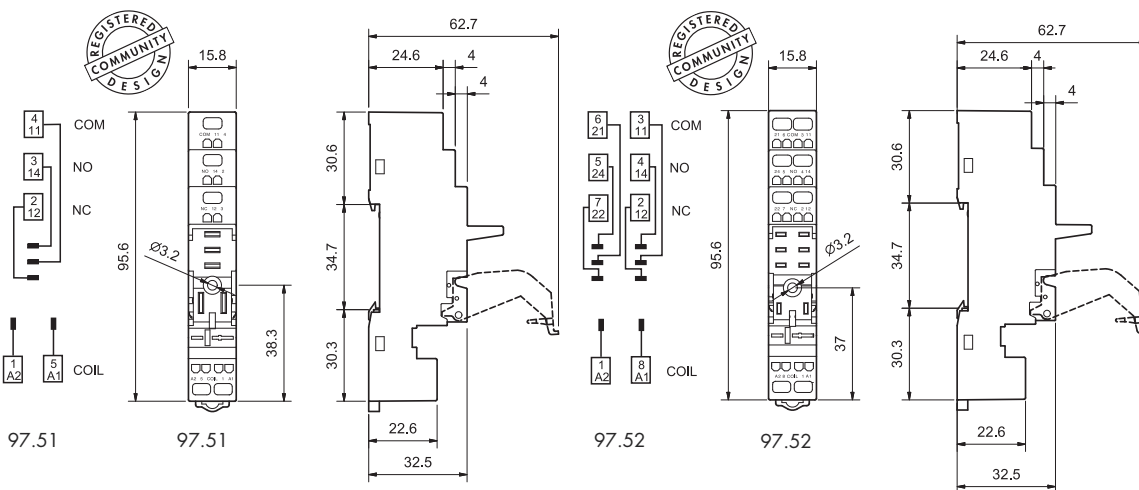
Approvals (according to type):



097.01



Screwless terminal socket panel or 35 mm rail (EN 60715) mount	97.51 (blue)	97.51.0 (black)	97.52 (blue)	97.52.0 (black)
For relay type	46.61		46.52	
Accessories				
Plastic retain and release clip (supplied with socket - packaging code SPA)			097.01	
Metal retaining clip			097.71	
Modules (see table below)			99.02	
Timer modules (see table below)			86.30	
Technical data				
Rated current	10 A - 250 V AC		8 A - 250 V AC	
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts			
Protection category	IP 20			
Ambient temperature	°C -25...+70			
Wire strip length	mm 8			
Max. wire size for 97.51 and 97.52 sockets	solid wire		stranded wire	
	mm ² 2x(0.2...1.5)		2x(0.2...1.5)	
	AWG 2x(24...18)		2x(24...18)	



86.30

86 series timer module	
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s...100h)	86.30.0.024.0000
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000
(230...240)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.240.0000

Approvals (according to type):



99.02

Approvals (according to type):



99.02 coil indication and EMC suppression modules for 97.51 and 97.52 sockets		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07

DC Modules with non-standard polarity (+A2) on request.

97 Series - Sockets and accessories for 46 series relays



97.11

Approvals
(according to type):



PCB socket	97.11 (blue)	97.12 (blue)
For relay type	46.61	46.52
Technical data		
Rated values	12 A - 250 V (see diagram L97)	8 A - 250 V
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP 20	
Ambient temperature	°C -40...+70	

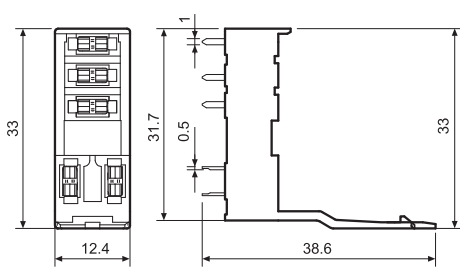
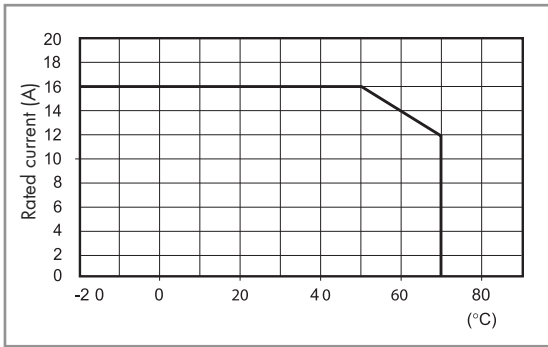


97.12

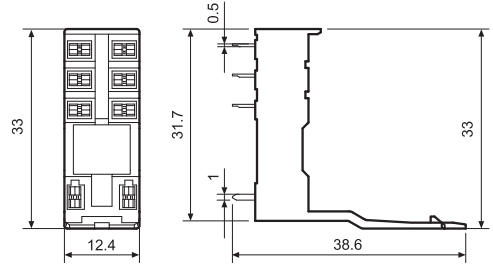
Approvals
(according to type):



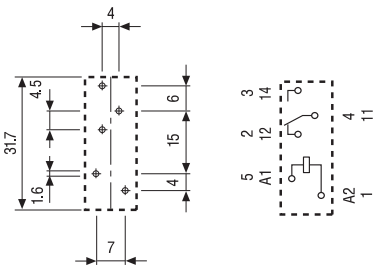
L 97 - Rated current vs ambient temperature
(for 46.61 relay / 97.11 socket combination)



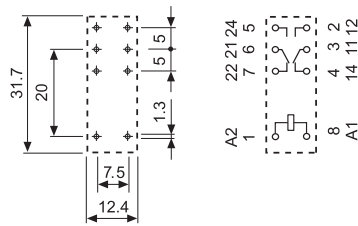
97.11



97.12



Copper side view



Copper side view

Packaging codes

How to code and identify retaining clip and packaging options for sockets.

Example:

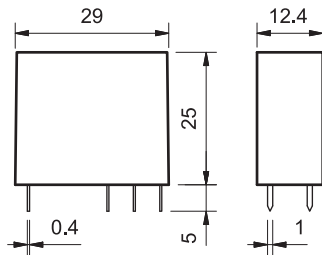


- A Standard packaging
- SM Metal retaining clip
- SP Plastic retaining clip
- Without retaining clip

Features

PCB Relay with forcibly guided contacts according to EN 50205 type B
2 CO contacts *

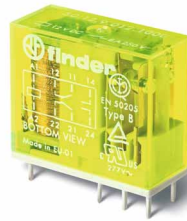
- High physical separation between adjacent contacts
- Cadmium Free contact materials
- 8 mm, 6 kV (1.2/50 μ s) isolation, coil-contacts
- Flux proof: RT II



* According to EN 50205 only 1 NO and 1 NC (11-14 and 21-22 or 11-12 and 21-24) shall be used as forcibly guided contacts.

FOR UL RATINGS SEE:
"General technical information" page V

50.12...1000

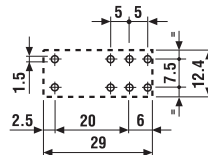
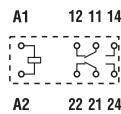


- For medium duty switching, suggested for DC loads
- 2 Pole 8 A
- 5 mm pinning
- PCB mounting

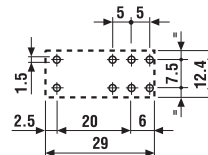
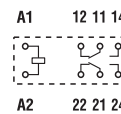
50.12...5000



- For safety applications
- 5 μ m gold plate contacts for low level switching capability
- 5 mm pinning
- PCB mounting



Copper side view



Copper side view

Contact specification

Contact configuration	2 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current A	8/15	8/15
Rated voltage/Maximum switching voltage V AC	250/400	250/400
Rated load AC1 VA	2,000	2,000
Rated load AC15 (230 V AC) VA	500	500
Single phase motor rating (230 V AC) kW	0.37	0.37
Breaking capacity DC1: 30/110/220 V A	8/0.65/0.2	8/0.65/0.2
Minimum switching load mW (V/mA)	500 (10/10)	50 (5/5)
Standard contact material	AgNi	AgNi + Au

Coil specification

Nominal voltage (U _N) V AC (50/60 Hz)	—	—
V DC	5 - 6 - 12 - 24 - 48 - 60 - 110 - 125	5 - 6 - 12 - 24 - 48 - 60 - 110 - 125
Rated power AC/DC VA (50 Hz)/W	—/0.7	—/0.7
Operating range AC (50 Hz)	—	—
DC	(0.75...1.2)U _N	(0.75...1.2)U _N
Holding voltage AC/DC	—/0.4 U _N	—/0.4 U _N
Must drop-out voltage AC/DC	—/0.1 U _N	—/0.1 U _N

Technical data

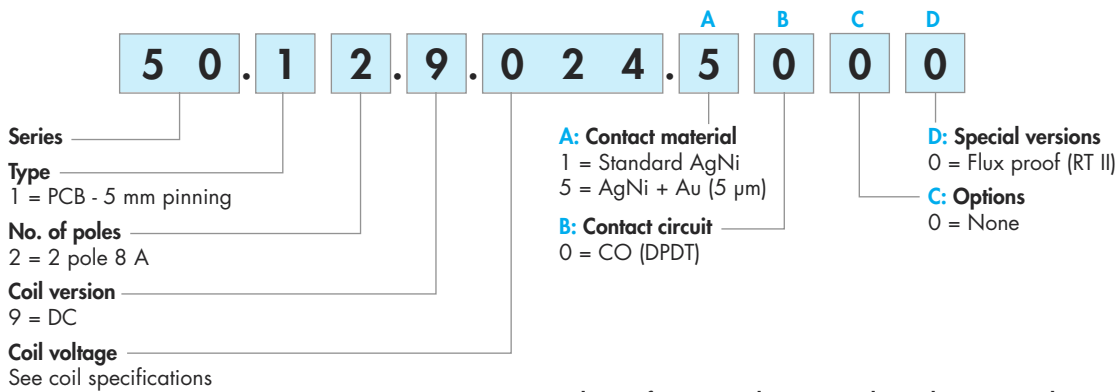
Mechanical life AC/DC cycles	—/10 · 10 ⁶	—/10 · 10 ⁶
Electrical life at rated load AC1 cycles	100 · 10 ³	100 · 10 ³
Operate/release time ms	10/4	10/4
Insulation between coil and contacts (1.2/50 μ s) kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts V AC	1,500	1,500
Ambient temperature range °C	−40...+70	−40...+70
Environmental protection	RT II	RT II

Approvals (according to type)



Ordering information

Example: 50 series forcibly guided contacts, 2 CO (DPDT) 8 A contacts, 24 V DC coil.



Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold**.

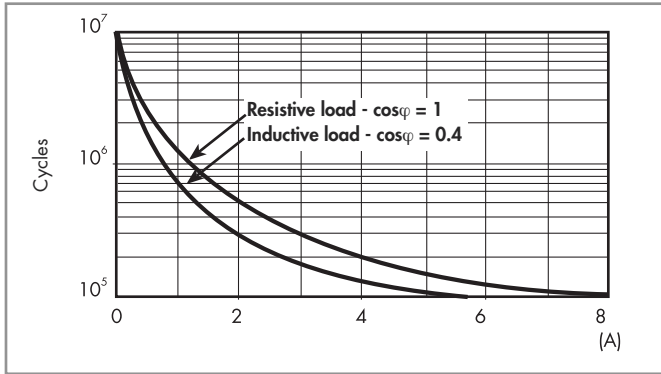
Type	Coil version	A	B	C	D
50.12	DC	1 - 5	0	0	0

Technical data

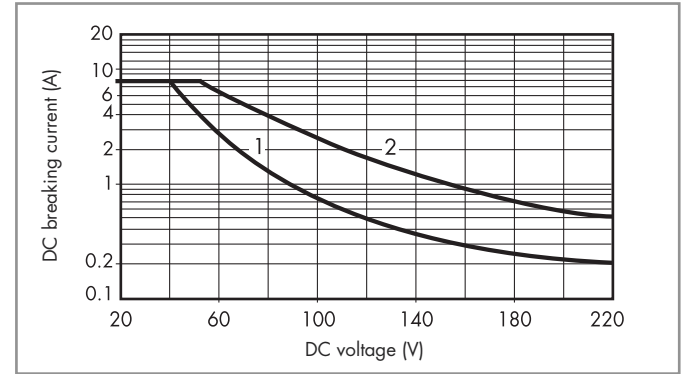
Insulation according to EN 61810-1					
Nominal voltage of supply system	V AC	230/400			
Rated insulation voltage	V AC	250	400		
Pollution degree		3	2		
Insulation between coil and contact set					
Type of insulation	Reinforced (8 mm)				
Overvoltage category	III				
Rated impulse voltage	kV (1.2/50 μs)	6			
Dielectric strength	V AC	4,000			
Insulation between adjacent contacts					
Type of insulation	Basic				
Overvoltage category	III				
Rated impulse voltage	kV (1.2/50 μs)	4			
Dielectric strength	V AC	3,000			
Insulation between open contacts					
Type of disconnection	Micro-disconnection				
Dielectric strength	V AC/kV (1.2/50 μs)	1,500/2.5			
Conducted disturbance immunity					
Burst (5...50)ns, 5 kHz, on A1 - A2	EN 61000-4-4		level 4 (4 kV)		
Surge (1.2/50 μs) on A1 - A2 (differential mode)	EN 61000-4-5		level 3 (2 kV)		
Other data					
Bounce time: NO/NC	ms	2/10			
Vibration resistance (10...200)Hz: NO/NC	g	20/6			
Shock resistance NO/NC	g	20/5			
Power lost to the environment	without contact current	W	0.7		
	with rated current	W	1.2		
Recommended distance between relays mounted on PCB	mm	≥ 5			

Contact specification

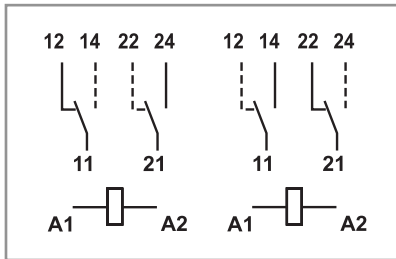
F 50 - Electrical life (AC) v contact current



H 50 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load. Note: the release time for the load will be increased.



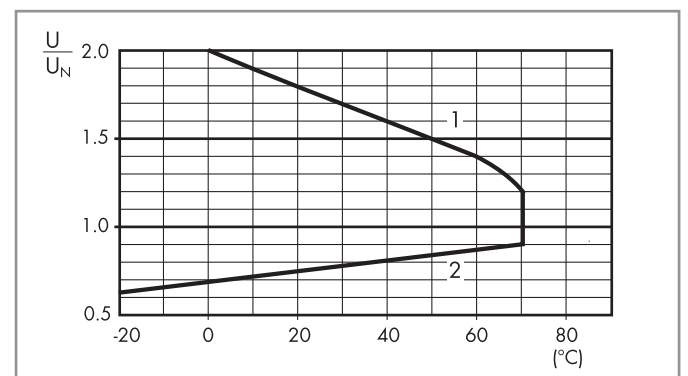
Alternative selection of NO and NC contacts to provide Forcibly guided (mechanically linked) contacts, in accordance with EN 50205 (type B).

Coil specifications

DC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
5	9.005	3.8	6	35	143
6	9.006	4.5	7.2	50	120
12	9.012	9	14.4	205	58.5
24	9.024	18	28.8	820	29.3
48	9.048	36	57.6	3,280	14.4
60	9.060	45	72	5,140	11.7
110	9.110	82.5	131	17,250	6.4
125	9.125	93.7	150	22,300	5.6

R 50 - DC coil operating range v ambient temperature
Standard coil



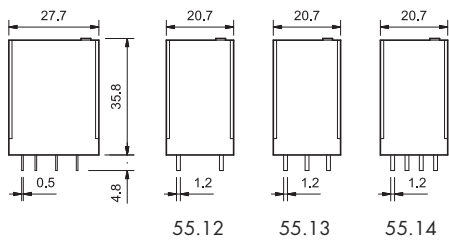
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Features

Printed circuit mount, general purpose
2, 3 & 4 Pole relays

- 55.12 - 2 Pole 10 A
- 55.13 - 3 Pole 10 A
- 55.14 - 4 Pole 7 A

- AC coils & DC coils
- Cadmium Free contacts (preferred version)
- Contact material options
- RT III (wash tight) option available



FOR UL RATINGS SEE:
"General technical information" page V

Contact specification

Contact configuration	2 CO (DPDT)	3 CO (3PDT)	4 CO (4PDT)
Rated current/Maximum peak current A	10/20	10/20	7/15
Rated voltage/Maximum switching voltage V AC	250/400	250/400	250/250
Rated load AC1 VA	2,500	2,500	1,750
Rated load AC15 (230 V AC) VA	500	500	350
Single phase motor rating (230 V AC) kW	0.37	0.37	0.125
Breaking capacity DC1: 30/110/220V A	10/0.25/0.12	10/0.25/0.12	7/0.25/0.12
Minimum switching load mW (V/mA)	300 (5/5)	300 (5/5)	300 (5/5)
Standard contact material	AgNi	AgNi	AgNi

Coil specification

Nominal voltage (U _N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240		
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220		
Rated power AC/DC VA (50 Hz)/W		1.5/1	1.5/1	1.5/1
Operating range	AC	(0.8...1.1)U _N		
	DC	(0.8...1.1)U _N		
Holding voltage	AC/DC	0.8 U _N /0.5 U _N		
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N		

Technical data

Mechanical life AC/DC	cycles	20 · 10 ⁶ /50 · 10 ⁶	20 · 10 ⁶ /50 · 10 ⁶	20 · 10 ⁶ /50 · 10 ⁶
Electrical life at rated load AC1	cycles	200 · 10 ³	200 · 10 ³	150 · 10 ³
Operate/release time	ms	10/5	10/5	11/3
Insulation between coil and contacts (1.2/50 μs)	kV	4	4	4
Dielectric strength between open contacts	V AC	1,000	1,000	1,000
Ambient temperature range	°C	-40...+85	-40...+85	-40...+85
Environmental protection		RT I	RT I	RT I

Approvals (according to type)

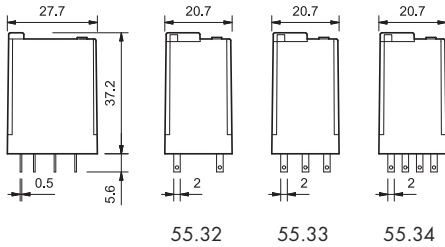
55.12	55.13	55.14
<ul style="list-style-type: none"> • 2 pole, 10 A • PCB mount 	<ul style="list-style-type: none"> • 3 pole, 10 A • PCB mount 	<ul style="list-style-type: none"> • 4 pole, 7 A • PCB mount
<p>Copper side view</p>	<p>Copper side view</p>	<p>Copper side view</p>

Features

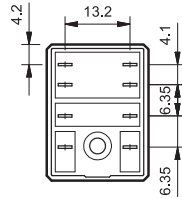
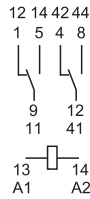
Plug-in mount, general purpose
2, 3 & 4 Pole relays

- 55.32 - 2 Pole 10 A
- 55.33 - 3 Pole 10 A
- 55.34 - 4 Pole 7 A

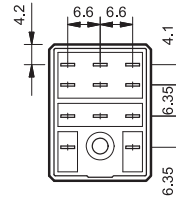
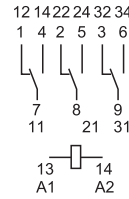
- Lockable test button and mechanical flag indicator as standard on 2 & 4 pole types
- AC coils & DC coils
- UL Listing (certain relay/socket combinations)
- Cadmium Free contacts (preferred version)
- Contact material options
- 94 series sockets
- Coil EMC suppression
- Timer accessories 86 series
- European Patent



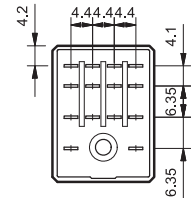
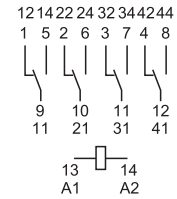
- 2 pole, 10 A
- Plug-in 94 series sockets



- 3 pole, 10 A
- Plug-in 94 series sockets



- 4 pole, 7 A
- Plug-in 94 series sockets



FOR UL RATINGS SEE:
"General technical information" page V

Contact specification		55.32	55.33	55.34
Contact configuration		2 CO (DPDT)	3 CO (3PDT)	4 CO (4PDT)
Rated current/Maximum peak current	A	10/20	10/20	7/15
Rated voltage/Maximum switching voltage V AC		250/400	250/400	250/250
Rated load AC1	VA	2,500	2,500	1,750
Rated load AC15 (230 V AC)	VA	500	500	350
Single phase motor rating (230 V AC)	kW	0.37	0.37	0.125
Breaking capacity DC1: 30/110/220 V	A	10/0.25/0.12	10/0.25/0.12	7/0.25/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi	AgNi
Coil specification		55.32	55.33	55.34
Nominal voltage (U _N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240		
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220		
Rated power AC/DC	VA (50 Hz)/W	1.5/1	1.5/1	1.5/1
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	(0.8...1.1)U _N	(0.8...1.1)U _N	(0.8...1.1)U _N
Holding voltage	AC/DC	0.8 U _N /0.5 U _N	0.8 U _N /0.5 U _N	0.8 U _N /0.5 U _N
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N	0.2 U _N /0.1 U _N	0.2 U _N /0.1 U _N
Technical data		55.32	55.33	55.34
Mechanical life AC/DC	cycles	20 · 10 ⁶ /50 · 10 ⁶	20 · 10 ⁶ /50 · 10 ⁶	20 · 10 ⁶ /50 · 10 ⁶
Electrical life at rated load AC1	cycles	200 · 10 ³	200 · 10 ³	150 · 10 ³
Operate/release time	ms	10/5	10/5	11/3
Insulation between coil and contacts (1.2/50 μs)	kV	4	4	4
Dielectric strength between open contacts	V AC	1,000	1,000	1,000
Ambient temperature range	°C	-40...+85	-40...+85	-40...+85
Environmental protection		RT I	RT I	RT I

Approvals (according to type)



Ordering information

Example: 55 series plug-in relay, 4 CO (4PDT), 12 V DC coil, lockable test button and mechanical indicator.

5	5	.	3	.	4	.	9	.	0	1	2	.	A	0	B	0	C	4	D	0						
Series			Type			No. of poles			Coil version			Coil voltage			A: Contact material			B: Contact circuit			C: Options			D: Special versions		
1 = PCB 3 = Plug-in			2 = 2 pole, 10 A 3 = 3 pole, 10 A 4 = 4 pole, 7 A			8 = AC (50/60 Hz) 9 = DC			See coil specifications			0 = Standard AgNi 2 = AgCdO 5 = AgNi + Au (5 µm)			0 = CO (nPDT)			0 = None 1 = Lockable test button 2 = Mechanical indicator 3 = LED (AC) 4 = Lockable test button+mechanical indicator 5 = Lockable test button + LED (AC) 54 = Lockable test button + LED (AC) + mechanical indicator 6* = Double LED (DC non-polarized) 7* = Lockable test button + double LED (DC non-polarized) 74* = Lockable test button + double LED (DC non-polarized) + mechanical indicator 8* = LED + diode (DC, polarity positive to pin A1/13) 9* = Lockable test button + LED + diode (DC, polarity positive to pin A1/13) 94* = Lockable test button + LED + diode (DC, polarity positive to pin A1/13) + mechanical indicator			0 = Standard 1 = Wash tight (RT III) for 55.12, 55.13 and 55.14 only					

Selecting features and options: only combinations in the same row are possible. Preferred selections for best availability are shown in bold.

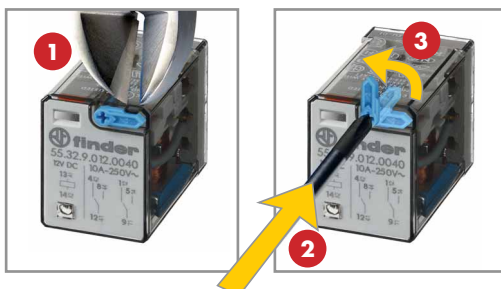
Type	Coil version	A	B	C	D
55.32/34	AC-DC	0 - 2 - 5	0	0	0
	AC	0 - 2 - 5	0	2 - 3 - 4 - 5	0
	AC	0 - 2 - 5	0	54	/
	DC	0 - 2 - 5	0	2 - 4 - 6 - 7 - 8 - 9	0
	DC	0 - 2 - 5	0	74 - 94	/
55.33	AC-DC	0 - 2 - 5	0	0	0
	AC	0 - 2 - 5	0	1 - 3 - 5	0
	DC	0 - 2 - 5	0	1 - 6 - 7 - 8 - 9	0
55.12/13/14	AC-DC	0 - 2 - 5	0	0	0 - 1

Descriptions: options and special versions

C: Option 3, 5, 54
LED (AC)

C: Option 6, 7, 74
Double LED (DC non-polarized)

C: Option 8, 9, 94
LED + diode (DC, polarity positive to pin A1/13)



Lockable test button and mechanical flag indicator (0010, 0040, 0050, 0054, 0070, 0074, 0090, 0094)

The dual-purpose Finder test button can be used in two ways:
Case 1) The plastic pip (located directly above the test button) remains intact. In this case, when the test button is pushed, the contacts operate. When the test button is released the contacts return to their former state.

Case 2) The plastic pip is broken-off (using an appropriate cutting tool). In this case, (in addition to the above function), when the test button is pushed and rotated, the contacts are latched in the operating state, and remain so until the test button is rotated back to its former position. In both cases ensure that the test button actuation is swift and decisive.

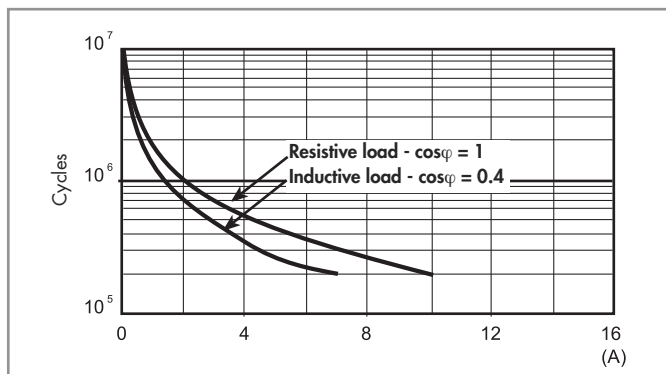


Technical data

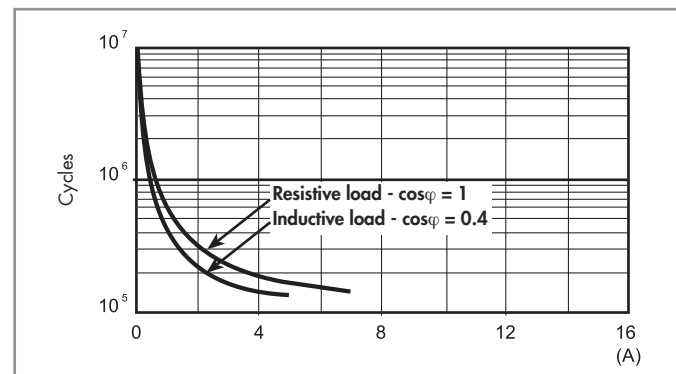
Insulation according to EN 61810-1		2 pole - 3 pole		4 pole	
Nominal voltage of supply system	V AC	230/400		230	
Rated insulation voltage	V AC	400		250	
Pollution degree		2		2	
Insulation between coil and contact set					
Type of Insulation		Basic		Basic	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 μ s)	4		4	
Dielectric strength	V AC	2,000		2,000	
Insulation between adjacent contacts					
Type of insulation		Basic		Basic	
Overvoltage category		III		II	
Rated impulse voltage	kV (1.2/50 μ s)	4		2.5	
Dielectric strength	V AC	2,000		2,000	
Insulation between open contacts					
Type of disconnection		Micro-disconnection		Micro-disconnection	
Dielectric strength	V AC/kV (1.2/50 μ s)	1,000/1.5		1,000/1.5	
Conducted disturbance immunity					
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4		level 4 (4 kV)	
Surge (1.2/50 μ s) on A1 - A2 (differential mode)		EN 61000-4-5		level 4 (4 kV)	
Other data					
Bounce time: NO/NC	ms	1/3			
Vibration resistance (5...55)Hz: NO/NC	g	15/15			
Shock resistance	g	16			
Power lost to the environment	without contact current	W	1		
	with rated current	W	3 (2 pole)	4 (3 pole)	3 (4 pole)
Recommended distance between relays mounted on PCB	mm	≥ 5			

Contact specification

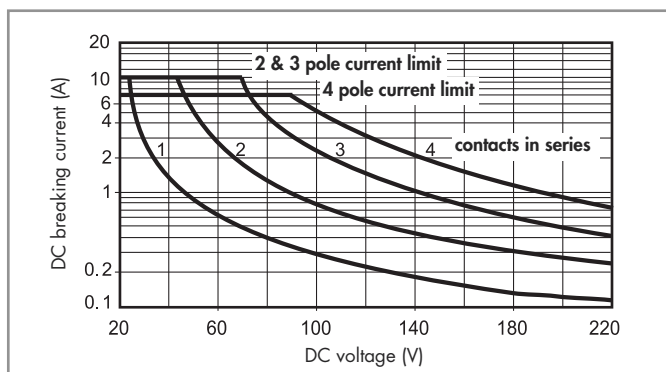
F 55 - Electrical life (AC) v contact current
2 and 3 pole relays



F 55 - Electrical life (AC) v contact current
4 pole relay



H 55 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

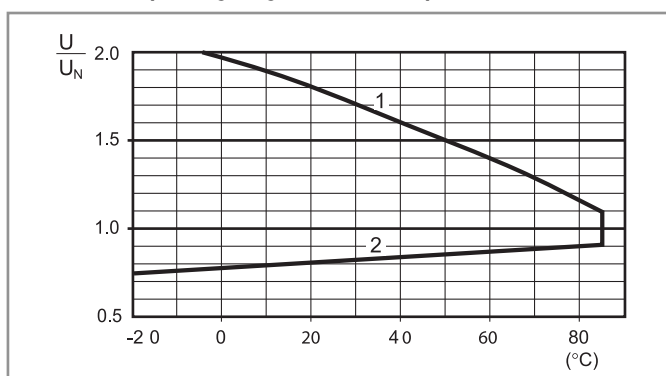
DC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V	R Ω	
6	9.006	4.8	6.6	40	150
12	9.012	9.6	13.2	140	86
24	9.024	19.2	26.4	600	40
48	9.048	38.4	52.8	2,400	20
60	9.060	48	66	4,000	15
110	9.110	88	121	12,500	8.8
125	9.125	100	138	17,300	7.2
220	9.220	176	242	54,000	4

AC coil data

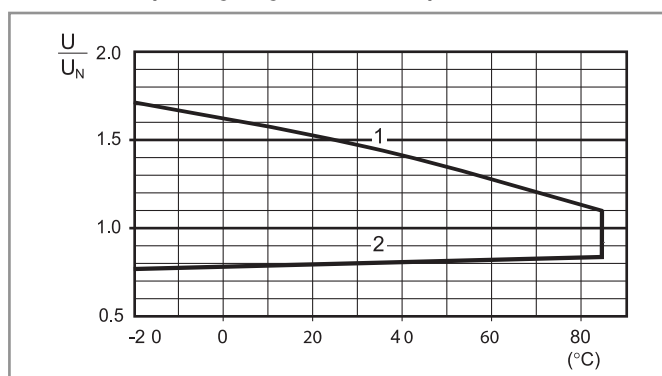
Nominal voltage U_N V	Coil code	Operating range		Resistance	Rated coil consumption I at U_N (50Hz) mA
		U_{min} V	U_{max} V	R Ω	
6	8.006	4.8	6.6	12	200
12	8.012	9.6	13.2	50	97
24	8.024	19.2	26.4	190	53
48	8.048	38.4	52.8	770	25
60	8.060	48	66	1,200	21
110	8.110	88	121	4,000	12.5
120	8.120	96	132	4,700	12
230	8.230	184	253	17,000	6
240	8.240	192	264	19,100	5.3

R 55 - DC coil operating range v ambient temperature



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

R 55 - AC coil operating range v ambient temperature



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Accessories



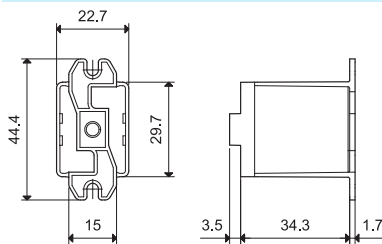
056.25



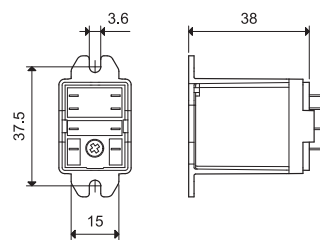
056.25 with relay

Top flange mount adaptor for 55.32, 55.33, 55.34

056.25



056.25



056.25 with relay



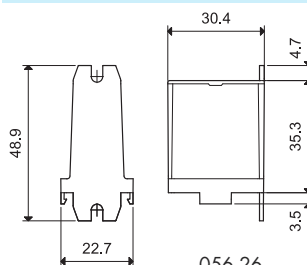
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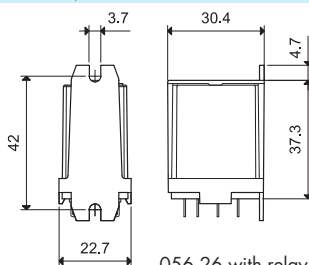
056.26 with relay

Rear flange mount adaptor for 55.32, 55.33, 55.34

056.26



056.26



056.26 with relay



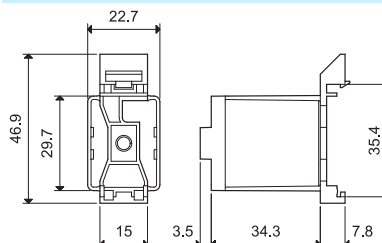
056.27



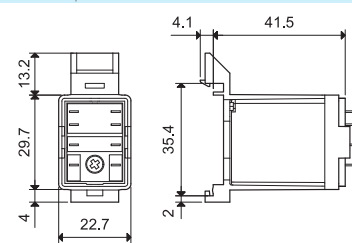
056.27 with relay

Top 35 mm rail (EN 60715) adaptor for 55.32, 55.33, 55.34

056.27



056.27



056.27 with relay

94 Series - Socket overview for 55 series relays



94.04
See page 7



Module	Socket	Relay	Description	Mounting	Accessories
99.02	94.02	55.32	Screw terminal (Box clamp) socket - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Timer modules - Plastic retaining and release clip
	94.03	55.33			
	94.04	55.32 55.34			



94.54
See page 8



Module	Socket	Relay	Description	Mounting	Accessories
99.02	94.54	55.32 55.34	Screwless terminal socket - For fast cable connections - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Timer modules - Plastic retaining and release clip



94.74
See page 9



Module	Socket	Relay	Description	Mounting	Accessories
99.01	94.72	55.32	Screw terminal (Plate clamp) socket	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Metal retaining clip
	94.73	55.33			
	94.74	55.32 55.34			



94.82
See page 9



Module	Socket	Relay	Description	Mounting	Accessories
99.01	94.82	55.32	Screw terminal (Plate clamp) socket - 23 mm wide for space saving	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Metal retaining clip



94.84.3
See page 10



Module	Socket	Relay	Description	Mounting	Accessories
99.80	94.84.2	55.32 55.34	Screw terminal (Box clamp) socket	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Plastic retaining and release clip
	94.82.3	55.32			
	94.84.3	55.32 55.34			



94.94.3
See page 11



Module	Socket	Relay	Description	Mounting	Accessories
99.80	94.92.3	55.32	Screw terminal (Box clamp) socket - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Plastic retaining and release clip
	94.94.3	55.32 55.34			



94.14
See page 12

Module	Socket	Relay	Description	Mounting	Accessories
—	94.12	55.32	PCB sockets	PCB mounting	- Metal retaining clip
—	94.13	55.33			
—	94.14	55.32 55.34			



94.22
See page 12

Module	Socket	Relay	Description	Mounting	Accessories
—	94.22	55.32	Panel mount with solder connections	Panel mount on 1 mm thick panel	- Metal retaining clip
—	94.23	55.33			
—	94.24	55.32 55.34			



94.34
See page 13

Module	Socket	Relay	Description	Mounting	Accessories
—	94.32	55.32	Panel mount with solder connections	M3 screw fixing	- Metal retaining clip
—	94.33	55.33			
—	94.34	55.32 55.34			



94 Series - Sockets and accessories for 55 series relays



94.04

Approvals (according to type):



cUL US Certain relay/socket combinations

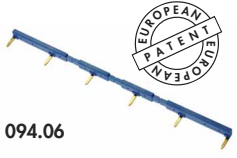
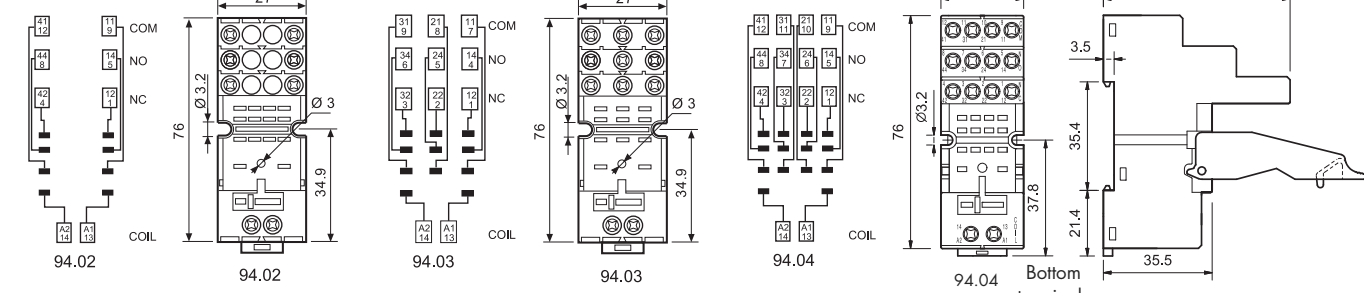


094.91.3



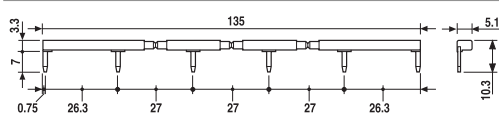
060.72

Screw terminal (Box clamp) socket panel or 35 mm (EN 60715) rail mount	94.02 Blue	94.02.0 Black	94.03 Blue	94.03.0 Black	94.04 Blue	94.04.0 Black
For relay type	55.32		55.33		55.32, 55.34	
Accessories						
Metal retaining clip	094.71					
Plastic retaining and release clip (supplied with socket - packaging code SPA)	094.91.3	094.91.30	094.91.3	094.91.30	094.91.3	094.91.30
6-way jumper link	094.06	094.06.0	094.06	094.06.0	094.06	094.06.0
Identification tag	094.00.4					
Modules (see table below)	99.02					
Timer modules (see table below)	86.30					
Sheet of marker tags for retaining and release clip 094.91.3 plastic, 72 tags, 6x12 mm	060.72					
Technical data						
Rated values	10 A - 250 V					
Dielectric strength	2 kV AC					
Protection category	IP 20					
Ambient temperature	°C -40...+70					
⊕ Screw torque	Nm 0.5					
Wire strip length	mm 8					
Max. wire size for 94.02/03/04 sockets	solid wire			stranded wire		
	mm ² 1x6 / 2x2.5			1x4 / 2x2.5		
	AWG 1x10 / 2x14			1x12 / 2x14		



094.06

6-way jumper link for 94.02, 94.03 and 94.04 sockets	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	



86.30

86 series timer modules		
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s...100h)	86.30.0.024.0000	
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000	
(230...240)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.240.0000	

Approvals (according to type):



99.02

Approvals (according to type):



99.02 coil indication and EMC suppression modules for 94.02, 94.03 and 94.04 sockets		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07

DC Modules with non-standard polarity (+A2) on request.



94.54

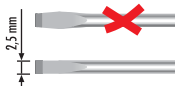
Approvals
(according to type):



094.91.3



060.72



094.56



86.30



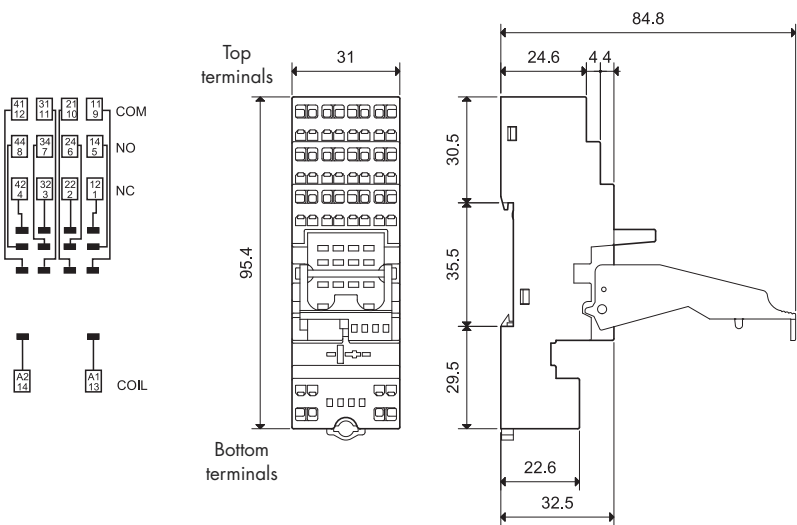
99.02

Approvals
(according to type):



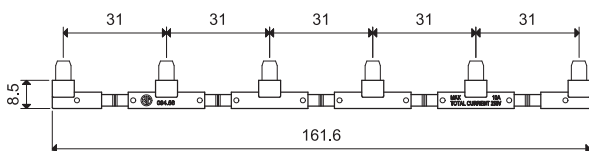
DC Modules with
non-standard polarity
(+A2) on request.

Screwless terminal socket 35 mm rail (EN 60715) mount	94.54 (blue)		
For relay type	55.32, 55.34		
Accessories			
Metal retaining clip	094.71		
Plastic retaining and release clip	094.91.3		
6-way jumper link	094.56		
Modules (see table below)	99.02, 86.30		
Sheet of marker tags, 6x12 mm	060.72		
Technical data			
Rated values	10 A - 250 V		
Dielectric strength	2 kV AC		
Protection category	IP 20		
Ambient temperature	°C	-25...+70	
Wire strip length	mm	10	
Max. wire size for 94.54 socket	solid wire	stranded wire	
	mm ²	2x(0.2...1.5)	2x(0.2...1.5)
	AWG	2x(24...14)	2x(24...14)



Sockets + jumper link

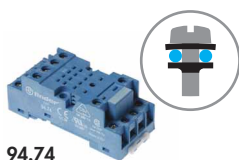
6-way jumper link	094.56 (blue)
Rated values	10 A - 250 V



86 series timer modules		
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s...100h)	86.30.0.024.0000	
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000	
(230...240)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.240.0000	

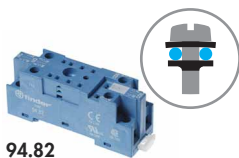
Approvals
(according to type):

99.02 coil indication and EMC suppression modules for 94.54 sockets		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07



94.74

Approvals
(according to type):

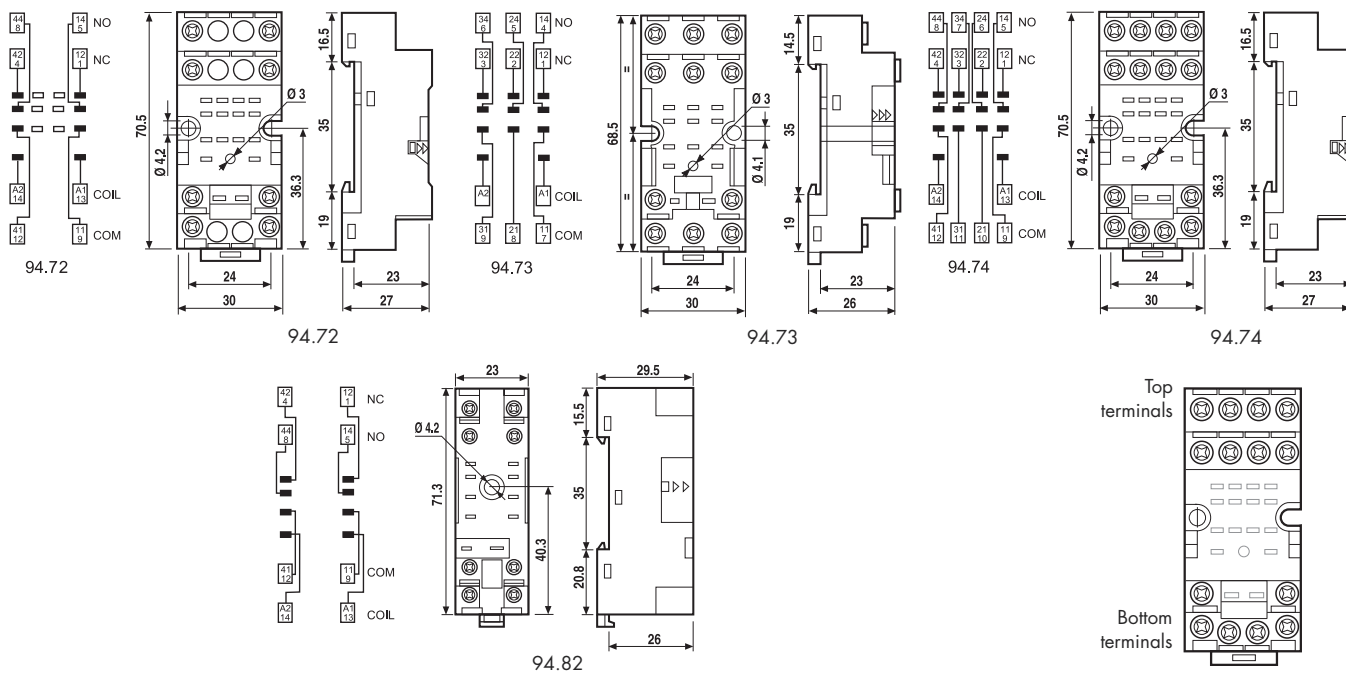


94.82

Approvals
(according to type):



Screw terminal (Plate clamp) socket panel or 35 mm (EN 60715) rail mount	94.72	94.72.0	94.73	94.73.0	94.74	94.74.0
	Blue	Black	Blue	Black	Blue	Black
For relay type	55.32		55.33		55.32, 55.34	
Accessories						
Metal retaining clip (supplied with socket - packaging code SMA)					094.71	
Modules (see table below)					99.01	
Screw terminal (Plate clamp) socket: panel or 35 mm rail mount	94.82 (blue)				94.82.0 (black)	
For relay type	55.32				55.32	
Accessories						
Metal retaining clip (supplied with socket - packaging code SMA)					094.71	
Modules (see table below)					99.01	
Technical data						
Rated values	10 A - 250 V					
Dielectric strength	2 kV AC					
Protection category	IP 20					
Ambient temperature	°C -40...+70					
⊕ Screw torque	Nm 0.5					
Wire strip length	mm 8 (94.72/73/74)				9 (94.82)	
Max. wire size for 94.72/73/74 and 94.82 sockets	solid wire				stranded wire	
	mm ² 1x2.5 / 2x1.5				1x2.5 / 2x1.5	
	AWG 1x14 / 2x16				1x14 / 2x16	



99.01

Approvals
(according to type):



99.01 coil indication and EMC suppression modules for 94.72, 94.73, 94.74 and 94.82 sockets		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.01.3.000.00
Diode (+A2, non standard polarity)	(6...220)V DC	99.01.2.000.00
LED	(6...24)V DC/AC	99.01.0.024.59
LED	(28...60)V DC/AC	99.01.0.060.59
LED	(110...240)V DC/AC	99.01.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.01.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.01.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.01.9.220.99
LED + Diode (+A2, non standard polarity)	(6...24)V DC	99.01.9.024.79
LED + Diode (+A2, non standard polarity)	(28...60)V DC	99.01.9.060.79
LED + Diode (+A2, non standard polarity)	(110...220)V DC	99.01.9.220.79
LED + Varistor	(6...24)V DC/AC	99.01.0.024.98
LED + Varistor	(28...60)V DC/AC	99.01.0.060.98
LED + Varistor	(110...240)V DC/AC	99.01.0.230.98
RC circuit	(6...24)V DC/AC	99.01.0.024.09
RC circuit	(28...60)V DC/AC	99.01.0.060.09
RC circuit	(110...240)V DC/AC	99.01.0.230.09
Residual current by-pass	(110...240)V AC	99.01.8.230.07

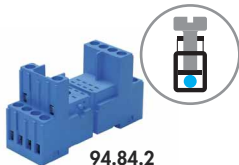
* Modules in Black housing are available on request.

Green LED is standard. Red LED available on request.



94.84.3

Approvals (according to type):



94.84.2

Approvals (according to type):

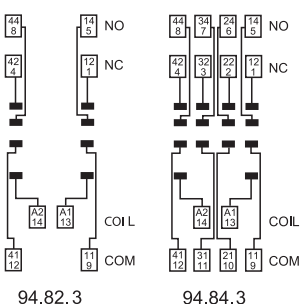


060.72



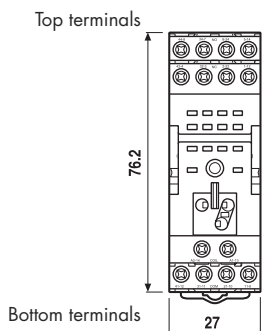
060.72

Screw terminal (Box clamp) socket panel or 35 mm (EN 60715) rail mount	94.82.3	94.82.30	94.84.3	94.84.30
For relay type	Blue	Black	Blue	Black
	55.32		55.32, 55.34	
Accessories				
Metal retaining clip (supplied with socket - packaging code SMA)	094.71			
Plastic retaining and release clip	094.91.3	094.91.30	094.91.3	094.91.30
6-way jumper link	094.06	094.06.0	094.06	094.06.0
Identification tag	094.80.3			
Modules (see table next page)	99.80			
Sheet of marker tags for retaining and release clip 094.91.3 plastic, 72 tags, 6x12 mm	060.72			
Screw terminal (Box clamp) socket panel or 35 mm (EN 60715) rail mount	94.84.2	94.84.20		
For relay type	Blue	Black		
	55.32, 55.34			
Accessories				
Metal retaining clip (supplied with socket - packaging code SMA)	094.71			
Plastic retaining and release clip	094.91.3	094.91.30		
6-way jumper link	094.06	094.06.0		
Identification tag	094.80.3			
Modules (see table next page)	99.80			
Sheet of marker tags for retaining and release clip 094.91.3 plastic, 72 tags, 6x12 mm	060.72			
Technical data				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C	-40...+70		
⊕ Screw torque	Nm	0.5		
Wire strip length	mm	7		
Max. wire size for 94.82.3, 94.84.3 and 94.84.2 sockets		solid wire	stranded wire	
	mm ²	1x6 / 2x2.5	1x4 / 2x2.5	
	AWG	1x10 / 2x14	1x12 / 2x14	

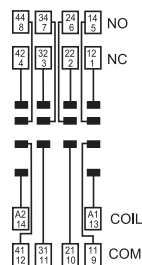
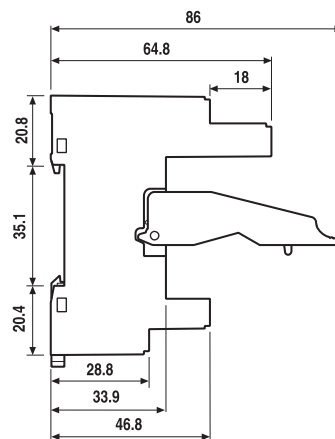


94.82.3

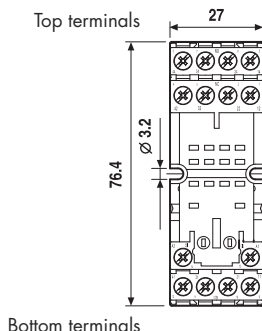
94.84.3



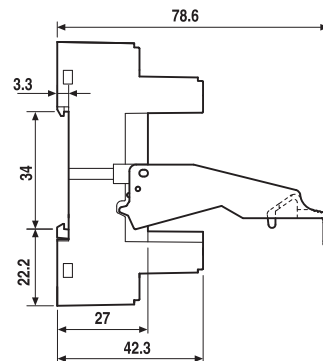
94.84.3



94.84.2



94.84.2





94.94.3

Approvals
(according to type):

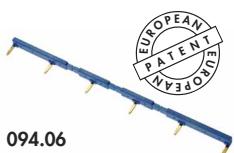
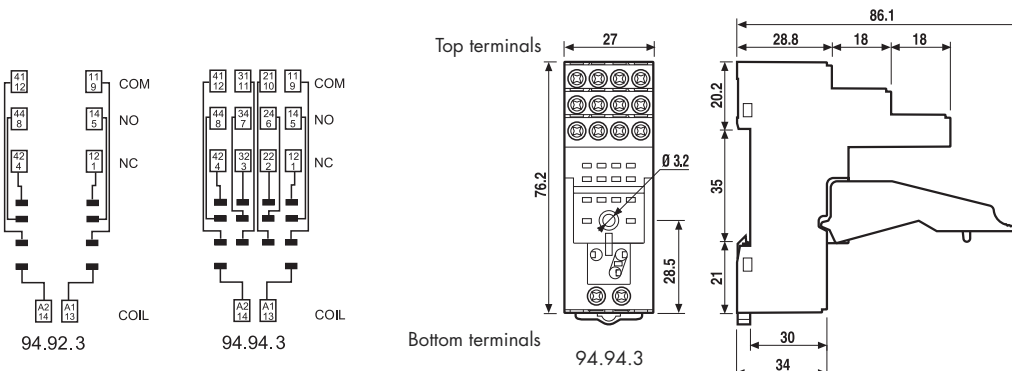


094.91.3



060.72

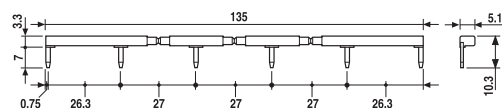
Screw terminal (Box clamp) socket panel or 35 mm rail mount	94.92.3 (blue)	94.92.30 (black)	94.94.3 (blue)	94.94.30 (black)
For relay type	55.32		55.32, 55.34	
Accessories				
Metal retaining clip	094.71			
Plastic retaining and release clip	094.91.3	094.91.30	094.91.3	094.91.30
6-way jumper link	094.06	094.06.0	094.06	094.06.0
Identification tag	094.80.3			
Modules (see table below page)	99.80			
Sheet of marker tags for retaining and release clip 094.91.3 plastic, 72 tags, 6x12 mm	060.72			
Technical data				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C	-25...+70		
⊕ Screw torque	Nm	0.5		
Wire strip length	mm	8		
Max. wire size for 94.92.3 and 94.94.3 sockets		solid wire		stranded wire
	mm ²	1x6 / 2x2.5		1x4 / 2x2.5
	AWG	1x10 / 2x14		1x12 / 2x14



094.06



6-way jumper link for 94.84.2, 94.82.3, 94.84.3, 94.92.3 and 94.94.3 sockets	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	



99.80

Approvals
(according to type):



* Modules in Black housing are available on request.

Green LED is standard.
Red LED available on request.

		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.80.3.000.00
LED	(6...24)V DC/AC	99.80.0.024.59
LED	(28...60)V DC/AC	99.80.0.060.59
LED	(110...240)V DC/AC	99.80.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.80.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.80.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.80.9.220.99
LED + Varistor	(6...24)V DC/AC	99.80.0.024.98
LED + Varistor	(28...60)V DC/AC	99.80.0.060.98
LED + Varistor	(110...240)V DC/AC	99.80.0.230.98
RC circuit	(6...24)V DC/AC	99.80.0.024.09
RC circuit	(28...60)V DC/AC	99.80.0.060.09
RC circuit	(110...240)V DC/AC	99.80.0.230.09
Residual current by-pass	(110...240)V AC	99.80.8.230.07

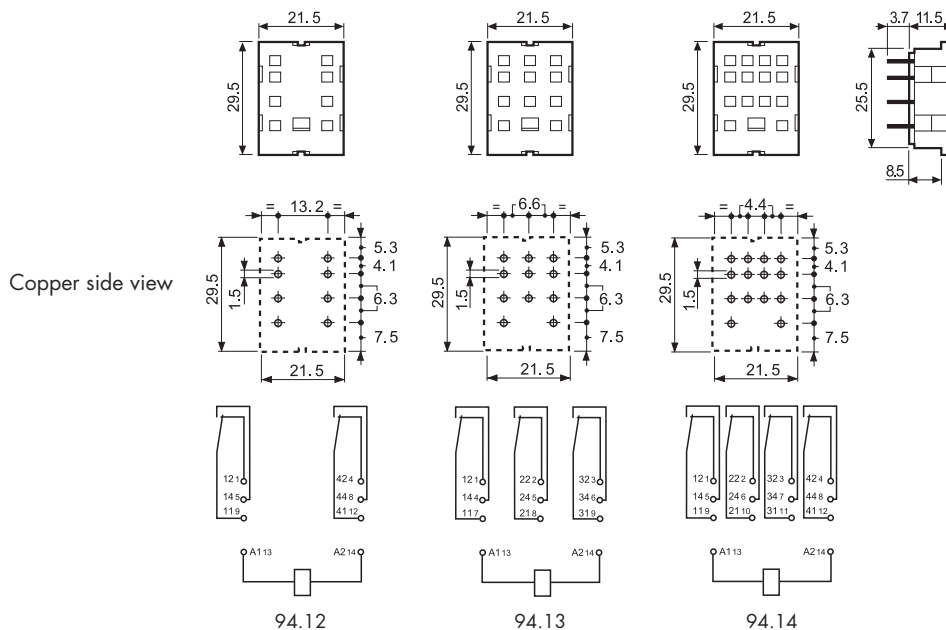
94 Series - Sockets and accessories for 55 series relays



94.14
Approvals
(according to type):



PCB socket	94.12 Blue	94.12.0 Black	94.13 Blue	94.13.0 Black	94.14 Blue	94.14.0 Black
For relay type	55.32		55.33		55.32, 55.34	
Accessories						
Metal retaining clip (supplied with socket - packaging code SMA)	094.51					
Technical data						
Rated values	10 A - 250 V					
Dielectric strength	2 kV AC					
Ambient temperature	°C -40...+70					



94.22
Approvals
(according to type):



Panel mount solder socket 1 mm thick panel	94.22 Blue	94.22.0 Black	94.23 Blue	94.23.0 Black	94.24 Blue	94.24.0 Black
For relay type	55.32		55.33		55.32, 55.34	
Accessories						
Metal retaining clip (supplied with socket - packaging code SMA)	094.51					
Technical data						
Rated values	10 A - 250 V					
Dielectric strength	2 kV AC					
Ambient temperature	°C -40...+70					



94 Series - Sockets and accessories for 55 series relays

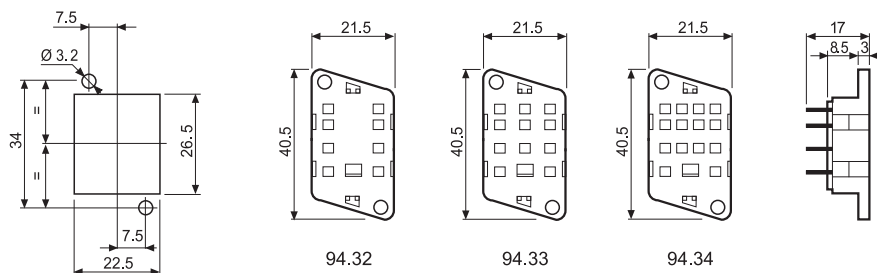


94.34

Approvals
(according to type):



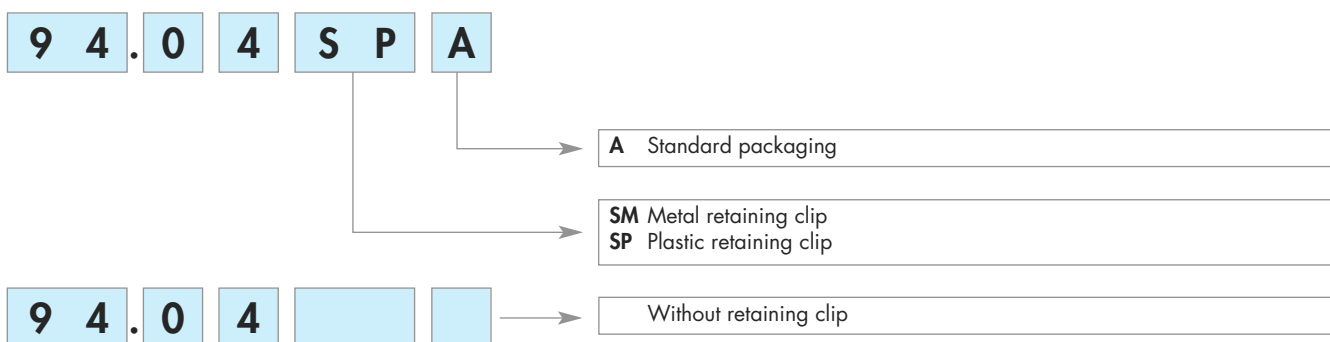
Panel mount socket M3 screw fixing - solder connections	94.32 Blue	94.32.0 Black	94.33 Blue	94.33.0 Black	94.34 Blue	94.34.0 Black
For relay type	55.32		55.33		55.32, 55.34	
Accessories						
Metal retaining clip (supplied with socket - packaging code SMA)	094.51					
Technical data						
Rated values	10 A - 250 V					
Dielectric strength	2 kV AC					
Ambient temperature	°C -40...+70					



Packaging codes

How to code and identify retaining clip and packaging options for sockets.

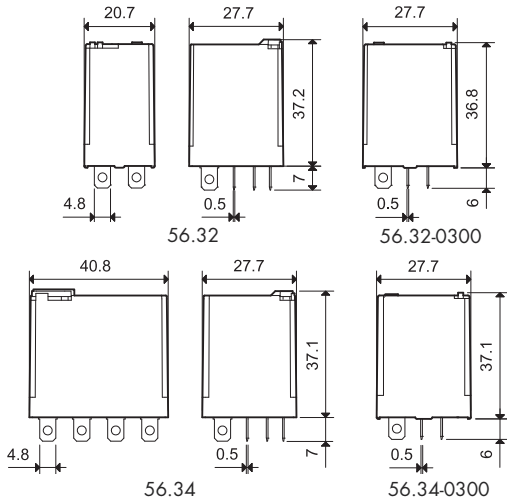
Example:



Features

Plug-in - 12 A Power relay, 2 & 4 pole

- Flange mount option - (Faston 187, 4.8x0.5 mm termination)
- AC coils & DC coils
- Lockable test button and mechanical flag indicator
- Cadmium Free contacts (standard version)
- Contact material options
- 96 series sockets
- Coil EMC suppression
- Accessories
- European Patent



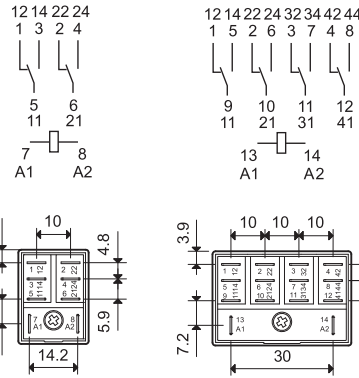
* For 4 CO (4PDT) or 4 NO only.

FOR UL RATINGS SEE:
"General technical information" page V

56.32/56.34



- 2 or 4 pole changeover contact
- Plug-in/Faston 187



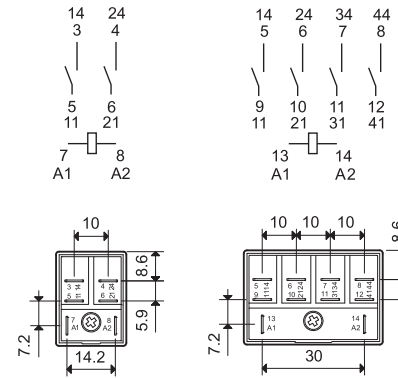
56.32

56.34

56.32-0300/56.34-0300



- 2 or 4 pole normally open contact (≥ 1.5 mm gap)
- Plug-in/Faston 187



56.32-0300

56.34-0300

Contact specification

Contact configuration	2 CO (DPDT)	4 CO (4PDT)	2NO (DPSTNO) ≥ 1.5 mm gap	4NO (4PSTNO) ≥ 1.5 mm gap
Rated current/Maximum peak current	A 12/20		12/20	
Rated voltage/Maximum switching voltage V AC	250/400		250/400	
Rated load AC1	VA 3,000		3,000	
Rated load AC15 (230 V AC)	VA 700		700	
Single phase motor rating (230 V AC)	kW 0.55		0.55	
Breaking capacity DC1: 30/110/220 V	A 12/0.5/0.25		12/1/0.5	
Minimum switching load	mW (V/mA) 500 (10/5)		500 (10/5)	
Standard contact material	AgNi		AgNi	

Coil specification

Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400*			
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220		—	
Rated power AC/DC	VA (50 Hz)/W	1.5/1	2/1.3	1.5/—	2/—
Operating range	AC	$(0.8...1.1)U_N$		$(0.85...1.1)U_N$	
	DC	$(0.8...1.1)U_N$	$(0.85...1.1)U_N$	—	
Holding voltage	AC/DC	$0.8 U_N/0.6 U_N$		$0.85 U_N/—$	
Must drop-out voltage	AC/DC	$0.2 U_N/0.1 U_N$		$0.2 U_N/—$	

Technical data

Mechanical life AC/DC	cycles	$20 \cdot 10^6/50 \cdot 10^6$		$20 \cdot 10^6/—$	
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$		$100 \cdot 10^3$	
Operate/release time	ms	8/3	10/4	8/4	
Insulation between coil and contacts (1.2/50 μ s)	kV	4	5	4	5
Dielectric strength between open contacts	V AC	1,000		2,000	
Ambient temperature range	$^{\circ}$ C	-40...+70		-40...+70	
Environmental protection		RT I		RT I	

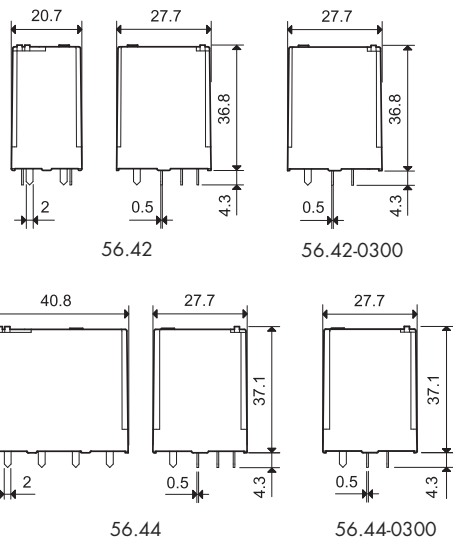
Approvals (according to type)



Features

Printed circuit mount 12 A Power relay

- 2 & 4 pole
- AC coils & DC coils
- Cadmium Free contacts (standard version)
- Contact material option
- RT III (wash tight) option available



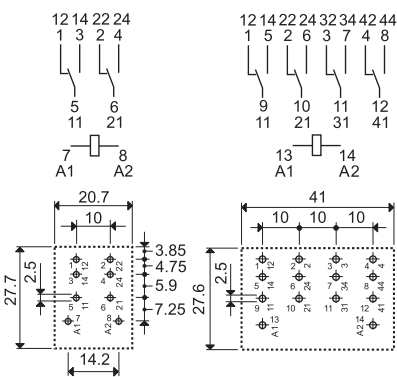
* For 4 CO (4PDT) or 4 NO only.

FOR UL RATINGS SEE:
"General technical information" page V

56.42/56.44



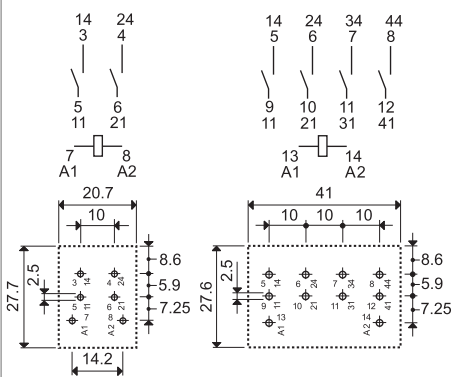
- 2 or 4 pole changeover contact
- PCB mount



56.42-0300/56.44-0300



- 2 or 4 pole normally open contact
(≥ 1.5 mm gap)
- PCB mount



Contact specification

Contact configuration	2 CO (DPDT)	4 CO (4PDT)	2NO (DPSTNO) - ≥1.5mm gap	4NO (4PSTNO) - ≥1.5mm gap
Rated current/Maximum peak current A	12/20		12/20	
Rated voltage/Maximum switching voltage V AC	250/400		250/400	
Rated load AC1 VA	3,000		3,000	
Rated load AC15 (230 V AC) VA	700		700	
Single phase motor rating (230 V AC) kW	0.55		0.55	
Breaking capacity DC1: 30/110/220 V A	12/0.5/0.25		12/1/0.5	
Minimum switching load mW (V/mA)	500 (10/5)		500 (10/5)	
Standard contact material	AgNi		AgNi	

Coil specification

Nominal voltage (U _N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400*	
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220	
Rated power AC/DC	VA (50 Hz)/W	1.5/1	2/1.3
Operating range	AC	(0.8...1.1)U _N	
	DC	(0.8...1.1)U _N	(0.85...1.1)U _N
Holding voltage	AC/DC	0.8 U _N /0.6 U _N	
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N	

Technical data

Mechanical life AC/DC	cycles	20 · 10 ⁶ /50 · 10 ⁶		20 · 10 ⁶ /-
Electrical life at rated load AC1	cycles	100 · 10 ³		100 · 10 ³
Operate/release time	ms	8/3	10/4	8/4
Insulation between coil and contacts (1.2/50 μs)	kV	4	5	4 5
Dielectric strength between open contacts	V AC	1,000		2,000
Ambient temperature range	°C	-40...+70		-40...+70
Environmental protection		RT I		RT I

Approvals (according to type)



Ordering information

Example: 56 series plug-in relay, 2 CO (DPDT), 12 V DC coil, lockable test button and mechanical indicator.

5 6 . 3 2 . 9 . 0 1 2 . 0 0 4 0

Series ————

Type
3 = Plug-in
4 = PCB

No. of poles
2 = 2 pole, 12 A
4 = 4 pole, 12 A

Coil version
8 = AC (50/60 Hz)
9 = DC

Coil voltage
See coil specifications

A: Contact material
0 = Standard AgNi
2 = AgCdO
4 = AgSnO₂

B: Contact circuit
0 = CO (nPDT)
3 = NO (nPST), ≥ 1.5 mm contact gap

D: Special versions
0 = Standard
1 = Wash tight (RT III) for 56.42 and 56.44 only
6 = Rear flange mount (4 pole only)
8 = Rear 35 mm rail mount (4 pole only)
For other mounting options see page 6

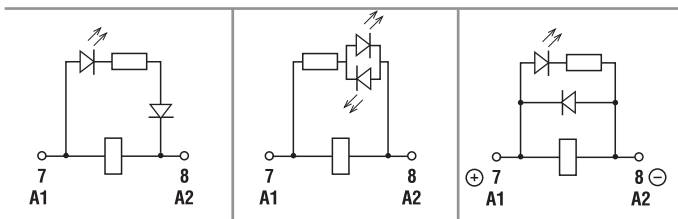
C: Options
0 = None
2 = Mechanical indicator
3* = LED (AC)
4 = Lockable test button+mechanical indicator
5* = Lockable test button + LED (AC)
54* = Lockable test button + LED (AC) + mechanical indicator
6* = Double LED (DC non-polarized)
7* = Lockable test button + double LED (DC non-polarized)
74* = Lockable test button + double LED (DC non-polarized) + mechanical indicator
8* = LED + diode (DC, polarity positive to pin 7) for 56.32 only
9* = Lockable test button + LED + diode (DC, polarity positive to pin 7) for 56.32 only
94* = Lockable test button + LED + diode (DC, polarity positive to pin 7) + mechanical indicator for 56.32 only
* Options not available for 220 V DC and 400 V AC versions.

Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold**.

Type	Coil version	A	B	C	D
56.32	AC	0 - 2 - 4	0	0 - 2 - 3 - 4 - 5	0
	AC	0 - 2 - 4	0	54	/
	AC	0 - 2 - 4	3	0 - 3 - 5	0
	DC	0 - 2 - 4	0	0 - 2 - 4 - 6 - 7 - 8 - 9	0
56.34	AC	0 - 2 - 4	0	0 - 2 - 3 - 4 - 5	0 - 6 - 8
	AC	0 - 2 - 4	0	54	/
	AC	0 - 2 - 4	0 - 3	0 - 3 - 5	0
	DC	0 - 2 - 4	0	0 - 2 - 4 - 6 - 7	0 - 6 - 8
	DC	0 - 2 - 4	0	74	/
56.42	DC	0 - 2 - 4	0	0	0 - 1
	AC	0 - 2 - 4	0 - 3	0	0 - 1
56.44	AC-DC	0 - 2 - 4	0	0	0 - 1
	AC	0 - 2 - 4	0 - 3	0	0 - 1

Special versions for Rail Applications on request

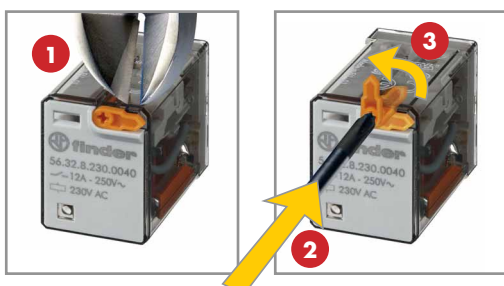
Descriptions: options and special versions



C: Option 3, 5, 54
LED (AC)

C: Option 6, 7, 74
Double LED (DC non-polarized)

C: Option 8, 9, 94
LED + diode (DC, polarity positive to pin 7) - (56.32 only)



Lockable test button and mechanical flag indicator (0040, 0050, 0054, 0070, 0074, 0090, 0094)
The dual-purpose Finder test button can be used in two ways:
Case 1) The plastic pip (located directly above the test button) remains intact. In this case, when the test button is pushed, the contacts operate. When the test button is released the contacts return to their former state.
Case 2) The plastic pip is broken-off (using an appropriate cutting tool). In this case, (in addition to the above function), when the test button is pushed and rotated, the contacts are latched in the operating state, and remain so until the test button is rotated back to its former position.
In both cases ensure that the test button actuation is swift and decisive.

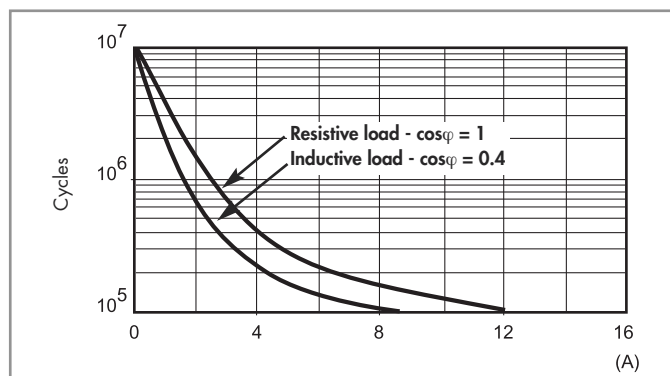
Technical data

*Only in applications where over voltage category II is permitted. In applications of over voltage category III: Micro-disconnection.

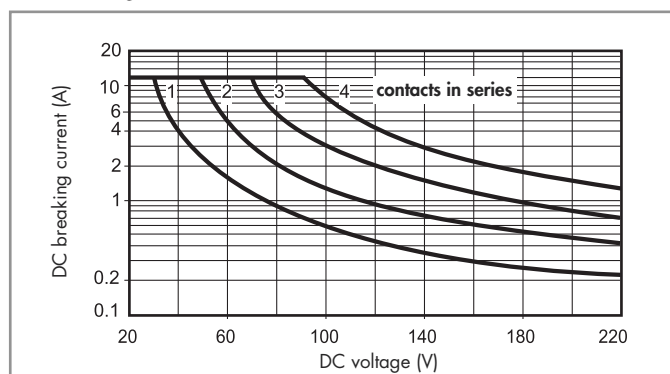
Insulation according to EN 61810-1		2 CO - 4 CO		2 NO - 4 NO	
Nominal voltage of supply system	V AC	230/400		230/400	
Rated insulation voltage	V AC	250	400	250	400
Pollution degree		3	2	3	2
Insulation between coil and contact set					
Type of insulation		Basic		Basic	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 μs)	4		4	
Dielectric strength	V AC	2,500		2,500	
Insulation between adjacent contacts					
Type of insulation		Basic		Basic	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 μs)	4		4	
Dielectric strength	V AC	2,500		2,500	
Insulation between open contacts					
Type of disconnection		Micro-disconnection		Full-disconnection*	
Overvoltage category		—		II	
Rated impulse voltage	kV (1.2/50 μs)	—		2.5	
Dielectric strength	V AC/(1.2/50 μs)	1,000/1.5		2,000/3	
Conducted disturbance immunity					
Burst (5...50) ns, 5 kHz, on A1 - A2		EN 61000-4-4		level 4 (4 kV)	
Surge (1.2/50 μs) on A1 - A2 (differential mode)		EN 61000-4-5		level 4 (4 kV)	
Other data					
Bounce time: NO/NC	ms	1/4 (changeover)		3/— (normally open)	
Vibration resistance (10...150 Hz): NO/NC	g	17/14			
Shock resistance NO/NC	g	20/14			
Power lost to the environment	without contact current	W	1 (56.32, 56.42)		1.3 (56.34, 56.44)
	with rated current	W	3.8 (56.32, 56.42)		6.9 (56.34, 56.44)
Recommended distance between relays mounted on PCB	mm	≥ 5			

Contact specification

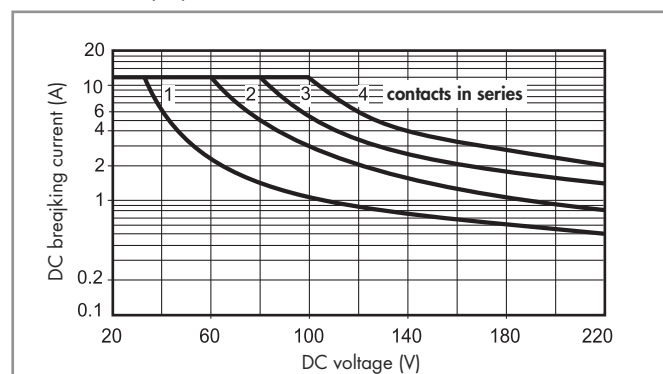
F 56 - Electrical life (AC) v contact current
2 - 4 pole relays



H 56 - Maximum DC1 breaking capacity
Changeover version



H 56 - Maximum DC1 breaking capacity
Normally open version



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time of the load will be increased.

Coil specifications

DC coil data, 2 pole relay

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
6	9.006	4.8	6.6	40	150
12	9.012	9.6	13.2	140	86
24	9.024	19.2	26.4	600	40
48	9.048	38.4	52.8	2,400	20
60	9.060	48	66	4,000	15
110	9.110	88	121	12,500	8.8
125	9.125	100	138	17,300	7.2
220	9.220	176	242	54,000	4

AC coil data, 2 pole relay

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N (50Hz) mA
		U_{min}^* V	U_{max} V		
6	8.006	4.8	6.6	12	200
12	8.012	9.6	13.2	50	97
24	8.024	19.2	26.4	190	53
48	8.048	38.4	52.8	770	25
60	8.060	48	66	1,200	21
110	8.110	88	121	3,940	12.5
120	8.120	96	132	4,700	12
230	8.230	184	253	17,000	6
240	8.240	192	264	19,100	5.3

* $U_{min} = 0.85 U_N$ for normally open version.

DC coil data, 4 pole relay

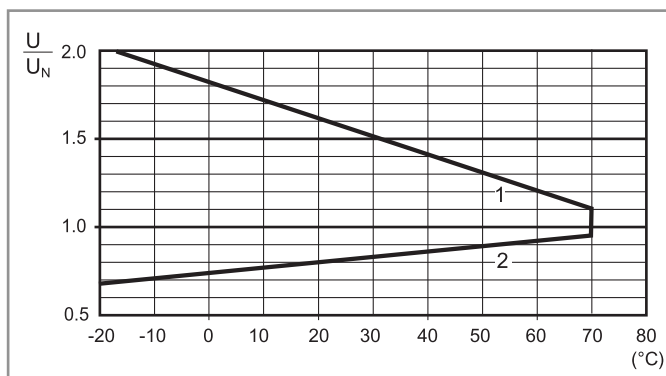
Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
6	9.006	5.1	6.6	32.5	185
12	9.012	10.2	13.2	123	97
24	9.024	20.4	26.4	490	49
48	9.048	40.8	52.8	1,800	27
60	9.060	51	66	3,000	20
110	9.110	93.5	121	10,400	10.5
125	9.125	107	138	14,200	8.8
220	9.220	187	242	44,000	5

AC coil data, 4 pole relay or 4 NO

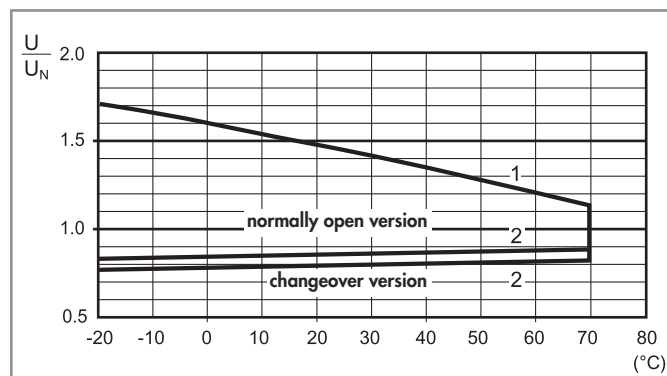
Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N (50Hz) mA
		U_{min}^* V	U_{max} V		
6	8.006	4.8	6.6	5.7	300
12	8.012	9.6	13.2	22	150
24	8.024	19.2	26.4	81	90
48	8.048	38.4	52.8	380	37
60	8.060	48	66	600	30
110	8.110	88	121	1,900	16.5
120	8.120	96	132	2,560	13.4
230	8.230	184	253	7,700	9
240	8.240	192	264	10,000	7.5
400	8.400	320	440	26,000	4.9

* $U_{min} = 0.85 U_N$ for normally open version.

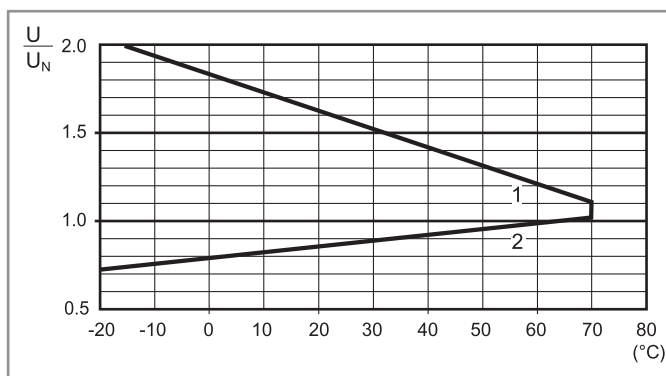
R 56 - DC coil operating range v ambient temperature
2 pole relay



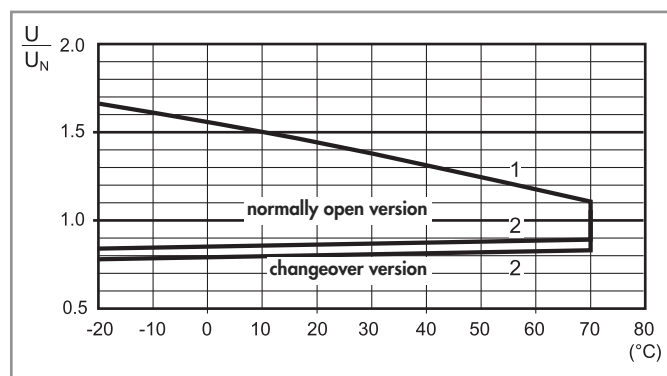
R 56 - AC coil operating range v ambient temperature
2 pole relay



R 56 - DC coil operating range v ambient temperature
4 pole relay



R 56 - AC coil operating range v ambient temperature
4 pole relay or 4 NO



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Accessories

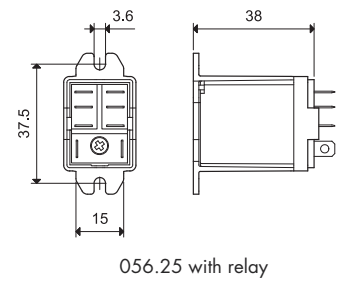
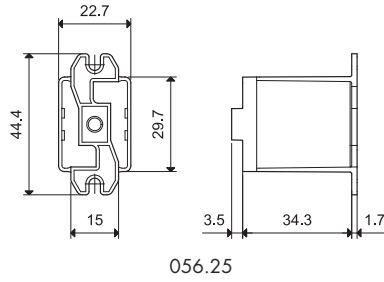


056.25

056.25 with relay

Top flange mount adaptor for 56.32

056.25

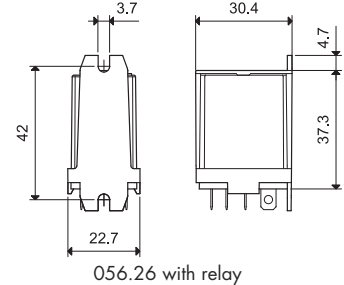
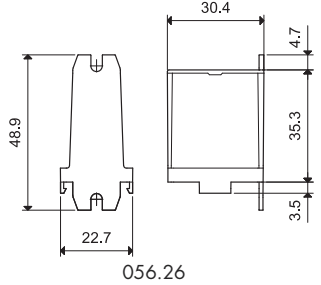


056.26

056.26 with relay

Rear flange mount adaptor for 56.32

056.26

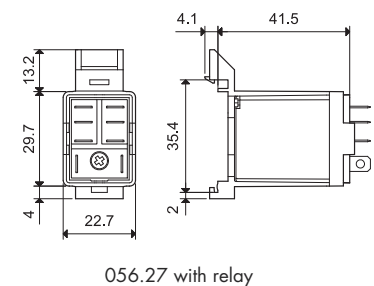
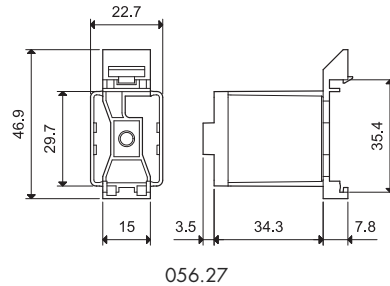


056.27

056.27 with relay

Top 35 mm rail (EN 60715) adaptor for 56.32

056.27

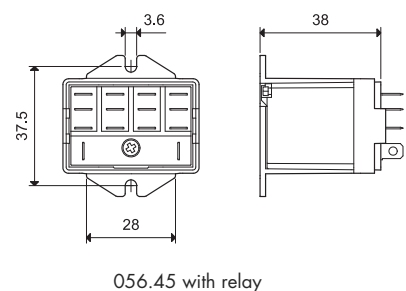
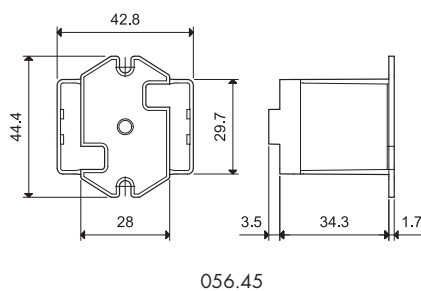


056.45

056.45 with relay

Top flange mount adaptor for 56.34

056.45

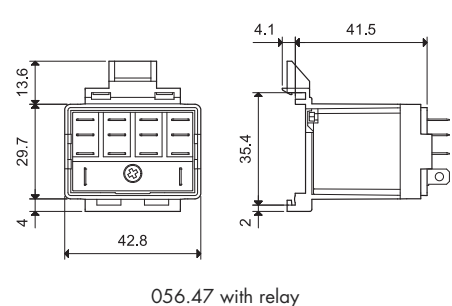
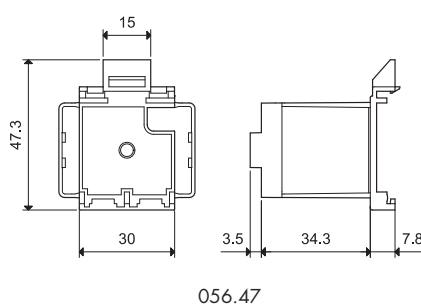


056.47

056.47 with relay

Top 35 mm rail (EN 60715) adaptor for 56.34

056.47



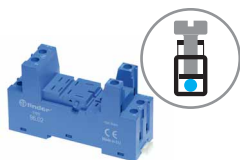
060.72

Sheet of marker tags for relay type 56.34, plastic, 72 tags, 6x12 mm

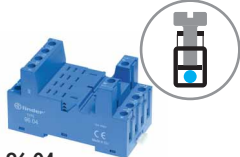
060.72



96 Series - Sockets and accessories for 56 series relays



96.02
Approvals
(according to type):



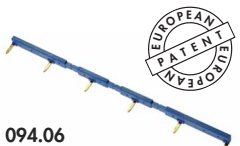
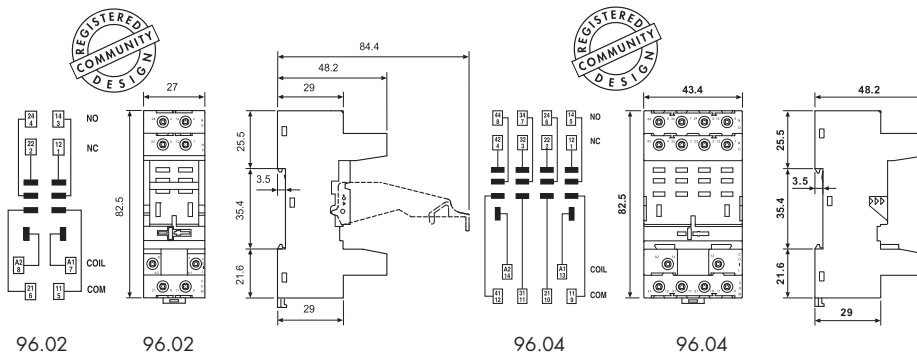
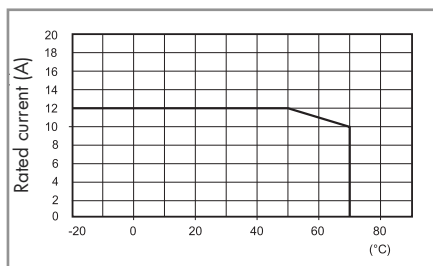
96.04
Approvals
(according to type):



094.91.3

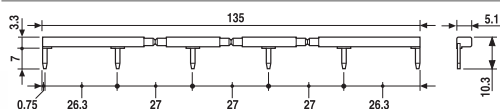
Screw terminal (Box clamp) socket panel or 35 mm (EN 60715) rail mount	96.02	96.02.0	96.04	96.04.0
	Blue	Black	Blue	Black
For relay type	56.32		56.34	
Accessories				
Metal retaining clip (supplied with socket - packaging code SMA)	094.71		096.71	
Plastic retaining and release clip (supplied with socket - packaging code SPA)	094.91.3	094.91.30	—	—
6-way jumper link	094.06	094.06.0	—	—
Identification tag	095.00.4		090.00.2	
Modules (see table below)	99.02			
Timer modules (see table below)	86.30		86.00, 86.30	
Sheet of marker tags for retaining and release clip 094.91.3 plastic, 72 tags, 6x12 mm	060.72		—	
Technical data				
Rated values	12 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70 (see diagram L96)			
⊕ Screw torque	Nm	0.8		
Wire strip length	mm	8		
Max. wire size for 94.02/04 sockets		solid wire	stranded wire	
	mm ²	1x6 / 2x2.5		1x4 / 2x2.5
	AWG	1x10 / 2x14		1x12 / 2x14

L 96 - Rated current vs ambient temperature



094.06

6-way jumper link for 96.02 socket	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	



86.00

86 series timer modules		
Multi-voltage: (12...240)V AC/DC;		
Multi-functions: AI, DI, SW, BE, CE, DE, EE, FE; (0.05 s... 100 h)	86.00.0.240.0000	
(12...24)V AC/DC; Bi-function: AI, DI; (0.05 s... 100 h)	86.30.0.024.0000	
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000	
(230...240)V AC; Bi-function: AI, DI; (0.05 s... 100 h)	86.30.8.240.0000	

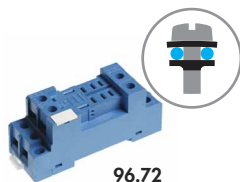


86.30

Approvals (according to type):

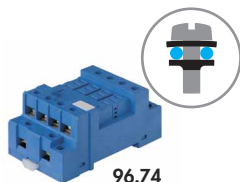
99.02 coil indication and EMC suppression modules for 96.02 and 96.04 sockets		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07

www.findernet.com
Vili-2013
Approvals (according to type):
DC Modules with non-standard polarity (+A2) on request.



96.72

Approvals
(according to type):



96.74

Approvals
(according to type):



99.01

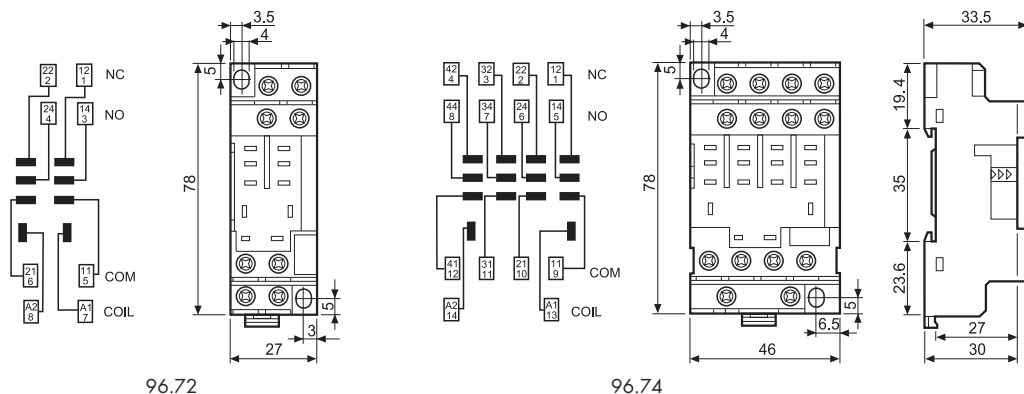
Approvals
(according to type):



* Modules in Black housing are available on request.

Green LED is standard. Red LED available on request.

Screw terminal (Plate clamp) socket	96.72	96.72.0	96.74	96.74.0
panel or 35 mm rail (EN 60715) mount	Blue	Black	Blue	Black
For relay type	56.32		56.34	
Accessories				
Metal retaining clip (supplied with socket - packaging code SMA)	094.71		096.71	
Modules (see table below)	99.01			
Technical data				
Rated values	12 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
⊕ Screw torque	Nm 0.8			
Wire strip length	mm 10			
Max. wire size for 96.72 and 96.74 sockets	solid wire		stranded wire	
	mm ²	1x4 / 2x4		1x4 / 2x2.5
	AWG	1x12 / 2x12		1x12 / 2x14



99.01 coil indication and EMC suppression modules for types 96.72 and 96.74 sockets

		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.01.3.000.00
Diode (+A2, non-standard polarity)	(6...220)V DC	99.01.2.000.00
LED	(6...24)V DC/AC	99.01.0.024.59
LED	(28...60)V DC/AC	99.01.0.060.59
LED	(110...240)V DC/AC	99.01.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.01.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.01.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.01.9.220.99
LED + Diode (+A2, non-standard polarity)	(6...24)V DC	99.01.9.024.79
LED + Diode (+A2, non-standard polarity)	(28...60)V DC	99.01.9.060.79
LED + Diode (+A2, non-standard polarity)	(110...220)V DC	99.01.9.220.79
LED + Varistor	(6...24)V DC/AC	99.01.0.024.98
LED + Varistor	(28...60)V DC/AC	99.01.0.060.98
LED + Varistor	(110...240)V DC/AC	99.01.0.230.98
RC circuit	(6...24)V DC/AC	99.01.0.024.09
RC circuit	(28...60)V DC/AC	99.01.0.060.09
RC circuit	(110...240)V DC/AC	99.01.0.230.09
Residual current by-pass	(110...240)V AC	99.01.8.230.07

96 Series - Sockets and accessories for 56 series relays

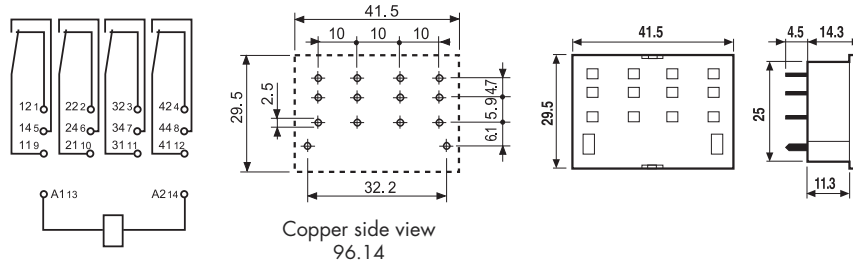
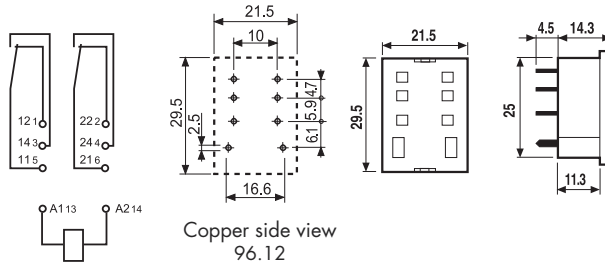


96.12

Approvals
(according to type):



PCB socket	96.12 (blue)	96.12.0 (black)	96.14 (blue)	96.14.0 (black)
For relay type	56.32		56.34	
Accessories				
Metal retaining clip (supplied with socket - packaging code SMA)				094.51
Technical data				
Rated values	15 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			



Packaging code

How to code and identify retaining clip and packaging options for sockets.

Example:



A Standard packaging

SM Metal retaining clip
SP Plastic retaining clip



Without retaining clip

Features

Plug-in mount 10 A General purpose relay

- 2 & 3 pole changeover contacts
- Cadmium Free contacts (preferred version)
- AC coils & DC coils
- UL Listing (certain relay/socket combinations)
- Contact material options
- Lockable test button with mechanical flag indicator (preferred version)
- 90 series sockets
- Coil EMC suppression
- Timer accessories 86 series
- European Patent

60.12

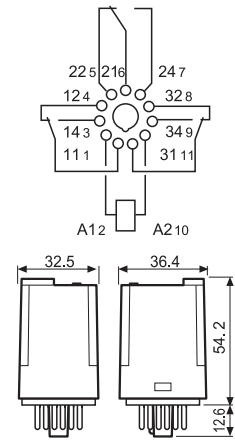
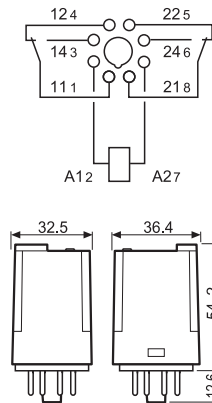


- 2 pole, 10 A power contacts
- 8 pin plug-in

60.13



- 3 pole, 10 A power contacts
- 11 pin plug-in



FOR UL RATINGS SEE:
"General technical information" page V

Contact specification		60.12	60.13
Contact configuration		2 CO (DPDT)	3 CO (3PDT)
Rated current/Maximum peak current	A	10/20	10/20
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	2,500	2,500
Rated load AC15 (230 V AC)	VA	500	500
Single phase motor rating (230 V AC)	kW	0.37	0.37
Breaking capacity DC1: 30/110/220 V	A	10/0.4/0.15	10/0.4/0.15
Minimum switching load	mW (V/mA)	500 (10/5)	500 (10/5)
Standard contact material		AgNi	AgNi
Coil specification		60.12	60.13
Nominal voltage (U _N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400	
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220	
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3	2.2/1.3
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	(0.8...1.1)U _N	(0.8...1.1)U _N
Holding voltage	AC/DC	0.8 U _N /0.5 U _N	0.8 U _N /0.5 U _N
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N	0.2 U _N /0.1 U _N
Technical data		60.12	60.13
Mechanical life AC/DC	cycles	20 · 10 ⁶ /50 · 10 ⁶	20 · 10 ⁶ /50 · 10 ⁶
Electrical life at rated load AC1	cycles	200 · 10 ³	200 · 10 ³
Operate/release time	ms	11/4	11/4
Insulation between coil and contacts (1.2/50 μs)	kV	4	3.6
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	-40...+70	-40...+70
Environmental protection		RT I	RT I

Approvals (according to type)



Features

Plug-in mount - 6 A

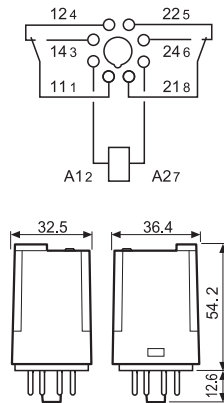
Bifurcated contacts for low level switching

- 2 & 3 pole changeover contacts
- Cadmium Free contacts (Gold plated Silver Nickel)
- AC coils & DC coils
- Lockable test button with mechanical flag indicator (preferred version)
- 90 series sockets
- Coil EMC suppression
- Timer accessories 86 series
- European Patent

60.12 - 5200



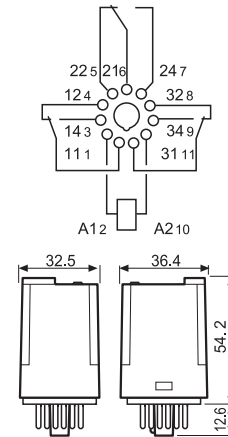
- 2 pole, 6 A bifurcated contacts
- 8 pin plug-in



60.13 - 5200



- 3 pole, 6 A bifurcated contacts
- 11 pin plug-in



FOR UL RATINGS SEE:
"General technical information" page V

Contact specification		60.12 - 5200	60.13 - 5200
Contact configuration		2 CO (DPDT)	3 CO (3PDT)
Rated current/Maximum peak current	A	6/10	6/10
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	1,500	1,500
Rated load AC15 (230 V AC)	VA	250	250
Single phase motor rating (230 V AC)	kW	0.185	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.3/0.12	6/0.3/0.12
Minimum switching load	mW (V/mA)	50 (5/5)	50 (5/5)
Standard contact material		AgNi + Au (5 µm) bifurcated contacts	AgNi + Au (5 µm) bifurcated contacts
Coil specification		60.12 - 5200	60.13 - 5200
Nominal voltage (U _N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400	
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220	
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3	2.2/1.3
Operating range	AC	(0.8...1.1)U _N	
	DC	(0.8...1.1)U _N	
Holding voltage	AC/DC	0.8 U _N /0.5 U _N	0.8 U _N /0.5 U _N
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N	0.2 U _N /0.1 U _N
Technical data		60.12 - 5200	60.13 - 5200
Mechanical life AC/DC	cycles	20 · 10 ⁶ /50 · 10 ⁶	
Electrical life at rated load AC1	cycles	250 · 10 ³	
Operate/release time	ms	11/4	
Insulation between coil and contacts (1.2/50 µs)	kV	4	
Dielectric strength between open contacts	V AC	1,000	
Ambient temperature range	°C	-40...+70	
Environmental protection		RT I	

Approvals (according to type)



Features

Flange mount - General purpose relay 10 A

- Faston 187, 4.8x0.8 mm
- 2 & 3 pole changeover contacts
- AC coils & DC coils
- Cadmium Free contacts (preferred version)
- Contacts material options

60.62

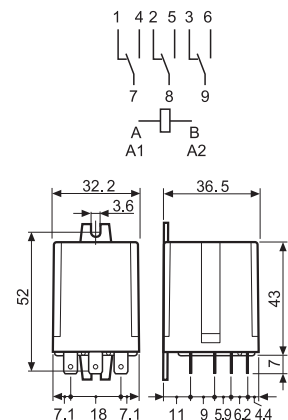
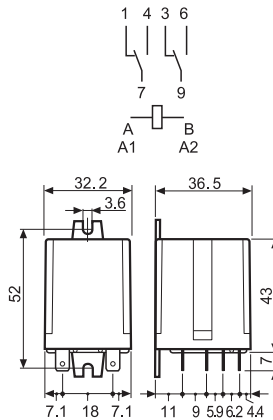


- 2 pole, 10 A power contacts
- Flange mount/Faston 187

60.63



- 3 pole, 10 A power contacts
- Flange mount/Faston 187



FOR UL RATINGS SEE:
"General technical information" page V

Contact specification

Contact configuration	2 CO (DPDT)	3 CO (3PDT)
Rated current/Maximum peak current	A 10/20	10/20
Rated voltage/Maximum switching voltage V AC	250/400	250/400
Rated load AC1	VA 2,500	2,500
Rated load AC15 (230 V AC)	VA 500	500
Single phase motor rating (230 V AC)	kW 0.37	0.37
Breaking capacity DC1: 30/110/220 V	A 10/0.4/0.15	10/0.4/0.15
Minimum switching load	mW (V/mA) 500 (10/5)	500 (10/5)
Standard contact material	AgNi	AgNi

Coil specification

Nominal voltage (U _N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3
Operating range	AC	(0.8...1.1)U _N
	DC	(0.8...1.1)U _N
Holding voltage	AC/DC	0.8 U _N /0.5 U _N
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N

Technical data

Mechanical life AC/DC	cycles	20 · 10 ⁶ /50 · 10 ⁶	20 · 10 ⁶ /50 · 10 ⁶
Electrical life at rated load AC1	cycles	200 · 10 ³	200 · 10 ³
Operate/release time	ms	11/4	11/4
Insulation between coil and contacts (1.2/50 μs)	kV	4	3.6
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	-40...+70	-40...+70
Environmental protection		RT I	RT I

Approvals (according to type)



Ordering information

Example: 60 series plug-in relay, 3 CO (3PDT), 12 V DC coil, test button and mechanical indicator.

6	0	.	1	.	3	.	9	.	0	1	2	.	0	A	0	B	0	C	4	D	0
----------	----------	---	----------	---	----------	---	----------	---	----------	----------	----------	---	----------	----------	----------	----------	----------	----------	----------	----------	----------

Series —————

Type —————

1 = 8/11 pin plug-in
6 = Faston 187 (4.8x0.8 mm) with flange mount

No. of poles —————

2 = 2 pole
3 = 3 pole

Coil version —————

4 = Current sensing (60.12/13 only)
8 = AC (50/60 Hz)
9 = DC

Coil voltage —————

See coil specifications

A: Contact material
0 = Standard
2 = AgCdO
5 = AgNi + Au (5 µm)

B: Contact circuit
0 = CO (nPDT)
2 = Bifurcated contacts
60.12/13 - 6 A only

D: Special versions
0 = Standard

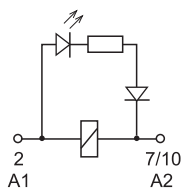
C: Options
0 = None
2 = Mechanical indicator
3 = LED (AC)
4 = Lockable test button + mechanical indicator
5* = Lockable test button + LED (AC)
54* = Lockable test button + LED (AC) + mechanical indicator
6* = LED + diode (DC, polarity positive to pin 2)
7* = Lockable test button + LED + diode (DC, polarity positive to pin 2)
74* = Lockable test button + LED + diode (DC, polarity positive to pin 2) + mechanical indicator

* Options not available for 220 V DC and 400 V AC versions.

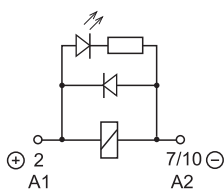
Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold**.

Type	Coil version	A	B	C	D
60.12/13	AC	0 - 2	0	0 - 2 - 3 - 4 - 5	0
	AC	0 - 2	0	54	/
	AC	5	0 - 2	0 - 2 - 3 - 4 - 5	0
	AC	5	0 - 2	54	/
	DC	0 - 2	0	0 - 2 - 4 - 6 - 7	0
	DC	0 - 2	0	74	/
	DC	5	0 - 2	0 - 2 - 4 - 6 - 7	0
	DC	5	0 - 2	74	/
	current sensing	0	0	4	0
60.62/63	AC-DC	0 - 2 - 5	0	0	0

Descriptions: Options and Special versions



C: Option 3, 5, 54
LED (AC)



C: Option 6, 7, 74
LED + diode (DC, polarity positive to pin 2)



Lockable test button and mechanical indicator (0040, 0050, 0054, 0070, 0074)

The dual-purpose Finder test button can be used in two ways:

Case 1) The plastic pip (located directly above the test button) remains intact. In this case, when the test button is pushed, the contacts operate. When the test button is released the contacts return to their former state.

Case 2) The plastic pip is broken-off (using an appropriate cutting tool). In this case, (in addition to the above function), when the test button is pushed and rotated, the contacts are latched in the operating state, and remain so until the test button is rotated back to its former position. In both cases ensure that the test button actuation is swift and decisive.

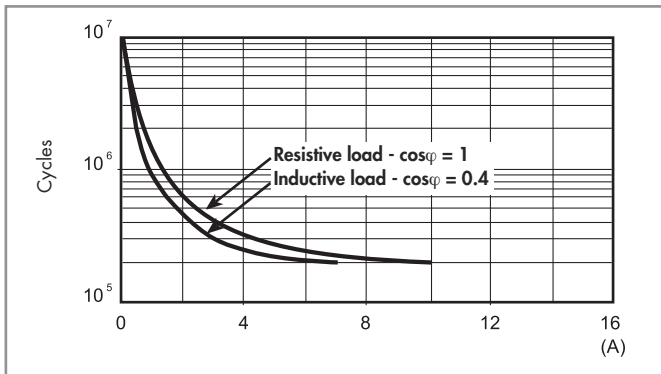


Technical data

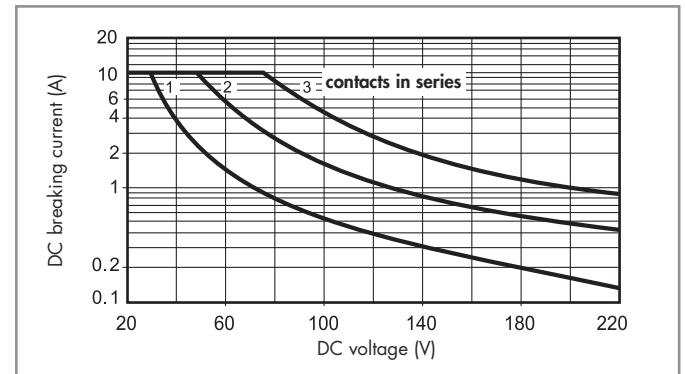
Insulation according to EN 61810-1		2 pole		3 pole	
Nominal voltage of supply system	V AC	230/400		230/400	
Rated insulation voltage	V AC	250	400	250	400
Pollution degree		3	2	3	2
Insulation between coil and contact set					
Type of insulation		Basic		Basic	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 µs)	4		3.6	
Dielectric strength	V AC	2,000		2,000	
Insulation between adjacent contacts					
Type of insulation		Basic		Basic	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 µs)	4		3.6	
Dielectric strength	V AC	2,000		2,000	
Insulation between open contacts					
Type of disconnection		Micro-disconnection		Micro-disconnection	
Dielectric strength	V AC/kV (1.2/50 µs)	1,000/1.5		1,000/1.5	
Conducted disturbance immunity					
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4		level 4 (4 kV)	
Surge (1.2/50 µs) on A1 - A2 (differential mode)		EN 61000-4-5		level 4 (4 kV)	
Other data					
Bounce time: NO/NC	ms	1/4			
Vibration resistance (5...55)Hz: NO/NC	g	22/22			
Shock resistance	g	20			
Power lost to the environment	without contact current	W	1.3	1.3	
	with rated current	W	2.7 (60.12, 60.62)	3.4 (60.13, 60.63)	

Contact specification

F 60 - Electrical life (AC) v contact current



H 60 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

DC coil data

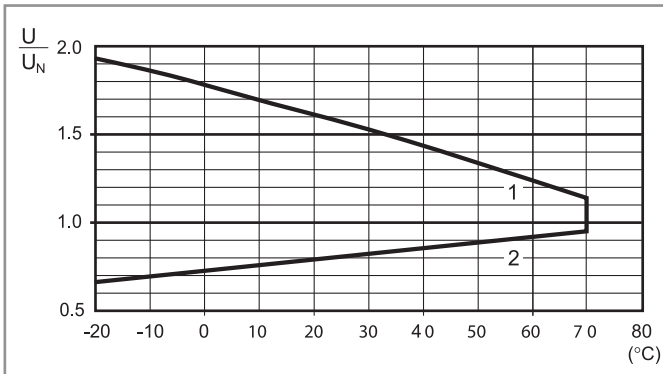
Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
6	9.006	4.8	6.6	28	214
12	9.012	9.6	13.2	110	109
24	9.024	19.2	26.4	445	53.9
48	9.048	38.4	52.8	1,770	27.1
60	9.060	48	66	2,760	21.7
110	9.110	88	121	9,420	11.7
125	9.125	100	138	12,000	10.4
220	9.220	176	242	37,300	5.8

AC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N (50Hz) mA
		U_{min} V	U_{max} V		
6	8.006	4.8	6.6	4.6	367
12	8.012	9.6	13.2	19	183
24	8.024	19.2	26.4	74	90
48	8.048	38.4	52.8	290	47
60	8.060	48	66	450	37
110	8.110	88	121	1,600	20
120	8.120	96	132	1,940	18.6
230	8.230	184	253	7,250	10.5
240	8.240	192	264	8,500	9.2
400	8.400	320	440	19,800	6

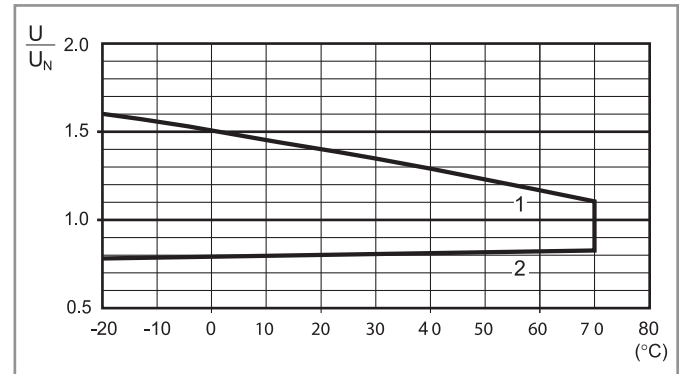
Coil specifications

R 60 - DC coil operating range v ambient temperature



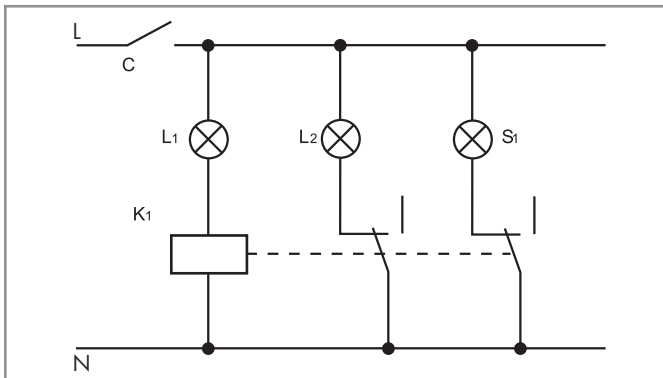
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

R 60 - AC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Current sensing version



Typical application with current sensing relays.
An open circuit filament of lamp L1 is detected by the current sensing relay coil (K1) which causes the back-up safety lamp L2 to be energised, and indication of failure at the control panel via lamp S1.

Example: navigation light.

- L1 = Light
- L2 = Safety light
- S1 = Control light
- K1 = Relay

Current sensing DC coil data

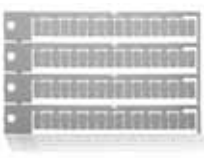
Coil code	I_{min} (A)	I_N (A)	I_{max} (A)	R (Ω)
4202	1.7	2.0	2.4	0.15
4182	1.5	1.8	2.2	0.19
4162	1.4	1.6	1.9	0.24
4142	1.2	1.4	1.7	0.31
4122	1.0	1.2	1.4	0.42
4102	0.85	1.0	1.2	0.61
4092	0.8	0.9	1.1	0.75
4062	0.5	0.6	0.7	1.70
4032	0.25	0.3	0.4	6.70
4012	0.085	0.1	0.15	61

Current sensing AC coil data

Coil code	I_{min} (A)	I_N (A)	I_{max} (A)	R (Ω)
4251	2.1	2.5	3.0	0.05
4181	1.5	1.8	2.2	0.10
4161	1.4	1.6	1.9	0.12
4121	1.0	1.2	1.4	0.22
4101	0.85	1.0	1.2	0.32
4051	0.42	0.5	0.6	1.28
4041	0.34	0.4	0.5	2.00
4031	0.25	0.3	0.4	3.57
4021	0.17	0.2	0.25	8.0
4011	0.085	0.1	0.15	32.1

Other types of current sensing relays are available on request.

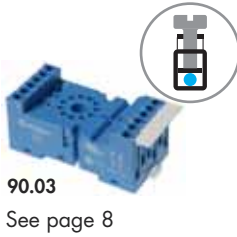
Accessories



060.72

Sheet of marker tags for relay types 60.12 and 60.13, plastic, 72 tags, 6x12 mm

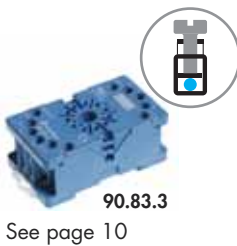
060.72



Module	Socket	Relay	Description	Mounting	Accessories
99.02	90.02	60.12	Screw terminal (Box clamp) socket Double A1 terminal	Panel or 35 mm rail (EN 60715) mount	<ul style="list-style-type: none"> - Coil indication and EMC suppression modules - Jumper link - Timer modules - Metal retaining clip
	90.03	60.13			



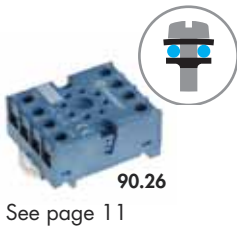
Module	Socket	Relay	Description	Mounting	Accessories
99.01	90.20	60.12	Screw terminal (Box clamp) socket	Panel or 35 mm rail (EN 60715) mount	<ul style="list-style-type: none"> - Coil indication and EMC suppression modules - Metal retaining clip
	90.21	60.13			



Module	Socket	Relay	Description	Mounting	Accessories
—	90.82.3	60.12	Screw terminal (Box clamp) socket	Panel or 35 mm rail (EN 60715) mount	- Metal retaining clip
—	90.83.3	60.13			



Module	Socket	Relay	Description	Mounting	Accessories
—	90.22	60.12	Screw terminal (Box clamp) socket	Panel or 35 mm rail (EN 60715) mount	- Metal retaining clip
—	90.23	60.13			



Module	Socket	Relay	Description	Mounting	Accessories
—	90.26	60.12	Screw terminal (Plate clamp) socket	Panel or 35 mm rail (EN 60715) mount	- Metal retaining clip
—	90.27	60.13			



Module	Socket	Relay	Description	Mounting	Accessories
—	90.12	60.12	Flange mount solder socket	M3 screw fixing	—
—	90.13	60.13			



Module	Socket	Relay	Description	Mounting	Accessories
—	90.14	60.12	PCB socket	PCB	—
—	90.14.1	60.12			
—	90.15	60.13			
—	90.15.1	60.13			



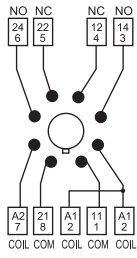
90.03

Approvals (according to type):

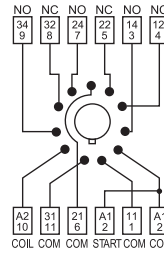
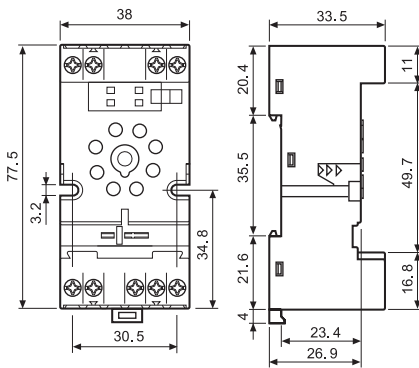


Certain relay/socket combinations

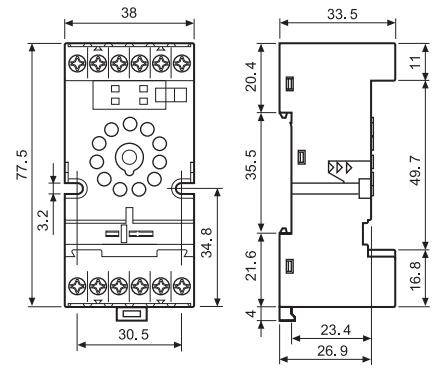
Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount For relay type	90.02 Blue	90.02.0 Black	90.03 Blue	90.03.0 Black
Accessories				
Metal retaining clip			090.33	
6-way jumper link			090.06	
Identification tag			090.00.2	
Modules (see table below)			99.02	
Timer modules (see table below)			86.00, 86.30	
Technical data				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
Screw torque	Nm 0.6			
Wire strip length	mm 10			
Max. wire size for 90.02 and 90.03 sockets	solid wire		stranded wire	
	mm ² 1x6 / 2x2.5		1x4 / 2x2.5	
	AWG 1x10 / 2x14		1x12 / 2x14	



90.02



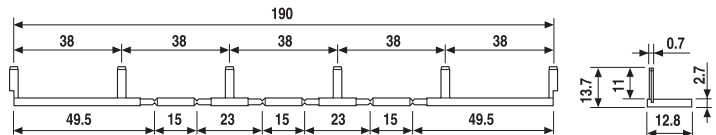
90.03



090.06

6-way jumper link for 90.02 and 90.03 sockets	090.06 (blue)	090.06.0 (black)
Rated values	10 A - 250 V	

Approvals (according to type):



86.00



86.30

86 series timer modules		
Multi-voltage: (12...240)V AC/DC;		
Multi-functions: AI, DI, SW, BE, CE, DE, EE, FE; (0.05 s...100 h)		86.00.0.240.0000
(12...24)V AC/DC; Bi-function: AI, DI; (0.05 s...100 h)		86.30.0.024.0000
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)		86.30.8.120.0000
(230...240)V AC; Bi-function: AI, DI; (0.05 s...100 h)		86.30.8.240.0000

Approvals (according to type):



99.02

Approvals (according to type):



99.02 coil indication and EMC suppression modules for 90.02 and 90.03 sockets		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07

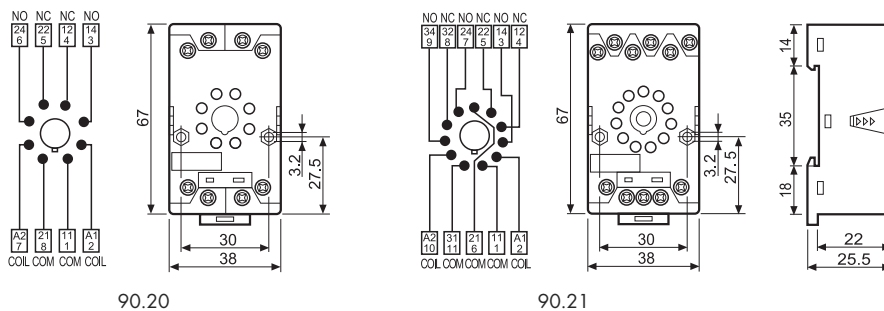
DC Modules with non-standard polarity (+A2) on request.



Approvals
(according to type):



Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount	90.20 Blue	90.20.0 Black	90.21 Blue	90.21.0 Black
For relay type	60.12		60.13	
Accessories				
Metal retaining clip (supplied with socket - packaging code SMA)			090.33	
Modules (see table below)			99.01	
Technical data				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
⊕ Screw torque	Nm	0.5		
Wire strip length	mm	10		
Max. wire size for 90.20 and 90.21 sockets		solid wire	stranded wire	
	mm ²	1x6 / 2x2.5		1x6 / 2x2.5
	AWG	1x10 / 2x14		1x10 / 2x14



99.01

Approvals
(according to type):



* Modules in Black housing are available on request.

Green LED is standard. Red LED available on request.

99.01 coil indication and EMC suppression modules for 90.20 and 90.21 sockets		Blue*
See technical data page 215/216		
Diode (+A1, standard polarity)	(6...220)V DC	99.01.3.000.00
Diode (+A2, non-standard polarity)	(6...220)V DC	99.01.2.000.00
LED	(6...24)V DC/AC	99.01.0.024.59
LED	(28...60)V DC/AC	99.01.0.060.59
LED	(110...240)V DC/AC	99.01.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.01.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.01.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.01.9.220.99
LED + Diode (+A2, non-standard polarity)	(6...24)V DC	99.01.9.024.79
LED + Diode (+A2, non-standard polarity)	(28...60)V DC	99.01.9.060.79
LED + Diode (+A2, non-standard polarity)	(110...220)V DC	99.01.9.220.79
LED + Varistor	(6...24)V DC/AC	99.01.0.024.98
LED + Varistor	(28...60)V DC/AC	99.01.0.060.98
LED + Varistor	(110...240)V DC/AC	99.01.0.230.98
RC circuit	(6...24)V DC/AC	99.01.0.024.09
RC circuit	(28...60)V DC/AC	99.01.0.060.09
RC circuit	(110...240)V DC/AC	99.01.0.230.09
Residual current by-pass	(110...240)V AC	99.01.8.230.07

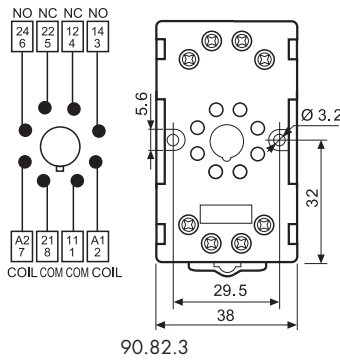


90.83.3

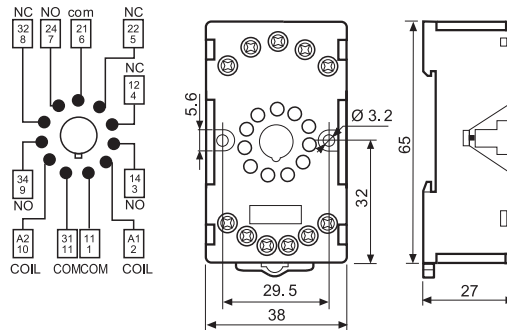
Approvals
(according to type):



Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount For relay type	90.82.3 Blue	90.82.30 Black	90.83.3 Blue	90.83.30 Black
Accessories				
Metal retaining clip	090.33			
Technical data				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
⊕ Screw torque	Nm 0.8			
Max. wire size for 90.82.3 and 90.83.3 sockets	solid wire		stranded wire	
	mm ² 1x6 / 2x4		1x6 / 2x4	
	AWG 1x10 / 2x14		1x10 / 2x14	



90.82.3



90.83.3

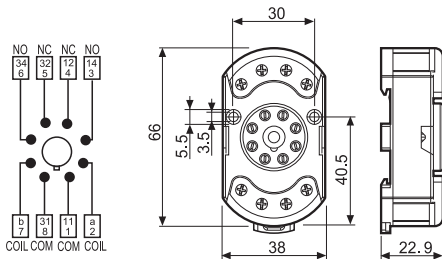


90.23

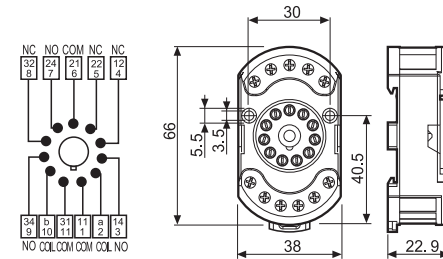
Approvals
(according to type):



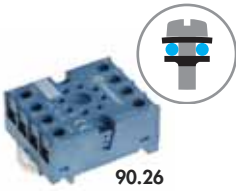
Screw (Box clamp) terminal socket panel or 35 mm rail (EN 60715) mount For relay type	90.22 Blue	90.23 Blue
Accessories		
Metal retaining clip (supplied with socket - packaging code SMA)	090.33	
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	2 kV AC	
Protection category	IP 20	
Ambient temperature	°C -40...+70	
⊕ Screw torque	Nm 0.5	
Wire strip length	mm 7	
Max wire size for 90.22 and 90.23 sockets	solid wire	
	mm ² 1x6 / 2x2.5	
	AWG 1x10 / 2x14	



90.22



90.23



90.26

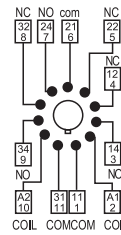
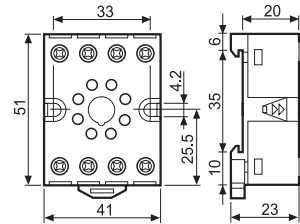
Approvals
(according to type):



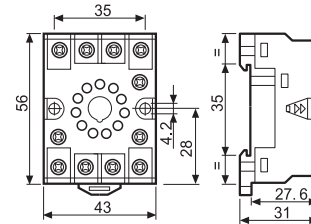
Screw terminal (Plate clamp) socket	90.26	90.26.0	90.27	90.27.0
panel or 35 mm rail (EN 60715) mount	Blue	Black	Blue	Black
For relay type	60.12		60.13	
Accessories				
Metal retaining clip (supplied with socket - packaging code SMA)				090.33
Technical data				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
⊕ Screw torque	Nm	0.8		
Wire strip length	mm	10		
Max. wire size for 90.26 and 90.27 sockets	solid wire			stranded wire
	mm ²	1x4 / 2x2.5		1x4 / 2x2.5
	AWG	1x12 / 2x14		1x12 / 2x14



90.26



90.27

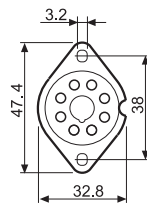


90.12

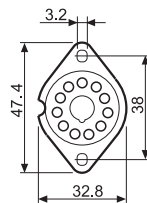
Approvals
(according to type):



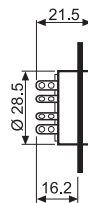
Flange mount solder socket mount with M3 screw	90.12 (black)	90.13 (black)
For relay type	60.12	
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	2 kV AC	
Ambient temperature	°C -40...+70	



90.12



90.13



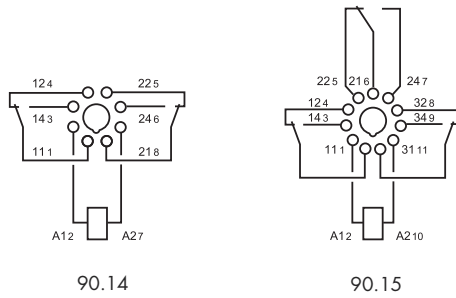
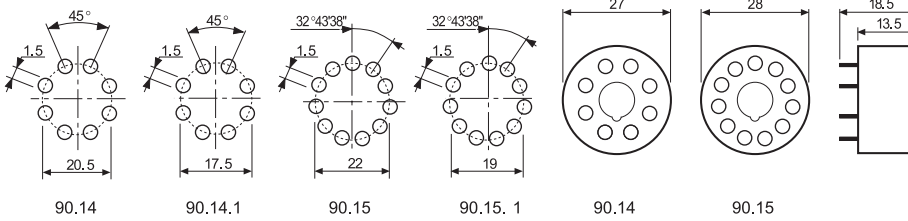


90.15

Approvals
(according to type):



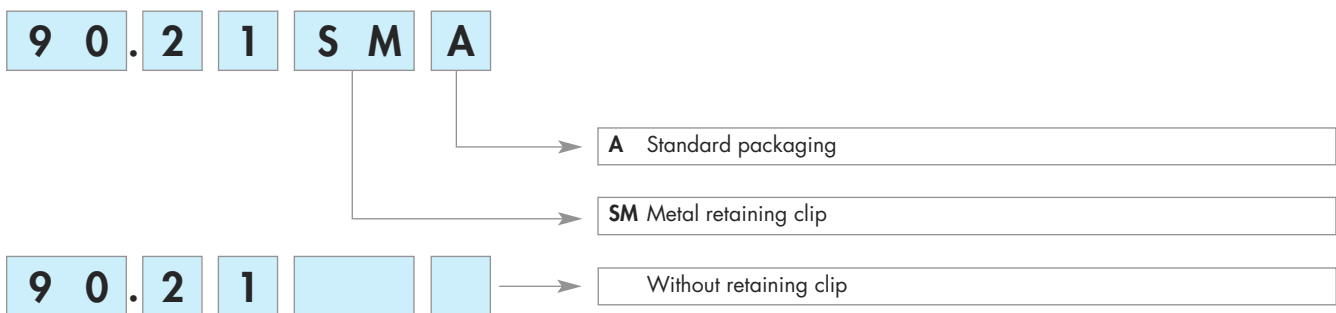
PCB socket	Blue	90.14 (Ø 20.5 mm)	90.15 (Ø 22 mm)
	Blue	90.14.1 (Ø 17.5 mm)	90.15.1 (Ø 19 mm)
For relay type		60.12	60.13
Technical data			
Rated values		10 A - 250 V	
Dielectric strength		2 kV AC	
Ambient temperature	°C	-40...+70	



Packaging code

How to code and identify retaining clip and packaging options for sockets.

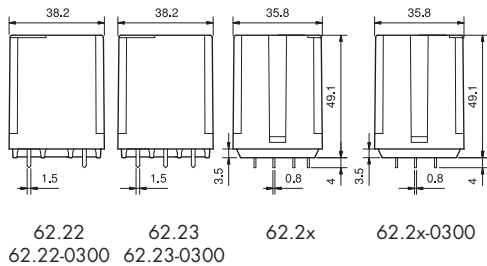
Example:



Features

Printed circuit mount 16 A Power relay

- 2 & 3 Pole changeover contacts or NO (≥ 3 mm contact gap)
- AC coils & DC coils
- Reinforced insulation between coil and contacts according to EN 60335-1, with 6 mm clearance & 8 mm creepage distance
- SELV coil-contact separator option
- Cadmium Free contact material options



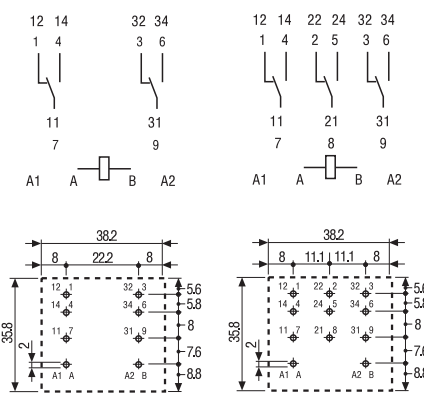
- * Distance between contacts ≥ 3 mm (EN 60730-1).
- ** With the AgSnO_2 material the maximum peak current is 120 A - 5 ms (NO contact).

FOR UL RATINGS SEE:
"General technical information" page V

62.22 / 62.23



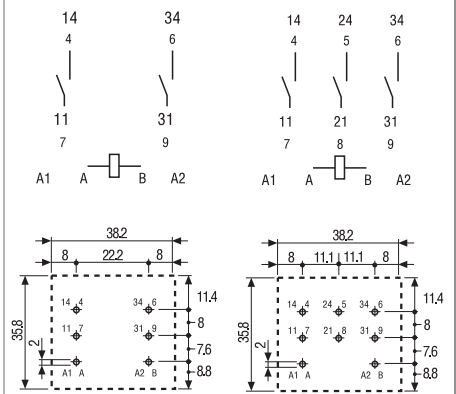
- 2 & 3 pole changeover contact
- PCB mount



62.22-0300 / 62.23-0300



- 2 & 3 pole normally open contact (≥ 3 mm contact gap)
- PCB mount

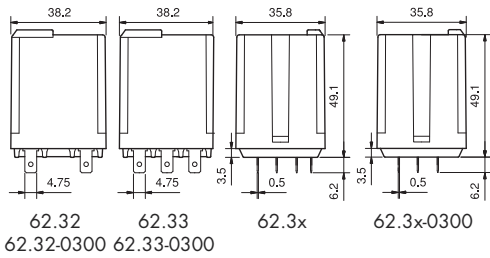


Contact specification		2 CO (DPDT)		3 CO (3PDT)		2 NO (DPST-NO), ≥ 3 mm*		3 NO (3PST-NO), ≥ 3 mm*	
Contact configuration		2 CO (DPDT)		3 CO (3PDT)		2 NO (DPST-NO), ≥ 3 mm*		3 NO (3PST-NO), ≥ 3 mm*	
Rated current/Maximum peak current	A	16/30**		16/30**		16/30**		16/30**	
Rated voltage/Maximum switching voltage V AC		250/400		250/400		250/400		250/400	
Rated load AC1	VA	4,000		4,000		4,000		4,000	
Rated load AC15 (230 V AC)	VA	750		750		750		750	
Motor rating (230/400 V AC)	kW	0.8/-		0.8/1.5		0.8/-		0.8/1.5	
Breaking capacity DC1: 30/110/220 V	A	16/0.6/0.4		16/0.6/0.4		16/1.1/0.7		16/1.1/0.7	
Minimum switching load	mW (V/mA)	1,000 (10/10)		1,000 (10/10)		1,000 (10/10)		1,000 (10/10)	
Standard contact material		AgCdO		AgCdO		AgCdO		AgCdO	
Coil specification									
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400							
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220							
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3				3/3			
Operating range	AC	$(0.8 \dots 1.1) U_N$				$(0.85 \dots 1.1) U_N$			
	DC	$(0.8 \dots 1.1) U_N$				$(0.85 \dots 1.1) U_N$			
Holding voltage	AC/DC	$0.8 U_N / 0.6 U_N$				$0.8 U_N / 0.6 U_N$			
Must drop-out voltage	AC/DC	$0.2 U_N / 0.1 U_N$				$0.2 U_N / 0.1 U_N$			
Technical data									
Mechanical life AC/DC	cycles	$10 \cdot 10^6 / 30 \cdot 10^6$				$10 \cdot 10^6 / 30 \cdot 10^6$			
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$				$100 \cdot 10^3$			
Operate/release time	ms	11/4				15/3			
Insulation between coil and contacts (1.2/50 μ s)	kV	6				6			
Dielectric strength between open contacts	V AC	1,500				2,500			
Ambient temperature range	$^{\circ}$ C	$-40 \dots +70$				$-40 \dots +50$			
Environmental protection		RT I				RT I			
Approvals (according to type)									

Features

Plug-in mount/Faston 187 16 A Power relay

- Plug-in (92 series sockets) or Faston 187 (4.8x0.5 mm) with optional mounting adaptors
- 2 & 3 Pole changeover contacts or NO (≥ 3 mm contact gap)
- AC coils & DC coils
- UL Listing (certain relay/socket combinations)
- LED, mechanical indicator & test button options
- Reinforced insulation between coil and contacts according to EN 60335-1, with 6 mm clearance & 8 mm creepage distance
- SELV coil-contact separator option
- Cadmium Free contact material options
- Sockets and accessories
- European Patent



62.32 62.33 62.3x 62.3x-0300

* Distance between contacts ≥ 3 mm (EN 60730-1).

** With the AgSnO₂ material the maximum peak current is 120 A - 5 ms (NO contact).

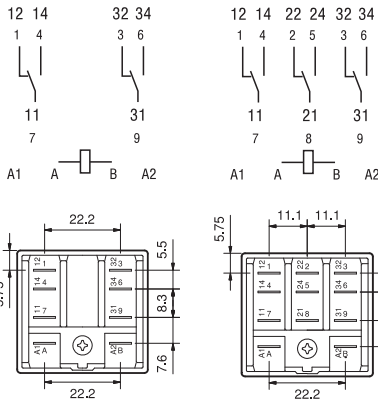
FOR UL RATINGS SEE:

"General technical information" page V

62.32 / 62.33



- 2 & 3 pole changeover contact
- Plug-in / Faston 187



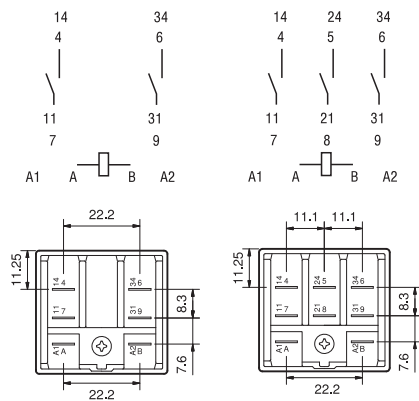
62.32

62.33

62.32-0300 / 62.33-0300



- 2 & 3 pole normally open contact (≥ 3 mm contact gap)
- Plug-in / Faston 187



62.32-0300

62.33-0300

Contact specification

Contact configuration	2 CO (DPDT)	3 CO (3PDT)	2 NO (DPST-NO), ≥ 3 mm*	3 NO (3PST-NO), ≥ 3 mm*
Rated current/Maximum peak current	A	16/30**	16/30**	
Rated voltage/Maximum switching voltage V AC		250/400	250/400	
Rated load AC1	VA	4,000	4,000	
Rated load AC15 (230 V AC)	VA	750	750	
Motor rating (230/400 V AC)	kW	0.8/—	0.8/—	0.8/1.5
Breaking capacity DC1: 30/110/220 V	A	16/0.6/0.4	16/1.1/0.7	
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)	
Standard contact material		AgCdO	AgCdO	

Coil specification

Nominal voltage (U _N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400		
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220		
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3	3/3	
Operating range	AC	(0.8...1.1)U _N		
	DC	(0.8...1.1)U _N		
Holding voltage	AC/DC	0.8 U _N /0.6 U _N		0.8 U _N /0.6 U _N
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N		0.2 U _N /0.1 U _N

Technical data

Mechanical life AC/DC	cycles	10 · 10 ⁶ /30 · 10 ⁶		
Electrical life at rated load AC1	cycles	100 · 10 ³		
Operate/release time	ms	11/4		
Insulation between coil and contacts (1.2/50 μs)	kV	6		
Dielectric strength between open contacts	V AC	1,500		
Ambient temperature range	°C	-40...+70		
Environmental protection		RT I		

Approvals (according to type)



Features

Flange mount/Faston 250 16 A Power relay

- Faston 250 (6.3x0.8 mm) termination Flange or optional mounting adaptors
- 2 & 3 Pole changeover contacts or NO (≥ 3 mm contact gap)
- AC coils & DC coils
- LED, mechanical indicator & test button options
- Reinforced insulation between coil and contacts according to EN 60335-1, with 6 mm clearance & 8 mm creepage distance
- SELV coil-contact separator option
- Cadmium Free contact material options
- European Patent

62.82 / 62.83

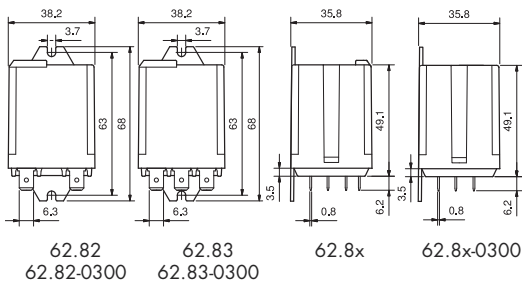


- 2 & 3 pole changeover contact
- Flange mount / Faston 250

62.82-0300 / 62.83-0300



- 2 & 3 pole normally open contact (≥ 3 mm contact gap)
- Flange mount / Faston 250

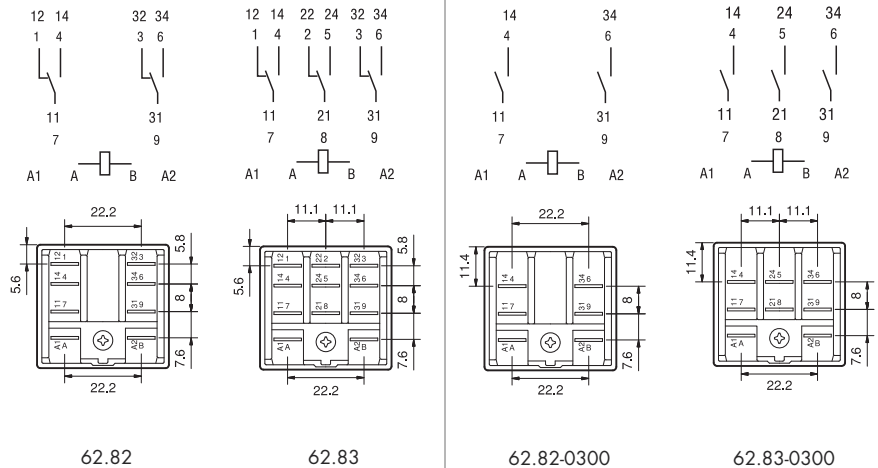


* Distance between contacts ≥ 3 mm (EN 60730-1).

** With the AgSnO_2 material the maximum peak current is 120 A - 5 ms (NO contact).

FOR UL RATINGS SEE:

"General technical information" page V



Contact specification		62.82 / 62.83		62.82-0300 / 62.83-0300	
Contact configuration		2 CO (DPDT)	3 CO (3PDT)	2 NO (DPST-NO), ≥ 3 mm*	3 NO (3PST-NO), ≥ 3 mm*
Rated current/Maximum peak current	A	16/30**		16/30**	
Rated voltage/Maximum switching voltage V AC		250/400		250/400	
Rated load AC1	VA	4,000		4,000	
Rated load AC15 (230 V AC)	VA	750		750	
Motor rating (230/400 V AC)	kW	0.8/-	0.8/1.5	0.8/-	0.8/1.5
Breaking capacity DC1: 30/110/220 V	A	16/0.6/0.4		16/1.1/0.7	
Minimum switching load	mW (V/mA)	1,000 (10/10)		1,000 (10/10)	
Standard contact material		AgCdO		AgCdO	
Coil specification		62.82 / 62.83		62.82-0300 / 62.83-0300	
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400			
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220			
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3		3/3	
Operating range	AC	$(0.8 \dots 1.1) U_N$		$(0.85 \dots 1.1) U_N$	
	DC	$(0.8 \dots 1.1) U_N$		$(0.85 \dots 1.1) U_N$	
Holding voltage	AC/DC	$0.8 U_N / 0.6 U_N$		$0.8 U_N / 0.6 U_N$	
Must drop-out voltage	AC/DC	$0.2 U_N / 0.1 U_N$		$0.2 U_N / 0.1 U_N$	
Technical data		62.82 / 62.83		62.82-0300 / 62.83-0300	
Mechanical life AC/DC	cycles	$10 \cdot 10^6 / 30 \cdot 10^6$		$10 \cdot 10^6 / 30 \cdot 10^6$	
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$		$100 \cdot 10^3$	
Operate/release time	ms	11/4		15/3	
Insulation between coil and contacts (1.2/50 μ s)	kV	6		6	
Dielectric strength between open contacts	V AC	1,500		2,500	
Ambient temperature range	$^{\circ}$ C	$-40 \dots +70$		$-40 \dots +50$	
Environmental protection		RT I		RT I	
Approvals (according to type)					

Ordering information

Example: 62 series power relay + Faston 250 (6.3x0.8 mm), rear flange mount, 2 NO (DPST-NO), 12 V DC coil.

6	2	.	8	.	2	.	9	.	0	1	2	.	0	A	B	C	D	0	3	0	0
----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------

Series ————

Type
 2 = PCB
 3 = Plug-in
 8 = Faston 250 (6.3x0.8 mm) with rear flange mount

No. of poles
 2 = 2 pole
 3 = 3 pole

Coil version
 8 = AC (50/60 Hz)
 9 = DC

Coil voltage
 See coil specifications

A: Contact material
 0 = Standard AgCdO
 4 = AgSnO₂

B: Contact circuit
 0 = CO (nPDT)
 3 = NO (nPST), ≥ 3 mm contact gap
 5 = CO (nPDT) + additional physical separator between coil and contacts (for SELV applications)
 6 = NO (nPST), ≥ 3 mm contact gap + additional physical separator between coil and contacts (for SELV applications)

D: Special versions
 0 = Standard
 6 = Rear flange mount
 9 = Type 62.82/83 without rear flange mount

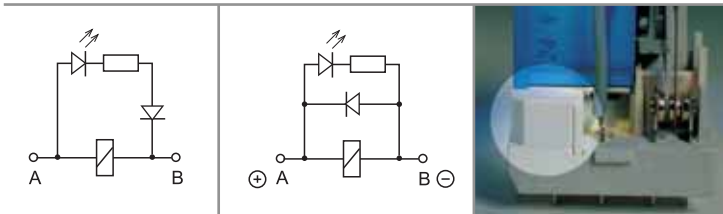
C: Options
 0 = None
 2 = Mechanical indicator
 3 = LED (AC)
 4 = Lockable test button + mechanical indicator
 5* = Lockable test button + LED (AC)
 54* = Lockable test button + LED (AC) + mechanical indicator
 6* = LED + diode (DC, polarity positive to pin A/A1)
 7* = Lockable test button + LED + diode (DC, polarity positive to pin A/A1)
 74* = Lockable test button + LED + diode (DC, polarity positive to pin A/A1) + mechanical indicator

Selecting features and options: only combinations in the same row are possible.
 Preferred selections for best availability are shown in **bold**.

Type	Coil version	A	B	C	D
62.22/23	AC-DC	0 - 4	0 - 3 - 5 - 6	0	0
62.32/33	AC-DC	0 - 4	0 - 3 - 5 - 6	0	0 - 6
	AC-DC	0 - 4	0 - 5	2 - 4	0 - 6
	AC	0 - 4	0	2 - 3 - 4 - 5	0 - 6
	AC	0 - 4	0 - 3	3	0 - 6
	AC	0 - 4	0	54	/
	DC	0 - 4	0	4 - 6 - 7	0 - 6
	DC	0 - 4	0 - 3	6	0 - 6
	DC	0 - 4	0	74	/
62.82/83	AC-DC	0 - 4	0 - 3 - 5 - 6	0	0 - 9
	AC-DC	0 - 4	0 - 5	2 - 4	0
	AC	0 - 4	0	2 - 3 - 4 - 5	0
	AC	0 - 4	0 - 3	3	0
	DC	0 - 4	0	4 - 6 - 7	0
	DC	0 - 4	0 - 3	6	0

* Options not available for 220 V DC and 400 V AC versions.

Descriptions: Options and Special versions



C: Option 3, 5, 54
LED (AC)

C: Option 6, 7, 74
LED + diode (DC, polarity positive to pin A/A1)

B: Contact circuit 5, 6
Additional physical separator between coil and contacts (for SELV applications)



Lockable test button and mechanical flag indicator (0040, 0050, 0054, 0070, 0074)

The dual-purpose Finder test button can be used in two ways:

Case 1) The plastic pip (located directly above the test button) remains intact. In this case, when the test button is pushed, the contacts operate. When the test button is released the contacts return to their former state.

Case 2) The plastic pip is broken-off (using an appropriate cutting tool). In this case, (in addition to the above function), when the test button is pushed and rotated, the contacts are latched in the operating state, and remain so until the test button is rotated back to its former position. In both cases ensure that the test button actuation is swift and decisive.

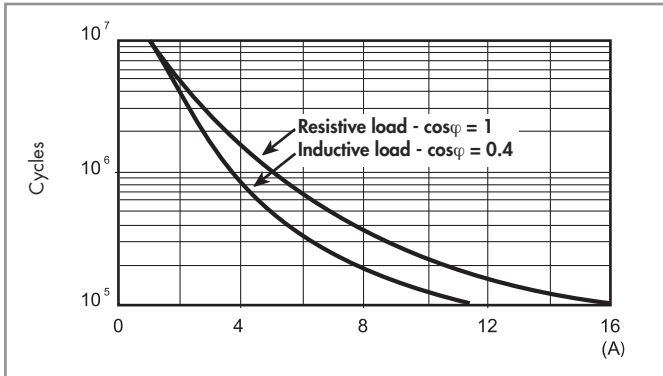


Technical data

Insulation according to EN 61810-1						
		2 CO - 3 CO		2 NO - 3 NO		
Nominal voltage of supply system	V AC	230/400		230/400		
Rated insulation voltage	V AC	400		400		
Pollution degree		3		3		
Insulation between coil and contact set						
Type of insulation		Reinforced		Reinforced		
Overvoltage category		III		III		
Rated impulse voltage	kV (1.2/50 µs)	6		6		
Dielectric strength	V AC	4,000		4,000		
Insulation between adjacent contacts						
Type of insulation		Basic		Basic		
Overvoltage category		III		III		
Rated impulse voltage	kV (1.2/50 µs)	4		4		
Dielectric strength	V AC	2,500		2,500		
Insulation between open contacts						
Type of disconnection		Micro-disconnection		Full-disconnection		
Overvoltage category		—		III		
Rated impulse voltage	kV (1.2/50 µs)	—		4		
Dielectric strength	V AC/kV (1.2/50 µs)	1,500/2		2,500/4		
Conducted disturbance immunity						
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4		level 4 (4 kV)		
Surge (1.2/50 µs) on A1 - A2 (differential mode)		EN 61000-4-5		level 4 (4 kV)		
Other data						
Bounce time: NO/NC	ms	1/5 (changeover)		3/— (normally open)		
Vibration resistance (10...150)Hz: NO/NC	g	20/8				
Shock resistance	g	15				
Power lost to the environment		2 pole (CO)	3 pole (CO)	2 pole (NO)	3 pole (NO)	
	without contact current	W	1.3	1.3	3	3
	with rated current	W	3.3	4.3	5	6
Recommended distance between relays mounted on PCB	mm	≥ 5				

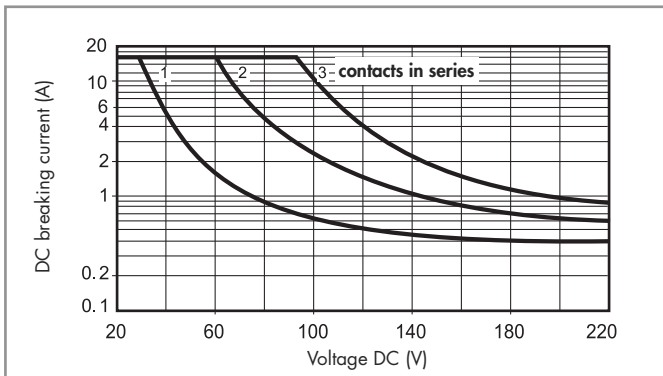
Contact specification

F 62 - Electrical life (AC) v contact current



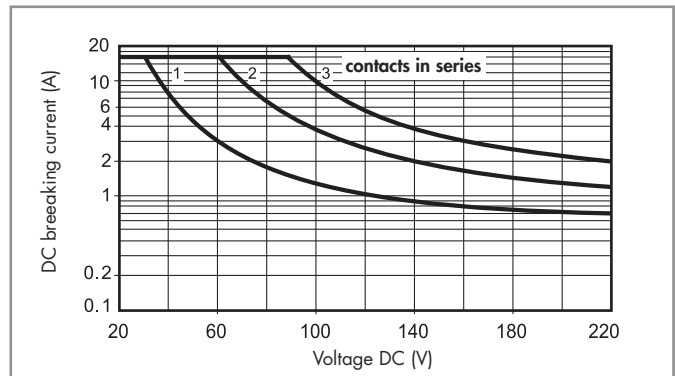
H 62 - Maximum DC1 breaking capacity

Changeover contacts



H 62 - Maximum DC1 breaking capacity

Normally open contacts



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time of the load will be increased.

Coil specifications

DC version data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
6	9.006	4.8	6.6	28	214
12	9.012	9.6	13.2	110	109
24	9.024	19.2	26.4	445	54
48	9.048	38.4	52.8	1,770	27
60	9.060	48	66	2,760	21.7
110	9.110	88	121	9,420	11.7
125	9.125	100	138	12,000	10.4
220	9.220	176	242	37,300	5.8

AC version data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N (50Hz) mA
		U_{min} V	U_{max} V		
6	8.006	4.8	6.6	4.6	367
12	8.012	9.6	13.2	19	183
24	8.024	19.2	26.4	74	90
48	8.048	38.4	52.8	290	47
60	8.060	48	66	450	37
110	8.110	88	121	1,600	20
120	8.120	96	132	1,940	18.6
230	8.230	184	253	7,250	10.5
240	8.240	192	264	8,500	9.2
400	8.400	320	440	19,800	6

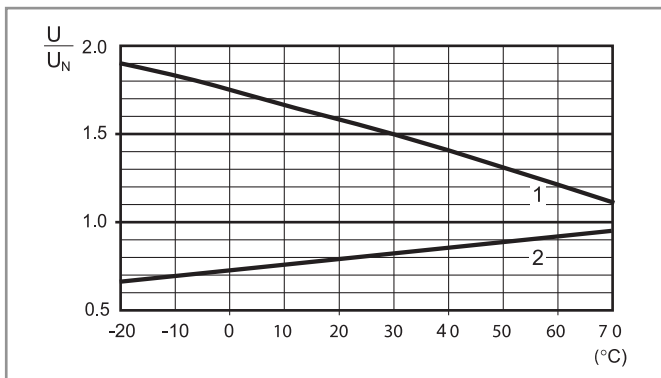
DC (NO/nPST-NO) version data - ≥ 3 mm

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
6	9.006	5.1	6.6	12	500
12	9.012	10.2	13.2	48	250
24	9.024	20.4	26.4	192	125
48	9.048	40.8	52.8	770	63
60	9.060	51	66	1,200	50
110	9.110	93.5	121	4,200	26
125	9.125	106	138	5,200	24
220	9.220	187	242	17,600	12.5

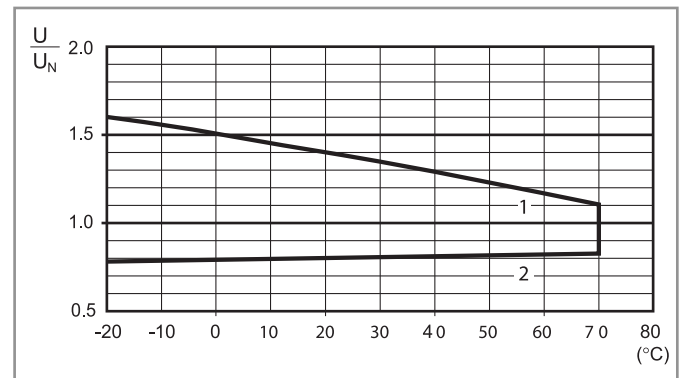
AC (NO/nPST-NO) version data - ≥ 3 mm

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N (50Hz) mA
		U_{min} V	U_{max} V		
6	8.006	5.1	6.6	4	540
12	8.012	10.2	13.2	14	275
24	8.024	20.4	26.4	62	130
48	8.048	40.8	52.8	220	70
60	8.060	51	66	348	55
110	8.110	93.5	121	1,200	30
120	8.120	106	137	1,350	24
230	8.230	196	253	5,000	14
240	8.240	204	264	6,300	12.5
400	8.400	340	440	14,700	7.8

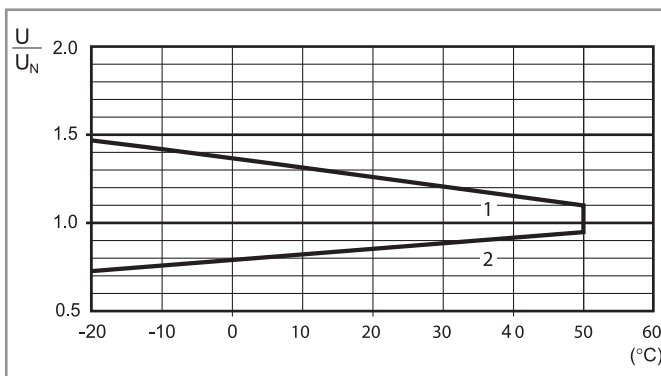
R 62 - DC coil operating range v ambient temperature
Changeover contacts



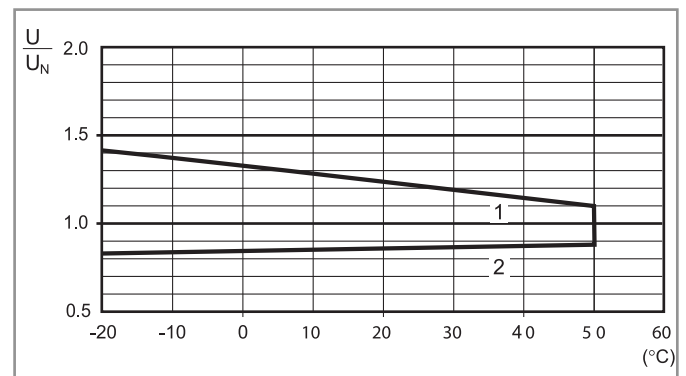
R 62 - AC coil operating range v ambient temperature
Changeover contacts



R 62 - DC coil operating range v ambient temperature
Normally open contacts



R 62 - AC coil operating range v ambient temperature
Normally open contacts



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Accessories



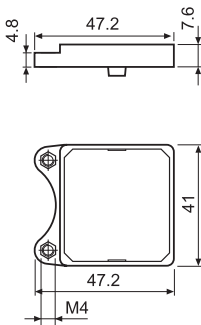
062.10



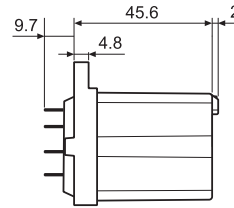
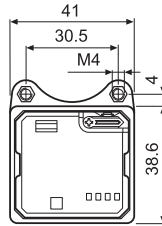
062.10 with relay

Mounting adaptor for types 62.3x and 62.8x.xxxx.xxx9 (M4)

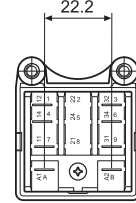
062.10



062.10



062.10 with relay



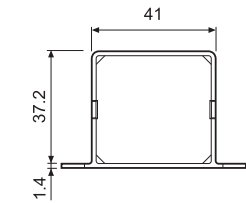
062.60



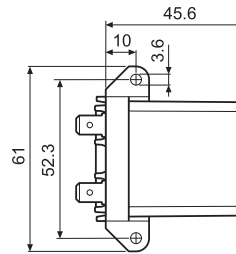
062.60 with relay

Flange mounting adaptor for types 62.3x and 62.8x.xxxx.xxx9

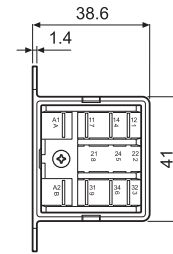
062.60



062.60



062.60 with relay



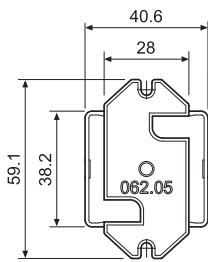
062.05



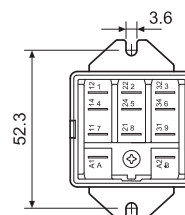
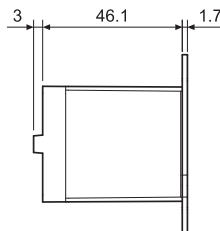
062.05 with relay

Top flange mount for types 62.3x and 62.8x.xxxx.xxx9

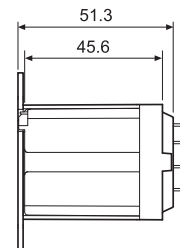
062.05



062.05



062.05 with relay



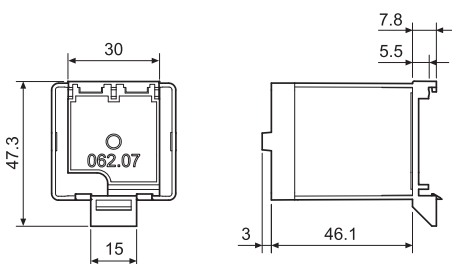
062.07



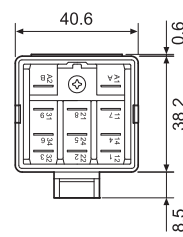
062.07 with relay

Top 35 mm rail (EN 60715) mount for types 62.3x and 62.8x.xxxx.xxx9

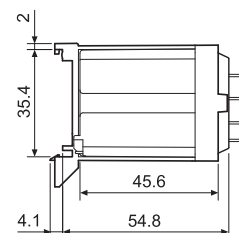
062.07



062.07



062.07 with relay



Accessories



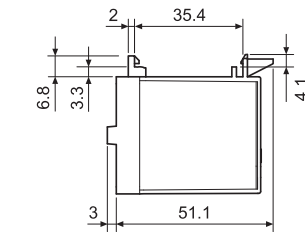
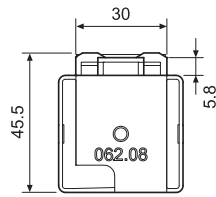
062.08



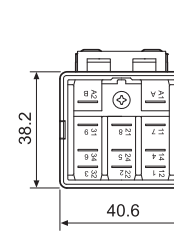
062.08 with relay

Rear 35 mm rail (EN 60715) mount for types 62.3x and 62.8x.xxxx.xxx9

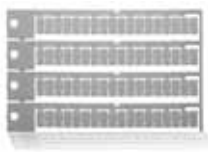
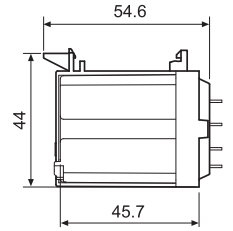
062.08



062.08



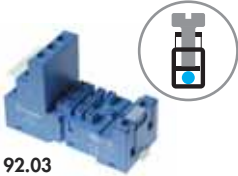
062.08 with relay



060.72

Sheet of marker tags for 62 series relays, plastic, 72 tags, 6x12 mm

060.72



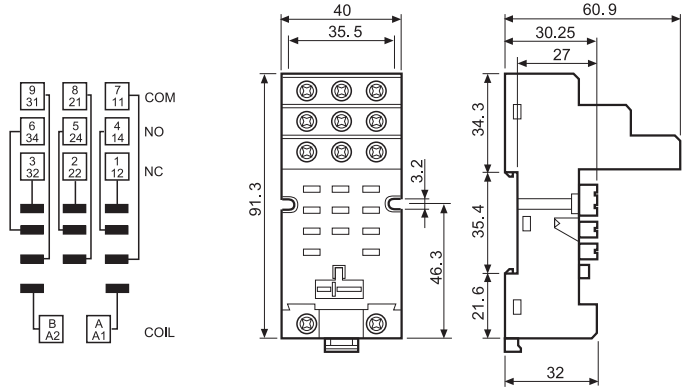
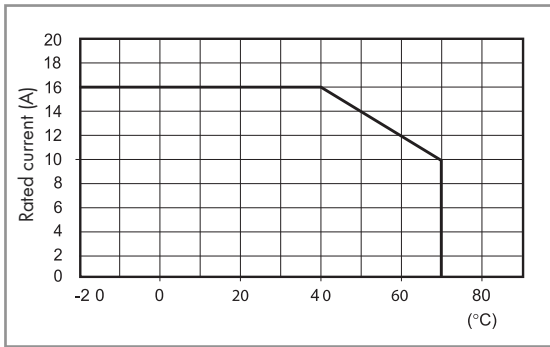
92.03

Approvals (according to type):



Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount For relay type	92.03 Blue 62.32, 62.33	92.03.0 Black	
Accessories			
Metal retaining clip (supplied with socket - packaging code SMA)		092.71	
Identification tag		092.00.2	
Modules (see table below)		99.02	
Timer modules (see table below)		86.00, 86.30	
Technical data			
Rated values	16 A - 250 V		
Dielectric strength	6 kV (1.2/50 µs) between coil and contacts		
Protection category	IP 20		
Ambient temperature	°C -40...+70 (see diagram L92)		
Screw torque	Nm	0.8	
Wire strip length	mm	10	
Max. wire size for 92.03 socket	solid wire	stranded wire	
	mm ²	1x10 / 2x4	1x6 / 2x4
	AWG	1x8 / 2x12	1x10 / 2x12

L 92 - Rated current vs ambient temperature



86.00



86.30

86 series timer modules

Multi-voltage: (12...240)V AC/DC;	
Multi-functions: AI, DI, SW, BE, CE, DE, EE, FE; (0.05s...100h)	86.00.0.240.0000
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s...100h)	86.30.0.024.0000
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000
(230...240)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.240.0000

Approvals (according to type):



99.02

Approvals (according to type):



99.02 coil indication and EMC suppression modules for 92.03 socket

Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07

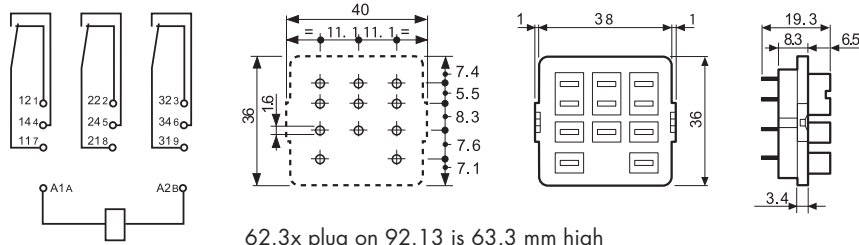
DC Modules with non-standard polarity (+A2) on request.



92.13
Approvals
(according to type):



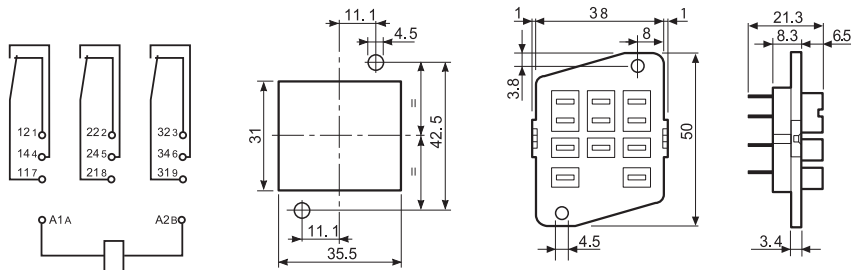
PCB socket	92.13 (blue)	92.13.0 (black)
For relay type	62.32, 62.33	
Accessories		
Metal retaining clip (supplied with socket - packaging code SMA)	092.54	
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	2.5 kV AC	
Ambient temperature	°C -40...+70	



92.33
Approvals
(according to type):



Panel mount solder socket mounted with M3 screw	92.33 (blue)	
For relay type	62.32, 62.33	
Accessories		
Metal retaining clip (supplied with socket - packaging code SMA)	092.54	
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	2.5 kV AC	
Ambient temperature	°C -40...+70	



Packaging code

How to code and identify retaining clip and packaging options for sockets.

Example:

9 2 . 0 3 S M A

A Standard packaging

SM Metal retaining clip

9 2 . 0 3 [] []

Without retaining clip

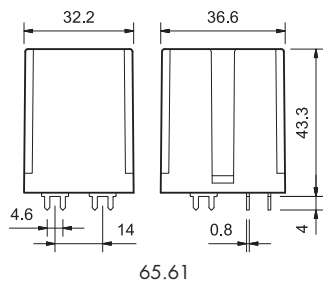
Features

20 A Power relays
1 NO + 1 NC (SPST-NO + SPST-NC)

65.31 Flange mount
Faston 250 connections

65.61 PCB mount

- AC coils & DC coils
- Cadmium Free option available



* With the $AgSnO_2$ material the maximum peak current is 120 A - 5 ms on NO contact.

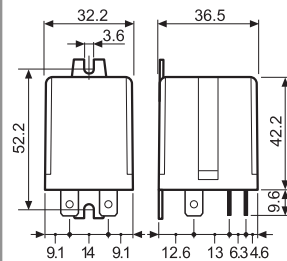
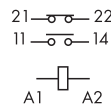
FOR UL RATINGS SEE:

"General technical information" page V

65.31



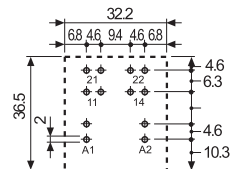
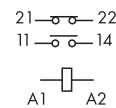
- 20 A rated contacts
- Flange mount/Faston 250 (6.3x0.8 mm) connection



65.61



- 20 A rated contacts
- PCB mount - bifurcated terminals



Copper side view

Contact specification		65.31	65.61
Contact configuration		1NO+1NC (SPST-NO+SPST-NC)	1NO+1NC (SPST-NO+SPST-NC)
Rated current/Maximum peak current	A	20/40*	20/40*
Rated voltage/Maximum switching voltage V AC		250/400	250/400
Rated load AC1	VA	5,000	5,000
Rated load AC15 (230 V AC)	VA	1,000	1,000
Single phase motor rating (230 V AC)	kW	1.1	1.1
Breaking capacity DC1: 30/110/220 V	A	20/0.8/0.5	20/0.8/0.5
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgCdO	AgCdO
Coil specification		65.31	65.61
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3	2.2/1.3
Operating range	AC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
	DC	$(0.85...1.1)U_N$	$(0.85...1.1)U_N$
Holding voltage	AC/DC	$0.8 U_N/0.6 U_N$	$0.8 U_N/0.6 U_N$
Must drop-out voltage	AC/DC	$0.2 U_N/0.1 U_N$	$0.2 U_N/0.1 U_N$
Technical data		65.31	65.61
Mechanical life AC/DC	cycles	$10 \cdot 10^6/30 \cdot 10^6$	$10 \cdot 10^6/30 \cdot 10^6$
Electrical life at rated load AC1	cycles	$80 \cdot 10^3$	$80 \cdot 10^3$
Operate/release time	ms	10/12	10/12
Insulation between coil and contacts (1.2/50 μ s)	kV	4	4
Dielectric strength between open contacts	V AC	1,500	1,500
Ambient temperature range	$^{\circ}$ C	-40...+75	-40...+75
Environmental protection		RT I	RT I
Approvals (according to type)			

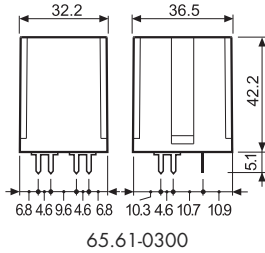
Features

30 A Power relays
1 NO (SPST-NO)

65.31-0300 Flange mount
Faston 250 connections

65.61-0300 PCB mount

- ≥ 3 mm contact gap
- AC coils & DC coils
- Cadmium Free option available



* Distance between contacts ≥ 3 mm (EN 60335-1).

** With the AgSnO_2 material the maximum peak current is 120 A - 5 ms on NO contact.

FOR UL RATINGS SEE:

"General technical information" page V

65.31-0300

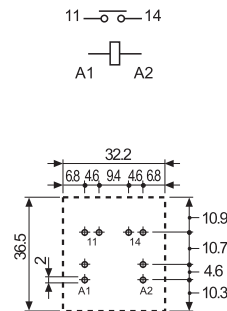
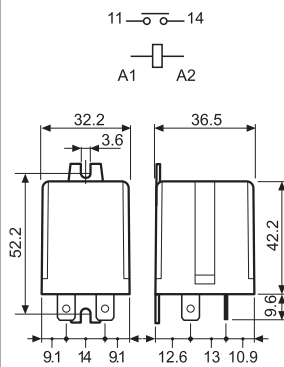


- 30 A rated contacts
- Flange mount/Faston 250 (6.3x0.8 mm) connection

65.61-0300



- 30 A rated contacts
- PCB mount - bifurcated terminals



Copper side view

Contact specification			
Contact configuration		1 NO (SPST-NO), ≥ 3 mm*	1 NO (SPST-NO), ≥ 3 mm*
Rated current/Maximum peak current	A	30/50**	30/50**
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	7,500	7,500
Rated load AC15 (230 V AC)	VA	1,250	1,250
Single phase motor rating (230 V AC)	kW	1.5	1.5
Breaking capacity DC1: 30/110/220 V	A	30/1.1/0.7	30/1.1/0.7
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgCdO	AgCdO
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400	
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220	
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3	2.2/1.3
Operating range	AC	$(0.8 \dots 1.1) U_N$	$(0.8 \dots 1.1) U_N$
	DC	$(0.85 \dots 1.1) U_N$	$(0.85 \dots 1.1) U_N$
Holding voltage	AC/DC	$0.8 U_N / 0.6 U_N$	$0.8 U_N / 0.6 U_N$
Must drop-out voltage	AC/DC	$0.2 U_N / 0.1 U_N$	$0.2 U_N / 0.1 U_N$
Technical data			
Mechanical life AC/DC	cycles	$10 \cdot 10^6 / 30 \cdot 10^6$	$10 \cdot 10^6 / 30 \cdot 10^6$
Electrical life at rated load AC1	cycles	$50 \cdot 10^3$	$50 \cdot 10^3$
Operate/release time	ms	15/4	15/4
Insulation between coil and contacts (1.2/50 μ s)	kV	4	4
Dielectric strength between open contacts	V AC	2,500	2,500
Ambient temperature range	$^{\circ}$ C	-40...+75	-40...+75
Environmental protection		RT I	RT I
Approvals (according to type)			

Ordering information

Example: 65 series power relay, PCB with bifurcated terminals, 1 NO + 1 NC (SPST-NO + SPST-NC) contact, 12 V DC coil.

6	5	6	1	9	0	1	2	0	0	0	0	
Series			Type			Coil version			A	B	C	D
3 = Faston 250 (6.3x0.8 mm) with rear flange mount			6 = PCB with bifurcated terminals			8 = AC (50/60 Hz)			A: Contact material 0 = Standard AgCdO 4 = AgSnO ₂			D: Special versions 0 = Standard 9 = Type 65.31 without rear flange mount
1 = 1 NO + 1 NC (SPST-NO + SPST-NC)			9 = DC			0 = 1 NO + 1 NC (SPST-NO + SPST-NC)			B: Contact circuit 0 = 1 NO + 1 NC (SPST-NO + SPST-NC) 3 = NO (≥ 3 mm contact gap)			C: Options 0 = None
See coil specifications												

Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold**.

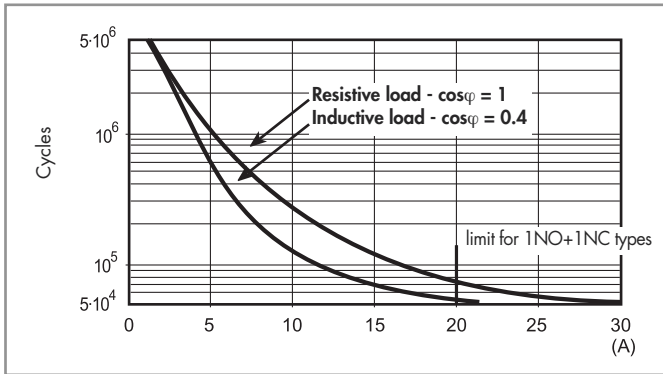
Type	Coil version	A	B	C	D
65.31	AC-DC	0 - 4	0 - 3	0	0 - 9
65.61	AC-DC	0 - 4	0 - 3	0	0

Technical data

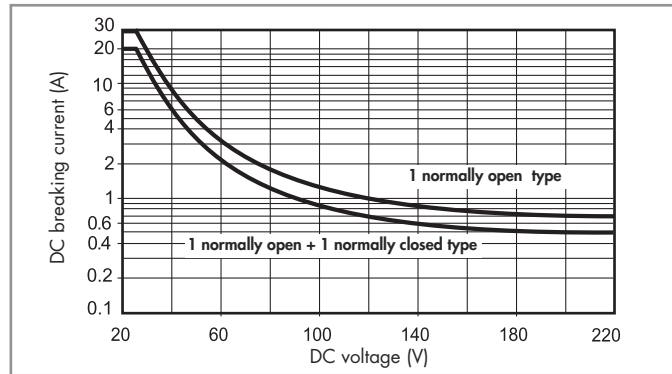
Insulation according to EN 61810-1		1 NO + 1 NC		1 NO	
Nominal voltage supply system	V AC	230/400		230/400	
Rated insulation voltage	V AC	250	400	250	400
Pollution degree		3	2	3	2
Insulation between coil and contact set					
Type of insulation		Basic		Basic	
Overtoltage category		III		III	
Rated impulse voltage	kV (1.2/50 μs)	4		4	
Dielectric strength	V AC	2,500		2,500	
Insulation between open contacts					
Type of disconnection		Micro-disconnection		Full-disconnection	
Overtoltage category		—		III	
Rated impulse voltage	kV (1.2/50 μs)	—		4	
Dielectric strength	V AC/kV (1.2/50 μs)	1,500/2		2,500/4	
Conducted disturbance immunity					
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4		level 4 (4 kV)	
Surge (1.2/50 μs) on A1 - A2 (differential mode)		EN 61000-4-5		level 4 (4 kV)	
Other data					
Bounce time: NO/NC	ms	5/6 (1 normally open + 1 normally closed)		7/— (normally open)	
Vibration resistance (10...150)Hz: NO/NC	g	20/13			
Shock resistance	g	20			
Power lost to the environment	without contact current	W	1.3		
	with rated current	W	2.1 (65.31, 65.61)		3.1 (65.31/.61.0300)
Recommended distance between relays mounted on PCB	mm	≥ 5			

Contact specification

F 65 - Electrical life (AC) v contact current



H 65 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 80 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

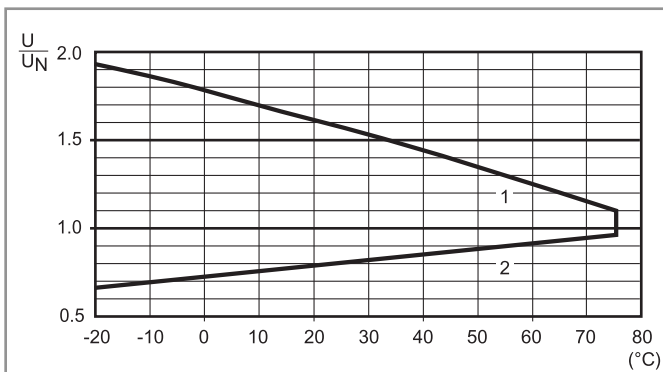
DC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
6	9.006	5.1	6.6	28	214
12	9.012	10.2	13.2	110	109
24	9.024	20.4	26.4	445	54
48	9.048	40.8	52.8	1,770	27.1
60	9.060	51	66	2,760	21.7
110	9.110	93.5	121	9,420	11.7
125	9.125	106	138	12,000	10.4
220	9.220	187	242	37,300	5.8

AC coil data

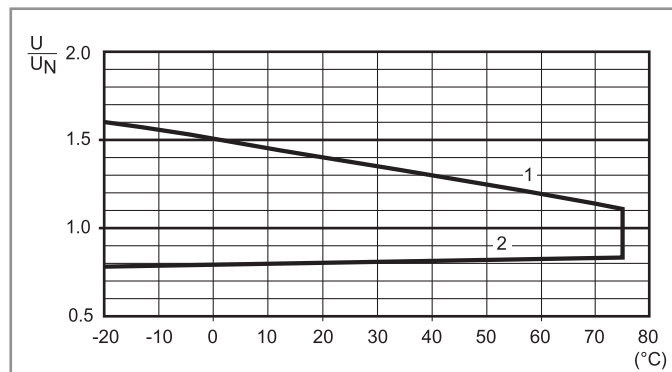
Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N (50Hz) mA
		U_{min} V	U_{max} V		
6	8.006	4.8	6.6	4.6	367
12	8.012	9.6	13.2	19	183
24	8.024	19.2	26.4	74	90
48	8.048	38.4	52.8	290	47
60	8.060	48	66	450	37
110	8.110	88	121	1,600	20
120	8.120	96	132	1,940	18.6
230	8.230	184	253	7,250	10.5
240	8.240	192	264	8,500	9.2
400	8.400	320	440	19,800	6

R 65 - DC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

R 65 - AC coil operating range v ambient temperature



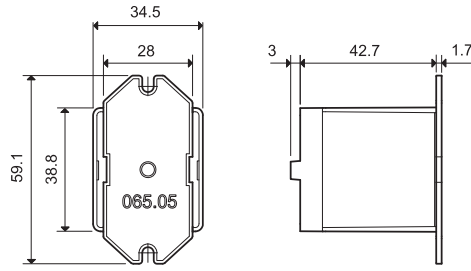
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Accessories

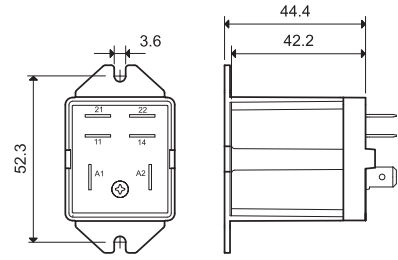


Top flange mount for types 65.31..xxxx.xxx9

065.05



065.05

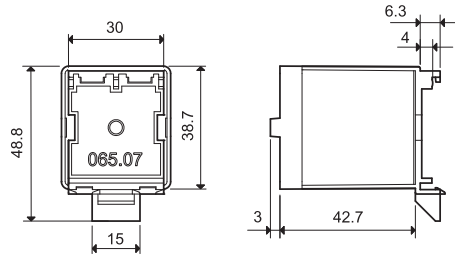


065.05 with relay

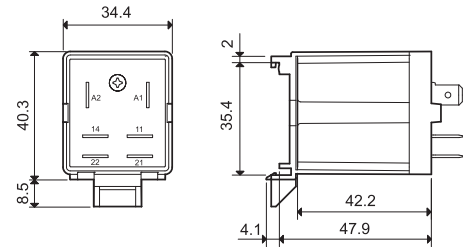


Top 35 mm rail (EN 60715) mount for types 65.31..xxxx.xxx9

065.07



065.07

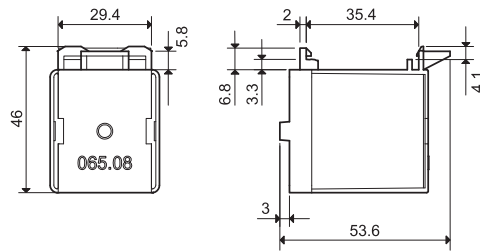


065.07 with relay

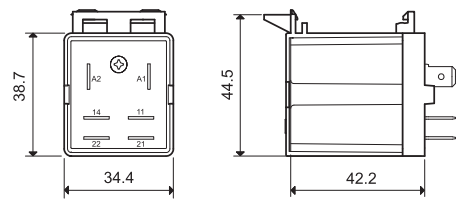


Rear 35 mm rail (EN 60715) mount for types 65.31..xxxx.xxx9

065.08



065.08



065.08 with relay

Features

2 Pole Changeover (DPDT)
30 A Power relay

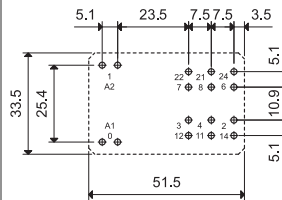
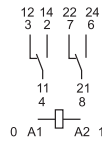
- 66.22 PCB connections & mount
- 66.82 Faston 250 connections
- Flange mount

- Reinforced insulation between coil and contacts according to EN 60335-1; 8 mm creepage and clearance distances
- AC coils & DC coils
- Cadmium Free option available

66.22



- 30 A rated contacts
- PCB mount - bifurcated terminals

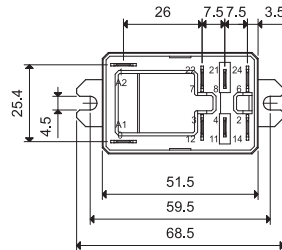
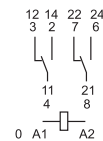


Copper side view

66.82



- 30 A rated contacts
- Flange mount
- Faston 250 connections



For outline drawing see page 6

FOR UL RATINGS SEE:
"General technical information" page V

Contact specification		66.22	66.82
Contact configuration		2 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	30/50 (NO) - 10/20 (NC)	30/50 (NO) - 10/20 (NC)
Rated voltage/Maximum switching voltage	V AC	250/440	250/440
Rated load AC1	VA	7,500 (NO) - 2,500 (NC)	7,500 (NO) - 2,500 (NC)
Rated load AC15 (230 V AC)	VA	1,200 (NO)	1,200 (NO)
Single phase motor rating (230 V AC)	kW	1.5 (NO)	1.5 (NO)
Breaking capacity DC1: 30/110/220 V	A	25/0.7/0.3 (NO)	25/0.7/0.3 (NO)
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgCdO	AgCdO
Coil specification		66.22	66.82
Nominal voltage (U _N)	V AC (50/60 Hz)	6 - 12 - 24 - 110/115 - 120/125 - 230 - 240	6 - 12 - 24 - 110/115 - 120/125 - 230 - 240
	V DC	6 - 12 - 24 - 110 - 125	6 - 12 - 24 - 110 - 125
Rated power AC/DC	VA (50 Hz)/W	3.6/1.7	3.6/1.7
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	(0.8...1.1)U _N	(0.8...1.1)U _N
Holding voltage	AC/DC	0.8 U _N /0.5 U _N	0.8 U _N /0.5 U _N
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N	0.2 U _N /0.1 U _N
Technical data		66.22	66.82
Mechanical life AC/DC	cycles	10 · 10 ⁶	10 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³
Operate/release time	ms	8/15	8/15
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,500	1,500
Ambient temperature range	°C	-40...+70	-40...+70
Environmental protection		RT II	RT II
Approvals (according to type)			

Features

2 Pole NO (DPST-NO)
30 A Power relay

66.22-x300 PCB mount
66.82-x300 Faston 250 connections
- Flange mount

- Reinforced insulation between coil and contacts according to EN 60335-1; 8 mm creepage and clearance distances
- AC coils & DC coils
- Cadmium Free option available

66.22-x300

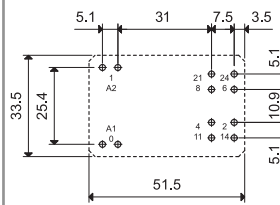
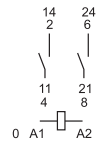
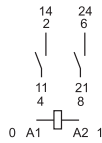


- 30 A rated contacts
- PCB mount - bifurcated terminals

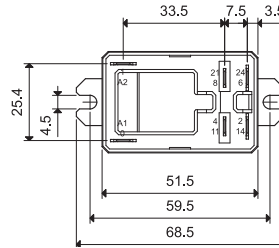
66.82-x300



- 30 A rated contacts
- Flange mount
- Faston 250 connections



Copper side view



For outline drawing see page 6

FOR UL RATINGS SEE:
"General technical information" page V

Contact specification		66.22-x300	66.82-x300
Contact configuration		2 NO (DPST-NO)	2 NO (DPST-NO)
Rated current/Maximum peak current	A	30/50	30/50
Rated voltage/Maximum switching voltage	V AC	250/440	250/440
Rated load AC1	VA	7,500	7,500
Rated load AC15 (230 V AC)	VA	1,200	1,200
Single phase motor rating (230 V AC)	kW	1.5	1.5
Breaking capacity DC1: 30/110/220 V	A	25/0.7/0.3	25/0.7/0.3
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgCdO	AgCdO
Coil specification		66.22-x300	66.82-x300
Nominal voltage (U _N)	V AC (50/60 Hz)	6 - 12 - 24 - 110/115 - 120/125 - 230 - 240	6 - 12 - 24 - 110/115 - 120/125 - 230 - 240
	V DC	6 - 12 - 24 - 110 - 125	6 - 12 - 24 - 110 - 125
Rated power AC/DC	VA (50 Hz)/W	3.6/1.7	3.6/1.7
Operating range	AC	(0.8... 1.1)U _N	(0.8... 1.1)U _N
	DC	(0.8... 1.1)U _N	(0.8... 1.1)U _N
Holding voltage	AC/DC	0.8 U _N /0.5 U _N	0.8 U _N /0.5 U _N
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N	0.2 U _N /0.1 U _N
Technical data		66.22-x300	66.82-x300
Mechanical life AC/DC	cycles	10 · 10 ⁶	10 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³
Operate/release time	ms	8/10	8/10
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,500	1,500
Ambient temperature range	°C	-40...+70	-40...+70
Environmental protection		RT II	RT II
Approvals (according to type)		RINA	

Features

2 Pole NO (DPST-NO), $\geq 1.5\text{mm}$ contact gap
30 A Power relay

- 66.22-x600 PCB mount
- 66.22-x600S PCB mount - 5 mm gap between PCB and relay base
- 66.82-x600 Faston 250 connections - Flange mount

- $\geq 1.5\text{ mm}$ contact gap (according to VDE 0126-1-1 for solar inverter applications)
- Reinforced insulation between coil and contacts according to EN 60335-1; 8 mm creepage and clearance distances
- Wash tight version (RT III) available
- DC coils
- Cadmium Free option available

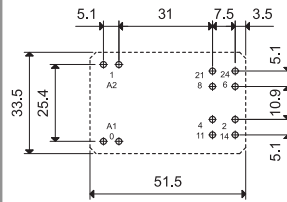
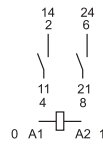
For outline drawing see page 6

FOR UL RATINGS SEE:
"General technical information" page V

NEW 66.22-x600



- PCB mount - bifurcated terminals

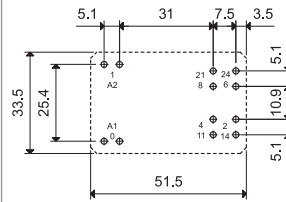
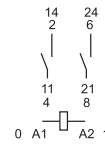


Copper side view

NEW 66.22-x600S



- PCB mount - bifurcated terminals
- 5 mm gap between PCB and relay base

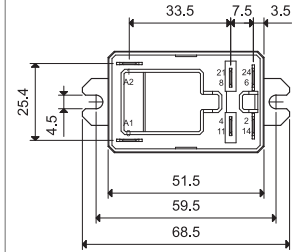
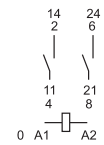


Copper side view

NEW 66.82-x600



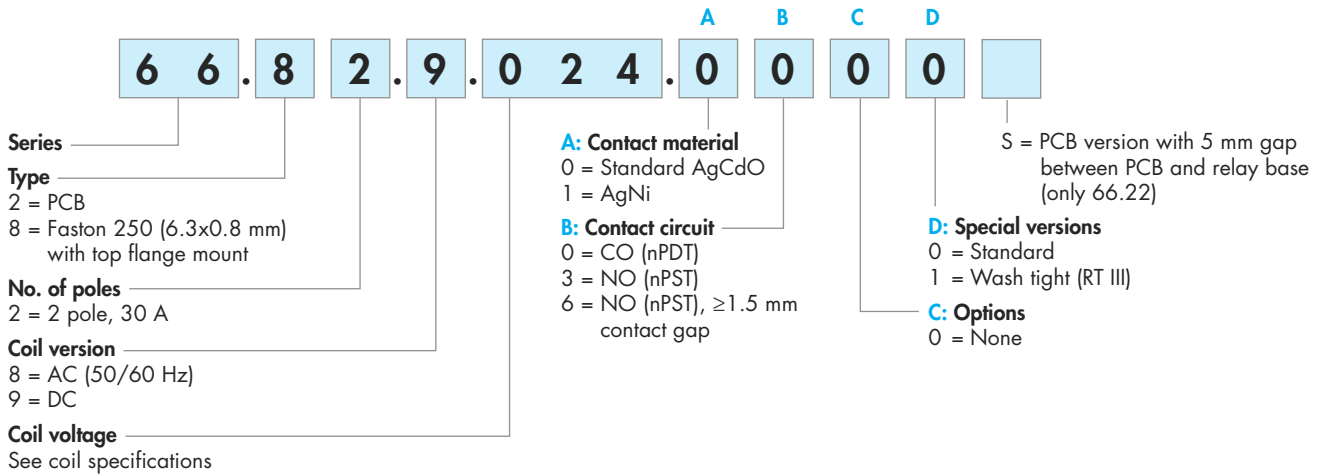
- Flange mount
- Faston 250 connections



Contact specification		66.22-x600	66.22-x600S	66.82-x600
Contact configuration		2 NO (DPST-NO)	2 NO (DPST-NO)	2 NO (DPST-NO)
Rated current/Maximum peak current	A	30/50	30/50	30/50
Rated voltage/Maximum switching voltage V AC		250/440	250/440	250/440
Rated load AC1	VA	7,500	7,500	7,500
Rated load AC15 (230 V AC)	VA	1,200	1,200	1,200
Single phase motor rating (230 V AC)	kW	1.5	1.5	1.5
Breaking capacity DC1: 30/110/220 V	A	30/1.2/0.5	30/1.2/0.5	30/1.2/0.5
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgCdO	AgCdO	AgCdO
Coil specification				
Nominal voltage (U _N)	V AC (50/60 Hz)	—		
	V DC	6 - 12 - 24 - 110 - 125		
Rated power AC/DC	VA (50 Hz)/W	—/1.7	—/1.7	—/1.7
Operating range	AC	—		
	DC	(0.8...1.1)U _N		
Holding voltage	AC/DC	—/0.5 U _N		
Must drop-out voltage	AC/DC	—/0.1 U _N		
Technical data				
Mechanical life	cycles	10 · 10 ⁶		
Electrical life at rated load AC1	cycles	100 · 10 ³		
Operate/release time	ms	15/4		
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)		
Dielectric strength between open contacts	V AC	2,500		
Ambient temperature range	°C	-40...+70		
Environmental protection		RT II		
Approvals (according to type)				

Ordering information

Example: 66 series relay, Faston 250 (6.3x0.8 mm) with top flange mount, 2 CO (DPDT) 30 A contacts, 24 V DC coil.



Selecting features and options: only combinations in the same row are possible.
 Preferred selections for best availability are shown in **bold**.

Type	Coil version	A	B	C	D
66.22	AC-DC	0 - 1	0 - 3	0	0 - 1
	DC	0 - 1	6	0	0 - 1
66.22....S	DC	0 - 1	6	0	0 - 1
66.82	AC-DC	0 - 1	0 - 3	0	0 - 1
	DC	0 - 1	6	0	0 - 1

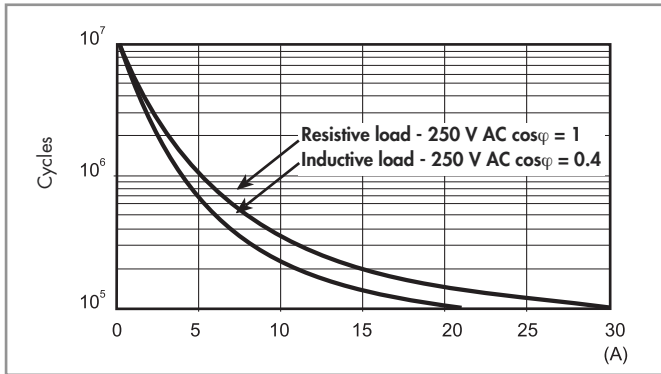
Technical data

Insulation according to EN 61810-1		
Nominal voltage of supply system	V AC	230/400
Rated insulation voltage	V AC	400
Pollution degree		3
Insulation between coil and contact set		
Type of insulation		Reinforced (8 mm)
Overvoltage category		III
Rated impulse voltage	kV (1.2/50 µs)	6
Dielectric strength	V AC	4,000
Insulation between adjacent contacts		
Type of insulation		Basic
Overvoltage category		III
Rated impulse voltage	kV (1.2/50 µs)	4
Dielectric strength	V AC	2,500
Insulation between open contacts		
Type of disconnection		2 CO 2 NO, ≥1.5mm (x600 version)
Overvoltage category		Micro-disconnection Full-disconnection *
Rated impulse voltage	kV (1.2/50 µs)	— II
Dielectric strength	V AC/kV (1.2/50 µs)	— 2.5
		1,500/2 2,500/3
Conducted disturbance immunity		
Burst (5...50)ns, 5 kHz, on A1 - A2	EN 61000-4-4	level 4 (4 kV)
Surge (1.2/50 µs) on A1 - A2 (differential mode)	EN 61000-4-5	level 4 (4 kV)
Other data		
Bounce time: NO/NC	ms	7/10
Vibration resistance (10...150)Hz: NO/NC	g	20/19
Shock resistance	g	20
Power lost to the environment	without contact current	W
	with rated current	W
		2.3
		5
Recommended distance between relays mounted on PCB	mm	≥ 10

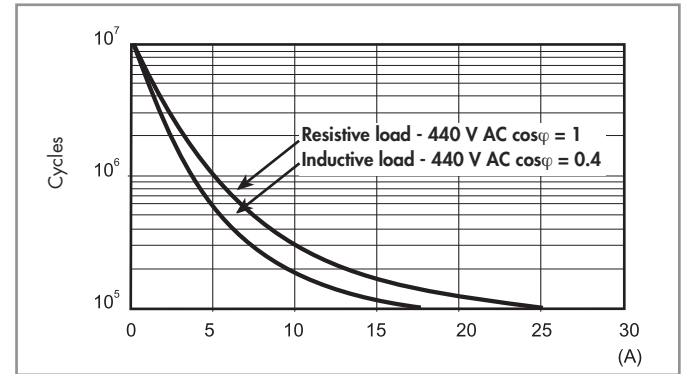
* Only in applications where over voltage category II is permitted. In applications of over voltage category III: Micro-disconnection.

Contact specification

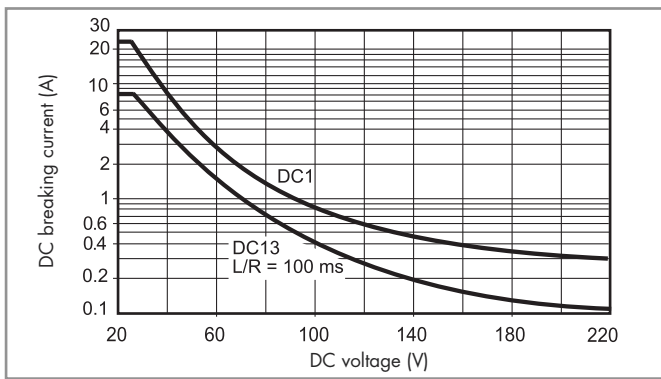
F 66 - Electrical life (AC) v contact current
250 V (normally open contact)



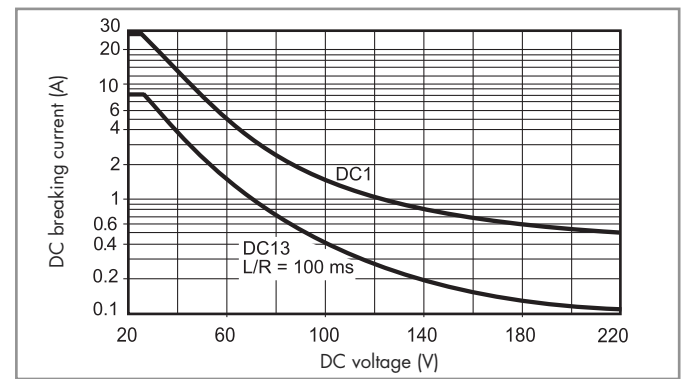
F 66 - Electrical life (AC) v contact current
440 V (normally open contact)



H 66 - Maximum DC breaking capacity



H 66 - Maximum DC breaking capacity, x600 versions (>1.5mm contact gap)



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

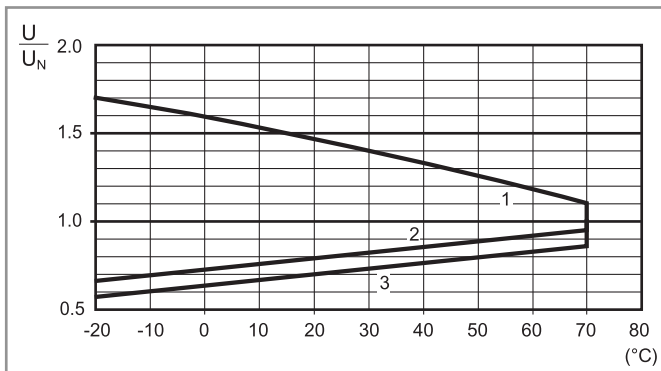
DC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
6	9.006	4.8	6.6	21	283
12	9.012	9.6	13.2	85	141
24	9.024	19.2	26.4	340	70.5
110	9.110	88	121	7,000	15.7
125	9.125	100	138	9,200	13.6

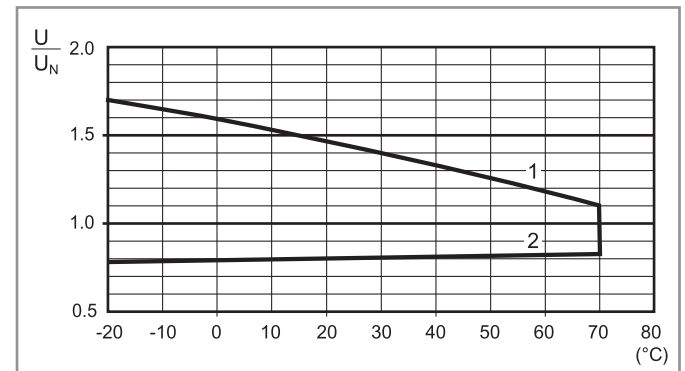
AC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N (50Hz) mA
		U_{min} V	U_{max} V		
6	8.006	4.8	6.6	3	600
12	8.012	9.6	13.2	11	300
24	8.024	19.2	26.4	50	150
110/115	8.110	88	126	930	32.6
120/125	8.120	96	137	1,050	30
230	8.230	184	253	4,000	15.7
240	8.240	192	264	5,500	15

R 66 - DC coil operating range v ambient temperature



R 66 - AC coil operating range v ambient temperature

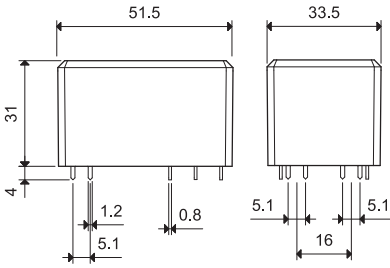


- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.
- 3 - Min. pick-up voltage with coil at ambient temperature (66.22-x600S).

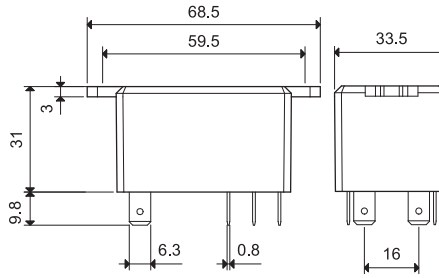
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Outline drawings

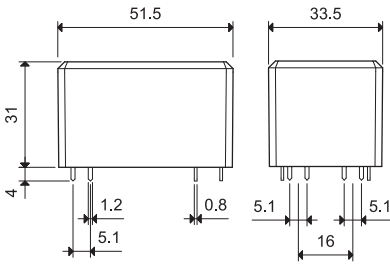
Type 66.22



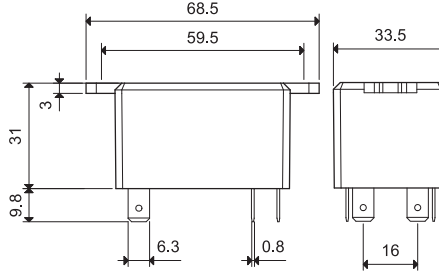
Type 66.82



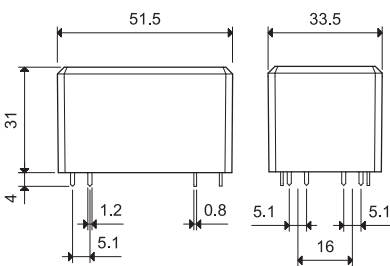
Type 66.22-0300



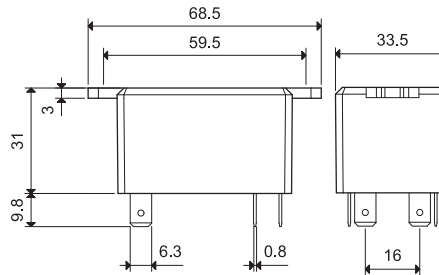
Type 66.82-0300



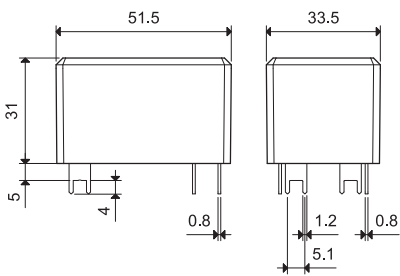
Type 66.22-0600



Type 66.82-0600



Type 66.22-0600S



Accessories



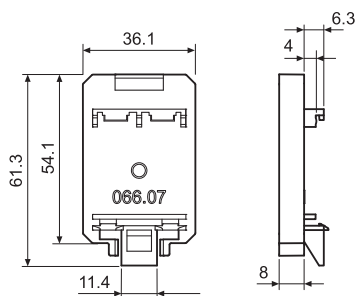
066.07



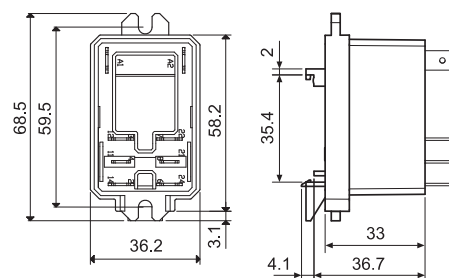
066.07 with relay

Top 35 mm rail (EN 60715) mount for types 66.82.xxxx.0x00

066.07



066.07



066.07 with relay

Features

Printed circuit mount - 3 mm contact gap 50 A Power relay for photovoltaic inverters

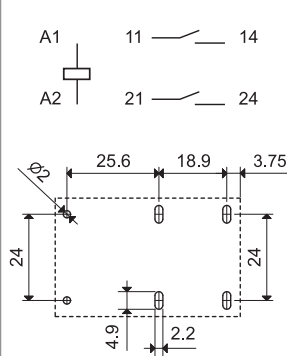
- 2 and 3 pole versions (NO, double break contacts)
- Contact gap ≥ 3 mm (according to VDE 0126-1-1, EN 62109-1, EN 62109-2)
- DC coils, with only 170 mW holding power
- Reinforced insulation between coil and contacts
- 1.5 mm gap between PCB and relay base
- Suitable for use at ambient temperatures up to 85 °C (with energy-saving coil energization) or 70 °C (with standard coil energization)

NEW 67.22-4300

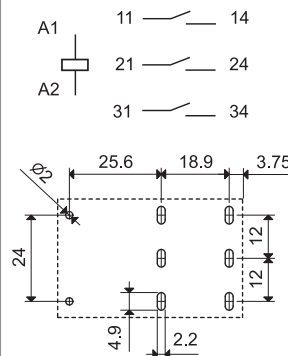

- 2 NO
- Contact gap ≥ 3 mm
- PCB mount

NEW 67.23-4300


- 3 NO
- Contact gap ≥ 3 mm
- PCB mount



Copper side view



Copper side view

For outline drawing see page 6

Contact specification

Contact configuration	2 NO (DPST-NO)	3 NO (3PST-NO)
Contact gap mm	≥ 3	≥ 3
Rated current/Maximum peak current (for 5 ms) A	50/150	50/150
Rated voltage/Maximum switching voltage V AC	400/690	400/690
Rated load AC1/AC7a (per pole) VA	20,000	20,000
Rated load AC15 (per pole @ 230 V AC) VA	2,300	2,300
Single-phase motor rating (230 V AC) kW	2	2
Three-phase motor rating (480 V AC) kW	—	7
Breaking capacity DC1: 24/110/220 V A	50/4/1	50/4/1
Minimum switching load mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material	AgSnO ₂	AgSnO ₂

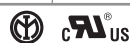
Coil specification

Nominal voltage (U _N) V DC	5 - 6 - 8 - 12 - 24 - 48 - 60 - 110	
Rated power W	1.7	1.7
Operating range (-40...+70°C) DC	(0.90 ... 1.1) U _N	
Energy-saving mode (-40...+85°C)		
Operating range for 1 s	(0.95...2.5) U _N	
Holding voltage range DC	(0.32...0.65) U _N	
Minimum holding power W	0.17	0.17
Must drop-out voltage DC	0.05 U _N	

Technical data

Mechanical life cycles	1 · 10 ⁶	1 · 10 ⁶
Electrical life at rated load AC7a cycles	30 · 10 ³	30 · 10 ³
Operate/release time ms	35/4	35/4
Ambient temperature range (energy-saving mode) °C	-40...+70 (-40...+85)	-40...+70 (-40...+85)
Environmental protection	RTII	RTII

Approvals (according to type)



Features

Printed circuit mount - 5.2 mm contact gap 50 A Power relay for photovoltaic inverters

- 2 and 3 pole versions (NO double break contacts)
- Contact gap ≥ 5.2 mm (according to VDE 0126-1-1, EN 62109-1, EN 62109-2)
- Suitable for inverters with DC input up to 1,500 V and AC output up to 690 V, installations up to 4,000 m above sea level
- DC coils, with only 170 mW holding power
- Reinforced insulation between coil and contacts
- 1.5 mm gap between PCB and relay base
- Suitable for use at ambient temperatures up to 85 °C (with energy-saving coil energization) or 60 °C (with standard coil energization)

NEW 67.22-4500

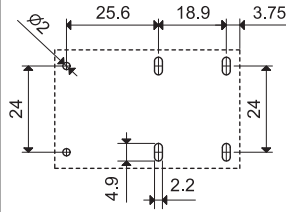
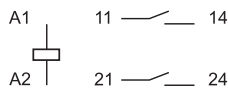


- 2 NO
- Contact gap ≥ 5.2 mm
- PCB mount

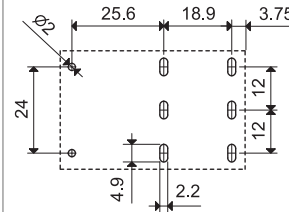
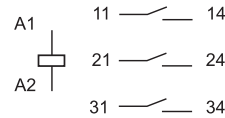
NEW 67.23-4500



- 3 NO
- Contact gap ≥ 5.2 mm
- PCB mount



Copper side view



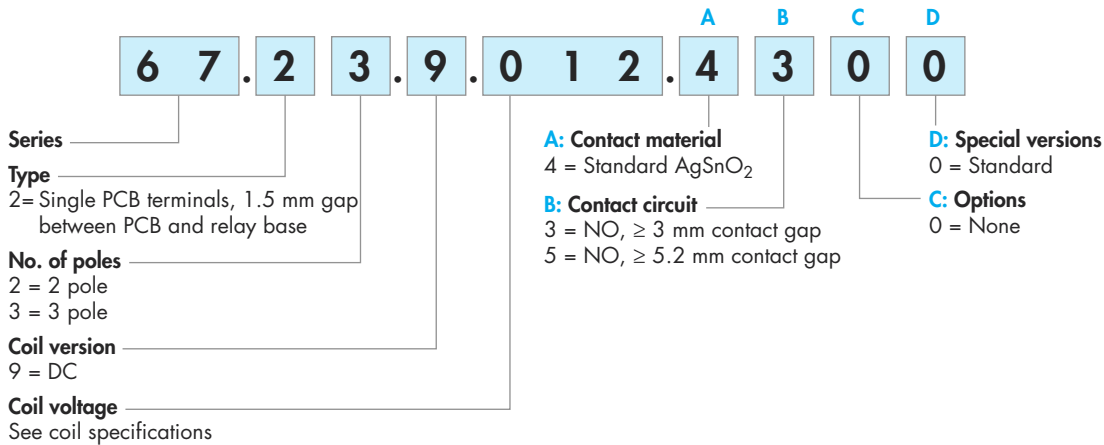
Copper side view

For outline drawing see page 6

Contact specification		67.22-4500	67.23-4500
Contact configuration		2 NO (DPST-NO)	3 NO (3PST-NO)
Contact gap	mm	≥ 5.2	≥ 5.2
Rated current/Maximum peak current (for 5 ms)	A	50/150	50/150
Rated voltage/Maximum switching voltage	V AC	400/690	400/690
Rated load AC1/AC7a (per pole)	VA	20,000	20,000
Rated load AC15 (per pole @ 230 V AC)	VA	2,300	2,300
Single-phase motor rating (230 V AC)	kW	2	2
Three-phase motor rating (480 V AC)	kW	—	7
Breaking capacity DC1: 24/110/220	VA	50/7/2	50/7/2
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgSnO ₂	AgSnO ₂
Coil specification		67.22-4500	67.23-4500
Nominal voltage (U _N)	V DC	5 - 6 - 8 - 12 - 24 - 48 - 60 - 110	
Rated power	W	2.7	2.7
Operating range (-40...+60°C)	DC	(0.90 ... 1.1) U _N	
Energy-saving mode (-40...+85)°C	Operating range for 1 s	(0.95...2.5) U _N	
	Holding voltage range	DC	(0.25...0.5) U _N
	Minimum holding power	W	0.17
Must drop-out voltage	DC	0.05 U _N	0.05 U _N
Technical data		67.22-4500	67.23-4500
Mechanical life	cycles	1 · 10 ⁶	1 · 10 ⁶
Electrical life at rated load AC7a	cycles	30 · 10 ³	30 · 10 ³
Operate/release time	ms	30/4	30/4
Ambient temperature range (energy-saving mode)	°C	-40...+60 (-40...+85)	-40...+60 (-40...+85)
Environmental protection		RTII	RTII
Approvals (according to type)			

Ordering information

Example: 67 series solar relay, single PCB terminals, 2 pole NO, ≥ 3 mm contact gap .



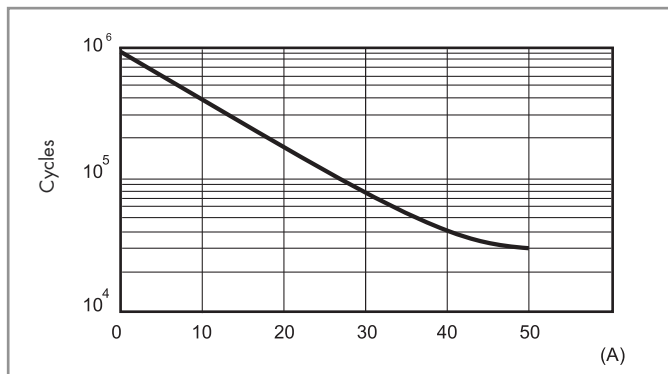
Technical data

Insulation according to EN 61810-1				
Nominal voltage of supply system	V AC	400/690 3-phase	400 1-phase	230/400
Rated insulation voltage	V AC	630	400	400
Pollution degree		3		
Insulation between coil and contact set				
Type of Insulation		Reinforced		
Overvoltage category		III		
Rated impulse voltage	kV (1.2/50 μ s)	6		
Dielectric strength	V AC	4,000		
Insulation between adjacent contacts				
Type of Insulation		Basic		
Overvoltage category		III		
Rated impulse voltage	kV (1.2/50) μ s	6		
Dielectric strength	V AC	2,500		
Insulation between open contacts				
Type of disconnection		Micro-disconnection *		Full-disconnection
Overvoltage category		—		III
Rated impulse voltage	kV (1.2/50) μ s	—		4
Dielectric strength	V AC	2,500 (67.xx-4300) / 3,000 (67.xx-4500)		
Other data				
Power lost to the environment	without contact current	W	1.7 (67.xx-4300) / 2.7 (67.xx-4500)	
	with rated current	W	8.5 (67.xx-4300) / 9.5 (67.xx-4500)	
Recommended distance between relays mounted on PCB	mm	≥ 20		

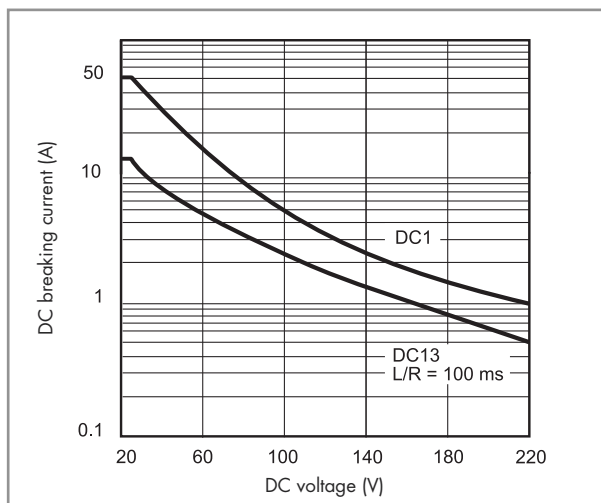
* with overvoltage category II: Full-disconnection

Contact specification

F 67 - Electrical life vs contact current (AC1/AC7a load)

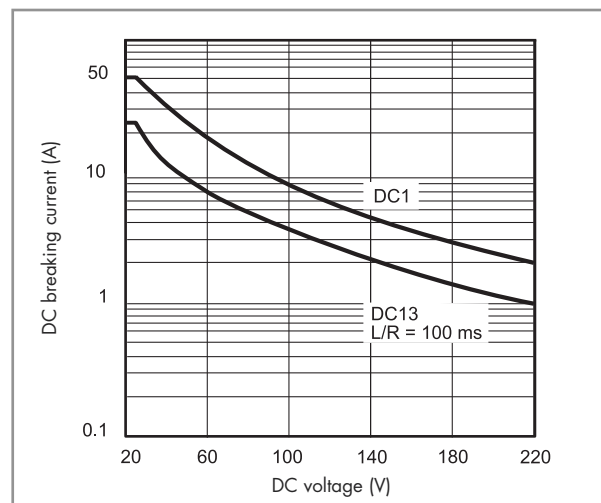


H 67 - Maximum DC breaking capacity (67.xx-4300)



When switching a resistive (DC1) or inductive (DC13) load having voltage and current values under the corresponding curve, an electrical life of > 30 000 cycles can be expected.

H 67 - Maximum DC breaking capacity (67.xx-4500)



When switching a resistive (DC1) or inductive (DC13) load having voltage and current values under the corresponding curve, an electrical life of > 30 000 cycles can be expected.

Coil specifications

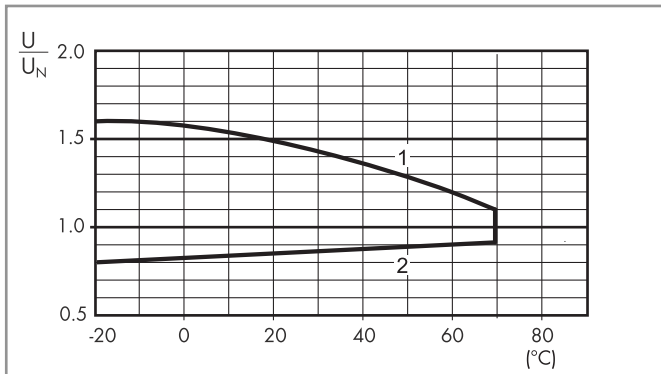
DC coil data, 67.xx-4300

Nominal voltage U_N	Coil code	Operating range (@ 70 °C max)		Holding voltage U_h	Resistance R	Rated coil consumption I at U_N I_N
		U_{min}	U_{max}			
V		V	V	V	Ω	mA
5	9.005	4.5	5.5	1.6	14.7	340
6	9.006	5.4	6.6	1.9	21.5	279
8	9.008	7.2	8.8	2.6	37.6	213
12	9.012	10.8	13.2	3.8	85	141
24	9.024	21.6	26.4	7.7	340	71
48	9.048	43.2	52.8	15.4	1,355	35
60	9.060	54	66	19.2	2,120	28
110	9.110	99	121	35.2	7,120	15

DC coil data, 67.xx-4500

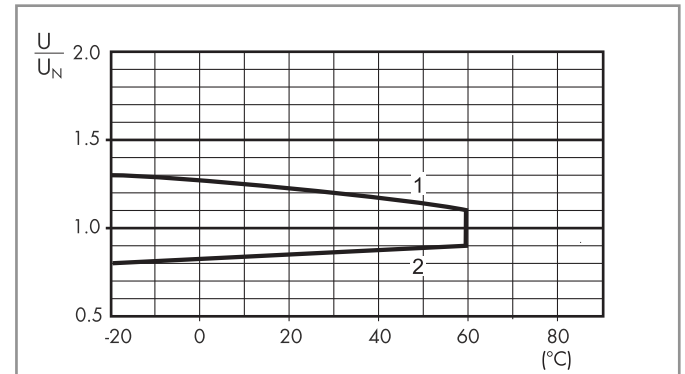
Nominal voltage U_N	Coil code	Operating range (@ 60 °C max)		Holding voltage U_h	Resistance R	Rated coil consumption I at U_N I_N
		U_{min}	U_{max}			
V		V	V	V	Ω	mA
5	9.005	4.5	5.5	1.25	9.3	538
6	9.006	5.4	6.6	1.5	13.5	444
8	9.008	7.2	8.8	2	23.7	338
12	9.012	10.8	13.2	3	53.5	224
24	9.024	21.6	26.4	6	213	113
48	9.048	43.2	52.8	12	855	56
60	9.060	54	66	15	1,335	45
110	9.110	99	121	27.5	4,500	24

R 67 - Operating range v ambient temperature, 67.xx-4300
with standard (continuous) coil energization (-40...+70)°C



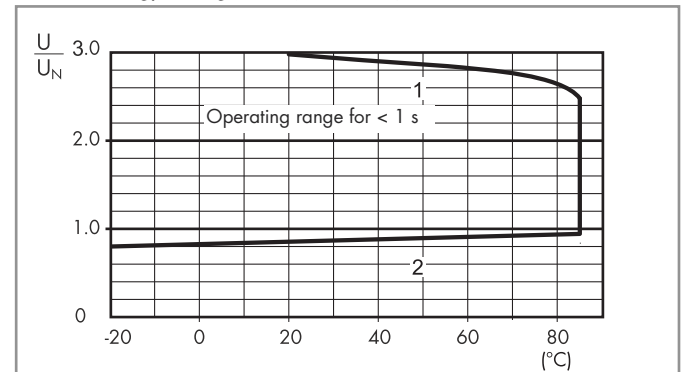
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

R 67 - Operating range v ambient temperature, 67.xx-4500
with standard (continuous) coil energization (-40...+60)°C



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

R 67 - Operating range v ambient temperature, 67.xx-4300/4500
in energy saving mode (-40...+85)°C



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

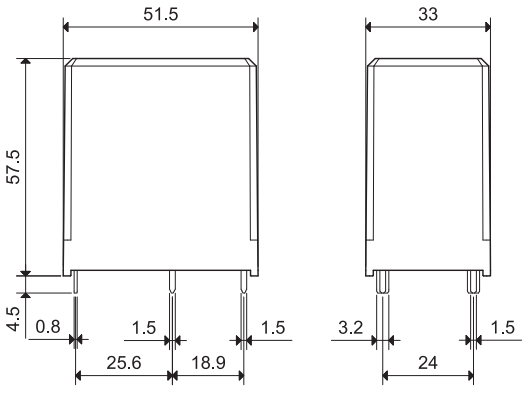
Energy saving mode

In some applications, such as photovoltaic inverters, it may be necessary to minimize the overall relay power dissipation and to permit use at higher ambient temperature levels (up to 85 °C). This can be achieved by initially applying a coil voltage within the Energy saving mode Operating range (see diagram to the right) and then rapidly (< 1 s) reducing the coil voltage to a level within the Holding voltage range. The lower the Holding voltage, the lower is the continuous power dissipation of the coil (0.17 W minimum).

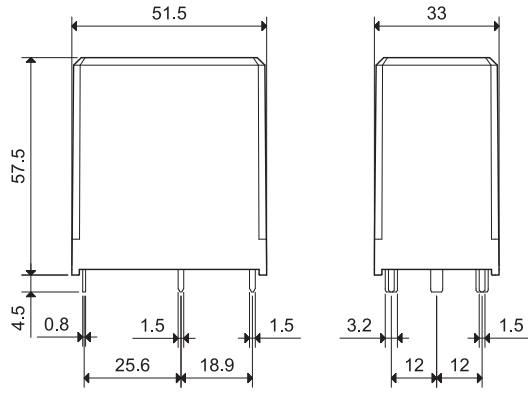
Coil voltages as high as 2.5 U_N may be used, when necessary, to reduce the contact operate time.

Outline drawings

Type 67.22



Type 67.23



Common features

- Instant ejection of relay by plastic retaining clip
- Integral coil indication and protection circuit
- 35 mm rail (EN 60715) mounting

6.2 mm wide

- EMR - DC, AC or AC/DC coil versions
- SSR - DC or AC/DC input versions
- Screw and Screwless terminal options

EMR
Electromechanical Relays

38.51/38.61

• 1 CO - 6 A 250VAC

Page 1

SSR
Solid State Relays

38.81/38.91

• Single solid state output:
Options 0.1A 48VDC, 2A 24VDC, 2A 240VAC

- Silent, high speed switching
- Long electrical life

Page 2

6.2 mm wide

- Special coil / input leakage current suppression types
- EMR - AC or AC/DC coil versions
- SSR - AC or AC/DC input versions
- Screw and Screwless terminal options

38.51.3... - 38.61.3...

• 1 CO - 6 A 250VAC

Page 1

38.81.3... - 38.91.3...

• Single solid state output:
Options 0.1A 48VDC, 2A 24VDC, 2A 240VAC

- Silent, high speed switching
- Long electrical life

Page 2

6.2 mm wide

- Timed Interface module
- 4 functions & 4 time scales 0.1s ... 6h
- EMR - AC/DC (12 or 24V) supply versions
- SSR - AC/DC (24V) supply
- Screw terminals

38.21

• 1 CO - 6 A 250VAC

Page 3

38.21...9024-8240

• Single solid state output:
Options 2A 24VDC, 2A 240VAC

- Silent, high speed switching
- Long electrical life

Page 3

14 mm wide

- 2 pole 8 A or 1 pole 16 A
- EMR - DC or AC/DC coil versions
- SSR - DC input versions
- Screw and Screwless terminal options

38.01/38.52/38.11/38.62

• 1 CO - 16 A 250VAC
• 2 CO - 8 A 250VAC

Page 4

38.31/38.41

• Single solid state output:
Options 5A 24VDC, 3A 240VAC

- Silent, high speed switching
- Long electrical life

Page 5

Features

1 Pole - 6 A electromechanical relay interface modules, 6.2 mm wide.

Ideal interface for PLC and electronic systems

- Sensitive DC coil or AC/DC coil versions
- Integral coil indication and protection circuit
- Instant ejection of relay using plastic retaining clip
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

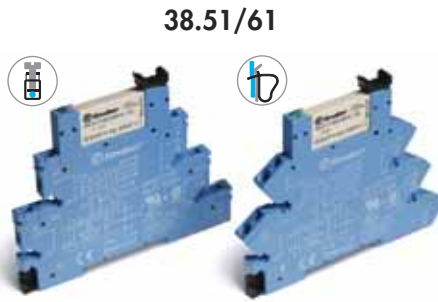
38.51 / 38.51.3
Screw terminal



38.61 / 38.61.3
Screwless terminal

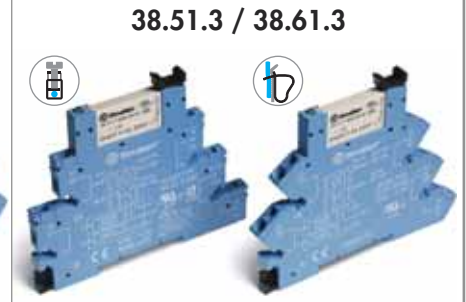
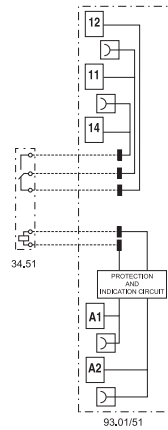


* Special version for max ambient temperature +70°C.
For outline drawing see page 12



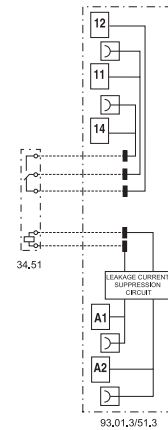
38.51/61

- 1 pole electromechanical relay
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



38.51.3 / 38.61.3

- Leakage current suppression
- 1 pole electromechanical relay
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



Contact specification					
Contact configuration		1 CO (SPDT)		1 CO (SPDT)	
Rated current/Maximum peak current	A	6/10		6/10	
Rated voltage/Maximum switching voltage V AC		250/400		250/400	
Rated load AC1	VA	1,500		1,500	
Rated load AC15 (230 V AC)	VA	300		300	
Single phase motor rating (230 V AC)	kW	0.185		0.185	
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12		6/0.2/0.12	
Minimum switching load	mW (V/mA)	500 (12/10)		500 (12/10)	
Standard contact material		AgNi		AgNi	
Coil specification					
Nominal voltage (U _N)	V AC/DC	12 - 24 - 48 - 60 - (110...125) - (220...240)		(110...125)	—
	V AC	(230...240)*		—	(230...240)
	V DC	6 - 12 - 24 - 48 - 60 (non polarized)		—	—
Rated power AC/DC	VA (50 Hz)/W	See page 9		1/1	0.5/—
Operating range	AC/DC	(0.8...1.1)U _N		(94...138)V	—
	AC	(184...264)V		—	(184...264)V
	DC	(0.8...1.2)U _N		—	
Holding voltage	AC/DC	0.6 U _N / 0.6 U _N		0.6 U _N / 0.6 U _N	
Must drop-out voltage	AC/DC	0.1 U _N / 0.05 U _N		44 V	72 V
Technical data					
Mechanical life AC/DC	cycles	10 · 10 ⁶		10 · 10 ⁶	
Electrical life at rated load AC1	cycles	60 · 10 ³		60 · 10 ³	
Operate/release time	ms	5/6		5/6	
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)		6 (8 mm)	
Dielectric strength between open contacts V AC		1,000		1,000	
Ambient temperature range (U _N ≤ 60 V / >60V)	°C	-40...+70/-40...+55		-/-40...+55	
Protection category		IP 20		IP 20	

Approvals relay (according to type)



Features

Single output - solid state relay interface modules, 6.2 mm wide.

Ideal interface for PLC and electronic systems

- DC, AC or AC/DC input versions
- Supplied with integral coil indication and protection circuit
- Silent, high switching speed and long electrical life
- Instant ejection of relay using plastic retaining clip
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

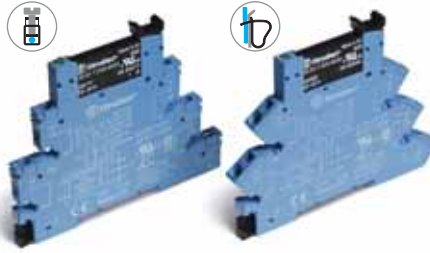
38.81 / 38.81.3
Screw terminal



38.91 / 38.91.3
Screwless terminal



38.81/38.91

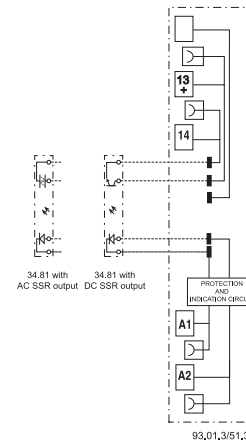
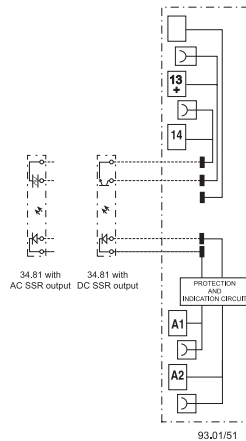


- AC or DC output switching
- SSR relay - DC input voltage
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting

38.81.3/38.91.3



- Leakage current suppression
- AC or DC output
- SSR relay - AC or AC/DC input voltage
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



For outline drawing see page 12

Output specification		1 NO (SPST-NO)			1 NO (SPST-NO)		
Contact configuration		1 NO (SPST-NO)			1 NO (SPST-NO)		
Rated current/Maximum peak current (10 ms) A		2/20	0.1/0.5	2/40	2/20	0.1/0.5	2/40
Rated voltage/Maximum blocking voltage V		24/33 DC	48/60 DC	240/275 AC	24/33 DC	48/60 DC	240/275 AC
Switching voltage range V		(1.5...24)DC	(1.5...48)DC	(12...240)AC	(1.5...24)DC	(1.5...48)DC	(12...240)AC
Minimum switching current mA		1	0.05	22	1	0.05	22
Max. "OFF-state" leakage current mA		0.001	0.001	1.5	0.001	0.001	1.5
Max. "ON-state" voltage drop V		0.12	1	1.6	0.12	1	1.6
Input specification							
Nominal voltage (U _N)	V AC	—			230...240		
	V DC	6 - 24 - 60			—		
	V AC/DC	(110...125) - (220...240)			110...125		
Operating range	V DC	See page 10			See page 10		
Control current	mA	See page 10			See page 10		
Release voltage	V DC	See page 10			See page 10		
Technical data							
Operate/release time: ON/OFF (DC input) ms		0.2/0.6	0.04/0.11	12/12	0.2/0.6	0.04/0.11	12/12
Dielectric strength between input/output V AC		2,500			2,500		
Ambient temperature range °C		-20...+55			-20...+55		
Environmental protection		IP20			IP20		
Approvals relay (according to type)							

Features

Slim timed interface module, 6.2 mm wide.
1 pole, 6 A - electromechanical relay
1 output, 2 A DC or AC - solid state relay

- Electromechanical or solid state output
- Multi-functions timer
- AC/DC supply
- 4 time scales from 0.1s to 6h
- Instant ejection of relay using plastic retaining clip
- 6.2 mm wide, 35 mm rail (EN 60715) mounting

38.21
Screw terminal

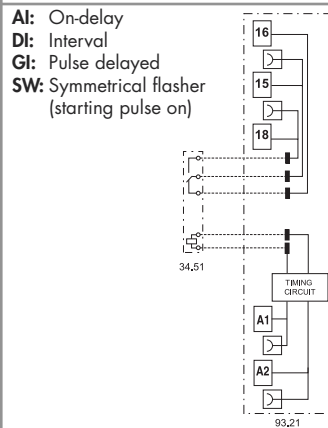


For outline drawing see page 12

38.21



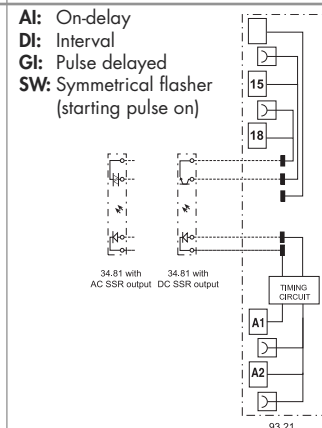
- 1 pole electromechanical output relay
- 12 or 24 V AC/DC supply
- Screw terminal
- 35 mm rail (EN 60715) mounting



38.21...9024-8240



- DC or AC solid state output relays
- 24V AC/DC supply voltage
- Screw terminal
- 35 mm rail (EN 60715) mounting



Contact specification			
Contact configuration		1 CO (SPDT)	
Rated current/Maximum peak current	A	6/10	
Rated voltage/Maximum switching voltage V AC		250/400	
Rated load AC1	VA	1,500	
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12	
Minimum switching load	mW (V/mA)	500 (12/10)	
Standard contact material		AgNi	
Output specification		DC output (...9024)	AC output (...8240)
Output configuration		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current	A	2/20	2/40
Rated voltage/Maximum blocking voltage	V	(24/33)DC	(240/275)AC
Switching voltage range	V	(1.5...24)DC	(12...240)AC
Minimum switching current	mA	1	22
Max. "OFF-state" leakage current	mA	0.001	1.5
Max. "ON-state" voltage drop	V	0.12	1.6
Supply specification			
Nominal voltage (U _N)	V AC (50/60Hz)/DC	12 - 24	
Rated power	VA/W	0.5	
Operating range	AC	(0.8...1.1)U _N	
	DC	(0.8...1.1)U _N	
Technical data			
Specified time range		(0.1...3)s, (3...60)s, (1...20)min, (0.3...6)h	
Repeatability	%	± 1	
Recovery time	ms	≤ 50	
Setting accuracy-full range	%	5%	
Ambient temperature	°C	-40...+70	-20...+55
Protection category		IP 20	
Approvals relay (according to type)			

Features

Electromechanical relay interface modules, 14 mm wide.

38.01 and 38.11 - 1 Pole 16 A
38.52 and 38.62 - 2 Pole 8 A

Ideal interface for PLC and electronic systems

- Sensitive DC coil or AC/DC coil versions
- Integral coil indication and protection circuit
- Instant ejection of relay using plastic retaining clip
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

38.01/52
Screw terminal



38.11/62
Screwless terminal



38.01/38.11

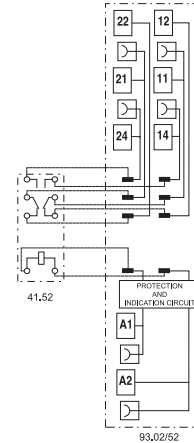
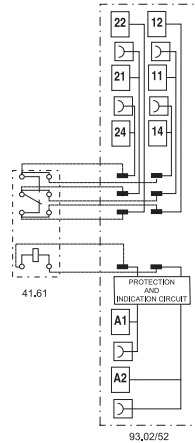


- Screw terminal and screwless terminal
- 1 pole electromechanical relay
- 35 mm rail (EN 60715) mounting

38.52/38.62



- Screw terminal and screwless terminal
- 2 pole electromechanical relay
- 35 mm rail (EN 60715) mounting



* For currents > 10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).

For outline drawing see page 12

Contact specification		1 CO (DPDT)	2 CO (DPDT)
Contact configuration		1 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	16*/30	8/15
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	4,000	2,000
Rated load AC15 (230 V AC)	VA	750	400
Single phase motor rating (230 V AC)	kW	0.5	0.3
Breaking capacity DC1: 30/110/220 V	A	16/0.3/0.12	8/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U_N)	V AC/DC	24 - 60 - (110...125) - (220...240)	24 - 60 - (110...125) - (220...240)
	V AC	230...240	230...240
	V DC	12 - 24 - 60	12 - 24 - 60
Rated power AC/DC	VA (50 Hz)/W	See page 9	See page 9
Operating range	AC/DC	0.8...1.1	0.8...1.1
	DC	(0.8...1.2) U_N	(0.8...1.2) U_N
Holding voltage	AC/DC	0.6 / 0.6 U_N	0.6 / 0.6 U_N
Must drop-out voltage	AC/DC	0.1 / 0.05 U_N	0.1 / 0.05 U_N
Technical data			
Mechanical life AC/DC	cycles	30 · 10 ⁶	30 · 10 ⁶
Electrical life at rated load AC1	cycles	70 · 10 ³	80 · 10 ³
Operate/release time	ms	8 / 10	8 / 10
Insulation between coil and contacts (1.2/50 μ s)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range ($U_N \leq 60$ V / >60V)	°C	-40...+70 / -40...+55	-40...+70 / -40...+55
Protection category		IP 20	IP 20
Approvals relay (according to type)			

Features

Single output - solid state relay interface modules, 14 mm wide

Ideal interface for PLC and electronic systems

- DC input versions
- Supplied with integral coil indication and protection circuit
- Silent, high switching speed and long electrical life
- Instant ejection of relay using plastic retaining clip
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

38.31
Screw terminal



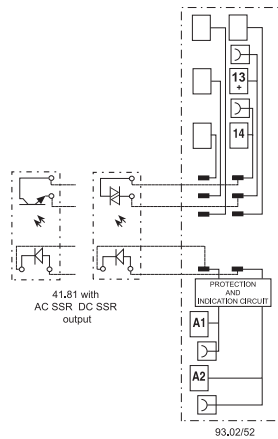
38.41
Screwless terminal



38.31/38.41



- Screw terminal and screwless terminal
- AC or DC output switching
- SSR relay - DC input voltage
- 35 mm rail (EN 60715) mounting



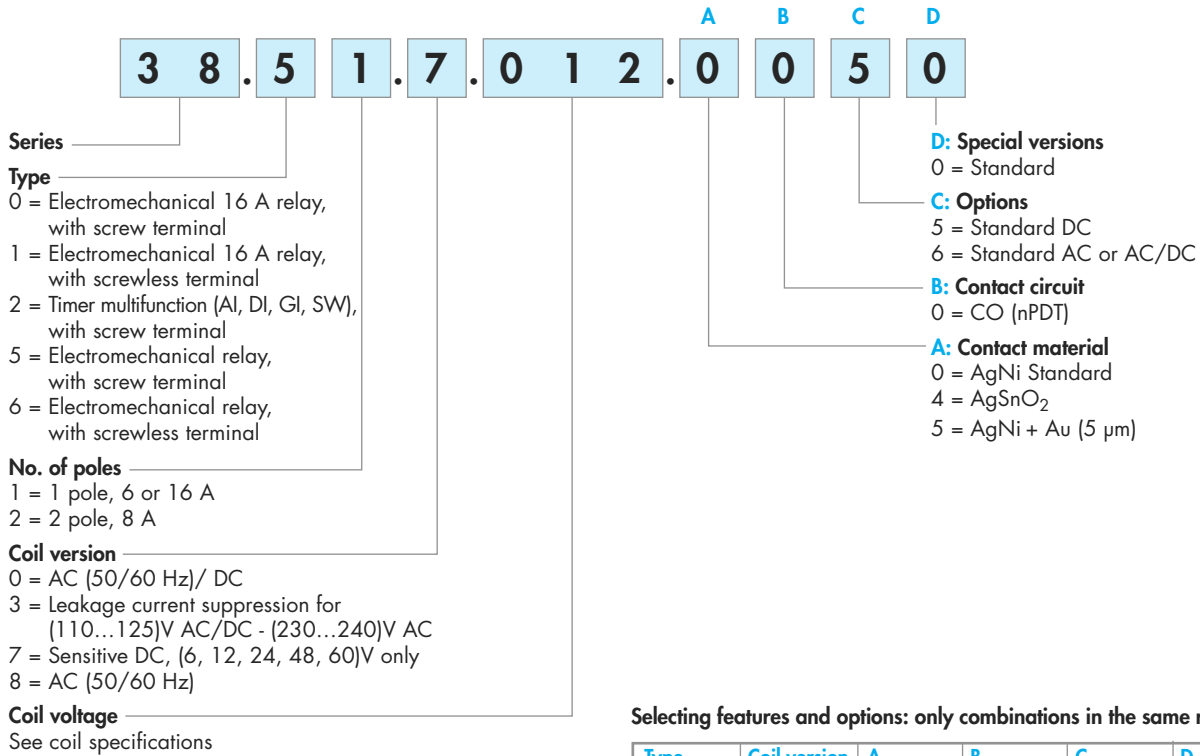
For outline drawing see page 12

Output specification		38.31	38.41
Contact configuration		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current (10 ms)	A	5/40	3/40
Rated voltage/Maximum blocking voltage	V	(24/35)DC	(240/275)AC
Switching voltage range	V	(1.5...24)DC	(12...240)AC
Minimum switching current	mA	1	50
Max. "OFF-state" leakage current	mA	0.01	1
Max. "ON-state" voltage drop	V	0.3	1.1
Input specification			
Nominal voltage (U _N)	V AC/DC	24	
	V DC	12 - 24	
Operating range	V DC	See page 10	
Control current	mA	See page 10	
Release voltage	V DC	See page 10	
Technical data			
Operate/release time: ON/OFF (DC input)	ms	0.05/0.25	12/12
Dielectric strength between input/output	V AC	2,500	
Ambient temperature range	°C	-20...+55	
Environmental protection		IP20	
Approvals relay (according to type)			

Ordering information

Electromechanical relay - 1 or 2 Pole

Example: 38 series screw terminal relay interface module, 1 CO (SPDT), sensitive 12 V DC coil.



Selecting features and options: only combinations in the same row are possible.

Type	Coil version	A	B	C	D
38.01/11	7	0 - 4	0	5	0
38.01/11	0 - 8	0 - 4	0	6	0
38.51/61	7	0 - 4 - 5	0	5	0
38.51/61	0 - 3 - 8	0 - 4 - 5	0	6	0
38.52/62	7	0 - 5	0	5	0
38.52/62	0 - 8	0 - 5	0	6	0
38.21	0	0	0	6	0

Ordering information

Solid state relay - Single output - 6.2 & 14 mm wide

Example: 38 series screw terminal SSR relay interface module, 6.2 mm wide, 2 A output, 24 V DC input.



Series

Type

- 21 = Timer SSR 6.2mm wide, with screw terminal
- 31 = SSR 14mm wide, with screw terminal
- 41 = SSR 14mm wide, with screwless terminal
- 81 = SSR 6.2mm wide, with screw terminal
- 91 = SSR 6.2mm wide, with screwless terminal

Input version

- 0 = AC/DC
- 3 = Leakage current suppression for (110...125)V AC/DC and (230...240)V AC SSR only
- 7 = DC, (6, 24, 60)V SSR only

Input voltage

See input specifications

Output version

- 9024 = 2 A - 24 V DC (38.21, 38.81 & 38.91)
- 9024 = 5 A - 24 V DC (38.31 & 38.41)
- 7048 = 0.1 A - 48 V DC (38.81 & 38.91)
- 8240 = 2 A - 240 V AC (38.21, 38.81 & 38.91)
- 8240 = 3 A - 240 V AC (38.31 & 38.41)

Selecting features and options: only combinations in the same row are possible.

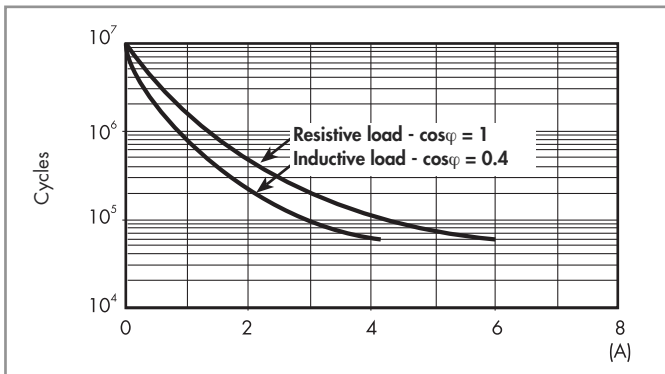
Type	Input version	Output version
38.81/91	7	9024 - 7048 - 8240
38.81/91	0 - 3	9024 - 7048 - 8240
38.31/41	0 - 7	9024 - 8240
38.21	0	9024 - 8240

Technical data - 1 & 2 Pole Electromechanical Relays

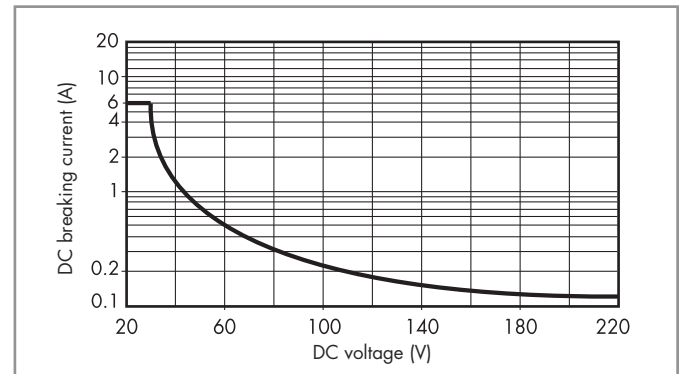
Insulation				
Insulation according to EN 61810-1	insulation rated voltage	V	250	400
	rated impulse withstand voltage	kV	4	4
	pollution degree		3	2
	overvoltage category		III	III
Insulation between coil and contacts (1.2/50 μs)		kV	6 (8 mm)	
Dielectric strength between open contacts		V AC	1,000	
Conducted disturbance immunity				
Burst (5...50)ns, 5 kHz, on A1 - A2			EN 61000-4-4	level 4 (4 kV)
Surge (1.2/50 μs) on A1 - A2 (differential mode)			EN 61000-4-5	level 3 (2 kV)
Other data				
			1 Pole 6 A	1 Pole 16 A - 2 Pole 8 A
Bounce time: NO/NC	ms		1/6	2/5
Vibration resistance (10...55)Hz: NO/NC	g		10/5	15/2
Power lost to the environment	without contact current	W	0.2 (12 V) - 0.9 (240 V)	
	with rated current	W	0.5 (12 V) - 1.5 (240 V)	
Terminals				
Wire strip length	mm		10	
⊖ Screw torque	Nm		0.5	
Max. wire size			solid cable	stranded cable
		mm ²	1x2.5/2x1.5	1x2.5/2x1.5
		AWG	1x14/2x16	1x14/2x16
			38.01 / 38.52	
			38.11 / 38.62	
Wire strip length	mm		10	
⊖ Screw torque	Nm		0.5	
Max. wire size			solid cable	stranded cable
		mm ²	1x2.5/2x1.5	1x2.5/2x1.5
		AWG	1x14/2x16	1x14/2x16
			solid cable	stranded cable
			1x2.5	1x2.5

Contact specification - 1 & 2 Pole Electromagnetic Relays

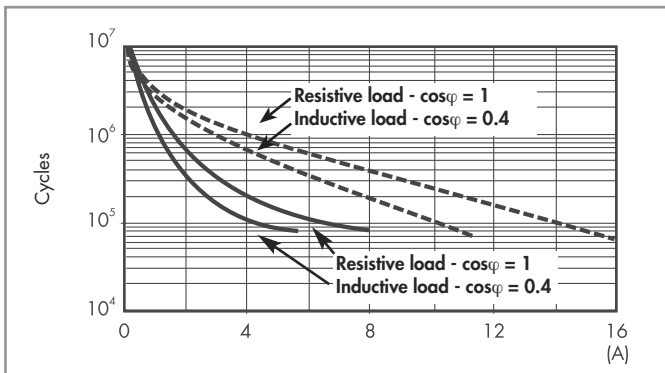
F 38 - Electrical life (AC) v contact current, 1 Pole 6 A



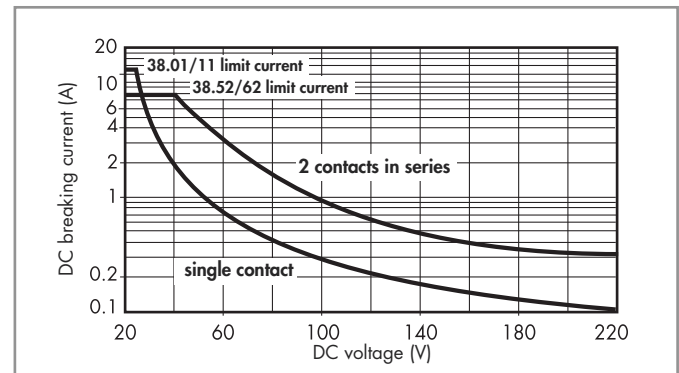
H 38 - Maximum DC1 breaking capacity, 1 Pole 6 A



F 38 - Electrical life (AC) v contact current, 1 Pole 16 A and 2 Pole 8 A



H 38 - Maximum DC1 breaking capacity, 1 Pole 16 A and 2 Pole 8 A



———— : 2 Pole 8 A
 - - - - - : 1 Pole 16 A

- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 60 \cdot 10^3$ (1 Pole) or $\geq 80 \cdot 10^3$ (2 Pole) can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load. Note: the release time for the load will be increased.

Coil specifications - 1 Pole 6 A Electromechanical Relay

Coil data sensitive DC, 1 Pole

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N W
		U_{min} V	U_{max} V		
6	7.006	4.8	7.2	35	0.2
12	7.012	9.6	14.4	15.2	0.2
24	7.024	19.2	28.8	10.4	0.3
48	7.048	38.4	57.6	6.3	0.3
60	7.060	48	72	7	0.4

Coil data AC/DC, 1 Pole

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N VA/W
		U_{min} V	U_{max} V		
12	0.012	9.6	13.2	16	0.2/0.2
24	0.024	19.2	26.4	12	0.3/0.2
48	0.048	38.4	52.8	6.9	0.3/0.3
60	0.060	48	66	7	0.5/0.5
110...125	0.125	88	138	5(*)	0.6/0.6(*)
220...240	0.240	176	264	4(*)	1/0.9(*)

(*) Rated coil consumption and power consumption values relate to $U_N = 125$ and 240 V.

Coil data AC, 1 Pole (indicated for max ambient temperature +70°C)

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N VA/W
		U_{min} V	U_{max} V		
(230...240) AC	8.240	184	264	3	0.7/0.3

Coil data, leakage current suppression types, 1 Pole

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N VA/W
		U_{min} V	U_{max} V		
(110...125) AC/DC	3.125	94	138	8(*)	1/1(*)
(230...240) AC	3.240	184	264	7(*)	1.7/0.5(*)

(*) Rated coil consumption and power consumption values relate to $U_N = 125$ and 240 V.

The 38 Series interface modules (supply version 3) have built-in leakage current suppression to address industry concerns of the contacts not dropping-out when there is residual current in the circuit; at (110...125)V AC and (230...240)V AC.

This problem can occur, for example, when connecting the interface modules to PLC,s with triac outputs or when connecting via relatively long cables.

Coil specifications - 1 Pole 16 A and 2 Pole 8 A Electromechanical Relay

Coil data sensitive DC, 1 Pole 16 A and 2 Pole 8 A

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N W
		U_{min} V	U_{max} V		
12	7.012	9.6	14.4	41	0.5
24	7.024	19.2	28.8	19.5	0.5
60	7.060	48	72	8	0.5

Coil data AC/DC, 1 Pole 16 A and 2 Pole 8 A

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N VA/W
		U_{min} V	U_{max} V		
24	0.024	19.2	26.4	20	0.5/0.5
60	0.060	48	66	7.1	0.5/0.5
110...125	0.125	88	138	4.6	0.6/0.6
220...240	0.240	184	264	3.8	0.9/0.9

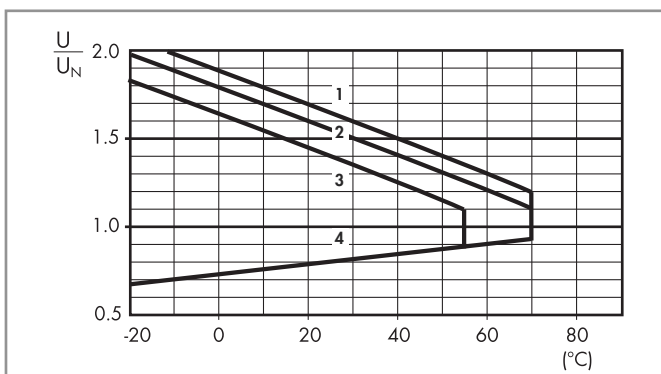
Coil data AC, 1 Pole 16 A and 2 Pole 8 A

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N VA/W
		U_{min} V	U_{max} V		
230...240	8.230	184	264	5.3	1.2/0.6

Coil specification - 1 & 2 Pole Electromagnetic Relays

R 38 - DC coil operating range v ambient temperature

1 Pole and 2 Pole



- 1 - Max. permitted coil voltage at nominal load (DC coil).
- 2 - Max. permitted coil voltage at nominal load (AC/DC coils $U \leq 60$ V).
- 3 - Max. permitted coil voltage at nominal load (AC/DC coils $U > 60$ V).
- 4 - Min pick-up voltage with coil at ambient temperature.

Technical data - Solid State Relays

Other data		38.81/38.91		38.31/38.41	
Power lost to the environment	without output current	W	0.25 (24 V DC)	0.5	
	with rated current	W	0.4	2.2 (DC output) / 3 (AC output)	
Terminals		38.81		38.91	
Wire strip length		mm	10	10	
Screw torque		Nm	0.5	—	
Max. wire size		solid cable	stranded cable	solid cable	stranded cable
		mm ²	1x2.5 / 2x1.5	1x2.5 / 2x1.5	1x2.5 / 1x2.5
		AWG	1x14 / 2x16	1x14 / 2x16	1x14 / 1x14
			38.31		38.41
Wire strip length		mm	10	10	
Screw torque		Nm	0.5	—	
Max. wire size		solid cable	stranded cable	solid cable	stranded cable
		mm ²	1x2.5 / 2x1.5	1x2.5 / 2x1.5	1x2.5 / 1x2.5
		AWG	1x14 / 2x16	1x14 / 2x16	1x14 / 1x14

Input specifications - Solid State Relays type 38.81 and 38.91 - 6.2 mm wide

Input data DC

Nominal voltage U_N	Supply code	Operating range		Release voltage U	Rated coil consumption I at U_N	Power consumption P
		U_{min}	U_{max}			
V		V	V	V	mA	W
6	7.006	5	7.2	2.4	7	0.2
24	7.024	16.8	30	10	10.5	0.3
60	7.060	35.6	72	20	6.5	0.4

Input data AC/DC

Nominal voltage U_N	Supply code	Operating range		Release voltage U	Rated coil consumption I at U_N	Power consumption P
		U_{min}	U_{max}			
V		V	V	V	mA	VA/W
110...125	0.125	88	138	22	5.5*	0.7/0.7
220...240	0.240	184	264	44	3.5*	1/0.9

(*) Rated coil consumption and power consumption values relate to $U_N = 125$ and 240 V.

Input data - Leakage current suppression types

Nominal voltage U_N	Supply code	Operating range		Release voltage U	Rated coil consumption I at U_N	Power consumption P at U_N
		U_{min}	U_{max}			
V		V	V	V	mA	W
110...125 AC/DC	3.125	94	138	44	8(*)	1/1(*)
230...240 AC	3.240	184	264	72	6.5(*)	1.6/0.6(*)

(*) Rated coil consumption and power consumption values relate to $U_N = 125$ and 240 V.

The 38 Series interface modules (supply version 3) have built-in leakage current suppression to address industry concerns of the contacts not dropping-out when there is residual current in the circuit; at (110...125)V AC and (230...240)V AC.

This problem can occur, for example, when connecting the interface modules to PLC,s with triac outputs or when connecting via relatively long cables.

Input specification - Solid State Relay types 38.31 and 38.41 - 14 mm wide

Input data DC

Nominal voltage U_N	Supply code	Operating range		Release voltage U	Rated coil consumption I at U_N	Power consumption P
		U_{min}	U_{max}			
V		V	V	V	mA	W
12	7.012	9.6	18	5	9	0.2
24	7.024	16.8	30	5	12	0.3

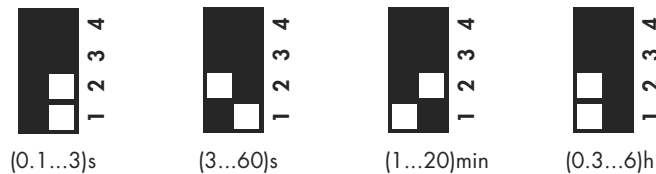
Input data AC/DC

Nominal voltage U_N	Supply code	Operating range		Release voltage U	Rated coil consumption I at U_N	Power consumption P
		U_{min}	U_{max}			
V		V	V	V	mA	W
24	0.024	16.8	30	9	16.5	0.3

Additional technical data - Timed Interface Module

EMC specifications			
Type of test		Reference standard	
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV
	air discharge	EN 61000-4-2	8 kV
Radio-frequency electromagnetic field (80 ÷ 1000 MHz)		EN 61000-4-3	10 V/m
Fast transients (burst) (5-50 ns, 5 kHz) on Supply terminals		EN 61000-4-4	4 kV
Surges (1.2/50 µs) on Supply terminals	common mode	EN 61000-4-5	4 kV
	differential mode	EN 61000-4-5	4 kV
Radio-frequency common mode (0.15 ÷ 80 MHz) on Supply terminals		EN 61000-4-6	10 V
Radiated and conducted emission		EN 55022	class B
Other data		EMR	SSR
Power lost to the environment	without contact current	W	0.1
	with rated current	W	0.6
Terminals		38.21	
Wire strip length	mm	10	
Screw torque	Nm	0.5	
Max. wire size		solid cable	stranded cable
	mm ²	1x2.5 / 2x1.5	1x2.5 / 2x1.5
	AWG	1x14 / 2x16	1x14 / 2x16

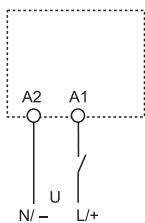
Times scales



Functions

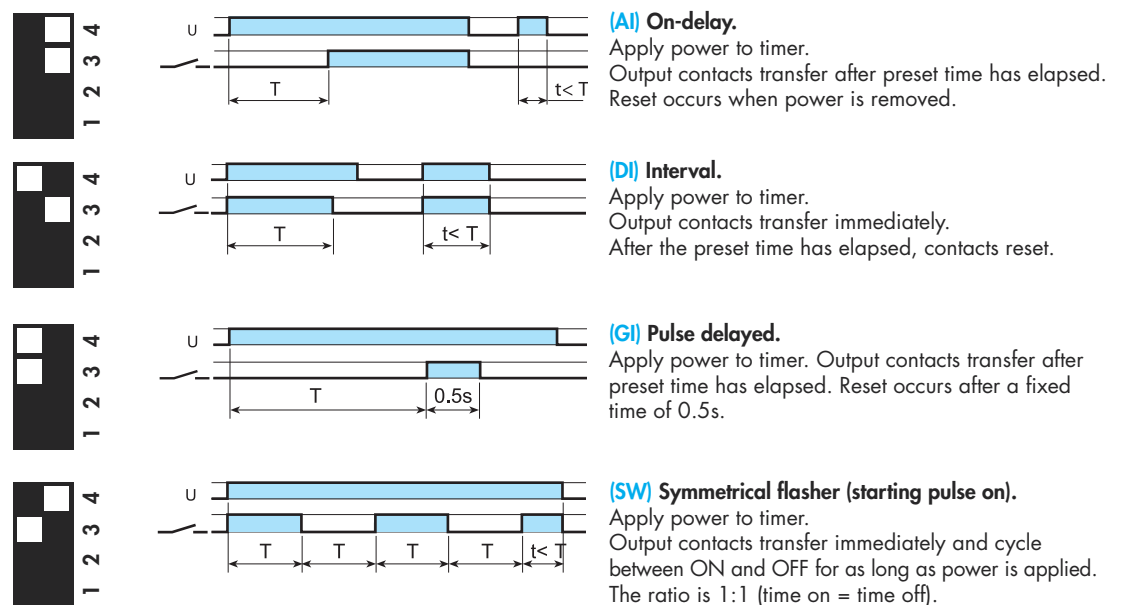
LED	Supply voltage	NO contact/output
	OFF	Open
	ON	Open (time in progress)
	ON	Closed

Wiring diagram



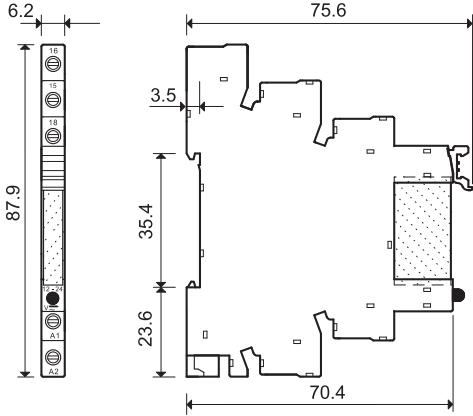
U = Supply voltage

= Output contact

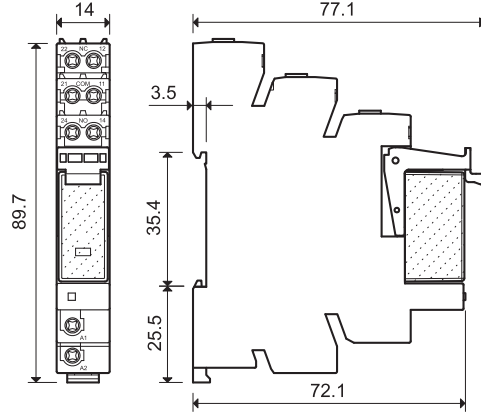


Outline drawings

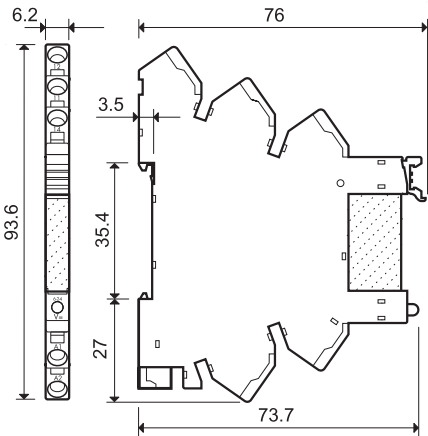
38.21
38.51 / 38.51.3
38.81 / 38.81.3
Screw terminal



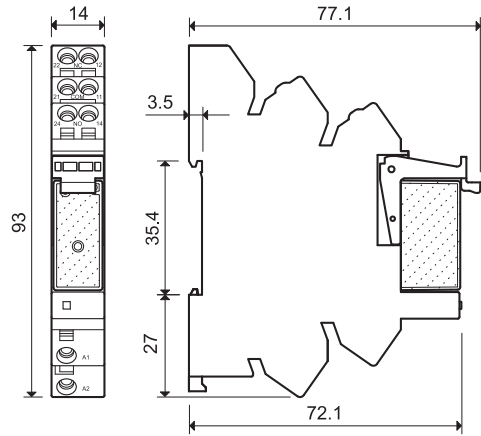
38.01
38.31
38.52
Screw terminal



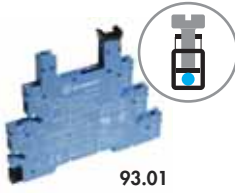
38.61 / 38.61.3
38.91 / 38.91.3
Screwless terminal



38.11
38.41
38.62
Screwless terminal



Electromechanical Relay & Socket Combinations



Screw terminal - 1 Pole relay 6 A

Interface Module Code	Coil voltage	Relay	Socket
38.51.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.01.0.024
38.51.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.01.0.024
38.51.0.048.0060	48 V AC/DC	34.51.7.048.0010	93.01.0.060
38.51.0.060.0060	60 V AC/DC	34.51.7.060.0010	93.01.0.060
38.51.0.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.01.0.125
38.51.0.240.0060	(220...240)V AC/DC	34.51.7.060.0010	93.01.0.240
38.51.3.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.01.3.125
38.51.3.240.0060	(230...240)V AC	34.51.7.060.0010	93.01.3.240
38.51.7.006.0050	6 V DC	34.51.7.005.0010	93.01.7.024
38.51.7.012.0050	12 V DC	34.51.7.012.0010	93.01.7.024
38.51.7.024.0050	24 V DC	34.51.7.024.0010	93.01.7.024
38.51.7.048.0050	48 V DC	34.51.7.048.0010	93.01.7.060
38.51.7.060.0050	60 V DC	34.51.7.060.0010	93.01.7.060
38.51.8.240.0060	(230...240)V AC	34.51.7.060.0010	93.01.8.240



Screwless terminal - 1 Pole relay 6 A

Interface Module Code	Coil voltage	Relay	Socket
38.61.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.51.0.024
38.61.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.51.0.024
38.61.0.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.51.0.125
38.61.0.240.0060	(220...240)V AC/DC	34.51.7.060.0010	93.51.0.240
38.61.3.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.51.3.125
38.61.3.240.0060	(230...240)V AC	34.51.7.060.0010	93.51.3.240
38.61.7.012.0050	12 V DC	34.51.7.012.0010	93.51.7.024
38.61.7.024.0050	24 V DC	34.51.7.024.0010	93.51.7.024
38.61.8.240.0060	(230...240)V AC	34.51.7.060.0010	93.51.8.240



Screw terminal - 1 Pole relay 16 A

Interface Module Code	Coil voltage	Relay	Socket
38.01.7.012.0050	12 V DC	41.61.9.012.0010	93.02.7.024
38.01.7.024.0050	24 V DC	41.61.9.024.0010	93.02.7.024
38.01.7.060.0050	60 V DC	41.61.9.060.0010	93.02.7.060
38.01.0.024.0060	24 V AC/DC	41.61.9.024.0010	93.02.0.024
38.01.0.060.0060	60 V AC/DC	41.61.9.060.0010	93.02.0.060
38.01.0.125.0060	125 V AC/DC	41.61.9.110.0010	93.02.0.125
38.01.0.240.0060	240 V AC/DC	41.61.9.110.0010	93.02.0.240
38.01.8.230.0060	230 V AC	41.61.9.110.0010	93.02.8.230



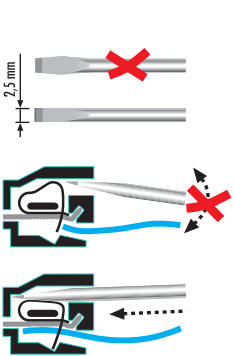
Screwless terminal - 1 Pole relay 16 A

Interface Module Code	Coil voltage	Relay	Socket
38.11.7.012.0050	12 V DC	41.61.9.012.0010	93.52.7.024
38.11.7.024.0050	24 V DC	41.61.9.024.0010	93.52.7.024
38.11.7.060.0050	60 V DC	41.61.9.060.0010	93.52.7.060
38.11.0.024.0060	24 V AC/DC	41.61.9.024.0010	93.52.0.024
38.11.0.060.0060	60 V AC/DC	41.61.9.060.0010	93.52.0.060
38.11.0.125.0060	125 V AC/DC	41.61.9.110.0010	93.52.0.125
38.11.0.240.0060	240 V AC/DC	41.61.9.110.0010	93.52.0.240
38.11.8.230.0060	230 V AC	41.61.9.110.0010	93.52.8.230

Approvals (according to type):



Certain relay/socket combinations



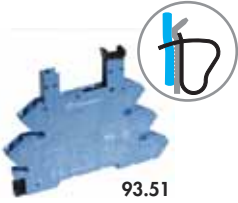
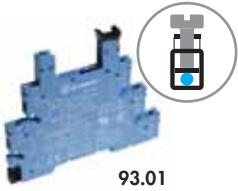
Screw terminal - 2 Pole relay 8 A

Interface Module Code	Coil voltage	Relay	Socket
38.52.0.024.0060	24 V AC/DC	41.52.9.024.0010	93.02.0.024
38.52.0.060.0060	60 V AC/DC	41.52.9.060.0010	93.02.0.060
38.52.0.125.0060	(110...125)V AC/DC	41.52.9.110.0010	93.02.0.125
38.52.0.240.0060	(220...240)V AC/DC	41.52.9.110.0010	93.02.0.240
38.52.7.012.0050	12 V DC	41.52.9.012.0010	93.02.7.024
38.52.7.024.0050	24 V DC	41.52.9.024.0010	93.02.7.024
38.52.7.060.0050	60 V DC	41.52.9.060.0010	93.02.7.060
38.52.8.230.0060	(230...240)V AC	41.52.9.110.0010	93.02.8.230

Screwless terminal - 2 Pole relay 8 A

Interface Module Code	Coil voltage	Relay	Socket
38.62.0.024.0060	24 V AC/DC	41.52.9.024.0010	93.52.0.024
38.62.0.060.0060	60 V AC/DC	41.52.9.060.0010	93.52.0.060
38.62.0.125.0060	(110...125)V AC/DC	41.52.9.110.0010	93.52.0.125
38.62.0.240.0060	(220...240)V AC/DC	41.52.9.110.0010	93.52.0.240
38.62.7.012.0050	12 V DC	41.52.9.012.0010	93.52.7.024
38.62.7.024.0050	24 V DC	41.52.9.024.0010	93.52.7.024
38.62.7.060.0050	60 V DC	41.52.9.060.0010	93.52.7.060
38.62.8.230.0060	(230...240)V AC	41.52.9.110.0010	93.52.8.230

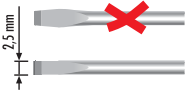
Solid State Relay & Socket Combinations - 6.2 mm wide



Approvals
(according to type):



Certain relay/socket combinations



Screw terminal

Interface Module Code	Input voltage	Relay	Socket
38.81.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.01.7.024
38.81.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.01.7.024
38.81.7.060.xxxx	60 V DC	34.81.7.060.xxxx	93.01.7.060
38.81.0.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.01.0.125
38.81.0.240.xxxx	(220...240)V AC/DC	34.81.7.060.xxxx	93.01.0.240
38.81.3.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.01.3.125
38.81.3.240.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.01.3.240

Screwless terminal

Interface Module Code	Input voltage	Relay	Socket
38.91.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.51.7.024
38.91.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.51.7.024
38.91.7.060.xxxx	60 V DC	34.81.7.060.xxxx	93.51.7.060
38.91.0.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.51.0.125
38.91.0.240.xxxx	(220...240)V AC/DC	34.81.7.060.xxxx	93.51.0.240
38.91.3.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.51.3.125
38.91.3.240.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.51.3.240

Example: .xxxx

.9024

.7048

.8240

Solid State Relay & Socket Combinations - 14 mm wide



Approvals
(according to type):



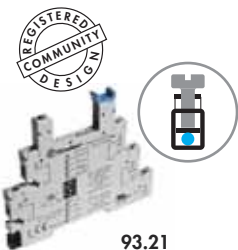
Screw terminal

Interface Module Code	Input voltage	Relay	Socket
38.31.0.024.xxxx	24 V AC/DC	41.81.7.024.xxxx	93.02.0.024
38.31.7.012.xxxx	12 V DC	41.81.7.012.xxxx	93.02.7.024
38.31.7.024.xxxx	24 V DC	41.81.7.024.xxxx	93.02.7.024

Screwless terminal

Interface Module Code	Input voltage	Relay	Socket
38.41.0.024.xxxx	24 V AC/DC	41.81.7.024.xxxx	93.52.0.024
38.41.7.012.xxxx	12 V DC	41.81.7.012.xxxx	93.52.7.024
38.41.7.024.xxxx	24 V DC	41.81.7.024.xxxx	93.52.7.024

SSR / EMR & Timer Socket Combinations



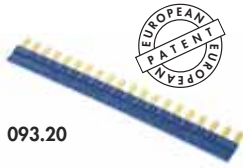
Approvals
(according to type):



Screw terminal

Interface Module Code	Input / Coil voltage	Relay	Socket
38.21.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.21.0.024
38.21.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.21.0.024
38.21.0.024.xxxx	24 V AC/DC	34.81.7.024.xxxx	93.21.0.024

Accessories

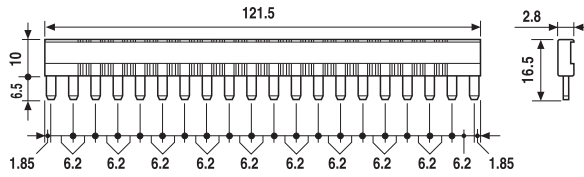


093.20

Approvals
(according to type):



20-way jumper link for 38.21/51/61/81/91	093.20 (blue)	093.20.0 (black)	093.20.1 (red)
Rated values	36 A - 250 V		

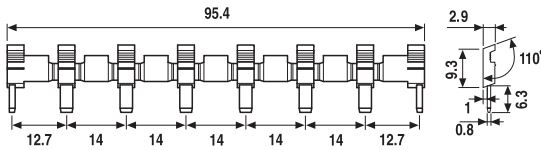


093.08

Approvals
(according to type):



8-way jumper link for 38.01/11/31/41/52/62	093.08 (blue)	093.08.0 (black)	093.08.1 (red)
Rated values	10 A - 250 V		

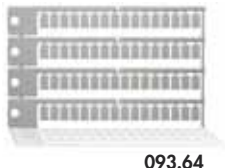


093.01

Plastic separator	093.01
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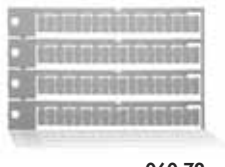
Thickness 2 mm, required at the start and the end of a group of interfaces.
Can be used for visual separation group, must be used for:

- protective separation of different voltages of neighbouring PLC interfaces according to VDE 0106-101
- protection of cut jumper links



093.64

Sheet of marker tags for 38.21/51/61/81/91, plastic, 64 tags, 6x10 mm	093.64
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060.72

Sheet of marker tags for 38.01/11/31/41/52/62, plastic, 72 tags, 6x12 mm	060.72
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Common features

- Space saving 6.2 mm wide
- Connections for 16-way jumper link
- Integral coil indication and protection circuit
- Secure retention and easy ejection by plastic clip
- Dual screw head (blade+cross) terminals
- 35 mm rail mounting (EN 60715)

EMR Electromechanical Relays

- 1 CO 6 A 250 V AC
- High switching capability

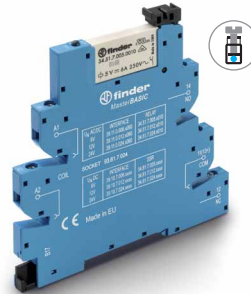
SSR Solid State Relays

- 1 solid state output (options 0.1 A 48 V DC, 2 A 24 V DC, 2 A 240 V AC)
- Silent, high speed switching, long electrical life

MasterBASIC

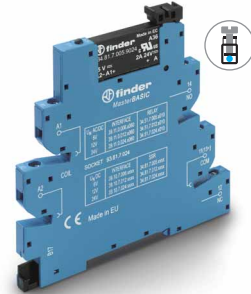
- For general use in any type of system
- EMR: 6 to 24 V AC/DC and 230 V AC supply
- SSR: 6 to 24 V DC and 230 V AC supply

39.11



Page 4

39.10



Page 5

MasterPLUS

- Accepts the output fuse module, for the easy and space efficient protection of output circuits
- EMR: 6 to 125 V AC/DC, 125 and 220 V DC, 230 V AC supply
- SSR: 24 - 125 V AC/DC, 6 to 220 V DC and 230 V AC supply
- Special 125 and 230 V AC leakage current suppression types (39.31.3 EMR and 39.30.3 SSR)

39.31 - 39.31.3



Page 6

39.30 - 39.30.3



Page 7

MasterINPUT

- Jumper link option for the quick and easy distribution of supply voltage to proximity switches and similar input devices
- EMR: 6 to 24 V and 125 V AC/DC, 230 V AC supply
- SSR: 6 - 12 V DC, 24 - 125 V AC/DC, 230 V AC supply

39.41



Page 8

39.40

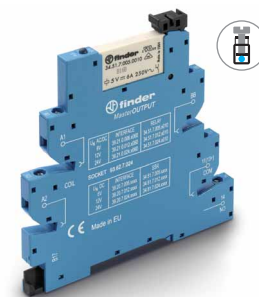


Page 9

MasterOUTPUT

- Jumper link option for the quick and easy distribution of supply voltage to output side and its connection to electromagnetic valves and similar output devices
- EMR: 6 to 24 V and 125 V AC/DC, 230 V AC supply
- SSR: 6 to 24 V DC, 125 V AC/DC, 230 V AC supply

39.21



Page 10

39.20



Page 11

MasterTIMER

- Timer adjustment via top mounted rotary knob accessible after assembly
- Control signal terminal
- DIP-switch for selection of 4 time scales and 8 functions
- Output with fuse module option
- EMR and SSR: 12 to 24 V AC/DC supply

39.81



Page 12

39.80



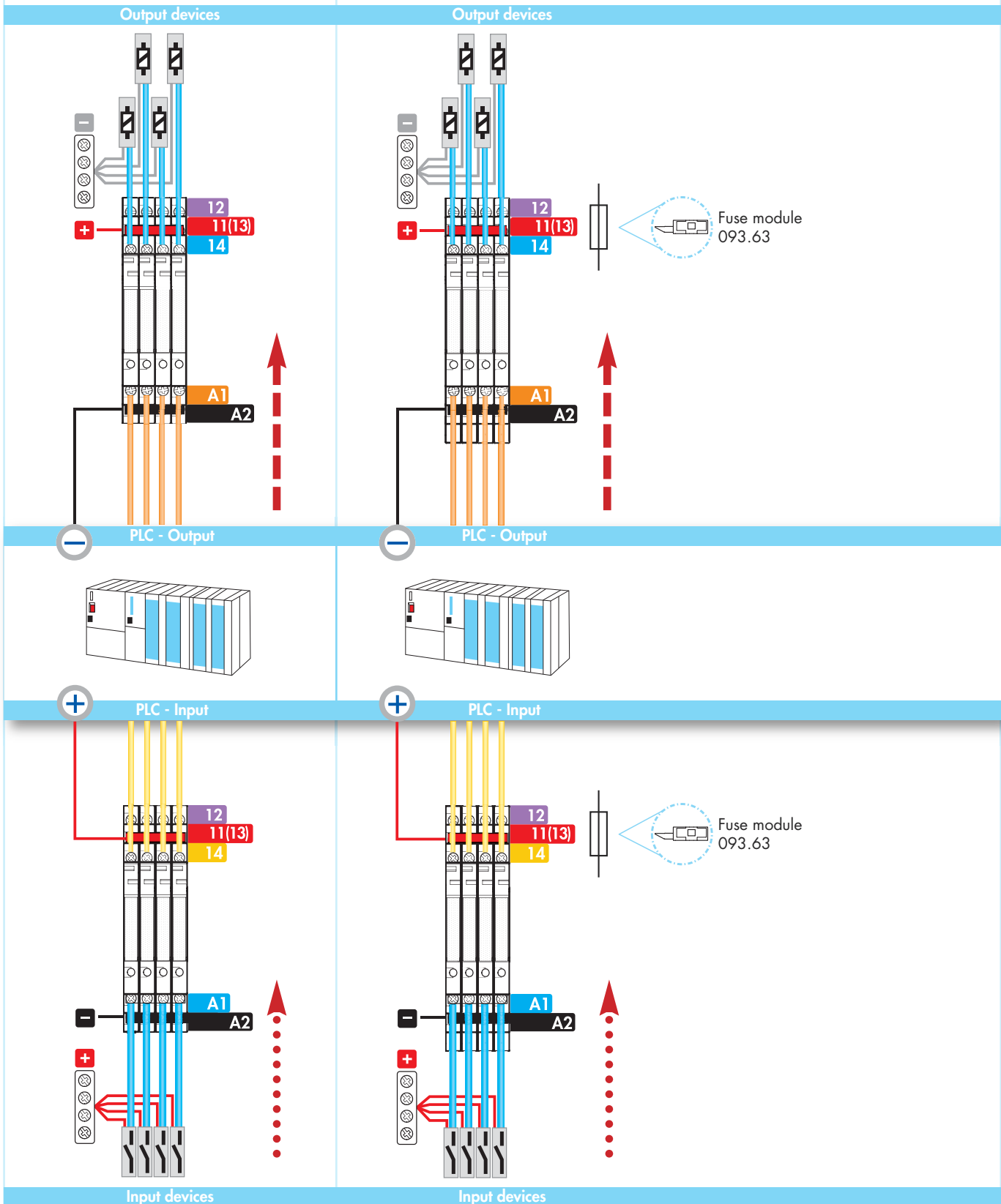
Page 13

MasterBASIC
39.11 - 39.10

- For general interface use in any type of system and application.
- Can be used for input interface applications between auxiliary contacts, sensors etc. and controllers, PLCs' or motors. Or for output interface between PLC's controllers and relays, solenoids etc.

MasterPLUS
39.31 - 39.30 - 39.31.3 - 39.30.3

- This special version provides extra protection for the output circuit thanks to the replaceable fuse module.
- For general interface use in any type of system and application.
- Can be used for input interface applications between auxiliary contacts, sensors etc. and controllers, PLCs' or motors. Or for output interface between PLC's controllers and relays, solenoids etc.



**MasterINPUT
39.41 - 39.40**

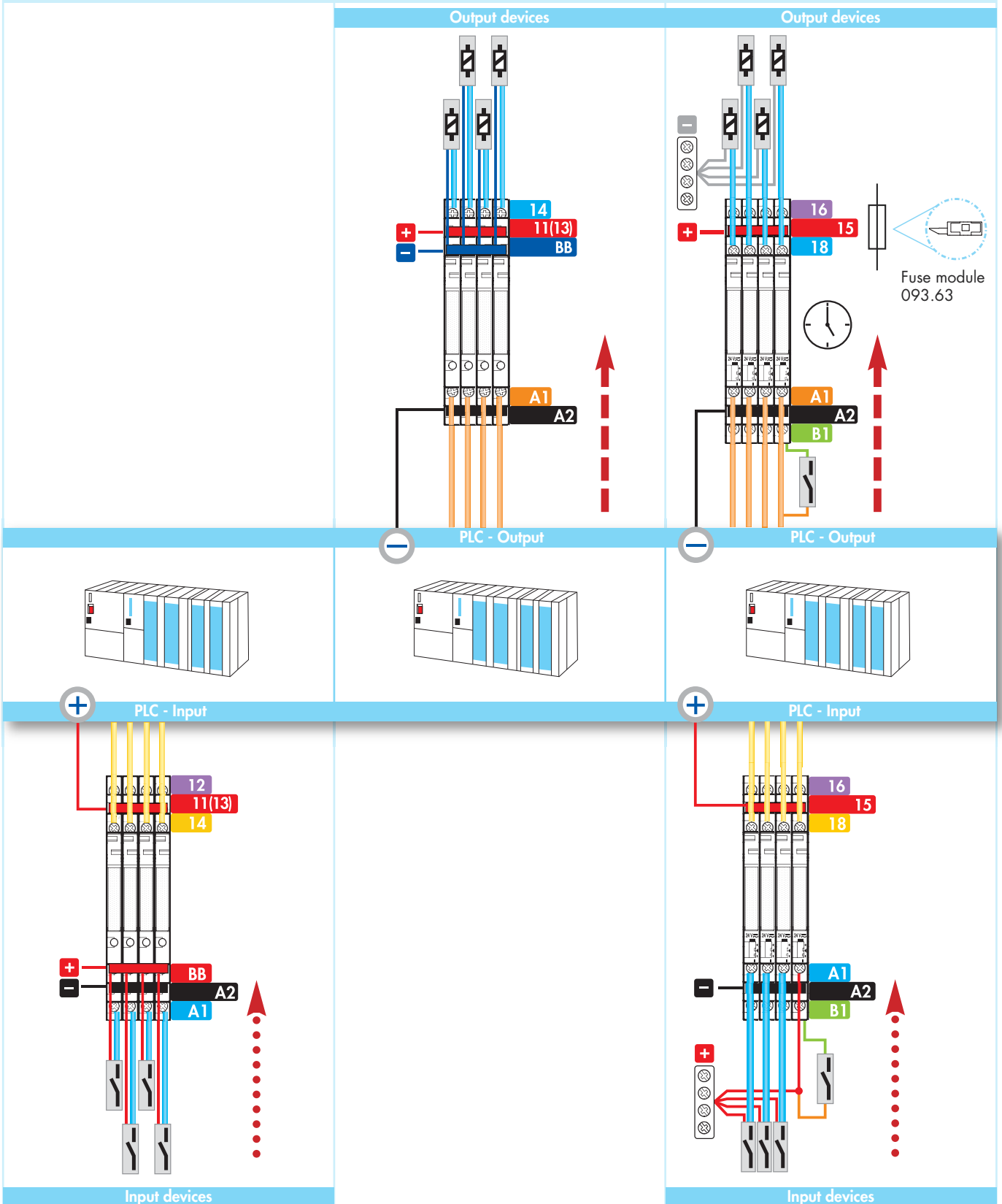
- These models allow the full termination of input device to the interface without the need for additional terminals - saving component cost, time and panel space.
- Quick and easy distribution of supply voltage through the jumper link on the Bus-Bar (BB) connection.
- Ideal for interface applications between the auxiliary contacts, sensors, limit switches and Controllers or PLC's.

**MasterOUTPUT
39.21 - 39.20**

- These models allow the full termination of output device to the interface without the need for additional terminals - saving component cost, time and panel space.
- Quick and easy distribution of supply voltage through the jumper link on the Bus-Bar (BB) connection.
- Ideal for interface applications between the PLC's or Controllers and output devices such as electromagnetic valves or motors etc..

**MasterTIMER
39.81 - 39.80**

- Slim and Multifunction Timed Interface modules.



MasterBASIC - EMR

Features

1 Pole interface module, 6.2 mm wide, ideal for PLC and electronic systems

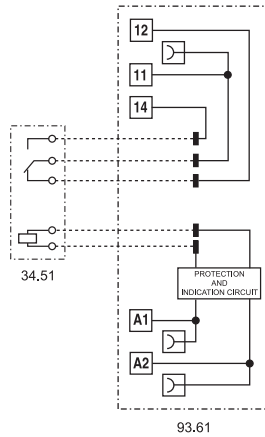
- Common connection possible with optional jumper links (terminals A1, A2 and 11)

NEW 39.11



- 6 A electromechanical relay
- 6 to 24 V AC/DC and 230 V AC supply
- 35 mm rail (EN 60715) mounting

39.11
Screw terminal



For outline drawing see page 20

Contact specification		
Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	6/10
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	1,500
Rated load AC15 (230 V AC)	VA	300
Single phase motor rating (230 V AC)	kW	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12
Minimum switching load	mW (V/mA)	500 (12/10)
Standard contact material		AgNi
Supply specification		
Nominal voltage (U _N)	V AC/DC	6 - 12 - 24
	V AC (50/60 Hz)	220...240
Rated power	VA (50 Hz)/W	See page 16
Operating range		(0.8...1.1)U _N
Holding voltage		0.6 U _N
Must drop-out voltage		0.1 U _N
Technical data		
Mechanical life AC/DC	cycles	10 · 10 ⁶
Electrical life at rated load AC1	cycles	60 · 10 ³
Operate/release time	ms	5/6
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000
Ambient temperature range	°C	-40...+70
Protection category		IP 20
Approvals relay (according to type)		

MasterBASIC - SSR

Features

1 Pole interface module, 6.2 mm wide, ideal for PLC and electronic systems

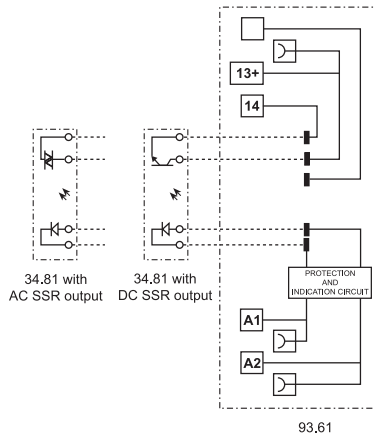
- Common connection possible with optional jumper links (terminals A1, A2 and 13+)

NEW 39.10



- 0.1 or 2 A solid state relay
- 6 to 24 V DC and 230 V AC supply
- 35 mm rail (EN 60715) mounting

39.10
Screw terminal



For outline drawing see page 20

Output specification (SSR)		39.10.x.xxx.9024	39.10.x.xxx.7048	39.10.x.xxx.8240
Contact configuration		1 NO (SPST-NO)		
Rated current/Maximum peak current (10 ms)	A	2/20 DC	0.1/0.5 DC	2/40 AC
Rated voltage/Maximum blocking voltage	V	24/33 DC	48/60 DC	240/275 AC
Switching voltage range	V	(1.5...24) DC	(1.5...48) DC	(12...240) AC
Minimum switching current	mA	1	0.05	22
Max. "OFF-state" leakage current	mA	0.001	0.001	1.5
Max. "ON-state" voltage drop	V	0.12	1	1.6
Supply specification				
Nominal voltage (U _N)	V AC (50/60 Hz)	220...240		
	V DC	6 - 12 - 24		
Rated power	VA (50 Hz)/W	See page 17		
Operating range		(0.8...1.1) U _N		
Must drop-out voltage		0.1 U _N		
Technical data				
Operate/release time	ms	0.2/0.6	0.04/0.11	12/12
Dielectric strength between input/output	V AC	2,500		
Ambient temperature range	°C	-20...+55		
Protection category		IP20		
Approvals relay (according to type)				

MasterPLUS - EMR

Features

1 Pole interface modules, 6.2 mm wide, ideal for PLC and electronic systems

- Accepts output fuse module **093.63** (for 5 x 20 mm fuses) for quick and easy load protection, see page 22
- Common connection possible with optional jumper links (terminals A1, A2 and 11)

NEW 39.31



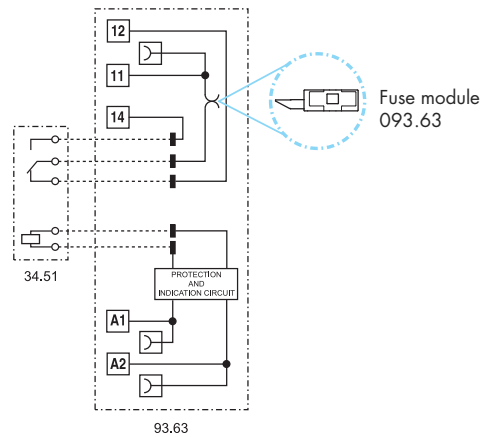
- 6 A electromechanical relay
- 6 to 125 V AC/DC, 125 and 220 V DC, 230 V AC supply
- 35 mm rail (EN 60715) mounting

NEW 39.31.3



- 6 A electromechanical relay
- Leakage current suppression version, 125 and 230 V AC supply

39.31 / 39.31.3
Screw terminal



For outline drawing see page 20

Contact specification			
Contact configuration		1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	6/10	6/10
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	1,500	1,500
Rated load AC15 (230 V AC)	VA	300	300
Single phase motor rating (230 V AC)	kW	0.185	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12	6/0.2/0.12
Minimum switching load	mW (V/mA)	500 (12/10)	500 (12/10)
Standard contact material		AgNi	AgNi
Supply specification			
Nominal voltage (U _N)	V AC/DC	6 - 12 - 24 - 60 - 110...125	—
	V AC [50/60 Hz]	220...240	110...125 - 220...240
	V DC	110...125 - 220	—
Rated power	VA [50 Hz]/W	See page 16	See page 16
Operating range		(0.8...1.1) U _N	(0.8...1.1) U _N
Holding voltage		0.6 U _N	0.6 U _N
Must drop-out voltage		0.1 U _N	0.3 U _N
Technical data			
Mechanical life AC/DC	cycles	10 · 10 ⁶	10 · 10 ⁶
Electrical life at rated load AC1	cycles	60 · 10 ³	60 · 10 ³
Operate/release time	ms	5/6	5/6
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	-40...+70 (+55 for 220 V DC)	-40...+70
Protection category		IP20	IP20

Approvals relay (according to type)



MasterPLUS - SSR

Features

1 Pole interface modules, 6.2 mm wide, ideal for PLC and electronic systems

- Accepts output fuse module **093.63** (for 5 x 20 mm fuses) for quick and easy load protection, see page 22
- Common connection possible with optional jumper links (terminals A1, A2 and 13+)

NEW 39.30



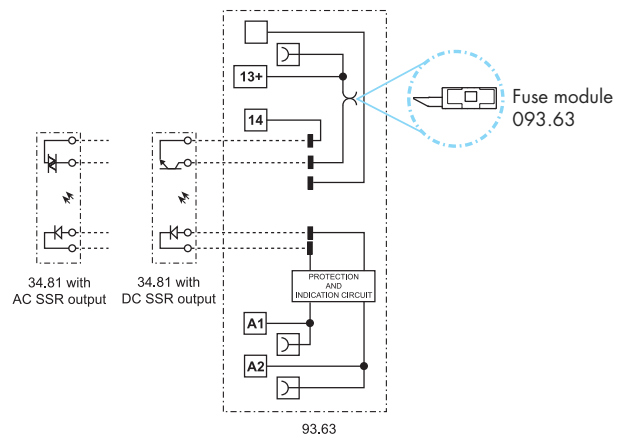
- 0.1 or 2 A solid state relay
- 24 - 125 V AC/DC, 6 to 220 V DC and 230 V AC supply
- 35 mm rail (EN 60715) mounting

NEW 39.30.3



- 0.1 or 2 A solid state relay
- Leakage current suppression version, 125 and 230 V AC supply

39.30 / 39.30.3
Screw terminal



For outline drawing see page 20

Output specification (SSR)	39.30.x.xxx.9024	39.30.x.xxx.7048	39.30.x.xxx.8240	39.30.3.xxx.9024	39.30.3.xxx.7048	39.30.3.xxx.8240
Contact configuration	1 NO (SPST-NO)			1 NO (SPST-NO)		
Rated current/Maximum peak current (10 ms)	A 2/20 DC	0.1/0.5 DC	2/40 AC	2/20 DC	0.1/0.5 DC	2/40 AC
Rated voltage/Maximum blocking voltage	V 24/33 DC	48/60 DC	240/275 AC	24/33 DC	48/60 DC	240/275 AC
Switching voltage range	V (1.5...24) DC	(1.5...48)DC	(12...240) AC	(1.5...24) DC	(1.5...48)DC	(12...240) AC
Minimum switching current	mA 1	0.05	22	1	0.05	22
Max. "OFF-state" leakage current	mA 0.001	0.001	1.5	0.001	0.001	1.5
Max. "ON-state" voltage drop	V 0.12	1	1.6	0.12	1	1.6
Supply specification						
Nominal voltage (U _N)	V AC/DC	24 - 110...125			—	
	V AC (50/60 Hz)	220...240			110...125 - 220...240	
	V DC	6 - 12 - 24 - 60 - 110...125 - 220			—	
Rated power	VA (50 Hz)/W	See page 17			See page 17	
Operating range		(0.8...1.1) U _N			(0.8...1.1) U _N	
Must drop-out voltage		0.1 U _N			0.3 U _N	
Technical data						
Operate/release time	ms	0.2/0.6	0.04/0.11	12/12	0.2/0.6	0.04/0.11 12/12
Dielectric strength between input/output	V AC	2,500			2,500	
Ambient temperature range	°C	-20...+55			-20...+55	
Protection category		IP20			IP20	
Approvals relay (according to type)						

MasterINPUT - EMR

Features

1 Pole interface module, 6.2 mm wide, ideal for PLC and electronic systems

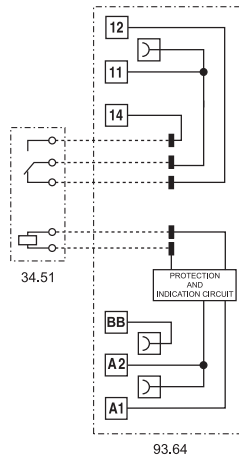
- Jumper link option for the quick and easy distribution of supply voltage to proximity switches and similar input devices (Bus-bar connection BB)
- Gold plated output contact as standard, for better compatibility with low energy PLC inputs

NEW 39.41



- 6 A electromechanical relay
- 6 - 12 - 24 - 125 V AC/DC and 230 V AC supply
- 35 mm rail (EN 60715) mounting

39.41
Screw terminal



For outline drawing see page 20

Contact specification		
Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	6/10
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	1,500
Rated load AC15 (230 V AC)	VA	300
Single phase motor rating (230 V AC)	kW	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12
Minimum switching load	mW (V/mA)	50 (5/2)
Standard contact material		AgNi + Au
Supply specification		
Nominal voltage (U _N)	V AC/DC	6 - 12 - 24 - 110...125
	V AC (50/60 Hz)	220...240
Rated power	VA (50 Hz)/W	See page 16
Operating range		(0.8...1.1) U _N
Holding voltage		0.6 U _N
Must drop-out voltage		0.1 U _N
Technical data		
Mechanical life AC/DC	cycles	10 · 10 ⁶
Electrical life at rated load AC1	cycles	60 · 10 ³
Operate/release time	ms	5/6
Insulation between coil and contacts (1.2/50 µs)	kV	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000
Ambient temperature range	°C	-40...+70
Protection category		IP20
Approvals relay (according to type)		

MasterINPUT - SSR

Features

1 Pole interface modules, 6.2 mm wide, ideal for PLC and electronic systems

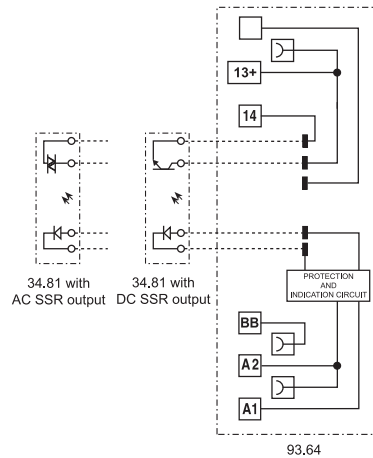
- Jumper link option for the quick and easy distribution of supply voltage to proximity switches and similar input devices (Bus-bar connection BB)

NEW 39.40



- 0.1 or 2 A solid state relay
- 6 - 12 V DC, 24 - 125 V AC/DC and 230 V AC supply
- 35 mm rail (EN 60715) mounting

39.40
Screw terminal



For outline drawing see page 20

Output specification (SSR)		39.40.x.xxx.9024	39.40.x.xxx.7048	39.40.x.xxx.8240
Contact configuration		1 NO (SPST-NO)		
Rated current/Maximum peak current (10 ms)	A	2/20 DC	0.1/0.5 DC	2/40 AC
Rated voltage/Maximum blocking voltage	V	24/33 DC	48/60 DC	240/275 AC
Switching voltage range	V	(1.5...24) DC	(1.5...48) DC	(12...240) AC
Minimum switching current	mA	1	0.05	22
Max. "OFF-state" leakage current	mA	0.001	0.001	1.5
Max. "ON-state" voltage drop	V	0.12	1	1.6
Supply specification				
Nominal voltage (U _N)	V AC/DC	24 - 110...125		
	V AC (50/60 Hz)	220...240		
	V DC	6 - 12		
Rated power	VA (50 Hz)/W	See page 17		
Operating range		(0.8...1.1) U _N		
Must drop-out voltage		0.1 U _N		
Technical data				
Operate/release time	ms	0.2/0.6	0.04/0.11	12/12
Dielectric strength between input/output	V AC	2,500		
Ambient temperature range	°C	-20...+55		
Protection category		IP20		
Approvals relay (according to type)				

MasterOUTPUT - EMR

Features

1 Pole interface modules, 6.2 mm wide, ideal for PLC and electronic systems

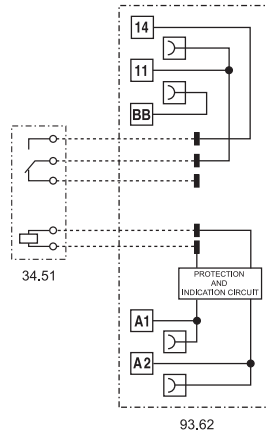
- Jumper link option for the quick and easy distribution of supply voltage to output side (Bus-bar connection BB) and its connection to electromagnetic valves and similar output devices

NEW 39.21



- 6 A electromechanical relay
- 6 - 12 - 24 - 125 V AC/DC and 230 V AC supply
- 35 mm rail (EN 60715) mounting

39.21
Screw terminal



For outline drawing see page 20

Contact specification		
Contact configuration		1 NO (SPST-NO)
Rated current/Maximum peak current	A	6/10
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	1,500
Rated load AC15 (230 V AC)	VA	300
Single phase motor rating (230 V AC)	kW	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12
Minimum switching load	mW (V/mA)	500 (12/10)
Standard contact material		AgNi
Supply specification		
Nominal voltage (U _N)	V AC/DC	6 - 12 - 24 - 110...125
	V AC (50/60 Hz)	220...240
Rated power	VA (50 Hz)/W	See page 16
Operating range		(0.8...1.1) U _N
Holding voltage		0.6 U _N
Must drop-out voltage		0.1 U _N
Technical data		
Mechanical life AC/DC	cycles	10 · 10 ⁶
Electrical life at rated load AC1	cycles	60 · 10 ³
Operate/release time	ms	5/6
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000
Ambient temperature range	°C	-40...+70
Protection category		IP20
Approvals relay (according to type)		

MasterOUTPUT - SSR

Features

1 Pole interface modules, 6.2 mm wide, ideal for PLC and electronic systems

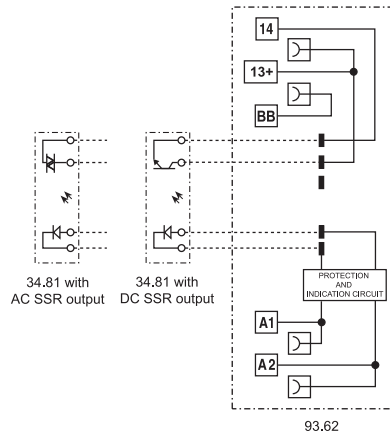
- Jumper link option for the quick and easy distribution of supply voltage to output side (Bus-bar connection BB) and its connection to electromagnetic valves and similar output devices

NEW 39.20



- 0.1 or 2 A solid state relay
- 6 to 24 V DC, 125 V AC/DC and 230 V AC supply
- 35 mm rail (EN 60715) mounting

39.20
Screw terminal



For outline drawing see page 20

Output specification (SSR)	39.20.x.xxx.9024	39.20.x.xxx.7048	39.20.x.xxx.8240
Contact configuration	1 NO (SPST-NO)		
Rated current/Maximum peak current (10 ms)	A 2/20 DC	0.1/0.5 DC	2/40 AC
Rated voltage/Maximum blocking voltage	V 24/33 DC	48/60 DC	240/275 AC
Switching voltage range	V (1.5...24) DC	(1.5...48) DC	(12...240) AC
Minimum switching current	mA 1	0.05	22
Max. "OFF-state" leakage current	mA 0.001	0.001	1.5
Max. "ON-state" voltage drop	V 0.12	1	1.6
Supply specification			
Nominal voltage (U _N)	V AC/DC	110...125	
	V AC (50/60 Hz)	220...240	
	V DC	6 - 12 - 24	
Rated power	VA (50 Hz)/W	See page 17	
Operating range		(0.8...1.1) U _N	
Must drop-out voltage		0.1 U _N	
Technical data			
Operate/release time	ms	0.2/0.6	0.04/0.11 12/12
Dielectric strength between input/output	V AC	2,500	
Ambient temperature range	°C	-20...+55	
Protection category		IP20	
Approvals relay (according to type)			

MasterTIMER - EMR

Features

Slim timed interface module, 6.2 mm wide, ideal for space-saving timing solutions in panels

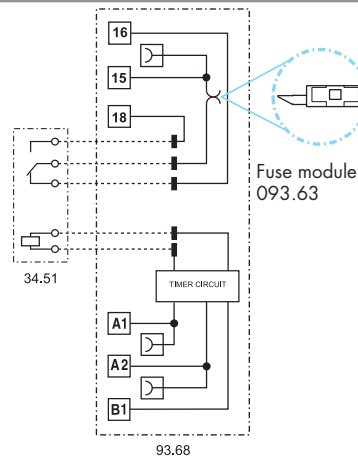
- Timer adjustment via top mounted rotary knob, accessible after assembly
- Control signal terminal
- DIP-switch for selection of 4 time scales and 8 functions
- Accepts output fuse module **093.63** (for 5 x 20 mm fuses) for quick and easy load protection, see page 22
- Common connection possible with optional jumper links (terminals A1, A2 and 15)

NEW 39.81



- 6 A electromechanical relay
- 12 - 24 V AC/DC supply
- 35 mm rail (EN 60715) mounting

39.81
Screw terminal



- AI:** On-delay
- DI:** Interval
- GI:** Pulse (0.5 s) delayed
- SW:** Symmetrical flasher (starting pulse on)
- BE:** Off-delay with control signal
- CE:** On- and off-delay with control signal
- DE:** Interval with control signal on
- EE:** Interval with control signal off

For outline drawing see page 20

Contact specification		
Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	6/10
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	1,500
Rated load AC15 (230 V AC)	VA	300
Single phase motor rating (230 V AC)	kW	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12
Minimum switching load	mW (V/mA)	500 (12/10)
Standard contact material		AgNi
Supply specification		
Nominal voltage (U _N)	V AC/DC	12 - 24
Rated power AC/DC	VA (50 Hz)/W	See page 16
Operating range		(0.8...1.1) U _N
Holding voltage		0.6 U _N
Must drop-out voltage		0.1 U _N
Technical data		
Specified time range		(0.1...3)s, (3...60)s, (1...20)min, (0.3...6)h
Repeatability	%	± 1
Recovery time	ms	≤ 50
Minimum control impulse	ms	50
Setting accuracy - full range	%	5
Electrical life at rated load AC1	cycles	60 · 10 ³
Ambient temperature range	°C	-20...+50
Protection category		IP20
Approvals relay (according to type)		

MasterTIMER - SSR

Features

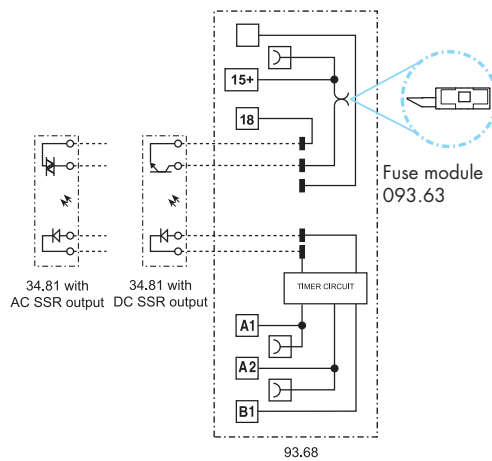
Slim timed interface module, 6.2 mm wide, ideal for space-saving timing solutions in panels

- Timer adjustment via top mounted rotary knob; accessible after assembly
- Start terminal
- DIP-switch for selection of 4 time scales and 8 functions
- Accepts output fuse module **093.63** (for 5 x 20 mm fuses) for quick and easy load protection, see page 22
- Common connection possible with optional jumper links (terminals A1, A2 and 15+)



- 0.1 or 2 A solid state relay
- 12 - 24 V AC/DC supply
- 35 mm rail (EN 60715) mounting

39.80
Screw terminal



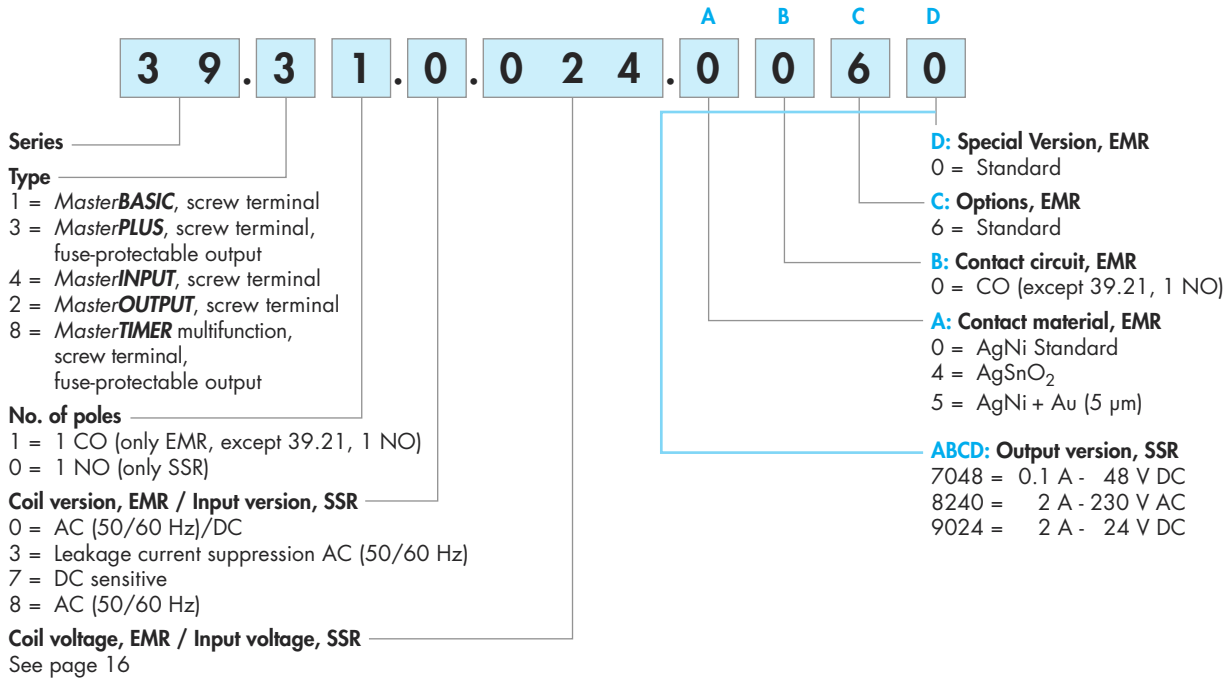
- AI:** On-delay
- DI:** Interval
- GI:** Pulse (0.5 s) delayed
- SW:** Symmetrical flasher (starting pulse on)
- BE:** Off-delay with control signal
- CE:** On- and off-delay with control signal
- DE:** Interval with control signal on
- EE:** Interval with control signal off

For outline drawing see page 20

Output specification (SSR)		39.80.x.xxx.9024	39.80.x.xxx.7048	39.80.x.xxx.8240
Contact configuration		1 NO (SPST-NO)		
Rated current/Maximum peak current (10 ms)	A	2/20 DC	0.1/0.5 DC	2/40 AC
Rated voltage/Maximum blocking voltage	V	24/33 DC	48/60 DC	240/275 AC
Switching voltage range	V	(1.5...24) DC	(1.5...48) DC	(12...240) AC
Minimum switching current	mA	1	0.05	22
Max. "OFF-state" leakage current	mA	0.001	0.001	1.5
Max. "ON-state" voltage drop	V	0.12	1	1.6
Supply specification				
Nominal voltage (U _N)	V AC/DC	12 - 24		
Rated power	VA (50 Hz)/W	See page 17		
Operating range		(0.8...1.1) U _N		
Holding voltage		0.6 U _N		
Must drop-out voltage		0.1 U _N		
Technical data				
Specified time range		(0.1...3)s, (3...60)s, (1...20)min, (0.3...6)h		
Repeatability	%	± 1		
Recovery time	ms	≤ 50		
Minimum control impulse	ms	50		
Setting accuracy – full range	%	5		
Ambient temperature range	°C	-20...+50		
Protection category		IP20		
Approvals relay (according to type)				

Ordering information

Example: **MasterPLUS** 39 series screw terminal interface module, electromechanical relay output, 1 CO (SPDT), 24 V AC/DC coil.



EMR - Selecting features and options: only combinations in the same row are possible.
 Preferred selections for best availability are shown in **bold**.

Type	Coil version	A	B	C	D
39.11	0.006 - 0.012	0 - 4 - 5	0	6	0
	0.024 - 8.230				
39.31	0.006 - 0.012	0 - 4 - 5	0	6	0
	0.024 - 0.060				
	0.125 - 8.230				
	7.125 - 7.220				
	3.125 - 3.230				
39.41	0.006 - 0.012	0 - 4 - 5	0	6	0
	0.024 - 0.125				
	8.230				
39.21	0.006 - 0.012	0 - 4 - 5	0	6	0
	0.024 - 0.125				
	8.230				
39.81	0.012 - 0.024	0	0	6	0

SSR - Selecting features and options: only combinations in the same row are possible.
 Preferred selections for best availability are shown in **bold**.

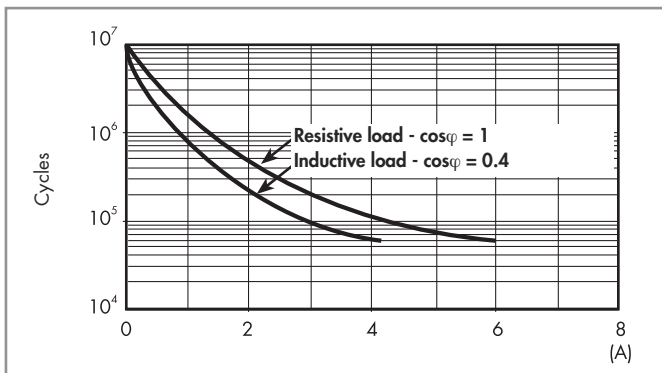
Type	Input version	Output version, ABCD
39.10	7.006 - 7.012	7048 - 8240 - 9024
	7.024 - 8.230	
39.30	7.006 - 7.012	7048 - 8240 - 9024
	7.024 - 7.060	
	7.125 - 7.220	
	0.024 - 0.125	
	8.230	
	3.125 - 3.230	
39.40	0.006 - 0.012	7048 - 8240 - 9024
	0.024 - 0.125	
	8.230	
39.20	0.006 - 0.012	7048 - 8240 - 9024
	0.024 - 0.125	
	8.230	
39.80	0.012 - 0.024	7048 - 8240 - 9024

Technical data

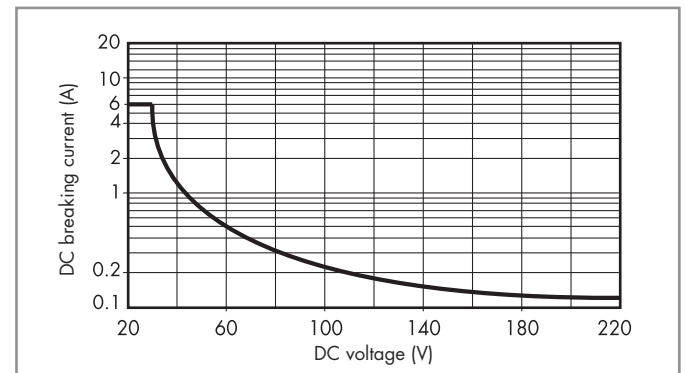
Insulation according to EN 61810-1			
Nominal voltage of supply system	V AC	230/400	
Rated insulation voltage	V AC	250	400
Pollution degree		3	2
Insulation between coil and contact set			
Type of Insulation		Reinforced	
Overvoltage category		III	
Rated impulse voltage	kV (1.2/50) μ s	6	
Dielectric strength	V AC	4,000	
Insulation between open contacts (EMR)			
Type of disconnection		Micro-disconnection	
Dielectric strength	V AC/kV (1.2/50) μ s	1,000/1.5	
Conducted disturbance immunity			
		$U_N \leq 60$ V	$U_N = 125$ V
Fast transients (burst 5/50 ns, 5 kHz) according to EN 61000-4-4 at supply terminals	kV	4	4
Voltage pulses (surge 1.2/50 μ s) according to EN 61000-4-5 at supply terminals (differential mode)	kV	0.8	2
		$U_N = 230$ V	$U_N = 230$ V
			4
Other data			
Bounce time (EMR) : NO/NC	ms	1/6	
Vibration resistance (EMR, 10..55 Hz): NO/NC	g	10/15	
Power lost to the environment	without contact current	W	0.2 (24 V) – 0.4 (230 V)
	with rated current	W	0.6 (24 V) – 0.9 (230 V)
Terminals			
Wire strip length	mm	10	
Screw torque	Nm	0.5	
		Solid and stranded cable	
Max. wire size	mm ²	1 x 2.5/2 x 1.5	
	AWG	1 x 14/2 x 16	
Min. wire size	mm ²	1 x 0.2	
	AWG	1 x 24	

Contact specification (EMR)

F 39 - Electrical life (AC) v contact current



H 39 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 60 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications - Electromechanical Relay

Coil data sensitive DC, type 39.31

Nominal Voltage U_N	Coil code	Operating range		Must drop-out voltage U_r	Rated input current at U_N I_N	Rated power at U_N
		U_{min}	U_{max}			
V		V	V	V	mA	W
125 (110...125)	7.125	88	138	12.5	4.6	0.6
220	7.220	176	242	22	3.0	0.6

Coil data AC/DC, type 39.11/21/31/41

Nominal Voltage U_N	Coil code	Operating range		Must drop-out voltage U_r	Rated input current at U_N I_N	Rated power at U_N
		U_{min}	U_{max}			
V		V	V	V	mA	VA/W
6	0.006	4.8	6.6	0.6	35	0.2/0.2
12	0.012	9.6	13.2	1.5	15	0.2/0.2
24	0.024	19.2	26.4	2.4	11	0.25/0.25
60 ⁽¹⁾	0.060	48	66	6.0	5.7	0.35/0.35
125 ⁽²⁾ (110...125)	0.125	88	138	12.5	5.6	0.7/0.7

⁽¹⁾ 60 V AC/DC for type 39.31 only

⁽²⁾ 125 V AC/DC for types 39.21/31/41 only

Coil data AC, type 39.11/21/31/41

Nominal Voltage U_N	Coil code	Operating range		Must drop-out voltage U_r	Rated input current at U_N I_N	Rated power at U_N
		U_{min}	U_{max}			
V		V	V	V	mA	VA/W
230 (230...240)	8.230	184	264	23	4.3	1/0.4

Coil data leakage current suppression versions, type 39.31.3

Nominal Voltage U_N	Coil code	Operating range		Must drop-out voltage U_r	Rated input current at U_N I_N	Rated power at U_N
		U_{min}	U_{max}			
V		V	V	V	mA	VA/W
125 (110...125)	3.125	88	138	44	8.4	1.1/1
230 (230...240)	3.230	184	264	72	5.9	1.4/0.5

The 39 Series interface modules (supply version 3) have built-in leakage current suppression to address industry concerns of the contacts not dropping-out when there is residual current in the circuit; at (110...125)V AC and (230...240)V AC. This problem can occur, for example, when connecting the interface modules to PLC,s with triac outputs or when connecting via relatively long cables.

Coil data AC/DC timer, type 39.81

Nominal Voltage U_N	Coil code	Operating range (AC/DC)		Must drop-out voltage U_r	Rated input current at U_N		Rated power at U_N	
		U_{min}	U_{max}		DC	AC	DC	AC
V		V	V	V	mA	mA	W	VA/W
12	0.012	9.6	13.2	1.2	15	23	0.2	0.3/0.2
24	0.024	19.2	26.4	2.4	11	19	0.25	0.4/0.3

Input specifications - Solid State Relay

Input data sensitive DC, type 39.10/20/30/40

Nominal Voltage U_N	Input code	Operating range		Must drop-out voltage U_r	Rated input current at U_N I_N	Rated power at U_N P
		U_{min}	U_{max}			
V		V	V	V	mA	W
6	7.006	4.8	6.6	0.6	7.5	0.2
12	7.012	9.6	13.2	1.2	20.7	0.25
24 ⁽¹⁾	7.024	19.2	26.4	2.4	10.5	0.25
60 ⁽²⁾	7.060	48	66	6.0	6.4	0.4
125 ⁽²⁾ (110...125)	7.125	88	138	12.5	4.6	0.6
220 ⁽²⁾	7.220	176	242	22	3.0	0.6

⁽¹⁾ 24 V DC for type 39.10/20/30 only

⁽²⁾ 60 V DC, 125 V DC and 220 V DC for type 39.30 only

Input data AC/DC, type 39.20/30/40

Nominal Voltage U_N	Input code	Operating range		Must drop-out voltage U_r	Rated input current at U_N I_N	Rated power at U_N P
		U_{min}	U_{max}			
V		V	V	V	mA	VA/W
24 ⁽³⁾	0.024	19.2	26.4	2.4	17.5	0.4/0.3
125 (110...125)	0.125	88	138	12.5	5.5	0.7/0.7

⁽³⁾ 24 V AC/DC for type 39.30/40 only

Input data AC, type 39.10/20/30/40

Nominal Voltage U_N	Input code	Operating range		Must drop-out voltage U_r	Rated input current at U_N I_N	Rated power at U_N P
		U_{min}	U_{max}			
V		V	V	V	mA	VA/W
230 (230...240)	8.230	184	264	23	4.2	1/0.4

Input data leakage current suppression versions, type 39.30.3

Nominal Voltage U_N	Input code	Operating range		Must drop-out voltage U_r	Rated input current at U_N I_N	Rated power at U_N P
		U_{min}	U_{max}			
V		V	V	V	mA	VA/W
125 (110...125)	3.125	88	138	44	8.4	1.1/1
230 (230...240)	3.230	184	264	72	5.9	1.4/0.5

The 39 Series interface modules (supply version 3) have built-in leakage current suppression to address industry concerns of the contacts not dropping-out when there is residual current in the circuit; at (110...125)V AC and (230...240)V AC. This problem can occur, for example, when connecting the interface modules to PLC,s with triac outputs or when connecting via relatively long cables.

Input data AC/DC timer, type 39.80

Nominal Voltage U_N	Input code	Operating range (AC/DC)		Must drop-out voltage U_r	Rated input current at U_N		Rated power at U_N	
		U_{min}	U_{max}		DC	AC	DC	AC
V		V	V	V	mA	mA	W	VA/W
12	0.012	9.6	13.2	1.2	15	23	0.2	0.3/0.2
24	0.024	19.2	26.4	2.4	11	19	0.25	0.4/0.3

Timer specifications

EMC specifications

Type of test		Reference standard	
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV
	air discharge	EN 61000-4-2	8 kV
Radio-frequency electromagnetic field	(80 ÷ 1,000 MHz)	EN 61000-4-3	10 V/m
	(1,400 ÷ 2,700 MHz)	EN 61000-4-3	10 V/m
Fast transients (burst) (5-50 ns, 5 and 100 kHz)	on Supply terminals	EN 61000-4-4	4 kV
	on control signal terminals	EN 61000-4-4	4 kV
Surges (1.2/50 µs) on supply and control signal terminals	common mode	EN 61000-4-5	2 kV
	differential mode	EN 61000-4-5	0.8 kV
Radio-frequency common mode (0.15 ÷ 80 MHz)	on Supply terminals	EN 61000-4-6	10 V
	on control signal terminals	EN 61000-4-6	3 V
Radiated and conducted emission		EN 55022	class B

Other data

Bounce time (EMR) : NO/NC	ms	1/6	
Vibration resistance (EMR, 10..55 Hz): NO/NC	g	10/15	
Power lost to the environment	without contact current	W	0.3
	with rated current	W	0.8

Terminals

Wire strip length	mm	10
Screw torque	Nm	0.5
Solid and stranded cable		
Max. wire size	mm ²	1 x 2.5/2 x 1.5
	AWG	1 x 14/2 x 16
Min. wire size	mm ²	1 x 0.2
	AWG	1 x 24

Times scales



Functions

LED	Supply voltage	NO contact/output
	OFF	Open
	ON	Open
	ON	Open (timing to close in progress)
	ON	Closed

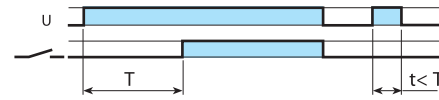
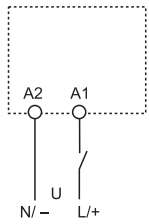
Wiring diagram

U = Supply voltage

S = Signal switch

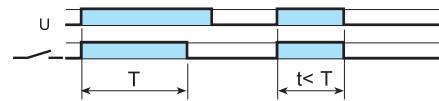
 = Output contact

Without control signal



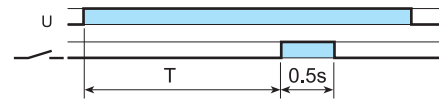
(AI) On-delay

Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.



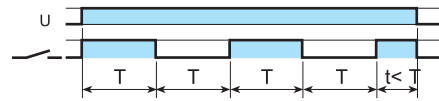
(DI) Interval

Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.



(GI) Pulse (0.5s) delayed

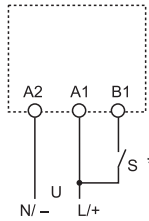
Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs after a fixed time of 0.5s.



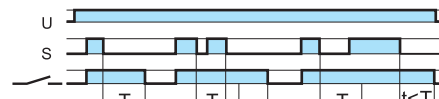
(SW) Symmetrical flasher (starting pulse on)

Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

With control signal

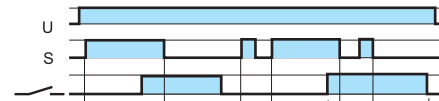


*With DC supply, positive polarity has to be connected to B1, terminal (according to EN 60204-1).



(BE) Off-delay with control signal

Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.



(CE) On- and off-delay with control signal

Power is permanently applied to the timer. Closing the Signal Switch (S) initiates the preset delay, after which time the output contacts transfer. Opening the Signal switch initiates the same preset delay, after which time the output contacts reset.



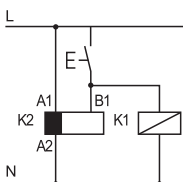
(DE) Interval with control signal on

Power is permanently applied to the timer. On momentary or maintained closure of Signal Switch (S), the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.

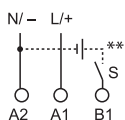


(EE) Interval with control signal off

Power is permanently applied to the timer. On opening of the Signal Switch (S) the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.



- Possible to control an external load, such as another relay coil or timer, connected to the control signal terminal B1.

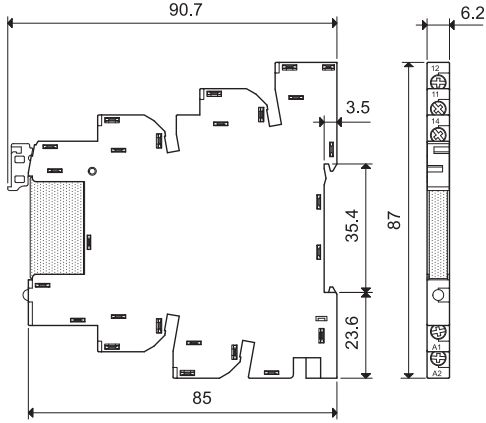


** A voltage other than the supply voltage can be applied to the command Start (B1), example:

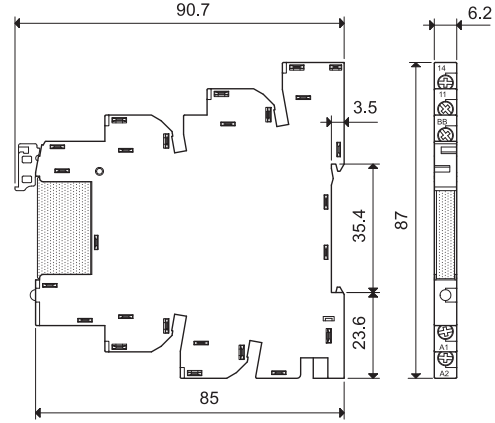
- A1 - A2 = 24 V AC
- B1 - A2 = 12 V DC

Outline drawings

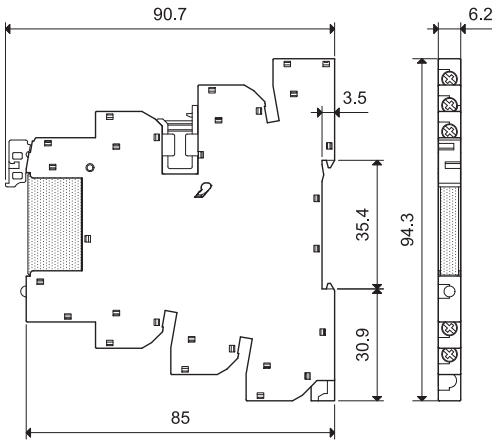
39.10
39.11
Screw terminal



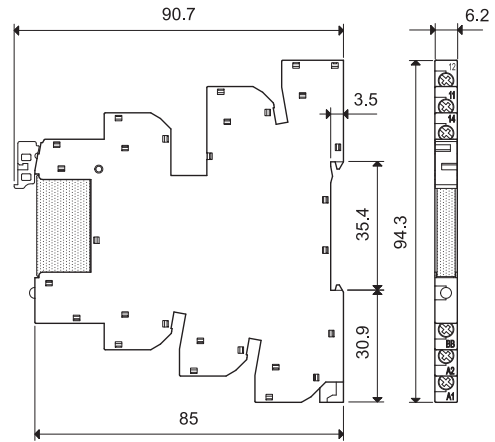
39.20
39.21
Screw terminal



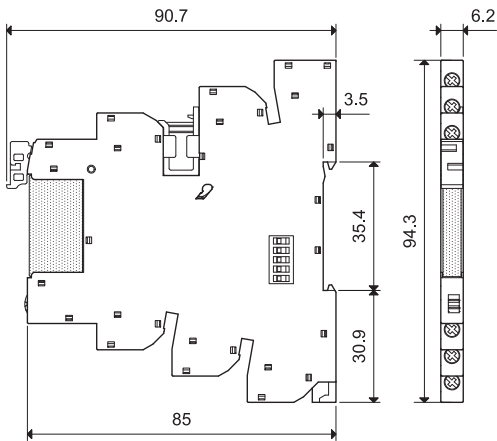
39.30 / 39.30.3
39.31 / 39.31.3
Screw terminal



39.40
39.41
Screw terminal



39.80
39.81
Screw terminal



Electromechanical Relay (1 Pole 6 A) & Socket Combinations

Interface Module Code	Coil voltage	Relay	Socket
MasterBASIC			
39.11.0.006.0060	6 V AC/DC	34.51.7.005.0010	93.61.7.024
39.11.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.61.7.024
39.11.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.61.7.024
39.11.8.230.0060	(230...240)V AC	34.51.7.060.0010	93.61.8.230
MasterPLUS			
39.31.0.006.0060	6 V AC/DC	34.51.7.005.0010	93.63.7.024
39.31.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.63.7.024
39.31.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.63.7.024
39.31.0.060.0060	60 V AC/DC	34.51.7.060.0010	93.63.7.060
39.31.0.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.63.0.125
39.31.8.230.0060	(230...240)V AC	34.51.7.060.0010	93.63.8.230
39.31.7.125.0060	(110...125)V DC	34.51.7.060.0010	93.63.7.125
39.31.7.220.0060	220 V DC	34.51.7.060.0010	93.63.7.220
39.31.3.125.0060	(110...125)V AC	34.51.7.060.0010	93.63.3.125
39.31.3.230.0060	(230...240)V AC	34.51.7.060.0010	93.63.3.230
MasterINPUT			
39.41.0.006.5060	6 V AC/DC	34.51.7.005.5010	93.64.0.024
39.41.0.012.5060	12 V AC/DC	34.51.7.012.5010	93.64.0.024
39.41.0.024.5060	24 V AC/DC	34.51.7.024.5010	93.64.0.024
39.41.0.125.5060	(110...125) V AC/DC	34.51.7.060.5010	93.64.0.125
39.41.8.230.5060	(230...240)V AC	34.51.7.060.5010	93.64.8.230
MasterOUTPUT			
39.21.0.006.0060	6 V AC/DC	34.51.7.005.0010	93.62.7.024
39.21.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.62.7.024
39.21.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.62.7.024
39.21.0.125.0060	(110...125) V AC/DC	34.51.7.060.0010	93.62.0.125
39.21.8.230.0060	(230...240)V AC	34.51.7.060.0010	93.62.8.230
MasterTIMER			
39.81.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.68.0.024
39.81.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.68.0.024

Solid State Relay (1 Pole 0.1 or 2 A) & Socket Combinations

Interface Module Code	Input voltage	Relay	Socket
MasterBASIC			
39.10.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.61.7.024
39.10.7.012.xxxx	12 V DC	34.81.7.012.xxxx	93.61.7.024
39.10.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.61.7.024
39.10.8.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.61.8.230
MasterPLUS			
39.30.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.63.7.024
39.30.7.012.xxxx	12 V DC	34.81.7.012.xxxx	93.63.7.024
39.30.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.63.7.024
39.30.7.060.xxxx	60 V DC	34.81.7.060.xxxx	93.63.7.060
39.30.7.125.xxxx	(110...125)V DC	34.81.7.060.xxxx	93.63.7.125
39.30.7.220.xxxx	220 V DC	34.81.7.060.xxxx	93.63.7.220
39.30.0.024.xxxx	24 V AC/DC	34.81.7.024.xxxx	93.63.0.024
39.30.0.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.63.0.125
39.30.8.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.63.8.230
39.30.3.125.xxxx	(110...125)V AC	34.81.7.060.xxxx	93.63.3.125
39.30.3.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.63.3.230
MasterINPUT			
39.40.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.64.0.024
39.40.7.012.xxxx	12 V DC	34.81.7.012.xxxx	93.64.0.024
39.40.0.024.xxxx	24 V AC/DC	34.81.7.024.xxxx	93.64.0.024
39.40.0.125.xxxx	(110...125) V AC/DC	34.81.7.060.xxxx	93.64.0.125
39.40.8.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.64.8.230
MasterOUTPUT			
39.20.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.62.7.024
39.20.7.012.xxxx	12 V DC	34.81.7.012.xxxx	93.62.7.024
39.20.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.62.7.024
39.20.0.125.xxxx	(110...125) V AC/DC	34.81.7.060.xxxx	93.62.0.125
39.20.8.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.62.8.230
MasterTIMER			
39.80.0.012.xxxx	12 V AC/DC	34.81.7.012.xxxx	93.68.0.024
39.80.0.024.xxxx	24 V AC/DC	34.81.7.024.xxxx	93.68.0.024

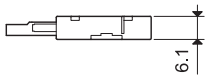
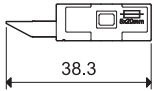
Example: .xxxx
 .9024
 .7048
 .8240

Accessories



093.63

Approvals
(according to type):



Output fuse module for 39.31/30/81/80 types | 093.63

- For 5 x 20 mm fuses up to 6 A, 250 V
- Easy visibility of the fuse condition through the window
- Quick connection to socket

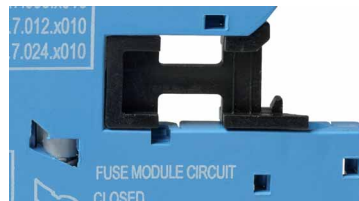
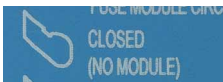
Notes

Safety: Because the output circuit can be reinstated (point 3 below), even with the fuse removed, it is important not to consider the removal of the fuse as a "safety disconnect". Always isolate elsewhere before working on the circuit.

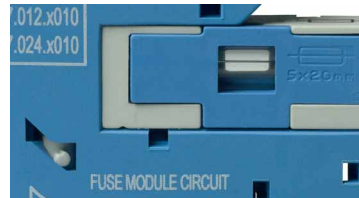
UL: According to UL508A, the fuse module cannot be installed in power circuits (in which it is mandatory that a fuse certified according to UL category JDDZ be fitted). However, where the MasterInterface is connected as an output interface to a PLC no such restrictions apply, and the fuse module can be usefully employed.

Multi-state fuse module

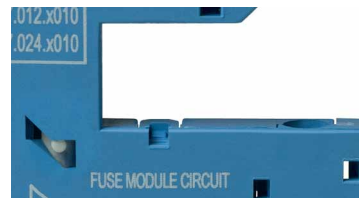
0. As delivered, the socket comes without a fuse module. However, the absent fuse is internally replaced with an electrical link - which allows the interface relay to be used without a fuse module. In this state, the peg/indicator is visually hidden and the connection is protected by a special cap.



1. With fuse module inserted after removing the cap, the fuse is positioned electrically in series with the common output terminal of the interface module (11 for EMR versions, 13+ for SSR versions, 15 for EMR timer, 15+ for SSR timer). This state is indicated by the peg/indicator.



2. If the fuse module is extracted (for example; because the fuse element has blown) the output circuit will be locked open, as this will generally be the "safe option". This state is indicated by the peg/indicator.



3. In order to reinstate the output circuit it is necessary to either re-insert the fuse module (complete with functional fuse), or alternatively, return the peg/indicator to position 0 by gently applying pressure in the direction of the arrow.



Accessories



093.16



093.16.0

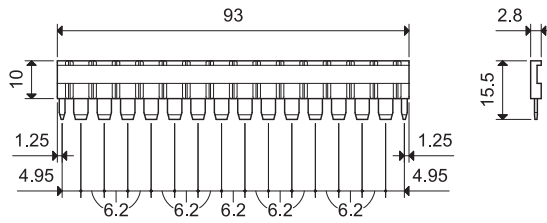


093.16.1

Approvals (according to type):



16-way jumper link	093.16 (blue)	093.16.0 (black)	093.16.1 (red)
Rated values	36 A - 250 V		
Possibility of multiple connection, side by side			

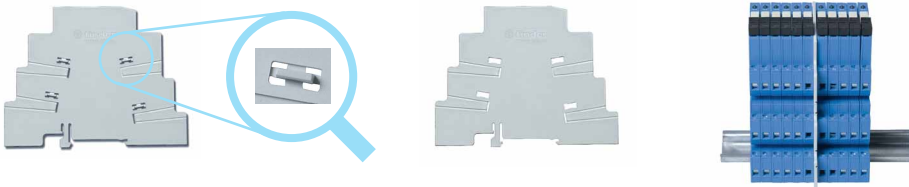


093.60

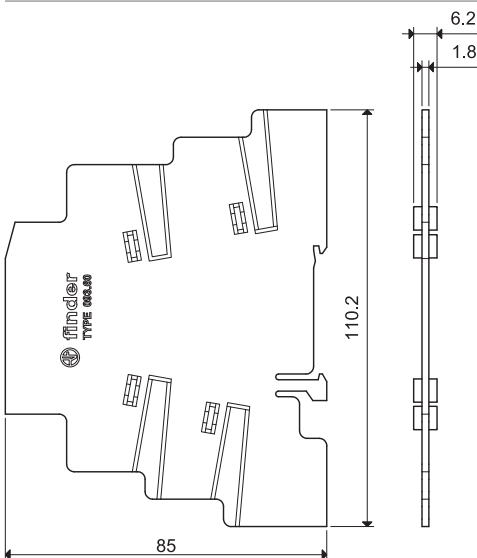


Dual-purpose plastic separator (1.8 mm or 6.2 mm separation)	093.60
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1. By breaking off the protruding ribs (by hand), the separator becomes only 1.8 mm thick; useful for the visual separation of different groups of interfaces, or necessary for the protective separation of different voltages of neighbouring interfaces, or for the protection of cut ends of jumper links.



2. Leaving the ribs in place provides 6.2mm separation. Simply cutting (with scissors) the relevant segment(s) permits the interconnection across the separator of 2 different groups of interface relays, using the standard jumper link.



060.72

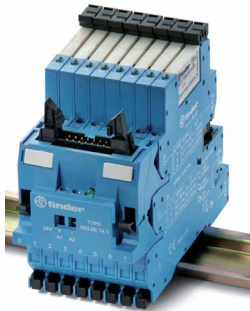
Sheet of marker tags, plastic, 72 tags, 6x12 mm	060.72
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Accessories



093.68.14.1

Approvals
(according to type):



Connected MasterADAPTER

MasterADAPTER 093.68.14.1

The **MasterADAPTER** permits the easy connection of A1/A2 terminals of up to **MasterINTERFACE** modules to PLC outputs via a 14-Pole ribbon cable, plus simple 2-wire power supply connection.

Technical data

Rated current (per signal path)	A	1
Minimum required supply power	W	3
Nominal voltage (U _N)	V DC	24
Operating range		(0.8...1.1) U _N
Control logic		Positive switching (to A1)
Power supply status indication		Green LED
Ambient temperature range	°C	-40...+70

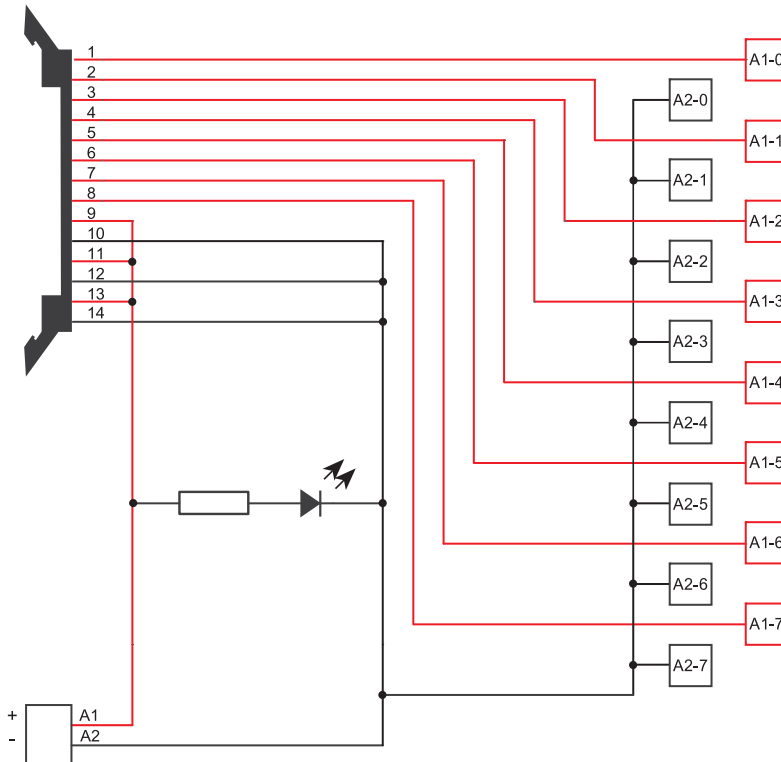
Terminals for 24 V control logic

Type of connector	14 pole, according to IEC 60603-13
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Terminals for 24 V power supply

Wire strip length	mm	9.5
⊕ Screw torque	Nm	0.5
Max. wire size		
	solid wire	mm ² 1 x 4/2 x 1.5
		AWG 1 x 12/2 x 16
	stranded wire	mm ² 1 x 2.5/2 x 1.5
		AWG 1 x 14/2 x 16

Wiring diagram



Features

2 Pole, forcibly guided contacts, relay interface modules, 15.8 mm wide

48.12 - 2 Pole 8 A (screw terminal)

- DC sensitive coils
- Relay with forcibly guided contacts according to EN 50205 Type B
- 35 mm rail (EN 60715) mounting

48.12
Screw terminal



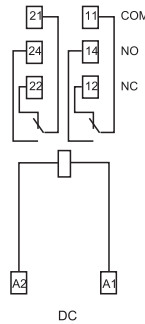
According to EN 50205 only 1 NO and 1 NC (11-14 and 21-22 or 11-12 and 21-24) shall be used as forcibly guided contacts.

For outline drawing see page 7

48.12



- 2 pole, 8 A
- Forcibly guided contacts relay
- Screw terminal
- 35 mm rail (EN 60715) mounting



Contact specification		
Contact configuration		2 CO (DPDT)
Rated current/Maximum peak current	A	8/15
Rated voltage/Maximum switching voltage V AC		250/400
Rated load AC1	VA	2,000
Rated load AC15 (230 V AC)	VA	500
Single phase motor rating (230 V AC)	kW	0.37
Breaking capacity DC1: 30/110/220V	A	8/0.65/0.2
Minimum switching load	mW (V/mA)	500 (10/10)
Standard contact material		AgNi
Coil specification		
Nominal voltage (U _N)	V AC (50/60 Hz)	—
	V DC	12 - 24
Rated power AC/sens. DC	VA (50 Hz)/W	—/0.7
Operating range	AC	—
	sens. DC	(0.75...1.2)U _N
Holding voltage	AC/DC	— /0.4 U _N
Must drop-out voltage	AC/DC	— /0.1 U _N
Technical data		
Mechanical life AC/DC	cycles	—/10 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³
Operate/release time	ms	10/4
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)
Dielectric strength between open contacts	V AC	1,500
Ambient temperature range	°C	−40...+70
Protection category		IP 20
Approvals relay (according to type)		

Features

1 & 2 Pole relay interface modules,
15.8 mm wide

Ideal interface for PLC and electronic systems

- 48.31 - 1 Pole 10 A (screw terminal)
- 48.52 - 2 Pole 8 A (screw terminal)
- 48.72 - 2 Pole 8 A (screwless terminal)

- AC coils or DC sensitive coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and EMC coil suppression module as standard
- Identification label
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

48.31 / 48.52
Screw terminal



48.72
Screwless terminal

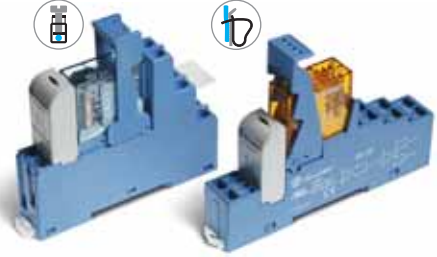


48.31

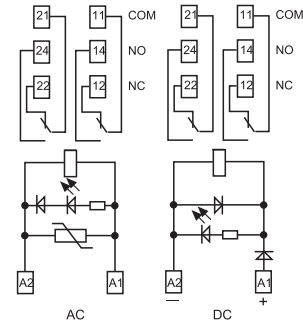
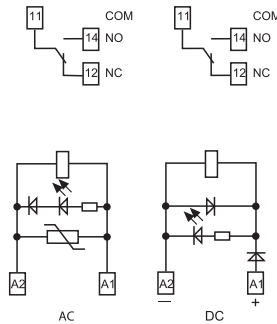


- 1 pole, 10 A
- Screw terminal
- 35 mm rail (EN 60715) mounting

48.52/72



- 2 pole, 8 A
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



For outline drawing see page 7

Contact specification

Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	10/20	8/15
Rated voltage/Maximum switching voltage	V AC	250/400	250/250
Rated load AC1	VA	2,500	2,000
Rated load AC15 (230 V AC)	VA	500	400
Single phase motor rating (230 V AC)	kW	0.37	0.3
Breaking capacity DC1: 30/110/220V	A	10/0.3/0.12	8/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi

Coil specification

Nominal voltage (U_N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/sens. DC	VA (50 Hz)/W	1.2/0.5	1.2/0.5
Operating range	AC	$(0.8 \dots 1.1) U_N$	$(0.8 \dots 1.1) U_N$
	sens. DC	$(0.73 \dots 1.75) U_N$	$(0.73 \dots 1.75) U_N$
Holding voltage	AC/DC	$0.8 U_N / 0.4 U_N$	$0.8 U_N / 0.4 U_N$
Must drop-out voltage	AC/DC	$0.2 U_N / 0.1 U_N$	$0.2 U_N / 0.1 U_N$

Technical data

Mechanical life AC/DC	cycles	$10 \cdot 10^6 / 20 \cdot 10^6$	$10 \cdot 10^6 / 20 \cdot 10^6$
Electrical life at rated load AC1	cycles	$200 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	7/4 (AC) - 12/12 (DC)
Insulation between coil and contacts (1.2/50 μ s)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	$^{\circ}$ C	-40...+70	-40...+70
Protection category		IP 20	IP 20

Approvals relay (according to type)



Features

1 & 2 Pole relay interface modules,
15.8 mm wide

Ideal interface for PLC and electronic systems

- 48.61 - 1 Pole 16 A (screw terminal)
- 48.81 - 1 Pole 16 A (screwless terminal)
- 48.62 - 2 Pole 10 A (screw terminal)
- 48.82 - 2 Pole 10 A (screwless terminal)

- AC coils or DC sensitive coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and EMC coil suppression module as standard
- Identification label
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

48.61 / 48.62
Screw terminal



48.81 / 48.82
Screwless terminal



For outline drawing see page 7

Contact specification

Contact configuration	1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A 16*/30	10/20
Rated voltage/Maximum switching voltage V AC	250/400	250/400
Rated load AC1	VA 4,000	2,500
Rated load AC15 (230 V AC)	VA 750	500
Single phase motor rating (230 V AC)	kW 0.55	0.37
Breaking capacity DC1: 30/110/220V	A 16/0.3/0.12	10/0.3/0.12
Minimum switching load	mW (V/mA) 500 (10/5)	300 (5/5)
Standard contact material	AgCdO	AgNi

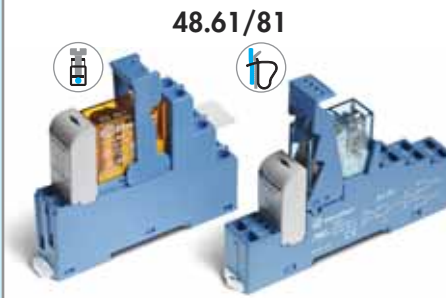
Coil specification

Nominal voltage (U _N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	—
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/sens. DC	VA (50 Hz)/W	1.2/0.5	—/0.5
Operating range	AC	(0.8...1.1)U _N	—
	sens. DC	(0.8...1.5)U _N	(0.8...1.5)U _N
Holding voltage	AC/DC	0.8 U _N /0.4 U _N	—/0.4 U _N
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N	—/0.1 U _N

Technical data

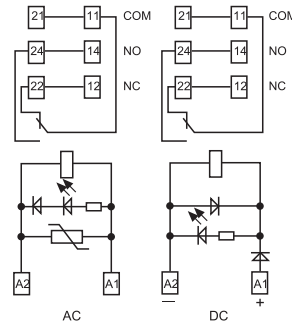
Mechanical life AC/DC	cycles	10 · 10 ⁶ /20 · 10 ⁶	—/20 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	12/12 (DC)
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	−40...+70	−40...+70
Protection category		IP 20	IP 20

Approvals relay (according to type)

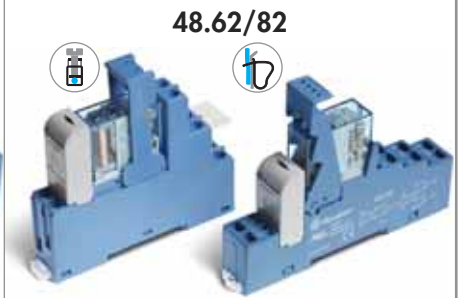


48.61/81

- 1 pole, 16 A
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting

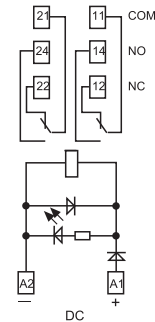


* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).



48.62/82

- 2 pole, 10 A
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



Ordering information

Example: 48 series, 35 mm rail (EN 60715) mount, screw terminal relay interface module, 2 CO (DPDT) 8 A contacts, 24 V sensitive DC coil, green LED + diode, 99.02 coil indication.

4 8 . 5 2 . 7 . 0 2 4 . 0 0 5 0

A B C D

Series _____

Type _____
Screw terminal
1 = 35 mm rail (EN 60715) mount, forcibly guided contacts relay
3 = 35 mm rail (EN 60715) mount
5 = 35 mm rail (EN 60715) mount
6 = 35 mm rail (EN 60715) mount
Screwless terminal
7 = 35 mm rail (EN 60715) mount
8 = 35 mm rail (EN 60715) mount

No. of poles _____
1 = 1 pole for 48.31, 10 A
48.61, 48.81, 16 A
2 = 2 pole for 48.12, 48.52, 48.72, 8 A
48.62, 48.82, 10 A
(48.62, 48.82 DC only)

Coil version _____
7 = Sensitive DC
8 = AC (50/60 Hz)
9 = DC

Coil voltage _____
See coil specifications

A: Contact material
0 = Standard AgNi for 48.31/52/62/72/82 AgCdO, Standard for 48.61/81
1 = AgNi, for 48.12
4 = AgSnO₂, for 48.61/62/81/82 only
5 = AgNi + Au (5 µm), for 48.31/52/72 only

B: Contact circuit
0 = CO (nPDT)

D: Special versions
0 = Standard
2 = Standard (for 48.12 only)

C: Options
0 = Standard (for 48.12 only)
5 = Standard for DC: green LED + diode (polarity +A1)
6 = Standard for AC: green LED + Varistor

Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold**.

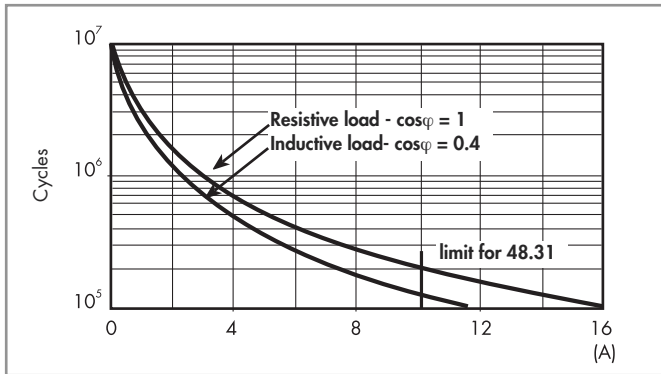
Type	Coil version	A	B	C	D
48.12	DC	1	0	0	2
48.31/52/72	AC	0 - 5	0	6	0
48.31/52/72	Sensitive DC	0 - 5	0	5	0
48.61/81	AC	0 - 4	0	6	0
48.61/81	Sensitive DC	0 - 4	0	5	0
48.62/82	Sensitive DC	0 - 4	0	5	0

Technical data

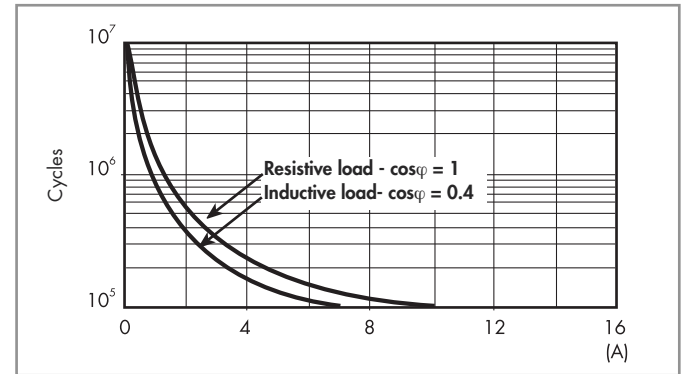
Insulation		48.12/31/61/62	48.52/72	48.12/31/61/62/81/82	
Insulation according to EN 61810-1	insulation rated voltage	V 250	250	400	
	rated impulse withstand voltage	kV 4	4	4	
	pollution degree	3	2	2	
	overvoltage category	III	III	III	
Insulation between coil and contacts (1.2/50 µs)		kV 6 (8 mm)			
Dielectric strength between open contacts		V AC 1,000; 1,500 (48.12)			
Dielectric strength between adjacent contacts		V AC 2,000 (48.52); 2,500 (48.12/62)			
Conducted disturbance immunity					
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4		level 4 (4 kV)	
Surge (1.2/50 µs) on A1 - A2 (differential mode)		EN 61000-4-5		level 3 (2 kV)	
Other data					
Bounce time: NO/NC		ms 2/5; 2/10 (48.12)			
Vibration resistance (5...55)Hz: NO/NC		g 10/4 (for 1 pole)		15/3; 20/6 (48.12) for 2 pole	
Power lost to the environment	without contact current	W 0.7			
	with rated current	W 1.2 (48.12/31)	1.3 (48.52/72)	1.2 (48.61/62/81/82)	
Wire strip length		mm 8			
Screw torque		Nm 0.5			
Max. wire size	Screw terminal		Screwless terminal		
		solid cable	stranded cable	solid cable	stranded cable
	mm ²	1x6 / 2x2.5	1x4 / 2x2.5	2x(0.2...1.5)	2x(0.2...1.5)
	AWG	1x10 / 2x14	1x12 / 2x14	2x(24...18)	2x(24...18)

Contact specification

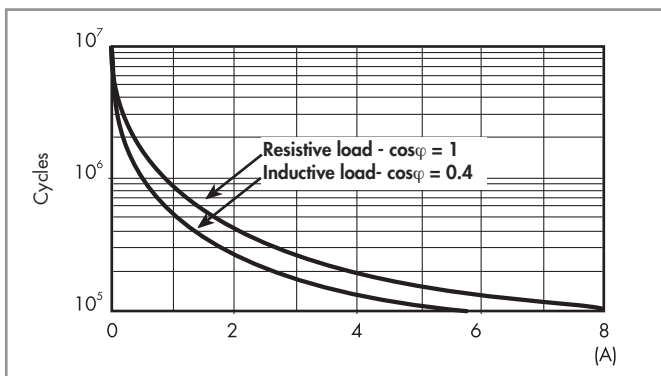
F 48 - Electrical life (AC) v contact current
Types 48.31/61/81



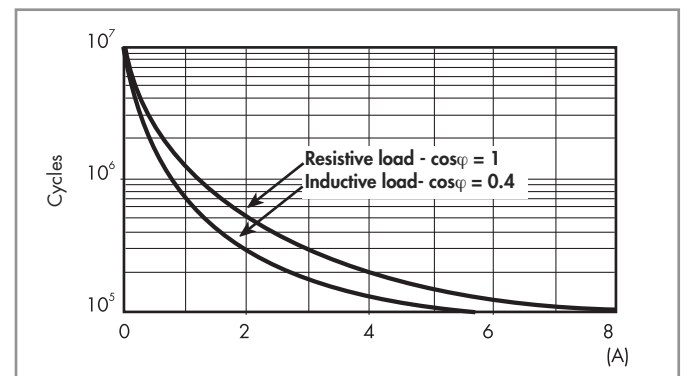
F 48 - Electrical life (AC) v contact current
Types 48.62/82



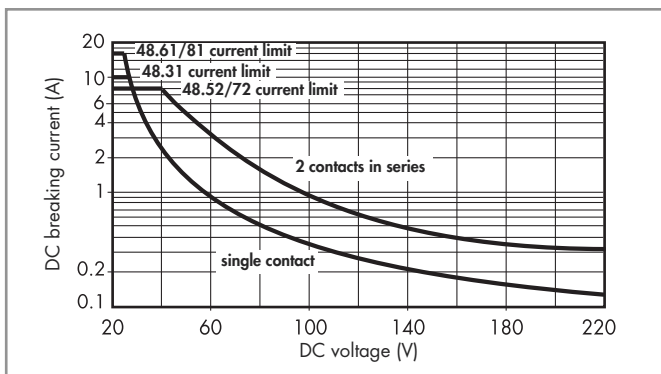
F 48 - Electrical life (AC) v contact current
Types 48.52/72



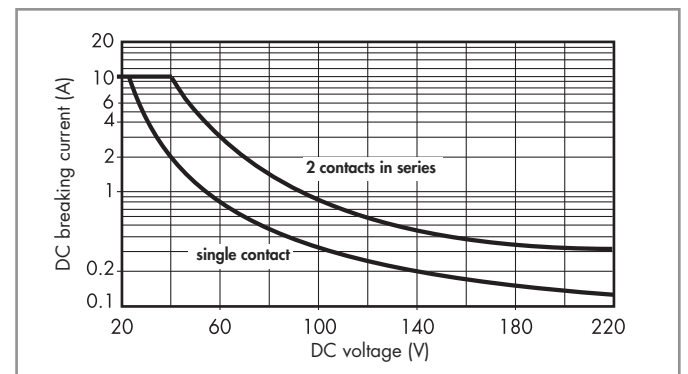
F 48 - Electrical life (AC) v contact current
Type 48.12



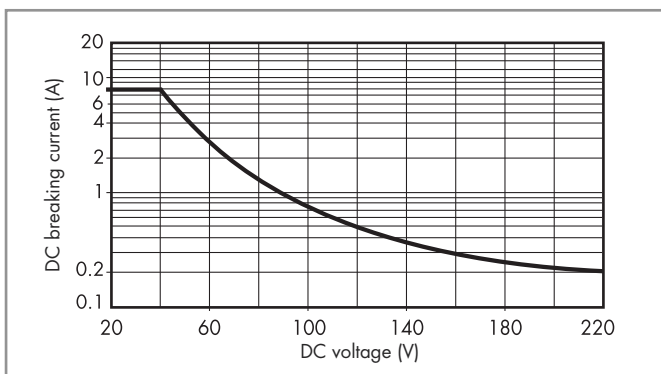
H 48 - Maximum DC1 breaking capacity
Types 48.31/52/61/72/81



H 48 - Maximum DC1 breaking capacity
Types 48.62/82



H 48 - Maximum DC1 breaking capacity
Type 48.12



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

DC coil data (0.5 W sensitive)

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA
		U_{min}^* V	U_{max}^{**} V	
12	7.012	8.8	21	41
24	7.024	17.5	42	22.2
125	7.125	91	219	4

* $U_{min} = 0.8 U_N$ for 48.61, 48.62, 48.81 and 48.82

** $U_{max} = 1.5 U_N$ for 48.61, 48.62, 48.81 and 48.82

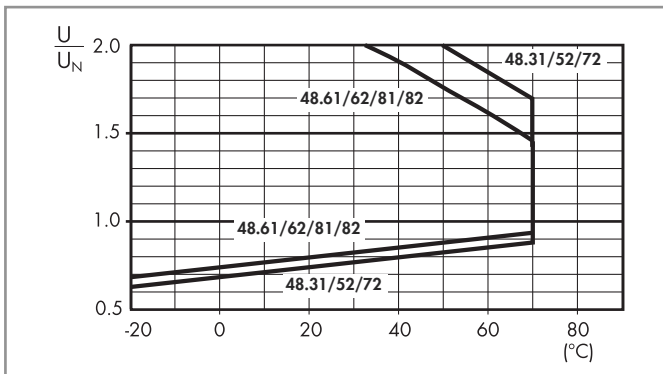
AC coil data

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N (50Hz) mA
		U_{min} V	U_{max} V	
12	8.012	9.6	13.2	90.5
24	8.024	19.2	26.4	46
110	8.110	88	121	10.1
120	8.120	96	132	11.8
230	8.230	184	253	7.0

DC coil data, 2 pole relay - Type 48.12

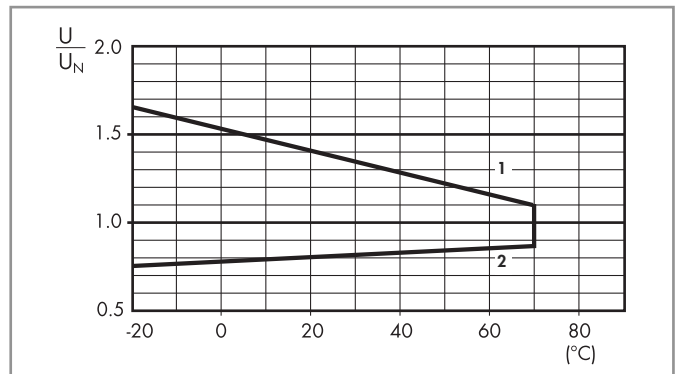
Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
12	9.012	9	14.4	205	58.5
24	9.024	18	28.8	820	29.3

R 48 - DC coil operating range v ambient temperature



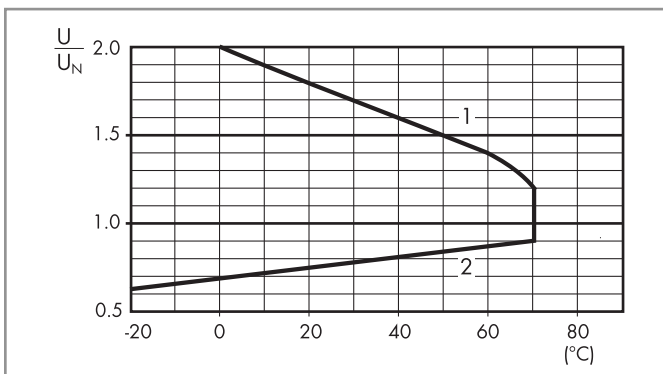
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

R 48 - AC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

R 48 - DC coil operating range v ambient temperature Type 48.12

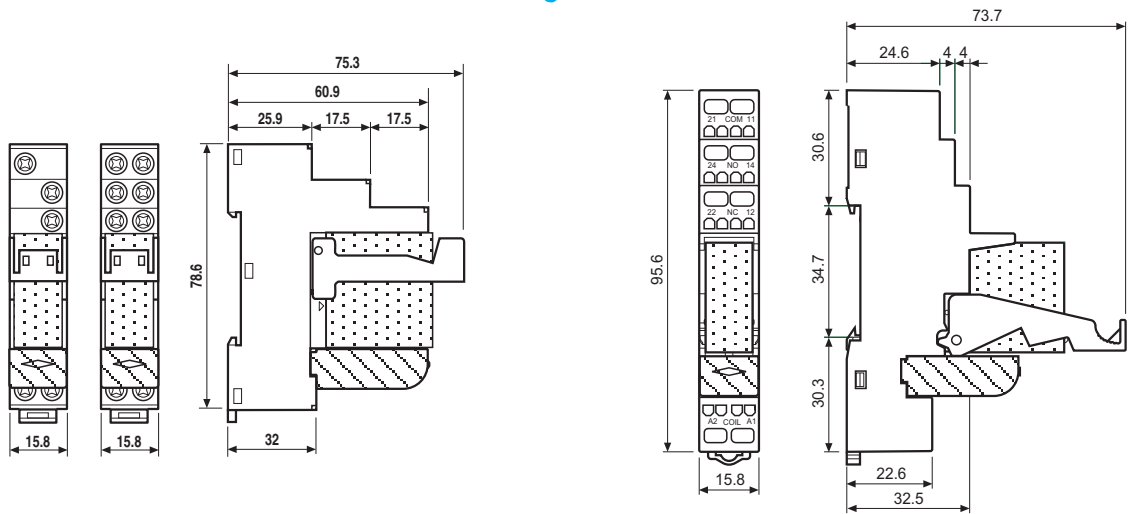


- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Combinations

Code	Type of socket	Type of relay	Module	Retaining clip
48.12	95.05.0	50.12	—	095.71
48.31	95.03	40.31	99.02	095.01
48.52	95.05	40.52	99.02	095.01
48.61	95.05	40.61	99.02	095.01
48.62	95.05	44.62	99.02	095.01
48.72	95.55	40.52	99.02	095.91.3
48.81	95.55	40.61	99.02	095.91.3
48.82	95.55	44.62	99.02	095.91.3

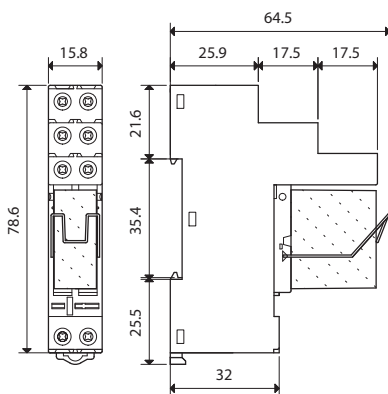
Outline drawing



48.31 48.52 / 48.61 / 48.62
Screw terminal



48.72 / 48.81 / 48.82
Screwless terminal



48.12
Screw terminal



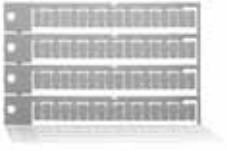
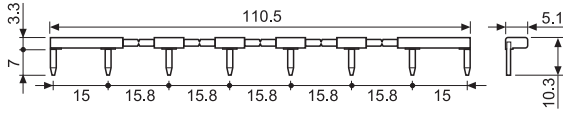
Accessories



095.18



8-way jumper link for screw terminal version	095.18 (blue)	095.18.0 (black)
Rated values	10 A - 250 V	



060.72

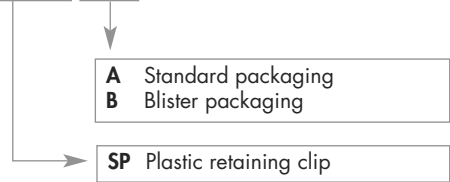
Sheet of marker tags , plastic, 72 tags, 6x12 mm	060.72
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Packaging codes

How to code and identify retaining clip and packaging options for sockets.

Example:

4 8 . 5 2 . 7 . 0 2 4 . 0 0 5 0 S P A



Features

- 1 & 2 Pole relay interface modules**
5 µm Gold plate contacts for low level switching capability
49.31-50x0 - 1 Pole 10 A (screw terminal)
49.52-50x0 - 2 Pole 8 A (screw terminal)
49.72-50x0 - 2 Pole 8 A (screwless terminal)
- 15.5 mm wide
 - Ideal interface for PLC and electronic systems
 - AC coils & DC coils
 - Instant ejection of relay using plastic retaining clip
 - Supply status indication and coil suppression module
 - Identification labels
 - 35 mm rail (EN 60715) mounting

49.31-50x0 / 49.52
Screw terminal

49.72-50x0
Screwless terminal



For outline drawing see page 8

Contact specification		49.31-50x0	49.52/72-50x0
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	10/20	8/15
Rated voltage/Maximum switching voltage	V AC	250/400	250/250
Rated load AC1	VA	2,500	2,000
Rated load AC15 (230 V AC)	VA	500	400
Single phase motor rating (230 V AC)	kW	0.37	0.3
Breaking capacity DC1: 30/110/220V	A	10/0.3/0.12	8/0.3/0.12
Minimum switching load	mW (V/mA)	50 (5/2)	50 (5/2) - [1 (0.1/1)]*
Standard contact material		AgNi + Au (5 µm)	AgNi + Au (5 µm)
Coil specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/DC/sens.DC	VA (50 Hz)/W/W	1.2/0.65/0.5	1.2/0.65/0.5
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC/sensitiv DC	(0.73...1.5)U _N /(0.73...1.7)U _N	(0.73...1.5)U _N /(0.73...1.7)U _N
Holding voltage	AC/DC	0.8 U _N / 0.4 U _N	0.8 U _N / 0.4 U _N
Must drop-out voltage	AC/DC	0.2 U _N / 0.1 U _N	0.2 U _N / 0.1 U _N
Technical data			
Mechanical life AC/DC	cycles	10 · 10 ⁶ /20 · 10 ⁶	10 · 10 ⁶ /20 · 10 ⁶
Electrical life at rated load AC1	cycles	150 · 10 ³	150 · 10 ³
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	7/4 (AC) - 12/12 (DC)
Insulation between coil and contacts (1.2/50 µs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	-40...+70	-40...+70
Protection category		IP 20	IP 20

Approvals relay (according to type)



Features

1 & 2 Pole relay interface modules

AgNi contacts for medium duty switching

49.31-00x0 - 1 Pole 10 A (screw terminal)

49.52-00x0 - 2 Pole 8 A (screw terminal)

49.72-00x0 - 2 Pole 8 A (screwless terminal)

- 15.5 mm wide
- Ideal interface for PLC and electronic systems
- AC coils & DC coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and coil suppression module
- Identification labels
- 35 mm rail (EN 60715) mounting

49.31-00x0 / 49.52
Screw terminal



49.72-00x0
Screwless terminal



For outline drawing see page 8

Contact specification

Contact configuration	1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current A	10/20	8/15
Rated voltage/Maximum switching voltage V AC	250/400	250/250
Rated load AC1 VA	2,500	2,000
Rated load AC15 (230 V AC) VA	500	400
Single phase motor rating (230 V AC) kW	0.37	0,3
Breaking capacity DC1: 30/110/220V A	10/0.3/0.12	8/0.3/0.12
Minimum switching load mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material	AgNi	AgNi

Coil specification

Nominal voltage (U _N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/DC/sens.DC VA (50 Hz)/W/W		1.2/0.65/0.5	1.2/0.65/0.5
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC/sensitiv DC	(0.73...1.5)U _N / (0.73...1.7)U _N	(0.73...1.5)U _N / (0.73...1.7)U _N
Holding voltage AC/DC		0.8 U _N / 0.4 U _N	0.8 U _N / 0.4 U _N
Must drop-out voltage AC/DC		0.2 U _N / 0.1 U _N	0.2 U _N / 0.1 U _N

Technical data

Mechanical life AC/DC	cycles	10 · 10 ⁶ / 20 · 10 ⁶	10 · 10 ⁶ / 20 · 10 ⁶
Electrical life at rated load AC1	cycles	200 · 10 ³	150 · 10 ³
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	7/4 (AC) - 12/12 (DC)
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts V AC		1,000	1,000
Ambient temperature range	°C	-40...+70	-40...+70
Protection category		IP 20	IP 20

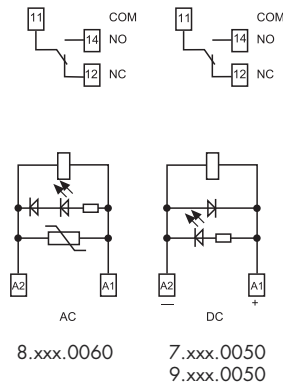
Approvals relay (according to type)



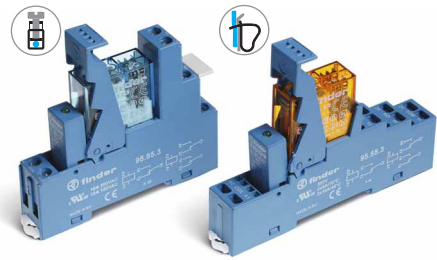
49.31-00x0



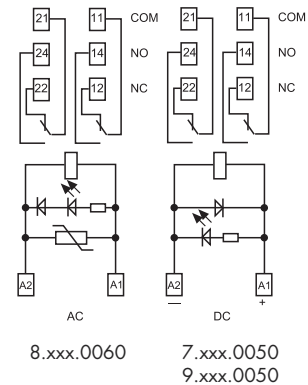
- 1 pole, 10 A
- AgNi contact material
- Screw terminal
- 35 mm rail (EN 60715) mounting



49.52/72-00x0



- 2 pole, 8 A
- AgNi contact material
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



Features

- 1 & 2 Pole relay interface modules**
AgCdO contacts for heavy duty switching
49.31-20x0 - 1 Pole 10 A (screw terminal)
49.52-20x0 - 2 Pole 8 A (screw terminal)
49.72-20x0 - 2 Pole 8 A (screwless terminal)
- 15.5 mm wide
 - Ideal interface for PLC and electronic systems
 - AC coils & DC coils
 - Instant ejection of relay using plastic retaining clip
 - Supply status indication and coil suppression module
 - Identification labels
 - 35 mm rail (EN 60715) mounting

49.31-20x0 / 49.52
Screw terminal



49.72-20x0
Screwless terminal



For outline drawing see page 8

Contact specification

Contact configuration	1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current A	10/20	8/15
Rated voltage/Maximum switching voltage V AC	250/400	250/250
Rated load AC1 VA	2,500	2,000
Rated load AC15 (230 V AC) VA	500	400
Single phase motor rating (230 V AC) kW	0.37	0.3
Breaking capacity DC1: 30/110/220V A	10/0.3/0.12	8/0.3/0.12
Minimum switching load mW (V/mA)	500 (10/5)	500 (10/5)
Standard contact material	AgCdO	AgCdO

Coil specification

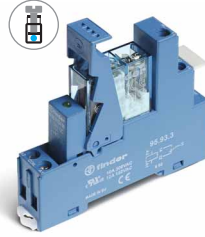
Nominal voltage (U _N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/DC/sens.DC VA (50 Hz)/W/W		1.2/0.65/0.5	1.2/0.65/0.5
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC/sensitiv DC	(0.73...1.5)U _N /(0.73...1.75)U _N	(0.73...1.5)U _N /(0.73...1.75)U _N
Holding voltage	AC/DC	0.8 U _N / 0.4 U _N	0.8 U _N / 0.4 U _N
Must drop-out voltage	AC/DC	0.2 U _N / 0.1 U _N	0.2 U _N / 0.1 U _N

Technical data

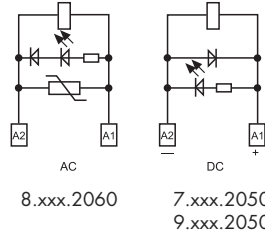
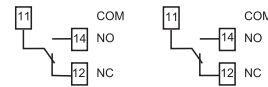
Mechanical life AC/DC	cycles	10 · 10 ⁶ / 20 · 10 ⁶	10 · 10 ⁶ / 20 · 10 ⁶
Electrical life at rated load AC1	cycles	200 · 10 ³	150 · 10 ³
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	7/4 (AC) - 12/12 (DC)
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts V AC		1,000	1,000
Ambient temperature range	°C	-40...+70	-40...+70
Protection category		IP 20	IP 20

Approvals relay (according to type)

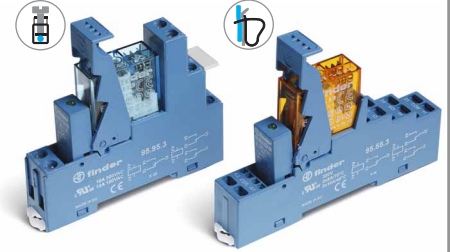
49.31-20x0



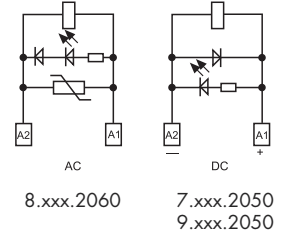
- 1 pole, 10 A
- AgCdO contact material
- Screw terminal
- 35 mm rail (EN 60715) mounting



49.52/72-20x0



- 2 pole, 8 A
- AgCdO contact material
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



Features

1 Pole relay interface module

AgCdO contacts for heavy duty switching

49.61-20x0 - 1 Pole 16 A (screw terminal)

49.81-20x0 - 1 Pole 16 A (screwless terminal)

AgSnO₂ contacts for heavy duty, high current inrush switching

49.61-40x0 - 1 Pole 16 A (screw terminal)

49.81-40x0 - 1 Pole 16 A (screwless terminal)

- 15.5 mm wide
- Ideal interface for PLC and electronic systems
- AC coils & DC coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and coil suppression module
- Identification labels
- 35 mm rail (EN 60715) mounting

49.61
Screw terminal



49.81-20x0/40x0
Screwless terminal



For outline drawing see page 8

Contact specification

Contact configuration	1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current A	16*/30	16*/100 (5 ms)
Rated voltage/Maximum switching voltage V AC	250/400	250/400
Rated load AC1 VA	4,000	4,000
Rated load AC15 (230 V AC) VA	750	750
Single phase motor rating (230 V AC) kW	0.55	0.55
Breaking capacity DC1: 30/110/220V A	16/0.3/0.12	16/0.3/0.12
Minimum switching load mW (V/mA)	500 (5/5)	1,000 (10/10)
Standard contact material	AgCdO	AgSnO ₂

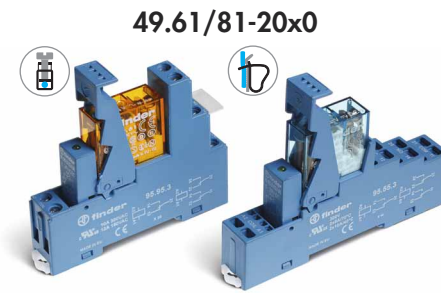
Coil specification

Nominal voltage (U _N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/DC/sens.DC VA (50 Hz)/W/W		1.2/0.65/0.5	1.2/0.65/0.5
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC/sensitiv DC	(0.73...1.5)U _N /(0.8...1.5)U _N	(0.73...1.5)U _N /(0.8...1.5)U _N
Holding voltage AC/DC		0.8 U _N /0.4 U _N	0.8 U _N /0.4 U _N
Must drop-out voltage AC/DC		0.2 U _N /0.1 U _N	0.2 U _N /0.1 U _N

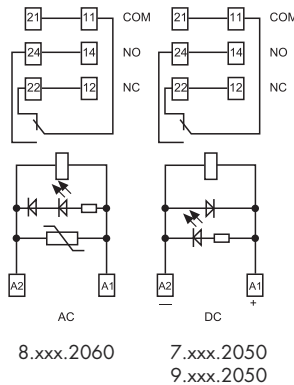
Technical data

Mechanical life AC/DC	cycles	10 · 10 ⁶ /20 · 10 ⁶	10 · 10 ⁶ /20 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	7/4 (AC) - 12/12 (DC)
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts V AC		1,000	1,000
Ambient temperature range	°C	-40...+70	-40...+70
Protection category		IP 20	IP 20

Approvals relay (according to type)



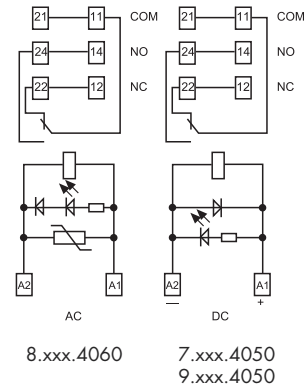
- 1 pole, 16 A*
- AgCdO contact material
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).



- 1 pole, 16 A*
- AgSnO₂ contact material
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).

Ordering information

Example: 49 series, 35 mm rail (EN 60715) mount screw terminal relay interface module, 2 CO (DPDT) 8 A contacts, 24 V sensitive DC coil, green LED + diode (polarity +A1), 99.80 coil indication.

4	9	.	5	.	2	.	7	.	0	2	4	.	0	A	0	B	0	C	5	D	0
----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------

Series —————

Type —————
3, 5, 6 = 35 mm rail (EN 60715) mount, screw terminal
7, 8 = 35 mm rail (EN 60715) mount, screwless terminal

No. of poles —————
1 = 1 pole for 49.31, 10 A
 49.61, 49.81, 16 A
2 = 2 pole for 49.52, 49.72, 8 A

Coil version —————
7 = Sensitive DC (500 mW)
8 = AC (50/60 Hz)
9 = DC (650 mW)

Coil voltage —————
See coil specifications

A: Contact material
0 = Standard AgNi for 49.31/52/72, AgCdO for 49.61/81
2 = AgCdO for 49.31/52/72
4 = AgSnO₂ for 49.61/81 only
5 = AgNi + Au (5 μm) not for 49.61/81

B: Contact circuit
0 = CO (nPDT)

D: Special versions
0 = Standard

C: Options
5 = Standard for DC:
 green LED + diode (polarity +A1)
6 = Standard for AC:
 green LED + Varistor

Selecting features and options: only combinations in the same row are possible. Preferred selections for best availability are shown in **bold**.

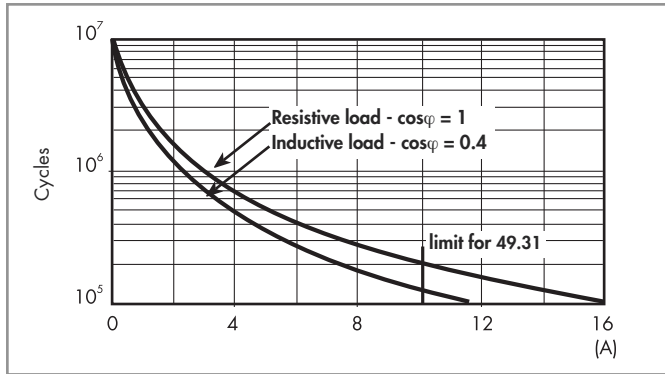
Type	Coil version	A	B	C	D
49.31/52/72	AC	0 - 2 - 5	0	6	0
49.31/52/72	DC - sens. DC	0 - 2 - 5	0	5	0
49.61/81	AC	0 - 4	0	6	0
49.61/81	DC - sens. DC	0 - 4	0	5	0

Technical data

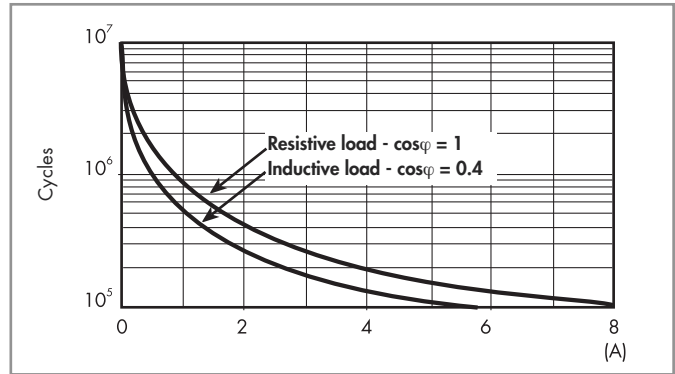
Insulation		49.31/61	49.52/72	49.31/61/81
Insulation according to EN 61810-1	insulation rated voltage	V	250	250
	rated impulse withstand voltage	kV	4	4
	pollution degree		3	2
	overvoltage category		III	III
Insulation between coil and contacts (1.2/50 μs)		kV	6 (8 mm)	
Dielectric strength between open contacts		V AC	1,000	
Dielectric strength between adjacent contacts		V AC	2,000 (49.52/72)	
Conducted disturbance immunity				
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4		level 4 (4 kV)
Surge (1.2/50 μs) on A1 - A2 (differential mode)		EN 61000-4-5		level 3 (2 kV)
Other data				
Bounce time: NO/NC		ms	2/5	
Vibration resistance (5...55)Hz: NO/NC		g	10/4 (for 1 pole)	15/3 (for 2 pole)
Power lost to the environment	without contact current	W	0.7	
	with rated current	W	1.2 (49.31/61/81)	1.3 (49.52/72)
Wire strip length		mm	8	
Screw torque		Nm	0.5	
Max. wire size			Screw terminal	
			solid cable	stranded cable
			solid cable	stranded cable
			solid cable	stranded cable
		mm ²	1x6 / 2x2.5	1x4 / 2x2.5
		AWG	1x10 / 2x14	1x12 / 2x14
			2x(0.2...1.5)	2x(0.2...1.5)
			2x(24...18)	2x(24...18)

Contact specification

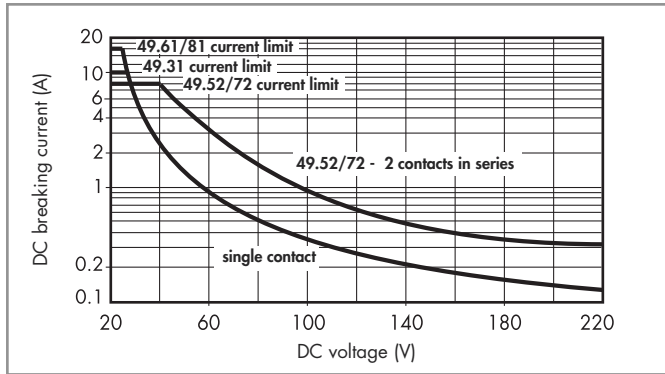
F 49 - Electrical life (AC) v contact current
Types 49.31/61/81



F 49 - Electrical life (AC) v contact current
Types 49.52/72



H 49 - Maximum DC1 breaking capacity
Types 49.31/52/61/72/81



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

DC coil data (0.5 W sensitive)

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA
		U_{min}^* V	U_{max}^{**} V	
12	7.012	8.8	21	41
24	7.024	17.5	42	22.2
125	7.125	91.2	219	4

* $U_{min} = 0.8 U_N$ for 49.61 and 49.81

** $U_{max} = 1.5 U_N$ for 49.61 and 49.81

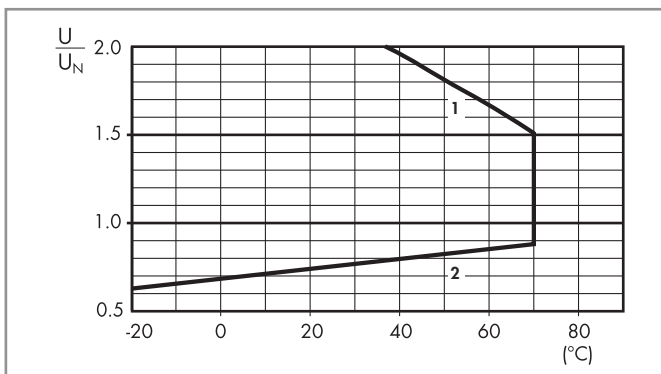
AC coil data

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N (50Hz) mA
		U_{min} V	U_{max} V	
12	8.012	9.6	13.2	90.5
24	8.024	19.2	26.4	46
110	8.110	88	121	10.1
120	8.120	96	132	11.8
230	8.230	184	253	7.0

DC coil data (0.65 W)

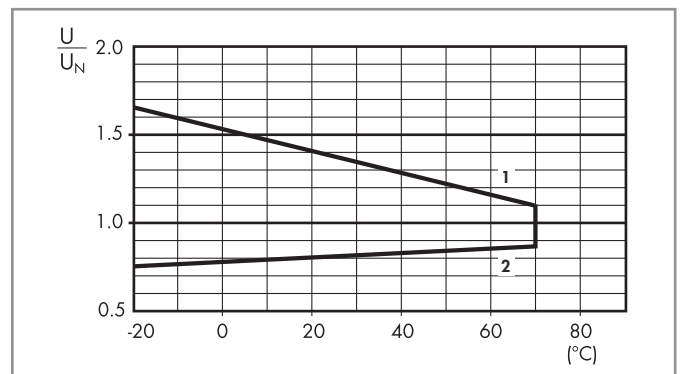
Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V	
12	9.012	8.8	18	56
24	9.024	17.5	36	29
125	9.125	91.2	188	6

R 49 - DC coil operating range v ambient temperature
Standard (650 mW)



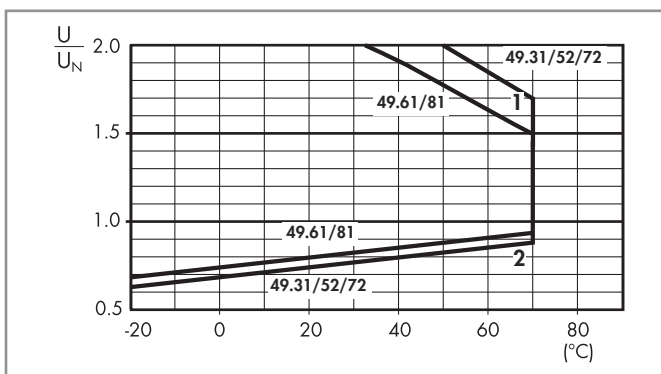
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

R 49 - AC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

R 49 - DC coil operating range v ambient temperature
Sensitive coil (500 mW)

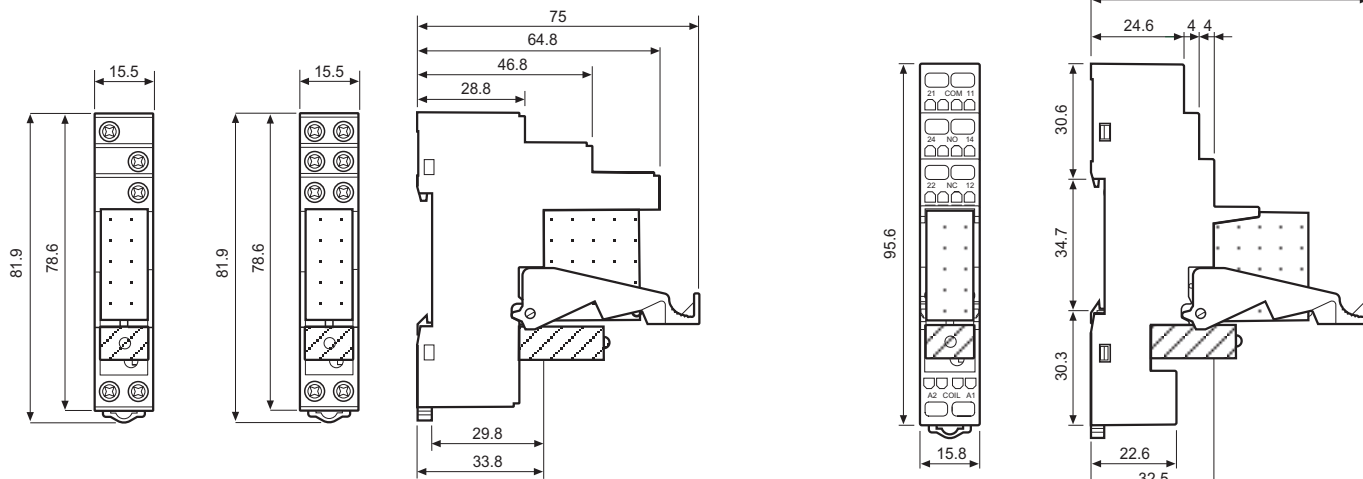


- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Combinations

Code	Type of socket	Type of relay	Module	Retaining clip
49.31	95.93.3	40.31	99.80	095.91.3
49.52	95.95.3	40.52	99.80	095.91.3
49.61	95.95.3	40.61	99.80	095.91.3
49.72	95.55.3	40.52	99.80	095.91.3
49.81	95.55.3	40.61	99.80	095.91.3

Outline drawing



49.31 49.52
 49.61

49.31-50x0 / 49.31-00x0 /
49.31-20x0 / 49.52 / 49.61
Screw terminal

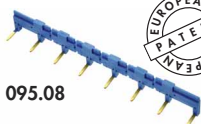


49.72
49.81

49.72-50x0 / 49.72-00x0 / 49.72-20x0
49.81-20x0 / 49.81-40x0
Screwless terminal



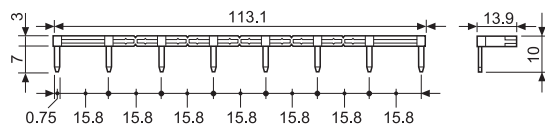
Accessories



095.08



8-way jumper link for screw terminal versions	095.08 (blue)	095.08.0 (black)
Rated values	10 A - 250 V	



060.72

Sheet of marker tags , plastic, 72 tags, 6x12 mm	060.72
---	--------

Packaging codes

How to code and identify retaining clip and packaging options for sockets.

Example:



A Standard packaging
B Blister packaging

SP Plastic retaining clip

Features

1 & 2 pole relay interface modules, screw terminal socket, 15.8 mm wide.

Ideal interface for PLC and electronic systems

- 4C.01 - 1 Pole 16 A
- 4C.02 - 2 Pole 8 A

- AC coils or DC coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and coil suppression module as standard
- Identification label
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

4C.01 / 4C.02
Screw terminal



4C.01

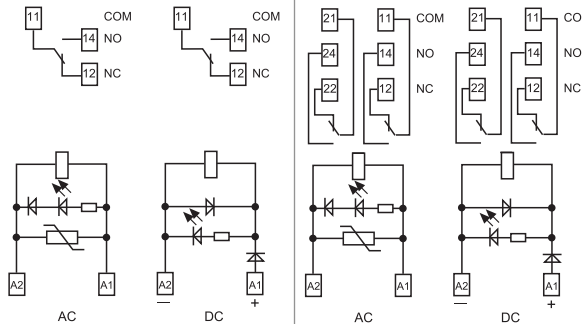


- 1 pole, 16 A
- Screw terminal connection
- 35 mm rail (EN 60715) mounting

4C.02



- 2 pole, 8 A
- Screw terminal connection
- 35 mm rail (EN 60715) mounting



For outline drawing of 4C.01/02 see page 5

		4C.01	4C.02
Contact specification			
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	16/25	8/15
Rated voltage/Maximum switching voltage	V AC	250/440	250/440
Rated load AC1	VA	4,000	2,000
Rated load AC15 (230 V AC)	VA	750	350
Single phase motor rating (230 V AC)	kW	0.55	0.37
Breaking capacity DC1: 30/110/220V	A	16/0.5/0.15	6/0.5/0.15
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/DC	VA (50 Hz)/W	1.2/0.5	1.2/0.5
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	(0.73...1.1)U _N	(0.73...1.1)U _N
Holding voltage	AC/DC	0.8 U _N / 0.4 U _N	0.8 U _N / 0.4 U _N
Must drop-out voltage	AC/DC	0.2 U _N / 0.1 U _N	0.2 U _N / 0.1 U _N
Technical data			
Mechanical life AC/DC	cycles	10 · 10 ⁶	10 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³
Operate/release time	ms	15/5 (AC) - 15/12 (DC)	10/3 (AC) - 10/10 (DC)
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	≤ 12A: -40...+70 / >12A: -40...+50	-40...+70
Protection category		IP 20	IP 20
Approvals - relay (according to type)			

Features

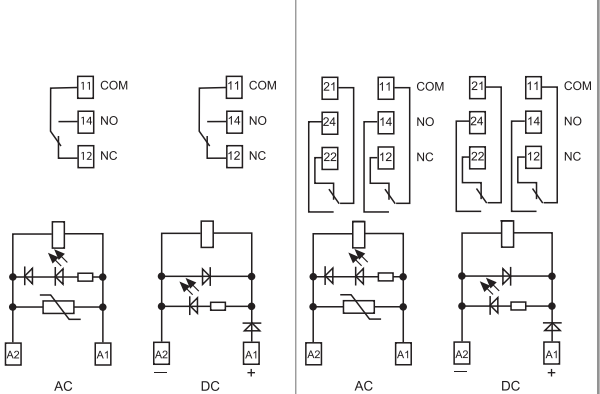
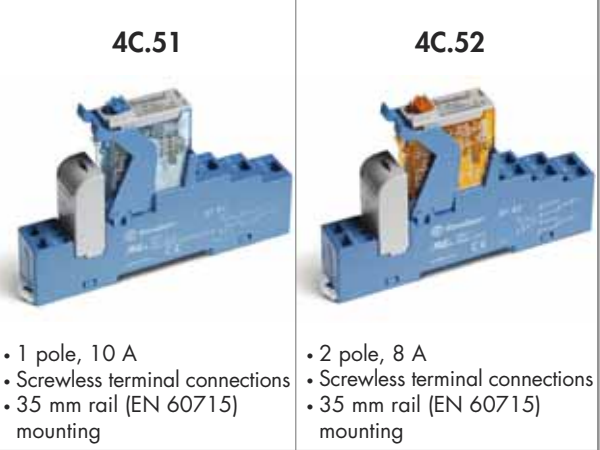
1 & 2 pole relay interface modules,
screwless terminal socket, 15.8 mm wide.

Ideal interface for PLC and electronic systems

4C.51 - 1 Pole 10 A
4C.52 - 2 Pole 8 A

- AC coils or DC coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and coil suppression module as standard
- Identification label
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

4C.51 / 4C.52
Screwless terminal



For outline drawing of 4C.51/52 see page 5

Contact specification			
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	10/20	8/15
Rated voltage/Maximum switching voltage V AC		250/440	250/440
Rated load AC1	VA	2,500	2,000
Rated load AC15 (230 V AC)	VA	750	350
Single phase motor rating (230 V AC)	kW	0.55	0.37
Breaking capacity DC1: 30/110/220V	A	10/0.5/0.15	6/0.5/0.15
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/DC	VA (50 Hz)/W	1.2/0.5	1.2/0.5
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	(0.73...1.1)U _N	(0.73...1.1)U _N
Holding voltage	AC/DC	0.8 U _N / 0.4 U _N	0.8 U _N / 0.4 U _N
Must drop-out voltage	AC/DC	0.2 U _N / 0.1 U _N	0.2 U _N / 0.1 U _N
Technical data			
Mechanical life AC/DC	cycles	10 · 10 ⁶	10 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³
Operate/release time	ms	15/5 (AC) - 15/12 (DC)	10/3 (AC) - 10/10 (DC)
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	-25...+70	-25...+70
Protection category		IP 20	IP 20
Approvals - relay (according to type)			

Ordering information

Example: 4C series, 35 mm rail (EN 60715) mount screw terminal relay interface module, 1 CO (SPDT) 16 A contacts, 24 V DC coil, green LED + diode.

	4	C	.	0	.	1	.	9	.	0	2	4	.	0	0	5	0
Series																	
Type																	
No. of poles																	
Coil version																	
Coil voltage																	

A: Contact material
 0 = AgNi
 4 = AgSnO₂
 5 = AgNi + Au (5 μm)

B: Contact circuit
 0 = CO (nPDT)

C: Options
 5 = Standard for DC:
 green LED + diode (polarity +A1)
 6 = Standard for AC:
 green LED + Varistor

D: Special version
 0 = Standard

Selecting features and options: only combinations in the same row are possible.
 Preferred selections for best availability are shown in **bold**.

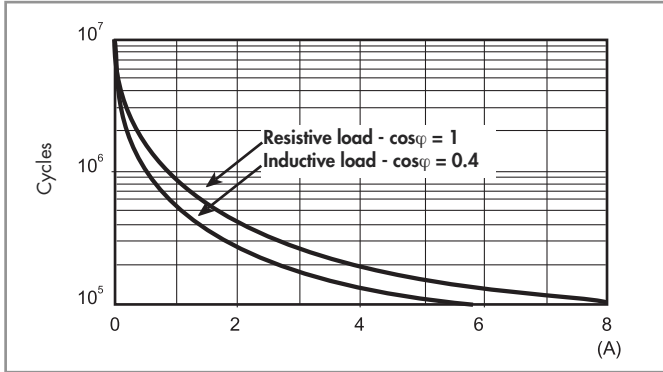
Type	Coil version	A	B	C	D
4C.02	AC	0 - 5	0	6	0
4C.52	DC	0 - 5	0	5	0
4C.01	AC	0 - 4 - 5	0	6	0
4C.51	DC	0 - 4 - 5	0	5	0

Technical data

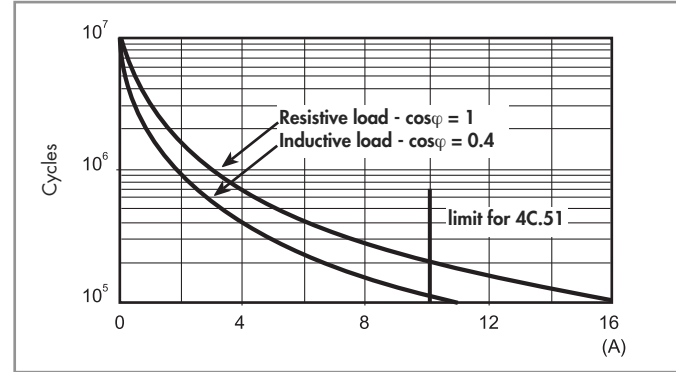
Insulation				
Insulation according to EN 61810-1	insulation rated voltage	V	250	440
	rated impulse withstand voltage	kV	4	4
	pollution degree		3	2
	overvoltage category		III	III
Insulation between coil and contacts (1.2/50 μs)		kV	6 (8 mm)	
Dielectric strength between open contacts		V AC	1,000	
Dielectric strength between adjacent contacts		V AC	2,000	
Conducted disturbance immunity				
Burst (5...50)ns, 5 kHz, on A1 - A2			EN 61000-4-4	level 4 (4 kV)
Surge (1.2/50 μs) on A1 - A2 (differential mode)			EN 61000-4-5	level 3 (2 kV)
Other data				
Bounce time: NO/NC		ms	2/6 (4C.01/51)	1/4 (4C.02/52)
Vibration resistance (10...150)Hz: NO/NC		g	20/12	
Power lost to the environment	without contact current	W	0.6	
	with rated current	W	1.6 (4C.01/51)	2 (4C.02/52)
Terminals				
Wire strip length		mm	8	8
Screw torque		Nm	0.8	—
Max. wire size			solid cable	stranded cable
		mm ²	1x6/2x2.5	1x4/2x2.5
		AWG	1x10/2x14	1x12/2x14
			solid cable	stranded cable
			2x(0.2...1.5)	2x(0.2...1.5)
			2x(24...18)	2x(24...18)

Contact specification

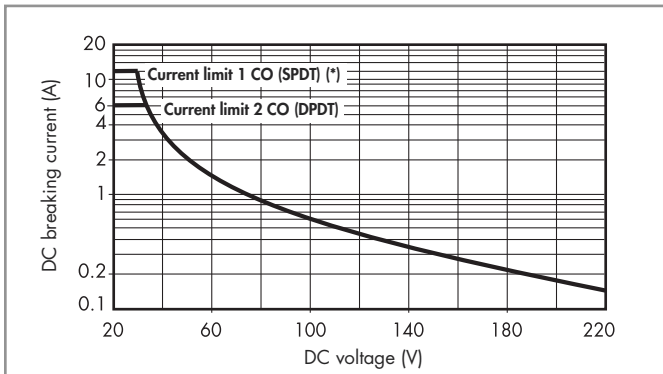
F 4C - Electrical life (AC) v contact current
Types 4C.02/52



F 4C - Electrical life (AC) v contact current
Types 4C.01/51



H 4C - Maximum DC1 breaking capacity



(*) Type 4C.01 = 12 A, Type 4C.51 = 10 A

- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load. Note: the release time for the load will be increased.

Coil specifications

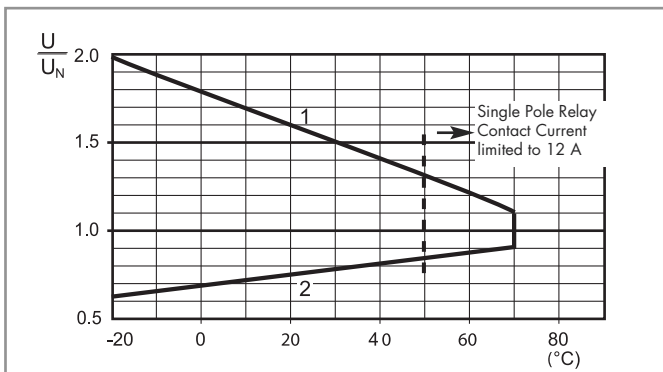
DC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
12	9.012	8.8	13.2	300	40
24	9.024	17.5	26.4	1,200	20
125	9.125	91.2	138	32,000	3.9

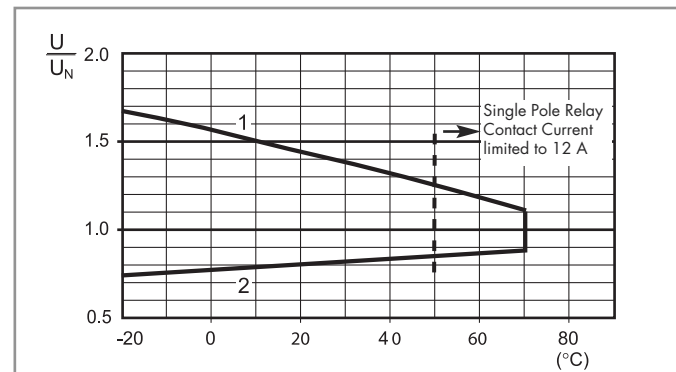
AC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil consumption I at U_N mA
		U_{min} V	U_{max} V		
12	8.012	9.6	13.2	80	90
24	8.024	19.2	26.4	320	45
110	8.110	88	121	6,900	9.4
120	8.120	96	132	9,000	8.4
230	8.230	184	253	28,000	5

R 4C - DC coil operating range v ambient temperature



R 4C - AC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

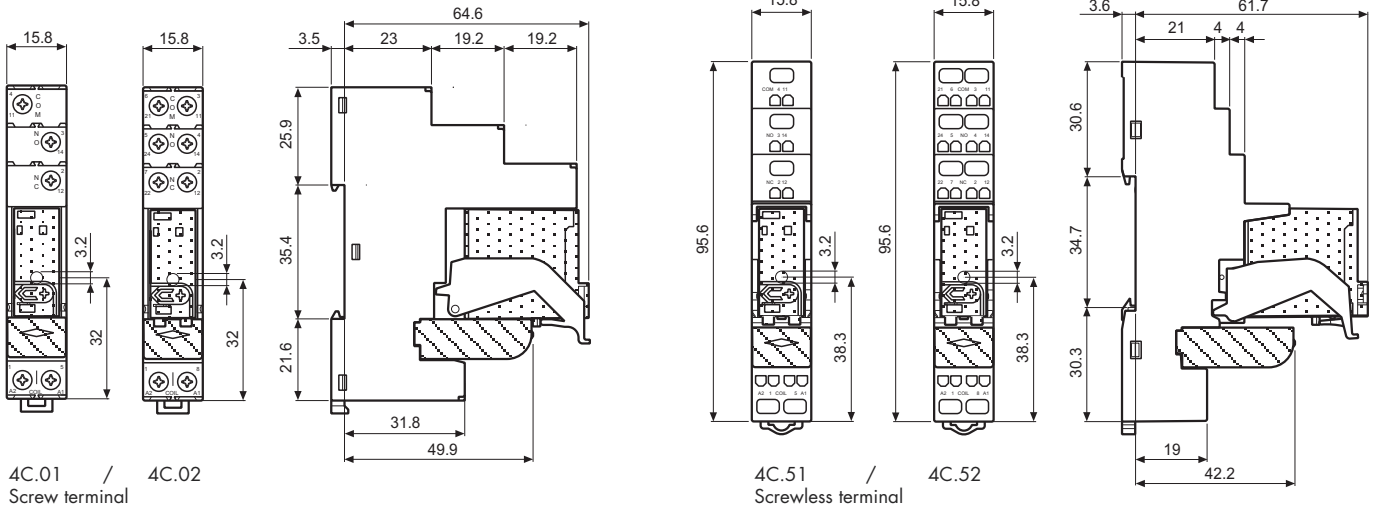
----- Temperature limit for the single pole version under full 16 A contact current.

Combinations

Code	Type of socket	Type of relay	Module	Retaining clip
4C.01	97.01	46.61	99.02	097.01
4C.02	97.02	46.52	99.02	097.01
4C.51	97.51	46.61	99.02	097.01
4C.52	97.52	46.52	99.02	097.01

Certain relay/socket combinations

Outline drawing



4C.01 / 4C.02
Screw terminal

4C.51 / 4C.52
Screwless terminal



Accessories

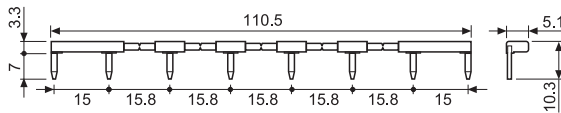


8-way jumper link for 4C.01 and 4C.02

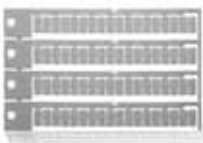
095.18 (blue)

Rated values

10 A - 250 V



095.18



Sheet of marker tags, plastic, 72 tags, 6x12 mm

060.72

060.72

Packaging code

How to code and identify retaining clip and packaging options for relay interface module.

Example:

4 C . 0 1 . 9 . 0 2 4 . 0 0 5 0 S P A

A Standard packaging
B Blister packaging

SP Plastic retaining clip

Features

2, 3 & 4 Pole relay interface modules, 27 mm wide.

Ideal interface for PLC and electronic systems

- 58.32 - 2 Pole 10 A (screw terminals)
- 58.33 - 3 Pole 10 A (screw terminals)
- 58.34 - 4 Pole 7 A (screw terminals)

- AC coils and DC coils
- Supply status indication and coil suppression module as standard
- Identification label
- Cadmium Free contacts
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

58.32 / 58.33 / 58.34
Screw terminals



For outline drawing see page 5

Contact specification

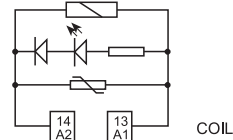
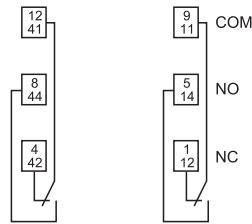
Contact configuration	2 CO (DPDT)	3 CO (3PDT)	4 CO (4PDT)
Rated current/Maximum peak current	A 10/20	A 10/20	A 7/15
Rated voltage/Maximum switching voltage V AC	250/400	250/400	250/250
Rated load AC1	VA 2,500	VA 2,500	VA 1,750
Rated load AC15 (230 V AC)	VA 500	VA 500	VA 350
Single phase motor rating (230 V AC)	kW 0.37	kW 0.37	kW 0.125
Breaking capacity DC1: 30/110/220V	A 10/0.25/0.12	A 10/0.25/0.12	A 7/0.25/0.12
Minimum switching load	mW (V/mA) 300 (5/5)	mW (V/mA) 300 (5/5)	mW (V/mA) 300 (5/5)
Standard contact material	AgNi	AgNi	AgNi
Coil specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	12 - 24 - 48 - 110 - 120 - 230	12 - 24 - 48 - 110 - 120 - 230
	V DC	12 - 24 - 48 - 125	12 - 24 - 48 - 125
Rated power AC/DC	VA (50 Hz)/W	1.5/1	1.5/1
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	(0.8...1.1)U _N	(0.8...1.1)U _N
Holding voltage	AC/DC	0.8 U _N /0.5 U _N	0.8 U _N /0.5 U _N
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N	0.2 U _N /0.1 U _N
Technical data			
Mechanical life AC/DC	cycles	20 · 10 ⁶ /50 · 10 ⁶	20 · 10 ⁶ /50 · 10 ⁶
Electrical life at rated load AC1	cycles	200 · 10 ³	150 · 10 ³
Operate/release time	ms	10/5 (AC) - 10/15 (DC)	11/3 (AC) - 11/15 (DC)
Insulation between coil and contacts (1.2/50 μs)	kV	3.6	3.6
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	-40...+70	-40...+70
Protection category		IP 20	IP 20

Approvals relay (according to type)

58.32



- 2 pole, 10 A
- Screw terminals
- 35 mm rail (EN 60715) mounting

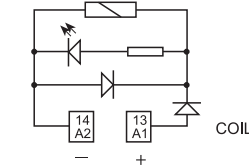
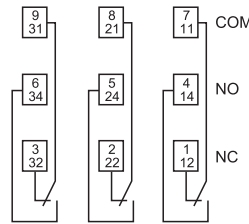


Example: AC

58.33



- 3 pole, 10 A
- Screw terminals
- 35 mm rail (EN 60715) mounting

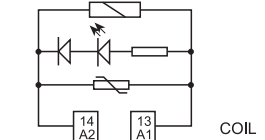
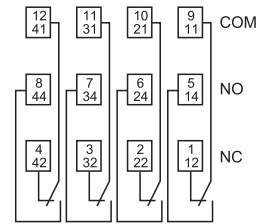


Example: DC

58.34



- 4 pole, 7 A
- Screw terminals
- 35 mm rail (EN 60715) mounting



Example: AC

Features

4 Pole relay interface modules, 31 mm wide.

Ideal interface for PLC and electronic systems

58.54 - 4 Pole 7 A (screwless terminals)

- AC coils and DC coils
- Supply status indication and coil suppression module as standard
- Identification label
- Cadmium Free contacts
- 35 mm rail (EN 60715) mounting

58.54
Screwless terminal



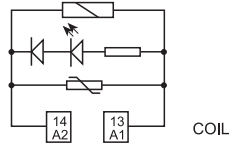
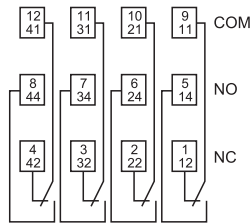
For outline drawing see page 5

Contact specification		
Contact configuration		4 CO (4PDT)
Rated current/Maximum peak current	A	7/15
Rated voltage/Maximum switching voltage	V AC	250/250
Rated load AC1	VA	1,750
Rated load AC15 (230 V AC)	VA	350
Single phase motor rating (230 V AC)	kW	0.125
Breaking capacity DC1: 30/110/220V	A	7/0.25/0.12
Minimum switching load	mW (V/mA)	300 (5/5)
Standard contact material		AgNi
Coil specification		
Nominal voltage (U _N)	V AC (50/60 Hz)	12 - 24 - 48 - 110 - 120 - 230
	V DC	12 - 24 - 48 - 125
Rated power AC/DC	VA (50 Hz)/W	1.5/1
Operating range	AC	(0.8...1.1)U _N
	DC	(0.8...1.1)U _N
Holding voltage	AC/DC	0.8 U _N /0.5 U _N
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N
Technical data		
Mechanical life AC/DC	cycles	20 · 10 ⁶ /50 · 10 ⁶
Electrical life at rated load AC1	cycles	150 · 10 ³
Operate/release time	ms	11/3 (AC) - 11/15 (DC)
Insulation between coil and contacts (1.2/50 μs)	kV	3.6
Dielectric strength between open contacts	V AC	1,000
Ambient temperature range	°C	-25...+70
Protection category		IP 20

58.54



- 4 pole, 7 A
- Screwless terminals
- 35 mm rail (EN 60715) mounting



Example: AC

Approvals relay (according to type)



Ordering information

Example: 58 series 35 mm rail (EN 60715) mounting, screw terminals interface module, 4 CO (4PDT), 24 V DC coil, green LED + diode.

5 8 . 3 4 . 9 . 0 2 4 . 0 0 5 0

A **B** **C** **D**

Series ———

Type
 3 = Screw terminals
 35 mm rail (EN 60715) mount
 5 = Screwless terminals
 35 mm rail (EN 60715) mount

No. of poles
 2 = 2 pole, 10 A
 3 = 3 pole, 10 A
 4 = 4 pole, 7 A

Coil version
 8 = AC (50/60 Hz)
 9 = DC

Coil voltage
 See coil specifications

A: Contact material
 0 = AgNi Standard
 2 = AgCdO
 5 = AgNi + Au (5 µm)

B: Contact circuit
 0 = CO (nPDT)

D: Special versions
 0 = Standard

C: Options
 5 = Standard DC: green LED + diode
 (polarity +A1)
 6 = Standard AC: green LED + Varistor

Selecting features and options: only combinations in the same row are possible.
 Preferred selections for best availability are shown in **bold**.

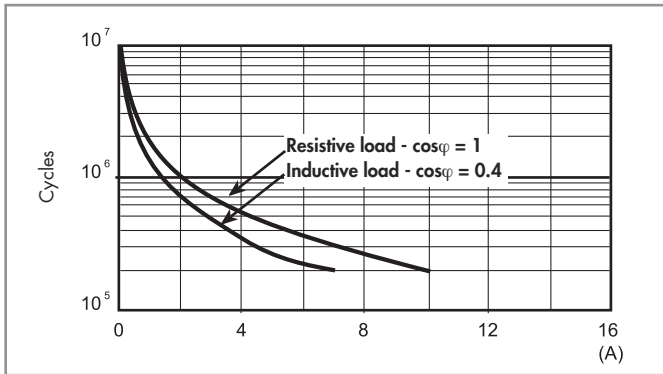
Type	Coil version	A	B	C	D
58.32/33/34/54	AC	0 - 2 - 5	0	6	0
58.32/33/34/54	DC	0 - 2 - 5	0	5	0

Technical data

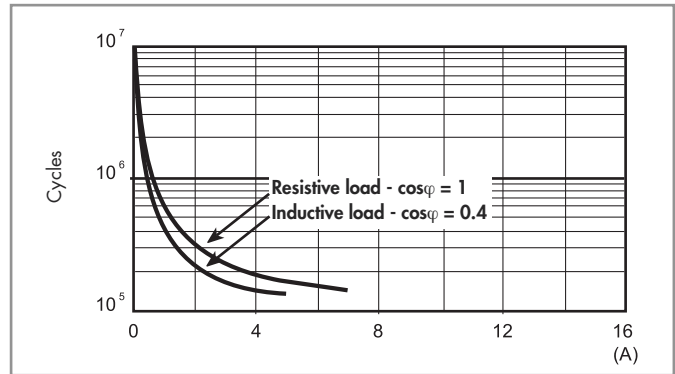
Insulation					
Insulation according to EN 61810-1	insulation rated voltage	V	400 (2-3 pole)		250 (4 pole)
	rated impulse withstand voltage	kV	3.6 (2-3 pole)		2.5 (4 pole)
	pollution degree		2		2
	overvoltage category		III		II
Insulation between coil and contacts (1.2/50 µs)		kV	3.6		
Dielectric strength between open contacts		V AC	1,000		
Dielectric strength between adjacent contacts		V AC	2,000 (58.32, 58.33)		1,550 (58.34, 58.54)
Conducted disturbance immunity					
Burst (5...50)ns, 5 kHz, on A1 - A2			EN 61000-4-4		level 4 (4 kV)
Surge (1.2/50 µs) on A1 - A2 (differential mode)			EN 61000-4-5		level 4 (4 kV)
Other data					
Bounce time: NO/NC		ms	1/3		
Vibration resistance (10...55)Hz: NO/NC		g	6/6		
Power lost to the environment	without contact current	W	1		
	with rated current	W	3 (58.32, 58.34, 58.54)		4 (58.33)
Wire strip length		mm	8		
Screw torque		Nm	0.5		
Max. wire size			solid cable		stranded cable
		mm ²	1x6 / 2x2.5		1x4 / 2x2.5
		AWG	1x10 / 2x14		1x12 / 2x14

Contact specification

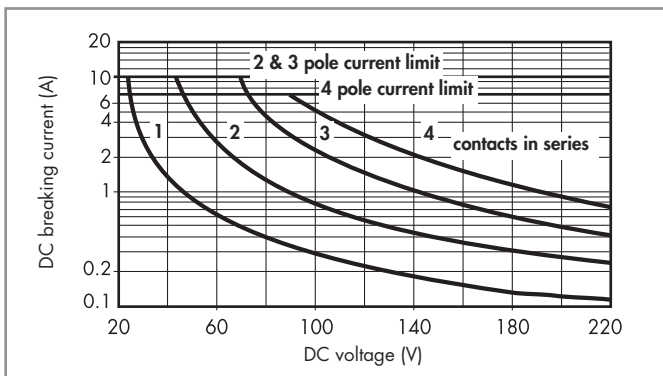
F 58 - Electrical life (AC) v contact current
2 & 3 pole relays



F 58 - Electrical life (AC) v contact current
4 pole relay



H 58 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load. Note: the release time for the load will be increased.

Coil specifications

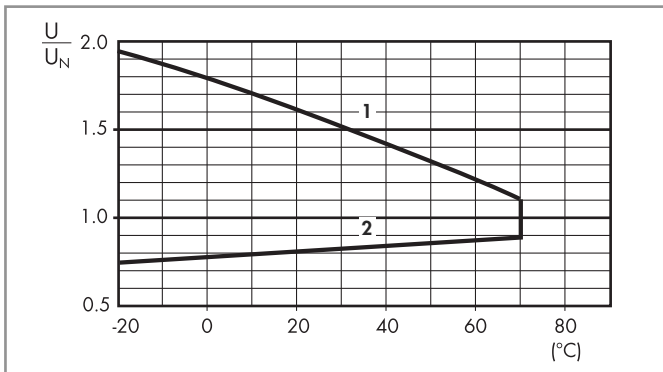
DC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil absorption I at U_N mA
		U_{min} V	U_{max} V		
12	9.012	9.6	13.2	140	86
24	9.024	19.2	26.4	600	40
48	9.048	38.4	52.8	2,400	20
125	9.125	100	138	17,300	7.2

AC coil data

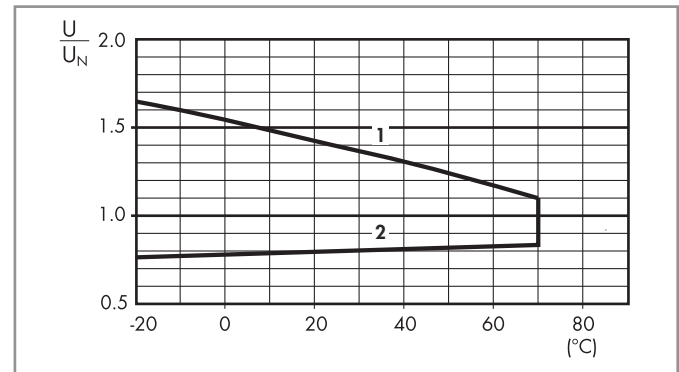
Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil absorption I at U_N (50Hz) mA
		U_{min} V	U_{max} V		
12	8.012	9.6	13.2	50	97
24	8.024	19.2	26.4	190	53
48	8.048	38.4	52.8	770	25
110	8.110	88	121	4,000	12.5
120	8.120	96	132	4,700	12
230	8.230	184	253	17,000	6

R 58 - DC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

R 58 - AC coil operating range v ambient temperature



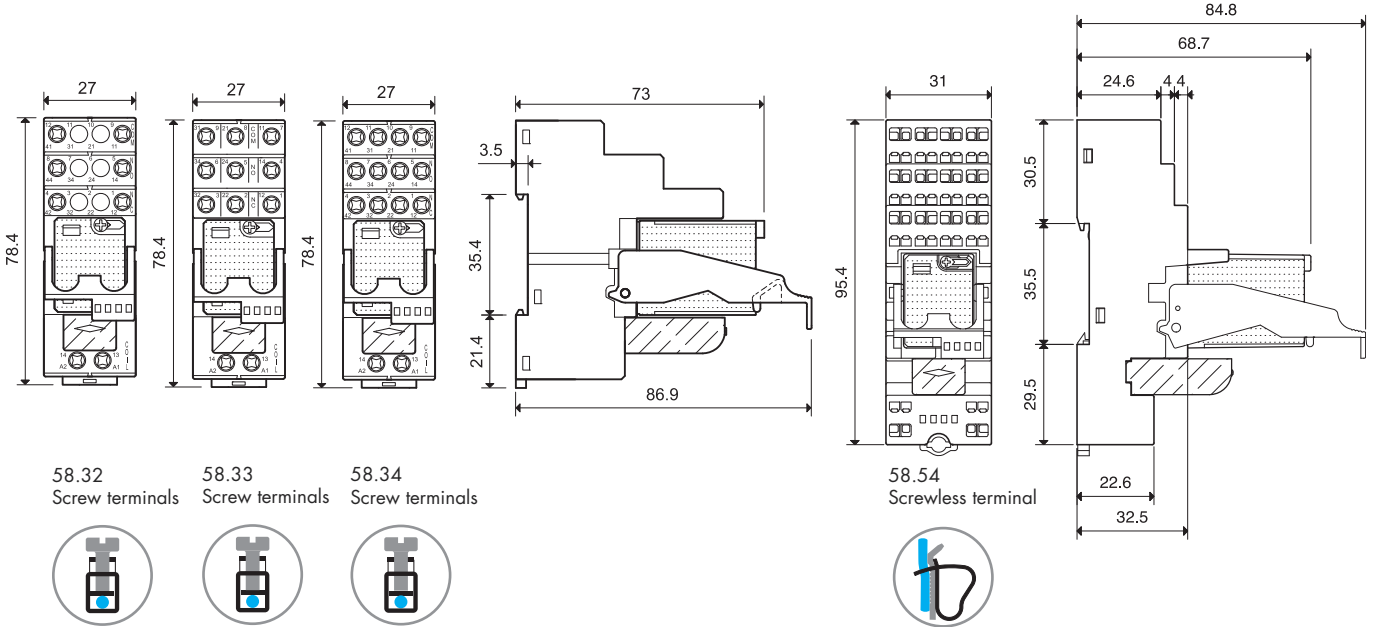
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Combinations

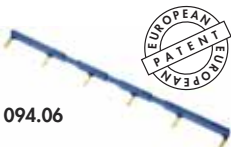
Certain relay/socket combinations

Code	Type of socket	Type of relay	Module	Retaining clip
58.32	94.02	55.32	99.02	094.91.3
58.33	94.03	55.33	99.02	094.91.3
58.34	94.04	55.34	99.02	094.91.3
58.54	94.54	55.34	99.02	094.91.3

Outline drawing



Accessories



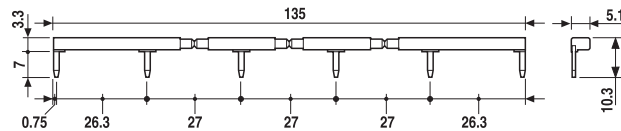
6-way jumper link for type 58.32, 58.33, 58.34

Rated values

094.06 (blue)

10 A - 250 V

094.06.0 (black)

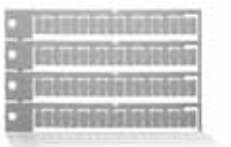
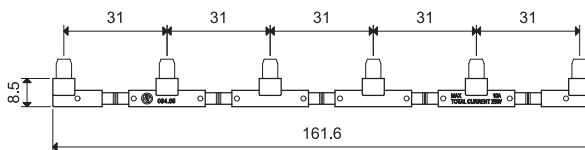


6-way jumper link for type 58.54

Rated values

094.56 (blue)

10 A - 250 V



Sheet of marker tags, plastic, 72 tags, 6x12 mm

060.72

Packaging codes

How to code and identify retaining clip and packaging options for sockets.

Example:

5 8 . 3 4 . 9 . 0 2 4 . 0 0 5 0 S P A

A Standard packaging
B Blister packaging

SP Plastic retaining clip

Features

2 & 4 Pole relay interface modules,
27 mm wide.

Ideal interface for PLC and electronic systems

59.32 - 2 Pole 10 A (screw terminals)

59.34 - 4 Pole 7 A (screw terminals)

- AC coils and DC coils
- Supply status indication and coil suppression module as standard
- Identification labels
- Cadmium Free contact material options
- 35 mm rail (EN 60715) mount

59.32 / 59.34
Screw terminals



For outline drawing see page 4

Contact specification

Contact configuration		2 CO (DPDT)	4 CO (4PDT)
Rated current/Maximum peak current	A	10/20	7/10
Rated voltage/Maximum switching voltage V AC		250/400	250/250
Rated load AC1	VA	2,500	1,750
Rated load AC15 (230 V AC)	VA	500	350
Single phase motor rating (230 V AC)	kW	0.37	0.125
Breaking capacity DC1: 30/110/220V	A	10/0.25/0.12	7/0.25/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	12 - 24 - 230	12 - 24 - 230
	V DC	12 - 24	12 - 24
Rated power AC/DC	VA (50 Hz)/W	1.5/1	1.5/1
Operating range	AC	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	(0.8...1.1)U _N	(0.8...1.1)U _N
Holding voltage	AC/DC	0.8 U _N /0.5 U _N	0.8 U _N /0.5 U _N
Must drop-out voltage	AC/DC	0.2 U _N /0.1 U _N	0.2 U _N /0.1 U _N
Technical data			
Mechanical life AC/DC	cycles	20 · 10 ⁶ /50 · 10 ⁶	20 · 10 ⁶ /50 · 10 ⁶
Electrical life at rated load AC1	cycles	200 · 10 ³	150 · 10 ³
Operate/release time	ms	10/5 (AC) - 9/15 (DC)	10/5 (AC) - 9/15 (DC)
Insulation between coil and contacts (1.2/50 μs)	kV	3.6	3.6
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	-25...+70	-25...+70
Protection category		IP 20	IP 20

Approvals relay (according to type)

59.32

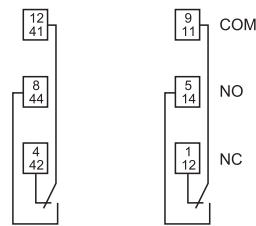


- 2 pole, 10 A
- Screw terminals
- 35 mm rail (EN 60715) mount

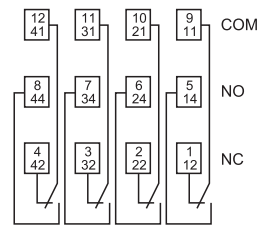
59.34



- 4 pole, 7 A
- Screw terminals
- 35 mm rail (EN 60715) mount



Example: AC



Example: DC

Ordering information

Example: 59 series 35 mm rail (EN 60715) mounting, screw terminal, interface module, 4 CO (4PDT), 24 V DC coil, green LED + diode.

	5	9	.	3	.	4	.	9	.	0	2	4	.	0	0	5	0	
Series																		
Type	3 = Screw terminals, 35 mm rail (EN 60715) mount																	
No. of poles	2 = 2 pole, 10 A 4 = 4 pole, 7 A																	
Coil version	8 = AC (50/60 Hz) 9 = DC																	
Coil voltage	See coil specifications																	
	A: Contact material 0 = AgNi Standard 2 = AgCdO 5 = AgNi + Au (5 µm)																	
	B: Contact circuit 0 = CO (nPDT)																	
	D: Special versions 0 = Standard																	
	C: Options 5 = Standard DC: green LED + diode (polarity +A1) 6 = Standard AC: green LED + Varistor																	

Selecting features and options: only combinations in the same row are possible. Preferred selections for best availability are shown in **bold**.

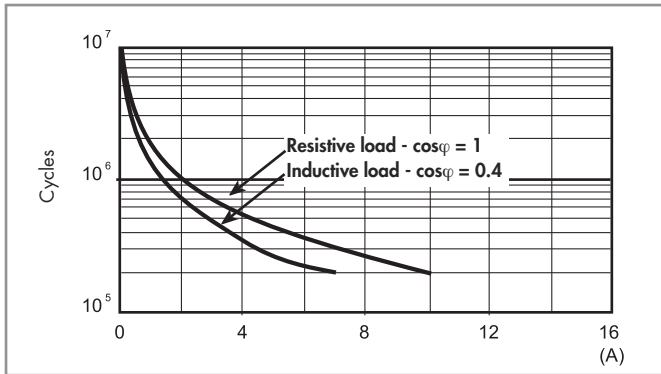
Type	Coil version	A	B	C	D
59.32/34	AC	0 - 2 - 5	0	6	0
59.32/34	DC	0 - 2 - 5	0	5	0

Technical data

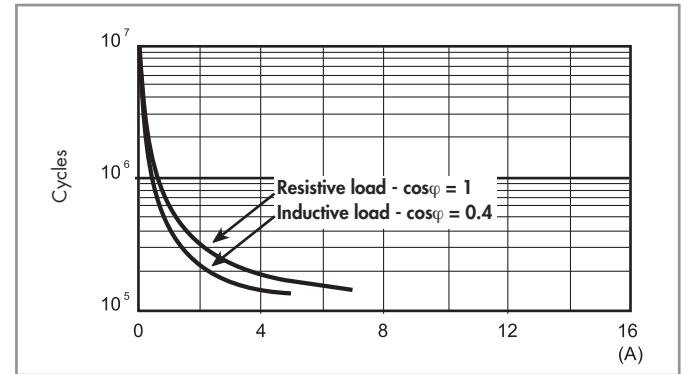
Insulation			
Insulation according to EN 61810-1	insulation rated voltage	V	400 (2 pole) 250 (4 pole)
	rated impulse withstand voltage	kV	3.6 (2 pole) 2.5 (4 pole)
	pollution degree		2 2
	overvoltage category		III II
Insulation between coil and contacts (1.2/50 µs)		kV	3.6
Dielectric strength between open contacts		V AC	1,000
Dielectric strength between adjacent contacts		V AC	2,000 (59.32) 1,550 (59.34)
Conducted disturbance immunity			
Burst (5...50)ns, 5 kHz, on A1 - A2			EN 61000-4-4 level 4 (4 kV)
Surge (1.2/50 µs) on A1 - A2 (differential mode)			EN 61000-4-5 level 4 (4 kV)
Other data			
Bounce time: NO/NC		ms	1/3
Vibration resistance (10...55)Hz: NO/NC		g	6/6
Power lost to the environment	without contact current	W	1
	with rated current	W	3
59.32/34 (screw terminals)			
Wire strip length		mm	8
Screw torque		Nm	0.5
Max. wire size			solid cable stranded cable
		mm ²	1x6 / 2x2.5 1x4 / 2x2.5
		AWG	1x10 / 2x14 1x12 / 2x14

Contact specification

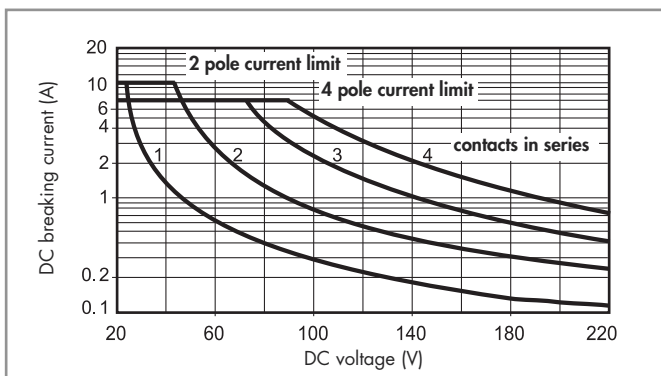
F 59 - Electrical life (AC) v contact current
2 pole relay



F 59 - Electrical life (AC) v contact current
4 pole relay



H 59 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
Note: the release time for the load will be increased.

Coil specifications

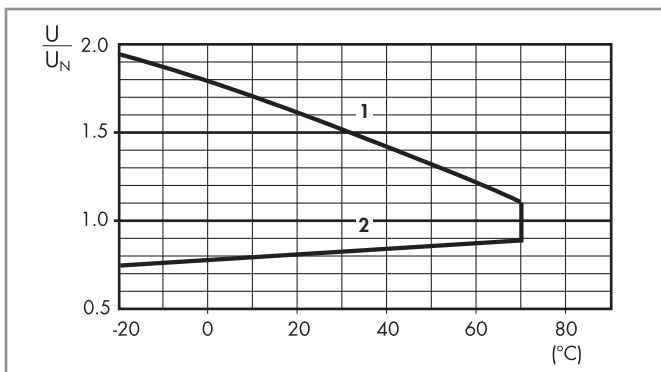
DC coil data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil absorption I at U_N mA
		U_{min} V	U_{max} V		
12	9.012	9.6	13.2	140	86
24	9.024	19.2	26.4	600	40

AC coil data

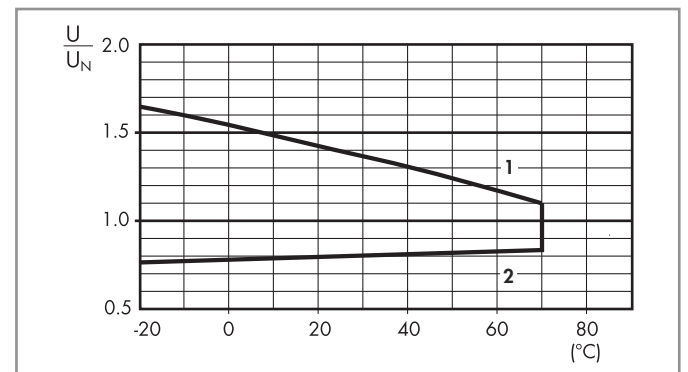
Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Rated coil absorption I at U_N (50Hz) mA
		U_{min} V	U_{max} V		
12	8.012	9.6	13.2	50	97
24	8.024	19.2	26.4	190	53
230	8.230	184	253	17,000	6

R 59 - DC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

R 59 - AC coil operating range v ambient temperature

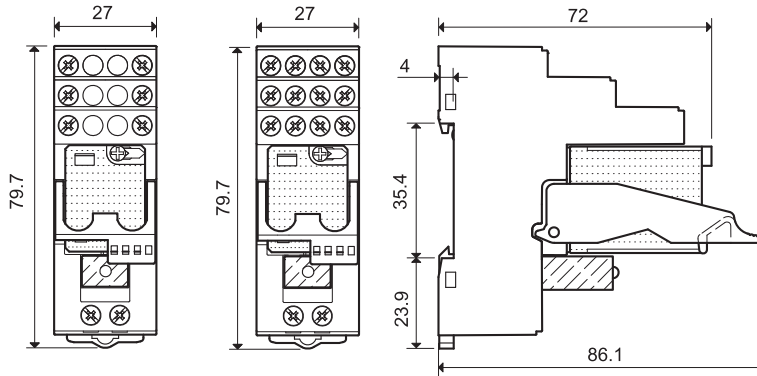


- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Combinations

Code	Type of socket	Type of relay	Module	Retaining clip
59.32	94.94.3	55.32	99.80	094.91.3
59.34	94.94.3	55.34	99.80	094.91.3

Outline drawing

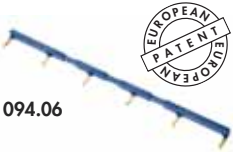


59.32
Screw terminals

59.34
Screw terminals



Accessories



094.06



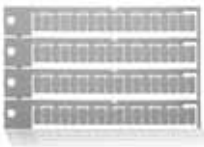
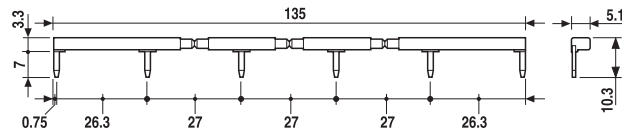
6-way jumper link for 59.32 and 59.34

094.06 (blue)

094.06.0 (black)

Rated values

10 A - 250 V



060.72

Sheet of marker tags for retaining and release clip 094.91.3
plastic, 72 tags, 6x12 mm

060.72

Packaging codes




How to code and identify retaining clip and packaging options for sockets.

Example:

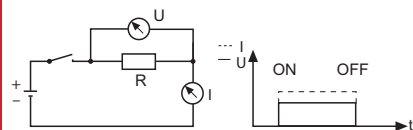
5 9 . 3 4 . 9 . 0 2 4 . 0 0 5 0 S P A

A Standard packaging
B Blister packaging

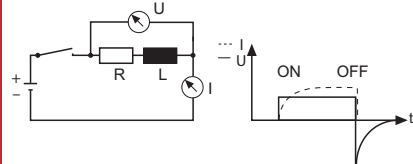
SP Plastic retaining clip

	99.01 	99.02 	99.80 			
	Sockets	Relays	Sockets	Relays	Sockets	Relays
	90.20	60.12	90.02	60.12	94.82.3	55.32
	90.21	60.13	90.03	60.13	94.84.3	55.32, 55.34
	94.72	55.32	92.03	62.32, 62.33	94.84.2	55.32, 55.34
	94.73	55.33	94.02	55.32	94.92.3	55.32
	94.74	55.32, 55.34	94.03	55.33	94.94.3	55.32, 55.34
	94.82	55.32	94.04	55.32, 55.34	95.55.3	40.51/52/61
	95.63	40.31	94.54	55.32, 55.34		44.52, 44.62
	96.72	56.32	95.03	40.31	95.83.3	40.31
	96.74	56.34	95.05	40.51/52/61	95.85.3	40.51/52/61
				44.52, 44.62		44.52/62
			95.55	40.51/52/61	95.93.3	40.31
				44.52, 44.62	95.95.3	40.51/52/61
			96.02	56.32		44.52, 44.62
			96.04	56.34	97.51.3	46.61
			97.01/97.51	46.61	97.52.3	46.52
			97.02/97.52	46.52		
FUNCTION / OPERATING RANGE	CODE		CODE		CODE	
Green LED + diode module (standard polarity)						
6 - 24 V DC	99.01.9.024.99		99.02.9.024.99		99.80.9.024.99	
28 - 60 V DC	99.01.9.060.99		99.02.9.060.99		99.80.9.060.99	
110 - 220 V DC	99.01.9.220.99		99.02.9.220.99		99.80.9.220.99	
Green LED + diode module (non-standard polarity)						
6 - 24 V DC	99.01.9.024.79		99.02.9.024.79		99.80.9.024.79	
28 - 60 V DC	99.01.9.060.79		99.02.9.060.79		99.80.9.060.79	
110 - 220 V DC	99.01.9.220.79		99.02.9.220.79		99.80.9.220.79	
Green LED + Varistor module						
6 - 24 V AC/DC	99.01.0.024.98		99.02.0.024.98		99.80.0.024.98	
28 - 60 V AC/DC	99.01.0.060.98		99.02.0.060.98		99.80.0.060.98	
110 - 240 V AC/DC	99.01.0.230.98		99.02.0.230.98		99.80.0.230.98	
Green LED module						
6 - 24 V AC/DC	99.01.0.024.59		99.02.0.024.59		99.80.0.024.59	
28 - 60 V AC/DC	99.01.0.060.59		99.02.0.060.59		99.80.0.060.59	
110 - 240 V AC/DC	99.01.0.230.59		99.02.0.230.59		99.80.0.230.59	
Diode module (standard polarity)						
6 - 220 V DC	99.01.3.000.00		99.02.3.000.00		99.80.3.000.00	
Diode module (non-standard polarity)						
6 - 220 V DC	99.01.2.000.00		99.02.2.000.00		99.80.2.000.00	
RC module						
6 - 24 V AC/DC	99.01.0.024.09		99.02.0.024.09		99.80.0.024.09	
28 - 60 V AC/DC	99.01.0.060.09		99.02.0.060.09		99.80.0.060.09	
110 - 240 V AC/DC	99.01.0.230.09		99.02.0.230.09		99.80.0.230.09	
Residual current bypass module						
110 - 240 V AC	99.01.8.230.07		99.02.8.230.07		99.80.8.230.07	

Voltage-current characteristic when switching a resistive load (fig. 1).



Voltage-current characteristic when switching a relay coil (fig. 2).



Switching Relay Coils.

When switching a resistive load, the current follows the phase of the voltage directly (Fig 1).

When switching relay coils the current and voltage waveforms are different due to the inductive nature of the coil (Fig 2). A brief explanation of this mechanism is as follows.

On energising the coil, the build up of the magnetic field gives rise to counter electromotive forces which in turn delay the rise in coil current. On de-energisation, the sudden interruption of the coil current causes a sudden collapse of the magnetic field, which in turn induces a high voltage of reverse polarity across the coil. This reverse polarity voltage peak can reach a value typically 15 times higher than the supply voltage, and as a consequence can disturb or destroy electronic devices.

To counteract this potentially damaging effect, relays coils can be suppressed with a Diode, a Varistor (voltage dependent resistor) or a RC (resistor/capacitor) module – dependent on the operating voltage. (See below for descriptions of the various Modules available.)

Whilst the above description is based on the working of a DC coil, the reverse polarity voltage peak on de-energisation applies similarly to AC coils. However, when energising AC coils there will also be a coil inrush current of 1.3 to 1.7 times the nominal coil current – dependent on coil size. If coils are fed via a transformer (and particularly if several are energised at the same time) then this may need to be taken into account when calculating the VA rating of the transformer.

Diagrams		Functions
<p>99.01.9.xxx.99 only 99.80.9.xxx.99 only</p>	<p>99.02.9.xxx.99 only</p>	<p>Green LED + diode module (standard polarity) Recovery diode modules + LED are used for DC only. The reverse voltage peaks of the coil are short circuited by the recovery diode (positive to terminal A1). The release time increases by an approximate factor of 3. If an increase of the release time is undesirable use a Varistor or RC module. The LED indicator lights up when the coil is energized.</p>
<p>99.01.9.xxx.79 only 99.80.9.xxx.79 only</p>	<p>99.02.9.xxx.79 only</p>	<p>Green LED + diode module (non-standard polarity) Recovery diode modules + LED are used for DC only. The reverse voltage peaks of the coil are short circuited by the recovery diode (positive to terminal A2). The release time increases by an approximate factor of 3. If an increase of the release time is undesirable use a Varistor or RC module. The LED indicator lights up when the coil is energized.</p>
		<p>Green LED + Varistor module LED modules + Varistor are used for both AC and DC coils. The reverse voltage peaks of the relay coil are limited by the Varistor to approximately 2.5 times the nominal voltage of the supply. When using DC coils it is essential that positive is connected to terminal A1. The relay release time increases insignificantly.</p>
		<p>Green LED module LED modules are used for AC and DC. The LED indicator lights up when the coil is energized. When using DC it is essential that positive is connected to terminal A1.</p>
<p>99.01.3.000.00 only 99.80.3.000.00 only</p>	<p>99.02.3.000.00 only</p>	<p>Diode module (standard polarity) Recovery diode modules are used for DC only. The reverse voltage peaks of the coil are short circuited by the recovery diode (positive to terminal A1). The release time increases by an approximate factor of 3. If an increase of the release time is undesirable use a Varistor or RC module.</p>
<p>99.01.2.000.00 only 99.80.2.000.00 only</p>	<p>99.02.2.000.00 only</p>	<p>Diode module (non-standard polarity) Recovery diode modules are used for DC only. The reverse voltage peaks of the coil are short circuited by the recovery diode (positive to terminal A2). The release time increases by an approximate factor of 3. If an increase of the release time is undesirable use a Varistor or RC module.</p>
		<p>RC module RC circuit modules are used for AC and DC coils. The reverse voltage peaks of the coil are limited by the RC module to approximately 2.5 times the nominal voltage of the supply. The relay release time increases insignificantly.</p>
		<p>Residual current bypass module Bypass modules are advisable if 110 or 230v AC relays show any tendency to fail to release. Failure to release can be caused by residual currents from AC proximity switches or inductive coupling caused through long parallel lying AC control lines.</p>

Features

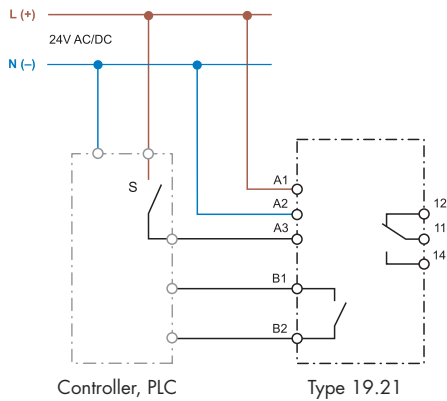
Auto/Off/On output module 10 A

- Auto/Off/On output module intended to permit the automatic control of pumps, blowers or motor groups. Or, in the case of installation, maintenance or failure, to permit the load equipment to be turned "Off" or controlled under "On" control
- Ideal interface for PLC and electronic systems
- Only 11.2 mm wide
- 3 function selector switch:
 - Auto: works as a monostable relay (following A3 input)
 - Off: relay permanently OFF
 - On: relay permanently ON
- 24V AC/DC supply and module input
- 35 mm rail (EN 60715) mounting

Application examples:

- control of pumps, blowers or motor groups
- primarily suited to Industrial control systems

Wiring diagram

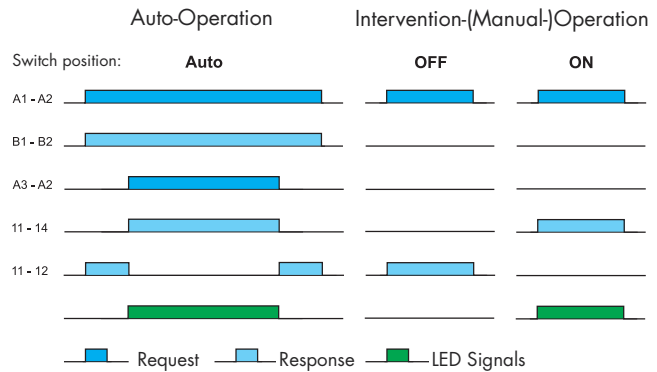


For outline drawing see page 8

19.21.0.024.0000



- 1 CO output contact
- 11.2 mm wide
- Feedback contact



B1-B2 feed back information to the controller for Auto-operation
A3-A2 From the controller requested operation

Contact specification

Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	10/15
Rated voltage/Maximum switching voltage V AC		250/400
Rated load AC1	VA	2,500
Rated load AC15 (230 V AC)	VA	500
Single phase motor rating (230 V AC)	kW	0.44
Breaking capacity DC1 (24/110/220 V)	A	10/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)
Standard contact material		AgSnO ₂

Feedback contact specification (terminals B1-B2)

Contact configuration		1 NO (SPST-NO)
Maximum current	mA	300
Rated voltage	V AC/DC	24

Supply & Input specification

Nominal voltage (U _N)	V AC (50/60 Hz)	24
	V DC	24
Rated power	VA (50 Hz)/W	0.6 (50 Hz)/0.4
Operating range	AC	(0.8...1.1) U _N
	DC	(0.8...1.1) U _N

Technical data

Ambient temperature range	°C	-20...+50
Protection category		IP 20

Approvals (according to type)



Features

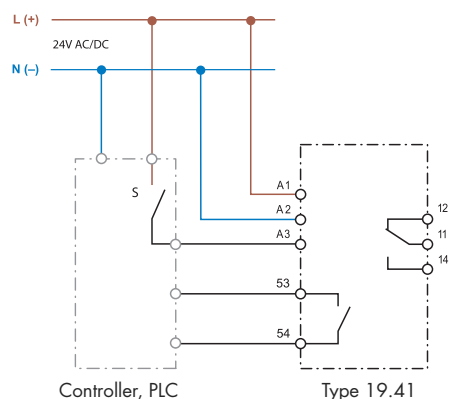
Override module - Auto/Off/Hand

- Auto/Off/Hand override module intended to permit the automatic control of pumps, blowers or motor groups. Or, in the case of installation, maintenance or failure, to permit the load equipment to be turned "Off" or controlled under "Hand" control
- 3 function selector switch:
 - Auto: work as a monostable relay relay (following A3 input)
 - Off: relay output permanently Off
 - Hand: relay output permanently On
- 24V AC/DC supply & input
- 35 mm rail (EN 60715) mounting

Application examples:

- control of pumps, blowers or motor groups commonly associated with building management systems

Wiring diagram



For outline drawing see page 8

Output specification (terminals 12-11-14)

Contact configuration	1 CO (SPDT)
Rated current/Maximum peak current	A 5/15
Rated voltage/Maximum switching voltage V AC	250/400
Rated load AC1	VA 1,250
Rated load AC15 (230 V AC)	VA 250
Single phase motor rating (230 V AC)	kW 0.185
Breaking capacity DC1 (24/110/220 V)	A 3/0.35/0.2
Minimum switching load	mW (V/mA) 500 (10/5)
Standard contact material	AgCdO

Feedback output specification (terminals 53-54)

Contact configuration	1 NO (SPST-NO)
Maximum / Minimum current	mA AC/DC 100/10
Rated voltage	V AC/DC 24

Supply & Input specification

Nominal voltage (U_N)	V AC (50/60 Hz)	24
	V DC	24
Rated power	VA (50 Hz)/W	1 (50 Hz)/0.6
Operating range	AC	(0.8... 1.1) U_N
	DC	(0.8... 1.1) U_N

Technical data

Ambient temperature range	-20...+50
Protection category	IP20

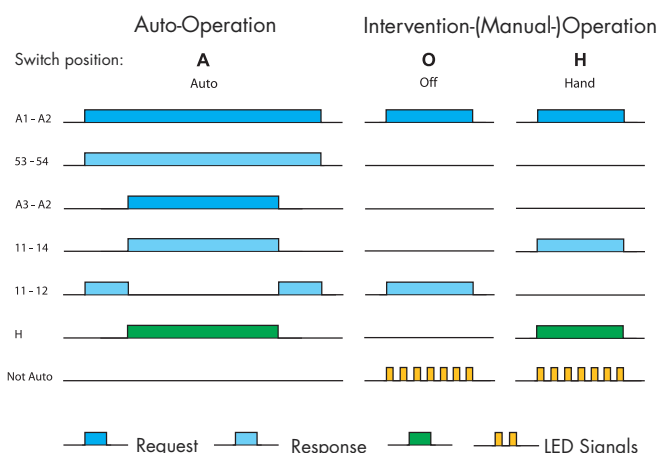
Approvals (according to type)



NEW 19.41.0.024.0000



- 1 CO output contact
- 1 feedback output contact
- 17.5 mm wide
- LED indicator



53-54 feed back information to the controller for Auto-operation
A3-A2 Requested operation

Features

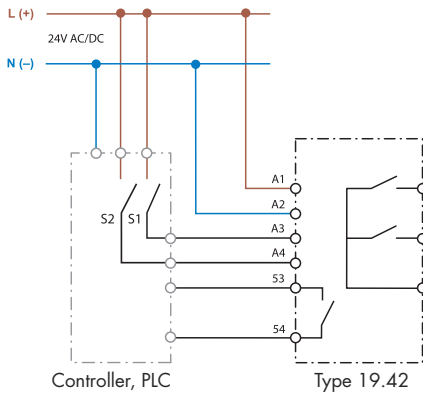
Override module - Auto/Off/Low/High

- Override output module intended to permit the automatic control of two-speed pumps, blowers or motor groups. Or, in the case of installation, maintenance or failure, to permit the load equipment to be turned "Off" or to run in "Low speed" or "High speed" under "Hand" control
- 4 function selector switch:
 - Auto: directly controlled by the BMS or PLC
 - Off: relays permanently Off
 - Hand Low: Low speed relay output permanently On
 - Hand High: High speed relay output permanently On
- 24V AC/DC supply and module inputs
- 35 mm rail (EN 60715) mounting

Application examples:

- control of two-speed pumps, blowers or motor groups commonly associated with building management systems

Wiring diagram

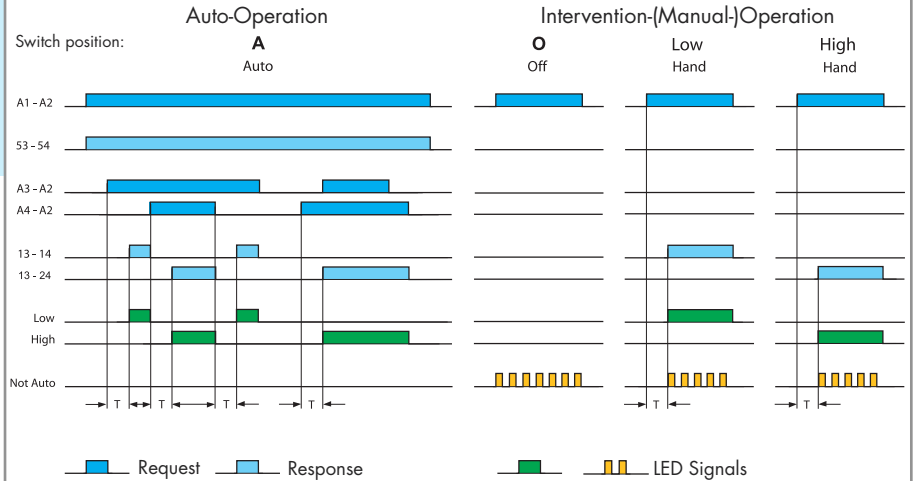


For outline drawing see page 8

NEW 19.42.0.024.0000



- Low and High output contacts
- 1 feedback output contact
- 35 mm wide
- LED indicator



53-54 feed back information to the controller for Auto-operation

A3-A2 Low speed or power operation

A4-A2 High speed or power operation (dominating again low speed or low power operation)

T = ON delay for 13-14 and 13-24 is approx. 100 ms as pause for the speed shift.

By reserving motors with big moments of inertia (inertia force) from high speed to low speed an additional ON delay of approx. 20 s is recommended.

Output specification (terminals 13-14-24)

Contact configuration	2 NO (DPST-NO)
Rated current/Maximum peak current	A 5/15
Rated voltage/Maximum switching voltage V AC	250/400
Rated load AC1	VA 1,250
Rated load AC15 (230 V AC)	VA 250
Single phase motor rating (230 V AC)	kW 0.185
Breaking capacity DC1 (24/110/220 V)	A 3/0.35/0.2
Minimum switching load	mW (V/mA) 500 (10/5)
Standard contact material	AgCdO

Feedback output specification (terminals 53-54)

Contact configuration	1 NO (SPST-NO)
Maximum / Minimum current	mA 100/10
Rated voltage	V AC/DC 24

Supply & Input specification

Nominal voltage (U _N)	V AC (50/60 Hz)	24
	V DC	24
Rated power	VA (50 Hz)/W	1.6 (50 Hz)/0.8
Operating range	AC	(0.8...1.1) U _N
	DC	(0.8...1.1) U _N

Technical data

Ambient temperature range	°C -20...+50
Protection category	IP20

Approvals (according to type)



Features

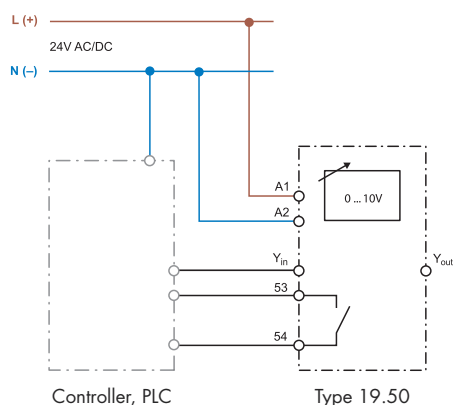
Analogue override module - Auto/Hand (0...10)V

- Analogue output module intended to provide, by the selection switch on the front panel, a (0...10) V output, automatically or by hand. With the selector switch in position "A" (Automatic) the (0...10) V signal is derived from the controller. In position "H" (Hand) the controller signal is ignored and the (0...10) V signal is derived directly from the potentiometer setting on the fascia of the module
- The level of the (0...10) V output signal is displayed by 3 green LEDs, set at >25%, >50% and >75%.
- 24V AC/DC supply
- 35 mm rail (EN 60715) mounting

Application examples:

- permits the direct control of proportional valves under exceptional circumstances or where the automatic controller has failed

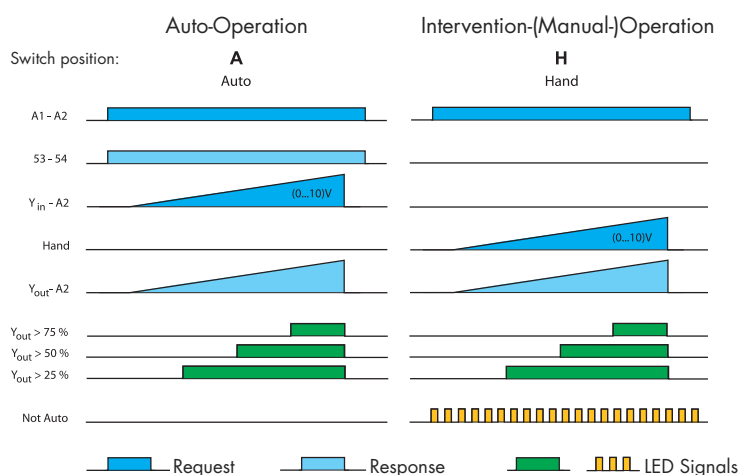
Wiring diagram



NEW 19.50.0.024.0000



- Analogue output (0...10)V, plus 1 feedback output contact
- 17.5 mm wide
- LED indicator



53-54 feed back information to the controller for Auto-operation
 $Y_{in} \cdot A2 / \text{Hand} = \text{Set point (set value) (0...10) V DC}$;
 requested by the controller or manual

For outline drawing see page 8

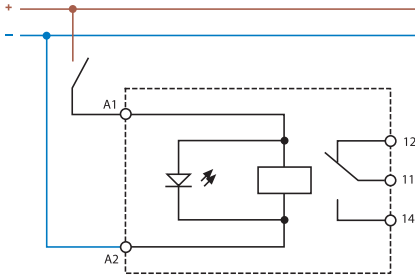
(0...10)V Signal specification (terminal Y-in)		
Input control signal	V DC	0...10 (I _{max} 20mA - short-circuit protected)
Green LED 25%		>2.5 V
Green LED 50%		> 5 V
Green LED 75%		>7.5 V
Feedback output specification (terminals 53-54)		
Output configuration		1 NO (SPST-NO)
Maximum / Minimum current	mA	100 /10
Rated voltage	V AC/DC	24
Supply & Input specification		
Nominal voltage (U _N)	V AC (50/60 Hz)	24
	V DC	24
Rated power AC/DC	VA (50 Hz)/W	0.9 / 0.7
Operating range	AC	(0.8...1.1) U _N
	DC	(0.8...1.1) U _N
Technical data		
Ambient temperature range		-20...+50 °C
Protection category		IP20
Approvals (according to type)		
		CE PG

Features

Power relay module 16 A

- Suitable for Lamps load
- AgSnO₂ contacts for heavy duty, high inrush current loads
- DC supply (12 or 24 V)
- LED indicator
- Reinforced insulation between supply and contacts
- Cadmium Free contacts
- 35 mm rail (EN 60715) mounting

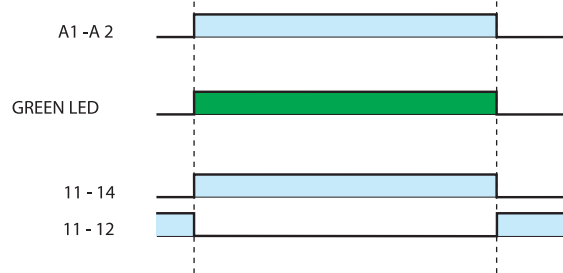
Wiring diagram



NEW 19.91.9.0xx.4000



- 1 Pole changeover contact
- 17.5 mm



For outline drawing see page 8

Contact specification	
Contact configuration	1 CO (SPDT)
Rated current/Maximum peak current	A 16/30 (120 A – 5 ms)
Rated voltage/Maximum switching voltage	V AC 250/440
Rated load AC1	VA 4,000
Rated load AC15 (230 V AC)	VA 750
Nominal lamp rating (230 V): incandescent W	2,000
compensated fluorescent W	750
Minimum switching load	mW 300 (5 V/ 5 mA)
Standard contact material	AgSnO ₂
Coil specification	
Nominal voltage (U _N)	V DC 12 - 24
Rated power AC/DC	VA (50 Hz)/W 1.2 / 0.5
Operating range	(0.8 ... 1.1) U _N
Technical data	
Mechanical life AC/DC	cycles 10 · 10 ⁶
Electrical life at rated load AC1	cycles 80 · 10 ³
Operate/release time	ms 12/8
Ambient temperature range	°C -20...+50
Protection category	IP 20
Approvals (according to type)	

Ordering information

Example: 19 series Auto/Off/Hand override module, 1 CO (SPDT) 5 A contact, 24 V AC/DC supply.

1 9 . 4 1 . 0 . 0 2 4 . 0 0 0 0

Series
Type
 21= Auto/Off/On output module, 11.2mm
 41= Override module - Auto/Off/Hand
 42= Override module - Auto/Off/Low/High
 50= Analogue override module (0...10) V
 91= Power relay module

Supply version
 0 = AC (50/60 Hz) / DC
 9 = DC

Supply voltage
 012 = 12 V
 024 = 24 V

Contact material
 0= Standard for 19.21/41/42/50
 4= Standard for 19.91

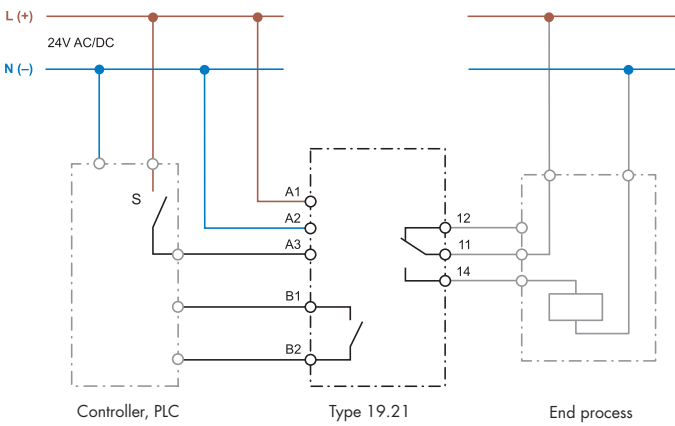
Codes / Module width
 19.21.0.024.0000 / 11.2 mm
 19.41.0.024.0000 / 17.5 mm
 19.42.0.024.0000 / 35.0 mm
 19.50.0.024.0000 / 17.5 mm
 19.91.9.012.4000 / 17.5 mm
 19.91.9.024.4000 / 17.5 mm

Technical data

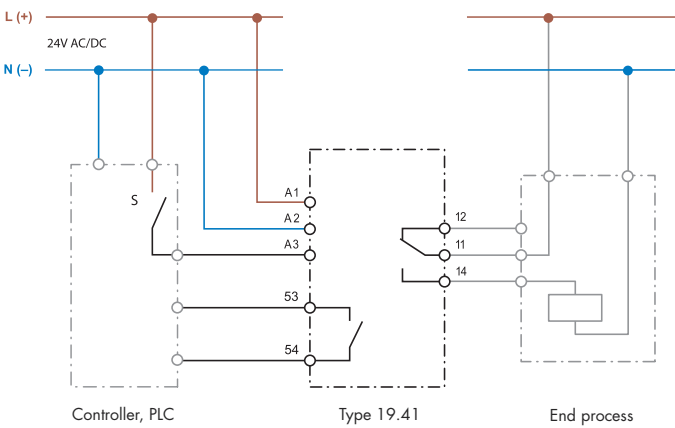
Insulation		19.21	19.41/42	19.50	19.91
Dielectric strength (V AC)	between supply and contacts	3,000	2,000	—	4,000
	between open contacts	1,000	1,000	—	1,000
	between supply and feedback output	2,000	1,500	1,500	—
EMC specifications					
Type of test		Reference standard	19.21/42/91		19.41/50
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV		
	air discharge	EN 61000-4-2	8 kV		
Radiated electromagnetic field (80 ... 1,000 MHz)		EN 61000-4-3	30 V/m		
Fast transients (burst) (5-50 ns, 5 kHz)		EN 61000-4-4	4 kV		
Voltage pulses (1.2/50 µs)	common mode	EN 61000-4-5	2 kV	1 kV	
	on supply terminals	EN 61000-4-5	1 kV	0.5 kV	
Terminals		19.21		19.41/42/91	
Screw torque		0.5 Nm		0.8 Nm	
Max. wire size	solid cable	1x6/2x2.5 mm ²	1x10/2x14 AWG	1x6/2 x 4 mm ²	1x10/2x12 AWG
	stranded cable	1x4/2x1.5 mm ²	1x12/2x16 AWG	1x4/2x2.5 mm ²	1x12/2x14 AWG
Wire strip length		7 mm		9 mm	

Wiring diagrams - Application examples

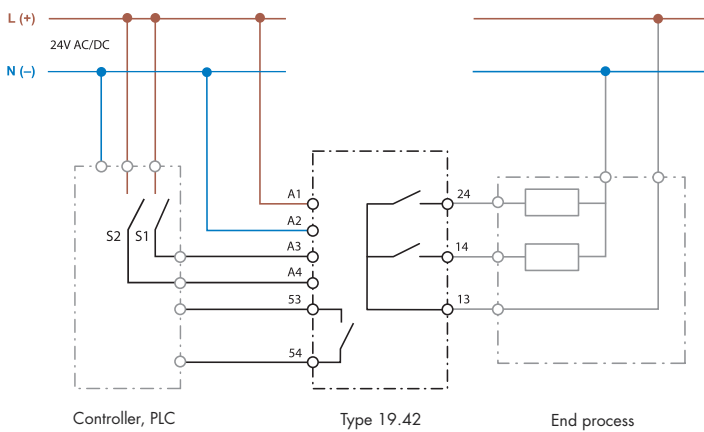
Type 19.21



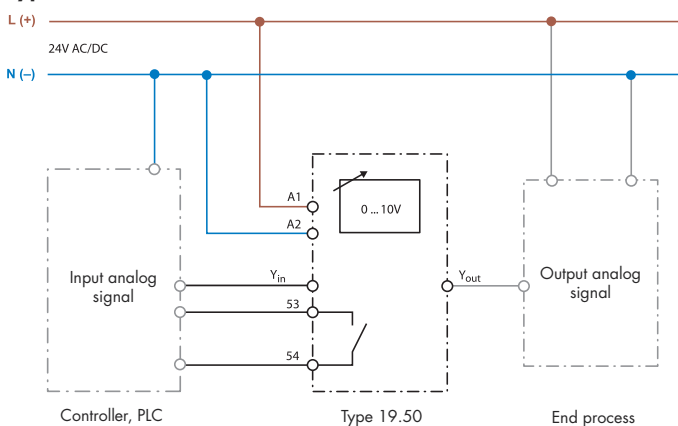
Type 19.41



Type 19.42



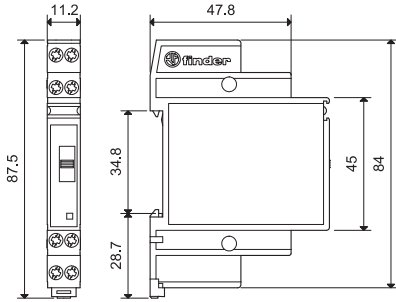
Type 19.50



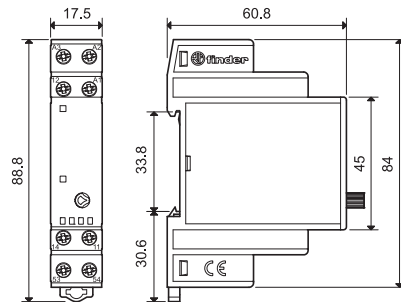
In the selector position A (Automatic) the 0...10 V set point of Yin - A2 is leaded, through Yout, to the end process; in the selector position H (Hand) the 0...10 V value set with the regulator is leaded, through Yout, to the end process.

Outline drawings

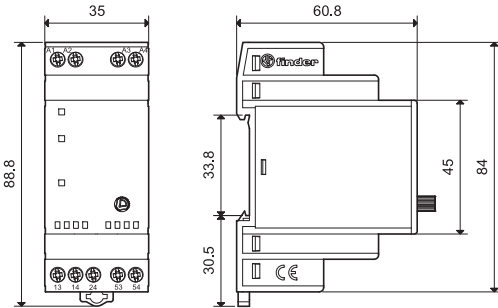
Type 19.21
Screw terminal



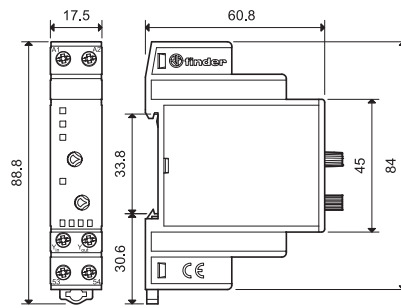
Type 19.41
Screw terminal



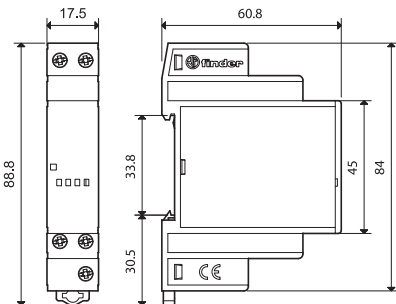
Type 19.42
Screw terminal



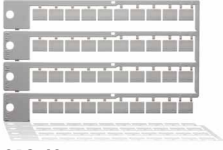
Type 19.50
Screw terminal



Type 19.91
Screw terminal



Accessories



019.40

Sheet of marker tags, for 19.21 type, plastic, 40 tags, 8x10 mm

019.40



060.72

Sheet of marker tags, for 19.41/42/50/91 types, plastic, 72 tags, 6x12 mm

060.72



019.01

Identification tag, for 19.41/42/50 types, plastic, 1 tag, 17x25.5 mm

019.01



020.01

Adaptor for panel mounting, for 19.41/50/91 types, plastic, 17.5 mm wide

020.01



011.01

Adaptor for panel mounting, for 19.42 type, plastic, 35 mm wide

011.01

Application notes

Intervention Modules

The demand for security apparatus, heating, air conditioning or efficient energy use in offices, hotels, and private homes or in industrial space is growing constantly, leading to the installation of increasingly complex electronic systems. But what happens if these systems malfunction and a qualified service technician will only be available in a few hours, or even days?

With the use of carefully installed intervention modules, a trained caretaker or security guard can be in a position to recognize interruptions in service, and by manual intervention perform the necessary override actions to maintain system operation until a repair can be effected.

Digital Override control module

Auto-Off-On output module (Type 19.21)

Many processes or systems are automatically controlled by an electronic control system or by a Programmable Logic Controller. In the event of an electronic system malfunction it is important, in order to avoid damage or downtime, to plan for the possibility of controlling the process manually. An Auto-Off-On Module can provide this, located between the output of the electronic system (Controller) and the process to be controlled (End Process) - bypassing the malfunctioning control unit in a planned way. For malfunctioning electronic systems, the process to be controlled can be manually switched On or Off, as needed, using the switch on the front of the unit. Under healthy functioning of the electronic system, the switch is left in the Auto position. In this configuration the process is controlled by the normal functioning of the electronic system and its output. It may be important to know (remotely) if the process is being controlled manually or automatically, in which case the feedback contact on the Auto-Off-On module 19.21 can provide this.

Override Control Modules (Type 19.41 and 19.42) may be installed if, in the event of a electronic system malfunction, emergency working has to be restored by means of manual intervention. On notice of a malfunctioning system, perhaps through a feedback contact from a Status Indicating Module, the caretaker on-site can then go to control panel housing the appropriate Override module and respond to the malfunction by manipulation of the Auto-Off-Hand switch. The 19.41 module has a three-position switch marked A-O-H. A= Automatic operation, O=OFF and H=Hand (or Manual operation).

Moving away from the Auto position means that the module's output relay is no longer under the control of the defective electronic Control System. Turning the switch to "H" energizes the output relay, whilst selecting the "O" position ensures the relay is de-energized.

For example: a defective heating control system can be manually overridden to be On in the "H" position or Off in the "O" position. In this way heating can be maintained until the faulty controller can be replaced.

The module's green LED will indicate that the Heating is On, whilst the flashing Yellow LED is a reminder that the task is under manual control, and that on the replacement of the defective electronic control system the Auto-Off-Hand switch should be returned to the "A" position.

The 19.42 override module is similar in principle to the 19.41 module except that it is intended for use with two-stage operations as associated with star-delta motor starting, two-speed fan motors, or forward/reverse motor switching. In these applications it is usually necessary to incorporate a "dead" time of > 50ms between the two On states. Consequently, when manually switching with the 19.42, between the "Low" and "High" state and vice versa, a "dead" time of > 80ms is provided for, within the module.

Note of caution: Where the reversal of motor direction is achieved by dual motor windings and a switched capacitor, an interval of approximately 300 ms should be provided. This will need to be provided by the inclusion of a separate timer in the control circuitry. To protect motors with a high moment of inertia (such as large fans and flywheels); when switching from high speed to lower speed, the lower speed should only be switched on when the motor has come nearly to a complete halt.

Analogue Override control module

Analogue output module (0...10)V (Type 19.50)

This module can be installed where there is need to give a manually adjustable analog signal (0...10)V priority over an analog signal from a electronic control unit or PLC, or to override and replace a malfunctioning signal.

The Analogue override module provides, by the selection switch on the front panel, a (0...10)V output signal either generated automatically or by hand. With the selector switch in position "A" (Automatic) the (0...10)V signal at Yout-A2 is derived from the controller signal applied to terminals Yin-A2. In position "H" (Hand) the controller signal is ignored and the (0...10) V signal is derived directly from the potentiometer setting on the module front panel.

Operation in switch position H is indicated by a blinking yellow LED, and by the opening of contact 51-52 – which could be used to report the override condition to the central control room.

The level of the (0...10) V output signal is displayed by 3 green LEDs, set at >25%, >50% and >75%.

Features

Electronic voltage monitoring relays for single and three-phase applications

- Multifunctional types, providing the flexibility of monitoring Undervoltage, Overvoltage, Window Mode, Phase rotation, Phase loss, Asymmetry and Neutral loss
- Positive safety logic - Make output contact opens if the relay detects an error
- All functions and values can be easily adjusted by the selector and trimmer on front face
- "Blade + cross" – both flat blade and cross head screw drivers can be used to adjust the regulators and the function selector
- Colored LEDs for clear & immediate visual indication
- 1 CO relay output, 6 or 10 A
- Modular housing, 17.5 or 35 mm wide
- 35 mm rail (EN 60715) mount
- Cd-free contact material

Screw terminal



For outline drawing see page 8

Contact specification		70.11	70.31	70.41
Contact configuration		1 CO (SPDT)	1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	10 / 30	6 / 10	6 / 10
Rated voltage/Max. switching voltage	V AC	250 / 400	250 / 400	250 / 400
Rated load AC1	VA	2,500	1,500	1,500
Rated load AC15	VA	750	500	500
Single phase motor rating (230 V AC)	kW	0.5	0.185	0.185
Breaking capacity DC1: 30/110/220 V	A	10 / 0.3 / 0.12	6 / 0.2 / 0.12	6 / 0.2 / 0.12
Minimum switching load	mW (V/mA)	300 (5 / 5)	500 (12 / 10)	500 (12 / 10)
Standard contact material		AgNi	AgNi	AgNi
Supply specification				
Nominal system voltage (U_N)	V AC (50/60 Hz)	220...240	380...415	380...415
Rated power	VA (50 Hz) / W	2.6 / 0.8	11 / 0.9	11 / 0.9
Operating range	V AC (50/60 Hz)	130...280	220...510	220...510
Technical data				
Electrical life at rated load AC1	cycles	$80 \cdot 10^3$	$60 \cdot 10^3$	$60 \cdot 10^3$
Voltage detection level range	V	170...270	300...480	300...480
Asymmetry detection level range	%	—	—	4...25
Switch-off delay time (T on function diagrams)	s	0.5...60	0.5...60	0.5...60
Switch-on lock-out time	s	0.5	1	1
Switch-on hysteresis (H on function diagrams)	V	5 (L-N)	10 (L-L)	10 (L-L)
Power-on activation time	s	≈ 1	≈ 1	≈ 1
Insulation between supply and contacts (1.2/50 μ s)	kV	4	4	4
Dielectric strength between open contacts	V AC	1,000	1,000	1,000
Ambient temperature	$^{\circ}$ C	-20...+60	-20...+60	-20...+60
Protection category		IP20	IP20	IP20
Approvals (according to type)				

70.11



Single-phase (220...240 V) voltage monitoring:

- Undervoltage
- Overvoltage
- Window mode (overvoltage + undervoltage)
- Voltage fault memory selectable

70.31



Three-phase (380...415 V) voltage monitoring:

- Undervoltage
- Overvoltage
- Window mode (overvoltage + undervoltage)
- Voltage fault memory selectable
- Phase loss
- Phase rotation

70.41



Three-phase (380...415 V, with or without neutral) voltage monitoring:

- Window mode (overvoltage + undervoltage)
- Phase loss
- Phase rotation
- Asymmetry
- Neutral loss selectable

Features





Electronic phase loss and rotation monitoring relays for three-phase applications

- Universal voltage monitoring (U_N from 208 V to 480 V, 50/60 Hz)
- Phase loss monitoring, even under phase regeneration
- Positive safety logic - Make contact opens if the relay detects an error
- 2 versions:
 - 1 CO relay output, 6 A (17.5 mm wide), and
 - 2 CO relay output, 8 A (22.5 mm wide)
- 35 mm rail (EN 60715) mount
- European patent pending for the innovative principle at the root of the 3 phase monitoring and error survey system (70.61)

Screw terminal



For outline drawing see page 8

Contact specification		70.61	70.62
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	6 / 15	8 / 15
Rated voltage/Max. switching voltage	V AC	250 / 400	250 / 400
Rated load AC1	VA	1,500	2,000
Rated load AC15	VA	250	400
Single phase motor rating (230 V AC)	kW	0.185	0.3
Breaking capacity DC1: 30/110/220 V	A	3 / 0.35 / 0.2	8 / 0.3 / 0.12
Minimum switching load	mW (V/mA)	500 (10 / 5)	300 (5 / 5)
Standard contact material		AgCdO	AgNi
Supply specification			
Nominal system voltage (U_N)	V AC (50/60 Hz)	208...480	208...480
Rated power	VA (50 Hz) / W	8 / 1	11 / 0.8
Operating range	V AC (50/60 Hz)	170...500	170...520
Technical data			
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$	$60 \cdot 10^3$
Switch-off delay time	s	0.5	0.5
Switch-on lock-out time	s	0.5	0.5
Power-on activation time	s	< 2	< 2
Insulation between supply and contacts (1.2/50 μ s)	kV	5	5
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature	$^{\circ}$ C	-20...+60	-20...+60
Protection category		IP20	IP20
Approvals (according to type)		  	

70.61

Three-phase (208...480 V)
voltage monitoring:

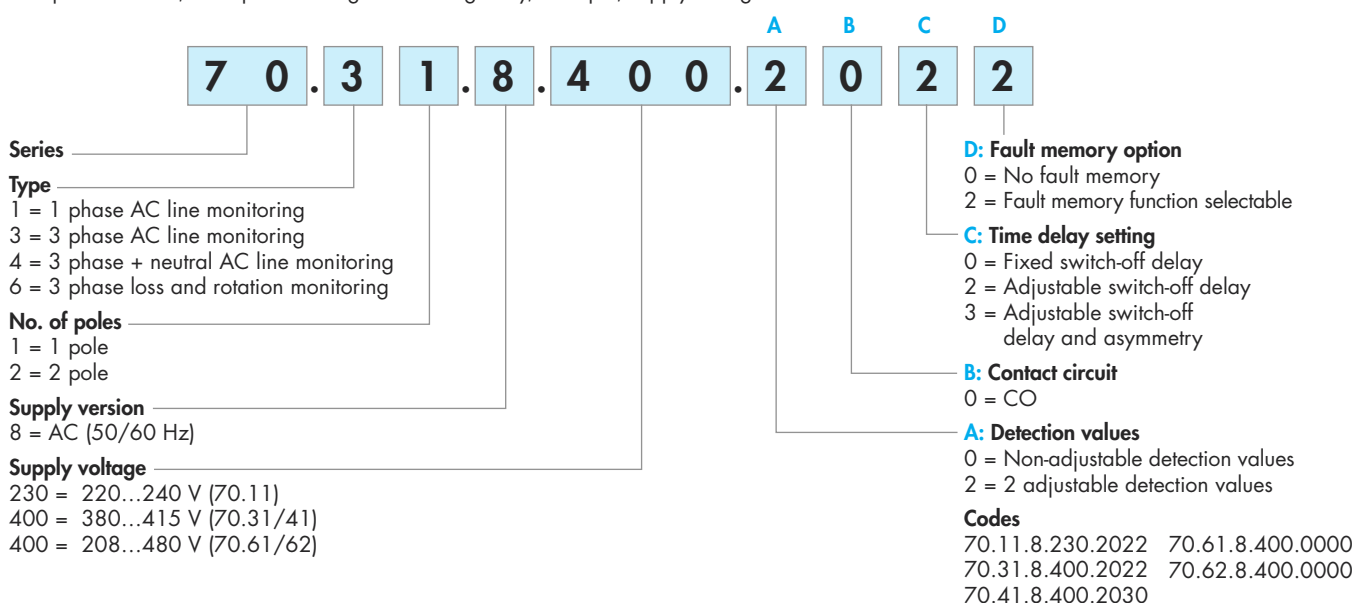
- Phase loss
- Phase rotation

 70.62
Three-phase (208...480 V)
voltage monitoring:

- Phase loss
- Phase rotation

Ordering information

Example: 70 series, three-phase voltage monitoring relay, 1 output, supply voltage 380...415 V AC.



Monitoring and function overview

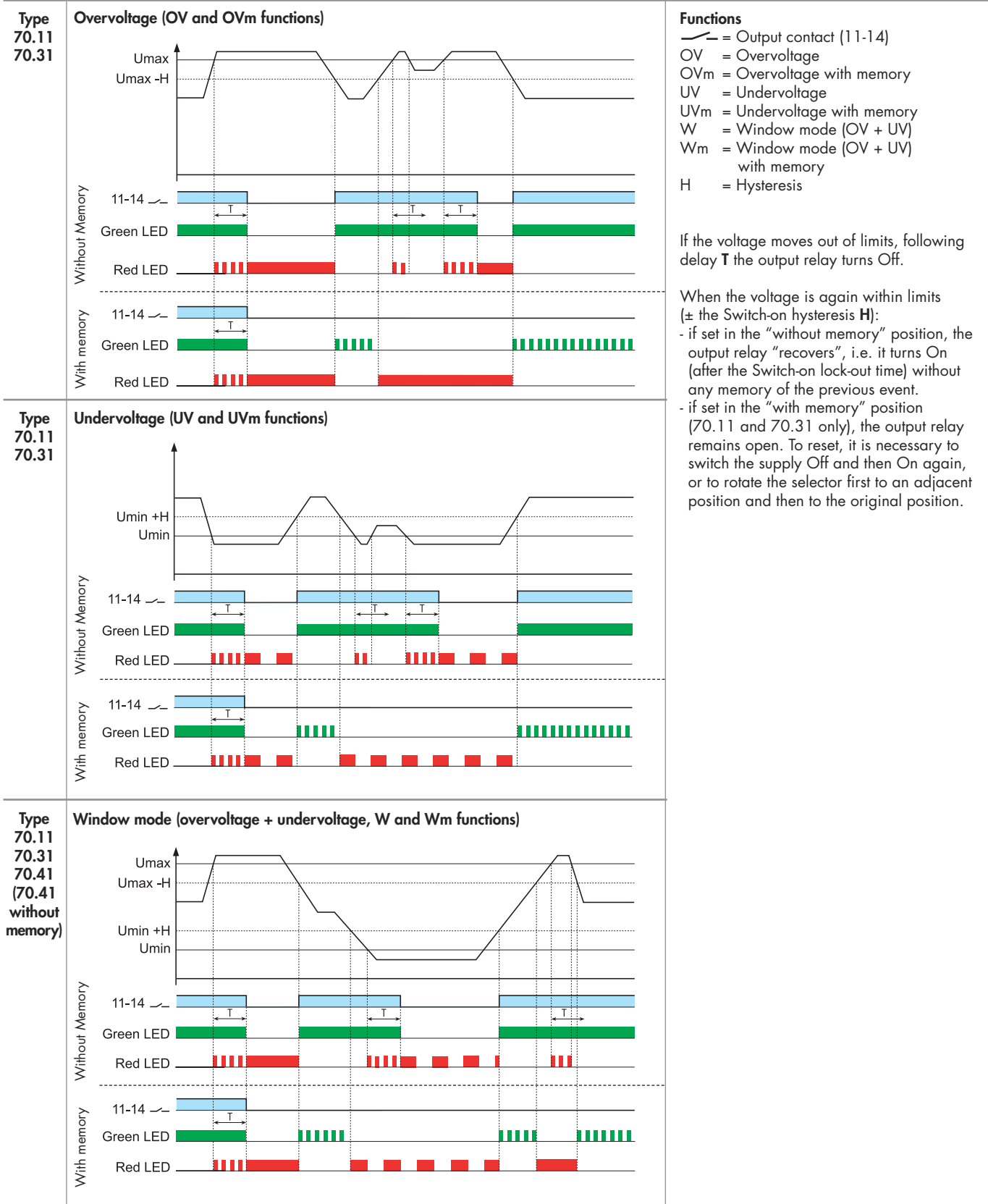
	70.11	70.31	70.41	70.61/62
Supply system type	Single phase system	3-phase systems	3-phase systems	3-phase systems
Nominal voltage 50/60 Hz	V 220...240	380...415	380...415	208...480
Undervoltage with/without memory (selectable)	•	•	—	—
Overvoltage with/without memory (selectable)	•	•	—	—
Window Mode with/without memory (selectable)	•	•	—	—
Window Mode without memory	—	—	•	—
Phase loss	—	•	•	•
Phase rotation	—	•	•	•
Phase asymmetry	—	—	•	—
Neutral loss (selectable)	—	—	•	—

Technical data

Insulation			70.11/31/41	70.61/62	
Between supply and contacts	dielectric strength	V AC	2,500	3,000	
	impulse (1.2/50 µs)	kV	4	5	
Between open contacts	dielectric strength	V AC	1,000	1,000	
	impulse (1.2/50 µs)	kV	1.5	1.5	
EMC specifications					
Type of test	Reference standard				
Electrostatic discharge	contact discharge	EN 61000-4-2		4 kV	
	air discharge	EN 61000-4-2		8 kV	
Radiated electromagnetic field	80 ... 1,000 MHz	EN 61000-4-3		10 V/m	
	1 ... 2.8 GHz	EN 61000-4-3		5 V/m	
Fast transients (burst 5/50 ns, 5 and 100 kHz)	on supply terminals	EN 61000-4-4		4 kV	
Voltage pulses on supply terminals (surge 1.2/50 µs)	common mode	EN 61000-4-5		4 kV	
	differential mode	EN 61000-4-5		4 kV	
Radiofrequency common mode voltage (0.15...230 MHz)	on supply terminals	EN 61000-4-6		10 V	
Voltage dips	70 % U _N	EN 61000-4-11		25 cycles	
Short interruptions		EN 61000-4-11		1 cycle	
Radiofrequency conducted emissions	0.15...30 MHz	CISPR 11		class B	
Radiated emissions	30...1,000 MHz	CISPR 11		class B	
Terminals			solid cable	stranded cable	
Max. wire size	mm ²	1 x 6 / 2 x 4		1 x 4 / 2 x 2.5	
	AWG	1 x 10 / 2 x 12		1 x 12 / 2 x 14	
⊕ Screw torque	Nm	0.8			
Wire strip length	mm	9			
Other data			70.11	70.31/41	70.61/62
Power lost to the environment	without output current	W	0.8	0.9	1
	with rated output current	W	2	1.2	1.4

Functions

Output relay On (NO closed) when all OK: positive logic.



Functions

Output relay On (NO closed) when all OK: positive logic.

<p>Type 70.31 70.41 70.61 70.62</p>	<p>Phase loss and phase rotation</p>	<p>If the sequence (L1, L2, L3) is incorrect at power-on, the output relay will not turn-on.</p> <p>If a phase is lost, the output relay turns off immediately. When the phase is again active, the output relay turns on immediately.</p> <p>For types 70.61 and 70.62: Phase loss monitoring possible even under regeneration up to 80% of the average of the other 2 phases.</p>
<p>Type 70.41</p>	<p>Neutral loss and asymmetry</p>	<p>If the neutral is lost (and the Neutral control function is set), the output relay turns off immediately. When the neutral is again present, the output relay turns on immediately.</p> <p>If the asymmetry $(U_{max} - U_{min})/U_N$ is above the % set value, the output relay turns off after the set delay T. When the asymmetry is again below the % set value (with a fixed hysteresis of approximately 2%), the output relay turns on after the Switch-on lock-out time.</p>

Front view: function selector and regulators

<p>70.11</p> <p>Functions: OV, OVm, UV, UVm, W, Wm</p> <p>T_{off} delay: (0.5...60) sec</p> <p>U_{Max}: (220...270) V</p> <p>U_{Min}: (170...230) V</p>	<p>70.31</p> <p>Functions: OV, OVm, UV, UVm, W, Wm</p> <p>U_{Max}: (380...480) V</p> <p>U_{Min}: (300...400) V</p> <p>T_{off} delay: (0.5...60) sec</p>	<p>70.41</p> <p>N = With N-line monitoring N = Without N-line monitoring</p> <p>U_{Max}: (380...480) V</p> <p>(4...25) % U_N</p> <p>U_{Min}: (300...400) V</p> <p>T_{off} delay: (0.5...60) sec</p>
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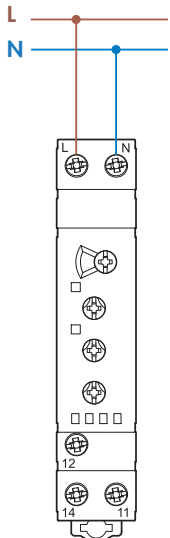
LED indication

Monitoring relay Type	LED	Supply system normal	Supply system abnormal (Voltage out of limits, switch-off delay time T running)	Supply system abnormal (Reason for switch-off, RESET necessary when "with Memory"* is selected)
		Contact 11 - 14 closed	Contact 11 - 14 closed	Contact 11-14 open
70.11.8.230.2022	• •		 	Overvoltage OV and OVm Undervoltage UV and UVm With Memory, following a failure a manual "RESET" ** is necessary
70.31.8.400.2022	• • •		 	Overvoltage OV and OVm Undervoltage UV and UVm Phase loss Phase rotation With Memory, following a failure a manual "RESET" ** is necessary
70.41.8.400.2030	• • •		 	Overvoltage OV Undervoltage UV Asymmetry Phase loss Neutral loss Phase rotation
70.61.8.400.0000	•			Phase rotation or Phase loss
70.62.8.400.0000	•			Phase loss Phase rotation

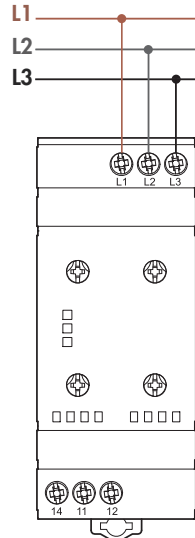
* The function "with Memory" is only available for type 70.11 and 70.31.

** It is necessary to switch the supply OFF and then On again (U off U on) or to rotate the function selector first to an adjacent position and then to the original position.

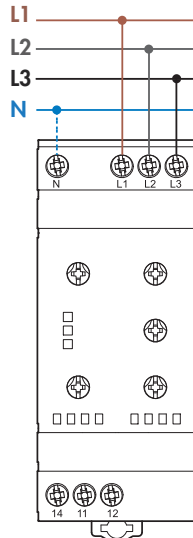
Wiring diagrams



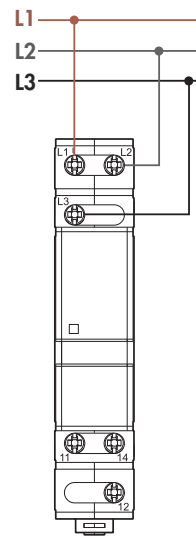
Type 70.11



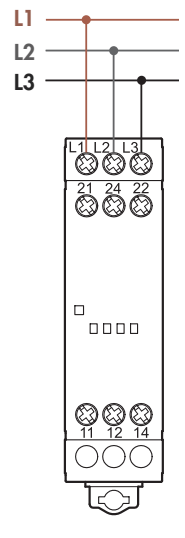
Type 70.31



Type 70.41



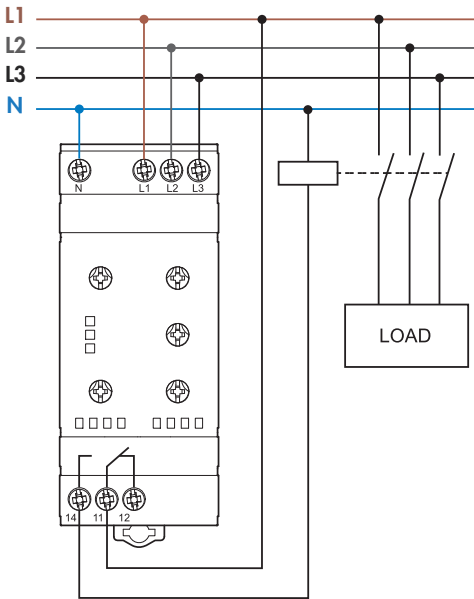
Type 70.61



Type 70.62

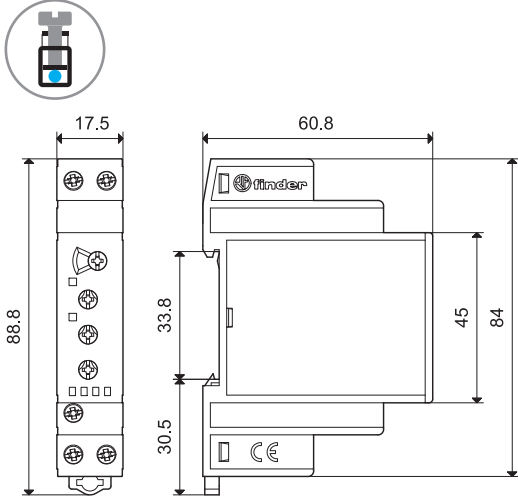
Application example

The output contact switches the coil of the line contactor.

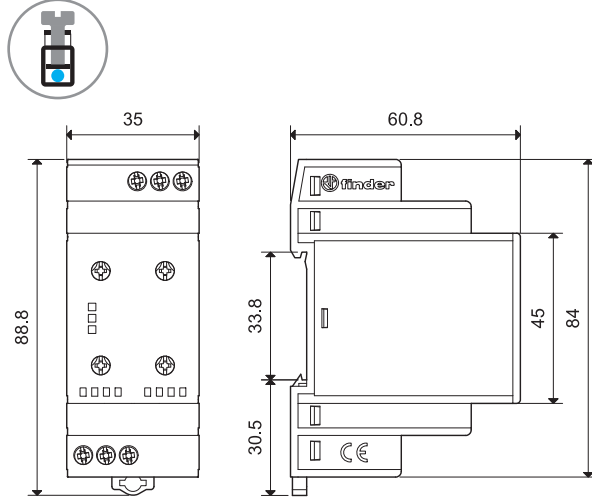


Outline drawings

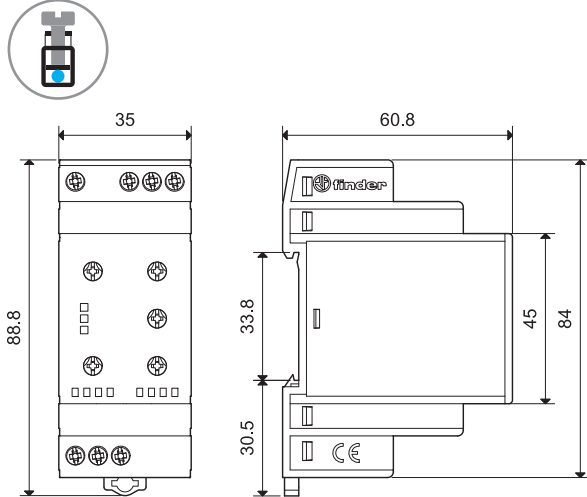
70.11
Screw terminal



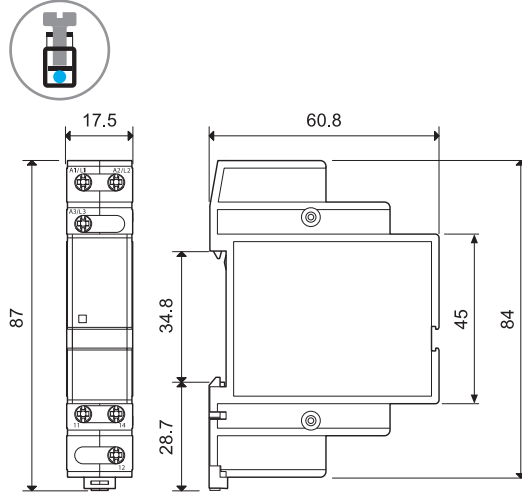
70.31
Screw terminal



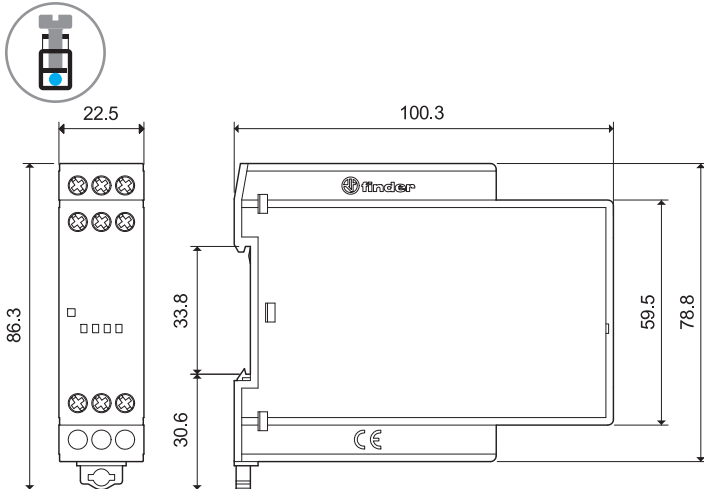
70.41
Screw terminal



70.61
Screw terminal



70.62
Screw terminal



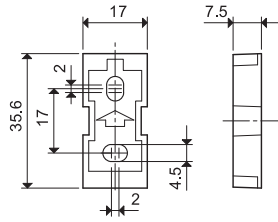
Accessories



020.01

Adaptor for panel mounting, plastic, 17.5 mm wide for 70.11 and 70.61

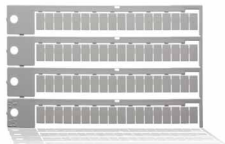
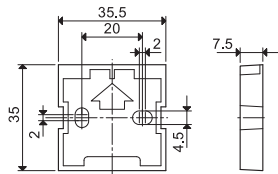
020.01



011.01

Adaptor for panel mounting, plastic, 35 mm wide for 70.31 and 70.41

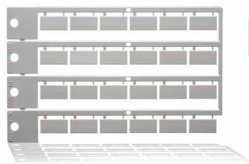
011.01



060.72

Sheet of marker tags, plastic, 72 tags, 6x12 mm for 70.11, 70.31, 70.41 and 70.62

060.72



020.24

Sheet of marker tags, plastic, 24 tags, 9x17 mm for 70.61

020.24



019.01

Identification tag, plastic, 1 tag, 17x25.5 mm for 70.11, 70.31 and 70.41

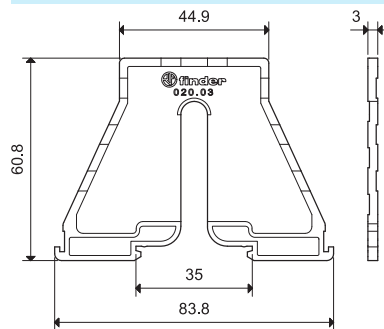
019.01



020.03

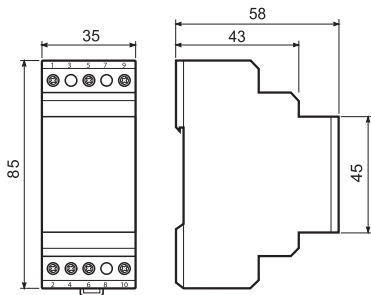
Separator for rail mounting, plastic, 3 mm wide

020.03



Features

- 1 - Phase 230 V
Over & Under voltage monitoring relays**
- 71.11.8.230.0010**
- Fixed Over & Under voltage detection
 - Link selectable 5 or 10 minute lock-out delay
- 71.11.8.230.1010**
- Adjustable Over & Under voltage detection
 - Switch selectable 5 or 10 minute lock-out delay
- 35 mm rail (EN 60715) mounting
 - LED indication
 - Positive safety logic (healthy conditions - output relay energised)



71.11.8.230.0010



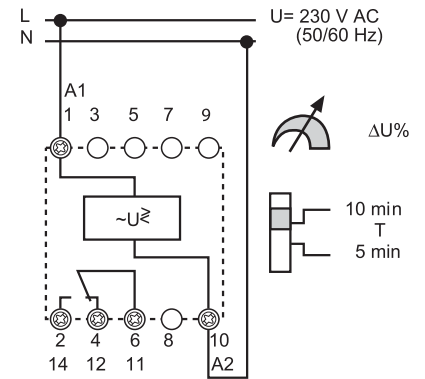
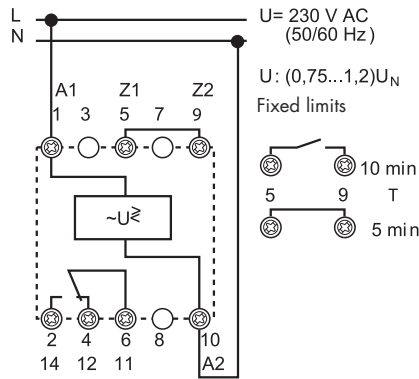
- Fixed - Over/Under voltage limits, (0.75...1.2) U_N respectivity
- Link selectable - 5 min or 10 min delay

71.11.8.230.1010



- Adjustable - symmetrical Over/Under voltage limits adjustable between $\pm 5\%$ to $\pm 20\%$ U_N
- Switch selectable - 5 min or 10 min delay

- Detects and trips on out-of-limits L-N voltage, and protects against excessive "starts/hour" through "power-on" and "lock-out" time delays.
- Typical applications - protection of compressor motors and high pressure discharge lamp circuitry.



Contact specification

Contact configuration		1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	10/15	10/15
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	2,500	2,500
Rated load AC15 (230 V AC)	VA	500	500
Single phase motor rating (230 V AC)	kW	0.5	0.5
Breaking capacity DC1: 30/110/220 V	A	10/0.3/0.12	10/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgCdO	AgCdO

Supply specification

Nominal voltage (U_N)	V AC (50/60 Hz)	230	230
	V DC	—	—
Rated power AC/DC	VA (50 Hz)/W	4/—	4/—
Operating range	AC	(0.75...1.2) U_N	(0.8...1.2) U_N
	DC	—	—

Technical data

Electrical life at rated load AC1	cycles	$100 \cdot 10^3$	$100 \cdot 10^3$
Detection levels		Fixed (0.75...1.2) U_N	Adjustable ($\pm 5\%$... $\pm 20\%$) U_N
Switch-on lock-out time/reaction time		(5 or 10)min / < 0.5 s	(5 or 10)min / < 0.5 s
Fault memory		—	—
Electrical isolation: Supply to Measuring circuits		None – circuits are electrically common	None – circuits are electrically common
Ambient temperature range	°C	-20...+55	-20...+55
Protection category		IP 20	IP 20

Approvals (according to type)



Features

3 - Phase 400 V
Over & Under voltage monitoring relay

71.31.8.400.1010

- Adjustable Over & Under voltage detection
- Switch selectable 5 or 10 minute lock-out delay

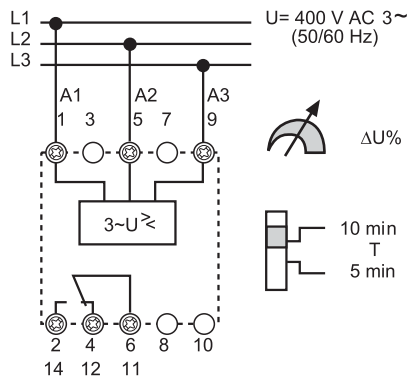
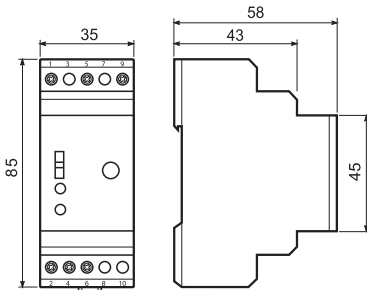
- 35 mm rail (EN 60715) mounting
- LED indication
- Positive safety logic (healthy conditions - output relay energised)

71.31.8.400.1010



- Adjustable - symmetrical Over/Under voltage limits adjustable between $\pm 5\%$ to $\pm 20\% U_N$
- Switch selectable - 5 min or 10 min delay

- Detects and trips on out-of-limits L-L voltage, and protects against excessive "starts/hour" through "power-on" and "lock-out" time delays.
- Typical applications - protection of compressor motors and high pressure discharge lamp circuitry.



Contact specification

Contact configuration	1 CO (SPDT)
Rated current/Maximum peak current	A 10/15
Rated voltage/Maximum switching voltage V AC	250/400
Rated load AC1	VA 2,500
Rated load AC15 (230 V AC)	VA 500
Single phase motor rating (230 V AC)	kW 0.5
Breaking capacity DC1: 30/110/220 V	A 10/0.3/0.12
Minimum switching load	mW (V/mA) 300 (5/5)
Standard contact material	AgCdO

Supply specification

Nominal voltage (U_N)	V AC (50/60 Hz)	400
	V DC	—
Rated power AC/DC	VA (50 Hz)/W	4/—
Operating range	AC	$(0.8 \dots 1.2) U_N$
	DC	—

Technical data

Electrical life at rated load AC1	cycles	$100 \cdot 10^3$
Detection levels	V (50/60 Hz)	Adjustable ($\pm 5 \dots \pm 20$)% U_N
Switch-on lock-out time/reaction time		(5 or 10)min / < 0.5 s
Fault memory		—
Electrical isolation: Supply to Measuring circuits		None – circuits are electrically common
Ambient temperature range	$^{\circ}\text{C}$	$-20 \dots +55$
Protection category		IP 20

Approvals (according to type)



Features

3 - Phase 400 V - Line monitoring relays

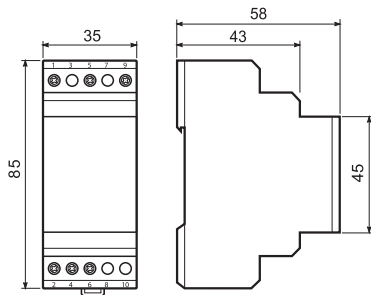
71.31.8.400.1021

- Over & Under voltage trip on-delay
- Fault memory

71.31.8.400.2000

- Phase asymmetry
- Phase rotation
- Phase loss

- 35 mm rail (EN 60715) mounting
- LED indication
- Positive safety logic (healthy conditions - output relay energised)



71.31.8.400.1021



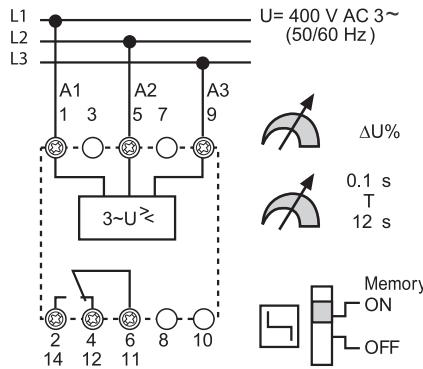
- 3 phase 400 V - line voltage monitoring
- Detects over and under voltage
- Adjustable trip on-delay
- Switch selectable fault memory

71.31.8.400.2000

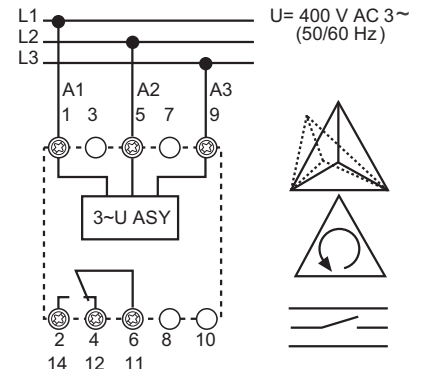


- 3 phase asymmetry monitoring
- Phase rotation monitoring
- Phase loss monitoring

- Under voltage trip level $(0.8...0.95)U_N$ - Adjustable
- Over voltage trip level $1.15 U_N$ - Fixed
- Trip delay time $(0.1...12)s$ adjustable
- Fault memory, switch selectable
- Fault acknowledgement by switch manipulation from ON to OFF and back to ON or power down



- Asymmetry between phases $(-5...-20)\% U_N$ adjustable
- Detection of the supply voltage U to A1 (1) and/or A2 (5) $> 1.11 U_N$



Contact specification

Contact configuration		1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	10/15	10/15
Rated voltage/Maximum switching voltage V AC		250/400	250/400
Rated load AC1	VA	2,500	2,500
Rated load AC15 (230 V AC)	VA	500	500
Single phase motor rating (230 V AC)	kW	0.5	0.5
Breaking capacity DC1: 30/110/220 V	A	10/0.3/0.12	10/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgCdO	AgCdO

Supply specification

Nominal voltage (U_N)	V AC (50/60 Hz)	400	400
	V DC	—	—
Rated power AC/DC	VA (50 Hz)/W	4/ —	4/ —
Operating range	AC	$(0.8...1.15)U_N$	$(0.8...1.15)U_N$
	DC	—	—

Technical data

Electrical life at rated load AC1	cycles	$100 \cdot 10^3$	$100 \cdot 10^3$
Detection level	$U_{min}/U_{max}/Asymmetry$	$(0.8...0.95)U_N / 1.15 U_N / -$	$0.8 U_N / 1.11 U_N / [-5...-20]\% U_N$
Trip on-delay/reaction time		$(0.1...12)s / < 0.5 s$	— / $< 0.5 s$
Fault memory - selectable		Yes	—
Electrical isolation: Supply to Measuring circuits		None – circuits are electrically common	None – circuits are electrically common
Ambient temperature range	°C	$-20...+55$	$-20...+55$
Protection category		IP 20	IP 20

Approvals (according to type)



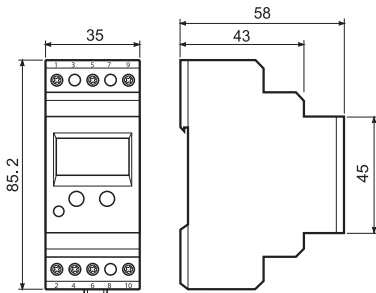
Features

Universal voltage or current detecting and monitoring relay

71.41.8.230.1021 - Voltage monitoring

71.51.8.230.1021 - Current monitoring

- Zero voltage memory according to EN 60204-7-5
- Programmable for DC or AC detection level:
 - range detecting: upper and lower value
 - upper set point minus hysteresis range (5...50)% for switch on
 - lower set point plus hysteresis range (5...50)% for switch on
- Fault memory
- Electrical isolation between measuring and supply circuits
- Immune to supply interruptions of < 200 ms
- Wide detecting range:
 - voltage: DC (15...700)V, AC (15...480)V
 - 35 mm rail (EN 60715) mounting

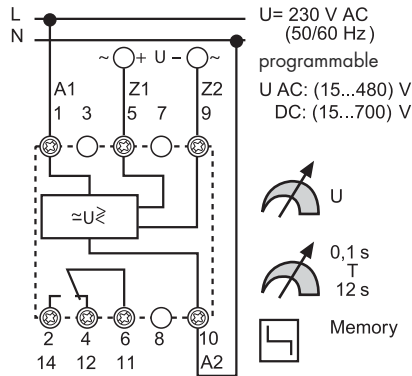


71.41.8.230.1021



- Programmable universal voltage monitoring relay

- AC/DC voltage detection - adjustable
- AC (50/60 Hz) (15...480)V
- DC (15...700)V
- Switch-on hysteresis (5...50)%
- Switch-off delay (0.1...12)s

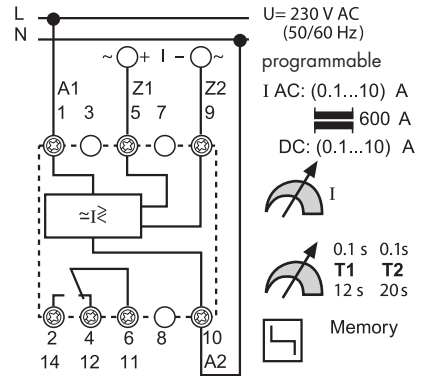


71.51.8.230.1021



- Programmable universal current monitoring relay
- Usable with current transformer 50/5, 100/5, 150/5, 250/5, 300/5, 400/5 or 600/5

- AC/DC current detection - adjustable
- AC(50/60Hz) (0.1...10)A with current transformer to 600A
- DC (0.1...10)A
- Switch-on hysteresis (5...50)%
- Switch-off delay (0.1...12)s
- Start delay (0.1...20)s



Contact specification

Contact configuration		1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	10/15	10/15
Rated voltage/Maximum switching voltage V AC		250/400	250/400
Rated load AC1	VA	2,500	2,500
Rated load AC15 (230 V AC)	VA	500	500
Single phase motor rating (230 V AC)	kW	0.5	0.5
Breaking capacity DC1: 30/110/220 V	A	10/0.3/0.12	10/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgCdO	AgCdO

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	230	230
	V DC	—	—
Rated power AC/DC	VA (50 Hz)/W	4 / —	4 / —
Operating range	AC	(0.85...1.15)U _N	(0.85...1.15)U _N
	DC	—	—

Technical data

Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³
Detection levels	AC(50/60 Hz)/DC	(15...480)V/(15...700)V	(0.1...10)A at transducer to 600A / (0.1...10)A
Switch-off/reaction/Start delay		(0.1...12)s / < 0.35 s / < 0.5 s	(0.1...12)s / < 0.35 s / (0.1...20)s
Switch-on level of the detecting level	%	5...50	5...50
Fault memory - programmable		Yes	Yes
Electrical isolation: Supply to Measuring circuits		Yes	Yes
Ambient temperature range	°C	-20...+55	-20...+55
Protection category		IP 20	IP 20

Approvals (according to type)



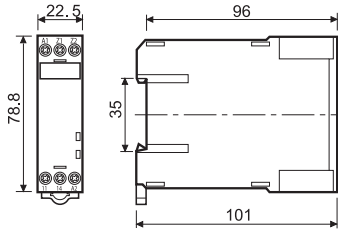
Features

Thermistor temperature sensing relays for industrial applications

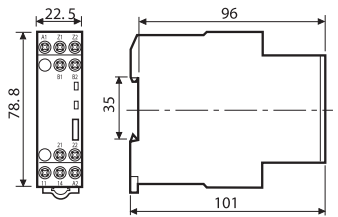
71.91 - 1 Pole, without fault memory

71.92 - 2 Pole, with fault memory

- Overload protection according EN 60204-7-3
- Positive safety logic - make contact opens if the measured value is outside of the acceptable range
- Industry standard module
- LED status indication
- 35 mm rail (EN 60715) mounting



71.91



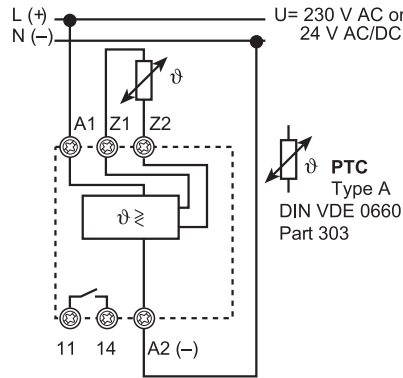
71.92

71.91.x.xxx.0300



- Thermistor relay
- 1 Pole normally open contact
- 24 V AC/DC, or 230 V AC supply

- Temperature detection with PTC
- PTC short circuit detection
- PTC wire breakage detection

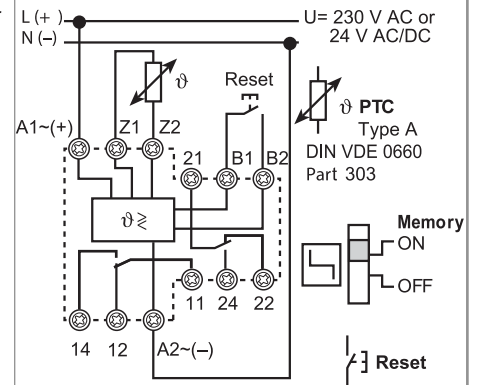


71.92.x.xxx.0001



- Thermistor relay with fault memory
- 2 Pole changeover contacts
- 24 V AC/DC, or 230 V AC supply

- Temperature detection with PTC
- Fault memory – switch selectable
- Reset by Reset button or supply interruption
- PTC short circuit detection
- PTC wire breakage detection



Contact specification

Contact configuration	1 NO (SPST-NO)	2 CO (DPDT)
Rated current/Maximum peak current A	10/15	10/15
Rated voltage/Maximum switching voltage V AC	250/400	250/400
Rated load AC1 VA	2,500	2,500
Rated load AC15 (230 V AC) VA	500	500
Single phase motor rating (230 V AC) kW	0.5	0.5
Breaking capacity DC1: 30/110/220 V A	10/0.3/0.12	10/0.3/0.12
Minimum switching load mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material	AgCdO	AgCdO

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	230	230
	V AC/DC	24	24
Rated power AC/DC	VA (50 Hz)/W	1/0.5	1/0.5
Operating range	AC	(0.85...1.15)U _N	(0.85...1.15)U _N
	DC	—	—

Technical data

Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³
PTC detecting: Short circuit/Temperature OK		<20 Ω / >20 Ω ... <3 kΩ	<20 Ω / >20 Ω ... <3 kΩ
	Reset/PTC break	<1.3 kΩ / >3 kΩ	<1.3 kΩ / >3 kΩ
Delay time/activation time		— / < 0.5 s	— / < 0.5 s
Fault memory - switch selectable		—	Yes
Electrical isolation: Supply to Measuring circuits		Yes	Yes
Ambient temperature range	°C	-20...+55	-20...+55
Protection category		IP 20	IP 20

Approvals (according to type)



Ordering information

Example: Universal voltage monitoring relay with LCD display for AC/DC voltage detection, 1 CO (SPDT) contact rated 10 A 250, supply voltage 230 V, programmable delay time and fault memory.

7 1 . 4 1 . 8 . 2 3 0 . 1 0 2 1

Series

Type

- 1 = 1 phase AC line monitoring
- 3 = 3 phase AC line monitoring
- 4 = AC/DC universal- Voltage detection
- 5 = AC/DC universal- Current detection
- 9 = Thermistor relay (temperature monitoring with PTC thermistor)

No. of poles

- 1 = 1 CO (SPDT) types 71.11, 31, 41, 51
- 1 = 1 NO (SPST-NO) type 71.91
- 2 = 2 CO (DPDT) type 71.92

Supply version

- 0 = AC(50/60Hz)/DC
- 8 = AC (50/60 Hz)

Supply voltage

- 024 = 24 V AC/DC
- 230 = 230 V
- 400 = 400 V

Additional functions

- 0 = Basic function
- 1 = Adjustable detection value
- 2 = Adjustable: Asymmetry, phase loss, phase rotation

Special versions

- 0 = No fault memory
- 1 = Fault memory

Options

- 0 = No delay time
- 1 = Two selectable delay times
- 2 = Adjustable delay times

Contact circuit

- 0 = CO (nPDT)
- 3 = NO (nPST-NO)

Technical data

Insulation			
Insulation according to EN 61810-1		insulation rated voltage	V 250
		rated impulse withstand voltage	kV 4
		pollution degree	3
		over-voltage category	III
Dielectric strength (A1, A2, A3, B1, B2), and contact terminals (11, 12, 14) and terminals (Z1, Z2)		V AC	2,500
		kV (1.2/50 µs)	6
Dielectric strength at open contact		V AC	1,000
EMC specifications			
Type of test		Reference Standard	
Electrostatic discharge	contact discharge	EN 610004-2	8 kV
	air discharge	EN 610004-2	8 kV
Radio-frequency electromagnetic field (80...1,000)MHz		EN 610004-3	3 V/m
Fast transients (burst) (5-50 ns, 5 kHz) on (A1, A2, A3, B1, B2) and (Z1, Z2)		EN 610004-4	2 kV
Surges (1.2/50 µs) on (A1, A2, A3, B1, B2) and (Z1, Z2)		common mode	EN 610004-5
		differential mode	EN 610004-5
Radio-frequency common mode (0.15 ÷ 80 MHz) to A1 - A2		EN 610004-6	10 V
Radiated and conducted emission		EN 55022	class B
Other data			
Voltage and current values at terminals Z1 Z2		Type 71.11	Link for time range V / mA 230 V / —
		Type 71.91, 71.92	PTC temperature measurement V / mA 24 V / 2.4
Maximum length of wiring to the Supply terminals/ Measuring terminals		Type 71.11, 71.31	Contact bridge for time range m 150 / —
		Type 71.41	Voltage measurement m 150 / 50
		Type 71.51	Current measurement m 150 / 50
(Wiring capacitance no greater than 10 nF/100 m)		Type 71.91, 71.92	PTC temperature measurement m 50 / 50
Measuring principle		Type 71.11, 71.31, 71.41, 71.51, 71.91, 71.92	The measured value is the arithmetical average of 500 individual measurements taken over a 100 ms period. Interruptions less than <200 ms are ignored.
Safety logic		Type 71.11, 71.31, 71.41, 71.51, 71.91, 71.92	Positive safety logic - When the value being monitored lies within the acceptable area, the make contact is closed.
Reaction time (following the application of the supply voltage)		Type 71.11, 71.31, 71.41, 71.51, 71.91, 71.92	≤ 0.5 s
Power lost to the environment		without contact load	W 4
		with rated current	W 5
Permitted storage temperature range		°C	-40...+85
Protection category		IP 20	
Screw torque		Nm	0.8
Max. wire size		solid cable	
		mm ²	0.5...(2 x 2.5) (2 x 1.5)
		AWG	20...(2 x 14) (2 x 16)

Functions

Monitoring relay	Types										Times			Supply voltage		Module width		Contact conf.			
	1-phase 230 V, Under/Overvoltage	3-phase 400 V, Under/Overvoltage	3-phase 400 V, Phase/Symmetry	3-phase 400 V, Phase loss	3-phase 400 V, Phase	DC voltage (15...700)V Under and Over voltage monitoring	AC voltage (15...484)V Under and Over voltage monitoring	DC current (0.1...10)A Under and Over current monitoring	AC current (0.1...10)A (for to 600 A with current transformers) Under and Over current monitoring	Thermistor relay (PTC)	Adjustable	Fault memory for 71.41 and 71.51	Delay time 5/10 min	Delay time (0.1...12)s adjustable	Power-up activation time delay (0.1...20)s — starting inrush current suppression	24 V AC/DC	230 V AC		400 V AC	35 mm wide	22.5 mm wide
71.11.8.230.0010	•											•				•					1 CO SPDT
71.11.8.230.1010	•									•		•				•					1 CO SPDT
71.31.8.400.1010		•								•		•					•				1 CO SPDT
71.31.8.400.1021		•								•	•		•				•				1 CO SPDT
71.31.8.400.2000			•	•	•					•							•				1 CO SPDT
71.41.8.230.1021	•					•	•			•	•		•			•					1 CO SPDT
71.51.8.230.1021								•	•	•	•		•	•		•					1 CO SPDT
71.91.0.024.0300									•	•					•					•	1 NO SPST-NO
71.91.8.230.0300									•	•						•				•	1 NO SPST-NO
71.92.0.024.0001									•	•	•				•					•	2 CO DPDT
71.92.8.230.0001									•	•	•					•				•	2 CO DPDT
Current transformer	Source as required																				

Explanation of relay marking and LED/LCD display

Monitoring relay without LCD-display	
ON	LED green steady light: supply voltage is on and measuring system is active.
DEF	Default: the detected value is outside of the acceptable range (asymmetric is shown by the LED ASY). LED red flashing: delay time is running, see the function diagram. LED red steady light: output relay is off, contact 11-14 (6-2) is open.
ASY	Phase asymmetry is outside of the predefined range. LED steady light: output relay is turned off, contact 11-14 (6-2) is open.
LEVEL	Selected range as % value.
TIME	Delay time min (minutes) or s (seconds).
MEMORY ON	Fault memory switched on: the state of the output relay after the occurrence of a fault –contact 11-14 (6-2) open– will be maintained, monitored value returns to within acceptable limits. Fault reset is made by switch manipulation from ON to OFF to ON, or by power down (71.31.8.400.1021 & 71.92.x.xxx.0001), or by operating of the “RESET” (71.92.x.xxx.0001).
MEMORY OFF	Fault memory turned off: the state of the output contacts will only remain in the “fault” condition –contact 11-14 (6-2) open– while the monitored value is outside of the acceptable limits. When the monitored value returns within the acceptable limits the contact will revert to the energised state. Monitored equipment will start again automatically.

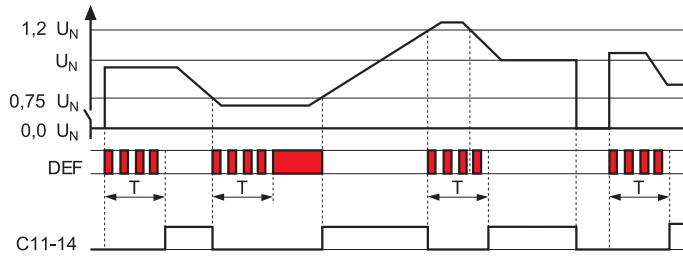
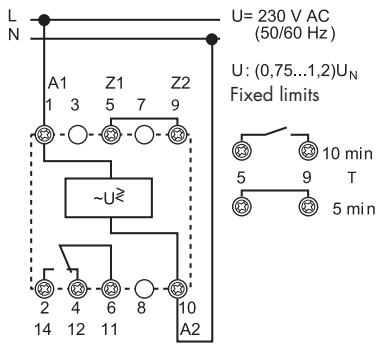
Monitoring relay with LCD-display																
SET/RESET	Relay 71.41 and 71.51. Sets and resets the programmable values - see operating in the packing.															
SELECT	Relay 71.41 and 71.51. Selects the desired parameter for programming - see operating instructions.															
DEF	Default, LED red steady or flashing.															
PROG Modus	Enter the programming mode by simultaneously pressing the buttons “SET/RESET” and “SELECT” for 3 seconds. The word “prog” is shown for 1 second. “SELECT” allows the choice of “AC” or “DC”, and is confirmed with “SET/RESET”. Successively pressing the button “SELECT” brings up the choices of Up, or Up _{Lo} . The appropriate choice is made by pressing the “SET/RESET” button. The next step will program the appropriate values and the selection of the fault memory function (which is selected with a “YES” or “NO”). If all programming steps are completed the display will read “end”.															
Short programming instruction	After repeatedly pressing the “SET/RESET” button the measured value will be displayed, or “0” appears if nothing is connected to Z1 and Z2 (5 and 9). If the programming is broken off before “end” is shown in the display the previous program will remain unchanged after an interruption of the supply voltage.															
Program query	Pushing the “SELECT” button for at least 1 second, enters the “program inquiry mode”. The programmed mode and the values are shown on the repeated pressing of the “SELECT” button.															
Flashing M (memory)	Fault memory has had effect (fault acknowledgement and reset is made by a 1 second press of the “SET/RESET” button).															
LCD-display	<table border="0"> <tr> <td>V = volt</td> <td>Level= value</td> <td>$t_1 = T_1$ - time during which short-time fluctuations are not taken into account</td> </tr> <tr> <td>A = amp</td> <td>Hys = hysteresis</td> <td></td> </tr> <tr> <td>Up = upper limit (with hysteresis in down direction)</td> <td>M = memory (fault)</td> <td>$t_2 = T_2$ - (monitoring relay 71.51) the time during which inrush currents are not taken into account</td> </tr> <tr> <td>Lo = lower limit (with hysteresis in up direction)</td> <td>Yes = yes - with memory</td> <td></td> </tr> <tr> <td>Up_{Lo} = upper and lower limit - range detecting</td> <td>no = no - without memory</td> <td></td> </tr> </table>	V = volt	Level= value	$t_1 = T_1$ - time during which short-time fluctuations are not taken into account	A = amp	Hys = hysteresis		Up = upper limit (with hysteresis in down direction)	M = memory (fault)	$t_2 = T_2$ - (monitoring relay 71.51) the time during which inrush currents are not taken into account	Lo = lower limit (with hysteresis in up direction)	Yes = yes - with memory		Up _{Lo} = upper and lower limit - range detecting	no = no - without memory	
V = volt	Level= value	$t_1 = T_1$ - time during which short-time fluctuations are not taken into account														
A = amp	Hys = hysteresis															
Up = upper limit (with hysteresis in down direction)	M = memory (fault)	$t_2 = T_2$ - (monitoring relay 71.51) the time during which inrush currents are not taken into account														
Lo = lower limit (with hysteresis in up direction)	Yes = yes - with memory															
Up _{Lo} = upper and lower limit - range detecting	no = no - without memory															

LED/LCD status announcement/advice

Type	Starting mode	Normal operation	Abnormal mode		Reset
71.11.8.230.0010 71.11.8.230.1010 71.31.8.400.1010	After connecting T = 5 or 10 min 11-14 open	Normal operation Set point is OK 11-14 is closed	Time T runs Set point is immaterial 11-14 is open Will close after T, if set point is OK	After expiry of T Set point is not OK 11-14 is open Will close, if set point is OK	
71.31.8.400.1021 Memory OFF 		Normal operation Set point is OK 11-14 is closed	Time T runs, Set point is not OK 11-14 is closed	After expiry of T Set point is not OK 11-14 is open Will close, if set point is OK	
71.31.8.400.1021 Memory ON 		Normal operation Set point is OK 11-14 is closed	Time T runs, Set point is not OK 11-14 is closed	After expiry of T Set point is not OK 11-14 is open Will not close at RESET	After expiry of T Set point is OK 11-14 is open Will close at RESET
71.31.8.400.2000		Normal operation Set point is OK 11-14 is closed	Supply voltage to A1(1) and / or A2(5) is missing 11-14 is open, Will close if supply voltage restored and set point OK Incorrect phase rotation or phase failure or voltage A1(1) and/or A2(5) is > 1.11 U _N 11-14 is open Will close, if set point is OK	Phase asymmetry 11-14 is open Will close, if set point is OK	
71.41.8.230.1021 Memory OFF		Measured value displayed Normal operation Set point is OK 11-14 is closed	Measured value displayed Time T runs, Set point is not OK 11-14 is closed	Measured value displayed After expiry of T Set point is not OK 11-14 is open Will close, if set point is OK	
71.41.8.230.1021 Memory ON		Measured value displayed Normal operation Set point is OK 11-14 is closed	Measured value displayed Time T runs, Set point is not OK 11-14 is closed	M in the display flashes Measured value displayed After expiry of T Set point is not OK 11-14 is open Will not close at RESET	M in the display - static Measured value displayed After expiry of T Set point is OK 11-14 is open Will close at RESET
71.51.8.230.1021 Memory OFF	Measured value displayed Time T2 runs, Set point immaterial 11-14 is closed	Measured value displayed Normal operation Set point is OK 11-14 is closed	Measured value displayed Time T runs, Set point is not OK 11-14 is closed	Measured value displayed After expiry of T Set point is not OK 11-14 is open Will close, if set point is OK	
71.51.8.230.1021 Memory ON	Measured value displayed Time T2 runs, Set point immaterial 11-14 is closed	Measured value displayed Normal operation Set point is OK 11-14 is closed	Measured value displayed Time T runs, Set point is not OK 11-14 is closed	M in the display flashes Measured value displayed After expiry of T Set point is not OK 11-14 is open Will not close at RESET	M in the display - static Measured value displayed After expiry of T Set point is OK 11-14 is open Will close at RESET
71.91.x.xxx.0300		Normal operation Set point is OK 11-14 is closed	Temperature to high or PTC line break or PTC short circuit 11-14 is open Will close, if set point is OK		
71.92.x.xxx.0001 Memory OFF		Normal operation Set point is OK 11-14 is closed	Temperature to high or PTC line break or PTC short circuit 11-14 is open Will close, if set point is OK		
71.92.x.xxx.0001 Memory ON 		Normal operation Set point is OK 11-14 is closed	Temperature to high or PTC line break or PTC short circuit 11-14 is open		Temperature is OK 11-14 is open Will close at RESET

Functions

Type 71.11.8.230.0010

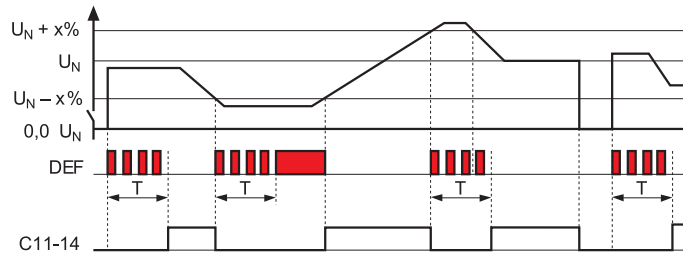
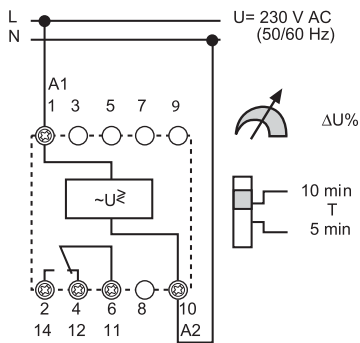


Switch off
 Immediately if monitored value is outside of the set points.

Switch on
 After expiry of the time T and if monitored value is within the set points.

C = output contact
 Normally open 11-14 (6-2) closed.

Type 71.11.8.230.1010

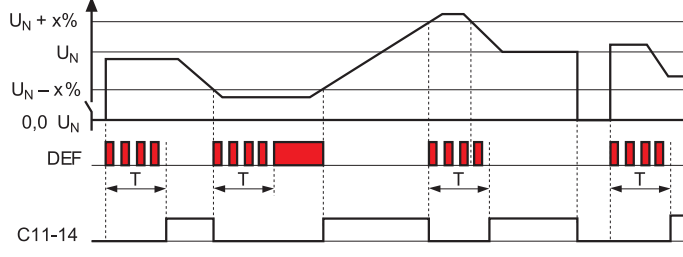
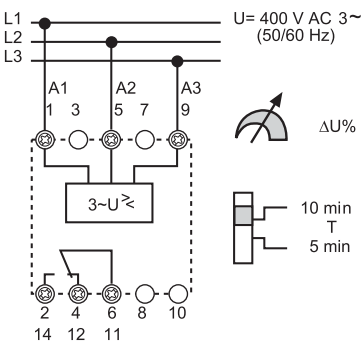


Switch OFF
 Immediately if monitored value is outside of the set points.

Switch on
 After expiry of the time T and if monitored value is within the set points.

C = output contact
 Normally open 11-14 (6-2) closed, all values within the set points.

Type 71.31.8.400.1010

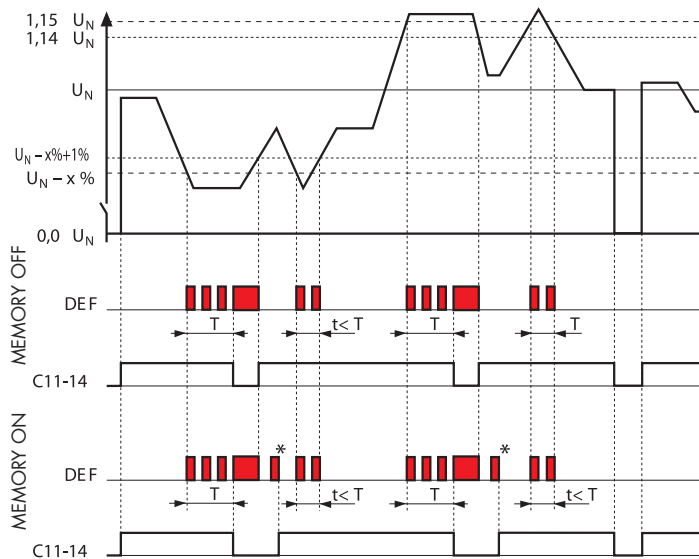
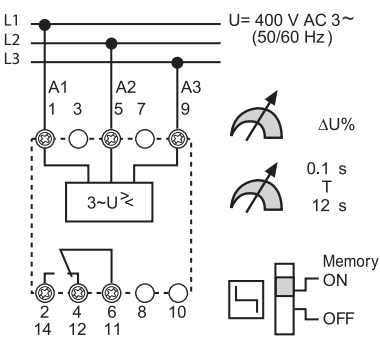


Switch off
 Immediately if monitored value is outside of the set points.

Switch on
 After expiry of the time T and if monitored value is within the set points.

C = output contact
 Normally open 11-14 (6-2) closed.

Type 71.31.8.400.1021



Switch off
 If monitored value is outside of the set points and time T has elapsed.

Switch on - MEMORY OFF
 Immediately monitored value returns within limits (off-set by 1% hysteresis).

Switch on - MEMORY ON
 As above, but subject to the RESET operation having been actioned.

RESET
 By Memory switch manipulation from ON to OFF and back to ON, or power down.

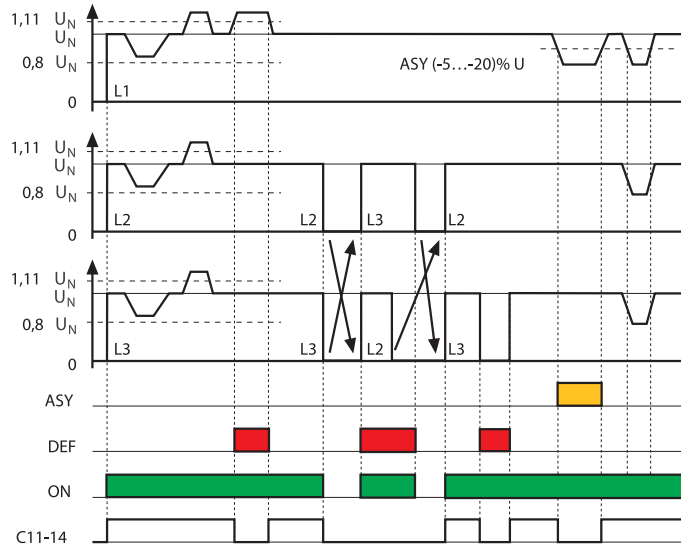
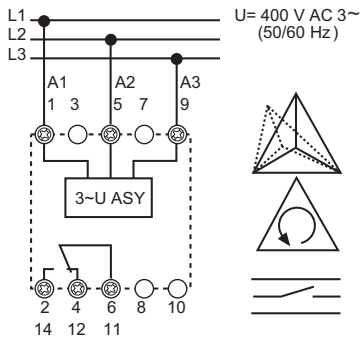
*RESET MEMORY = By power-down or switch manipulation from ON to OFF to ON



C = output contact
 Normally open 11-14 (6-2) closed.

Functions

Type 71.31.8.400.2000



Switch off
Phase asymmetry
Incorrect phase rotation
Phase loss

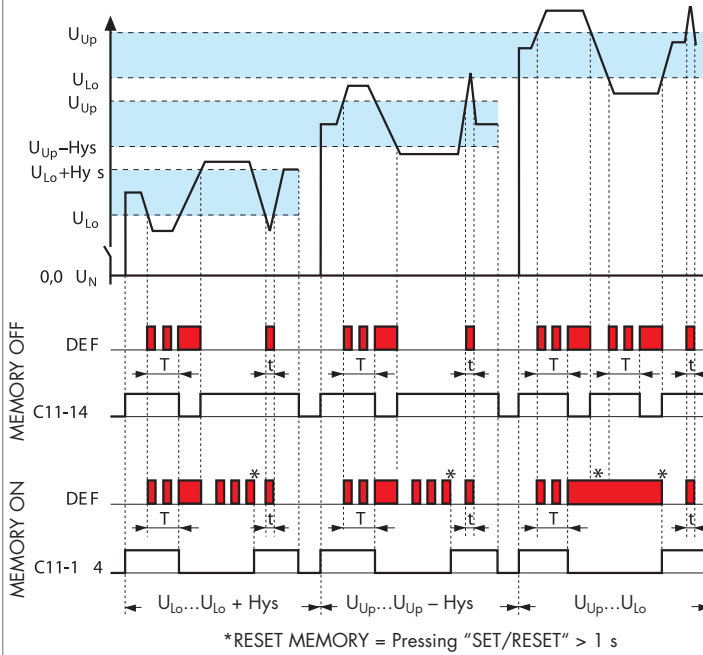
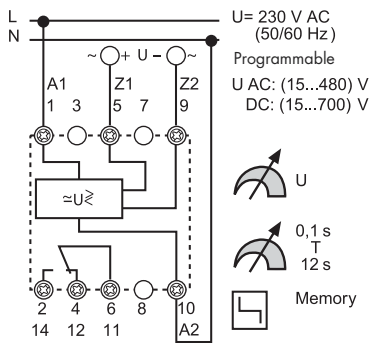
LED • ASY yellow
Phase asymmetry

LED • DEF red
Voltage to A1 (1) and/or A2 (5) > 1.11 U_N

LED • ON green
Monitoring system is active and 400 V supply voltage is connected to 1-5 or A1-A2.

C = output contact
Normally open 11-14 (6-2) closed.

Type 71.41.8.230.1021



Switch off
 U_{Lo} - mode
If the monitored value is less than the lower-limit and, time T has expired.

U_{Up} - mode
If the monitored value is higher than the upper limit, and time T has expired.

U_{Lo} U_{Up} - mode
If the monitored value of voltage is outside of the upper or lower voltage limits, and time T has expired.

Voltage dips < T do not result in output relay switching off.

Switch on
 U_{Lo} or U_{Up} - modes
When passing the hysteresis value.

U_{Lo} U_{Up} - mode
When passing the U_{Lo} or U_{Up} value.

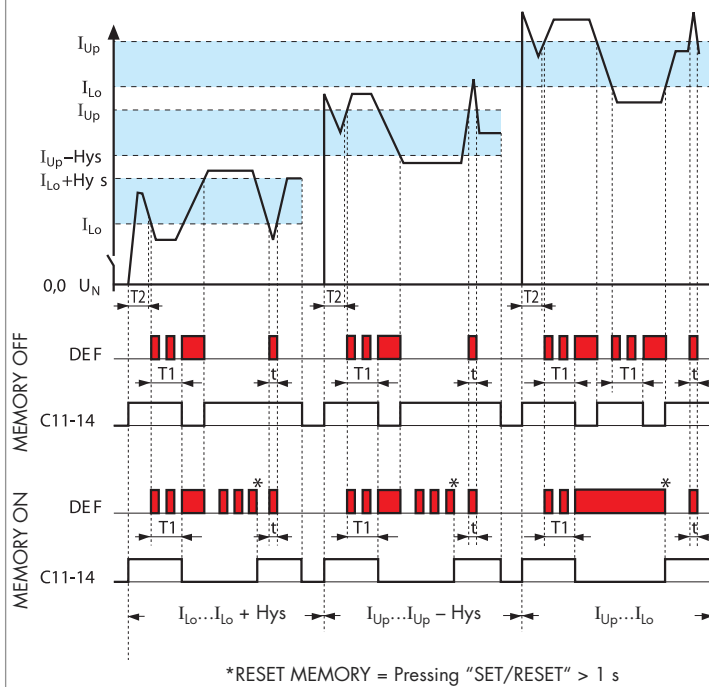
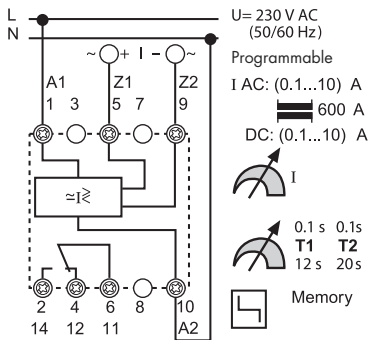
RESET MEMORY
Pressing "SET/RESET" > 1 sec.

C = output contact
Normally open 11-14 (6-2) closed.

*RESET MEMORY = Pressing "SET/RESET" > 1 s

Functions

Type 71.51.8.230.1021



Switch off
 I_{Lo} - mode
 If the monitored value is less than the lower-limit and, time T_1 has expired.

I_{Up} - mode
 If the monitored value is higher than the upper limit, and time T_1 has expired.

I_{Lo}, I_{Up} - mode
 If the monitored value of voltage is outside of the upper or lower limits, and time T_1 has expired.

Inrush current $< T_2$ is ignored

Current dips $< T_1$ do not result in output relay switching off.

*RESET MEMORY = Pressing "SET/RESET" > 1 s

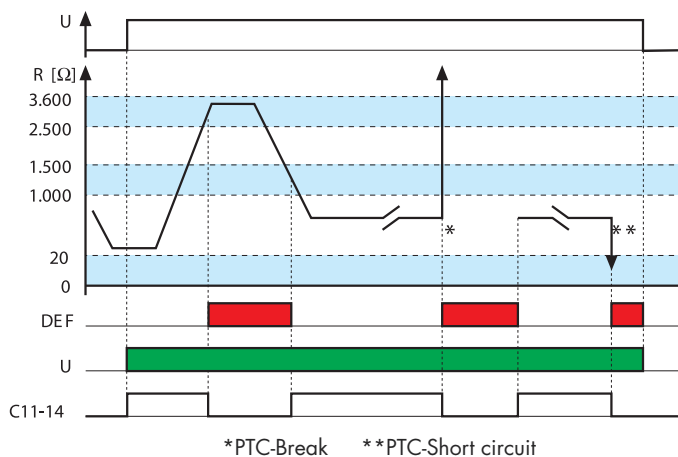
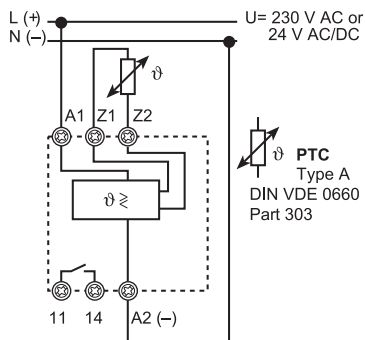
Switch on
 I_{Lo} or I_{Up} - modes
 When passing the hysteresis value.

I_{Lo}, I_{Up} - mode
 When passing the I_{Lo} or I_{Up} value.

RESET MEMORY
 Pushing "SET/RESET" > 1 sec.

C = output contact
 Normally open 11-14 (6-2) closed.

Type 71.91.x.xxx.0300



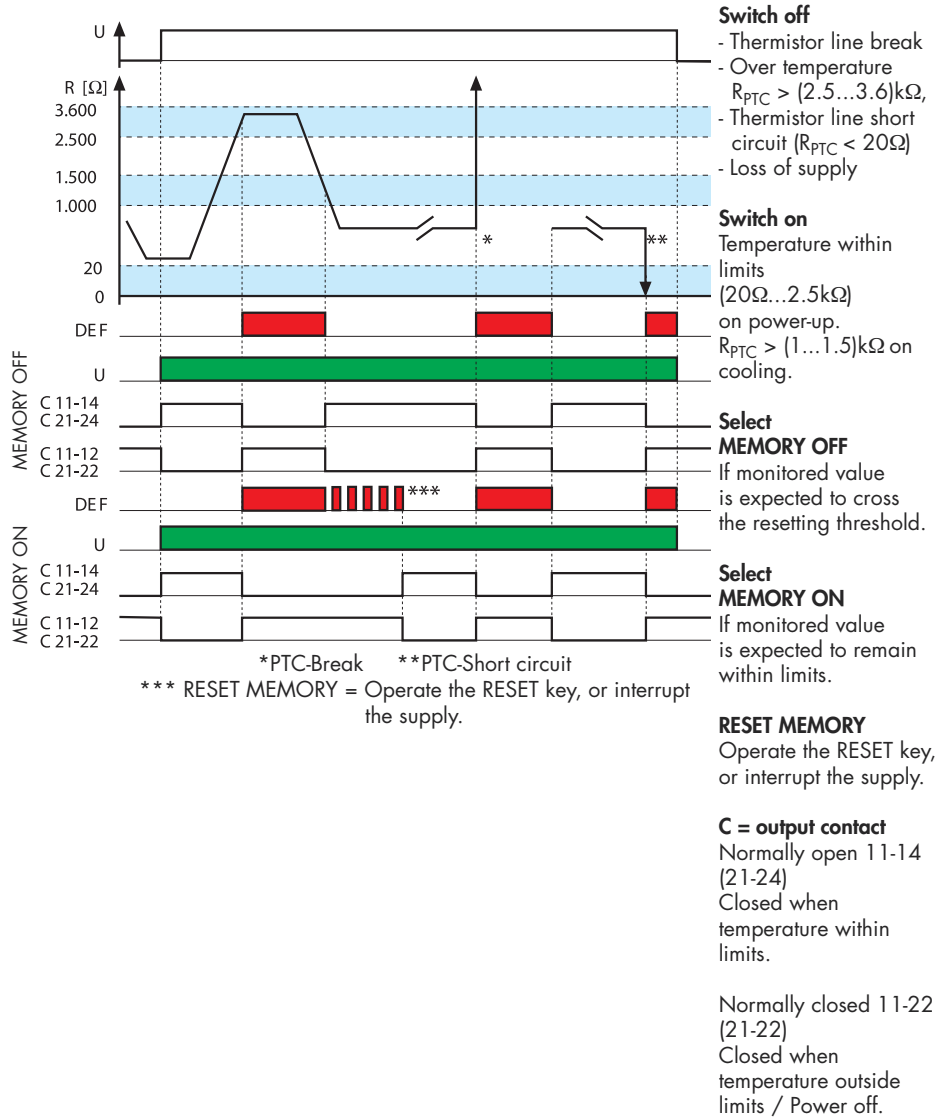
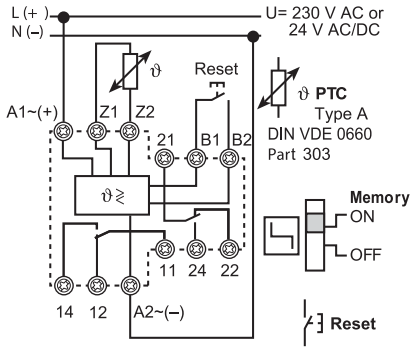
Switch off
 - Thermistor line break
 - Over temperature $R_{PTC} > (2.5...3.6)k\Omega$,
 - Thermistor line short circuit ($R_{PTC} < 20\Omega$)
 - Loss of supply

Switch on
 Temperature within limits
 $R_{PTC} > (1.0...1.5)k\Omega$ on power-up.
 (1...1.5)kΩ on cooling.

C = output contact
 Normally open 11-14
 Closed when temperature within limits.

Functions

Type 71.92.x.xxx.0001



Features

Level control relays for conductive liquids

72.01 - Adjustable sensitivity

72.11 - Fixed sensitivity

- Emptying or filling functions
- LED indicator
- Reinforced insulation (6 kV - 1.2/50 μs) between:
 - supply and contacts
 - electrodes and supply
 - contacts and electrodes
- 35 mm rail (EN 60715) mount
- Control about a single level or between Min./Max. limits
- 72.01 available also for supply 400 V
- 72.01 available also with sensitivity range (5...450) kΩ adjustable
- 72.01 available also for contact loads down to 5 V 1 mA

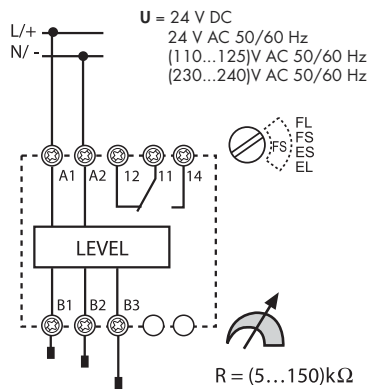
FOR UL RATINGS SEE:
"General technical information" page V

For outline drawing see page 8

72.01



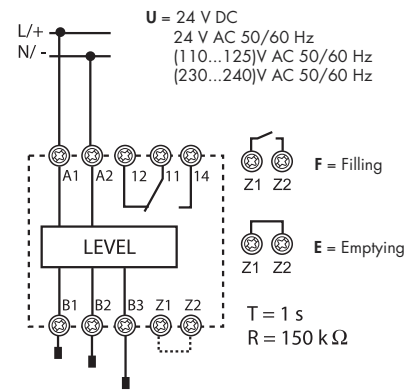
- Sensitivity range (5...150) kΩ adjustable
- Delay time (0.5s or 7s) switch selectable
- Emptying or filling functions switch selectable



72.11



- Sensitivity fixed 150 kΩ
- Delay time fixed: 1s
- Emptying or filling functions link selectable



Contact specification		72.01		72.11	
Contact configuration		1 CO (SPDT)		1 CO (SPDT)	
Rated current/Maximum peak current	A	16/30		16/30	
Rated voltage/Maximum switching voltage V AC		250/400		250/400	
Rated load AC1	VA	4,000		4,000	
Rated load AC15 (230 V AC)	VA	750		750	
Single phase motor rating (230 V AC)	kW	0.55		0.55	
Breaking capacity DC1: 30/110/220 V	A	16/0.3/0.12		16/0.3/0.12	
Minimum switching load	mW (V/mA)	500 (10/5)		500 (10/5)	
Standard contact material		AgCdO		AgCdO	
Supply specification		72.01		72.11	
Nominal voltage (U _N)	V AC	24 - 110...125 - 230...240	400	24 - 110...125 - 230...240	
	V DC	24	—	24	
Rated power AC/DC	VA (50 Hz)/W	2.5/1.5	2.5/1.5	2.5/1.5	
Operating range	AC	(0.8...1.1)U _N	(0.9...1.15)U _N	(0.8...1.1)U _N	
	DC	(0.85...1.1)U _N	—	(0.85...1.1)U _N	
Technical data		72.01		72.11	
Electrical life at rated load AC1	cycles	100 · 10 ³		100 · 10 ³	
Electrode voltage	V AC	4		4	
Electrode current	mA	0.2		0.2	
Run-on time	s	0.5 - 7 (selectable)		1	
Max sensitivity range	kΩ	5...150 (adjustable)		150 (fixed)	
Insulation between supply/contacts/electrode (1.2/50 μs)	kV	6		6	
Ambient temperature	°C	-20...+60		-20...+60	
Protection category		IP20		IP20	
Approvals (according to type)					

Features

Priority change relay
Special relay for alternating loads,
for applications with pumps, compressors,
air conditioning or refrigeration units

- 2 independent NO output, 12 A
- 4 functions
- 2 independent control signals, insulated from supply
- 110...240 V and 24 V AC/DC supply versions
- Modular housing, 35 mm wide
- 35 mm rail (EN 60715) mount
- Cd-free contact material

Screw terminal





NEW 72.42



- Multi-function (MI, ME, M2, M1)

For outline drawing see page 8

Contact specification			
Contact configuration		2 NO (2 DPST-NO)	
Rated current / Max. peak current	A	12 / 20	
Rated voltage / Max. switching voltage V AC (50/60 Hz)		250 / 400	
Rated load AC1	VA	3,000	
Rated load AC15	VA	1,000	
Single phase motor rating (230 V AC)	kW	0.55	
Breaking capacity DC1: 30/110/220 V	A	12 / 0.3 / 0.12	
Minimum switching load	mW (V/mA)	300 (5 / 5)	
Standard contact material		AgNi	
Supply specification			
Nominal voltage (U _N) V AC (50/60 Hz) / DC		24	110 ... 240
Rated power	in stand-by W	0.12	0.18
	with 2 active relays W/VA(50 Hz)	1.1 / 1.7	1.5 / 3.9
Operating range	V AC (50/60 Hz)	16.8...28.8	90...264
	V DC	16.8...32	90...264
Technical data			
Electrical life at rated load AC1	cycles	100 x 10 ³	
Output delay time (T on function diagrams)	s	0.2...20	
Power-on activation time	s	≤ 0.7	
Minimum impulse duration	ms	50	
Insulation between supply and contacts (1.2/50 μs)	kV	6	
Dielectric strength between open contacts	V AC	1,000	
Ambient temperature	°C	-20...+50	
Protection category		IP20	
Approvals (according to type)		 	

Ordering information

Example: 72 series level control relay, adjustable sensitivity range, (230...240)V AC supply voltage.

7 2 . 0 1 . 8 . 2 4 0 . 0 0 0 0

Series

Type

0 = Level control relay,
sensitivity range adjustable (5...150)kΩ
1 = Level control relay, sensitivity fixed 150 kΩ
4 = Priority change relay

No. of poles

1 = 1 CO (SPDT)
2 = 2 NO (DPST-NO)

Contact material

0 = Standard (AgCdO)
5 = AgNi + Au (5 μm)

Supply voltage

024 = 24 V
125 = (110...125)V AC
230 = (110 ... 240) V
240 = (230...240)V AC
400 = 400 V AC (72.01 only)

Supply version

0 = DC / AC (50/60 Hz)
8 = AC (50/60 Hz)
9 = DC

Option

2 = Sensitivity range
adjustable (5...450) kΩ
types 72.01.8.024.0002
72.01.8.240.0002* and
72.01.8.240.5002**

All versions

72.01.8.024.0000
72.01.8.024.0002*
72.01.8.125.0000
72.01.8.240.0000
72.01.8.240.0002*
72.01.8.240.5002**
72.01.8.400.0000
72.01.9.024.0000
72.11.8.024.0000
72.11.8.125.0000
72.11.8.240.0000
72.11.9.024.0000
72.42.0.230.0000
72.42.0.024.0000

* For liquids conductivity up to 2 μSiemens
or a Resistance of 450 kOhms

** For applications with output contact loading down to 5 V
1 mA

Technical data

Insulation			72.01/72.11	72.42		
Insulation		Dielectric strength	Impulse (1.2/50 µs)			
		between supply and contacts	4,000 V AC	6 kV		
		between supply and control (for 110...240 V version only)	2,500 V AC	—		
		between electrodes, Z1-Z2 and supply*	4,000 V AC	6 kV		
		between contacts and electrodes	4,000 V AC	6 kV		
	between open contacts	1,000 V AC	1.5 kV	1.5 kV		
EMC specifications						
Type of test		Reference standard	72.01/72.11	72.42		
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV	4 kV		
	air discharge	EN 61000-4-2	8 kV	8 kV		
Radio-frequency electromagnetic field	(80...1,000 MHz)	EN 61000-4-3	10 V/m	10 V/m		
	(1...2.8 GHz)	EN 61000-4-3	—	5 V/m		
Fast transients (burst 5/50 ns, 5 and 100 kHz)	on supply terminals	EN 61000-4-4	4 kV	4 kV		
	on control terminals	EN 61000-4-4	—	4 kV		
Voltage pulses on supply terminals (surge 1.2/50 µs)	common mode	EN 61000-4-5	4 kV	4 kV		
	differential mode	EN 61000-4-5	4 kV	4 kV		
Radiofrequency common mode voltage (0.15...280 MHz)	on supply terminals	EN 61000-4-6	10 V	10 V (0.15...230 MHz)		
	on control terminals	EN 61000-4-6	—	10 V		
Voltage dips	70 % U _N	EN 61000-4-11	—	25 cycles		
Short interruptions		EN 61000-4-11	—	1 cycles		
Radiofrequency conducted emissions	(0.15...30 MHz)	CISPR 11	class B	class B		
Radiated emissions	(30...1,000 MHz)	CISPR 11	class B	class B		
Terminals						
Screw torque	Nm	0.8				
Wire strip length	mm	9				
Max. wire size	mm ²	AWG	solid cable	stranded cable		
			1x6 / 2x4	1x4 / 2x2.5		
			1x10 / 2x12	1x12 / 2x14		
Other data						
Current absorption on Z1 and Z2 (type 72.11)	mA	< 1				
Current absorption on control signal (B1-B3 and B2-B3)		5 mA, 5 V				
Power lost to the environment			72.01/72.11	72.42		
			without contact current	W	1.5	0.9 (1 relay ON)
			with rated current	W	3.2	3.0 (2 relays ON)
Max cable length between electrode and relay (types 72.01/72.11)	m	200 (max. capacitance of 100 nF/km)				

* There is no electrical isolation between electrodes and supply voltage for the 24 V DC types (72.x1.9.024.0000). Therefore, for SELV applications it would be necessary to use a SELV (non-grounded) power supply. In the case of a PELV (grounded) power supply take care to protect the level control relay against harmful circulating currents by ensuring that no electrodes are grounded.

However, there is no such problem for the 24 V AC types (72.x1.8.024.0000) which, by virtue of an internal isolating transformer, assure reinforced isolation between electrodes and supply.

Functions for 72.01 and 72.11

- U** = Supply voltage
- B1** = Max level electrode
- B2** = Min level electrode
- B3** = Common
- = Contact 11-14
- Z1-Z2** = Link to select emptying (Type 72.11)

LED	Supply voltage	NO output contact	Contacts	
			Open	Closed
	OFF	Open	11 - 14	11 - 12
	ON	Open	11 - 14	11 - 12
	ON	Open (Timing in Progress)	11 - 14	11 - 12
	ON	Closed	11 - 12	11 - 14

Function and Run-on time

Type 72.01

- FL** = Level control by Filling, Long (7sec) run-on delay.
- FS** = Level control by Filling, Short (0.5sec) run-on delay.
- ES** = Level control by Emptying, Short (0.5sec) run-on delay.
- EL** = Level control by Emptying, Long (7sec) run-on delay.

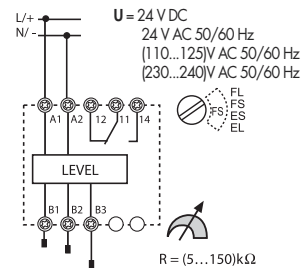
Type 72.11

- F** = Level control by Filling, Z1-Z2 open. Run-on time fixed at 1sec.
- E** = Level control by Emptying, Z1-Z2 linked. Run-on time fixed at 1sec.

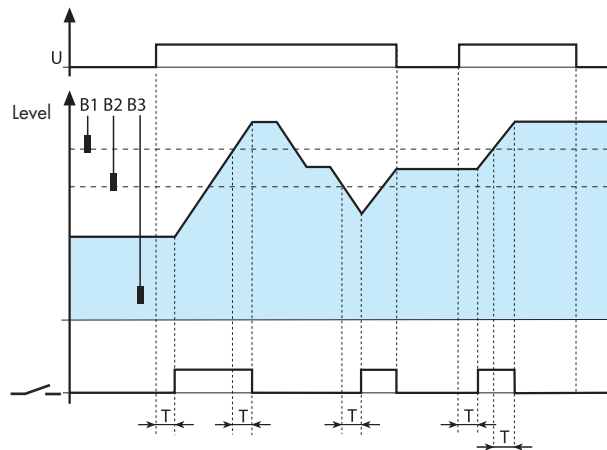
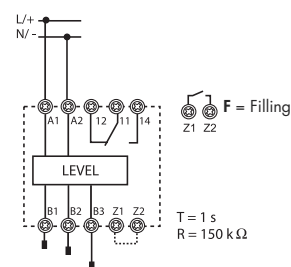
Filling functions
Wiring diagram

Examples with 3 electrodes

Type 72.01



Type 72.11



Filling Control – between Min. and Max. levels.
Under normal operation the liquid level can be expected to cycle between the Minimum and the Maximum electrodes, B2 and B1 (plus a degree of over and under-shoot).

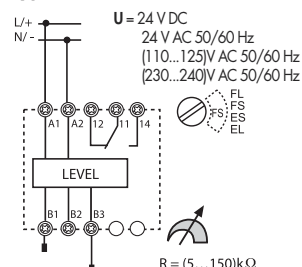
- Switch On:**
- On "power-up", if the liquid is below B1 the output relay will operate after time T has expired.
 - On the liquid level falling below B2, the output relay will operate after time T has expired.

- Switch Off:**
- On the liquid level reaching electrode B1, the output relay will de-energise after time T has expired.
 - On "power-off", the output relay will immediately de-energise.

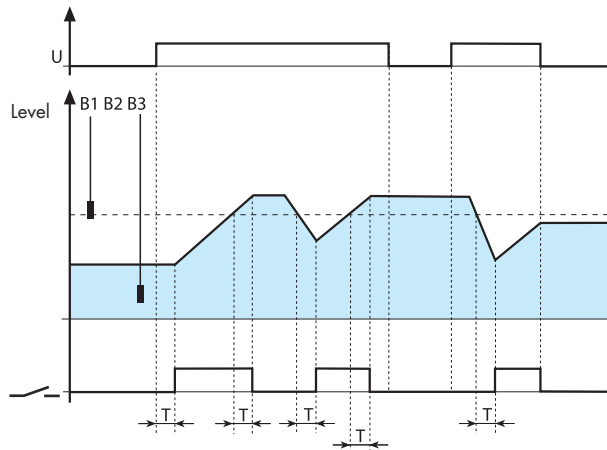
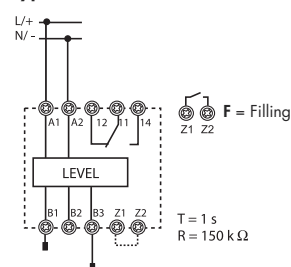
Wiring diagram

Examples with 2 electrodes

Type 72.01



Type 72.11



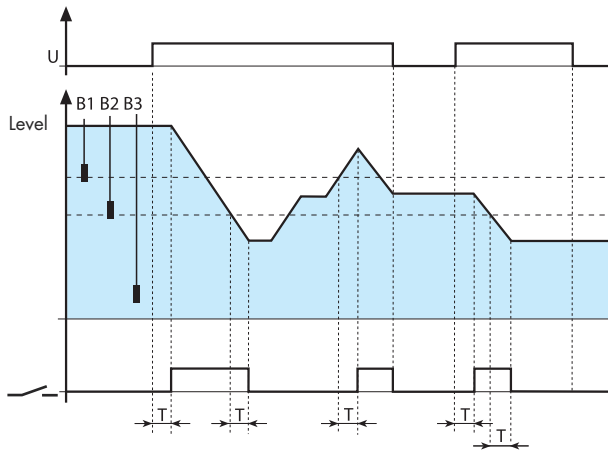
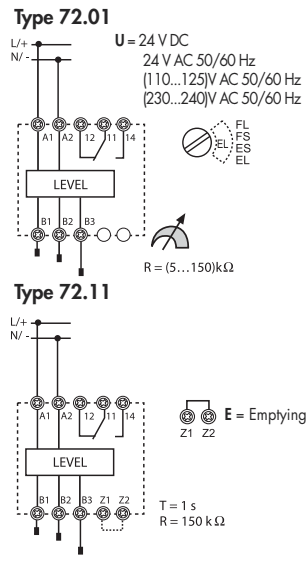
Filling Control – about a single level, B1.
Under normal operation the liquid level can be expected to cycle about the level set by electrode B1 with a degree of over and under-shoot.

- Switch On:**
- On "power-up", if the liquid is below B1 the output relay will operate after time T has expired.
 - On the liquid level falling below B1, the output relay will operate after time T has expired.

- Switch Off:**
- On the liquid level reaching electrode B1, the output relay will de-energise after time T has expired.
 - On "power-off", the output relay will immediately de-energise.

Emptying functions
Wiring diagram

Examples with 3 electrodes



Emptying Control – between Max. and Min. levels.
Under normal operation the liquid level can be expected to cycle between the Maximum and the Minimum electrodes, B1 and B2 (plus a degree of over and under-shoot).

Switch On:

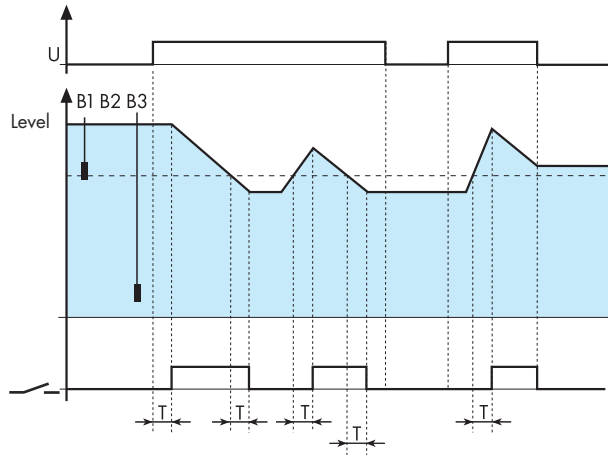
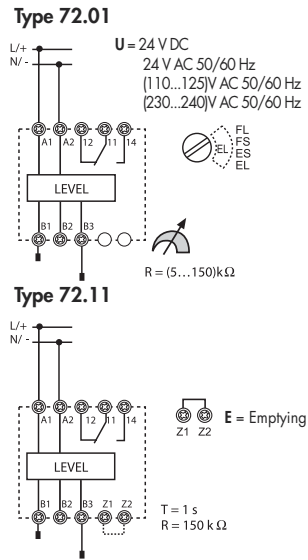
- On “power-up”, if the liquid level is above B2 the output relay will operate after time T has expired.
- On the liquid level rising to B2, the output relay will operate after time T has expired.

Switch Off:

- On the liquid level falling below electrode B2, the output relay will de-energise after time T has expired.
- On “power-off”, the output relay will immediately de-energise.

Wiring diagram

Examples with 2 electrodes



Emptying Control about a single level, B1.
Under normal operation the liquid level can be expected to cycle about the level set by electrode B1 with a degree of over and under-shoot.

Switch On:

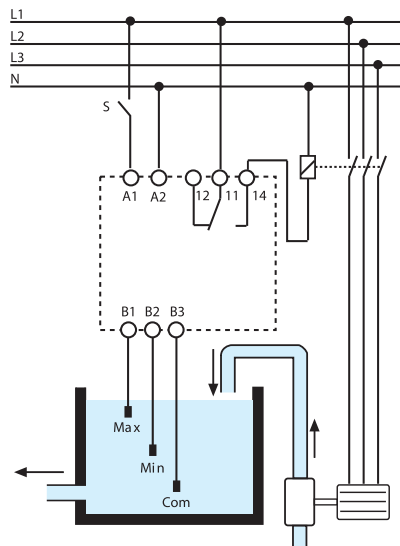
- On “power-up”, if the liquid is above B1 the output relay will operate after time T has expired.
- On the liquid level rising to B1, the output relay will operate after time T has expired.

Switch Off:

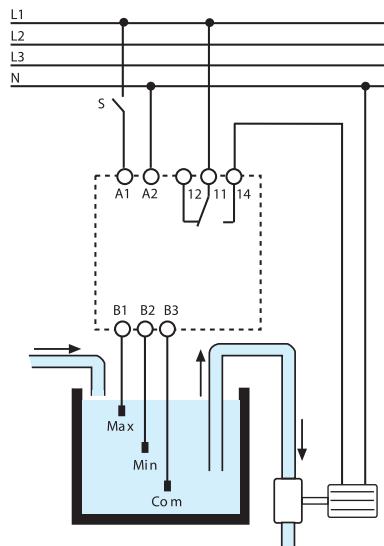
- On the liquid level falling below electrode B1, the output relay will de-energise after time T has expired.
- On “power-off”, the output relay will immediately de-energise.

Applications for 72.01 and 72.11

FILLING function:
Examples with 3 electrodes and with a contactor connected to the contact.



EMPTYING function:
Examples with 3 electrodes and with a motor pump connected directly to the contact.



The 72 series level control relays work by measuring the resistance through the liquid, between the common (B3) electrode and Min. and Max. electrodes (B2 and B1). If the tank is metallic, then this can be substituted as the B3 electrode.

Take care to ensure that the liquid has a suitable resistivity – see below:

SUITABLE LIQUIDS

- City water
- Well water
- Rainwater
- Sea water
- Liquids with low-percentage alcohol
- Wine
- Milk, Beer, Coffee
- Sewage
- Liquids fertilizer

UN-SUITABLE LIQUIDS

- Demineralised water
- Fuels
- Oil
- Liquids with high-percentage alcohol
- Liquid gas
- Paraffins
- Ethylene glycol
- Paint

Functions for 72.42

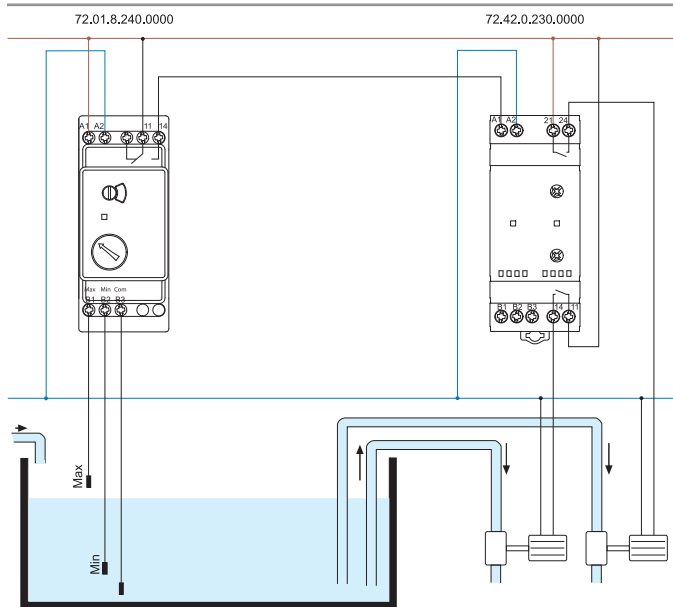
- A1-A2 = Supply voltage
- S1 (B1-B2) = Control signal 1
- S2 (B3-B2) = Control signal 2
- = Contact 1 (11-14) and Contact 2 (21-24)
- LED 1 = Output 1
- LED 2 = Output 2

LED	
	Device in stand-by, output not activated
	Output not activated, timing in progress
	Output not activated (only functions M1/M2)
	Output activated

Wiring diagram

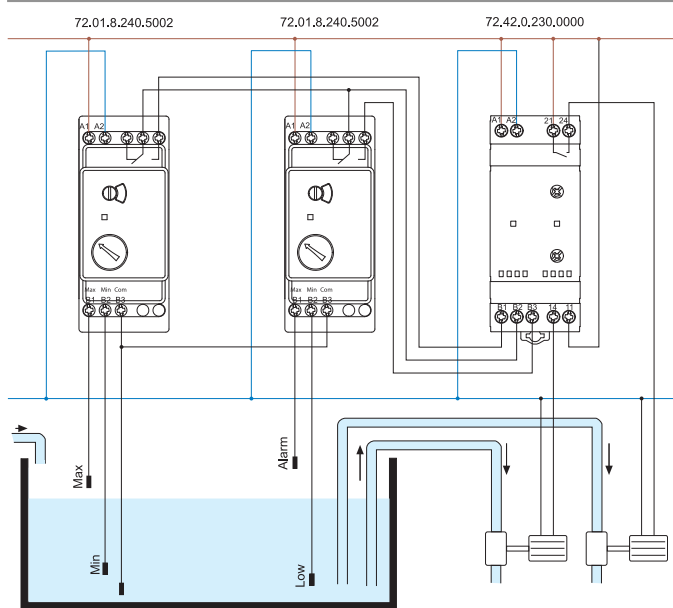
	<p>A1-A2 </p> <p>S1 (B1-B2) </p> <p>S2 (B3-B2) </p> <p>11-14 </p> <p>21-24 </p> <p>LED1 </p> <p>LED2 </p> <p><i>T</i></p>	<p>(M1) Outputs alternate on successive applications of supply voltage</p> <ul style="list-style-type: none"> • Application of the supply voltage to A1-A2 forces just one output contact to close, but the contact that closes will alternate between 11-14 and 21-24 on each successive application of the supply – ensuring even wear across both motors. • The other output contact can be forced closed by the closure of either S1 or S2 - but to limit high current surges the other motor cannot start within <i>T</i> seconds of the first motor.
	<p>A1-A2 </p> <p>S1 (B1-B2) </p> <p>S2 (B3-B2) </p> <p>11-14 </p> <p>21-24 </p> <p>LED1 </p> <p>LED2 </p> <p><i>T</i></p>	<p>(ME) Outputs alternate according to control signal</p> <ul style="list-style-type: none"> • The supply voltage is permanently applied to A1-A2. When closed, S1 forces just one output contact to close. The contact that closes will alternate between 11-14 and 21-24 on each successive S1 closure - ensuring even wear across both motors. • If closed, S2 forces both output contacts to close (irrespective of S1). However, to limit high current surges, both motors cannot start within <i>T</i> seconds of each other.
	<p>A1-A2 </p> <p>S1 (B1-B2) </p> <p>S2 (B3-B2) </p> <p>11-14 </p> <p>21-24 </p> <p>LED1 </p> <p>LED2 </p>	<p>(M2) Output 2 (21-24) only</p> <ul style="list-style-type: none"> • Supply permanently applied to A1-A2. • Closure of either S1 or S2 will close output contact 2 (21-24). Use when load 1 (11-14) is out of service.
	<p>A1-A2 </p> <p>S1 (B1-B2) </p> <p>S2 (B3-B2) </p> <p>11-14 </p> <p>21-24 </p> <p>LED1 </p> <p>LED2 </p>	<p>(M1) Output 1 (11-14) only</p> <ul style="list-style-type: none"> • Supply permanently applied to A1-A2. • Closure of either S1 or S2 will close output contact 1 (11-14). Use when load 2 (21-24) is out of service.

MI function example



This shows the 72.42 Priority change relay working in conjunction with a single 72.01 level controller. Under normal conditions the liquid level is expected to remain within the range shown as Min to Max. In this case the function of the 72.42 will be to alternate the duty between both pumps, to even wear across both pumps. There is no provision to run both pumps simultaneously.

ME function example

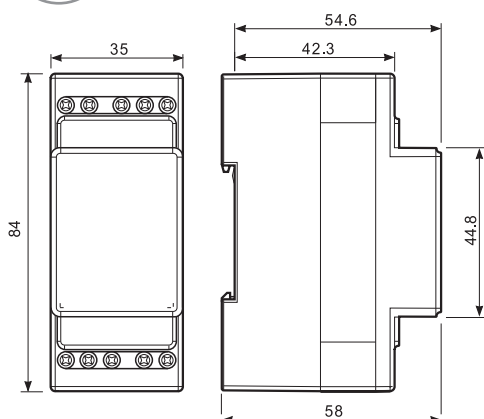


This shows the 72.42 Priority change relay working in conjunction with two 72.01 level controllers. Under normal conditions the liquid level is expected to remain within the range shown as Min to Max. In this case the function of the 72.42 will be to alternate the duty between both pumps, to even wear across both pumps. Should the liquid level rise above the Alarm level then the function of the 72.42 will call for the simultaneous operation of both pumps, by virtue of the signal to terminal B3 from the Alarm/Low level controller.

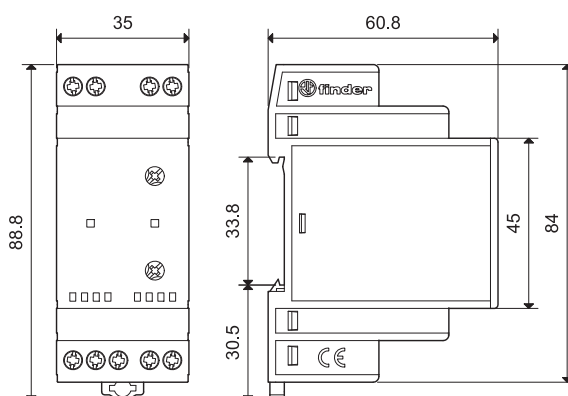
Note: due to the low level of 72.42 control signals, it is suggested to use level controller 72.01.8.240.5002 because of its superior low load switching capability.

Outline drawings

72.01/11
Screw terminal



72.42
Screw terminal



Accessories for 72.01 and 72.11



072.01.06

Suspended electrode for conductive liquids, complete with cable. Suitable for level monitoring in wells and reservoirs not under pressure.

Order appropriate number of electrodes - additional to the relay.

• Electrode compatible with food processing applications (according to European Directive 2002/72 and cod. FDA title 21 part 177):

Cable length: 6 m (1.5 mm²) 072.01.06

Cable length: 15 m (1.5 mm²) 072.01.15



072.02.06

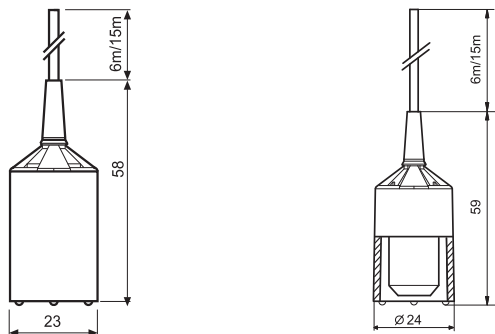
• Electrode for swimming pools with high levels of chlorine, or in salt-water pools with high levels of salinity:

Cable length: 6 m (1.5 mm²) 072.02.06

Technical data

Max. liquid temperature °C +100

Electrode material stainless steel (AISI 316L)



072.31

Suspended electrode

Order appropriate number of electrodes additional to the relay.

072.31

Technical data

Max liquid temperature °C + 80

Cable grip mm $\varnothing \leq 3 \dots 6$

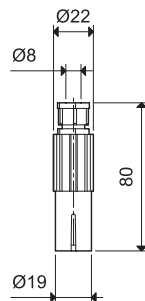
Electrode material stainless steel (AISI 316L)

Max screw torque Nm 0.7

Max. wire size mm² 1 x 2.5

AWG 1 x 14

Wire strip length mm 9

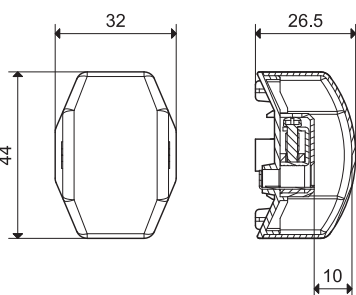


Accessories for 72.01 and 72.11



072.11

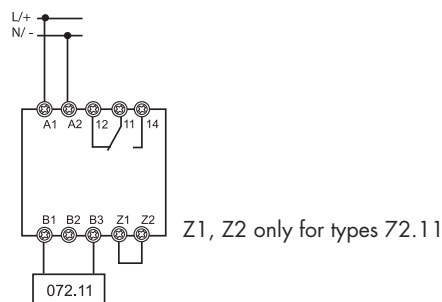
Floor water sensor , designed for the detection and reporting of the presence of floor surface water.		072.11
Technical data		
Electrode material	stainless steel (AISI 301)	
Wire capability of terminals		
Max screw torque	Nm	0.8
Max. wire size	solid cable	
	mm ²	1 x 6 / 2 x 6
Max. wire size	stranded cable	
	AWG	1 x 10 / 2 x 10
Wire strip length	mm	9
Other data		
Distance between electrodes and floor	mm	1
Floor fixing screw diameter	Maximum M5	
Maximum cable diameter	mm	10
Maximum length of cable connecting sensor to relay m	200 (with capacitance of 100 nF/km)	
Max. liquid temperature	°C	+100



Floor surface water sensor for connection to electrode terminals (B1 and B3) of 72.01 or 72.11 level control relay, set in Emptying function (ES or E respectively).

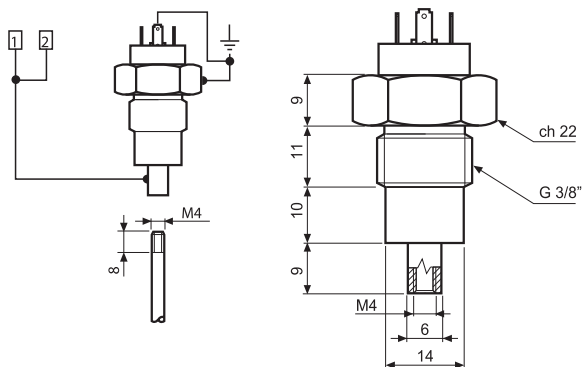
For ice bank control in refrigeration systems it is suggested to use the high sensitivity (5...450kOhm) types - 72.01.8.024.0002 or 72.01.8.230.0002.

Function



072.51

Electrode holder with two pole connector , one connected directly to the electrode and the second connected to the grounded installation thread. Suitable for metal tank with G3/8" linkage. Electrode not included. Order appropriate number of electrodes holders - additional to the relay.		072.51
Technical data		
Max liquid temperature	°C	+ 100
Max tank pressure	bar	12
Cable grip	mm	∅ ≤ 6
Electrode material	stainless steel (AISI 304)	

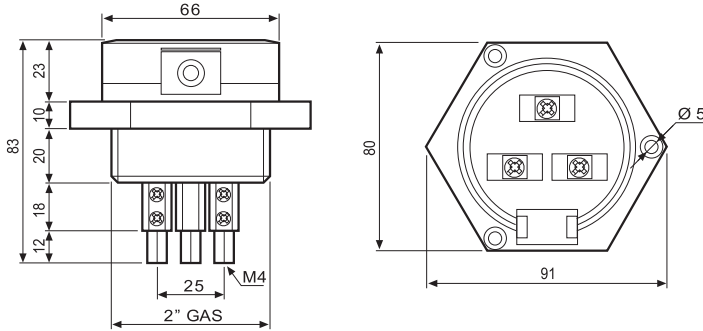


Accessories for 72.01 and 72.11



072.53

Electrode holder with three poles. Electrode not included.		
Order appropriate number of electrodes holders - additional to the relay.		072.53
Technical data		
Max liquid temperature	°C	+ 130
Electrode material		stainless steel (AISI 303)



Electrode and electrode connector, multiple electrodes may be interconnected to provide required length

Technical data		
Electrode - 500 mm long, M4 thread, stainless steel (AISI 303)		072.500
Inter-electrode connector - M4 thread, stainless steel (AISI 303)		072.501

072.500

Illustration of interconnection of electrodes.



072.501



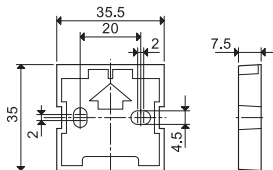
072.503

Electrode separator	072.503
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011.01

Adaptor for panel mounting, plastic, 35 mm wide	011.01
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060.72

Sheet of marker tags, plastic, 72 tags, 6 x 12 mm (for 72.42 only)	060.72
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019.01

Identification tag, plastic, 1 tag, 17 x 25.5 mm (for 72.42 only)	019.01
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Application notes for 72.01 and 72.11

Applications

The main application for these relays is for the sensing and control of the level of conductive liquids.

Selectable options allow for this control to be achieved either through a filling operation or through an emptying operation, and in either case "positive logic" is used.

Level control can be achieved around a single level – using 2 electrodes, or between Minimum and Maximum levels – using 3 electrodes.

Additionally, the 72.01, with its adjustable sensitivity setting, can be ideal for monitoring the conductivity of liquids.

Positive safety logic

These relays work according to the principle that it is the closure of a normally open output contact that will be used to control the pump, both in filling and emptying applications. Consequently, in the event of a failure of the supply local to the relay, the filling or emptying will cease. This is generally considered to be the safest option.

Overrunning of tank on filling

Care must be exercised to ensure that the tank cannot overrun. Factors that have to be considered are the pump performance, the rate of discharge from the tank, the position of the single level electrode (or maximum electrode), and the run-on time delay. Keeping the time delay to a minimum will minimise the possibility of tank overrun, but will increase the installed switching rate.

Prevent dry running of pump on emptying

Care must be exercised to ensure that the pump cannot run dry. Similar considerations must be given as outlined above. In particular, keeping the run-on time delay to a minimum will minimise the risk, but again, it will increase the installed switching rate.

Run-on time

In commercial and light industrial applications the use of a short Run-on time delay is more appropriate, due to the relatively small size of tanks and the consequential need to react quickly to the change in level. Larger scale industrial applications involving larger tanks and powerful pumps must avoid a frequent switching cycle, and the use of the 72.01 set for the longer Run-on time of 7 seconds is suggested.

Note that the short run-on time will always achieve closer control to the desired level(s), but at the cost of more frequent switching.

Electrical life of the output contact

The electrical life of the output contact will be enhanced where a larger distance between the Max. and Min. electrodes (3-electrode control) can be realised. A smaller distance, or level control to a single level (2-electrode control), will result in more frequent switching and therefore a shorter electrical life for the contacts. Similarly, the long run-on time will enhance, and the short time will reduce, electrical life.

Pump control

Small single-phase pumps within the kW (0.55 kW - 230 V AC) rating stated may be driven directly by the level relay output contact. However, where very frequent switching is envisaged, it is better to "slave" a higher power relay or contactor to drive the pump motor. Large pumps (single-phase and three-phase) will of course require an interposing contactor.

Water leakage and condensation in oil lubrication systems

To detect condensed water vapour or water leakage within lubricating systems, monitor by sensors connected to B1 - B3 (Function E or ES, Z1 - Z2 linked). Condensed water vapour has low conductivity, therefore choose monitoring relay type 72.01.8.240.0002 with sensitivity range of (5...450) kOhm and sensor type 072.11.

Floor flooding control

To detect floor water due to spills or flooding, monitor using sensors connected to B1 - B3 (Function E or ES, Z1 - Z2 linked).

Choose monitoring relay type 72.01.8.240.0000 or 72.11.8.240.0000, together with floor water sensor type 072.11.

Electrodes and cable lengths

Normally 2 electrodes or 3 electrodes will be required for control about a single level, or control between Min. and Max. levels, respectively. However, if the tank is made of conductive material it is possible to use this as the common electrode, B3, if electrical connection can be made to it.

The maximum permitted length of cable between the electrode and the relays is 200m, for a cable not exceeding 100nF/km.

A maximum of 2 relays and associated electrodes can be employed in the same tank – if two different levels need monitoring.

Note: It is permitted to make direct electrical connection between terminals B1-B3, and B2-B3, (without using electrodes/liquid), but in this case it is not possible to set up the sensitivity.

Electrode choice

The choice of electrodes may depend on the liquid being monitored. Standard electrodes 072.01.06 and 072.51 are suitable for many applications but some liquids may be corrosive for example, and may therefore require custom made electrodes - but these can usually be used with the 72.01 and 72.11 relays.

On site commissioning

To confirm the suitability of the relay sensitivity to the resistance between electrodes it is suggested that the following checks are made. For convenience it is suggested that the fill function and the shortest run-on time are selected.

Commissioning

Follow these setting-up instructions to achieve correct operation:

72.01

Select the function "FS" (Filling and Short delay of 0.5 s), and set the sensitivity control to 5 kΩ. Ensure that all electrodes are immersed in the liquid - expect the output relay to be ON. Then, slowly rotate the sensitivity control in the 150 kΩ direction until the level relay switches OFF (internal output relay will switch OFF and red LED will switch slowly flash).

(If the level relay does not switch OFF then, either the electrodes are not immersed, or the liquid has too high impedance or the distance between electrodes is too long.)

Finally, select the filling or emptying function as required, run in real time and confirm that the level relay works as required.

72.11

Select the Filling function "F", (Z1 – Z2 open). Ensure that all electrodes are immersed in the liquid, but leave electrode B3 disconnected – output relay should be ON. Connect electrode B3, and the level relay should switch OFF

(internal output relay will switch OFF and red LED will switch slowly flash).

(If the level relay does not switch OFF then, either the electrodes are not immersed, or the liquid has too high impedance or the distance between electrodes is too long.)

Finally, select the filling or emptying function as required, run in real time and confirm that the level relay works as required.

Features

5 A modular SSR, 1 NO output

- 17.5 mm housing
- AC output (with back to back SCR)
- 5 kV (1.2/50 μ s) insulation between Input and Output
- Zero-crossing and random switch-on versions available
- High switching speed
- High endurance
- Silent switching
- Spark and bounce-free switching
- Low control power
- 35 mm rail (EN 60715) mount

77.01
Screw terminal



* see L77-3 diagram page 8
** see L77-1 and L77-2 diagrams page 7

For outline drawing see page 10

Output specification

Output configuration	1 NO (SPST-NO)		1 NO (SPST-NO)	
Rated current / Max. peak current (10 ms *) A	5 / 300 *		5 / 300 *	
Rated switching voltage V AC (50/60 Hz)	60...240		60...240	
Switching voltage range V AC (50/60 Hz)	48...265		48...265	
Blocking (max. reverse repetitive) voltage V DC	800		800	
Rated load AC7a (cos φ = 0.8) A	5		5	
Rated load AC15 A	5		3	
Single phase motor rating (230 V AC) kW	—		0.37	
230 V lamps rating: incandescent/halogen W	1,000		800	
compact fluorescent (CFL)/Led W	800		400	
electronic ballast fluorescent tubes W	1,000		800	
electromagnetic ballast compensated fluorescent tubes W	500		250	
Minimum switching current @ 230 V mA	100		100	
Typical "OFF-state" leakage current @ 230 V mA	1		1	
Max "ONstate" voltage drop @ 25 °C and 5A/100mA V	0.85 / 1.5		0.85 / 1.5	
Power loss @ 5 A W	4		4	

Input specification

Nominal voltage (U _N)	V AC (50/60 Hz)	24	110 ... 240	24	110 ... 240
	V DC	12 ... 24	—	12 ... 24	—
Rated power	VA (50 Hz)/W	0.6 / 0.5	3.6 / 0.3	0.6 / 0.5	3.6 / 0.3
Operating range	V AC (50/60 Hz)	16...32	90...265	16...32	90...265
	V DC	9.8...32	—	9.8...32	—
Must drop-out voltage	V AC (50/60 Hz)/DC	2.4	24	2.4	24

Technical data

Electrical life	cycles	10·10 ⁶		10·10 ⁶	
Operate / release time	ms	20 / 12		9 / 8	
Insulation between input and output (1.2/50 μ s)	kV	5		5	
Ambient temperature	°C	-20...+70 **		-20...+70 **	
Protection category		IP20		IP20	

Approvals (according to type)



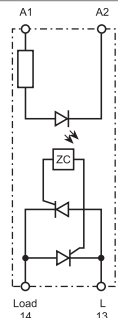
77.01.x.xxx.8050



Zero-crossing switch-on

Suggested applications:

- Lamp inrush current reduction (CFL - Compact Fluorescent energy-saving Lamps and similar)
- Heater control
- Solenoid, contactor driver



Simplified circuit diagram

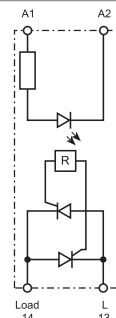
77.01.x.xxx.8051



Random switch-on

Suggested applications:

- Fine controls involving shorter time (specially motor control)
- AC supply phase different from AC output phase
- 3-phase general purpose



Simplified circuit diagram

Features

15 A modular SSR, 1 NO output

- 22.5 mm housing, heat-sink + plastic cover
- AC output (with triac)
- 6 kV (1.2/50 μs) insulation between Input and Output
- Zero-crossing and random switch-on versions available
- High switching speed
- High endurance
- Silent switching
- Spark and bounce-free switching
- Low control power
- "Relay-style" terminal arrangement (input and output terminals on opposite sides)
- 35 mm rail (EN 60715) mount

77.11
Screw terminal



* see L77-7 diagram page 8
** see L77-6 diagrams page 7

For outline drawing see page 10

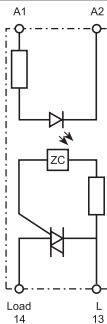
NEW 77.11.x.xxx.8250



Zero-crossing switch-on

Suggested applications:

- Lamp inrush current reduction (CFL - Compact Fluorescent energy-saving Lamps and similar)
- Heater control
- Solenoid, contactor driver



Simplified circuit diagram

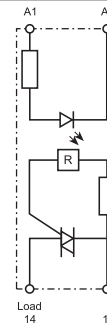
NEW 77.11.x.xxx.8251



Random switch-on

Suggested applications:

- Fine controls involving shorter time (specially motor control)



Simplified circuit diagram

Output specification					
Output configuration		1 NO (SPST-NO)		1 NO (SPST-NO)	
Rated current / Max. peak current (10 ms *) A		15 / 400 *		15 / 400 *	
Rated switching voltage V AC (50/60 Hz)		24...280		24...280	
Switching voltage range V AC (50/60 Hz)		19...305		19...305	
Blocking (max. reverse repetitive) voltage V DC		800		800	
Rated load AC7a (cos φ = 0.8, @ 25 °C) A		20		20	
Rated load AC15 A		15		15	
Single phase motor rating (230 V AC) kW		—		1.2	
230 V lamps rating: incandescent/halogen W		4,000		2,500	
compact fluorescent (CFL)/Led W		3,000		1,500	
electronic ballast fluorescent tubes W		4,000		2,500	
electromagnetic ballast compensated fluorescent tubes W		2,000		1,000	
Minimum switching current @ 250 V mA		100		100	
Typical "OFF-state" leakage current@ 250 V mA		1		1	
Max "ON-state" voltage drop @25 °C and 15 A V		1.55		1.55	
Power loss @ 15 A W		14		14	
Input specification					
Nominal voltage (U _N)	V AC (50/60 Hz)	—	230	—	230
	V DC	24	—	24	—
Rated power @ U _{MAX}	VA (50 Hz)/W	0.4	7.5 / 0.9	0.4	7.5 / 0.9
Operating range	V AC (50/60 Hz)	—	40...305	—	40...305
	V DC	4...32	—	4...32	—
Must drop-out voltage	V AC (50/60 Hz)/DC	— / 2	6 / —	— / 2	6 / —
Technical data					
Electrical life	cycles	10·10 ⁶		10·10 ⁶	
Operate / release time	ms	< 10 / <10	< 10 / < 30	< 1 / <10	< 2 / < 25
Insulation between input and output (1.2/50μs)	kV	6		6	
Ambient temperature	°C	-20...+80 **		-20...+80 **	
Protection category		IP20		IP20	

Approvals (according to type)



Features

30 A modular SSR, 1 NO output

- 22.5 mm housing, heat-sink + plastic cover
- AC output (with back to back SCR)
- 6 kV (1.2/50 μ s) insulation between Input and Output
- Zero-crossing and random switch-on versions available
- High switching speed
- High endurance
- Silent switching
- Spark and bounce-free switching
- Low control power
- "Relay-style" terminal arrangement (input and output terminals on opposite sides)
- 35 mm rail (EN 60715) mount

77.31
Screw terminal



* see L77-5 diagram page 8
** see L77-4 diagrams page 7

For outline drawing see page 10

Output specification

Output configuration	
Rated current / Max. peak current (10 ms *) A	30 / 520 *
Rated switching voltage V AC (50/60 Hz)	60...440
Switching voltage range V AC (50/60 Hz)	48...480
Blocking (max. reverse repetitive) voltage V DC	1,100
Rated load AC7a (cos φ = 0.8) A	30
Rated load AC15 A	20
Single phase motor rating (230 V AC) kW	—
230 V lamps rating: incandescent/halogen W	6,000
compact fluorescent (CFL)/Led W	4,000
electronic ballast fluorescent tubes W	6,000
electromagnetic ballast compensated fluorescent tubes W	3,000
Minimum switching current @ 400 V mA	300
Typical "OFF-state" leakage current@ 400 V mA	1
Max "ON-state" voltage drop @25 °C and 30 A V	0.85
Power loss @ 30 A W	16

Input specification

Nominal voltage (U _N)	V AC (50/60 Hz)	—	230	—	230
	V DC	24	—	24	—
Rated power @ U _{MAX}	VA (50 Hz)/W	0.4	7.5 / 0.9	0.4	7.5 / 0.9
Operating range	V AC (50/60 Hz)	—	40...280	—	40...280
	V DC	4...32	—	4...32	—
Must drop-out voltage	V AC (50/60 Hz)/DC	— / 2	6 / —	— / 2	6 / —

Technical data

Electrical life	cycles	10·10 ⁶		10·10 ⁶	
Operate / release time	ms	< 10 / <10	< 10 / < 30	< 1 / <10	< 2 / < 25
Insulation between input and output (1.2/50 μ s)	kV	6		6	
Ambient temperature	°C	-20...+80 **		-20...+80 **	
Protection category		IP20		IP20	

Approvals (according to type)

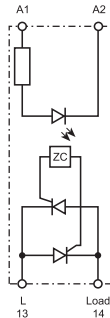
77.31.x.xxx.8050



Zero-crossing switch-on

Suggested applications:

- Lamp inrush current reduction (CFL - Compact Fluorescent energy-saving Lamps and similar)
- Heater control
- Solenoid, contactor driver



Simplified circuit diagram

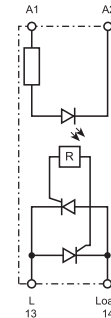
77.31.x.xxx.8051



Random switch-on

Suggested applications:

- Fine controls involving shorter time (specially motor control)



Simplified circuit diagram

1 NO (SPST-NO)

1 NO (SPST-NO)

Features

30 A modular SSR, 1 NO output

- 22.5 mm housing, heat-sink + plastic cover
- AC output (with back to back SCR)
- 6 kV (1.2/50 µs) insulation between Input and Output
- Zero-crossing and random switch-on versions available
- High switching speed
- High endurance
- Silent switching
- Spark and bounce-free switching
- Low control power
- "Contactor-style" terminal arrangement (input and output terminals on adjacent sides)
- 35 mm rail (EN 60715) mount

77.31
Screw terminal



* see L77-5 diagram page 8
** see L77-4 diagrams page 7

For outline drawing see page 10

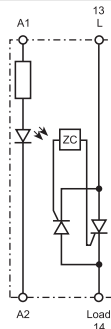
77.31.x.xxx.8070



Zero-crossing switch-on

Suggested applications:

- Lamp inrush current reduction (CFL - Compact Fluorescent energy-saving Lamps and similar)
- Heater control
- Solenoid, contactor driver



Simplified circuit diagram

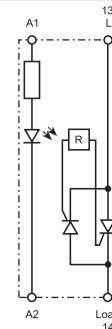
77.31.x.xxx.8071



Random switch-on

Suggested applications:

- Fine controls involving shorter time (specially motor control)

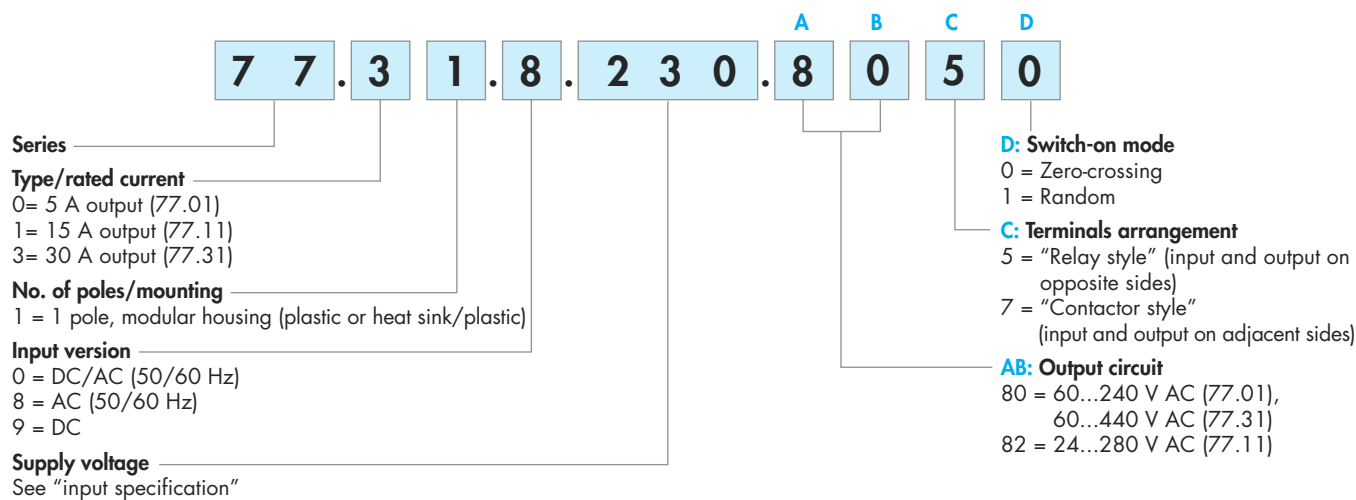


Simplified circuit diagram

Output specification					
Output configuration		1 NO (SPST-NO)		1 NO (SPST-NO)	
Rated current / Max. peak current (10 ms *) A		30 / 520 *		30 / 520 *	
Rated switching voltage V AC (50/60 Hz)		60...440		60...440	
Switching voltage range V AC (50/60 Hz)		48...480		48...480	
Blocking (max. reverse repetitive) voltage V DC		1,100		1,100	
Rated load AC7a (cos φ = 0.8) A		30		30	
Rated load AC15 A		20		20	
Single phase motor rating (230 V AC) kW		—		2.5	
230 V lamps rating: incandescent/halogen W		6,000		4,500	
compact fluorescent (CFL)/Led W		4,000		2,500	
electronic ballast fluorescent tubes W		6,000		4,000	
electromagnetic ballast compensated fluorescent tubes W		3,000		1,800	
Minimum switching current @ 400 V mA		300		300	
Typical "OFF-state" leakage current@ 400 V mA		1		1	
Max "ON-state" voltage drop @25 °C and 30 A V		0.85		0.85	
Power loss @ 30 A W		16		16	
Input specification					
Nominal voltage (U _N)	V AC (50/60 Hz)	—	230	—	230
	V DC	24	—	24	—
Rated power @ U _{MAX}	VA (50 Hz)/W	0.4	7.5 / 0.9	0.4	7.5 / 0.9
Operating range	V AC (50/60 Hz)	—	40...280	—	40...280
	V DC	4...32	—	4...32	—
Must drop-out voltage	V AC (50/60 Hz)/DC	— / 2	6 / —	— / 2	6 / —
Technical data					
Electrical life	cycles	10·10 ⁶		10·10 ⁶	
Operate / release time	ms	< 10 / <10	< 10 / < 30	< 1 / <10	< 2 / < 25
Insulation between input and output (1.2/50µs)	kV	6		6	
Ambient temperature	°C	-20...+80 **		-20...+80 **	
Protection category		IP20		IP20	
Approvals (according to type)					

Ordering information

Example: 77 series modular SSR, 1 output 30 A AC, input voltage 230 V AC, relay style terminals arrangement, zero-crossing switch-on.



Codes / Module width

77.01.8.230.8050 / 17.5 mm 5 A	77.11.8.230.8250 / 22.5 mm 15 A	77.31.8.230.8050 / 22.5 mm 30 A
77.01.0.024.8050 / 17.5 mm 5 A	77.11.9.024.8250 / 22.5 mm 15 A	77.31.9.024.8050 / 22.5 mm 30 A
77.01.8.230.8051 / 17.5 mm 5 A	77.11.8.230.8251 / 22.5 mm 15 A	77.31.8.230.8051 / 22.5 mm 30 A
77.01.0.024.8051 / 17.5 mm 5 A	77.11.9.024.8251 / 22.5 mm 15 A	77.31.9.024.8051 / 22.5 mm 30 A
		77.31.8.230.8070 / 22.5 mm 30 A
		77.31.9.024.8070 / 22.5 mm 30 A
		77.31.8.230.8071 / 22.5 mm 30 A
		77.31.9.024.8071 / 22.5 mm 30 A

Technical data

Insulation		77.01		77.11		77.31		
		Dielectric strength	Impulse (1.2/50 µs)	Dielectric strength	Impulse (1.2/50 µs)	Dielectric strength	Impulse (1.2/50 µs)	
Between input and output		2,500 V AC	5 kV	3,000 V AC	6 kV	3,000 V AC	6 kV	
Between input and ground (heat-sink)		—	—	3,000 V AC	6 kV	3,000 V AC	6 kV	
Between output and ground (heat-sink)		—	—	2,500 V AC	4 kV	4,000 V AC	6 kV	
EMC specifications		Reference standard	77.01		77.11		77.31	
			24 V AC/DC	230 V AC	24 V DC	230 V AC	24 V DC	230 V AC
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV		4 kV		4 kV	
	air discharge	EN 61000-4-2	8 kV		8 kV		8 kV	
Radiated electromagnetic field (80 ... 1,000 MHz)		EN 61000-4-3	30 V/m		20 V/m		30 V/m	
Fast transients on supply terminals (burst 5/50 ns, 5 and 100 kHz)		EN 61000-4-4	1 kV	4 kV	1 kV	3 kV	1 kV	3 kV
Voltage pulses on supply terminals (surge 1.2/50 µs)	common mode	EN 61000-4-5	2 kV	4 kV	3 kV	3 kV	3 kV	3 kV
	differential mode	EN 61000-4-5	1 kV	4 kV	0.5 kV	1.5 kV	0.5 kV	1.5 kV
Radio-frequency common mode voltage (0.15...230 MHz) on supply terminals		EN 61000-4-6	—		10 V		10 V	
Terminals			77.01		77.11		77.31	
Screw torque		Nm	0.8		0.8		0.8	
Max. wire size			solid cable	stranded cable	solid cable	stranded cable	solid cable	stranded cable
		mm ²	1x6/2x4	1x4/2x2.5	1x6/2x4	1x6 / 2x4	1x6/2x4	1x6 / 2x4
		AWG	1x10/2x12	1x12/2x14	1x10/2x12	1x10/2x12	1x10/2x12	1x10/2x12
Wire strip length		mm	9		9		9	
Other data			77.01		77.11		77.31	
Power lost to the environment	without output current	W	0.5		0.9		0.9	
	with rated current	W	4.0		14		16	

Input specification

77.01

Nominal voltage	Input code	Operating range				Must drop-out voltage (AC/DC)	Input current I_N at U_N
		AC		DC			
		U_{min}	U_{max}	U_{min}	U_{max}		
U_N V		V	V	V	V	V	I_N at U_N mA
24	0.024	16	32	9.8	32	2.4	25
230	8.230	90	265	—	—	24	15


77.11

Nominal voltage	Input code	Operating range				Must drop-out voltage (AC/DC)	Input current I_N at U_N
		AC		DC			
		U_{min}	U_{max}	U_{min}	U_{max}		
U_N V		V	V	V	V	V	I_N at U_N mA
24	9.024	—	—	4	32	2	11
230	8.230	40	305	—	—	6	25

77.31

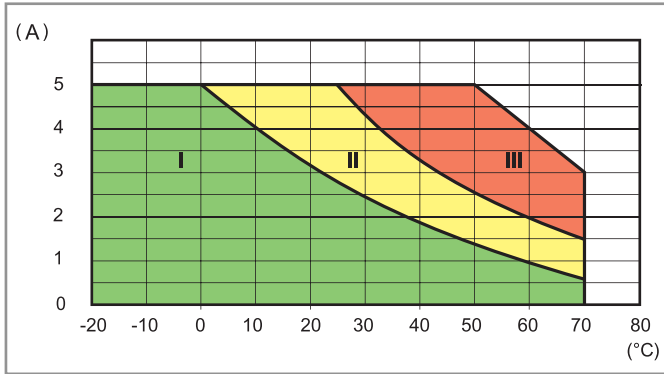
Nominal voltage	Input code	Operating range				Must drop-out voltage (AC/DC)	Input current I_N at U_N
		AC		DC			
		U_{min}	U_{max}	U_{min}	U_{max}		
U_N V		V	V	V	V	V	I_N at U_N mA
24	9.024	—	—	4	32	2	11
230	8.230	40	280	—	—	6	25

Led indication

LED	Supply voltage
	OFF
	ON

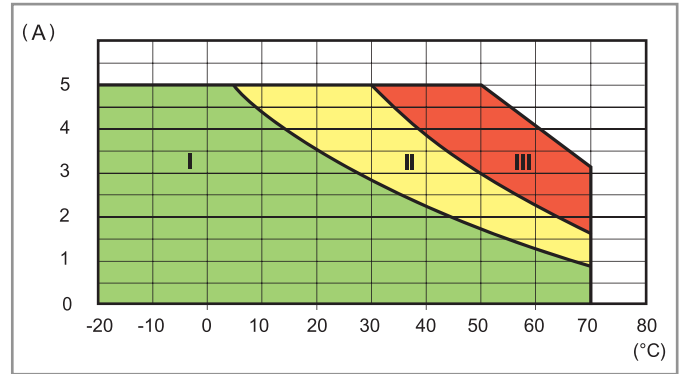
Output specification

L77-1 Output RMS current vs. ambient temperature
77.01.0.024.805x @ 32 V DC

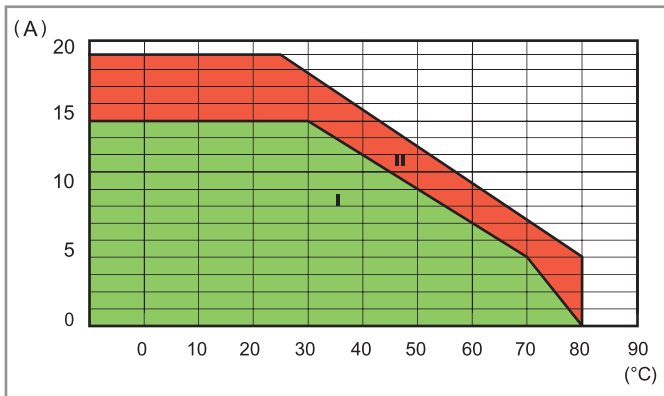


- I - Modular SSR installed as a group (without gap)
- II - Modular SSR installed as a group (9 mm gap between each SSR)
- III - Modular SSR installed individually in free air (without a significant influence from nearby components)

L77-2 Output RMS current vs. ambient temperature
77.01.8.230.805x @ 265 V AC

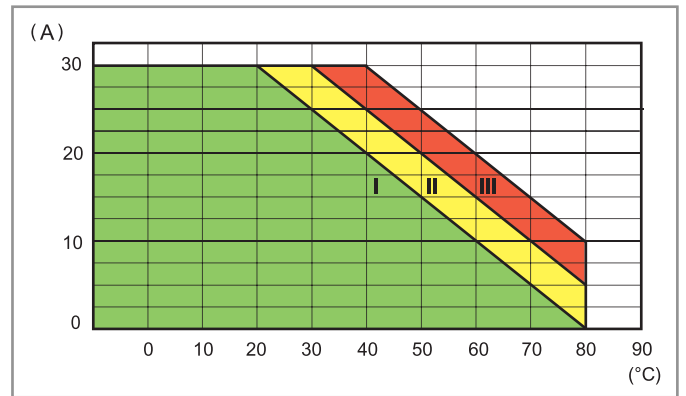


L77-6 Output RMS current vs. ambient temperature
77.11.x.xxx.82xx



- I - Modular SSR installed as a group (without gap)
- II - Modular SSR installed individually in free air, or with a gap ≥ 20 mm, which implies a not significant influence from nearby components

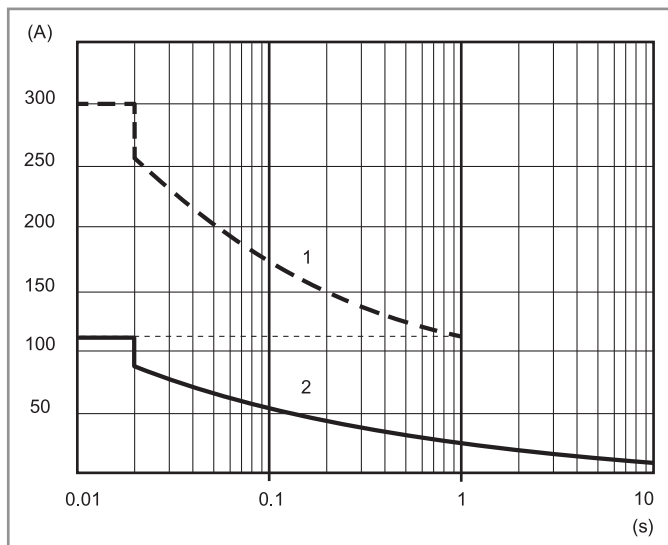
L77-4 Output RMS current vs. ambient temperature
77.31.x.xxx.80xx



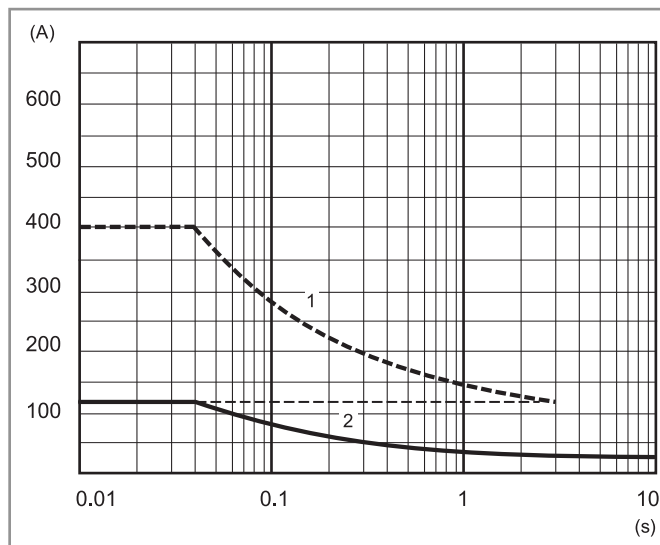
- I - Modular SSR installed as a group (without gap)
- II - Modular SSR installed as a group (20 mm gap between each SSR)
- III - Modular SSR installed individually in free air, or with a gap ≥ 40 mm, which implies a not significant influence from nearby components

Output specification

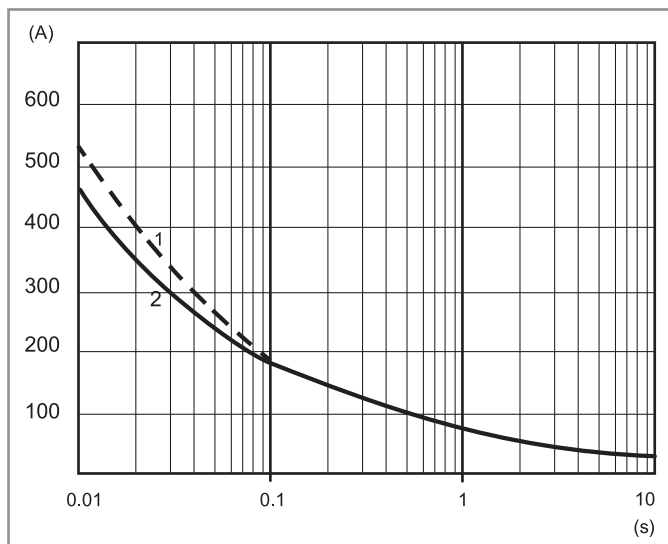
L77-3 Inrush peak current (AC) vs. time capacity
77.01.x.xxx.80xx



L77-7 Inrush peak current (AC) vs. time capacity
77.11.x.xxx.82xx



L77-5 Inrush peak current (AC) vs. time capacity
77.31.x.xxx.80xx



- 1 - "Cold" conditions (ambient temperature = 23 °C, no output current during the last 15 minutes)
- 2 - "Hot" conditions (ambient temperature = 50 °C, rated output current)

Max recommended switching frequency (Cycles/Hour, with 50 % Duty-cycle)

Load	77.01	77.11	77.31
5 A 230 V (AC1)	5,000	—	—
1A (AC15)	10,000	—	—
0.5 A (AC15)	20,000	—	—
15 A 305 V cos φ = 0.8	—	1,800	—
15 A 305 V cos φ = 0.5	—	1,200	—
30 A 480 V cos φ = 0.8	—	—	1,800
30 A 480 V cos φ = 0.5	—	—	1,200

Other data

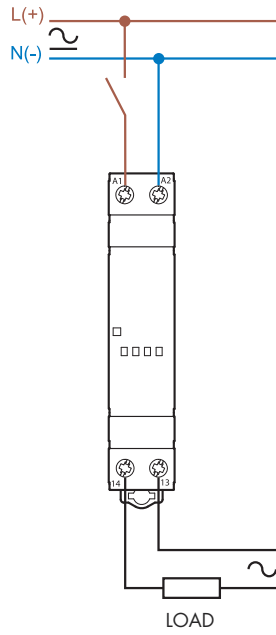
	77.01	77.11	77.31
Critical rising voltage dv/dt without input control (gate open) @ T _j = 125 °C	> 1,000 V/μs	> 500 V/μs > 10 V/μs (with di/dt = 20 A/ms)	> 1,000 V/μs
Critical rising current di/dt @ T _j = 125 °C	> 50 A/μs	> 50 A/μs	> 150 A/μs
I²t for fusing @ t _p = 10 ms	450 A ² s	1,000 A ² s*	1,350 A ² s**

Recommended fuse for short-circuit protection:

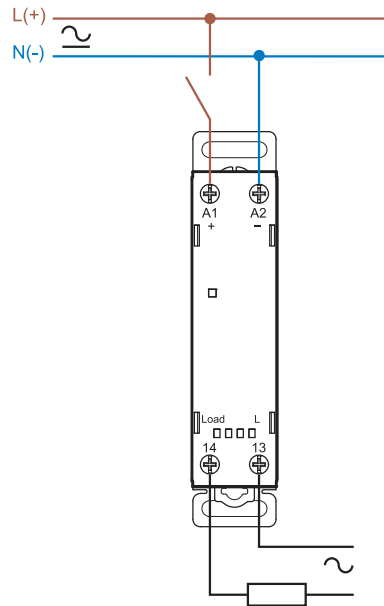
- * 20 A, 660 V AC, 10x38 mm, 200 kA, 360 A²s.
- ** 30 A, 660 V AC, 10x38 mm, 200 kA, 1,000 A²s.

Wiring diagrams

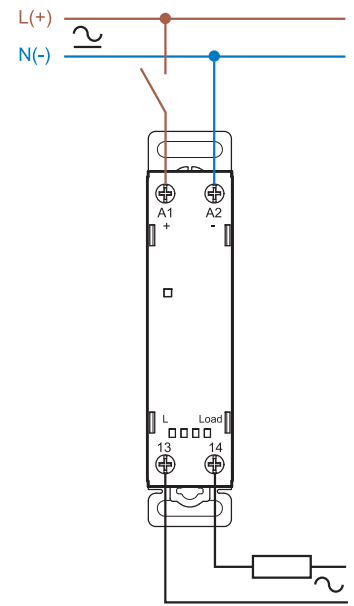
Single-phase connection (77.01)



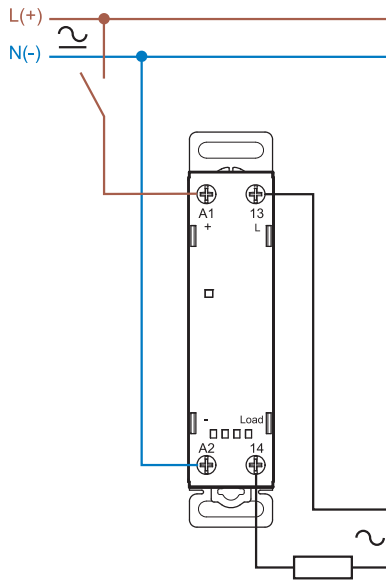
Single-phase connection (77.11)



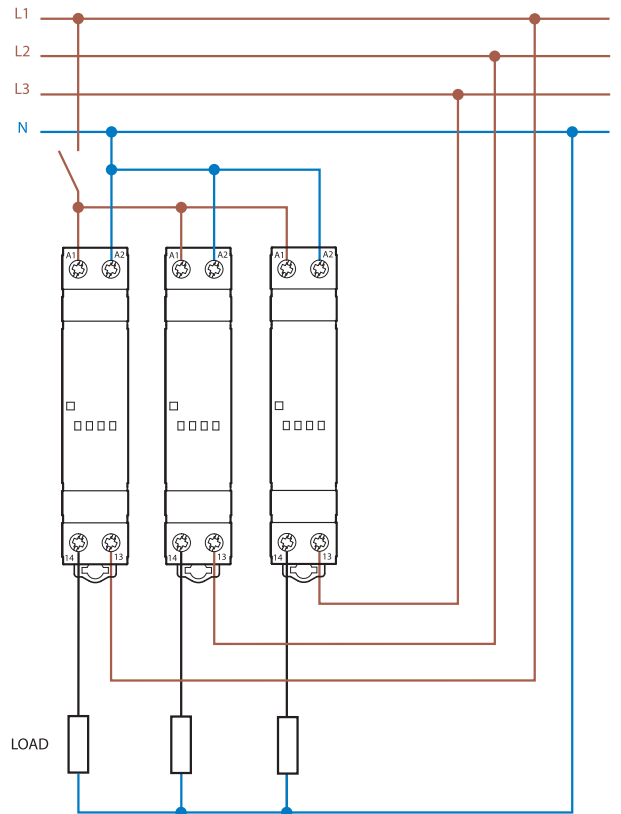
Single-phase connection (77.31.....5x)



Single-phase connection (77.31.....7x)

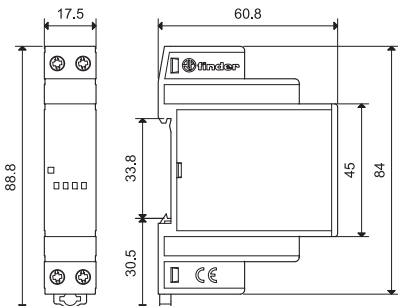


Example of three-phase connection (with 3 x 77.01.8.230.8051)

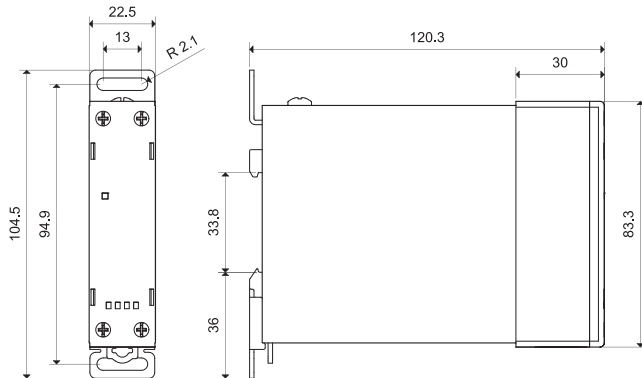


Outline drawings

77.01
Screw terminal



77.11/31
Screw terminal



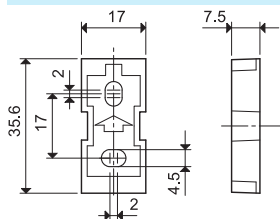
Accessories



020.01

Adaptor for panel mounting, plastic, 17.5 mm wide for 77.01 only

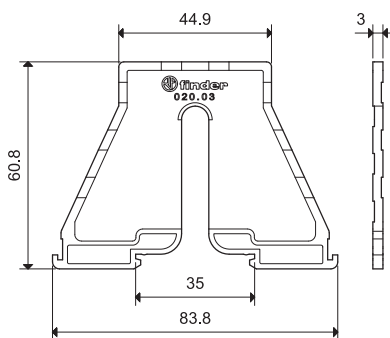
020.01



020.03

Separator for panel mounting, plastic, 3 mm wide

020.03



060.72

Sheet of marker tags, plastic, 72 tags, 6x12 mm

060.72

Features

Range of modular DC power supplies

- High efficiency (up to 91%)
- Low (< 0.4 W) stand-by power absorption
- Thermal protection: internal, with V_{out} shutdown
- Short circuit protection: hiccup (auto-recovery) mode
- Input protection: replaceable internal fuse plus spare (78.36)
- Overvoltage protection: varistor
- Flyback topology
- Compliant to EN 60950-1 and EN 61204-3
- Parallel working for automatic redundancy: with OR-IN diode
- Dual and series connection permissible
- Small dimensions: 17.5 mm (1 module) or 70 mm (4-modules) wide, 60 mm deep
- 35 mm rail (EN 60715) mount

Screw terminal



For outline drawing see page 8

Output specification

Output current (-20...+40°C, 230 V AC input) A	0.63	1.25	1.7
Rated current I _N (50°C, full input operating range) A	0.50	1	1.5
Rated voltage V	24	12	24
Rated power W	12	12	36
Output power (-20...+40°C, 230 V AC input) W	15	15	40
Peak current capability for 3 ms * A	2	3	8
Output voltage adjust V	—	—	—
Voltage variation (from no-load to full-load)	< 1 %	< 1 %	< 1 %
Voltage ripple @ full load ** mV	< 200	< 200	< 200
Hold-up time@full load: with 100 V AC input ms	< 10	< 10	< 20
	with 260 V AC input ms	< 90	< 100

Input specification

Nominal voltage (U _N)	V AC (50/60 Hz)	110...240	110...240	110...240
	V DC (not polarized)	220	220	220
Operating range	V AC (50/60 Hz)	100...265***	100...265***	100...265***
	V DC	140...370	140...370	140...370
Max power absorption	VA	28.2	32	57.5
	W (@ 100 V AC, 50 Hz)	14.2	17.2	43
Stand-by power absorption W		< 0.4	< 0.4	< 0.4
Power factor		0.50	0.53	0.74
Max current absorption (@ 88 V AC) A		0.25	0.30	0.6
Max. inrush current (peak @ 265 V) for 3 ms A		10	10	12
Replaceable protection fuse		—	—	1 A - T

Technical data

Efficiency (@ 230 V AC) %	85	87	86
MTTF H	> 400.000	> 400.000	> 600.000
Start-up delay s	< 1	< 1	< 1
Dielectric strength between input/output V AC	2,500 (class II)	2,500 (class II)	3,000 (class II)
Dielectric strength between input/PE V AC	—	—	—
Ambient temperature range **** °C	-20...+60	-20...+60	-20...+70
Protection category	IP 20	IP 20	IP 20

Approvals (according to type)



78.12...2400



• 24 V DC, 12 W output

NEW 78.12...1200



• 12 V DC, 12 W output

78.36



• 24 V DC, 36 W output

- * (see diagrams L78)
- ** peak to peak, 100 Hz component, with 100 V AC input
- *** 88...100 V AC with output current limited to 80 % I_N
- **** (see derating diagrams P78)

Features

Range of modular DC power supplies

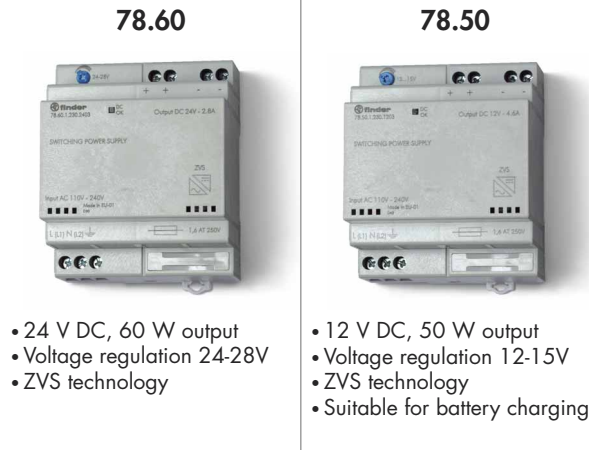
- High efficiency (up to 91%)
- Low (< 0.4 W) stand-by power absorption
- Thermal protection: internal, with V_{out} shutdown
- Short circuit protection: hiccup (auto-recovery) mode
- Overload protection: fold-back mode (78.50 only)
- Input protection: replaceable internal fuse plus spare
- Overvoltage protection: varistor
- Flyback topology
- ZVS (Zero-voltage-switching), quasi-resonant mode technology
- Compliant to EN 60950-1 and EN 61204-3
- Parallel working for automatic redundancy: with OR-IN diode
- Dual and series connection permissible
- Small dimensions: 70 mm (4-modules) wide, 60 mm deep
- 35 mm rail (EN 60715) mount

Screw terminal



For outline drawing see page 8

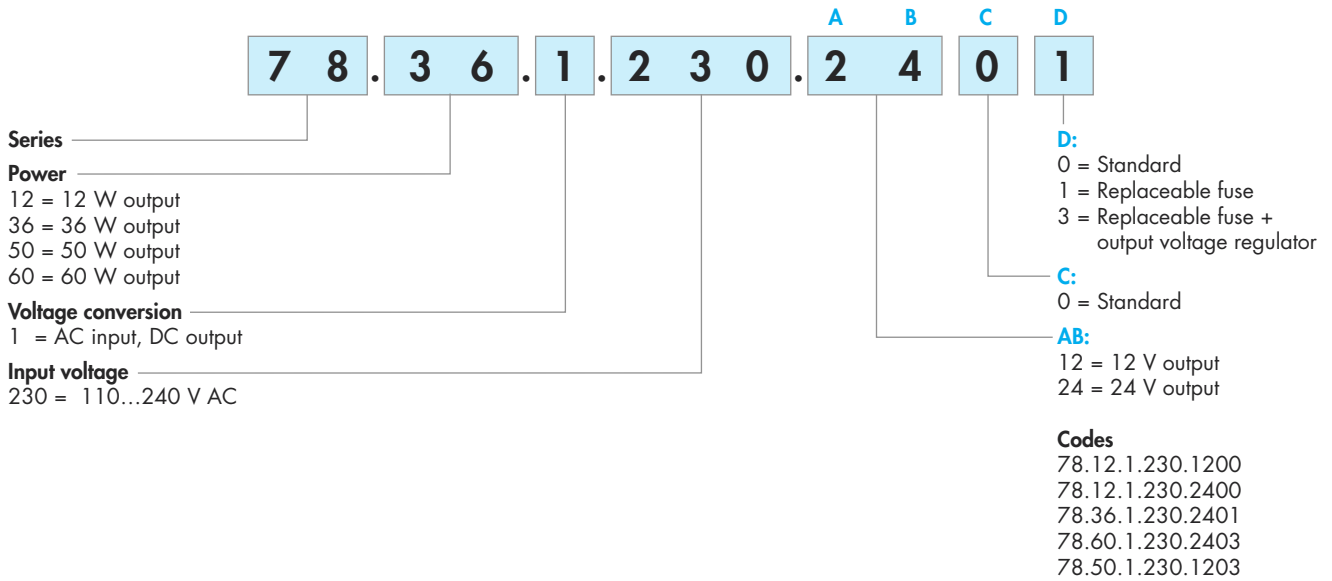
Output specification		78.60	78.50
Output current (-20...+40°C, 230 V AC input) A		2.8	4.6
Rated current I_N (50°C, full input operating range) A		2.5	4.2
Rated voltage V		24	12
Rated power W		60	50
Output power (-20...+40°C, 230 V AC input) W		68	55
Peak current capability for 3 ms * A		10	12
Output voltage adjust V		24...28	12...15
Voltage variation (from no-load to full-load)		< 1 %	< 1 %
Voltage ripple @ full load ** mV		< 200	< 200
Hold-up time@full load: with 100 V AC input ms		< 20	< 30
	with 260 V AC input ms	< 130	< 150
Input specification		78.60	78.50
Nominal voltage (U_N)	V AC (50/60 Hz)	110...240	110...240
	V DC (not polarized)	220	220
Operating range	V AC (50/60 Hz)	88...265	88...265
	V DC	140...370	140...370
Max power absorption	VA	90	89
	(@ 100 V AC, 50 Hz) W	67.5	58.3
Stand-by power absorption W		< 0.4	< 0.4
Power factor		0.75	0.65
Max current absorption (@ 88 V AC) A		0.9	0.85
Max. inrush current (peak @ 265 V) for 3 ms A		30	30
Replaceable protection fuse		1.6 A - T	1.6 A - T
Technical data		78.60	78.50
Efficiency (@ 230 V AC) %		91	90
MTTF H		> 500.000	> 400.000
Start-up delay s		< 1	< 1
Dielectric strength between input/output V AC		3,000 (class II)	3,000 (class II)
Dielectric strength between input/PE V AC		1,500 (class I)	1,500 (class I)
Ambient temperature range *** °C		-20...+70	-20...+70
Protection category		IP 20	IP 20
Approvals (according to type)		CE	



* (see diagrams L78)
 ** peak to peak, 100 Hz component, with 100 V AC input
 *** (see derating diagrams P78)

Ordering information

Example: 78 series switching power supply, 36 W 24 V DC output, supply voltage 110...240 V AC, replaceable fuse.



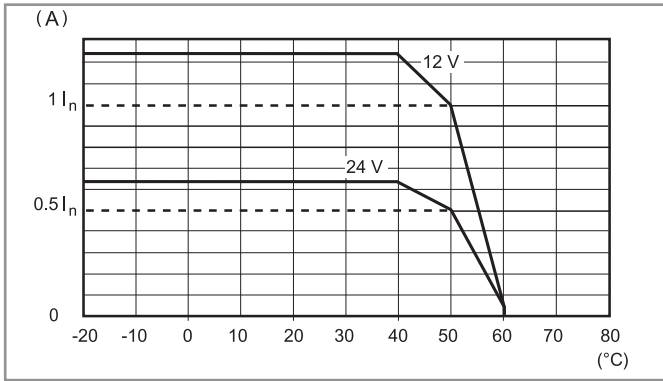
Technical data

EMC specifications (according to EN 61204-3)		Reference standard	78.12, 78.36	78.60, 78.50
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV	4 kV
	air discharge	EN 61000-4-2	8 kV	8 kV
Radiated electromagnetic field	80 ... 1,000 MHz	EN 61000-4-3	6 V/m	10 V/m
	1 ... 2.8 GHz	EN 61000-4-3	3 V/m	3 V/m
Fast transients (burst 5/50 ns, 5 and 100 kHz)	on supply terminals	EN 61000-4-4	2 kV	3 kV
Voltage pulses on supply terminals (surge 1.2/50 µs)	common mode	EN 61000-4-5	2 kV	2 kV
	differential mode	EN 61000-4-5	2 kV (78.12), 4 kV* (78.36)	4 kV *
Radio-frequency common mode voltage (0.15...230 MHz)	on supply terminals	EN 61000-4-6	6 V	10 V
Short interruptions		EN 61000-4-11	5 cycles	6 cycles
Radio-frequency conducted emissions	0.15...30 MHz	EN 55022	class B	class B
Radiated emissions	30...1,000 MHz	EN 55022	class B	class B
Terminals			solid cable	stranded cable
Max. wire size		mm ²	1 x 4 / 2 x 2.5	1 x 4 / 2 x 2.5
		AWG	1 x 12 / 2 x 14	1 x 12 / 2 x 14
Screw torque		Nm	0.8	
Wire strip length		mm	9	
Other data				
Power lost to the environment	without output current	W	0.4	
	with rated output current	W	2 (78.12), 5 (78.36, 78.50), 5.4 (78.60)	

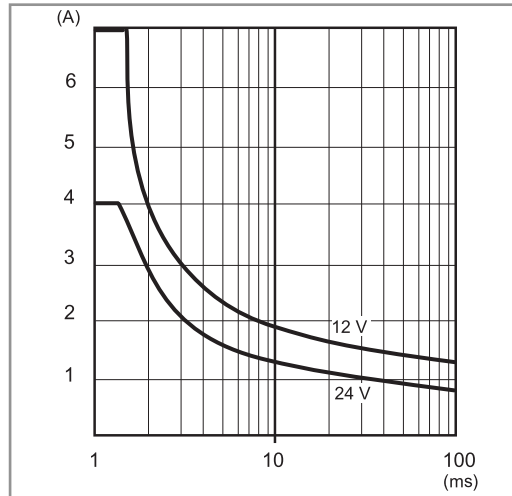
* input fuse may blow for surges higher than 1.5 kV

Output specification

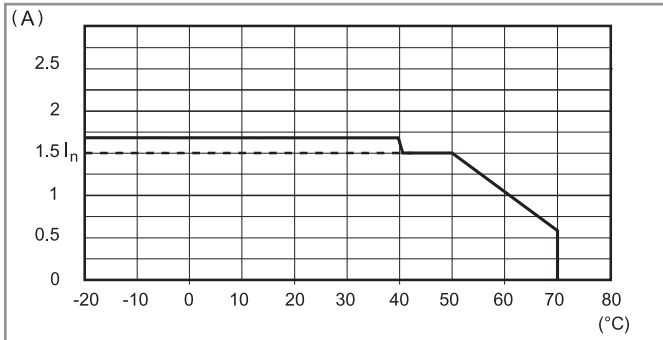
L78-1 Output current v ambient temperature (78.12)



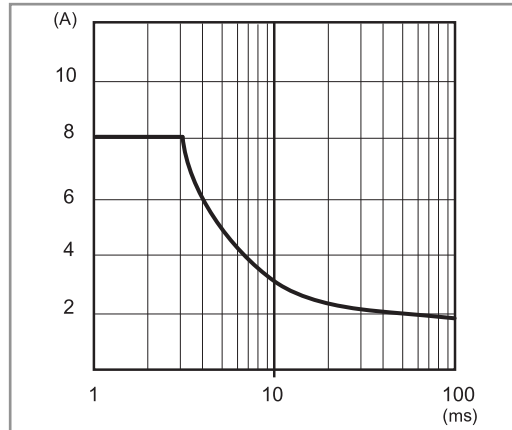
P78-1 Output peak current v time (78.12)



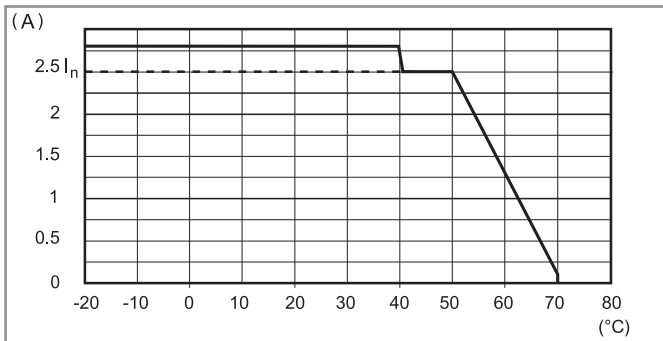
L78-2 Output current v ambient temperature (78.36)



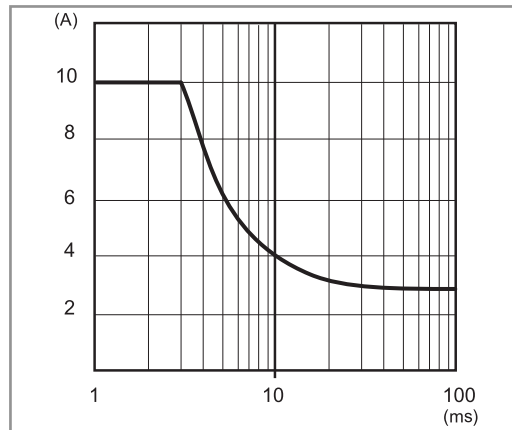
P78-2 Output peak current v time (78.36)



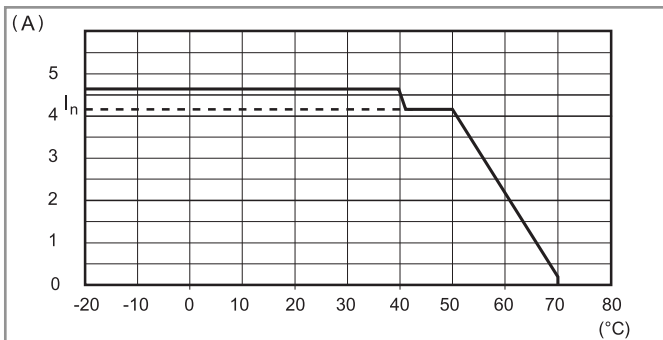
L78-3 Output current v ambient temperature (78.60)



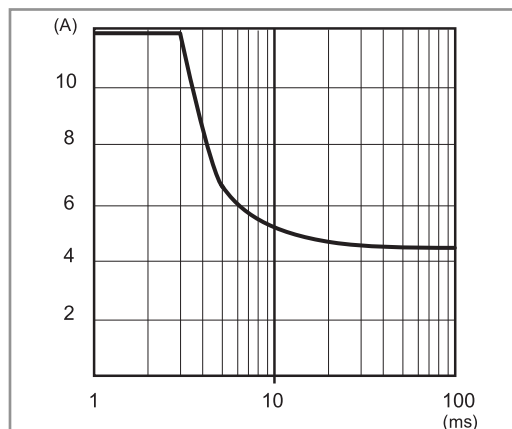
P78-3 Output peak current v time (78.60)



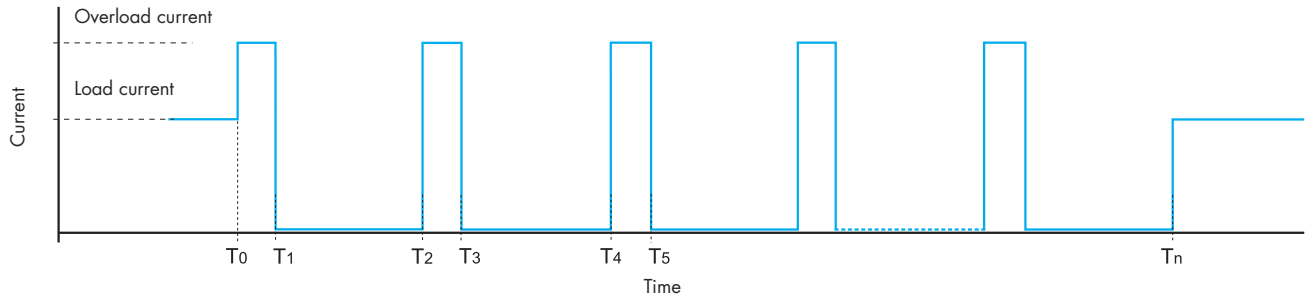
L78-4 Output current v ambient temperature (78.50)



P78-4 Output peak current v time (78.50)



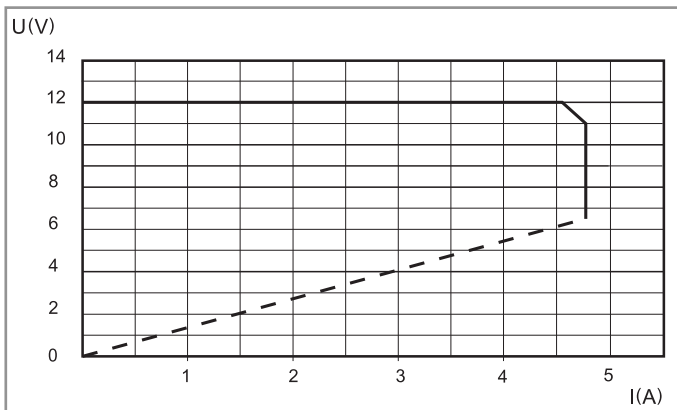
Hiccup mode



Under normal conditions, the 78 Series Power Supply supplies the current required by the load.

However, under abnormal conditions such as a short circuit or heavy overload (T_0) the output voltage will be rapidly reduced to zero - followed by the current (T_1). After approximately 2 seconds (T_1 to T_2), the power supply checks for the persistence of the anomaly over the time period T_2 to T_3 (30 to 100ms - dependent on the type of anomaly). If the anomaly persists, as shown above, the current is again reset to 0 A for a further 2 s (T_3 to T_4). This "hiccup" process is repeated until the anomaly is removed (T_n), whereon the power supply then returns to normal working.

Fold-back mode (78.50 only)



Under normal conditions, the 78.50 supplies the current required by the load.

In case of **heavy overload** (up to 110 W / 9.2 A), the fold-back circuit will limit the output current linearly as output voltage decreases, in accordance to the diagram above.

In practice, when overcurrent is drawn by the load, the fold-back circuit reduces both the output voltage and current to well below the normal operating limits.

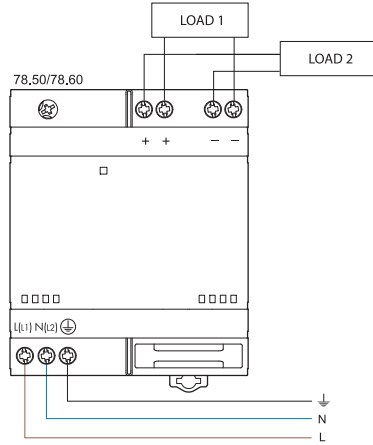
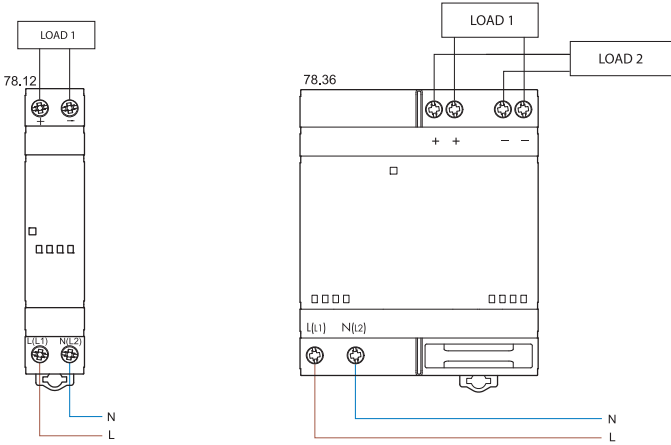
In case of **short circuit**, the power supply will work in hiccup mode.

Both these conditions end when the anomaly is removed, whereon the power supply then returns to normal working.

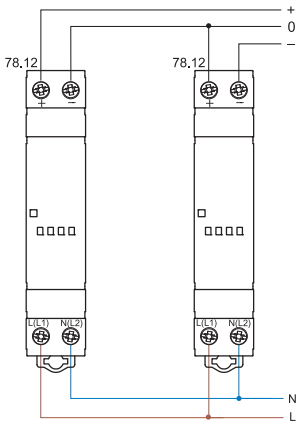
The fold-back mode allows to use the 78.50 power supply as a **battery charger**, particularly for charging lead batteries rated 15...20 Ah.

It is suggested to insert a diode in series between the + output and the + input of the battery (if not already installed in the battery unit).

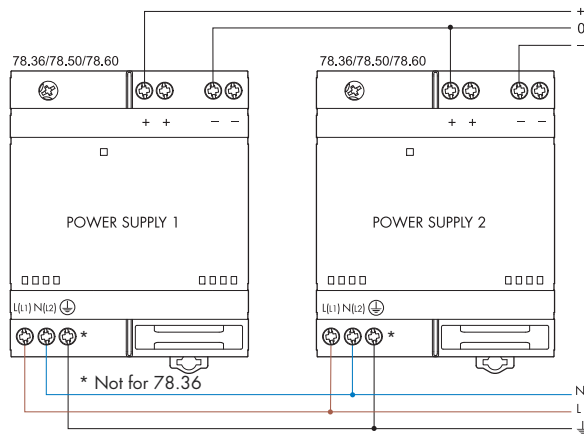
Wiring diagrams



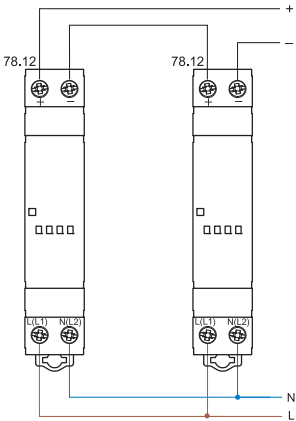
Dual connection



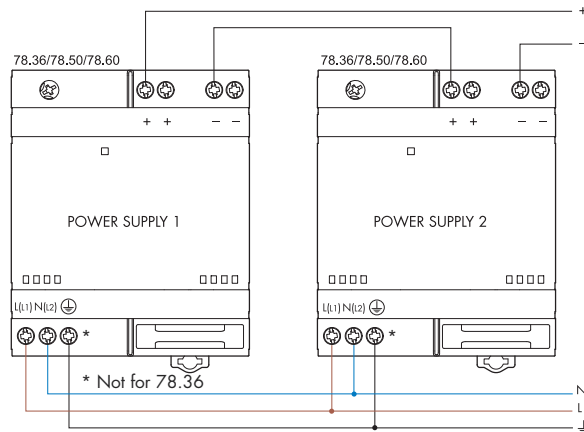
Dual connection



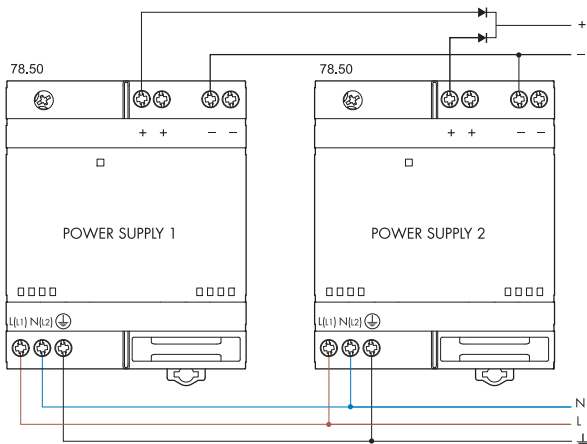
Series connection



Series connection

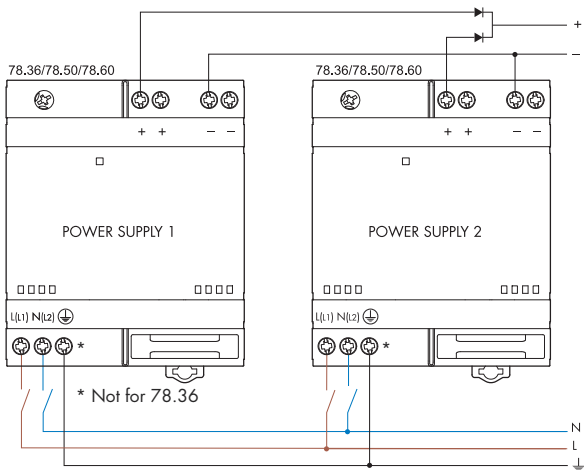


Parallel connection (78.50 only)

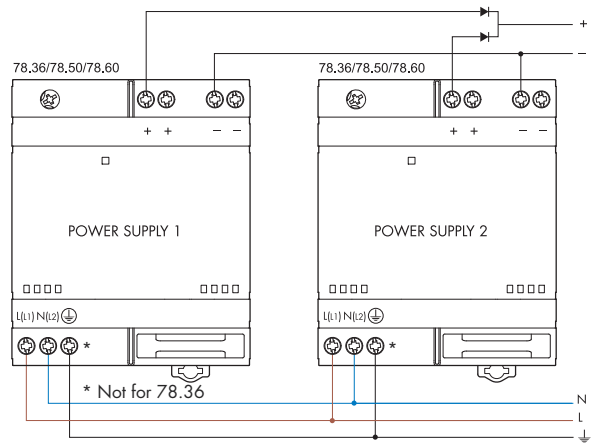


Application example: redundancy connection

Manual

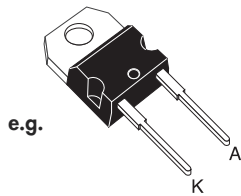
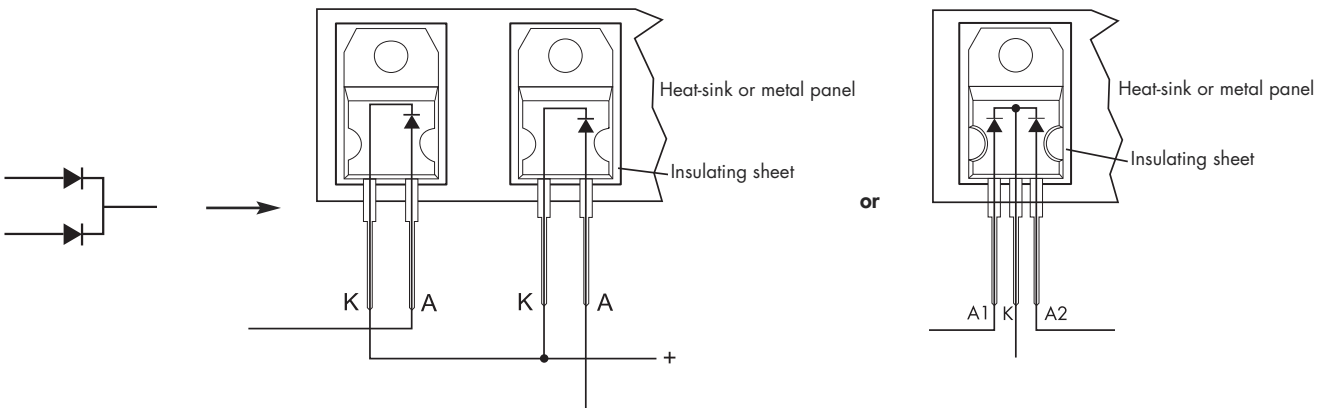


Automatic (with parallel connection)

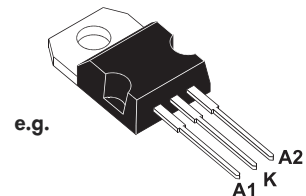


Note: Since parallel working is intended to provide automatic redundancy, rate the load current at no more than I_n .

Diode(s)



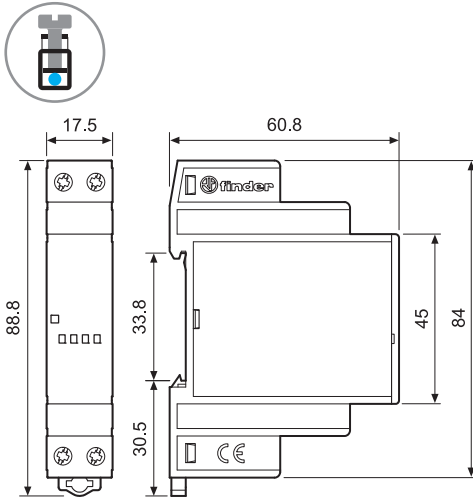
TO-220AC
STPS1545D



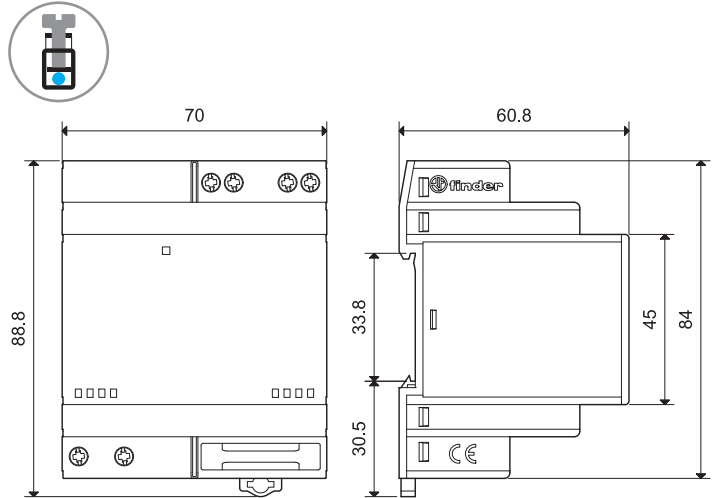
TO-220AB
STPS30L40CT

Outline drawings

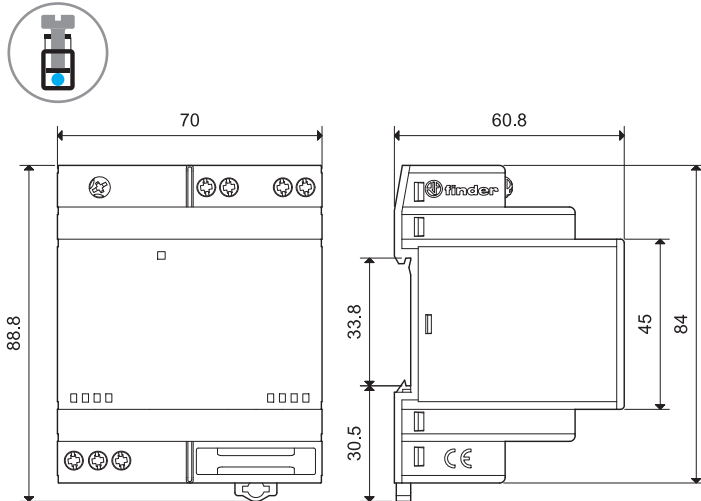
78.12
Screw terminal



78.36
Screw terminal



78.50 / 78.60
Screw terminal



Accessories



060.72

Sheet of marker tags, plastic, 72 tags, 6x12 mm

060.72



019.01

Identification tag, plastic, 1 tag, 17x25.5 mm

019.01

Features

kWh Energy meter
1-phase with multi-functional LC-Display
Type 7E.23 5(32)A - 1 module wide

- Complies with EN 62053-21 and EN 50470
- Display indicates total consumption, partial consumption (this value is resettable), instantaneous: power, voltage and current
- Seven digit counter, LCD with backlight
- Accuracy class: 1/B
- Easy to operate by one control key
- Protection class II
- Pulse output for remote energy management; SO interface (open collector) according DIN 43864 to link the energy meter to a centrally located monitoring/management system
- Tamper-proof cover with lead seal facility available as an accessory
- Space saving small size
- 35 mm rail (EN 60715) mount
- MID compliant version (50 Hz only) available

* 0.01 kWh for readings $\leq 99,999.99$ kWh and 0.1 kWh for readings $\geq 100,000.0$ kWh
** LED indicator for consumption

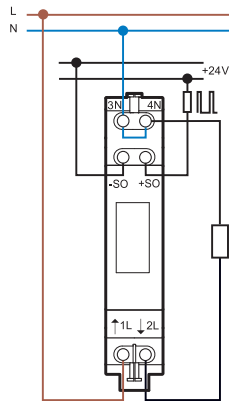
For outline drawing see page 8

Specification		7E.23.8.230.0001	7E.23.8.230.00x0
Nominal/Maximum current	A	5/32	5/32
Minimum measured current	A	0.02	0.02
Current range (within accuracy class)	A	0.25...32	0.25...32
Maximum peak current	A	960 (10 ms)	960 (10 ms)
Supply (& monitored) voltage (U_N)	V AC	230	230
Operating range		$(0.8...1.15)U_N$	$(0.8...1.15)U_N$
Frequency	Hz	50	50
Power consumption	W	< 0.4	< 0.4
Display (digit height 5 mm)		Seven digit counter, LCD without backlight	Seven digit counter, LCD with backlight
Max. totalising count/Min. increment	kWh	999,999.9/0.01 *	999,999.9/0.01 *
LCD-segment pulses per kWh		2,000 **	2,000
Open collector- output specification (SO+ / SO-)			
Voltage (external supply)	V DC	5...30	5...30
Maximum current	mA	20	20
Maximum leakage current @30 V/25 °C	μ A	10	10
Pulses per kWh		1,000	1,000
Pulse length	ms	30	30
Internal series resistance	Ω	100	100
Maximum Cable length @30 V/20 mA	m	1,000	1,000
Technical data			
Accuracy class		1 / B	1 / B
Ambient temperature (Within accuracy class) °C		-10...+55	-25...+55
Protective class		II	II
Protection category: Housing/terminals		IP 50/IP 20	IP 50/IP 20
Approvals (according to type)		CE	

NEW 7E.23.8.230.0001



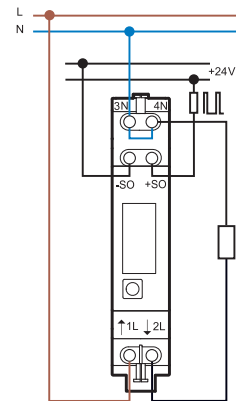
- Nominal current 5 A (32 A Maximum)
- 1-phase 230 V AC
- kWh only
- 17.5 mm wide



7E.23.8.230.00x0



- Nominal current 5 A (32 A Maximum)
- 1-phase 230 V AC
- 17.5 mm wide



Features

kWh Energy meter

3-phase with multi-functional LC-Display

Type 7E.46-0002 10(65)A - Single and Dual tariff

Type 7E.56-0000 5 (6)A - for current transformer up to 1,500 A

- Complies with EN 62053-21 and EN 50470
- Display indicates total consumption, partial consumption (this value is resettable), instantaneous power per phase or all phases, voltage per phase, current per phase
- ERROR-Display, in case of missing phase or wrong current direction
- Seven digit counter, LCD with backlight
- Accuracy class: 1/B
- Easy to operate by two control keys
- LC-Display can be read twice within a period of 10 days following the loss of supply voltage
- Protection class II
- Pulse output for remote energy management; SO interface (open collector) according DIN 43864 to link the energy meter to a centrally located monitoring/management system
- Tamper-proof cover with lead seal facility available as an accessory
- 35 mm rail (EN 60715) mount
- MID compliant version (50 Hz only) available

* Current transformer ratios: 5:5, 50:5, 100:5, 150:5, 200:5, 250:5, 300:5, 400:5, 500:5, 600:5, 750:5, 1,000:5, 1,250:5, 1,500:5.

** 0.01 kWh for readings $\leq 99,999.99$ kWh and 0.1 kWh for readings $\geq 100,000.0$ kWh

*** 0.1 kWh for readings $\leq 999,999.9$ kWh and 1 kWh for readings $\geq 1,000,000$ kWh

For outline drawing see page 8

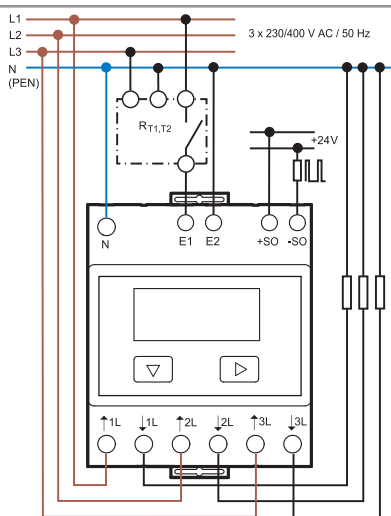
Specification

Nominal/Maximum current	A	10/65	5/6
Minimum measured current	A	0.04	0.01
Current range (within accuracy class)	A	0.5...65	0.05...6
Maximum peak current	A	1,950 (10 ms)	180 (10 ms)
Supply (& monitored) voltage (U_N)	V AC	3 x 230	3 x 230
Operating range		$(0.8...1.15)U_N$	$(0.8...1.15)U_N$
Frequency	Hz	50	50
Power consumption per phase	W	< 1.5	< 1.5
Display (digit height 6 mm)		Seven digit counter, LCD with backlight	
Max. totalising count/Min. increment	kWh	999,999.9/0.01 **	9,999,999/0.1 ***
LCD-segment pulses per kWh		100	10
Open collector- output specification (SO+ / SO-)			
Voltage (external supply)	V DC	5...30	5...30
Maximum current	mA	20	20
Maximum leakage current @30 V/25 °C	μ A	10	10
Pulses per kWh		1,000	10
Pulse length	ms	30	30
Internal series resistance	Ω	100	100
Maximum Cable length @30 V/20 mA	m	1,000	1,000
Technical data			
Accuracy class		1 / B	1 / B
Ambient temperature	°C	-25...+55 °C	-25...+55 °C
Protective class		II	II
Protection category: Housing/terminals		IP 50/IP 20	IP 50/IP 20
Approvals (according to type)			

7E.46.8.400.00x2



- Nominal current 10 A (65 A Maximum)
- 3-phase
- Single and Dual tariff (Day and Night)
- 70 mm wide

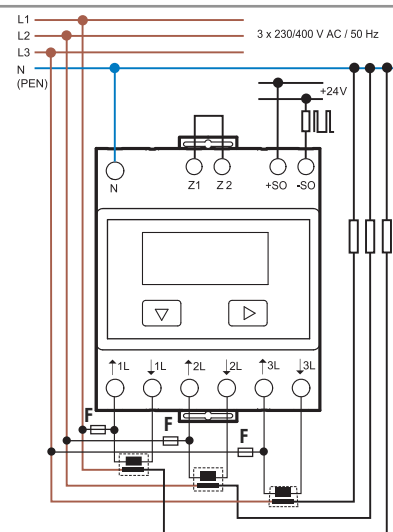


$R_{T1,T2}$ = Tariff switching equipment

7E.56.8.400.00x0



- Nominal current 5 A (6 A Maximum)
- 3-phase
- Usable with current transformer up to 1,500 A
- 14 selectable Current Transformer ratios*
- 70 mm wide



* Current transformer ratios / $F = 250$ mA T

Features

kWh Energy meter
1-phase with mechanical display

Type 7E.12 10(25)A - 2 module wide

Type 7E.13 5(32)A - 1 module wide

Type 7E.16 10(65)A - 2 module wide

- Complies with EN 62053-21 and prEN 50470
- Certified by PTB (Physikalisch - Technischen Bundesanstalt)
- Accuracy class 1 / B
- Protection class II
- Pulse output for remote energy management; SO interface (open collector) according DIN 43864 to link the energy meter to a centrally located monitoring/management system
- Tamper-proof cover with lead seal facility available as an accessory
- Space saving small size
- 35 mm rail (EN 60715) mount
- MID compliant version (50 Hz only) available

7E.12.8.230.0002



- Nominal current 10 A (25 A Maximum)
- 1-phase 230 V AC
- 35 mm wide

7E.13.8.230.00x0

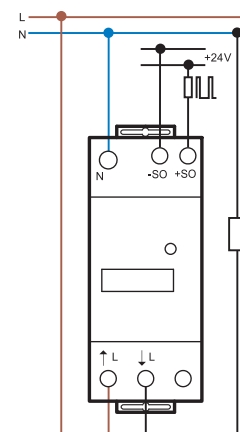
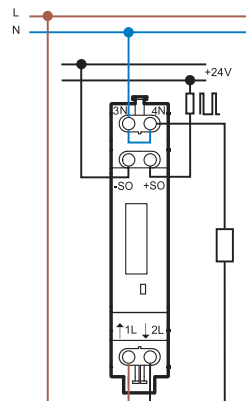
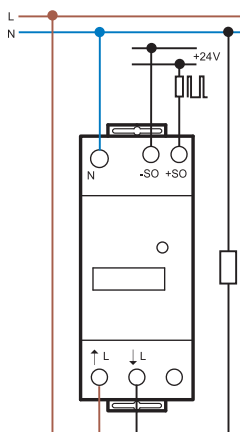


- Nominal current 5 A (32 A Maximum)
- 1-phase 230 V AC
- 17.5 mm wide

7E.16.8.230.00x0



- Nominal current 10 A (65 A Maximum)
- 1-phase 230 V AC
- 35 mm wide



For outline drawing see page 8

Specification

Nominal/Maximum current	A	10/25	5/32	10/65
Minimum measured current	A	0.04	0.02	0.04
Current range (within accuracy class)	A	0.5...25	0.25...32	0.5...65
Maximum peak current	A	750 (10 ms)	960 (10 ms)	1,950 (10 ms)
Supply (& monitored) voltage (U _N)	V AC	230	230	230
Operating range		(0.8...1.15)U _N	(0.8...1.15)U _N	(0.8...1.15)U _N
Frequency	Hz	50	50	50
Power consumption	W	< 0.5	< 0.4	< 0.5
Display (digit height 4 mm)		Six digit counter, red decimal digit	Seven digit counter, red decimal digit	
Max. totalising count/Min. increment	kWh	99,999.9/0.1	999,999.9/0.1	999,999.9/0.1
LED- Pulses per kWh		2,000	2,000	1,000

Open collector- output specification (SO+/SO-)

Voltage (external supply)	V DC	5...30	5...30	5...30
Maximum current	mA	20	20	20
Maximum leakage current @30 V/25 °C	µA	10	10	10
Pulses per kWh		1,000	1,000	1,000
Pulse length	ms	50	50	50
Internal series resistance	Ω	100	100	100
Maximum Cable length @30 V/20 mA	m	1,000	1,000	1,000

Technical data

Accuracy class		1 / B	1 / B	1 / B
Ambient temperature (Within accuracy class)°C		-10...+55	-10...+55	-10...+55
Protective class		II	II	II
Protection category: Housing/terminals		IP 50/IP 20	IP 50/IP 20	IP 50/IP 20

Approvals (according to type)



Features

kWh Energy meter
3-phase with mechanical display

Type 7E.36-0000 10(65)A - Single tariff
Type 7E.36-0002 10(65)A - Dual tariff

- Complies with EN 62053-21 and prEN 50470
- Certified by PTB (Physikalisch - Technischen Bundesanstalt)
- Accuracy class 1 / B
- Protection class II
- Pulse output for remote energy management; SO interface (open collector) according DIN 43864 to link the energy meter to a centrally located monitoring/management system
- Tamper-proof cover with lead seal facility available as an accessory
- 35 mm rail (EN 60715) mount
- MID compliant version (50 Hz only) available

7E.36.8.400.00x0

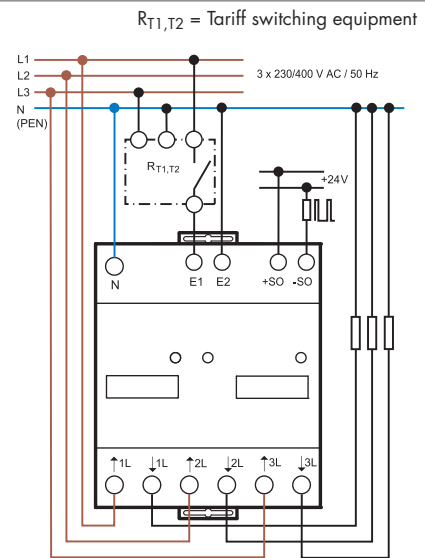
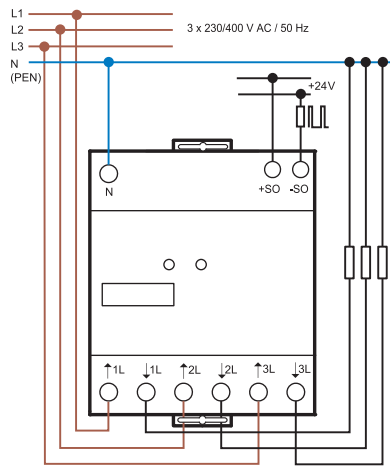


- Nominal current 10 A (65 A Maximum)
- 3-phase
- 70 mm wide

7E.36.8.400.00x2



- Nominal current 10 A (65 A Maximum)
- 3-phase
- Dual tariff (Day and Night)
- 70 mm wide



For outline drawing see page 8

Specification			
Nominal/Maximum current	A	10/65	10/65
Minimum measured current	A	0.04	0.04
Current range (within accuracy class)	A	0.5...65	0.5...65
Maximum peak current	A	1,950 (10 ms)	1,950 (10 ms)
Supply (& monitored) voltage (U _N)	V AC	3 x 230	3 x 230
Operating range		(0.8...1.15)U _N	(0.8...1.15)U _N
Frequency	Hz	50	50
Power consumption per phase	W	< 1.5	< 1.5
Display (digit height 4 mm)		Seven digit counter, red decimal digit	
Max. totalising count/Min. increment	kWh	999,999.9/0.1	999,999.9/0.1
LED- Pulses per kWh		100	100
Open collector- output specification (SO+/SO-)			
Voltage (external supply)	V DC	5...30	5...30
Maximum current	mA	20	20
Maximum leakage current @30 V/25 °C	µA	10	10
Pulses per kWh		100	100
Pulse length	ms	50	50
Internal series resistance	Ω	100	100
Maximum Cable length @30 V/20 mA	m	1,000	1,000
Technical data			
Accuracy class		1 / B	1 / B
Ambient temperature	°C	-10...+55	-10...+55
Protective class		II	II
Protection category: Housing/terminals		IP 50/IP 20	IP 50/IP 20

Approvals (according to type)



Ordering information

Example: Energy meter 32 A/230 V AC, with PTB certified, accuracy class 1, available with Tamper-proof lead sealed cover as accessory, for 35 mm rail (EN 60715) mounting.

7 E . 1 3 . 8 . 2 3 0 . 0 0 0 0

Series
Function

- 1 = 1-phase
- 2 = 1-phase with LC-Display
- 3 = 3-phase
- 4 = 3-phase with LC-Display
- 5 = 3-phase with LC-Display for current transformer operation

Current

- 2 = 25 A
- 3 = 32 A
- 6 = 65 A (up to 1,500 A, type 7E.56)

Supply version

- 8 = AC 50 Hz

Special version

- 0 = Standard
- 1 = MID compliant versions

Option

- 0 = Standard
- 1 = Only kWh (7E.23)
- 2 = Standard (7E.12 only)
- 2 = Dual tariff (7E.36, 7E.46)

Supply voltage

- 230 = 230 V AC 50 Hz
- 400 = 3 x 230/400 V AC 50 Hz

All versions/width

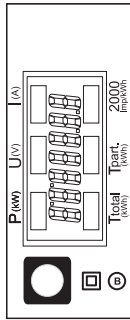
7E.12.8.230.0002/35 mm	7E.36.8.400.0000/70 mm
7E.13.8.230.0000/17.5 mm	7E.36.8.400.0010/70 mm
7E.13.8.230.0010/17.5 mm	7E.36.8.400.0002/70 mm
7E.16.8.230.0000/35 mm	7E.36.8.400.0012/70 mm
7E.16.8.230.0010/35 mm	7E.46.8.400.0002/70 mm
7E.23.8.230.0000/17.5 mm	7E.46.8.400.0012/70 mm
7E.23.8.230.0001/17.5 mm	7E.56.8.400.0000/70 mm
7E.23.8.230.0010/17.5 mm	7E.56.8.400.0010/70 mm

Technical data

Insulation EN 62053-21		7E.12, 7E.13, 7E.16, 7E.23	7E.36, 7E.46, 7E.56			
Insulation rated voltage	V	250	250			
Overvoltage category		IV	IV			
Isolation	between active part SO+/SO- terminals	kV (1.2/50 µs)	6	6		
	adjacent phases	kV (1.2/50 µs)	—	6		
Insulation	between supply and SO+/SO-	V AC	4,000	4,000		
	between adjacent phases	V AC	—	4,000		
Protection class		II	II			
EMC Specification		Reference standard				
Electrostatic discharge	contact discharge	EN 61000-4-2	8 kV			
	air discharge	EN 61000-4-2	15 kV (13 kV type 7E.23)			
Radio-Frequency Electromagnetic Field (80...1,000)MHz		EN 61000-4-3	10 V/m			
Fast Transients (Burst) (5-50 ns, 5 kHz)	on Supply Terminals	EN 61000-4-4	Class 4 (4 kV)			
	on SO+/SO- Terminals	EN 61000-4-4	Class 4 (2 kV)			
Surge (1.2/50 µs)	on Supply Terminals	EN 61000-4-5	Class 4 (4 kV)			
	on SO+/SO- Terminals	EN 61000-4-5	Class 3 (1 kV)			
Radio-Frequency Common Mode (0.15...80)MHz on Supply terminals		EN 61000-4-6	10 V			
Radiated and Conducted Emission		EN 55022	Class B			
Other data						
Pollution degree		2				
Vibration resistance	(10...60)Hz	mm	0.075			
	(60...150)Hz	g	1			
Vibration resistance of the internal mechanical counter (10...500)Hz		g	2			
Schock resistance	g/18 ms	30				
Schock resistance of the internal mechanical counter	g/18 ms	350				
Power lost to the environment	without current	W	0.4	0.4		
	with maximum current	W	1	2		
Supply terminals	Max. wire size		7E.12, 7E.13, 7E.23	7E.16, 7E.36, 7E.46, 7E.56		
			solid cable	stranded cable	solid cable	stranded cable
		mm ²	1...6	0.75...4	1.5...16	1.5...16
		AWG	18...10	18...12	16...6	16...6
	⊕ Screw torque for I _{max}	Nm	0.8...1.2			
	Screw		M4 Pozidrive No.1, Phillips No.1, Flat No.1			
SO+/SO- terminals	Max. wire size		solid cable	stranded cable	solid cable	stranded cable
		mm ²	2.5	1.5	2.5	1.5
		AWG	14	16	14	16
	⊕ Screw torque for I _{max}	Nm	0.5			
	Screw		M3 Pozidrive No.1, Phillips No.1, Flat No.1			
			M4 Pozidrive No.1, Phillips No.1, Flat No.1			

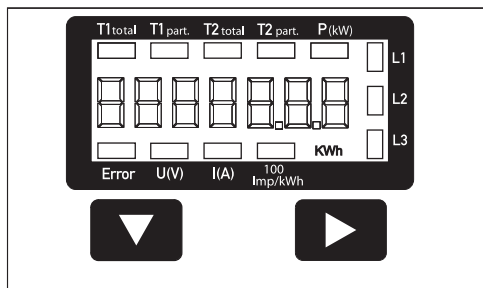
LC-Display Type 7E.23, 7E.46, 7E.56

Indication elements

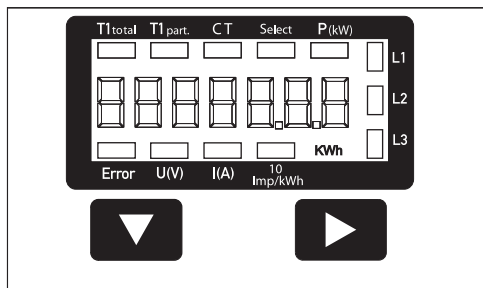


Type 7E.23		
Total	kWh	Indicates total consumption
Tpart.	kWh	Indicates partial consumption, this value is resettable
P	kW	Indicates the instantaneous power
U	V	Indicates the voltage
I	A	Indicates the current
2,000 Imp/kWh		Pulsed according to drawn power Error indication (line 1L/2L inverted) with pulsating 600/600 ms

For 7E.23.8.230.0001 only with total consumption.



Type 7E.46		
T1total	kWh	Indicates total consumption Tariff 1
T1part.	kWh	Indicates partial consumption for Tariff 1, this value is resettable
T2total	kWh	Indicates total consumption Tariff 2
T2part.	kWh	Indicates partial consumption for Tariff 2, this value is resettable
P	kW	Indicates the instantaneous power per phase or all phases
U	V	Indicates the voltage per phase
I	A	Indicates the current per phase
100 Imp/kWh		Pulsed according to drawn power
kWh		Indicates the unit kWh when the consumption is displayed
L1/L2/L3		For P-, U-, I- or Error display, the corresponding phase is displayed
Error		Indicates a missing phase or incorrect current direction - the appropriate phase is also displayed



Type 7E.56		
T1total	kWh	Indicates total consumption
T1part.	kWh	Indicates partial consumption, this value is resettable
CT		Indicates the set current transformer ratio, factory setting is 5:5
Select		The transformer ratio can be selected in the menu item Select *
P	kW	Indicates the instantaneous power per phase or all phases
U	V	Indicates the voltage per phase
I	A	Indicates the current per phase
10 Imp/kWh		Pulsed according to drawn power
kWh		Indicates the unit kWh when the consumption is displayed
L1/L2/L3		For P-, U-, I- or Error display, the corresponding phase is displayed
Error		Indicates a missing phase or incorrect current direction - the appropriate phase is also displayed

* To adjust the current transformer ratio remove the bridge Z1 - Z2 and reset the energy meter according to the operation instructions. Then lock it again with the bridge. For a tamper proof lead seal use 4 terminal covers (07E.16).

Mechanical Display Type 7E.12, 7E.13, 7E.16, 7E.36

LED indication (Normal operation)

Type	Energy consumption			Pulses per kWh	Pulse space	The LED Pulse rate represents the instantaneous power being consumed, according to the following
	None	Low	High			
7E.12 7E.13				2,000	100 ms	$kW = (\text{number of pulse per Minute}) / 33.3$
7E.16				1,000	100 ms	$kW = (\text{number of pulse per Minute}) / 16.7$
7E.36				100	150 ms	$kW = (\text{number of pulse per Minute}) / 1.7$

LED indication (Abnormal operation)

Status indicates errors of installation, as below

Type 7E.12, 7E.13, 7E.16

Device ON, incorrect connection (L-N inverted).
Mark = 600 ms, Space = 600 ms

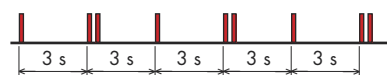


Type 7E.36

Mark = 100 ms,
Phase L1 ↑ L1 ↓ inverted or loss



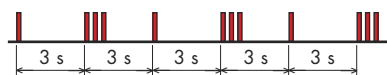
Phase L1 ↑ L1 ↓ and L2 ↑ L2 ↓ inverted or loss



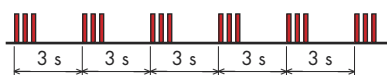
Phase L2 ↑ L2 ↓ inverted or loss



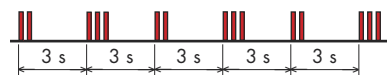
Phase L1 ↑ L1 ↓ and L3 ↑ L3 ↓ inverted or loss



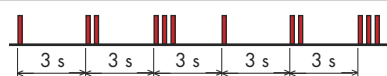
Phase L3 ↑ L3 ↓ inverted or loss



Phase L2 ↑ L2 ↓ and L3 ↑ L3 ↓ inverted or loss

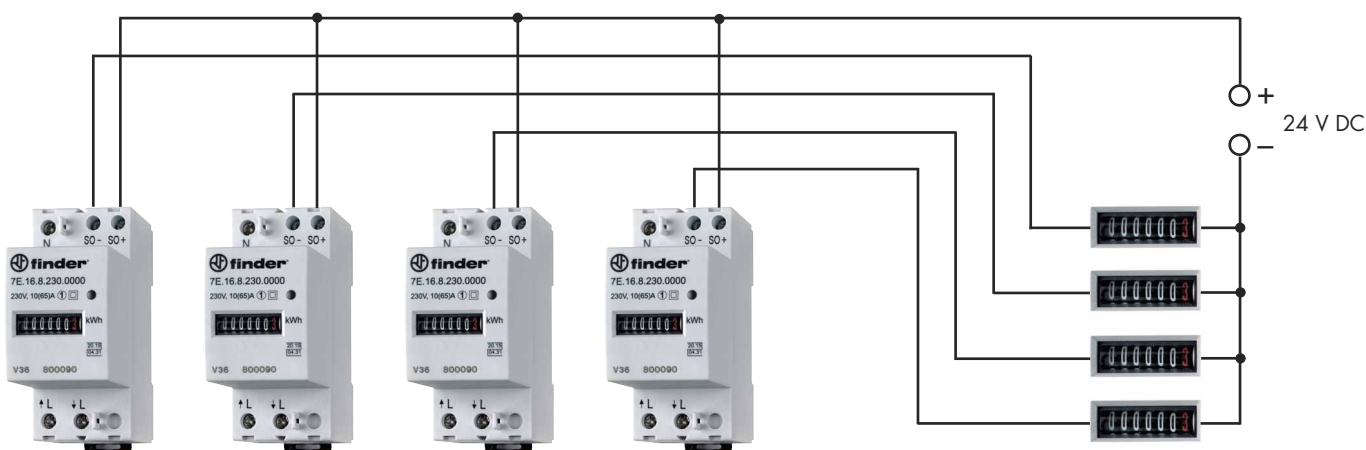


Phase L1 ↑ L1 ↓ and L2 ↑ L2 ↓ and L3 ↑ L3 ↓ inverted or loss



SO+/SO- Open collector output wiring diagram Type 7E.12, 7E.13, 7E.23, 7E.16, 7E.36, 7E.46, 7E.56

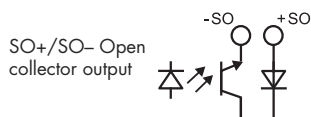
The pulsating open collector output available at terminals SO+ and SO- can be interfaced with the input of a computer, plc or other energy management equipment to allow the remote monitoring of energy consumed.



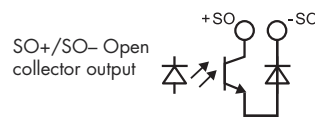
Energy meters – at difference locations
(Note: Both Single and Dual tariff meters provide only a single pulsating output)

Central monitoring/management system
(max. 20 mA for each input)

SO-Output Type 7E.12, 7E.13, 7E.16, 7E.23

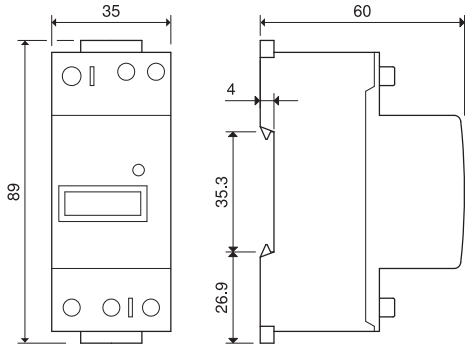


SO-Output Type 7E.36, 7E.46, 7E.56

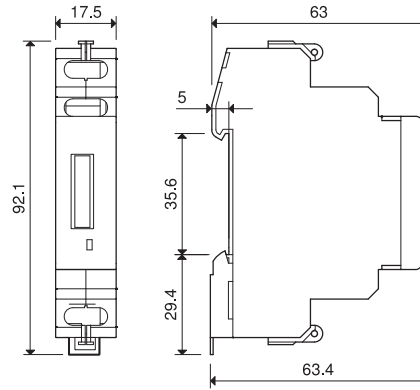


Outline drawing

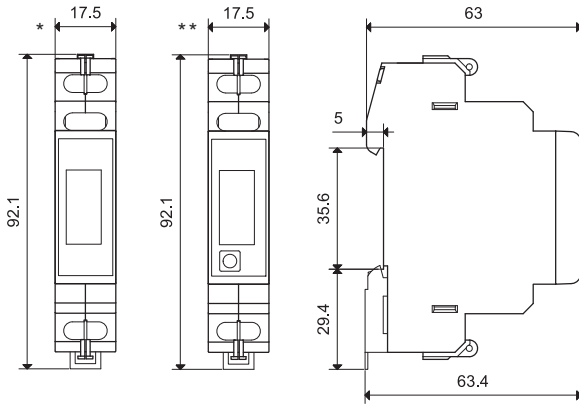
Type 7E.12.8.230.0002 / 7E.16.8.230.0000/10



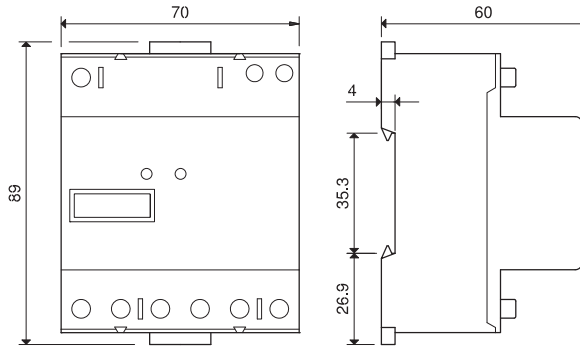
Type 7E.13.8.230.0000/10



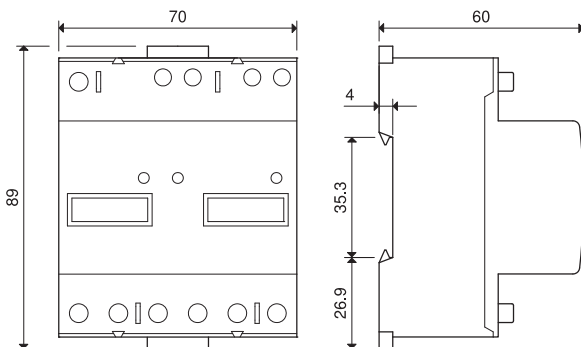
Type 7E.23.8.230.0001* / 7E.23.8.230.0000/10**



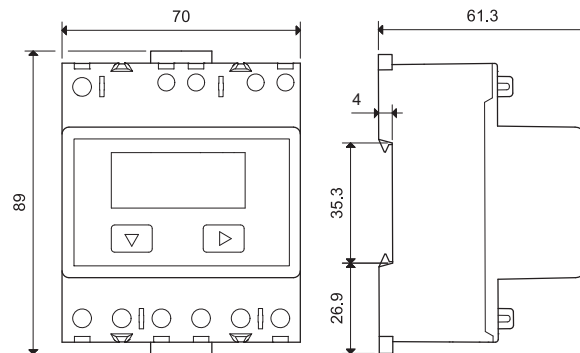
Type 7E.36.8.400.0000/10



Type 7E.36.8.400.0002/12



Type 7E.46.8.400.0002/12 - 7E.56.8.400.0000/10



Accessories



07E.13

Terminal cover for type 7E.13, 7E.23

07E.13

For the tamper-proof lead seal use 2 terminal covers



07E.16

Terminal cover for type 7E.12, 7E.16, 7E.36, 7E.46 and 7E.56

07E.16

7E.12, 7E.16 - For the tamper-proof lead seal use 2 terminal covers

7E.36, 7E.46, 7E.56 - For the tamper-proof lead seal use 4 terminal covers

Features

Filter Fan for electrical cabinets and enclosures 120 V or 230 V AC versions

- Very low acoustic noise
- Minimal depth within enclosure
- Air volume (14...370) m³/h (with Exhaust Filter installed in cabinet)
- Air volume (24...500) m³/h (free flow)
- Power consumption (4...70) W
- Operating voltage: 120 or 230 V AC (50/60Hz)
- Time-saving installation and maintenance
- Further available versions*:
 - EMC Filter Fan (7F.70) and EMC Exhaust Filter (7F.07)
 - Filter Fan supplied in Reverse flow mode (7F.80)

* Product codes, see pages 5 & 8

Note:

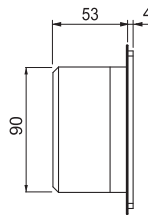
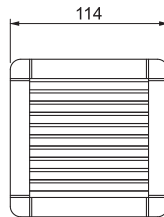
By reversing the fan motor, the air direction can be changed from "Inlet" Filter Fan mode to "Exhaust" Filter Fan mode ** (except for the types 7F.50.8.xxx.4370 and 7F.50.8.xxx.5500).

** Supplied in "Inlet" Filter Fan mode (Standard).

7F.50.8.xxx.1020



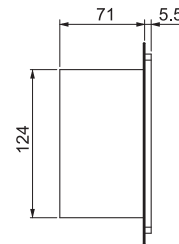
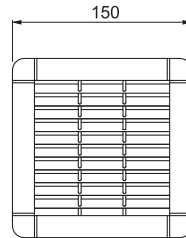
- Operating voltage 120, 230 V AC
- Air volume 24 m³/h
- Rated power 13 W
- Size 1



7F.50.8.xxx.2055



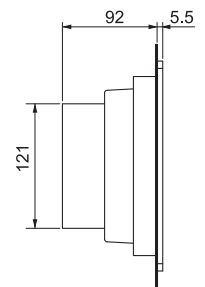
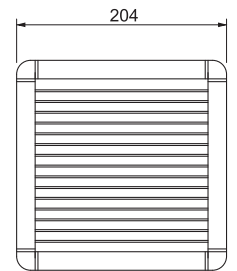
- Operating voltage 120, 230 V AC
- Air volume 55 m³/h
- Rated power 22 W
- Size 2



7F.50.8.xxx.3100



- Operating voltage 120, 230 V AC
- Air volume 100 m³/h
- Rated power 22 W
- Size 3



Fan data		7F.50.8.xxx.1020		7F.50.8.xxx.2055		7F.50.8.xxx.3100	
Air volume (free flow)	m ³ /h	24		55		100	
Air volume (with exhaust filter installed)	m ³ /h	14		40		75	
Noise level	dB (A)	30		43		43	
Life time at 40°C	h	50 000		50 000		50 000	
Electrical data		120	230	120	230	120	230
Operating voltage	V AC (50/60 Hz)	120	230	120	230	120	230
Current consumption	A	0.14	0.1	0.26	0.14	0.26	0.14
Rated power	W	13	13	22	22	22	22
Other data		Plastics according to UL94 V-0, light gray (RAL 7035)					
Filter mat (included)		EU3 according to DIN 24185, filtering degree (80...90) %					
Filter material		Synthetic fibre with progressive construction, temperature resistant to +100°C, self extinguishing, Class F1 (DIN 53438)					
Electrical connections / wire size		3-pole screw terminals / max. 2.5 mm ²					
Screw torque	Nm	0.8					
Ambient temperature range	°C	-10...+70					
Protection class		I					
Protection category according to EN 60529		IP54					
Approvals (according to type)							

Features

Filter Fan for electrical cabinets and enclosures
120 V or 230 V AC versions

- Very low acoustic noise
- Minimal depth within enclosure
- Air volume (14...370) m³/h (with Exhaust Filter installed in cabinet)
- Air volume (24...500) m³/h (free flow)
- Power consumption (4...70) W
- Operating voltage: 120 or 230 V AC (50/60Hz)
- Time-saving installation and maintenance
- Further available versions*:
 - EMC Filter Fan (7F.70) and EMC Exhaust Filter (7F.07)
 - Filter Fan supplied in Reverse flow mode (7F.80)

* Product codes, see pages 5 & 8

Note:

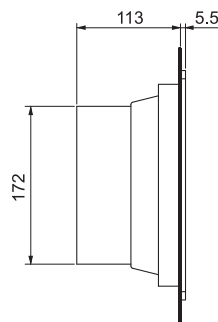
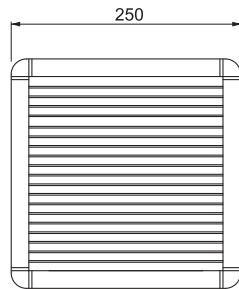
By reversing the fan motor, the air direction can be changed from "Inlet" Filter Fan mode to "Exhaust" Filter Fan mode ** (except for the types 7F.50.8.xxx.4370 and 7F.50.8.xxx.5500).

** Supplied in "Inlet" Filter Fan mode (Standard).

7F.50.8.xxx.4230



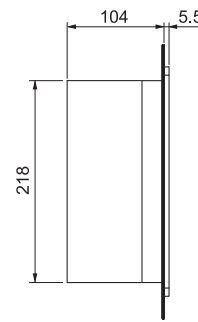
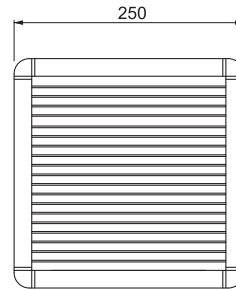
- Operating voltage 120, 230 V AC
- Air volume 230 m³/h
- Rated power 40 W
- Size 4



7F.50.8.xxx.4370



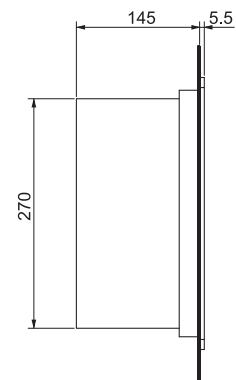
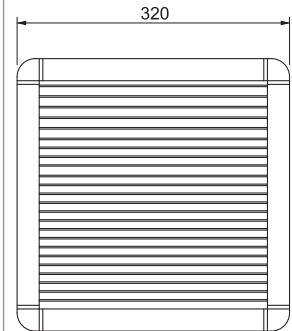
- Operating voltage 120, 230 V AC
- Air volume 370 m³/h
- Rated power 70 W
- Size 4



7F.50.8.xxx.5500



- Operating voltage 120, 230 V AC
- Air volume 500 m³/h
- Rated power 70 W
- Size 5



Fan data							
Air volume (free flow)	m ³ /h	230		370		500	
Air volume (with exhaust filter installed)	m ³ /h	180		250		370	
Noise level	dB (A)	53		65		65	
Life time at 40°C	h	50 000		50 000		50 000	
Electrical data							
Operating voltage	V AC (50/60 Hz)	120	230	120	230	120	230
Current consumption	A	0.34	0.17	0.8	0.4	0.8	0.4
Rated power	W	40	40	70	70	70	70
Other data							
Housing, cover		Plastics according to UL94 V-0, light gray (RAL 7035)					
Filter mat (included)		EU3 according to DIN 24185, filtering degree (80...90) %					
Filter material		Synthetic fibre with progressive construction, temperature resistant to +100°C, self extinguishing, Class F1 (DIN 53438)					
Electrical connections / wire size		3-pole screw terminals / max. 2.5 mm ²					
Screw torque	Nm	0.8					
Ambient temperature range	°C	-10...+70					
Protection class		I					
Protection category according to EN 60529		IP54					
Approvals (according to type)							

Features

Filter Fan for electrical cabinets and enclosures 24 V DC versions

- Very low acoustic noise
- Minimal depth within enclosure
- Air volume (14...370) m³/h (with Exhaust Filter installed in cabinet)
- Air volume (24...500) m³/h (free flow)
- Power consumption (4...70) W
- Operating voltage: 24 V DC
- Time-saving installation and maintenance
- Further available versions*:
 - EMC Filter Fan (7F.70) and EMC Exhaust Filter (7F.07)
 - Filter Fan supplied in Reverse flow mode (7F.80)

* Product codes, see pages 5 & 8

Note:

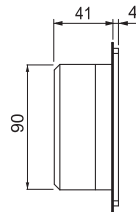
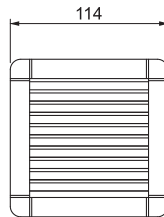
By reversing the fan motor, the air direction can be changed from "Inlet" Filter Fan mode to "Exhaust" Filter Fan mode ** (except for the types 7F.50.8.xxx.4370 and 7F.50.8.xxx.5500).

** Supplied in "Inlet" Filter Fan mode (Standard).

7F.50.9.024.1020



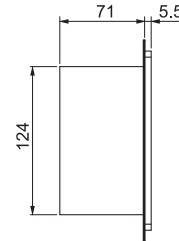
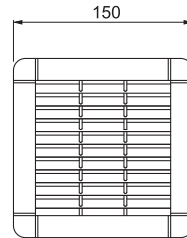
- Operating voltage 24 V DC
- Air volume 24 m³/h
- Rated power 4 W
- Size 1



7F.50.9.024.2055



- Operating voltage 24 V DC
- Air volume 55 m³/h
- Rated power 9 W
- Size 2



Fan data			
Air volume (free flow)	m ³ /h	24	55
Air volume (with exhaust filter installed)	m ³ /h	14	40
Noise level	dB (A)	35	45
Life time at 40°C	h	50 000	50 000
Electrical data			
Operating voltage	V DC	24	24
Current consumption	A	0.16	0.37
Rated power	W	4	9
Other data			
Housing, cover		Plastics according to UL94 V-0, light gray (RAL 7035)	
Filter mat (included)		EU3 according to DIN 24185, filtering degree (80...90) %	
Filter material		Synthetic fibre with progressive construction, temperature resistant to 100°C, self extinguishing, Class F1 (DIN 53438)	
Electrical connections / wire size		3-pole screw terminals / max. 2.5 mm ²	
Screw torque	Nm	0.8	
Ambient temperature range	°C	-10...+70	
Protection class		I	
Protection category according to EN 60529		IP54	
Approvals (according to type)			

Features

Filter Fan for electrical cabinets and enclosures 24 V DC versions

- Very low acoustic noise
- Minimal depth within enclosure
- Air volume (14...370) m³/h (with Exhaust Filter installed in cabinet)
- Air volume (24...500) m³/h (free flow)
- Power consumption (4...70) W
- Operating voltage: 24 V DC
- Time-saving installation and maintenance
- Further available versions*:
 - EMC Filter Fan (7F.70) and EMC Exhaust Filter (7F.07)
 - Filter Fan supplied in Reverse flow mode (7F.80)

* Product codes, see pages 5 & 8

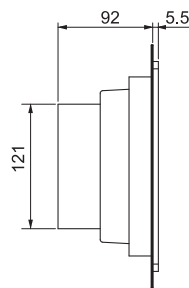
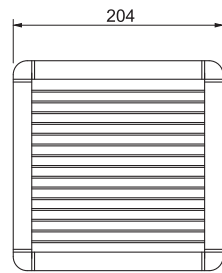
Note:
By reversing the fan motor, the air direction can be changed from "Inlet" Filter Fan mode to "Exhaust" Filter Fan mode ** (except for the types 7F.50.8.xxx.4370 and 7F.50.8.xxx.5500).

** Supplied in "Inlet" Filter Fan mode (Standard).

7F.50.9.024.3100



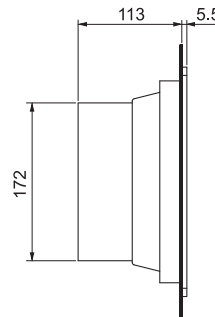
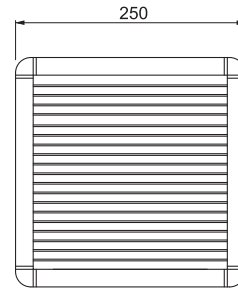
- Operating voltage 24 V DC
- Air volume 100 m³/h
- Rated power 9 W
- Size 3



7F.50.9.024.4230



- Operating voltage 24 V DC
- Air volume 230 m³/h
- Rated power 26 W
- Size 4



Fan data			
Air volume (free flow)	m ³ /h	100	230
Air volume (with exhaust filter installed)	m ³ /h	75	180
Noise level	dB (A)	45	61
Life time at 40°C	h	50 000	50 000
Electrical data			
Operating voltage	V DC	24	24
Current consumption	A	0.37	1.08
Rated power	W	9	26
Other data			
Housing, cover	Plastics according to UL94 V-0, light gray (RAL 7035)		
Filter mat (included)	EU3 according to DIN 24185, filtering degree(80...90) %		
Filter material	Synthetic fibre with progressive construction, temperature resistant to 100°C, self extinguishing, Class F1 (DIN 53438)		
Electrical connections / wire size	3-pole screw terminals / max. 2.5 mm ²		
Screw torque	Nm	0.8	
Ambient temperature range	°C	-10...+70	
Protection class	I		
Protection category according to EN 60529	IP54		
Approvals (according to type)	CE US		

Ordering information

Example: Series 7F, Filter Fan for mounting in sidewalls, operating voltage 230 V AC, size 1, air volume 24 m³/h.



- Series** _____
- Type** _____
 50 = Filter Fan - for indoor use
 70 = EMC Filter Fan - for indoor use
 80 = Reverse flow Filter Fan - for indoor use
- Supply version** _____
 8 = AC (50/60 Hz)
 9 = DC
- Operating voltage** _____
 024 = 24 V DC
 120 = 120 V AC
 230 = 230 V AC
- Enclosure cut-out** _____
 1 = Size 1 (92^{+0.5} x 92^{+0.5}) mm
 2 = Size 2 (125^{+1.0} x 125^{+1.0}) mm
 3 = Size 3 (177^{+1.0} x 177^{+1.0}) mm
 4 = Size 4 (224^{+1.0} x 224^{+1.0}) mm
 5 = Size 5 (291^{+1.0} x 291^{+1.0}) mm
- Air volume (free flow)** _____
 020 = 24 m³/h
 055 = 55 m³/h
 100 = 100 m³/h
 230 = 230 m³/h
 370 = 370 m³/h
 500 = 500 m³/h

Filter Fans - All versions

Standard versions	EMC versions	Reverse flow versions	
7F.50.8.120.1020	—	7F.80.8.120.1020	Filter Fan, Size 1
7F.50.8.120.2055	—	7F.80.8.120.2055	Filter Fan, Size 2
7F.50.8.120.3100	—	7F.80.8.120.3100	Filter Fan, Size 3
7F.50.8.120.4230	—	7F.80.8.120.4230	Filter Fan, Size 4
7F.50.8.120.4370	—	7F.80.8.120.4370	Filter Fan, Size 4
7F.50.8.120.5500	—	7F.80.8.120.5500	Filter Fan, Size 5
7F.50.8.230.1020	7F.70.8.230.1020	7F.80.8.230.1020	Filter Fan, Size 1
7F.50.8.230.2055	7F.70.8.230.2055	7F.80.8.230.2055	Filter Fan, Size 2
7F.50.8.230.3100	7F.70.8.230.3100	7F.80.8.230.3100	Filter Fan, Size 3
7F.50.8.230.4230	7F.70.8.230.4230	7F.80.8.230.4230	Filter Fan, Size 4
7F.50.8.230.4370	7F.70.8.230.4370	7F.80.8.230.4370	Filter Fan, Size 4
7F.50.8.230.5500	7F.70.8.230.5500	7F.80.8.230.5500	Filter Fan, Size 5
7F.50.9.024.1020	7F.70.9.024.1020	7F.80.9.024.1020	Filter Fan, Size 1
7F.50.9.024.2055	7F.70.9.024.2055	7F.80.9.024.2055	Filter Fan, Size 2
7F.50.9.024.3100	7F.70.9.024.3100	7F.80.9.024.3100	Filter Fan, Size 3
7F.50.9.024.4230	7F.70.9.024.4230	7F.80.9.024.4230	Filter Fan, Size 4

Note:
 The technical features (air volume, dimensions and electrical parameters) for the Standard Filter Fans (7F.50), the EMC Filter Fans (7F.70) and the Reverse flow versions (7F.80) - are exactly the same.

Features

Exhaust Filter

The size of the Exhaust Filter should match the size of the Filter Fan to achieve the best ventilation within the cabinet

- Minimum depth within enclosure
- Time-saving installation and maintenance
- Further available versions*:
- EMC Exhaust Filters (7F.07)

* Product codes, see page 8

7F.05.0.000.1000



- For Filter Fans 7F.50.x.xxx.1020
- Size 1

7F.05.0.000.2000

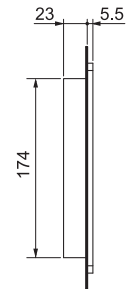
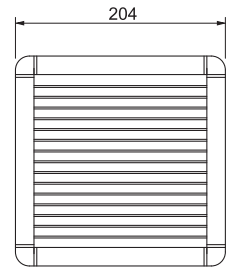
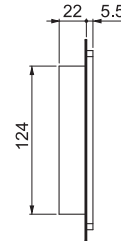
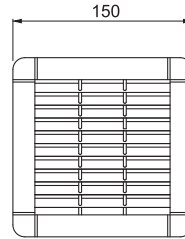
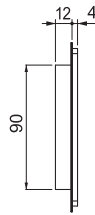
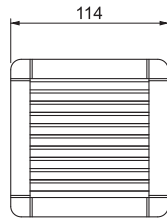


- For Filter Fans 7F.50.x.xxx.2055
- Size 2

7F.05.0.000.3000



- For Filter Fans 7F.50.x.xxx.3100
- Size 3



Other data	
Housing, Cover	Plastics according to UL94 V-0, light gray (RAL 7035)
Filter mat (included)	EU3 according to DIN 24185, filtering degree (80...90) %
Filter material	Synthetic fibre with progressive construction, temperature resistant to +100°C, self extinguishing, Class F1 (DIN 53438)
Protection category according to EN 60529	IP54
Approvals (according to type)	

Features

Exhaust Filter

The size of the Exhaust Filter should match the size of the Filter Fan to achieve the best ventilation within the cabinet

- Minimum depth within enclosure
- Time-saving installation and maintenance
- Further available versions*:
- EMC Exhaust Filters (7F.07)

* Product codes, see page 8

7F.05.0.000.4000

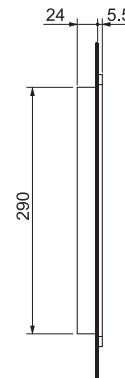
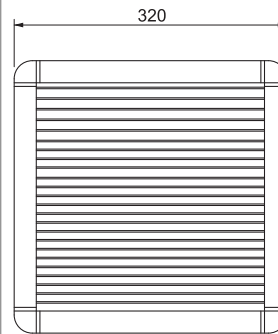
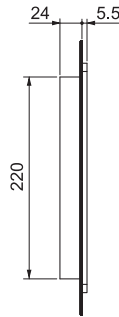
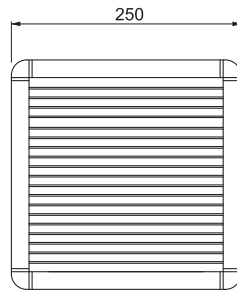


- For Filter Fans 7F.50.x.xxx.4230 or 7F.50.8.xxx.4370
- Size 4

7F.05.0.000.5000



- For Filter Fans 7F.50.8.xxx.5500
- Size 5

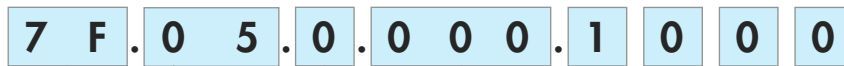


Other data

Housing, Cover	Plastics according to UL94 V-0, light gray (RAL 7035)
Filter mat (included)	EU3 according to DIN 24185, filtering degree (80...90) %
Filter material	Synthetic fibre with progressive construction, temperature resistant to +100°C, self extinguishing, Class F1 (DIN 53438)
Protection category according to EN 60529	IP54
Approvals (according to type)	CE c RU us

Ordering information

Example: Series 7F, Exhaust Filter for mounting in sidewalls, size 1.



- Series** _____
- Type**
05 = Exhaust Filter - for indoor use
07 = EMC Exhaust Filter - for indoor use
- Supply version**
0 = Not applicable for Exhaust Filter
- Operating voltage**
000 = Not applicable for Exhaust Filter
- Enclosure cut-out**

- 1000 = Size 1 (92^{+0.5} x 92^{+0.5}) mm
- 2000 = Size 2 (125^{+1.0} x 125^{+1.0}) mm
- 3000 = Size 3 (177^{+1.0} x 177^{+1.0}) mm
- 4000 = Size 4 (224^{+1.0} x 224^{+1.0}) mm
- 5000 = Size 5 (291^{+1.0} x 291^{+1.0}) mm

Exhaust Filter - All versions

Standard-versions	EMC - versions	
7F.05.0.000.1000	7F.07.0.000.1000	Exhaust Filter, Size 1
7F.05.0.000.2000	7F.07.0.000.2000	Exhaust Filter, Size 2
7F.05.0.000.3000	7F.07.0.000.3000	Exhaust Filter, Size 3
7F.05.0.000.4000	7F.07.0.000.4000	Exhaust Filter, Size 4
7F.05.0.000.5000	7F.07.0.000.5000	Exhaust Filter, Size 5

Components

Standard-Filter Fan	Standard-Exhaust Filter	EMC-Filter Fan	EMC-Exhaust Filter	Filter mat	Size
7F.50.8.xxx.1020	7F.05.0.000.1000	7F.70.8.xxx.1020	7F.07.0.000.1000	07F.15	1
7F.50.8.xxx.2055	7F.05.0.000.2000	7F.70.8.xxx.2055	7F.07.0.000.2000	07F.25	2
7F.50.8.xxx.3100	7F.05.0.000.3000	7F.70.8.xxx.3100	7F.07.0.000.3000	07F.35	3
7F.50.8.xxx.4230	7F.05.0.000.4000	7F.70.8.xxx.4230	7F.07.0.000.4000	07F.45	4
7F.50.8.xxx.4370	7F.05.0.000.4000	7F.70.8.xxx.4370	7F.07.0.000.4000	07F.45	4
7F.50.8.xxx.5500	7F.05.0.000.5000	7F.70.8.xxx.5500	7F.07.0.000.5000	07F.55	5
7F.50.9.024.1020	7F.05.0.000.1000	7F.70.9.024.1020	7F.07.0.000.1000	07F.15	1
7F.50.9.024.2055	7F.05.0.000.2000	7F.70.9.024.2055	7F.07.0.000.2000	07F.25	2
7F.50.9.024.3100	7F.05.0.000.3000	7F.70.9.024.3100	7F.07.0.000.3000	07F.35	3
7F.50.9.024.4230	7F.05.0.000.4000	7F.70.9.024.4230	7F.07.0.000.4000	07F.45	4

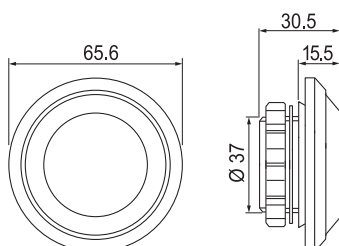
Spare Filter mats	07F.15	07F.25	07F.35	07F.45	07F.55
Protection category	IP54				

Accessories



07F.80

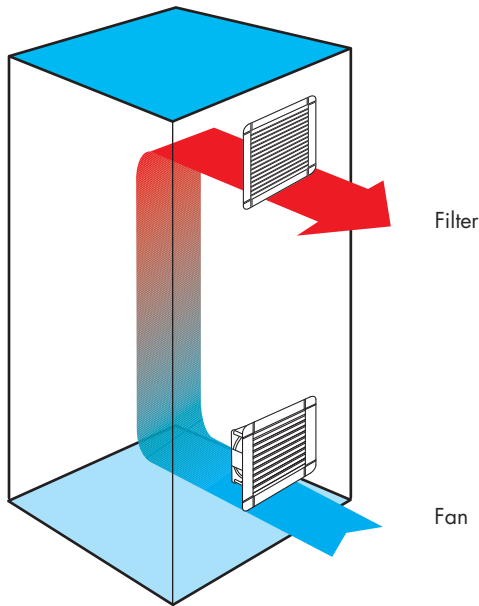
Pressure compensation device, for pressure compensation in closed cabinets or enclosures		07F.80
Air interface area	cm ²	7
Mounting		PG 29 thread with union nut
Torque	Nm	5 (max. 10)
Material		plastic according to UL94-V0
Dimensions (diameter / depth)	mm	65.5 / 30.5
Mounting position		upper part of cabinet sidewalls
Ambient temperature	°C	-45...+70
Protection category		IP55



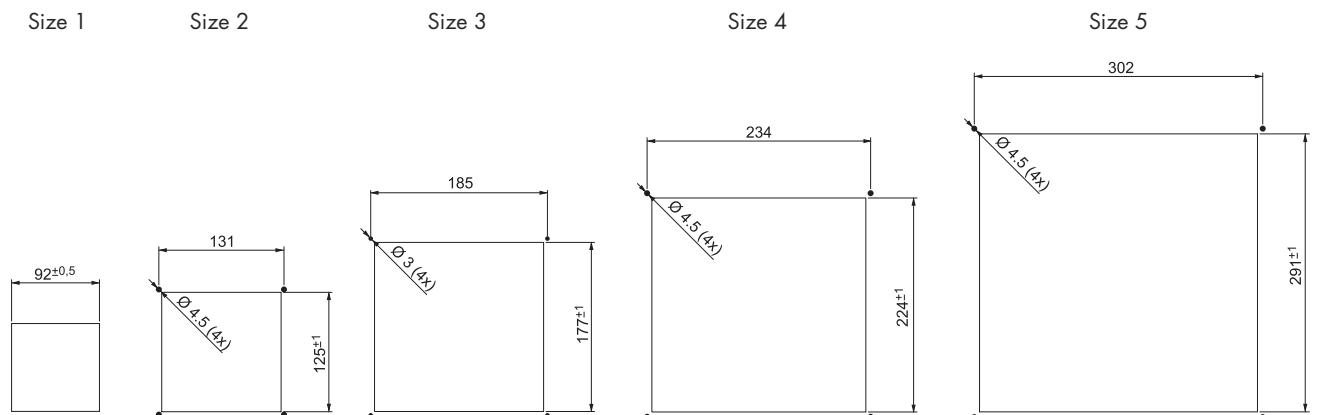
Unit package contains 2 pressure compensation devices

Mounting instructions for Filter Fans and Exhaust Filters

Mounting arrangement of Filter Fans and Exhaust Filters



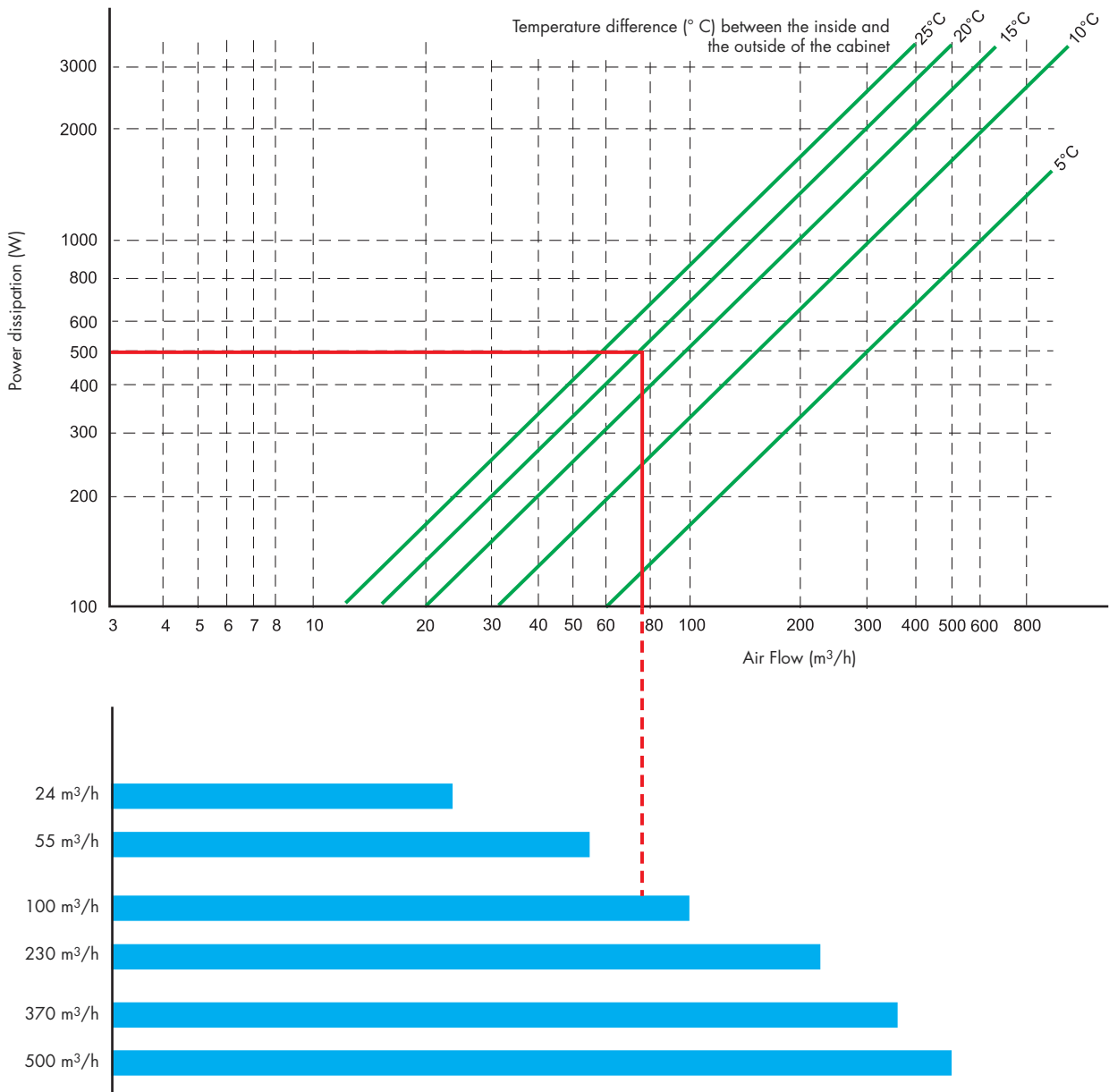
Drilling template and mounting cut-outs for Filter Fans and Exhaust Filter



Mounting and maintenance

1. Make the panel cut-out according to the size of the Filter Fan or Exhaust Filter in the sidewall of the cabinet as appropriate.
A template of the panel cut-out is included in the packaging of the Filter Fan or Exhaust Filter.
2. Make the electrical connection.
3. Mount by simply snapping the side-located lugs on the Filter Fan or Exhaust Filter into the panel cut-out (without using screws for sidewall thickness of 1,2...2,4 mm).
At other thickness it is recommended to mount the Filter Fan by the screws supplied (for size 1, the template shows the mounting cut-out only).
4. When screws are needed for the mounting, remove the plastic cover and fix the Filter Fan with the 4 screws supplied.
Then insert the filter mat and snap the plastic cover to the mounting frame.
5. During maintenance or when replacing the filter mat remove the plastic cover, replace the filter mat and snap on the plastic cover.

Fan selection



Example:

First, estimate the power dissipated within the cabinet. Then calculate the maximum difference between the internal and external temperature (green lines) by considering the difference between the maximum permitted internal temperature (as dictated by the temperature rating of the enclosed components, or specification) and the maximum temperature expected outside the cabinet.

The projection onto the X axis, of the intersection between the power (watts) and the appropriate green line, corresponds to the air flow rate in m³/h required to meet the maximum internal temperature limit. Extending this line vertically to intersect with the blue horizontal lines, indicates the most appropriate model of 7F fan to be fitted to the cabinet to provide the requisite air flow.

The example above considers a cabinet with an internal thermal power dissipation of 500 W, and assumes the maximum temperature difference between the inside and the outside of the cabinet to be 20 ° C. The required air flow can be seen to be a little less than 80 m³/h.

It is suggested that this is increased by 10% to allow for the affects of a dirty filter.

And so, it can be seen that models of the 7F with 100 m³ / h flow rate will provide the proper dissipation of heat under these circumstances.

Application notes

Filter Fan

The ball-bearing axial fan housing is made of aluminium and the rotor is made of plastic or metal (depending on the type).

Filter classes

Within DIN 24185 are specified 9 filter classes, categorised into 4 coarse dust filters and 5 fine dust filters.

The coarse dust filters (EU1 – EU4) are able to filter particles > 10 µm and the fine dust filters (EU5 – EU9) are able to filter particles from (1...10) µm.

Filter classes	Example of particle	Particle size
EU1 – EU4	Textile fibers, hair, sand, pollen, spores, insects, cement dust	> 10 µm
EU5 – EU9	Pollen, spores, cement dust, tobacco smoke, oil smoke, soot	(1...10) µm

Filtering degree (Am)

The degree of filtering (Am) is the percentages of dust, by weight, that is caught and retained by the filter.

Filter mats

The quality of these filter mats has been independently tested, according to DIN 24185 and branded after passing the test. The filter mats are to filter class EU3 and have an average filtering degree of (80...90) %.

Filter material

The filter material consists of a synthetic fiber with progressive construction which is moisture-resistant to 100 % RH and temperature resistant to +100°C.

According to the strict requirements of fire class F1, DIN 53438, these filter mats are self extinguishing.

Progressive construction at filter mats

The individual fibers of these filter mats are bonded by a special process to provide a progressive construction where the fiber size and spacing varies through the thickness of the filter mat.

This means that coarse dust particles are caught early and fine dust later through the thickness of the mat. In this way the entire depth of the filter mat is used.

Flammability class of the housing and the cover

The plastic materials used comply with flammability class V-0, according to UL94.

EMC Filter Fans and EMC Exhaust Filters

The plastic mounting frame of the EMC Filter Fans (7F.70) and EMC Exhaust Filters (7F.07) are sprayed with a conductive (metallic) paint.

The gasket located on the mounting frame, for sealing the Filter Fan or Exhaust Filter in the cabinet is also metalised.

In addition; located at the EMC Filter Fan between the metalized mounting frame and the filter mat, is a metal grid.

Therefore, between the metal parts of the Filter Fan and the metal cabinet, there is a conductive connection.

Filter Fan in "reverse flow" version

As supplied, the standard Filter Fan is in "Draw-In"- mode, which means that cool air is filtered and drawn into the cabinet. In some cases it may be required that the warm air is blown out of the cabinet. In which case it is possible to get Filter Fans in "Exhaust Filter" mode version (7F.80).

Mounting of the pressure compensation device

In sealed cabinets and enclosures the internal pressure can vary due to changes in temperature. The pressure compensation device (07F.80) will relieve this internal/external pressure differential whilst maintaining a high level of protection - preventing the ingress of dust and moisture into the cabinet or the enclosure. The pressure compensation device is approved for use in cabinets and enclosures according to DIN EN 62208.

Drill a hole $\varnothing 37^{+1.0}$ mm in the housing wall and fix the pressure compensation device with the accompanying nut. It is important to ensure that the sealing ring is located on the outside. To ensure optimum pressure balance, it is recommended to fit 2 pressure compensation devices at the upper sides of the cabinet or enclosure.

Features

SPD Type 1+2 Surge arrester range high discharge capability with no following current - single / three phase systems

- Surge arresters, suitable for low-voltage applications, to protect equipment against overvoltage by direct lightning strike, induced overvoltage and switching overvoltage
- To be installed at the boundary of LPZ 0 - LPZ 1 zones or higher
- Versions with combination of varistor and high-performance gas discharge tube (GDT) ensures high discharge currents and eliminates leakage currents
- No follow current
- Very low residual voltage
- Low U_p voltage
- Replaceable modules
- Upside down mounting possible (thanks to dual terminal markings and new restraint system for the replaceable module that permits its inversion)
- Visual fault signalling: Healy/Replace
- Double screw terminal
- Remote status signalling contact: Healy/Replace/Presence. Connector 07P.01 included
- According to EN 61 643-11
- 35 mm rail EN 60715 mounting, 36mm each pole

7P.09.1.255.0100 SPD Type 1, GDT protection for N-PE application only, for 3+1 configuration

7P.01.8.260.1025 SPD Type 1+2, varistor + GDT unipolar protection suitable to realize single phase or three phase systems (230/400 V) with the GDT protection module (7P.09)

7P.02.8.260.1025 SPD Type 1+2 for single phase system. Varistor + GDT protection L-N + GDT protection N-PE

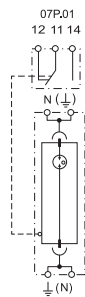
For outline drawing see page 12

SPD specification	7P.09.1.255.0100		7P.01.8.260.1025		7P.02.8.260.1025	
	N-PE		L-N	N-PE		
Nominal voltage (U_N)	V AC	—	230	230	230	—
Maximum operating voltage (U_C)	V AC	255	260	260	255	—
Lightning impulse current (10/350 μ s) (I_{imp})	kA	100	25	25	50	—
Nominal discharge current (8/20 μ s) (I_n)	kA	100	30	30	50	—
Maximum discharge current (8/20 μ s) (I_{max})	kA	100	60	60	100	—
Voltage protection level (U_p)	kV	1.5	1.5	1.5	1.5	—
Temporary overvoltage - 120 min (TOV)	AC	—	440	440	—	—
Ability to independently switch off the following current (I_{it})	A	100	No following current	No following current	100	—
Response time (t_d)	ns	100	100	100	100	—
Shortcircuit proof at maximum overcurrent protection	kA_{rms}	—	50	50	—	—
Maximum overcurrent protection		—	250 A gL/gG	250 A gL/gG	—	—
Maximum overcurrent protection for serial connection		—	125 A gL/gG	125 A gL/gG	—	—
Replacement module code		7P.00.1.000.0100	7P.00.8.260.0025	7P.00.8.260.0025	7P.00.1.000.0050	
Other technical data						
Ambient temperature range	$^{\circ}C$	-40...+80				
Protection degree		IP20				
Wire size		solid cable		stranded cable		
	mm ²	1X2.5...1x50		1X2.5...1x35		
	AWG	1X13...1x1		1X13...1x2		
Wire strip length	mm	11				
Screw torque	Nm	4				
Remote status signalling contact specification						
Contact configuration		1 CO (SPDT)	1 CO (SPDT)	1 CO (SPDT)	1 CO (SPDT)	
Rated current	A AC/DC	0.5/0.1	0.5/0.1	0.5/0.1	0.5/0.1	
Rated voltage	V AC/DC	250/30	250/30	250/30	250/30	
Wire size (07P.01)		solid cable	stranded cable	solid cable	stranded cable	solid cable
	mm ²	1.5	1.5	1.5	1.5	1.5
	AWG	16	16	16	16	16
Approvals (according to type)		CE PG				

7P.09.1.255.0100



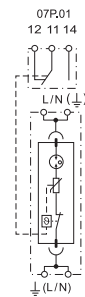
- SPD Type 1
- Spark gap module for N-PE application in three phase system, 3+1 configuration
- Remote contact signalling of GDT presence
- Upside down mounting possible
- Replaceable modules



7P.01.8.260.1025



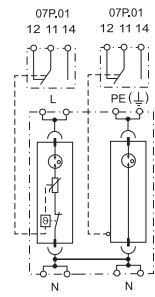
- SPD Type 1+2
- Combination of varistor and encapsulated spark gap (for single or three phase systems)
- Visual fault and remote contact fault signalling varistor/GDT status
- Upside down mounting possible
- Replaceable modules



7P.02.8.260.1025



- SPD Type 1+2
- Combination of varistor and encapsulated spark gap (for single phase systems)
- Visual fault and remote contact fault signalling varistor/GDT status, N-PE GDT presence
- Upside down mounting possible
- Replaceable modules



Features

SPD Type 1+2 Surge arrester range - three phase high discharge capability with no following current - system (230/400 V)

- Surge arresters, suitable for low-voltage applications, to protect equipment against overvoltage by direct lightning strike, induced overvoltage and switching overvoltage
- To be installed at the boundary of LPZ 0 - LPZ 1 zones or higher
- Combined high energy varistor block and heavy duty encapsulated spark gap (GDT) ensures high discharge current and eliminates leakage current
- No follow current
- Very low residual voltage
- Low U_p voltage
- Replaceable modules
- Upside down mounting possible (thanks to dual terminal markings and new restraint system for the replaceable module that permits its inversion)
- Visual fault signalling: Healty/Replace
- Double screw terminal
- Remote status signalling contact: Healty/Replace/Presence. Connector 07P.01 included
- According to EN 61 643-11
- 35 mm rail EN 60715 mounting, 36mm each pole

7P.03.8.260.1025 SPD Type 1+2 for three phase system without Neutral (PEN conductor). Varistor + GDT protection L1, L2, L3-PEN

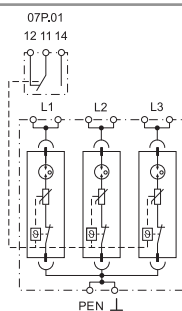
7P.04.8.260.1025 SPD Type 1+2 for three phase system with Neutral. Varistor + GDT protection L1, L2, L3-N + spark gap protection N-PE

7P.05.8.260.1025 SPD Type 1+2 for three phase system with Neutral. Varistor + GDT protection L1, L2, L3-N + varistor + GDT protection N-PE

7P.03.8.260.1025



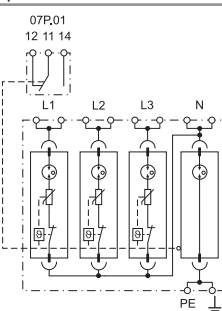
- SPD Type 1+2
- 3 x combined varistor and encapsulated spark gap
- Visual fault and remote contact fault signalling varistor/GDT status
- Upside down mounting position
- Replaceable modules



7P.04.8.260.1025



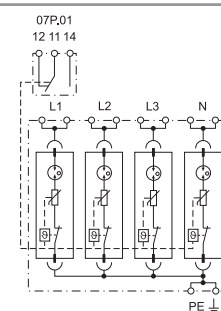
- SPD Type 1+2
- 3 x combined varistor and encapsulated spark gap + 1 encapsulated spark gap
- Visual fault and remote contact fault signalling varistor/GDT status, N-PE GDT presence
- Upside down mounting position
- Replaceable modules



7P.05.8.260.1025



- SPD Type 1+2
- 4 x combined varistor and encapsulated spark gap
- Visual fault and remote contact fault signalling varistor/GDT status
- Upside down mounting position
- Replaceable modules



For outline drawing see page 12, 13

SPD specification	L-PEN	L-N	N-PE	L, N-PE	
Nominal voltage (U_N)	V AC	230	230	230	
Maximum operating voltage (U_C)	V AC	260	260	260	
Lightning impulse current (10/350 μ s) (I_{imp})	kA	25	25	25	
Nominal discharge current (8/20 μ s) (I_n)	kA	30	30	30	
Maximum discharge current (8/20 μ s) (I_{max})	kA	60	60	60	
Voltage protection level (U_p)	kV	1.5	1.5	1.5	
Temporary overvoltage - 120 min (TOV)	AC	440	440	440	
Ability to independently switch off the following current (I_{ij})	A	No following current	No following current	No following current	
Response time (t_d)	ns	100	100	100	
Shortcircuit proof at maximum overcurrent protection	kA_{rms}	50	50	50	
Maximum overcurrent protection		250 A gL/gG	250 A gL/gG	250 A gL/gG	
Maximum overcurrent protection for serial connection		125 A gL/gG	125 A gL/gG	125 A gL/gG	
Replacement module code		7P.00.8.260.0025	7P.00.8.260.0025	7P.00.1.000.0100	
Other technical data					
Ambient temperature range	$^{\circ}C$	-40...+80			
Protection degree		IP20			
Wire size		solid cable		stranded cable	
	mm^2	1X2.5...1x50		1X2.5...1x35	
	AWG	1X13...1x1		1X13...1x2	
Wire strip length	mm	11			
Screw torque	Nm	4			
Remote status signalling contact specification					
Contact configuration		1 CO (SPDT)	1 CO (SPDT)	1 CO (SPDT)	
Rated current	A AC/DC	0.5/0.1	0.5/0.1	0.5/0.1	
Rated voltage	V AC/DC	250/30	250/30	250/30	
Wire size (07P.01)		solid cable	stranded cable	solid cable	stranded cable
	mm^2	1.5	1.5	1.5	1.5
	AWG	16	16	16	16

Approvals (according to type)



Features

SPD Type 1+2 Surge arrester range with high performance "Low U_p" - Single phase / three phase system

- Surge arrester suitable for 230/400 V system applications to prevent overvoltage effects caused by direct or indirect lightning strikes
- To be installed at the boundary of LPZ 0 and LPZ 1 zones
- Low U_p to protect sensitive equipment
- Visual indication of varistor status - Healthy/Replace
- Contact for remote signalling of varistor status. Connector 07P.01 included
- Replaceable varistor and Spark Gap modules
- Complies with EN 61 643-11
- 17.5 mm rail EN 60715 mounting for each module

7P.12.8.275.1012 SPD Type 1+2 for single phase system with Neutral.

- Varistor protection L-N + spark gap protection N-PE for single phase systems
- Replaceable Spark Gap and varistor modules

7P.13.8.275.1012 SPD Type 1+2 for three phase system without Neutral (PEN conductor).

- Varistor protection L1, L2, L3-PEN for three phase systems
- Replaceable varistor modules

7P.12 / 7P.13
Screw terminal

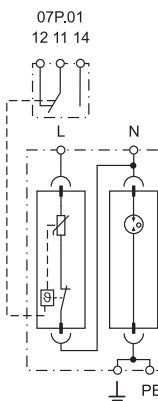


For outline drawing see page 13

7P.12.8.275.1012



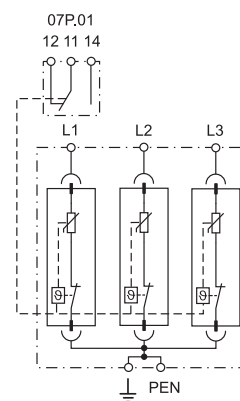
- SPD Type 1+2
- Replaceable Spark Gap and varistor modules (for single phase systems)
- Visual and remote signalling of varistor status



7P.13.8.275.1012



- SPD Type 1+2
- Replaceable varistor modules (for three phase systems)
- Visual and remote signalling of varistor status



SPD specification		L-N	N-PE	L-PEN	
Nominal voltage (U _N)	V AC	230	—	230	
Maximum continuous operating voltage (U _C)	V AC/DC	275/350	255/—	275/350	
Lightning impulse current (10/350 μs) (I _{imp})	kA	12.5	25	12.5	
Nominal discharge current (8/20 μs) (I _n)	kA	30	40	30	
Maximum discharge current (8/20 μs) (I _{max})	kA	60	60	60	
Voltage protection level (U _p)	kV	1.2	1.5	1.2	
Ability to independently switch off the following current (I _f)	A	No following current	100	No following current	
Response time (t _a)	ns	25	100	25	
Shortcircuit proof at maximum overcurrent protection	kA _{rms}	35	—	35	
Maximum overcurrent protection - fuse rating		160 A gL/gG	—	160 A gL/gG	
Replacement module code		7P.10.8.275.0012	7P.10.1.000.0025	7P.10.8.275.0012	
Other technical data					
Ambient temperature range	°C	-40...+80			
Protection degree		IP20			
Wire size		solid cable		stranded cable	
	mm ²	1x1...1x50		1x1...1x35	
	AWG	1x 17...1x1		1x 17...1x2	
Wire strip length	mm	14			
Screw torque	Nm	4			
Remote status signalling contact specification					
Contact configuration		1 CO (SPDT)	—	1 CO (SPDT)	
Rated current	A AC/DC	0.5/0.1	—	0.5/0.1	
Rated voltage	V AC/DC	250/30	—	250/30	
Wire size (07P.01)		solid cable	stranded cable	solid cable	stranded cable
	mm ²	1.5	1.5	1.5	1.5
	AWG	16	16	16	16
Approvals (according to type)					

Features

SPD Type 1+2 Surge arrester range with high performance "Low U_p" - three phase system

- Surge arrester suitable for 230/400 V system applications to prevent overvoltage effects caused by direct or indirect lightning strikes
- To be installed at the boundary of LPZ 0 and LPZ 1 zones
- Low U_p to protect sensitive equipment
- Visual indication of varistor status - Healthy/Replace
- Contact for remote signalling of varistor status. Connector 07P.01 included
- Replaceable varistor modules
- Complies with EN 61 643-11
- 17.5 mm rail EN 60715 mounting for each module

7P.14.8.275.1012 SPD Type 1+2 for three phase system with Neutral.

- Varistor protection L1, L2, L3-N+Spark Gap protection N-PE
- Replaceable varistor modules
- Non replaceable high discharge current spark gap

7P.15.8.275.1012 SPD Type 1+2 for three phase system with Neutral.

- Varistor protection L1, L2, L3,N-PE
- Replaceable varistor modules

7P.14 / 7P.15
Screw terminal



For outline drawing see page 13

7P.14.8.275.1012

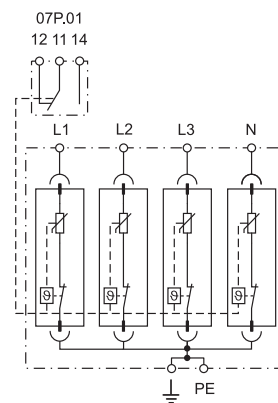
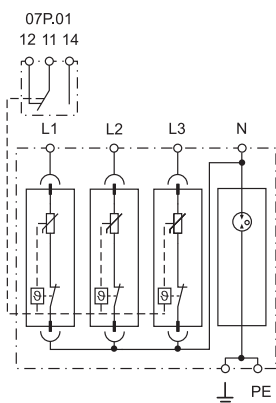


- SPD Type 1+2
- Replaceable varistor module
- Visual and remote signalling of varistor status

7P.15.8.275.1012



- SPD Type 1+2
- Replaceable varistor module
- Visual and remote signalling of varistor status



SPD specification		L-N	N-PE	L, N-PE
Nominal voltage (U _N)	V AC	230	—	230
Maximum continuous operating voltage (U _C)	V AC/DC	275/350	255/—	275/350
Lightning impulse current (10/350 μs) (I _{imp})	kA	12.5	50	12.5
Nominal discharge current (8/20 μs) (I _n)	kA	30	50	30
Maximum discharge current (8/20 μs) (I _{max})	kA	60	100	60
Voltage protection level (U _p)	kV	1.2	1.5	1.2
Ability to independently switch off the following current (I _{fi})	A	No following current	100	No following current
Response time (t _a)	ns	25	100	25
Short-circuit proof at maximum overcurrent protection	kA _{rms}	35	—	35
Maximum overcurrent protection - fuse rating		160 A gL/gG	—	160 A gL/gG
Replacement module code		7P.10.8.275.0012	—	7P.10.8.275.0012
Other technical data				
Ambient temperature range	°C	-40...+80		
Protection degree		IP20		
Wire size		solid cable		stranded cable
	mm ²	1x1...1x50		1x1...1x35
	AWG	1x 17...1x1		1x 17...1x2
Wire strip length	mm	14		
Screw torque	Nm	4		
Remote status signalling contact specification				
Contact configuration		1 CO (SPDT)	—	1 CO (SPDT)
Rated current	A AC/DC	0.5/0.1	—	0.5/0.1
Rated voltage	V AC/DC	250/30	—	250/30
Wire size (07P.01)		solid cable		stranded cable
	mm ²	1.5	1.5	1.5
	AWG	16	16	16

Approvals (according to type)



Features

SPD Type 2 Surge arrester range for single / three phase AC systems and for DC systems

- Surge arrester suitable for AC and DC systems to protect equipment against induced overvoltage or switching transients
- To be installed at the boundary of LPZ 1-LPZ 2 zones or higher
- Visual indication of varistor status - Healthy/Replace
- Contact for remote signalling of varistor status. Connector (O7P.01) included
- Replaceable varistor and spark gap modules
- Complies with EN 61643-11
- 17.5 mm rail EN 60715 mounting for each module

7P.21.8.075.1015 SPD Type 2, unipolar protection suitable for DC applications or low voltage AC single phase systems

- Varistor protection +/- or L/N (GND); -/+ or GND (L/N)
- Replaceable module

7P.21.8.130.1015 SPD Type 2, unipolar protection suitable for DC application or low voltage AC single phase systems

- Varistor protection +/- or L/N (GND); -/+ or GND (L/N)
- Replaceable module

7P.21.8.275.1020 SPD Type 2, unipolar protection suitable to realize single phase or three phase systems (230/400 V)

- Varistor protection L/N(GND)-GND/(L/N)
- Replaceable module

7P.22.8.275.1020 SPD Type 2 for single phase system with Neutral.

- Varistor protection L-N + spark gap protection N-PE
- Replaceable varistor and spark gap modules

For outline drawing see page 13

7P.21.8.xxx.10xx

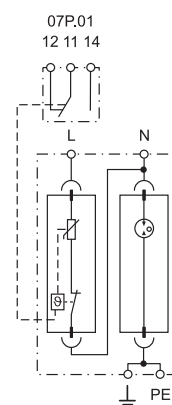
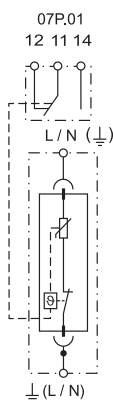


- SPD Type 2 (1 varistor)
- Replaceable varistor module
- Visual and remote signalling of varistor status

7P.22.8.275.1020



- SPD Type 2 (1 varistor + 1 spark-gap)
- Combination of replaceable varistor and encapsulated spark gap modules
- Visual and remote signalling of varistor status



SPD specification	7P.21.8.075.1015	7P.21.8.130.1015	7P.21.8.275.1020	L-N	N-PE
Nominal voltage (U _N) V AC/DC	60/60	110/125	230/—	230/—	—
Maximum continuous operating voltage (U _C) V AC/DC	75/100	130/170	275/350	275/—	255/—
Nominal discharge current (8/20 μs) (I _n) kA	15	15	20	20	20
Maximum discharge current (8/20 μs) (I _{max}) kA	40	40	40	40	40
Voltage protection level at 5kA (U _{p5}) kV	0.3	0.45	0.9	0.9	—
Voltage protection level at I _n (U _p) kV	0.4	0.6	1.2	1.2	1.5
Response time (t _d) ns		25		25	100
Shortcircuit proof at maximum overcurrent protection kA _{rms}		35		35	—
Maximum overcurrent protection - fuse rating		160 A gL/gG		160 A gL/gG	—
Replacement module code	7P.20.8.075.0015	7P.20.8.130.0015	7P.20.8.275.0020	7P.20.8.275.0020	7P.20.1.000.0020
Other technical data					
Ambient temperature range °C	-40...+80				
Protection degree	IP20				
Wire size	solid cable			stranded cable	
	mm ²	1x1...1x50			1x1...1x35
	AWG	1x 17...1x1			1x 17...1x2
Wire strip length mm	14				
Screw torque Nm	4				
Remote status signalling contact specification					
Contact configuration	1 CO (SPDT)			1 CO (SPDT)	
Rated current A AC/DC	0.5/0.1			0.5/0.1	
Rated voltage V AC/DC	250/30			250/30	
Wire size (O7P.01)	solid cable	stranded cable		solid cable	stranded cable
	mm ²	1.5	1.5	1.5	1.5
AWG	16	16	16	16	16
Approvals (according to type)					

Features

SPD Type 2 Surge arrester range - three phase systems

- Surge arrester suitable for 230/400V system applications to protect equipments against induced overvoltage or switching transients
- To be installed at the boundary of LPZ 1-LPZ 2 zones or higher
- Visual indication of varistor status - Healthy/Replace
- Contact for remote signalling of varistor status. Connector (07P.01) included
- Replaceable varistor and spark gap modules
- Complies with EN 61643-11
- 35 mm rail (EN 60715) mounting

7P.23.8.275.1020 SPD Type 2 for three phase system without Neutral (PEN conductor).

- Varistor protection L1, L2, L3-PEN
- Replaceable varistor module

7P.24.8.275.1020 SPD Type 2 for three phase system with Neutral.

- Varistor protection L1, L2, L3 + Spark gap protection N-PE
- Replaceable varistor and spark gap modules

7P.25.8.275.1020 SPD Type 2 for three phase system with Neutral.

- Varistor protection L1, L2, L3, N-PE
- Replaceable varistor module

7P.23.8 / 7P.24 / 7P.25
Screw terminal



For outline drawing see page 14

7P.23.8.275.1020



- SPD Type 2 (3 varistors)
- Replaceable varistor module, 3 pole
- Visual and remote signalling of varistor status

7P.24.8.275.1020

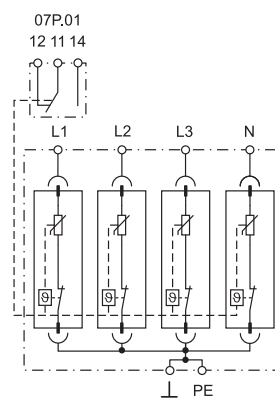
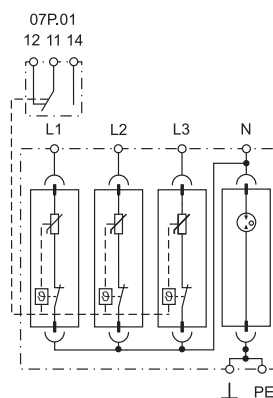
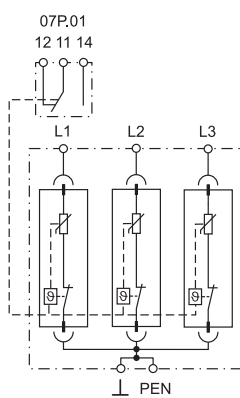


- SPD Type 2 (3 varistors + 1 spark-gap)
- Combination of replaceable varistor and encapsulated spark gap modules
- Visual and remote signalling of varistor status

7P.25.8.275.1020



- SPD Type 2 (4 varistors)
- Replaceable varistor module, 4 pole
- Visual and remote signalling of varistor status



SPD specification		L - PEN		L-N	N-PE	L, N-PE		
Nominal voltage (U _N)	V AC	230		230	—	230		
Maximum continuous operating voltage (U _C)	V AC/DC	275/350		275/—	255/—	275/350		
Nominal discharge current (8/20 μs) (I _n)	kA	20		20	20	20		
Maximum discharge current (8/20 μs) (I _{max})	kA	40		40	40	40		
Voltage protection level at 5kA (U _{p5})	kV	0.9		0.9	—	0.9		
Voltage protection level at I _n (U _p)	kV	1.2		1.2	1.5	1.2		
Response time (t _a)	ns	25		25	100	25		
Short-circuit proof at maximum overcurrent protection	kA _{rms}	35		35	—	35		
Maximum overcurrent protection - fuse rating		160 A gL/gG		160 A gL/gG	—	160 A gL/gG		
Replacement module code		7P.20.8.275.0020		7P.20.8.275.0020	7P.20.1.000.0020	7P.20.8.275.0020		
Other technical data								
Ambient temperature range	°C	-40...+80						
Protection degree		IP20						
Wire size		solid cable				stranded cable		
	mm ²	1x1...1x50				1x1...1x35		
	AWG	1x 17...1x1				1x 17...1x2		
Wire strip length	mm	14						
Screw torque	Nm	4						
Remote status signalling contact specification								
Contact configuration		1 CO (SPDT)		1 CO (SPDT)		1 CO (SPDT)		
Rated current	A AC/DC	0.5/0.1		0.5/0.1		0.5/0.1		
Rated voltage	V AC/DC	250/30		250/30		250/30		
Wire size (07P.01)		solid cable	stranded cable	solid cable	stranded cable	solid cable	stranded cable	
	mm ²	1.5	1.5	1.5	1.5	1.5	1.5	
	AWG	16	16	16	16	16	16	
Approvals (according to type)								

Features

SPD Type 2 Surge arrester range for Photovoltaic applications

- Surge arrester for protection of DC side (420V to 1,200V) of systems in photovoltaic applications
- Protects equipment against overvoltage caused by lightning strikes or switching transients

7P.26.9.420.1020, $U_{CPV} = 420$ V DC

7P.23.9.750.1020, $U_{CPV} = 750$ V DC

7P.23.9.200.1015, $U_{CPV} = 1200$ V DC

- Visual indication of varistor status - Healthy/Replace
- Contact for remote signalling of varistor status. Connector (07P.01) included
- Replaceable modules
- Complies with prEN 50539-11:2010
- 35 mm rail (EN 60715) mounting

7P.23.9 / 7P.26
Screw terminal



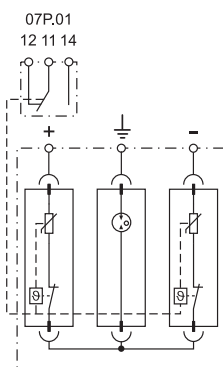
For outline drawing see page 14

SPD specification	Varistor module	Spark-gap module	Varistor module	Varistor module		
Maximum operating voltage (U_{CPV}) V DC	420		750	1200		
Maximum operating voltage /per module (U_{CPV}) V DC	375	420	375	600		
Nominal discharge current (8/20 μ s) /per module (I_n) kA	20	20	20	15		
Maximum discharge current (8/20 μ s) /per module (I_{max}) kA	40	40	40	30		
Voltage protection level per module (U_p) kV	1.8	1.5	1.8	2.1		
Voltage protection level of the system U_p (+ \rightarrow -)/(+/- \rightarrow PE) kV	3.6/1.5		3.6/3.6	4.2/4.2		
Response time (t_d) ns	25	100	25	25		
Short circuit current withstand I_{SCPV} A	63	—	63	125		
Replacement module code	7P.20.9.375.0020	—	7P.20.9.375.0020	7P.20.9.600.0015		
Other technical data						
Ambient temperature range $^{\circ}$ C	-40...+80					
Protection degree	IP20					
Wire size	solid cable		stranded cable			
mm ²	1x1...1x50		1x1...1x35			
AWG	1x 17...1x1		1x 17...1x2			
Wire strip length mm	14					
Screw torque Nm	4					
Remote status signalling contact specification						
Contact configuration	1 CO (SPDT)		1 CO (SPDT)		1 CO (SPDT)	
Rated current A AC/DC	0.5/0.1		0.5/0.1		0.5/0.1	
Rated voltage V AC/DC	250/30		250/30		250/30	
Wire size (07P.01)	solid cable	stranded cable	solid cable	stranded cable	solid cable	stranded cable
mm ²	1.5	1.5	1.5	1.5	1.5	1.5
AWG	16	16	16	16	16	16

7P.26.9.420.1020



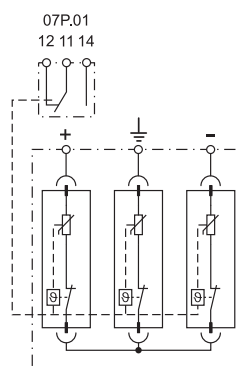
- SPD Type 2 (2 varistors + 1 spark-gap) for 420 V DC photovoltaic systems
- Combination of replaceable varistor and encapsulated spark gap modules
- Visual and remote signalling of varistor status



7P.23.9.750.1020



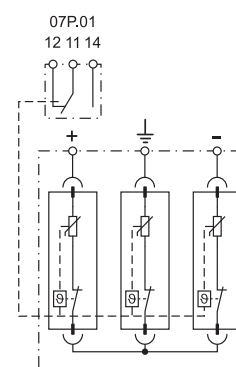
- SPD Type 2 (3 varistors) for 750 V DC photovoltaic systems
- Replaceable varistor modules
- Visual and remote signalling of varistor status



7P.23.9.200.1015



- SPD Type 2 (3 varistors) for 1200 V DC photovoltaic systems
- Replaceable varistor modules
- Visual and remote signalling of varistor status



Features

SPD Type 1+2 and Type 2 Surge arrester range for Photovoltaic applications

- Surge arrester for protection of DC side (1,020V) of systems in photovoltaic applications
- Protects equipment against overvoltage caused by direct lightning strike, induced overvoltage and switching overvoltage (depending on Type)
- **7P.26.9.000.1015**, $U_{CPV} = 1020$ V DC (Type 2)
- **7P.23.9.000.1015**, $U_{CPV} = 1020$ V DC (Type 2)
- **7P.03.9.000.1012**, $U_{CPV} = 1000$ V DC (Type 1+2)
- Visual indication of varistor status - Healthy/Replace
- Contact for remote signalling of varistor status. Connector (07P.01) included
- Replaceable modules
- Complies with prEN 50539-11:2010
- 35 mm rail (EN 60715) mounting

7P.23.9 / 7P.26 / 7P.03
Screw terminal



For outline drawing see page 14

7P.26.9.000.1015



- SPD Type 2 (2 varistors + 1 spark-gap) for 1,020 V DC photovoltaic systems
- Combination of replaceable varistor and encapsulated spark gap modules
- Visual and remote signalling of varistor status

7P.23.9.000.1015

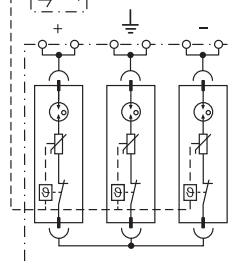
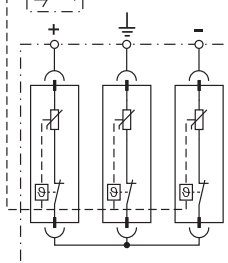
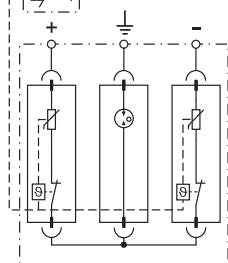


- SPD Type 2 (3 varistors) for 1,020 V DC photovoltaic systems
- Replaceable varistor modules
- Visual and remote signalling of varistor status

7P.03.9.000.1012



- SPD Type 1+2 (3 varistors) for 1,000 V DC photovoltaic systems
- Replaceable varistor modules
- Visual and remote signalling of varistor status



SPD specification	Varistor module	Spark-gap module	Varistor module	Varistor module
Maximum operating voltage (U_{CPV}) V DC	1020		1020	1000
Maximum operating voltage /per module (U_{CPV}) V DC	510	1020	510	500
Lightning impulse current (10/350 μ s) /per module (I_{mp}) kA	—	—	—	12.5
Nominal discharge current (8/20 μ s) /per module (I_n) kA	15	15	15	30
Maximum discharge current (8/20 μ s) /per module (I_{max}) kA	30	30	30	60
Voltage protection level /per module (U_p) kV	2	2.5	2	1.8
Voltage protection level of the system U_p (+ \rightarrow -)/(+/- \rightarrow PE) kV	4/2.5		4/4	3.6/3.6
Response time (t_a) ns	25	100	25	25
Short circuit current withstand I_{SCPV} A	125	—	125	125
Replacement module code	7P.20.9.500.0015	7P.20.1.000.9015	7P.20.9.500.0015	7P.00.9.500.0012
Other technical data				
Ambient temperature range $^{\circ}$ C	-40...+80			
Protection degree	IP20			
Wire size	solid cable		stranded cable	
mm ²	1x1...1x50		1x1...1x35	
AWG	1x17...1x1		1x17...1x2	
Wire strip length mm	14			9
Screw torque Nm	4			4
Remote status signalling contact specification				
Contact configuration	1 CO (SPDT)		1 CO (SPDT)	
Rated current A AC/DC	0.5/0.1		0.5/0.1	
Rated voltage V AC/DC	250/30		250/30	
Wire size (07P.01)	solid cable	stranded cable	solid cable	stranded cable
mm ²	1.5	1.5	1.5	1.5
AWG	16	16	16	16
Approvals (according to type)				

Features

SPD Type 3, Surge arrester for TT and TN-S system (with Neutral)

Single phase applications within socket outlets and 35 mm rail mounting

- Protects electrical and electronic equipment sensitive to impulse overvoltage
- "1+1" configuration: varistor + spark gap protection (avoiding earth leakage current)
- Conforms to EN 61643-11

7P.32.8.275.2003

- Provides easy additional surge protection for 230 V sockets
- Acoustic indication of need to replace varistor
- 3-wires, 150 mm long, for connection to socket terminals

7P.37.8.275.1003

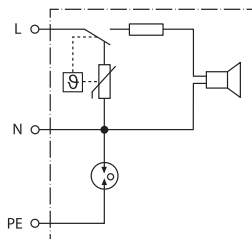
- Permits serial connection for optimized load protection up to 16 A
- Integrated remote signalling contact of varistor status
- Relay with gold change-over contact for reliable low level switching
- 17.5 mm L-N/N-PE protection
- Mounting on 35mm DIN rail (EN60715)

* see diagram L7P page 19
For outline drawing see page 14

7P.32.8.275.2003



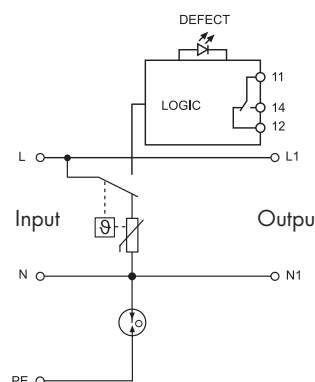
- SPD Type 3
- Acoustic (buzzing) signalling of varistor fault



7P.37.8.275.1003



- SPD Type 3
- Series connection for protection of loads up to 16 A
- Remote signaling of varistor status by integral change-over relay contact



SPD specification

Nominal voltage (U _N)	V AC	230	230
Maximum continuous operating voltage (U _C)	V AC	275	275
Rated load current I _L	A	—	16
Nominal discharge current (8/20 μs)			
L-N, L(N)-PE (I _n)	kA	3/3	3/3
Test voltage of the combined generator			
L-N, L(N)-PE (U _{OC})	kV	6/6	6/6
Voltage protection level L-N, L(N)-PE (U _p)	kV	1/1.5	1/1.5
Response time L-N, L(N)-PE (t _a)	ns	25/100	25/100
Short-circuit proof at maximum overcurrent protection	kA _{rms}	6	5
Maximum overcurrent protection		16A gL/gG, C16 A	16A gL/gG, B16A, C16A

Other technical data

Ambient temperature range	°C	-25...+80	-25...+70*
Protection degree		IP 20	IP 20
Wire size		—	solid cable stranded cable
	mm ²	—	0.5...6 0.5...4
	AWG	—	20...10 20...12
Wire strip length	mm	—	9
Screw torque	Nm	—	0.8

Remote status signalling contact specification

Contact configuration		—	1 CO (SPDT)
Rated current	A AC	—	0.5
Rated voltage	V AC	—	230
Breaking capacity DC1: 30/110	A	—	2/0.3
Minimum switching load	mW (V/mA)	—	10 (5/5)
Contact material		—	AgNi + Au

Approvals (according to type)



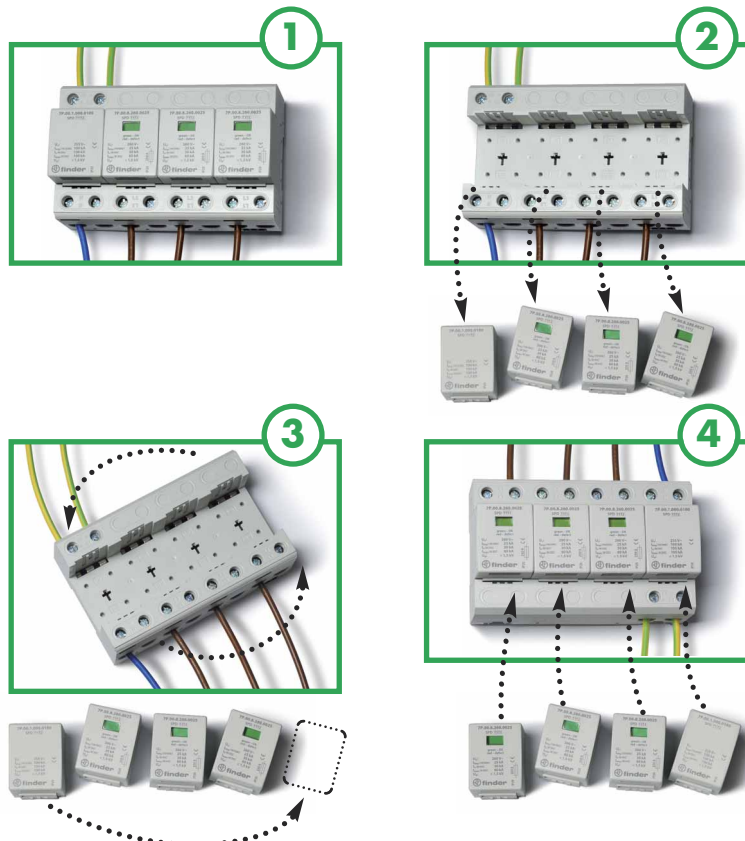
Ordering information

Example: 7P series, surge protection device, Type 2, single phase ($U_c = 275\text{ V}$), 1 varistor + 1 encapsulated spark gap, with remote status signalling contact, $I_n = 20\text{ kA}$

7 P . 2 2 . 8 . 2 7 5 . 1 0 2 0

- Series** _____
- Type** _____
 - 0 = Combined type 1 + 2 arresters high discharge capability
 - 1 = Type 1+2 high performance "Low U_p " surge arresters
 - 2 = Type 2 surge arresters
 - 3 = Type 3 surge arresters
- Circuit** _____
 - 1 = Single phase (1 varistor)
 - 2 = Single phase (1 varistor + 1 spark-gap)
 - 3 = Three-phase (3 varistors)
 - 4 = Three-phase (3 varistors + 1 spark-gap)
 - 5 = Three-phase (4 varistors)
 - 6 = 2 varistors + 1 spark-gap
 - 7 = Single phase (1 varistor + 1 spark gap) Type 3, DIN rail mounting
 - 9 = N-PE spark-gap for three phase system
 - 0 = Spare module
- Supply version** _____
 - 1 = N+PE connection (only for single spark gap replaceable module and 7P.09)
 - 8 = AC (50/60 Hz)
 - 9 = DC (PV application)
- Supply voltage** _____
 - 000 = 1,000 V DC Max (for PV-version 7P.03.9.000.1012) or (N+PE connection for spark gap modules) 1,020 V DC Max for orders PV SPD
 - 075 = 75 V AC
 - 130 = 130 V AC
 - 200 = 1,200 V DC Max
 - 750 = 750 V DC Max
 - 420 = 420 V DC Max
 - 275 = 275 V Max for SPD Type 1+2 "Low U_p ", Type 2 (U_c) (for $U_N = 230\text{-}240\text{ V AC}$) and Type 3
 - 260 = 260 V Max (U_c) for SPD Type 1 + 2 (for $U_N = 230\text{-}240\text{ V AC}$)
 - 255 = 255 V Max (U_c) for SPD Type 1, N+PE (7P.09)
- Nominal discharge current** _____
 - 100 = 100 kA (I_{imp} Type 1) only for 7P.09, N-PE GDT for 7P.04
 - 050 = 50 kA (I_{imp} Type 1 N-PE GDT for 7P.02)
 - 025 = 25 kA (I_{imp} Type 1+2)
 - 020 = 20 kA (I_n Type 2)
 - 015 = 15 kA (I_n Type 2)
 - 012 = 12.5 kA (I_{imp} Type 1+2)
 - 003 = 3 kA ($I_n @ U_{oc}$ only for 7P.32 and 7P.37)
- Remote status signalling contact** _____
 - 1 = Built-in remote status signalling contact
 - 2 = Acoustic fault signalling
 - 6 = Upside down screw position

Upside down mounting



Replaceable modules



Replacement varistor and Spark-Gap modules	7P.00.8.260.0025	7P.00.9.500.0012	7P.00.1.000.0050	7P.00.1.000.0100
	Varistor	Varistor	Spark-Gap	Spark-Gap
Maximum operating voltage (U_C/U_{CPV}) V AC/DC	260 / —	— / 500	255 / —	255 / —
Lightning Impulse current (10/350 μ s) (I_{imp}) kA	25	12.5	50	100
Nominal discharge current (8/20 μ s) (I_n) kA	30	30	100	100
Maximum discharge current (8/20 μ s) (I_{max}) kA	60	60	100	100
Voltage protection level (U_p) kV	1.5	1.8	1.5	1.5
Response time (t_a) ns	25	25	100	100
Maximum overcurrent protection	250 A gL/gG	—	—	—



Replacement varistor and Spark-Gap modules	7P.10.8.275.0012	7P.10.1.000.0025
	Varistor	Spark-Gap
Maximum operating voltage (U_C) V AC	275	255
Lightning Impulse current (10/350 μ s) (I_{imp}) kA	12.5	25
Nominal discharge current (8/20 μ s) (I_n) kA	30	30
Maximum discharge current (8/20 μ s) (I_{max}) kA	60	60
Voltage protection level (U_p) kV	1.2	1.5
Response time (t_a) ns	25	100
Maximum overcurrent protection	160 A gL/gG	—



Replacement varistor modules	7P.20.8.075.0015	7P.20.8.130.0015	7P.20.8.275.0020
	Varistor	Varistor	Varistor
Maximum operating voltage (U_C) V AC/DC	75/100	130/170	275 /350
Nominal discharge current (8/20 μ s) (I_n) kA	15	15	20
Maximum discharge current (8/20 μ s) (I_{max}) kA	40	40	40
Voltage protection level (U_p) kV	0.4	0.6	1.2
Response time (t_a) ns	25	25	25
Maximum overcurrent protection	160 A gL/gG	160 gL/gG	160 gL/gG



Replacement varistor modules	7P.20.9.375.0020	7P.20.9.500.0015	7P.20.9.600.0015
	Varistor	Varistor	Varistor
Maximum operating voltage (U_C/U_{CPV}) V AC/DC	— / 375	— / 510	— / 600
Nominal discharge current (8/20 μ s) (I_n) kA	20	15	15
Maximum discharge current (8/20 μ s) (I_{max}) kA	40	30	30
Voltage protection level (U_p) kV	1.8	2	2.1
Response time (t_a) ns	25	25	25
Maximum overcurrent protection	125 A gL/gG	—	—

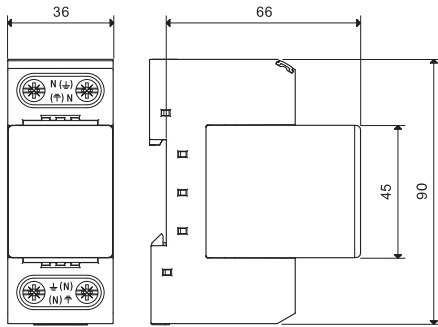


Replacement Spark-Gap modules	7P.20.1.000.0020	7P.20.1.000.9015
	Spark-Gap	Spark-Gap
Maximum operating voltage (U_C/U_{CPV}) V AC/DC	255 / —	— / 1,020
Nominal discharge current (8/20 μ s) (I_n) kA	20	15
Maximum discharge current (8/20 μ s) (I_{max}) kA	40	30
Voltage protection level (U_p) kV	1.5	2.5
Response time (t_a) ns	100	100
Maximum overcurrent protection	—	—

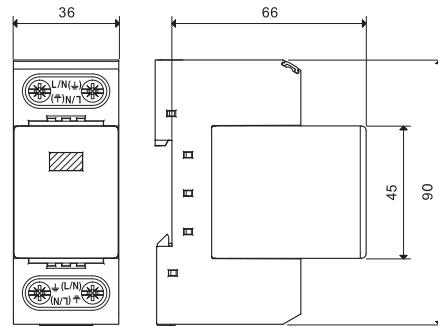
Temporary Overvoltage (TOV)		7P.32.8.275.2003	7P.37.8.275.1003
Transient OverVoltage 5s L-N (U_{TOV})	V	335	335
Transient OverVoltage 5s L-PE (U_{TOV})	V	400	400
Transient OverVoltage 200 ms L-PE (U_{TOV})	V	1430	1430

Outline drawings

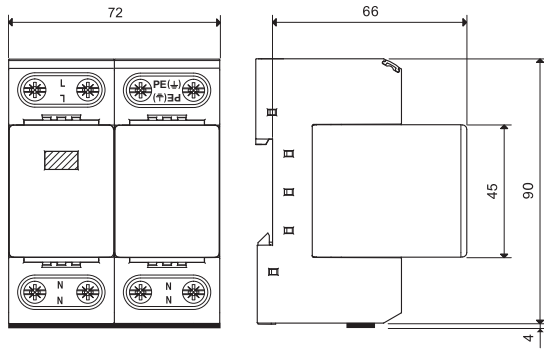
Type 7P.09
Screw terminal



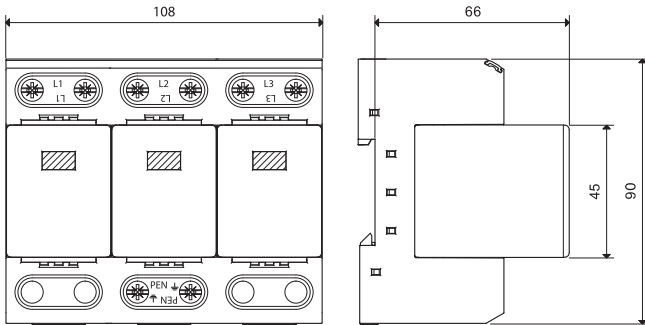
Type 7P.01
Screw terminal



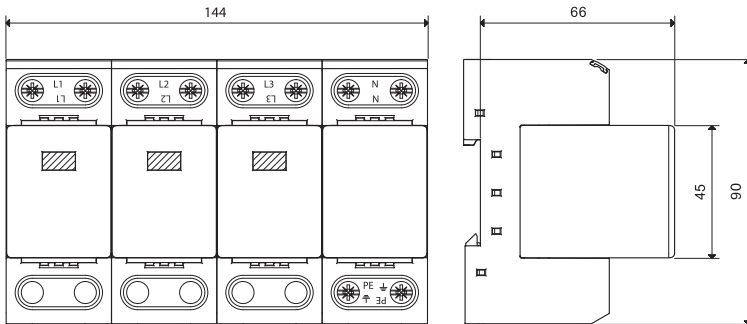
Type 7P.02
Screw terminal



Type 7P.03
Screw terminal

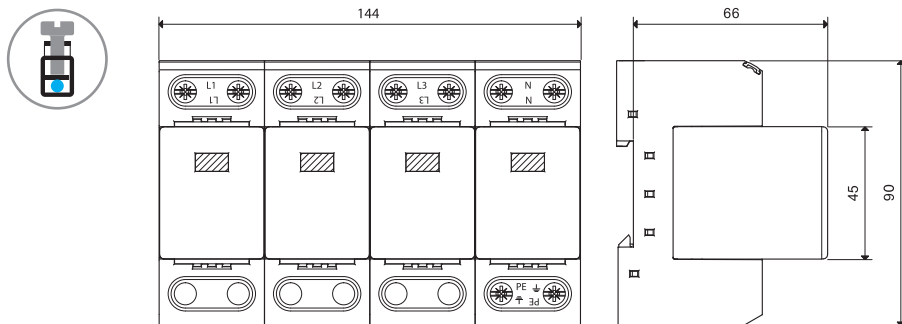


Type 7P.04
Screw terminal

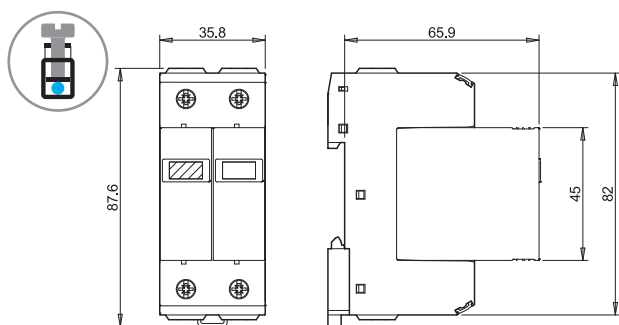


Outline drawings

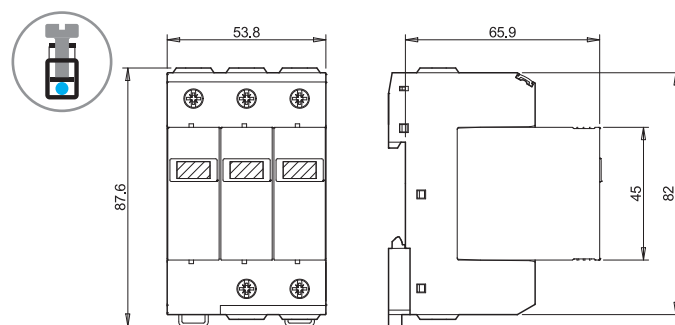
Type 7P.05
Screw terminal



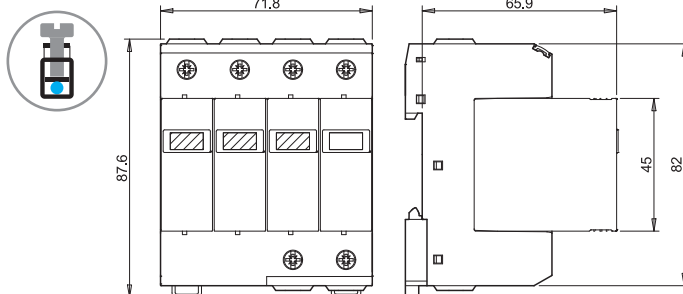
Type 7P.12
Screw terminal



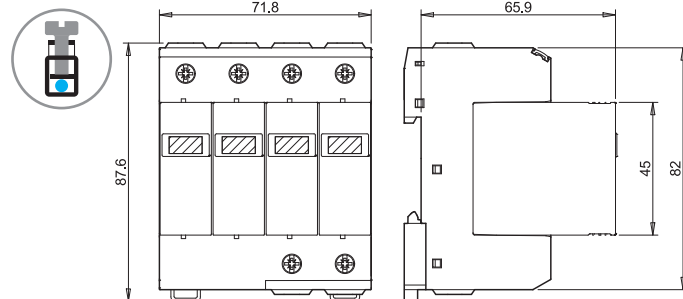
Type 7P.13
Screw terminal



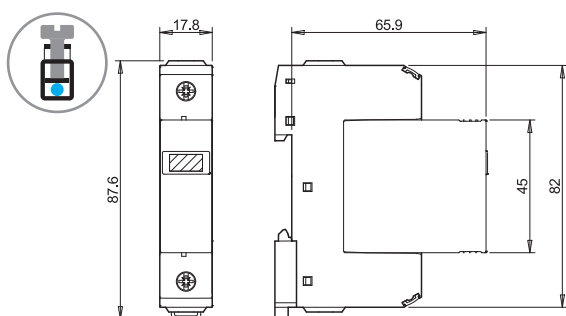
Type 7P.14
Screw terminal



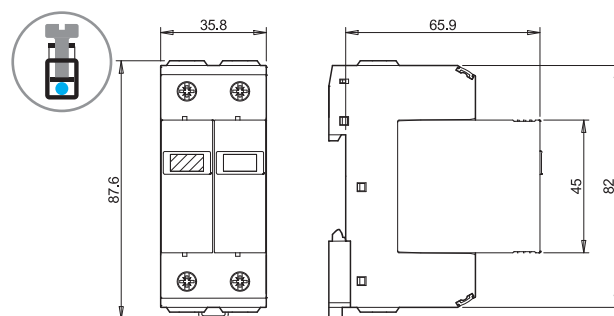
Type 7P.15
Screw terminal



Type 7P.21
Screw terminal

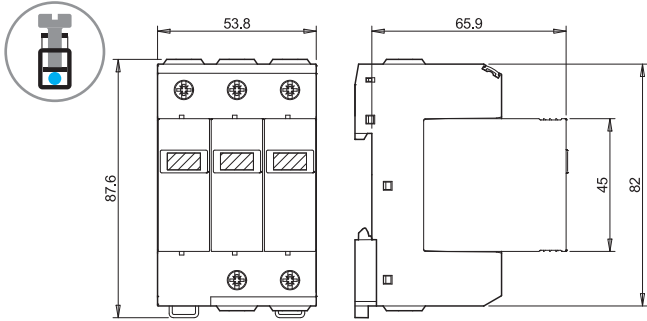


Type 7P.22
Screw terminal

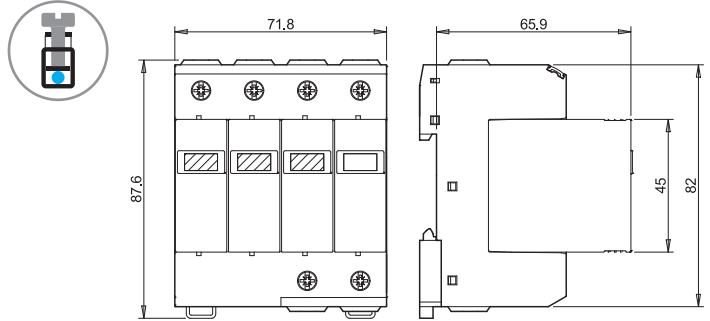


Outline drawings

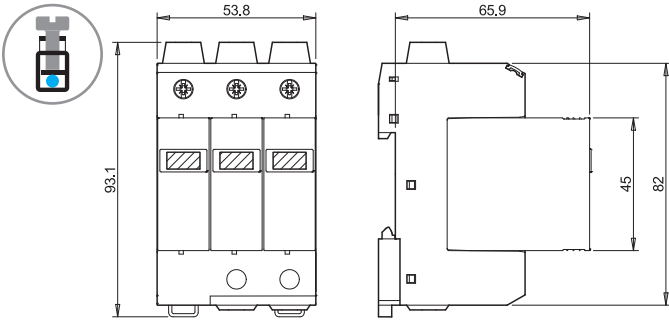
Type 7P.23.8
Screw terminal



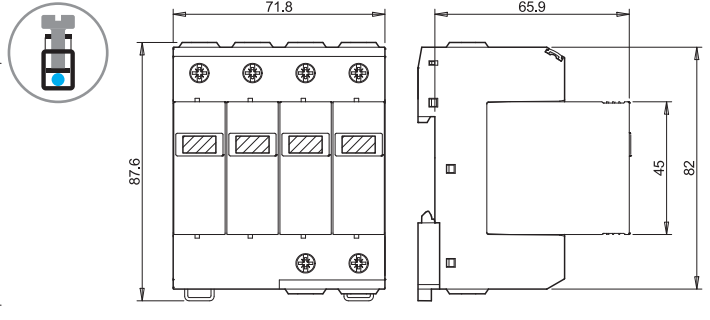
Type 7P.24
Screw terminal



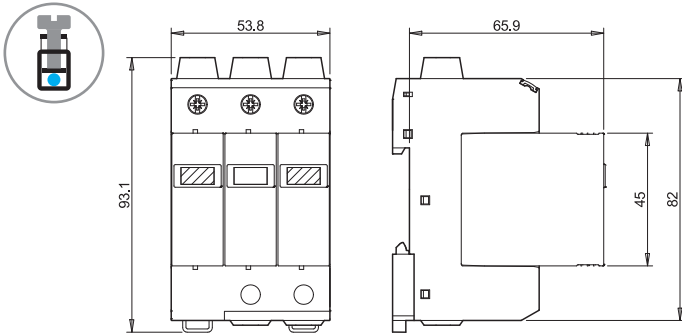
Type 7P.23.9
Screw terminal



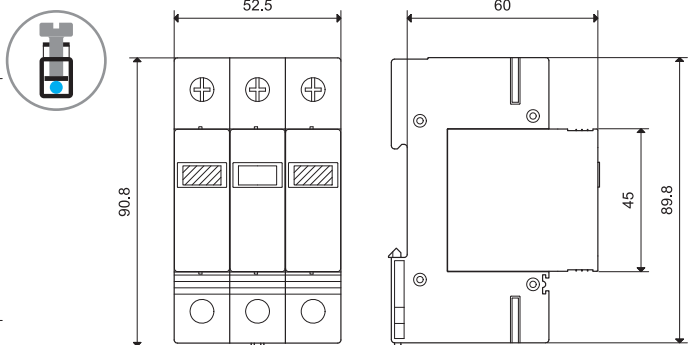
Type 7P.25
Screw terminal



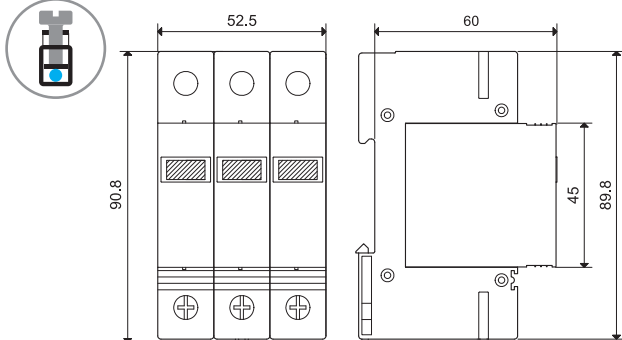
Type 7P.26.9.000.1015
Screw terminal



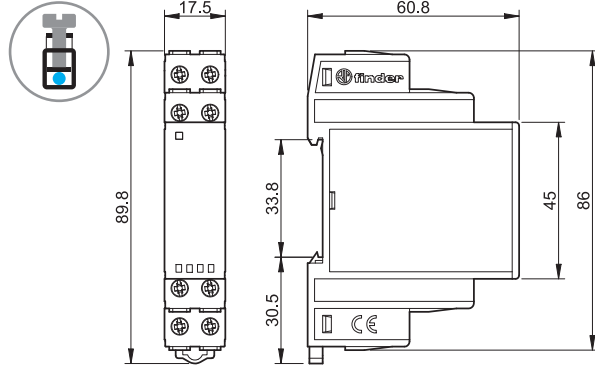
Type 7P.26.9.420.1020
Screw terminal



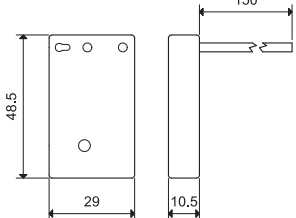
Type 7P.23.9.000.6020
Screw terminal



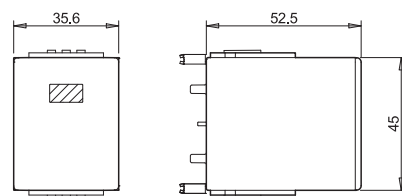
Tipo 7P.37.8.275.1003
Screw terminal



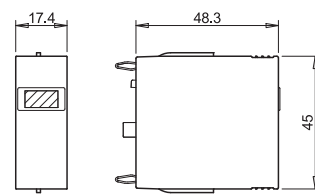
Type 7P.32



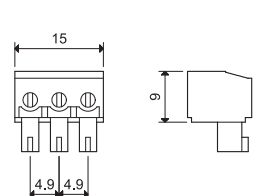
Type 7P.00
Replaceable module



Type 7P.10/20
Replaceable module

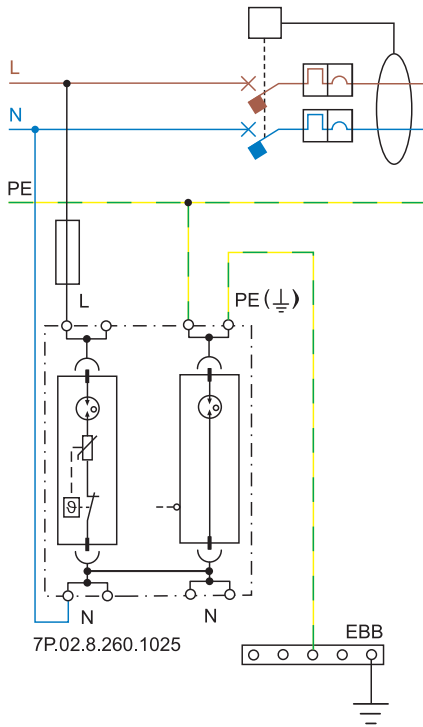


07P.01
Connector

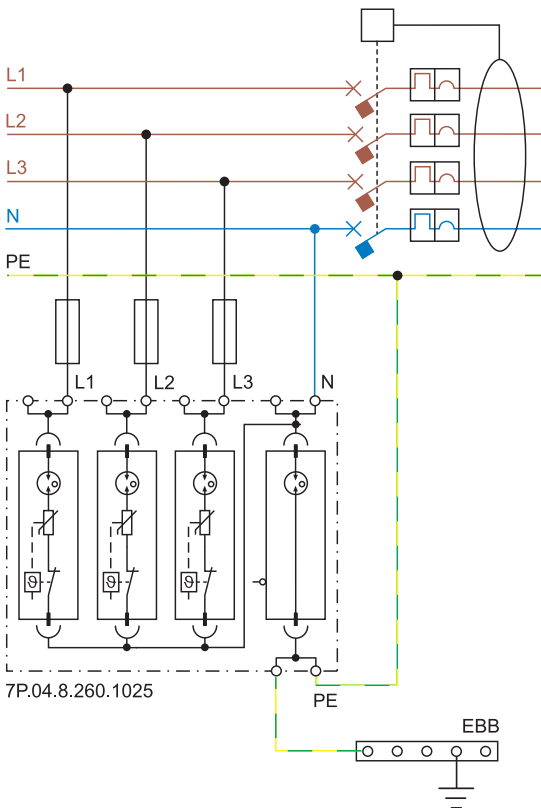


Installation example - SPD Type 1 + 2

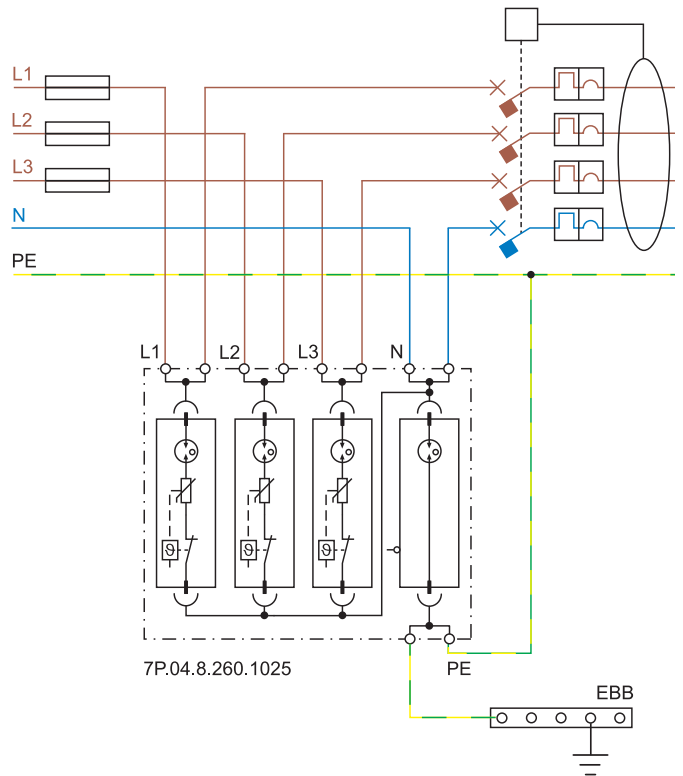
TT-SINGLE PHASE SYSTEM - SPD UP-STREAM OF RCD



TT-THREE PHASE SYSTEM - SPD UP-STREAM OF RCD

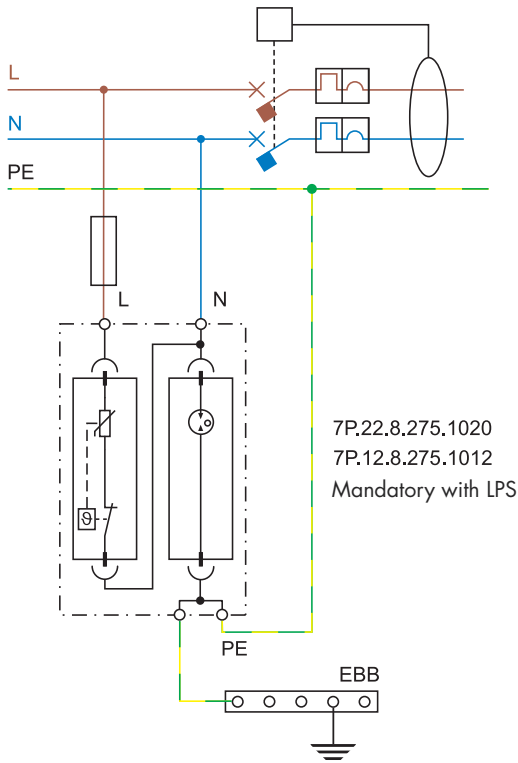


Wiring diagrams "V-shape" (fuse max = 125 A)

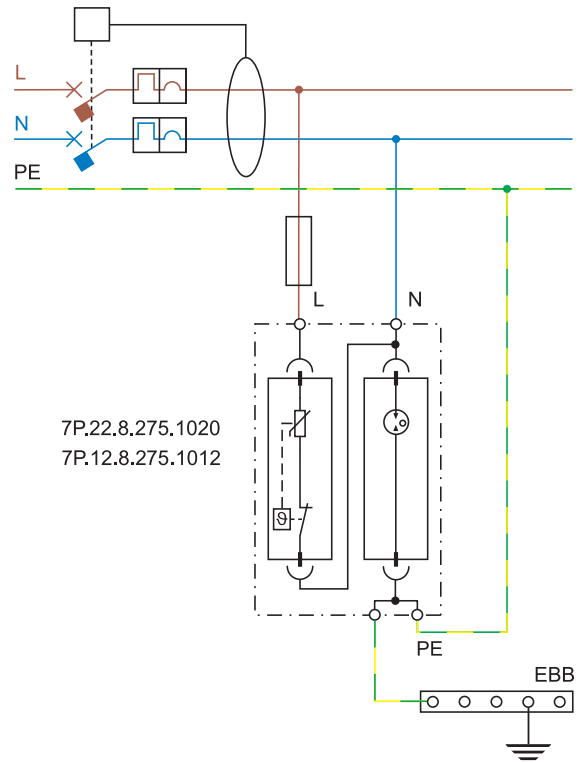


Installation example for SPD Type 1 + 2 and Type 2 - Single phase

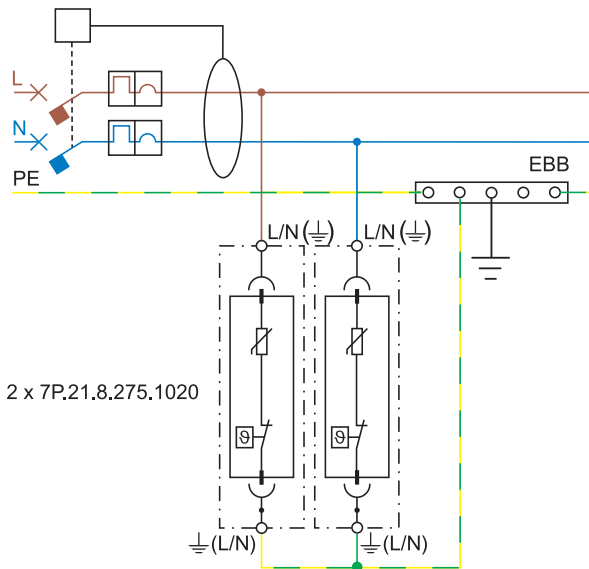
TT-SINGLE PHASE SYSTEM - SPD UP-STREAM OF RCD



TT or TN-S SINGLE PHASE SYSTEM - SPD DOWN-STREAM OF RCD

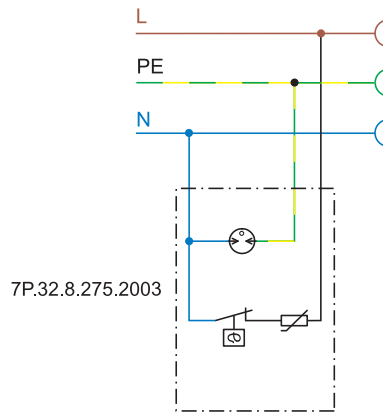


TN-S SINGLE PHASE SYSTEM - SPD DOWN-STREAM OF RCD



Installation example for SPD Type 3

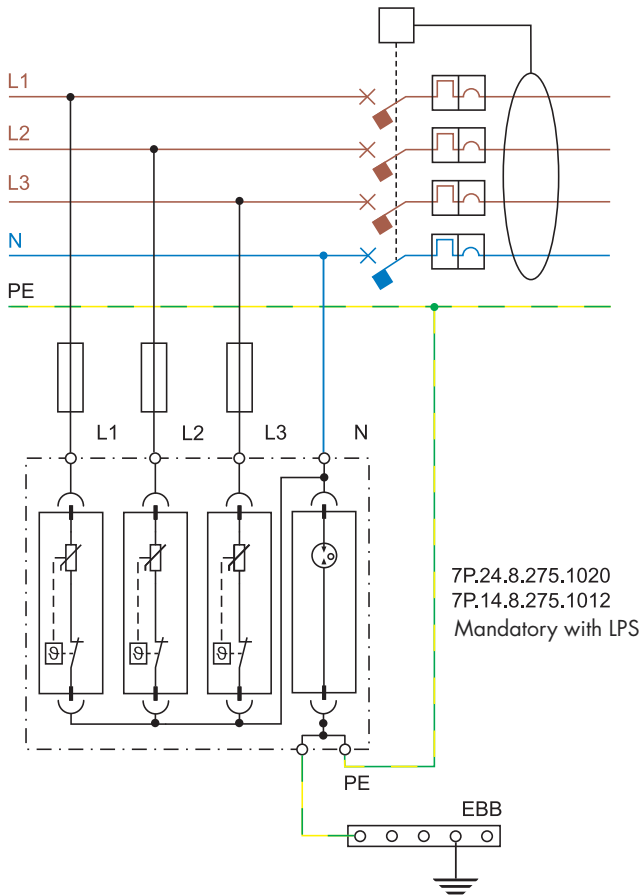
TT or TN-S SINGLE PHASE SYSTEM - INCORPORATED IN SOCKET OUTLET



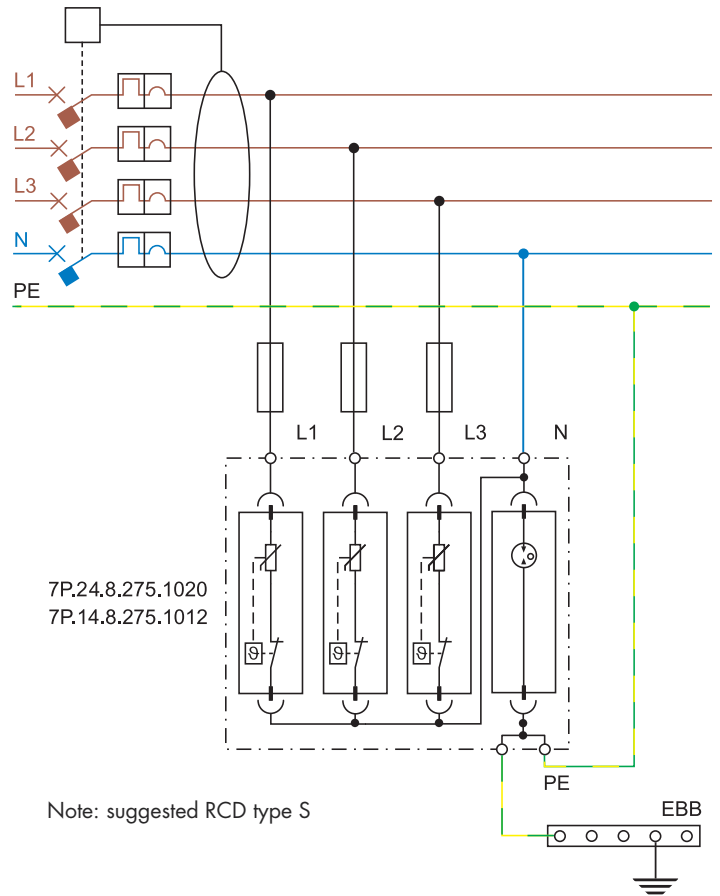
Note: suggested RCD type S

Installation example for SPD Type 1 + 2 and Type 2 - Three phase

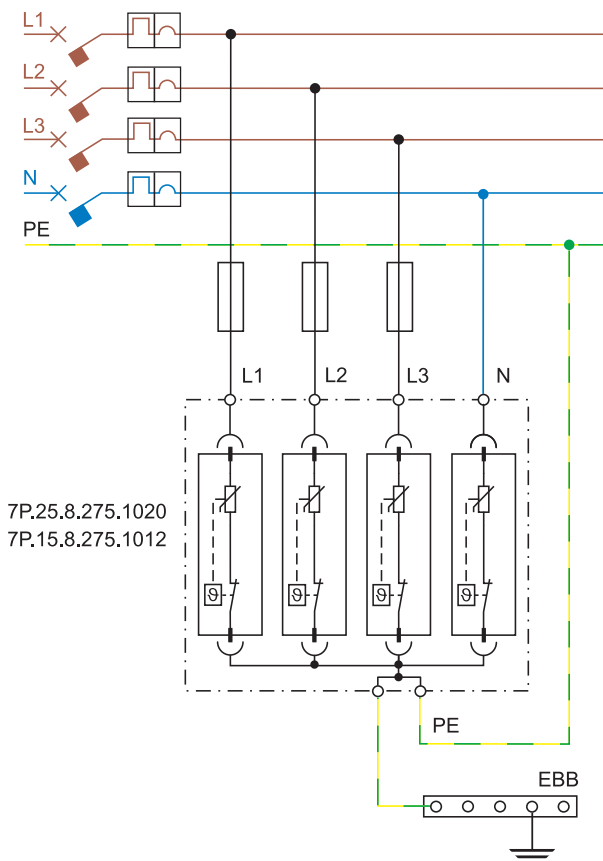
TT-THREE PHASE SYSTEM - SPD UP-STREAM OF RCD



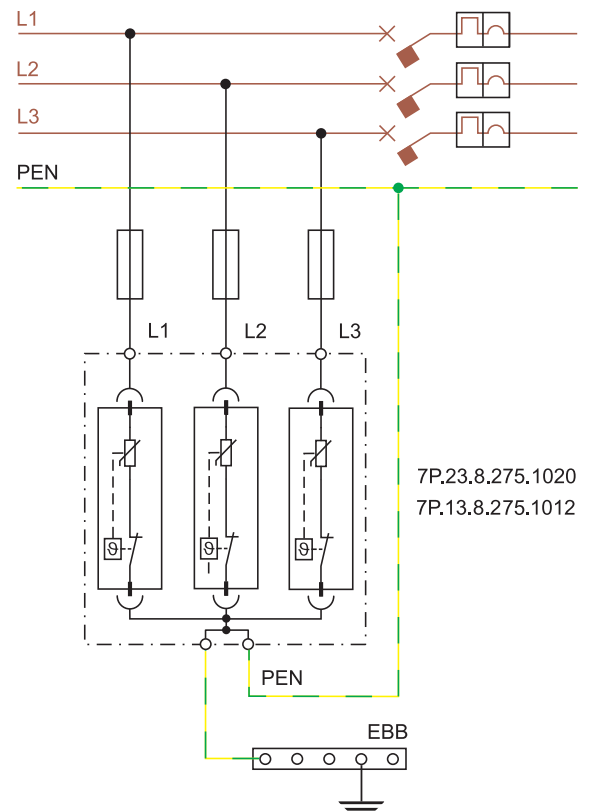
TT or TN-S THREE PHASE SYSTEM - SPD DOWN-STREAM OF RCD



TN-S THREE PHASE SYSTEM - SPD DOWN-STREAM OF OVERCURRENT PROTECTION

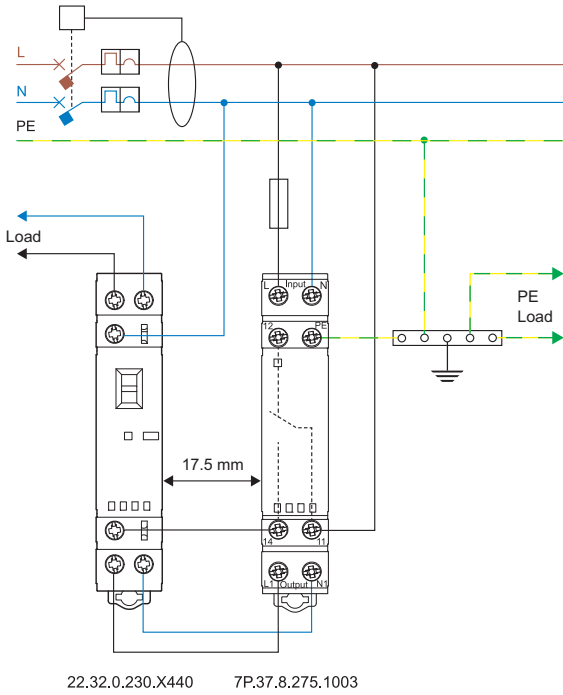


TN-C THREE PHASE SYSTEM - SPD UP-STREAM OF OVERCURRENT PROTECTION

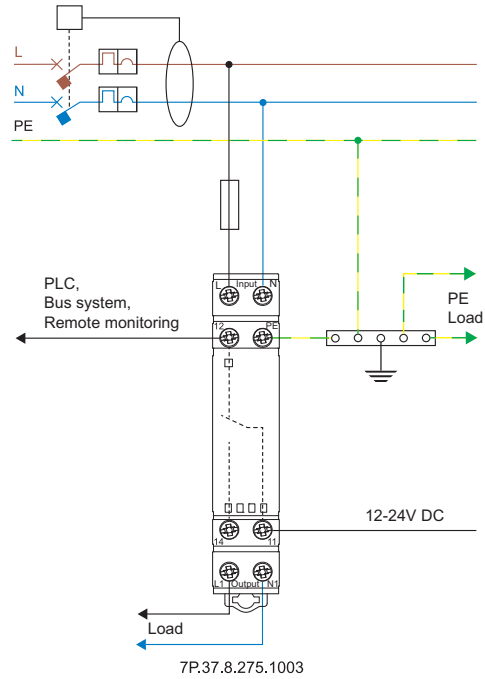


Installation example for SPD Type 3 - Single phase

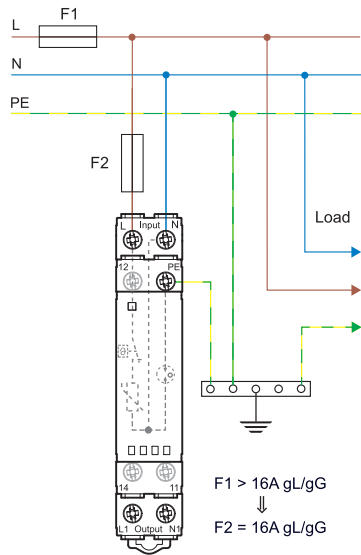
TT or TN-S SINGLE PHASE SYSTEM - SPD DOWN-STREAM OF RCD
Serial connection



TT or TN-S SINGLE PHASE SYSTEM - SPD DOWN-STREAM OF RCD
Serial connection + BUS line

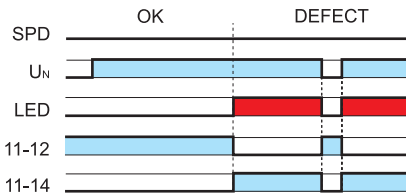


TT, TN-S SINGLE PHASE: parallel connection

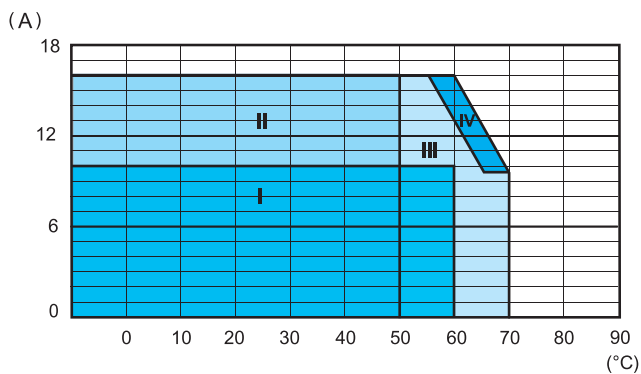


Function

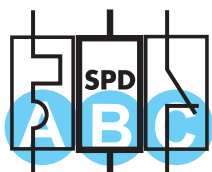
Visual local LED signalling and remote signalling of varistor status



L7P Temperature/Current diagram for model 7P.37

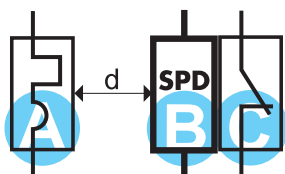


Zone I: SPD and other devices installed as a group (without gap)



- A MCB = C10A
- B 7P.37.8.275.1003
- C 22.32.0.xxx.x4x0

Zone II: SPD spaced, at least from one side, from components that generate heat during their operation (17.5 mm gap)



- A MCB = C16A
- B 7P.37.8.275.1003
- C 22.32.0.xxx.x4x0
- d 17.5 mm

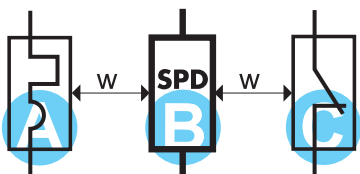


- A MCB = C16A
- B 7P.37.8.275.1003



- B 7P.37.8.275.1003
- D 22.32.0.xxx.x3x0
22.32.0.xxx.x4x0

Zone III: SPD spaced, on both side, from components that generate heat during their operation (20 mm gap)



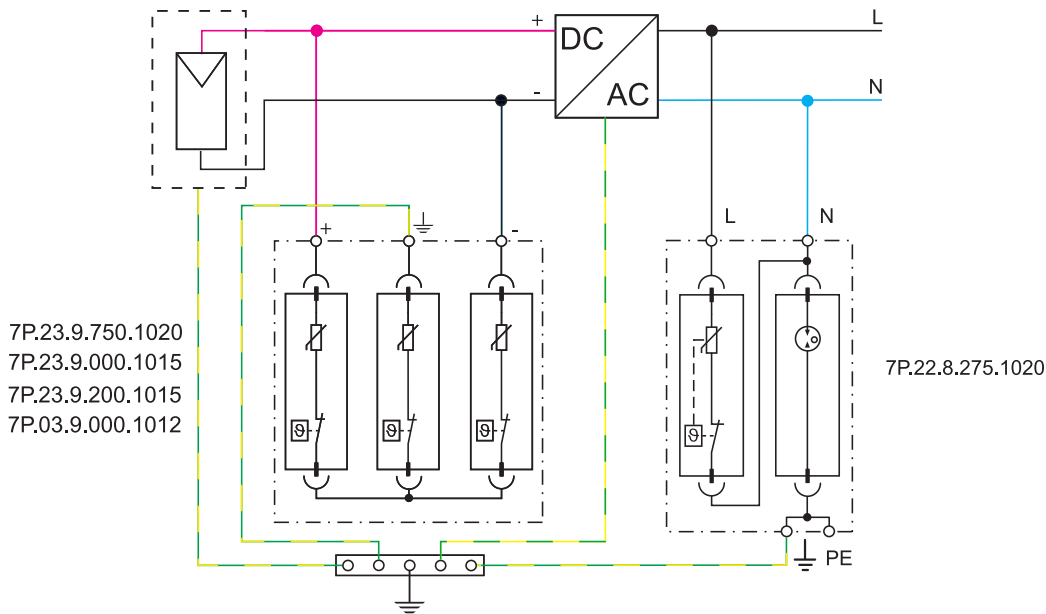
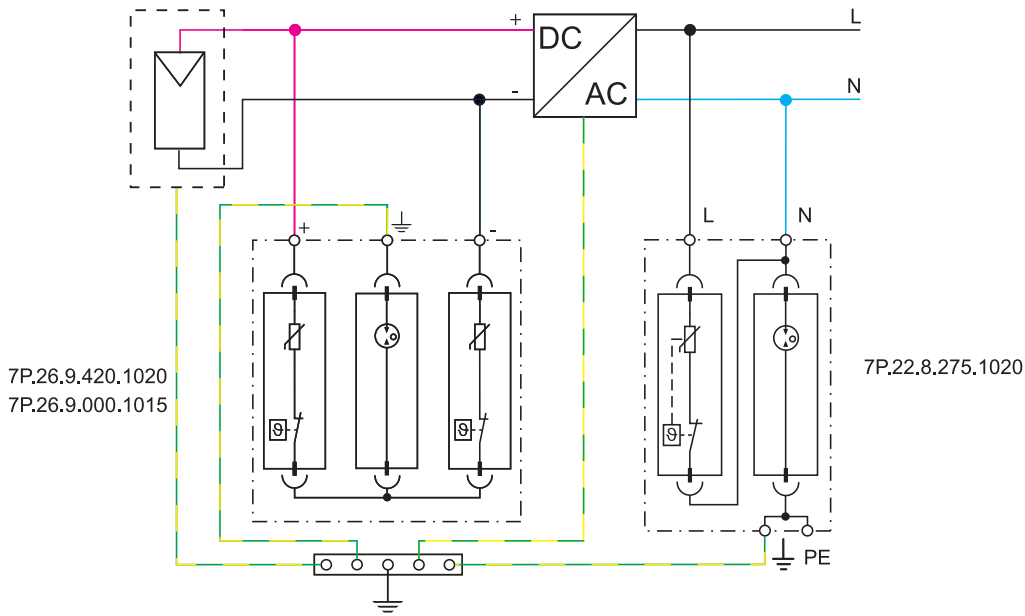
- A MCB = C16A
- B 7P.37.8.275.1003
- C 22.32.0.xxx.x4x0
- w 20 mm

Zone IV: SPD installed individually in free air (without significant influence from nearby components)



- B 7P.37.8.275.1003

Installation examples - photovoltaic



SURGE VOLTAGE PROTECTORS

Surge voltage protectors (such as Finder's Surge Protection Devices, SPD) are intended to be installed in electrical systems, to protect people and machines from surge voltages that can occur on the electrical supply line and which would otherwise have disastrous consequences. These surge voltages can be atmospheric (lightning) or can originate on the electrical system due to, for example: the opening and closing of large loads, short circuits, or the switching of large power factor correction capacitors. The SPD can be described as a switch that is in parallel with the electrical system's supply line - which it is protecting. At the nominal network voltage (e.g. 230 V) the SPD appears as an open switch, having a very high impedance (almost infinite). But, under an overvoltage condition its impedance rapidly falls to near 0 Ω. This effectively applies a short circuit across the supply lines and immediately "drains" the overvoltage to earth. In this way the supply line is protected wherever an SPD is installed. When the overvoltage has passed, the SPD impedance rises rapidly and resumes the state of an open switch again.

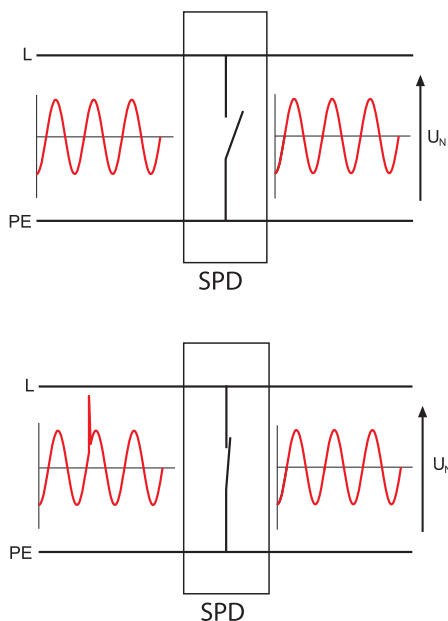


Figure 1: Ideal operation of an SPD

SPD technologies

Finder surge voltage protectors use either varistors or spark gaps.

Varistor: This can be considered as a variable resistance that at nominal voltage has a very high ohmic value. But the resistance rapidly falls to near zero as the voltage surges. In this way the varistor applies a near short circuit which clamps the surge voltage. The varistor is however subject to progressive degradation due to the small leakage current that occurs at the nominal voltage, and with the number of interventions. With every overvoltage that occurs the leakage current rises and accelerates the end of life for the device - which is ultimately indicated by the change from green to red in the signal-window.

Spark gap: This comprises two electrodes separated by air, or a gas. When a surge voltage occurs an electrical arc bridges the gap and a surge current flows to limit the surge voltage to a low and constant level. The arc extinguishes only when the surge current falls below about 10 ampere. The gas guarantees a constant level of breakdown voltage since the arc is struck in a protected environment; not exposed to pressure or humidity variations or impurities as would happen if it had occurred in air. There is however, a delay before the device arcs and the surge current is diverted, and this is dependent on the magnitude of the original voltage surge and on its rate of rise. Therefore, the voltage protection level can vary, although it is guaranteed to be less than U_p .

Component	Symbol	Leakage current	Energy dissipated	Response time	Voltage/Current characteristic
Ideal		0	High	Fast	
Spark gap		0	High	Medium	
Varistor		Very Low	Medium	Fast	

Figure 2: SPD component characteristics.

Installation (Overvoltage) categories

Choosing the SPD requires matching the Rated Impulse Voltage of the SPD with that of the equipment to be protected. This in turn relates to the Installation category (Overvoltage category). Installation categories are described within IEC 60664-1, which for a 230/400 V installation prescribes as follows:

- **Installation category I:** 1.5 kV for "particularly sensitive" equipment (e.g. electronic devices like PC or TV set);
- **Installation category II:** 2.5 kV for "user" equipment subject to "normal" impulse voltages (e.g. household electrical appliances, mobile items);
- **Installation category III:** 4 kV for equipment that are part of a fixed installation (e.g. switchboards, switches)
- **Installation category IV:** 6 kV for equipment installed at or near the origin of main incoming supply mains (e.g. energy meters).

Lightning Protection Zones and installation considerations

International standards refer to the various Lightning Protection Zones by the letters LPZ followed by an appropriate number.

- LPZ 0A: An external area, where a direct lightning strike is possible and where there is total exposure to the electromagnetic field induced by the lightning.
- LPZ 0B: An external area, but below a lightning conductor providing direct lightning strike protection. There remains total exposure to the electromagnetic field.
- LPZ 1: Area within a building – therefore protected from direct lightning strike. The electromagnetic field will be attenuated, depending on the degree of shielding. This zone has to be protected by SPD type 1 device(s) at its boundary with the LPZ 0A or 0B zone.
- LPZ 2: An area, typically a room, where the lightning current has been limited by preceding surge protectors. This zone has to be protected by SPD type 2 device(s) at its boundary with the LPZ 1 zone.
- LPZ 3: An area within a room where the lightning current has been limited by preceding surge protectors (typically the wiring after a socket or an area within a metal enclosure). This zone has to be protected by SPD type 3 device(s) at its boundary with the LPZ 2 zone.

On the following picture (Figure 3, representation is not binding) it is shown that the transition from a protection zone to the next is through the installation of SPD. SPD Type 1 must be connected upstream the system, at the point of delivery connection. As an alternative it is possible to use SPD Type 1+2. The grounding conductor must have a minimum section of 6 mm² for SPD Type 1, of 4 mm² for SPD Type 2, and 1.5 mm² for SPD Type 3 (If the building has an LPS, reference should be made to CEI 81-10/4 for the correct dimension of the cable).

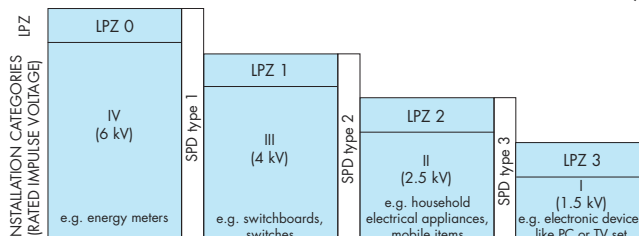


Figure 3: Typical relationship between Lightning Protection Zones, Installation Categories and SPD types

Rated values and marking common to all SPD

[U_C] Maximum continuous operating voltage: Under this voltage the SPD is guaranteed to appear as an "open switch". This voltage is normally at least equal to the nominal supply voltage (U_N) + 10%. For the Finder SPD, U_C is specified as 275 V.

[U_p] Voltage protection level: This is the highest voltage level seen across the SPD during its intervention. For example, for Finder SPD Type 2, this means that a 4kV overvoltage would be limited by the SPD to a maximum 1.2 kV. Consequently, electronic devices such as PC, TV, stereo, etc. are protected - as their own internal protection will handle overvoltages U_p to 1.5 kV.

To better understand this concept; imagine that the SPD is a switch in series a low resistance. In the case of an overvoltage the switch closes and all the current goes through the resistance. According to Ohm's law the voltage developed across the resistance will be this resistance x the current (V = R x I), and will be limited to < U_p.

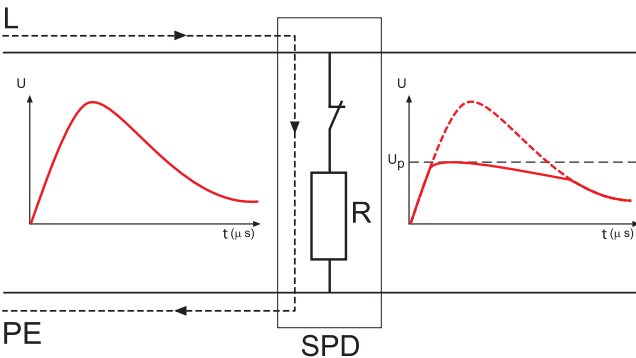


Figure 4: Overvoltage limiting

Short circuit proof: A further characteristic, not normally marked on the product but important for its correct installation, is the Short circuit proof at maximum overcurrent protection. This is the maximum short-circuit current that the SPD is able to withstand when it is installed with additional maximum overcurrent protection - such as a fuse rated in accordance with the value stated under the SPD specification. Consequently the maximum prospective short-circuit current of the system at the point of installation of the SPD must not exceed this value.

Rated values and marking of SPD Type 1

SPD Type 1 must be connected upstream the system, at the point of delivery of power energy. SPD protects building and people from the risk of direct lightning (fire and death) and are characterized by:

[I_{imp}10/350] Impulse current: I_{imp} corresponds to the peak value of a 10/350 μs current impulse waveform. This waveform represents a direct lightning strike and is used in tests to prove the performance of SPD type 1 devices.

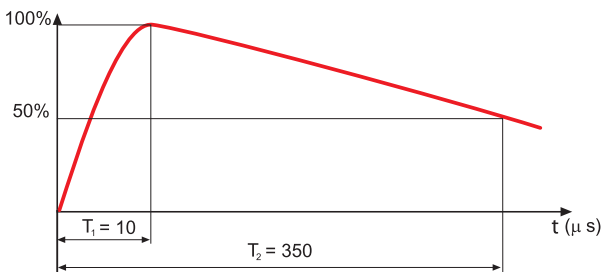


Figure 5: 10/350 μs current waveform

Comparison of the waveforms in figures 5 and 6 shows the much higher energy content controlled by the type 1 SPD.

[I_n8/20] Nominal discharge current: The peak current (and waveform shape) through the SPD under conditions prescribed by EN 62305 to represent the surge current as a consequence of a lightning strike to the electric supply line.

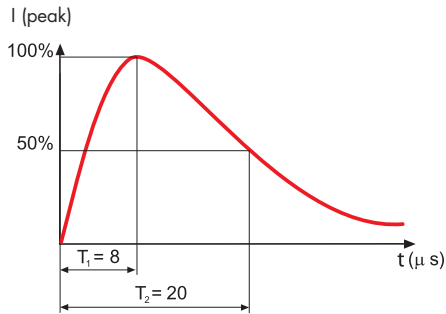


Figure 6: 8/20 μs current waveform

Rated values and marking of SPD Type 2

SPD Type 2 devices are designed to remove all the overvoltage from supply circuits that are not likely to be directly hit by lightning. SPD Type 2 are connected downstream SPD Type 1 or SPD Type 1+2, (minimum distance 1 m) and they protect machine and tools connected to the ground and reduce the risk of economic loss. SPD Type 2 are characterized by:

[I_n8/20] Nominal discharge current: The peak current (and waveform shape) through the SPD under conditions prescribed by EN 62305 to represent the surge current as a consequence of a lightning strike to the electric supply line.

[I_{max}8/20] Maximum discharge current: Peak value of the highest current of a 8/20μs waveform that an SPD can discharge at least once without breaking.

Rated values and marking of SPD Type 3

SPD type 3 devices are used to protect the end user from overvoltage. They may be installed in supply networks where SDP types 1 and/or 2 already exist. They can be installed in fixed or mobile sockets and have the following characteristic parameters.

U_{oc}: test voltage. This is the peak value of the no load voltage of the combined test-generator; this has a waveform of 1.2/50 μs (figure 7) and can supply at the same time current with waveform 8/20 μs (figure 6).

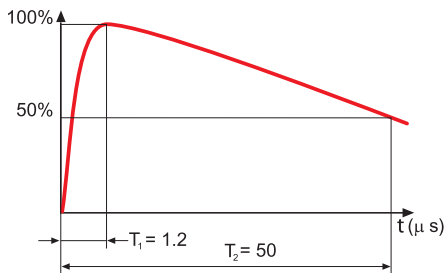
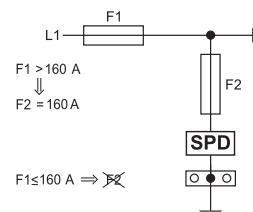


Figure 7: 1.2/50 μs voltage waveform

Suggestion for the connection

The correct connection of SPD requires a shortest as possible connection to the local equipotential bar, to which are connected PE cables of the equipment to be protected. From the local equipotential bar there is a connection to the EBB. The phase wiring remains appropriate to the load.



Short-circuit protection for the SPD is provided by the overcurrent protective devices (fuses type gL/gG) recommended.

If the overcurrent protective devices F1 (which are part of the installation) have a rating smaller than or equal to the maximum recommended rating for the overcurrent protective devices for the SPD, then F2 (back up fuse), can be omitted.

7P.0X:

If $F1 > 250 A$, then $F2 = 250 A$

If $F1 \leq 250 A$, F2 can be omitted

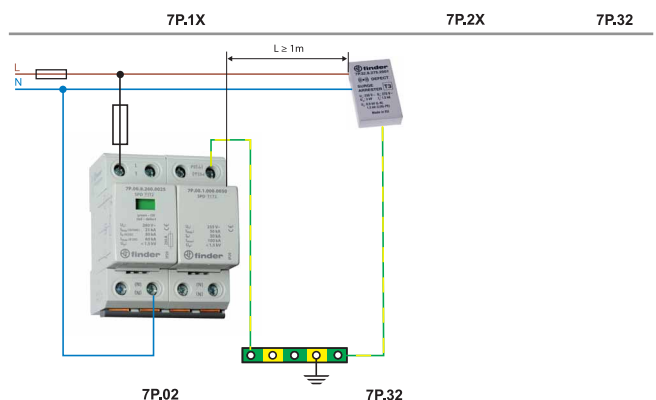
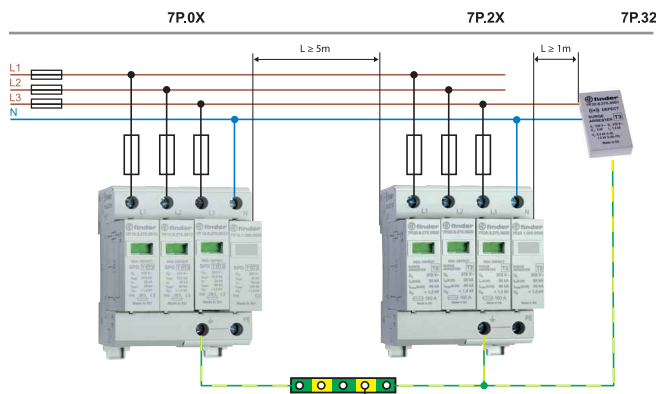
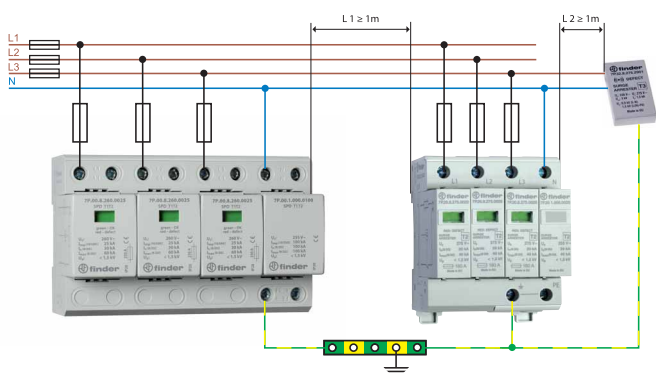
7P.1X, 7P.2X:

If $F1 > 160 A$, then $F2 = 160 A$

If $F1 \leq 160 A$, F2 can be omitted

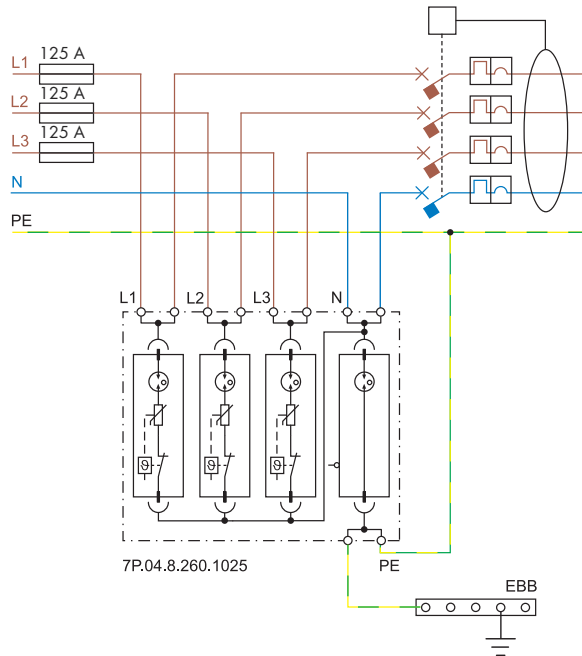
Coordination of SPD

Optimal protection from surges requires cascaded coordinated SPDs. Coordination has the purpose of splitting the energy associated with voltage across the SPDs and it is achieved by introducing an impedance between the SPDs, or alternatively, by connecting them using wires having the minimum length indicated in the figures below, in order to use the cable's own impedance.



V-shape connection

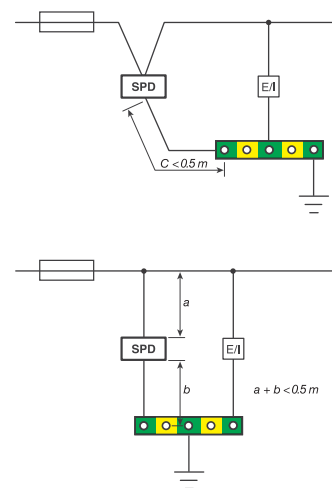
Using a V-shaped connection eliminates transferring downstream the inductive voltage generated by the surge current in the connecting wire to the SPD. This increases the protection to the system and equipment downstream. A limitation of this connection is that the nominal current for the downstream system is limited to 125A, which is the maximum current permitted through the double SPD terminals.



For systems where the rated current is greater than 125 A, it is necessary to connect the SPD in parallel with the equipment (E/I).

Connecting cable

Depending on the type of connection, serial (V-shape) or parallel (T-shape), ensure that both the maximum cable lengths and minimum cross section of the connecting wires are respected in accordance with the information below (IEC 60634-5-534):



The section of the connecting wires (copper) must not be less than:
 SPD Type 1: 6 mm²
 SPD Type 2: 4 mm²
 SPD Type 3: 1.5 mm²

PROTECTING PHOTOVOLTAIC (PV) SYSTEMS AGAINST LIGHTNING

Installation characteristics

[U_{OCSTC}] PV voltage: Open circuit voltage, measured under standardized test conditions, of the PV module, panel, array, or the DC side of the photovoltaic inverter. prEN50539-12.

[I_{SCSTC}]: Short-circuit current: Short-circuit current, measured under standardized test conditions, of the PV module, panel, array, or photovoltaic inverter. prEN50539-12.

[U_{CPV}] SPD Maximum continuous operating voltage: Must be equal or greater than to 1.2 times U_{ocstc} in all conditions of radiation and temperature. prEN50539-11, prEN50539-12.

[I_{SCPV}]: Maximum prospective short-circuit current from the power system for which the SPD, in conjunction with the disconnectors specified, is rated. EN50539-11.

System installation

Photovoltaic systems are generally located external to a building and can be subjected to the direct or indirect effects of lightning.

Whilst the installation of photovoltaic panels on the roof does not, in itself, increase the risk of direct lightning, the only practical way to protect against the effects of a direct lightning strike would be the use of a lightning protection system (LPS).

The indirect effects of lightning can however, be mitigated by the appropriate use of Surge Protection Devices (SPD). These indirect effects occur when lightning strikes in proximity to the structure and where magnetic induction creates an overvoltage in the conductors – a danger to both people and equipment. In particular, the DC cables of a PV system would be exposed to the high conducted and radiated disturbances caused as a result of the lightning currents. In addition, overvoltages in PV systems are not only of atmospheric origin. It is also necessary to consider overvoltages due to switching on electrical networks connected to them. These overvoltages can also damage both the inverter and the PV panels, and this explains the need to protect the inverter on both DC and AC sides.

Photovoltaic system on a building without a lightning protection system (LPS)

As an example, Figure 10 represents a simplified photovoltaic system placed on a building without lightning rod. In such a system, the protection against lightning must be considered at the following points of installation:

- DC input of the inverter
- AC output of the inverter
- Low voltage supply network

At the DC input to the inverter SPDs specific for photovoltaic systems must be installed, according to the PV system voltage. At the inverter AC output, type 2 surge arresters must be installed suitable for the type of system. At the point of connection to the LV supply network, install type 2 surge arresters suitable to the type of system (TT, TN). In more complex systems, it might be necessary to introduce additional SPDs. DC side: if the distance between the inverter and PV modules exceeds 10 m, it is necessary to replicate and install the SPD as close as possible to the PV modules.

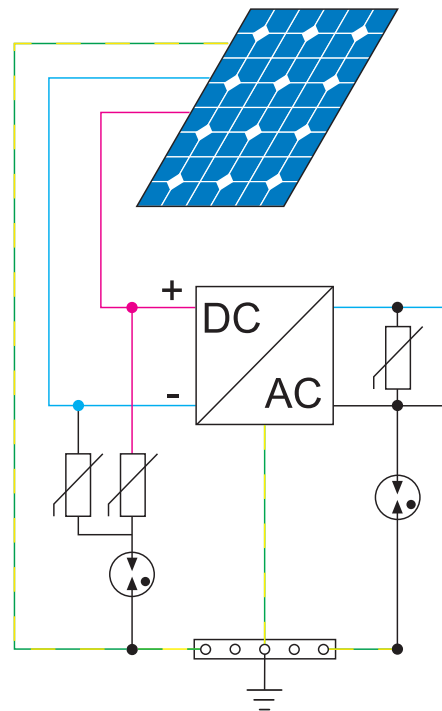


Figure 10: example of a photovoltaic system located on a building without LPS, protected on the DC side by an SPD with $U_{OCSTC} = 420$ V, and on the AC side by a 7P.22, specific for TT systems.

Photovoltaic system on a building with a lightning protection system (LPS)

Where an LPS exists it is good practice to install the photovoltaic panels in the area protected by the lightning rod.

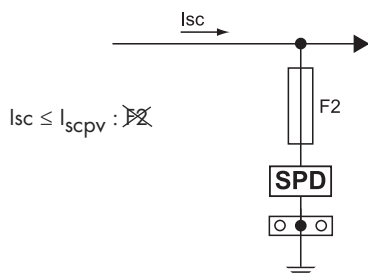
In addition it is necessary to realize a good equipotential bonding system, which must be positioned as close as possible to the entry point of LV supply into the structure. The LPS, the SPD and all metal parts have to be connected to this equipotential system.

SPD protection on the DC depends on the safety distance (referred in EN50539-12:12-2012).

Note that under EN 62305 installation of a Type 1 SPD is mandatory at the point of delivery of electricity if the building has LPS (with or without solar panels).

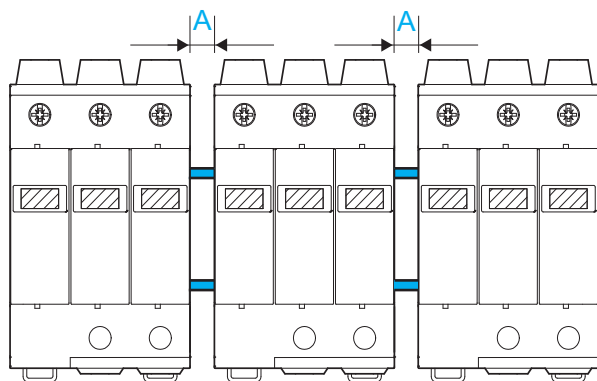
SPD fuse protection

Conforming to prEN50539-11: 2010, Finder SPDs are equipped with a thermal disconnecter able to safely disconnect a worn or damaged varistor up to a value of short-circuit current equal to the short-circuit current withstand value (I_{scpv}), as specified in the technical data. Ensure that the PV short circuit current $I_{sc} < I_{scpv}$.



Insulation distances and wiring

To conform with prEN50539-11 insulation distances and minimum wiring cross section must be respected.



Insulation distances		Minimum Wiring [mm ²]	
$U_{CPV}(SPD) \geq 1.2 \times U_{OCSTC}$	A [mm]	+/- Poles	Ground
750 V DC	5	4	6
1,000 V DC	5	4	6
1,200 V DC	7	4	6

Features

Relay module with forcibly guided contacts

- 7S.12 with 2 pole (1NO + 1 NC)
- 7S.14 with 4 pole (2 NO + 2 NC and 3 NO + 1 NC)
- 7S.16 with 6 pole (4 NO + 2 NC)

- For safety applications, with class A forcibly guided contact relays (EN 50205)
- For functional reliability in machinery and plant engineering according to EN 13849-1
- For railway applications; materials compliant with fire and smoke characteristics (UNI 11170-3); mechanical and climatic characteristics compliant with EN 61373 and EN 50155
- DC and AC supply versions
- 24 and 110 V DC versions with extended operating range (0.7...1.25) U_N
- Coil status visual indication with LED
- 35 mm rail (EN 60715) mount

Screwless terminal



* Single contact current ≤ 6 A,
total NO contacts current ≤ 12 A

For outline drawing see page 6

NEW

7S.12....5110



• 2 pole (1 NO + 1 NC)

NEW

7S.14....0220/0310



• 4 pole (2 NO + 2 NC and 3 NO + 1 NC)

NEW

7S.16....0420



• 6 pole (4 NO + 2 NC)

Contact specification

Contact configuration	1 NO + 1 NC	2 NO + 2 NC, 3 NO + 1 NC	4 NO + 2 NC
Rated current / Max. peak current A	6/15	6*/12	6*/12
Rated switching voltage V AC (50/60 Hz)	250	250	250
Rated load AC1 VA	1,500	1,500	1,500
Rated load AC15 (230 V AC) VA	700	500	500
Breaking capacity DC1: 30/110/220 V A	6/0.6/0.2	6/0.6/0.3	6/0.6/0.3
Breaking capacity DC13: 24 V A	1	1	1
Minimum switching load mW (V/mA)	60 (5/5)	60 (5/5)	60 (5/5)
Standard contact material	AgNi + Au (5 μ m)	AgNi with notched crown	AgNi with notched crown

Coil specification

Nominal voltage (U_N)	V AC (50/60 Hz)	110...125 - 230...240	110...125 - 230...240	110...125 - 230...240
	V DC	12 - 24	12 - 24 - 110	12 - 24 - 110
Rated power VA (50 Hz) / W		2.3/1	2.3/1	2.3/1
Operating range	AC	(0.85...1.1) U_N	(0.85...1.1) U_N	(0.85...1.1) U_N
	DC	(0.8...1.2) U_N	(0.8...1.2) U_N	(0.8...1.2) U_N
DC extended range (24 and 110 V only)		(0.7...1.25) U_N	(0.7...1.25) U_N	(0.7...1.25) U_N
Holding voltage	AC/DC	0.45 U_N /0.45 U_N	0.55 U_N /0.55 U_N	0.55 U_N /0.55 U_N
Must drop-out voltage	AC/DC	0.1 U_N /0.1 U_N	0.1 U_N /0.1 U_N	0.1 U_N /0.1 U_N

Technical data

Mechanical life	cycles	10 · 10 ⁶	10 · 10 ⁶	10 · 10 ⁶
Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³	100 · 10 ³
Operate / release time	ms	7/11	12/10	12/10
Insulation between coil and contacts (1.2/50 μ s) kV		6	6 (4 against 13-14)	6 (4 against 13-14)
Dielectric strength between open contacts V AC		1,500	1,500	1,500
Ambient temperature	°C	-40...+70	-40...+70	-40...+70
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)



Ordering information

Example: 7S series Relay module with forcibly guided contacts, 6 contact (4 NO + 2 NC) 6 A, supply voltage 24 V DC.

7 S . 1 6 . 9 . 0 2 4 . 0 4 2 0

Series _____
Type _____
 1 = 22.5 mm wide, cage-clamp terminals
Output _____
 2 = 2 contacts
 4 = 4 contacts
 6 = 6 contacts
Supply version _____
 8 = AC (50 /60 Hz)
 9 = DC
Supply voltage _____
 See page 5

Special versions
 0 = Standard
NO and NC contacts
 11 = 1 NO + 1 NC
 22 = 2 NO + 2 NC
 31 = 3 NO + 1 NC
 42 = 4 NO + 2 NC
Contact material
 0 = AgNi
 5 = AgNi+Au 5 µm

Codes, Preferred selections for best availability are shown in bold.

7S.12.9.012.5110	7S.14.9.012.0220	7S.16.9.012.0420
7S.12.9.024.5110	7S.14.9.012.0310	7S.16.9.024.0420
7S.12.8.120.5110	7S.14.9.024.0220	7S.16.9.110.0420
7S.12.8.230.5110	7S.14.9.024.0310	7S.16.8.120.0420
	7S.14.9.110.0220	7S.16.8.230.0420
	7S.14.9.110.0310	
	7S.14.8.120.0220	
	7S.14.8.120.0310	
	7S.14.8.230.0220	
	7S.14.8.230.0310	

Technical data

Insulation according to EN 61810-1			
Nominal voltage of supply system	V AC	230/400	
Rated insulation voltage	V AC	250	
Pollution degree		2	
Insulation between coil and contact set			
Type of Insulation		Reinforced *	Basic *
Overvoltage category		III	III
Rated impulse voltage	kV (1.2/50 µs)	6	4
Dielectric strength	V AC	4,000	2,500
			2,500
Insulation between adjacent contacts			
Type of Insulation		Reinforced *	Basic*
Overvoltage category		III	III
Rated impulse voltage	kV (1.2/50 µs)	6	4
Dielectric strength	V AC	4,000	2,500
			2,500
Insulation between open contacts			
Type of disconnection		Micro-disconnection	
Dielectric strength	V AC / kV (1.2/50 µs)	1,500 / 2.5	

* Tables below indicate, for each 7S type, those contacts (R) meeting Reinforced Insulation Overvoltage category III, those contacts (R2) meeting Reinforced Insulation Overvoltage category II, and those contacts (B) meeting Basic Insulation Overvoltage category III.

EMC specifications			Reference standard		
Burst (5/50 ns)	on supply terminals		EN 61000-4-4	4 kV	
Surge (1.2/50 µs) on supply terminals	differential mode		EN 61000-4-5	1.5 kV	
Terminals			solid cable	stranded cable	
Max. wire size		mm ²	1 x 1.5	1 x 1.5	
		AWG	1 x 14	1 x 16	
Wire strip length		mm	9		
Other data			7S.12	7S.14	7S.16
Bounce time: NO/NC		ms	2/8	1/20	1/20
Vibration resistance (10...200) Hz: NO/NC		g	10/5	15/4	15/4
Shock resistance: NO/NC		g	20/6	25/13	25/13
Power lost to the environment	without contact current	W	0.8	0.8	0.8
	with rated current	W	1.4	2.3	2.8

Type of insulation between coil and contacts and between adjacent contacts

Code		
Type of Insulation		Overvoltage category
R	Reinforced	III
B	Basic	III
R2	Reinforced	II

7S.12....5110			
	Coil	13-14	21-22
Coil	—	R	R
13-14		—	B/R2
21-22			—

7S.14....0310					
	Coil	13-14	21-22	33-34	43-44
Coil	—	B	R	R	R
13-14		—	B	R	R
21-22			—	R	R
33-34				—	B/R2
43-44					—

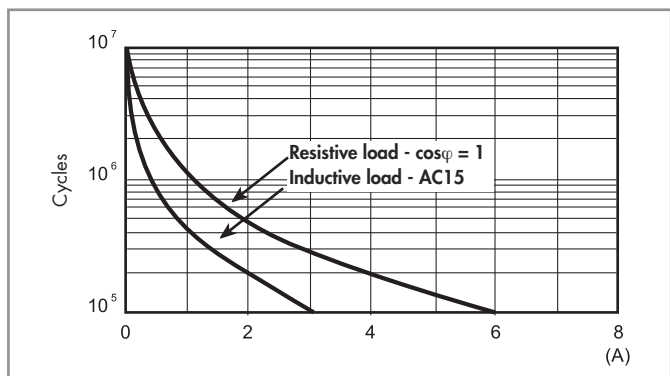
7S.16....0420							
	Coil	13-14	21-22	31-32	43-44	53-54	63-64
Coil	—	B	R	R	R	R	R
13-14		—	B	R	R	R	R
21-22			—	R	R	R	R
31-32				—	B/R2	R	R
43-44					—	B/R2	R
53-54						—	B/R2
63-64							—

7S.14....0220					
	Coil	11-12	21-22	33-34	43-44
Coil	—	R	R	R	R
11-12		—	R	R	R
21-22			—	R	R
33-34				—	B/R2
43-44					—

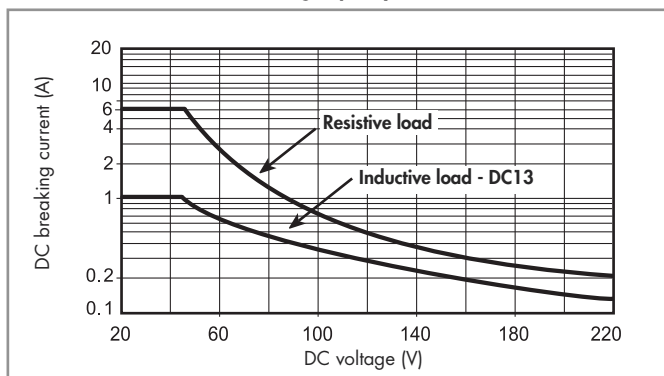
Contact specifications

Contact diagrams																																																									
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<p>7S.14...0310</p>	<p>7S.16</p>																																																								
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F 7S12 - Electrical life (AC) v contact current - 7S.12

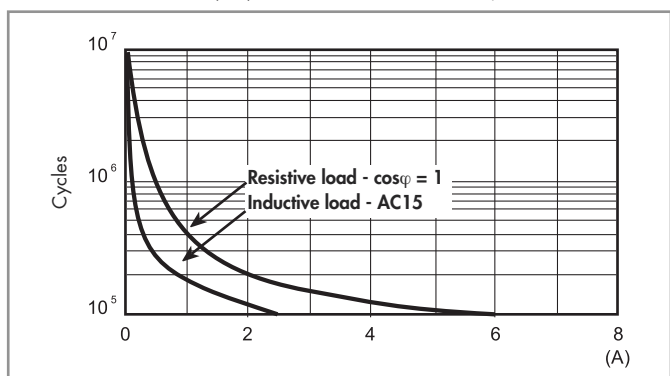


H 7S12 - Maximum DC breaking capacity - 7S.12

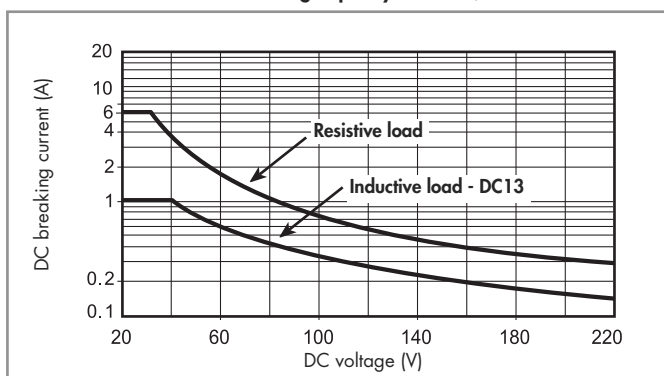


- When switching a load having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.

F 7S16 - Electrical life (AC) v contact current - 7S.14 / 7S.16



H 7S16 - Maximum DC breaking capacity - 7S.14 / 7S.16



- When switching a load having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.

Coil specifications

DC coil data - type 7S.12

Nominal voltage	Coil code	Operating range		Rated input current at U_N	Rated power at U_N
		U_{min}	U_{max}		
U_N		V	V	I_N	W
V		V	V	mA	W
12	9.012	9.6	14.4	55	0.7
24	9.024	16.8	30	38.2	0.9

AC coil data - type 7S.12

Nominal voltage	Coil code	Operating range		Rated input current at U_N	Rated power at U_N
		U_{min}	U_{max}		
U_N		V	V	I_N	VA/W
V		V	V	mA	VA/W
110...125	8.120	93	138	9.5	1.1/1
230...240	8.230	195	264	9	2/0.8

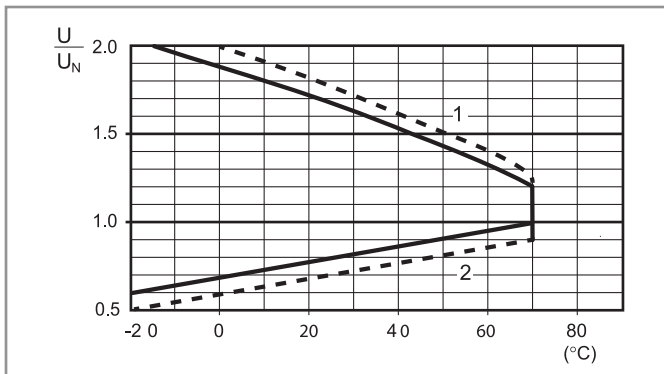
DC coil data - type 7S.14 / 7S.16

Nominal voltage	Coil code	Operating range		Rated input current at U_N	Rated power at U_N
		U_{min}	U_{max}		
U_N		V	V	I_N	W
V		V	V	mA	W
12	9.012	9.6	14.4	56	0.7
24	9.024	16.8	30	28	0.7
110	9.110	77	138	9.2	0.7

AC coil data - type 7S.14 / 7S.16

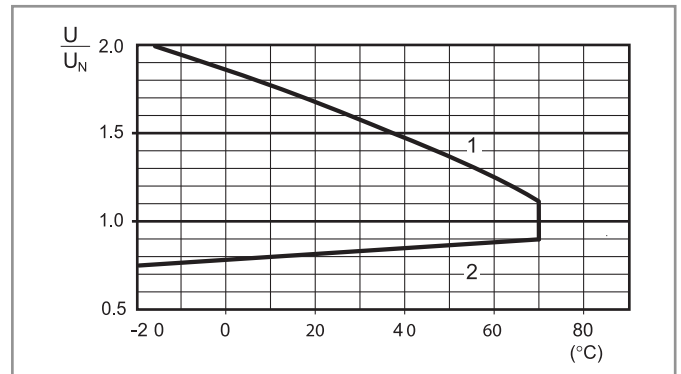
Nominal voltage	Coil code	Operating range		Rated input current at U_N	Rated power at U_N
		U_{min}	U_{max}		
U_N		V	V	I_N	VA/W
V		V	V	mA	VA/W
110...125	8.120	93	138	8.9	1.1/0.9
230...240	8.230	195	264	8.5	2/0.8

R 7S - DC coil operating range v ambient temperature - 7S.12 / 7S.14 / 7S.16



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.
- 24 and 110 V DC coils only (extended range)

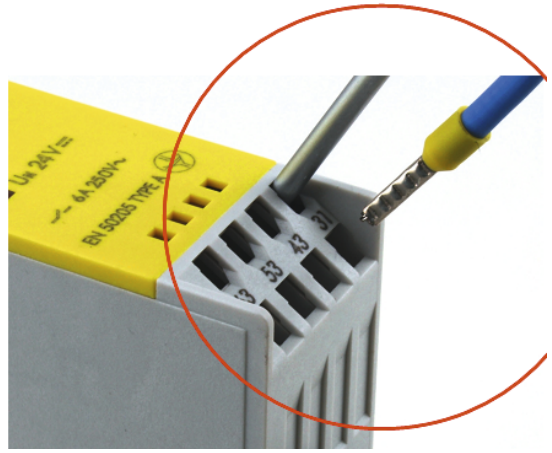
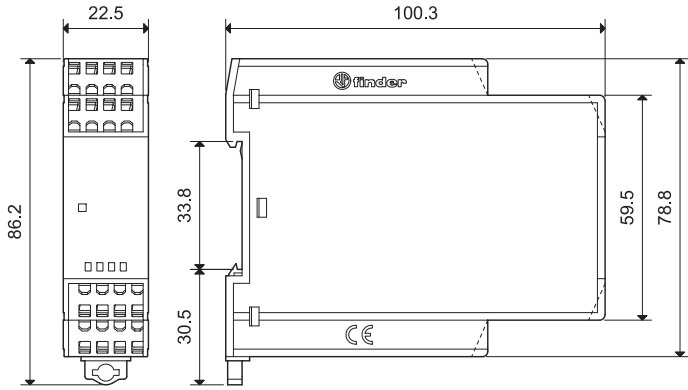
R 7S - AC coil operating range v ambient temperature - 7S.12 / 7S.14 / 7S.16



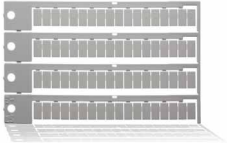
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Outline drawings

7S
Screwless terminal



Accessories



060.72

Sheet of marker tags, plastic, 72 tags, 6x12 mm

060.72

Features

Panel thermostat

- Small, compact size (17.5 mm wide)
- Snap action thermostatic Bimetal sensor
- Wide temperature setting range
- Long electrical life
- 35 mm rail (EN 60715) mount

NEW 7T.81.0.000.240x

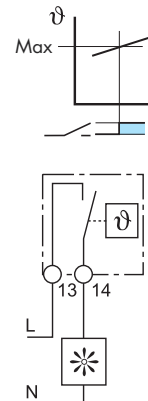
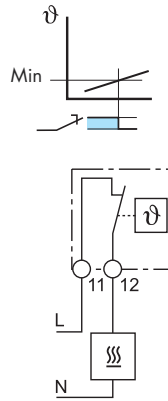


• Heating control

NEW 7T.81.0.000.230x



• Ventilation control



Heating control - Should the panel temperature fall below the (minimum) set temperature the contact will close to call for heat. The contact will open when this set temperature is exceeded.

Ventilation control - Should the panel temperature exceed the (maximum) set temperature then the contact will close to call for cooling. The contact will open when the temperature falls below this set temperature.

For outline drawing see page 2

Contact specification					
Contact configuration		1 NC		1 NO	
Rated current/Maximum peak current	A	10/10		10/10	
Rated voltage/Maximum switching voltage	V AC	250/250		250/250	
Rated load AC1	VA	2,500		2,500	
Rated load AC15 (230 V AC)	VA	250		250	
Single phase motor rating AC3 (230 V AC)	kW	0.125		0.125	
Breaking capacity DC1: 30/110/220V	A	1/0.3/0.15		1/0.3/0.15	
Minimum switching load	mW (V/mA)	500 (12/10)		500 (12/10)	
Standard contact material		AgNi		AgNi	
Temperature setting range					
Setting range (ventilation)	°C	—		-20...+40	+0...+60
Switch temperature differential	K	—		7 ± 4	
Setting range (heating)	°C	-20...+40	+0...+60	—	
Switch temperature differential	K	7 ± 4		—	
Technical data					
Electrical life at rated load AC1	cycles	100·10 ³		100·10 ³	
Ambient temperature range	°C	-45...+80		-45...+80	
Protection category		IP 20		IP 20	
Approvals (according to type)					

Ordering information

Example: 7T Series, thermostat for ventilation control, contact activates ventilation should the panel temperature exceed the set value (max+60°C), 35 mm rail (EN 60715) mount.

7 T . 8 1 . 0 . 0 0 0 . 2 3 0 3

Series ————
Type ————
 8 = 35 mm rail (EN 60715) mount
No. of contacts ————
 1 = 1 contact
Voltage type ————
 0 = No operating voltage required
Rated operating voltage ————
 000 = No operating voltage required

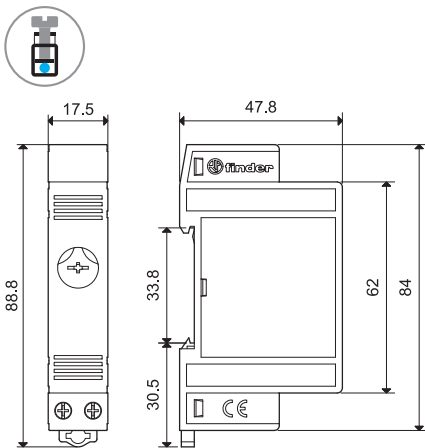
Control function
 (Temperature only)
 1 = (-20...+40)°C
 3 = (0...+60)°C
Contact configuration
 3 = 1 NO contact
 4 = 1 NC contact
Monitoring function
 2 = Temperature, adjustable

Technical data

Insulation			
Dielectric strength between open contacts	V AC	500	
Other data			
Screw torque	Nm	0.5	0.5
Max. wire size		solid cable	stranded cable
	mm ²	1x2.5	1x1.5
	AWG	1x12	1x16

Outline drawings

7T.81
Screw terminal



Features

Multi-function and mono-function timer range

80.01 - Multi-function & multi-voltage

80.11 - On-delay, multi-voltage

- 17.5 mm wide
- Six time scales from 0.1 s to 24 h
- High input/output isolation
- 35 mm rail (EN 60715) mount
- "Blade + cross" - both flat blade and cross head screw drivers can be used to adjust the range and function selectors, the timing trimmer, and to disengage the rail mounting clip
- New multi-voltage versions with "PWM clever" technology

80.01 / 80.11
Screw terminal



FOR UL RATINGS SEE:
"General technical information" page V

For outline drawing see page 6

Contact specification

Contact configuration	1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current A	16/30	16/30
Rated voltage/Maximum switching voltage V AC	250/400	250/400
Rated load AC1 VA	4,000	4,000
Rated load AC15 (230 V AC) VA	750	750
Single phase motor rating (230 V AC) kW	0.55	0.55
Breaking capacity DC1: 30/110/220 V A	16/0.3/0.12	16/0.3/0.12
Minimum switching load mW (V/mA)	500 (10/5)	500 (10/5)
Standard contact material	AgCdO	AgCdO

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	12...240	24...240
	V DC	12...240	24...240
Rated power AC/DC	VA (50 Hz)/W	< 1.8 / < 1	< 1.8 / < 1
Operating range	V AC	10.8...265	16.8...265
	V DC	10.8...265	16.8...265

Technical data

Specified time range		(0.1...2)s, (1...20)s, (0.1...2)min, (1...20)min, (0.1...2)h, (1...24)h	
Repeatability	%	± 1	± 1
Recovery time	ms	100	100
Minimum control impulse	ms	50	—
Setting accuracy-full range	%	± 5	± 5
Electrical life at rated load in AC1	cycles	100·10 ³	100·10 ³
Ambient temperature range	°C	-10...+50	-10...+50
Protection category		IP 20	IP 20

Approvals (according to type)

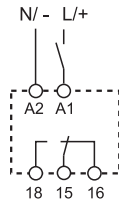


80.01

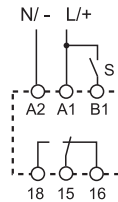


- Multi-voltage
- Multi-function

AI: On-delay
DI: Interval
SW: Symmetrical flasher (starting pulse on)
BE: Off-delay with control signal
CE: On- and off-delay with control signal
DE: Interval with control signal on



Wiring diagram
(without control signal)



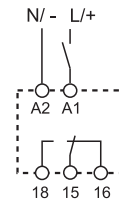
Wiring diagram
(with control signal)

80.11



- Multi-voltage
- Mono-function

AI: On-delay



Wiring diagram
(without control signal)

Features

Mono-function timer range

80.21 - Interval, multi-voltage

80.41 - Off-delay with control signal, multi-voltage

80.91 - Asymmetrical flasher, multi-voltage

- 17.5 mm wide
- Six time scales from 0.1s to 24h
- High input/output isolation
- 35 mm rail (EN 60715) mount
- "Blade + cross" - both flat blade and cross head screw drivers can be used to adjust the range and function selectors, the timing trimmer, and to disengage the rail mounting clip
- New multi-voltage versions with "PWM clever" technology

80.21 / 80.41 / 80.91
Screw terminal



FOR UL RATINGS SEE:
"General technical information" page V

For outline drawing see page 6

	80.21	80.41	80.91
	<ul style="list-style-type: none"> • Multi-voltage • Mono-function 	<ul style="list-style-type: none"> • Multi-voltage • Mono-function 	<ul style="list-style-type: none"> • Multi-voltage • Mono-function
	DI: Interval	BE: Off-delay with control signal	LI: Asymmetrical flasher (starting pulse on) LE: Asymmetrical flasher (starting pulse on) with control signal
	Wiring diagram (without control signal)	Wiring diagram (with control signal)	Wiring diagram (without control signal) Wiring diagram (with control signal)
Contact specification			
Contact configuration	1 CO (SPDT)	1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current A	16/30	16/30	16/30
Rated voltage/Maximum switching voltage V AC	250/400	250/400	250/400
Rated load AC1 VA	4,000	4,000	4,000
Rated load AC15 (230 V AC) VA	750	750	750
Single phase motor rating (230 V AC) kW	0.55	0.55	0.55
Breaking capacity DC1: 30/110/220 V A	16/0.3/0.12	16/0.3/0.12	16/0.3/0.12
Minimum switching load mW (V/mA)	500 (10/5)	500 (10/5)	500 (10/5)
Standard contact material	AgCdO	AgCdO	AgCdO
Supply specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	24...240	24...240
	V DC	24...240	24...240
Rated power AC/DC VA (50 Hz)/W	< 1.8 / < 1	< 1.8 / < 1	< 1.8 / < 1
Operating range	V AC	16.8...265	16.8...265
	V DC	16.8...265	16.8...265
Technical data			
Specified time range	(0.1...2)s, (1...20)s, (0.1...2)min, (1...20)min, (0.1...2)h, (1...24)h		
Repeatability %	± 1	± 1	± 1
Recovery time ms	100	100	100
Minimum control impulse ms	—	50	50
Setting accuracy-full range %	± 5	± 5	± 5
Electrical life at rated load in AC1 cycles	100·10 ³	100·10 ³	100·10 ³
Ambient temperature range °C	-10...+50	-10...+50	-10...+50
Protection category	IP 20	IP 20	IP 20
Approvals (according to type)			

Features

Multi-function and multi-voltage solid-state output timer

- 17.5 mm wide
- Six time scales from 0.1 s to 24h
- High input/output isolation
- 35 mm rail (EN 60715) mount
- Multi-voltage output (24...240 V AC/DC), independent from the input voltage
- "Blade + cross" - both flat blade and cross head screw drivers can be used to adjust the range and function selectors, the timing trimmer, and to disengage the rail mounting clip
- Multi-voltage input with "PWM clever" technology

80.71
Screw terminal



For outline drawing see page 6

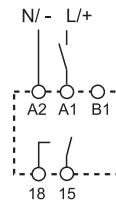
Output circuit		
Contact configuration		1 NO (SPST-NO)
Rated current	A	1
Rated voltage	V AC/DC	24...240
Switching voltage range	V AC/DC	19...265
Rated load AC15	A	1
Rated load DC1	A	1
Minimum switching current	mA	0.5
Max. "OFF-state" leakage current	mA	0.05
Max. "ON-state" voltage drop	V	2.8
Input circuit		
Nominal voltage (U _N)	V AC (50/60 Hz)	24...240
	V DC	24...240
Rated power	VA (50 Hz)/W	1.3/1.3
Operating range	V AC	19...265
	V DC	19...265
Technical data		
Specified time range		(0.1...2)s, (1...20)s, (0.1...2)min, (1...20)min, (0.1...2)h, (1...24)h
Repeatability	%	± 1
Recovery time	ms	100
Minimum control impulse	ms	50
Setting accuracy-full range	%	± 5
Electrical life	cycles	100·10 ⁶
Ambient temperature range	°C	-20...+50
Protection category		IP 20
Approvals (according to type)		

80.71

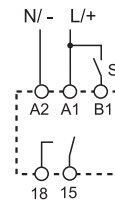


- Multi-voltage
- Multi-function

- AI:** On-delay
DI: Interval
SW: Symmetrical flasher (starting pulse on)
BE: Off-delay with control signal
CE: On- and off-delay with control signal
DE: Interval with control signal on



Wiring diagram
(without control signal)



Wiring diagram
(with control signal)

Features

Mono-function timer range

80.61 - Power off-delay (True off-delay), multi-voltage

80.82 - Star-delta, multi-voltage

- 17.5 mm wide
- Rotary range selector, and timing trimmer
- Four time scales from 0.05s to 3 min (type 80.61)
- Six time scales from 0.1s to 20min (type 80.82)
- High input/output isolation
- 35 mm rail (EN 60715) mount

80.61 / 80.82
Screw terminal



FOR UL RATINGS SEE:
"General technical information" page V

For outline drawing see page 6

Contact specification

Contact configuration		1 CO (SPDT)	2 NO (DPST-NO)
Rated current/Maximum peak current	A	8/15	6/10
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	2,000	1,500
Rated load AC15 (230 V AC)	VA	400	300
Single phase motor rating (230 V AC)	kW	0.3	—
Breaking capacity DC1: 30/110/220 V	A	8/0.3/0.12	6/0.2/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	500 (12/10)
Standard contact material		AgNi	AgNi

Supply specification

Nominal voltage (U_N)	V AC (50/60 Hz)	24...240	24...240
	V DC	24...220	24...240
Rated power AC/DC	VA (50 Hz)/W	< 0.6/ < 0.6	< 1.3/ < 0.8
Operating range	V AC	16.8...265	16.8...265
	V DC	16.8...242	16.8...265

Technical data

Specified time range		(0.05...2)s, (1...16)s, (8...70)s, (50...180)s	(0.1...2)s, (1...20)s, (0.1...2)min, (1...20)min
Repeatability	%	± 1	± 1
Recovery time	ms	—	100
Minimum control impulse	ms	500 (A1-A2)	—
Setting accuracy-full range	%	± 5	± 5
Electrical life at rated load in AC1	cycles	100·10 ³	60·10 ³
Ambient temperature range	°C	-10...+50	-10...+50
Protection category		IP 20	IP 20

Approvals (according to type)

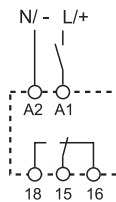


80.61



- Multi-voltage
- Mono-function

BI: Power off-delay (True off-delay)



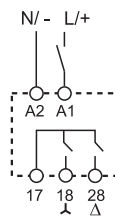
Wiring diagram
(without control signal)

80.82



- Multi-voltage
- Mono-function
- Transfer time can be regulated (0.05...1)s

SD: Star-delta



Wiring diagram
(without control signal)

Ordering information

Example: 80 series, modular timers, 1 CO (SPDT) - 16 A, supply rated at (12...240)V AC/DC.

8 0 . 0 1 . 0 2 4 0 . 0 0 0 0

Series

Type

- 0 = Multi-function (AI, DI, SW, BE, CE, DE)
- 1 = On-delay (AI)
- 2 = Interval (DI)
- 4 = Off-delay with control signal (BE)
- 6 = Power off-delay (True off-delay) (BI)
- 7 = Multi-function with solid state output (AI, DI, SW, BE, CE, DE)
- 8 = Star-delta (SD)
- 9 = Asymmetrical flasher (LI, LE)

Versions

0 = Standard

Supply voltage

240 = (12 ... 240)V AC/DC (80.01, 80.91)

240 = (24 ... 240)V AC/DC (80.11, 80.21, 80.41, 80.71, 80.82)

240 = (24...240)V AC, (24...220)V DC (80.61)

Supply version

0 = AC (50/60 Hz)/DC

No. of poles

1 = 1 CO (SPDT)

1 = 1 NO (SPST-NO), type 80.71 only

2 = 2 NO (DPST-NO), type 80.82 only

Technical data

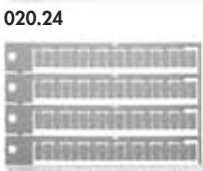
Insulation				
Dielectric strength			80.01/11/21/41/82/91	
	between input and output circuit	V AC	4,000	
	between open contacts	V AC	1,000	
Insulation (1.2/50 µs) between input and output		kV	6	
EMC specifications				
Type of test		Reference standard		
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV	
	air discharge	EN 61000-4-2	8 kV	
Radio-frequency electromagnetic field (80 ÷ 1,000 MHz)		EN 61000-4-3	10 V/m	
Fast transients (burst) (5-50 ns, 5 kHz) on Supply terminals		EN 61000-4-4	4 kV	
Surges (1.2/50 µs) on Supply terminals	common mode	EN 61000-4-5	4 kV	
	differential mode	EN 61000-4-5	4 kV	
	on start terminal (B1)	common mode	EN 61000-4-5	4 kV
	differential mode	EN 61000-4-5	4 kV	
Radio-frequency common mode (0.15 ÷ 80 MHz) on Supply terminals		EN 61000-4-6	10 V	
Radiated and conducted emission		EN 55022	class A	
Other data				
Current absorption on signal control (B1)			< 1 mA	
Power lost to the environment	without contact current	W	1.4	
	with rated current	W	3.2	
Screw torque		Nm	0.8	
Max. wire size		solid cable	stranded cable	
		mm ²	1x6 / 2x4	
		AWG	1x10 / 2x12	

Accessories



Sheet of marker tags, for types 80.82, plastic, 24 tags, 9x17 mm

020.24



Sheet of marker tags, for types 80.01/11/21/41/61/71, plastic, 72 tags, 6x12 mm

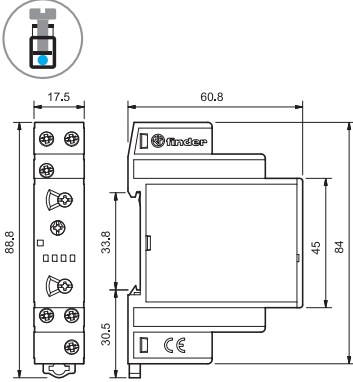
060.72

020.24

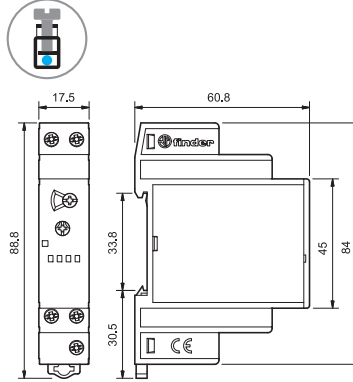
060.72

Outline drawings

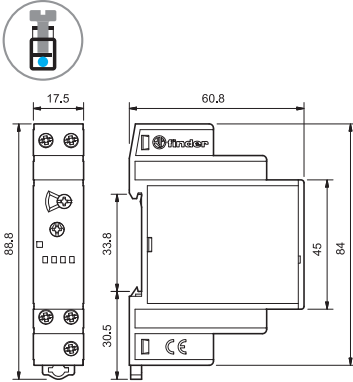
80.01
Screw terminal



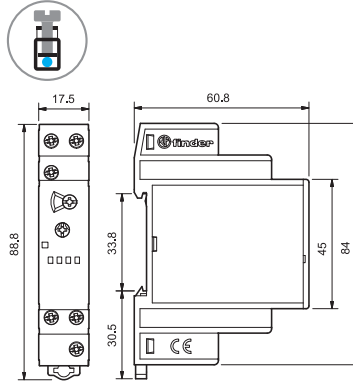
80.11
Screw terminal



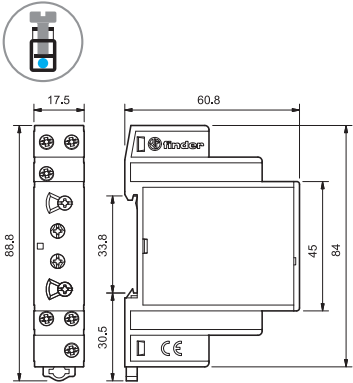
80.21
Screw terminal



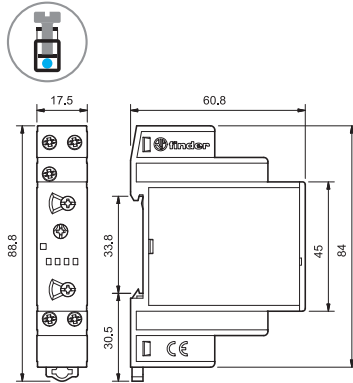
80.41
Screw terminal



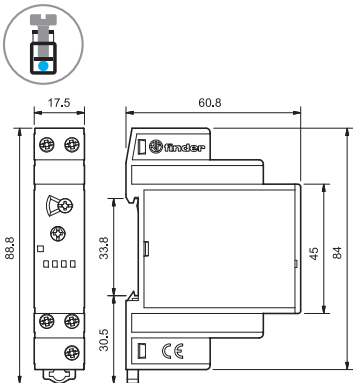
80.91
Screw terminal



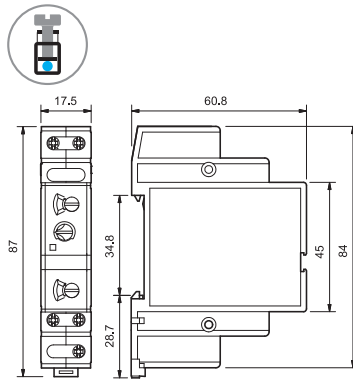
80.71
Screw terminal



80.61
Screw terminal



80.82
Screw terminal



Functions

U = Supply voltage

S = Signal switch

= Output contact

LED*	Supply voltage	NO output contact	Contacts	
			Open	Closed
	OFF	Open	15 - 18	15 - 16
	ON	Open	15 - 18	15 - 16
	ON	Open (Timing in Progress)	15 - 18	15 - 16
	ON	Closed	15 - 16	15 - 18

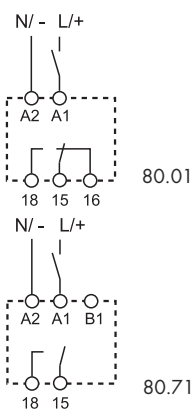
* The LED on type 80.61 is illuminated only when the supply voltage is applied to the timer; during the timing period the LED is not illuminated.

Without control signal = Start via contact in supply line (A1).

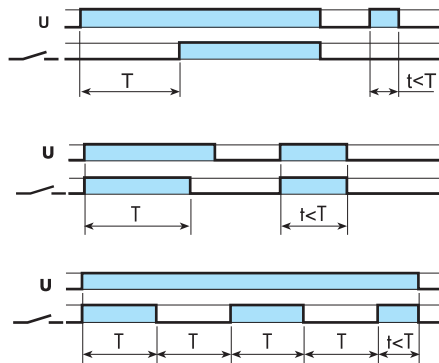
With control signal = Start via contact into control terminal (B1).

Wiring diagram

Without control signal



Type
80.01
80.71



(AI) On-delay.

Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.

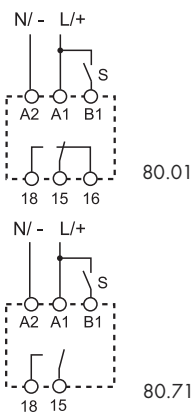
(DI) Interval.

Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.

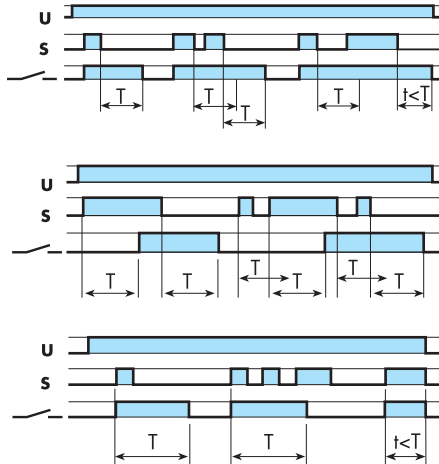
(SW) Symmetrical flasher (starting pulse on).

Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

With control signal



80.01
80.71



(BE) Off-delay with control signal.

Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.

(CE) On- and off-delay with control signal.

Power is permanently applied to the timer. Closing the Signal Switch (S) initiates the preset delay, after which time the output contacts transfer. Opening the Signal switch initiates the same preset delay, after which time the output contacts reset.

(DE) Interval with control signal on.

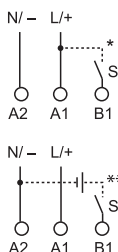
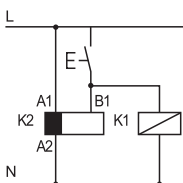
Power is permanently applied to the timer. On momentary or maintained closure of Signal Switch (S), the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.

NOTE: The function must be set before energising the timer.

• Possible to control an external load, such as another relay coil or timer, connected to the control signal terminal B1.

* With DC supply, positive polarity has to be connected to B1 terminal (according to EN 60204-1).

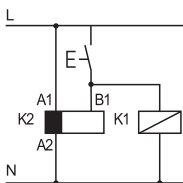
** A voltage other than the supply voltage can be applied to the command Start (B1), example:
A1 - A2 = 230 V AC
B1 - A2 = 12 V DC



Functions

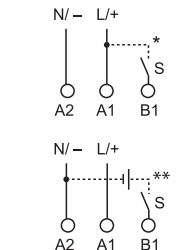
Wiring diagram

<p>Without control signal</p> <p>80.11/21/61</p> <p>80.82</p>	<p>Type 80.11 80.21 80.61 80.82</p>		<p>(AI) On-delay. Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.</p> <p>(DI) Interval. Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.</p> <p>(BI) Power off-delay (True off-delay). Apply power to timer (minimum 500ms). Output contacts transfer immediately. Removal of power initiates the preset delay, after which time the output contacts reset.</p> <p>(SD) Star-delta. Apply power to timer. The star contact (Λ) closes immediately. After preset delay has elapsed the star contact (Λ) resets. After a further transfer time variable from (0.05...1)s the delta contact (Δ) closes and remains in that position, until reset on power off.</p>
<p>With control signal</p> <p>80.41</p>	<p>80.41</p>		<p>(BE) Off-delay with control signal. Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.</p>
<p>Without control signal</p> <p>80.91</p> <p>With control signal</p> <p>80.91</p>	<p>80.91</p>		<p>(LI) Asymmetrical flasher (starting pulse on). Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ON (T1) and OFF (T2) times are independently adjustable.</p> <p>(LE) Asymmetrical flasher (starting pulse on) with control signal Power is permanently applied to the timer. Closing Signal Switch (S) causes the output contacts to transfer immediately and cycle between ON (T1) and OFF (T2), until opened.</p>



• Possible to control an external load, such as another relay coil or timer, connected to the control signal terminal B1.

* With DC supply, positive polarity has to be connected to B1 terminal (according to EN 60204-1).



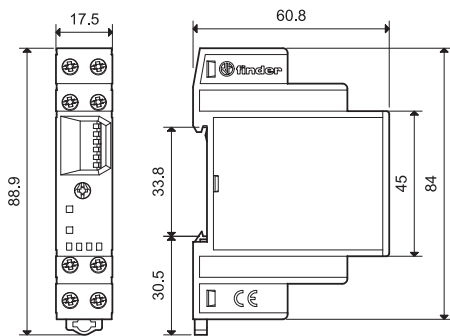
** A voltage other than the supply voltage can be applied to the command Start (B1), example:
A1 - A2 = 230 V AC
B1 - A2 = 12 V DC

Features

Multi-function and multi-voltage timer

- One module 17.5 mm wide housing
- Seven functions (4 with supply start and 3 with control signal)
- Additional Reset function
- Six time ranges from 0.1s to 10h
- 35 mm rail (EN 60715) mounting

81.01
Screw terminal

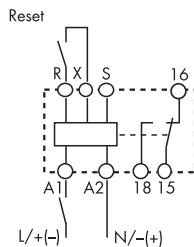


NEW 81.01

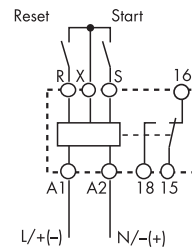


- Multi-voltage (DC non polarized)
- Multi-function
- 35 mm rail (EN 60715) mounting

- AI:** On-delay
DI: Interval
SW: Symmetrical flasher (starting pulse on)
SP: Symmetrical flasher (starting pulse off)
BE: Off-delay with control signal
DE: Interval with control signal on
EEb: Interval with control signal off



Wiring diagram
(supply START)

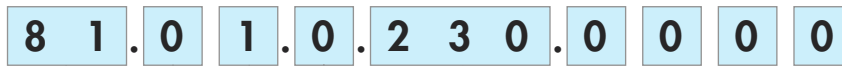


Wiring diagram
(control signal)

Contact specification		
Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	16/30
Rated voltage/Maximum switching voltage V AC		250/400
Rated load AC1	VA	4,000
Rated load AC15 (230 V AC)	VA	750
Single phase motor rating (230 V AC)	kW	0.55
Breaking capacity DC1: 30/110/220 V	A	16/0.3/0.12
Minimum switching load	mW (V/mA)	500 (10/5)
Standard contact material		AgCdO
Supply specification		
Nominal voltage (U _N)	V AC (50/60 Hz)	12...230
	V DC	12...230 (non polarized)
Rated power AC/DC	VA (50 Hz)/W	< 2 / < 2
Operating range	V AC	10.8...250
	V DC	10.8...250
Technical data		
Specified time range		(0.1...1)s, (1...10)s, (10...60)s, (1...10)min, (10...60)min, (1...10)h
Repeatability	%	± 1
Recovery time	ms	≤ 50
Minimum control impulse	ms	50
Setting accuracy-full range	%	± 5
Electrical life at rated load in AC1	cycles	100·10 ³
Ambient temperature range	°C	-10...+50
Protection category		IP 20
Approvals (according to type)		

Ordering information

Example: 81 series, modular timer multi-voltage, 1 CO (SPDT) - 16 A, supply rated at (12...230)V AC/DC.



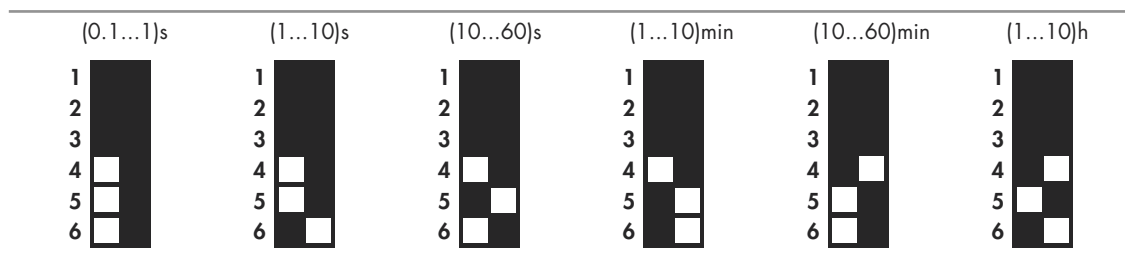
Series _____
Type _____
 0 = Multi-function (AI, DI, SW, SP, BE, DE, EEb)
No. of poles _____
 1 = 1 CO (SPDT)

Supply voltage
 230 = (12 ... 230)V AC/DC
Supply version
 0 = AC (50/60 Hz)/DC

Technical data

EMC specifications			
Type of test	Reference standard		
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV
	air discharge	EN 61000-4-2	8 kV
Radio-frequency electromagnetic field (80 ÷ 1,000 MHz)		EN 61000-4-3	10 V/m
Fast transients (burst) (5-50 ns, 5 kHz) on Supply terminals		EN 61000-4-4	4 kV
Surges (1.2/50 µs) on Supply terminals	common mode	EN 61000-4-5	4 kV
	differential mode	EN 61000-4-5	4 kV
Radio-frequency common mode (0.15 ÷ 80 MHz) on Supply terminals		EN 61000-4-6	10 V
Radiated and conducted emission		EN 55022	class A
Other data			
Current absorption on signal control (B1)		< 1 mA (S-X)	< 1 mA (R-X)
Voltage potential on the input terminal R - X and S -X		Not galvanic separation from the supply voltage on A1 - A2	
Power lost to the environment	without contact current	W	1.3
	with rated current	W	3.2
Screw torque		Nm	0.8
Max. wire size		solid cable	stranded cable
		mm ²	1x4 / 2x2.5
		AWG	1x12 / 2x14

Time range setting



NOTE: time range and function must be set before energising the timer.

Functions

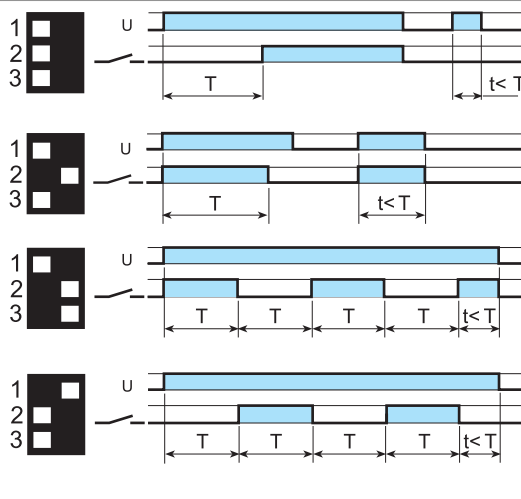
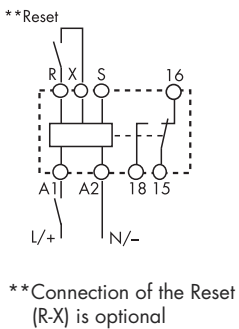
- U** = Supply voltage
- S** = Signal switch
- R** = Reset
- = Output contact

LED (green)	LED (red)	Supply voltage	NO output contact	Contacts	
				Open	Closed
		OFF	Open	15 - 18	15 - 16
		ON	Open	15 - 18	15 - 16
		ON	Closed	15 - 16	15 - 18

Supply Start = Start via contact in supply line (A1).
Control signal = Start via contact into control terminal (X-S).

Wiring diagram

Supply START



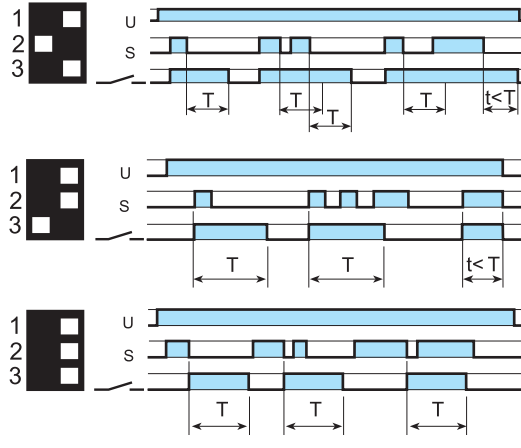
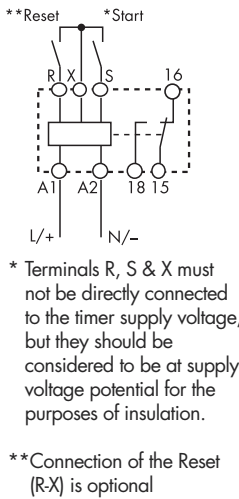
(AI) On-delay.
Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.

(DI) Interval.
Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.

(SW) Symmetrical flasher (starting pulse on).
Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

(SP) Symmetrical flasher (starting pulse off).
Apply power to timer. First transfer of contact occurs after preset time has elapsed. The timer now cycles between OFF and ON as long as power is applied. The ratio is 1:1 (time on = time off).

Control signal



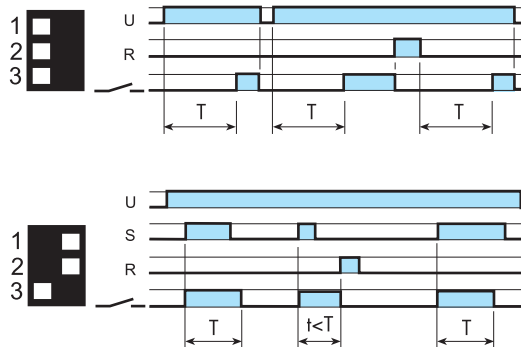
(BE) Off-delay with control signal.
Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.

(DE) Interval with control signal on.
Power is permanently applied to the timer. On momentary or maintained closure of Signal Switch (S), the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.

(EEb) Interval with control signal off.
Power is permanently applied to the timer. On opening of the Signal Switch (S) the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.

RESET function (R)

For each and every function and time range, the timer is immediately reset when the reset switch is closed.



Example:
Supply START; ON delay function
Closing the external reset switch immediately resets the timer. Opening the reset switch re-initiates the timing function.

Example:
Control signal; ON pulse function.
Closing the external reset switch terminates the interval time and resets the timer. To re-start, it is necessary to open the reset switch, before closing the control signal contact.

Accessories



019.01

Identification tag, for types 81.01, plastic, 1 tag, 17x25.5 mm

019.01



060.72

Sheet of marker tags, for types 81.01, plastic, 72 tags, 6x12 mm

060.72

Features

Multi-function timer range

- 83.01 - Multi-function & multi-voltage, 1 Pole
- 83.02 - Multi-function & multi-voltage, 2 Pole (timed + instantaneous options), external time setting potentiometer option

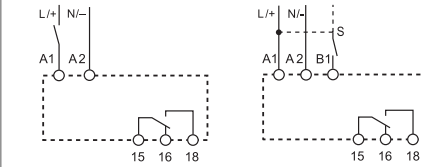
- 22.5 mm wide
- Eight time scales from 0.05s to 10 days
- High input/output isolation
- Wide supply range (24...240)V AC/DC
- 35 mm rail (EN 60715) mount
- "Blade + cross" - both flat blade and cross head screw drivers can be used to adjust the range and function selectors, the timing trimmer, and to disengage the rail mounting clip
- Multi-voltage versions with "PWM clever" technology

83.01



- Multi-voltage
- Multi-function

- AI:** On-delay
- DI:** Interval
- GI:** Pulse delayed
- SW:** Symmetrical flasher (starting pulse on)
- BE:** Off-delay with control signal
- CE:** On- and off-delay with control signal
- DE:** Interval with control signal on
- WD:** Watchdog (Retriggerable interval with control signal on)



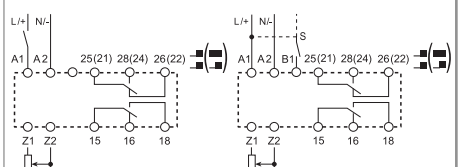
Wiring diagram (without control signal) Wiring diagram (with control signal)

83.02



- Multi-voltage
- Multi-function
- Timing can be regulated using ext. Potentiometer
- 2 timed contacts or 1 timed + 1 instantaneous contact

- AI:** On-delay
- DI:** Interval
- GI:** Pulse delayed
- SW:** Symmetrical flasher (starting pulse on)
- BE:** Off-delay with control signal
- CE:** On- and off-delay with control signal
- DE:** Interval with control signal on
- WD:** Watchdog (Retriggerable interval with control signal on)



Wiring diagram (without control signal) Wiring diagram (with control signal)

For outline drawing see page 5

Contact specification		83.01	83.02
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	16/30	12/30
Rated voltage/Maximum switching voltage V AC		250/400	250/400
Rated load AC1	VA	4,000	3,000
Rated load AC15 (230 V AC)	VA	750	750
Single phase motor rating (230 V AC)	kW	0.5	0.5
Breaking capacity DC1: 30/110/220 V	A	16/0.3/0.12	12/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Supply specification		83.01	83.02
Nominal voltage (U _N)	V AC (50/60 Hz)	24...240	24...240
	V DC	24...240	24...240
Rated power AC/DC	VA (50 Hz)/W	< 1.5 / < 2	< 2 / < 2
Operating range	V AC	16.8...265	16.8...265
	V DC	16.8...265	16.8...265
Technical data		83.01	83.02
Specified time range		(0.05...1)s, (0.5...10)s, (0.05...1)min, (0.5...10)min, (0.05...1)h, (0.5...10)h, (0.05...1)d, (0.5...10)d	
Repeatability	%	± 1	± 1
Recovery time	ms	200	200
Minimum control impulse	ms	50	50
Setting accuracy-full range	%	± 5	± 5
Electrical life at rated load in AC1	cycles	50·10 ³	60·10 ³
Ambient temperature range	°C	-20...+60	-20...+60
Protection category		IP 20	IP 20
Approvals (according to type)			

Features

Mono-function timer range

83.11 - ON-delay, multi-voltage

83.21 - Interval, multi-voltage

83.41 - Off-delay with control signal, multi-voltage

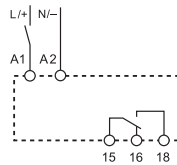
- 1 Pole
- 22.5 mm wide
- Eight time scales from 0.05s to 10 days
- High input/output isolation
- Wide supply range (24...240)V AC/DC
- 35 mm rail (EN 60715) mount
- "Blade + cross" - both flat blade and cross head screw drivers can be used to adjust the range and function selectors, the timing trimmer, and to disengage the rail mounting clip
- Multi-voltage versions with "PWM clever" technology

83.11



- Multi-voltage
- Mono-function

AI: On-delay



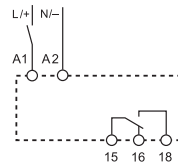
Wiring diagram
(without control signal)

83.21



- Multi-voltage
- Mono-function

DI: Interval



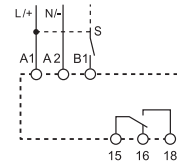
Wiring diagram
(without control signal)

83.41



- Multi-voltage
- Mono-function

BE: Off-delay with control signal



Wiring diagram
(with control signal)

For outline drawing see page 5

Contact specification

Contact configuration		1 CO (SPDT)	1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	16/30	16/30	16/30
Rated voltage/Maximum switching voltage	V AC	250/400	250/400	250/400
Rated load AC1	VA	4,000	4,000	4,000
Rated load AC15 (230 V AC)	VA	750	750	750
Single phase motor rating (230 V AC)	kW	0.5	0.5	0.5
Breaking capacity DC1: 30/110/220 V	A	16/0.3/0.12	16/0.3/0.12	16/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi	AgNi
Supply specification				
Nominal voltage (U_N)	V AC (50/60 Hz)	24...240	24...240	24...240
	V DC	24...240	24...240	24...240
Rated power AC/DC	VA (50 Hz)/W	< 1.5 / < 2	< 1.5 / < 2	< 1.5 / < 2
Operating range	V AC	16.8...265	16.8...265	16.8...265
	V DC	16.8...265	16.8...265	16.8...265

Technical data

Specified time range		(0.05...1)s, (0.5...10)s, (0.05...1)min, (0.5...10)min, (0.05...1)h, (0.5...10)h, (0.05...1)d, (0.5...10)d		
Repeatability	%	± 1	± 1	± 1
Recovery time	ms	200	200	200
Minimum control impulse	ms	—	—	50
Setting accuracy-full range	%	± 5	± 5	± 5
Electrical life at rated load in AC1	cycles	50·10 ³	50·10 ³	50·10 ³
Ambient temperature range	°C	-20...+60	-20...+60	-20...+60
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)



Features

Mono-function and multi-function timer range

83.62 - Power off-delay, multi-voltage, 2 Pole

83.82 - Star-Delta, multi-voltage, star and delta output contacts

83.91 - Asymmetrical flasher, multi-voltage, 1 Pole

- 22.5 mm wide
- Time scales:
Type 83.62 - 0.05s to 3 minutes
Type 83.82 / 83.91 - 0.05 s to 10 days
- Wide supply range (24...240)V AC / DC
- 35 mm rail (EN 60715) mount

- * (0.05...2)s, (1...16)s, (8...70)s, (50...180)s
- ** (0.05...1)s, (0.5...10)s, (0.05...1)min, (0.5...10)min, (0.05...1)h, (0.5...10)h, (0.05...1)d, (0.5...10)d
- *** 0.05 s, 0.2 s, 0.3 s, 0.45 s, 0.6 s, 0.75 s, 0.85 s, 1 s

For outline drawing see page 5

Contact specification

Contact configuration	2 CO (DPDT)	2 NO (DPST-NO)	1 CO (SPDT)
Rated current/Maximum peak current A	8/15	16/30	16/30
Rated voltage/Maximum switching voltage V AC	250/400	250/400	250/400
Rated load AC1 VA	2,000	4,000	4,000
Rated load AC15 (230 V AC) VA	400	750	750
Single phase motor rating (230 V AC) kW	0.3	0.5	0.5
Breaking capacity DC1: 30/110/220 V A	8/0.3/0.12	16/0.3/0.12	16/0.3/0.12
Minimum switching load mW (V/mA)	300 (5/5)	300 (5/5)	300 (5/5)
Standard contact material	AgNi	AgNi	AgNi

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	24...240	24...240	24...240
	V DC	24...220	24...240	24...240
Rated power AC/DC	VA (50 Hz)/W	< 1.5 / < 2	< 1.5 / < 2	< 1.5 / < 2
Operating range	V AC	16.8...265	16.8...265	16.8...265
	V DC	16.8...242	16.8...265	16.8...265

Technical data

Specified time range		*	**	
Repeatability	%	± 1	± 1	± 1
Recovery time	ms	—	200	200
Minimum control impulse	ms	500 ms (A1 - A2)	—	50
Setting accuracy-full range	%	± 5	± 5	± 5
Electrical life at rated load in AC1	cycles	100·10 ³	50·10 ³	50·10 ³
Ambient temperature range	°C	-20...+60	-20...+60	-20...+60
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)

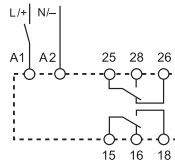


83.62



- Multi-voltage
- Mono-function
- 2 pole

BI: Power off-delay (True off-delay)



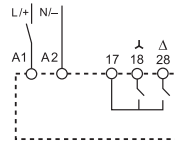
Wiring diagram (without control signal)

83.82



- Multi-voltage
- Mono-function
- 2 pole
- Transfer time can be regulated (0.05...1)s ***

SD: Star-delta



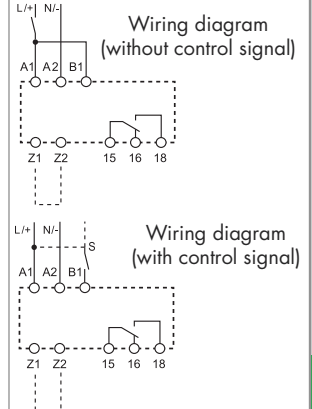
Wiring diagram (without control signal)

83.91



- Multi-voltage
- Multi-function

- LI:** Asymmetrical flasher (starting pulse on)
- LE:** Asymmetrical flasher (starting pulse on) with control signal
- PI:** Asymmetrical flasher (starting pulse off)
- PE:** Asymmetrical flasher (starting pulse off) with control signal



Ordering information

Example: 83 series, modular timers, 1 CO (SPDT) - 16 A, supply rated at (24...240)V AC/DC.

8 3 . 0 1 . 0 . 2 4 0 . 0 0 0 0

Series

Type

0 = Multi-function (AI, DI, GI, SW, BE, CE, DE, WD)
 1 = On-delay (AI)
 2 = Interval (DI)
 4 = Off-delay with control signal (BE)
 6 = Power off-delay (True off-delay) (BI)
 8 = Star-delta (SD)
 9 = Asymmetrical flasher (LI, LE, PI, PE)

Versions

0000 = Standard

Supply voltage

240 = (24 ... 240)V AC/DC

Supply version

0 = AC (50/60 Hz)/DC

No. of poles

1 = 1 CO (SPDT)

2 = 2 CO (DPDT) for 83.02 and 83.62

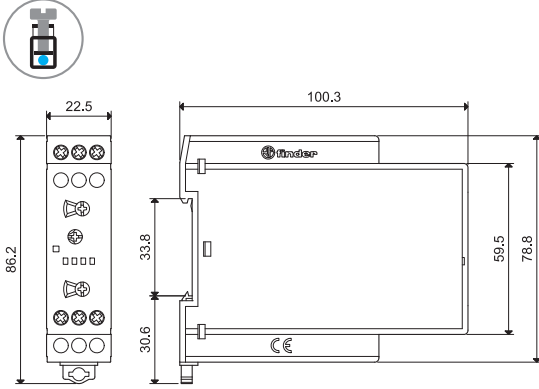
2 = 2 NO (DPST-NO) for 83.82

Technical data

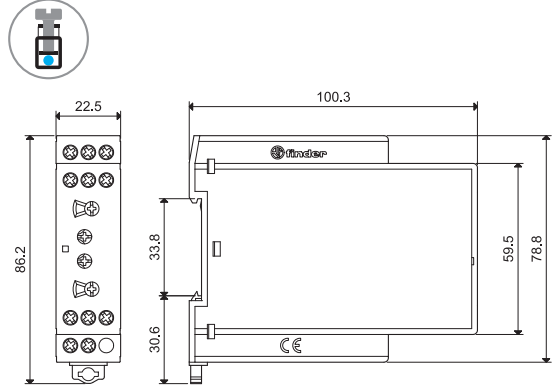
Insulation					
Dielectric strength	between input and output circuit	V AC	4,000		
	between open contacts	V AC	1,000		
Insulation (1.2/50 µs) between input and output		kV	6		
EMC specifications					
Type of test		Reference standard	83.01/02/11/21/41/82/91	83.62	
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV	4 kV	
	air discharge	EN 61000-4-2	8 kV	8 kV	
Radio-frequency electromagnetic field	(80 ÷ 1,000 MHz)	EN 61000-4-3	10 V/m	10 V/m	
	(1,000 ÷ 2,700 MHz)	EN 61000-4-3	3 V/m	3 V/m	
Fast transients (burst) (5-50 ns, 5 and 100 kHz)	on Supply terminals	EN 61000-4-4	7 kV	6 kV	
	on control signal terminal (B1)	EN 61000-4-4	7 kV	6 kV	
Surges (1.2/50 µs) on Supply terminals	common mode	EN 61000-4-5	6 kV	6 kV	
	differential mode	EN 61000-4-5	6 kV	4 kV	
	on control signal terminal (B1)	common mode	EN 61000-4-5	6 kV	6 kV
		differential mode	EN 61000-4-5	4 kV	4 kV
Radio-frequency common mode	(0.15 ÷ 80 MHz)	EN 61000-4-6	10 V	10 V	
	on Supply terminals (80 ÷ 230 MHz)	EN 61000-4-6	10 V	10 V	
Radiated and conducted emission		EN 55022	class A	class A	
Other data					
Current absorption on control signal (B1)			< 1 mA		
	- max cable length (capacity of ≤ 10 nF / 100 m)		150 m		
	- when applying a control signal to B1, which is different from the supply voltage at A1/A2		B1 is isolated from A1 and A2 by an opto-coupler, and can therefore be operated at a voltage other than the supply voltage. If using a control signal of between (24... 48)V DC and a supply voltage of (24...240)V AC, ensure that the signal – is connected to A2 and the + is applied to B1, and that L is applied to B1 and N to A2.		
External potentiometer for 83.02			Use a 10 kΩ/ ≥ 0,25 W linear potentiometer. Maximum cable length 10 m. When using an external potentiometer, the timer automatically use its setting in place of the internal setting. Consider the voltage potential at the potentiometer to be the same as the timer supply voltage.		
Power lost to the environment	without contact current	W	1.4		
	with rated current	W	3.2		
Screw torque		Nm	0.8		
Max. wire size			solid cable	stranded cable	
		mm ²	1x6 / 2x4	1x4 / 2x2.5	
		AWG	1x10 / 2x12	1x12 / 2x14	

Outline drawings

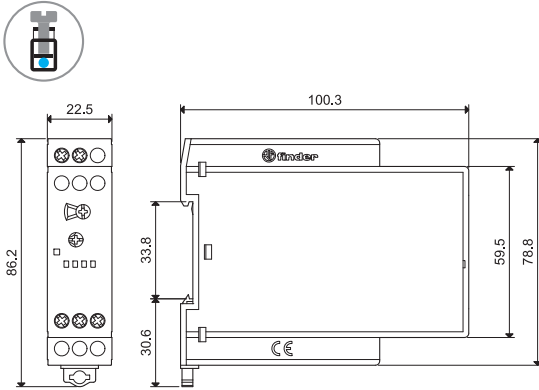
83.01
Screw terminal



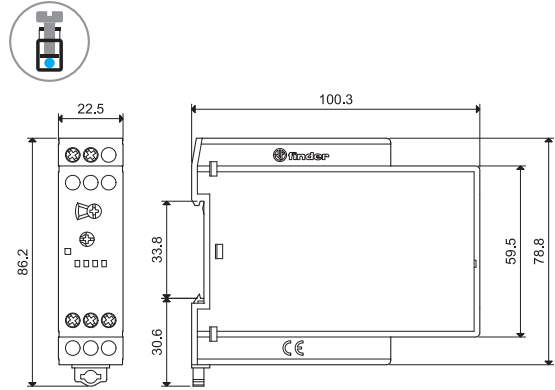
83.02
Screw terminal



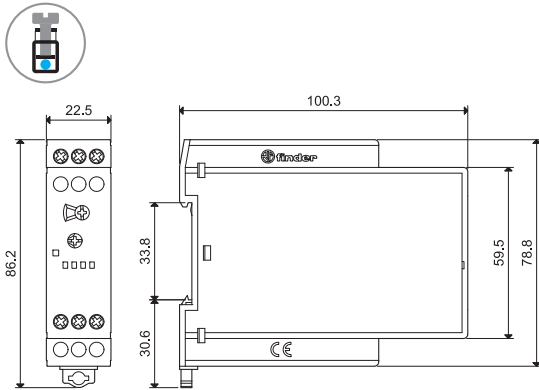
83.11
Screw terminal



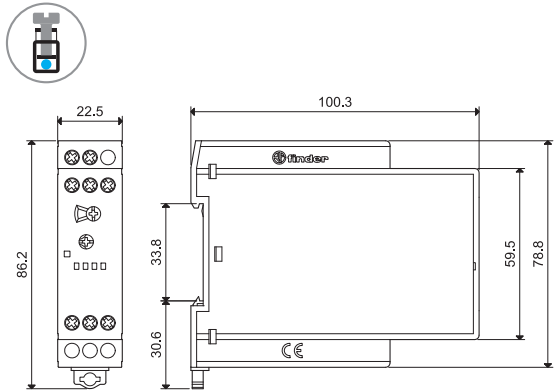
83.21
Screw terminal



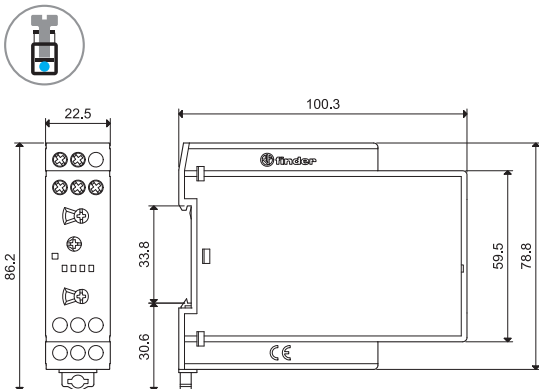
83.41
Screw terminal



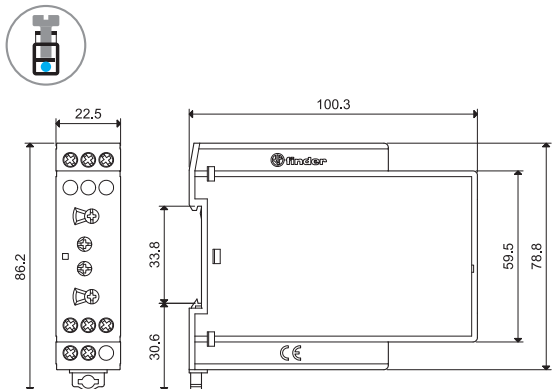
83.62
Screw terminal



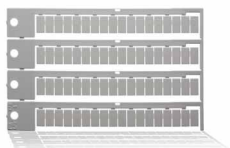
83.82
Screw terminal



83.91
Screw terminal



Accessories



060.72

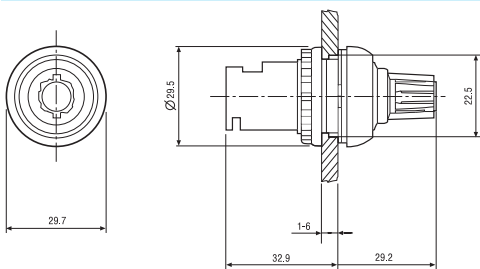
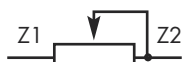
Sheet of marker tags, for types 83.01/11/21/41/62/82, plastic, 72 tags, 6x12 mm | 060.72



087.02.2

Potentiometer usable as external potentiometer for type 83.02
10 kΩ / 0.25 W linear, IP66

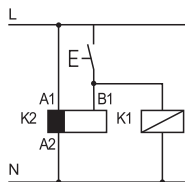
087.02.2



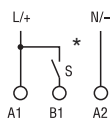
Functions

LED*	Supply voltage	NO output contact	Contacts	
			Open	Closed
	OFF	Open	15 - 18 25 - 28	15 - 16 25 - 26
	ON	Open	15 - 18 25 - 28	15 - 16 25 - 26
	ON	Open (Timing in Progress)	15 - 18 25 - 28	15 - 16 25 - 26
	ON	Closed	15 - 16 25 - 26	15 - 18 25 - 28

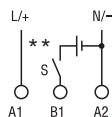
* The LED on type 83.62 is illuminated when supply voltage is supplied to timer.



• Possible to control an external load, such as another relay coil or timer, connected to the control signal terminal B1.



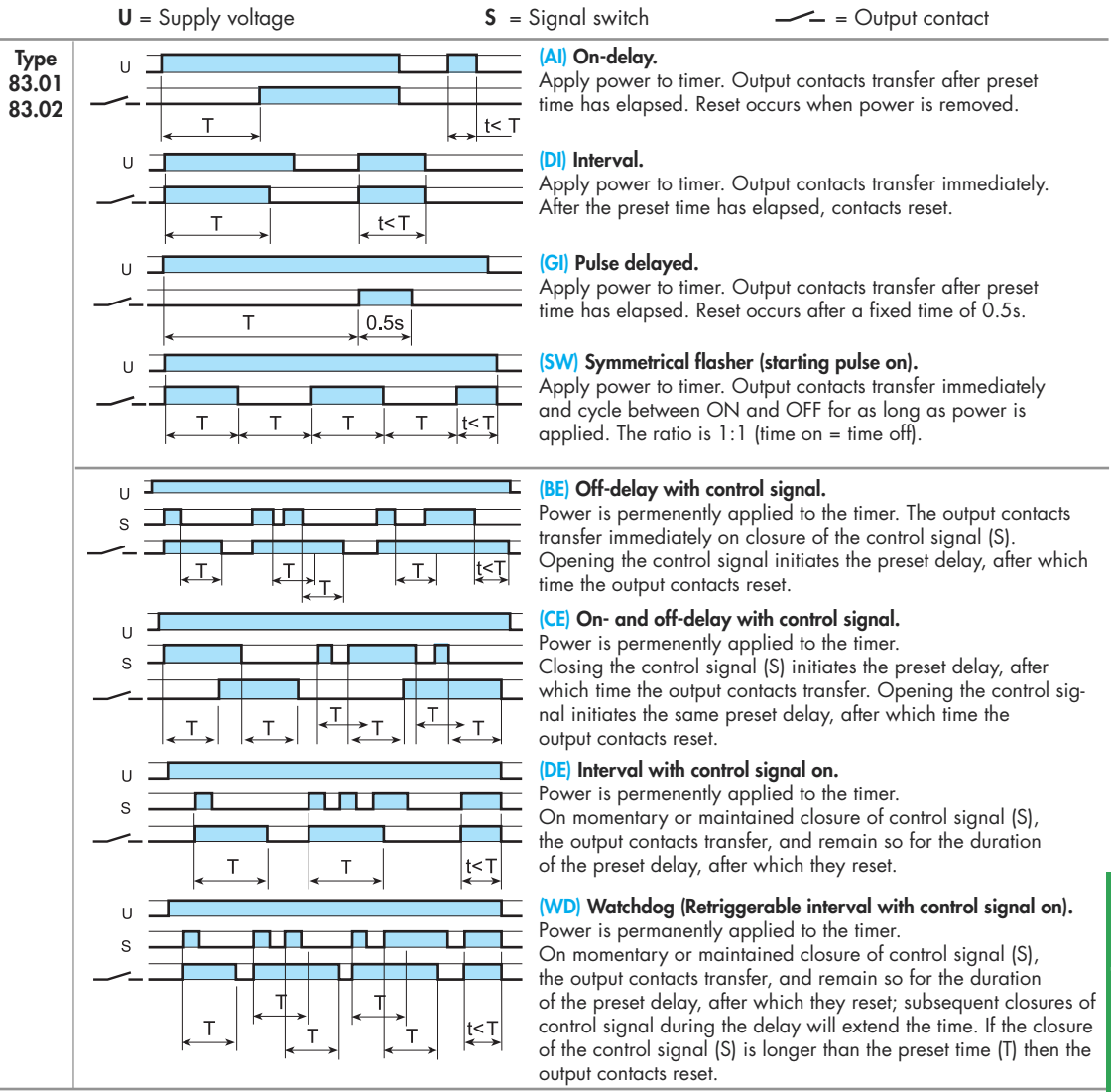
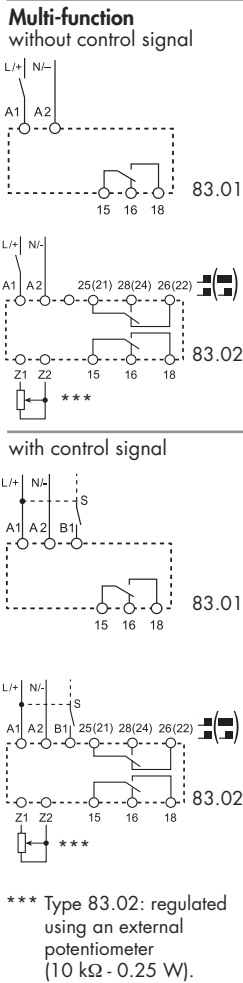
* With DC supply, positive polarity has to be connected to B1 terminal (according to EN 60204-1).



** A voltage other than the supply voltage can be applied to the control signal (B1), example:
A1 - A2 = 230 V AC
B1 - A2 = 12 V DC

Functions

Wiring diagram



NOTE: The timing function must be set when the timer is de-energised. Or for the 83.02, when the contact mode selector is in the OFF position.

83.02 type

Contact mode selector	Functions without control signal (example: AI)	Functions with control signal (example: BE)
2 timed contacts 	<p>Both output contacts (15-18 and 25-28) follow the timing function</p>	<p>Both output contacts (15-18 and 25-28) follow the timing function</p>
OFF 	<p>Both output contacts [15-18 and 25(21)-28(24)] stay permanently open</p>	<p>Both output contacts [15-18 and 25(21)-28(24)] stay permanently open</p>
1 timed + 1 instantaneous contact 	<p>The output contact 15-18 follows the timing function The output contact 21-24 follows the power supply (U)</p>	<p>The output contact 15-18 follows the timing function The output contact 21-24 follows the control signal (S)</p>

Functions

Wiring diagram

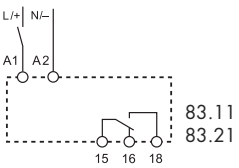
U = Supply voltage

S = Signal switch

= Output contact

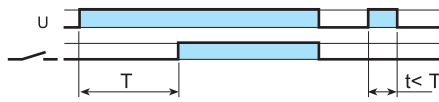
Mono-function

without control signal



Type

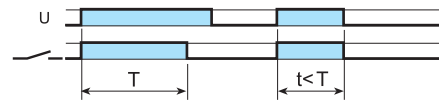
83.11



(AI) On-delay.

Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.

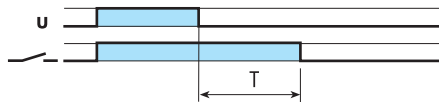
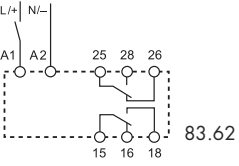
83.21



(DI) Interval.

Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.

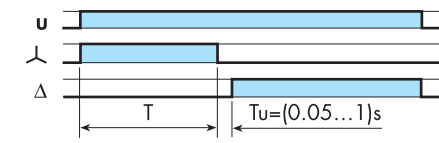
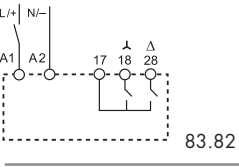
83.62



(BI) Power off-delay (True off-delay).

Apply power to timer (minimum 500 ms). Output contacts transfer immediately. Removal of power initiates the preset delay, after which time the output contacts reset.

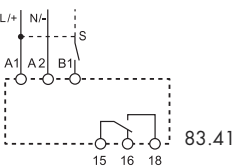
83.82



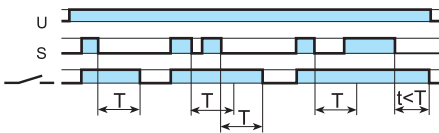
(SD) Star-delta.

Apply power to timer. The star contact (Λ) closes immediately. After preset delay has elapsed the star contact (Λ) resets. After a further time (settable from 0.05s to 1s) the delta contact (Δ) closes and remains in that position, until reset on power off.

with control signal (S)



83.41

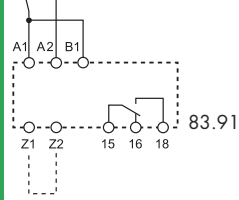


(BE) Off-delay with control signal.

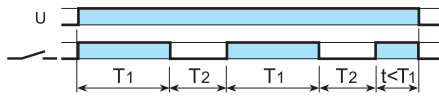
Power is permanently applied to the timer. The output contacts transfer immediately on closure of the control signal (S). Opening the control signal initiates the preset delay, after which time the output contacts reset.

Asymmetrical recycler

without control signal

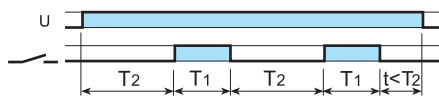


83.91



(LI) Asymmetrical flasher (starting pulse on)- (Z1-Z2 open).

Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ON and OFF times are independently adjustable.

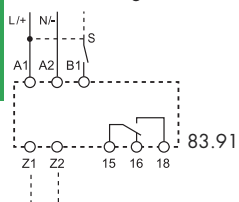


(PI) Asymmetrical flasher (starting pulse off) - (Z1-Z2 linked).

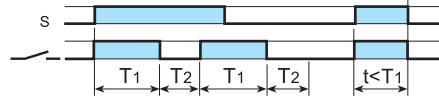
Apply power to timer. Output contacts transfer after time T1 has elapsed and cycle between OFF and ON for as long as power is applied. The ON and OFF times are independently adjustable.

Z1-Z2 open: **(LI)** function
Z1-Z2 linked: **(PI)** function

with control signal

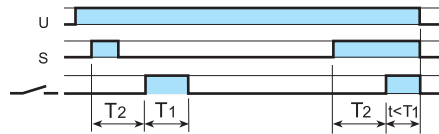


83.91



(LE) Asymmetrical flasher (starting pulse on) with control signal - (Z1-Z2 open).

Power is permanently applied to the timer. Closing control signal (S) causes the output contacts to transfer immediately and cycle between ON and OFF, until opened.



(PE) Asymmetrical flasher (starting pulse off) with control signal - (Z1-Z2 linked).

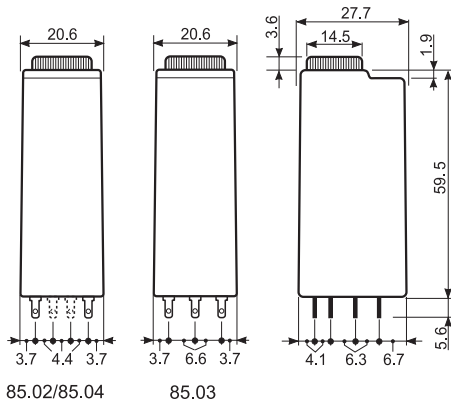
Power is permanently applied to the timer. Closing the control signal (S) initiates delay T1 after which the output contacts transfer and continue to cycle between OFF and ON, until the control signal is opened.

Features

Plug-in timer

- 85.02 - 2 Pole 10 A
- 85.03 - 3 Pole 10 A
- 85.04 - 4 Pole 7 A

- Multifunctions
- Seven time scales, from 0.05s to 100h
- 94 series sockets



FOR UL RATINGS SEE:
"General technical information" page 3

Contact specification		85.02	85.03	85.04
Contact configuration		2 CO (DPDT)	3 CO (3PDT)	4 CO (4PDT)
Rated current/Maximum peak current	A	10/20	10/20	7/15
Rated voltage/Maximum switching voltage V AC		250/400	250/400	250/250
Rated load AC1	VA	2,500	2,500	1,750
Rated load AC15 (230 V AC)	VA	500	500	350
Single phase motor rating (230 V AC)	kW	0.37	0.37	0.125
Breaking capacity DC1: 30/110/220 V	A	10/0.25/0.12	10/0.25/0.12	7/0.25/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi	AgNi
Supply specification		85.02	85.03	85.04
Nominal voltage (U _N)	V AC (50/60 Hz)	230...240	230...240	230...240
	V AC/DC	12 - 24 - 48 - 110...125 (non polarized)		
Rated power AC/DC	V AC (50 Hz)/W	2/2	2/2	2/2
Operating range	AC	(0.85...1.1)U _N	(0.85...1.1)U _N	(0.85...1.1)U _N
	DC	(0.85...1.1)U _N	(0.85...1.1)U _N	(0.85...1.1)U _N
Technical data		85.02	85.03	85.04
Specified time range		(0.05...1)s, (0.5...10)s, (5...100)s, (0.5...10)min, (5...100)min, (0.5...10)h, (5...100)h		
Repeatability	%	± 2	± 2	± 2
Recovery time	ms	≤ 20	≤ 20	≤ 20
Minimum control impulse	ms	—	—	—
Setting accuracy-full range	%	± 5	± 5	± 5
Electrical life at rated load in AC1	cycles	200 · 10 ³	200 · 10 ³	150 · 10 ³
Ambient temperature range	°C	-20...+60	-20...+60	-20...+60
Protection category		IP 40	IP 40	IP 40
Approvals (according to type)				

Ordering information

Example: 85 series timer, 4 CO (4PDT), 24 V AC/DC supply voltage, AI, DI, GI, SW functions.

8 5 . 0 4 . 0 . 0 2 4 . 0 0 0 0

Series

Type

0 = Multifunction (AI, DI, GI, SW)*

* AI = On-delay

DI = Interval

GI = Pulse delayed

SW = Symmetrical flasher (starting pulse on)

No. of poles

2 = 2 pole - 10 A

3 = 3 pole - 10 A

4 = 4 pole - 7 A

Supply voltage

012 = 12 V AC/DC

024 = 24 V AC/DC

048 = 48 V AC/DC

125 = (110...125)V AC/DC

240 = (230...240)V AC

Supply version

0 = AC (50/60 Hz)/DC

8 = AC (50/60 Hz) for 240 V only

Technical data

Insulation				
Dielectric strength			85.02, 85.03	85.04
	between input and output circuit	V AC	2,000	2,000
	between open contacts	V AC	1,000	1,000
	between adjacent contacts	V AC	2,000	1,550
Insulation (1.2/50 µs) between input and output		kV	6	4
EMC specifications				
Type of test		Reference standard		
Electrostatic discharge	contact discharge	EN 61000-4-2	n.a.	
	air discharge	EN 61000-4-2	8 kV	
Radio-frequency electromagnetic field (80 ÷ 1,000 MHz)		EN 61000-4-3	15 V/m	
Fast transients (burst) (5-50 ns, 5 kHz) on Supply terminals		EN 61000-4-4	4 kV	
Surges (1.2/50 µs) on Supply terminals	common mode	EN 61000-4-5	4 kV	
	differential mode	EN 61000-4-5	2 kV	
Radio-frequency common mode (0.15 ÷ 80 MHz) on Supply terminals		EN 61000-4-6	10 V	
Power-frequency (50 Hz)		EN 61000-4-8	30 A/m	
Radiated and conducted emission		EN 55022	class B	
Other data				
Power lost to the environment	without contact current	W	1.6	
	with rated current	W	3.7 (85.02)	4.7 (85.03) 3.6 (85.04)

Times scales

(0.05...1)s	(0.5...10)s	(5...100)s	(0.5...10)min	(5...100)min	(0.5...10)h	(5...100)h
1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3

NOTE: time scales and functions must be set before energising the timer.

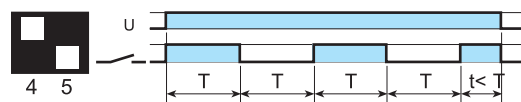
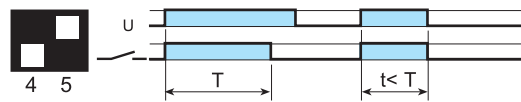
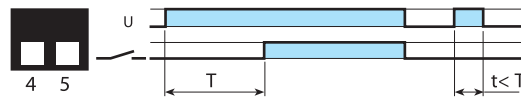
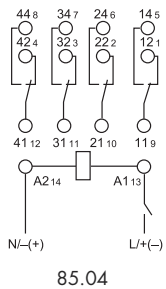
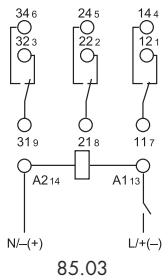
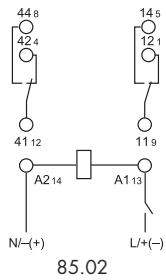
Functions

U = Supply voltage
 = Output contact

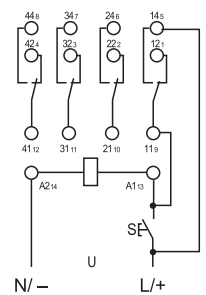
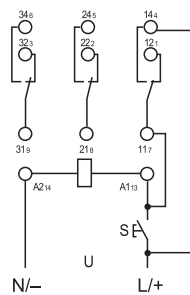
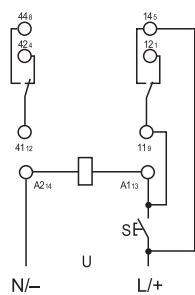
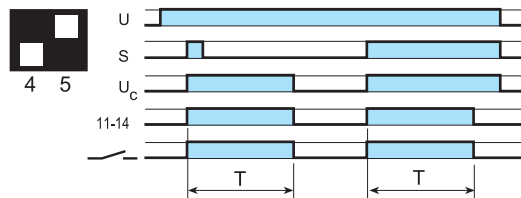
LED	Supply voltage	NO (SPDT-NO) output contact	Contacts	
			Open	Closed
	OFF	Open	x1 - x4	x1 - x2
	ON	Open	x1 - x4	x1 - x2
	ON	Open (Timing in Progress)	x1 - x4	x1 - x2
	ON	Closed	x1 - x2	x1 - x4

Wiring diagram

Type: 85.02, 85.03, 85.04



U = Supply voltage
S = Signal switch
U_c = Supply voltage to the timer
11-14 = Self-holding contact
 = Output contact



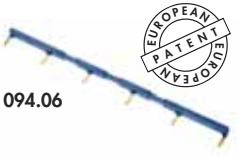
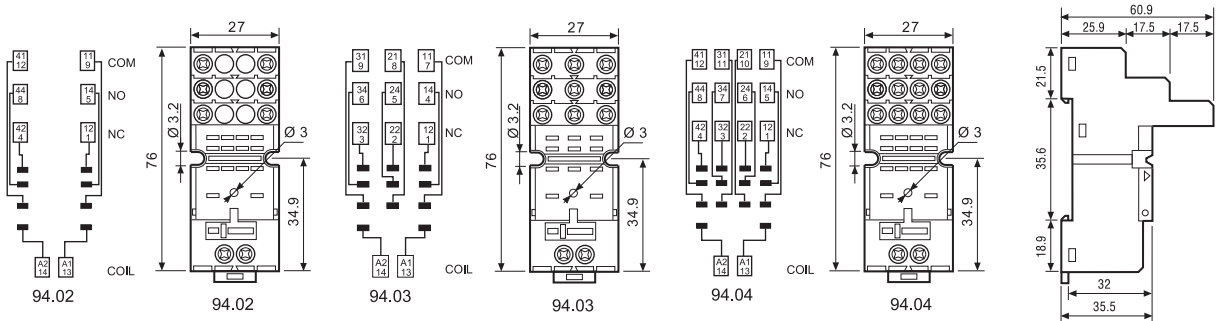


94.04

Approvals
(according to type):



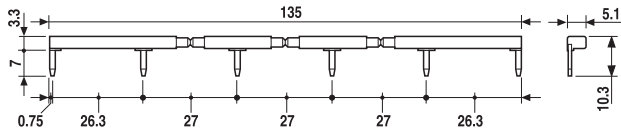
Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount For timer type	94.02 Blue	94.02.0 Black	94.03 Blue	94.03.0 Black	94.04 Blue	94.04.0 Black
	85.02		85.03		85.04	
Accessories						
Metal retaining clip (supplied with timer)	094.81					
6-way jumper link	094.06	094.06.0	094.06	094.06.0	094.06	094.06.0
Identification tag	094.00.4					
Technical data						
Rated values	10 A - 250 V					
Dielectric strength	2 kV AC					
Protection category	IP 20					
Ambient temperature	°C -40...+70					
⊕ Screw torque	Nm 0.5					
Wire strip length	mm 8					
Max. wire size for 94.02, 94.03 and 94.04 sockets	solid wire			stranded wire		
	mm ² 1x6 / 2x2.5			1x4 / 2x2.5		
	AWG 1x10 / 2x14			1x12 / 2x14		



094.06



6-way jumper link for 94.02, 94.03 and 94.04 sockets	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	



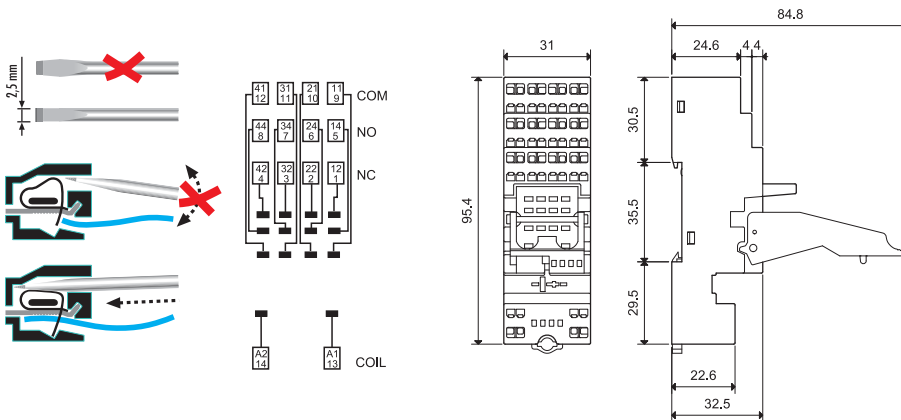


94.54

Approvals
(according to type):



Screwless terminal socket 35 mm rail (EN 60715) mount	94.54 (blue)	
For timer type	85.02, 85.04	
Accessories		
Metal retaining clip	094.81	
6-way jumper link	094.56	
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	2 kV AC	
Protection category	IP 20	
Ambient temperature	°C -25...+70	
Wire strip length	mm 10	
Max. wire size for 94.54 socket	solid wire	stranded wire
	mm ² 2x(0.2...1.5)	2x(0.2...1.5)
	AWG 2x(24...14)	2x(24...14)



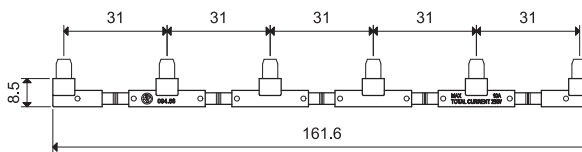
Sockets + jumper link

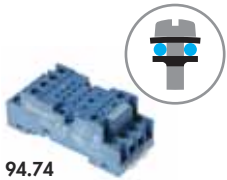


094.56



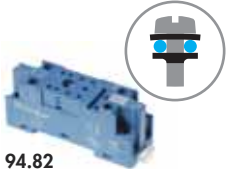
6-way jumper link	094.56 (blue)
Rated values	10 A - 250 V





94.74

Approvals (according to type):

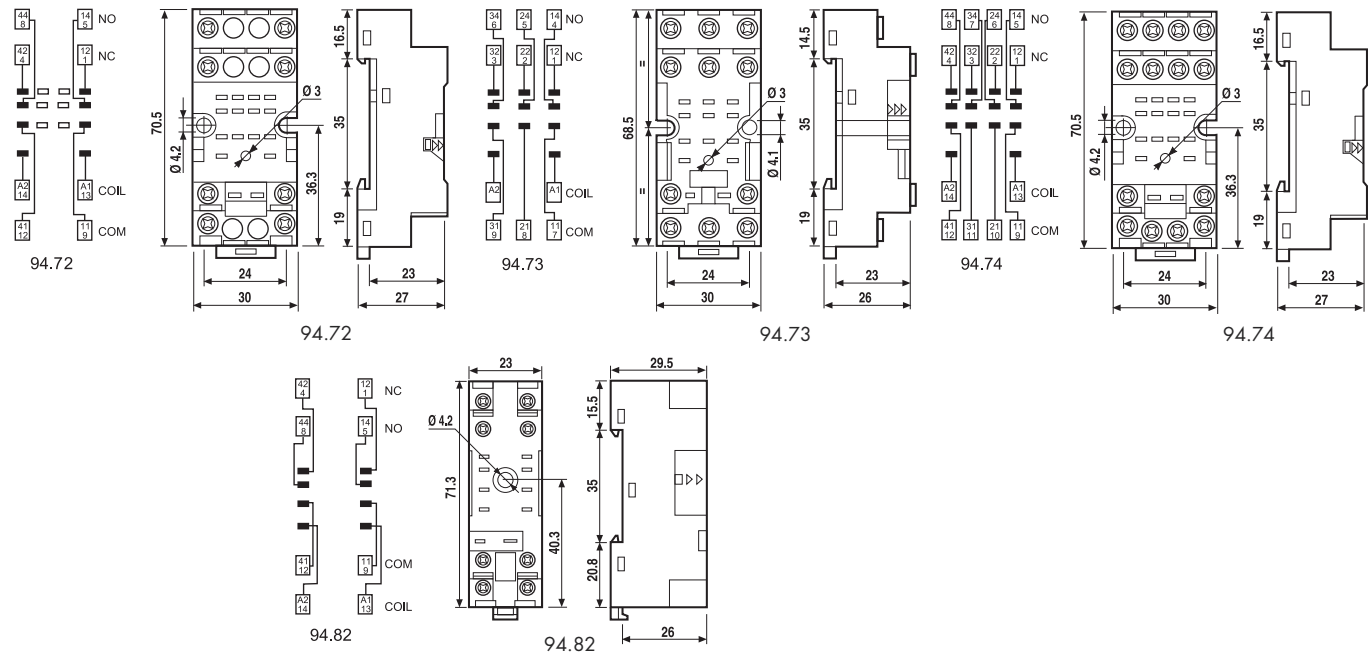


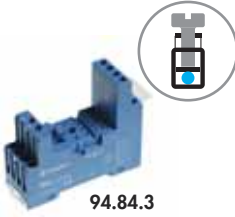
94.82

Approvals (according to type):



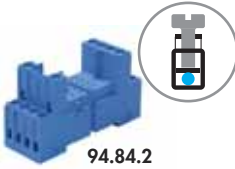
Screw terminal (Plate clamp) socket panel or 35 mm rail (EN 60715) mount For timer type	94.72 Blue 85.02	94.72.0 Black 85.02	94.73 Blue 85.03	94.73.0 Black 85.03	94.74 Blue 85.02, 85.04	94.74.0 Black 85.02, 85.04
Accessories Metal retaining clip (supplied with timer)	094.81					
Screw terminal socket panel or 35 mm rail (EN 60715) mount For timer type	94.82 Blue 85.02				94.82.0 Black 85.02	
Accessories Metal retaining clip (supplied with timer)	094.81					
Technical data						
Rated values	10 A - 250 V					
Dielectric strength	2 kV AC					
Protection category	IP 20					
Ambient temperature	°C -40...+70					
⊕ Screw torque	Nm 0.5					
Wire strip length	mm 8 (94.72, 94.73, 94.74)			9 (94.82)		
Max. wire size for 94.72, 94.73, 94.74 and 94.82 sockets	solid wire			stranded wire		
	mm ² 1x2.5 / 2x1.5			1x2.5 / 2x1.5		
	AWG 1x14 / 2x16			1x14 / 2x16		





94.84.3

Approvals
(according to type):

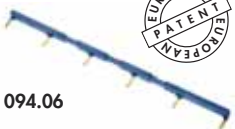
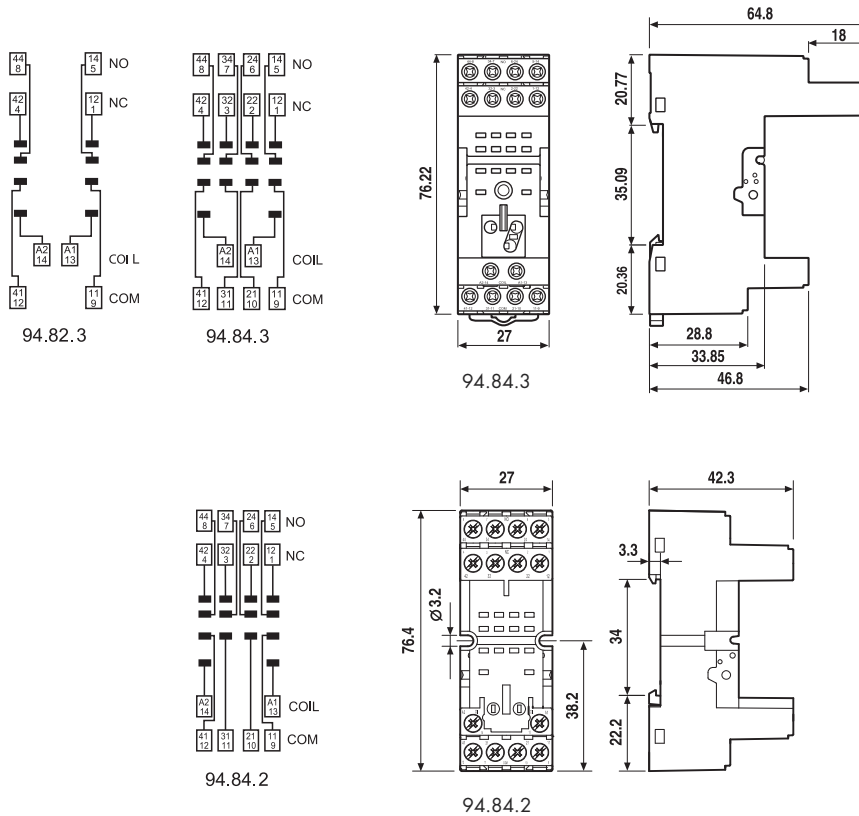


94.84.2

Approvals
(according to type):



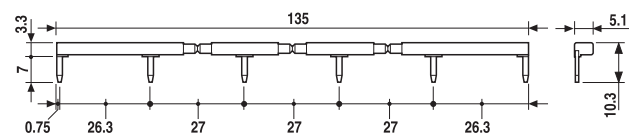
Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount	94.82.3 Blue	94.82.30 Black	94.84.3 Blue	94.84.30 Black
For timer type	85.02		85.02, 85.04	
Accessories				
Metal retaining clip	094.81			
6-way jumper link	094.06	094.06.0	094.06	094.06.0
Identification tag	094.80.2			
Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount	94.84.2 Blue		94.84.20 Black	
For timer type	85.02, 85.04			
Accessories				
Metal retaining clip	094.81			
6-way jumper link	094.06	094.06.0		
Identification tag	094.80.2			
Technical data				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
⊕ Screw torque	Nm 0.5			
Wire strip length	mm 7			
Max. wire size for 94.82.3, 94.84.3 and 94.84.2 sockets	solid wire		stranded wire	
	mm ² 1x6 / 2x2.5		1x4 / 2x2.5	
	AWG 1x10 / 2x14		1x12 / 2x14	



094.06



6-way jumper link for 94.82.3, 94.84.3 and 94.84.2 sockets	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	



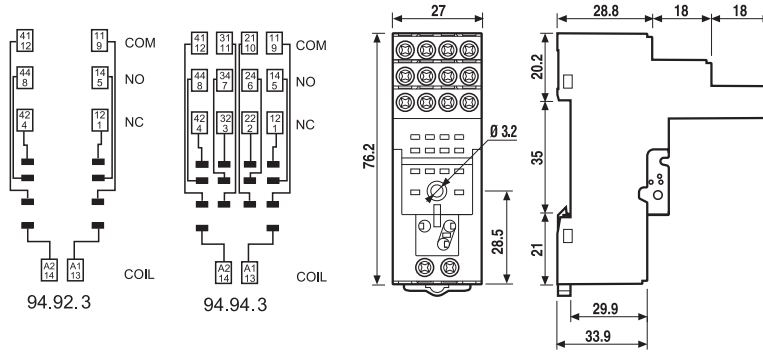


94.94.3

Approvals
(according to type):



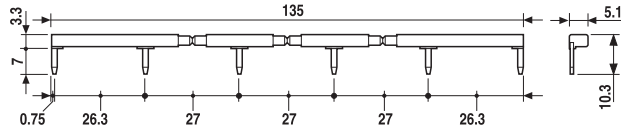
Screw terminal (Box clamp) socket	94.92.3	94.92.30	94.94.3	94.94.30
panel or 35 mm rail (EN 60715) mount	Blue	Black	Blue	Black
For timer type	85.02		85.02, 85.04	
Accessories				
Metal retaining clip	094.81			
6-way jumper link	094.06	094.06.0	094.06	094.06.0
Identification tag	094.80.2			
Technical data				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -25...+70			
Screw torque	Nm 0.5			
Wire strip length	mm 8			
Max. wire size for 94.92.3 and 94.94.3 sockets	solid wire		stranded wire	
	mm ² 1x6 / 2x2.5		1x4 / 2x2.5	
	AWG 1x10 / 2x14		1x12 / 2x14	



094.06



6-way jumper link for 94.92.3 and 94.94.3 sockets	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	



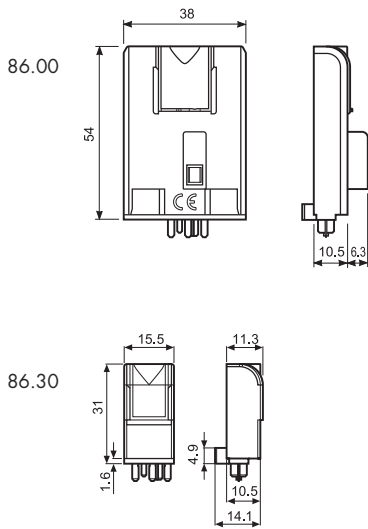
Features

Timer modules for use in conjunction with relay & socket.

86.00 - Multi-function & multi-voltage timer module

86.30 - Bi-function & multi-voltage timer module

- Timer module type 86.00 for 90, 92, 96 series sockets and type 86.30 for 90, 92, 94, 95, 96, 97 series sockets
- Wide supply voltage range: 12...240 V AC/DC (86.00)
12...24 V AC/DC or 230...240 V AC (86.30)
- LED indicator



86.00



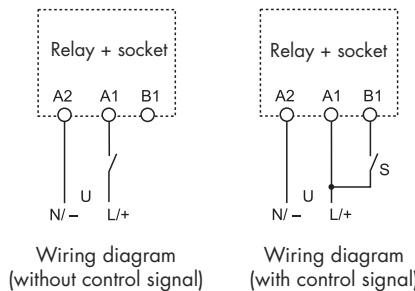
- Time scale: from 0.05s to 100h
- Multi-function
- Plug-in for use with 90.02, 90.03, 92.03 and 96.04 sockets

86.30

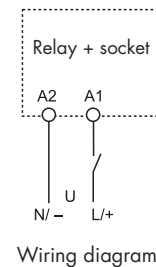


- Time scale: from 0.05s to 100h
- Bi-function
- Plug-in for use with 90.02, 90.03, 92.03, 94.02, 94.03, 94.04, 95.03, 95.05, 95.55, 96.02, 96.04, 97.01, 97.02, 97.51 and 97.52 sockets

- AI:** On-delay
DI: Interval
SW: Symmetrical flasher (starting pulse on)
BE: Off-delay with control signal
CE: On- and off-delay with control signal
DE: Interval with control signal on
EE: Interval with control signal off
FE: Interval with control signal on and off



- AI:** On-delay
DI: Interval



Contact specification

Contact configuration

Rated current/Maximum peak current A

Rated voltage/Maximum switching voltage V AC

Rated load AC1 VA

Rated load AC15 (230 V AC) VA

Single phase motor rating (230 V AC) kW

Breaking capacity DC1: 30/110/220 V A

Minimum switching load mW (V/mA)

Standard contact material

Supply specification

Nominal voltage (U_N) V AC (50/60 Hz)

V DC

Rated power AC/DC W

Operating range V AC (50/60 Hz)

DC

Technical data

Specified time range

Repeatability %

Recovery time ms

Minimum control impulse ms

Setting accuracy full range %

Electrical life at rated load in AC1 cycles

Ambient temperature range °C

Protection category

Approvals (according to type)

See 56, 60 and 62 series relays

Note: Do not use with relays

62.3x.x012.x300 and 62.3x.x012.x600

See 40, 44, 46, 55, 56, 60 and

62 series relays

	12...240	12...24	110...125	230...240
	12...240	12...24	—	—
	1.2	0.15		
	10.2...265	9.6...33.6	88...137	184...265
	10.2...265	9.6...33.6	—	—
	(0.05...1)s, (0.5...10)s, (5...100)s, (0.5...10)min, (5...100)min, (0.5...10)h, (5...100)h			
	± 1		± 1	
	≤ 50		≤ 50	
	50		—	
	± 5		± 5	
	See 56, 60 and 62 series relays		See 40, 44, 46, 55, 56, 60 and 62 series relays	
	-20...+50		-20...+50	
	IP 20		IP 20	

Ordering information

Example: 86 series multi-function timer module, (12...240)V AC/DC supply voltage.



Series _____
Type _____
 0 = Multi-function (AI, DI, SW, BE, CE, DE, EE, FE)
 3 = Bi-function (AI, DI)
No. of poles _____
 See 40, 44, 46, 55, 56, 60 and 62 series relays
 Poles for chosen relay/socket combination -
 according to chart below

Supply voltage
 024 = (12...24)V AC/DC (86.30 only)
 120 = (110...125)V AC (86.30 only)
 240 = (12...240)V AC/DC (86.00 only)
 240 = (230...240)V AC (86.30 only)
Supply version
 0 = AC (50/60 Hz)/DC
 8 = AC (50/60 Hz)

Combinations

Number of poles	Relay type	Socket type	Timer module
1	40.31	95.03	86.30
1	40.61	95.05	86.30
1	46.61	97.01/97.51	86.30
2	40.52/44.52/44.62	95.05/95.55	86.30
2	46.52	97.02/97.52	86.30
2	55.32	94.02	86.30
2	56.32	96.02	86.30
2	60.12	90.02	86.00/86.30
2	62.32	92.03	86.00/86.30
3	55.33	94.03	86.30
3	60.13	90.03	86.00/86.30
3	62.33	92.03	86.00/86.30
4	55.34	94.04	86.30
4	56.34	96.04	86.00/86.30

Technical data

EMC specifications			86.00	86.30
Type of test	Electrostatic discharge	Reference standard		
	contact discharge	EN 61000-4-2	4 kV	n.a.
	air discharge	EN 61000-4-2	8 kV	8 kV
	Radio-frequency electromagnetic field (80 ÷ 1,000 MHz)	EN 61000-4-3	10 V/m	10 V/m
	Fast transients (burst) (5-50 ns, 5 kHz) on Supply terminals	EN 61000-4-4	4 kV	2 kV
Surges (1.2/50 µs) on Supply terminals	common mode	EN 61000-4-5	4 kV	2 kV
	differential mode	EN 61000-4-5	4 kV	1 kV
Radio-frequency common mode (0.15 ÷ 80 MHz) on Supply terminals		EN 61000-4-6	10 V	10 V
Radiated and conducted emission		EN 55022	class B	class B
Other data		86.00	86.30	
Current absorption on signal control (B1)	mA	1	—	
Power lost to the environment	without contact current	W	0.1 (12 V) - 1 (230 V)	
	with rated current		See 56, 60 and 62 series relays	

Time scales



NOTE: Time scales and functions must be set before energising the timer.
 To achieve the minimum time setting of 0.05 seconds it is necessary to use one of the functions with control signal.
 When setting very short times it may be necessary to take into account the operate time of the relay used.

Functions

- U** = Supply voltage
- S** = Signal switch
- = Output contact

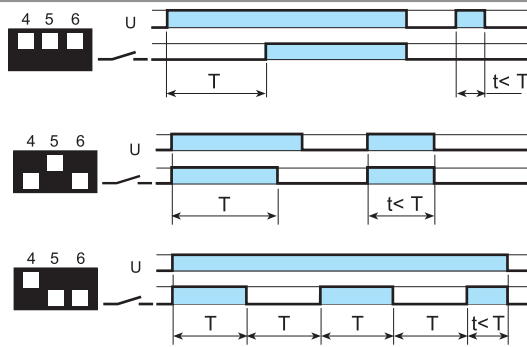
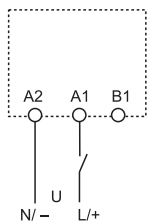
LED Type 86.00	LED Type 86.30	Supply voltage	NO output contact
		OFF	Open
		ON	Open
		ON	Open (timing in progress)
		ON	Closed

Without control signal = Start via contact in supply line (A1).
 With control signal = Start via contact into control terminal (B1).

Wiring diagram

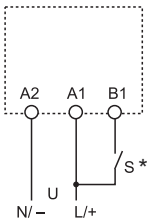
Type 86.00

Without control signal

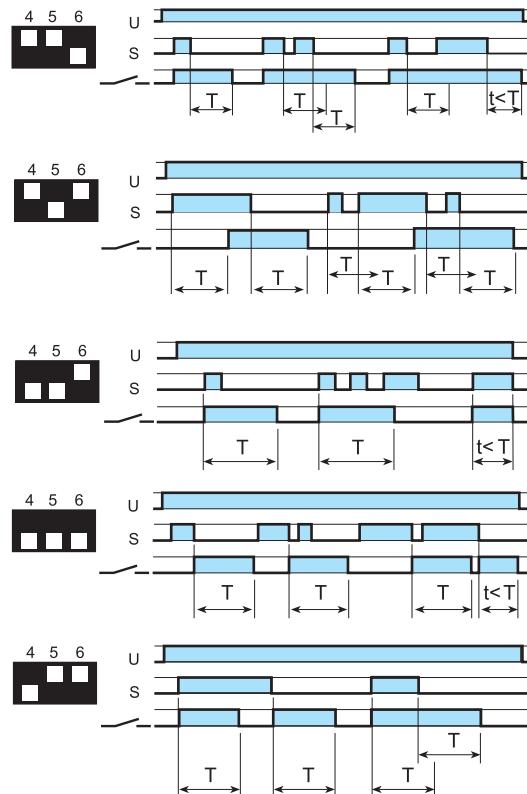


- (AI) On-delay.**
Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.
- (DI) Interval.**
Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.
- (SW) Symmetrical flasher (starting pulse on).**
Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

With control signal



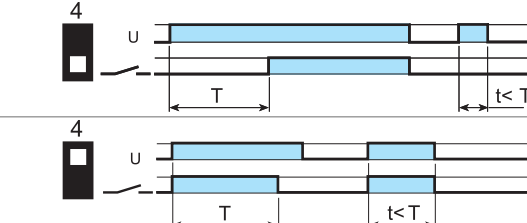
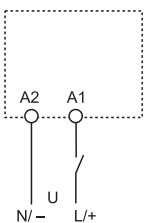
* With DC supply, positive polarity has to be connected to B1 terminal (according to EN 60204-1). Switch S should be exclusively used to provide the control signal to terminal B1. (Do not connect any other load at this point).



- (BE) Off-delay with control signal.**
Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.
- (CE) On- and off-delay with control signal.**
Power is permanently applied to the timer. Closing the Signal Switch (S) initiates the preset delay, after which time the output contacts transfer. Opening the Signal switch initiates the same preset delay, after which time the output contacts reset.
- (DE) Interval with control signal on.**
Power is permanently applied to the timer. On momentary or maintained closure of Signal Switch (S), the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.
- (EE) Interval with control signal off.**
Power is permanently applied to the timer. On opening of the Signal Switch (S) the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.
- (FE) Interval with control signal on and off.**
Power is permanently applied to the timer. Both the opening and closing of the Signal Switch (S) initiates the transfer of the output contacts. In both instances the contacts reset after the delay period has elapsed.

Wiring diagram

Type 86.30



- (AI) On-delay.**
Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.
- (DI) Interval.**
Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.

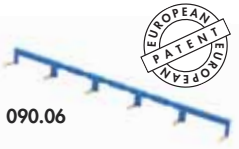
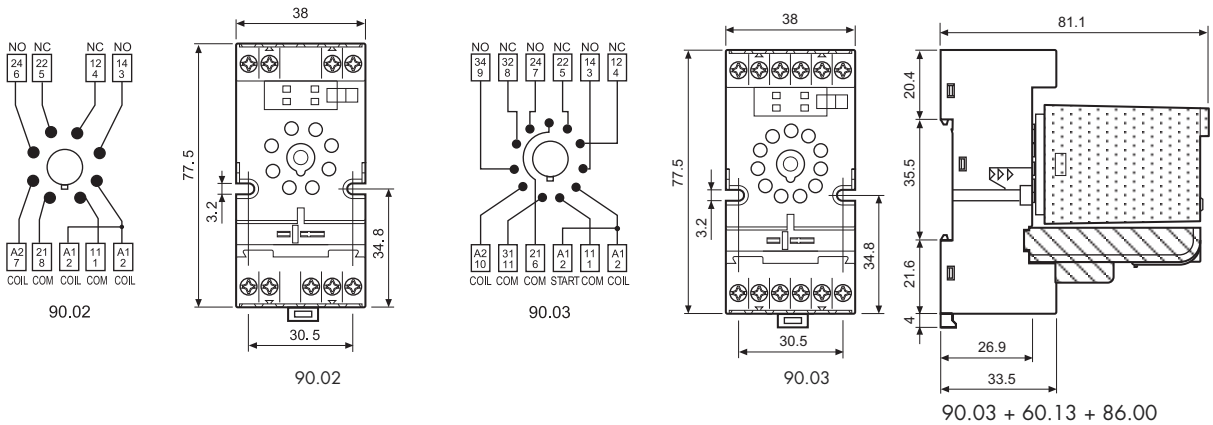


90.03

Approvals
(according to type):



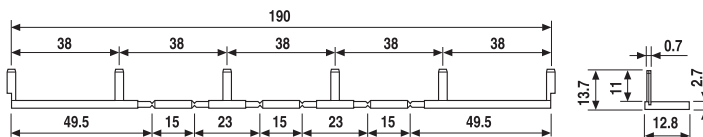
Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount For relay type	90.02 Blue	90.02.0 Black	90.03 Blue	90.03.0 Black
Accessories				
Metal retaining clip		090.33		
6-way jumper link		090.06		
Identification tag		090.00.2		
Timer module		86.00, 86.30		
Technical data				
Double terminal A1 (for easy start connection)				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
⊕ Screw torque	Nm	0.6		
Wire strip length	mm	10		
Max. wire size for 90.02 and 90.03 sockets		solid wire	stranded wire	
	mm ²	1x6 / 2x2.5	1x4 / 2x2.5	
	AWG	1x10 / 2x14	1x12 / 2x14	

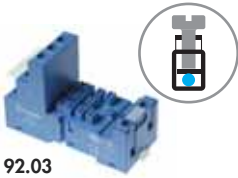


090.06



6-way jumper link for 90.02 and 90.03 sockets	090.06
Rated values	10 A - 250 V





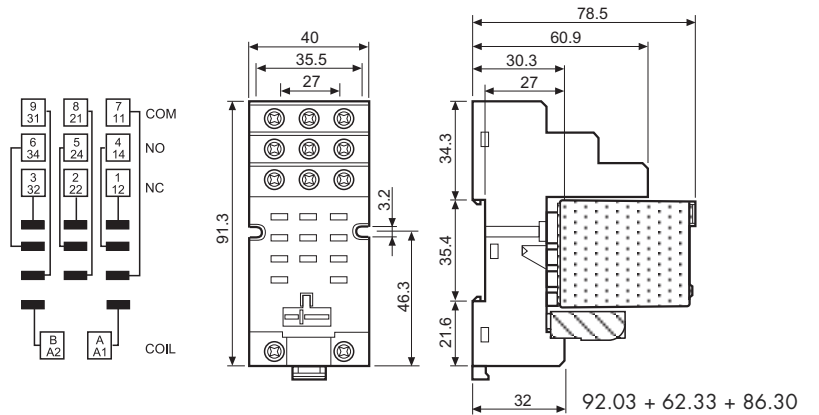
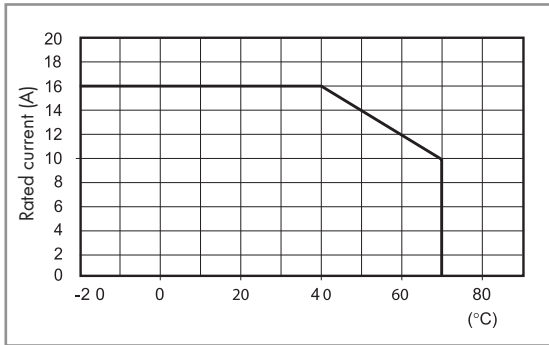
92.03

Approvals
(according to type):



Screw terminal (Box clamp) socket	92.03	92.03.0	
panel or 35 mm rail (EN 60715) mount	Blue	Black	
For relay type	62.32, 62.33		
Accessories			
Metal retaining clip (supplied with socket - packaging code SMA)	092.71		
Identification tag	092.00.2		
Timer modules	86.00, 86.30		
Technical data			
Rated values	16 A - 250 V		
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts		
Protection category	IP 20		
Ambient temperature	°C	-40...+70 (see diagram L92)	
Screw torque	Nm	0.8	
Wire strip length	mm	10	
Max. wire size for 92.03 socket	solid wire	stranded wire	
	mm ²	1x10 / 2x4	1x6 / 2x4
	AWG	1x8 / 2x12	1x10 / 2x12

L 92 - Rated current vs ambient temperature





94.04

Approvals
(according to type):

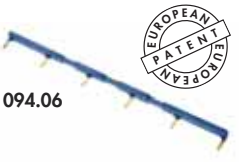
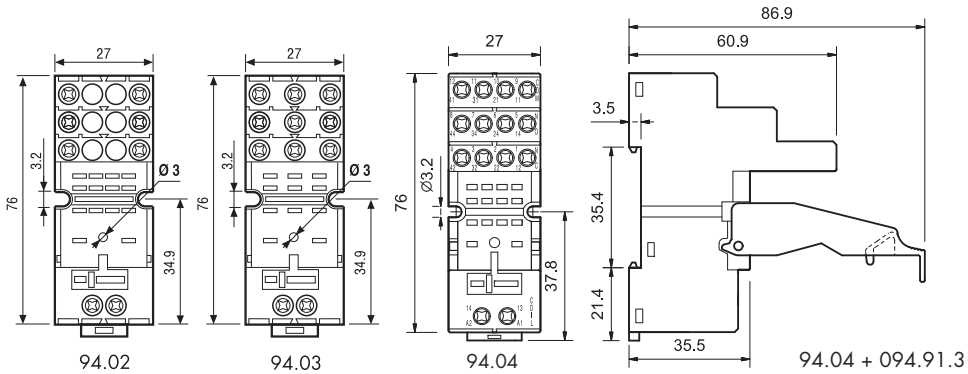
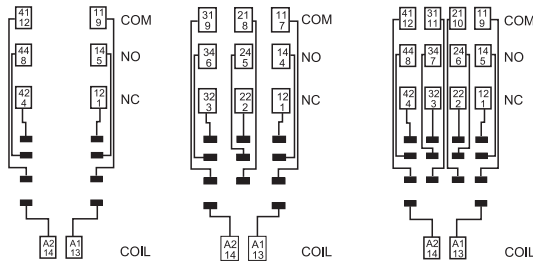


094.91.3



060.72

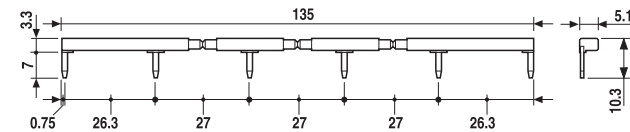
Screw terminal (Box clamp) socket	94.02	94.02.0	94.03	94.03.0	94.04	94.04.0
panel or 35 mm rail (EN 60715) mount	Blue	Black	Blue	Black	Blue	Black
For relay type	55.32		55.33		55.32, 55.34	
Accessories						
Metal retaining clip	094.71					
Plastic retaining and release clip (supplied with socket - packaging code SPA)	094.91.3	094.91.30	094.91.3	094.91.30	094.91.3	094.91.30
6-way jumper link	094.06	094.06.0	094.06	094.06.0	094.06	094.06.0
Identification tag	094.00.4					
Timer modules	86.30					
Sheet of marker tags for retaining and release clip 094.01 plastic, 72 tags, 6x12 mm	060.72					
Technical data						
Rated values	10 A - 250 V					
Dielectric strength	2 kV AC					
Protection category	IP 20					
Ambient temperature	°C -40...+70					
⊕ Screw torque	Nm 0.5					
Wire strip length	mm 8					
Max. wire size for 94.02/03/04 sockets	solid wire		stranded wire			
	mm ² 1x6 / 2x2.5		1x4 / 2x2.5			
	AWG 1x10 / 2x14		1x12 / 2x14			

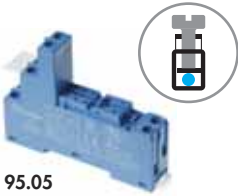


094.06



6-way jumper link for 94.02, 94.03 and 94.04 sockets	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	



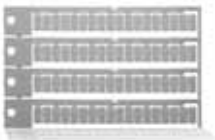


95.05

Approvals (according to type):



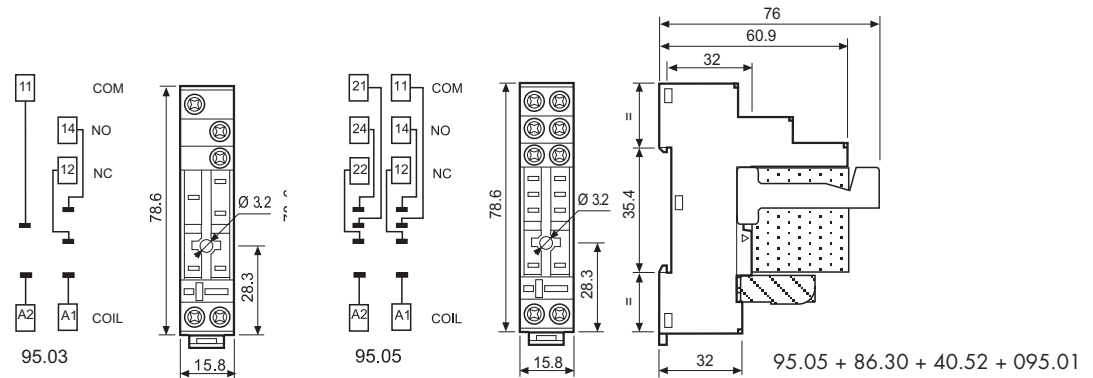
095.01



060.72

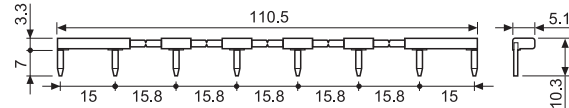
Screw terminal (Box clamp) socket	95.03	95.03.0	95.05	95.05.0
panel or 35 mm rail (EN 60715) mount	Blue	Black	Blue	Black
For relay type	40.31		40.51/ 52/ 61, 44.52/62	
Accessories				
Metal retaining clip	095.71			
Plastic retaining and release clip (supplied with socket - packaging code SPA)	095.01	095.01.0	095.01	095.01.0
8-way jumper link	095.18	095.18.0	095.18	095.18.0
Identification tag	095.00.4			
Timer modules	86.30			
Sheet of marker tags for retaining and release clip 095.01 plastic, 72 tags, 6x12 mm	060.72			
Technical data				
Rated values	10 A - 250 V *			
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
⊕ Screw torque	Nm	0.5		
Wire strip length	mm	8		
Max. wire size for 95.03 and 95.05 sockets	solid wire	stranded wire		
	mm ²	1x6 / 2x2.5	1x4 / 2x2.5	
	AWG	1x10 / 2x14	1x12 / 2x14	

* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).



095.18

8-way jumper link for 95.03 and 95.05 sockets	095.18 (blue)	095.18.0 (black)
Rated values	10 A - 250 V	



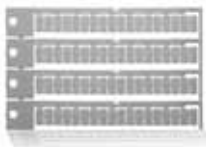


95.55

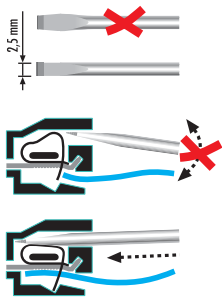
Approvals
(according to type):



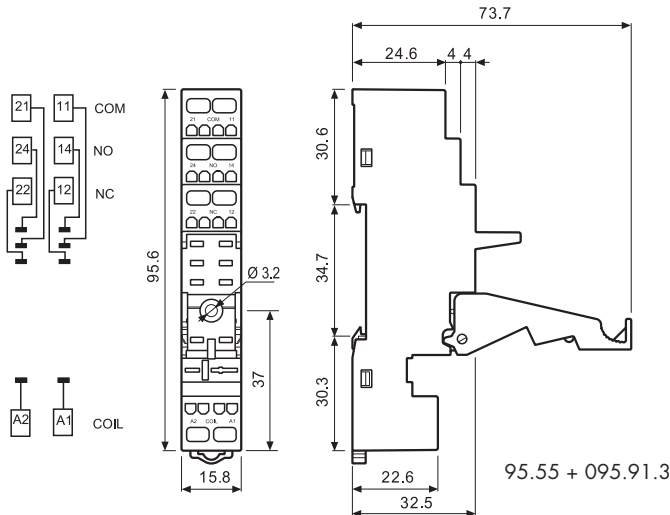
095.91.3

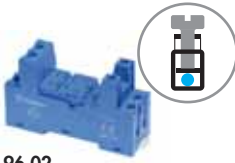


060.72



Screwless terminal socket	95.55	95.55.0
panel or 35 mm rail (EN 60715) mount	Blue	Black
For relay type	40.51/52/61, 44.52/62	
Accessories		
Metal retaining clip		095.71
Plastic retaining and release clip (supplied with socket - packaging code SPA)	095.91.3	095.91.30
Timer modules		86.30
Sheet of marker tags for retaining and release clip 095.91.3 plastic, 72 tags, 6x12 mm		060.72
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	6 kV (1.2/50 µs) between coil and contacts	
Protection category	IP 20	
Ambient temperature	°C	-25...+70
Wire strip length	mm	8
Max. wire size for 95.55 socket	solid wire	stranded wire
	mm ²	2x(0.2...1.5)
	AWG	2x(24...18)





96.02
Approvals
(according to type):



96.04
Approvals
(according to type):

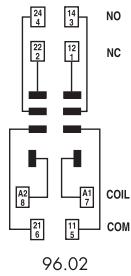


094.91.3

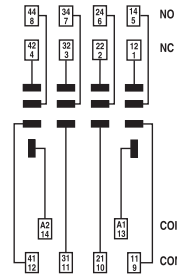


060.72

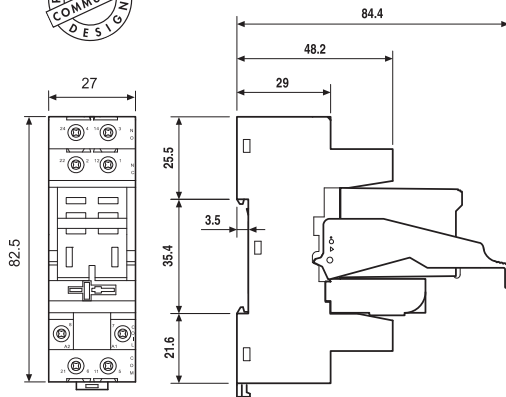
Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount For relay type	96.02 Blue	96.02.0 Black	96.04 Blue	96.04.0 Black
	56.32		56.34	
Accessories				
Metal retaining clip (supplied with socket - packaging code SMA)	094.71		096.71	
Plastic retaining and release clip (supplied with socket - packaging code SPA)	094.91.3	094.91.30	—	—
6-way jumper link	094.06	094.06.0	—	—
Identification tag	095.00.4		090.00.2	
Timer modules	86.30		86.00, 86.30	
Sheet of marker tags for retaining and release clip 094.91.3 plastic, 72 tags, 6x12 mm	060.72		—	
Technical data				
Rated values	12 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
⊕ Screw torque	Nm	0.8		
Wire strip length	mm	8		
Max. wire size for 96.02/04 sockets		solid wire	stranded wire	
	mm ²	1x6 / 2x2.5		1x4 / 2x2.5
	AWG	1x10 / 2x14		1x12 / 2x14



96.02

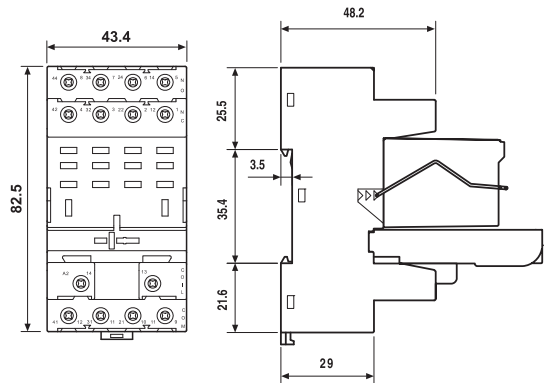


96.04



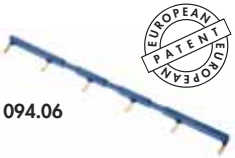
96.02

96.02 + 56.32 + 094.91.3 + 86.30



96.04

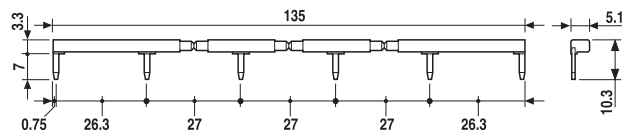
96.04 + 56.34 + 096.71 + 86.00

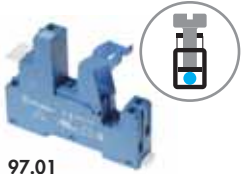


094.06



6-way jumper link for 96.02 socket	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	





97.01

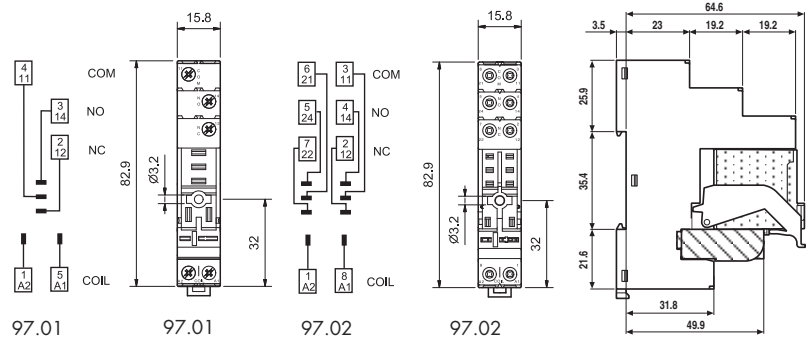
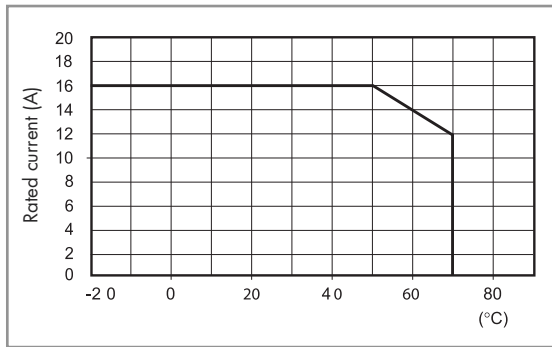
Approvals
(according to type):



097.01

Screw terminal socket	97.01	97.02
panel or 35 mm rail (EN 60715) mount	Blue	Blue
For relay type	46.61	46.52
Accessories		
Plastic retain and eject clip (supplied with socket - packaging code SPA)	097.01	
8-way jumper link	095.18 (blue)	095.18.0 (black)
Identification tag	095.00.4	
Timer modules	86.30	
Technical data		
Rated current	16 A - 250 V AC	8 A - 250 V AC
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP 20	
Ambient temperature	°C -40...+70 (see diagram L97)	
⊕ Screw torque	Nm 0.8	
Wire strip length	mm 8	
Max. wire size for 97.01 and 97.02 sockets	solid wire	stranded wire
	mm ² 1x6 / 2x2.5	1x4 / 2x2.5
	AWG 1x10 / 2x14	1x12 / 2x14

L 97 - Rated current vs ambient temperature
(for 46.61 relay / 97.01 socket combination)



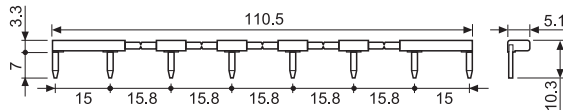
97.02 + 46.52 + 097.01
+ 86.30

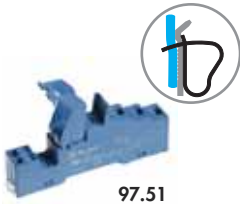


095.18



8-way jumper link for 97.01 and 97.02 sockets	095.18 (blue)	095.18.0 (black)
Rated values	10 A - 250 V	





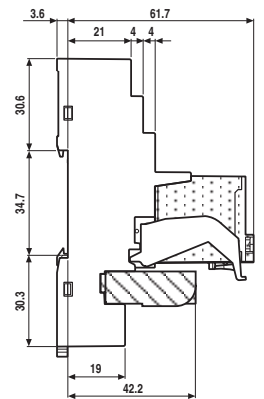
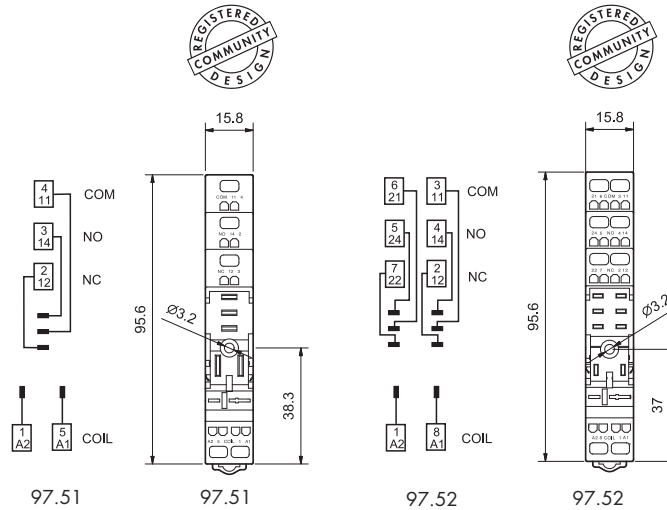
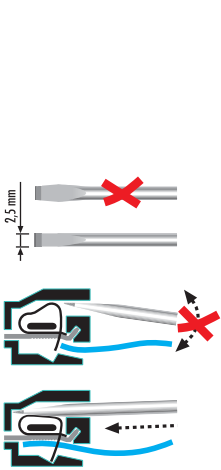
97.51

Approvals
(according to type):



097.01

Screwless terminal socket	97.51	97.52
panel or 35 mm rail (EN 60715) mount	Blue	Blue
For relay type	46.61	46.52
Accessories		
Plastic retain and eject clip (supplied with socket - packaging code SPA)	097.01	
Timer modules	86.30	
Technical data		
Rated current	10 A - 250 V AC	8 A - 250 V AC
Dielectric strength	6 kV (1.2/50 μs) between coil and contacts	
Protection category	IP 20	
Ambient temperature	°C -25...+70	
Wire strip length	mm 8	
Max. wire size for 97.51 and 97.52 sockets	solid wire	stranded wire
	mm ² 2x(0.2...1.5)	2x(0.2...1.5)
	AWG 2x(24...18)	2x(24...18)



97.52 + 46.52 + 097.01 + 86.30

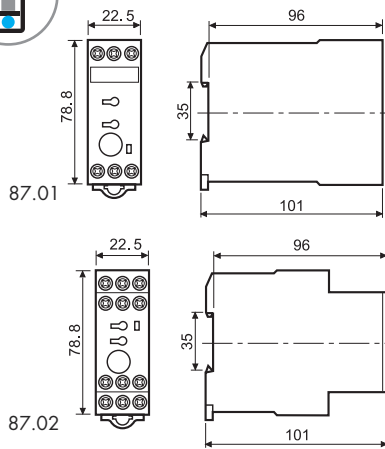
Features

Mono-function and multi-function timer range
22.5 mm wide

87.01 - 1 Pole - Multi-function and multi-voltage
87.02 - 2 Pole - Multi-function and multi-voltage,
(timed + instantaneous options)
External time setting potentiometer option

- Wide supply voltage range: (24...240)V AC / (24...48)V DC
- LED indicator
- Time setting from 0.05 seconds to 60 hours
- 35 mm rail (EN 60715) mount

87.01 / 87.02
Screw terminal



87.01



87.02

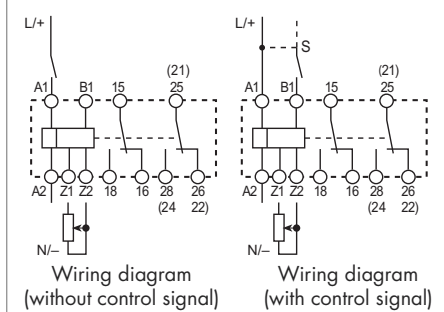
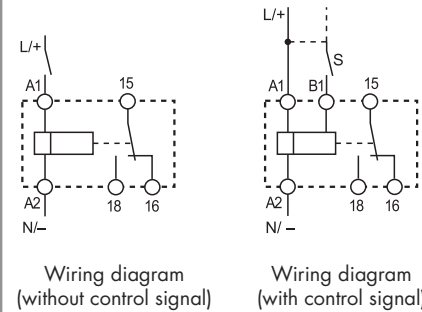


- Multi-function
- 1 pole
- 35 mm rail (EN 60715) mount

- Multi-function
- Timing can be regulated using ext. Potentiometer
- 2 timed contacts or 1 timed + 1 instantaneous contact
- 35 mm rail (EN 60715) mount

- AI:** On-delay
BE: Off-delay with control signal
CE: On- and off-delay with control signal
DE: Interval with control signal on
DI: Interval
EE a: Interval with control signal off
GI: Pulse delayed
SW: Symmetrical flasher (starting pulse on)

- AI:** On-delay
BE: Off-delay with control signal
CE: On- and off-delay with control signal
DE: Interval with control signal on
DI: Interval
EE a: Interval with control signal off
GI: Pulse delayed
SW: Symmetrical flasher (starting pulse on)



Contact specification		87.01	87.02
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	8/30	8/30
Rated voltage/Maximum switching voltage V AC		250/400	250/400
Rated load AC1	VA	2,000	2,000
Rated load AC15 (230 V AC)	VA	400	400
Single phase motor rating (230 V AC)	kW	0.185	0.185
Breaking capacity DC1: 30/110/220 V	A	8/0.5/0.2	8/0.5/0.2
Minimum switching load	mW (V/mA)	300 (10/5)	300 (10/5)
Standard contact material		AgCdO	AgCdO
Supply specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	24...240	24...240
	V DC	24...48	24...48
Rated power AC/DC	VA (50 Hz)/W	5/0.5	5/0.5
Operating range	AC	(0.85...1.1)U _N	(0.85...1.1)U _N
	DC	(0.85...1.2)U _N	(0.85...1.2)U _N
Technical data			
Specified time range		See page 6	See page 6
Repeatability	%	± 0.2	± 0.2
Recovery time	ms	50	50
Minimum control impulse	ms	50	50
Setting accuracy-full range	%	± 5	± 5
Electrical life at rated load in AC1	cycles	100·10 ³	100·10 ³
Ambient temperature range (Contact current)	°C	-20...+70	-20...+60 / -20...+70 (< 5 A)
Protection category		IP 20	IP 20
Approvals (according to type)			

Features

Mono-function and multi-function timer range
22.5 mm wide

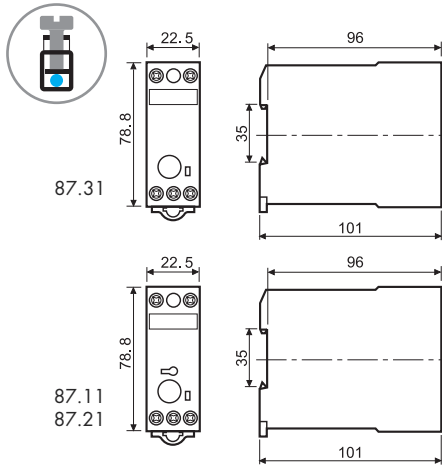
87.11 - On-delay, multi-voltage

87.21 - Interval, multi-voltage

87.31 - Symmetrical flasher (starting pulse on), multi-voltage

- 1 Pole output contact
- Wide supply voltage range: (24...240)V AC / (24...48)V DC
- LED indicator
- Time setting:
Types 87.11/21 - 0.05 seconds to 60 hours
Type 87.31 - 0.5 seconds to 10 seconds
- 35 mm rail (EN 60715) mount

87.11 / 87.21 / 87.31
Screw terminal



87.11



- Mono-function
- 35 mm rail (EN 60715) mount

87.21



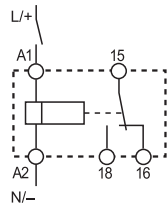
- Mono-function
- 35 mm rail (EN 60715) mount

87.31



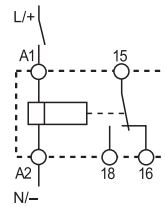
- Mono-function
- 35 mm rail (EN 60715) mount

AI: On-delay



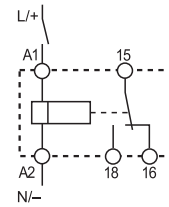
Wiring diagram
(without control signal)

DI: Interval



Wiring diagram
(without control signal)

SW: Symmetrical flasher
(starting pulse on)



Wiring diagram
(without control signal)

Contact specification

Contact configuration		1 CO (SPDT)	1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	8/30	8/30	8/30
Rated voltage/Maximum switching voltage	V AC	250/400	250/400	250/400
Rated load AC1	VA	2,000	2,000	2,000
Rated load AC15 (230 V AC)	VA	400	400	400
Single phase motor rating (230 V AC)	kW	0.185	0.185	0.185
Breaking capacity DC1: 30/110/220 V	A	8/0.5/0.2	8/0.5/0.2	8/0.5/0.2
Minimum switching load	mW (V/mA)	300 (10/5)	300 (10/5)	300 (10/5)
Standard contact material		AgCdO	AgCdO	AgCdO

Supply specification

Nominal voltage (U_N)	V AC (50/60 Hz)	24...240	24...240	24...240
	V DC	24...48	24...48	24...48
Rated power AC/DC	VA (50 Hz)/W	5/0.5	5/0.5	5/0.5
Operating range	AC	$(0.85...1.1)U_N$	$(0.85...1.1)U_N$	$(0.85...1.1)U_N$
	DC	$(0.85...1.2)U_N$	$(0.85...1.2)U_N$	$(0.85...1.2)U_N$

Technical data

Specified time range		See page 6	See page 6	See page 6
Repeatability	%	± 0.2	± 0.2	± 0.2
Recovery time	ms	50	50	50
Minimum control impulse	ms	—	—	—
Setting accuracy-full range	%	± 5	± 5	± 5
Electrical life at rated load in AC1	cycles	$100 \cdot 10^3$	$100 \cdot 10^3$	$100 \cdot 10^3$
Ambient temperature range	$^{\circ}\text{C}$	-20...+70	-20...+70	-20...+70
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)



Features

Mono-function and multi-function timer range
22.5 mm wide

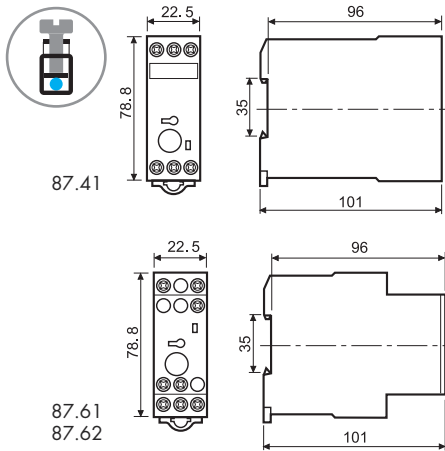
87.41 - Off-delay with control signal, multi-voltage, 1 Pole

87.61 - Power off-delay (True off-delay), multi-voltage, 1 Pole

87.62 - Power off-delay (True off-delay), multi-voltage, 2 Pole

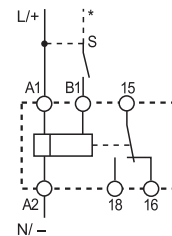
- Wide supply voltage range:
Type 87.41, (24...240)V AC/(24...48)V DC
Types 87.61/62, (24...240)V AC/DC
- LED indicator
- Time setting range:
Type 87.41 - 0.05 seconds to 60 hours
Types 87.61/62 - 0.15 seconds to 10 minutes
- 35 mm rail (EN 60715) mount

87.41 / 87.61 / 87.62
Screw terminal



- Mono-function
- 1 pole
- 35 mm rail (EN 60715) mount

BE: Off-delay with control signal

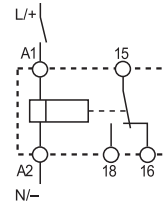


Wiring diagram (with control signal)



- Mono-function
- 1 pole
- 35 mm rail (EN 60715) mount

BI: Power off-delay (True off-delay)

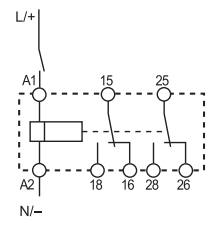


Wiring diagram (without control signal)



- Mono-function
- 2 pole
- 35 mm rail (EN 60715) mount

BI: Power off-delay (True off-delay)



Wiring diagram (without control signal)

Contact specification		87.41	87.61	87.62
Contact configuration		1 CO (SPDT)	1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	8/30	5/10	5/10
Rated voltage/Maximum switching voltage V AC		250/400	250/400	250/400
Rated load AC1	VA	2,000	1,250	1,250
Rated load AC15 (230 V AC)	VA	400	250	250
Single phase motor rating (230 V AC)	kW	0.185	0.125	0.125
Breaking capacity DC1: 30/110/220 V	A	8/0.5/0.2	5/0.5/0.2	5/0.5/0.2
Minimum switching load	mW (V/mA)	300 (10/5)	300 (10/5)	300 (10/5)
Standard contact material		AgCdO	AgCdO	AgCdO
Supply specification		87.41	87.61	87.62
Nominal voltage (U _N)	V AC (50/60 Hz)	24...240	24...240	24...240
	V DC	24...48	24...240	24...240
Rated power AC/DC	VA (50 Hz)/W	5/0.5	1.5/1.5	1.5/1.5
Operating range	AC	(0.85...1.1)U _N	(0.85...1.1)U _N	(0.85...1.1)U _N
	DC	(0.85...1.2)U _N	(0.85...1.2)U _N	(0.85...1.2)U _N
Technical data		87.41	87.61	87.62
Specified time range		See page 6	See page 6	See page 6
Repeatability	%	± 0.2	± 1	± 1
Recovery time	ms	50	200	200
Minimum control impulse	ms	50	800 ms (A1 - A2)	800 ms (A1 - A2)
Setting accuracy-full range	%	± 5	± 5	± 5
Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³	100 · 10 ³
Ambient temperature range	°C	-20...+70	-20...+70	-20...+70
Protection category		IP 20	IP 20	IP 20
Approvals (according to type)		CE, GL, PG, cULus	CE, PG	CE, PG, cULus

Features

Mono-function and multi-function timer range
22.5 mm wide

87.82 - Star-delta, multi-voltage, star and delta output contacts

87.91 - Multi-function Recycling timer, 1 Pole

- Wide supply range:
(24...240)V AC / (24...48)V DC
- LED indicator
- Time setting voltage range:
Type 87.82 - 0.05 minute to 1 minute
Type 87.91 - 0.05 seconds to 60 hours
- 35 mm rail (EN 60715) mount

87.82



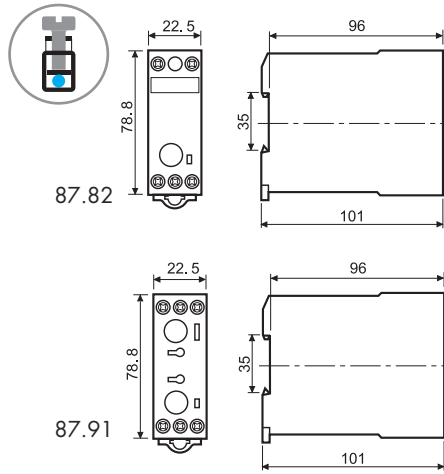
- Mono-function: Star - delta
- 2 pole
- 35 mm rail (EN 60715) mount

87.91

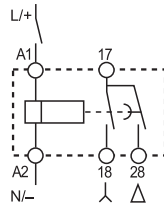


- Multi-function recycling
- 1 pole
- 35 mm rail (EN 60715) mount

87.82 / 87.91
Screw terminal

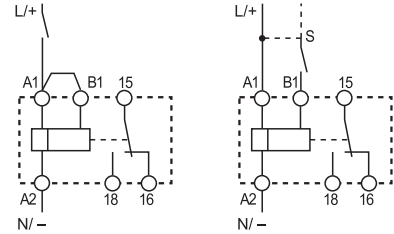


SD: Star-delta



Wiring diagram
(without control signal)

- LI:** Asymmetrical flasher (starting pulse on)
- LE:** Asymmetrical flasher (starting pulse on) with control signal
- PI:** Asymmetrical flasher (starting pulse off)
- PE:** Asymmetrical flasher (starting pulse off) with control signal



Wiring diagram
(without control signal)

Wiring diagram
(with control signal)

Contact specification			
Contact configuration		2 NO (DPST-NO)	1 CO (SPDT)
Rated current/Maximum peak current	A	8/30	8/30
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	2,000	2,000
Rated load AC15 (230 V AC)	VA	400	400
Single phase motor rating (230 V AC)	kW	0.185	0.185
Breaking capacity DC1: 30/110/220 V	A	8/0.5/0.2	8/0.5/0.2
Minimum switching load	mW (V/mA)	300 (10/5)	300 (10/5)
Standard contact material		AgCdO	AgCdO
Supply specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	24...240	24...240
	V DC	24...48	24...48
Rated power AC/DC	VA (50 Hz)/W	5/0.5	5/0.5
Operating range	AC	(0.85...1.1)U _N	(0.85...1.1)U _N
	DC	(0.85...1.2)U _N	(0.85...1.2)U _N
Technical data			
Specified time range		See page 6	See page 6
Repeatability	%	± 0.2	± 0.2
Recovery time	ms	50	50
Minimum control impulse	ms	—	50
Setting accuracy-full range	%	± 5	± 5
Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³
Ambient temperature range	°C	-20...+70	-20...+70
Protection category		IP 20	IP 20

Approvals (according to type)



Ordering information

Example: 87 series multi-function timer 8 A, 1 CO (SPDT) contact, (24...240)V AC (50/60 Hz) and (24...48)V DC supply.

8 7 . 0 1 . 0 . 2 4 0 . 0 0 0 0

Series

Type

- 0 = Multi-function (AI, BE, CE, DI, DE, EE a, GI, SW, ON, OFF)
- 1 = On-delay (AI)
- 2 = Interval (DI)
- 3 = Symmetrical flasher (starting pulse on) (SW)
- 4 = Off-delay with control signal (BE)
- 6 = Power off-delay (True off-delay) (BI)
- 8 = Star-delta (SD)
- 9 = Asymmetrical flasher (LI, LE, PI, PE)

Supply voltage

- 240 = { (24...48)V DC
- (24...240)V AC
- 240 = (24...240)V AC/DC for 87.61 and 87.62

Supply version

- 0 = AC (50/60 Hz)/DC

No. of poles

- 1 = 1 pole
- 2 = 2 pole for 87.02/62
- 2 = 2 NO (DPST-NO) for 87.82

Technical data

Insulation					
Dielectric strength	between input and output circuit	V AC	4,000		
	insulation (1.2/50 μs) between input and output	kV	6		
	between open contacts	V AC	1,000		
	between adjacent contacts	V AC	2,000 (Type 87.02, 87.62)		
EMC specifications					
Type of test		Reference standard			
Electrostatic discharge	contact discharge	EN 61000-4-2	8 kV		
	air discharge	EN 61000-4-2	8 kV		
Radio-frequency electromagnetic field (80 ÷ 1000 MHz)		EN 61000-4-3	10 V/m		
Fast transients (burst) (5-50 ns, 5 kHz) on Supply terminals		EN 61000-4-4	6 kV		
Surges (1.2/50 μs) on Supply terminals	common mode	EN 61000-4-5	4 kV		
	differential mode	EN 61000-4-5	4 kV		
Radio-frequency common mode (0.15 ÷ 80 MHz) on Supply terminals		EN 61000-4-6	10 V		
Radiated and conducted emission		EN 55022	class B		
Other data					
Signal control (B1)					
	- current absorption	1 mA			
	- max cable length (capacity of ≤ 10 nF / 100 m)	250 m			
	- when applying a control signal to B1, which is different from the supply voltage at A1/A2	B1 is isolated from A1 and A2 by an opto-coupler, and can therefore be operated at a voltage other than the supply voltage If using a control signal of between (24... 48)V DC and a supply voltage of (24...240)V AC; ensure that the signal – is connected to A2 and the + is applied to B1, and that L is applied to B1 and N to A2			
Note: when applying a control signal to B1 it is recommended to attach a bypass resistance 56 kOhm/2 W across B1 - A2					
External potentiometer for 87.02		Use a 10 kΩ/ ≥ 0,25 W linear potentiometer. Maximum cable length 10 m. When using an external potentiometer, remove the bridge between Z1 and Z2, and set the timer's potentiometer to its minimum setting. Consider the voltage potential at the potentiometer to be the same as the timer supply voltage.			
Power lost to the environment		87.01/02/11/21/31/41/91	87.61/62	87.82	
	without contact current	W	5	1.5	8
	with rated current	W	15	7	18
Screw torque	Nm	1.2			
Max. wire size		solid cable	stranded cable		
		mm ²	1x4 / 2x2.5	1x4 / 2x1.5	
		AWG	1x12 / 2x14	1x12 / 2x16	

Time scales

Type	Function Code	Function	Time ranges - minimum to maximum span										
			s	s	s	min	min	min	h	h	h		
			0.05	0.15	0.5	0.05	0.15	0.5	0.05	0.15	0.5	3	
			1	3	10	1	3	10	1	3	10	60	
87.01	AI	On-delay	•	•	•	•	•	•	•	•	•	•	•
87.02	BE	Off-delay with control signal	•	•	•	•	•	•	•	•	•	•	•
	CE	On- and off-delay with control signal	•	•	•	•	•	•	•	•	•	•	•
	DI	Interval	•	•	•	•	•	•	•	•	•	•	•
	DE	Interval with control signal on	•	•	•	•	•	•	•	•	•	•	•
	EE a	Interval with control signal off	•	•	•	•	•	•	•	•	•	•	•
	GI	Pulse delayed	•	•	•	•	•	•	•	•	•	•	•
	SW	Symmetrical flasher (starting pulse on)	•	•	•	•	•	•	•	•	•	•	•
	87.11	AI	On-delay	•	•	•	•	•	•	•	•	•	•
87.21	DI	Interval	•	•	•	•	•	•	•	•	•	•	
87.31	SW	Symmetrical flasher (starting pulse on)			•								
87.41	BE	Off-delay with control signal	•	•	•	•	•	•	•	•	•	•	
87.61	BI	Power off-delay (True off-delay)		0.15		0.07							
87.62				2.5	•	1.3	•						
87.82	SD	Star-delta ($T_U = \sim 60$ ms)				•							
87.91	LI	Asymmetrical flasher (starting pulse on)	•	•	•	•	•	•	•	•	•	•	•
	LE	Asymmetrical flasher (starting pulse on) with control signal	•	•	•	•	•	•	•	•	•	•	•
	PI	Asymmetrical flasher (starting pulse off)	•	•	•	•	•	•	•	•	•	•	•
	PE	Asymmetrical flasher (starting pulse off) with control signal	•	•	•	•	•	•	•	•	•	•	•

Functions

U = Supply Voltage

S = Signal switch

C = Output Contact

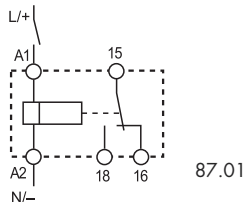
LED**	Timing	NO output contact	Contacts Timed		DIP switch	Contacts Instantaneous*	
			Open	Closed		Open	Closed
	None	Open	15 - 18 25 - 28*	15 - 16 25 - 26*	Up	21 - 24*	21 - 22*
	In progress	Open	15 - 18 25 - 28*	15 - 16 25 - 26*		21 - 22*	21 - 24*
	In progress	Closed	15 - 16 25 - 26*	15 - 18 25 - 28*		21 - 22*	21 - 24*
	None	Closed	15 - 16 25 - 26*	15 - 18 25 - 28*	Down	21 - 22*	21 - 24*

* 25-26-28 only for type 87.02 with 2 timed contacts. 21-22-24 only for type 87.02 with 1 instantaneous contact + 1 timed positioning the front DIP switch.

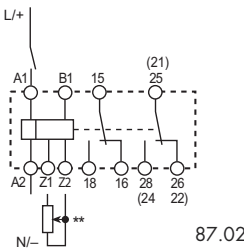
** The LED on types 87.61 and 87.62 is illuminated when supply voltage is supplied to timer.

Wiring diagram

Multi-function without control signal

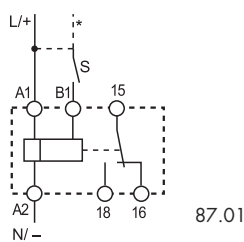


87.01

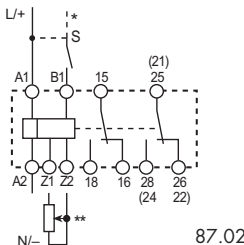


87.02

with control signal



87.01



87.02

* A voltage other than the supply voltage can be applied to the command START (B1).
Example:

A1 - A2 = 230 V AC
B1 - A2 = 24 V AC

** Type 87.02: regulated using an external potentiometer (10 kΩ - 0.25 W).

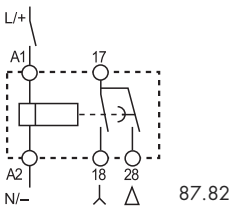
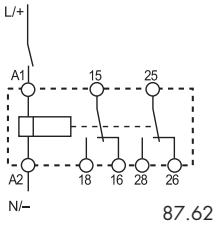
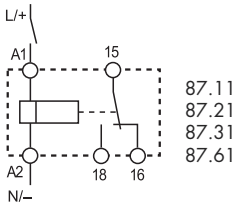
NB.: remove link between Z1-Z2 and position the Timer potentiometer on "zero".

	<p>(AI) On-delay. Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.</p>
	<p>(DI) Interval. Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.</p>
	<p>(GI) Pulse delayed. Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs after a fixed time of 0.5s.</p>
	<p>(SW) Symmetrical flasher (starting pulse on). Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).</p>
	<p>(BE) Off-delay with control signal. Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.</p>
	<p>(CE) On- and off-delay with control signal. Power is permanently applied to the timer. Closing the Signal Switch (S) initiates the preset delay, after which time the output contacts transfer. Opening the Signal switch initiates the same preset delay, after which time the output contacts reset.</p>
	<p>(DE) Interval with control signal on. Power is permanently applied to the timer. On momentary or maintained closure of Signal Switch (S), the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.</p>
	<p>(EE a) Interval with control signal off. Power is permanently applied to the timer. On opening of the Signal Switch (S) the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.</p>
	<p>Permanently ON. Selecting the function ON when power is applied to the relay the first contact transfers immediately and remains in that position.</p>
	<p>Permanently OFF. The contact returns to the original position when the OFF function is selected.</p>

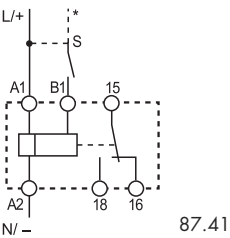
Functions

Wiring diagram

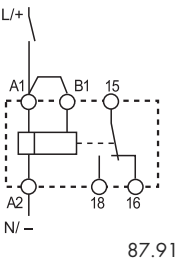
Mono-function
without control signal



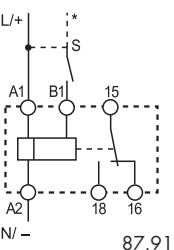
with control signal (S)



Asymmetrical recycler
without control signal



with control signal (S)



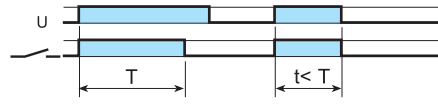
Type
87.11



(AI) On-delay.

Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.

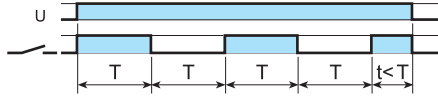
87.21



(DI) Interval.

Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.

87.31

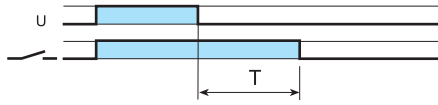


(SW) Symmetrical flasher (starting pulse on).

Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

87.61

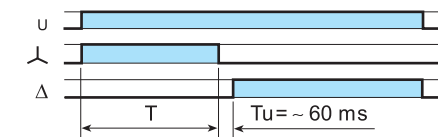
87.62



(BI) Power off-delay (True off-delay).

Apply power to timer (minimum 300 ms). Output contacts transfer immediately. Removal of power initiates the preset delay, after which time the output contacts reset.

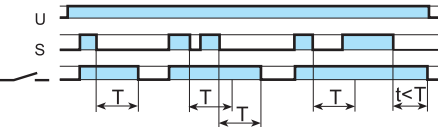
87.82



(SD) Star-delta.

Apply power to timer. The star contact (λ) closes immediately. After preset delay has elapsed the star contact (λ) resets. After a further fixed time of ~60 ms the delta contact (Δ) closes and remains in that position, until reset on power off.

87.41

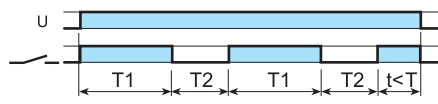


(BE) Off-delay with control signal.

Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.

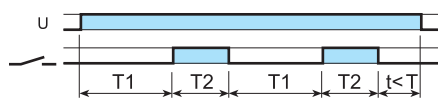
87.91

switch position



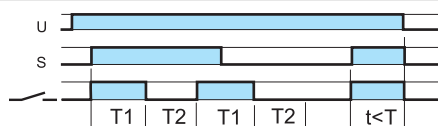
(LI) Asymmetrical flasher (starting pulse on).

Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ON and OFF times are independently adjustable.



(PI) Asymmetrical flasher (starting pulse off).

Apply power to timer. Output contacts transfer after time T1 has elapsed and cycle between OFF and ON for as long as power is applied. The ON and OFF times are independently adjustable.



(LE) Asymmetrical flasher (starting pulse on) with control signal.

Power is permanently applied to the timer. Closing Signal Switch (S) causes the output contacts to transfer immediately and cycle between ON and OFF, until opened.



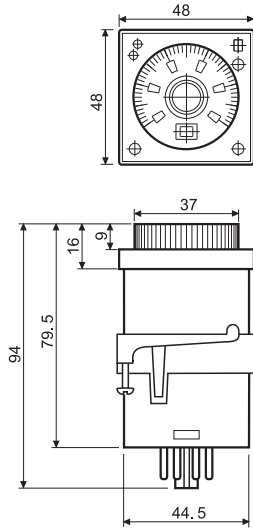
(PE) Asymmetrical flasher (starting pulse off) with control signal.

Power is permanently applied to the timer. Closing the Signal Switch (S) initiates delay T1 after which the output contacts transfer and continue to cycle between OFF and ON, until the Signal Switch is opened.

Features

Multi-voltage and multi-function timer range Front panel or socket mount

- 8 - 11 pin plug-in version available
- Time scales from 0.05s to 100h
- "1 delayed contact + 1 instantaneous contact" version available (type 88.12)
- Front panel mounting fixing included
- 90 series sockets

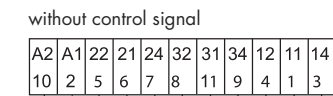


88.02

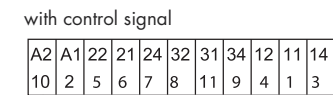


- Multi-function
- 11 pin
- Plug-in for use with 90 series sockets

- AI:** On-delay
- DI:** Interval
- GI:** Pulse delayed
- SW:** Symmetrical flasher (starting pulse on)



- BE:** Off-delay with control signal
- CE:** On- and off-delay with control signal
- DE:** Interval with control signal on



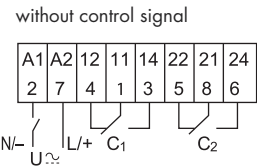
P = Pause
S = Start
R = Reset

88.12



- Multi-function
- 8 pin, 2 timed contacts or
1 timed + 1 instantaneous contact
- Plug-in for use with 90 series sockets

- AI a:** On-delay (2 timed contacts)
- AI b:** On-delay (1 timed + 1 instantaneous contact)
- DI a:** Interval (2 timed contacts)
- DI b:** Interval (1 timed + 1 instantaneous contact)
- GI:** Pulse delayed
- SW:** Symmetrical flasher (starting pulse on)



Contact specification

Contact configuration		2 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	8/15	5/10
Rated voltage/Maximum switching voltage	V AC	250/250	250/400
Rated load AC1	VA	2,000	1,250
Rated load AC15 (230 V AC)	VA	400	250
Single phase motor rating (230 V AC)	kW	0.3	0.125
Breaking capacity DC1: 30/110/220 V	A	8/0.3/0.12	5/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	500 (5/5)
Standard contact material		AgNi	AgCdO

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	24...230	24...230
	V DC	24...230	24...230
Rated power AC/DC	VA (50 Hz)/W	2.5 (230 V)/1 (24 V)	2.5 (230 V)/1.5 (24 V)
Operating range	V AC	20.4...264.5	20.4...264.5
	V DC	20.4...264.5	20.4...264.5

Technical data

Specified time range		(0.05 s...5 h) - (0.05 s...10 h) - (0.05 s...50 h) - (0.05 s...100 h)	
Repeatability	%	± 1	± 1
Recovery time	ms	300	200
Minimum control impulse	ms	50	—
Setting accuracy-full range	%	± 3	± 3
Electrical life at rated load AC1	cycles	100·10 ³	100·10 ³
Ambient temperature range	°C	-10...+55	-10...+55
Protection category		IP 40	IP 40

Approvals (according to type)

Ordering information

Example: 88 series multi-function timer, 2 CO (DPDT) contact 8 A, (24...230)V AC (50/60 Hz) and (24...230)V DC supply.



Series _____
Type _____
 0 = Functions AI, DI, GI, SW, BE, CE, DE, 11 pin
 1 = Functions AI a, AI b, DI a, DI b, GI, SW, 8 pin
No. of poles _____
 2 = 2 pole
Supply version _____
 0 = AC (50/60 Hz)/DC

Special versions _____
 2 = Standard
Supply voltage _____
 230 = (24...230)V AC/DC

Technical data

EMC specifications			
Type of test		Reference standard	
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV
	air discharge	EN 61000-4-2	8 kV
Radio-frequency electromagnetic field (80 ÷ 1,000 MHz)		EN 61000-4-3	10 V/m
Fast transients (burst) (5-50 ns, 5 kHz) on Supply terminals		EN 61000-4-4	2 kV
Surges (1.2/50 µs) on Supply terminals	common mode	EN 61000-4-5	2 kV
	differential mode	EN 61000-4-5	1 kV
Radio-frequency common mode (0.15 ÷ 80 MHz) on Supply terminals		EN 61000-4-6	3 V

Selection of: function, time scale and units

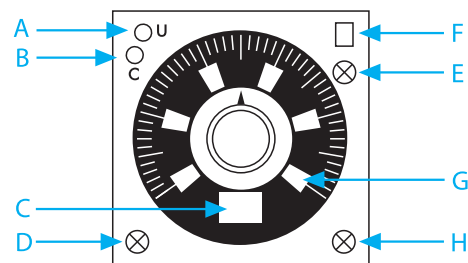
		88.02	88.12
E	Function selector	AI, DI, GI, SW, BE, CE, DE	AI a, AI b, DI a, DI b, GI, SW
D	Time scale selector	0.5, 1, 5, 10	
H	Unit of time selector	s (second), min (minute), h (hour), 10h (10 hour)	

Time scales

Full scale value

D \ H	s	min	h	x10h
0.5	0.5 second	0.5 minute	0.5 hour	5 hour
1	1 second	1 minute	1 hour	10 hour
5	5 second	5 minute	5 hour	50 hour
10	10 second	10 minute	10 hour	100 hour

NOTE: time scales and functions must be set before energising the timer.



LED/visual indication

A	Yellow LED: power ON (U)
B	Red LED: timing in progress (C)
C	Unit of time selected
F	Function selected
G	Time selected

Functions

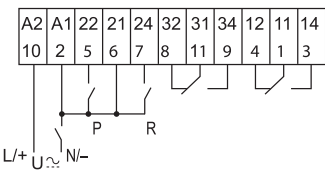
- U** = Supply Voltage
- S** = Signal switch
- P** = Pause
- R** = Reset
- = Output Contact

LED (yellow)	LED (red)	Supply voltage	NO output contact	Contact	
				Open	Closed
		OFF	Open	x1 - x4	x1 - x2
		ON	Open	x1 - x4 x1 - x2	x1 - x2 x1 - x4
		ON	Open (timing in progress)	x1 - x4	x1 - x2
		ON	Closed	x1 - x2	x1 - x4

Wiring diagram

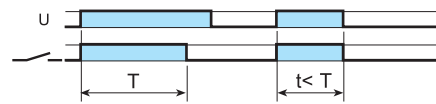
Type 88.02

without control signal



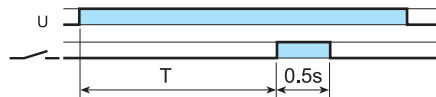
(AI) On-delay.

Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.



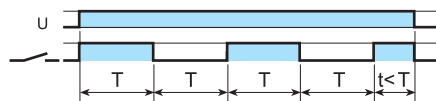
(DI) Interval.

Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.



(GI) Pulse delayed.

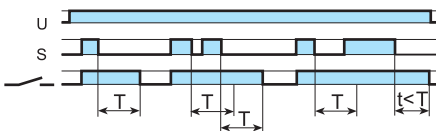
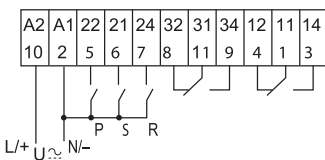
Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs after a fixed time of 0.5s.



(SW) Symmetrical flasher (starting pulse on).

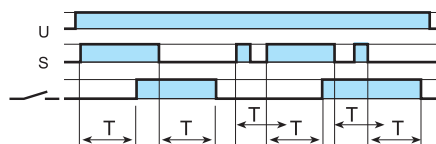
Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

with control signal



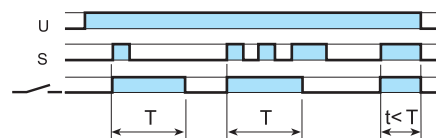
(BE) Off-delay with control signal.

Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.



(CE) On- and off-delay with control signal.

Power is permanently applied to the timer. Closing the Signal Switch (S) initiates the preset delay, after which time the output contacts transfer. Opening the Signal switch initiates the same preset delay, after which time the output contacts reset.



(DE) Interval with control signal on.

Power is permanently applied to the timer. On momentary or maintained closure of Signal Switch (S), the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.

RESET (R)

A momentary closure of the reset switch (2-7) will reset the timer. Longer term closure of the reset switch will hold the timer in the reset state. This is applicable for all functions.

PAUSE (P)

Closure of the pause switch (2-5) will immediately halt the timing process, but the elapsed time will be retained, and the current state of the output contacts will be maintained.

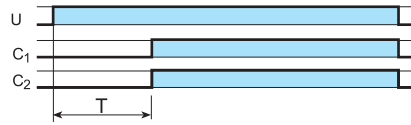
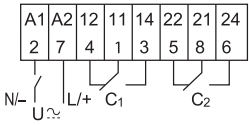
On opening of the pause switch, timing resumes from the retained value. This is applicable for all functions.

Functions

Wiring diagram

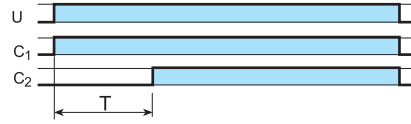
Type 88.12

without control signal



(AI a) On-delay (2 timed contacts).

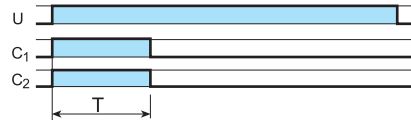
Apply power to timer. Contacts (C₁ and C₂) transfer after preset time has elapsed. Reset occurs when power is removed.



(AI b) On-delay

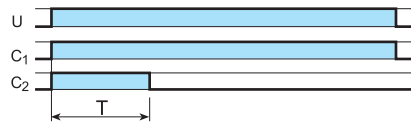
(1 timed contact + 1 instantaneous contact).

Apply power to timer. Output contact (C₁) transfers immediately. Contact (C₂) transfers after the preset time has elapsed. Reset occurs when power is removed.



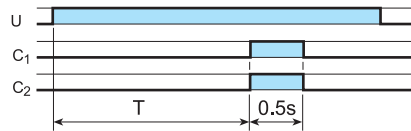
(DI a) Interval (2 timed contacts).

Apply power to timer. Output contacts (C₁ and C₂) transfer immediately. After preset time has elapsed, the contacts reset.



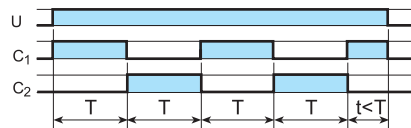
(DI b) Interval (1 timed contact + 1 instantaneous contact).

Apply power to timer. Output contacts (C₁ and C₂) transfer immediately. After preset time has elapsed, the contact (C₂) resets. Contact (C₁) resets when power is removed.



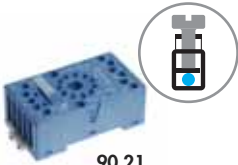
(GI) Pulse delayed.

Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs after a fixed time of 0.5s.



(SW) Symmetrical flasher (starting pulse on).

Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

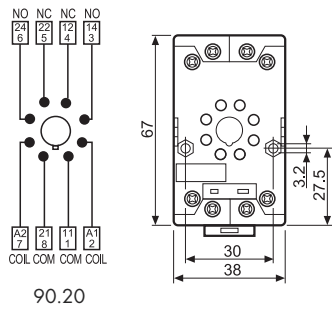


90.21

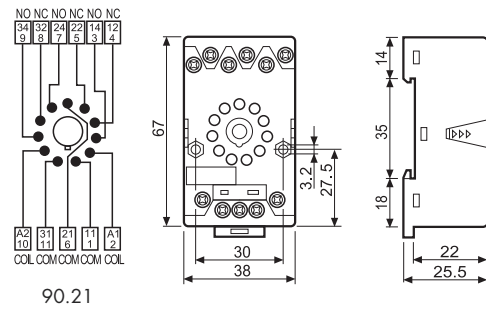
Approvals
(according to type):



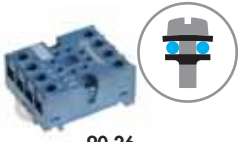
Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount	90.20 Blue	90.20.0 Black	90.21 Blue	90.21.0 Black
For timer type	88.12		88.02	
Technical data				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
⊕ Screw torque	Nm 0.5			
Wire strip length	mm 10			
Max. wire size for 90.20 and 90.21 sockets	solid wire		stranded wire	
	mm ² 1x6 / 2x2.5		1x6 / 2x2.5	
	AWG 1x10 / 2x14		1x10 / 2x14	



90.20



90.21

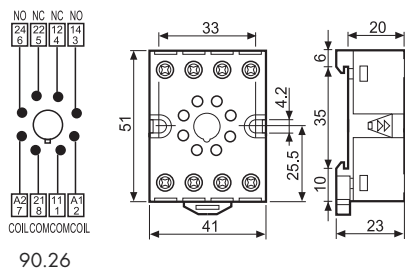


90.26

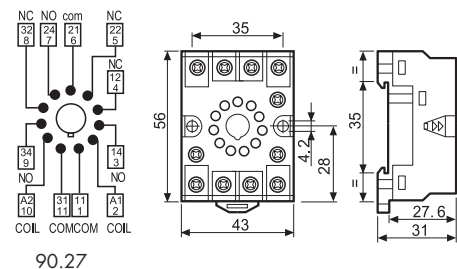
Approvals
(according to type):



Screw terminal (Plate clamp) socket panel or 35 mm rail (EN 60715) mount	90.26 Blue	90.26.0 Black	90.27 Blue	90.27.0 Black
For timer type	88.12		88.02	
Technical data				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
⊕ Screw torque	Nm 0.8			
Wire strip length	mm 10			
Max. wire size for 90.26 and 90.27 sockets	solid wire		stranded wire	
	mm ² 1x4 / 2x2.5		1x4 / 2x2.5	
	AWG 1x12 / 2x14		1x12 / 2x14	



90.26



90.27

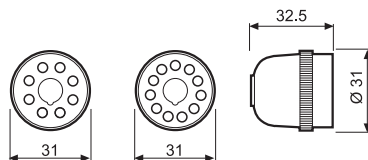


90.13.4

Approvals
(according to type):



Sockets 8-11 pin backwired with solder terminals	90.12.4 (black)	90.13.4 (black)
For timer type	88.12	88.02
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	2 kV AC	
Ambient temperature	°C -40...+70	



90.12.4

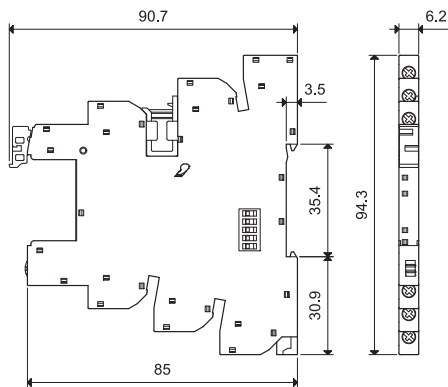
90.13.4

Features

Slim timed sockets for 34 series, 6.2 mm wide

- Timer adjustment via top mounted rotary knob accessible after assembly
- Control signal terminal
- DIP-switch for selection of 4 time scales and 8 functions
- Output with fuse module option
- EMR and SSR: 12 to 24 V AC/DC supply

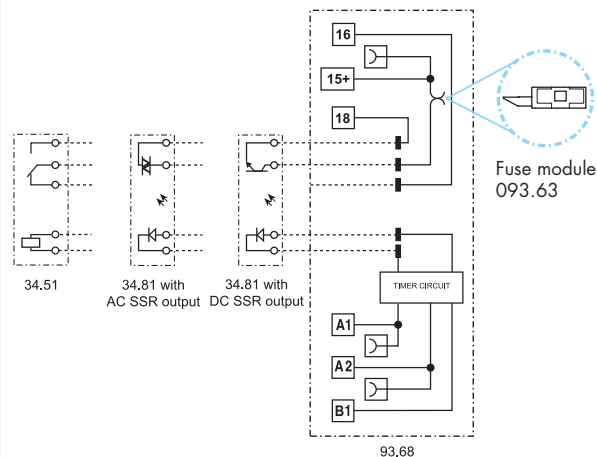
93.68
Screw terminal



NEW 93.68



- Time scale: from 0.1s to 6h
- Multi-function
- For use with 34.51 (EMR) and 34.81 (SSR) relays



- AI:** On-delay
- DI:** Interval
- GI:** Pulse (0.5 s) delayed
- SW:** Symmetrical flasher (starting pulse on)
- BE:** Off-delay with control signal
- CE:** On- and off-delay with control signal
- DE:** Interval with control signal on
- EE:** Interval with control signal off

Contact specification

Contact configuration	
Rated current/Maximum peak current	A
Rated voltage/Maximum switching voltage V AC	
Rated load AC1	VA
Rated load AC15 (230 V AC)	VA
Single phase motor rating (230 V AC)	kW
Breaking capacity DC1: 30/110/220 V	A
Minimum switching load	mW (V/mA)
Standard contact material	

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)/DC	12...24
Rated power AC/DC	VA/W	See coils specifications page 2
Operating range	V AC (50/60 Hz)/DC	9.6...26.4

Technical data

Specified time range		(0.1...3)s, (3...60)s, (1...20)min, (0.3...6)h
Repeatability	%	± 1
Recovery time	ms	≤ 50
Setting accuracy – full range	%	5
Electrical life at rated load in AC1	cycles	See 34.51 (EMR) and 34.81 (SSR) relays
Ambient temperature range	°C	-20...+50
Protection category		IP 20

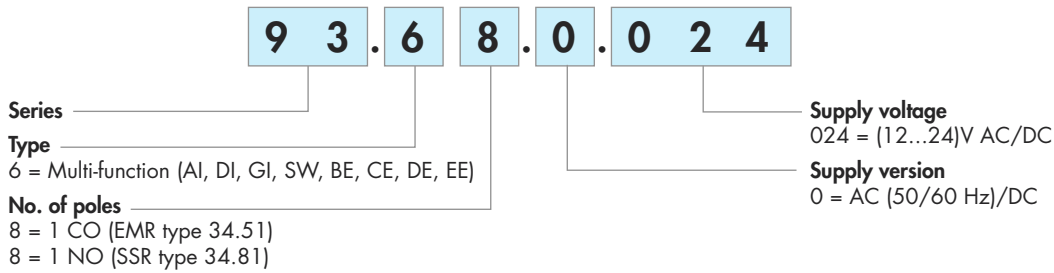
Approvals (according to type)



See 34.51 and 34.81 relays

Ordering information

Example: type 93.68.0.024 multi-function timer module for 34 series relay, (12...24)V AC/DC supply voltage.



Combinations

Output	Supply voltage	Type of relay	Type of socket
1 pole 6A, electromechanical relay	12 V AC/DC	34.51.7.012.0010	93.68.0.024
1 pole 6A, electromechanical relay	24 V AC/DC	34.51.7.024.0010	93.68.0.024
1 output 2 A 24 V DC, solid state relay	12 V AC/DC	34.81.7.012.9024	93.68.0.024
1 output 2 A 240 V AC, solid state relay	12 V AC/DC	34.81.7.012.8240	93.68.0.024
1 output 2A 24 V DC, solid state relay	24 V AC/DC	34.81.7.024.9024	93.68.0.024
1 output 2A 240 V AC, solid state relay	24 V AC/DC	34.81.7.024.8240	93.68.0.024

Note: Although the timer socket covers both 12 and 24 volt supplies, it must be combined with the appropriate 12 V or 24 V relay; resulting in a combination suitable for just a single supply voltage.

Technical data

EMC specifications			
Type of test	Reference standard		
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV
	air discharge	EN 61000-4-2	8 kV
Radio-frequency electromagnetic field	(80 ÷ 1,000 MHz)	EN 61000-4-3	10 V/m
	(1,400 ÷ 2,700 MHz)	EN 61000-4-3	10 V/m
Fast transients (burst) (5-50 ns, 5 and 100 kHz)	on Supply terminals	EN 61000-4-4	4 kV
	on control signal terminals	EN 61000-4-4	4 kV
Surges (1.2/50 µs) on supply and control signal terminals	common mode	EN 61000-4-5	2 kV
	differential mode	EN 61000-4-5	0.8 kV
Radio-frequency common mode (0.15 ÷ 80 MHz)	on Supply terminals	EN 61000-4-6	10 V
	on control signal terminals	EN 61000-4-6	3 V
Radiated and conducted emission		EN 55022	class B
Other data			
Current absorption on signal control (B1)	mA	<1.7 (12V) - <3.5 (24V)	
Bounce time (EMR) : NO/NC	ms	1/6	
Vibration resistance (EMR, 10..55 Hz): NO/NC	g	10/5	
Power lost to the environment	without contact current	W	0.3
	with rated current	W	0.8
Terminals			
Wire strip length	mm	10	
Screw torque	Nm	0.5	
Max. wire size	mm ²	1 x 2.5 / 2 x 1.5	
	AWG	1 x 14 / 2 x 16	
Min. wire size	mm ²	1 x 0.2	
	AWG	1 x 24	

Input specifications

Input data AC/DC timer

Nominal voltage U _N V	Operating range (AC/DC)		Must drop-out voltage U _r V	Rated input current at U _N		Rated power at U _N	
	U _{min} V	U _{max} V		DC mA	AC mA	DC W	AC VA / W
12	9.6	13.2	1.2	15	23	0.2	0.3 / 0.2
24	19.2	26.4	2.4	11	19	0.25	0.4 / 0.3

Times scales

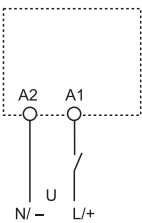


Functions

LED	Supply voltage	NO contact/output
	OFF	Open
	ON	Open
	ON	Open (timing to close in progress)
	ON	Closed

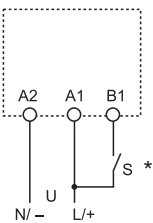
Wiring diagram

U = Supply voltage S = Signal switch = Output contact



		(AI) On-delay Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.
		(DI) Interval Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.
		(GI) Pulse (0.5s) delayed Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs after a fixed time of 0.5s.
		(SW) Symmetrical flasher (starting pulse on) Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

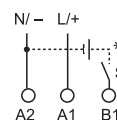
With control signal



* With DC supply, positive polarity has to be connected to B1 terminal (according to EN 60204-1).

		(BE) Off-delay with control signal Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.
		(CE) On- and off-delay with control signal Power is permanently applied to the timer. Closing the Signal Switch (S) initiates the preset delay, after which time the output contacts transfer. Opening the Signal Switch initiates the same preset delay, after which time the output contacts reset.
		(DE) Interval with control signal on Power is permanently applied to the timer. On momentary or maintained closure of Signal Switch (S), the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.
		(EE) Interval with control signal off Power is permanently applied to the timer. On opening of the Signal Switch (S) the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.

- Possible to control an external load, such as another relay coil or timer, connected to the control signal terminal B1.



** A voltage other than the supply voltage can be applied to the command Start (B1), example:
A1 - A2 = 24 V AC
B1 - A2 = 12 V DC

Accessories

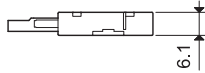
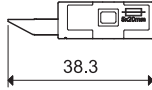


093.63

Output fuse module

093.63

- Patent-pending solution for easy load protection
- For 5 x 20 mm fuses up to 6 A, 250 V
- Easy visibility of the fuse condition through the window
- Quick connection to socket



093.16



093.16.0



093.16.1

16-way jumper link

093.16 (blue)

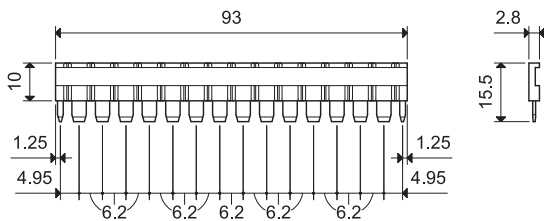
093.16.0 (black)

093.16.1 (red)

Rated values

36 A - 250 V

Possibility of multiple connection, side by side

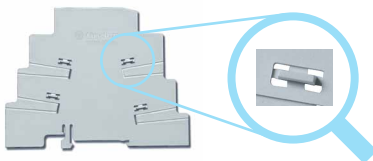


093.60

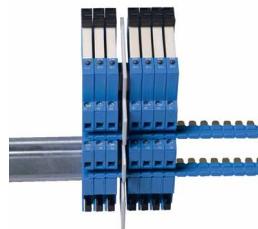
Dual-purpose plastic separator (1.8 mm or 6.2 mm separation)

093.60

1. By breaking off the protruding ribs (by hand), the separator becomes only 1.8 mm thick; useful for the visual separation of different groups of interfaces, or necessary for the protective separation of different voltages of neighbouring interfaces, or for the protection of cut ends of jumper links.



2. Leaving the ribs in place provides 6.2mm separation. Simply cutting (with scissors) the relevant segment(s) permits the interconnection across the separator of 2 different groups of interface relays, using the standard jumper link.



060.72

Sheet of marker tags, plastic, 72 tags, 6x12 mm

060.72

Features

Relays for automatic control of lighting according to the ambient light level

Integral light sensor

For pole or wall mounting

10.32 - 2 NO 16A output contacts

10.41 - 1 NO 16A output contact

- Double pole Live and Neutral switching possible with the 10.32
- Sensitivity adjustment from 1 to 80 lux
- Cadmium free contact material
- Cadmium free light sensor (IC photo diode)
- Electronic circuit - transformer isolated
- Italian Patent "light feedback compensation" innovative principle
Compatible with slow starting gas discharge lamps (up to 10 minutes)
- For the first 3 working cycles the delay time (On and Off) is reduced to zero in order to aid installation
- Available for supply 230 and 120 V AC (50/60 Hz)

10.32

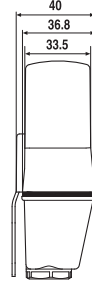
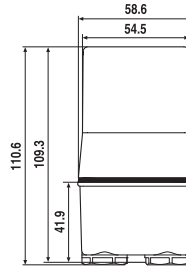
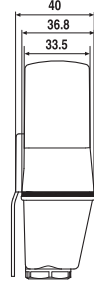
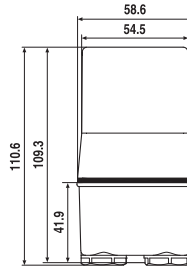


- Double pole switching - 2 NO 16A for Live and Neutral switching

10.41



- Single pole switching - 1 NO 16A for Live switching



Contact specification		10.32		10.41	
Contact configuration		2 NO (DPST-NO)		1 NO (SPST-NO)	
Rated current/Maximum peak current	A	16/30 (120 A - 5 ms)		16/30 (120 A - 5 ms)	
Rated voltage/Maximum switching voltage V AC		120/—	230/—	120/—	230/—
Rated load AC1	VA	1,900	3,700	1,900	3,700
Rated load AC15	VA	400	750	400	750
Rated current AC5a	A	—	5	—	5
Nominal lamp rating:	incandescent W	1,200	2,300	1,000	2,000
	compensated fluorescent W	450	850	400	750
	uncompensated fluorescent W	500	1,000	500	1,000
	halogen W	1,200	2,300	1,000	2,000
Minimum switching load	mW (V/mA)	1,000 (10/10)		1,000 (10/10)	
Standard contact material		AgSnO ₂		AgSnO ₂	
Supply specification		10.32		10.41	
Nominal voltage (U _N)	V AC (50/60 Hz)	120	230	120	230
	V DC	—		—	
Rated power AC/DC	VA (50 Hz)/W	2/—		2/—	
Operating range	AC (50 Hz)	(0.8...1.1)U _N		(0.8...1.1)U _N	
	DC	—		—	
Technical data		10.32		10.41	
Electrical life at rated load in AC1	cycles	100 · 10 ³		100 · 10 ³	
Threshold setting	lx	1...80		1...80	
Preset threshold	lx	10		10	
Delay time: switching ON/OFF	s	15/30		15/30	
Ambient temperature range	°C	-30...+70		-30...+70	
Protection category		IP 54		IP 54	
Approvals (according to type)					

Features

Relays for automatic control of lighting according to the ambient light level

Integral light sensor

For pole or wall mounting

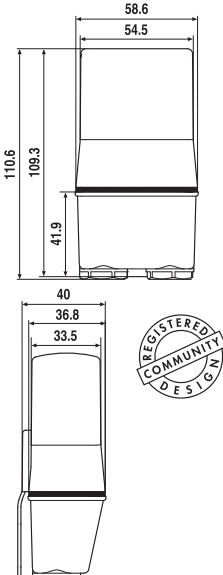
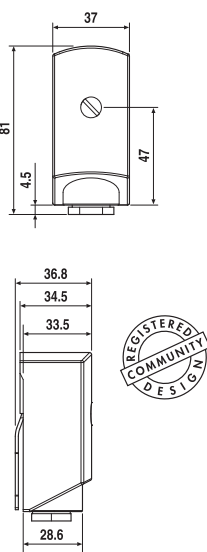
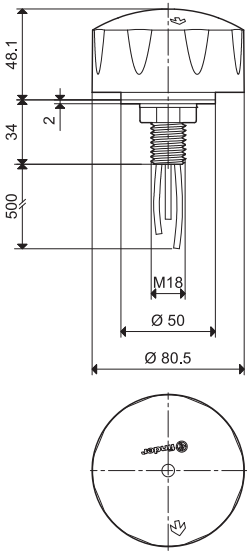
10.42 - Two independent 16A outputs with individual lux setting

10.51 - Miniature single 12A NO output

10.61 - Mounting on street light body

- Sensitivity adjustment from 1 to 80 lux
- Fixed sensitivity 10 lux ($\pm 20\%$) - (10.61 type)
- Cadmium free contact material
- Cadmium free light sensor (IC photo diode)
- Electronic circuit - transformer isolated (10.42 type)
- Italian Patent "light feedback compensation" innovative principle (10.51 type)
- For the first 3 working cycles the delay time (On and Off) is reduced to zero in order to aid installation
- Available for supply 230 and 120 V AC (50/60 Hz)
- Prewired with silicone wire, 500 mm length (10.61 type)

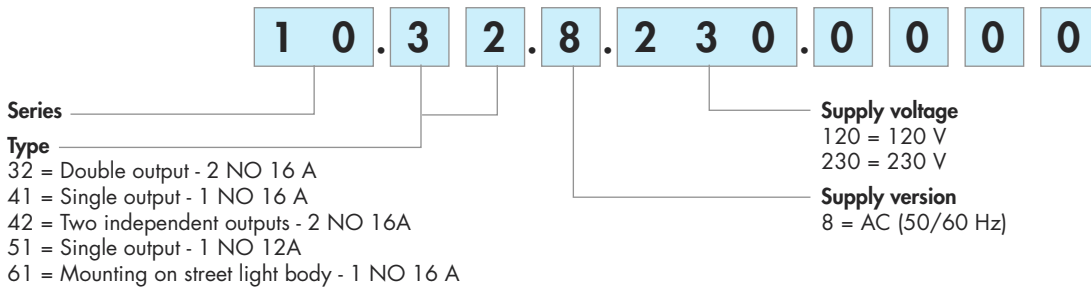
10.42	10.51	10.61
		
• Two independent outputs - 2 NO 16A	• Single pole switching - 1 NO 12A • Miniature size	• Single pole switching - 1 NO 16 A

		
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Contact specification		10.42		10.51		10.61		
Contact configuration		2 NO (DPST-NO)		1 NO (SPST-NO)		1 NO (SPST-NO)		
Rated current/Maximum peak current	A	16/30 (120 A - 5 ms)		12/25 (80 A - 5 ms)		16/30 (120 A - 5 ms)		
Rated voltage/Maximum switching voltage	V AC	120/-	230/-	120/-	230/-	230/-		
Rated load AC1	VA	1,900	3,700	1,400	2,760	3,700		
Rated load AC15	VA	400	750	300	600	750		
Rated current AC5a	A	-	5	-	-	5		
Nominal lamp rating:	incandescent	W	1,000	2,000	600	1,200	2,000	
	compensated fluorescent	W	400	750	200	400	750	
	uncompensated fluorescent	W	500	1,000	300	600	1,000	
	halogen	W	1,000	2,000	600	1,200	2,000	
Minimum switching load	mW (V/mA)	1,000 (10/10)		1,000 (10/10)		1,000 (10/10)		
Standard contact material		AgSnO ₂		AgSnO ₂		AgSnO ₂		
Supply specification		10.42		10.51		10.61		
Nominal voltage (U _N)	V AC (50/60 Hz)	120	230	120	230	230		
	V DC	-		-		-		
Rated power AC/DC	VA (50 Hz)/W	2/-		1.5/-		2.5/-		
Operating range	AC (50 Hz)	(0.8...1.1)U _N		(0.8...1.1)U _N		(0.8...1.1)U _N		
	DC	-		-		-		
Technical data		10.42		10.51		10.61		
Electrical life at rated load in AC1	cycles	100 · 10 ³		100 · 10 ³		100 · 10 ³		
Threshold setting	lx	1...80		1...80		10		
Preset threshold	lx	10		10		10		
Delay time: switching ON/OFF	s	15/30		15/30		15/30		
Ambient temperature range	°C	-30...+70		-30...+70		-30...+70		
Protection category		IP 54		IP 54		IP 54		
Approvals (according to type)		CE		PG		CE PG		

Ordering information

Example: 10 series light dependent relay, 2 NO (DPST-NO) 16 A contact, screw terminal connections, 230 V AC supply.



Technical data

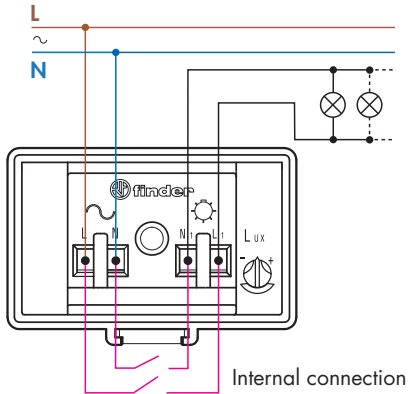
Insulation	10.32 / 41 / 42		10.51		10.61	
Dielectric strength between open contacts V AC	1,000		1,000		1,000	
Conducted disturbance immunity						
Surge (1.2/50 µs) on L and N (differential mode) kV	4		4		6	
Other data						
Cable grip	Ø mm	(8.9...12)		(7.5...9)		—
Screw torque	Nm	0.8		0.8		—
Max. wire size		solid cable	stranded cable	solid cable	stranded cable	—
	mm ²	1x6 / 2x4	1x6 / 2x2.5	1x6 / 2x4	1x4 / 2x2.5	—
	AWG	1x10 / 2x12	1x10 / 2x14	1x10 / 2x12	1x12 / 2x14	—
Output wires						
Material		—		—		Silicone rubber UV resistant
Size	mm ²	—		—		1.5
Length	mm	—		—		500, ends-ferruled
Rated insulation voltage	kV	—		—		0.6 / 1
Max temperature	°C	—		—		120

Functions

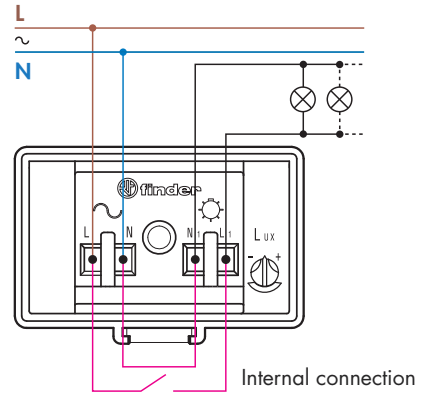
LED*	10.32 / 10.41 / 10.42		10.51	
	Supply voltage	NO output contact	Supply voltage	NO output contact
—	OFF	Open	OFF or ON	Open
	ON	Open	ON	Closed
	ON	Open (Timing in Progress)	ON	Open (Timing in Progress)
	ON	Closed	—	—

* The LED is located under the terminal cover, close to the Lux adjustment knob. It indicates the contact status and assists in the test and setting of the correct light threshold level.

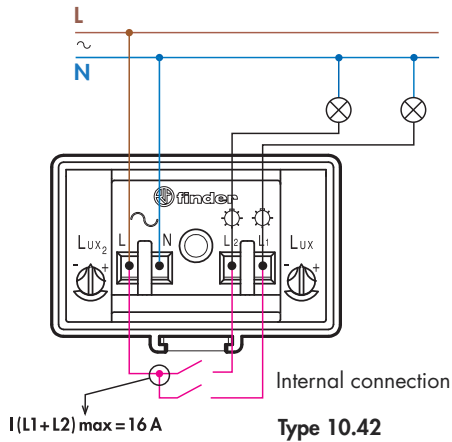
Wiring diagrams



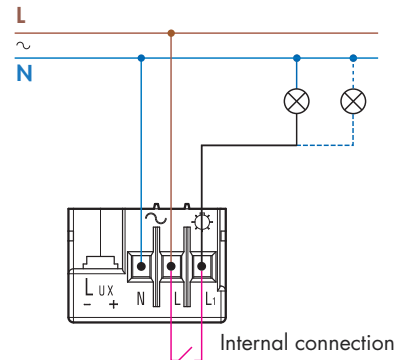
Type 10.32



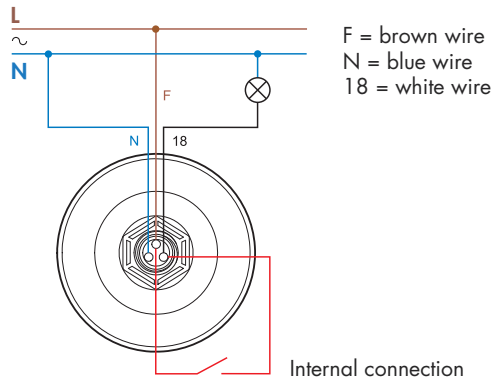
Type 10.41



Type 10.42



Type 10.51



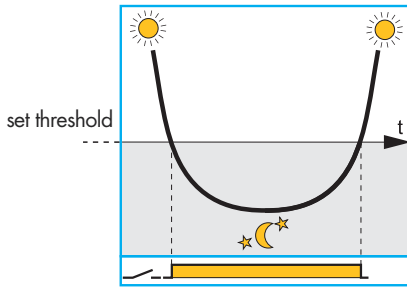
Type 10.61

Advantage of the "light feedback compensation" principle

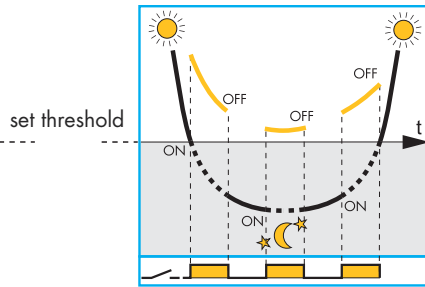
Light dependent relay where the lighting being controlled does not influence the light level seen by the light sensor

Traditional light dependent relay where the lighting being controlled influences the light level seen by the light sensor

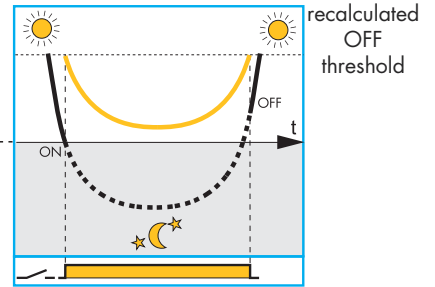
Type 10.32, 10.41 and 10.51 light dependent relay with "light feedback compensation"



Correct functioning - provided the sensor can be shielded from the effects of the controlled lighting switching On and Off



Incorrect functioning where the lamps cycle between On and Off, because their effect is being detected by the light sensor



The innovative principle of "light feedback compensation" avoids the annoying and damaging effects of the lamps repeatedly "hunting" between On and Off, due to poor installation

— — — — — Ambient light level as measured by the light dependent relay's integral light sensor.

— — — — — Ambient light + controlled light level as measured by the light dependent relay's integral light sensor.

Notes

1. It is good practice to try to achieve a correct installation where the light emitted from the lamp(s) does not influence the light level seen by the sensor, although the "light feedback compensation" principle will help when this is not fully achievable. In this case it should be appreciated that the "light feedback compensation" principle may delay slightly the time of Switch Off - beyond the ideal.
2. The compensation principle is not effective where the combined effect of the ambient light and the controlled lighting exceeds 120 lux.
3. The 10.32 and 10.41 types are compatible with gas discharge lamps that attain full output within 10 minutes, since the electronic circuit monitors lamps' light output over a 10 minutes period to achieve a true assessment of its contribution to the overall lighting level.

Features

Relays for automatic control of lighting according to ambient light level - with separate light sensor

11.31 - 1 NO 16 A output contact

- Sensitivity adjustment from 1 to 100 lux
- One module, 17.5mm wide
- Low energy consumption
- 24 V DC/AC supply version available

11.41 - 1 CO 16 A output contact

- European patent "Zero hysteresis" for energy saving;
- Italian patent "Light feedback compensation" principle
- Selector with 4 positions:
 - Standard range (threshold setting 1...80 lx)
 - High range (threshold setting 30...1000 lx)
 - continuous light (helpful during installation and initial testing and for maintenance purposes)
 - light off (useful for vacations)

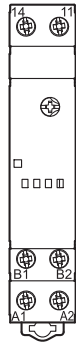
- For the first 3 working cycles the delay time (On and Off) is reduced to zero in order to aid installation
- LED status indication
- SELV separation between contact and supply circuit
- Double insulation between supply and light sensor
- 35 mm rail (EN 60715) mount
- Cadmium free contact material
- Cadmium free light sensor (IC photo diode)

For outline drawing see page 8

11.31



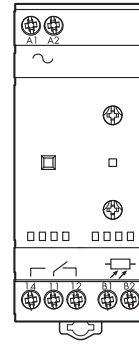
- 1 pole
- 17.5 mm wide



11.41



- 1 pole
- "zero hysteresis"
- 4 position selector



Contact specification					
Contact configuration		1 NO (SPST-NO)		1 CO (SPDT)	
Rated current/Maximum peak current A		16 / 30 (120 – 5 ms)		16 / 30 (120 – 5 ms)	
Rated voltage/Maximum switching voltage V AC		250 / 400		250 / 400	
Rated load AC1 VA		4,000		4,000	
Rated load AC15 (230 V AC) VA		750		750	
Nominal lamp rating (230 V): incandescent W		2,000		2,000	
compensated fluorescent W		750		750	
uncompensated fluorescent W		1,000		1,000	
halogen W		2,000		2,000	
Minimum switching load mW (V/mA)		1,000 (10 / 10)		1,000 (10 / 10)	
Standard contact material		AgSnO ₂		AgSnO ₂	
Supply specification					
Nominal voltage (U _N)	V AC (50/60 Hz)	24	110...230	230	
	DC	24	—	—	
Rated power	VA (50 Hz)/W	2.5 / 0.9		5.2 / 2	
Operating range	V AC (50 Hz)	16.8...28.8	90...260	(0.8 ...1.1) U _N	
	DC	16.8...32	—	—	
Technical data					
Electrical life at rated load in AC1 cycles		100 · 10 ³		100 · 10 ³	
Threshold setting:	Standard range lx	1...100		1...80	
	High range lx	—		30...1,000	
Hysteresis (switching Off/On ratio)		1.25		1	
Delay time: switching On / Off s		15 / 30		15 / 30	
Ambient temperature range °C		-20...+50		-20...+50	
Protection category: light dependent relay/light sensor		IP 20 / IP 54		IP 20 / IP 54	
Approvals (according to type)					

Features

Relays for automatic control of lighting according to ambient light level - with separate light sensor

11.42 - 1 CO + 1 NO 12 A output contacts

- Two independent outputs with individual lux setting
- Selector with 4 positions:
 - Standard range (threshold setting 1...80 lx)
 - High range (threshold setting 20...1000 lx)
 - continuous light (helpful during installation and initial testing and for maintenance purposes)
 - light off (useful for vacations)
- For the first 6 working cycles (in total for channels 1 & 2) the delay time (On and Off) is reduced to zero in order to aid installation
- LED status indication

11.91 - 1 CO 16 A output contact (+ auxiliary output for Power Module)

- Daily time switch function - programmable to inhibit main output (for energy saving)
- Auxiliary output - directly driven by the photosensor
- Italian patent "Light feedback compensation" principle
- Sensitivity adjustment from 2 to 150 lux
- LCD status indication, set-up and programming
- Internal battery for set-up/programming without supply and for time/program back-up in case of power failure (5 years)

- SELV separation between contact and supply circuit
- Double insulation between supply and light sensor
- 35 mm rail (EN 60715) mount
- Cadmium free contact material
- Cadmium free light sensor (IC photo diode)

* 11.91 auxiliary output: 12 V DC, 1 W max
For outline drawing see page 8

11.42

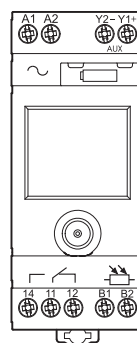
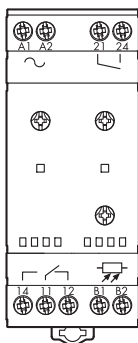





- 2 independent outputs
- 2 individual lux settings
- 4 position selector

11.91



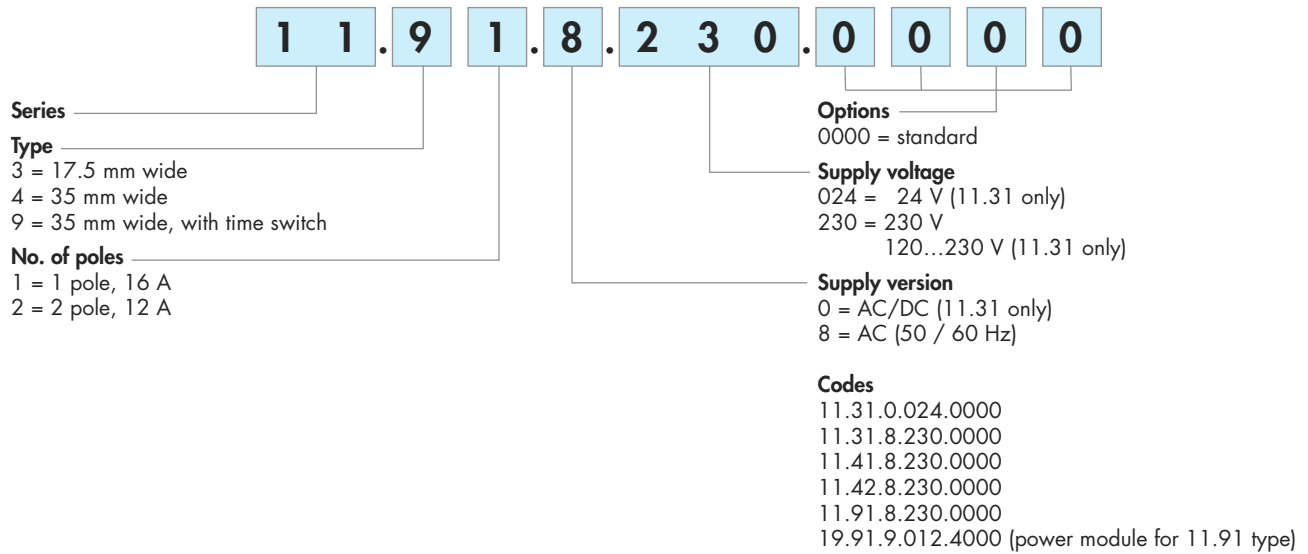
- Light dependent relay + time switch
- Auxiliary output (light dependent) with 19.91 power module available



Contact specification			
Contact configuration		1 CO (SPDT) + 1 NO (SPST-NO)	1 CO (SPDT) + 1 aux output*
Rated current/Maximum peak current	A	12 / 24 (120 – 5 ms)	16 / 30 (120 – 5 ms)
Rated voltage/Maximum switching voltage V AC		250 / 400	250 / 400
Rated load AC1		3,000	4,000
Rated load AC15 (230 V AC)		750	750
Nominal lamp rating (230 V): incandescent W		2,000	2,000
compensated fluorescent W		750	750
uncompensated fluorescent W		1,000	1,000
halogen W		2,000	2,000
Minimum switching load	mW (V/mA)	1,000 (10 / 10)	1,000 (10 / 10)
Standard contact material		AgSnO ₂	AgSnO ₂
Supply specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	230	230
	DC	–	–
Rated power	VA (50 Hz)/W	7.4 / 2.8	6.6 / 2.9
Operating range	V AC (50 Hz)	(0.8 ... 1.1) U _N	(0.8 ... 1.1) U _N
	DC	–	–
Technical data			
Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³
Threshold setting:	Standard range lx	1...80	2...150
	High range lx	20...1,000	–
Hysteresis (switching Off/On ratio)		1.25	Δ = 3 lx
Delay time: switching On / Off	s	15 / 30	25 / 50
Ambient temperature range		–20...+50	–20 ... + 50
Protection category: light dependent relay/light sensor		IP 20 / IP 54	IP 20 / IP 54
Approvals (according to type)		  	

Ordering information

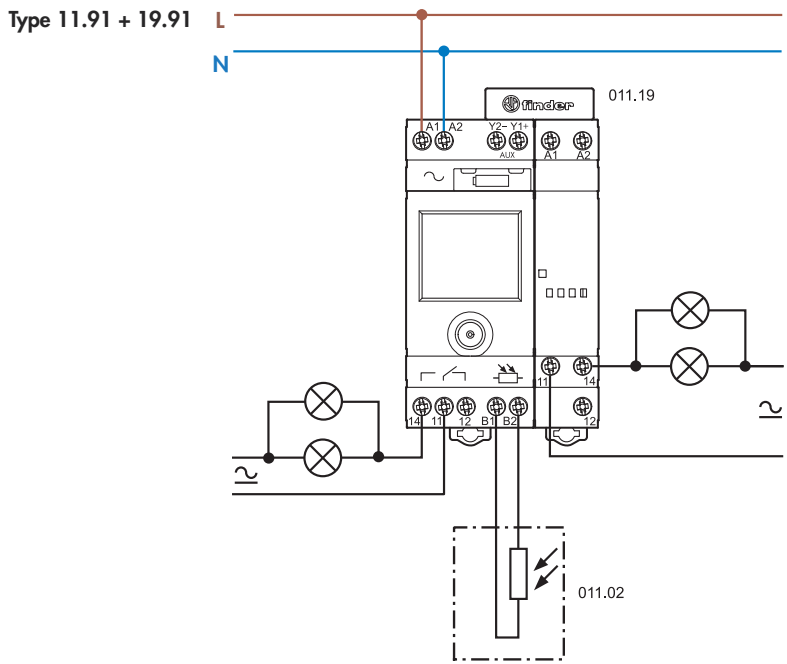
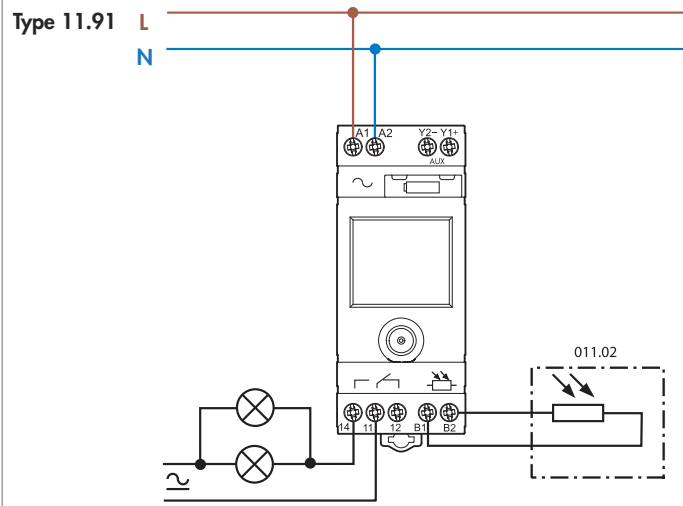
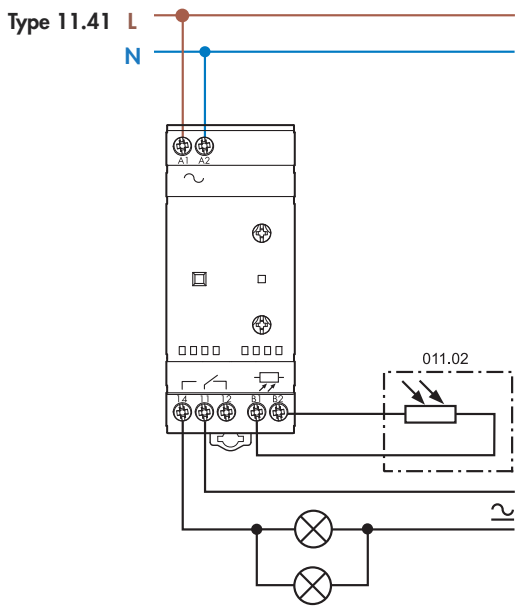
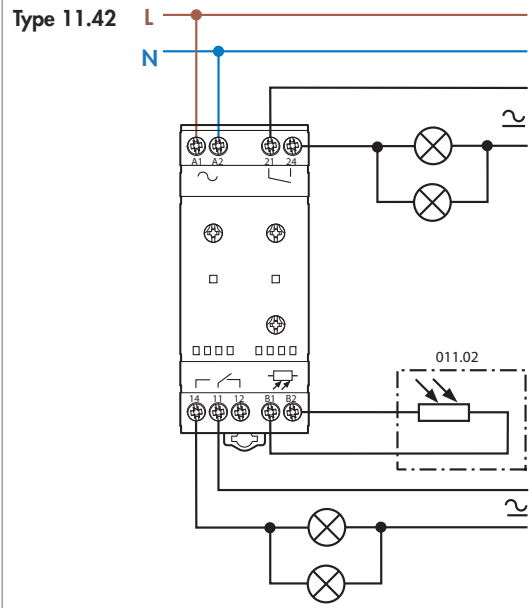
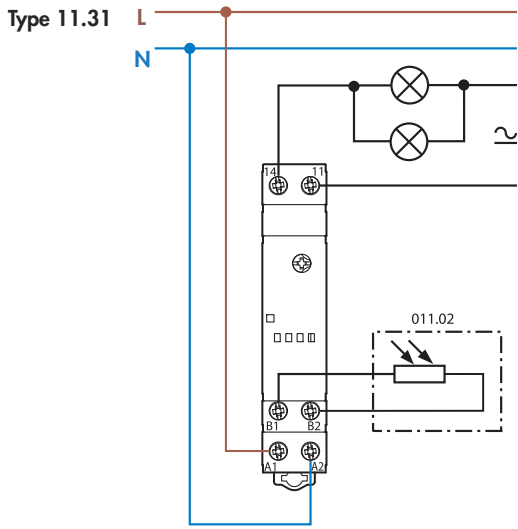
Example: 11 series light dependent relay with time switch, 1 CO (SPDT) 16 A contact, 230 V AC supply.



Technical data

Insulation		Dielectric strength	Impulse (1.2/50 µs)		
	between supply and contacts	4,000 V AC	6 kV		
	between supply and light sensor	2,000 V AC	4 kV		
	between open contacts	1,000 V AC	1.5 kV		
EMC specifications					
Type of test		Reference standard	11.31	11.41 / 42 / 91	
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV		
	air discharge	EN 61000-4-2	8 kV		
Radiated electromagnetic field (80 ... 1,000 MHz)		EN 61000-4-3	10 V/m		
Fast transients (burst 5/50 ns, 5 and 100 kHz)	on supply terminals	EN 61000-4-4	3 kV	4 kV	
	on light sensor connection	EN 61000-4-4	3 kV	4 kV	
Voltage pulses on supply terminals (surge 1.2/50 µs)	common mode	EN 61000-4-5	4 kV		
	differential mode	EN 61000-4-5	3 kV	4 kV	
Radiofrequency common mode voltage (0.15...80 MHz)	on supply terminals	EN 61000-4-6	10 V		
	on light sensor	EN 61000-4-6	3 V		
Voltage dips 70 % U _N , 40 % U _N		EN 61000-4-11	10 cycles		
Short interruptions		EN 61000-4-11	10 cycles		
Radio frequency conducted emissions 0.15...30 MHz		EN 55014	class B		
Radiated emissions 30...1,000 MHz		EN 55014	class B		
Terminals					
Screw torque		0.8 Nm			
Max. wire size	solid cable	1 x 6 / 2 x 4 mm ²	1 x 10 / 2 x 12 AWG		
	stranded cable	1 x 4 / 2 x 2.5 mm ²	1 x 12 / 2 x 14 AWG		
Wire strip length		9 mm			
Other data					
Cable grip of light sensor		7.5 ... 9 mm			
Maximum cable length relay to light sensor		50 m (2 x 1.5 mm ²)			
Preset threshold		10 lx			
Power lost to the environment		11.31	11.41	11.42	11.91
	in stand-by	0.3 W	1.3 W	1.4 W	1.4 W
	without contact current	0.9 W	2.0 W	2.8 W	2.9 W
	with rated current	1.7 W	2.6 W	3.8 W	3.5 W

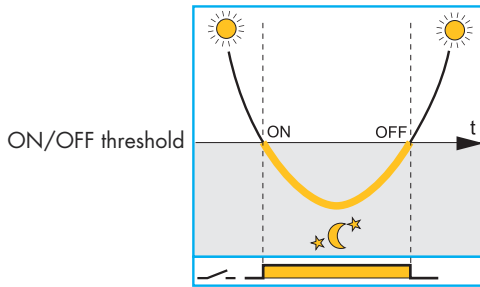
Wiring diagrams



Advantage of the "Zero hysteresis" patented circuit:

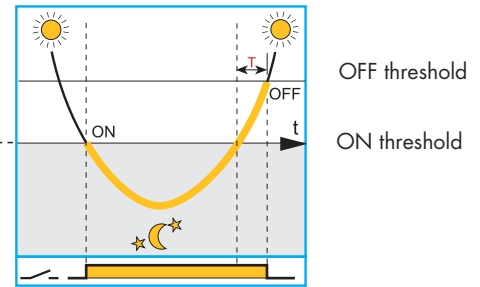
ensures reliable switching without wasting energy

TYPE 11.41 "ZERO HYSTERESIS" LIGHT DEPENDENT RELAYS



Switch OFF level = Switch ON level. Patented "Zero Hysteresis" circuitry ensures reliable switching without wasting energy.

TRADITIONAL LIGHT DEPENDENT RELAYS



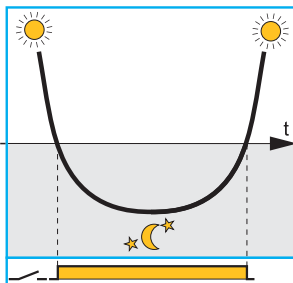
"Traditional" light dependent relays incorporate switching hysteresis to prevent malfunctioning or tripping. This results in an unnecessary delay in switching off, and a resulting waste of energy (over period T).

- Brightness of the natural light
- The NO of the light dependent relay is closed (light is switched on)

Advantage of the "light feedback compensation" principle:

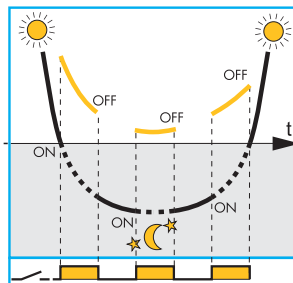
avoids the effect of the lamps repeatedly "hunting" between On and Off, due to poor installation

Light dependent relay where the lighting being controlled does not influence the light level seen by the light sensor



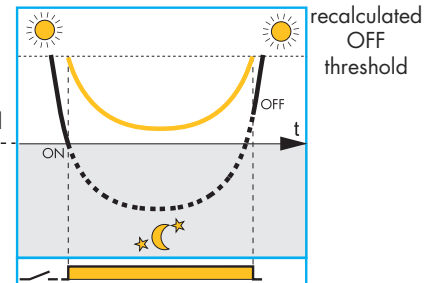
Correct functioning - provided the light sensor can be shielded from the effects of the controlled lighting switching On and Off

Traditional light dependent relay where the lighting being controlled influences the light level seen by the light sensor



Incorrect functioning where the lamps cycle between On and Off, because their effect is being detected by the light sensor

Type 11.41 and 11.91 light dependent relay with "light feedback compensation"



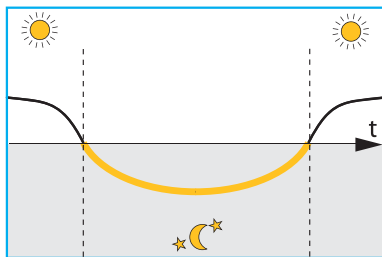
The innovative principle of "light feedback compensation" avoids the annoying and damaging effects of the lamps repeatedly "hunting" between On and Off, due to poor installation

- Ambient light level as measured by the light dependent relay's light sensor.
- Ambient light + controlled light level as measured by the light dependent relay's light sensor.

Notes

1. It is good practice to try to achieve a correct installation where the light emitted from the lamp(s) does not influence the light level seen by the light sensor, although the "light feedback compensation" principle will help when this is not fully achievable. In this case it should be appreciated that the "light feedback compensation" principle may delay slightly the time of Switch Off - beyond the ideal.
2. The compensation principle is not effective where the combined effect of the ambient light and the controlled lighting exceeds a maximum value (200 lux for the 11.91, 160/2,000 lux for standard/high range of the 11.41).
3. The 11.41 and 11.91 types are compatible with gas discharge lamps that attain full output within 10 minutes, since the electronic circuit monitors lamps' light output over a 10 minute period to achieve a true assessment of its contribution to the overall lighting level.

Functions 11.91



	Switch-OFF time	Switch-ON time		Application examples
	NO	NO		Working as a standard light-dependent relay
11 14	YES	NO		Working where lighting is not required from 10 PM onwards
	YES	YES		Working where lighting is not required between 1 AM and 5 AM
AUX Y1 Y2				Additional output - light dependent without time switch intervention

All the functions and the values can be set through the front joystick and are displayed on the front LCD.

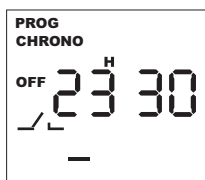


Display mode

During normal operation, with AC supply connected, the following is displayed:

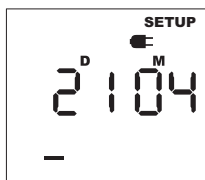
- the current time
- the current lux level (upper bars)
- the set lux threshold (lower bars)
- the status (open/closed) of the 11-14 output contact
- the "moon" symbol (only if the current lux level is lower than the set threshold). It also indicates that the Auxiliary output is On, although the main output contact 11-14 may be On, depending on the chrono program.
- the "chrono" symbol (only if a switch-off time is enabled).

From **Display mode** it is possible to enter **Program mode** or **Set-up mode** with a short or long (> 2s) press respectively, to the joystick centre. From **Display mode** it is also possible to enter **Hand mode**, where (independently of the lux level and the Chrono program) the 11-14 output contact is forced into the On or Off position with a long (> 2s) press of the joystick upper or lower quadrants, respectively. The "hand" symbol is then displayed. A long press to the opposite quadrant will reset the hand mode.



Program mode

In this mode it is possible to set the lux threshold level, to enable and to set the switch-off time, to enable and to set the switch-on time. With a short press to the joystick right or left quadrant it is possible to progress from one program step to another (accepting the values set). At any program step it is possible to modify the set values with a short press to the joystick upper or lower quadrant. A long (> 1s) press allows the fast increment (or decrement) of values. A short press to the joystick centre will resume the display mode.



Set-up mode

In this mode it is possible to set the current year, month, day, hour and minute (in this order) and to enable european "Daylight saving".

With a short press to the joystick right or left quadrant it is possible to progress from one set-up step to another (accepting the values set); in any step it is possible to modify the set values with a short press to the joystick upper or lower quadrant. A long (> 1s) press allows the fast increment (or decrement) of values.

A short press to the joystick centre will resume the display mode.

Note: the product is supplied with central european time factory set and "Daylight saving" enabled.

Power-off mode

If the 230 V AC supply is not connected, the relay enters power-off mode and to ensure the long life of the built-in back-up battery only the clock is maintained active. The display turns off and no other operation (including light measurement) is performed.

With a press to the joystick during power-off mode it is possible to "awaken" the device and to enter program or set-up mode (the "electrical plug" symbol is displayed); after about 1 minute inactivity the power-off mode is resumed.

Note: with the supply not connected, the program or set-up modes absorb a higher current than the power-off mode, thus influencing the battery life.

Auxiliary output

A solid state output at terminals Y1-Y2 is provided (rated 12 V DC, 80 mA 1 W max.): this can be used with the power module **19.91.9.012.4000** connected by the dedicated **011.19** connector. Or, it is possible to connect a suitable relay (for example, 38-48-49-4C-58-59 interface module) provided the coil is within the rating, and the wiring does not exceed 40 cm length. The auxiliary output is driven exclusively by the light sensor of the device, and is consequently independent of the time switch. With the main contact, this permits a flexible lighting system controlled by the ambient light, both with and without the influence of the time switch function.



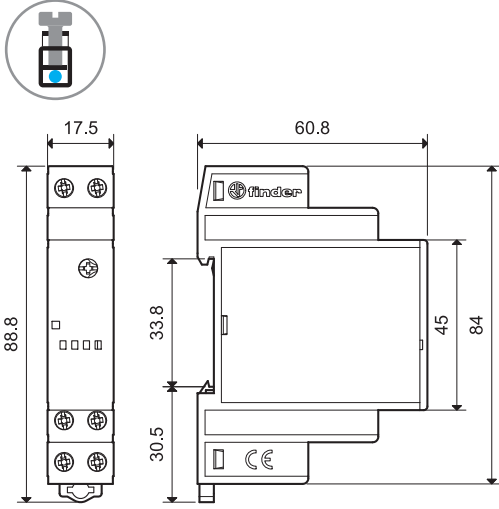
19.91 power module specification		
Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current (I_N/I_{max})	A	16 / 30 (120 A – 5 ms)
Rated voltage/Maximum switching voltage (U_N/U_{max})	V AC	250 / 400
Rated load AC15 (230 VAC)	VA	750
Nominal lamp rating (230 V):	incandescent W	2,000
	compensated fluorescent W	750
Nominal supply voltage (U_N)	V DC	12
Ambient temperature range	°C	-20...+50
Protection category		IP 20

11.31/41/42

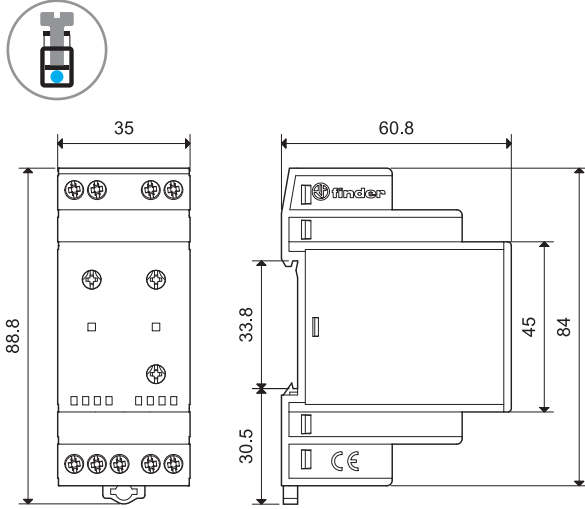
LED	Supply voltage	NO output contact	
		11.41 / 11.42	11.31
	OFF	Open	Open
	ON	Open	Open
	ON	Open (timing to close in progress)	Open (timing to close in progress)
	ON	Closed	Closed
	ON	Closed (timing to open in progress)	Closed (timing to open in progress)
	ON	Fixed position (On or Off on selector)	—

Outline drawings

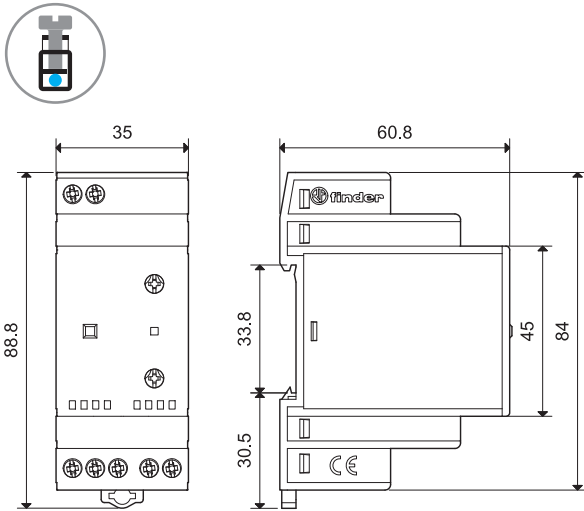
11.31
Screw terminal



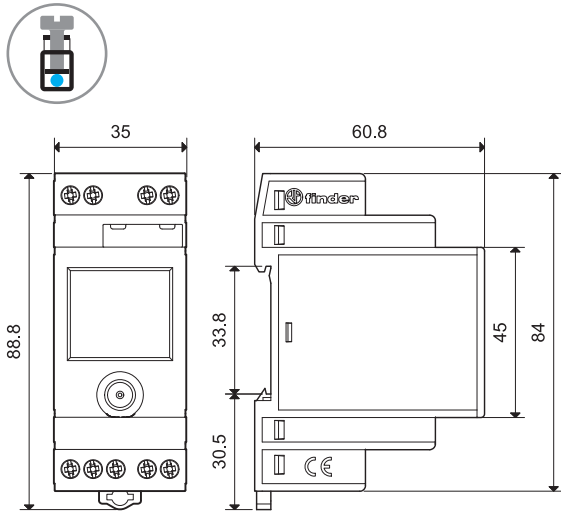
11.42
Screw terminal



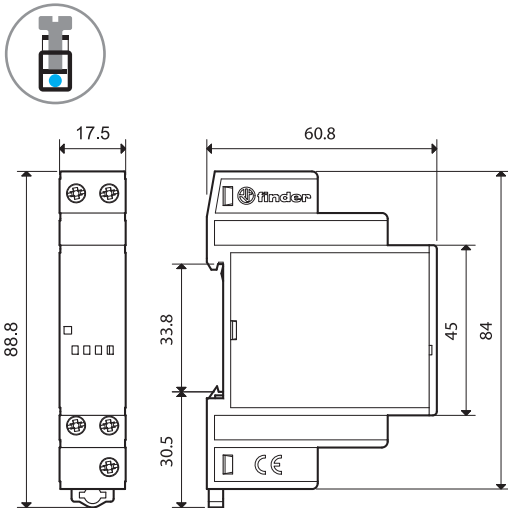
11.41
Screw terminal



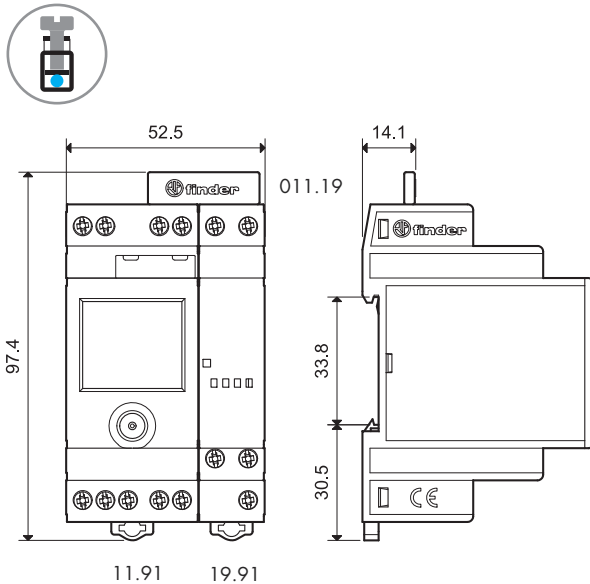
11.91
Screw terminal



19.91 (power module for 11.91)
Screw terminal



11.91 + 19.91 power module
Screw terminal



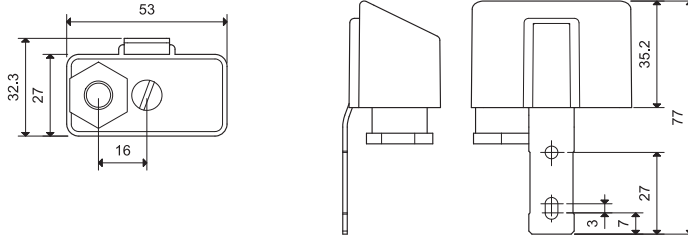
Accessories



011.02

Light sensor (supplied with light dependent relay) | 011.02

- Ambient temperature range: -40...+70 °C
- Cadmium free
- Non polarized
- Double insulated with respect to light dependent relay supply
- Not compatible with old 11.01 and 11.71 light dependent relay (to be used with 011.00 photosensor)



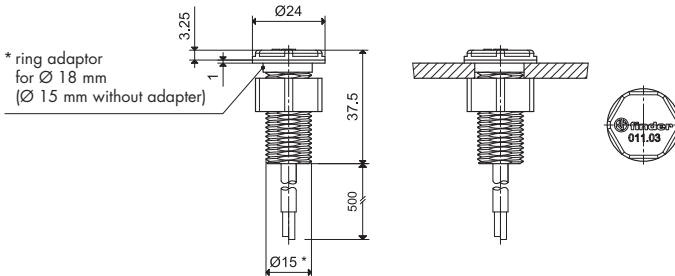
011.03

Flush-mounted light sensor (protection category: IP66/67) | 011.03

- Ambient temperature range: -40...+70 °C
- Cadmium free
- Non polarized
- Double insulated with respect to light dependent relay supply
- Not compatible with old 11.01 and 11.71 light dependent relay
- Supplied with light dependent relay (packaging code POA)

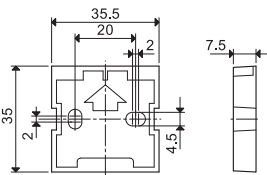
Connection cable

Material		PVC, flame retardant
Conductor size	mm ²	0.5
Cable length	mm	500
Cable diameter	mm	5.0
Working voltage	V	300/500
Test voltage, cable	kV	2.5
Max. temperature	°C	+90



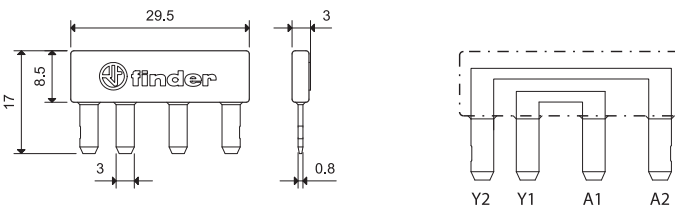
011.01

Adaptor for panel mounting (supplied with light dependent relay), 35 mm wide | 011.01

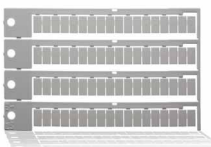


011.19

2-pole connector (for type 11.91 and 19.91 power module) | 011.19



For direct connection of 11.91 auxiliary output (Y1-Y2) to 19.91 supply (A1-A2)



060.72

Sheet of marker tags, for types 11.31, 11.41, 11.42, 19.91, plastic, 72 tags, 6x12 mm | 060.72



019.01

Identification tag, for types 11.41 and 11.42, plastic, 1 tag, 17x25.5 mm | 019.01

Features

Mechanical time switches

- Daily time setting *
- Weekly time setting **

- **Type 12.01** - 1 Pole 16 A CO (SPDT)
35.8 mm width
- **Type 12.11** - 1 Pole 16 A NO (SPST-NO)
17.6 mm width
- **Type 12.31-0000** daily -
1 Pole 16 A CO (SPDT)
- **Type 12.31-0007** weekly -
1 Pole 16 A CO (SPDT)
- Minimum time interval setting:
1h (12.31-0007)
30 min (12.01)
15 min (12.11 - 12.31-0000)

* Same program every day

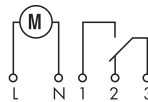
** Different program possible for each of the 7 days of the week

For outline drawing see page 10

12.01



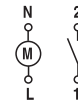
- Mechanical daily time switch
- 1 CO (SPDT)
- 35 mm rail (EN 60715) mount



12.11



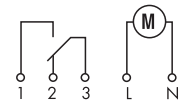
- Mechanical daily time switch
- 1 NO (SPST-NO)
- 35 mm rail (EN 60715) mount



12.31



- Mechanical daily or weekly
- 1 CO (SPDT)
- Front panel mounting



Contact specification

Contact configuration	1 CO (SPDT)	1 NO (SPST-NO)	1 CO (SPDT)
Rated current/Maximum peak current A	16/—	16/30	16/—
Rated voltage/Maximum switching voltage V AC	250/—	250/—	250/—
Rated load AC1 VA	4,000	4,000	4,000
Rated load AC15 (230 V AC) VA	750	420	420
Nominal lamp rating: incandescent (230 V) W	2,000 (NO contact)	2,000	2,000
compensated fluorescent (230 V) W	750 (NO contact)	750	750
uncompensated fluorescent (230 V) W	1,000 (NO contact)	1,000	1,000
halogen (230 V) W	2,000 (NO contact)	2,000	2,000
Minimum switching load mW (V/mA)	1,000 (10/10)	1,000 (10/10)	1,000 (10/10)
Standard contact material	AgCdO	AgCdO	AgCdO

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	230	230	120 - 230
	V DC	—	—	—
Rated power AC/DC	VA (50 Hz)/W	2/—	2/—	2/—
Operating range	AC (50 Hz)	(0.85...1.1)U _N	(0.85...1.1)U _N	(0.85...1.1)U _N
	DC	—	—	—

Technical data

Electrical life at rated load in AC1	cycles	50 · 10 ³	50 · 10 ³	50 · 10 ³
Type of time switch		daily	daily	daily weekly
Switching intervals /day		48	96	96 24 (168/week)
Minimum switching interval	min	30	15	15 60
Accuracy	s/day	1.5	1.5	1.5
Ambient temperature range	°C	-5...+50	-5...+50	-10...+50
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)



Features

12.51 - Digital (analogue-style) time switch, daily/weekly programming

- 30 minutes interval setting
- Easily configurable for daily or weekly programming

12.81 - Digital astro-switch

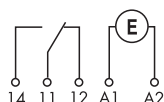
- Astro program: calculation of sunrise and sunset times through date, time and location coordinates
- Option for Astro ON period override, by timeswitch
- Location coordinates easily settable for most European countries through post codes
- Offset function: allows programming of switching times offset from the astronomic time (by up to 90 min, in 10 min steps)

- Summer/winter European time
- 1 CO 16 A output contact
- LCD status indication, set-up and programming
- Back-light display
- Internal battery for set-up and programming without supply, easily replaceable from the front
- Protective separation between supply and contacts
- 35 mm rail (EN 60715) mount
- Cadmium free contact material

NEW 12.51



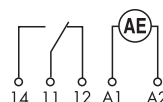
- Digital time switch
- 1 CO (SPDT)
- 35 mm rail (EN 60715) mount



NEW 12.81



- Astro-time switch
- 1 CO (SPDT)
- 35 mm rail (EN 60715) mount



For outline drawing see page 10

Contact specification			
Contact configuration		1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	16 / 30 (120 A – 5 ms)	16 / 30 (120 A – 5 ms)
Rated voltage/Maximum switching voltage V AC		250/400	250/400
Rated load AC1	VA	4,000	4,000
Rated load AC1.5 (230 V AC)	VA	750	750
Nominal lamp rating: incandescent (230 V) W		2,000	2,000
compensated fluorescent (230 V) W		750	750
energy saving (CFL, LED) (230 V) W		200	200
halogen (230 V) W		2,000	2,000
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgSnO ₂	AgSnO ₂
Supply specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	230	230
	V DC	—	—
Rated power	VA (50 Hz)/W	6.6/2.9	6.6/2.9
Operating range	AC (50 Hz)	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	—	—
Technical data			
Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³
Switching intervals		48	—
Minimum switching interval	min	30	—
Accuracy	s/day	1	1
Ambient temperature range		–20...+50	–20...+50
Protection category		IP 20	IP 20
Approvals (according to type)			

Features

Electronic digital time switches

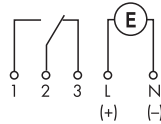
- Weekly time setting

- **Type 12.21** - 1 Pole 16 A CO (SPDT)
35.8 mm width
- **Type 12.22** - 2 Pole 16 A CO (DPDT)
35.8 mm width
- **Type 12.71** - 1 Pole 16 A CO (SPDT)
17.6 mm width
- Available for 230 V AC or 12, 24 V AC/DC supply
- Minimum time interval setting - 1 minute
- Internal battery for set-up without supply
- Impulse output function:
- 1s... 59: 59(mm:ss)
- Automatic adjustment for daylight saving
- 35 mm rail (EN 60715) mount

12.21



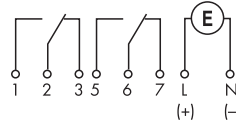
- Digital weekly time switch
- 1 CO (SPDT)
- 35 mm rail (EN 60715) mount



12.22



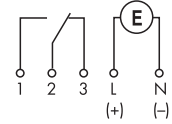
- Digital weekly time switch
- 2 CO (DPDT)
- 35 mm rail (EN 60715) mount



12.71



- Digital weekly time switch
- 1 CO (SPDT)
- 35 mm rail (EN 60715) mount



For outline drawing see page 10, 11

Contact specification

Contact configuration		1 CO (SPDT)	2 CO (DPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	16/30	16/30	16/30
Rated voltage/Maximum switching voltage V AC		250/—	250/—	250/—
Rated load AC1	VA	4,000	4,000	4,000
Rated load AC15 (230 V AC)	VA	750	750	420
Nominal lamp rating: incandescent (230 V) W		2,000 (NO contact)	2,000 (NO contact)	2,000 (NO contact)
compensated fluorescent (230 V) W		420 (NO contact)	420 (NO contact)	750 (NO contact)
uncompensated fluorescent (230 V) W		1,000 (NO contact)	1,000 (NO contact)	1,000 (NO contact)
halogen (230 V) W		2,000 (NO contact)	2,000 (NO contact)	2,000 (NO contact)
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgCdO	AgCdO	AgNi

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	—	120 - 230	—	120 - 230	—	230
	V AC/DC	12 - 24	—	24	—	24	—
Rated power AC/DC	VA (50 Hz)/W	1.4/1.4	2/—	1.4/1.4	2/—	1.4/1.4	2/—
Operating range	AC (50 Hz)	(0.9...1.1)U _N	(0.85...1.1)U _N	(0.9...1.1)U _N	(0.85...1.1)U _N	(0.9...1.1)U _N	(0.85...1.1)U _N
	DC	(0.9...1.1)U _N	—	(0.9...1.1)U _N	—	(0.9...1.1)U _N	—

Technical data

Electrical life at rated load in AC1	cycles	50 · 10 ³	50 · 10 ³	50 · 10 ³
Type of time switch		weekly	weekly	weekly
Memory locations for switching times *		30	30	30
Minimum interval setting	min	1	1	1
Accuracy	s/day	0.5	0.5	0.5
Ambient temperature range	°C	-30...+55	-30...+55	-30...+55
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)



* Switching times in memory may be used more than once i.e. when selected for different days.

Features

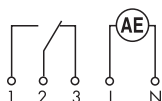

Electronic digital time switches - weekly time setting

- **Type 12.91...0000 "ZENITH"**
1 pole 16 A CO (SPDT)
35.8 mm width
- **Type 12.91...0090 "ZENITH"**
1 pole 16 A CO (SPDT)
35.8 mm width
version for programming via PC by a special Key Memory (included)
- **Type 12.92 "ZENITH"**
2 Pole 16 A CO (DPDT)
35.8 mm width
- Astro program:
calculation of sunrise and sunset times through date, time and location coordinates (longitude and latitude)
- Offset function: allows programming of switching times offset (+ or -) from the astronomic time
- Minimum time interval setting - 1 minute
- Internal battery for set-up without supply
- Automatic adjustment for daylight saving
- 35 mm rail (EN 60715) mount

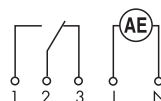
12.91...0000



- Digital weekly time switch
- 1 CO (SPDT)
- 35 mm rail (EN 60715) mount


 12.91...0090

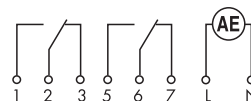

- Digital weekly time switch
- 1 CO (SPDT)
- Version for programming via PC by a special key memory
- 35 mm rail (EN 60715) mount




12.92



- Digital weekly time switch
- 2 CO (DPDT)
- 35 mm rail (EN 60715) mount

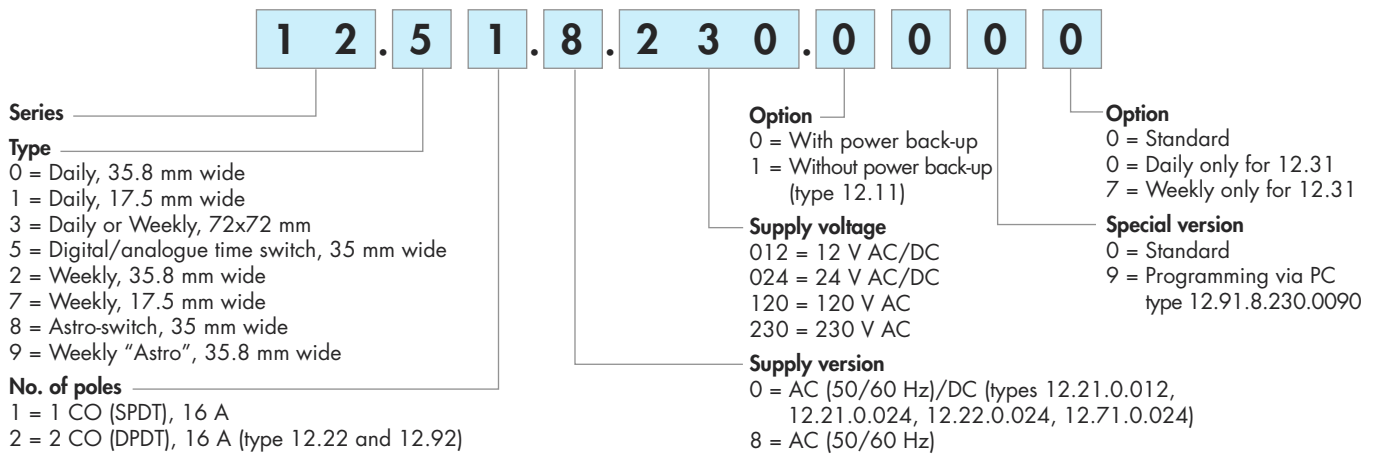


For outline drawing see page 11

Contact specification				
Contact configuration		1 CO (DPDT)	1 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	16/30	16/30	16/30
Rated voltage/Maximum switching voltage	V AC	250/—	250/—	250/—
Rated load AC1	VA	4,000	4,000	4,000
Rated load AC15 (230 V AC)	VA	750	750	750
Nominal lamp rating: incandescent (230 V)	W	2,000 (NO contact)	2,000 (NO contact)	2,000 (NO contact)
compensated fluorescent (230 V)	W	420 (NO contact)	420 (NO contact)	420 (NO contact)
uncompensated fluorescent (230 V)	W	1,000 (NO contact)	1,000 (NO contact)	1,000 (NO contact)
halogen (230 V)	W	2,000 (NO contact)	2,000 (NO contact)	2,000 (NO contact)
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgSnO ₂	AgSnO ₂	AgSnO ₂
Supply specification				
Nominal voltage (U _N)	V AC (50/60 Hz)	230	230	230
Rated power AC/DC	VA (50 Hz)/W	2/—	2/—	2/—
Operating range	AC (50 Hz)	(0.85...1.1)U _N	(0.85...1.1)U _N	(0.85...1.1)U _N
Technical data				
Electrical life at rated load in AC1	cycles	50 · 10 ³	50 · 10 ³	50 · 10 ³
Type of time switch		weekly	weekly	weekly
Memory locations for switching times *		60	60	60
Minimum interval setting	min	1	1	1
Accuracy	s/day	0.5	0.5	0.5
Ambient temperature range	°C	-30...+55	-30...+55	-30...+55
Protection category		IP 20	IP 20	IP 20
Approvals (according to type)				

Ordering information

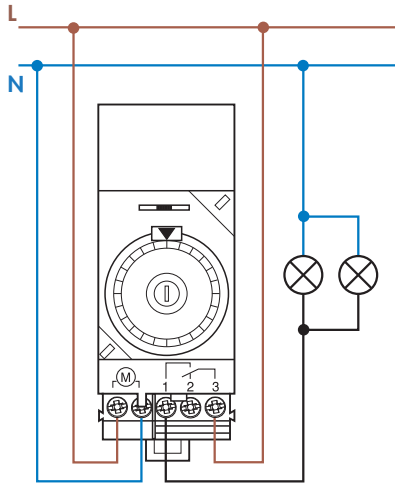
Example: 12 series digital/analogue time switch, 1 CO 16 A contact, 230 V AC supply



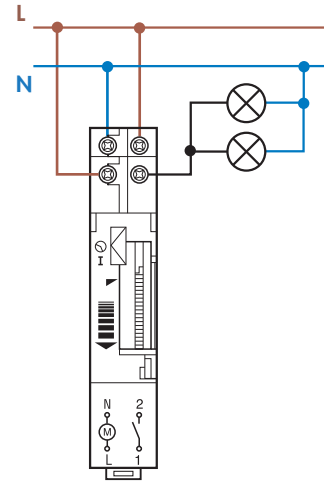
Technical data

Insulation		12.51, 12.81	12.01, 12.11, 12.31	12.21, 12.22, 12.71, 12.91, 12.92	
Dielectric strength between supply and contacts	VAC	4,000	4,000	4,000	
Dielectric strength between open contacts	VAC	1,000	1,000	1,000	
Rated impulse voltage (between supply and contacts)	kV/(1.2/50) μ s	6	6	6	
Rated impulse voltage (between open contacts)	kV/(1.2/50) μ s	1.5	1.5	1.5	
EMC specifications					
Type of test	Reference standard				
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV	6 kV	
	air discharge	EN 61000-4-2	8 kV	8 kV	
Radiated electromagnetic field (80 ... 1,000 MHz)	EN 61000-4-3	10 V/m	10 V/m		
Fast transients (burst 5/50 ns, 5 and 100 kHz)	EN 61000-4-4	4 kV	4 kV		
Voltage pulses on supply terminals (surge 1.2/50 μ s)	common mode	EN 61000-4-5	4 kV	2 kV	
	differential mode	EN 61000-4-5	4 kV	2 kV	
Radiofrequency common mode voltage (0.15...80 MHz)	EN 61000-4-6	10 V	10 V		
Voltage dips	70 % U_N , 40 % U_N	EN 61000-4-11	10 cycles	10 cycles	
Short interruptions	EN 61000-4-11	10 cycles	10 cycles		
Radio frequency conducted emissions	0.15...30 MHz	EN 55014	class B	class B	
Radiated emissions	30...1,000 MHz	EN 55014	class B	class B	
Terminals					
Screw torque	Nm	0.8	1.2		
		12.51, 12.81		12.01, 12.11, 12.31	
Max. wire size		mm ²	AWG	mm ²	AWG
	solid cable	1 x 6 / 2 x 4	1 x 10 / 2 x 12	1 x 6 / 2 x 4	1 x 10 / 2 x 12
	stranded cable	1 x 4 / 2 x 2.5	1 x 12 / 2 x 14	1 x 6 / 2 x 2.5	1 x 10 / 2 x 14
Max. wire size		12.21, 12.22, 12.71, 12.91, 12.92			
		mm ²	AWG		
	solid cable	1 x 6 / 2 x 4	1 x 10 / 2 x 12		
	stranded cable	1 x 6 / 2 x 2.5	1 x 10 / 2 x 14		
Wire strip length	mm	9			
Other data					
Power back-up (Battery life)		6 years (12.51, 12.81, 12.21, 12.22, 12.71, 12.91, 12.92)			
Battery type		CR 2032, 3V, 230 mAh			
Power back-up		100 h (12.01, 12.11, 12.31 - following 80 h continuous energisation)			
Power lost to the environment		12.51, 12.81	12.01, 12.11, 12.31	12.21, 12.22, 12.71, 12.91, 12.92	
	in stand-by W	1.4	—	—	
	without contact current W	2.9	1.5	2	
	with rated current W	3.5	2.5	3 (for 1 pole)/4 (for 2 pole)	

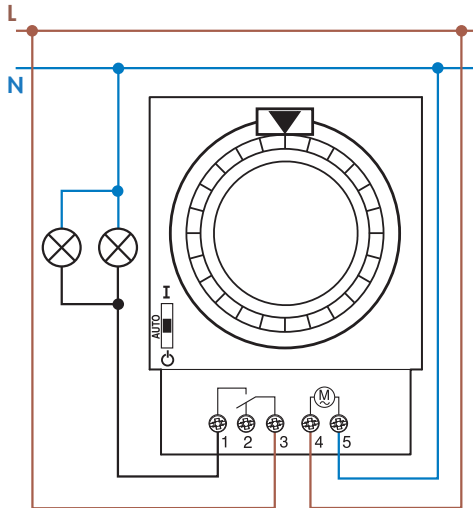
Wiring diagrams



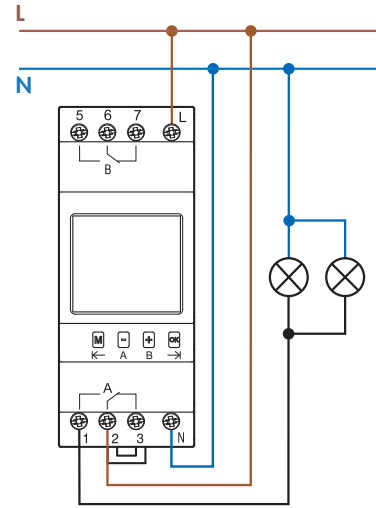
Type 12.01
Selector switch:
⊖ = Permanently OFF
AUTO = Automatic
I = Permanently ON



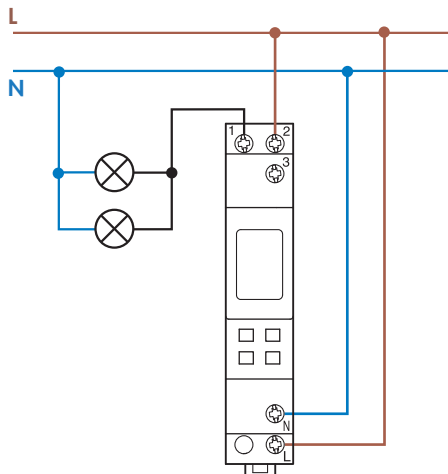
Type 12.11
Selector switch:
⊖ = Automatic
I = Permanently ON



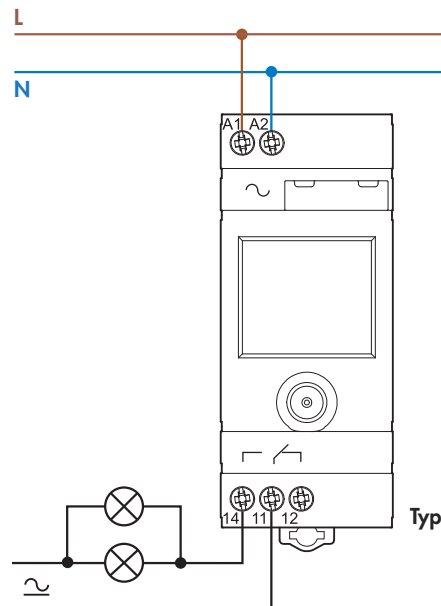
Type 12.31



Type 12.21
12.22
12.91
12.92



Type 12.71



Type 12.51
12.81

Accessories for type 12.71 and 12.91

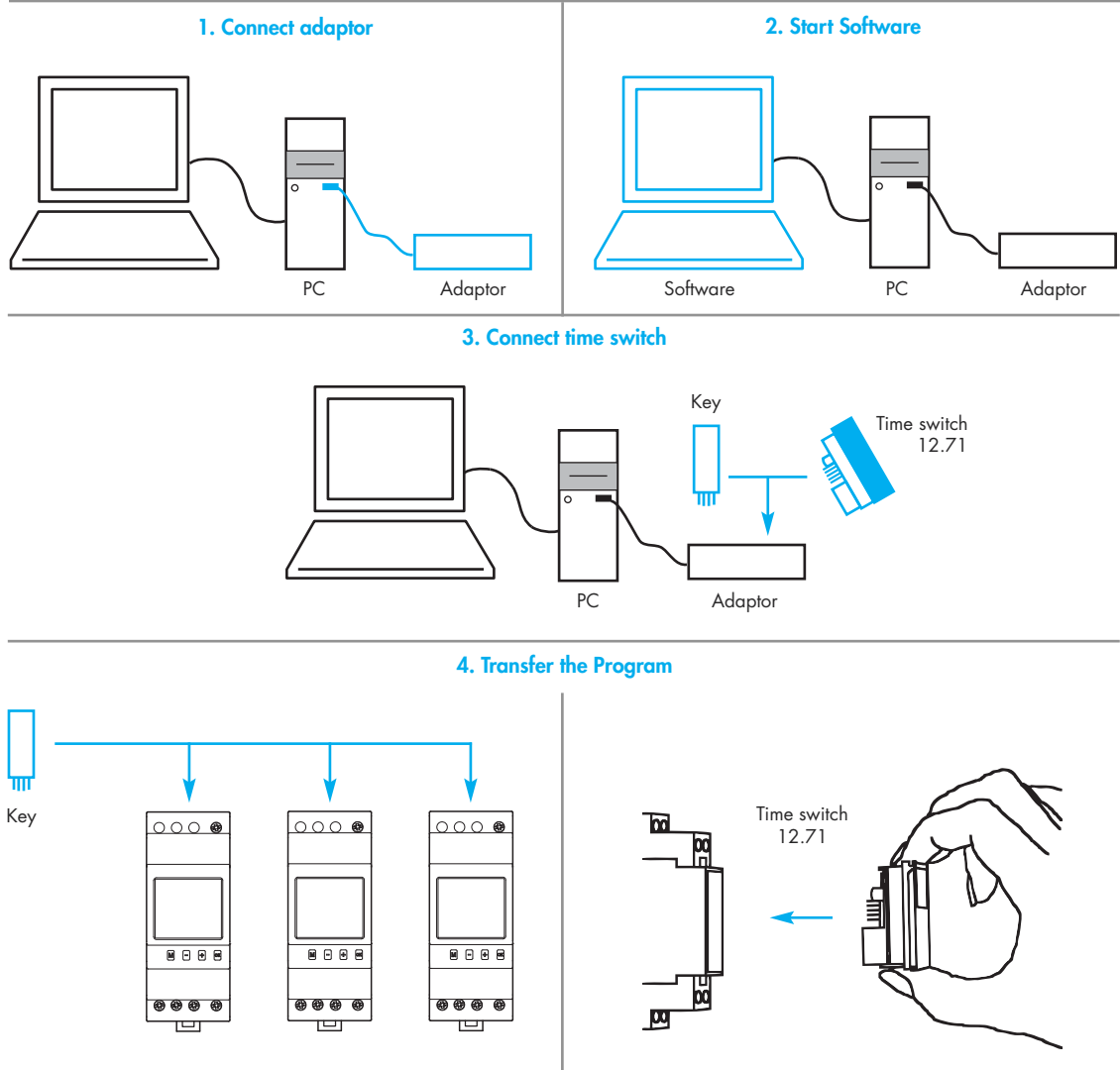


012.90

PC programming kit for type 12.71, 12.91.8.230.0090 | 012.90

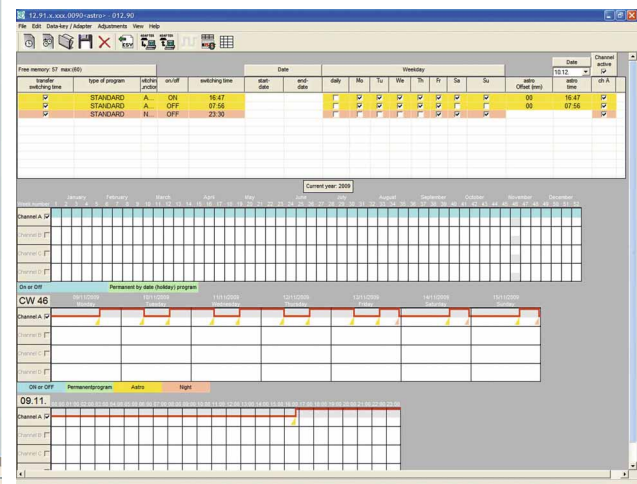
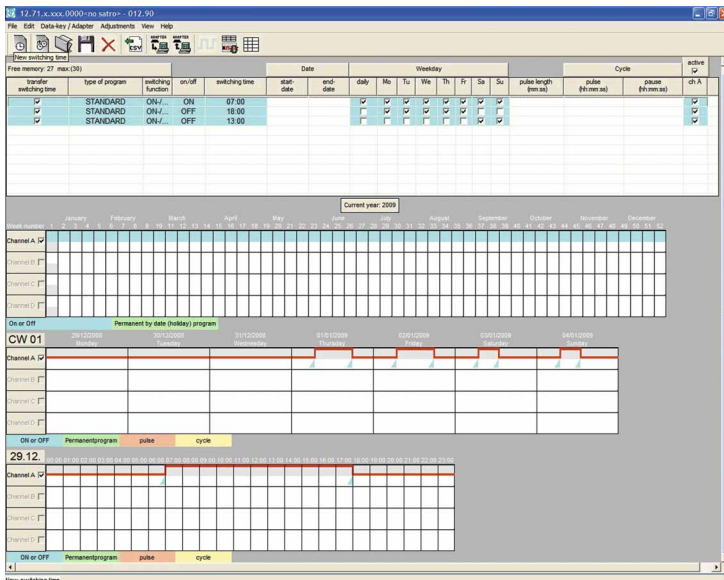
This special PC programming kit, permits fast and easy programming of the Time Switch with a PC or Laptop. The program transfer can be done by the special Key Memory (supplied with the 12.91.8.230.0090) or directly by the Time switch 12.71.

Contents: Programming adaptor, USB cable (1.8 meter length), Software.



PC Programming software

Easy and intuitive software to create programs for the Time Switch, in a few fast steps. For Windows 7, 8, 2000/XP/Vista.



Battery replacement type 12.51 and 12.81



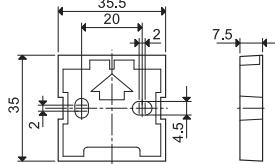
Accessories type 12.51 and 12.81



011.01

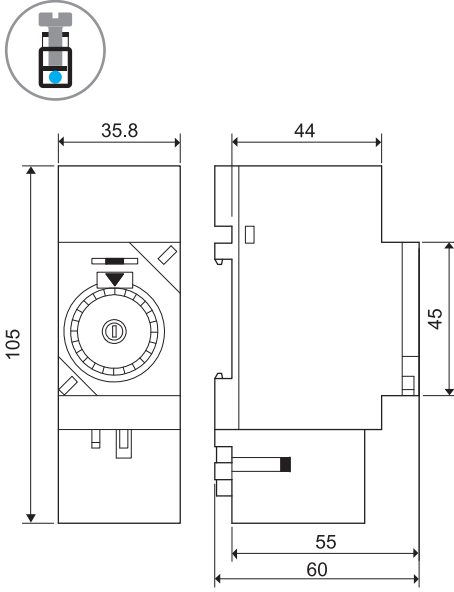
Adaptor for panel mounting, 35 mm wide

011.01

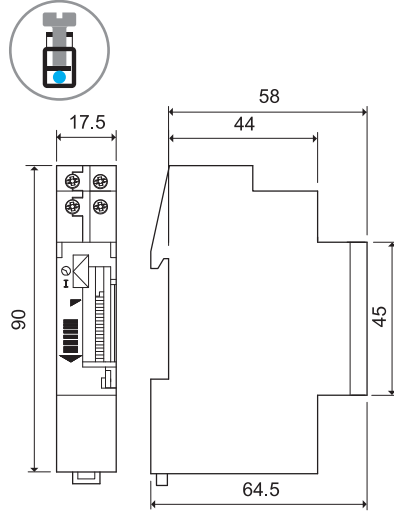


Outline drawings

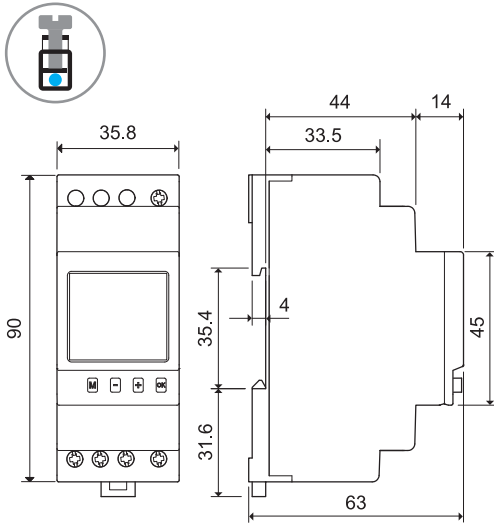
12.01
Screw terminal



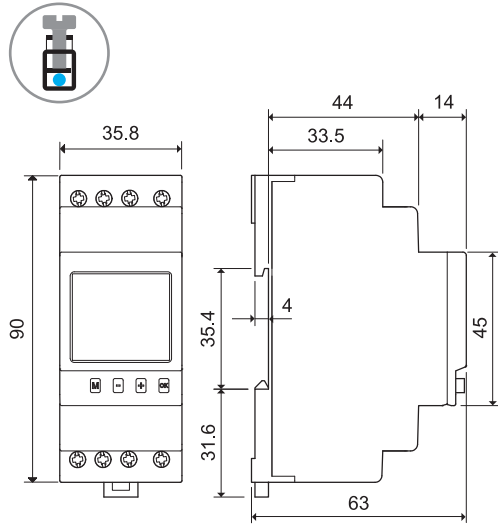
12.11
Screw terminal



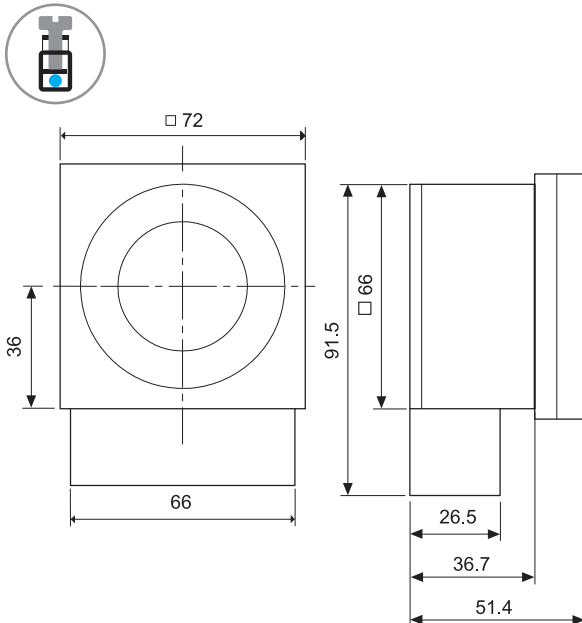
12.21
Screw terminal



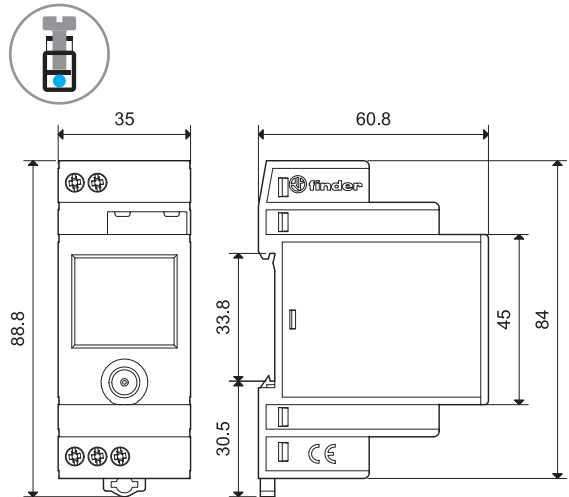
12.22
Screw terminal



12.31
Screw terminal

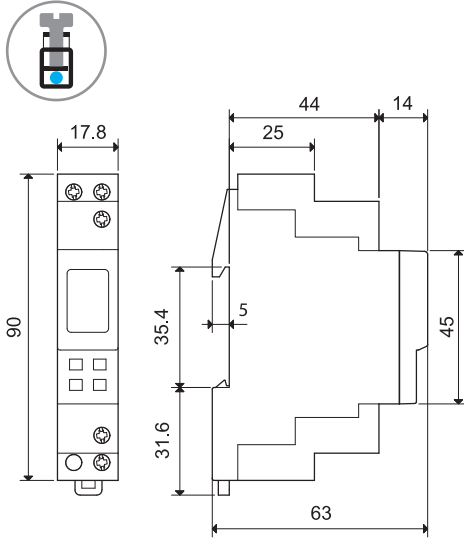


12.51/12.81
Screw terminal

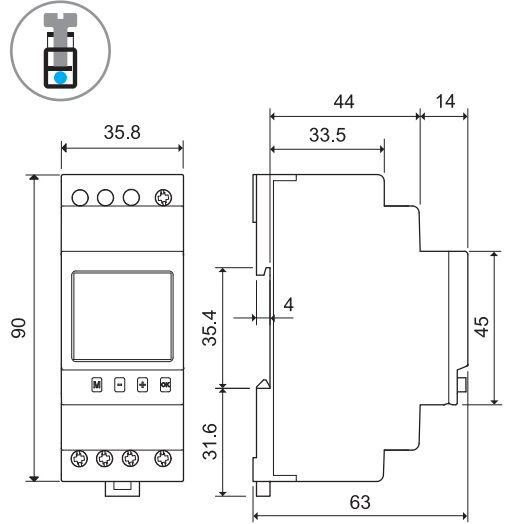


Outline drawings

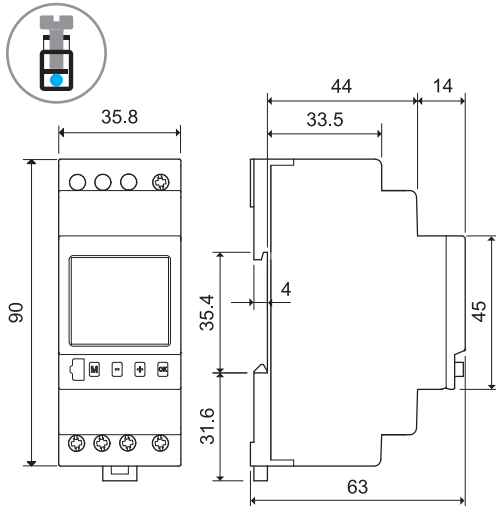
12.71
Screw terminal



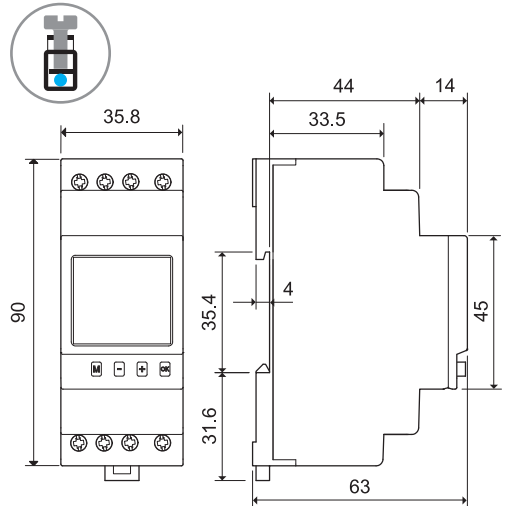
12.91...0000
Screw terminal



12.91...0090
Screw terminal



12.92
Screw terminal




Functions type 12.51

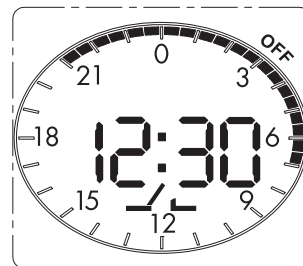
All the functions and the values can be set through the joystick and are displayed on the LCD.

Display mode



During normal operation, with AC supply connected, the following is displayed:

- the current time (hours and minutes)
- the status (ON/OFF and symbol of contact open/closed) of the 11-14 output contact
- the program for the current day (each solid segment represents an half-hour interval set to ON)

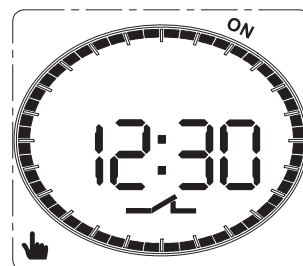
From **Display mode** it is possible to enter in **Program mode** or **Setup mode** respectively with a short or long (> 2s) press to the joystick centre .



Manual mode

From **Display mode** it is also possible to enter in **Manual mode**, where (independently from the program) the 11-14 output contact can be forced into the ON or OFF position with a long (> 2s) press to the joystick  or  directions, respectively. The "hand" symbol is then displayed.





A long press in the opposite direction will exit the manual mode.



Setup mode

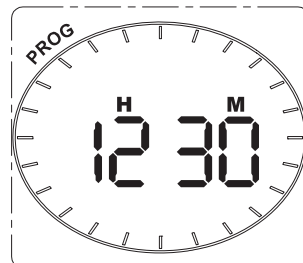
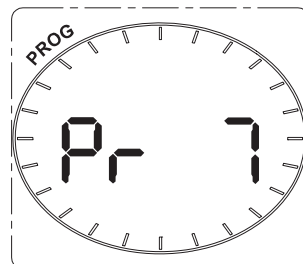
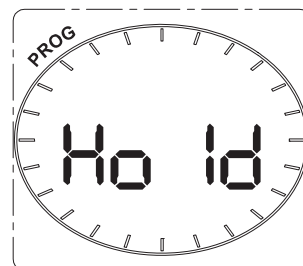
In this mode it is possible to set (in the following order):

- daily/weekly function
- current year
- current day
- current month
- current hour
- current minute
- enable/disable european summer time.

With a short press of the joystick  or , it is possible to pass from one setup step to another (confirming the set values); in any step it is possible to modify the set values with a short press to the joystick  or . A sustained (> 1s) press results in the fast increasing (or decreasing) of values.

A short press to the joystick centre  will restore the Display mode.




Note: the product is supplied factory set to Central Europe time with european summer time enabled.







Functions type 12.51

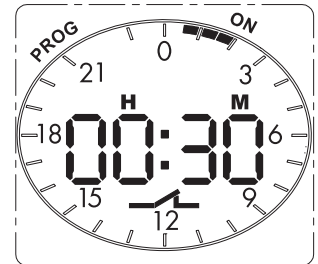
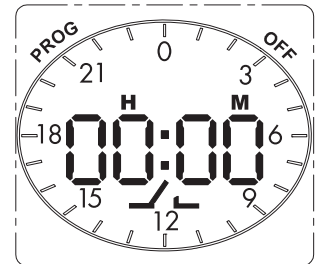
Program mode (daily)

In this mode it is possible to set the "pattern" of time segments, which define the ON time of the 11-14 output contact. This "pattern" will be the same for all days of the week (daily).

Entering Programming mode (from Display mode) with a short press to  takes the digital time to 00:00 (and any previously programmed segment pattern is displayed). Stepping backwards  or forwards  in time displays the appropriate segment time and the appropriate open or closed contact status for that time segment.




At any step it is possible to change the segment status with a short press to the joystick  (for ON) or  (for OFF) as appropriate, and this also automatically advances the time to the next segment, and always in a clockwise direction. If the joystick is pressed several times in, say, the  direction then each successive segment will assume the ON status. If it is then pressed several times in the  direction then each successive segment will assume the OFF status. This allows the rapid setting of many consecutive segments with the same status.





A short press to the joystick centre  will restore the display to the Display mode.




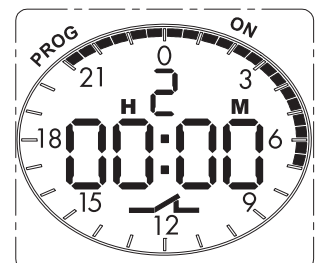
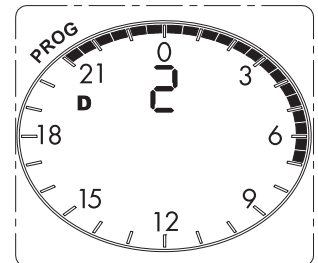
Program mode (weekly)

In this mode it is possible to set a different "pattern" of time segments for each day of the week (weekly).

Entering Programming mode (from Display mode) with a short press to  takes the display to the programming mode, for the current day. With a subsequent short press to  or  it is possible to pass from one day to another (Monday is day 1).




With the desired day selected it is possible to enter the programming mode for that day by pressing . Program the segments for that day by following the same procedure as described above for daily mode. When all 48 segments have been set, accept with a short press to . Then progress to the next day by pressing the joystick in the  or  direction. Repeat programming for the next day, and then repeat for other remaining days.

At any time return to the Display mode with a short press to the joystick centre .

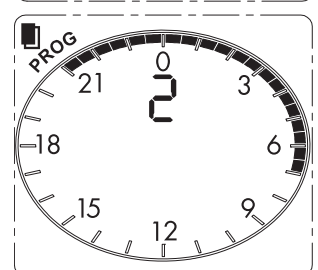


COPY FUNCTION

View the particular day to be copied (using  or  as described above) and copy with a short press to  (the "copy icon" will then appear).


Then select another day, using  or , and paste the copied program with a short press to . This can be repeated for other days.

A short press to the joystick centre , or , will exit the copy function.



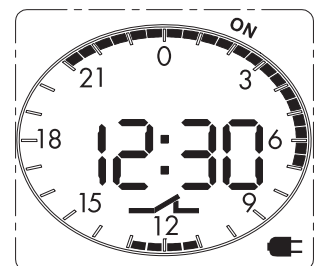
Power-save mode

If the 230 V AC supply is not connected, the time switch enters power-save mode: only the clock is maintained active whilst the display turns off so as to guarantee a long life for the built-in back-up battery.

With a press to the joystick it is possible to "awake" the device and enter Display mode (with the "plug" symbol displayed). A further press to  will enter the program or set-up mode as explained in the Display mode section above.

After about 1 minute of inactivity the power-save mode will start again. During program or set-up the current absorption is higher than in power-save mode, thus influencing the battery life.

In this mode the display back-light is not active. It is activated following a press to the joystick only with the 230 V AC supply connected, but after about 1 minute of inactivity the display back-light will turn off, and to activate it again it is necessary to press the joystick again.




Functions type 12.81

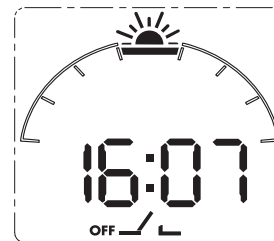
All the functions and the values can be set through the joystick and are displayed on the LCD.

Display mode



During normal operation, with AC supply connected, the following is displayed:

- the current time (hours and minutes)
- the status (ON/OFF and symbol of contact open/closed) of the 11-14 output contact

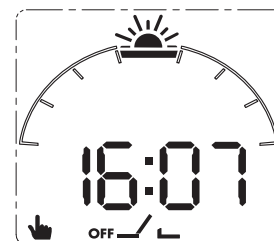
From **Display mode** it is possible to enter in **Program mode** or **Setup mode** respectively with a short or long (> 2s) press to the joystick centre .



Manual mode

From **Display mode** it is also possible to enter in **Manual mode**, where (independently from the program) the 11-14 output contact can be forced into the ON or OFF position with a long (> 2s) press to the joystick  or  directions, respectively. The "hand" symbol is then displayed.

A long press in the opposite direction will exit the manual mode.







Setup mode




In this mode it is possible to set (in the following order):




- country (using Internet websites extension, e.g. IT, DE, FR..)
- post-code (CP, setting only the first 2 digits, 00 to 99 - or letters for UK)
- current year
- current day
- current month
- current hour
- current minute
- enable/disable european summer time.

From the Display mode - Enter the Setup mode with a long press (> 2 s) to .

With a short press to  or , it is then possible to pass from one setup step to another (confirming the set values). In any step it is possible to modify the set values with a short press to  or . A sustained (> 1s) press results in the fast increment (or decrement) of values.

A short press to the joystick centre  will restore the Display mode.

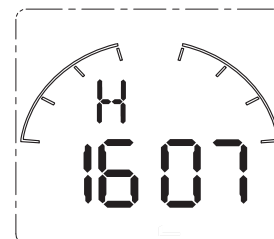
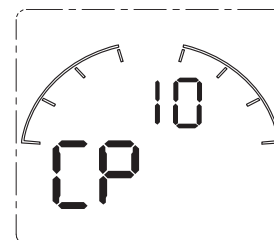
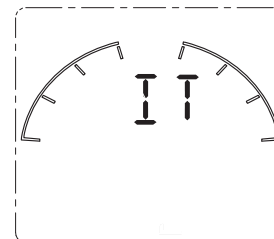
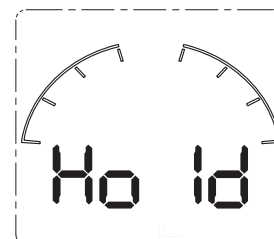
If the "country" is set to "Coor" (between IT and HU) or if the "postal code" is set to "Coor" (between 99 and 00*), press  to view the coordinates of latitude and use  or  to set between 30 and 64 ° North.

Press  again to view the coordinates of longitude and use  or  to set between 15 ° West and 50 ° East). Proceed in a similar way to set the time zone "Gmt" (00 corresponds to Greenwich Mean Time, 01 Central Europe, 02 Eastern Europe, and 03 European Russia), and then continue with setting year, day, month etc..

*or between ZE and AB for UK post codes.

Note: the product is supplied with the following factory settings:

- Central Europe time,
- european summer time enabled,
- country Italy,
- post-code 00 (the capital city Rome).



Functions type 12.81

Program mode (advance/retard setting)

In this mode it is possible to set independently:

- the advance (or the retard) of the light turn-on time in the evening with respect to the "astronomic" sunset time.
- the advance (or the retard) of the light turn-off time in the morning with respect to the "astronomic" sunrise time;

From the Display mode - A short press of the joystick (⊙) will display the "astronomic" sunset time, indicated by the (clockwise) transition from ☀ to ☾ ("ON" and closed contact symbols displayed). A short press to ⊕ or ⊖ will retard or advance the switch ON time about the astronomic time in 10 minute steps (up to a maximum of 90 min.).

Press → to display the "astronomic" sunrise time, indicated by the (clockwise) transition from ☾ to ☀ ("OFF" and open contact symbols displayed). Again, a short press to ⊕ or ⊖ will retard or advance the switch OFF time about the "astronomic" time, in 10 minute steps.

At this point, either exit (to Display mode) with a short press to ⊙, or continue to set the **Astro ON period override time(s)** with a short press to →.

Set the OFF time using ⊕ or ⊖. A further short press to → will display the ON time which again can be set using ⊕ or ⊖.

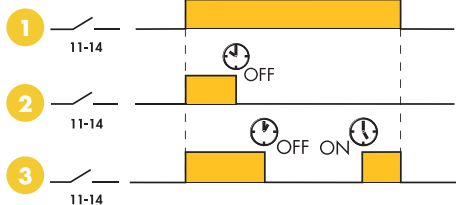
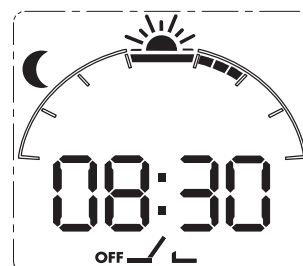
Note: setting "--" for either OFF or ON means the function is inoperative.

Continuing to press → will cycle through the "sunset" / "sunrise" / "OFF" / "ON" settings in turn.

A short press to ⊙ at any time will return the display to Display mode.

Note 1: The effect of the retard/advance settings is valid for all days. That is; lights will, for example, always turn-on every day for 30 minutes before the "astronomic" sunset time.

Note 2: The effect of the On period override settings is also valid for all days - but also see Note 3 by the function diagrams.



*Note 3: Depending on the time of year (summer specifically) it may be that the override ON time will fall after the AstroOFF time. In this case, the output switches off at the Astro OFF time and the override ON time is ignored.

The Override feature permits the 12.81 three different ways of functioning:

- 1 Classic function where the **AstroON** and **AstroOFF** times are determined by the geographic coordinates. These times vary every day.
- 2 Functions such that the output turns on according to the **AstroON** time and turns off according to the clock off-time ⌚_{OFF}. Application example: shop window lighting on by **AstroON** at sunset and off ⌚_{OFF} at 00:30.
- 3 Functions such that the output turns on according to the **AstroON** time and turns off according to the clock off-time ⌚_{OFF}, and then turns back on at the clock on-time ⌚_{ON} (for the remainder of the ASTRO time period). Application example: company car park lighting, on by **AstroON** at sunset, off end of the evening shift at 23:00 ⌚_{OFF}. On again at the beginning of the morning shift at 5:00 ⌚_{ON} and off automatically by AstroOFF*.

Power-save mode

If the 230 V AC supply is not connected, the time switch enters power-save mode: only the clock is maintained active whilst the display turns off so as to guarantee a long life for the built-in back-up battery. With a press to the joystick it is possible to "awake" the device and enter Display mode (with the "plug" symbol displayed). A further press to ⊙ will enter the program or set-up mode as explained in the Display mode section above.

After about 1 minute of inactivity the power-save mode will start again. During program or set-up the current absorption is higher than in power-save mode, thus influencing the battery life.

In this mode the display back-light is not active. It is activated following a press to the joystick only with the 230 V AC supply connected, but after about 1 minute of inactivity the display back-light will turn off, and to activate it again it is necessary to press the joystick again.

Note: the output relay only functions if the power supply is connected.



Features

13.81 - Electronic step relay - Rail mount - 1 Pole

**13.91 - Electronic step relay and timing step relay
Switch box mount - 1 Pole**

- Fixed time (10 minutes) timing function selectable (13.91)
- Use with 3 or 4 wire connection, with automatic recognition by the relay
- Control input can be continuously applied
- Longer mechanical and electrical life, and much quieter than electromechanical step relays
- "Zero crossing" load switching
- Can be mounted behind blanking plates, as widely used in residential wiring systems such as; BTicino: Axolute, Matix, Living and Magic, Gewiss: GW24, Vimar: Plana and Idea ... (13.91)
- 35 mm rail (EN 60715) mount (13.81)
- Cadmium free contact material

13.81/91
Screw terminal



For outline drawing see page 8

Contact specification		13.81	13.91
Contact configuration		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current	A	16/30 (120 A - 5 ms)	10/20 (80 A - 5 ms)
Rated voltage/Maximum switching voltage V AC		230/—	230/—
Rated load AC1	VA	3,700	2,300
Rated load AC15 (230 V AC)	VA	750	450
Nominal lamp rating: 230V incandescent/halogen W		3,000	1,000
fluorescent tubes with electronic ballast W		1,500	500
fluorescent tubes with electromechanical ballast W		1,000	350
CFL W		600	300
230V LED W		600	300
LV halogen or LED with electronic ballast W		600	300
LV halogen or LED with electromechanical ballast W		1,500	500
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgSnO ₂	AgSnO ₂
Supply specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	230	230
	V DC	—	—
Rated power	V A (50 Hz)/W	3/1.2	2/1
Operating range	AC (50 Hz)	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	—	—
Technical data			
Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³
Maximum impulse duration		continuous	continuous
Dielectric strength between: open contacts	V AC	1,000	1,000
supply - contacts	V AC	—	—
Ambient temperature range	°C	-10...+60	-10...+50
Protection category		IP 20	IP 20
Approvals (according to type)			

13.81



- 1 NO (SPST-NO)
- 35 mm rail (EN 60715) mount
- 17.5 mm wide

13.91



- 1 NO (SPST-NO)
- Step relay and timing step relay (10 minutes)
- For mounting within residential switch boxes

Features

13.01 - Electronic step/monostable relay Rail mount - 1 Pole

13.61 - Multifunction step/monostable relay with reset command - Rail mount 1 Pole

- Selectable Step or Monostable operation (13.01)
- Multifunction (Step, Timing step, Monostable, Light ON) (13.61)
- Reset feature, for centralized off command (13.61)
- Control input can be continuously applied
- Longer mechanical and electrical life, and much quieter than electromechanical step relays
- 110...240 V AC supply, 50/60 Hz (13.61)
- Suitable for SELV applications and available also for supply 12 and 24 V AC/DC (13.01)
- "Zero-crossing" load switching (13.61)
- 35 mm rail (EN 60715) mount
- Cadmium free contact material

13.01/61
Screw terminal



* For version 24 V $U_{max} = 33.6$ V
For outline drawing see page 8

13.01



- 1 CO (SPDT)
- Step or monostable relay
- 35 mm rail (EN 60715) mount
- 35 mm wide

NEW 13.61



- 1 NO (SPST-NO)
- Multifunction:
 - step relay
 - timing step relay
 - monostable relay
 - light on
- Reset feature, for centralized off command
- 35 mm rail (EN 60715) mount
- 17.5 mm wide

Contact specification

Contact configuration		1 CO (SPDT)	1 NO (SPST-NO)
Rated current/Maximum peak current	A	16/30 (120 A - 5 ms)	16/30 (120 A - 5 ms)
Rated voltage/Maximum switching voltage V AC		250/400	250/400
Rated load AC1	VA	4,000	4,000
Rated load AC15 (230 V AC)	VA	750	750
Nominal lamp rating: 230V incandescent/halogen W		2,000	3,000
fluorescent tubes with electronic ballast W		1,000	1,500
fluorescent tubes with electromechanical ballast W		750	1,000
CFL W		400	600
230V LED W		400	600
LV halogen or LED with electronic ballast W		400	600
LV halogen or LED with electromechanical ballast W		800	1,500
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgSnO ₂	AgSnO ₂

Supply specification

Nominal voltage (U_N)	V AC (50/60 Hz)	12 - 24 * - 110...125 - 230...240	110...240
	V DC	12 - 24 *	—
Rated power AC/DC	V A (50/60 Hz)/W	2.5/2.5	3.2/1
Operating range	V AC (50 Hz)	(0.8...1.1) U_N	90...264
	DC	(0.9...1.1) U_N	—

Technical data

Electrical life at rated load in AC1	cycles	$100 \cdot 10^3$	$100 \cdot 10^3$
Maximum impulse duration		continuous	continuous
Dielectric strength between:	open contacts V AC	1,000	1,000
	supply - contacts V A	4,000	2,000
Ambient temperature range	°C	-10...+60	-10...+60
Protection category		IP 20	IP 20

Approvals (according to type)



Features

13.11 - Call & Reset Relay - Rail mount - 1 Pole

13.12 - Call & Reset Relay - Rail mount - 2 Pole

**13.31 - Electromechanical monostable relay
Switch box mount - 1 Pole**

- Call relay with reset command suitable for residential and commercial applications: public bathroom, hospital, hotel (type 13.11/13.12)
- Can be mounted behind blanking plates, as widely used in residential wiring systems such as; BTicino: Axolute, Matix, Living e Magic, Gewiss: GW24, Vimar: Plana e Idea ... (13.31)
- 35 mm rail (EN 60715) or flange mount (13.11 and 13.12)
- Cadmium free contact material (13.31)

13.11/12/31
Screw terminal



* During impulse only.
For outline drawing see page 8

Contact specification

Contact configuration	1 CO (SPDT)	1 CO (SPDT) + 1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current A	12/30	8/15	12/20 (80 A - 5 ms)
Rated voltage/Maximum switching voltage V AC	250/400	250/400	250/400
Rated load AC1 VA	3,000	2,000	3,000
Rated load AC15 (230 V AC) VA	750	400	450
Nominal lamp rating: 230V incandescent/halogen W	1,200	800	800
fluorescent tubes with electronic ballast W	500	300	400
fluorescent tubes with electromechanical ballast W	400	250	300
CFL W	300	150	200
230V LED W	300	150	200
LV halogen or LED with electronic ballast W	300	150	200
LV halogen or LED with electromechanical ballast W	500	300	400
Minimum switching load mW (V/mA)	500 (5/5)	300 (5/5)	1,000 (10/10)
Standard contact material	AgCdO	AgCdO	AgSnO ₂

Supply specification

Nominal voltage (U _N)	V AC (50/60 Hz)	230...240	12 - 24	12 - 230
	V DC	—	12 - 24	24
Rated power AC/DC	V A (50 Hz)/W	1.7/0.7 *	3/2.5 *	1/0.4
Operating range	AC (50 Hz)	(0.8...1.1)U _N	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	—	(0.8...1.1)U _N	(0.8...1.1)U _N

Technical data

Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³	70 · 10 ³
Maximum impulse duration		continuous (100 ms minimum)	continuous (100 ms minimum)	continuous
Dielectric strength between:	open contacts V AC	1,000	1,000	1,000
	supply - contacts V AC	2,000	2,000	2,000
Ambient temperature range	°C	-10...+60	-10...+60	-10...+60
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)



13.11



- 1 CO (SPDT)
- Call relay with reset command
- 35 mm rail (EN 60715) mount
- 17.5 mm wide

13.12



- 1 CO (SPDT) + 1 NO (SPST-NO)
- Call relay with reset command
- 35 mm rail (EN 60715) mount
- 17.5 mm wide



13.31



- 1 NO (SPST-NO)
- Interposing monostable relay
- For mounting within residential switch boxes

Ordering information

Example: 13 series, electronic step/monostable relay, 35 mm rail (EN 60715) mount, 1 CO (SPDT) 16 A contact, 230 V AC supply.

1 3 . 0 1 . 8 . 2 3 0 . 0 0 0 0

A B C D

Series _____

Type
0 = Step/Monostable, 35 mm rail (EN 60715) mount, 35 mm wide

1 = Call & Reset relay, 35 mm rail (EN 60715) mount, 17.5 mm wide

3 = Monostable relay, switch box mounting

6 = Multifunction relay, 35 mm rail (EN 60715) mount, 17.5 mm wide

8 = Modular step relay, 35 mm rail (EN 60715) mount, 17.5 mm wide

9 = Step relay and timing step relay, switch box mounting

No. of poles
1 = 1 pole
2 = 1 pole CO (SPDT) + 1 NO (SPST-NO)

Supply version
0 = AC (50/60 Hz)/DC
8 = AC (50/60 Hz)
9 = DC

Supply voltage
012 = 12 V AC/DC (13.01 and 13.12 only)
012 = 12 V AC (13.31 only)
024 = 24 V AC/DC (13.01 and 13.12 only)
024 = 24 V DC (13.31 only)
125 = (110...125)V AC (13.01 only)
230 = (230...240)V AC (13.01 and 13.11)
230 = 110...240 V AC (13.61 only)
230 = 230 V AC (13.31, 13.81 and 13.91)

A: Contact material

0 = Standard

4 = Standard AgSnO₂ (only for 13.31)

B: Contact circuit

0 = Standard

3 = Standard NO (only for 13.31)

Codes / Supply voltage

13.01.0.012.0000 12 V AC/DC

13.01.0.024.0000 24 V AC/DC

13.01.8.125.0000 110...125 V AC

13.01.8.230.0000 230...240 V AC

13.11.8.230.0000 230...240 V AC

13.12.0.012.0000 12 V AC/DC

13.12.0.024.0000 24 V AC/DC

13.31.8.012.4300 12 V AC

13.31.9.024.4300 24 V DC


13.31.8.230.4300 230 V AC

13.61.8.230.0000 110...240 V AC

13.81.8.230.0000 230 V AC

13.91.8.230.0000 230 V AC

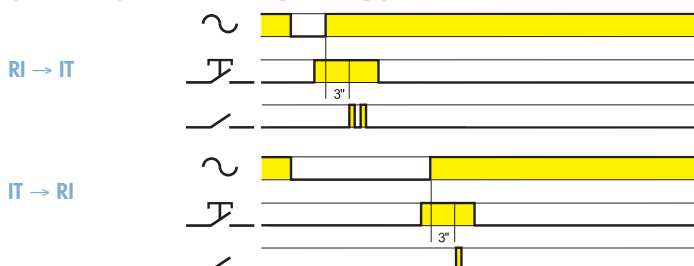
Technical data

Insulation		13.01.8	13.01.0	13.11 - 13.12	13.31 - 13.61	13.81 - 13.91	
Dielectric strength	between control circuit and supply	V AC 4,000	—	—	—	—	
	between control circuit and contacts	V AC 4,000	4,000	—	—	—	
	between R-S-A2 and contacts	V AC —	—	2,000	—	—	
	between supply and contacts	V AC 4,000	4,000	—	2,000	—	
	between open contacts	V AC 1,000	1,000	1,000	1,000	1,000	
Other data		13.01	13.11 - 13.12	13.31	13.61	13.81	13.91
Power lost to the environment	without contact current	W 2.2	—	0.4	1	1.2	0.7
	with rated current	W 3.5	1.5	1.6	1.8	2	1.8
Max cable length for push-button connection	m	100	100	—	200	200	100
Max. no. of illuminated push-button	(≤ 1 mA)	—	—	—	10	15	12
Terminals		13.01	13.11 - 13.12 - 13.31 - 13.61 - 13.81 - 13.91				
Max. wire size		solid cable	stranded cable	solid cable		stranded cable	
	mm ²	1x6 / 2x4	1x6 / 2x2.5	1x6 / 2x4		1x4 / 2x2.5	
	AWG	1x10 / 2x12	1x10 / 2x14	1x10 / 2x12		1x12 / 2x14	
 Screw torque	Nm	0.8		0.8			

Functions

Type	Functions	
13.01		Monostable On closure of a switch between terminals (B2-B3) the output contact will close, and remain so, until the switch opens.
		Step relay (bistable) After every impulse (B1-B2), the output contact changes state - alternately switching from open to closed and vice versa.
13.11 13.12		Call and Reset relay On momentary closure of the Set switch (S), the output contact closes. Only a momentary closure of the Reset switch (R) will open the output contact.
13.61		(RM) Monostable On closure of a switch between terminal 3 and Line (or Neutral, in case of 3-wire connection) the output contact will close, and remain so, until the switch opens.
		(IT) Timing step relay On initial impulse the output contact closes and timing starts for the pre-set duration T; On expiry of the time delay, the output contact opens. During the timing period it is possible to immediately open the contact with a further impulse.
		(RI) Step relay After every impulse, the output contact changes state - alternately switching from open to closed and vice versa.
		Light ON With this function set - the output contact stays permanently closed.
13.81		(RI) Step relay After every impulse, the output contact changes state - alternately switching from open to closed and vice versa.
13.91		(RI) Step relay After every impulse, the output contact changes state - alternately switching from open to closed and vice versa.
		(IT) Timing step relay On initial impulse the output contact closes and timing starts for the pre-set duration (fixed 10 min); On expiry of the time delay, the output contact opens. During the timing period it is possible to immediately open the contact with a further impulse.

Operating mode setup for type 13.91

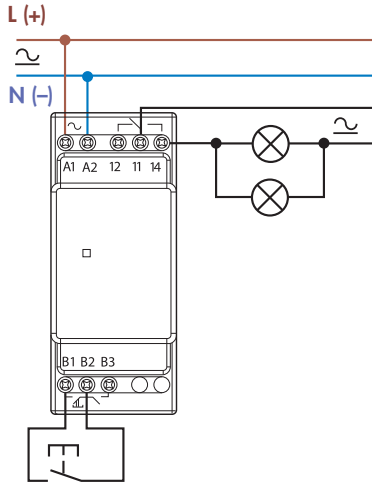


- Remove the supply voltage
- Press the control button
- Apply the supply to the relay, keeping the button closed. After 3 second, the light will flash twice to indicate the selection of the "IT" function, or flash once for "RI" function.

Wiring diagrams (13.01, 13.11, 13.12 and 13.31)

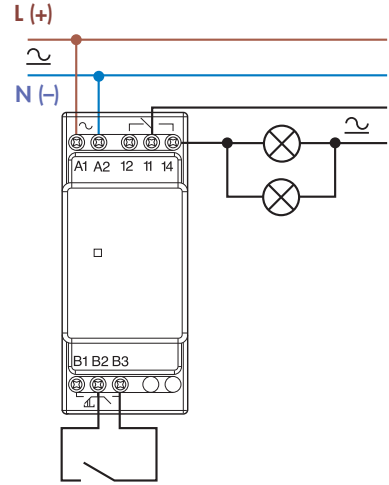
Type 13.01
Step wiring diagram

Red LED indication:
Continuous = relay ON

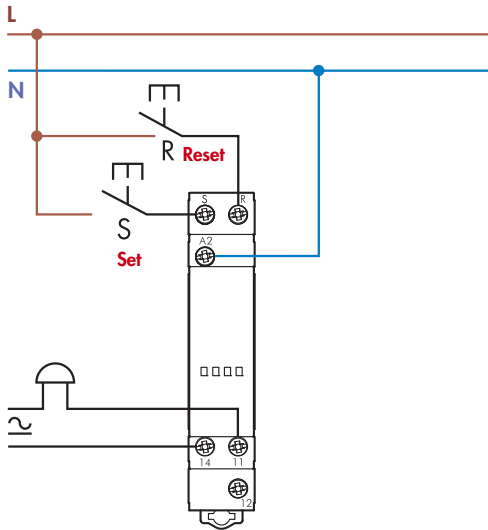


Type 13.01
Monostable wiring diagram

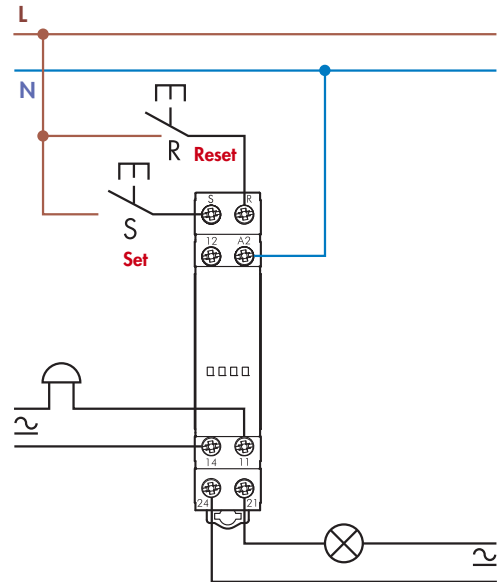
Red LED indication:
Continuous = relay ON



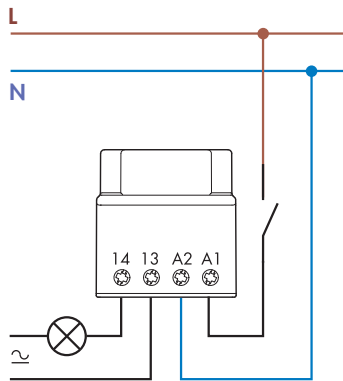
Type 13.11
Call & reset relay



Type 13.12
Call & reset relay



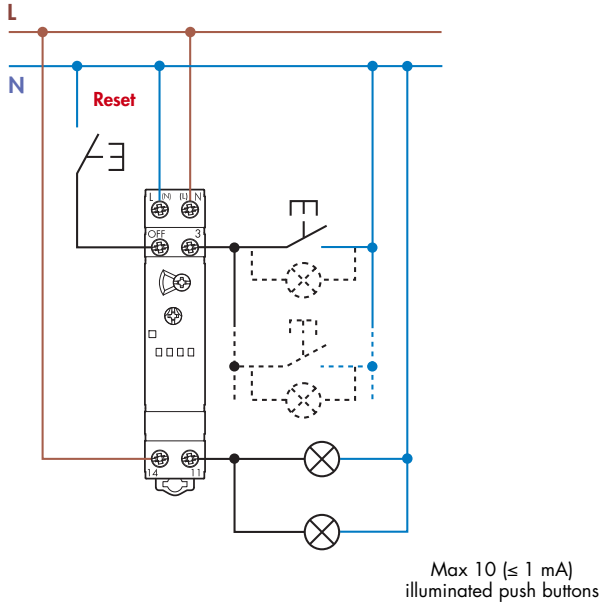
Type 13.31
Connection



Wiring diagrams (13.61, 13.81 and 13.91)

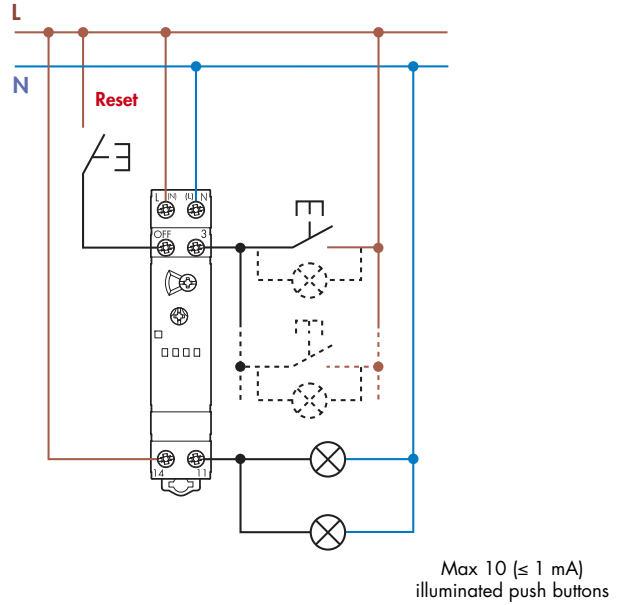
Type 13.61

3 wire connection
 Red LED indication:
 Continuous = relay ON
 Blinking = relay OFF



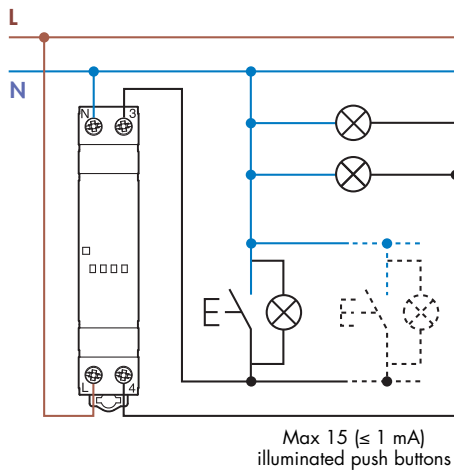
Type 13.61

4 wire connection
 Red LED indication:
 Continuous = relay ON
 Blinking = relay OFF



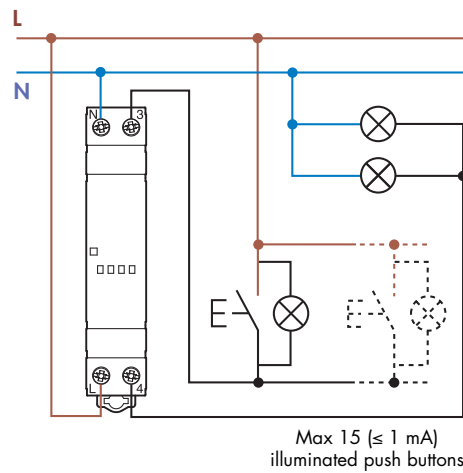
Type 13.81

3 wire connection
 Red LED indication:
 Continuous = relay ON
 Blinking = relay OFF



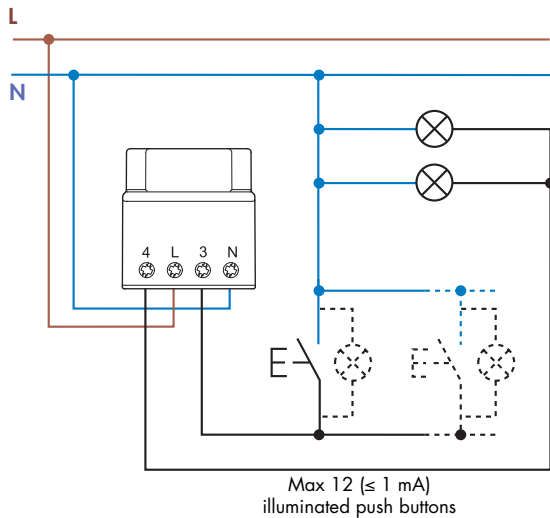
Type 13.81

4 wire connection
 Red LED indication:
 Continuous = relay ON
 Blinking = relay OFF



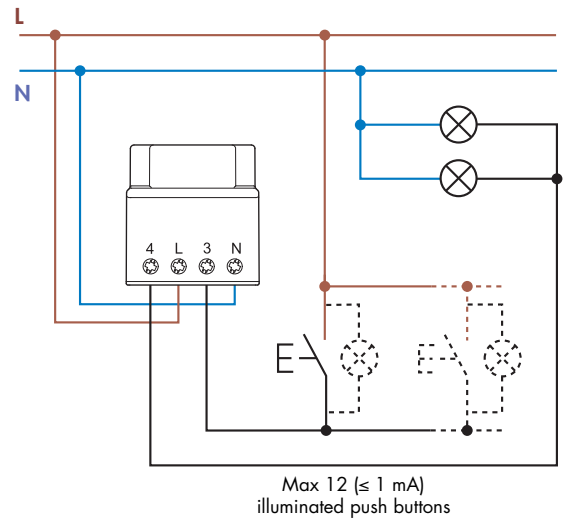
Type 13.91

3 wire connection



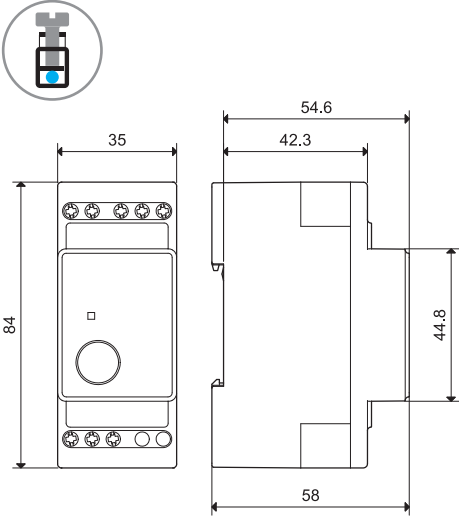
Type 13.91

4 wire connection

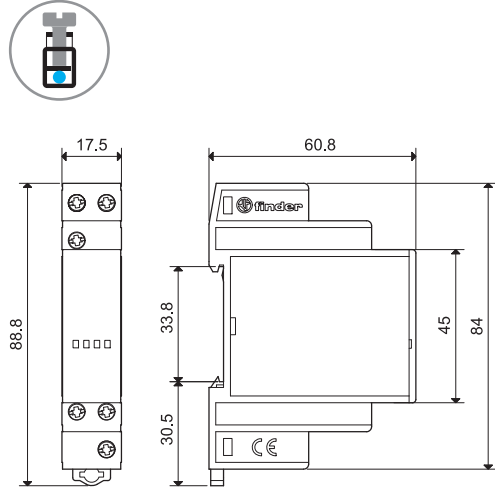


Outline drawings

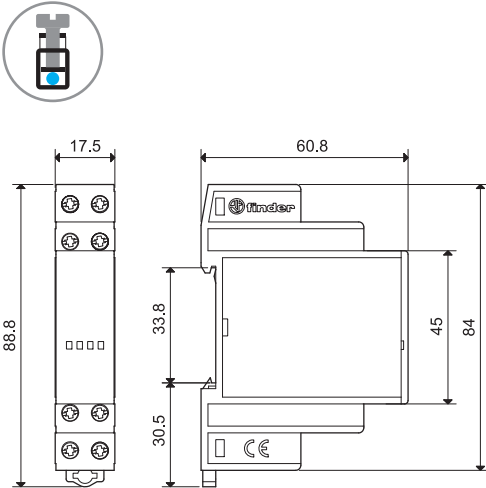
13.01
Screw terminal



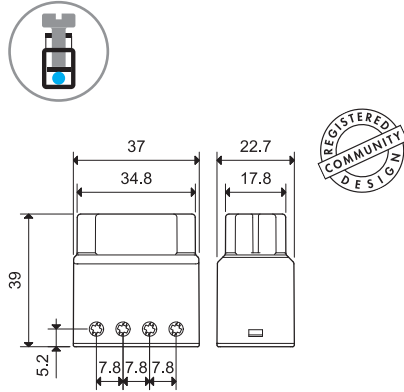
13.11
Screw terminal



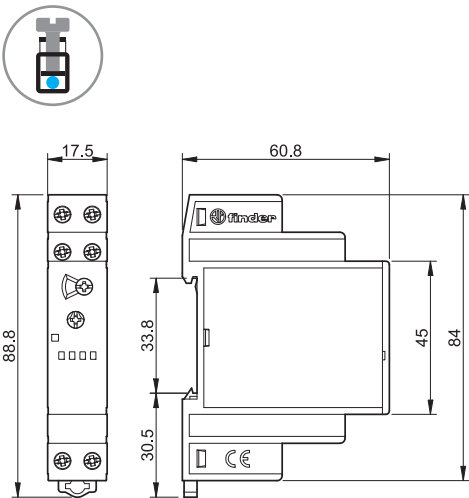
13.12
Screw terminal



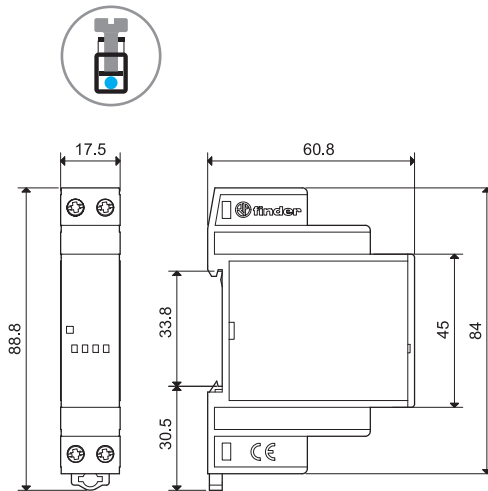
13.31/13.91
Screw terminal



13.61
Screw terminal



13.81
Screw terminal



Residential applications

Accessories



011.01

Adaptor for panel mounting, for type 13.01, 35 mm wide

011.01



020.01

Adaptor for panel mounting, for type 13.11, 13.12, 13.61 and 13.81, 17.5 mm wide

020.01



060.72

Sheet of marker tags for type 13.11, 13.12, 13.61 and 13.81, plastic, 72 tags, 6x12 mm

060.72

Features

Range of electronic staircase timers

- 17.5 mm wide
- Time setting from 30 seconds to 20 minutes
- "Zero crossing" load switching
- "Switch-off early warning" - model 14.01
- Suitable for 3 or 4 wire systems, with automatic recognition (14.01 and 14.71) or via "pushbutton configuration" (14.81)
- LED status indicators (14.01 and 14.71)
- Cadmium free contact material
- Can be used with illuminated push - buttons
- "Blade + cross" - both flat blade and cross head screw drivers can be used to adjust the function selector, the timing trimmer, and to disengage the 35 mm rail mounting clip
- European Patent

14.01

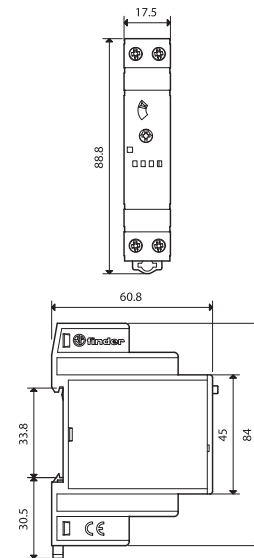
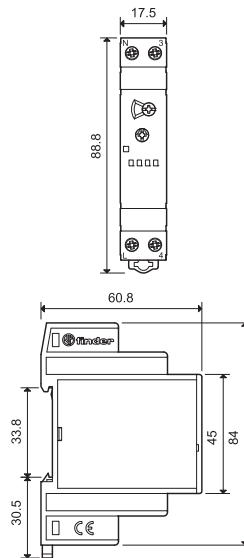


- Multi-function
- 1 NO (SPST-NO)
- 35 mm rail (EN 60715) mount

14.71



- Mono-function
- 1 NO (SPST-NO)
- 35 mm rail (EN 60715) mount



Contact specification		14.01	14.71
Contact configuration		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current	A	16/30 (120 A - 5 ms)	16/30 (120 A - 5 ms)
Rated voltage/Maximum switching voltage V AC		230/—	230/—
Rated load AC1	VA	3,700	3,700
Rated load AC15 (230 V AC)	VA	750	750
Nominal lamp rating: incandescent (230 V)	W	3,000	3,000
compensated fluorescent (230 V)	W	1,000	1,000
uncompensated fluorescent (230 V)	W	1,000	1,000
halogen (230 V)	W	3,000	3,000
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgSnO ₂	AgSnO ₂
Supply specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	230	230
	V DC	—	—
Rated power	VA (50 Hz)/W	3/1.2	3/1.2
Operating range	AC (50 Hz)	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	—	—
Technical data			
Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³
Delay setting	min	0.5...20	0.5...20
Max no. of illuminated push-button (≤ 1 mA)		30	30
Maximum impulse duration		continuous	continuous
Ambient temperature range	°C	-10...+60	-10...+60
Protection category		IP 20	IP 20
Approvals (according to type)			

Features

Range of electronic staircase timers

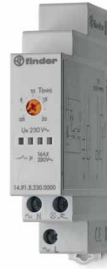
- 17.5 mm wide
- Time setting from 30 seconds to 20 minutes
- "Zero crossing" load switching
- Types 14.81 and 14.91: wiring compatible with mechanical versions and with old type (low emission) illuminated pushbuttons
- Suitable for 3 or 4 wire systems, with automatic recognition (14.01 and 14.71) or via "pushbutton configuration" (14.81)
- Cadmium free contact material
- Can be used with illuminated push - buttons
- "Blade + cross" - both flat blade and cross head screw drivers can be used to adjust the function selector, the timing trimmer, and to disengage the 35 mm rail mounting clip

14.81

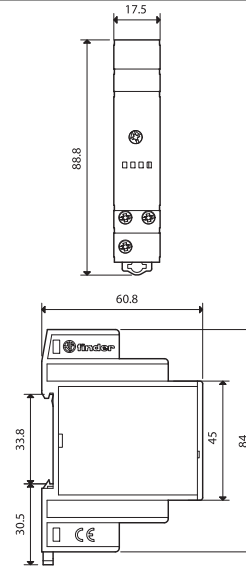
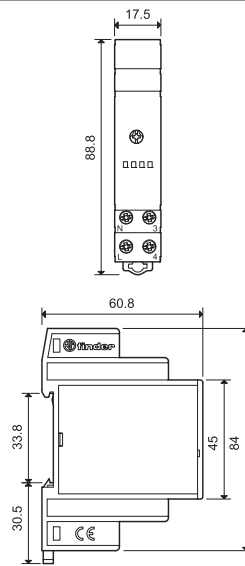


- Mono-function
- 1 NO (SPST-NO)
- 35 mm rail (EN 60715) mount
- All terminals on same side

14.91



- Mono-function
- 1 NO (SPST-NO)
- 35 mm rail (EN 60715) mount
- 3 terminals, on same side



Contact specification			
Contact configuration		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current	A	16/30 (120 A - 5 ms)	16/30 (120 A - 5 ms)
Rated voltage/Maximum switching voltage V AC		230/—	230/—
Rated load AC1	VA	3,700	3,700
Rated load AC15 (230 V AC)	VA	750	750
Nominal lamp rating:incandescent (230 V)	W	3,000	3,000
compensated fluorescent (230 V)	W	1,000	1,000
uncompensated fluorescent (230 V)	W	1,000	1,000
halogen (230 V)	W	3,000	3,000
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgSnO ₂	AgSnO ₂
Supply specification			
Nominal voltage (U _N)	V AC (50/60 Hz)	230	230
	V DC	—	—
Rated power	VA (50 Hz)/W	3/1.2	3/1.2
Operating range	AC (50 Hz)	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	—	—
Technical data			
Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³
Delay setting	min	0.5...20	0.5...20
Max no. of illuminated push-button (≤ 1 mA)		25	25
Maximum impulse duration		continuous	continuous
Ambient temperature range	°C	-10...+60	-10...+60
Protection category		IP 20	IP 20
Approvals (according to type)		CE PG Y Nf	CE PG

Ordering information

Example: 14 series multi-function relay, single phase switch 1 NO (SPDT-NO) 16 A contact, supply rated at 230 V AC.

1 4 . 0 1 . 8 . 2 3 0 . 0 0 0 0

Series

Type

- 0 = 35 mm rail (EN 60715) mount, multi-function
- 7 = 35 mm rail (EN 60715) mount, mono-function
- 8 = 35 mm rail (EN 60715) mount mono-function, all terminals on same side
- 9 = 35 mm rail (EN 60715) mount, mono-function, 3 terminals

No. of poles

- 1 = Single phase switch, 16 A

Supply voltage

230 = 230 V

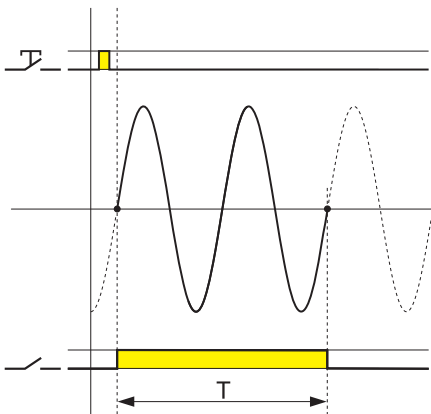
Supply version

8 = AC (50/60 Hz)

Technical data

Insulation			
Dielectric strength between open contacts	V AC	1,000	
Other data			
Power lost to the environment			
	without contact current	W	1.2
	with rated current	W	2
Maximum cable length for push-button connection	m	200	
⊕ Screw torque	Nm	0.8	
Max. wire size		solid cable	stranded cable
	mm ²	1x6 / 2x4	1x4 / 2x2.5
	AWG	1x10 / 2x12	1x12 / 2x14

Zero crossing switching



1. Lower inrush current protects and increases lamp life
2. Lower inrush current reduces the possibility of contact welding
3. The current at switch-off is also lower, reducing stress and wear on the contacts

Note

Using the type 14.91, the lamps are switched on directly by the pushbutton

Accessories



020.01

Adaptor for panel mounting, 17.5 mm wide

020.01



060.72

Sheet of marker tags, plastic, 72 tags, 6x12 mm

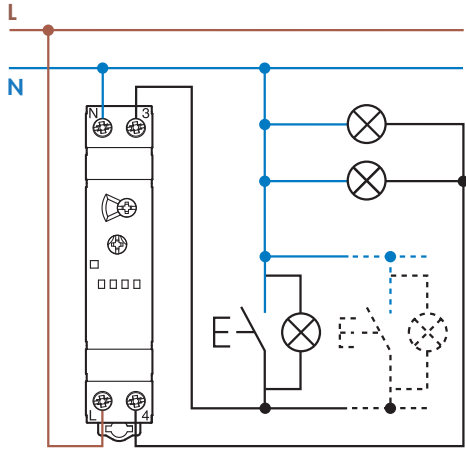
060.72

Wiring diagrams

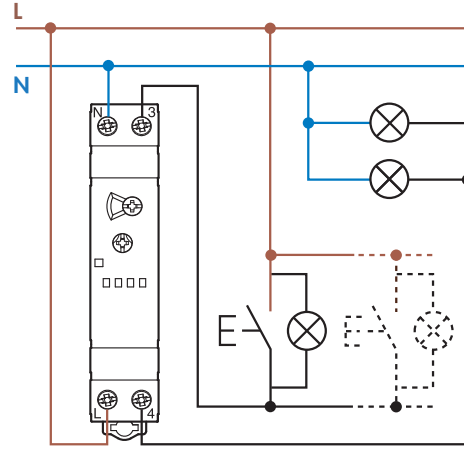
Type 14.01

14.71

Red LED indication:
 Continuous = relay ON
 Blinking = relay OFF

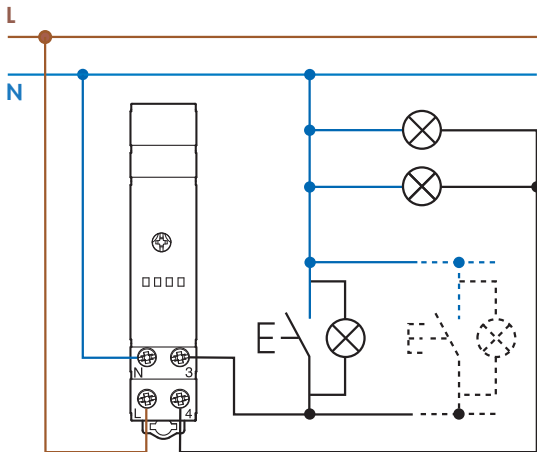


3 wire connection

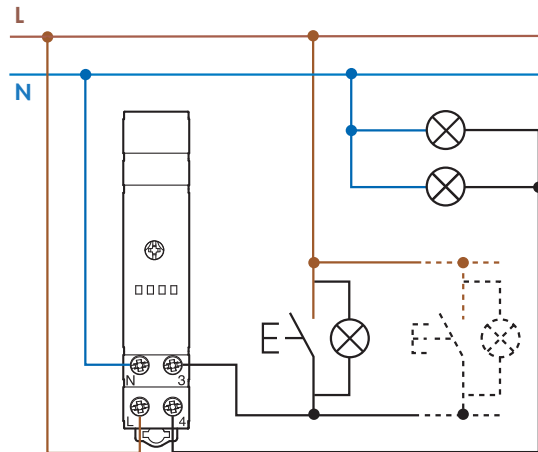


4 wire connection

Type 14.81 (pushbutton configuration procedure, as per the Installation manual)

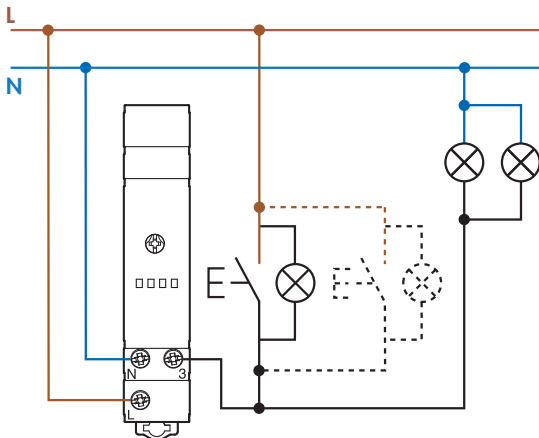


3 wire connection



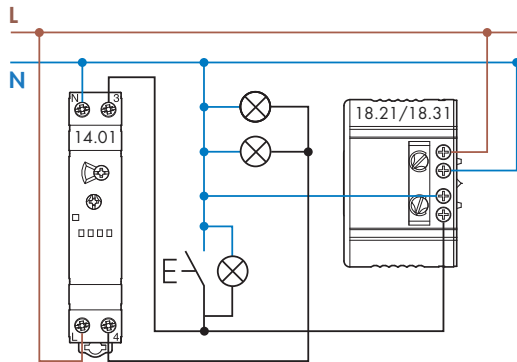
4 wire connection

Type 14.91 (the push-buttons must be rated for the load current)

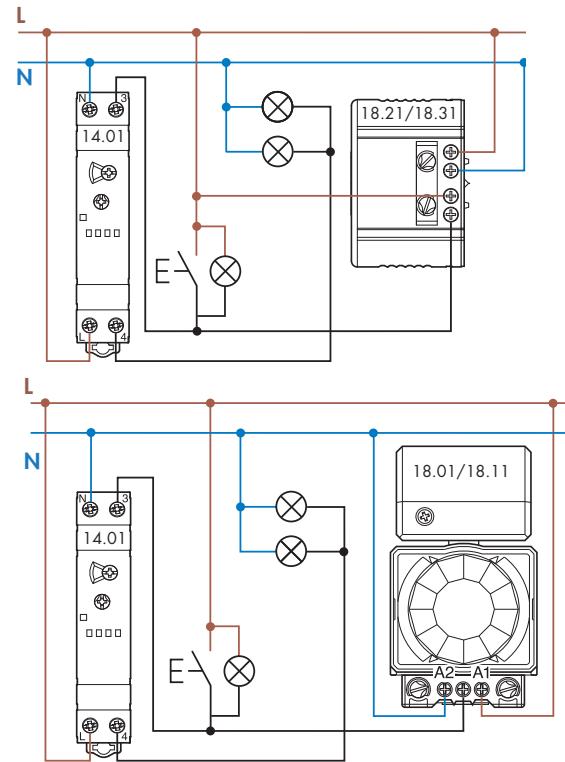


Wiring diagrams - 14.01 triggered by PIR movement detector (18 series)

3 wire connection (with 18.21.8.230.0300 or 18.31.8.230.0300 only)

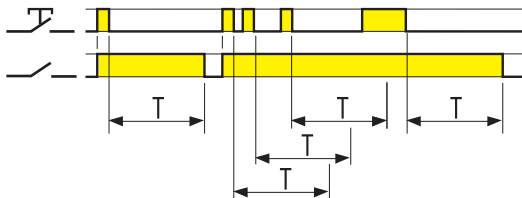


4 wire connection (with 18.01.8.230.0000, 18.11.8.230.0000, 18.21.8.230.0300 or 18.31.8.230.0300)



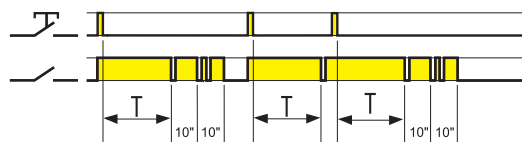
Functions

Type 14.01 Functions selectable with front rotary selector



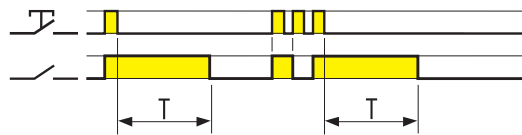
(BE) Staircase relay

On initial impulse the output contact closes and timing starts for the pre-set duration; subsequent impulses during the timing period will extend the timing period by the full pre-set value. On expiry of the time delay, the output contact opens.



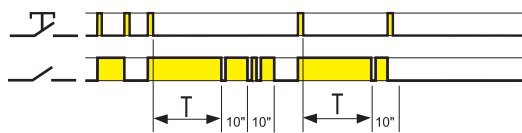
(BP) Staircase relay with early warning

On initial impulse the output contact closes and the timing starts for the pre-set duration. After the timing period, the output contact blinks off once; 10secs later the contact blinks off twice, and after a further 10secs the contact opens. During the pre-set and 20 second warning time, it is possible, by a further impulse, to extend the time by the full pre-set value.



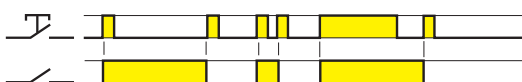
(IT) Timing step relay

On initial impulse the output contact closes and timing starts for the pre-set duration; On expiry of the time delay, the output contact opens. During the timing period it is possible to immediately open the contact with a further impulse.



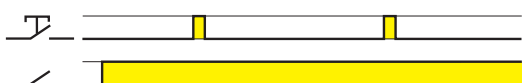
(IP) Timing step relay with early warning

On initial impulse the output contact closes and timing starts for the pre-set duration; After the timing period, the output contact blinks off once; 10 secs later the contact blinks off twice, and after a further 10 secs the contact opens. During the pre-set and 20 second warning time, it is possible to immediately open the output contact by a further impulse.



(RI) Step relay

After every impulse, the output contact changes state - alternately switching from open to closed and vice versa.



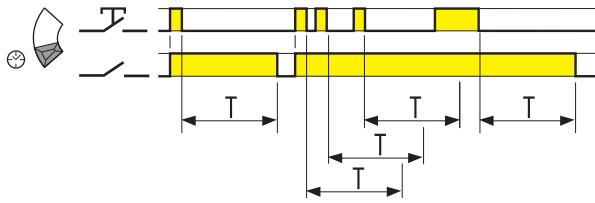
Light ON

With this function set - the output contact stays permanently closed.

NOTE: The blinking within the Early Warning functions (BP and IP) could cause re-start problems for fluorescent lamps with electromagnetic chokes (both conventional and compact types); We consequently suggest not to use such lamps with these functions.

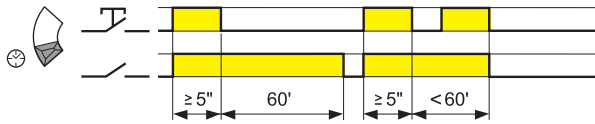
Functions

Type 14.71 Functions selectable with front selector



Staircase relay

On initial impulse the output contact closes and timing starts for the pre-set duration; subsequent impulses during the timing period will extend the timing period by the full pre-set value.
On expiry of the time delay, the output contact opens.



"Staircase maintenance" function

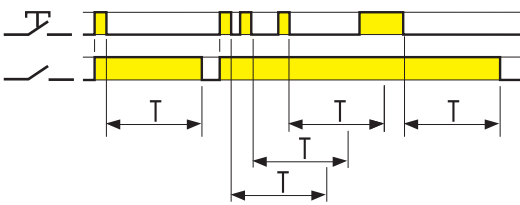
An impulse of ≥ 5 seconds will close the output contact for 60 minutes, after which time the contact will open. Ideal for maintenance or cleaning activities. The 60' timing can be interrupted by a further impulse of ≥ 5 seconds, the output contact opens.



Light ON

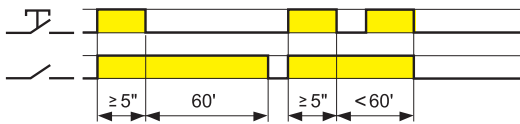
With this function set - the output contact stays permanently closed.

Type 14.81



Staircase relay

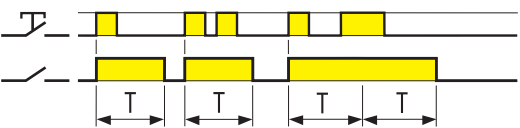
On initial impulse the output contact closes and timing starts for the pre-set duration; subsequent impulses during the timing period will extend the timing period by the full pre-set value.
On expiry of the time delay, the output contact opens.



"Staircase maintenance" function

An impulse of ≥ 5 seconds will close the output contact for 60 minutes, after which time the contact will open. Ideal for maintenance or cleaning activities. The 60' timing can be interrupted by a further impulse of ≥ 5 seconds, which will re-establish the staircase timer function; so on expiry of the staircase time delay, the output contact opens.

Type 14.91



Signal ON pulse

On initial impulse the output contact closes, and remain so for the duration of the preset delay. On expiry of the time delay, the output contact opens.

Features

Electronic step relay and dimmer for control of lighting levels

- Suitable for incandescent and halogen lighting loads (with or without transformer or electronic supply)
- Version compatible with energy saving (CFL or LED) dimmable lamps and with all types of electromagnetic transformers, even in no-load condition (15.81)
- Version compatible with 230 V LED dimmable lamps (15.91)
- Use with 3 or 4 wire connection
- "Soft" On and Off transitions
- Two selectable operating modes: with or without previous light level memory
- Step (15.51 only) or linear dimming
- Thermal protection against overload
- Thermo-fuse for extreme protection (15.81)
- 230 V AC supply, 50 Hz (15.91), 50 or 60 Hz (15.51), 50/60 Hz with automatic recognition of frequency (15.81)

Screw terminal



For outline drawing see page 6



- For mounting within residential switch boxes
- Maximum lamp load 100 W
- Two operating modes
- Leading edge dimming method
- Compatible with LED dimmable lamps

15.51











- Box or panel mount
- Maximum lamp load 400 W
- Two operating modes
- Two different types for linear and step dimming
- Trailing edge dimming method




15.81



- 17.5 mm modular
- Maximum lamp load 500 W
- Multi-function
- Leading and trailing edge dimming methods (depending on the function)
- Compatible with energy saving dimmable lamps

Output data				
Rated voltage	V AC	230	230	230
Power max.	W	100	400	500
Power min.	W	3	10	3
Nominal lamp rating: 230 V incandescent or halogen W		100	400	500 (1)
toroidal electromagnetic transformers for LV halogen W		—	300 (2)	500 (3)
E-core electromagnetic transformers for LV halogen W		—	—	500 (3)
electronic transformers (ballasts) for LV halogen W		—	400 (4)	500 (1)
dimmable compact fluorescent (CFL) W		—	—	100 (5)
dimmable 230 V LED W		50	—	100 (5)
dimmable electronic transformers for LV LED W		50 (6)	—	100 (1)
Supply specifications				
Nominal voltage (U _N)	V AC (50/60 Hz)	230 (7)	230 (8)	230
Operating range		(0.8...1.1)U _N	(0.8...1.1)U _N	(0.8...1.1)U _N
Stand-by power consumption	W	0.4	0.7	0.5
Dimming operating mode		Leading edge	Trailing edge	Trailing edge (pos. ) Leading edge (pos. ) and ()
Technical data				
Ambient temperature range	°C	-10...+50 (9)	-10...+50 (9)	-10...+50 (10)
Protection category		IP 20	IP 20	IP 20
Approvals (according to type)			 	 

Note

- (1) Select "incandescent lamp" () position on the front selector.
 - (2) One transformer only. Power-up only with the lamp load connected.
 - (3) Select "transformer" () position on the front selector. Preferably, no more than 2 transformers.
 - (4) One transformer only.
 - (5) Select "CFL" () position on the front selector, and set the appropriate minimum dimming value (dependent on lamp type).
 - (6) Only if electronic transformers are compatible with leading edge method.
 - (7) Only 50 Hz version available.
 - (8) Specific 60 Hz version available (see ordering information).
 - (9) It is not recommended to mount more than one dimmer in the same wall box, unless an adequate ventilation is provided or the lamp load is less than 100 W (15.51) or 50 W (15.91).
 - (10) With lamp load > 300 W, adequate ventilation must be provided - a gap of 5 mm on both side of the dimmer is suggested.
- Not compatible with illuminated push-buttons.

Ordering information

Example: type 15.51, electronic step relay and dimmer, 230 V AC.



- Series** _____
- Type** _____
 5 = Panel or box mount
 8 = 35 mm rail (EN 60715)mount, 17.5 mm wide, for energy saving lamps
 9 = Switch box mount, for LED lamps
- No. of poles** _____
 1 = 1 output
- Supply voltage**
 230 = 230 V
- Supply version**
 8 = AC
- AC input frequency**
 0 = Standard
 4 = Only for 15.51 linear dimming
 0 = 50 Hz (15.51/15.91)
 50/60 Hz (15.81)
 6 = 60 Hz (15.51)
- Output power**
 0 = 100 W (15.91)
 4 = 400 W (15.51)
 5 = 500 W (15.81)

- Codes**
- 15.51.8.230.0400 step dimming, 50Hz
 - 15.51.8.230.0404 linear dimming, 50Hz
 - 15.51.8.230.0460 step dimming, 60Hz
 - 15.81.8.230.0500 linear dimming, 50/60Hz
 - 15.91.8.230.0000 linear dimming, 50Hz

Technical data

EMC specifications					
Type of test	Reference standard	15.51/15.91	15.81		
Electrostatic discharge	contact discharge	EN 61000-4-2			
	air discharge	EN 61000-4-2			
Radiated electromagnetic field	(80 ... 1,000 MHz)	EN 61000-4-3	3 V/m		
Fast transients (burst)	on supply terminals	EN 61000-4-4	4 kV		
	on pushbutton connection	EN 61000-4-4	4 kV		
Voltage pulses on supply terminals (surge 1.2/50µs)	differential mode	EN 61000-4-5	2 kV		
	on supply terminals	EN 61000-4-6	3 V		
Radiofrequency common mode voltage (0.15...80 MHz)	on pushbutton connection	EN 61000-4-6	3 V		
	70 % U _N , 40 % U _N	EN 61000-4-11	10 cycles		
Short interruptions	EN 61000-4-11	10 cycles			
Radiofrequency conducted emissions	0.15...30 MHz	EN 55014	class B		
Radiated emissions	30...1,000 MHz	EN 55014	class B		
Terminals		solid cable	stranded cable		
Max. wire size	mm ²	1 x 6 / 2 x 4	1 x 4 / 2 x 2.5		
	AWG	1 x 10 / 2 x 12	1 x 12 / 2 x 14		
Screw torque	Nm	0.8			
Wire strip length	mm	9			
Other data		15.91	15.51	15.81	
Power lost to the environment	without load	W	0.4	0.7	0.5
	with rated load	W	1.2	2.2	2.6
Max cable length for push-button connection	m	100	100	100	

Thermal protection and signaling

LED (15.81 type only)	Supply voltage	Thermal protection
	OFF	—
	ON	—
	ON	ALARM

ALARM

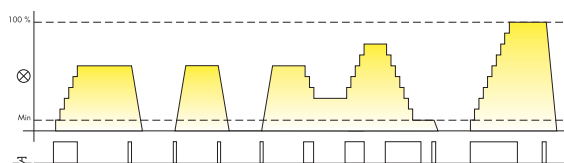
The internal thermal protection (active on all dimmer types) will detect an unsafe temperature, due to overload or incorrect installation, and will turn the dimmer output off.

It is possible to turn the dimmer on, by push button, only when the temperature reduces to a safe level (after 1 to 10 minutes, depending on installation conditions) and after removing the cause of the overload.

Functions (15.51/15.91 types)

Type Step dimming

Operating mode 1 (with memory): the previous light level is memorized.

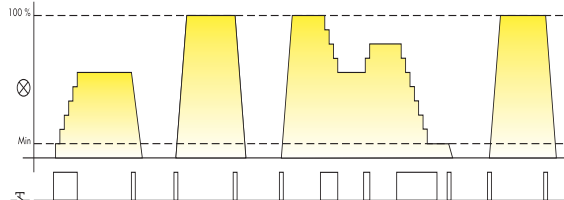


Long control pulse: The light level is progressively raised or lowered through a maximum of 10 incremental steps.

Short control pulse: Alternately switches between On and Off. When switching On, the light level assumes the value set during the previous On state.

15.51...0400

Operating mode 2 (without memory): on switch off, the light level is not memorized.



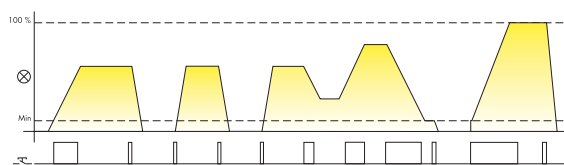
Long control pulse: The light level is progressively raised or lowered through a maximum of 10 incremental steps.

Short control pulse: Alternately switches On or Off between the maximum light level and the off state.

Type

Linear dimming

Operating mode 3 (with memory): the previous light level is memorized.



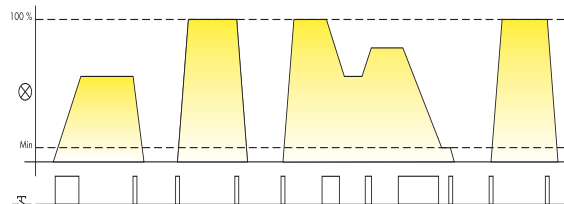
Long control pulse: The light level is progressively raised or lowered.

Short control pulse: Alternately switches between On and Off. When switching On, the light level assumes the value set during the previous On state.

15.51...0404

15.91...0000

Operating mode 4 (without memory): on switch off, the light level is not memorized.



Long control pulse: The light level is progressively raised or lowered.

Short control pulse: Alternately switches On or Off between the maximum light level and the off state.

Operating mode setup

Type 15.51

On **15.51** operating mode 1 or 3 (with memory) is preset, but it is possible to change it using the following sequence:

- remove the supply voltage;
- press the control button;
- apply the supply to the relay, keeping the button closed for 3 second;
- on button release, the light will flash twice to indicate the selection of operating mode 2 or 4, or flash once for operating mode 1 or 3.

Repeating the above steps will alternately change between operating modes.

Type 15.91

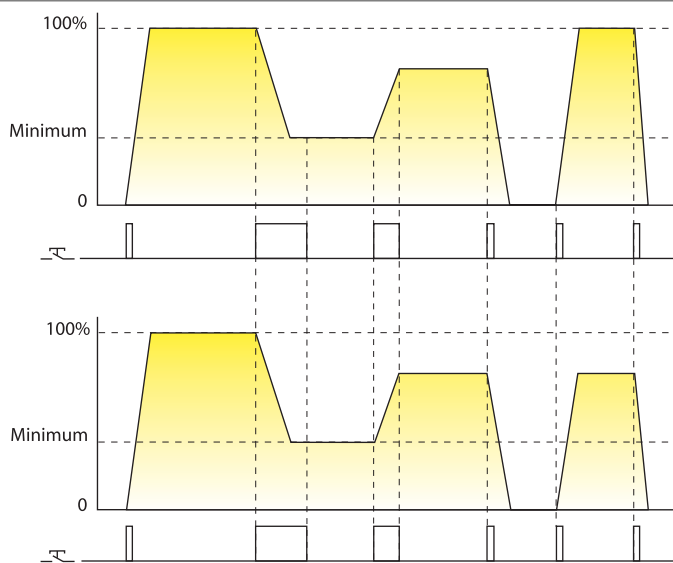
On **15.91** operating mode 4 (without memory) is preset, but it is possible to change it using the following sequence:

- remove the supply voltage;
- press the control button;
- apply the supply to the relay, keeping the button closed for 3 second;
- on button release, the light will flash twice to indicate the selection of operating mode 3, or flash once for operating mode 4.

Repeating the above steps will alternately change between operating modes.

Functions (15.81 type)

Type
15.81...0500



Operating mode without memory: at switch-off, the light level is not memorized.

Long control pulse: The light level is progressively raised or lowered in linear way. The lowest value depend on the "minimum dimming level" regulator setting.

Short control pulse: Alternately switches between On and Off between the maximum light level and the off state.

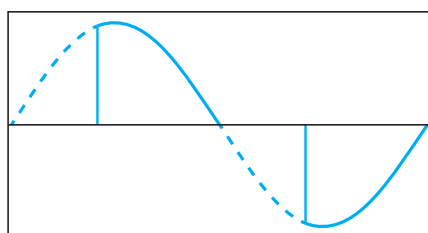
Operating mode with memory: the previous light level is memorized.

Long control pulse: The light level is progressively raised or lowered in linear way. The lowest value dependent on the "minimum dimming level" regulator setting

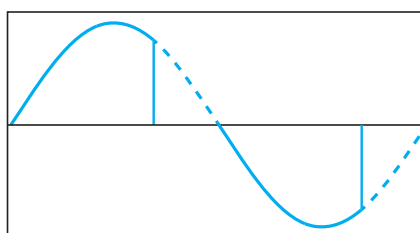
Short control pulse: Alternately switches between On and Off. When switching On, the light level assumes the value set during the previous On state.

Type of load	Selector setting		Regulator setting
	With memory (M)	Without memory (M)	
<ul style="list-style-type: none"> Incandescent lamps 230 V halogen lamps 12/24 V halogen lamps with electronic transformer/ballast 			It is suggested to set the "minimum dimming level" at the lowest value, so that the complete dimming range is available. But if it is necessary to avoid too low a level of illumination, a higher value can be set.
<ul style="list-style-type: none"> Dimmable compact fluorescent lamps (CFL) Dimmable LED lamps 			It is suggested to initially set the "minimum dimming level" at an intermediate value and then if necessary, readjust for a level found to be compatible with the lamp being used.
<ul style="list-style-type: none"> 12/24 V halogen lamps with toroidal or E-core electromagnetic transformer 			It is suggested to set the "minimum dimming level" at the lowest value, so that the complete dimming range is available. But if it is necessary to avoid too low a level of illumination, a higher value can be set.

Leading edge dimming



Trailing edge dimming

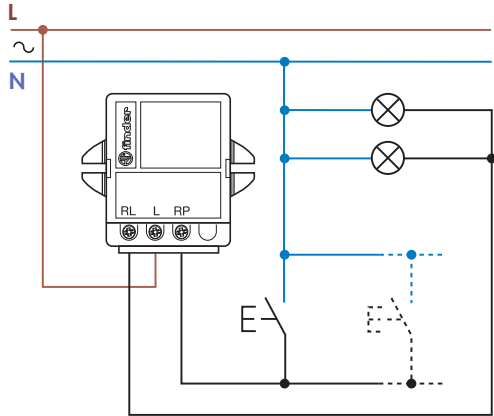


Light dimming is realized with "phase cutting technology", which works by "cutting off" part of the mains voltage waveform in order to reduce the RMS voltage fed to the lamp. If such "cutting off" is done at the beginning of the sine wave, the dimming method is called Leading Edge, if it is done towards the end it is called Trailing Edge. These 2 methods are suitable for dimming different lamp types: Trailing Edge is, in general, more suitable for electronic transformers for low voltage lamps (halogen or LED). Leading Edge is better suited for electromagnetic transformers for LV lamps, 230 V CFL and 230 V Led lamps. Both methods are, however, suitable for dimming 230 V halogen and incandescent lamps. In consideration of the different lamp types actually available on the market, it is suggested to refer to the technical specification indicated in page 1 and, if given, to the lamp manufacturer's recommendation.

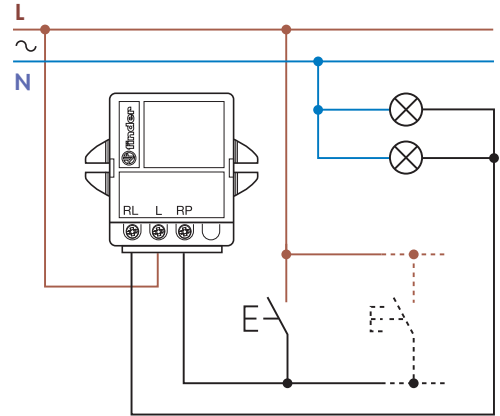
Wiring diagrams

Note: remember to maintain a ground/earth connection for class 1 lamps.

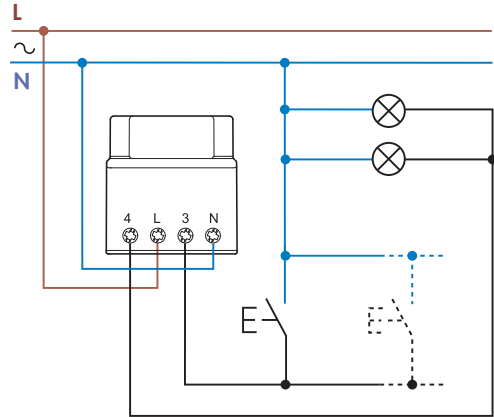
Type 15.51 - 3 wire connection



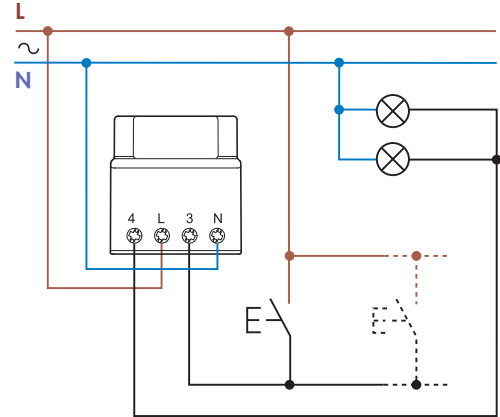
Type 15.51 - 4 wire connection



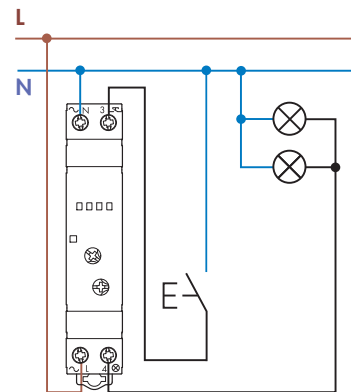
Type 15.91 - 3 wire connection



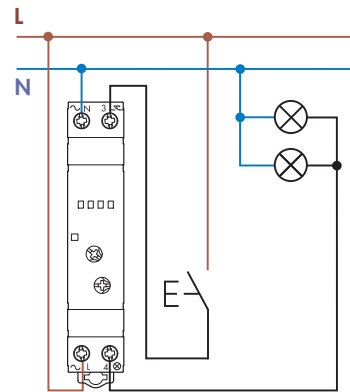
Type 15.91 - 4 wire connection



Type 15.81 - 3 wire connection

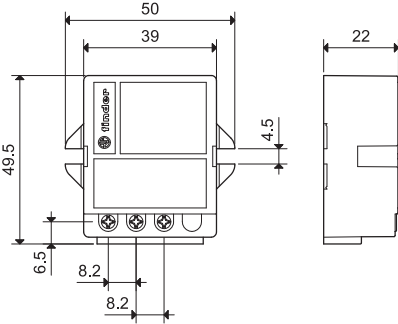


Type 15.81 - 4 wire connection

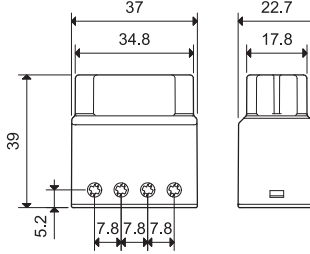


Outline drawings

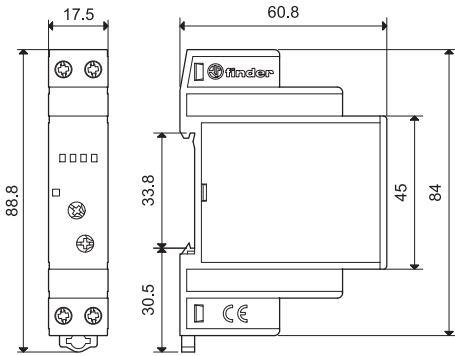
15.51
Screw terminal



15.91
Screw terminal



15.81
Screw terminal



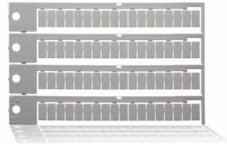
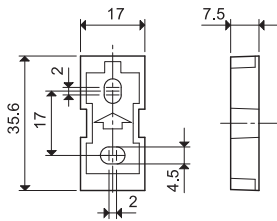
Accessories



020.01

Adaptor for panel mounting for type 15.81, plastic, 17.5 mm wide

020.01



060.72

Sheet of marker tags for type 15.81, plastic, 72 tags, 6x12 mm

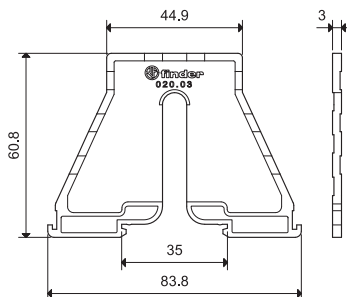
060.72



020.03

Separator for panel mounting for type 15.81

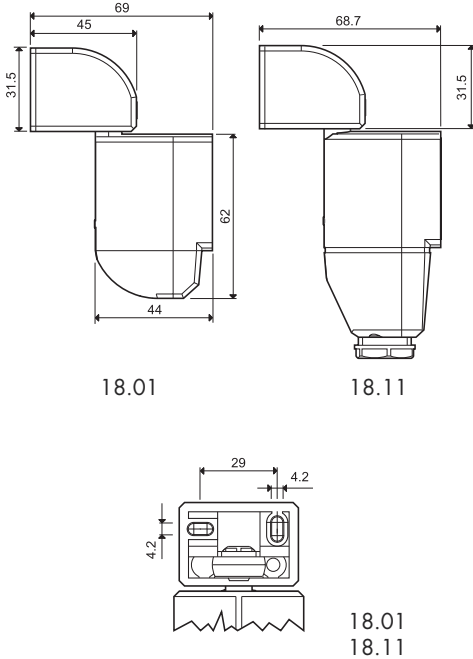
020.03



Features

Movement detector for internal or external installations - wall mounting

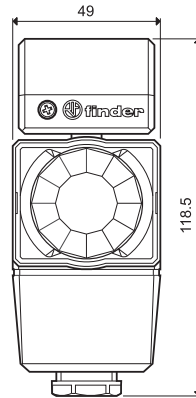
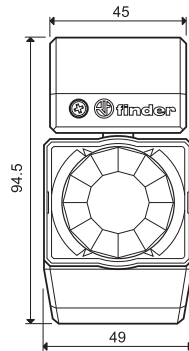
- Small size
- Adjustable ambient light intervention threshold
- Adjustable Light On Time
- Universal mounting position - permits the selection of any area for survey
- Wide angle of survey



- 1 NO (SPST-NO) 10 A
- Internal installations
- Particularly suited for wall mounting



- 1 NO (SPST-NO) 10 A
- External installations
- Particularly suited for wall mounting

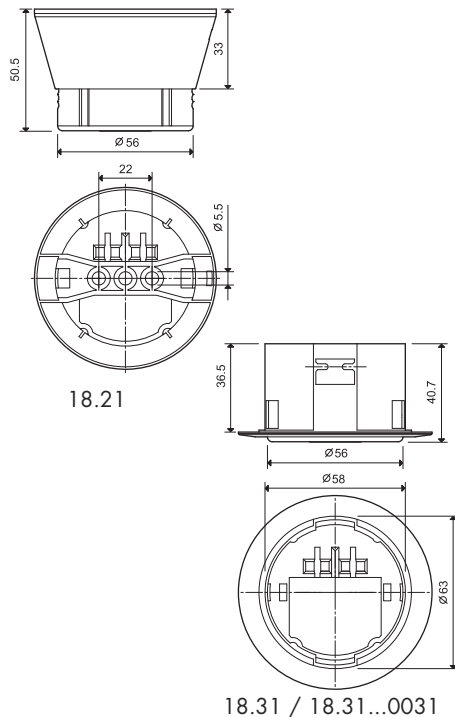


Contact specification		18.01		18.11	
Number of contacts		1 NO (SPST-NO)		1 NO (SPST-NO)	
Rated current/Maximum peak current	A	10/20 (100 A - 5 ms)		10/20 (100 A - 5 ms)	
Rated voltage/Maximum switching voltage	V AC	230/230		230/230	
Rated load AC1	VA	2,300		2,300	
Rated load AC15	(120/230 V) VA	250	450	250	450
Nominal lamp rating: incandescent	(120/230 V) W	500	1,000	500	1,000
compensated fluorescent	(120/230 V) W	200	350	200	350
uncompensated fluorescent	(120/230 V) W	250	500	250	500
halogen	(120/230 V) W	500	1,000	500	1,000
Standard contact material		AgSnO ₂		AgSnO ₂	
Coil specification		18.01		18.11	
Nominal voltage	V AC (50/60 Hz)	120...230		120...230	
	DC	-		-	
Rated power AC/DC	VA (50 Hz)/W	2.5/-		2.5/-	
Operating range	V AC (50/60 Hz)	96...253		96...253	
	DC	-		-	
Technical data		18.01		18.11	
Electrical life at rated load AC1	cycles	100 · 10 ³		100 · 10 ³	
Ambient light intervention threshold	lx	5...350		5...350	
Light on time after last detection		10 s...12 min		10 s...12 min	
Angle of survey		110°		110°	
Depth of field	m	10		10	
Ambient temperature range	°C	-10...+50		-30...+50	
Protection category		IP 40		IP 54	
Approvals (according to type)					

Features

Movement detector for internal installations

- Ceiling mounting
- Small size
- Adjustable ambient light intervention threshold
- Adjustable Light On Time
- Wide angle of survey



18.21



- 1 NO (SPST-NO) 10 A
- Internal ceiling installation
- Surface mounting
- Output connected to supply voltage

18.31

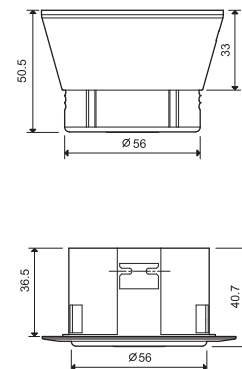
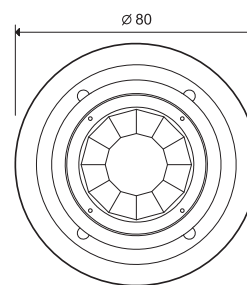
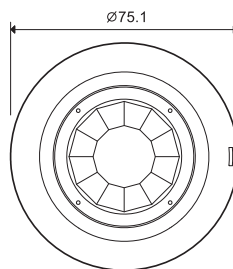


- 1 NO (SPST-NO) 10 A
- Internal ceiling installation
- Recessed mounting
- Output connected to supply voltage

NEW 18.31...0031



- 1 NO 10 A
- Internal ceiling installation
- Recommended for applications with high ceilings (up to 6 meters)
- Light ON time after last detection (30 s...35 min)



Contact specification

Number of contacts	1 NO (SPST-NO)		1 NO (SPST-NO)		1 NO (SPST-NO)	
Rated current/Maximum peak current A	10/20 (100 A - 5 ms)		10/20 (100 A - 5 ms)		10/20 (100 A - 5 ms)	
Rated voltage/Maximum switching voltage V AC	230/230		230/230		230/230	
Rated load AC1 VA	2,300		2,300		2,300	
Rated load AC15 (120/230 V) VA	250	450	250	450	250	450
Nominal lamp rating: incandescent (120/230 V) W	500	1,000	500	1,000	500	1,000
compensated fluorescent (120/230 V) W	200	350	200	350	200	350
uncompensated fluorescent (120/230 V) W	250	500	250	500	250	500
halogen (120/230 V) W	500	1,000	500	1,000	500	1,000

Standard contact material

AgSnO₂

AgSnO₂

AgSnO₂

Coil specification

Nominal voltage V AC (50/60 Hz)	120...230	120...230	120...230
DC	—	—	—
Rated power AC/DC VA (50 Hz)/W	2/1	2/1	2/1
Operating range V AC (50/60 Hz)	96...253	96...253	96...253
DC	—	—	—

Technical data

Electrical life at rated load AC1 cycles	100 · 10 ³	100 · 10 ³	100 · 10 ³
Ambient light intervention threshold lx	5...350	5...350	5...350
Light on time after last detection	10 s...12 min	10 s...12 min	30 s...35 min
Angle of survey	110°	110°	110°
Sensing area diameter m	See diagram page 6	See diagram page 6	See diagram page 6
Ambient temperature range °C	-10...+50	-10...+50	-10...+50
Protection category	IP 40	IP 40	IP 40

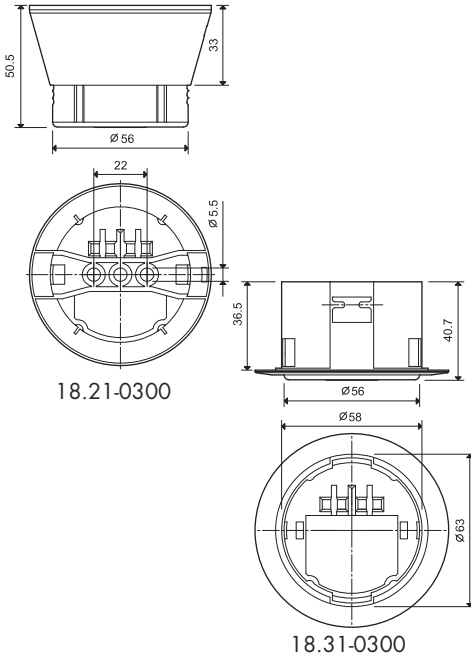
Approvals (according to type)



Features

Movement detector for internal installations, with potential free contact

- Applications where interface to PLC or BMS is required
- Ceiling mounting
- Small size
- Adjustable ambient light intervention threshold
- Adjustable Light On Time
- Wide angle of survey



NEW 18.21-0300

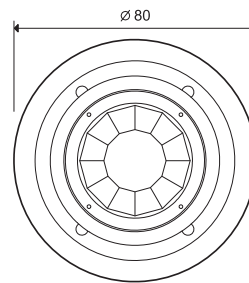
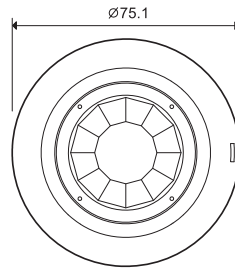


- 1 NO (SPST-NO) 10 A
- Internal ceiling installation
- Surface mounting
- Output with potential free contact

NEW 18.31-0300



- 1 NO (SPST-NO) 10 A
- Internal ceiling installation
- Recessed mounting
- Output with potential free contact



Contact specification			
Number of contacts		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current	A	10/20 (100 A - 5 ms)	10/20 (100 A - 5 ms)
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	2,500	2,500
Rated load AC15	(230 V) VA	450	450
Nominal lamp rating:			
incandescent (230 V)	W	1,000	1,000
compensated fluorescent (230 V)	W	350	350
uncompensated fluorescent (230 V)	W	500	500
halogen (230 V)	W	1,000	1,000
Standard contact material		AgSnO ₂	AgSnO ₂
Coil specification			
Nominal voltage	V AC (50/60 Hz)	120...230	120...230
	V AC (50/60 Hz)/DC	24	24 V
Rated power AC/DC	VA (50 Hz)/W	2/1	2/1
Operating range	V AC (50/60 Hz)	96...253	96...253
	V AC (50/60 Hz)/DC	19.2...26.4	19.2...26.4
Technical data			
Electrical life at rated load AC1	cycles	100 · 10 ³	100 · 10 ³
Ambient light intervention threshold	lx	5...350	5...350
Light on time after last detection		10 s...12 min	10 s...12 min
Angle of survey		110°	110°
Sensing area diameter	m	See diagram page 6	See diagram page 6
Ambient temperature range	°C	-10...+50	-10...+50
Protection category		IP 40	IP 40
Approvals (according to type)			

Ordering information

Example: 18 series, movement detector for internal installations, wall mounting, 1 NO (SPST-NO) 10 A contact, 120...230 V AC supply.

1 8 . 0 1 . 8 . 2 3 0 . 0 0 0 0

Series _____
Type _____
 0 = Internal installation - wall mounting
 1 = External installations
 2 = Internal ceiling installation - surface mounting
 3 = Internal ceiling installation - recessed mounting

Contact circuit _____
 0 = Voltage output
 3 = Volt-free output contact (18.21/31-0300 only)
Special version _____
 31 = High ceilings, (30 s...35 min)
Supply voltage _____
 024 = 24 V AC/DC for types 18.21/31-0300 only
 230 = 120...230 V
Supply version _____
 0 = AC (50/60 Hz)/DC (24 V only)
 8 = AC (50/60 Hz)
No. of poles _____
 1 = Single pole switching 1 NO (SPST-NO), 10 A

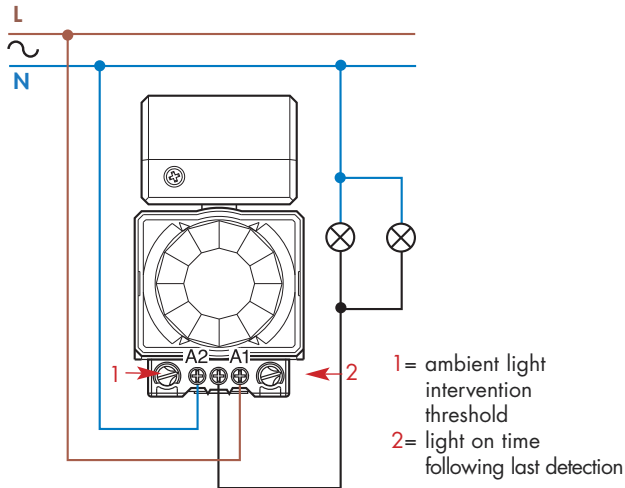
Technical data

Insulation	
Dielectric strength between open contacts V AC	1,000
Between supply and contact V AC	1,500 (types 18.21...0300, 18.31...0300)
Other data	
⊕ Screw torque Nm	0.5
Max. cable size mm ²	1.5

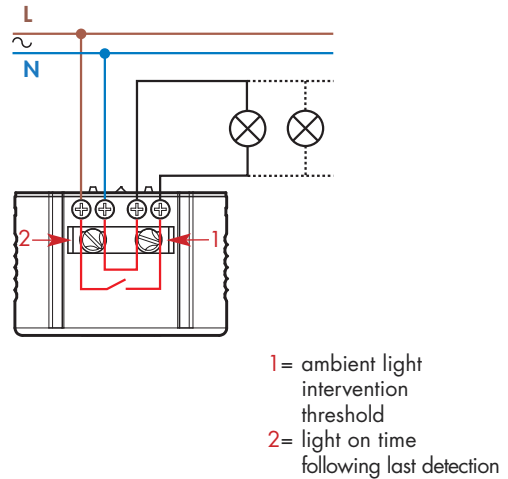
- Following the initial power-on, and power-on following a power interruption, the detector makes a hardware-software initialisation for approximately 30 seconds. However, the behavior of the output during this 30 seconds will depend on certain circumstances:
 - If the detector was in the On state before the power interruption, and if the lighting level is (currently) below the pre-set threshold, then the output contact will immediately close when the power is re-applied, for the time delay set by the potentiometer (irrespective of whether movement is being detected).
 - If the detector was in the Off state before the power interruption, or if the ambient light is currently over the pre-set threshold, then the detector will not switch-on until the end of the initialisation phase (assuming movement is then detected).

Wiring diagram

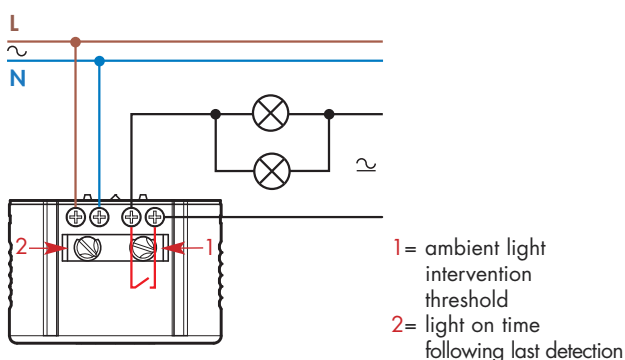
Type 18.01 / 18.11



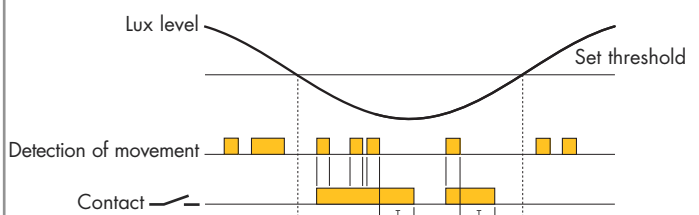
Type 18.21 / 18.31 / 18.31...0031



Type 18.21-0300 / 18.31-0300

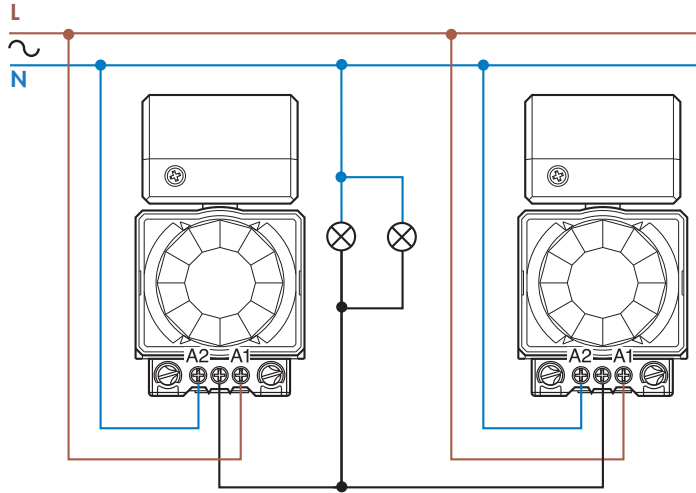


The output relay will remain On for the pre-set time, following the last detection of movement.



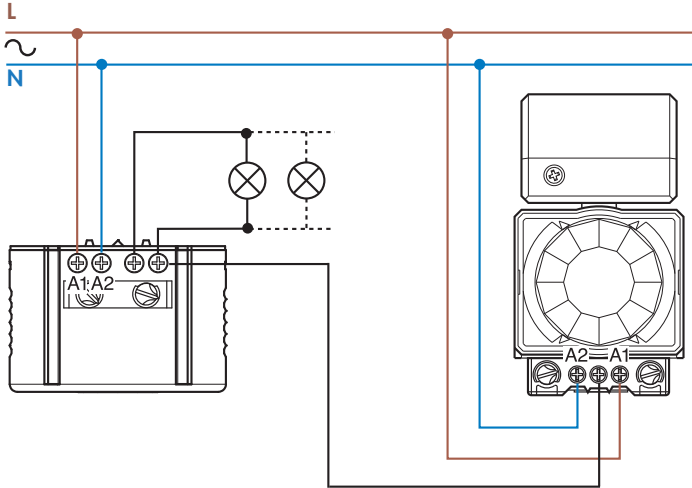
Wiring diagram - Parallel connection

Type 18.01 / 18.11



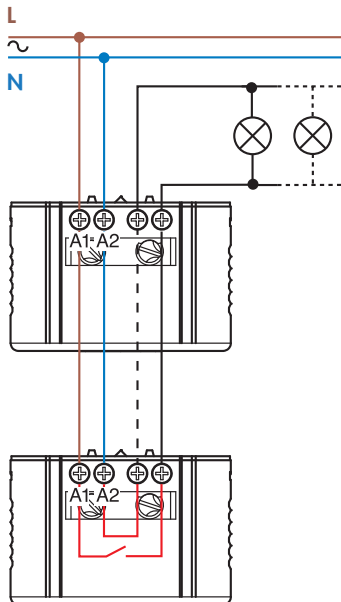
Note: keep the polarity indicated for Phase and Neutral

Type 18.01 / 18.21



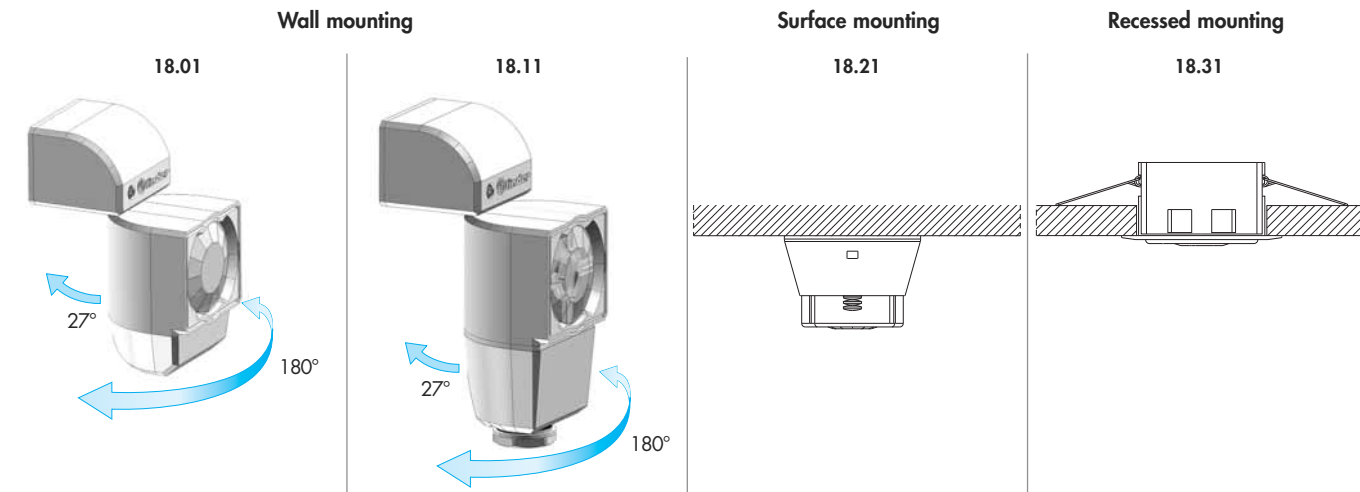
Note: keep the polarity indicated for Phase and Neutral

Type 18.21 / 18.31 / 18.31...0031



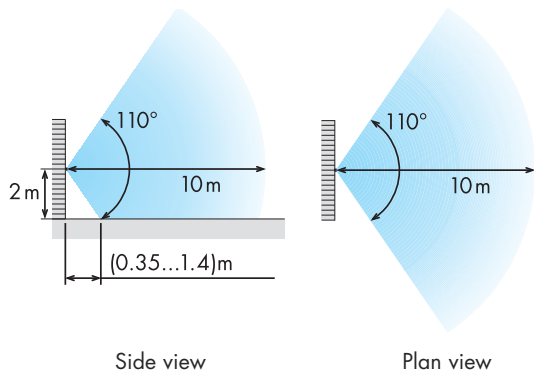
Note: keep the polarity indicated for Phase and Neutral

Mounting and orientation

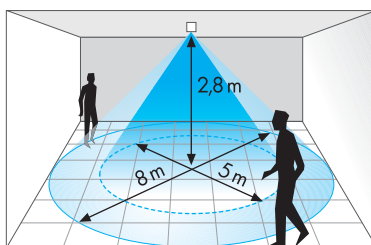


Sensing area

18.01, 18.11 - Wall mounting

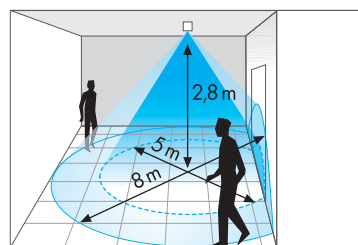


18.01 - Ceiling mounting



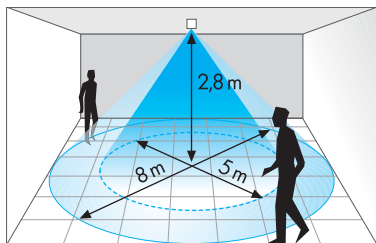
Internal installations

18.11 - Ceiling mounting

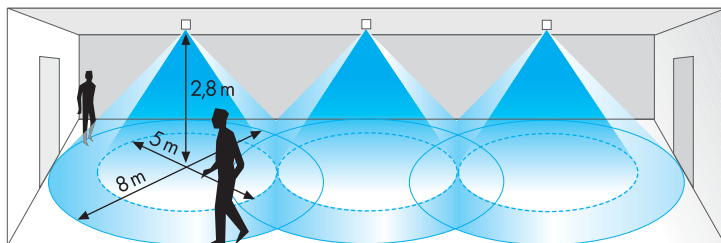


External installations

18.21, 18.31 - Internal ceiling installation, surface mounting or recessed mounting

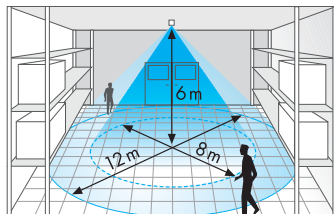


Single installation

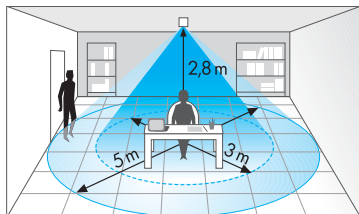


Multiple installation

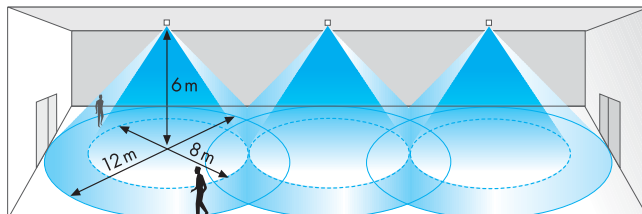
18.31...0031 - High ceilings installations



For applications with high ceilings (up to 6 meters)

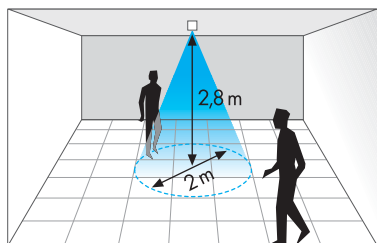


Movement and presence detector



Multiple installation

Accessories



Beam limiter for 18.21 and 18.31 movement detectors

Reduces the area of survey to 2 meters diameter (versus 8m) at an installation height of 2.8 meters.
(Note: with the beam limiter the ambient light intervention threshold feature will be increased significantly)

Features

1 or 2 Pole 16 A Step relays for direct 35 mm rail (EN 60715) mounting

- 17.4 mm wide
- Test button with mechanical indicators
- Choice of 6 switching sequences
- AC coils and DC coils
- Identification label
- Possible to connect illuminated push buttons with the additional part 026.00
- 35 mm rail (EN 60715) mount
- Cadmium free contact material
- Italian Patent

20.21



- Single phase switch 1 NO (SPST-NO)
- 35 mm rail (EN 60715) mount

20.22, 24, 26, 28

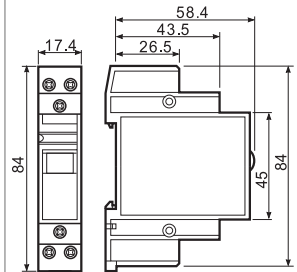
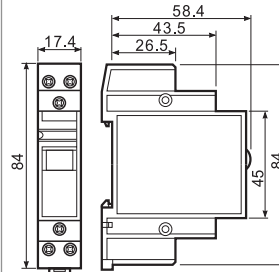
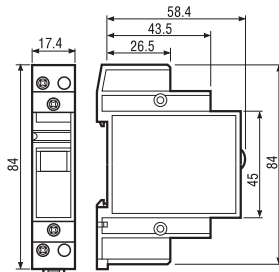
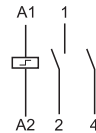


- Double phase switch
- 35 mm rail (EN 60715) mount

20.23



- Double phase switch 1NO+1NC (SPST-NO+SPST-NC)
- 35 mm rail (EN 60715) mount



FOR UL RATINGS SEE:
"General technical information" page V

Contact specification		20.21	20.22, 24, 26, 28	20.23
Contact configuration		1 NO (SPST-NO)	2 NO (DPST-NO)	1NO+1NC (SPST-NO+SPST-NC)
Rated current/Maximum peak current	A	16/30	16/30	16/30
Rated voltage/Maximum switching voltage V AC		250/400	250/400	250/400
Rated load AC1	VA	4,000	4,000	4,000
Rated load AC15 (230 V AC)	VA	750	750	750
Nominal lamp rating: incandescent (230 V)	W	2,000	2,000	2,000
compensated fluorescent (230 V)	W	750	750	750
uncompensated fluorescent (230 V)	W	1,000	1,000	1,000
halogen (230 V)	W	2,000	2,000	2,000
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgNi	AgNi	AgNi
Coil specification				
Nominal voltage (U _N)	V AC (50/60 Hz)	8 - 12 - 24 - 48 - 110 - 120 - 230 - 240		
	V DC	12 - 24 - 48 - 110	12 - 24 - 48 - 110	12 - 24 - 48 - 110
Rated power AC/DC	VA (50 Hz)/W	6.5/5	6.5/5	6.5/5
Operating range	AC	(0.85...1.1)U _N (50 Hz)/(0.9...1.1)U _N (60 Hz)		
	DC	(0.9...1.1)U _N	(0.9...1.1)U _N	(0.9...1.1)U _N
Technical data				
Mechanical life AC/DC	cycles	300 · 10 ³	300 · 10 ³	300 · 10 ³
Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³	100 · 10 ³
Minimum/Maximum impulse duration		0.1s/1h (according to EN 60669)		
Insulation between coil and contacts (1.2/50 μs)	kV	4	4	4
Ambient temperature range	°C	-40...+40	-40...+40	-40...+40
Protection category		IP 20	IP 20	IP 20
Approvals (according to type)				

Ordering information

Example: 20 series relay, 35 mm rail (EN 60715) mount, double phase switch, 2 NO (DPST-NO) 16 A contacts, coil rated at 12 V DC, AgSnO₂ contacts.



- Series** —————
- Type** —————
2 = 35 mm rail (EN 60715) mount
- No. of poles** —————
1 = Single phase switch 1 NO (SPST-NO)
2 = Double phase switch 2 NO (DPST-NO)
3 = Double phase switch 1 NC+1 NO (SPST-NO+SPST-NC)
4 = 4 sequence double phase switch 2 NO (DPST-NO)
6 = 3 sequence double phase switch 2 NO (DPST-NO)
8 = 4 sequence double phase switch 2 NO (DPST-NO)

- Contact material**
0 = AgNi standard
4 = AgSnO₂
- Coil voltage**
See coil specifications
- Coil version**
8 = AC (50/60 Hz)
9 = DC

Technical data

Insulation						
Dielectric strength						
between supply and contacts	V AC	3,500				
between open contacts	V AC	2,000				
between adjacent contacts	V AC	2,000				
Other data						
Power lost to the environment						
with rated current and coil deenergised	W	1.3 (20.21, 20.23, 20.28)	2.6 (20.22, 20.24, 20.26)			
Screw torque	Nm	0.8				
Max. wire size		Coil terminals		Contact terminals		
				solid cable	stranded cable	
		mm ²	1x4 / 2x2.5	1x2.5 / 2x2.5		1x6 / 2x4
		AWG	1x12 / 2x14		1x14 / 2x14	

If the coil is operated for a prolonged period of time, adequate ventilation of the relays must be provided - suggested gap of 9 mm between adjacent relays.

Coil specifications

DC version data

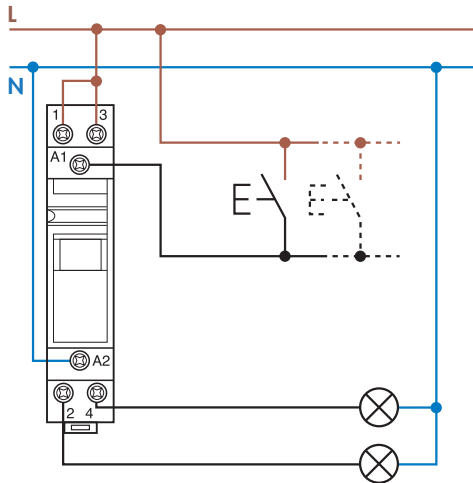
Nominal voltage U _N V	Coil code	Operating range		Resistance R Ω	Consumption I at U _N mA
		U _{min} V	U _{max} V		
12	9.012	10.8	13.2	27	440
24	9.024	21.6	26.4	105	230
48	9.048	43.2	52.8	440	110
110	9.110	99	121	2,330	47

AC version data

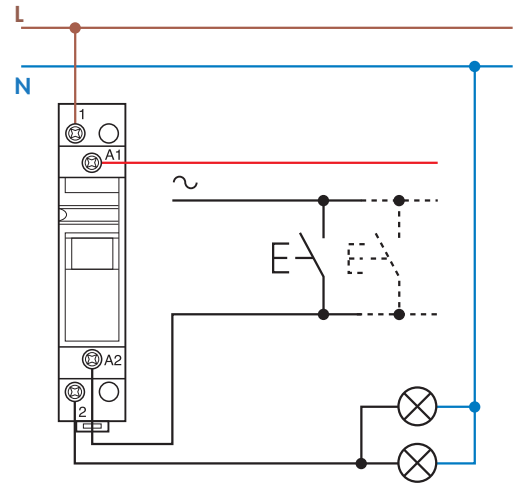
Nominal voltage U _N V	Coil code	Operating range		Resistance R Ω	Consumption I at U _N (50 Hz) mA
		U _{min} V	U _{max} V		
8	8.008	6.8	8.8	4	800
12	8.012	10.2	13.2	7.5	550
24	8.024	20.4	26.4	27	275
48	8.048	40.8	52.8	106	150
110	8.110	93.5	121	590	64
120	8.120	102	132	680	54
230	8.230	196	253	2,500	28
240	8.240	204	264	2,700	27.5

Type	Number of steps	Sequence			
		1	2	3	4
20.21	2				
20.22	2				
20.23	2				
20.24	4				
20.26	3				
20.28	4				

Wiring diagrams



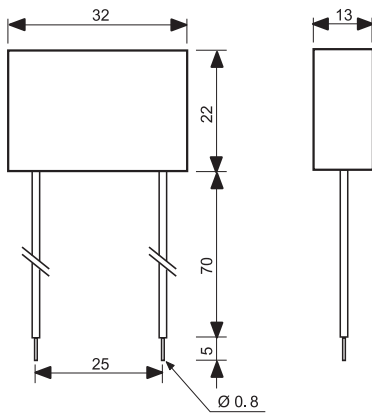
Example: 230 V AC supply voltage.



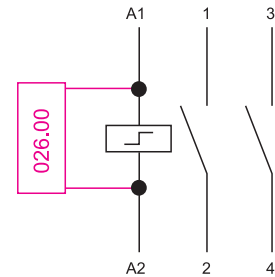
Example: 24 V AC supply voltage.

Accessories

Module for use with illuminated push-buttons



Type 026.00
Sealed construction, 7.5 cm insulated flexible wire termination.



Example of wiring diagram of type 026.00
This module is necessary when using between 1 and a maximum of 15 illuminated push buttons in the coil circuit (Each 1.5 mA max, 230 V AC). It must be connected in parallel to the coil of the relay.



020.01

Adaptor for panel mounting, 17.5 mm wide

020.01



020.24

Sheet of marker tags, plastic, 24 tags, 9x17 mm

020.24

Features

25 A modular contactor - 2 pole

- 17.5 mm wide
- NO contact gap ≥ 3 mm, double break
- Continuous duty for the coil and contacts
- AC/DC silent coil (with varistor protection)
- Protective separation (reinforced insulation) between coil and contacts
- Mechanical and LED indicators as standard
- Auto-On-Off selector version available
- AgNi and AgSnO₂ contact versions available
- Compliant with EN 61095: 2009
- Auxiliary contact module available, quick-assembly with the main contactor (1 NO + 1 NC and 2 NO versions)
- 35 mm rail (EN 60715) mount

22.32...1xx0 / 22.32...4xx0
Screw terminal



* Contact gap ≥ 3 mm for NO contacts only;
NC contacts ≥ 1.5 mm
For outline drawings see page 8

22.32.0.xxx.1xx0

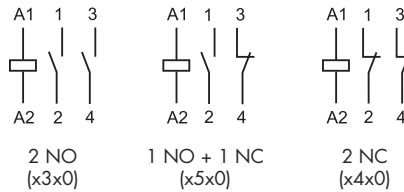


- AgNi contacts, specifically intended for resistive and slightly inductive loads as well as for motor loads

22.32.0.xxx.4xx0



- AgSnO₂ contacts, specifically intended for lamp loads and for high inrush current loads



Contact specification

Contact configuration	2 NO, 3 mm * (or 1 NO + 1 NC or 2 NC)	
Rated current/Maximum peak current	A	25 / 80
Rated voltage	V AC	250 / 440
Rated load AC1 / AC-7a (per pole @ 250 V)	VA	6,250
Rated current AC3 / AC-7b	A	10
Rated load AC15 (per pole @ 230 V)	VA	1,800
Single-phase motor rating (230 V AC)	kW	1
Rated current AC-7c	A	—
230 V lamps rating: incandescent or halogen	W	—
compact fluorescent (CFL)	W	200
electronic ballast fluorescent tubes	W	800
electromagnetic ballast compens. fluorescent tubes	W	500
Breaking capacity DC1: 30/110/220 V	A	25/5/1
Minimum switching load	mW (V/mA)	1,000 (10/10)
Contact material		AgNi AgSnO ₂

Coil specification

Nominal voltage (U _N)	V DC/AC (50/60 Hz)	12 - 24 - 48 - 60 - 120 - 230	12 - 24 - 48 - 60 - 120 - 230
Rated power AC/DC	VA (50 Hz)/W	2 / 2.2	2 / 2.2
Operating range	DC/AC (50/60 Hz)	(0.8...1.1) U _N	(0.8...1.1) U _N
Holding voltage	DC/AC (50/60 Hz)	0.4 U _N	0.4 U _N
Must drop-out voltage	DC/AC (50/60 Hz)	0.1 U _N	0.1 U _N

Technical data

Mechanical life AC/DC	cycles	2 · 10 ⁶	2 · 10 ⁶
Electrical life at rated load AC-7a	cycles	70 · 10 ³	30 · 10 ³
Operate/release time	ms	30 / 20	30 / 20
Insulation between coil and contacts (1.2/50 μs)	kV	6	6
Ambient temperature range	°C	-20...+50	-20...+50
Protection category		IP20	IP20

Approvals (according to type)



Features

25 A modular contactor - 4 pole

- 35 mm wide
- NO contact gap ≥ 3 mm, double break
- Continuous duty for the coil and contacts
- AC/DC silent coil (with varistor protection)
- Protective separation (reinforced insulation) between coil and contacts
- Mechanical and LED indicators as standard
- Auto-On-Off selector version available
- AgNi and AgSnO₂ contact versions available
- Compliant with EN 61095: 2009
- Auxiliary contact module available, quick-assembly with the main contactor (1 NO + 1 NC and 2 NO versions)
- 35 mm rail (EN 60715) mount

22.34...1xx0 / 22.34...4xx0
Screw terminal



* Contact gap ≥ 3 mm for NO contacts only;
NC contacts ≥ 1.5 mm
For outline drawings see page 8

Contact specification

Contact configuration	4 NO, 3 mm * (or 3NO + 1NC or 2NO + 2NC)	
Rated current/Maximum peak current	A	25 / 80
Rated voltage	V AC	250 / 440
Rated load AC1 / AC-7a (per pole @ 250 V)	VA	6,250
Rated current AC3 / AC-7b	A	10
Rated load AC15 (per pole @ 230 V)	VA	1,800
Three-phase motor rating (400 - 440 V AC)	kW	4
Rated current AC-7c	A	—
230 V lamps rating: incandescent or halogen	W	—
compact fluorescent (CFL)	W	200
electronic ballast fluorescent tubes	W	800
electromagnetic ballast compens. fluorescent tubes	W	500
Breaking capacity DC1: 30/110/220 V	A	25/5/1
Minimum switching load	mW (V/mA)	1,000 (10/10)
Contact material		AgNi

Coil specification

Nominal voltage (U _N)	V DC/AC (50/60 Hz)	12 - 24 - 48 - 60 - 120 - 230	12 - 24 - 48 - 60 - 120 - 230
Rated power AC/DC	VA (50 Hz)/W	2 / 2.2	2 / 2.2
Operating range	DC/AC (50/60 Hz)	(0.8...1.1) U _N	(0.8...1.1) U _N
Holding voltage	DC/AC (50/60 Hz)	0.4 U _N	0.4 U _N
Must drop-out voltage	DC/AC (50/60 Hz)	0.1 U _N	0.1 U _N

Technical data

Mechanical life AC/DC	cycles	2 · 10 ⁶	2 · 10 ⁶
Electrical life at rated load AC-7a	cycles	150 · 10 ³	30 · 10 ³
Operate/release time	ms	18 / 40	18 / 40
Insulation between coil and contacts (1.2/50 μ s)	kV	6	6
Ambient temperature range	°C	-20...+50	-20...+50
Protection category		IP20	IP20

Approvals (according to type)



22.34.0.xxx.1xx0

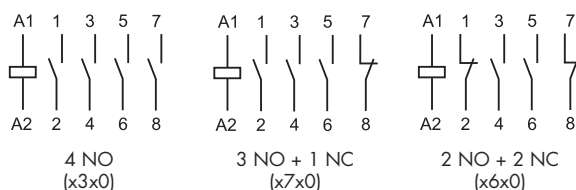


- AgNi contacts, specifically intended for resistive and slightly inductive loads as well as for motor loads

22.34.0.xxx.4xx0



- AgSnO₂ contacts, specifically intended for lamp loads and for high inrush current loads



Features

40 - 63 A modular contactor - 4 pole

- NO and NC contact gap ≥ 3 mm, double break
- Continuous duty for the coil and contacts
- AC/DC silent coil (with varistor protection)
- Protective separation (reinforced insulation) between coil and contacts
- Mechanical indicator as standard
- AgSnO₂ contacts
- Compliant with EN 61095: 2009 and with EN 60947-4-1: 2009
- 35 mm rail (EN 60715) mount

22.44.../22.64...
Screw terminal



For outline drawings see page 8

NEW 22.44.0.xxx.4xx0

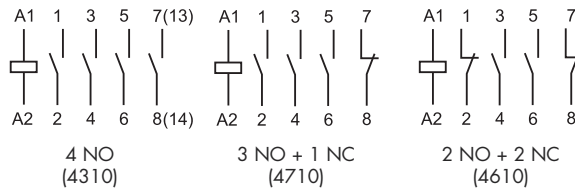


- For high inrush current loads 176 A
- Contact material AgSnO₂

NEW 22.64.0.xxx.4xx0



- Specifically intended: for high inrush current loads 240 A
- Contact material AgSnO₂



Contact specification			
Contact configuration		4 NO, (or 3NO + 1NC or 2NO + 2NC) ≥ 3 mm	
Rated current/Maximum peak current	A	40 / 176	63 / 240
Rated voltage	V AC	250 / 440	250 / 440
Rated load AC1 / AC-7a (per pole @ 250 V)	VA	16,000	24,000
Rated current AC3 / AC-7b (400 V)	A	22	30
Rated load AC15 (per pole @ 230 V)	VA	—	—
Three-phase motor rating (400 - 440 V AC)	kW	11	15
Rated current AC-7c	A	—	—
230 V lamps rating: incandescent or halogen	W	4,000	5,000
compact fluorescent (CFL)	W	1,000	1,500
electronic ballast fluorescent tubes	W	1,500	2,000
electromagnetic ballast compens. fluorescent tubes	W	1,500	2,000
Breaking capacity DC1: 30/110/220 V	A	40/4/1.2	63/4/1.2
Minimum switching load	mW (V/mA)	1,000 (17/50)	1,000 (17/50)
Contact material		AgSnO ₂	AgSnO ₂
Coil specification			
Nominal voltage (U _N)	V DC/AC (50/60 Hz)	12 - 24 - 110...120 (110 V DC) - 230...240 (220 V DC)	
Rated power AC/DC	VA (50 Hz)/W	5	5
Operating range	DC/AC (50/60 Hz)	(0.85...1.1) U _N	(0.85...1.1) U _N
Holding voltage	DC/AC (50/60 Hz)	0.85 U _N	0.85 U _N
Must drop-out voltage	DC/AC (50/60 Hz)	0.2 U _N	0.2 U _N
Technical data			
Mechanical life AC/DC	cycles	3 · 10 ⁶	3 · 10 ⁶
Electrical life at rated load AC-7a	cycles	100 · 10 ³	100 · 10 ³
Operate/release time	ms	20 / 45	20 / 45
Insulation between coil and contacts (1.2/50 μ s)	kV	6	6
Ambient temperature range	°C	-5...+55	-5...+55
Protection category		IP20	IP20
Approvals (according to type)			

Ordering information

Example: 22 series, modular contactor 25 A, 4 NO contacts, coil 230 V AC/DC, AgSnO₂ contacts, Auto-On-Off selector + mechanical indicator + LED.



Series _____
Type _____
 3 = 25 A modular contactor range
 4 = 40 A modular contactor range
 6 = 63 A modular contactor range
Number of contacts _____
 2 = 2 pole
 4 = 4 pole
Coil version _____
 0 = AC (50/60 Hz)/DC
Coil rated voltage _____
 See coil specifications

D: Special versions
 0 = Standard
C: Options
 1 = Mechanical indicator
 2 = Mechanical indicator + LED
 4 = Auto-On-Off selector + mechanical indicator + LED
B: Contact circuit
 3 = All NO contacts
 4 = All NC contacts (22.32 only)
 5 = 1 NO + 1 NC
 6 = 2 NO + 2 NC
 7 = 3 NO + 1 NC
A: Contact material
 1 = AgNi
 4 = AgSnO₂

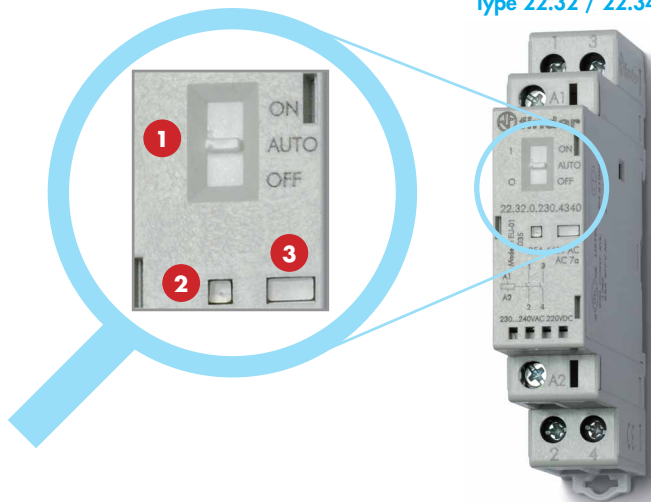
Selecting features and options: only combinations in the same row are possible.
 Preferred selections for best availability are shown in **bold**.

Type	Coil version	A	B	C	D
22.32	AC/DC	1 - 4	3 - 4 - 5	2 - 4	0
22.34	AC/DC	1 - 4	3 - 6 - 7	2 - 4	0
22.44	AC/DC	4	3 - 6 - 7	1	0
22.64	AC/DC	4	3 - 6 - 7	1	0

Options

Auto-On-Off selector + mechanical indicator + LED (xx40 option)

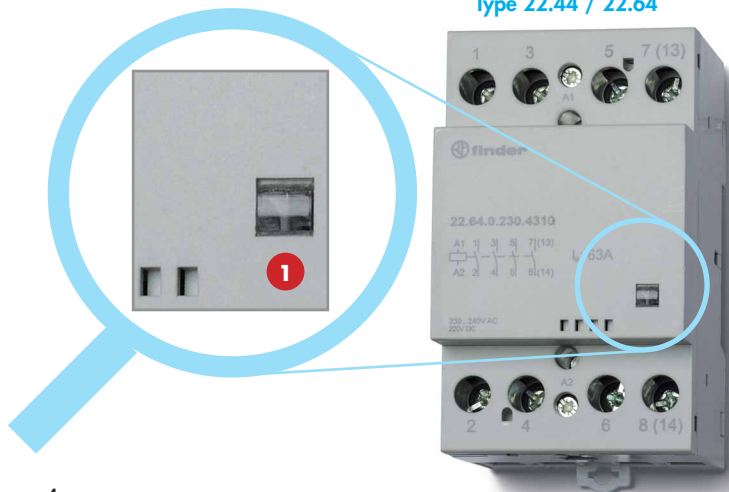
Type 22.32 / 22.34



Options

- 1 Selector**
 The three-position manual selector has the following functions:
 - **ON position** - the contacts are latched in the operated state (NO contacts - closed and NC contacts - open), the mechanical indicator is visible in its window, the LED is not illuminated.
 - **AUTO position** - the state of contacts, mechanical indicator and LED follow the coil supply voltage.
 - **OFF position** - even if terminals A1 - A2 are supplied with rated voltage, the coil is not energized, and so the contacts remain in the non-operated state, the mechanical indicator is not visible and the LED is not illuminated.
- 2 LED**
- 3 Mechanical indicator**


Type 22.44 / 22.64



Options

mechanical indicator

Technical data

Insulation		22.32 / 22.34		22.44 / 22.64	
Rated insulation voltage	V AC	250	440	440	
Pollution degree		3 *	2	3	
Insulation between coil and contact set					
Type of insulation		Reinforced		Reinforced	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 µs)	6		4	
Dielectric strength	V AC	4,000		2,000	
Insulation between adjacent contacts					
Type of insulation		Basic		Basic	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 µs)	4		4	
Dielectric strength	V AC	2,500		2,000	
Insulation between open contacts		NO contact	NC contact	NO/NC contacts	
Contact gap	mm	3	1.5	3	
Overvoltage category		III	II	III	
Rated impulse voltage	kV (1.2/50 µs)	4	2.5	4	
Dielectric strength	V AC/kV (1.2/50 µs)	2,500/4	2,000/3	2,000/3	
* Only for versions without Auto-On-Off selector. For versions with Auto-On-Off selector pollution degree 2 applies.					
Conducted disturbance immunity		Reference standard			
Fast transients (burst 5/50 ns, 5 kHz) at coil terminals		EN 61000-4-4	Level 4 (4 kV)	Level 2 (2 kV)	
Voltage pulses (surge 1.2/50 µs) at supply terminals (differential mode)		EN 61000-4-5	Level 4 (4 kV)	Level 2 (2 kV)	
Short circuit protection		22.32 / 22.34	22.44	22.64	
Rated conditional short circuit current	kA	3	3	3	
Back-up fuse	A	32 (gL/gG type)	63	80	
Terminals		Solid and stranded cable			
		22.32 / 22.34	22.44 / 22.64		
Max. wire size – contact terminals	mm ²	1 x 6 / 2 x 4		1x25 (solid) - 1x16 (stranded)	
	AWG	1 x 10 / 2 x 12		1x4 (solid) - 1x6 (stranded)	
Max. wire size – coil terminals	mm ²	1 x 4 / 2 x 2.5		1x2.5	
	AWG	1 x 12 / 2 x 14		1x14	
Min. wire size – contact and coil terminals	mm ²	1 x 0.2		1x1 (coil) - 1x1.5 (contacts)	
	AWG	1 x 24		1x18 (coil) - 1x16 (contacts)	
 Screw torque	Nm	0.8		1.2 (coil terminals) - 3.5 (contact terminals)	
Wire strip length	mm	9		10	
Power lost to the environment		22.32	22.34	22.44	22.64
	without contact current W	2	2	5	5
	with rated current W	4.8	6.3	17	37

NOTE

22.32/22.34: It is suggested an air gap of 9 mm between adjacent relays for installations and working conditions close to the limit (that is, ambient temperature > 40 °C, coil operated for a prolonged period of time, all contacts loaded with current > 20 A).

22.44/22.64: The maximum ambient temperature with 3 adjacent contactors is + 40 °C; when more than 3 contactors are installed, it is necessary an air gap of 9 mm.
With 2 adjacent contactors the maximum ambient temperature is + 55 °C; when more than 2 contactors are installed, it is necessary an air gap of 9 mm.

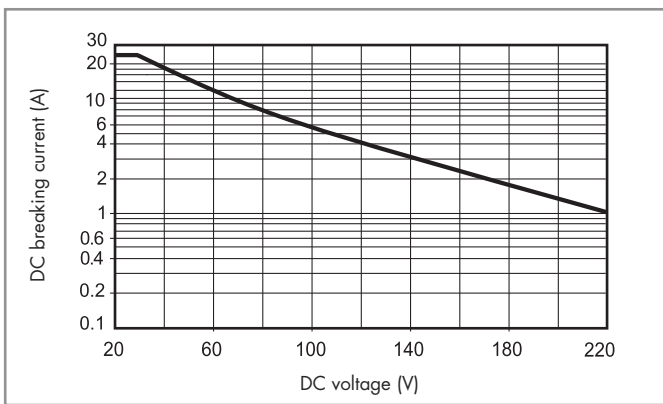
Contact specification

Ratings and utilization categories according to EN 61095: 2009

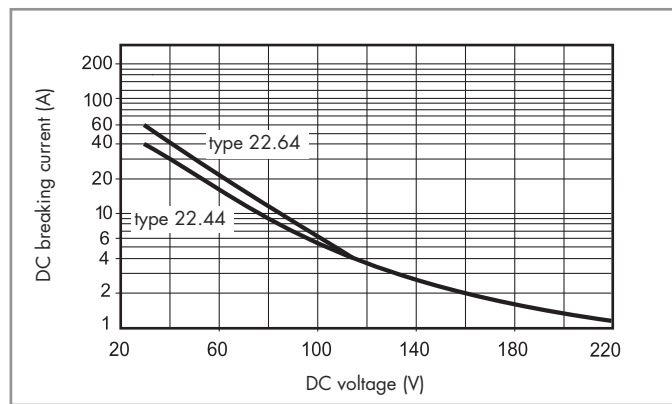
Type	Utilization category					
	AC-7a		AC-7b		AC-7c	
	Rated current (A)	Rated electrical life (Cycles)	Rated current (A)	Rated electrical life (Cycles)	Rated current (A)	Rated electrical life (Cycles)
22.32....1xx0 (AgNi contacts)	25	70·10 ³ (NO)	10	30·10 ³	—	—
		30·10 ³ (NC)				
22.32....4xx0 (AgSnO ₂ contacts)	25	30·10 ³	10	30·10 ³	10	30·10 ³
22.34....1xx0 (AgNi contacts)	25	150·10 ³ (NO)	10	30·10 ³	—	—
		100·10 ³ (NC)				
22.34....4xx0 (AgSnO ₂ contacts)	25	30·10 ³	10	30·10 ³	10	30·10 ³
22.44....4xx0	40	100·10 ³	22	150·10 ³	—	—
22.64....4xx0	63	100·10 ³	30	150·10 ³	—	—

Utilization category: **AC-7a** = Slightly inductive loads ($\cos\varphi=0.8$)
AC-7b = Motor loads; ($\cos\varphi=0.45$, $I_{making}= 6 \times I_{breaking}$)
AC-7c = Compensated electric discharge lamps ($\cos\varphi=0.9$, $C= 10 \text{ mF/A}$)

H 22 - Maximum DC1 breaking capacity - Type 22.32 / 22.34



H 22 - Maximum DC1 breaking capacity - Type 22.44 / 22.64



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 100 \cdot 10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
 Note: the release time for the load will be increased.

Coil specifications

AC/DC version data (type 22.32)

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I_N at U_N (AC) mA
		U_{min} V	U_{max} V	
12	0.012	9.6	13.2	165
24	0.024	19.2	26.4	83
48	0.048	38.4	52.8	42
60	0.060	48	66	33
120 (110...125)	0.120	88	138	16.5
230 (230...240 AC) (220 DC)	0.230	184 (AC) 176 (DC)	264 (AC) 242 (DC)	8.7

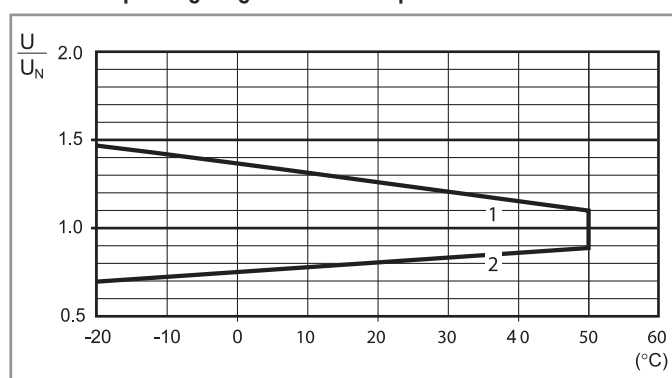
AC/DC version data (type 22.34)

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I_N at U_N (AC) mA
		U_{min} V	U_{max} V	
12	0.012	9.6	13.2	165
24	0.024	19.2	26.4	83
48	0.048	38.4	52.8	42
60	0.060	48	66	33
120 (110...125)	0.120	88	138	16.5
230 (230...240 AC) (220 DC)	0.230	184 (AC) 176 (DC)	264 (AC) 242 (DC)	8.7

AC/DC version data (type 22.44 / 22.64)

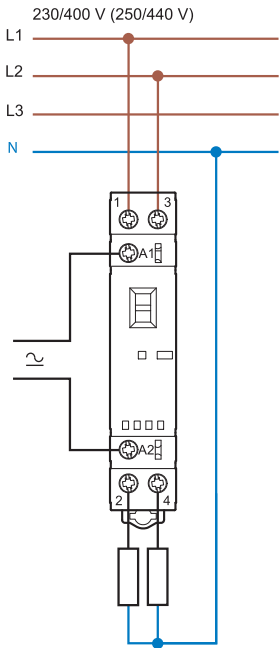
Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I_N at U_N (AC) mA
		U_{min} V	U_{max} V	
12	0.012	10.2	13.2	417
24	0.024	20.4	26.4	208
120 (110...125)	0.120	102	138	41
230 (230...240 AC) (220 DC)	0.230	196	264 (AC) 242 (DC)	21

R 22 - Coil operating range v ambient temperature



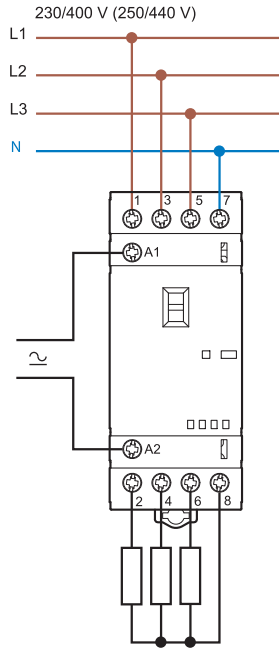
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

Wiring diagrams



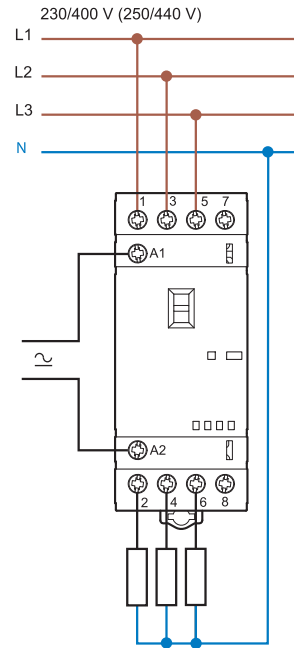
Type 22.32

Line and neutral switched



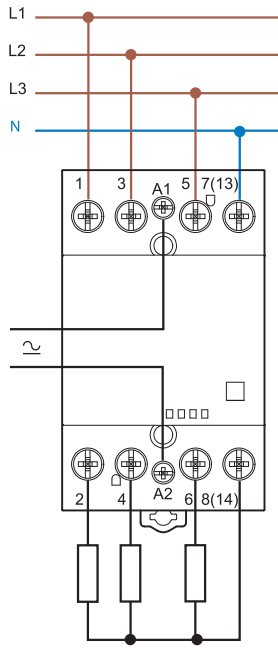
Type 22.34

Line only switched



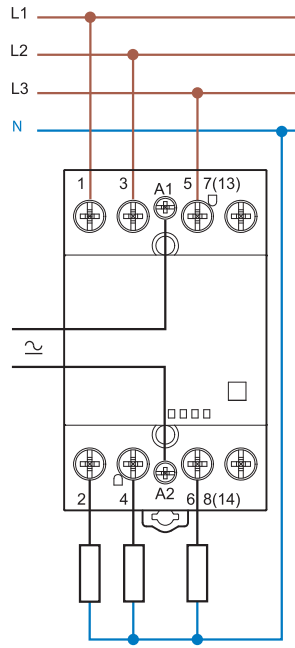
Type 22.34

Line and neutral switched



Type 22.44 / 22.64

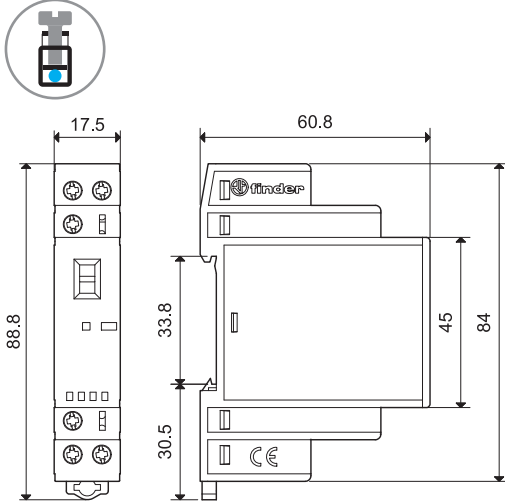
Line only switched



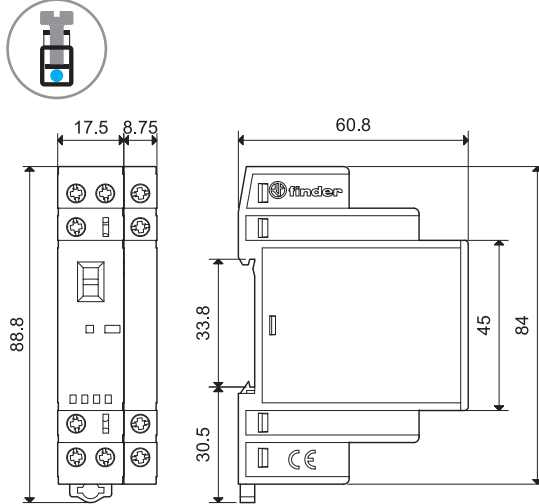
Type 22.44 / 22.64

Outline drawings

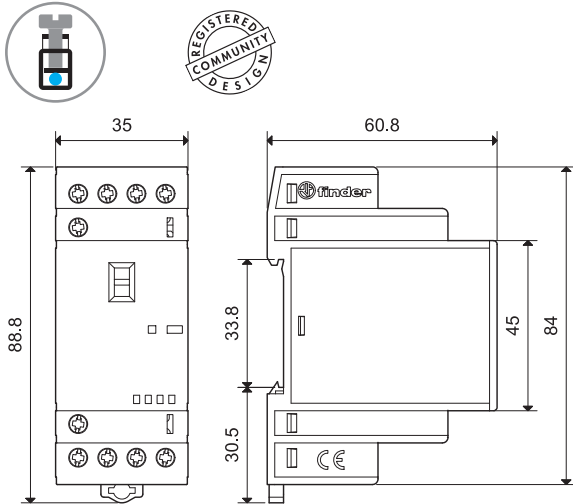
Type 22.32
Screw terminal



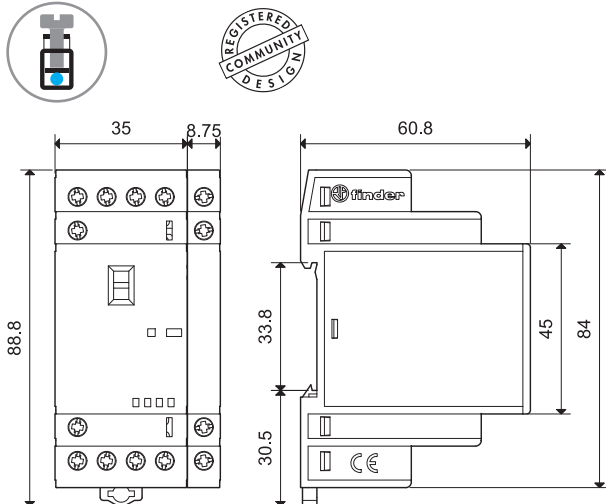
Type 22.32 + 022.33 / 022.35
Screw terminal



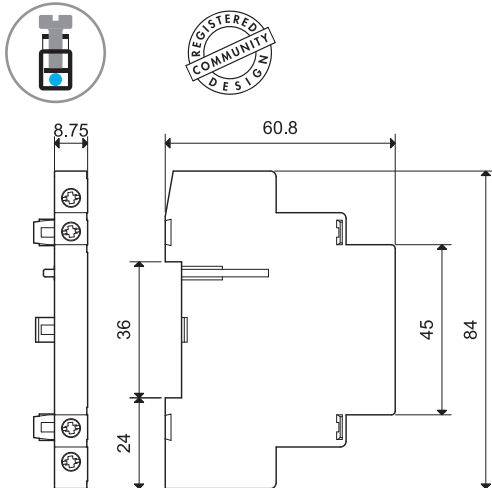
Type 22.34
Screw terminal



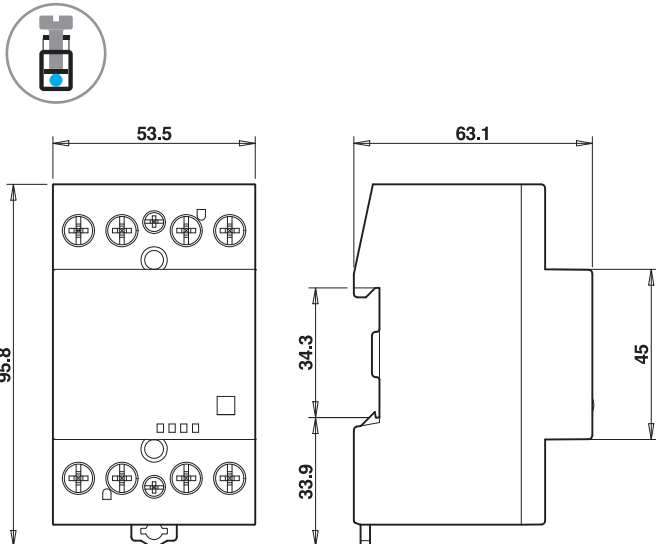
Type 22.34 + 022.33 / 022.35
Screw terminal



Type 022.33 / 022.35
Screw terminal



Type 22.44 / 22.64
Screw terminal



**Auxiliary module 022.33 / 022.35
for 22.32 and 22.34 only**



22.32 + 022.33 / 022.35



22.34 + 022.33 / 022.35

022.33



022.35



Contact specification			
Contact configuration		2 NO	1 NO + 1 NC
Conventional free air thermal current I _{th}	A	6	6
Rated current AC15 (230 V)	VA	700	700
Electrical life at rated load	cycles	30 x 10 ³	30 x 10 ³
Contact material		AgNi	AgNi
Short circuit protection			
Rated conditional short circuit current	kA	1	
Back-up fuse	A	6 (gL/gG type)	
Terminals		Solid and stranded cable	
Max. wire size	mm ²	1 x 4 / 2 x 2.5	
	AWG	1 x 12 / 2 x 14	
Min. wire size	mm ²	1 x 0.2	
	AWG	1 x 24	
Screw torque	Nm	0.8	
Wire strip length	mm	9	
Power lost to the environment			
without contact current	W	—	
with rated current	W	0.5	
Approvals (according to type)			RINA

NOTE: it is not possible to assembly the auxiliary module on 22.32.0.xxx.x4x0 (2 NC versions).

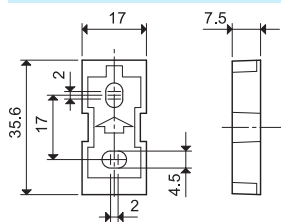
Accessories



020.01

Adaptor for panel mounting (for 22.32 type), plastic, 17.5 mm wide

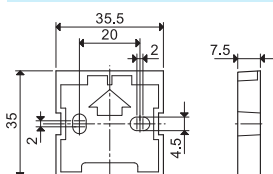
020.01



011.01

Adaptor for panel mounting (for 22.34 type), plastic, 35 mm wide

011.01



060.72

Sheet of marker tags, plastic, 72 tags, 6x12 mm

060.72



019.01

Identification tag, plastic, 1 tag, 17x25.5 mm

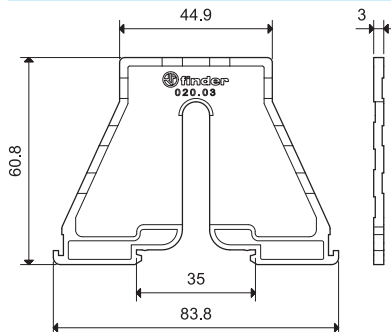
019.01



020.03

Separator for rail mounting, plastic, 3 mm wide

020.03



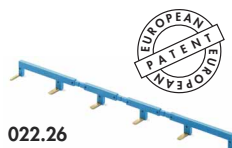
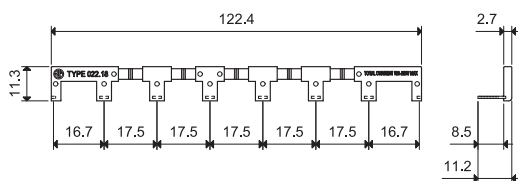
022.18

8-way jumper link for types 22.32, 17.5 mm wide

022.18 (blue)

Rated values

10 A - 250 V



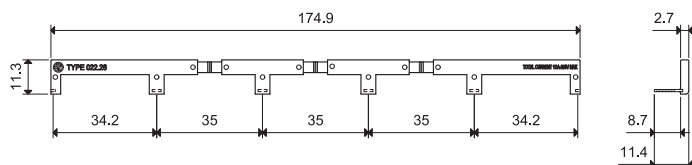
022.26

6-way jumper link for types 22.34, 35 mm wide

022.26 (blue)

Rated values

10 A - 250 V



Features

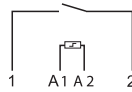
1 or 2 Pole electromechanical step relay with electrically separate coil and contact circuits

- Choice of 6 switching sequences
- Screw terminal connections
- AC coil
- Panel mount
- Cadmium free contact material

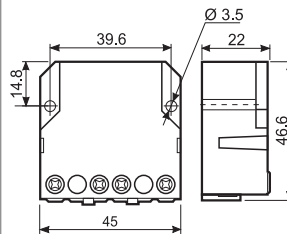
26.01



- Single phase switch 1 NO (SPST-NO)



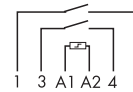
26.01



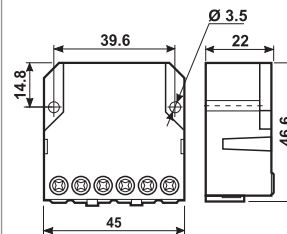
26.02, 04, 06, 08



- Double phase switch 2 NO (DPST-NO)



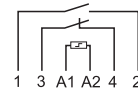
26.02
26.04
26.06
26.08



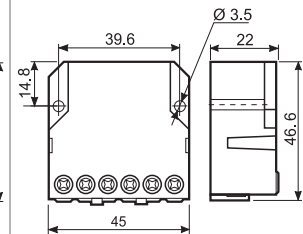
26.03



- 1 NO + 1 NC (SPST-NO + SPST-NC)



26.03



Contact specification

Number of contacts		1 NO (SPST-NO)	2 NO (DPST-NO)	1NO+1NC (SPST-NO+SPST-NC)
Rated current/Maximum peak current	A	10/20	10/20	10/20
Rated voltage/Maximum switching voltage V AC		250/400	250/400	250/400
Rated load AC1	VA	2,500	2,500	2,500
Rated load AC15 (230 V AC)	VA	500	500	500
Nominal lamp rating: incandescent (230 V)	W	800	800	800
compensated fluorescent (230 V)	W	360	360	360
uncompensated fluorescent (230 V)	W	500	500	500
halogen (230 V)	W	800	800	800
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgNi	AgNi	AgNi

Coil specification

Nominal voltage (U _N)	V AC (50 Hz)	12 - 24 - 48 - 110 - 230	12 - 24 - 48 - 110 - 230	12 - 24 - 48 - 110 - 230
	V DC	—	—	—
Rated power AC/DC	VA (50 Hz)/W	4.5/—	4.5/—	4.5/—
Operating range	AC (50 Hz)	(0.8...1.1)U _N	(0.8...1.1)U _N	(0.8...1.1)U _N
	DC	—	—	—

Technical data

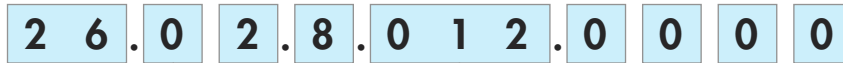
Mechanical life AC/DC	cycles	300 · 10 ³	300 · 10 ³	300 · 10 ³
Electrical life at rated load in AC1	cycles	100 · 10 ³	100 · 10 ³	100 · 10 ³
Minimum/Maximum impulse duration		0.1s/1h (according to EN 60669)	0.1s/1h (according to EN 60669)	0.1s/1h (according to EN 60669)
Insulation between coil and contacts (1.2/50 μs)	kV	4	4	4
Ambient temperature range	°C	-40...+40	-40...+40	-40...+40
Protection category		IP 20	IP 20	IP 20

Approvals (according to type)



Ordering information

Example: 26 series screw terminal, panel mount relay, double phase switch 2 NO (DPST-NO) 10 A contacts, coil rated 12 V AC.



- Series** —————
 - Type** —————
 - 0 = Screw terminal
 - No. of poles** —————
 - 1 = Single phase switch 1 NO (SPST-NO)
 - 2 = Double phase switch 2 NO (DPST-NO)
 - 3 = Double phase switch 1 NO + 1 NC (SPST-NO + SPST-NC)
 - 4 = 4 sequences double phase switch 2 NO (DPST-NO)
 - 6 = 3 sequences double phase switch 2 NO (DPST-NO)
 - 8 = 4 sequences double phase switch 2 NO (DPST-NO)
- Coil voltage**
 - See coil specifications
 - Coil version**
 - 8 = AC (50 Hz)

Technical data

Insulation				
Dielectric strength				
between supply and contacts	V AC	3,500		
between open contacts	V AC	2,000		
between adjacent contacts	V AC	2,000		
Other data		26.01, 26.03, 26.08	26.02, 26.04, 26.06	
Power lost to the environment				
with rated current and coil de-energised	W	0.9	1.8	
Screw torque	Nm	0.8	0.8	
Max. wire size		solid cable	stranded cable	solid cable
	mm ²	1x4 / 2x2.5	1x2.5 / 2x2.5	1x4 / 2x2.5
	AWG	1x12 / 2x14	1x14 / 2x14	1x12 / 2x14

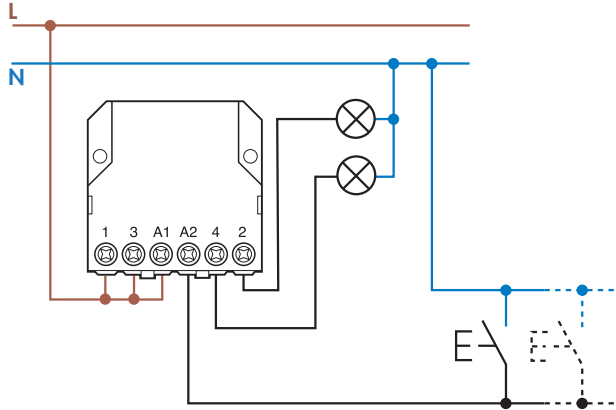
Coil specifications

AC version data

Nominal voltage U_N V	Coil code	Operating range		Resistance R Ω	Consumption I at U_N (50 Hz) mA
		U_{min} V	U_{max} V		
12	8.012	9.6	13.2	17	370
24	8.024	19.2	26.4	70	180
48	8.048	38.4	52.8	290	90
110	8.110	88	121	1,500	40
230	8.230	184	253	6,250	20

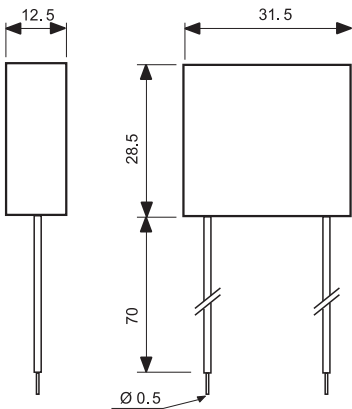
Type	Number of steps	Sequence			
		1	2	3	4
26.01	2				
26.02	2				
26.03	2				
26.04	4				
26.06	3				
26.08	4				

Wiring diagrams

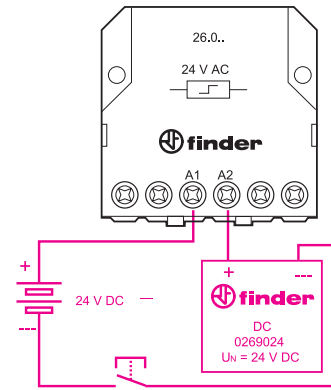


Accessories

for 12 and 24 V DC control applications

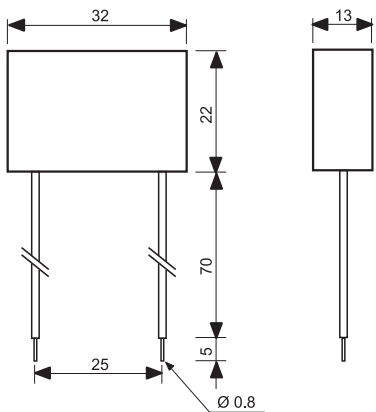


Type: 026.9.012
 Nominal voltage: 12 V DC
 Max temperature: + 40 °C
 Operating range: (0.9...1.1)U_N
Type: 026.9.024
 Nominal voltage: 24 V DC
 Max temperature: + 40 °C
 Operating range: (0.9...1.1)U_N

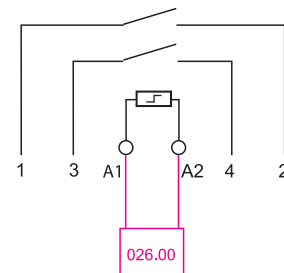


Example of wiring for 24 V DC control application.

Module for use with illuminated push buttons (230 V AC applications)



Type 026.00
 Sealed construction, 7.5 cm insulated flexible wire termination.



Example of wiring diagram of type 026.00
 This module is necessary when using between 1 and a maximum of 15 illuminated push buttons in the coil circuit (Each 1 mA max, 230 V AC). It must be connected in parallel to the coil of the relay (see diagram).

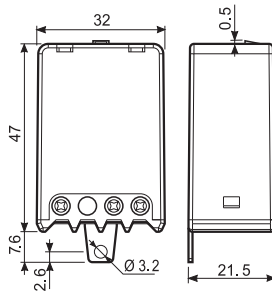
Features

1 or 2 Pole electromechanical step relay, for electrically common coil and contact circuits

27.0x - Connect up to 24 illuminated push buttons with the addition of module 027.00

27.2x - Connect up to 15 illuminated push buttons (without additional module)
- incorporates coil power limiter to permit continuous coil energisation

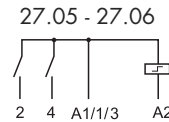
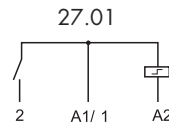
- Choice of 3 switching sequences
- Screw terminal connections
- AC coil
- Panel mount
- Cadmium free contact material
- Italian Patent



27.0x



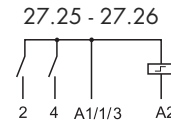
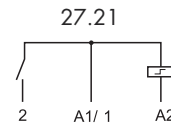
- Single or 2 double phase switch 1 NO (SPST-NO) or 2 NO (DPST-NO)



27.2x EVO



- Single or 2 double phase switch 1 NO (SPST-NO) or 2 NO (DPST-NO) with coil power limiter



Contact specification					
Number of contacts		1 or 2		1 or 2	
Rated current/Maximum peak current	A	10/20		10/20	
Rated voltage/Maximum switching voltage V AC		110/—	230/—	230/—	
Rated load AC1	VA	1100	2300	2300	
Rated load AC15	VA	250	500	500	
Nominal lamp rating:	incandescent	W	500	1000	1000
	compensated fluorescent	W	180	360	360
	uncompensated fluorescent	W	250	500	500
	halogen	W	400	800	800
Minimum switching current	mW (V/mA)	10		10	
Standard contact material		AgNi		AgNi	
Coil specification					
Nominal voltage (U _N)	V AC (50/60 Hz)	110	230	230	
	V DC	—		—	
Pickup/continuous power	VA (50 Hz)	4/4		25/1	
Operating range	AC 50Hz/AC 60Hz	(0.8 ... 1.1)U _N /(0.85 ... 1.1)U _N		(0.8 ... 1.1)U _N /(0.85 ... 1.1)U _N	
	DC	—		—	
Technical data					
Mechanical life AC/DC	cycles	300 · 10 ³		300 · 10 ³	
Electrical life at rated load in AC1	cycles	100 · 10 ³		100 · 10 ³	
Max no. of illuminated push-button	(≤1 mA)	4 (24 with module 027.00)		15	
Minimum/Maximum impulse duration		0.1s/1h (according to EN 60669)		0.1s/continuous	
Ambient temperature range	°C	-40...+40		-40...+40	
Protection category		IP 20		IP 20	
Approvals (according to type)					

Ordering information

Example: 27 series screw terminal, panel mount step relay, single phase switch 1 NO (SPST-NO) 10 A contact, coil rated 230 V AC.

2 7 . 0 1 . 8 . 2 3 0 . 0 0 0 0

Series ————
Type ————
 0 = Clamp terminal
 2 = Clamp terminal, with coil power limiter

Coil voltage
 See coil specifications
Coil version
 8 = AC (50/60 Hz)

No. of poles ————
 1 = Single phase switch 1 NO (SPST-NO)
 5 = 4 sequences double phase switch 2 NO (DPST-NO)
 6 = 3 sequences double phase switch 2 NO (DPST-NO)

Technical data

Other data	27.01, 27.21		27.05, 27.06, 27.25, 27.26	
Power lost to the environment with rated current and coil de-energised	W	0.9	1.8	
Screw torque	Nm	0.8	0.8	
Max. wire size		solid cable	stranded cable	solid cable
	mm ²	2x2.5	1x4 / 2x2.5	2x2.5
	AWG	2x14	1x12 / 2x14	2x14

Coil specifications

Types 27.01, 27.05, 27.06

Nominal voltage U_N V	Coil code	Operating range (50 Hz)		Resistance R Ω	Consumption I at U_N (50 Hz) mA
		U_{min} V	U_{max} V		
110	8.110	88	121	1,400	42.0
230	8.230	184	253	6,500	17.5

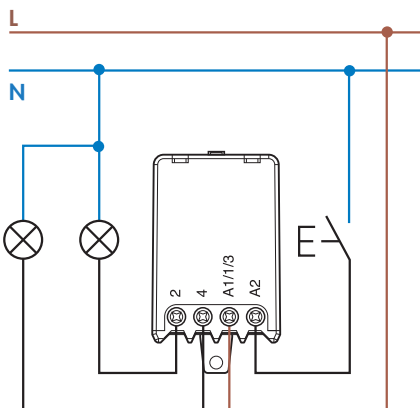
Type	Number of steps	Sequence			
		1	2	3	4
27.01/21	2				
27.05/25	4				
27.06/26	3				

Types 27.21, 27.25, 27.26

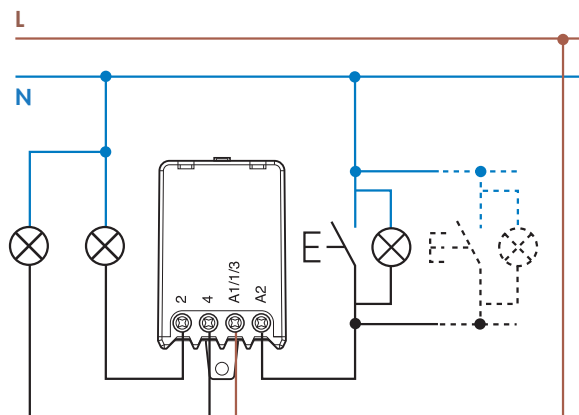
Nominal voltage U_N V	Coil code	Operating range (50 Hz)		Resistance R Ω	Consumption	
		U_{min} V	U_{max} V		pick up I at U_N (50 Hz) mA	continuous I at U_N (50 Hz) mA
230	8.230	184	253	1,250	100	4

Wiring diagram

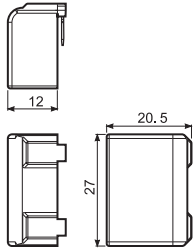
Type 27.01/05/06



Type 27.21/25/26

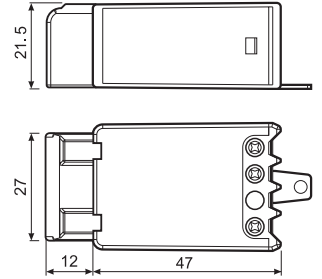


Accessories for types 27.01, 27.05, 27.06
Module for illuminated push-button (230 V AC applications)



Type 027.00

This module is necessary if using up to a maximum of 24 illuminated push-buttons (1 mA max, 230 V AC) in the switching input circuit. It must be plugged directly into the relay.



Type 27.0x + 027.00

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Reference standards and values

Unless expressly indicated otherwise, the products shown in this catalogue are designed and manufactured according to the requirements of the following European and International Standards:

- **EN 61810-1, EN 61810-2, EN 61810-7** for electromechanical elementary relays
- **EN 50205** for relays with forcibly guided contacts
- **EN 61812-1** for timers
- **EN 60669-1** and **EN 60669-2-2** for electromechanical step relays
- **EN 60669-1** and **EN 60669-2-1** for light-dependent relays, electronic step relays, light dimmers, staircase switches, movement detectors and monitoring relays.

Other important standards, often used as reference for specific applications, are:

- **EN 60335-1** and **EN 60730-1** for domestic appliances
- **EN 50178** for industrial electronic equipments

According to EN 61810-1, all technical data is specified under standard conditions of 23°C ambient temperature, 96 kPa pressure, 50% humidity, clean air and 50 Hz frequency. The tolerance for coil resistance, nominal absorption and rated power values is $\pm 10\%$.

Unless expressly indicated otherwise, the standard tolerances for mechanical drawings are ± 0.1 mm.

Operating & installation conditions

Coil operating range: In general, Finder relays will operate over the full specified temperature range, according to:

- Class 1 – 80% to 110% of nominal coil voltage, or
- Class 2 – 85% to 110% of nominal coil voltage.

Outside the above Classes, coil operation is permitted according to the limits shown in the appropriate "R" chart.

Unless expressly indicated otherwise, all relays are suitable for 100% Duty Cycle (continuous energisation) and all AC coil relays are suitable for 50 and 60 Hz frequency.

Excessive peak voltage limiting: Overvoltage protection (varistor for AC, diode for DC) is recommended in parallel with the coil for nominal voltages ≥ 110 V for the relays of 40, 41, 44, 46 series.

Residual current: When AC relay coils are controlled via a proximity switch, or via cables having length > 10 m, the use of a "residual current bypass" module is recommended, or alternatively, fit a resistor of $62k\Omega/1$ watt in parallel with the coil.

Ambient temperature: The Ambient temperature as specified in the relevant specification and "R" chart relates to the immediate environment in which the component is situated, as this may be greater than the ambient temperature in which the equipment is located. Refer to page IX for more detail.

Condensation: Environmental conditions causing condensation or ice formation in the relay are not permitted.

Installed orientation: The component's specification is unaffected (unless expressly stated otherwise) by its orientation, (provided it is properly retained, eg by a retaining clip in the case of socket mounted relays).

RC contact suppression: If a resistor/capacitor network is placed across a contact to suppress arcing, it should be ensured that when the contact is open, the leakage current through the RC network does not give rise to a residual voltage across the load (typically the coil of another relay or solenoid) any greater than 10% of the load's nominal voltage - otherwise, the load may hum or vibrate, and reliability can be affected. Also, the use of an RC network across the contact will destroy the isolation normally afforded by the contact (in the open position).

Guidelines for automatic flow solder processes

In general, an automatic flow solder process consists of the following stages:

Relay mounting: Ensure that the relay terminals are straight and enter the PC board perpendicular to the PC board. For each relay, the catalogue illustrates the necessary PC board hole pattern (copper side view). Because of the weight of the relay, a plated through hole printed circuit board is recommended to ensure a secure fixation.

Flux application: This is a particularly delicate process. If the relay is not sealed, flux may penetrate the relay due to capillary forces, changing its performance and functionality.

Whether using foam or spray fluxing methods, ensure that flux is applied sparingly and evenly and does not flood through to the component side of the PC board.

By following the above precautions, and assuming the use of alcohol or water based fluxes, it is possible to satisfactorily use relays with protection category RT II.

Preheating: Set the preheat time and heat to just achieve the effective evaporation of the flux, taking care not to exceed a component side temperature of 100°C (212°F).

Soldering: Set the height of the molten solder wave such that the PC board is not flooded with solder. Ensure the solder temperature and time are kept to 260°C (500°F) and 3 seconds maximum.

Cleaning: The use of modern "no-clean" flux avoids the necessity of washing the PC board. In special cases where the PC board must be washed the use of wash-tight relays (option xxx1 - RT III) is strongly recommended. After cleaning it is suggested to break the pin on the relay cover. This is necessary to guarantee the electrical life at maximum load as quoted in the catalogue; otherwise ozone generated inside the relay (dependent on the switching load and frequency) will reduce the electrical life. Even so, avoid washing the relay itself, particularly with aggressive solvents or in washing cycles using low temperature water, as this may cause thermal shock to the PC board components. The user should establish compatibility between his cleaning fluid and the relay plastics.

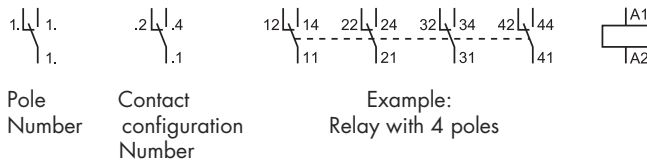
Terminology & definitions

All the following terms used in the catalogue are commonly used in technical language. However, occasionally, National, European or International Standards may prescribe the use of different terms, in which case these will be mentioned in the appropriate descriptions that follow.

Terminal marking

European Standard EN 50005 recommends the following numbering for the marking of relay terminals:

- .1 for common contact terminals (e.g. 11, 21, 31...)
- .2 for NC contact terminals (e.g. 12, 22, 32...)
- .4 for NO contact terminals (e.g. 14, 24, 34...)
- A1 and A2 for coil terminals
- B1, B2, B3 etc. for Signal inputs
- Z1 & Z2 for potentiometer or sensor connection



For delayed contacts of timers the numbering will be:

- .5 for common contact terminals (e.g. 15, 25,...)
- .6 for NC contact terminals (e.g. 16, 26, ...)
- .8 for NO contact terminals (e.g. 18, 28,...)

IEC 67 and American standards prescribe: progressive numbering for terminals (1,2,3,...,13,14,...) and sometimes A and B for coil terminals.

Contact specification

Symbol	Configuration	EU	D	GB	USA
	Make contact (Normally Open)	NO	S	A	SPST-NO DPST-NO nPST-NO
	Break contact (Normally Closed)	NC	Ö	B	SPST-NC DPST-NC nPST-NC
	Changeover	CO	W	C	SPDT DPDT nPDT

n = number of poles (3,4,...), S = 1 and D = 2

Contact Set: The contact set comprises all the contacts within a relay.

Single contact: A contact with only one point of contact.

Twin/Bifurcated contact: A contact with two points of contact, which are effectively in parallel with each other. Very effective for switching small contact loads such as analogue, transducer, low signal or PLC input circuits.

Double break contact: A contact comprising two points of contact in series with each other. Particularly effective for switching DC loads. The same effect can be achieved by wiring two single contacts in series.

Micro interruption: Interruption of a circuit, without any specific requirements for distance or dielectric strength across the contact gap. All Finder relays comply or exceed this.

Micro disconnection: Adequate contact separation in at least one contact so as to provide functional safety. A dielectric strength requirement must be achieved across the contact gap. All Finder relays comply with this class of disconnection.

Full disconnection: Contact separation for the disconnection of conductors so as to provide the equivalent of basic insulation between those parts intended to be disconnected. There are requirements for both the dielectric strength and the dimensioning of the contact gap. Finder relays types 45.91, 56.xx - 0300, 62.xx - 0300 and 65.x1 - 0300 comply with this category of disconnection.

Rated current: This coincides with the *Limiting continuous current* - the highest current that a contact can continuously carry within the prescribed temperature limits. It also coincides with the *Limiting cycling capacity*, i.e. the maximum current that a contact is capable of making and breaking under specified conditions. In virtually all cases the Rated current is also the current that, when associated with the Rated switching voltage, gives rise to the Rated load (AC1). (The exception being the 30 series relay).

Maximum peak current: The highest value of inrush current (≤ 0.5 seconds) that a contact can make and cycle (duty cycle ≤ 0.1) without undergoing any permanent degradation of its characteristics due to generated heat. It also coincides with the *limiting making capacity*.

Rated switching voltage: This is the switching voltage that when associated with the Rated current gives rise to the Rated load (AC1). The Rated load is used as the reference load for electrical life tests.

Maximum switching voltage: This represents the maximum nominal voltage that the contacts are able to switch and for the relay to meet the insulation and design requirements called for by the insulation coordination standards.

Rated load AC1: The maximum AC resistive load (in VA) that a contact can make, carry and break repeatedly, according to classification AC1 (see Table 1). It is the product of rated current and rated voltage, and is used as the reference load for electrical life tests.

Rated load AC15: The maximum AC inductive load (in VA) that a contact can make, carry and break repeatedly, according to classification AC15 (see Table 1), called "AC inductive load" in EN 61810-1:2008, Annex B.

Single-phase motor rating: The nominal value of motor power that a relay can switch.

(The figures are given in kW; the horsepower rating can be calculated by multiplying the kW value by 1.34 i.e. 0.37 kW = 0.5 HP).

Note: "inching" or "plugging" is not permitted.

If reversing motor direction, always allow an intermediate break of > 300 ms, otherwise an excessive inrush peak current (caused from change of polarity of motor capacitor) may occur, causing contact welding.

Nominal lamp ratings: Lamp ratings for 230V AC supply for:

- Incandescent (tungsten filament) lamps
 - Standard and halogen filled types
 - Fluorescent lamps without power factor compensation
 - Fluorescent lamps compensated to $\cos \varphi \geq 0.9$ (using conventional power factor correction capacitors)
- For other lamp types, such as HID, or Electronic Ballast driven fluorescent lamp loads – please enquire.

Breaking capacity DC1: The maximum value of DC resistive current that a contact can make, carry and break repeatedly, according to classification DC1 (see Table 1).

Minimum switching load: The minimum values of power, voltage and current that a contact can reliably switch. For example, if minimum values are 300 mW, 5 V / 5 mA:

- with 5 V the current must be at least 60 mA;
- with 24 V the current must be at least 12.5 mA;
- with 5 mA the voltage must be at least 60 V.

For gold contact variants, loads no less than 50 mW, 5 V / 2 mA are suggested.

With 2 gold contacts in parallel, it is possible to switch 1 mW, 0.1 V / 1 mA.

Electric life tests: The Electrical life at rated load AC1; as specified in the Technical data, represents the life expectancy for an AC resistive load at rated current and 250 V. (This value can be used as the relay B₁₀ value; see "Electrical life "F-chart" and "Reliability" sections).

Electrical life "F-chart": The "Electrical life (AC) v contact current" chart indicates the life expectancy for an AC resistive load for different values of contact current. Some charts also indicate the results of electrical life tests for Inductive AC loads with a power factor of $\cos \varphi = 0.4$ (applicable for both the contact closing and opening). In general, the reference load voltage applicable to these life expectancy charts is $U_n = 250$ V AC. However, the life indicated can also be assumed to be approximately valid for voltages between 125 V to 277 V. Where the life expectancy chart shows a curve for 440 V, the life indicated can also be assumed to be approximately valid for voltages up to 480 V.

Note: Life, or number of cycles, from these charts can be taken as indicating the B₁₀ statistical value for the purposes of reliability calculations. And, this value multiplied by 1.4 could be taken as an approximation to the related MCTF (Mean Cycles To Failure) figure. (Failure, in this case, refers to the contact "wear-out" mechanism that occurs at relatively high contact loads.)

Predicting life expectancy at voltages lower than 125 V: For load voltages < 125 V (i.e. 110 or 24 V AC), the electrical life will rise significantly with decreasing voltage. (A rough estimate can be made using a multiplying factor of $250/2U_n$ and applying it to the life expectancy appropriate to the 250 V load voltage).
Estimating switching current at voltages greater than 250 V: For load voltages higher than 250 V (but less than the maximum switching voltage specified for the relay), the maximum contact current should be limited to the Rated load AC1 divided by the voltage being considered. For example, a relay with rated current and rated load AC1 of 16 A and 4000 VA respectively, is able to switch a maximum current of 10 A at 400 V AC: the corresponding electrical life will be approximately the same as that at 16 A 250 V.

- Unless otherwise specified, the following test conditions apply:
- Tests performed at the maximum ambient temperature.
 - Relay coil (AC or DC) energised at rated voltage.
 - Load test applied to the NO contacts.
 - Switching frequency for elementary relays: 900 cycles/h with 50% duty cycle (25 % for relays with rated current > 16 A and for 45.91 and 43.61 types).
 - Switching frequency for step relays: 900 cycles/h for the coil, 450 cycles/h for the contact, 50% duty cycle.
 - Electrical life expectancy values are valid for relays with standard contact material; data for optional materials are available on request.

Load reduction factor versus $\cos \varphi$: The load current for AC loads which comprise both an inductive and resistive component can be estimated by applying a reduction factor (k) to the resistive contact current (according to the load's $\cos \varphi$). Such loads should not be taken as appropriate for electric motors or fluorescent lamps, where specific ratings are quoted. They are however, appropriate for inductive loads where the current and $\cos \varphi$ are substantially the same at "make" and "break", and are also widely specified by international relay standards as reference loads for performance verification and comparison.

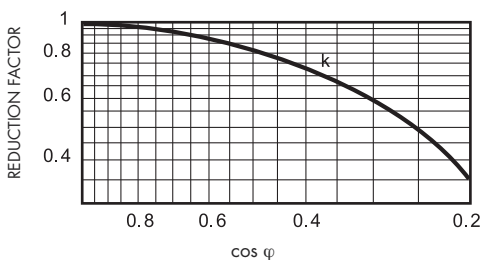


TABLE 1 Contact load classifications (related to the utilization categories defined in EN60947-4-1 and EN60947-5-1)

Load classification	Supply type	Application	Switching with relay
AC1	AC single-phase AC three-phase	Resistive or slightly Inductive AC loads.	Work within the relay data.
AC3	AC single-phase AC three-phase	Starting and stopping of Squirrel cage motors. Reversing direction of rotation only after motor has stopped rotating. <u>Three-phase:</u> Motor reversal is only permitted if there is a guaranteed break of 50ms between energisation in one direction and energisation in the other. <u>Single-phase:</u> Provision of 300ms "dead break" time when neither relay contacts are closed - during which time the capacitor discharges harmlessly through the motor windings.	For single-phase: keep to the relay data. For three-phase: see "Three-phase motors" section.
AC4	AC three-phase	Starting, Stopping and Reversing direction of rotation of Squirrel cage motors. Jogging (Inching). Regenerative braking (Plugging).	Not possible using relays. Since, when reversing a phase connection, severe contact arcing will occur.
AC14	AC single-phase	Control of small electromagnetic loads (<72 VA), power contactors, magnetic solenoid valves, and electromagnets.	Assume a peak inrush current of approx. 6-times rated current, and keep this within the specified "Maximum peak current" for the relay.
AC15	AC single-phase	Control of small electromagnetic loads (>72 VA), power contactors, magnetic solenoid valves, and electromagnets.	Assume a peak inrush current of approx. 10-times rated current, and keep this within the specified "Maximum peak current" for the relay.
DC1	DC	Resistive loads or slightly inductive DC loads. (The switching voltage at the same current can be doubled by wiring 2 contacts in series).	Work within relay data (see the diagram "Maximum DC1 breaking capacity").
DC13	DC	Control of electromagnetic loads, power contactors, magnetic solenoid valves, and electromagnets.	This assumes no inrush current, although the switch off over-voltage can be up to 15 times the rated voltage. An approximation of the relay rating on a DC inductive load with 40 ms L/R can be made using 50 % of the DC1 rating. If a freewheeling diode is wired in parallel to the load, it can be considered the same value as DC1. See the diagram "Maximum DC1 breaking capacity"

TABLE 2 UL Horsepower and Pilot duty ratings

R = Resistive / GP = General Purpose / GU = General Use / I = Inductive (cosφ 0.4) / B = Ballast / NO = NO type

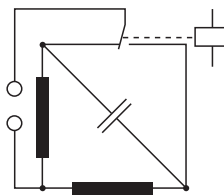
Type	UL file No.	Ratings			Open Type Devices	Pollution degree	Max Surrounding Air Temperature	
		AC/DC	"Motor Load" Single phase					
			110-120	220-240				
34.51	E106390	6 A - 250 V AC (GP)	/	/	B300 - R300	Yes	2	40 °C
40.31 - 40.51	E81856	10 A - 250 V AC (R)	/	1/3 Hp (250 V)	R300	Yes	/	85 °C
40.52	E81856	8 A - 250 V AC (R) 8 A - 277 V AC (GP) 8 A - 30 V DC (GP)	1/6 Hp (4.4 FLA)	1/3 Hp (3.6 FLA)	R300	Yes	/	85 °C
40.61	E81856	15 A - 250 V AC (R)	/	½ Hp (250 V)	R300	Yes	/	85 °C
40.31...X2XX	E81856	12 A - 277 V AC (GU) 12 A - 30 V DC (GU)	1/3 Hp (7.2 FLA)	¾ Hp (6.9 FLA)	B300	Yes	2 or 3	85 °C
40.61...X2XX	E81856	16 A - 277 V AC (GU) 16 A 30 V DC (GU) - (AgCdO) 12 A - 30 V DC (GU) - (AgNi)	1/3 Hp (7.2 FLA)	¾ Hp (6.9 FLA)	B300	Yes	2 or 3	85 °C
40.11 - 40.41	E81856	10 A - 240 V AC (R) 5 A - 240 V AC (I) 10 A - 250 V AC (GP) 8 A - 24 V DC 0.5 A - 60 V DC 0.2 A - 110 V DC 0.12 A - 250 V DC	/	½ Hp (250 V)	/	Yes	/	70 °C
41.31	E81856	12 A - 277 V AC (GU) 12 A - 277 V AC (R)	1/4 Hp (5.8 FLA)	½ Hp (4.9 FLA)	B300 - R300	Yes	2 or 3	40 or 70 °C with a minimum distance among relay of 5 mm
41.61	E81856	16 A - 277 V AC (GU-R) 8 A - 277 V AC (B)	1/4 Hp (5.8 FLA)	½ Hp (4.9 FLA)	B300 - R300	Yes	2 or 3	40 or 70 °C with a minimum distance among relay of 5 mm
41.52	E81856	8 A - 277 V AC (GU-R)	/	½ Hp (277 V) (4.1 FLA)	B300	Yes	2 or 3	40 or 70 °C with a minimum distance among relay of 5 mm
43.41	E81856	10 A - 250 V AC (GU-R)	¼ Hp (5.8 FLA)	½ Hp (4.9 FLA)	B300 - R300	Yes	2 or 3	40 or 85 °C
43.61	E81856	10 A - 250 V AC (GU-R) (AgCdO) 16 A - 250 V AC (GU) (AgNi) 16 A - 250 V AC (R) (AgCdO)	¼ Hp (5.8 FLA) (AgCdO) (AgNi) (AgNi)	½ Hp (4.9 FLA) (AgCdO) (AgCdO) (AgNi)	B300 - R300	Yes	2 or 3	40 or 85 °C
44.52	E81856	6 A - 277 V AC (R)	1/8 Hp (3.8 FLA)	1/3 Hp (3.6 FLA)	/	Yes	/	85 °C
44.62	E81856	10 A - 277 V AC (R)	¼ Hp (5.8 FLA)	¾ Hp (6.9 FLA)	/	Yes	/	85 °C
45.71	E81856	16 A - 240 V AC (GU) 16 A - 30 V DC (GU) - (AgCdO) 16 A - 277 V AC (GU) 16 A - 30 V DC - (NO-GU) 12 A - 30 V DC (NC-GU) (AgNi)	½ Hp (9.8 FLA) (AgCdO) 1/3 Hp (7.2 FLA) (AgNi; NO)	1 Hp (8 FLA) (AgNi)	/	Yes	2 or 3	105 or 125 °C with a minimum distance among relay of 10 mm
45.91	E81856	16 A - 277 V AC (GU) 16 A - 30 V DC (GU)	1/6 Hp (4.4 FLA)	½ Hp (4.9 FLA)	/	Yes	2 or 3	105 or 125 °C with a minimum distance among relay of 10 mm
46.52	E81856	8 A - 277 V AC (GU) 6 A - 30 V DC (R)	¼ Hp (5.8 FLA)	½ Hp (4.9 FLA)	B300 - R300	Yes	2 or 3	70 °C
46.61	E81856	16 A - 277 V AC 12 A (NO) - 10 A (NC) 30 V DC (AgNi) 10 A (NO) - 8 A (NC) 30 V DC (AgSnO ₂)	1/3 Hp (7.23 FLA)	¾ Hp (6.9 FLA)	B300 - R300 (AgNi) A300 - R300 (AgSnO ₂)	Yes	2 or 3	70 °C
50	E81856	8 A - 277 V AC (GU) 8 A - 30 V DC (GU)	1/3 Hp (7.2 FLA) (Only NO)	½ Hp (4.9 FLA) (Only NO)	B300 (NO)	Yes	2 or 3	70 °C with a minimum distance among relay of 5 mm

TABLE 2 UL Horsepower and Pilot duty ratings

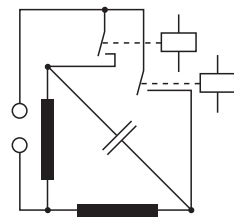
R = Resistive / GP = General Purpose / GU = General Use / I = Inductive (cosφ 0.4) / B = Ballast / NO = NO type

Type	UL file No.	AC/DC	Ratingss "Motor Load" Single phase		Pilot Duty	Open Type Devices	Pollution degree	Max Surrounding Air Temperature
			110-120	220-240				
55.X2 - 55.X3	E106390	10 A - 277 V AC (R) 10 A - 24 V DC (R) - (55.X2) 5 A - 24 V DC (R) - (55.X3)	1/3 Hp (7.2 FLA)	3/4 Hp (6.9 FLA)	R300	Yes	/	40 °C
55.X4	E106390	7 A - 277 V AC (GP) 7 A - 30 V DC (GP) (Std/Au contact) 5 A - 277 V AC (R) 5 A - 24 V DC (R) (AgCdO contact)	1/8 Hp (3.8 FLA)	1/3 Hp (3.6 FLA)	R300	Yes	/	55 °C
56	E81856	12 A - 277 V AC (GU) 12 A - 30 V DC (GU) (AgNi; NO) 8 A - 30 V DC (GU) - (AgNi; NC) 12 A - 30 V DC (GU) - (AgCdO) 10 A - 30 V DC (GU) (AgSnO ₂ ; NO) 8 A - 30 V DC (GU) - (AgSnO ₂ ; NC)	1/2 Hp (9.8 FLA)	1 Hp (8 FLA)	B300	Yes	2 or 3	40 or 70 °C
60	E81856	10 A - 277 V AC (R) 10 A - 30 V DC (GU)	1/3 Hp (7.2 FLA)	1 Hp (8 FLA)	B300 (AgNi only) R300	Yes	/	40 °C
62	E81856	15 A - 277 V AC (GU) 10 A - 400 V AC (GU) 8 A - 480 V AC (GU) 15 A - 30 V DC (GU)	3/4 Hp (13.8 FLA)	2 Hp (12 FLA) 1 Hp (480 V AC - 3 φ) (2.1 FLA) (NO)	B300 (AgCdO) R300	Yes	2 or 3	40 or 70 °C
65.31 65.61	E81856	20 A - 277 V AC (GU)	3/4 Hp (13.6 FLA)	2 Hp (12.0 FLA)	/	Yes	/	40 °C
66	E81856	30 A - 277 V AC (GU) - (NO) 10 A - 277 V AC (GU) - (NC) 24 A - 30 V DC (GU) - (NO)	1 Hp (16.0 FLA) (AgCdO, NO) 1/2 Hp (9.8 FLA) - (AgNi)	2 Hp (12.0 FLA) (NO)	/	Yes	2 or 3	70 °C with a minimum distance among relay of 20 mm
20	E81856	16 A - 277 V AC (R) 1,000 W Tung. 120 V 2,000 W Tung. 277 V	1/2 Hp (9.8 FLA)	/	/	Yes	/	40 °C
85.02 - 85.03	E106390	10 A - 277 V AC (R) 10 A - 24 V DC (R) - (85.X2) 5 A - 24 V DC (R) - (85.X3)	1/3 Hp (7.2 FLA)	3/4 Hp (6.9 FLA)	/	Yes	/	40 °C
85.04	E106390	7 A - 277 V AC (GP) 7 A - 30 V DC (GP)	1/8 Hp (3.8 FLA)	1/3 Hp (3.6 FLA)	/	Yes	/	55 °C
86	E106390	/	/	/	/	Yes	2	35 or 50 °C
99	E106390	/	/	/	/	Yes	2 or 3	50 °C
72.01 - 72.11	E81856	15 A - 250 V AC (R)	/	1/2 Hp (250 V AC) (4.9 FLA)	/	Yes	2 or 3	50 °C
80.01 - 11 - 21 80.41 - 91	E81856	8 A - 250 V AC (R)	/	1/2 Hp (250 V AC) (4.9 FLA)	/	Yes	2	40 °C
80.61	E81856	8 A - 250 V AC (GU;R)	/	1/3 Hp (250 V AC) (3.6 FLA)	R300	Yes	2	40 °C
80.82	E81856	6 A - 250 V AC (GU;R)	/	/	B300 - R300	Yes	2	40 °C

Capacitor start motors: Single phase 230V AC capacitor start motors have a starting current of about 120% of the rated current. However, damaging currents can result from an instantaneous reversal of the direction of rotation. In the first diagram, high circulating currents can cause severe arcing across the contact gap, as the changeover contacts make an almost instantaneous reversal of polarity to the capacitor. Measurements have shown a peak current of 250A for a 50 Watt motor, and up to 900A for a 500 Watt motor. This inevitably leads to welding of the contacts. Reversing the direction of such motors should therefore use two relays, as the second diagram shows, whereby in the control to the relay coils a "dead break" of approximately 300 ms is provided. The delay can either be provided by another control component such as a Timer, or through the Microprocessor etc., or by connecting a suitable NTC resistance in series with each relay coil. Cross interlocking the coil circuits of both relays will not produce the required delay! Moreover, the use of anti-weld contact material will not solve the problem.



Incorrect AC motor reversal:
Contact is in the intermediate state for less than 10ms – insufficient time to allow the energy in the capacitor to dissipate before the electrical connection is remade to the opposite polarity.



Correct AC motor reversal:
Provision of 300 ms "dead break" time when neither relay contacts are closed - during which time the capacitor discharges harmlessly through the motor windings.

Three-phase alternating current loads: Larger three-phase alternating current loads should preferably be switched with contactors according to EN 60947-4-1 Electromechanical contactors and motor starters. Contactors are similar to relays but they have their own characteristics; typically compared to relays:

- They can normally switch different phases at the same time.
- They are physically much larger.
- Their design and construction usually features double break contacts.
- They can withstand certain short-circuit conditions.

There is nevertheless, some overlap between relays and contactors regarding switching characteristics and applications.

However, when switching three-phase alternating current with relays, consider and take into account:

- The isolation co-ordination, i.e. the voltage stress and the degree of pollution between the contacts according to the insulation rated voltage.
- And, avoid the use of the NO relay versions with 3mm contact gaps, unless the isolation afforded by the contact gap is specifically required.

Three-phase motors: Higher power three-phase motors are often switched by a 3-pole contactor, where there is high isolation/separation between phases. However, for space, size and other reasons, relays are also called upon to switch 3-phase motors.

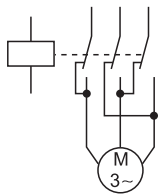
TABLE 3

Motor ratings v relay series

Relay series	Motor Power (400 V 3 phase)		Permissible degree of pollution	Impulse voltage
	kW	PS(hp)		
55.33, 55.13	0.37	0.50	2	4
56.34, 56.44	0.80	1.10	2	4
60.13, 60.63	0.80	1.10	2	3.6
62.23, 62.33, 62.83	1.50	2.00	3	4

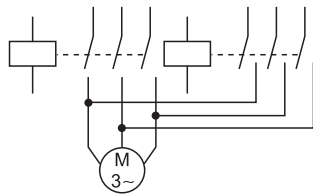
62 series relay is also capable to switch 1 hp 480 V 3 phase motors

Reversing the motor: Take particular care if it is required to change the motor direction by reversing two of the supply phases applied to the motor terminals, as this will result in severe damage unless there is a "dead time" between the changeover. Therefore, use one relay for the forward direction and another for the reverse direction (as the following diagram). And, most importantly, ensure that there is a "dead time" of no less than 50ms - when neither relay coil is energised. Simple cross interlocking of the relay coils will not produce a Time delay! However, choosing a tougher, anti-weld contact material may further improve the reliability and performance, and is advised.



Incorrect three-phase motor reversal:

The electrical stress of opposing phase voltages across the contact gap, together with contact arcing can result in a phase to phase short-circuit.



Correct three-phase motor reversal:

"Dead break" time of >50 ms, during which time neither the Forward nor the Reverse relay contacts are closed.

Notes:

1. For AC3 category (starting and switching off) - motor reversal is only permitted if there is a guaranteed break of 50ms between energisation in one direction and energisation in the other. Observe the maximum starts per hour, according to the motor manufacturer's recommendation.
2. AC4 category (starting, plugging, reversing and inching/jogging) is not possible with relays or small contactors. In particular, the direct reversing of phase connections for "plugging" will result in severe contact arcing leading to a short-circuit within the relay or contactor.
3. Under certain circumstances it may be preferable to use three single pole relays to control each phase individually, and so achieve greater separation between the phases. (Any relatively small time difference between the operation times of the three relays is insignificant compared to the much slower operation of contactors.)

Switching different voltages within a relay: Switching different voltages in a relay e.g. 230 V AC with one contact and 24 V DC with a neighboring contact is possible - provided that the Insulation type between adjacent contacts is at least of Basic level. However, note that the equipment standard might demand a higher level that is not possible using adjacent contacts on the same relay. The possibility of using more than one relay could be considered.

Contact resistance: Measured, according to Application Category (Table 4), at the external terminals of the relay. It is a final test value, not necessarily reproducible subsequently. It has little effect on relay reliability for most applications since a typical value would be < 50 mΩ (measured with 24 V 100 mA).

Contact categories according to EN 61810-7: The effectiveness with which a relay contact can make an electrical circuit depends on several factors, such as the material used for the contact, its exposure to environmental pollution and its design etc.. Therefore, for reliable operation, it is necessary to specify a Contact Category, which is defined in terms of the characteristics of the load. The appropriate Contact Category will also define the voltage and current levels used to measure the contact resistance. All Finder relays are category CC2.

TABLE 4 Contact categories

Contact category	Load characteristic	Contact Resistance Measurement	
		30 mV	10 mA
CC0	Dry circuit	30 mV	10 mA
CC1	Low load without arcing	10 V	100 mA
CC2	High load with arcing	30 V	1 A

TABLE 5 Contact materials characteristics

Material	Property	Typical application
AgNi + Au (Silver Nickel Gold plated)	<ul style="list-style-type: none"> - Silver-nickel base with a galvanic hard gold plating of 5 μm typical thickness - Gold is not attacked by industrial atmospheres - With small loads, contact resistance is lower and more consistent compared to other materials NOTE: 5 μm hard gold plating is completely different to 0.2μm gold flashing, which allows only protection in storing, but no better performance in use. 	<ul style="list-style-type: none"> - Wide range applications: - Small load range (where gold plating erodes very little) from 50 mW (5 V - 2 mA) up to 1.5 W/24 V (resistive load). - Middle load range where gold plating erodes after several operations and the property of basic AgNi becomes dominant. NOTE: for switching lower load, typically 1mW (0.1 V - 1 mA), (for example in measuring instruments), it is recommended to connect 2 contacts in parallel.
AgNi (Silver Nickel)	<ul style="list-style-type: none"> - Standard contact material for most relay applications - High wear resistance - Medium resistance to welding 	<ul style="list-style-type: none"> - Resistive and slightly inductive loads - Rated current up to 12 A - Inrush current up to 25 A
AgCdO (Silver Cadmium Oxide)	<ul style="list-style-type: none"> - High wear resistance with higher AC loads - Good resistance to welding 	<ul style="list-style-type: none"> - Inductive and motor loads - Rated current up to 30 A - Inrush current up to 50 A
AgSnO ₂ (Silver Tin Oxide)	<ul style="list-style-type: none"> - Excellent resistance to welding 	<ul style="list-style-type: none"> - Lamp and capacitive loads - Very high Inrush current (up to 120 A) loads

Coil specification

Nominal voltage: The nominal value of coil voltage for which the relay has been designed, and for which operation is intended. The operating and performance characteristics are with respect to the coil at nominal voltage.

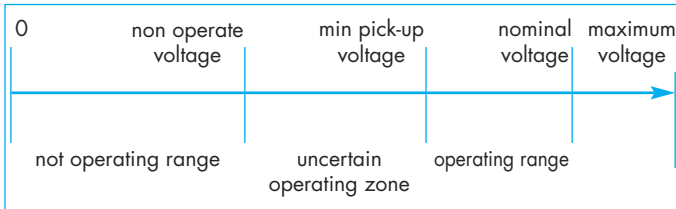
Rated power: The DC power value (W) or the apparent AC power value (VA with closed armature) which is absorbed by the coil at 23°C and at rated voltage.

Operating range: The range of input voltage, in nominal voltage applications, in which the relay works in the whole range of ambient temperatures, according to operating class:

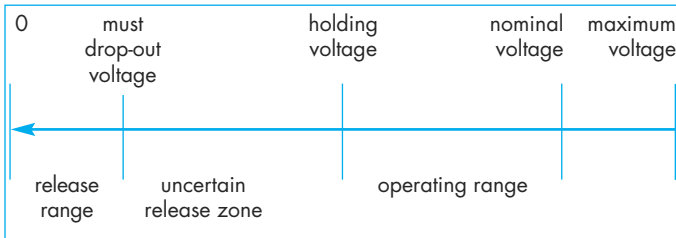
- class 1: (0.8...1.1)U_N
- class 2: (0.85...1.1)U_N

In application where the coil voltage doesn't meet the tolerances of nominal voltage, the diagrams "R" shows the relation of maximum coil voltage permitted and pick-up voltage (without pre-energisation) versus ambient temperature.

ENERGIZATION VOLTAGE



DE-ENERGIZATION VOLTAGE



Non-operate voltage: The highest value of input voltage at which the relay will not operate (not specified in the catalogue).

Minimum Pick-up voltage (Operate voltage): The lowest value of applied voltage at which the relay will operate.

Maximum permitted voltage: The highest applied coil voltage that the relay can continuously withstand, dependent on ambient temperature (see "R" diagrams).

Holding voltage (Non-release voltage): The lowest value of coil voltage at which the relay (which has previously been energised with a voltage within the operating range) will not drop-out.

Must drop-out voltage (Must release voltage): The highest value of coil voltage at which the relay (having previously been energised with a voltage within the operating range) will definitely drop-out. The same "per unit" value can be applied to the nominal coil current value to give an indication of the maximum leakage current that may be permitted in the coil circuit, before problems with relay release might be expected.

Coil Resistance: The nominal value of the coil resistance under the standard prescribed condition of 23°C ambient. Tolerance is ± 10%.

Rated coil consumption: The nominal value of coil current, when energized at nominal voltage (and at 50Hz for AC coils).

Thermal tests: Calculation of the coil temperature rise (ΔT) is made by measuring the coil resistance in a temperature controlled oven (not ventilated) until a stable value is reached (no less than 0.5 K variation in 10 minutes).

$$\text{That is: } \Delta T = (R2 - R1)/R1 \times (234.5 + t1) - (t2 - t1)$$

where:

R1 = initial resistance

R2 = final resistance

t1 = initial temperature

t2 = final temperature

Monostable relay: An electrical relay which, having responded to coil energisation by changing contact state, returns to the previous contact state when the coil energisation is removed.

Bistable relay: An electrical relay, which, having responded to coil energisation by changing contact state, retains that contact state after the coil energisation has been removed. A further energisation of the coil is necessary to cause the contact state to revert.

Latching relay: A bistable relay, where the contacts retain their state due to a mechanical latching mechanism. Subsequent applications of coil energisation causes the contacts to "toggle" open and closed.

Remanence relay: A bistable relay, where the contacts retain their operated (or Set) state due to remanent magnetism in the relay iron circuit caused by the application of a DC current through the coil. Resetting the contact state is achieved by passing a smaller DC current through the coil in the opposite direction. For AC excitation, magnetization takes place via a diode to produce a DC set current, and demagnetising is achieved by applying an AC coil current of lower magnitude.

Insulation

EN/IEC 61810-1 Relay standard:

The "Scope" of the relay standard says of itself "... IEC 61810-1 applies to electromechanical elementary relays (non-specified time all-or-nothing relays) for incorporation into equipment. It defines the basic functional requirements and safety-aspects for applications in all areas of electrical engineering or electronics, such as:

- general industrial equipment,
- electrical facilities,
- electrical machines,
- electrical appliances for household and similar use,
- information technology and business equipment,
- building automation equipment,
- automation equipment,
- electrical installation equipment,
- medical equipment,
- control equipment,
- telecommunications,
- vehicles,
- transportation (e.g. railways)..."

Relay function and Isolation: One of the main functions of a relay is to connect and disconnect different electric circuits, and usually, to maintain a high level of electrical separation between the various circuits. It is therefore necessary to consider the level of isolation appropriate to the application and the task to be performed - and to relate this to the relay's specification.

In the case of electromechanical relays the areas of isolation generally considered are:

- Isolation between coil and all contacts (the "contact set").
Catalogue data - "Insulation between coil and contact set"
- Isolation between physically adjacent, but electrically separate, contacts of a multi-pole relay. Catalogue data - "Insulation between adjacent contacts".
- Isolation between the open contacts (applies to the NO contact, and the NC contact when the coil is energised).
Catalogue data - "Insulation between open contacts".

Specifying isolation levels

There are several ways of specifying or describing the level of isolation offered by, or demanded of, a relay. These include:

Insulation coordination, which focuses on the levels of impulse voltage likely to be seen on the supply lines of the application equipment and the cleanliness of the immediate surroundings of the relay in the equipment. And, as a consequence, it demands appropriate levels of separation between circuits, in terms of isolating distances and quality of insulating material used etc. (see additional information under "Insulation coordination")

Type of insulation; For both equipment and components such as a relay, there are several types (or levels) of insulation that might be demanded between the various circuits. The appropriate type will depend on the specific function being performed, the voltage levels involved, and the associated safety consequences. The various types of insulation are listed below, and those appropriate to each relay series are stated within the relay data; Specifically, within the table under the section entitled **Technical data**, sub-heading; Insulation.

Functional insulation; Insulation between conductive parts, which is necessary only for the proper functioning of the relay.

Basic insulation; Insulation applied to live parts to provide basic protection against electric shock.

Supplementary insulation; Independent insulation applied in addition to basic insulation, in order to provide protection against electric shock in the event of a failure of basic insulation.

Double insulation; Insulation comprising both basic insulation and supplementary insulation.

Reinforced insulation; A single insulation system applied to live parts, which provides a degree of protection against electric shock equivalent to double insulation.

(Usually, the decision as to the appropriate type of insulation will have already been made by the equipment standard.)

Dielectric strength, and high voltage impulse tests; These are either, final inspection or Type tests, which prove the level of isolation in terms of the minimum voltage stress that can be withstood, between the various specified electrical circuits. As the *only* method of specifying and checking for adequate isolation, this tends to be the more historical approach. However, there are still some dielectric strength requirements to be found within both the Insulation coordination approach and the Level of Insulation approach.

Insulation coordination: In accordance with EN 61810-1 and IEC 60664-1:2003, the Insulation characteristics offered by a relay can be described by just two characteristic parameters – the **Rated Impulse Voltage** and the **Pollution Degree**.

To ensure the correct Insulation Coordination between the relay and the application, the equipment designer (relay user) should establish the **Rated Impulse Voltage** appropriate to his application, and the **Pollution Degree** for the microenvironment in which the relay is situated. He should then match (or coordinate) these two figures with the corresponding values given in the appropriate relay data, under the section entitled **Technical data**, sub-heading; Insulation.

Rated Impulse Voltage; To establish the appropriate Rated Impulse Voltage refer to the appropriate Equipment Standard which may specify mandatory values for equipment being designed. Alternatively, using the Rated Impulse Voltage table (Table 6) with knowledge of the Nominal Voltage of the Supply System and knowledge of the Overvoltage Category, determine the appropriate Rated Impulse Voltage.

Overvoltage Category; this is described in IEC 60664-1, but is also summarised in the footnotes to Rated Impulse Voltage table. Alternatively, it may be specified in the equipment standard.

Pollution Degree; determine this by considering the immediate surroundings of the relay (refer to Pollution Degree table 7). Then check that the relay specification offers the appropriate (or better) Rated Impulse Voltage and Rated Insulation Voltage, for that Pollution Degree.

Nominal voltage of supply system: This effectively describes the source of the power supply system, so 230/400 V AC indicates that this would

be (or is likely to be) a three-phase sub-station transformer with a Neutral connection. Being aware of the source of the supply system is important since (in conjunction with the Overvoltage category) it determines the typical levels of impulse voltage likely to be seen on the supply lines, and this has to be taken into account in the designing of the relay. However, it does not necessarily follow that the relay will be rated by the manufacturer for use at the highest voltage of the supply system. It is the declared Rated Insulation Voltage that confirms this aspect.

Rated Insulation Voltage: This is a notional value of voltage that indicates the relay's insulation as being suitable for handling voltages up to this level. Note that this notional Rated Insulation Voltage is selected from a list of preferred values. For Finder relays, 250 V and 400 V are two such preferred values, and of course they will cover respectively, the 230 V L-N and 400 V L-L voltages commonly encountered in practice.

TABLE 6 Rated impulse voltage

Nominal voltage of the supply system ⁽¹⁾ V		Rated insulation voltage V	Rated impulse voltage kV			
Three-phase systems	Single-phase systems		Overvoltage category			
			I	II	III	IV
	120 to 240	125 to 250	0.8	1.5	2.5	4
230/400		250/400	1.5	2.5	4	6
277/480		320/500	1.5	2.5	4	6

(1) In accordance with IEC 60038.

Remark: The descriptions of overvoltage categories below are for information. The actual overvoltage category to be considered has to be taken from the product standard defining the application of the relay. **Overvoltage category I** Applies to equipment intended for connection to fixed installations of buildings, but where measures have been taken (either in the fixed installation or in the equipment) to limit transient overvoltages to the level indicated.

Overvoltage category II Applies to equipment intended for connection to fixed installations of buildings.

Overvoltage category III Applies to equipment in fixed installations, and for cases where a higher degree of availability of the equipment is expected.

Overvoltage category IV Applies to equipment intended for use at or near the origin of the installation, from the main distributor towards the supply mains.

TABLE 7 Pollution degree

Pollution degree	Immediate surroundings of relay
1	No pollution or only dry, non-conductive pollution occurs. The pollution has no influence.
2	Only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected.
3	Conductive pollution occurs or dry, non-conductive pollution occurs which becomes conductive due to condensation, which is to be expected.

Dependent on the product standard, pollution degree 2 and 3 are commonly prescribed for equipment. For example, EN 50178 (electronics for use in power installations) prescribes, under normal circumstances, contamination level 2.

Dielectric strength: This can be described in terms of an AC voltage test, or in terms of an Impulse (1.2/50 µs) voltage test. (The correspondence between the AC test and Impulse voltage test is listed in IEC 60664-1 Annex A, Table A.1).

All Finder relays receive a 100 % final inspection AC (50Hz) dielectric strength test; applied between all contacts and coil, between adjacent contacts, and across open contacts. The leakage current must be less than 3 mA.

For Type testing, both AC and Impulse voltage dielectric strength tests are applied.

Insulation Group: This was the older Insulation Group classification (such as C 250), which was according to the VDE 0110 standard. They have largely been replaced with the more recent way of specifying insulation properties, according to Insulation Coordination.

SELV, PELV and Safe separation: Insulation Coordination as described earlier ensures the isolation of hazardous voltages from other circuits to a safe engineering level, but may not be adequate on its own if the design of the equipment permits the LV circuit to be accessible and therefore able to be touched directly or, where the nature and location of the electrics presents extra dangers. Therefore, for these extra dangerous applications (such as swimming pool lighting or bathroom electrics) there can be a need for a special low voltage supply system (SELV or PELV), that is inherently safe and highly secure, working at low voltage and with much higher levels of physical isolation and integrity between it and other hazardous circuits.

The SELV (Separated Extra Low Voltage) system is achieved by designing with double or reinforced insulation and by ensuring "safe separation" from hazardous circuits in accordance with regulations for SELV circuits. The SELV voltage (which is isolated from Ground) must be derived via a safety transformer meeting double or reinforced isolation between the windings, as well as other safety requirements demanded by the appropriate standard.

Note: The value for the "safe voltage" can differ slightly dependent upon the particular application or end product regulation. There are specific requirements for keeping SELV circuits and wiring separate from other hazardous circuits, and it is this aspect concerning the separation of the coil to contacts that is met by several Finder relays as standard, and as a special version of the 62 series of relays - where an additional barrier is a special option.

The PELV system (Protected Extra Low Voltage), like the SELV system, requires a design that guarantees a low risk of accidental contact with a high voltage, but in contrast, it has a protective earth (ground) connection. Like SELV, the transformer can have windings separated by double or reinforced isolation, or by a conductive shield with a protected earth connection.

Consider a common situation, where the mains voltage of 230 V and a low voltage circuit both appear within a relay; all the following requirements must be met by the relay - and also applied to the connections/wiring to it.

- The low voltage and the 230 V must be separated by double or reinforced insulation. This means that between the two electrical circuits there must be guaranteed a dielectric strength of 6 kV (1.2/50 μ s), an air distance of 5.5 mm and, depending on the pollution degree and on material used, an appropriate tracking distance.
- The electrical circuits within the relay must be protected against any possibility of bridging, caused for instance by a loose metal part. This is achieved by the physical separation of circuits into isolated chambers within the relay.
- The different voltage wiring connected to the relay must also be physically separated from each other. This is normally achieved by using separate cable channels.
- For relays mounted on printed circuit boards the appropriate distance between the tracks connected to low voltage and the tracks connected to other voltages must be achieved. Alternatively, earth barriers can be interposed between hazardous and safe parts of the circuitry.

Although this appears quite complex, with the SELV capability/options offered by some Finder relays, the user only needs to address the two last points. And, when using a socket where the coil and contact connections are on opposite sides, the separation of wiring into different cable channels is greatly facilitated.

General technical data

Cycle: The operate and subsequent release of a relay. Over a cycle, the coil is energised and de-energised, and a (NO) contact will have progressed through a cycle of making circuit, through to breaking the circuit, back to the point at which it is just about to re-make the circuit.

Period: The time taken by one cycle.

Duty factor (DF): During cyclic operation, the Duty Factor is the ratio between the time the relay is energized, to the time taken for one cycle (ie the Period). For continuous duty, the DF = 1.

Continuous operation: This would represent the condition where the coil is permanently energized, or is energized for at least sufficient time for the relay to reach thermal equilibrium.

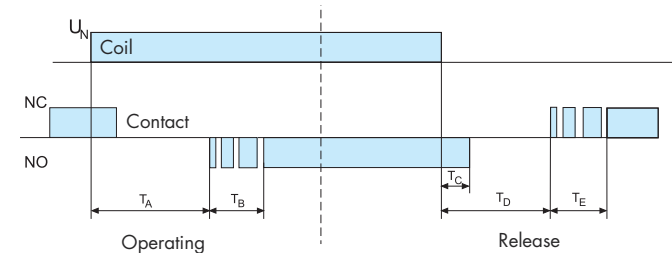
Mechanical life: This is derived from a test performed by energising the coils of several relays at 5 to 10 cycles per second without any load applied to the contacts. It establishes the ultimate durability of the relay where electrical wear of the contacts is not an issue. The maximum Electrical Life may therefore approach the Mechanical Life where the electrical loading of the contacts is very small.

Operate time: The typical time (average of values measured supplying the relay coil with the nominal DC voltage) for the NO contact to close, from the point of coil energisation. It does not include the bounce time (see following pattern).

Release time

- For CO relays: The typical time (average of values measured removing from the coil the DC voltage) for the NC contact to close, from the point of coil de-energisation. It does not include the bounce time.
 - For NO relays: The typical time (average of values measured removing from the coil the DC voltage) for the NO contact to open, from the point of coil de-energisation. It does not include the bounce time.
- Note: The release time will increase if a suppression diode in parallel with the coil is employed (either in the form of; a coil protection module; integrated option within the relay; or mounted directly on the pcb).

Bounce time: The typical time duration (average of values measured) while closing contacts bounce, before attaining a stable closed state. Different values generally apply to NO and NC contacts.



- T_A Operate time
- T_B Bounce time for NO contact
- T_C Release Time (NO relays)
- T_D Release Time (CO relays)
- T_E Bounce time for NC contact

Ambient temperature: The temperature of the immediate area where the relay is located. It will not necessarily correspond to the ambient temperature either within, or external to, the enclosure in which the relay is located.

To accurately measure the ambient temperature with respect to the relay, remove the relay from its location whilst maintaining the worst-case energisation of all the other relays and components within the enclosure or panel. Measuring the temperature at the position vacated by the relay will give the true ambient temperature in which the relay is working.

Ambient temperature range: The temperature range over which, operation of the relay is guaranteed (under prescribed conditions).

Storage temperature range: This can be taken as the ambient temperature range, with the upper and lower limits extended by 10 °C.

Environmental protection: according to EN 61810-1
The RT categories describe the degree of sealing of the relay case:

Environmental protection category	Protection
RT 0 Unenclosed relay	Relay not provided with a protective case.
RT I Dust protected relay	Relay provided with a case, which protects its mechanism from dust.
RT II Flux proof relay	Relay capable of being automatically soldered without allowing the migration of solder fluxes beyond the intended.
RT III Wash tight relay	Relay capable of being automatically soldered and subsequently undergoing a washing process to remove flux residues without allowing the ingress of flux or washing solvents.

Special application categories

RT IV Sealed relay	Relay provided with a case which has no venting to the outside atmosphere.
RT V Hermetically sealed relay	Sealed relay having an enhanced level of sealing.

Protection category: according to EN 60529.

The first digit is related to the protection against the intrusion of solid foreign objects into the relay, and also against access to hazardous parts. The second digit relates to the protection against ingress of water. The IP category relates to the relay, when used normally in relay sockets or PC boards.

For sockets, IP20 signifies that the socket is "finger-safe" (VDE0106).

IP Examples:

IP 00 = Not protected.

IP 20 = Protected against solid foreign objects of 12.5 mm Ø and greater. Not protected against water.

IP 40 = Protected against solid foreign objects of 1 mm Ø and greater. Not protected against water.

IP 50 = Protected against powder (ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the relay). Not protected against water.

IP 51 = As IP 50, but with protection against vertically falling drops of water.

IP 54 = As IP 50, but with protection against sprayed from all directions – limited ingress permitted.

IP 67 = Totally protected against powder (dust-tight) and protected against the effects of temporary immersion in water.

Vibration resistance: The maximum level of sinusoidal vibration, over the specified frequency range, which can be applied to the relay in the X-axis without the opening (for more than 10 µs) of the NO contact (if the coil is energised) or NC contact (if the coil is not energised). (The X-axis is the axis through the plane of the relay face containing the relay terminals). The vibration resistance is usually higher in the energised state, than in the non-energised state. Data for other axes and frequency ranges, on request. The level of vibration is given in terms of the maximum acceleration of the sinusoidal vibration, "g" (where $g = 9.81 \text{ m/s}^2$). But note: the normal testing procedure according to IEC 60068-2-6 prescribes to limit the maximum peak-to-peak displacement in the lower range of frequencies.


Shock resistance: The maximum mechanical shock (half-sine 11ms waveform) permitted in the X-axis without contact opening > 10 µs. Data for other axes on request.

Installed orientation: The component's specification is unaffected (unless expressly stated otherwise) by its orientation, (provided it is properly retained, eg by a retaining clip in the case of socket mounted relays.)

Power lost to the environment: The value of the power lost from the relay with the coil energised (without contact current, or with full rated current through all NO contacts). This may be used in the thermal design and regulation of the control panel.

Recommended distance between relays mounted on printed circuit boards: This is the minimum mounting distance suggested when several relays are mounted on the same PC board. Care and consideration shall be given to ensure that other components mounted on the PC board do not heat the relay and raise its microenvironment beyond the permitted maximum ambient temperature.

Torque: The maximum value of torque that can be used for tightening terminal screws, according to EN 60999, is 0.4 Nm for M2.5 screws, 0.5 Nm for M3 screws, 0.8 Nm for M3.5 screws, 1.2 Nm for M4 screws. The test torque is indicated in the catalogue. Normally a 20% increase of this value is acceptable.

 Both slot-head and cross-head screwdrivers can be used.

Minimum Wire size: For all types of terminal, a minimum cross-section of 0.2 mm² is permitted.

Max. wire size: Maximum cross-section of cables (solid or stranded wire, without ferrules) that can be connected to each terminal. For use with ferrules, the wire cross-section has to be reduced (e.g. from 4 to 2.5 mm², from 2.5 to 1.5 mm², from 1.5 to 1 mm²).

Terminating more than one wire: EN 60204-1 permits 2 or more wires to be terminated in the same terminal. All Finder products are designed in such a way that each terminal can accept 2 or more wires, except screwless terminals.



Box clamp: wires are terminated within a box shaped clamp. Effective retention of solid, stranded and "bootlace" wires, but not suitable for wires terminated with "fork" style terminations.



Plate clamp: wires are terminated under the pressure of a clamp plate. Effective for "fork" terminated wires and solid wire, but less so for stranded wire.



Screwless terminal (Spring clamp): wires are terminated under the pressure of a spring clamp. The clamp being temporarily held open by the insertion of a tool, while the wire is inserted.

SSR – Solid State Relay

SSR Solid State Relay: A relay utilising semiconductor technology, rather than electromechanical. In particular, the load is switched by a semiconductor and consequently these relays are not subject to burning of contacts and there is no migration of contact material. SSRs are capable of very high speed switching and virtual unlimited life. However, SSRs for switching DC are polarity sensitive and consideration must given to the maximum permitted blocking voltage.

Opto-coupler: For all SSR relays in the catalogue, the electrical isolation between Input and Output circuits is provided by the use of an opto-coupler.

Switching voltage range: The minimum to maximum (nominal) range for the load voltage. (The maximum value can be extended to cover the normal upper tolerance expected for the load voltage supply.)

Minimum switching current: The minimum value of load current necessary to ensure correct switch-on and switch-off action.

Control current: The nominal value of input current, at 23 °C and with rated voltage applied.

Maximum blocking voltage: The maximum level of output (load) voltage that the SSR can withstand.

Relay with forcibly guided (mechanically linked) contacts, or safety relay

A relay with forcibly guided contacts is a special type of relay which must satisfy the requirements of a very specific safety EN standard. Such relays are used within safety systems to guarantee their operational safety and reliability, contributing to a safe working environment.

Such relays must have at least one NO and one NC forcibly guided contact. These contacts must be mechanically linked, such that if one of the contacts fails to open, the other is prevented from closing (and vice versa).

This requirement is fundamental in order to identify with certainty the non-correct operation of a circuit. For example, a failure of a NO contact to open (for example, by welding closed) is identified by the failure of the NC from closing, thereby signaling an operational anomaly. Under such circumstances, the standard requires a guaranteed contact gap of 0.5 mm to be maintained.

EN 50205 is the standard that establishes the requirements for relays with forcibly guided contacts, and it describes two types:

- Type A: where all the contacts are forcibly guided
- Type B: where only some contacts are forcibly guided

According to EN50205, in a relay with changeover contacts, only the NO of one pole and the NC of the other pole can be considered as forcibly guided contacts. In the case of the 50 series relay this means the remaining poles cannot be considered as forcibly guided and therefore this relay is categorised as "Type B".

However, since the 7S relay series offer only NO and NC contacts they can be categorized as "Type A".

Monitoring and Measuring relays

Supply voltage monitoring: The supply voltage being monitored also provides the operating power for the unit, so an auxiliary supply is not necessary. (Not applicable to the Universal voltage monitoring relay 71.41)

3-phase asymmetry monitoring: In a 3-phase system, asymmetry is present if at least one of the three L - L voltage vectors fails to be at 120° with respect to the other L - L voltage vectors.

Detection level: For monitoring relays, this represents, either fixed or adjustable level(s) of voltage, current or phase asymmetry, which define the acceptable limits of operation. Values outside acceptable limits will cause the output relay NO contact to open (after any intentional delay).

Switch-on lock-out time: for over and under voltage monitoring relays this is a selectable time delay to ensure that the output relay cannot re-energise too quickly (following a trip and the re-establishment of healthy conditions). Protects equipment where a quick succession of restarts might cause overheating and damage. Same delay applies immediately following "power-on".

Start delay (T2): Current monitoring relay 71.51; immediately on the detection of current flow (following a period of no current flow) "out of limits" current detection is inhibited for time period T2. Useful for ignoring inrush currents that commonly occur at switch-on of sodium lamps or motors etc.

Switch-off time: This refers to the time taken for the output relay to de-energise, following the detection of conditions requiring this. Depending on the particular monitoring relay, a short time may be demanded (ie. <0.5 secs – 72.31), or in the case of the 71.41 a longer delay may be preferred (ie, variable 0.1 to 12 secs). In the case of the latter, this delay is useful for ignoring momentary or short-term excursions of the measured/monitored value outside of limits.

Trip on-delay: Similar in effect to the switch-off delay, this delays the "trip" signal that would result in the output relay switching off. The term is used primarily for monitoring relays which monitor and act according to several parameters. But the effect is the same, and momentary or short-term excursions of the measured/monitored values outside of limits are ignored.

Run-on time: With liquid level control relays the pump motor can be turned on (or off) within 0.5 to 1 second of the liquid reaching or departing the level of the electrode. Depending on model, this delay can be increased up to 7 seconds, which will have the effect of the liquid level running past the electrode level. This can help prevent "hunting" of the motor, which might otherwise have happened due to ripples, or foam, on the surface of the liquid.

Reaction time: For monitoring relays, this is the maximum time taken by the electronics to respond to changes in the monitored value.

Fault memory: For monitoring relays; selecting this function will inhibit the automatic reset following clearing of fault condition. Reset can only be made by positive intervention.

Fault memory - status retained on power down: As above but the fault memory status will be retained during power down.

Switch-ON hysteresis: For monitoring relays type 71.41 and 71.51, the switch-on level can be off-set from the set level by a (hysteresis) percentage. The desired percentage can be selected during relay set-up.

Thermistor temperature sensing: Over-temperature monitoring via a PTC resistance sensor, with in-built checking for sensor open or short circuit faults.

Level control relay: Detects the level of conductive liquids by measuring and evaluating the resistance between either 2 or 3 level electrodes.

Electrode voltage: For level control relays, this is the nominal voltage between electrodes. Note: this voltage is an alternating voltage, so as to avoid the effects of electrolytic corrosion.

Electrode current: For level control relays, this is the nominal (AC) electrode current.

Max. sensitivity: For level control relays: the maximum sensitivity is the maximum resistance between the electrodes that will be recognised as indicating the presence of liquid. This may be fixed, or adjustable over a range - according to type.

Sensitivity, fixed or adjustable: The resistance value between the electrodes B1-B3 and B2-B3 is used to determine if there is a conductive liquid between the electrodes. The sensitivity is either a fixed level (type 72.11) or an adjustable value (type 72.01). The latter is useful for "tuning out" any false detection of the fluid level arising from detecting surface foam (or head), rather than the liquid itself.

Positive safety logic: Positive logic means that the make contact is closed, if the level or parameter which is being monitored lies within the target range. The make contact opens, after a delay if appropriate, if the level falls outside of the target range, or level.

Timers

Specified time range: the minimum and maximum limits of, one or more time ranges, over which it is possible to set the desired time.

Repeatability: The difference between the upper and lower limits of a range of values taken from several time measurements of a specified time relay under identical stated conditions. Usually repeatability is indicated as a percentage of the mean value of all measured values.

Recovery time: The minimum time necessary before re-starting the timer function - in order to maintain the defined timing accuracy.

Minimum control impulse: The minimum duration of a control impulse (Terminal B1) necessary to ensure the complete and proper time function.

Setting accuracy: The difference between the measured value of the specified time and the reference value set on the scale.

Light dependent relays

Threshold setting: The ambient light level setting, measured in lux (lx), at which the output relay switches on (following the elapse of the ON Delay time). This is adjustable over the range specified in the specification. The relay will switch off, dependent upon the type of Light dependent relay used, at either the same or a higher brightness value (following the elapse of the OFF Delay time).

Delay time: switching ON/OFF For light-dependent relays this is an intentional delay in the response of the output relay, following a change of state within the electronic light sensitive circuit (usually indicated by change of state of an LED).

This is to eliminate the possibility of the output relay unnecessarily responding to a momentary change in ambient light level.

Time switches

1 or 2 pole output types: The 2 pole output type (12.22) can have both contacts programmed independently of each other.

Type of time switch:

Daily The programmed operational sequence of the time switch repeats itself daily.

Weekly The programmed operational sequence of the time switch repeats itself weekly.

Programs: For electronic digital time switches, this is the maximum number of switching times that can be stored in memory. A switching time can be used for more than one day (ie. It could apply to Mon, Tues, Wed, Thurs and Friday), but will only use one memory location.

For mechanical daily time switches, this is the maximum number of switching points during the day that can be set.

Minimum interval setting: For time switches, this it is the minimum time interval that can be programmed.

Power back-up: The time, following a power failure, over which the time switch will retain the stored programs and the elapsed time information.

Step relays and staircase timers

Minimum/Maximum impulse duration: For step relays there is a minimum and a maximum time period for coil energisation. The former is necessary to ensure a full and complete mechanical step action, while exceeding the latter would result in coil overheating and damage.

With the electronic staircase timer, there is no limit to the maximum time for impulse duration.

Max. number of illuminated push-buttons: For step relays and staircase switches, this is the maximum number of illuminated push-buttons (having current absorption < 1 mA @ 230 V AC) that can be connected without causing problems. If the push-button consumption is higher than 1 mA, the maximum number of push-buttons allowed is proportionally reduced. (ie. 15 push-buttons x 1 mA is equivalent to 10 push-buttons x 1.5 mA).

Glow wire conformity according to EN 60335-1

European standard EN 60335-1:2002, "Household and similar electrical appliances - Safety - Part 1: General requirements"; Paragraph 30.2.3 prescribes that insulated parts supporting connections that carry current exceeding 0.2 A (and the insulated parts within a distance of 3 mm from them), must comply with the following 2 requirements with respect to resistance to fire:

1. GWFI (Glow Wire Flammability Index) of 850 °C - Compliance with glow wire flammability test at 850 °C (according to EN 60695-2-12: 2001).

2. GWIT (Glow Wire Ignition Temperature) of 775 °C according to EN 60695-2-13:2001 - This requirement can be verified with a GWT (Glow Wire Test according to EN 60695-2-11: 2001) at a value of 750 °C with a flame extinction within 2 seconds.

The following Finder products comply with the above mentioned requirements;

- electromechanical relays of series **34, 40, 41, 43, 44, 45, 46, 50, 55, 56, 60, 62, 65, 66**
- PCB socket types **93.11, 95.13.2, 95.15.2, 95.23.**

Important note: Whilst EN 60335-1 permits the application of an alternative needle flame test (if the flame during test no. 2 burns longer than 2 seconds) this can result in some limitation in the relay's mounting

position. Finder products however, have no such limitations, since the materials used do not require the alternative test method to be performed.

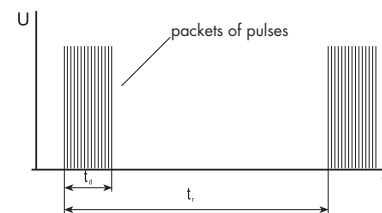
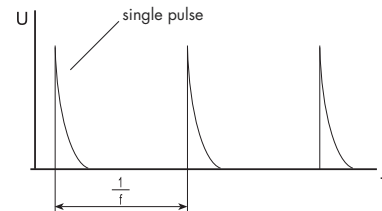
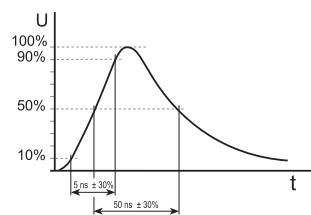
EMC (ElectroMagnetic Compatibility) Standards

Type of test	Reference standard
Electrostatic discharge	EN 61000-4-2
Radio-frequency electromagnetic field (80 ÷ 1,000 MHz)	EN 61000-4-3
Fast transients (burst) (5-50 ns, 5 kHz)	EN 61000-4-4
Surges (1.2/50 µs)	EN 61000-4-5
Radio-frequency common mode disturbances (0.15 ÷ 80 MHz)	EN 61000-4-6
Power-frequency magnetic field (50 Hz)	EN 61000-4-8
Radiated and conducted emission	EN 55011 / 55014 / 55022

In panel installations, the most frequent and, particularly, more dangerous type of electrical disturbances are the following:

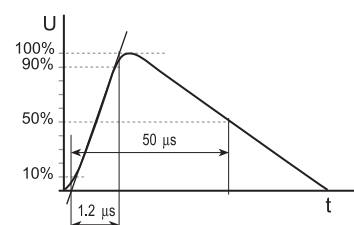
1. **Burst** (fast transients). These are packets of **5/50 ns** pulses, having high peak voltage level but low energy since individual pulses are very short - 5 ns rise time (5×10^{-9} seconds) and 50 ns fall time.

They simulate the disturbances that can spread along the cables as a consequence of commutation transients from relays, contactors or motors. Usually they are not destructive, but they can affect the correct working of electronic devices.



2. **Surge** (voltage pulses). These are single **1.2/50 µs** pulses, with energy much higher than bursts since the duration is considerably longer - 1.2 µs rise time (1.2×10^{-6} seconds) and 50 µs fall time.

For this reason they are very often destructive. The Surge test typically simulates disturbances caused by the propagation of atmospheric electrical storm discharges along electrical lines, but often the switching of power contacts (such as the opening of highly inductive loads) can cause disturbances that are very similar, and equally destructive. The test levels **V** (peak values of the single pulses) are prescribed in appropriate product standards:



- EN 61812-1 for electronic timers;
- EN 60669-2-1 for electronic relays and switches;
- EN 61000-6-2 (generic standard for immunity in the industrial environment) for other electronic products for industrial application;
- EN 61000-6-1 (generic standard for immunity in the domestic environment) for other electronic products for domestic application.

Finder electronic products are in accordance with European EMC Directive 2004/108/EC and indeed, have immunity capabilities often higher than the levels prescribed in the above mentioned standards. Nevertheless, it is not impossible that some working environments may impose levels of disturbances far in excess of the guaranteed levels, such that the product could be immediately destroyed!

It is therefore necessary to consider Finder products as not being indestructible under all circumstances. The user should pay attention to the disturbances in electrical systems and reduce as much as possible these disturbances. For example, employ arc suppression circuits on the contacts of switches, relays or contactors which otherwise might produce over-voltages when opening electrical circuits (particularly highly inductive or DC loads). Attention should also be paid to the placement of components and cables in such a way as to limit disturbances and their propagation.

EMC rules: Require that it is the equipment designer who must ensure that the emissions from panels or equipment does not exceed the limits stated in EN 61000-6-3 (generic standard for emission in the domestic environment) or 61000-6-4 (generic standard for emission in the industrial environment) or any product specific harmonised EMC standard.

Reliability (MTTF & MTBF for equipment)

MTTF - Mean Time To Failure: The predominant failure mode for elementary relays is attributable to the wear-out mechanism affecting the relay's contacts. This can be expressed in terms of MCTF (Mean Cycles To Failure).

With knowledge of the frequency of operation (cycling rate) of the relay within the equipment, the number of cycles can be simply transformed into a respective time, giving the effective MTTF value for the relay in that application. See B10 description below for information on how to estimate the MCTF for Finder relays.

MTBF - Mean Time Between Failures Relays are generally considered to be non-repairable items and consequently would require replacement following failure. Consequently, if a worn relay within equipment were replaced, its MTTF value would be appropriate in calculating the MTBF (Mean Time Between Failure) for the equipment.

B₁₀ - Statistical 10% fractile of lifetime: The electrical contact life for a Finder relay, as indicated by its associated "F" chart, can be taken as the relay's B₁₀ statistical life figure. This being the expected time at which 10% of the population will fail. There is a relationship between it and the MCTF value, and generally for a Finder relay this is approximately $MCTF = 1.4 \times B_{10}$. See Electrical life "F-chart" section for more information.

The RoHS & WEEE directives

Recent directives approved by the European Union aim to reduce potentially hazardous substances contained in electrical and electronic equipment - minimising risks to health and the environment, and guaranteeing the safe reuse, recycling or ultimate disposal of equipment.

RoHS Directive

As of 1 July, 2006, European directive 2002/95/CE dated 27 January 2003 (known as the RoHS directive - "Restriction of Hazardous Substances") and its amendments 2005/618/EC, 2005/717/EC, 2005/747/EC limits the use of substances, considered potentially damaging to human health if contained in electrical and electronic equipment. Restricted materials:

- Lead
- Mercury
- Hexavalent chromium
- PBB (Polybromide biphenyl)
- PBDE (Polybromide diphenyl ether)
- Cadmium (With certain exceptions, including contact materials)

Scope of applications subject to the RoHS & WEEE directives

Categories of electrical and electronic equipment covered by the directives

- Large household appliances
- Small household appliances
- IT and telecommunications equipment
- Consumer equipment
- Lighting equipment
- Electrical and electronic tools (with the exception of large-scale stationary industrial tools)
- Toys, leisure and sports equipment
- Automatic dispensers
- (WEEE only) Medical devices (with the exception of all implanted and infected products)
- (WEEE only) Monitoring and control instruments (for example control panels)

Conformance of Finder products to the RoHS directive

Following a transitional period from December 2004 to June 2006, all Finder products manufactured since the latter date are fully RoHS compliant.

CADMIUM

Following the European Commission decision 2005/747/EC dated 21st October 2005, cadmium and its compounds are now permitted in electrical contacts. Consequently, relays with AgCdO contacts are acceptable in all applications. However, if required, the majority of Finder relays are currently available in "Cadmium-free" versions (for example, AgNi or AgSnO₂). But, it should be noted that AgCdO achieves a particularly good balance between the electrical life and the switching capacity of, for example, solenoids and inductive loads in general (particularly DC loads), motor loads and higher power resistive loads. Alternative materials such as AgNi and AgSnO₂, do not always offer the same performance for electrical life as AgCdO, although this depends on both the type of load and application (see Table 5 under Contact specification section).

WEEE directive

European directive 2002/96/CE dated 27 January 2003 (known as the WEEE directive - "Waste Electrical and Electronic Equipment") contains measures and strategies for the safe and environmentally sound disposal of waste derived from electrical equipment. (This directive is not directly applicable to Finder products as it applies to equipment, rather than components).

SIL and PL categories

SIL and PL categories relate to the statistical reliability of Safety Related Electrical Control Systems (SRECS), and not directly to components, such as relays, used in such systems.

It is therefore not possible, or appropriate, to quote a PL or SIL class against a relay. SIL and PL categories relate only to the SRECS and can only be calculated by the system designer.

However, the following section may be useful for those engineers incorporating Finder relays into SRECS systems.

SIL Classes - according to EN 61508

EN 61508:2 describes the requirements for security of Safety Related Electrical/electronic/programmable Control Systems (SRECS). It is a "sector independent" wide ranging standard - describing some 350 aspects that need to be considered in order to define the safety and performance required from such as system.

The SIL (Safety Integrity Level) classifies, as one of 4 classes (SIL 0 to SIL 3), the dangers and risks that would be consequential to a particular application malfunctioning. This in turn generates the need for any associated SRECS to perform with an appropriate level of reliability. Applications, where the consequences of a failure of the control system are assessed as low (SIL 0) can tolerate a relatively high statistical probability of a control system failure occurring.

Conversely, applications where the dangerous consequences of a failure of the control system are assessed as very high (SIL 3) cannot tolerate anything other than a control system with the highest (statistically assured) reliability.

The reliability of the (overall) control system is specified in terms of the „Statistical probability of a dangerous system failure per hour“.

Note: EN61508 is not a prescribed standard under the EU Machinery Directive because it is primarily intended for complex systems such as chemical plants and power stations, or for use as a generic standard for other applications.

PL Classes - according to EN 13849-1

EN 13849-1 is specifically intended to cover machines and process plant.

Similar to EN 61508, this standard, classifies the danger and risks into one of five PL (Performance Level) classes. Described against each class is the required reliability for the (overall) control system, defined in terms of “statistical probability of a dangerous system failure per hour”.

Points of commonality between EN 61508 and EN13849-1

The numeric values for the “statistical probability of a dangerous fault per hour” are to a large extent the same for EN 61508 and EN13849-1. SIL 1 corresponds to PL B & C, SIL 2 corresponds to PL D and SIL 3 corresponds to PL E.

Both EU standards define the statistical probability of a SERCS failure, and not the failure of a component. It is the responsibility of the system designer to ensure that a failure of a component does not compromise the required safety integrity of the system.

Component reliability

The safety control system designer needs to take into account the reliability of components. Accordingly, the most predictable failure for a relay is contact wear-out at moderate to high contact loading. But, as relay reliability standard EN 61810-2:2005 emphasises, relays are not repairable, and this in particular needs to be taken into account when estimating the “statistical probability of a dangerous system failure per hour”. See Reliability section.

Summary

- SIL and PL categorisation applies to systems and not to components.
- PL classes apply to machines and process plant, while SIL classes relate to more complex systems.
- EN 13849, with PL classifications, is expected to take effect from 2009 and will be mandatory, and as a consequence, component manufacturers will need to provide reliability data.
- For relays, the number of switching cycles before failure is predominantly determined by the life of the contacts, and consequently is dependent upon contact loading. The F-diagrams in the Finder catalogue can be regarded as indicating the B_{10} value of a Weibull type distribution of electrical life (for a 230 V AC1 load); from which the MCTF can be derived and used ultimately in calculating the “statistical probability of a dangerous system failure per hour” for the safety control system.

IEC EN 61508 (Safety Integrity Level)	“Statistical probability of a dangerous system failure per hour”	EN 13849-1 (Performance Level)
No special safety requirements	$\geq 10^{-5} \dots < 10^{-4}$	A
1	$\geq 3 \times 10^{-6} \dots < 10^{-5}$	B
	$\geq 10^{-6} \dots < 3 \times 10^{-6}$	C
2	$\geq 10^{-7} \dots < 10^{-6}$	D
3	$\geq 10^{-8} \dots < 10^{-7}$	E

Certifications and Quality Approvals

		CE	EU	
	Asociación de Normalización y Certificación, A.C.	ANCE	Mexico	
	China quality Certification Centre	CCC	China	
	Canadian Standards Association	CSA	Canada	
	UL International Demko	D	Denmark	
	SGS Fimko	FI	Finland	
	Germanischer Lloyd's	GL	Germany	
	Gost	Gost	Russia	
	Istituto Italiano del Marchio di Qualità	IMQ	Italy	
	Laboratoire Central des Industries Electriques	LCIE	France	
	Lloyd's Register of Shipping	Lloyd's Register	United Kingdom	
	Nemko	N	Norway	
RINA	Registro Italiano Navale	RINA	Italy	
	Intertek Testing Service ETL Semko	S	Sweden	
	TÜV Rheinland	TUV	Germany	
	Underwriters Laboratoires	UL	USA	
	Underwriters Laboratoires	UL	USA Canada	
	VDE Prüf-und Zertifizierungsinstitut Zeichengenehmigung	VDE	Germany	

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Product	Code	Reference
Photocell for 11.01, 11.71	01100	011.00
Adaptor for panel mounting	01101	011.01
Photosensor for 11.31, 11.41, 11.42, 11.91	01102	011.02
Mini Photosensor IP65	01103	011.03
2-Pole connector for 11.91	01119	011.19
PC programming kit for 12.71	01200	012.00
Adaptor for panel mounting (12.31)	01231	012.31
PC programming kit for Astronomic time switch (12.91 - 12.92)	01290	012.90
Memory key for 12.9x	01291	012.91
Sheet of 40 snap-in identification tags	01940	019.40
Adaptor for panel mounting	02001	020.01
Separator or panel mounting	02003	020.03
Sheet of 24 snap-in identification tags	02024	020.24
8 way jumper link blue	02218	022.18
8 way jumper link black	022180	022.18.0
8 way jumper link red	022181	022.18.1

6 way jumper link blue	02226	022.26
6 way jumper link black	022260	022.26.0
6 way jumper link red	022261	022.26.1
Auxiliary contact module; 2 NO	02233	022.33
Auxiliary contact module; 1 NO + 1 NC	02235	022.35
Capacitor for use with illuminated push-buttons	02600	026.00
Adaptor for use with 12VDC supply	0269012	026.90.1.2
Adaptor for use with 24VDC supply	0269024	026.90.2.4
Snap-in module for use with illuminated push-buttons	02700	027.00
Flange mount adaptor	04605	046.05
35mm rail adaptor	04607	046.07
Top flange mount adaptor	05625	056.25
Rear flange mount adaptor	05626	056.26
Top 35 mm rail (EN 50022) adaptor	05627	056.27
Top flange mount adaptor for 56.34	05645	056.45
Top 35 mm rail (EN 50022) adaptor for 56.34	05647	056.47
Sheet of 72 plottable snap-in identification tags	06072	060.72
Top flange mount adaptor	06205	062.05
Top 35 mm rail (EN 50022) adaptor	06207	062.07
Rear 35 mm rail (EN 50022) adaptor	06208	062.08
M4 thread mounting collar adaptor for 62.32/62.33/62.82/62.83	06210	062.10
Flange mount adaptor for 62.32/62.33/62.82/62.83	06260	062.60
Top flange mount adaptor	06505	065.05
Top 35 mm rail (EN 50022) adaptor	06507	065.07
Rear 35 mm rail (EN 50022) adaptor	06508	065.08

35mm rail adaptor	065785	065.78.5
Top 35 mm rail (EN 50022) adaptor	06607	066.07
Suspendend electrode for conductive liquids (food processing applications), complete with 6 metre cable	0720106	072.01.0.6
Suspendend electrode for conductive liquids (food processing applications), complete with 15 metre cable	0720115	072.01.1.5
Suspendend electrode for conductive liquids (swimming pool), complete with 6 metre cable	0720206	072.02.0.6
Ground electrode for conductive liquids ("Mouse")	07211	072.11
Suapended electrode	07231	072.31
Electrode 500mm length, 4mm diameter, M4 thread	072500	072.50.0
Electrode multi-connector, M4 thread	072501	072.50.1
Plastic separator tripole	072503	072.50.3
Electrode holder with two pole connector	07251	072.51
Electrode holder with three pole connector	07253	072.53
Protective cover for 7E	07E13	07E.13
Protective cover for 7E	07E16	07E.16
Filter mat	07F15	07F.15
Filter mat	07F25	07F.25
Filter mat	07F35	07F.35
Filter mat	07F45	07F.45
Filter mat	07F55	07F.55
Pressure compensation device	07F80	07F.80
Potentiometer	087022	087.02.2
Slot-in identification tag	090002	090.00.2
6-way jumper-link for 90.02/90.03 sockets;blue	09006	090.06
Metal retaining clip for 60.12/60.13 relays on 90.02/90.03/90.20/90.21/90.22/90.23/90.26/90.27/ 90.82.3/90.83.3 sockets	09033	090.33
Slot-in identification tag	092002	092.00.2

Metal retaining clip for 62.32/62.33 relays on 92.43.1 socket	09253	092.53
Metal retaining clip for 62.32/62.33 relays on 92.13/92.33	09254	092.54
Finger protection terminal cover for 92.43.1	09255	092.55
Metal retaining clip for 62.32/62.33 relays on 92.03 socket	09271	092.71
Plastic separator	09301	093.01
8-way jumper link	09308	093.08
8-way jumper link	093080	093.08.0
16-way jumper link; blue	09316	093.16
16-way jumper link; black	093160	093.16.0
16-way jumper link; red	093161	093.16.1
20-way jumper link	09320	093.20
20-way jumper link; black	093200	093.20.0
20-way jumper link; red	093201	093.20.1
Dual-purpose plastic separator	09360	093.60
Output fuse module for 39.31/30/41/40/81/80	09363	093.63
Sheet of 64 plottable snap-in identification tags	09364	093.64
Interface Adapter 8 poles	09368141	093.68.1.41
Slot-in identification tag for 94.02/94.03/94.04 sockets	094004	094.00.4
6-way jumper-link for 94.02/94.03/94.04 sockets;blue	09406	094.06
6-way jumper-link for 94.02/94.03/94.04 sockets;black	094060	094.06.0
Metal retaining clip for 56.32/56.34 relays on 96.12/96.14 sockets	09451	094.51
6-way jumper-link for 94.54 sockets;blue	09456	094.56
Metal retaining clip for 56.32 relay on 96.72 socket	09471	094.71
Slot-in identification tag for 94.92.3/94.94.3 sockets	094803	094.80.3
Metal retaining clip for 85.02/85.03/85.04 timers on 94.02/94.03/94.04/94.44.1/94.62/94.64/94.72/94.73/94.74/94.82.3/94.84.3/94.54.1 sockets	09481	094.81

Plastic retain and release clip for 94.02/ 94.03/94.04/94.82.3/ 94.84.3 sockets;blue	094913	094.91.3
Plastic retain and release clip for 94.82.3 94.84.30 sockets;black	0949130	094.91.3.0
Slot-in identification tag for 97.01/97.02 sockets	095004	095.00.4
Plastic retain and release clip for 40/44 series relays on 95.03/95.05 sockets; blue	09501	095.01
Plastic retain and release clip for 40/44 series relays on 95.03.0/95.05.0 sockets; black	095010	095.01.0
8-way jumper-link for 95.63/95.65/95.75/95.83.3/95.85.3 sockets; blue	09508	095.08
8-way jumper-link for 95.63/95.65/95.75/95.83.3/95.85.3 sockets; black	095080	095.08.0
8-way jumper-link	09518	095.18
8-way jumper-link	095180	095.18.0
Metal retaining clip for 41 series relays on 95.65 sockets	09531	095.31
Metal retaining clip for 41 series relays on 95.13/95.13.2/95.15/95.15.2 sockets	095413	095.41.3
Plastic retaining clip for 41 series relays on 95.13/95.13.2/95.15/95.15.2 sockets	09542	095.42
Metal retaining clip for 43 series relays on 95.23 sockets	09543	095.43
Metal retaining clip for 40/44 series relays on 95.13/95.13.2/95.15/95.15.2 sockets	09551	095.51
Plastic retaining clip for 40/44 series relays on 95.13/95.15 sockets	09552	095.52
Metal retaining clip for 40/44 series relays on 95.03/95.05/95.63/95.65/95.75/95.83.3/95.85.3 sockets	09571	095.71
Slot-in identification tag for 95.83.3/95.85.3 sockets	095803	095.80.3
Plastic retain and release clip for 40/44 series relays on 95.83.3/95.85.3 sockets	095913	095.91.3
Plastic retain and release clip for 41 series relays on 95.83.3/95.85.3 sockets	095923	095.92.3
Plastic retain and release clip for 41 series relays on 95.83.30/95.85.30 sockets	0959230	095.92.3.0
Metal retaining clip for 56.34 relay on 96.74 socket	09671	096.71
Plastic retain and release clip.	09701	097.01
Plastic retain and release clip.	09771	097.71
Pole-mount 2NO 16A	103281200000	10.32.8.120
Pole-mount 2NO 16A	103281200000PAS	10.32.8.120

Pole-mount 2NO 16A	103282300000	10.32.8.230
Pole-mount 2NO 16A	103282300000PAS	10.32.8.230
Pole-mount 2NO 16A (10...25lx)	103282300010	10.32.8.230
Pole-mount 2NO 16A (10...25lx)	103282300010PAS	10.32.8.230
Pole-mount 1NO 12A	104181200000	10.41.8.120
Pole-mount 1NO 12A	104181200000PAS	10.41.8.120
Pole-mount 1NO 12A	104182300000	10.41.8.230
Pole-mount 1NO 12A	104182300000PAS	10.41.8.230
Pole-mount 2NO 16A	104281200000	10.42.8.120
Pole-mount 2NO 16A	104281200000PAS	10.42.8.120
Pole-mount 2NO 16A	104282300000	10.42.8.230
Pole-mount 2NO 16A	104282300000PAS	10.42.8.230
Pole-mount 1NO 12A	105181200000	10.51.8.120
Pole-mount 1NO 12A	105181200000PAS	10.51.8.120
Pole-mount 1NO 12A	105182300000	10.51.8.230
Pole-mount 1NO 12A	105182300000PAS	10.51.8.230
Pole-mount 1NO 12A	106182300000	10.61.8.230
Pole-mount 1NO 12A	106182300000PAS	10.61.8.230
Zero hysteresis 1CO 16A	110182300000	11.01.8.230
Zero hysteresis 1CO 16A	110182300000PAS	11.01.8.230
17.5mm wide, 1 NO 12A - 24V DC Only	113100240000	11.31.0.024
17.5mm wide, 1 NO 12A - 24V DC Only	113100240000PAS	11.31.0.024
17.5mm wide, 1 NO 12A (short delay time, 1" ON 7" OFF) - 24V DC Only	113100240001	11.31.0.024
17.5mm wide, 1 NO 12A (short delay time, 1" ON 7" OFF) - 24V DC Only	113100240001PAS	11.31.0.024
17.5mm wide, 1 NO 12A	113182300000	11.31.8.230
17.5mm wide, 1 NO 12A	113182300000PAS	11.31.8.230

17.5mm wide, 1 NO 12A (package includes code 011.03)	113182300000POA	11.31.8.230
17.5mm wide, 1 NO 12A	113182300000POS	11.31.8.230
35mm wide, "Zero hysteresis", 1 CO 16A	114182300000	11.41.8.230
35mm wide, "Zero hysteresis", 1 CO 16A	114182300000PAS	11.41.8.230
35mm wide, "Zero hysteresis", 1 CO 16A (package includes code 011.03)	114182300000POA	11.41.8.230
35mm wide, "Zero hysteresis", 1 CO 16A	114182300000POS	11.41.8.230
35 mm wide, 2 individual lux settings, 2 NO 12A	114282300000	11.42.8.230
35 mm wide, 2 individual lux settings, 2 NO 12A	114282300000PAS	11.42.8.230
Suitable for SELV applications	117100121000	11.71.0.012
Suitable for SELV applications	117100121000PAS	11.71.0.012
Suitable for SELV applications	117100241000	11.71.0.024
Suitable for SELV applications	117100241000PAS	11.71.0.024
Extended operating range (9.6V-33.6V AC/DC)	117100241001	11.71.0.024
Extended operating range (9.6V-33.6V AC/DC)	117100241001PAS	11.71.0.024
Suitable for SELV applications	117181250000	11.71.8.125
Suitable for SELV applications	117181250000PAS	11.71.8.125
Suitable for SELV applications	117182300000	11.71.8.230
Suitable for SELV applications	117182300000PAS	11.71.8.230
35mm wide, with time switch integrated, 1 CO 16A	119182300000	11.91.8.230
35mm wide, with time switch integrated, 1 CO 16A	119182300000PAS	11.91.8.230
Mechanical daily - (35 mm wide)	120182300000	12.01.8.230
Mechanical daily - (35 mm wide)	120182300000PAS	12.01.8.230
Mechanical daily; back-up memory; 16A (17,5mm wide)	121182300000	12.11.8.230
Mechanical daily; back-up memory; 16A (17,5mm wide)	121182300000PAS	12.11.8.230
Mechanical daily;no back-up memory;16A (17,5mm wide)	121182301000	12.11.8.230
Mechanical daily;no back-up memory;16A (17,5mm wide)	121182301000PAS	12.11.8.230

Digital weekly (35mm wide) - 1 CO	122100120000	12.21.0.01
Digital weekly (35mm wide) - 1 CO	122100120000PAS	12.21.0.01
Digital weekly (35mm wide) - 1 CO	122100240000	12.21.0.02
Digital weekly (35mm wide) - 1 CO	122100240000PAS	12.21.0.02
Digital weekly (35mm wide) - 1 CO	122182300000	12.21.8.23
Digital weekly (35mm wide) - 1 CO	122182300000PAS	12.21.8.23
Digital weekly (35mm wide) - 2 CO	122200240000	12.22.0.02
Digital weekly (35mm wide) - 2 CO	122200240000PAS	12.22.0.02
Digital weekly (35mm wide) - 2 CO	122282300000	12.22.8.23
Digital weekly (35mm wide) - 2 CO	122282300000PAS	12.22.8.23
Mechanical daily; back-up memory; 3 modules	123182300000	12.31.8.23
Mechanical daily; back-up memory; 3 modules	123182300000PAS	12.31.8.23
Mechanical weekly; back-up memory; 3 modules	123182300007	12.31.8.23
Mechanical weekly; back-up memory; 3 modules	123182300007PAS	12.31.8.23
Digital dailyweekly (35mm wide) - 1 CO NEW	125182300000	12.51.8.23
Digital dailyweekly (35mm wide) - 1 CO NEW	125182300000PAS	12.51.8.23
Digital weekly (17.5mm wide) programmable with PC (012.00)	127100240000	12.71.0.02
Digital weekly (17.5mm wide) programmable with PC (012.00)	127100240000PAS	12.71.0.02
Digital weekly (17.5mm wide) programmable with PC (012.00)	127182300000	12.71.8.23
Digital weekly (17.5mm wide) programmable with PC (012.00)	127182300000PAS	12.71.8.23
Astronomic time switch one pole programmable with zip code NEW	128182300000	12.81.8.23
Astronomic time switch one pole programmable with zip code NEW	128182300000PAS	12.81.8.23
Astronomic time switch one pole	129182300000	12.91.8.23
Astronomic time switch one pole	129182300000PAS	12.91.8.23
Astronomic time switch one pole programmable with PC (012.90)	129182300090	12.91.8.23
Astronomic time switch one pole programmable with PC (012.90)	129182300090PAS	12.91.8.23

Astronomic time switch two poles	129282300000	12.92.8.230
Astronomic time switch two poles	129282300000PAS	12.92.8.230
Astronomic time switch two poles prgrammable with PC (012.90)	129282300090	12.92.8.230
Astronomic time switch two poles prgrammable with PC (012.90)	129282300090PAS	12.92.8.230
Suitable for SELV applications;1NO 10A	130100120000	13.01.0.012
Suitable for SELV applications;1NO 10A	130100120000PAS	13.01.0.012
Suitable for SELV applications;1NO 10A	130100240000	13.01.0.024
Suitable for SELV applications;1NO 10A	130100240000PAS	13.01.0.024
Special version for railway applications	130100240000T	13.01.0.024
Suitable for SELV applications;1NO 10A	130181250000	13.01.8.125
Suitable for SELV applications;1NO 10A	130181250000PAS	13.01.8.125
Suitable for SELV applications;1NO 10A	130182300000	13.01.8.230
Suitable for SELV applications;1NO 10A	130182300000PAS	13.01.8.230
Modular electronic bistable relay 1CO; 12 A; 164....234 V AC	131182300000	13.11.8.230
Modular electronic bistable relay 1CO; 12 A; 164....234 V AC	131182300000PAS	13.11.8.230
Modular electronic bistable relay; 1 CO+ 1 NO; 12 V AC/DC	131200120000	13.12.0.012
Modular electronic bistable relay; 1 CO+ 1 NO; 12 V AC/DC	131200120000PAS	13.12.0.012
Modular electronic bistable relay; 1CO + 1 NO; 24 V AC/DC	131200240000	13.12.0.024
Modular electronic bistable relay; 1CO + 1 NO; 24 V AC/DC	131200240000PAS	13.12.0.024
Built In Box Mounting Monostable relay	133182304300	13.31.8.230
Built In Box Mounting Monostable relay	133182304300PAS	13.31.8.230
Built In Box Mounting Monostable relay	133190244300	13.31.9.024
Built In Box Mounting Monostable relay	133190244300PAS	13.31.9.024
Modular Electronic Step Relays; 1NO 16A; 3 or 4 wire system; 35mm rail	138182300000	13.81.8.230
Modular Electronic Step Relays; 1NO 16A; 3 or 4 wire system; 35mm rail	138182300000PAS	13.81.8.230
Electronic Step Relays; 1NO 10A; 3 or 4 wire system; built in box mounting	139182300000	13.91.8.230

Electronic Step Relays; 1NO 10A; 3 or 4 wire system; built in box mounting	139182300000PAS	13.91.8.230
Multifunction, 3 or 4 wire system; 1NO 16A	140182300000	14.01.8.230
Multifunction, 3 or 4 wire system; 1NO 16A	140182300000PAS	14.01.8.230
Monofunction; 3 or 4 wire system; 1NO 16A	147182300000	14.71.8.230
Monofunction; 3 or 4 wire system; 1NO 16A	147182300000PAS	14.71.8.230
Monofunction; 3 or 4 wire system; 1NO 16A; all terminals on same side	148182300000	14.81.8.230
Monofunction; 3 or 4 wire system; 1NO 16A; all terminals on same side	148182300000PAS	14.81.8.230
Monofunction; 3 system; 1NO 16A; all terminals on same side	149182300000	14.91.8.230
Monofunction; 3 system; 1NO 16A; all terminals on same side	149182300000PAS	14.91.8.230
Dimmer 400W	155182300400	15.51.8.230
Dimmer 400W	155182300400PAS	15.51.8.230
Dimmer 400W	155182300404	15.51.8.230
Dimmer 400W	155182300404PAS	15.51.8.230
Dimmer 400W - 60HZ	155182300460	15.51.8.230
Dimmer 400W - 60HZ	155182300460PAS	15.51.8.230
Modular Dimmer 500W -45-65HZ for dimmable fluorescent and led lamps	158182300500	15.81.8.230
Modular Dimmer 500W -45-65HZ for dimmable fluorescent and led lamps	158182300500PAS	15.81.8.230
Built In Box Mounting Dimmer 50W -45-65HZ for dimmable led lamps	159182300000	15.91.8.230
Built In Box Mounting Dimmer 50W -45-65HZ for dimmable led lamps	159182300000PAS	15.91.8.230
Pir detector for internal installations	180182300000	18.01.8.230
Pir detector for internal installations	180182300000PAS	18.01.8.230
Pir detector for external installations IP54	181182300000	18.11.8.230
Pir detector for external installations IP54	181182300000PAS	18.11.8.230
Pir detector for internal installations for surface mounting.	182100240300	18.21.0.024
Pir detector for internal installations for surface mounting.	182100240300PAS	18.21.0.024
Pir detector for internal installations for surface mounting.	182182300000	18.21.8.230

Pir detector for internal installations for surface mounting.	182182300000PAS	18.21.8.230
Pir detector for internal installations for surface mounting.	182182300300	18.21.8.230
Pir detector for internal installations for surface mounting.	182182300300PAS	18.21.8.230
Pir detector for internal installations for recessed mounting.	183100240300	18.31.0.024
Pir detector for internal installations for recessed mounting.	183100240300PAS	18.31.0.024
Pir detector for internal installations for recessed mounting.	183182300000	18.31.8.230
Pir detector for internal installations for recessed mounting.	183182300000PAS	18.31.8.230
Pir detector for recessed or surface mounting. Double function: Presence Detector or Hi Bay - extended 30 min. timer	183182300031	18.31.8.230
Pir detector for recessed or surface mounting. Double function: Presence Detector or Hi Bay - extended 30 min. timer	183182300031PAS	18.31.8.230
Pir detector for internal installations for recessed mounting.	183182300300	18.31.8.230
Pir detector for internal installations for recessed mounting.	183182300300PAS	18.31.8.230
PIR Movement detector for corridors	184182300300	18.41.8.230
PIR Movement detector for corridors	184182300300PAS	18.41.8.230
PIR Movement and presence detectors	185182300300	18.51.8.230
PIR Movement and presence detectors	185182300300PAS	18.51.8.230
PIR Movevent detector wall mounting	186182300300	18.61.8.230
PIR Movevent detector wall mounting	186182300300PAS	18.61.8.230
11.2mm wide; 1CO 10A	192100240000	19.21.0.024
11.2mm wide; 1CO 10A	192100240000PAS	19.21.0.024
Digital 1-channel input module	193100240000	19.31.0.024
Digital 1-channel input module	193100240000PAS	19.31.0.024
Digital 2-channel input module	193200240000	19.32.0.024
Digital 2-channel input module	193200240000PAS	19.32.0.024
On/Off digital output module	194100240000	19.41.0.024
On/Off digital output module	194100240000PAS	19.41.0.024

Low/High digital output module	194200240000	19.42.0.024
Low/High digital output module	194200240000PAS	19.42.0.024
Analogue output module 0-10V	195000240000	19.50.0.024
Analogue output module 0-10V	195000240000PAS	19.50.0.024
Power module 1 CO 16A	199190124000	19.91.9.012
Power module 1 CO 16A	199190124000PAS	19.91.9.012
Power module 1 CO 16A	199190244000	19.91.9.024
Power module 1 CO 16A	199190244000PAS	19.91.9.024
Single phase switch; 1 NO	202180080000	20.21.8.008
Single phase switch; 1 NO	202180080000PAS	20.21.8.008
AgSnO2 contacts	202180084000	20.21.8.008
AgSnO2 contacts	202180084000PAS	20.21.8.008
Single phase switch; 1 NO	202180120000	20.21.8.012
Single phase switch; 1 NO	202180120000PAS	20.21.8.012
AgSnO2 contacts	202180124000	20.21.8.012
AgSnO2 contacts	202180124000PAS	20.21.8.012
Single phase switch; 1 NO	202180240000	20.21.8.024
Single phase switch; 1 NO	202180240000PAS	20.21.8.024
AgSnO2 contacts	202180244000	20.21.8.024
AgSnO2 contacts	202180244000PAS	20.21.8.024
Single phase switch; 1 NO	202180480000	20.21.8.048
Single phase switch; 1 NO	202180480000PAS	20.21.8.048
AgSnO2 contacts	202180484000	20.21.8.048
AgSnO2 contacts	202180484000PAS	20.21.8.048
Single phase switch; 1 NO	202181100000	20.21.8.110
Single phase switch; 1 NO	202181100000PAS	20.21.8.110

AgSnO2 contacts	202181104000	20.21.8.110
AgSnO2 contacts	202181104000PAS	20.21.8.110
Single phase switch; 1 NO	202181200000	20.21.8.120
Single phase switch; 1 NO	202181200000PAS	20.21.8.120
AgSnO2 contacts	202181204000	20.21.8.120
AgSnO2 contacts	202181204000PAS	20.21.8.120
Single phase switch; 1 NO	202181250000	20.21.8.120
Single phase switch; 1 NO	202181250000PAS	20.21.8.120
Single phase switch; 1 NO	202182300000	20.21.8.230
Single phase switch; 1 NO	202182300000PAS	20.21.8.230
AgSnO2 contacts	202182304000	20.21.8.230
AgSnO2 contacts	202182304000PAS	20.21.8.230
Single phase switch; 1 NO	202182400000	20.21.8.240
Single phase switch; 1 NO	202182400000PAS	20.21.8.240
AgSnO2 contacts	202182404000	20.21.8.240
AgSnO2 contacts	202182404000PAS	20.21.8.240
Single phase switch; 1 NO	202190120000	20.21.9.010
Single phase switch; 1 NO	202190120000PAS	20.21.9.010
AgSnO2 contacts	202190124000	20.21.9.010
AgSnO2 contacts	202190124000PAS	20.21.9.010
Single phase switch; 1 NO	202190240000	20.21.9.020
Single phase switch; 1 NO	202190240000PAS	20.21.9.020
AgSnO2 contacts	202190244000	20.21.9.020
AgSnO2 contacts	202190244000PAS	20.21.9.020
Single phase switch; 1 NO	202190480000	20.21.9.040
Single phase switch; 1 NO	202190480000PAS	20.21.9.040

AgSnO2 contacts	202190484000	20.21.9.048
AgSnO2 contacts	202190484000PAS	20.21.9.048
Single phase switch; 1 NO	202191100000	20.21.9.110
Single phase switch; 1 NO	202191100000PAS	20.21.9.110
Double phase switch; 2 NO	202280080000	20.22.8.008
Double phase switch; 2 NO	202280080000PAS	20.22.8.008
AgSnO2 contacts	202280084000	20.22.8.008
AgSnO2 contacts	202280084000PAS	20.22.8.008
Double phase switch; 2 NO	202280120000	20.22.8.012
Double phase switch; 2 NO	202280120000PAS	20.22.8.012
AgSnO2 contacts	202280124000	20.22.8.012
AgSnO2 contacts	202280124000PAS	20.22.8.012
Double phase switch; 2 NO	202280240000	20.22.8.024
Double phase switch; 2 NO	202280240000PAS	20.22.8.024
AgSnO2 contacts	202280244000	20.22.8.024
AgSnO2 contacts	202280244000PAS	20.22.8.024
Double phase switch; 2 NO	202280480000	20.22.8.048
Double phase switch; 2 NO	202280480000PAS	20.22.8.048
AgSnO2 contacts	202280484000	20.22.8.048
AgSnO2 contacts	202280484000PAS	20.22.8.048
Double phase switch; 2 NO	202281100000	20.22.8.110
Double phase switch; 2 NO	202281100000PAS	20.22.8.110
AgSnO2 contacts	202281104000	20.22.8.110
AgSnO2 contacts	202281104000PAS	20.22.8.110
Double phase switch; 2 NO	202281200000	20.22.8.120
Double phase switch; 2 NO	202281200000PAS	20.22.8.120

AgSnO2 contacts	202281204000	20.22.8.120
AgSnO2 contacts	202281204000PAS	20.22.8.120
Double phase switch; 2 NO	202281250000	20.22.8.125
Double phase switch; 2 NO	202281250000PAS	20.22.8.125
Double phase switch; 2 NO	202282300000	20.22.8.230
Double phase switch; 2 NO	202282300000PAS	20.22.8.230
AgSnO2 contacts	202282304000	20.22.8.230
AgSnO2 contacts	202282304000PAS	20.22.8.230
Double phase switch; 2 NO	202282400000	20.22.8.240
Double phase switch; 2 NO	202282400000PAS	20.22.8.240
AgSnO2 contacts	202282404000	20.22.8.240
AgSnO2 contacts	202282404000PAS	20.22.8.240
Double phase switch; 2 NO	202290120000	20.22.9.012
Double phase switch; 2 NO	202290120000PAS	20.22.9.012
AgSnO2 contacts	202290124000	20.22.9.012
AgSnO2 contacts	202290124000PAS	20.22.9.012
Double phase switch; 2 NO	202290240000	20.22.9.024
Double phase switch; 2 NO	202290240000PAS	20.22.9.024
AgSnO2 contacts	202290244000	20.22.9.024
AgSnO2 contacts	202290244000PAS	20.22.9.024
Double phase switch; 2 NO	202290480000	20.22.9.048
Double phase switch; 2 NO	202290480000PAS	20.22.9.048
AgSnO2 contacts	202290484000	20.22.9.048
AgSnO2 contacts	202290484000PAS	20.22.9.048
Double phase switch; 2 NO	202290600000	20.22.9.060
Double phase switch; 2 NO	202290600000PAS	20.22.9.060

AgSnO2 contacts	202290604000	20.22.9.060
AgSnO2 contacts	202290604000PAS	20.22.9.060
Double phase switch; 2 NO	202291100000	20.22.9.110
Double phase switch; 2 NO	202291100000PAS	20.22.9.110
AgSnO2 contacts	202291104000	20.22.9.110
AgSnO2 contacts	202291104000PAS	20.22.9.110
Double phase switch; 2 NO	202291250000	20.22.9.125
Double phase switch; 2 NO	202291250000PAS	20.22.9.125
Double phase switch; 1 NC + 1 NO	202380080000	20.23.8.008
Double phase switch; 1 NC + 1 NO	202380080000PAS	20.23.8.008
Double phase switch; 1 NC + 1 NO	202380120000	20.23.8.012
Double phase switch; 1 NC + 1 NO	202380120000PAS	20.23.8.012
AgSnO2 contacts	202380124000	20.23.8.012
AgSnO2 contacts	202380124000PAS	20.23.8.012
Double phase switch; 1 NC + 1 NO	202380240000	20.23.8.024
Double phase switch; 1 NC + 1 NO	202380240000PAS	20.23.8.024
AgSnO2 contacts	202380244000	20.23.8.024
AgSnO2 contacts	202380244000PAS	20.23.8.024
Double phase switch; 1 NC + 1 NO	202380480000	20.23.8.048
Double phase switch; 1 NC + 1 NO	202380480000PAS	20.23.8.048
AgSnO2 contacts	202380484000	20.23.8.048
AgSnO2 contacts	202380484000PAS	20.23.8.048
Double phase switch; 1 NC + 1 NO	202381100000	20.23.8.110
Double phase switch; 1 NC + 1 NO	202381100000PAS	20.23.8.110
AgSnO2 contacts	202381104000	20.23.8.110
AgSnO2 contacts	202381104000PAS	20.23.8.110

Double phase switch; 1 NC + 1 NO	202381200000	20.23.8.120
Double phase switch; 1 NC + 1 NO	202381200000PAS	20.23.8.120
AgSnO2 contacts	202381204000	20.23.8.120
AgSnO2 contacts	202381204000PAS	20.23.8.120
Double phase switch; 1 NC + 1 NO	202381250000	20.23.8.120
Double phase switch; 1 NC + 1 NO	202381250000PAS	20.23.8.120
Double phase switch; 1 NC + 1 NO	202382300000	20.23.8.230
Double phase switch; 1 NC + 1 NO	202382300000PAS	20.23.8.230
AgSnO2 contacts	202382304000	20.23.8.230
AgSnO2 contacts	202382304000PAS	20.23.8.230
Double phase switch; 1 NC + 1 NO	202382400000	20.23.8.240
Double phase switch; 1 NC + 1 NO	202382400000PAS	20.23.8.240
Double phase switch; 1 NC + 1 NO	202390120000	20.23.9.010
Double phase switch; 1 NC + 1 NO	202390120000PAS	20.23.9.010
AgSnO2 contacts	202390124000	20.23.9.010
AgSnO2 contacts	202390124000PAS	20.23.9.010
Double phase switch; 1 NC + 1 NO	202390240000	20.23.9.020
Double phase switch; 1 NC + 1 NO	202390240000PAS	20.23.9.020
AgSnO2 contacts	202390244000	20.23.9.020
AgSnO2 contacts	202390244000PAS	20.23.9.020
Double phase switch; 1 NC + 1 NO	202390480000	20.23.9.040
Double phase switch; 1 NC + 1 NO	202390480000PAS	20.23.9.040
AgSnO2 contacts	202390484000	20.23.9.040
AgSnO2 contacts	202390484000PAS	20.23.9.040
Double phase switch; 1 NC + 1 NO	202390600000	20.23.9.060
Double phase switch; 1 NC + 1 NO	202390600000PAS	20.23.9.060

AgSnO2 contacts	202390604000	20.23.9.060
AgSnO2 contacts	202390604000PAS	20.23.9.060
Double phase switch; 1 NC + 1 NO	202391100000	20.23.9.110
Double phase switch; 1 NC + 1 NO	202391100000PAS	20.23.9.110
AgSnO2 contacts	202391104000	20.23.9.110
AgSnO2 contacts	202391104000PAS	20.23.9.110
Double phase switch; 1 NC + 1 NO	202391250000	20.23.9.125
Double phase switch; 1 NC + 1 NO	202391250000PAS	20.23.9.125
AgSnO2 contacts	202480084000	20.24.8.008
AgSnO2 contacts	202480084000PAS	20.24.8.008
4 sequence double phase switch; 2 NO	202480120000	20.24.8.012
4 sequence double phase switch; 2 NO	202480120000PAS	20.24.8.012
4 sequence double phase switch; 2 NO	202480240000	20.24.8.024
4 sequence double phase switch; 2 NO	202480240000PAS	20.24.8.024
AgSnO2 contacts	202480244000	20.24.8.024
AgSnO2 contacts	202480244000PAS	20.24.8.024
4 sequence double phase switch; 2 NO	202480480000	20.24.8.048
4 sequence double phase switch; 2 NO	202480480000PAS	20.24.8.048
4 sequence double phase switch; 2 NO	202481100000	20.24.8.110
4 sequence double phase switch; 2 NO	202481100000PAS	20.24.8.110
AgSnO2 contacts	202481104000	20.24.8.110
AgSnO2 contacts	202481104000PAS	20.24.8.110
4 sequence double phase switch; 2 NO	202481200000	20.24.8.120
4 sequence double phase switch; 2 NO	202481200000PAS	20.24.8.120
AgSnO2 contacts	202481204000	20.24.8.120
AgSnO2 contacts	202481204000PAS	20.24.8.120

4 sequence double phase switch; 2 NO	202482300000	20.24.8.230
4 sequence double phase switch; 2 NO	202482300000PAS	20.24.8.230
AgSnO2 contacts	202482304000	20.24.8.230
AgSnO2 contacts	202482304000PAS	20.24.8.230
4 sequence double phase switch; 2 NO	202482400000	20.24.8.240
4 sequence double phase switch; 2 NO	202482400000PAS	20.24.8.240
4 sequence double phase switch; 2 NO	202490120000	20.24.9.010
4 sequence double phase switch; 2 NO	202490120000PAS	20.24.9.010
AgSnO2 contacts	202490124000	20.24.9.010
AgSnO2 contacts	202490124000PAS	20.24.9.010
4 sequence double phase switch; 2 NO	202490240000	20.24.9.020
4 sequence double phase switch; 2 NO	202490240000PAS	20.24.9.020
AgSnO2 contacts	202490244000	20.24.9.020
AgSnO2 contacts	202490244000PAS	20.24.9.020
AgSnO2 contacts	202490484000	20.24.9.040
AgSnO2 contacts	202490484000PAS	20.24.9.040
4 sequence double phase switch; 2 NO	202491100000	20.24.9.110
4 sequence double phase switch; 2 NO	202491100000PAS	20.24.9.110
3 sequence double phase switch; 2 NO	202680120000	20.26.8.010
3 sequence double phase switch; 2 NO	202680120000PAS	20.26.8.010
AgSnO2 contacts	202680124000	20.26.8.010
AgSnO2 contacts	202680124000PAS	20.26.8.010
3 sequence double phase switch; 2 NO	202680240000	20.26.8.020
3 sequence double phase switch; 2 NO	202680240000PAS	20.26.8.020
AgSnO2 contacts	202680244000	20.26.8.020
AgSnO2 contacts	202680244000PAS	20.26.8.020

3 sequence double phase switch; 2 NO	202680480000	20.26.8.04
3 sequence double phase switch; 2 NO	202680480000PAS	20.26.8.04
3 sequence double phase switch; 2 NO	202681100000	20.26.8.11
3 sequence double phase switch; 2 NO	202681100000PAS	20.26.8.11
AgSnO2 contacts	202681104000	20.26.8.11
AgSnO2 contacts	202681104000PAS	20.26.8.11
3 sequence double phase switch; 2 NO	202681200000	20.26.8.12
3 sequence double phase switch; 2 NO	202681200000PAS	20.26.8.12
3 sequence double phase switch; 2 NO	202682300000	20.26.8.23
3 sequence double phase switch; 2 NO	202682300000PAS	20.26.8.23
AgSnO2 contacts	202682304000	20.26.8.23
AgSnO2 contacts	202682304000PAS	20.26.8.23
3 sequence double phase switch; 2 NO	202682400000	20.26.8.24
3 sequence double phase switch; 2 NO	202682400000PAS	20.26.8.24
AgSnO2 contacts	202682404000	20.26.8.24
AgSnO2 contacts	202682404000PAS	20.26.8.24
3 sequence double phase switch; 2 NO	202690120000	20.26.9.01
3 sequence double phase switch; 2 NO	202690120000PAS	20.26.9.01
3 sequence double phase switch; 2 NO	202690240000	20.26.9.02
3 sequence double phase switch; 2 NO	202690240000PAS	20.26.9.02
AgSnO2 contacts	202690244000	20.26.9.02
AgSnO2 contacts	202690244000PAS	20.26.9.02
3 sequence double phase switch; 2 NO	202690480000	20.26.9.04
3 sequence double phase switch; 2 NO	202690480000PAS	20.26.9.04
AgSnO2 contacts	202690484000	20.26.9.04
AgSnO2 contacts	202690484000PAS	20.26.9.04

AgSnO2 contacts	202690604000	20.26.9.060
AgSnO2 contacts	202690604000PAS	20.26.9.060
3 sequence double phase switch; 2 NO	202691100000	20.26.9.110
3 sequence double phase switch; 2 NO	202691100000PAS	20.26.9.110
4 sequence double phase switch; 2 NO	202880120000	20.28.8.012
4 sequence double phase switch; 2 NO	202880120000PAS	20.28.8.012
AgSnO2 contacts	202880124000	20.28.8.012
AgSnO2 contacts	202880124000PAS	20.28.8.012
4 sequence double phase switch; 2 NO	202880240000	20.28.8.024
4 sequence double phase switch; 2 NO	202880240000PAS	20.28.8.024
AgSnO2 contacts	202880244000	20.28.8.024
AgSnO2 contacts	202880244000PAS	20.28.8.024
4 sequence double phase switch; 2 NO	202880480000	20.28.8.048
4 sequence double phase switch; 2 NO	202880480000PAS	20.28.8.048
4 sequence double phase switch; 2 NO	202881100000	20.28.8.110
4 sequence double phase switch; 2 NO	202881100000PAS	20.28.8.110
4 sequence double phase switch; 2 NO	202881200000	20.28.8.120
4 sequence double phase switch; 2 NO	202881200000PAS	20.28.8.120
AgSnO2 contacts	202881204000	20.28.8.120
AgSnO2 contacts	202881204000PAS	20.28.8.120
4 sequence double phase switch; 2 NO	202882300000	20.28.8.230
4 sequence double phase switch; 2 NO	202882300000PAS	20.28.8.230
AgSnO2 contacts	202882304000	20.28.8.230
AgSnO2 contacts	202882304000PAS	20.28.8.230
4 sequence double phase switch; 2 NO	202882400000	20.28.8.240
4 sequence double phase switch; 2 NO	202882400000PAS	20.28.8.240

4 sequence double phase switch; 2 NO	202890120000	20.28.9.012
4 sequence double phase switch; 2 NO	202890120000PAS	20.28.9.012
AgSnO2 contacts	202890124000	20.28.9.012
AgSnO2 contacts	202890124000PAS	20.28.9.012
4 sequence double phase switch; 2 NO	202890240000	20.28.9.024
4 sequence double phase switch; 2 NO	202890240000PAS	20.28.9.024
AgSnO2 contacts	202890244000	20.28.9.024
AgSnO2 contacts	202890244000PAS	20.28.9.024
4 sequence double phase switch; 2 NO	202891100000	20.28.9.110
4 sequence double phase switch; 2 NO	202891100000PAS	20.28.9.110
Single phase switch; 1 NO	222180084000	22.21.8.008
Single phase switch; 1 NO	222180084000PAS	22.21.8.008
Single phase switch; 1 NO	222180124000	22.21.8.012
Single phase switch; 1 NO	222180124000PAS	22.21.8.012
Single phase switch; 1 NO	222180244000	22.21.8.024
Single phase switch; 1 NO	222180244000PAS	22.21.8.024
Single phase switch; 1 NO	222180484000	22.21.8.048
Single phase switch; 1 NO	222180484000PAS	22.21.8.048
Single phase switch; 1 NO	222181104000	22.21.8.110
Single phase switch; 1 NO	222181104000PAS	22.21.8.110
Single phase switch; 1 NO	222181204000	22.21.8.120
Single phase switch; 1 NO	222181204000PAS	22.21.8.120
Single phase switch; 1 NO	222182304000	22.21.8.230
Single phase switch; 1 NO	222182304000PAS	22.21.8.230
Single phase switch; 1 NO	222182404000	22.21.8.240
Single phase switch; 1 NO	222182404000PAS	22.21.8.240

Single phase switch; 1 NO	222190124000	22.21.9.012
Single phase switch; 1 NO	222190124000PAS	22.21.9.012
Single phase switch; 1 NO	222190244000	22.21.9.024
Single phase switch; 1 NO	222190244000PAS	22.21.9.024
Single phase switch; 1 NO	222190484000	22.21.9.048
Single phase switch; 1 NO	222190484000PAS	22.21.9.048
Single phase switch; 1 NO	222191104000	22.21.9.110
Single phase switch; 1 NO	222191104000PAS	22.21.9.110
Double phase switch; 2 NO	222280084000	22.22.8.008
Double phase switch; 2 NO	222280084000PAS	22.22.8.008
Double phase switch; 2 NO	222280124000	22.22.8.012
Double phase switch; 2 NO	222280124000PAS	22.22.8.012
Double phase switch; 2 NO	222280244000	22.22.8.024
Double phase switch; 2 NO	222280244000PAS	22.22.8.024
Double phase switch; 2 NO	222280484000	22.22.8.048
Double phase switch; 2 NO	222280484000PAS	22.22.8.048
Double phase switch; 2 NO	222281104000	22.22.8.110
Double phase switch; 2 NO	222281104000PAS	22.22.8.110
Double phase switch; 2 NO	222281204000	22.22.8.120
Double phase switch; 2 NO	222281204000PAS	22.22.8.120
Double phase switch; 2 NO	222281254000	22.22.8.125
Double phase switch; 2 NO	222281254000PAS	22.22.8.125
Double phase switch; 2 NO	222282304000	22.22.8.230
Double phase switch; 2 NO	222282304000PAS	22.22.8.230
Double phase switch; 2 NO	222282404000	22.22.8.240
Double phase switch; 2 NO	222282404000PAS	22.22.8.240

Double phase switch; 2 NO	222290124000	22.22.9.012
Double phase switch; 2 NO	222290124000PAS	22.22.9.012
Double phase switch; 2 NO	222290244000	22.22.9.024
Double phase switch; 2 NO	222290244000PAS	22.22.9.024
Double phase switch; 2 NO	222290484000	22.22.9.048
Double phase switch; 2 NO	222290484000PAS	22.22.9.048
Double phase switch; 2 NO	222290604000	22.22.9.060
Double phase switch; 2 NO	222290604000PAS	22.22.9.060
Double phase switch; 2 NO	222291104000	22.22.9.110
Double phase switch; 2 NO	222291104000PAS	22.22.9.110
Double phase switch; 1 NC + 1 NO	222380084000	22.23.8.008
Double phase switch; 1 NC + 1 NO	222380084000PAS	22.23.8.008
Double phase switch; 1 NC + 1 NO	222380124000	22.23.8.012
Double phase switch; 1 NC + 1 NO	222380124000PAS	22.23.8.012
Double phase switch; 1 NC + 1 NO	222380244000	22.23.8.024
Double phase switch; 1 NC + 1 NO	222380244000PAS	22.23.8.024
Double phase switch; 1 NC + 1 NO	222380484000	22.23.8.048
Double phase switch; 1 NC + 1 NO	222380484000PAS	22.23.8.048
Double phase switch; 1 NC + 1 NO	222381104000	22.23.8.110
Double phase switch; 1 NC + 1 NO	222381104000PAS	22.23.8.110
Double phase switch; 1 NC + 1 NO	222381204000	22.23.8.120
Double phase switch; 1 NC + 1 NO	222381204000PAS	22.23.8.120
Double phase switch; 1 NC + 1 NO	222382304000	22.23.8.230
Double phase switch; 1 NC + 1 NO	222382304000PAS	22.23.8.230
Double phase switch; 1 NC + 1 NO	222382404000	22.23.8.240
Double phase switch; 1 NC + 1 NO	222382404000PAS	22.23.8.240

Double phase switch; 1 NC + 1 NO	222390124000	22.23.9.012
Double phase switch; 1 NC + 1 NO	222390124000PAS	22.23.9.012
Double phase switch; 1 NC + 1 NO	222390244000	22.23.9.024
Double phase switch; 1 NC + 1 NO	222390244000PAS	22.23.9.024
Double phase switch; 1 NC + 1 NO	222390484000	22.23.9.048
Double phase switch; 1 NC + 1 NO	222390484000PAS	22.23.9.048
Double phase switch; 1 NC + 1 NO	222390604000	22.23.9.060
Double phase switch; 1 NC + 1 NO	222390604000PAS	22.23.9.060
Double phase switch; 1 NC + 1 NO	222391104000	22.23.9.110
Double phase switch; 1 NC + 1 NO	222391104000PAS	22.23.9.110
Double phase switch; 2 NC	222480124000	22.24.8.012
Double phase switch; 2 NC	222480124000PAS	22.24.8.012
Double phase switch; 2 NC	222480244000	22.24.8.024
Double phase switch; 2 NC	222480244000PAS	22.24.8.024
Double phase switch; 2 NC	222481104000	22.24.8.110
Double phase switch; 2 NC	222481104000PAS	22.24.8.110
Double phase switch; 2 NC	222482304000	22.24.8.230
Double phase switch; 2 NC	222482304000PAS	22.24.8.230
Double phase switch; 2 NC	222482404000	22.24.8.240
Double phase switch; 2 NC	222482404000PAS	22.24.8.240
Double phase switch; 2 NC	222490124000	22.24.9.012
Double phase switch; 2 NC	222490124000PAS	22.24.9.012
Double phase switch; 2 NC	222490244000	22.24.9.024
Double phase switch; 2 NC	222490244000PAS	22.24.9.024
Double phase switch; 2 NC	222490484000	22.24.9.048
Double phase switch; 2 NC	222490484000PAS	22.24.9.048

AgNi contacts	223200121320	22.32.0.012
AgNi contacts	223200121320PAS	22.32.0.012
AgNi contacts	223200121340	22.32.0.012
AgNi contacts	223200121340PAS	22.32.0.012
AgNi contacts	223200121540	22.32.0.012
AgNi contacts	223200121540PAS	22.32.0.012
25 A; 2 NO; Mechanical indicator + Led	223200124320	22.32.0.012
25 A; 2 NO; Mechanical indicator + Led	223200124320PAS	22.32.0.012
25 A; 2 NO; Auto-On-Off selector + Mechanical indicator + Led	223200124340	22.32.0.012
25 A; 2 NO; Auto-On-Off selector + Mechanical indicator + Led	223200124340PAS	22.32.0.012
25 A; 2 NC; Mechanical indicator + Led	223200124420	22.32.0.012
25 A; 2 NC; Mechanical indicator + Led	223200124420PAS	22.32.0.012
25 A ; 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223200124440	22.32.0.012
25 A ; 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223200124440PAS	22.32.0.012
25 A; 1 NO + 1 NC; Mechanical indicator + Led	223200124520	22.32.0.012
25 A; 1 NO + 1 NC; Mechanical indicator + Led	223200124520PAS	22.32.0.012
25 A; 1 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223200124540	22.32.0.012
25 A; 1 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223200124540PAS	22.32.0.012
AgNi contacts	223200241320	22.32.0.024
AgNi contacts	223200241320PAS	22.32.0.024
AgNi contacts	223200241340	22.32.0.024
AgNi contacts	223200241340PAS	22.32.0.024
AgNi contacts	223200241420	22.32.0.024
AgNi contacts	223200241420PAS	22.32.0.024
AgNi contacts	223200241440	22.32.0.024
AgNi contacts	223200241440PAS	22.32.0.024

AgNi contacts	223200241520	22.32.0.024
AgNi contacts	223200241520PAS	22.32.0.024
AgNi contacts	223200241540	22.32.0.024
AgNi contacts	223200241540PAS	22.32.0.024
25 A; 2 NO; Mechanical indicator + Led	223200244320	22.32.0.024
25 A; 2 NO; Mechanical indicator + Led	223200244320PAS	22.32.0.024
25 A; 2 NO; Auto-On-Off selector + Mechanical indicator + Led	223200244340	22.32.0.024
25 A; 2 NO; Auto-On-Off selector + Mechanical indicator + Led	223200244340PAS	22.32.0.024
25 A; 2 NC; Mechanical indicator + Led	223200244420	22.32.0.024
25 A; 2 NC; Mechanical indicator + Led	223200244420PAS	22.32.0.024
25 A ; 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223200244440	22.32.0.024
25 A ; 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223200244440PAS	22.32.0.024
25 A; 1 NO + 1 NC; Mechanical indicator + Led	223200244520	22.32.0.024
25 A; 1 NO + 1 NC; Mechanical indicator + Led	223200244520PAS	22.32.0.024
25 A; 1 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223200244540	22.32.0.024
25 A; 1 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223200244540PAS	22.32.0.024
AgNi contacts	223200481340	22.32.0.048
AgNi contacts	223200481340PAS	22.32.0.048
25 A; 2 NO; Auto-On-Off selector + Mechanical indicator + Led	223200484340	22.32.0.048
25 A; 2 NO; Auto-On-Off selector + Mechanical indicator + Led	223200484340PAS	22.32.0.048
25 A; 1 NO + 1 NC; Mechanical indicator + Led	223200484520	22.32.0.048
25 A; 1 NO + 1 NC; Mechanical indicator + Led	223200484520PAS	22.32.0.048
25 A; 1 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223200484540	22.32.0.048
25 A; 1 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223200484540PAS	22.32.0.048
AgNi contacts	223201201340	22.32.0.120
AgNi contacts	223201201340PAS	22.32.0.120

AgNi contacts	223201201520	22.32.0.120
AgNi contacts	223201201520PAS	22.32.0.120
AgNi contacts	223201201540	22.32.0.120
AgNi contacts	223201201540PAS	22.32.0.120
25 A; 2 NO; Mechanical indicator + Led	223201204320	22.32.0.120
25 A; 2 NO; Mechanical indicator + Led	223201204320PAS	22.32.0.120
25 A; 2 NO; Auto-On-Off selector + Mechanical indicator + Led	223201204340	22.32.0.120
25 A; 2 NO; Auto-On-Off selector + Mechanical indicator + Led	223201204340PAS	22.32.0.120
25 A; 2 NC; Mechanical indicator + Led	223201204420	22.32.0.120
25 A; 2 NC; Mechanical indicator + Led	223201204420PAS	22.32.0.120
25 A; 1 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223201204540	22.32.0.120
25 A; 1 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223201204540PAS	22.32.0.120
AgNi contacts	223202301320	22.32.0.230
AgNi contacts	223202301320PAS	22.32.0.230
AgNi contacts	223202301340	22.32.0.230
AgNi contacts	223202301420	22.32.0.230
AgNi contacts	223202301420PAS	22.32.0.230
AgNi contacts	223202301440	22.32.0.230
AgNi contacts	223202301440PAS	22.32.0.230
AgNi contacts	223202301520	22.32.0.230
AgNi contacts	223202301520PAS	22.32.0.230
AgNi contacts	223202301540	22.32.0.230
AgNi contacts	223202301540PAS	22.32.0.230
25 A; 2 NO; Mechanical indicator + Led	223202304320	22.32.0.230
25 A; 2 NO; Mechanical indicator + Led	223202304320PAS	22.32.0.230
25 A; 2 NO; Auto-On-Off selector + Mechanical indicator + Led	223202304340	22.32.0.230

25 A; 2 NO; Auto-On-Off selector + Mechanical indicator + Led	223202304340PAS	22.32.0.230
25 A; 2 NC; Mechanical indicator + Led	223202304420	22.32.0.230
25 A; 2 NC; Mechanical indicator + Led	223202304420PAS	22.32.0.230
25 A ; 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223202304440	22.32.0.230
25 A ; 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223202304440PAS	22.32.0.230
25 A; 1 NO + 1 NC; Mechanical indicator + Led	223202304520	22.32.0.230
25 A; 1 NO + 1 NC; Mechanical indicator + Led	223202304520PAS	22.32.0.230
25 A; 1 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223202304540	22.32.0.230
25 A; 1 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223202304540PAS	22.32.0.230
AgNi contacts	223400121320	22.34.0.012
AgNi contacts	223400121320PAS	22.34.0.012
AgNi contacts	223400121340	22.34.0.012
AgNi contacts	223400121340PAS	22.34.0.012
25 A; 4 NO; Mechanical indicator + Led	223400124320	22.34.0.012
25 A; 4 NO; Mechanical indicator + Led	223400124320PAS	22.34.0.012
25 A; 4 NO; Auto-On-Off selector + Mechanical indicator + Led	223400124340	22.34.0.012
25 A; 4 NO; Auto-On-Off selector + Mechanical indicator + Led	223400124340PAS	22.34.0.012
25 A; 2 NO + 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223400124640	22.34.0.012
25 A; 2 NO + 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223400124640PAS	22.34.0.012
25 A; 3 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223400124740	22.34.0.012
25 A; 3 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223400124740PAS	22.34.0.012
AgNi contacts	223400241320	22.34.0.024
AgNi contacts	223400241320PAS	22.34.0.024
AgNi contacts	223400241340	22.34.0.024
AgNi contacts	223400241340PAS	22.34.0.024
AgNi contacts	223400241620	22.34.0.024

AgNi contacts	223400241620PAS	22.34.0.024
AgNi contacts	223400241640	22.34.0.024
AgNi contacts	223400241720	22.34.0.024
AgNi contacts	223400241720PAS	22.34.0.024
AgNi contacts	223400241740	22.34.0.024
AgNi contacts	223400241740PAS	22.34.0.024
25 A; 4 NO; Mechanical indicator + Led	223400244320	22.34.0.024
25 A; 4 NO; Mechanical indicator + Led	223400244320PAS	22.34.0.024
25 A; 4 NO; Auto-On-Off selector + Mechanical indicator + Led	223400244340	22.34.0.024
25 A; 4 NO; Auto-On-Off selector + Mechanical indicator + Led	223400244340PAS	22.34.0.024
25 A; 2 NO + 2 NC; Mechanical indicator + Led	223400244620	22.34.0.024
25 A; 2 NO + 2 NC; Mechanical indicator + Led	223400244620PAS	22.34.0.024
25 A; 2 NO + 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223400244640	22.34.0.024
25 A; 2 NO + 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223400244640PAS	22.34.0.024
25 A; 3 NO + 1 NC; Mechanical indicator + Led	223400244720	22.34.0.024
25 A; 3 NO + 1 NC; Mechanical indicator + Led	223400244720PAS	22.34.0.024
25 A; 3 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223400244740	22.34.0.024
25 A; 3 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223400244740PAS	22.34.0.024
AgNi contacts	223400481320	22.34.0.048
AgNi contacts	223400481320PAS	22.34.0.048
AgNi contacts	223400481340	22.34.0.048
AgNi contacts	223400481340PAS	22.34.0.048
25 A; 3 NO + 1 NC; Mechanical indicator + Led	223400484720	22.34.0.048
25 A; 3 NO + 1 NC; Mechanical indicator + Led	223400484720PAS	22.34.0.048
AgNi contacts	223401201320	22.34.0.120
AgNi contacts	223401201340	22.34.0.120

AgNi contacts	223401201620	22.34.0.120
AgNi contacts	223401201620PAS	22.34.0.120
25 A; 4 NO; Auto-On-Off selector + Mechanical indicator + Led	223401204340	22.34.0.120
25 A; 4 NO; Auto-On-Off selector + Mechanical indicator + Led	223401204340PAS	22.34.0.120
25 A; 2 NO + 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223401204640	22.34.0.120
25 A; 2 NO + 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223401204640PAS	22.34.0.120
AgNi contacts	223402301320	22.34.0.230
AgNi contacts	223402301320PAS	22.34.0.230
AgNi contacts	223402301340	22.34.0.230
AgNi contacts	223402301340PAS	22.34.0.230
AgNi contacts	223402301620	22.34.0.230
AgNi contacts	223402301640	22.34.0.230
AgNi contacts	223402301640PAS	22.34.0.230
AgNi contacts	223402301720	22.34.0.230
AgNi contacts	223402301720PAS	22.34.0.230
AgNi contacts	223402301740	22.34.0.230
AgNi contacts	223402301740PAS	22.34.0.230
25 A; 4 NO; Mechanical indicator + Led	223402304320	22.34.0.230
25 A; 4 NO; Mechanical indicator + Led	223402304320PAS	22.34.0.230
25 A; 4 NO; Auto-On-Off selector + Mechanical indicator + Led	223402304340	22.34.0.230
25 A; 4 NO; Auto-On-Off selector + Mechanical indicator + Led	223402304340PAS	22.34.0.230
25 A; 2 NO + 2 NC; Mechanical indicator + Led	223402304620	22.34.0.230
25 A; 2 NO + 2 NC; Mechanical indicator + Led	223402304620PAS	22.34.0.230
25 A; 2 NO + 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223402304640	22.34.0.230
25 A; 2 NO + 2 NC; Auto-On-Off selector + Mechanical indicator + Led	223402304640PAS	22.34.0.230
25 A; 3 NO + 1 NC; Mechanical indicator + Led	223402304720	22.34.0.230

25 A; 3 NO + 1 NC; Mechanical indicator + Led	223402304720PAS	22.34.0.230
25 A; 3 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223402304740	22.34.0.230
25 A; 3 NO + 1NC; Auto-On-Off selector + Mechanical indicator + Led	223402304740PAS	22.34.0.230
40 A; 4 NO; AC/DC; Mechanical indicator	224400124310	22.44.0.012
40 A; 4 NO; AC/DC; Mechanical indicator	224400124310PAS	22.44.0.012
40 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	224400124610	22.44.0.012
40 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	224400124610PAS	22.44.0.012
40 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	224400124710	22.44.0.012
40 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	224400124710PAS	22.44.0.012
40 A; 4 NO; AC/DC; Mechanical indicator	224400244310	22.44.0.024
40 A; 4 NO; AC/DC; Mechanical indicator	224400244310PAS	22.44.0.024
40 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	224400244610	22.44.0.024
40 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	224400244610PAS	22.44.0.024
40 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	224400244710	22.44.0.024
40 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	224400244710PAS	22.44.0.024
40 A; 4 NO; AC/DC; Mechanical indicator	224401204310	22.44.0.120
40 A; 4 NO; AC/DC; Mechanical indicator	224401204310PAS	22.44.0.120
40 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	224401204610	22.44.0.120
40 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	224401204610PAS	22.44.0.120
40 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	224401204710	22.44.0.120
40 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	224401204710PAS	22.44.0.120
40 A; 4 NO; AC/DC; Mechanical indicator	224402304310	22.44.0.230
40 A; 4 NO; AC/DC; Mechanical indicator	224402304310PAS	22.44.0.230
40 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	224402304610	22.44.0.230
40 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	224402304610PAS	22.44.0.230
40 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	224402304710	22.44.0.230

40 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	224402304710PAS	22.44.0.230
63 A; 4 NO; AC/DC; Mechanical indicator	226400124310	22.64.0.012
63 A; 4 NO; AC/DC; Mechanical indicator	226400124310PAS	22.64.0.012
63 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	226400124610	22.64.0.012
63 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	226400124610PAS	22.64.0.012
63 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	226400124710	22.64.0.012
63 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	226400124710PAS	22.64.0.012
63 A; 4 NO; AC/DC; Mechanical indicator	226400244310	22.64.0.024
63 A; 4 NO; AC/DC; Mechanical indicator	226400244310PAS	22.64.0.024
63 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	226400244610	22.64.0.024
63 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	226400244610PAS	22.64.0.024
63 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	226400244710	22.64.0.024
63 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	226400244710PAS	22.64.0.024
63 A; 4 NO; AC/DC; Mechanical indicator	226401204310	22.64.0.120
63 A; 4 NO; AC/DC; Mechanical indicator	226401204310PAS	22.64.0.120
63 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	226401204610	22.64.0.120
63 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	226401204610PAS	22.64.0.120
63 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	226401204710	22.64.0.120
63 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	226401204710PAS	22.64.0.120
63 A; 4 NO; AC/DC; Mechanical indicator	226402304310	22.64.0.230
63 A; 4 NO; AC/DC; Mechanical indicator	226402304310PAS	22.64.0.230
63 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	226402304610	22.64.0.230
63 A; 2 NO + 2 NC; AC/DC; Mechanical indicator	226402304610PAS	22.64.0.230
63 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	226402304710	22.64.0.230
63 A; 3 NO + 1 NC; AC/DC; Mechanical indicator	226402304710PAS	22.64.0.230
Single phase switch; 1 NO	260180120000	26.01.8.012

Single phase switch; 1 NO	260180240000	26.01.8.024
Single phase switch; 1 NO	260180480000	26.01.8.048
Single phase switch; 1 NO	260181100000	26.01.8.110
Single phase switch; 1 NO	260182300000	26.01.8.230
Double phase switch; 2 NO	260280120000	26.02.8.012
Double phase switch; 2 NO	260280240000	26.02.8.024
Double phase switch; 2 NO	260280480000	26.02.8.048
Double phase switch; 2 NO	260281100000	26.02.8.110
Double phase switch; 2 NO	260282300000	26.02.8.230
Double phase switch; 1 NC + 1 NO	260380120000	26.03.8.012
Double phase switch; 1 NC + 1 NO	260380240000	26.03.8.024
Double phase switch; 1 NC + 1 NO	260380480000	26.03.8.048
Double phase switch; 1 NC + 1 NO	260381100000	26.03.8.110
Double phase switch; 1 NC + 1 NO	260382300000	26.03.8.230
4 sequence double phase switch; 2 NO	260480120000	26.04.8.012
4 sequence double phase switch; 2 NO	260480240000	26.04.8.024
4 sequence double phase switch; 2 NO	260480480000	26.04.8.048
4 sequence double phase switch; 2 NO	260481100000	26.04.8.110
4 sequence double phase switch; 2 NO	260482300000	26.04.8.230
3 sequence double phase switch; 2 NO	260680120000	26.06.8.012
3 sequence double phase switch; 2 NO	260680240000	26.06.8.024
3 sequence double phase switch; 2 NO	260680480000	26.06.8.048
3 sequence double phase switch; 2 NO	260681100000	26.06.8.110
3 sequence double phase switch; 2 NO	260682300000	26.06.8.230
4 sequence double phase switch; 2 NO	260880120000	26.08.8.012
4 sequence double phase switch; 2 NO	260880240000	26.08.8.024

4 sequence double phase switch; 2 NO	260880480000	26.08.8.04
4 sequence double phase switch; 2 NO	260881100000	26.08.8.11
4 sequence double phase switch; 2 NO	260882300000	26.08.8.23
Single phase switch; 1 NO	270181100000	27.01.8.11
Single phase switch; 1 NO	270182300000	27.01.8.23
4 sequence double phase switch; 2 NO	270581100000	27.05.8.11
4 sequence double phase switch; 2 NO	270582300000	27.05.8.23
3 sequence double phase switch; 2 NO	270681100000	27.06.8.11
3 sequence double phase switch; 2 NO	270682300000	27.06.8.23
Single phase switch; 1 NO - "EVO"	272182300000	27.21.8.23
4 sequence double phase switch; 2 NO - "EVO"	272582300000	27.25.8.23
3 sequence double phase switch; 2 NO - "EVO"	272682300000	27.26.8.23
2CO 2A; Sensitive DC coil (200mw)	302270030010	30.22.7.003
2CO 2A; Sensitive DC coil (200mw)	302270050010	30.22.7.005
2CO 2A; Sensitive DC coil (200mw)	302270060010	30.22.7.006
2CO 2A; Sensitive DC coil (200mw)	302270090010	30.22.7.009
2CO 2A; Sensitive DC coil (200mw)	302270120010	30.22.7.012
2CO 2A; Sensitive DC coil (200mw)	302270240010	30.22.7.024
2CO 2A; Sensitive DC coil (200mw)	302270480010	30.22.7.048
2CO 2A; Sensitive DC coil (400mw)	302290050010	30.22.9.005
2CO 2A; Sensitive DC coil (400mw)	302290060010	30.22.9.006
2CO 2A; Sensitive DC coil (400mw)	302290090010	30.22.9.009
2CO 2A; Sensitive DC coil (400mw)	302290120010	30.22.9.012
2CO 2A; Sensitive DC coil (400mw)	302290240010	30.22.9.024
2CO 2A; Sensitive DC coil (400mw)	302290480010	30.22.9.048
1CO 6A; Sensitive coil	322170052000	32.21.7.005

Normally Open contact configuration	322170052300	32.21.7.005
AgSnO2 contacts	322170054000	32.21.7.005
AgSnO2 contacts	322170054300	32.21.7.005
1CO 6A; Sensitive coil	322170122000	32.21.7.012
Normally Open contact configuration	322170122300	32.21.7.012
AgSnO2 contacts	322170124000	32.21.7.012
AgSnO2 contacts	322170124300	32.21.7.012
Normally Open contact configuration	322170182300	32.21.7.018
1CO 6A; Sensitive coil	322170242000	32.21.7.024
Normally Open contact configuration	322170242300	32.21.7.024
AgSnO2 contacts	322170244000	32.21.7.024
AgSnO2 contacts	322170244300	32.21.7.024
1CO 6A; Sensitive coil	322170482000	32.21.7.048
Normally Open contact configuration	322170482300	32.21.7.048
AgSnO2 contacts	322170484000	32.21.7.048
AgSnO2 contacts	322170484300	32.21.7.048
Electromechanical Relay; AgNi; 1CO 6A	345170050010	34.51.7.005
Flat version	345170050019	34.51.7.005
Normally Open contact configuration	345170050310	34.51.7.005
Normally Open contact configuration	345170050319	34.51.7.005
AgSnO2 contacts	345170054010	34.51.7.005
Flat version	345170054019	34.51.7.005
AgSnO2 contacts	345170054310	34.51.7.005
Flat version	345170054319	34.51.7.005
AgNi + Au contacts	345170055010	34.51.7.005
Flat version	345170055019	34.51.7.005

AgNi + Au contacts	345170055310	34.51.7.005
Flat version	345170055319	34.51.7.005
Electromechanical Relay; AgNi; 1CO 6A	345170060010	34.51.7.006
Normally Open contact configuration	345170060310	34.51.7.006
Electromechanical Relay; AgNi; 1CO 6A	345170120010	34.51.7.012
Flat version	345170120019	34.51.7.012
Normally Open contact configuration	345170120310	34.51.7.012
AgSnO2 contacts	345170124010	34.51.7.012
Flat version	345170124019	34.51.7.012
AgSnO2 contacts	345170124310	34.51.7.012
AgNi + Au contacts	345170125010	34.51.7.012
AgNi + Au contacts	345170125310	34.51.7.012
Electromechanical Relay; AgNi; 1CO 6A	345170240010	34.51.7.024
Flat version	345170240019	34.51.7.024
Normally Open contact configuration	345170240310	34.51.7.024
AgSnO2 contacts	345170244010	34.51.7.024
AgSnO2 contacts	345170244310	34.51.7.024
AgNi + Au contacts	345170245010	34.51.7.024
Flat version	345170245019	34.51.7.024
AgNi + Au contacts	345170245310	34.51.7.024
Electromechanical Relay; AgNi; 1CO 6A	345170480010	34.51.7.048
Flat version	345170480019	34.51.7.048
Normally Open contact configuration	345170480310	34.51.7.048
AgSnO2 contacts	345170484010	34.51.7.048
AgSnO2 contacts	345170484310	34.51.7.048
AgNi + Au contacts	345170485010	34.51.7.048

AgNi + Au contacts	345170485310	34.51.7.04
Electromechanical Relay; AgNi; 1CO 6A	345170600010	34.51.7.06
Flat version	345170600019	34.51.7.06
Normally Open contact configuration	345170600310	34.51.7.06
AgSnO2 contacts	345170604010	34.51.7.06
AgSnO2 contacts	345170604310	34.51.7.06
AgNi + Au contacts	345170605010	34.51.7.06
AgNi + Au contacts	345170605310	34.51.7.06
Solid State Relay; 2A-240VAC,5VDC	348170058240	34.81.7.00
Solid State Relay; 2A-24VDC, 5VDC	348170059024	34.81.7.00
Solid State Relay; 2A-240VAC,12VDC	348170128240	34.81.7.01
Solid State Relay; 2A-24VDC, 12VDC	348170129024	34.81.7.01
Solid State Relay; 100mA-48VDC,24VDC	348170247048	34.81.7.02
Solid State Relay; 0,1A-125VDC,24VDC	348170247125	34.81.7.02
Solid State Relay; 2A-240VAC,24VDC	348170248240	34.81.7.02
Solid State Relay; 2A-24VDC,24VDC	348170249024	34.81.7.02
Solid State Relay; 100mA-48VDC,60VDC	348170607048	34.81.7.06
Solid State Relay; 0,1A-125VDC,60VDC	348170607125	34.81.7.06
Solid State Relay; 2A-240VAC,60VDC	348170608240	34.81.7.06
Solid State Relay; 2A-24VDC,60VDC	348170609024	34.81.7.06
Sugar Cube Relay; 10A; AgSnO2; 1 CO	361190034001	36.11.9.00
Sugar Cube Relay; 10A; AgSnO2; 1 CO NEW	361190034011	36.11.9.00
Sugar Cube Relay; 10A; AgSnO2; 1 NO	361190034301	36.11.9.00
Sugar Cube Relay; 10A; AgSnO2; 1 CO	361190054001	36.11.9.00
Sugar Cube Relay; 10A; AgSnO2; 1 CO NEW	361190054011	36.11.9.00
Sugar Cube Relay; 10A; AgSnO2; 1 NO	361190054301	36.11.9.00

Sugar Cube Relay; 10A; AgSnO2; 1 CO	361190064001	36.11.9.000
Sugar Cube Relay; 10A; AgSnO2; 1 CO NEW	361190064011	36.11.9.000
Sugar Cube Relay; 10A; AgSnO2; 1 NO	361190064301	36.11.9.000
Sugar Cube Relay; 10A; AgSnO2; 1 CO	361190094001	36.11.9.000
Sugar Cube Relay; 10A; AgSnO2; 1 CO NEW	361190094011	36.11.9.000
Sugar Cube Relay; 10A; AgSnO2; 1 CO	361190124001	36.11.9.010
Sugar Cube Relay; 10A; AgSnO2; 1 CO NEW	361190124011	36.11.9.010
Sugar Cube Relay; 10A; AgSnO2; 1 NO	361190124301	36.11.9.010
Sugar Cube Relay; 10A; AgSnO2; 1 CO	361190184001	36.11.9.010
Sugar Cube Relay; 10A; AgSnO2; 1 CO NEW	361190184011	36.11.9.010
Sugar Cube Relay; 10A; AgSnO2; 1 NO	361190184301	36.11.9.010
Sugar Cube Relay; 10A; AgSnO2; 1 CO	361190244001	36.11.9.020
Sugar Cube Relay; 10A; AgSnO2; 1 CO NEW	361190244011	36.11.9.020
Sugar Cube Relay; 10A; AgSnO2; 1 CO	361190484001	36.11.9.040
Sugar Cube Relay; 10A; AgSnO2; 1 CO NEW	361190484011	36.11.9.040
Sugar Cube Relay; 10A; AgSnO2; 1 NO	361190484301	36.11.9.040
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 16A; 24V AC/DC	380100240060	38.01.0.020
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 16A; 60V AC/DC	380100600060	38.01.0.060
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 16A; 110...125V AC/DC	380101250060	38.01.0.120
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 16A; 230...240V AC/DC	380102400060	38.01.0.240
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 16A; 12V DC	380170120050	38.01.7.010
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 16A; 24V DC	380170240050	38.01.7.020
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 16A; 60V DC	380170600050	38.01.7.060
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 16A; 24V AC/DC	381100240060	38.11.0.020
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 16A; 60V AC/DC	381100600060	38.11.0.060
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 16A; 110...125V AC/DC	381101250060	38.11.0.120

Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 16A; 230...240V AC/DC	381102400060	38.11.0.24
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 16A; 12V DC	381170120050	38.11.7.01
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 16A; 24V DC	381170240050	38.11.7.02
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 16A; 60V DC	381170600050	38.11.7.06
Timed interface module; Screw terminals; Multifunction: AI,DI,GI,SW; 1 pole 6A; Electromechanical relay; 12VAC/DC	382100120060	38.21.0.01
Timed interface module; Screw terminals; Multifunction: AI,DI,GI,SW; 1 pole 6A; Electromechanical relay; 24VAC/DC	382100240060	38.21.0.02
Timed interface module; Screw terminals; Multifunction: AI,DI,GI,SW; 1 output 2A 240VAC; Solid state relay; 24VAC/DC	382100248240	38.21.0.02
Timed interface module; Screw terminals; Multifunction: AI,DI,GI,SW; 1 output 2A 24VDC; Solid state relay; 24VAC/DC	382100249024	38.21.0.02
Solid state relay; Screw terminals; 1 output 3A 240VAC; 24VDC	383170248240	38.31.7.02
Solid state relay; Screw terminals; 1 output 5A 24VDC; 24VDC	383170249024	38.31.7.02
Solid state relay; Screwless terminals; 1 output 3A 240VAC; 24VAC/DC	384100248240	38.41.0.02
Solid state relay; Screwless terminals; 1 output 3A 240VAC; 24VDC	384170248240	38.41.7.02
Solid state relay; Screwless terminals; 1 output 5A 24VDC; 24VDC	384170249024	38.41.7.02
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 12V AC/DC	385100120060	38.51.0.01
Electromechanical Relay; Screw Terminals; AgSnO2; 1 pole 6A; 12V AC/DC	385100124060	38.51.0.01
Electromechanical Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 12V AC/DC	385100125060	38.51.0.01
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 24V AC/DC	385100240060	38.51.0.02
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 24V AC/DC	385100240060SPB	38.51.0.02
Electromechanical Relay; Screw Terminals; AgSnO2; 1 pole 6A; 24V AC/DC	385100244060	38.51.0.02
Electromechanical Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 24V AC/DC	385100245060	38.51.0.02
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 48V AC/DC	385100480060	38.51.0.04
Electromechanical Relay; Screw Terminals; AgSnO2; 1 pole 6A; 48V AC/DC	385100484060	38.51.0.04
Electromechanical Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 48V AC/DC	385100485060	38.51.0.04
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 60V AC/DC	385100600060	38.51.0.06
Electromechanical Relay; Screw Terminals; AgSnO2; 1 pole 6A; 60V AC/DC	385100604060	38.51.0.06

Electromechanical Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 60V AC/DC	385100605060	38.51.0.060
Electromechanical Relay; Screw Terminals; AgNi; 6A; 110-125V AC/DC	385101250060	38.51.0.125
Electromechanical Relay; Screw Terminals; AgSnO2; 1 pole 6A; 110-125V AC/DC	385101254060	38.51.0.125
Electromechanical Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 110-125V AC/DC	385101255060	38.51.0.125
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 230-240V AC/DC	385102400060	38.51.0.240
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 230-240V AC/DC	385102400060SPB	38.51.0.240
Electromechanical Relay; Screw Terminals; AgSnO2; 1 pole 6A; 230-240V AC/DC	385102404060	38.51.0.240
Electromechanical Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 230-240V AC/DC	385102405060	38.51.0.240
Leakage current suppression; Electromechanical Relay; Screw Terminals; AgNi; 6A; 110-125V AC/DC	385131250060	38.51.3.125
Electromechanical Relay; Leakage current suppression; Screw Terminals; AgSnO2; 1 pole 6A; 110-125V AC/DC	385131254060	38.51.3.125
Electromechanical Relay; Leakage current suppression Screw Terminals; AgNi+Au; 1 pole 6A; 110-125V AC/DC	385131255060	38.51.3.125
Leakage current suppression; Electromechanical Relay; Screw Terminals; AgNi; 6A; 230-240V AC	385132400060	38.51.3.240
Electromechanical Relay; Leakage current suppression; Screw Terminals; AgSnO2; 1 pole 6A; 230-240V AC/DC	385132404060	38.51.3.240
Electromechanical Relay; Leakage current suppression Screw Terminals; AgNi+Au; 1 pole 6A; 230-240V AC/DC	385132405060	38.51.3.240
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 6V DC	385170060050	38.51.7.000
Electromechanical Relay; Screw Terminals; AgSnO2; 1 pole 6A; 6V AC/DC	385170064050	38.51.7.000
Electromechanical Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 6V AC/DC	385170065050	38.51.7.000
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 12V DC	385170120050	38.51.7.012
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 12V DC	385170120050SPB	38.51.7.012
Electromechanical Relay; Screw Terminals; AgSnO2; 1 pole 6A; 12V AC/DC	385170124050	38.51.7.012
Electromechanical Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 12V AC/DC	385170125050	38.51.7.012
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 24V DC	385170240050	38.51.7.024
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 24V DC	385170240050SPB	38.51.7.024
Electromechanical Relay; Screw Terminals; AgSnO2; 1 pole 6A; 24V AC/DC	385170244050	38.51.7.024
Electromechanical Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 24V AC/DC	385170245050	38.51.7.024

Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 48V DC	385170480050	38.51.7.04
Electromechanical Relay; Screw Terminals; AgSnO2; 1 pole 6A; 48V AC/DC	385170484050	38.51.7.04
Electromechanical Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 48V AC/DC	385170485050	38.51.7.04
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 60V DC	385170600050	38.51.7.06
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 60V DC	385170600050SPB	38.51.7.06
Electromechanical Relay; Screw Terminals; AgSnO2; 1 pole 6A; 60V AC/DC	385170604050	38.51.7.06
Electromechanical Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 60V AC/DC	385170605050	38.51.7.06
Electromechanical Relay; Screw Terminals; AgNi; 1 pole 6A; 230-240V AC	385182400060	38.51.8.24
Electromechanical Relay; Screw Terminals; AgNi; 2 pole 8A; 12V AC/DC	385200120060	38.52.0.01
Electromechanical Relay; Screw Terminals; AgNi; 2 pole 8A; 24V AC/DC	385200240060	38.52.0.02
Electromechanical Relay; Screw Terminals; AgNi; 2 pole 8A; 48V AC/DC	385200480060	38.52.0.04
Electromechanical Relay; Screw Terminals; AgNi; 2 pole 8A; 60V AC/DC	385200600060	38.52.0.06
Electromechanical Relay; Screw Terminals; AgNi; 2 pole 8A; 125V AC/DC	385201250060	38.52.0.12
Electromechanical Relay; Screw Terminals; AgNi; 2 pole 8A; 240V AC/DC	385202400060	38.52.0.24
Electromechanical Relay; Screw Terminals; AgNi; 2 pole 8A; 12V DC	385270120050	38.52.7.01
Electromechanical Relay; Screw Terminals; AgNi; 2 pole 8A; 24V DC	385270240050	38.52.7.02
Electromechanical Relay; Screw Terminals; AgNi; 2 pole 8A; 48V DC	385270480050	38.52.7.04
Electromechanical Relay; Screw Terminals; AgNi; 2 pole 8A; 60V DC	385270600050	38.52.7.06
Electromechanical Relay; Screw Terminals; AgNi; 2 pole 8A; 230V AC	385282300060	38.52.8.23
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 12V AC/DC	386100120060	38.61.0.01
Electromechanical Relay; Screwless Terminals; AgSnO2; 1 pole 6A; 12V AC/DC	386100124060	38.61.0.01
Electromechanical Relay; Screwless Terminals; AgNi+Au; 1 pole 6A; 12V AC/DC	386100125060	38.61.0.01
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 24V AC/DC	386100240060	38.61.0.02
Electromechanical Relay; Screwless Terminals; AgSnO2; 1 pole 6A; 24V AC/DC	386100244060	38.61.0.02
Electromechanical Relay; Screwless Terminals; AgNi+Au; 1 pole 6A; 24V AC/DC	386100245060	38.61.0.02
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 48V AC/DC	386100480060	38.61.0.04

Electromechanical Relay; Screwless Terminals; AgSnO2; 1 pole 6A; 48V AC/DC	386100484060	38.61.0.048
Electromechanical Relay; Screwless Terminals; AgNi+Au; 1 pole 6A; 48V AC/DC	386100485060	38.61.0.048
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 60V AC/DC	386100600060	38.61.0.060
Electromechanical Relay; Screwless Terminals; AgSnO2; 1 pole 6A; 60V AC/DC	386100604060	38.61.0.060
Electromechanical Relay; Screwless Terminals; AgNi+Au; 1 pole 6A; 60V AC/DC	386100605060	38.61.0.060
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 110-125V AC/DC	386101250060	38.61.0.125
Electromechanical Relay; Screwless Terminals; AgSnO2; 1 pole 6A; 125V AC/DC	386101254060	38.61.0.125
Electromechanical Relay; Screwless Terminals; AgNi+Au; 1 pole 6A; 110-125V AC/DC	386101255060	38.61.0.125
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 230-240V AC/DC	386102400060	38.61.0.240
Electromechanical Relay; Screwless Terminals; AgSnO2; 1 pole 6A; 240V AC/DC	386102404060	38.61.0.240
Electromechanical Relay; Screwless Terminals; AgNi+Au; 1 pole 6A; 230-240V AC/DC	386102405060	38.61.0.240
Leakage current suppression; Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 110-125V AC/DC	386131250060	38.61.3.125
Electromechanical Relay; Leakage current suppression Screwless Terminals; AgSnO2; 1 pole 6A; 110-125V AC/DC	386131254060	38.61.3.125
Electromechanical Relay; Leakage current suppression; Screwless Terminals; AgNi+Au; 1 pole 6A; 110-125V AC/DC	386131255060	38.61.3.125
Leakage current suppression; Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 230-240V AC	386132400060	38.61.3.240
Electromechanical Relay; Leakage current suppression Screwless Terminals; AgSnO2; 1 pole 6A; 230-240V AC/DC	386132404060	38.61.3.240
Electromechanical Relay; Leakage current suppression; Screwless Terminals; AgNi+Au; 1 pole 6A; 230-240V AC/DC	386132405060	38.61.3.240
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 6V DC	386170060050	38.61.7.006
Electromechanical Relay; Screwless Terminals; AgSnO2; 1 pole 6A; 6V DC	386170064050	38.61.7.006
Electromechanical Relay; Screwless Terminals; AgNi+Au; 1 pole 6A; 6V DC	386170065050	38.61.7.006
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 12V DC	386170120050	38.61.7.012
Electromechanical Relay; Screwless Terminals; AgSnO2; 1 pole 6A; 12V DC	386170124050	38.61.7.012
Electromechanical Relay; Screwless Terminals; AgNi+Au; 1 pole 6A; 12V DC	386170125050	38.61.7.012
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 24V DC	386170240050	38.61.7.024
Electromechanical Relay; Screwless Terminals; AgSnO2; 1 pole 6A; 24V DC	386170244050	38.61.7.024

Electromechanical Relay; Screwless Terminals; AgNi+Au; 1 pole 6A; 24V DC	386170245050	38.61.7.024
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 48V DC	386170480050	38.61.7.048
Electromechanical Relay; Screwless Terminals; AgSnO2; 1 pole 6A; 48V DC	386170484050	38.61.7.048
Electromechanical Relay; Screwless Terminals; AgNi+Au; 1 pole 6A; 48V DC	386170485050	38.61.7.048
Electromechanical Relay; Screwless Terminals; AgNi; 1 pole 6A; 60V DC	386170600050	38.61.7.060
Electromechanical Relay; Screwless Terminals; AgSnO2; 1 pole 6A; 60V DC	386170604050	38.61.7.060
Electromechanical Relay; Screwless Terminals; AgNi+Au; 1 pole 6A; 60V DC	386170605050	38.61.7.060
Electromechanical Relay; Screwless Terminals; AgNi; 2 pole 8A; 12V AC/DC	386200120060	38.62.0.012
Electromechanical Relay; Screwless Terminals; AgNi; 2 pole 8A; 24V AC/DC	386200240060	38.62.0.024
Electromechanical Relay; Screwless Terminals; AgNi; 2 pole 8A; 48V AC/DC	386200480060	38.62.0.048
Electromechanical Relay; Screwless Terminals; AgNi; 2 pole 8A; 60V AC/DC	386200600060	38.62.0.060
Electromechanical Relay; Screwless Terminals; AgNi; 2 pole 8A; 125V AC/DC	386201250060	38.62.0.125
Electromechanical Relay; Screwless Terminals; AgNi; 2 pole 8A; 240V AC/DC	386202400060	38.62.0.240
Electromechanical Relay; Screwless Terminals; AgNi; 2 pole 8A; 12V DC	386270120050	38.62.7.012
Electromechanical Relay; Screwless Terminals; AgNi; 2 pole 8A; 24V DC	386270240050	38.62.7.024
Electromechanical Relay; Screwless Terminals; AgNi; 2 pole 8A; 48V DC	386270480050	38.62.7.048
Electromechanical Relay; Screwless Terminals; AgNi; 2 pole 8A; 60V DC	386270600050	38.62.7.060
Electromechanical Relay; Screwless Terminals; AgNi; 2 pole 8A; 230V AC	386282300060	38.62.8.230
Solid State Relay; Screw Terminals; 1 output 100mA-48VDC;110-125VAC/DC	388101257048	38.81.0.125
Solid State Relay; Screw Terminals; 1 output 2A-240VAC;110-125VAC/DC	388101258240	38.81.0.125
Solid State Relay; Screw Terminals; 1 output 2A-24VDC;110-125VAC/DC	388101259024	38.81.0.125
Solid State Relay; Screw Terminals; 1 output 100mA-48VDC; 230-240VAC/DC	388102407048	38.81.0.240
Solid State Relay; Screw Terminals; 1 output 2A-240VAC; 230-240VAC/DC	388102408240	38.81.0.240
Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 230-240VAC/DC	388102409024	38.81.0.240
Leakage current suppression; Solid State Relay; Screw Terminals; 1 output 100mA-48VDC; 110-125VAC/DC	388131257048	38.81.3.125

Leakage current suppression; Solid State Relay; Screw Terminals; 1 output 2A-240VAC; 110-125VAC/DC	388131258240	38.81.3.125
Leakage current suppression; Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 110-125VAC/DC	388131259024	38.81.3.125
Leakage current suppression; Solid State Relay; Screw Terminals; 1 output 100mA-48VDC; 230-240VAC/DC	388132407048	38.81.3.240
Leakage current suppression; Solid State Relay; Screw Terminals; 1 output 2A-240VAC; 230-240VAC	388132408240	38.81.3.240
Leakage current suppression; Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 230-240VAC	388132409024	38.81.3.240
Solid State Relay; Screw Terminals; 1 output 2A-240VAC; 6VDC	388170068240	38.81.7.006
Solid State Relay; Screw Terminals; 1 output 100mA-48VDC; 6VDC	388170069024	38.81.7.006
Solid State Relay; Screw Terminals; 1 output 100mA-48VDC; 24VDC	388170247048	38.81.7.024
Solid State Relay; Screw Terminals; 1 output 2A-240VAC; 24VDC	388170248240	38.81.7.024
Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 24VDC	388170249024	38.81.7.024
Solid State Relay; Screw Terminals; 1 output 100mA-48VDC; 60VDC	388170607048	38.81.7.060
Solid State Relay; Screw Terminals; 1 output 2A-240VAC; 60VDC	388170608240	38.81.7.060
Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 60VDC	388170609024	38.81.7.060
Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 125VDC	388171259024	38.81.7.125
Solid State Relay; Screwless Terminals; 1 output 100mA-48VDC; 110-125VAC/DC	389101257048	38.91.0.125
Solid State Relay; Screwless Terminals; 1 output 2A-240VAC; 110-125VAC/DC	389101258240	38.91.0.125
Solid State Relay; Screwless Terminals; 1 output 2A-24VDC;110-125VAC/DC	389101259024	38.91.0.125
Solid State Relay; Screwless Terminals; 1 output 100mA-48VDC; 230-240VAC	389102407048	38.91.0.240
Solid State Relay; Screwless Terminals; 1 output 2A-240VAC; 230-240VAC/DC	389102408240	38.91.0.240
Solid State Relay; Screwless Terminals; 1 output 2A-24VDC; 230-240VAC	389102409024	38.91.0.240
Leakage current suppression; Solid State Relay; Screwless Terminals; 1 output 100mA-48VDC; 110-125VAC/DC	389131257048	38.91.3.125
Leakage current suppression; Solid State Relay; Screwless Terminals; 1 output 2A-240VAC; 110-125VAC	389131258240	38.91.3.125
Leakage current suppression; Solid State Relay; Screwless Terminals; 1 output 2A-24VDC; 110-125VAC/DC	389131259024	38.91.3.125
Leakage current suppression; Solid State Relay; Screwless Terminals; 1 output 100mA-48VDC; 230-240VAC/DC	389132407048	38.91.3.240
Leakage current suppression; Solid State Relay; Screwless Terminals; 1 output 2A-240VAC; 230-240VAC	389132408240	38.91.3.240

Leakage current suppression; Solid State Relay; Screwless Terminals; 1 output 2A-24VDC; 230-240VAC	389132409024	38.91.3.24
Solid State Relay; Screwless Terminals; 1 output 2A-240VAC; 6VDC	389170068240	38.91.7.00
Solid State Relay; Screwless Terminals; 1 output 2A-24VDC; 6VDC	389170069024	38.91.7.00
Solid State Relay; Screwless Terminals; 1 output 100mA-48VDC; 24VDC	389170247048	38.91.7.02
Solid State Relay; Screwless Terminals; 1 output 2A-240VAC; 24VDC	389170248240	38.91.7.02
Solid State Relay; Screwless Terminals; 1 output 2A-24VDC; 24VDC	389170249024	38.91.7.02
Solid State Relay; Screwless Terminals; 1 output 100mA-48VDC; 60VDC	389170607048	38.91.7.06
Solid State Relay; Screwless Terminals; 1 output 2A-240VAC; 60VDC	389170608240	38.91.7.06
Solid State Relay; Screwless Terminals; 1 output 2A-24VDC; 60VDC	389170609024	38.91.7.06
MasterBASIC: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 6VDC	391070069024	39.10.7.00
MasterBASIC: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 12VDC	391070129024	39.10.7.01
MasterBASIC: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 6VDC	391070248240	39.10.7.02
MasterBASIC: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 24VDC	391070249024	39.10.7.02
MasterBASIC: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 230VAC	391082309024	39.10.8.23
MasterBASIC: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 6VAC/DC	391100060060	39.11.0.00
MasterBASIC: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 12VAC/DC	391100120060	39.11.0.01
MasterBASIC: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 24VAC/DC	391100240060	39.11.0.02
MasterBASIC: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 230VAC	391182300060	39.11.8.23
MasterOUTPUT: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 6VDC	392070069024	39.20.7.00
MasterOUTPUT: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 12VDC	392070129024	39.20.7.01
MasterOUTPUT: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 24VDC	392070249024	39.20.7.02
MasterOUTPUT: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 230VAC	392082309024	39.20.8.23
MasteOUTPUT: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 6VAC/DC	392100060060	39.21.0.00
MasteOUTPUT: Electromec. Relay; Screw Terminals; AgNi 1 pole 6A; 12VAC/DC	392100120060	39.21.0.01
MasteOUTPUT: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 24VAC/DC	392100240060	39.21.0.02
MasteOUTPUT: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 125VAC/DC	392101250060	39.21.0.12

MasteOUTPUT: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 230VAC	392182300060	39.21.8.230
MasterPLUS: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 24VAC/DC	393000249024	39.30.0.024
MasterPLUS: Solid State Relay; Screw Terminals; 1 output 2A-240VAC; 110...125VAC/DC	393001258240	39.30.0.125
MasterPLUS: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 110...125VAC/DC	393001259024	39.30.0.125
MasterPLUS: Leakage current suppression; Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 110...125VAC/DC	393031259024	39.30.3.125
MasterPLUS: c Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 230VAC/DC	393032309024	39.30.3.230
MasterPLUS: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 6VDC	393070069024	39.30.7.006
MasterPLUS: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 12VDC	393070129024	39.30.7.012
MasterPLUS: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 24VDC	393070249024	39.30.7.024
MasterPLUS: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 60VDC	393070609024	39.30.7.060
MasterPLUS: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 125VDC	393071259024	39.30.7.125
MasterPLUS: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 220VDC	393072209024	39.30.7.220
MasterPLUS: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 230VAC	393082309024	39.30.8.230
MastePLUS: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 6VAC/DC	393100060060	39.31.0.006
MastePLUS: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 12VAC/DC	393100120060	39.31.0.012
MastePLUS: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 24VAC/DC	393100240060	39.31.0.024
MastePLUS: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 60VAC/DC	393100600060	39.31.0.060
MastePLUS: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 125VAC/DC	393101250060	39.31.0.125
MastePLUS: Leakage current suppression; Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 125VAC/DC	393131250060	39.31.3.125
MastePLUS: Leakage current suppression; Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 230VAC/DC	393132300060	39.31.3.230
MastePLUS: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 125VDC	393171250060	39.31.7.125
MastePLUS: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 220VDC	393172200060	39.31.7.220
MastePLUS: Electromec. Relay; Screw Terminals; AgNi; 1 pole 6A; 230VAC	393182300060	39.31.8.230
MasterINPUT: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 24VAC/DC	394000248240	39.40.0.024
MasterINPUT: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 24VAC/DC	394000249024	39.40.0.024

MasterINPUT: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 125VAC/DC	394001259024	39.40.0.125
MasterINPUT: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 6VDC	394070069024	39.40.7.006
MasterINPUT: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 12VDC	394070129024	39.40.7.012
MasterINPUT: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 6VDC	394072207048	39.40.7.220
MasterINPUT: Solid State Relay; Screw Terminals; 1 output 2A-24VDC; 230VAC	394082309024	39.40.8.230
MasterINPUT: Electromec. Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 6VAC/DC	394100065060	39.41.0.006
MasterINPUT: Electromec. Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 12VAC/DC	394100125060	39.41.0.012
MasterINPUT: Electromec. Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 24VAC/DC	394100245060	39.41.0.024
MasterINPUT: Electromec. Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 125VAC/DC	394101255060	39.41.0.125
MasterINPUT: Electromec. Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 125VAC/DC	394172205060	39.41.7.220
MasterINPUT: Electromec. Relay; Screw Terminals; AgNi+Au; 1 pole 6A; 230VAC	394182305060	39.41.8.230
MasterTIMER: Timed interface module; Screw terminals; Multifunction: AI,DI,GI,SW; 1 output 2A-24VDC; Solid State Relay; 12VAC/DC	398000129024	39.80.0.012
MasterTIMER: Timed interface module; Screw terminals; Multifunction: AI,DI,GI,SW; 1 output 2A-24VDC; Solid State Relay; 24VAC/DC	398000249024	39.80.0.024
MasterTIMER: Timed interface module; Screw terminals; Multifunction: AI,DI,GI,SW,BE,CE,DE,EE; 1 pole 6A; Electromec. Relay; 12VAC/DC	398100120060	39.81.0.012
MasterTIMER: Timed interface module; Screw terminals; Multifunction: AI,DI,GI,SW,BE,CE,DE,EE; 1 pole 6A; Electromec. Relay; 24VAC/DC	398100240060	39.81.0.024
Sensitive DC coil	401170062000	40.11.7.006
Flat;3.5mm pinning; AgCdO; 1CO 16A; DC coil	401170062016	40.11.7.006
Normally Open contact configuration	401170062300	40.11.7.006
Normally Open contact configuration	401170062316	40.11.7.006
Sensitive DC coil	401170092000	40.11.7.009
Sensitive DC coil	401170122000	40.11.7.012
Flat;3.5mm pinning; AgCdO; 1CO 16A; DC coil	401170122016	40.11.7.012
Normally Open contact configuration	401170122300	40.11.7.012
Normally Open contact configuration	401170122316	40.11.7.012
Sensitive DC coil	401170242000	40.11.7.024

Flat;3.5mm pinning; AgCdO; 1CO 16A; DC coil	401170242016	40.11.7.024
Normally Open contact configuration	401170242300	40.11.7.024
Normally Open contact configuration	401170242316	40.11.7.024
Sensitive DC coil	401170482000	40.11.7.048
Flat;3.5mm pinning; AgCdO; 1CO 16A; DC coil	401170482016	40.11.7.048
Normally Open contact configuration	401170482300	40.11.7.048
Normally Open contact configuration	401170482316	40.11.7.048
Sensitive DC coil	401170602000	40.11.7.060
Flat;3.5mm pinning; AgCdO; 1CO 16A; DC coil	401170602016	40.11.7.060
Normally Open contact configuration	401170602300	40.11.7.060
Normally Open contact configuration	401170602316	40.11.7.060
Bistable coil	403160050000	40.31.6.005
Ten pack	403160050000PAC	40.31.6.005
Bistable coil	403160060000	40.31.6.006
Ten pack	403160060000PAC	40.31.6.006
Wash tight	403160060001	40.31.6.006
Bistable coil	403160120000	40.31.6.012
Ten pack	403160120000PAC	40.31.6.012
Wash tight	403160120001	40.31.6.012
Ten pack	403160120001PAC	40.31.6.012
Normally Open contact configuration	403160120300	40.31.6.012
Ten pack	403160120300PAC	40.31.6.012
Normally Open contact configuration	403160120301	40.31.6.012
Ten pack	403160120301PAC	40.31.6.012
Normally Open contact configuration	403160124300	40.31.6.012
Ten pack	403160124300PAC	40.31.6.012

Bistable coil	403160240000	40.31.6.024
Ten pack	403160240000PAC	40.31.6.024
Normally Open contact configuration	403160244300	40.31.6.024
Bistable coil	403160480000	40.31.6.048
Ten pack	403160480000PAC	40.31.6.048
Normally Open contact configuration	403160480300	40.31.6.048
Ten pack	403160480300PAC	40.31.6.048
Bistable coil	403160600000	40.31.6.060
Ten pack	403160600000PAC	40.31.6.060
Bistable coil	403161100000	40.31.6.110
Ten pack	403161100000PAC	40.31.6.110
Sensitive DC coil	403170050000	40.31.7.005
Ten pack	403170050000PAC	40.31.7.005
Wash tight	403170050001	40.31.7.005
Ten pack	403170050001PAC	40.31.7.005
Normally Open contact configuration	403170050300	40.31.7.005
Ten pack	403170050300PAC	40.31.7.005
Sensitive DC coil	403170054000	40.31.7.005
Wash tight	403170054001	40.31.7.005
Ten pack	403170054001PAC	40.31.7.005
Sensitive DC coil	403170060000	40.31.7.006
Ten pack	403170060000PAC	40.31.7.006
Wash tight	403170060001	40.31.7.006
Ten pack	403170060001PAC	40.31.7.006
Normally Open contact configuration	403170060300	40.31.7.006
Ten pack	403170060300PAC	40.31.7.006

Sensitive DC coil	403170064000	40.31.7.000
Ten pack	403170064000PAC	40.31.7.000
Sensitive DC coil	403170065000	40.31.7.000
Sensitive DC coil	403170070000	40.31.7.000
Ten pack	403170070000PAC	40.31.7.000
Normally Open contact configuration	403170070300	40.31.7.000
Ten pack	403170070300PAC	40.31.7.000
Sensitive DC coil	403170090000	40.31.7.000
Ten pack	403170090000PAC	40.31.7.000
Wash tight	403170090001	40.31.7.000
Ten pack	403170090001PAC	40.31.7.000
Sensitive DC coil	403170092000	40.31.7.000
Wash tight	403170095001	40.31.7.000
Ten pack	403170095001PAC	40.31.7.000
Sensitive DC coil	403170120000	40.31.7.012
Ten pack	403170120000PAC	40.31.7.012
Wash tight	403170120001	40.31.7.012
Ten pack	403170120001PAC	40.31.7.012
Normally Open contact configuration	403170120300	40.31.7.012
Ten pack	403170120300PAC	40.31.7.012
Normally Open contact configuration	403170120301	40.31.7.012
Ten pack	403170120301PAC	40.31.7.012
3.5mm pinning; AgNi; 1CO 10A; DC coil	403170121020	40.31.7.012
Ten pack	403170121020PAC	40.31.7.012
Normally Open contact configuration	403170121320	40.31.7.012
Ten pack	403170121320PAC	40.31.7.012

Sensitive DC coil	403170122000	40.31.7.012
Ten pack	403170122000PAC	40.31.7.012
Wash tight	403170122001	40.31.7.012
Ten pack	403170122001PAC	40.31.7.012
Normally Open contact configuration	403170122300	40.31.7.012
Ten pack	403170122300PAC	40.31.7.012
Normally Open contact configuration	403170122301	40.31.7.012
Sensitive DC coil	403170123000	40.31.7.012
Ten pack	403170123000PAC	40.31.7.012
Normally Open contact configuration	403170123300	40.31.7.012
Ten pack	403170123300PAC	40.31.7.012
Sensitive DC coil	403170124000	40.31.7.012
Ten pack	403170124000PAC	40.31.7.012
Sensitive DC coil	403170125000	40.31.7.012
Ten pack	403170125000PAC	40.31.7.012
Wash tight	403170125001	40.31.7.012
Ten pack	403170125001PAC	40.31.7.012
Sensitive DC coil	403170140000	40.31.7.014
Ten pack	403170140000PAC	40.31.7.014
Wash tight	403170140001	40.31.7.014
Ten pack	403170140001PAC	40.31.7.014
Normally Open contact configuration	403170140300	40.31.7.014
Ten pack	403170140300PAC	40.31.7.014
Sensitive DC coil	403170142000	40.31.7.014
Ten pack	403170142000PAC	40.31.7.014
Wash tight	403170142001	40.31.7.014

Ten pack	403170142001PAC	40.31.7.014
Normally Open contact configuration	403170142300	40.31.7.014
Ten pack	403170142300PAC	40.31.7.014
Sensitive DC coil	403170180000	40.31.7.018
Ten pack	403170180000PAC	40.31.7.018
Wash tight	403170180001	40.31.7.018
Ten pack	403170180001PAC	40.31.7.018
Normally Open contact configuration	403170180300	40.31.7.018
Ten pack	403170180300PAC	40.31.7.018
Sensitive DC coil	403170185000	40.31.7.018
Ten pack	403170185000PAC	40.31.7.018
Sensitive DC coil	403170210000	40.31.7.021
Ten pack	403170210000PAC	40.31.7.021
Sensitive DC coil	403170215000	40.31.7.021
Ten pack	403170215000PAC	40.31.7.021
Normally Open contact configuration	403170215301	40.31.7.021
Ten pack	403170215301PAC	40.31.7.021
Sensitive DC coil	403170240000	40.31.7.024
Ten pack	403170240000PAC	40.31.7.024
Wash tight	403170240001	40.31.7.024
Ten pack	403170240001PAC	40.31.7.024
Normally Open contact configuration	403170240300	40.31.7.024
Ten pack	403170240300PAC	40.31.7.024
Normally Open contact configuration	403170240301	40.31.7.024
Ten pack	403170240301PAC	40.31.7.024
3.5mm pinning; AgNi; 1CO 10A; DC coil	403170241020	40.31.7.024

Ten pack	403170241020PAC	40.31.7.024
Normally Open contact configuration	403170241320	40.31.7.024
Ten pack	403170241320PAC	40.31.7.024
Sensitive DC coil	403170242000	40.31.7.024
Ten pack	403170242000PAC	40.31.7.024
Wash tight	403170242001	40.31.7.024
Ten pack	403170242001PAC	40.31.7.024
Normally Open contact configuration	403170242300	40.31.7.024
Ten pack	403170242300PAC	40.31.7.024
Sensitive DC coil	403170244000	40.31.7.024
Ten pack	403170244000PAC	40.31.7.024
Sensitive DC coil	403170245000	40.31.7.024
Ten pack	403170245000PAC	40.31.7.024
Wash tight	403170245001	40.31.7.024
Ten pack	403170245001PAC	40.31.7.024
Sensitive DC coil	403170280000	40.31.7.024
Ten pack	403170280000PAC	40.31.7.024
Wash tight	403170280001	40.31.7.024
Ten pack	403170280001PAC	40.31.7.024
Normally Open contact configuration	403170280301	40.31.7.024
Sensitive DC coil	403170360000	40.31.7.036
Ten pack	403170360000PAC	40.31.7.036
Normally Open contact configuration	403170362300	40.31.7.036
Ten pack	403170362300PAC	40.31.7.036
Sensitive DC coil	403170480000	40.31.7.048
Ten pack	403170480000PAC	40.31.7.048

Wash tight	403170480001	40.31.7.048
Ten pack	403170480001PAC	40.31.7.048
Normally Open contact configuration	403170480300	40.31.7.048
Ten pack	403170480300PAC	40.31.7.048
Normally Open contact configuration	403170480301	40.31.7.048
Ten pack	403170480301PAC	40.31.7.048
Sensitive DC coil	403170482000	40.31.7.048
Ten pack	403170482000PAC	40.31.7.048
Sensitive DC coil	403170485000	40.31.7.048
Ten pack	403170485000PAC	40.31.7.048
Sensitive DC coil	403170600000	40.31.7.060
Ten pack	403170600000PAC	40.31.7.060
Wash tight	403170604001	40.31.7.060
Ten pack	403170604001PAC	40.31.7.060
Sensitive DC coil	403170605000	40.31.7.060
Ten pack	403170605000PAC	40.31.7.060
Wash tight	403170605001	40.31.7.060
Ten pack	403170605001PAC	40.31.7.060
Sensitive DC coil	403170900000	40.31.7.090
Ten pack	403170900000PAC	40.31.7.090
Sensitive DC coil	403170905000	40.31.7.090
Ten pack	403170905000PAC	40.31.7.090
Sensitive DC coil	403171100000	40.31.7.110
Ten pack	403171100000PAC	40.31.7.110
Wash tight	403171100001	40.31.7.110
3.5mm pinning; AgNi; 1CO 10A; AC coil	403180060000	40.31.8.000

Ten pack	403180060000PAC	40.31.8.000
Normally Open contact configuration	403180064300	40.31.8.000
Ten pack	403180064300PAC	40.31.8.000
3.5mm pinning; AgNi; 1CO 10A; AC coil	403180120000	40.31.8.012
Ten pack	403180120000PAC	40.31.8.012
Wash tight	403180120001	40.31.8.012
Ten pack	403180120001PAC	40.31.8.012
Normally Open contact configuration	403180120300	40.31.8.012
Ten pack	403180120300PAC	40.31.8.012
Normally Open contact configuration	403180120301	40.31.8.012
Ten pack	403180120301PAC	40.31.8.012
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403180125000	40.31.8.012
Ten pack	403180125000PAC	40.31.8.012
3.5mm pinning; AgNi; 1CO 10A; AC coil	403180240000	40.31.8.024
Ten pack	403180240000PAC	40.31.8.024
Wash tight	403180240001	40.31.8.024
Ten pack	403180240001PAC	40.31.8.024
Normally Open contact configuration	403180240300	40.31.8.024
Ten pack	403180240300PAC	40.31.8.024
Normally Open contact configuration	403180240301	40.31.8.024
Ten pack	403180240301PAC	40.31.8.024
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403180242000	40.31.8.024
Ten pack	403180242000PAC	40.31.8.024
AgSnO2 contacts (40.31/40.51/40.61 only)	403180244000	40.31.8.024
Ten pack	403180244000PAC	40.31.8.024
Wash tight	403180244001	40.31.8.024

Ten pack	403180244001PAC	40.31.8.024
Normally Open contact configuration	403180244300	40.31.8.024
Ten pack	403180244300PAC	40.31.8.024
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403180245000	40.31.8.024
Ten pack	403180245000PAC	40.31.8.024
Wash tight	403180245001	40.31.8.024
Ten pack	403180245001PAC	40.31.8.024
3.5mm pinning; AgNi; 1CO 10A; AC coil	403180480000	40.31.8.048
Ten pack	403180480000PAC	40.31.8.048
Wash tight	403180480001	40.31.8.048
Ten pack	403180480001PAC	40.31.8.048
Normally Open contact configuration	403180480300	40.31.8.048
Ten pack	403180480300PAC	40.31.8.048
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403180482000	40.31.8.048
Ten pack	403180482000PAC	40.31.8.048
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403180485000	40.31.8.048
Ten pack	403180485000PAC	40.31.8.048
3.5mm pinning; AgNi; 1CO 10A; AC coil	403180600000	40.31.8.060
Ten pack	403180600000PAC	40.31.8.060
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403180605000	40.31.8.060
Ten pack	403180605000PAC	40.31.8.060
110,120,125VAC coil (add to 1st column price)	403181100000	40.31.8.110
Ten pack	403181100000PAC	40.31.8.110
Wash tight	403181100001	40.31.8.110
Ten pack	403181100001PAC	40.31.8.110
Normally Open contact configuration	403181100300	40.31.8.110

Ten pack	403181100300PAC	40.31.8.110
Normally Open contact configuration	403181100301	40.31.8.110
Ten pack	403181100301PAC	40.31.8.110
110,120,125VAC coil (add to 1st column price)	403181102000	40.31.8.110
Ten pack	403181102000PAC	40.31.8.110
110,120,125VAC coil (add to 1st column price)	403181105000	40.31.8.110
Ten pack	403181105000PAC	40.31.8.110
Wash tight	403181105001	40.31.8.110
Ten pack	403181105001PAC	40.31.8.110
Normally Open contact configuration	403181105300	40.31.8.110
110,120,125VAC coil (add to 1st column price)	403181200000	40.31.8.120
Ten pack	403181200000PAC	40.31.8.120
Wash tight	403181200001	40.31.8.120
Ten pack	403181200001PAC	40.31.8.120
Normally Open contact configuration	403181200300	40.31.8.120
Ten pack	403181200300PAC	40.31.8.120
110,120,125VAC coil (add to 1st column price)	403181202000	40.31.8.120
110,120,125VAC coil (add to 1st column price)	403181204000	40.31.8.120
Ten pack	403181204000PAC	40.31.8.120
110,120,125VAC coil (add to 1st column price)	403181205000	40.31.8.120
Ten pack	403181205000PAC	40.31.8.120
Wash tight	403181205001	40.31.8.120
Ten pack	403181205001PAC	40.31.8.120
110,120,125VAC coil (add to 1st column price)	403181250000	40.31.8.125
Ten pack	403181250000PAC	40.31.8.125
Wash tight	403181250001	40.31.8.125

Ten pack	403181250001PAC	40.31.8.125
Normally Open contact configuration	403181250300	40.31.8.125
Ten pack	403181250300PAC	40.31.8.125
110,120,125VAC coil (add to 1st column price)	403181252000	40.31.8.125
Ten pack	403181252000PAC	40.31.8.125
Wash tight	403181252001	40.31.8.125
Ten pack	403181252001PAC	40.31.8.125
3.5mm pinning; AgNi; 1CO 10A; AC coil	403182300000	40.31.8.230
Ten pack	403182300000PAC	40.31.8.230
Wash tight	403182300001	40.31.8.230
Ten pack	403182300001PAC	40.31.8.230
Normally Open contact configuration	403182300300	40.31.8.230
Ten pack	403182300300PAC	40.31.8.230
Normally Open contact configuration	403182300301	40.31.8.230
Ten pack	403182300301PAC	40.31.8.230
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403182302000	40.31.8.230
Ten pack	403182302000PAC	40.31.8.230
AgSnO2 contacts (40.31/40.51/40.61 only)	403182304000	40.31.8.230
Ten pack	403182304000PAC	40.31.8.230
Normally Open contact configuration	403182304300	40.31.8.230
Ten pack	403182304300PAC	40.31.8.230
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403182305000	40.31.8.230
Ten pack	403182305000PAC	40.31.8.230
Wash tight	403182305001	40.31.8.230
Ten pack	403182305001PAC	40.31.8.230
Normally Open contact configuration	403182305300	40.31.8.230

3.5mm pinning; AgNi; 1CO 10A; AC coil	403182400000	40.31.8.24
Ten pack	403182400000PAC	40.31.8.24
Wash tight	403182400001	40.31.8.24
Ten pack	403182400001PAC	40.31.8.24
Normally Open contact configuration	403182400300	40.31.8.24
Ten pack	403182400300PAC	40.31.8.24
AgSnO2 contacts (40.31/40.51/40.61 only)	403182404000	40.31.8.24
Ten pack	403182404000PAC	40.31.8.24
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403182405000	40.31.8.24
Ten pack	403182405000PAC	40.31.8.24
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190040000	40.31.9.00
Ten pack	403190040000PAC	40.31.9.00
Wash tight	403190040001	40.31.9.00
Ten pack	403190040001PAC	40.31.9.00
High temperature (+125°C); Wash Tight (DC only)	403190040003	40.31.9.00
Ten pack	403190040003PAC	40.31.9.00
Normally Open contact configuration	403190040300	40.31.9.00
Ten pack	403190040300PAC	40.31.9.00
Normally Open contact configuration	403190040301	40.31.9.00
Ten pack	403190040301PAC	40.31.9.00
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190042000	40.31.9.00
Ten pack	403190042000PAC	40.31.9.00
Normally Open contact configuration	403190042300	40.31.9.00
Ten pack	403190042300PAC	40.31.9.00
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190045000	40.31.9.00
Ten pack	403190045000PAC	40.31.9.00

3.5mm pinning; AgNi; 1CO 10A; DC coil	403190050000	40.31.9.005
Ten pack	403190050000PAC	40.31.9.005
Wash tight	403190050001	40.31.9.005
Ten pack	403190050001PAC	40.31.9.005
Normally Open contact configuration	403190050300	40.31.9.005
Ten pack	403190050300PAC	40.31.9.005
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190052000	40.31.9.005
Ten pack	403190052000PAC	40.31.9.005
Wash tight	403190052001	40.31.9.005
Ten pack	403190052001PAC	40.31.9.005
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190055003	40.31.9.005
Ten pack	403190055003PAC	40.31.9.005
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190060000	40.31.9.006
Ten pack	403190060000PAC	40.31.9.006
Wash tight	403190060001	40.31.9.006
Ten pack	403190060001PAC	40.31.9.006
High temperature (+125°C); Wash Tight (DC only)	403190060003	40.31.9.006
Ten pack	403190060003PAC	40.31.9.006
Normally Open contact configuration	403190060300	40.31.9.006
Ten pack	403190060300PAC	40.31.9.006
Normally Open contact configuration	403190060301	40.31.9.006
Ten pack	403190060301PAC	40.31.9.006
Normally Open contact configuration	403190060303	40.31.9.006
Ten pack	403190060303PAC	40.31.9.006
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190062000	40.31.9.006
Ten pack	403190062000PAC	40.31.9.006

AgSnO2 contacts (40.31/40.51/40.61 only)	403190064000	40.31.9.000
Ten pack	403190064000PAC	40.31.9.000
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190065000	40.31.9.000
Ten pack	403190065000PAC	40.31.9.000
Wash tight	403190065001	40.31.9.000
Ten pack	403190065001PAC	40.31.9.000
Normally Open contact configuration	403190065300	40.31.9.000
Ten pack	403190065300PAC	40.31.9.000
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190070000	40.31.9.000
Ten pack	403190070000PAC	40.31.9.000
Wash tight	403190070001	40.31.9.000
Ten pack	403190070001PAC	40.31.9.000
Normally Open contact configuration	403190070300	40.31.9.000
Ten pack	403190070300PAC	40.31.9.000
Normally Open contact configuration	403190070301	40.31.9.000
Ten pack	403190070301PAC	40.31.9.000
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190072000	40.31.9.000
Ten pack	403190072000PAC	40.31.9.000
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190075000	40.31.9.000
Ten pack	403190075000PAC	40.31.9.000
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190090000	40.31.9.000
Ten pack	403190090000PAC	40.31.9.000
Wash tight	403190090001	40.31.9.000
Ten pack	403190090001PAC	40.31.9.000
High temperature (+125°C); Wash Tight (DC only)	403190090003	40.31.9.000
Ten pack	403190090003PAC	40.31.9.000

Normally Open contact configuration	403190090300	40.31.9.009
Ten pack	403190090300PAC	40.31.9.009
Normally Open contact configuration	403190090301	40.31.9.009
Ten pack	403190090301PAC	40.31.9.009
Normally Open contact configuration	403190090303	40.31.9.009
Ten pack	403190090303PAC	40.31.9.009
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190092000	40.31.9.009
Ten pack	403190092000PAC	40.31.9.009
Wash tight	403190092001	40.31.9.009
Ten pack	403190092001PAC	40.31.9.009
Normally Open contact configuration	403190092300	40.31.9.009
Ten pack	403190092300PAC	40.31.9.009
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190095000	40.31.9.009
Ten pack	403190095000PAC	40.31.9.009
Wash tight	403190095001	40.31.9.009
Ten pack	403190095001PAC	40.31.9.009
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190120000	40.31.9.012
Ten pack	403190120000PAC	40.31.9.012
Wash tight	403190120001	40.31.9.012
Ten pack	403190120001PAC	40.31.9.012
High temperature (+125°C); Wash Tight (DC only)	403190120003	40.31.9.012
Ten pack	403190120003PAC	40.31.9.012
Normally Open contact configuration	403190120300	40.31.9.012
Ten pack	403190120300PAC	40.31.9.012
Normally Open contact configuration	403190120301	40.31.9.012
Ten pack	403190120301PAC	40.31.9.012

Normally Open contact configuration	403190120303	40.31.9.012
Ten pack	403190120303PAC	40.31.9.012
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190122000	40.31.9.012
Ten pack	403190122000PAC	40.31.9.012
Wash tight	403190122001	40.31.9.012
Ten pack	403190122001PAC	40.31.9.012
Normally Open contact configuration	403190122300	40.31.9.012
Ten pack	403190122300PAC	40.31.9.012
Normally Open contact configuration	403190122301	40.31.9.012
Ten pack	403190122301PAC	40.31.9.012
AgCdO 85/15 contacts (40.61 only)	403190123000	40.31.9.012
Ten pack	403190123000PAC	40.31.9.012
AgSnO2 contacts (40.31/40.51/40.61 only)	403190124000	40.31.9.012
Ten pack	403190124000PAC	40.31.9.012
Wash tight	403190124001	40.31.9.012
Ten pack	403190124001PAC	40.31.9.012
Normally Open contact configuration	403190124300	40.31.9.012
Ten pack	403190124300PAC	40.31.9.012
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190125000	40.31.9.012
Ten pack	403190125000PAC	40.31.9.012
Wash tight	403190125001	40.31.9.012
Ten pack	403190125001PAC	40.31.9.012
Normally Open contact configuration	403190125300	40.31.9.012
Ten pack	403190125300PAC	40.31.9.012
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190140000	40.31.9.014
Ten pack	403190140000PAC	40.31.9.014

Wash tight	403190140001	40.31.9.014
Ten pack	403190140001PAC	40.31.9.014
High temperature (+125°C); Wash Tight (DC only)	403190140003	40.31.9.014
Ten pack	403190140003PAC	40.31.9.014
Normally Open contact configuration	403190140300	40.31.9.014
Ten pack	403190140300PAC	40.31.9.014
Normally Open contact configuration	403190140301	40.31.9.014
Ten pack	403190140301PAC	40.31.9.014
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190142000	40.31.9.014
Ten pack	403190142000PAC	40.31.9.014
Wash tight	403190142001	40.31.9.014
Ten pack	403190142001PAC	40.31.9.014
Normally Open contact configuration	403190142300	40.31.9.014
Ten pack	403190142300PAC	40.31.9.014
AgSnO2 contacts (40.31/40.51/40.61 only)	403190144000	40.31.9.014
Ten pack	403190144000PAC	40.31.9.014
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190145000	40.31.9.014
Ten pack	403190145000PAC	40.31.9.014
Wash tight	403190145001	40.31.9.014
Ten pack	403190145001PAC	40.31.9.014
Normally Open contact configuration	403190145300	40.31.9.014
Ten pack	403190145300PAC	40.31.9.014
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190180000	40.31.9.014
Ten pack	403190180000PAC	40.31.9.014
Wash tight	403190180001	40.31.9.014
Ten pack	403190180001PAC	40.31.9.014

High temperature (+125°C); Wash Tight (DC only)	403190180003	40.31.9.018
Ten pack	403190180003PAC	40.31.9.018
Normally Open contact configuration	403190180300	40.31.9.018
Ten pack	403190180300PAC	40.31.9.018
Normally Open contact configuration	403190180301	40.31.9.018
Ten pack	403190180301PAC	40.31.9.018
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190182000	40.31.9.018
Ten pack	403190182000PAC	40.31.9.018
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190185000	40.31.9.018
Ten pack	403190185000PAC	40.31.9.018
Normally Open contact configuration	403190185300	40.31.9.018
Ten pack	403190185300PAC	40.31.9.018
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190210000	40.31.9.023
Ten pack	403190210000PAC	40.31.9.023
Wash tight	403190210001	40.31.9.023
Ten pack	403190210001PAC	40.31.9.023
Normally Open contact configuration	403190210300	40.31.9.023
Ten pack	403190210300PAC	40.31.9.023
Normally Open contact configuration	403190210301	40.31.9.023
Ten pack	403190210301PAC	40.31.9.023
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190212000	40.31.9.023
Ten pack	403190212000PAC	40.31.9.023
Wash tight	403190212001	40.31.9.023
Ten pack	403190212001PAC	40.31.9.023
Normally Open contact configuration	403190212300	40.31.9.023
Ten pack	403190212300PAC	40.31.9.023

AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190215000	40.31.9.024
Ten pack	403190215000PAC	40.31.9.024
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190240000	40.31.9.024
Ten pack	403190240000PAC	40.31.9.024
Wash tight	403190240001	40.31.9.024
Ten pack	403190240001PAC	40.31.9.024
High temperature (+125°C); Wash Tight (DC only)	403190240003	40.31.9.024
Ten pack	403190240003PAC	40.31.9.024
Normally Open contact configuration	403190240300	40.31.9.024
Ten pack	403190240300PAC	40.31.9.024
Normally Open contact configuration	403190240301	40.31.9.024
Ten pack	403190240301PAC	40.31.9.024
Normally Open contact configuration	403190240303	40.31.9.024
Ten pack	403190240303PAC	40.31.9.024
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190242000	40.31.9.024
Ten pack	403190242000PAC	40.31.9.024
Wash tight	403190242001	40.31.9.024
Ten pack	403190242001PAC	40.31.9.024
Normally Open contact configuration	403190242300	40.31.9.024
Ten pack	403190242300PAC	40.31.9.024
Normally Open contact configuration	403190242301	40.31.9.024
Ten pack	403190242301PAC	40.31.9.024
AgCdO 85/15 contacts (40.61 only)	403190243000	40.31.9.024
Ten pack	403190243000PAC	40.31.9.024
AgSnO2 contacts (40.31/40.51/40.61 only)	403190244000	40.31.9.024
Ten pack	403190244000PAC	40.31.9.024

Wash tight	403190244001	40.31.9.024
Ten pack	403190244001PAC	40.31.9.024
Normally Open contact configuration	403190244300	40.31.9.024
Ten pack	403190244300PAC	40.31.9.024
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190245000	40.31.9.024
Ten pack	403190245000PAC	40.31.9.024
Wash tight	403190245001	40.31.9.024
Ten pack	403190245001PAC	40.31.9.024
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190245003	40.31.9.024
Ten pack	403190245003PAC	40.31.9.024
Normally Open contact configuration	403190245300	40.31.9.024
Ten pack	403190245300PAC	40.31.9.024
Normally Open contact configuration	403190245301	40.31.9.024
Ten pack	403190245301PAC	40.31.9.024
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190280000	40.31.9.024
Ten pack	403190280000PAC	40.31.9.024
Wash tight	403190280001	40.31.9.024
Ten pack	403190280001PAC	40.31.9.024
High temperature (+125°C); Wash Tight (DC only)	403190280003	40.31.9.024
Ten pack	403190280003PAC	40.31.9.024
Normally Open contact configuration	403190280300	40.31.9.024
Ten pack	403190280300PAC	40.31.9.024
Normally Open contact configuration	403190280301	40.31.9.024
Ten pack	403190280301PAC	40.31.9.024
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190282000	40.31.9.024
Ten pack	403190282000PAC	40.31.9.024

Wash tight	403190282001	40.31.9.028
Ten pack	403190282001PAC	40.31.9.028
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190282003	40.31.9.028
Ten pack	403190282003PAC	40.31.9.028
Normally Open contact configuration	403190282300	40.31.9.028
Ten pack	403190282300PAC	40.31.9.028
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190285000	40.31.9.028
Ten pack	403190285000PAC	40.31.9.028
Wash tight	403190285001	40.31.9.028
Ten pack	403190285001PAC	40.31.9.028
Normally Open contact configuration	403190285300	40.31.9.028
Ten pack	403190285300PAC	40.31.9.028
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190360000	40.31.9.036
Ten pack	403190360000PAC	40.31.9.036
Wash tight	403190360001	40.31.9.036
Ten pack	403190360001PAC	40.31.9.036
Normally Open contact configuration	403190360300	40.31.9.036
Ten pack	403190360300PAC	40.31.9.036
Normally Open contact configuration	403190360301	40.31.9.036
Ten pack	403190360301PAC	40.31.9.036
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190362000	40.31.9.036
Ten pack	403190362000PAC	40.31.9.036
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190365000	40.31.9.036
Ten pack	403190365000PAC	40.31.9.036
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190480000	40.31.9.048
Ten pack	403190480000PAC	40.31.9.048

Wash tight	403190480001	40.31.9.048
Ten pack	403190480001PAC	40.31.9.048
High temperature (+125°C); Wash Tight (DC only)	403190480003	40.31.9.048
Ten pack	403190480003PAC	40.31.9.048
Normally Open contact configuration	403190480300	40.31.9.048
Ten pack	403190480300PAC	40.31.9.048
Normally Open contact configuration	403190480301	40.31.9.048
Ten pack	403190480301PAC	40.31.9.048
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190482000	40.31.9.048
Ten pack	403190482000PAC	40.31.9.048
Wash tight	403190482001	40.31.9.048
Ten pack	403190482001PAC	40.31.9.048
Normally Open contact configuration	403190482300	40.31.9.048
Ten pack	403190482300PAC	40.31.9.048
AgCdO 85/15 contacts (40.61 only)	403190483000	40.31.9.048
Ten pack	403190483000PAC	40.31.9.048
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190485000	40.31.9.048
Ten pack	403190485000PAC	40.31.9.048
Wash tight	403190485001	40.31.9.048
Ten pack	403190485001PAC	40.31.9.048
Normally Open contact configuration	403190485300	40.31.9.048
Ten pack	403190485300PAC	40.31.9.048
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190600000	40.31.9.060
Ten pack	403190600000PAC	40.31.9.060
Wash tight	403190600001	40.31.9.060
Ten pack	403190600001PAC	40.31.9.060

High temperature (+125°C); Wash Tight (DC only)	403190600003	40.31.9.060
Ten pack	403190600003PAC	40.31.9.060
Normally Open contact configuration	403190600300	40.31.9.060
Ten pack	403190600300PAC	40.31.9.060
Normally Open contact configuration	403190600301	40.31.9.060
Ten pack	403190600301PAC	40.31.9.060
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190602000	40.31.9.060
Ten pack	403190602000PAC	40.31.9.060
Wash tight	403190602001	40.31.9.060
AgCdO 85/15 contacts (40.61 only)	403190603000	40.31.9.060
Ten pack	403190603000PAC	40.31.9.060
AgSnO ₂ contacts (40.31/40.51/40.61 only)	403190604000	40.31.9.060
Ten pack	403190604000PAC	40.31.9.060
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403190605000	40.31.9.060
Ten pack	403190605000PAC	40.31.9.060
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190800000	40.31.9.080
Normally Open contact configuration	403190800300	40.31.9.080
Ten pack	403190800300PAC	40.31.9.080
3.5mm pinning; AgNi; 1CO 10A; DC coil	403190900000	40.31.9.090
Ten pack	403190900000PAC	40.31.9.090
Wash tight	403190900001	40.31.9.090
Ten pack	403190900001PAC	40.31.9.090
Normally Open contact configuration	403190900300	40.31.9.090
Ten pack	403190900300PAC	40.31.9.090
Normally Open contact configuration	403190900301	40.31.9.090
Ten pack	403190900301PAC	40.31.9.090

AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403190902000	40.31.9.090
Ten pack	403190902000PAC	40.31.9.090
3.5mm pinning; AgNi; 1CO 10A; DC coil	403191100000	40.31.9.110
Ten pack	403191100000PAC	40.31.9.110
Wash tight	403191100001	40.31.9.110
Ten pack	403191100001PAC	40.31.9.110
High temperature (+125°C); Wash Tight (DC only)	403191100003	40.31.9.110
Ten pack	403191100003PAC	40.31.9.110
Normally Open contact configuration	403191100300	40.31.9.110
Ten pack	403191100300PAC	40.31.9.110
Normally Open contact configuration	403191100301	40.31.9.110
Ten pack	403191100301PAC	40.31.9.110
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	403191102000	40.31.9.110
Ten pack	403191102000PAC	40.31.9.110
Wash tight	403191102001	40.31.9.110
Ten pack	403191102001PAC	40.31.9.110
Normally Open contact configuration	403191102300	40.31.9.110
Ten pack	403191102300PAC	40.31.9.110
Normally Open contact configuration	403191102301	40.31.9.110
Ten pack	403191102301PAC	40.31.9.110
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403191105000	40.31.9.110
Ten pack	403191105000PAC	40.31.9.110
Wash tight	403191105001	40.31.9.110
Ten pack	403191105001PAC	40.31.9.110
AgNi+Au contacts (40.31/40.51 only) - 1 CO	403191105003	40.31.9.110
Normally Open contact configuration	403191105300	40.31.9.110

Ten pack	403191105300PAC	40.31.9.110
Normally Open contact configuration	403191105301	40.31.9.110
Ten pack	403191105301PAC	40.31.9.110
Normally Open contact configuration	403191105303	40.31.9.110
Ten pack	403191105303PAC	40.31.9.110
125,145VDC coil (add to 1st column price)	403191250000	40.31.9.125
Ten pack	403191250000PAC	40.31.9.125
Wash tight	403191250001	40.31.9.125
Ten pack	403191250001PAC	40.31.9.125
125,145VDC coil (add to 1st column price)	403191250003	40.31.9.125
Normally Open contact configuration	403191250300	40.31.9.125
Ten pack	403191250300PAC	40.31.9.125
125,145VDC coil (add to 1st column price)	403191252000	40.31.9.125
Ten pack	403191252000PAC	40.31.9.125
Wash tight	403191252001	40.31.9.125
Ten pack	403191252001PAC	40.31.9.125
Normally Open contact configuration	403191255303	40.31.9.125
Ten pack	403191255303PAC	40.31.9.125
125,145VDC coil (add to 1st column price)	403191450000	40.31.9.145
Ten pack	403191450000PAC	40.31.9.145
3.5mm pinning; AgCdO; 1CO 10A; DC coil	404170062000	40.41.7.000
3.5mm pinning; AgCdO; 1CO 16A; DC coil	404170062016	40.41.7.000
Normally Open contact configuration	404170062300	40.41.7.000
3.5mm pinning; AgCdO; 1CO 16A; DC coil	404170062316	40.41.7.000
3.5mm pinning; AgCdO; 1CO 10A; DC coil	404170092000	40.41.7.000
3.5mm pinning; AgCdO; 1CO 16A; DC coil	404170092016	40.41.7.000

Normally Open contact configuration	404170092300	40.41.7.009
3.5mm pinning; AgCdO; 1CO 16A; DC coil	404170092316	40.41.7.009
3.5mm pinning; AgCdO; 1CO 10A; DC coil	404170122000	40.41.7.012
3.5mm pinning; AgCdO; 1CO 16A; DC coil	404170122016	40.41.7.012
Normally Open contact configuration	404170122300	40.41.7.012
3.5mm pinning; AgCdO; 1CO 16A; DC coil	404170122316	40.41.7.012
3.5mm pinning; AgCdO; 1CO 10A; DC coil	404170242000	40.41.7.024
3.5mm pinning; AgCdO; 1CO 16A; DC coil	404170242016	40.41.7.024
Normally Open contact configuration	404170242300	40.41.7.024
3.5mm pinning; AgCdO; 1CO 16A; DC coil	404170242316	40.41.7.024
3.5mm pinning; AgCdO; 1CO 10A; DC coil	404170482000	40.41.7.048
3.5mm pinning; AgCdO; 1CO 16A; DC coil	404170482016	40.41.7.048
Normally Open contact configuration	404170482300	40.41.7.048
3.5mm pinning; AgCdO; 1CO 16A; DC coil	404170482316	40.41.7.048
3.5mm pinning; AgCdO; 1CO 10A; DC coil	404170602000	40.41.7.060
3.5mm pinning; AgCdO; 1CO 16A; DC coil	404170602016	40.41.7.060
Normally Open contact configuration	404170602300	40.41.7.060
3.5mm pinning; AgCdO; 1CO 16A; DC coil	404170602316	40.41.7.060
Bistable coil	405160050000	40.51.6.005
Ten pack	405160050000PAC	40.51.6.005
Bistable coil	405160060000	40.51.6.006
Ten pack	405160060000PAC	40.51.6.006
Bistable coil	405160120000	40.51.6.012
Ten pack	405160120000PAC	40.51.6.012
Wash tight	405160120001	40.51.6.012
Bistable coil	405160125000	40.51.6.012

Ten pack	405160125000PAC	40.51.6.011
Bistable coil	405160240000	40.51.6.024
Ten pack	405160240000PAC	40.51.6.024
Wash tight	405160240001	40.51.6.024
Ten pack	405160240001PAC	40.51.6.024
Bistable coil	405160242000	40.51.6.024
Ten pack	405160242000PAC	40.51.6.024
Bistable coil	405160480000	40.51.6.048
Ten pack	405160480000PAC	40.51.6.048
Bistable coil	405161100000	40.51.6.110
Ten pack	405161100000PAC	40.51.6.110
Normally Open contact configuration	405161100300	40.51.6.110
Ten pack	405161100300PAC	40.51.6.110
Sensitive DC coil	405170050000	40.51.7.005
Ten pack	405170050000PAC	40.51.7.005
Wash tight	405170050001	40.51.7.005
Ten pack	405170050001PAC	40.51.7.005
Sensitive DC coil	405170060000	40.51.7.006
Ten pack	405170060000PAC	40.51.7.006
Sensitive DC coil	405170062000	40.51.7.006
Ten pack	405170062000PAC	40.51.7.006
Normally Open contact configuration	405170062301	40.51.7.006
Ten pack	405170062301PAC	40.51.7.006
Sensitive DC coil	405170070000	40.51.7.007
Ten pack	405170070000PAC	40.51.7.007
Sensitive DC coil	405170090000	40.51.7.009

Ten pack	405170090000PAC	40.51.7.009
Sensitive DC coil	405170092000	40.51.7.009
Ten pack	405170092000PAC	40.51.7.009
Wash tight	405170092001	40.51.7.009
Ten pack	405170092001PAC	40.51.7.009
Sensitive DC coil	405170120000	40.51.7.012
Ten pack	405170120000PAC	40.51.7.012
Wash tight	405170120001	40.51.7.012
Ten pack	405170120001PAC	40.51.7.012
Normally Open contact configuration	405170120300	40.51.7.012
Ten pack	405170120300PAC	40.51.7.012
Sensitive DC coil	405170122000	40.51.7.012
Ten pack	405170122000PAC	40.51.7.012
Wash tight	405170122001	40.51.7.012
Ten pack	405170122001PAC	40.51.7.012
Normally Open contact configuration	405170122300	40.51.7.012
Ten pack	405170122300PAC	40.51.7.012
Normally Open contact configuration	405170122301	40.51.7.012
Ten pack	405170122301PAC	40.51.7.012
Sensitive DC coil	405170124000	40.51.7.012
Ten pack	405170124000PAC	40.51.7.012
Wash tight	405170124001	40.51.7.012
Ten pack	405170124001PAC	40.51.7.012
Sensitive DC coil	405170125000	40.51.7.012
Ten pack	405170125000PAC	40.51.7.012
Sensitive DC coil	405170140000	40.51.7.014

Ten pack	405170140000PAC	40.51.7.014
Normally Open contact configuration	405170140300	40.51.7.014
Ten pack	405170140300PAC	40.51.7.014
Sensitive DC coil	405170180000	40.51.7.018
Ten pack	405170180000PAC	40.51.7.018
Wash tight	405170180001	40.51.7.018
Normally Open contact configuration	405170210300	40.51.7.021
Ten pack	405170210300PAC	40.51.7.021
Wash tight	405170212001	40.51.7.021
Sensitive DC coil	405170240000	40.51.7.024
Ten pack	405170240000PAC	40.51.7.024
Wash tight	405170240001	40.51.7.024
Ten pack	405170240001PAC	40.51.7.024
Normally Open contact configuration	405170240300	40.51.7.024
Ten pack	405170240300PAC	40.51.7.024
Normally Open contact configuration	405170240301	40.51.7.024
Ten pack	405170240301PAC	40.51.7.024
Sensitive DC coil	405170242000	40.51.7.024
Ten pack	405170242000PAC	40.51.7.024
Wash tight	405170242001	40.51.7.024
Ten pack	405170242001PAC	40.51.7.024
Normally Open contact configuration	405170242301	40.51.7.024
Ten pack	405170242301PAC	40.51.7.024
Sensitive DC coil	405170244000	40.51.7.024
Ten pack	405170244000PAC	40.51.7.024
Wash tight	405170244001	40.51.7.024

Ten pack	405170244001PAC	40.51.7.024
Sensitive DC coil	405170245000	40.51.7.024
Ten pack	405170245000PAC	40.51.7.024
Sensitive DC coil	405170280000	40.51.7.028
Ten pack	405170280000PAC	40.51.7.028
Normally Open contact configuration	405170280300	40.51.7.028
Ten pack	405170280300PAC	40.51.7.028
Sensitive DC coil	405170360000	40.51.7.036
Ten pack	405170360000PAC	40.51.7.036
Sensitive DC coil	405170480000	40.51.7.048
Ten pack	405170480000PAC	40.51.7.048
Wash tight	405170480001	40.51.7.048
Ten pack	405170480001PAC	40.51.7.048
Wash tight	405170485001	40.51.7.048
Ten pack	405170485001PAC	40.51.7.048
Sensitive DC coil	405170600000	40.51.7.060
Ten pack	405170600000PAC	40.51.7.060
Wash tight	405170600001	40.51.7.060
Normally Open contact configuration	405170900300	40.51.7.090
Ten pack	405170900300PAC	40.51.7.090
Sensitive DC coil	405171100000	40.51.7.110
Ten pack	405171100000PAC	40.51.7.110
Sensitive DC coil	405171102000	40.51.7.110
Ten pack	405171102000PAC	40.51.7.110
Sensitive DC coil	405171250000	40.51.7.125
Ten pack	405171250000PAC	40.51.7.125

5.0mm pinning; AgNi; 1CO 10A; AC coil	405180060000	40.51.8.000
Ten pack	405180060000PAC	40.51.8.000
Normally Open contact configuration	405180060300	40.51.8.000
Ten pack	405180060300PAC	40.51.8.000
Normally Open contact configuration	405180064300	40.51.8.000
Ten pack	405180064300PAC	40.51.8.000
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405180065000	40.51.8.000
Ten pack	405180065000PAC	40.51.8.000
5.0mm pinning; AgNi; 1CO 10A; AC coil	405180120000	40.51.8.012
Ten pack	405180120000PAC	40.51.8.012
Wash tight	405180120001	40.51.8.012
Ten pack	405180120001PAC	40.51.8.012
Normally Open contact configuration	405180120300	40.51.8.012
Ten pack	405180120300PAC	40.51.8.012
5.0mm pinning; AgNi; 1CO 10A; AC coil	405180240000	40.51.8.024
Ten pack	405180240000PAC	40.51.8.024
Wash tight	405180240001	40.51.8.024
Ten pack	405180240001PAC	40.51.8.024
Normally Open contact configuration	405180240300	40.51.8.024
Ten pack	405180240300PAC	40.51.8.024
Normally Open contact configuration	405180240301	40.51.8.024
Ten pack	405180240301PAC	40.51.8.024
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405180242000	40.51.8.024
Ten pack	405180242000PAC	40.51.8.024
AgSnO2 contacts (40.31/40.51/40.61 only)	405180244000	40.51.8.024
Ten pack	405180244000PAC	40.51.8.024

AgNi+Au contacts (40.31/40.51 only) - 1 CO	405180245000	40.51.8.024
Ten pack	405180245000PAC	40.51.8.024
Wash tight	405180245001	40.51.8.024
Ten pack	405180245001PAC	40.51.8.024
Normally Open contact configuration	405180245301	40.51.8.024
Ten pack	405180245301PAC	40.51.8.024
5.0mm pinning; AgNi; 1CO 10A; AC coil	405180480000	40.51.8.048
Ten pack	405180480000PAC	40.51.8.048
Wash tight	405180480001	40.51.8.048
Ten pack	405180480001PAC	40.51.8.048
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405180485000	40.51.8.048
Ten pack	405180485000PAC	40.51.8.048
5.0mm pinning; AgNi; 1CO 10A; AC coil	405180600000	40.51.8.060
Ten pack	405180600000PAC	40.51.8.060
110,120,125VAC coil (add to 1st column price)	405181100000	40.51.8.110
Ten pack	405181100000PAC	40.51.8.110
Wash tight	405181100001	40.51.8.110
Ten pack	405181100001PAC	40.51.8.110
Normally Open contact configuration	405181100300	40.51.8.110
Ten pack	405181100300PAC	40.51.8.110
Wash tight	405181102001	40.51.8.110
Ten pack	405181102001PAC	40.51.8.110
Normally Open contact configuration	405181102300	40.51.8.110
110,120,125VAC coil (add to 1st column price)	405181105000	40.51.8.110
Ten pack	405181105000PAC	40.51.8.110
Wash tight	405181105001	40.51.8.110

Ten pack	405181105001PAC	40.51.8.110
Normally Open contact configuration	405181105300	40.51.8.110
Ten pack	405181105300PAC	40.51.8.110
110,120,125VAC coil (add to 1st column price)	405181200000	40.51.8.120
Ten pack	405181200000PAC	40.51.8.120
Wash tight	405181200001	40.51.8.120
Ten pack	405181200001PAC	40.51.8.120
Normally Open contact configuration	405181200300	40.51.8.120
Ten pack	405181200300PAC	40.51.8.120
110,120,125VAC coil (add to 1st column price)	405181205000	40.51.8.120
Ten pack	405181205000PAC	40.51.8.120
110,120,125VAC coil (add to 1st column price)	405181250000	40.51.8.125
Ten pack	405181250000PAC	40.51.8.125
Wash tight	405181250001	40.51.8.125
Ten pack	405181250001PAC	40.51.8.125
Wash tight	405181252001	40.51.8.125
Ten pack	405181252001PAC	40.51.8.125
Normally Open contact configuration	405181252301	40.51.8.125
Ten pack	405181252301PAC	40.51.8.125
110,120,125VAC coil (add to 1st column price)	405181255000	40.51.8.125
Ten pack	405181255000PAC	40.51.8.125
5.0mm pinning; AgNi; 1CO 10A; AC coil	405182300000	40.51.8.230
Ten pack	405182300000PAC	40.51.8.230
Wash tight	405182300001	40.51.8.230
Ten pack	405182300001PAC	40.51.8.230
Normally Open contact configuration	405182300300	40.51.8.230

Ten pack	405182300300PAC	40.51.8.230
Normally Open contact configuration	405182300301	40.51.8.230
Ten pack	405182300301PAC	40.51.8.230
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405182302000	40.51.8.230
Ten pack	405182302000PAC	40.51.8.230
AgSnO2 contacts (40.31/40.51/40.61 only)	405182304000	40.51.8.230
Ten pack	405182304000PAC	40.51.8.230
Normally Open contact configuration	405182304300	40.51.8.230
Ten pack	405182304300PAC	40.51.8.230
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405182305000	40.51.8.230
Ten pack	405182305000PAC	40.51.8.230
Wash tight	405182305001	40.51.8.230
Ten pack	405182305001PAC	40.51.8.230
Normally Open contact configuration	405182305300	40.51.8.230
Ten pack	405182305300PAC	40.51.8.230
5.0mm pinning; AgNi; 1CO 10A; AC coil	405182400000	40.51.8.240
Ten pack	405182400000PAC	40.51.8.240
Wash tight	405182400001	40.51.8.240
Ten pack	405182400001PAC	40.51.8.240
Normally Open contact configuration	405182400300	40.51.8.240
Ten pack	405182400300PAC	40.51.8.240
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405182405000	40.51.8.240
Wash tight	405182405001	40.51.8.240
Ten pack	405182405001PAC	40.51.8.240
Normally Open contact configuration	405182405300	40.51.8.240
Ten pack	405182405300PAC	40.51.8.240

5.0mm pinning; AgNi; 1CO 10A; DC coil	405190040000	40.51.9.004
Ten pack	405190040000PAC	40.51.9.004
Wash tight	405190040001	40.51.9.004
Ten pack	405190040001PAC	40.51.9.004
High temperature (+125°C); Wash Tight (DC only)	405190040003	40.51.9.004
Ten pack	405190040003PAC	40.51.9.004
Normally Open contact configuration	405190040300	40.51.9.004
Ten pack	405190040300PAC	40.51.9.004
Normally Open contact configuration	405190040301	40.51.9.004
Ten pack	405190040301PAC	40.51.9.004
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190042000	40.51.9.004
Ten pack	405190042000PAC	40.51.9.004
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190045000	40.51.9.004
Ten pack	405190045000PAC	40.51.9.004
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190050000	40.51.9.005
Ten pack	405190050000PAC	40.51.9.005
Wash tight	405190050001	40.51.9.005
Ten pack	405190050001PAC	40.51.9.005
Normally Open contact configuration	405190050300	40.51.9.005
Ten pack	405190050300PAC	40.51.9.005
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190060000	40.51.9.006
Ten pack	405190060000PAC	40.51.9.006
Wash tight	405190060001	40.51.9.006
Ten pack	405190060001PAC	40.51.9.006
High temperature (+125°C); Wash Tight (DC only)	405190060003	40.51.9.006
Ten pack	405190060003PAC	40.51.9.006

Normally Open contact configuration	405190060300	40.51.9.000
Ten pack	405190060300PAC	40.51.9.000
Normally Open contact configuration	405190060301	40.51.9.000
Ten pack	405190060301PAC	40.51.9.000
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190062000	40.51.9.000
Ten pack	405190062000PAC	40.51.9.000
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190065000	40.51.9.000
Ten pack	405190065000PAC	40.51.9.000
Wash tight	405190065001	40.51.9.000
Ten pack	405190065001PAC	40.51.9.000
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190070000	40.51.9.000
Ten pack	405190070000PAC	40.51.9.000
Wash tight	405190070001	40.51.9.000
Ten pack	405190070001PAC	40.51.9.000
High temperature (+125°C); Wash Tight (DC only)	405190070003	40.51.9.000
Ten pack	405190070003PAC	40.51.9.000
Normally Open contact configuration	405190070300	40.51.9.000
Ten pack	405190070300PAC	40.51.9.000
Normally Open contact configuration	405190070301	40.51.9.000
Ten pack	405190070301PAC	40.51.9.000
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190072000	40.51.9.000
Ten pack	405190072000PAC	40.51.9.000
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190075000	40.51.9.000
Ten pack	405190075000PAC	40.51.9.000
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190090000	40.51.9.000
Ten pack	405190090000PAC	40.51.9.000

Wash tight	405190090001	40.51.9.009
Ten pack	405190090001PAC	40.51.9.009
High temperature (+125°C); Wash Tight (DC only)	405190090003	40.51.9.009
Ten pack	405190090003PAC	40.51.9.009
Normally Open contact configuration	405190090300	40.51.9.009
Ten pack	405190090300PAC	40.51.9.009
Normally Open contact configuration	405190090301	40.51.9.009
Ten pack	405190090301PAC	40.51.9.009
Normally Open contact configuration	405190090303	40.51.9.009
Ten pack	405190090303PAC	40.51.9.009
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190092000	40.51.9.009
Ten pack	405190092000PAC	40.51.9.009
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190095000	40.51.9.009
Ten pack	405190095000PAC	40.51.9.009
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190120000	40.51.9.012
Ten pack	405190120000PAC	40.51.9.012
Wash tight	405190120001	40.51.9.012
Ten pack	405190120001PAC	40.51.9.012
High temperature (+125°C); Wash Tight (DC only)	405190120003	40.51.9.012
Ten pack	405190120003PAC	40.51.9.012
Normally Open contact configuration	405190120300	40.51.9.012
Ten pack	405190120300PAC	40.51.9.012
Normally Open contact configuration	405190120301	40.51.9.012
Ten pack	405190120301PAC	40.51.9.012
Normally Open contact configuration	405190120303	40.51.9.012
Ten pack	405190120303PAC	40.51.9.012

AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190122000	40.51.9.012
Ten pack	405190122000PAC	40.51.9.012
Wash tight	405190122001	40.51.9.012
Ten pack	405190122001PAC	40.51.9.012
Normally Open contact configuration	405190122300	40.51.9.012
Ten pack	405190122300PAC	40.51.9.012
Normally Open contact configuration	405190122301	40.51.9.012
Normally Open contact configuration	405190122303	40.51.9.012
Ten pack	405190122303PAC	40.51.9.012
AgCdO 85/15 contacts (40.61 only)	405190123000	40.51.9.012
Ten pack	405190123000PAC	40.51.9.012
AgSnO2 contacts (40.31/40.51/40.61 only)	405190124000	40.51.9.012
Normally Open contact configuration	405190124300	40.51.9.012
Normally Open contact configuration	405190124301	40.51.9.012
Ten pack	405190124301PAC	40.51.9.012
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190125000	40.51.9.012
Ten pack	405190125000PAC	40.51.9.012
Wash tight	405190125001	40.51.9.012
Ten pack	405190125001PAC	40.51.9.012
Normally Open contact configuration	405190125300	40.51.9.012
Ten pack	405190125300PAC	40.51.9.012
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190140000	40.51.9.014
Ten pack	405190140000PAC	40.51.9.014
Wash tight	405190140001	40.51.9.014
Ten pack	405190140001PAC	40.51.9.014
High temperature (+125°C); Wash Tight (DC only)	405190140003	40.51.9.014

Ten pack	405190140003PAC	40.51.9.014
Normally Open contact configuration	405190140300	40.51.9.014
Ten pack	405190140300PAC	40.51.9.014
Normally Open contact configuration	405190140301	40.51.9.014
Ten pack	405190140301PAC	40.51.9.014
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190142000	40.51.9.014
Ten pack	405190142000PAC	40.51.9.014
Normally Open contact configuration	405190142300	40.51.9.014
Ten pack	405190142300PAC	40.51.9.014
Normally Open contact configuration	405190144300	40.51.9.014
Ten pack	405190144300PAC	40.51.9.014
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190145000	40.51.9.014
Ten pack	405190145000PAC	40.51.9.014
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190180000	40.51.9.018
Ten pack	405190180000PAC	40.51.9.018
Wash tight	405190180001	40.51.9.018
Ten pack	405190180001PAC	40.51.9.018
High temperature (+125°C); Wash Tight (DC only)	405190180003	40.51.9.018
Ten pack	405190180003PAC	40.51.9.018
Normally Open contact configuration	405190180300	40.51.9.018
Ten pack	405190180300PAC	40.51.9.018
Normally Open contact configuration	405190180301	40.51.9.018
Ten pack	405190180301PAC	40.51.9.018
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190182000	40.51.9.018
Ten pack	405190182000PAC	40.51.9.018
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190185000	40.51.9.018

Ten pack	405190185000PAC	40.51.9.018
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190185003	40.51.9.018
Ten pack	405190185003PAC	40.51.9.018
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190210000	40.51.9.021
Ten pack	405190210000PAC	40.51.9.021
Wash tight	405190210001	40.51.9.021
Ten pack	405190210001PAC	40.51.9.021
High temperature (+125°C); Wash Tight (DC only)	405190210003	40.51.9.021
Ten pack	405190210003PAC	40.51.9.021
Normally Open contact configuration	405190210300	40.51.9.021
Ten pack	405190210300PAC	40.51.9.021
Normally Open contact configuration	405190210301	40.51.9.021
Ten pack	405190210301PAC	40.51.9.021
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190212000	40.51.9.021
Ten pack	405190212000PAC	40.51.9.021
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190215000	40.51.9.021
Ten pack	405190215000PAC	40.51.9.021
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190240000	40.51.9.024
Ten pack	405190240000PAC	40.51.9.024
Wash tight	405190240001	40.51.9.024
Ten pack	405190240001PAC	40.51.9.024
High temperature (+125°C); Wash Tight (DC only)	405190240003	40.51.9.024
Ten pack	405190240003PAC	40.51.9.024
Normally Open contact configuration	405190240300	40.51.9.024
Ten pack	405190240300PAC	40.51.9.024
Normally Open contact configuration	405190240301	40.51.9.024

Ten pack	405190240301PAC	40.51.9.024
Normally Open contact configuration	405190240303	40.51.9.024
Ten pack	405190240303PAC	40.51.9.024
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190242000	40.51.9.024
Ten pack	405190242000PAC	40.51.9.024
Wash tight	405190242001	40.51.9.024
Ten pack	405190242001PAC	40.51.9.024
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190242003	40.51.9.024
Ten pack	405190242003PAC	40.51.9.024
Normally Open contact configuration	405190242300	40.51.9.024
Ten pack	405190242300PAC	40.51.9.024
Normally Open contact configuration	405190242301	40.51.9.024
Ten pack	405190242301PAC	40.51.9.024
AgCdO 85/15 contacts (40.61 only)	405190243000	40.51.9.024
Ten pack	405190243000PAC	40.51.9.024
Wash tight	405190243001	40.51.9.024
Ten pack	405190243001PAC	40.51.9.024
AgSnO2 contacts (40.31/40.51/40.61 only)	405190244000	40.51.9.024
Ten pack	405190244000PAC	40.51.9.024
Normally Open contact configuration	405190244300	40.51.9.024
Ten pack	405190244300PAC	40.51.9.024
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190245000	40.51.9.024
Ten pack	405190245000PAC	40.51.9.024
Wash tight	405190245001	40.51.9.024
Ten pack	405190245001PAC	40.51.9.024
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190245003	40.51.9.024

Ten pack	405190245003PAC	40.51.9.024
Normally Open contact configuration	405190245300	40.51.9.024
Ten pack	405190245300PAC	40.51.9.024
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190280000	40.51.9.028
Ten pack	405190280000PAC	40.51.9.028
Wash tight	405190280001	40.51.9.028
Ten pack	405190280001PAC	40.51.9.028
High temperature (+125°C); Wash Tight (DC only)	405190280003	40.51.9.028
Ten pack	405190280003PAC	40.51.9.028
Normally Open contact configuration	405190280300	40.51.9.028
Ten pack	405190280300PAC	40.51.9.028
Normally Open contact configuration	405190280301	40.51.9.028
Ten pack	405190280301PAC	40.51.9.028
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190282000	40.51.9.028
Ten pack	405190282000PAC	40.51.9.028
Wash tight	405190282001	40.51.9.028
Ten pack	405190282001PAC	40.51.9.028
Normally Open contact configuration	405190282300	40.51.9.028
Ten pack	405190282300PAC	40.51.9.028
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190285000	40.51.9.028
Ten pack	405190285000PAC	40.51.9.028
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190360000	40.51.9.036
Ten pack	405190360000PAC	40.51.9.036
Wash tight	405190360001	40.51.9.036
Ten pack	405190360001PAC	40.51.9.036
High temperature (+125°C); Wash Tight (DC only)	405190360003	40.51.9.036

Ten pack	405190360003PAC	40.51.9.030
Normally Open contact configuration	405190360300	40.51.9.030
Ten pack	405190360300PAC	40.51.9.030
Normally Open contact configuration	405190360301	40.51.9.030
Ten pack	405190360301PAC	40.51.9.030
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190362000	40.51.9.030
Ten pack	405190362000PAC	40.51.9.030
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190365000	40.51.9.030
Ten pack	405190365000PAC	40.51.9.030
Wash tight	405190365001	40.51.9.030
Ten pack	405190365001PAC	40.51.9.030
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190480000	40.51.9.040
Ten pack	405190480000PAC	40.51.9.040
Wash tight	405190480001	40.51.9.040
Ten pack	405190480001PAC	40.51.9.040
High temperature (+125°C); Wash Tight (DC only)	405190480003	40.51.9.040
Ten pack	405190480003PAC	40.51.9.040
Normally Open contact configuration	405190480300	40.51.9.040
Ten pack	405190480300PAC	40.51.9.040
Normally Open contact configuration	405190480301	40.51.9.040
Ten pack	405190480301PAC	40.51.9.040
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190482000	40.51.9.040
Ten pack	405190482000PAC	40.51.9.040
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190485000	40.51.9.040
Ten pack	405190485000PAC	40.51.9.040
Wash tight	405190485001	40.51.9.040

Ten pack	405190485001PAC	40.51.9.04
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190600000	40.51.9.06
Ten pack	405190600000PAC	40.51.9.06
Wash tight	405190600001	40.51.9.06
Ten pack	405190600001PAC	40.51.9.06
High temperature (+125°C); Wash Tight (DC only)	405190600003	40.51.9.06
Ten pack	405190600003PAC	40.51.9.06
Normally Open contact configuration	405190600300	40.51.9.06
Ten pack	405190600300PAC	40.51.9.06
Normally Open contact configuration	405190600301	40.51.9.06
Ten pack	405190600301PAC	40.51.9.06
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190602000	40.51.9.06
Ten pack	405190602000PAC	40.51.9.06
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190605000	40.51.9.06
Ten pack	405190605000PAC	40.51.9.06
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190800000	40.51.9.08
5.0mm pinning; AgNi; 1CO 10A; DC coil	405190900000	40.51.9.09
Ten pack	405190900000PAC	40.51.9.09
Wash tight	405190900001	40.51.9.09
Ten pack	405190900001PAC	40.51.9.09
High temperature (+125°C); Wash Tight (DC only)	405190900003	40.51.9.09
Ten pack	405190900003PAC	40.51.9.09
Normally Open contact configuration	405190900300	40.51.9.09
Ten pack	405190900300PAC	40.51.9.09
Normally Open contact configuration	405190900301	40.51.9.09
Ten pack	405190900301PAC	40.51.9.09

AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405190902000	40.51.9.090
Ten pack	405190902000PAC	40.51.9.090
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405190905000	40.51.9.090
Ten pack	405190905000PAC	40.51.9.090
5.0mm pinning; AgNi; 1CO 10A; DC coil	405191100000	40.51.9.110
Ten pack	405191100000PAC	40.51.9.110
Wash tight	405191100001	40.51.9.110
Ten pack	405191100001PAC	40.51.9.110
High temperature (+125°C); Wash Tight (DC only)	405191100003	40.51.9.110
Ten pack	405191100003PAC	40.51.9.110
Normally Open contact configuration	405191100300	40.51.9.110
Ten pack	405191100300PAC	40.51.9.110
Normally Open contact configuration	405191100301	40.51.9.110
Ten pack	405191100301PAC	40.51.9.110
Normally Open contact configuration	405191100303	40.51.9.110
Ten pack	405191100303PAC	40.51.9.110
AgCdO 90/10 contacts (40.31/40.51/ only) - 1CO	405191102000	40.51.9.110
Ten pack	405191102000PAC	40.51.9.110
AgNi+Au contacts (40.31/40.51 only) - 1 CO	405191105000	40.51.9.110
Ten pack	405191105000PAC	40.51.9.110
Wash tight	405191105001	40.51.9.110
125,145VDC coil (add to 1st column price)	405191250000	40.51.9.125
Ten pack	405191250000PAC	40.51.9.125
Wash tight	405191250001	40.51.9.125
Ten pack	405191250001PAC	40.51.9.125
Normally Open contact configuration	405191250300	40.51.9.125

Ten pack	405191250300PAC	40.51.9.125
125,145VDC coil (add to 1st column price)	405191253000	40.51.9.125
Ten pack	405191253000PAC	40.51.9.125
125,145VDC coil (add to 1st column price)	405191255000	40.51.9.125
Ten pack	405191255000PAC	40.51.9.125
125,145VDC coil (add to 1st column price)	405191450000	40.51.9.145
Ten pack	405191450000PAC	40.51.9.145
Bistable coil	405260050000	40.52.6.005
Ten pack	405260050000PAC	40.52.6.005
Normally Open contact configuration	405260050300	40.52.6.005
Ten pack	405260050300PAC	40.52.6.005
Bistable coil	405260060000	40.52.6.006
Ten pack	405260060000PAC	40.52.6.006
Wash tight	405260060001	40.52.6.006
Ten pack	405260060001PAC	40.52.6.006
Normally Open contact configuration	405260060301	40.52.6.006
Ten pack	405260060301PAC	40.52.6.006
Normally Open contact configuration	405260062300	40.52.6.006
Ten pack	405260062300PAC	40.52.6.006
Wash tight	405260065001	40.52.6.006
Ten pack	405260065001PAC	40.52.6.006
Bistable coil	405260120000	40.52.6.012
Ten pack	405260120000PAC	40.52.6.012
Wash tight	405260120001	40.52.6.012
Ten pack	405260120001PAC	40.52.6.012
Normally Open contact configuration	405260120300	40.52.6.012

Ten pack	405260120300PAC	40.52.6.012
Bistable coil	405260125000	40.52.6.012
Ten pack	405260125000PAC	40.52.6.012
Wash tight	405260125001	40.52.6.012
Ten pack	405260125001PAC	40.52.6.012
Bistable coil	405260240000	40.52.6.024
Ten pack	405260240000PAC	40.52.6.024
Wash tight	405260240001	40.52.6.024
Ten pack	405260240001PAC	40.52.6.024
Normally Open contact configuration	405260240300	40.52.6.024
Ten pack	405260240300PAC	40.52.6.024
Bistable coil	405260242000	40.52.6.024
Ten pack	405260242000PAC	40.52.6.024
Bistable coil	405260245000	40.52.6.024
Ten pack	405260245000PAC	40.52.6.024
Wash tight	405260245001	40.52.6.024
Ten pack	405260245001PAC	40.52.6.024
Bistable coil	405260480000	40.52.6.048
Ten pack	405260480000PAC	40.52.6.048
Wash tight	405260480001	40.52.6.048
Ten pack	405260480001PAC	40.52.6.048
Bistable coil	405260600000	40.52.6.060
Ten pack	405260600000PAC	40.52.6.060
Bistable coil	405261100000	40.52.6.110
Ten pack	405261100000PAC	40.52.6.110
Wash tight	405261105001	40.52.6.110

Ten pack	405261105001PAC	40.52.6.110
Sensitive DC coil	405270050000	40.52.7.005
Ten pack	405270050000PAC	40.52.7.005
Wash tight	405270050001	40.52.7.005
Ten pack	405270050001PAC	40.52.7.005
Sensitive DC coil	405270052000	40.52.7.005
Sensitive DC coil	405270055000	40.52.7.005
Sensitive DC coil	405270060000	40.52.7.006
Ten pack	405270060000PAC	40.52.7.006
Wash tight	405270060001	40.52.7.006
Ten pack	405270060001PAC	40.52.7.006
Sensitive DC coil	405270062000	40.52.7.006
Sensitive DC coil	405270065000	40.52.7.006
Sensitive DC coil	405270070000	40.52.7.007
Ten pack	405270070000PAC	40.52.7.007
Sensitive DC coil	405270090000	40.52.7.009
Ten pack	405270090000PAC	40.52.7.009
Wash tight	405270090001	40.52.7.009
Ten pack	405270090001PAC	40.52.7.009
Sensitive DC coil	405270092000	40.52.7.009
Normally Open contact configuration	405270092300	40.52.7.009
Sensitive DC coil	405270120000	40.52.7.012
Ten pack	405270120000PAC	40.52.7.012
Wash tight	405270120001	40.52.7.012
Ten pack	405270120001PAC	40.52.7.012
Normally Open contact configuration	405270120300	40.52.7.012

Ten pack	405270120300PAC	40.52.7.012
Normally Open contact configuration	405270120301	40.52.7.012
Ten pack	405270120301PAC	40.52.7.012
Sensitive DC coil	405270122000	40.52.7.012
Ten pack	405270122000PAC	40.52.7.012
Wash tight	405270122001	40.52.7.012
Ten pack	405270122001PAC	40.52.7.012
Normally Open contact configuration	405270122300	40.52.7.012
Ten pack	405270122300PAC	40.52.7.012
Sensitive DC coil	405270125000	40.52.7.012
Ten pack	405270125000PAC	40.52.7.012
Wash tight	405270125001	40.52.7.012
Ten pack	405270125001PAC	40.52.7.012
Sensitive DC coil	405270140000	40.52.7.014
Ten pack	405270140000PAC	40.52.7.014
Normally Open contact configuration	405270140300	40.52.7.014
Ten pack	405270140300PAC	40.52.7.014
Sensitive DC coil	405270145000	40.52.7.014
Ten pack	405270145000PAC	40.52.7.014
Wash tight	405270145001	40.52.7.014
Sensitive DC coil	405270180000	40.52.7.018
Ten pack	405270180000PAC	40.52.7.018
Sensitive DC coil	405270185000	40.52.7.018
Ten pack	405270185000PAC	40.52.7.018
Sensitive DC coil	405270210000	40.52.7.021
Ten pack	405270210000PAC	40.52.7.021

Wash tight	405270210001	40.52.7.023
Ten pack	405270210001PAC	40.52.7.023
Normally Open contact configuration	405270210300	40.52.7.023
Ten pack	405270210300PAC	40.52.7.023
Sensitive DC coil	405270215000	40.52.7.023
Ten pack	405270215000PAC	40.52.7.023
Sensitive DC coil	405270240000	40.52.7.024
Ten pack	405270240000PAC	40.52.7.024
Wash tight	405270240001	40.52.7.024
Ten pack	405270240001PAC	40.52.7.024
Normally Open contact configuration	405270240300	40.52.7.024
Ten pack	405270240300PAC	40.52.7.024
Sensitive DC coil	405270242000	40.52.7.024
Ten pack	405270242000PAC	40.52.7.024
Wash tight	405270242001	40.52.7.024
Normally Open contact configuration	405270242300	40.52.7.024
Ten pack	405270242300PAC	40.52.7.024
Sensitive DC coil	405270245000	40.52.7.024
Ten pack	405270245000PAC	40.52.7.024
Wash tight	405270245001	40.52.7.024
Ten pack	405270245001PAC	40.52.7.024
Normally Open contact configuration	405270245300	40.52.7.024
Sensitive DC coil	405270280000	40.52.7.028
Ten pack	405270280000PAC	40.52.7.028
Wash tight	405270280001	40.52.7.028
Ten pack	405270280001PAC	40.52.7.028

Sensitive DC coil	405270285000	40.52.7.028
Ten pack	405270285000PAC	40.52.7.028
Sensitive DC coil	405270360000	40.52.7.036
Ten pack	405270360000PAC	40.52.7.036
Wash tight	405270360001	40.52.7.036
Sensitive DC coil	405270480000	40.52.7.048
Ten pack	405270480000PAC	40.52.7.048
Wash tight	405270480001	40.52.7.048
Ten pack	405270480001PAC	40.52.7.048
Sensitive DC coil	405270482000	40.52.7.048
Wash tight	405270482001	40.52.7.048
Ten pack	405270482001PAC	40.52.7.048
Normally Open contact configuration	405270482300	40.52.7.048
Ten pack	405270482300PAC	40.52.7.048
Sensitive DC coil	405270485000	40.52.7.048
Ten pack	405270485000PAC	40.52.7.048
Wash tight	405270485001	40.52.7.048
Ten pack	405270485001PAC	40.52.7.048
Sensitive DC coil	405270600000	40.52.7.060
Ten pack	405270600000PAC	40.52.7.060
Wash tight	405270600001	40.52.7.060
Sensitive DC coil	405270605000	40.52.7.060
Wash tight	405270605001	40.52.7.060
Ten pack	405270605001PAC	40.52.7.060
Sensitive DC coil	405270900000	40.52.7.090
Ten pack	405270900000PAC	40.52.7.090

Wash tight	405270900001	40.52.7.090
Ten pack	405270900001PAC	40.52.7.090
Sensitive DC coil	405270902000	40.52.7.090
Wash tight	405270905001	40.52.7.090
Ten pack	405270905001PAC	40.52.7.090
Normally Open contact configuration	405270905301	40.52.7.090
Ten pack	405270905301PAC	40.52.7.090
Sensitive DC coil	405271100000	40.52.7.110
Ten pack	405271100000PAC	40.52.7.110
Wash tight	405271100001	40.52.7.110
Normally Open contact configuration	405271100300	40.52.7.110
Ten pack	405271100300PAC	40.52.7.110
Normally Open contact configuration	405271100301	40.52.7.110
Ten pack	405271100301PAC	40.52.7.110
Wash tight	405271105001	40.52.7.110
Ten pack	405271105001PAC	40.52.7.110
Sensitive DC coil	405271250000	40.52.7.125
Ten pack	405271250000PAC	40.52.7.125
Sensitive DC coil	405271255000	40.52.7.125
Ten pack	405271255000PAC	40.52.7.125
5.0mm pinning; AgNi; 2CO 8A; AC coil	405280060000	40.52.8.000
Ten pack	405280060000PAC	40.52.8.000
Wash tight	405280060001	40.52.8.000
Ten pack	405280060001PAC	40.52.8.000
5.0mm pinning; AgNi; 2CO 8A; AC coil	405280120000	40.52.8.012
Ten pack	405280120000PAC	40.52.8.012

Wash tight	405280120001	40.52.8.012
Ten pack	405280120001PAC	40.52.8.012
Normally Open contact configuration	405280120300	40.52.8.012
Ten pack	405280120300PAC	40.52.8.012
Normally Open contact configuration	405280120301	40.52.8.012
Ten pack	405280120301PAC	40.52.8.012
AgCdO 90/10 contacts (40.52 only) 2CO	405280122000	40.52.8.012
Normally Open contact configuration	405280122300	40.52.8.012
Ten pack	405280122300PAC	40.52.8.012
AgNi+Au contacts (40.52 only) - 2CO	405280125000	40.52.8.012
Ten pack	405280125000PAC	40.52.8.012
Wash tight	405280125001	40.52.8.012
Ten pack	405280125001PAC	40.52.8.012
5.0mm pinning; AgNi; 2CO 8A; AC coil	405280240000	40.52.8.024
Ten pack	405280240000PAC	40.52.8.024
Wash tight	405280240001	40.52.8.024
Ten pack	405280240001PAC	40.52.8.024
Normally Open contact configuration	405280240300	40.52.8.024
Ten pack	405280240300PAC	40.52.8.024
Normally Open contact configuration	405280240301	40.52.8.024
Ten pack	405280240301PAC	40.52.8.024
AgCdO 90/10 contacts (40.52 only) 2CO	405280242000	40.52.8.024
Ten pack	405280242000PAC	40.52.8.024
Wash tight	405280242001	40.52.8.024
Ten pack	405280242001PAC	40.52.8.024
Normally Open contact configuration	405280242300	40.52.8.024

Ten pack	405280242300PAC	40.52.8.024
AgNi+Au contacts (40.52 only) - 2CO	405280245000	40.52.8.024
Ten pack	405280245000PAC	40.52.8.024
Wash tight	405280245001	40.52.8.024
Ten pack	405280245001PAC	40.52.8.024
5.0mm pinning; AgNi; 2CO 8A; AC coil	405280480000	40.52.8.048
Ten pack	405280480000PAC	40.52.8.048
Wash tight	405280480001	40.52.8.048
Ten pack	405280480001PAC	40.52.8.048
AgCdO 90/10 contacts (40.52 only) 2CO	405280482000	40.52.8.048
Ten pack	405280482000PAC	40.52.8.048
Normally Open contact configuration	405280482301	40.52.8.048
Ten pack	405280482301PAC	40.52.8.048
AgNi+Au contacts (40.52 only) - 2CO	405280485000	40.52.8.048
Ten pack	405280485000PAC	40.52.8.048
Wash tight	405280485001	40.52.8.048
Ten pack	405280485001PAC	40.52.8.048
5.0mm pinning; AgNi; 2CO 8A; AC coil	405280600000	40.52.8.060
Ten pack	405280600000PAC	40.52.8.060
AgNi+Au contacts (40.52 only) - 2CO	405280605000	40.52.8.060
Ten pack	405280605000PAC	40.52.8.060
110,120,125VAC coil (add to 1st column price)	405281100000	40.52.8.110
Ten pack	405281100000PAC	40.52.8.110
Wash tight	405281100001	40.52.8.110
Ten pack	405281100001PAC	40.52.8.110
Normally Open contact configuration	405281100300	40.52.8.110

Ten pack	405281100300PAC	40.52.8.110
Normally Open contact configuration	405281100301	40.52.8.110
Ten pack	405281100301PAC	40.52.8.110
110,120,125VAC coil (add to 1st column price)	405281102000	40.52.8.110
Ten pack	405281102000PAC	40.52.8.110
Wash tight	405281102001	40.52.8.110
Ten pack	405281102001PAC	40.52.8.110
110,120,125VAC coil (add to 1st column price)	405281105000	40.52.8.110
Ten pack	405281105000PAC	40.52.8.110
Wash tight	405281105001	40.52.8.110
Ten pack	405281105001PAC	40.52.8.110
Normally Open contact configuration	405281105300	40.52.8.110
Ten pack	405281105300PAC	40.52.8.110
110,120,125VAC coil (add to 1st column price)	405281200000	40.52.8.120
Ten pack	405281200000PAC	40.52.8.120
Wash tight	405281200001	40.52.8.120
Ten pack	405281200001PAC	40.52.8.120
Normally Open contact configuration	405281200300	40.52.8.120
Ten pack	405281200300PAC	40.52.8.120
110,120,125VAC coil (add to 1st column price)	405281202000	40.52.8.120
Ten pack	405281202000PAC	40.52.8.120
Wash tight	405281202001	40.52.8.120
110,120,125VAC coil (add to 1st column price)	405281205000	40.52.8.120
Ten pack	405281205000PAC	40.52.8.120
Wash tight	405281205001	40.52.8.120
110,120,125VAC coil (add to 1st column price)	405281250000	40.52.8.120

Ten pack	405281250000PAC	40.52.8.125
Wash tight	405281250001	40.52.8.125
Ten pack	405281250001PAC	40.52.8.125
Wash tight	405281252001	40.52.8.125
Ten pack	405281252001PAC	40.52.8.125
110,120,125VAC coil (add to 1st column price)	405281255000	40.52.8.125
Ten pack	405281255000PAC	40.52.8.125
5.0mm pinning; AgNi; 2CO 8A; AC coil	405282300000	40.52.8.230
Ten pack	405282300000PAC	40.52.8.230
Wash tight	405282300001	40.52.8.230
Ten pack	405282300001PAC	40.52.8.230
Normally Open contact configuration	405282300300	40.52.8.230
Ten pack	405282300300PAC	40.52.8.230
Normally Open contact configuration	405282300301	40.52.8.230
Ten pack	405282300301PAC	40.52.8.230
AgCdO 90/10 contacts (40.52 only) 2CO	405282302000	40.52.8.230
Ten pack	405282302000PAC	40.52.8.230
Wash tight	405282302001	40.52.8.230
Ten pack	405282302001PAC	40.52.8.230
AgNi+Au contacts (40.52 only) - 2CO	405282305000	40.52.8.230
Ten pack	405282305000PAC	40.52.8.230
Wash tight	405282305001	40.52.8.230
Ten pack	405282305001PAC	40.52.8.230
Normally Open contact configuration	405282305300	40.52.8.230
Ten pack	405282305300PAC	40.52.8.230
Normally Open contact configuration	405282305301	40.52.8.230

Ten pack	405282305301PAC	40.52.8.230
5.0mm pinning; AgNi; 2CO 8A; AC coil	405282400000	40.52.8.240
Ten pack	405282400000PAC	40.52.8.240
Wash tight	405282400001	40.52.8.240
Ten pack	405282400001PAC	40.52.8.240
AgCdO 90/10 contacts (40.52 only) 2CO	405282402000	40.52.8.240
Ten pack	405282402000PAC	40.52.8.240
Wash tight	405282402001	40.52.8.240
Ten pack	405282402001PAC	40.52.8.240
AgNi+Au contacts (40.52 only) - 2CO	405282405000	40.52.8.240
Ten pack	405282405000PAC	40.52.8.240
Wash tight	405282405001	40.52.8.240
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290040000	40.52.9.004
Ten pack	405290040000PAC	40.52.9.004
Wash tight	405290040001	40.52.9.004
Ten pack	405290040001PAC	40.52.9.004
High temperature (+125°C); Wash Tight (DC only)	405290040003	40.52.9.004
Ten pack	405290040003PAC	40.52.9.004
Normally Open contact configuration	405290040300	40.52.9.004
Ten pack	405290040300PAC	40.52.9.004
Normally Open contact configuration	405290040301	40.52.9.004
Ten pack	405290040301PAC	40.52.9.004
AgCdO 90/10 contacts (40.52 only) 2CO	405290042000	40.52.9.004
Ten pack	405290042000PAC	40.52.9.004
AgNi+Au contacts (40.52 only) - 2CO	405290045000	40.52.9.004
Ten pack	405290045000PAC	40.52.9.004

Wash tight	405290045001	40.52.9.004
Ten pack	405290045001PAC	40.52.9.004
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290050000	40.52.9.005
Ten pack	405290050000PAC	40.52.9.005
Wash tight	405290050001	40.52.9.005
Ten pack	405290050001PAC	40.52.9.005
High temperature (+125°C); Wash Tight (DC only)	405290050003	40.52.9.005
Ten pack	405290050003PAC	40.52.9.005
Normally Open contact configuration	405290050300	40.52.9.005
Ten pack	405290050300PAC	40.52.9.005
AgNi+Au contacts (40.52 only) - 2CO	405290055000	40.52.9.005
Ten pack	405290055000PAC	40.52.9.005
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290060000	40.52.9.006
Ten pack	405290060000PAC	40.52.9.006
Wash tight	405290060001	40.52.9.006
Ten pack	405290060001PAC	40.52.9.006
High temperature (+125°C); Wash Tight (DC only)	405290060003	40.52.9.006
Ten pack	405290060003PAC	40.52.9.006
Normally Open contact configuration	405290060300	40.52.9.006
Ten pack	405290060300PAC	40.52.9.006
Normally Open contact configuration	405290060301	40.52.9.006
Ten pack	405290060301PAC	40.52.9.006
AgCdO 90/10 contacts (40.52 only) 2CO	405290062000	40.52.9.006
Ten pack	405290062000PAC	40.52.9.006
Wash tight	405290062001	40.52.9.006
Normally Open contact configuration	405290062300	40.52.9.006

Ten pack	405290062300PAC	40.52.9.000
AgNi+Au contacts (40.52 only) - 2CO	405290065000	40.52.9.000
Ten pack	405290065000PAC	40.52.9.000
Wash tight	405290065001	40.52.9.000
Ten pack	405290065001PAC	40.52.9.000
AgNi+Au contacts (40.52 only) - 2CO	405290065003	40.52.9.000
Ten pack	405290065003PAC	40.52.9.000
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290070000	40.52.9.000
Ten pack	405290070000PAC	40.52.9.000
Wash tight	405290070001	40.52.9.000
Ten pack	405290070001PAC	40.52.9.000
Normally Open contact configuration	405290070300	40.52.9.000
Ten pack	405290070300PAC	40.52.9.000
Normally Open contact configuration	405290070301	40.52.9.000
Ten pack	405290070301PAC	40.52.9.000
Wash tight	405290072001	40.52.9.000
Ten pack	405290072001PAC	40.52.9.000
AgNi+Au contacts (40.52 only) - 2CO	405290075000	40.52.9.000
Ten pack	405290075000PAC	40.52.9.000
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290090000	40.52.9.000
Ten pack	405290090000PAC	40.52.9.000
Wash tight	405290090001	40.52.9.000
Ten pack	405290090001PAC	40.52.9.000
High temperature (+125°C); Wash Tight (DC only)	405290090003	40.52.9.000
Ten pack	405290090003PAC	40.52.9.000
Normally Open contact configuration	405290090300	40.52.9.000

Ten pack	405290090300PAC	40.52.9.009
Normally Open contact configuration	405290090301	40.52.9.009
Ten pack	405290090301PAC	40.52.9.009
AgCdO 90/10 contacts (40.52 only) 2CO	405290092000	40.52.9.009
Ten pack	405290092000PAC	40.52.9.009
Wash tight	405290092001	40.52.9.009
Ten pack	405290092001PAC	40.52.9.009
AgCdO 90/10 contacts (40.52 only) 2CO	405290092003	40.52.9.009
Ten pack	405290092003PAC	40.52.9.009
AgNi+Au contacts (40.52 only) - 2CO	405290095000	40.52.9.009
Ten pack	405290095000PAC	40.52.9.009
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290120000	40.52.9.012
Ten pack	405290120000PAC	40.52.9.012
Wash tight	405290120001	40.52.9.012
Ten pack	405290120001PAC	40.52.9.012
High temperature (+125°C); Wash Tight (DC only)	405290120003	40.52.9.012
Ten pack	405290120003PAC	40.52.9.012
Normally Open contact configuration	405290120300	40.52.9.012
Ten pack	405290120300PAC	40.52.9.012
Normally Open contact configuration	405290120301	40.52.9.012
Ten pack	405290120301PAC	40.52.9.012
Normally Open contact configuration	405290120303	40.52.9.012
Ten pack	405290120303PAC	40.52.9.012
AgCdO 90/10 contacts (40.52 only) 2CO	405290122000	40.52.9.012
Ten pack	405290122000PAC	40.52.9.012
Wash tight	405290122001	40.52.9.012

Ten pack	405290122001PAC	40.52.9.012
AgCdO 90/10 contacts (40.52 only) 2CO	405290122003	40.52.9.012
Ten pack	405290122003PAC	40.52.9.012
Normally Open contact configuration	405290122300	40.52.9.012
Ten pack	405290122300PAC	40.52.9.012
Normally Open contact configuration	405290122301	40.52.9.012
Ten pack	405290122301PAC	40.52.9.012
AgNi+Au contacts (40.52 only) - 2CO	405290125000	40.52.9.012
Ten pack	405290125000PAC	40.52.9.012
Wash tight	405290125001	40.52.9.012
Ten pack	405290125001PAC	40.52.9.012
AgNi+Au contacts (40.52 only) - 2CO	405290125003	40.52.9.012
Ten pack	405290125003PAC	40.52.9.012
Normally Open contact configuration	405290125300	40.52.9.012
Ten pack	405290125300PAC	40.52.9.012
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290140000	40.52.9.014
Ten pack	405290140000PAC	40.52.9.014
Wash tight	405290140001	40.52.9.014
Ten pack	405290140001PAC	40.52.9.014
High temperature (+125°C); Wash Tight (DC only)	405290140003	40.52.9.014
Ten pack	405290140003PAC	40.52.9.014
Normally Open contact configuration	405290140300	40.52.9.014
Ten pack	405290140300PAC	40.52.9.014
Normally Open contact configuration	405290140301	40.52.9.014
Ten pack	405290140301PAC	40.52.9.014
AgCdO 90/10 contacts (40.52 only) 2CO	405290142000	40.52.9.014

Ten pack	405290142000PAC	40.52.9.014
Wash tight	405290142001	40.52.9.014
Ten pack	405290142001PAC	40.52.9.014
Normally Open contact configuration	405290142300	40.52.9.014
Ten pack	405290142300PAC	40.52.9.014
AgNi+Au contacts (40.52 only) - 2CO	405290145000	40.52.9.014
Ten pack	405290145000PAC	40.52.9.014
Wash tight	405290145001	40.52.9.014
Ten pack	405290145001PAC	40.52.9.014
Normally Open contact configuration	405290145300	40.52.9.014
Ten pack	405290145300PAC	40.52.9.014
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290180000	40.52.9.018
Ten pack	405290180000PAC	40.52.9.018
Wash tight	405290180001	40.52.9.018
Ten pack	405290180001PAC	40.52.9.018
High temperature (+125°C); Wash Tight (DC only)	405290180003	40.52.9.018
Ten pack	405290180003PAC	40.52.9.018
Normally Open contact configuration	405290180300	40.52.9.018
Ten pack	405290180300PAC	40.52.9.018
Normally Open contact configuration	405290180301	40.52.9.018
Ten pack	405290180301PAC	40.52.9.018
AgCdO 90/10 contacts (40.52 only) 2CO	405290182000	40.52.9.018
Ten pack	405290182000PAC	40.52.9.018
Wash tight	405290182001	40.52.9.018
Ten pack	405290182001PAC	40.52.9.018
AgCdO 90/10 contacts (40.52 only) 2CO	405290182003	40.52.9.018

Normally Open contact configuration	405290182300	40.52.9.018
Ten pack	405290182300PAC	40.52.9.018
Normally Open contact configuration	405290182301	40.52.9.018
Ten pack	405290182301PAC	40.52.9.018
AgNi+Au contacts (40.52 only) - 2CO	405290185000	40.52.9.018
Ten pack	405290185000PAC	40.52.9.018
AgNi+Au contacts (40.52 only) - 2CO	405290185003	40.52.9.018
Ten pack	405290185003PAC	40.52.9.018
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290210000	40.52.9.021
Ten pack	405290210000PAC	40.52.9.021
Wash tight	405290210001	40.52.9.021
Ten pack	405290210001PAC	40.52.9.021
High temperature (+125°C); Wash Tight (DC only)	405290210003	40.52.9.021
Ten pack	405290210003PAC	40.52.9.021
Normally Open contact configuration	405290210300	40.52.9.021
Ten pack	405290210300PAC	40.52.9.021
Normally Open contact configuration	405290210301	40.52.9.021
Ten pack	405290210301PAC	40.52.9.021
AgCdO 90/10 contacts (40.52 only) 2CO	405290212000	40.52.9.021
Ten pack	405290212000PAC	40.52.9.021
Wash tight	405290212001	40.52.9.021
AgNi+Au contacts (40.52 only) - 2CO	405290215000	40.52.9.021
Ten pack	405290215000PAC	40.52.9.021
Wash tight	405290215001	40.52.9.021
Ten pack	405290215001PAC	40.52.9.021
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290240000	40.52.9.024

Ten pack	405290240000PAC	40.52.9.024
Wash tight	405290240001	40.52.9.024
Ten pack	405290240001PAC	40.52.9.024
High temperature (+125°C); Wash Tight (DC only)	405290240003	40.52.9.024
Ten pack	405290240003PAC	40.52.9.024
Normally Open contact configuration	405290240300	40.52.9.024
Ten pack	405290240300PAC	40.52.9.024
Normally Open contact configuration	405290240301	40.52.9.024
Ten pack	405290240301PAC	40.52.9.024
AgCdO 90/10 contacts (40.52 only) 2CO	405290242000	40.52.9.024
Ten pack	405290242000PAC	40.52.9.024
Wash tight	405290242001	40.52.9.024
Ten pack	405290242001PAC	40.52.9.024
AgCdO 90/10 contacts (40.52 only) 2CO	405290242003	40.52.9.024
Ten pack	405290242003PAC	40.52.9.024
Normally Open contact configuration	405290242300	40.52.9.024
Ten pack	405290242300PAC	40.52.9.024
Normally Open contact configuration	405290242301	40.52.9.024
Ten pack	405290242301PAC	40.52.9.024
AgNi+Au contacts (40.52 only) - 2CO	405290245000	40.52.9.024
Ten pack	405290245000PAC	40.52.9.024
Wash tight	405290245001	40.52.9.024
Ten pack	405290245001PAC	40.52.9.024
AgNi+Au contacts (40.52 only) - 2CO	405290245003	40.52.9.024
Ten pack	405290245003PAC	40.52.9.024
Normally Open contact configuration	405290245300	40.52.9.024

Ten pack	405290245300PAC	40.52.9.024
Normally Open contact configuration	405290245301	40.52.9.024
Ten pack	405290245301PAC	40.52.9.024
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290280000	40.52.9.028
Ten pack	405290280000PAC	40.52.9.028
Wash tight	405290280001	40.52.9.028
Ten pack	405290280001PAC	40.52.9.028
High temperature (+125°C); Wash Tight (DC only)	405290280003	40.52.9.028
Ten pack	405290280003PAC	40.52.9.028
Normally Open contact configuration	405290280300	40.52.9.028
Ten pack	405290280300PAC	40.52.9.028
Normally Open contact configuration	405290280301	40.52.9.028
Ten pack	405290280301PAC	40.52.9.028
AgCdO 90/10 contacts (40.52 only) 2CO	405290282000	40.52.9.028
Ten pack	405290282000PAC	40.52.9.028
Wash tight	405290282001	40.52.9.028
Ten pack	405290282001PAC	40.52.9.028
AgCdO 90/10 contacts (40.52 only) 2CO	405290282003	40.52.9.028
Ten pack	405290282003PAC	40.52.9.028
Normally Open contact configuration	405290282300	40.52.9.028
Ten pack	405290282300PAC	40.52.9.028
Normally Open contact configuration	405290282301	40.52.9.028
Ten pack	405290282301PAC	40.52.9.028
AgNi+Au contacts (40.52 only) - 2CO	405290285000	40.52.9.028
Ten pack	405290285000PAC	40.52.9.028
Wash tight	405290285001	40.52.9.028

Ten pack	405290285001PAC	40.52.9.028
AgNi+Au contacts (40.52 only) - 2CO	405290285003	40.52.9.028
Ten pack	405290285003PAC	40.52.9.028
Normally Open contact configuration	405290285300	40.52.9.028
Ten pack	405290285300PAC	40.52.9.028
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290360000	40.52.9.036
Ten pack	405290360000PAC	40.52.9.036
Wash tight	405290360001	40.52.9.036
Ten pack	405290360001PAC	40.52.9.036
Normally Open contact configuration	405290360300	40.52.9.036
Ten pack	405290360300PAC	40.52.9.036
Normally Open contact configuration	405290360301	40.52.9.036
Ten pack	405290360301PAC	40.52.9.036
AgCdO 90/10 contacts (40.52 only) 2CO	405290362000	40.52.9.036
Ten pack	405290362000PAC	40.52.9.036
AgNi+Au contacts (40.52 only) - 2CO	405290365000	40.52.9.036
Ten pack	405290365000PAC	40.52.9.036
Wash tight	405290365001	40.52.9.036
Ten pack	405290365001PAC	40.52.9.036
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290480000	40.52.9.048
Ten pack	405290480000PAC	40.52.9.048
Wash tight	405290480001	40.52.9.048
Ten pack	405290480001PAC	40.52.9.048
High temperature (+125°C); Wash Tight (DC only)	405290480003	40.52.9.048
Ten pack	405290480003PAC	40.52.9.048
Normally Open contact configuration	405290480300	40.52.9.048

Ten pack	405290480300PAC	40.52.9.048
Normally Open contact configuration	405290480301	40.52.9.048
Ten pack	405290480301PAC	40.52.9.048
AgCdO 90/10 contacts (40.52 only) 2CO	405290482000	40.52.9.048
Ten pack	405290482000PAC	40.52.9.048
Wash tight	405290482001	40.52.9.048
Ten pack	405290482001PAC	40.52.9.048
Normally Open contact configuration	405290482301	40.52.9.048
Ten pack	405290482301PAC	40.52.9.048
AgNi+Au contacts (40.52 only) - 2CO	405290485000	40.52.9.048
Ten pack	405290485000PAC	40.52.9.048
Wash tight	405290485001	40.52.9.048
Ten pack	405290485001PAC	40.52.9.048
Normally Open contact configuration	405290485300	40.52.9.048
Ten pack	405290485300PAC	40.52.9.048
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290600000	40.52.9.060
Ten pack	405290600000PAC	40.52.9.060
Wash tight	405290600001	40.52.9.060
Ten pack	405290600001PAC	40.52.9.060
High temperature (+125°C); Wash Tight (DC only)	405290600003	40.52.9.060
Ten pack	405290600003PAC	40.52.9.060
Normally Open contact configuration	405290600300	40.52.9.060
Ten pack	405290600300PAC	40.52.9.060
Normally Open contact configuration	405290600301	40.52.9.060
Ten pack	405290600301PAC	40.52.9.060
AgCdO 90/10 contacts (40.52 only) 2CO	405290602000	40.52.9.060

Ten pack	405290602000PAC	40.52.9.060
Wash tight	405290602001	40.52.9.060
Ten pack	405290602001PAC	40.52.9.060
AgNi+Au contacts (40.52 only) - 2CO	405290605000	40.52.9.060
Ten pack	405290605000PAC	40.52.9.060
Wash tight	405290605001	40.52.9.060
Ten pack	405290605001PAC	40.52.9.060
AgNi+Au contacts (40.52 only) - 2CO	405290605003	40.52.9.060
Ten pack	405290605003PAC	40.52.9.060
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290800000	40.52.9.080
Ten pack	405290800000PAC	40.52.9.080
AgNi+Au contacts (40.52 only) - 2CO	405290805000	40.52.9.080
Ten pack	405290805000PAC	40.52.9.080
5.0mm pinning; AgNi; 2CO 8A; DC coil	405290900000	40.52.9.090
Ten pack	405290900000PAC	40.52.9.090
Wash tight	405290900001	40.52.9.090
Ten pack	405290900001PAC	40.52.9.090
High temperature (+125°C); Wash Tight (DC only)	405290900003	40.52.9.090
Ten pack	405290900003PAC	40.52.9.090
Normally Open contact configuration	405290900300	40.52.9.090
Ten pack	405290900300PAC	40.52.9.090
Normally Open contact configuration	405290900301	40.52.9.090
Ten pack	405290900301PAC	40.52.9.090
AgCdO 90/10 contacts (40.52 only) 2CO	405290902000	40.52.9.090
Ten pack	405290902000PAC	40.52.9.090
AgNi+Au contacts (40.52 only) - 2CO	405290905000	40.52.9.090

Ten pack	405290905000PAC	40.52.9.090
Wash tight	405290905001	40.52.9.090
Ten pack	405290905001PAC	40.52.9.090
5.0mm pinning; AgNi; 2CO 8A; DC coil	405291100000	40.52.9.110
Ten pack	405291100000PAC	40.52.9.110
Wash tight	405291100001	40.52.9.110
Ten pack	405291100001PAC	40.52.9.110
High temperature (+125°C); Wash Tight (DC only)	405291100003	40.52.9.110
Normally Open contact configuration	405291100300	40.52.9.110
Ten pack	405291100300PAC	40.52.9.110
Normally Open contact configuration	405291100301	40.52.9.110
Ten pack	405291100301PAC	40.52.9.110
Normally Open contact configuration	405291100303	40.52.9.110
Ten pack	405291100303PAC	40.52.9.110
AgCdO 90/10 contacts (40.52 only) 2CO	405291102000	40.52.9.110
Ten pack	405291102000PAC	40.52.9.110
Wash tight	405291102001	40.52.9.110
Ten pack	405291102001PAC	40.52.9.110
AgCdO 90/10 contacts (40.52 only) 2CO	405291102003	40.52.9.110
Ten pack	405291102003PAC	40.52.9.110
Normally Open contact configuration	405291102300	40.52.9.110
Ten pack	405291102300PAC	40.52.9.110
AgNi+Au contacts (40.52 only) - 2CO	405291105000	40.52.9.110
Ten pack	405291105000PAC	40.52.9.110
Wash tight	405291105001	40.52.9.110
Ten pack	405291105001PAC	40.52.9.110

AgNi+Au contacts (40.52 only) - 2CO	405291105003	40.52.9.110
Ten pack	405291105003PAC	40.52.9.110
Normally Open contact configuration	405291105300	40.52.9.110
Ten pack	405291105300PAC	40.52.9.110
Normally Open contact configuration	405291105301	40.52.9.110
Ten pack	405291105301PAC	40.52.9.110
Normally Open contact configuration	405291105303	40.52.9.110
Ten pack	405291105303PAC	40.52.9.110
125,145VDC coil (add to 1st column price)	405291250000	40.52.9.125
Ten pack	405291250000PAC	40.52.9.125
Wash tight	405291250001	40.52.9.125
Ten pack	405291250001PAC	40.52.9.125
Normally Open contact configuration	405291250300	40.52.9.125
Ten pack	405291250300PAC	40.52.9.125
Normally Open contact configuration	405291250301	40.52.9.125
Ten pack	405291250301PAC	40.52.9.125
125,145VDC coil (add to 1st column price)	405291252000	40.52.9.125
Ten pack	405291252000PAC	40.52.9.125
Wash tight	405291252001	40.52.9.125
Ten pack	405291252001PAC	40.52.9.125
125,145VDC coil (add to 1st column price)	405291255000	40.52.9.125
Ten pack	405291255000PAC	40.52.9.125
Wash tight	405291255001	40.52.9.125
Ten pack	405291255001PAC	40.52.9.125
125,145VDC coil (add to 1st column price)	405291450000	40.52.9.145
Ten pack	405291450000PAC	40.52.9.145

Bistable coil	406160060000	40.61.6.000
Ten pack	406160060000PAC	40.61.6.000
Bistable coil	406160064000	40.61.6.000
Ten pack	406160064000PAC	40.61.6.000
Wash tight	406160064001	40.61.6.000
Ten pack	406160064001PAC	40.61.6.000
Bistable coil	406160120000	40.61.6.012
Ten pack	406160120000PAC	40.61.6.012
Wash tight	406160120001	40.61.6.012
Normally Open contact configuration	406160120301	40.61.6.012
Ten pack	406160120301PAC	40.61.6.012
Bistable coil	406160124000	40.61.6.012
Ten pack	406160124000PAC	40.61.6.012
Normally Open contact configuration	406160124300	40.61.6.012
Ten pack	406160124300PAC	40.61.6.012
Bistable coil	406160240000	40.61.6.024
Ten pack	406160240000PAC	40.61.6.024
Wash tight	406160240001	40.61.6.024
Ten pack	406160240001PAC	40.61.6.024
Normally Open contact configuration	406160240300	40.61.6.024
Normally Open contact configuration	406160240301	40.61.6.024
Ten pack	406160240301PAC	40.61.6.024
Bistable coil	406160244000	40.61.6.024
Ten pack	406160244000PAC	40.61.6.024
Normally Open contact configuration	406160244300	40.61.6.024
Ten pack	406160244300PAC	40.61.6.024

Normally Open contact configuration	406160244301	40.61.6.024
Ten pack	406160244301PAC	40.61.6.024
Bistable coil	406160480000	40.61.6.048
Ten pack	406160480000PAC	40.61.6.048
Wash tight	406160484001	40.61.6.048
Bistable coil	406161100000	40.61.6.110
Ten pack	406161100000PAC	40.61.6.110
Wash tight	406161100001	40.61.6.110
Ten pack	406161100001PAC	40.61.6.110
Normally Open contact configuration	406161100300	40.61.6.110
Ten pack	406161100300PAC	40.61.6.110
Normally Open contact configuration	406161100301	40.61.6.110
Ten pack	406161100301PAC	40.61.6.110
Normally Open contact configuration	406161104300	40.61.6.110
Ten pack	406161104300PAC	40.61.6.110
Sensitive DC coil	406170050000	40.61.7.005
Ten pack	406170050000PAC	40.61.7.005
Wash tight	406170050001	40.61.7.005
Ten pack	406170050001PAC	40.61.7.005
Normally Open contact configuration	406170050300	40.61.7.005
Ten pack	406170050300PAC	40.61.7.005
Normally Open contact configuration	406170050301	40.61.7.005
Ten pack	406170050301PAC	40.61.7.005
Sensitive DC coil	406170053000	40.61.7.005
Ten pack	406170053000PAC	40.61.7.005
Sensitive DC coil	406170054000	40.61.7.005

Ten pack	406170054000PAC	40.61.7.005
Wash tight	406170054001	40.61.7.005
Ten pack	406170054001PAC	40.61.7.005
Normally Open contact configuration	406170054300	40.61.7.005
Ten pack	406170054300PAC	40.61.7.005
Sensitive DC coil	406170060000	40.61.7.006
Ten pack	406170060000PAC	40.61.7.006
Wash tight	406170060001	40.61.7.006
Ten pack	406170060001PAC	40.61.7.006
Normally Open contact configuration	406170060300	40.61.7.006
Ten pack	406170060300PAC	40.61.7.006
Normally Open contact configuration	406170060301	40.61.7.006
Sensitive DC coil	406170064000	40.61.7.006
Ten pack	406170064000PAC	40.61.7.006
Wash tight	406170064001	40.61.7.006
Ten pack	406170064001PAC	40.61.7.006
Normally Open contact configuration	406170064300	40.61.7.006
Ten pack	406170064300PAC	40.61.7.006
Sensitive DC coil	406170070000	40.61.7.007
Ten pack	406170070000PAC	40.61.7.007
Wash tight	406170070001	40.61.7.007
Ten pack	406170070001PAC	40.61.7.007
Normally Open contact configuration	406170070300	40.61.7.007
Ten pack	406170070300PAC	40.61.7.007
Sensitive DC coil	406170074000	40.61.7.007
Ten pack	406170074000PAC	40.61.7.007

Wash tight	406170074001	40.61.7.007
Ten pack	406170074001PAC	40.61.7.007
Normally Open contact configuration	406170074300	40.61.7.007
Ten pack	406170074300PAC	40.61.7.007
Sensitive DC coil	406170090000	40.61.7.009
Ten pack	406170090000PAC	40.61.7.009
Wash tight	406170090001	40.61.7.009
Ten pack	406170090001PAC	40.61.7.009
Normally Open contact configuration	406170090300	40.61.7.009
Ten pack	406170090300PAC	40.61.7.009
Normally Open contact configuration	406170090301	40.61.7.009
Ten pack	406170090301PAC	40.61.7.009
Sensitive DC coil	406170094000	40.61.7.009
Ten pack	406170094000PAC	40.61.7.009
Wash tight	406170094001	40.61.7.009
Ten pack	406170094001PAC	40.61.7.009
Normally Open contact configuration	406170094300	40.61.7.009
Ten pack	406170094300PAC	40.61.7.009
Sensitive DC coil	406170120000	40.61.7.012
Ten pack	406170120000PAC	40.61.7.012
Wash tight	406170120001	40.61.7.012
Ten pack	406170120001PAC	40.61.7.012
Normally Open contact configuration	406170120300	40.61.7.012
Ten pack	406170120300PAC	40.61.7.012
Normally Open contact configuration	406170120301	40.61.7.012
Ten pack	406170120301PAC	40.61.7.012

5.0mm pinning; AgCdO; 1CO 16A; DC coil	406170121020	40.61.7.012
Ten pack	406170121020PAC	40.61.7.012
Normally Open contact configuration	406170121320	40.61.7.012
Ten pack	406170121320PAC	40.61.7.012
AgCdO 90/10 contacts (40.61 only)	406170122020	40.61.7.012
Ten pack	406170122020PAC	40.61.7.012
Normally Open contact configuration	406170122320	40.61.7.012
Ten pack	406170122320PAC	40.61.7.012
Sensitive DC coil	406170123000	40.61.7.012
Ten pack	406170123000PAC	40.61.7.012
Normally Open contact configuration	406170123300	40.61.7.012
Ten pack	406170123300PAC	40.61.7.012
Sensitive DC coil	406170124000	40.61.7.012
Ten pack	406170124000PAC	40.61.7.012
Wash tight	406170124001	40.61.7.012
Ten pack	406170124001PAC	40.61.7.012
Normally Open contact configuration	406170124300	40.61.7.012
Ten pack	406170124300PAC	40.61.7.012
Normally Open contact configuration	406170124301	40.61.7.012
Ten pack	406170124301PAC	40.61.7.012
Sensitive DC coil	406170140000	40.61.7.014
Ten pack	406170140000PAC	40.61.7.014
Wash tight	406170140001	40.61.7.014
Normally Open contact configuration	406170140300	40.61.7.014
Ten pack	406170140300PAC	40.61.7.014
Normally Open contact configuration	406170140301	40.61.7.014

Ten pack	406170140301PAC	40.61.7.014
Sensitive DC coil	406170144000	40.61.7.014
Ten pack	406170144000PAC	40.61.7.014
Wash tight	406170144001	40.61.7.014
Ten pack	406170144001PAC	40.61.7.014
Normally Open contact configuration	406170144300	40.61.7.014
Ten pack	406170144300PAC	40.61.7.014
Sensitive DC coil	406170180000	40.61.7.018
Ten pack	406170180000PAC	40.61.7.018
Wash tight	406170180001	40.61.7.018
Ten pack	406170180001PAC	40.61.7.018
Normally Open contact configuration	406170180300	40.61.7.018
Ten pack	406170180300PAC	40.61.7.018
Normally Open contact configuration	406170180301	40.61.7.018
Ten pack	406170180301PAC	40.61.7.018
Sensitive DC coil	406170184000	40.61.7.018
Ten pack	406170184000PAC	40.61.7.018
Wash tight	406170184001	40.61.7.018
Ten pack	406170184001PAC	40.61.7.018
Normally Open contact configuration	406170184300	40.61.7.018
Ten pack	406170184300PAC	40.61.7.018
Normally Open contact configuration	406170184301	40.61.7.018
Ten pack	406170184301PAC	40.61.7.018
Sensitive DC coil	406170210000	40.61.7.021
Ten pack	406170210000PAC	40.61.7.021
Wash tight	406170210001	40.61.7.021

Ten pack	406170210001PAC	40.61.7.023
Normally Open contact configuration	406170210301	40.61.7.023
Ten pack	406170210301PAC	40.61.7.023
Sensitive DC coil	406170214000	40.61.7.023
Ten pack	406170214000PAC	40.61.7.023
Wash tight	406170214001	40.61.7.023
Ten pack	406170214001PAC	40.61.7.023
Normally Open contact configuration	406170214300	40.61.7.023
Ten pack	406170214300PAC	40.61.7.023
Normally Open contact configuration	406170214301	40.61.7.023
Ten pack	406170214301PAC	40.61.7.023
Sensitive DC coil	406170240000	40.61.7.024
Ten pack	406170240000PAC	40.61.7.024
Wash tight	406170240001	40.61.7.024
Ten pack	406170240001PAC	40.61.7.024
Normally Open contact configuration	406170240300	40.61.7.024
Ten pack	406170240300PAC	40.61.7.024
Normally Open contact configuration	406170240301	40.61.7.024
Ten pack	406170240301PAC	40.61.7.024
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406170241020	40.61.7.024
Ten pack	406170241020PAC	40.61.7.024
Normally Open contact configuration	406170241320	40.61.7.024
Ten pack	406170241320PAC	40.61.7.024
AgCdO 90/10 contacts (40.61 only)	406170242020	40.61.7.024
Ten pack	406170242020PAC	40.61.7.024
Normally Open contact configuration	406170242320	40.61.7.024

Ten pack	406170242320PAC	40.61.7.024
Sensitive DC coil	406170243000	40.61.7.024
Ten pack	406170243000PAC	40.61.7.024
Wash tight	406170243001	40.61.7.024
Ten pack	406170243001PAC	40.61.7.024
Sensitive DC coil	406170244000	40.61.7.024
Ten pack	406170244000PAC	40.61.7.024
Wash tight	406170244001	40.61.7.024
Ten pack	406170244001PAC	40.61.7.024
Normally Open contact configuration	406170244300	40.61.7.024
Ten pack	406170244300PAC	40.61.7.024
Normally Open contact configuration	406170244301	40.61.7.024
Ten pack	406170244301PAC	40.61.7.024
Sensitive DC coil	406170280000	40.61.7.028
Ten pack	406170280000PAC	40.61.7.028
Normally Open contact configuration	406170280300	40.61.7.028
Ten pack	406170280300PAC	40.61.7.028
Sensitive DC coil	406170284000	40.61.7.028
Ten pack	406170284000PAC	40.61.7.028
Wash tight	406170284001	40.61.7.028
Ten pack	406170284001PAC	40.61.7.028
Normally Open contact configuration	406170284300	40.61.7.028
Ten pack	406170284300PAC	40.61.7.028
Sensitive DC coil	406170360000	40.61.7.036
Ten pack	406170360000PAC	40.61.7.036
Wash tight	406170360001	40.61.7.036

Ten pack	406170360001PAC	40.61.7.030
Sensitive DC coil	406170364000	40.61.7.030
Ten pack	406170364000PAC	40.61.7.030
Wash tight	406170364001	40.61.7.030
Ten pack	406170364001PAC	40.61.7.030
Normally Open contact configuration	406170364300	40.61.7.030
Ten pack	406170364300PAC	40.61.7.030
Sensitive DC coil	406170480000	40.61.7.040
Ten pack	406170480000PAC	40.61.7.040
Wash tight	406170480001	40.61.7.040
Ten pack	406170480001PAC	40.61.7.040
Normally Open contact configuration	406170480300	40.61.7.040
Ten pack	406170480300PAC	40.61.7.040
Normally Open contact configuration	406170480301	40.61.7.040
Ten pack	406170480301PAC	40.61.7.040
Sensitive DC coil	406170484000	40.61.7.040
Ten pack	406170484000PAC	40.61.7.040
Wash tight	406170484001	40.61.7.040
Ten pack	406170484001PAC	40.61.7.040
Normally Open contact configuration	406170484300	40.61.7.040
Ten pack	406170484300PAC	40.61.7.040
Sensitive DC coil	406170600000	40.61.7.060
Ten pack	406170600000PAC	40.61.7.060
Wash tight	406170600001	40.61.7.060
Ten pack	406170600001PAC	40.61.7.060
Sensitive DC coil	406170604000	40.61.7.060

Ten pack	406170604000PAC	40.61.7.060
Wash tight	406170604001	40.61.7.060
Ten pack	406170604001PAC	40.61.7.060
Normally Open contact configuration	406170604300	40.61.7.060
Ten pack	406170604300PAC	40.61.7.060
Sensitive DC coil	406170800000	40.61.7.080
Ten pack	406170800000PAC	40.61.7.080
Wash tight	406170800001	40.61.7.080
Ten pack	406170800001PAC	40.61.7.080
Normally Open contact configuration	406170800301	40.61.7.080
Ten pack	406170800301PAC	40.61.7.080
Sensitive DC coil	406170804000	40.61.7.080
Ten pack	406170804000PAC	40.61.7.080
Wash tight	406170804001	40.61.7.080
Ten pack	406170804001PAC	40.61.7.080
Normally Open contact configuration	406170804300	40.61.7.080
Ten pack	406170804300PAC	40.61.7.080
Sensitive DC coil	406170900000	40.61.7.090
Ten pack	406170900000PAC	40.61.7.090
Wash tight	406170900001	40.61.7.090
Ten pack	406170900001PAC	40.61.7.090
Normally Open contact configuration	406170900301	40.61.7.090
Ten pack	406170900301PAC	40.61.7.090
Sensitive DC coil	406170904000	40.61.7.090
Ten pack	406170904000PAC	40.61.7.090
Wash tight	406170904001	40.61.7.090

Ten pack	406170904001PAC	40.61.7.090
Normally Open contact configuration	406170904300	40.61.7.090
Ten pack	406170904300PAC	40.61.7.090
Sensitive DC coil	406171100000	40.61.7.110
Ten pack	406171100000PAC	40.61.7.110
Wash tight	406171100001	40.61.7.110
Ten pack	406171100001PAC	40.61.7.110
Normally Open contact configuration	406171100301	40.61.7.110
Ten pack	406171100301PAC	40.61.7.110
Sensitive DC coil	406171104000	40.61.7.110
Ten pack	406171104000PAC	40.61.7.110
Wash tight	406171104001	40.61.7.110
Ten pack	406171104001PAC	40.61.7.110
Normally Open contact configuration	406171104300	40.61.7.110
Ten pack	406171104300PAC	40.61.7.110
Sensitive DC coil	406171250000	40.61.7.125
Ten pack	406171250000PAC	40.61.7.125
Wash tight	406171250001	40.61.7.125
Ten pack	406171250001PAC	40.61.7.125
Sensitive DC coil	406171254000	40.61.7.125
Ten pack	406171254000PAC	40.61.7.125
Wash tight	406171254001	40.61.7.125
Ten pack	406171254001PAC	40.61.7.125
Normally Open contact configuration	406171254300	40.61.7.125
Ten pack	406171254300PAC	40.61.7.125
Sensitive DC coil	406171450000	40.61.7.145

Ten pack	406171450000PAC	40.61.7.145
Wash tight	406171450001	40.61.7.145
Ten pack	406171450001PAC	40.61.7.145
Ten pack	406171454000PAC	40.61.7.145
Wash tight	406171454001	40.61.7.145
Ten pack	406171454001PAC	40.61.7.145
Normally Open contact configuration	406171454300	40.61.7.145
Ten pack	406171454300PAC	40.61.7.145
5.0mm pinning; AgCdO; 1CO 16A; AC coil	406180060000	40.61.8.000
Ten pack	406180060000PAC	40.61.8.000
Wash tight	406180060001	40.61.8.000
Ten pack	406180060001PAC	40.61.8.000
Normally Open contact configuration	406180060300	40.61.8.000
Ten pack	406180060300PAC	40.61.8.000
Normally Open contact configuration	406180060301	40.61.8.000
Ten pack	406180060301PAC	40.61.8.000
AgSnO2 contacts (40.31/40.51/40.61 only)	406180064000	40.61.8.000
Ten pack	406180064000PAC	40.61.8.000
Wash tight	406180064001	40.61.8.000
Ten pack	406180064001PAC	40.61.8.000
Normally Open contact configuration	406180064300	40.61.8.000
Ten pack	406180064300PAC	40.61.8.000
Normally Open contact configuration	406180064301	40.61.8.000
Ten pack	406180064301PAC	40.61.8.000
5.0mm pinning; AgCdO; 1CO 16A; AC coil	406180120000	40.61.8.012
Ten pack	406180120000PAC	40.61.8.012

Wash tight	406180120001	40.61.8.012
Ten pack	406180120001PAC	40.61.8.012
Normally Open contact configuration	406180120300	40.61.8.012
Ten pack	406180120300PAC	40.61.8.012
Normally Open contact configuration	406180120301	40.61.8.012
Ten pack	406180120301PAC	40.61.8.012
AgSnO2 contacts (40.31/40.51/40.61 only)	406180124000	40.61.8.012
Ten pack	406180124000PAC	40.61.8.012
Wash tight	406180124001	40.61.8.012
Ten pack	406180124001PAC	40.61.8.012
Normally Open contact configuration	406180124300	40.61.8.012
Ten pack	406180124300PAC	40.61.8.012
Normally Open contact configuration	406180124301	40.61.8.012
Ten pack	406180124301PAC	40.61.8.012
5.0mm pinning; AgCdO; 1CO 16A; AC coil	406180240000	40.61.8.024
Ten pack	406180240000PAC	40.61.8.024
Wash tight	406180240001	40.61.8.024
Ten pack	406180240001PAC	40.61.8.024
Normally Open contact configuration	406180240300	40.61.8.024
Ten pack	406180240300PAC	40.61.8.024
Normally Open contact configuration	406180240301	40.61.8.024
Ten pack	406180240301PAC	40.61.8.024
AgSnO2 contacts (40.31/40.51/40.61 only)	406180244000	40.61.8.024
Ten pack	406180244000PAC	40.61.8.024
Wash tight	406180244001	40.61.8.024
Ten pack	406180244001PAC	40.61.8.024

Normally Open contact configuration	406180244300	40.61.8.024
Ten pack	406180244300PAC	40.61.8.024
Normally Open contact configuration	406180244301	40.61.8.024
Ten pack	406180244301PAC	40.61.8.024
5.0mm pinning; AgCdO; 1CO 16A; AC coil	406180480000	40.61.8.048
Ten pack	406180480000PAC	40.61.8.048
Wash tight	406180480001	40.61.8.048
Ten pack	406180480001PAC	40.61.8.048
Normally Open contact configuration	406180480300	40.61.8.048
Ten pack	406180480300PAC	40.61.8.048
Normally Open contact configuration	406180480301	40.61.8.048
Ten pack	406180480301PAC	40.61.8.048
AgSnO2 contacts (40.31/40.51/40.61 only)	406180484000	40.61.8.048
Ten pack	406180484000PAC	40.61.8.048
Wash tight	406180484001	40.61.8.048
Ten pack	406180484001PAC	40.61.8.048
Normally Open contact configuration	406180484300	40.61.8.048
Ten pack	406180484300PAC	40.61.8.048
Normally Open contact configuration	406180484301	40.61.8.048
Ten pack	406180484301PAC	40.61.8.048
5.0mm pinning; AgCdO; 1CO 16A; AC coil	406180600000	40.61.8.060
Ten pack	406180600000PAC	40.61.8.060
Wash tight	406180600001	40.61.8.060
Ten pack	406180600001PAC	40.61.8.060
Normally Open contact configuration	406180600300	40.61.8.060
Ten pack	406180600300PAC	40.61.8.060

Normally Open contact configuration	406180600301	40.61.8.060
Ten pack	406180600301PAC	40.61.8.060
AgSnO2 contacts (40.31/40.51/40.61 only)	406180604000	40.61.8.060
Ten pack	406180604000PAC	40.61.8.060
Wash tight	406180604001	40.61.8.060
Ten pack	406180604001PAC	40.61.8.060
Normally Open contact configuration	406180604300	40.61.8.060
Ten pack	406180604300PAC	40.61.8.060
Normally Open contact configuration	406180604301	40.61.8.060
Ten pack	406180604301PAC	40.61.8.060
110,120,125VAC coil (add to 1st column price)	406181100000	40.61.8.110
Ten pack	406181100000PAC	40.61.8.110
Normally Open contact configuration	406181100300	40.61.8.110
Ten pack	406181100300PAC	40.61.8.110
Normally Open contact configuration	406181100301	40.61.8.110
Ten pack	406181100301PAC	40.61.8.110
110,120,125VAC coil (add to 1st column price)	406181104000	40.61.8.110
Ten pack	406181104000PAC	40.61.8.110
Wash tight	406181104001	40.61.8.110
Ten pack	406181104001PAC	40.61.8.110
Normally Open contact configuration	406181104300	40.61.8.110
Ten pack	406181104300PAC	40.61.8.110
Normally Open contact configuration	406181104301	40.61.8.110
Ten pack	406181104301PAC	40.61.8.110
110,120,125VAC coil (add to 1st column price)	406181200000	40.61.8.120
Ten pack	406181200000PAC	40.61.8.120

Normally Open contact configuration	406181200300	40.61.8.120
Ten pack	406181200300PAC	40.61.8.120
Normally Open contact configuration	406181200301	40.61.8.120
Ten pack	406181200301PAC	40.61.8.120
110,120,125VAC coil (add to 1st column price)	406181203000	40.61.8.120
110,120,125VAC coil (add to 1st column price)	406181204000	40.61.8.120
Ten pack	406181204000PAC	40.61.8.120
Wash tight	406181204001	40.61.8.120
Ten pack	406181204001PAC	40.61.8.120
Normally Open contact configuration	406181204300	40.61.8.120
Ten pack	406181204300PAC	40.61.8.120
Normally Open contact configuration	406181204301	40.61.8.120
Ten pack	406181204301PAC	40.61.8.120
110,120,125VAC coil (add to 1st column price)	406181250000	40.61.8.120
Ten pack	406181250000PAC	40.61.8.120
Normally Open contact configuration	406181250300	40.61.8.120
Ten pack	406181250300PAC	40.61.8.120
Normally Open contact configuration	406181250301	40.61.8.120
Ten pack	406181250301PAC	40.61.8.120
110,120,125VAC coil (add to 1st column price)	406181254000	40.61.8.120
Ten pack	406181254000PAC	40.61.8.120
Wash tight	406181254001	40.61.8.120
Ten pack	406181254001PAC	40.61.8.120
Normally Open contact configuration	406181254300	40.61.8.120
Ten pack	406181254300PAC	40.61.8.120
Normally Open contact configuration	406181254301	40.61.8.120

Ten pack	406181254301PAC	40.61.8.125
5.0mm pinning; AgCdO; 1CO 16A; AC coil	406182300000	40.61.8.230
Ten pack	406182300000PAC	40.61.8.230
Wash tight	406182300001	40.61.8.230
Ten pack	406182300001PAC	40.61.8.230
Normally Open contact configuration	406182300300	40.61.8.230
Ten pack	406182300300PAC	40.61.8.230
Normally Open contact configuration	406182300301	40.61.8.230
Ten pack	406182300301PAC	40.61.8.230
Wash tight	406182303001	40.61.8.230
Normally Open contact configuration	406182303300	40.61.8.230
Ten pack	406182303300PAC	40.61.8.230
AgSnO2 contacts (40.31/40.51/40.61 only)	406182304000	40.61.8.230
Ten pack	406182304000PAC	40.61.8.230
Wash tight	406182304001	40.61.8.230
Ten pack	406182304001PAC	40.61.8.230
Normally Open contact configuration	406182304300	40.61.8.230
Ten pack	406182304300PAC	40.61.8.230
Normally Open contact configuration	406182304301	40.61.8.230
Ten pack	406182304301PAC	40.61.8.230
5.0mm pinning; AgCdO; 1CO 16A; AC coil	406182400000	40.61.8.240
Ten pack	406182400000PAC	40.61.8.240
Wash tight	406182400001	40.61.8.240
Ten pack	406182400001PAC	40.61.8.240
Normally Open contact configuration	406182400300	40.61.8.240
Ten pack	406182400300PAC	40.61.8.240

Normally Open contact configuration	406182400301	40.61.8.24
Ten pack	406182400301PAC	40.61.8.24
AgSnO2 contacts (40.31/40.51/40.61 only)	406182404000	40.61.8.24
Ten pack	406182404000PAC	40.61.8.24
Wash tight	406182404001	40.61.8.24
Ten pack	406182404001PAC	40.61.8.24
Normally Open contact configuration	406182404300	40.61.8.24
Ten pack	406182404300PAC	40.61.8.24
Normally Open contact configuration	406182404301	40.61.8.24
Ten pack	406182404301PAC	40.61.8.24
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190040000	40.61.9.00
Ten pack	406190040000PAC	40.61.9.00
Wash tight	406190040001	40.61.9.00
Ten pack	406190040001PAC	40.61.9.00
High temperature (+125°C); Wash Tight (DC only)	406190040003	40.61.9.00
Ten pack	406190040003PAC	40.61.9.00
Normally Open contact configuration	406190040300	40.61.9.00
Ten pack	406190040300PAC	40.61.9.00
Normally Open contact configuration	406190040301	40.61.9.00
Ten pack	406190040301PAC	40.61.9.00
AgSnO2 contacts (40.31/40.51/40.61 only)	406190044000	40.61.9.00
Ten pack	406190044000PAC	40.61.9.00
Wash tight	406190044001	40.61.9.00
Ten pack	406190044001PAC	40.61.9.00
Normally Open contact configuration	406190044300	40.61.9.00
Ten pack	406190044300PAC	40.61.9.00

Normally Open contact configuration	406190044301	40.61.9.004
Ten pack	406190044301PAC	40.61.9.004
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190050000	40.61.9.005
Ten pack	406190050000PAC	40.61.9.005
Wash tight	406190050001	40.61.9.005
Ten pack	406190050001PAC	40.61.9.005
High temperature (+125°C); Wash Tight (DC only)	406190050003	40.61.9.005
Ten pack	406190050003PAC	40.61.9.005
Normally Open contact configuration	406190050300	40.61.9.005
Normally Open contact configuration	406190050301	40.61.9.005
Ten pack	406190050301PAC	40.61.9.005
AgSnO2 contacts (40.31/40.51/40.61 only)	406190054000	40.61.9.005
Ten pack	406190054000PAC	40.61.9.005
Wash tight	406190054001	40.61.9.005
Ten pack	406190054001PAC	40.61.9.005
Normally Open contact configuration	406190054300	40.61.9.005
Ten pack	406190054300PAC	40.61.9.005
Normally Open contact configuration	406190054301	40.61.9.005
Ten pack	406190054301PAC	40.61.9.005
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190060000	40.61.9.006
Ten pack	406190060000PAC	40.61.9.006
Wash tight	406190060001	40.61.9.006
Ten pack	406190060001PAC	40.61.9.006
High temperature (+125°C); Wash Tight (DC only)	406190060003	40.61.9.006
Ten pack	406190060003PAC	40.61.9.006
Normally Open contact configuration	406190060300	40.61.9.006

Ten pack	406190060300PAC	40.61.9.000
Normally Open contact configuration	406190060301	40.61.9.000
Ten pack	406190060301PAC	40.61.9.000
Normally Open contact configuration	406190060303	40.61.9.000
Ten pack	406190060303PAC	40.61.9.000
AgSnO2 contacts (40.31/40.51/40.61 only)	406190064000	40.61.9.000
Ten pack	406190064000PAC	40.61.9.000
Wash tight	406190064001	40.61.9.000
Ten pack	406190064001PAC	40.61.9.000
Normally Open contact configuration	406190064300	40.61.9.000
Ten pack	406190064300PAC	40.61.9.000
Normally Open contact configuration	406190064301	40.61.9.000
Ten pack	406190064301PAC	40.61.9.000
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190070000	40.61.9.000
Ten pack	406190070000PAC	40.61.9.000
Wash tight	406190070001	40.61.9.000
Ten pack	406190070001PAC	40.61.9.000
High temperature (+125°C); Wash Tight (DC only)	406190070003	40.61.9.000
Ten pack	406190070003PAC	40.61.9.000
Normally Open contact configuration	406190070300	40.61.9.000
Ten pack	406190070300PAC	40.61.9.000
Normally Open contact configuration	406190070301	40.61.9.000
Ten pack	406190070301PAC	40.61.9.000
AgSnO2 contacts (40.31/40.51/40.61 only)	406190074000	40.61.9.000
Ten pack	406190074000PAC	40.61.9.000
Wash tight	406190074001	40.61.9.000

Ten pack	406190074001PAC	40.61.9.007
Normally Open contact configuration	406190074300	40.61.9.007
Ten pack	406190074300PAC	40.61.9.007
Normally Open contact configuration	406190074301	40.61.9.007
Ten pack	406190074301PAC	40.61.9.007
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190090000	40.61.9.009
Ten pack	406190090000PAC	40.61.9.009
Wash tight	406190090001	40.61.9.009
Ten pack	406190090001PAC	40.61.9.009
High temperature (+125°C); Wash Tight (DC only)	406190090003	40.61.9.009
Ten pack	406190090003PAC	40.61.9.009
Normally Open contact configuration	406190090300	40.61.9.009
Ten pack	406190090300PAC	40.61.9.009
Normally Open contact configuration	406190090301	40.61.9.009
Ten pack	406190090301PAC	40.61.9.009
Normally Open contact configuration	406190090303	40.61.9.009
Ten pack	406190090303PAC	40.61.9.009
AgSnO2 contacts (40.31/40.51/40.61 only)	406190094000	40.61.9.009
Ten pack	406190094000PAC	40.61.9.009
Wash tight	406190094001	40.61.9.009
Ten pack	406190094001PAC	40.61.9.009
AgSnO2 contacts (40.31/40.51/40.61 only)	406190094003	40.61.9.009
Normally Open contact configuration	406190094300	40.61.9.009
Ten pack	406190094300PAC	40.61.9.009
Normally Open contact configuration	406190094301	40.61.9.009
Ten pack	406190094301PAC	40.61.9.009

5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190120000	40.61.9.012
Ten pack	406190120000PAC	40.61.9.012
Wash tight	406190120001	40.61.9.012
Ten pack	406190120001PAC	40.61.9.012
High temperature (+125°C); Wash Tight (DC only)	406190120003	40.61.9.012
Ten pack	406190120003PAC	40.61.9.012
Normally Open contact configuration	406190120300	40.61.9.012
Ten pack	406190120300PAC	40.61.9.012
Normally Open contact configuration	406190120301	40.61.9.012
Ten pack	406190120301PAC	40.61.9.012
Normally Open contact configuration	406190120303	40.61.9.012
Ten pack	406190120303PAC	40.61.9.012
AgCdO 85/15 contacts (40.61 only)	406190123000	40.61.9.012
Ten pack	406190123000PAC	40.61.9.012
Wash tight	406190123001	40.61.9.012
Ten pack	406190123001PAC	40.61.9.012
Normally Open contact configuration	406190123300	40.61.9.012
Ten pack	406190123300PAC	40.61.9.012
Normally Open contact configuration	406190123301	40.61.9.012
Ten pack	406190123301PAC	40.61.9.012
AgSnO2 contacts (40.31/40.51/40.61 only)	406190124000	40.61.9.012
Ten pack	406190124000PAC	40.61.9.012
Wash tight	406190124001	40.61.9.012
Ten pack	406190124001PAC	40.61.9.012
AgSnO2 contacts (40.31/40.51/40.61 only)	406190124003	40.61.9.012
Ten pack	406190124003PAC	40.61.9.012

Normally Open contact configuration	406190124300	40.61.9.014
Ten pack	406190124300PAC	40.61.9.014
Normally Open contact configuration	406190124301	40.61.9.014
Ten pack	406190124301PAC	40.61.9.014
Normally Open contact configuration	406190124303	40.61.9.014
Ten pack	406190124303PAC	40.61.9.014
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190140000	40.61.9.014
Ten pack	406190140000PAC	40.61.9.014
Wash tight	406190140001	40.61.9.014
Ten pack	406190140001PAC	40.61.9.014
High temperature (+125°C); Wash Tight (DC only)	406190140003	40.61.9.014
Ten pack	406190140003PAC	40.61.9.014
Normally Open contact configuration	406190140300	40.61.9.014
Ten pack	406190140300PAC	40.61.9.014
Normally Open contact configuration	406190140301	40.61.9.014
Ten pack	406190140301PAC	40.61.9.014
Normally Open contact configuration	406190140303	40.61.9.014
Ten pack	406190140303PAC	40.61.9.014
AgSnO2 contacts (40.31/40.51/40.61 only)	406190144000	40.61.9.014
Ten pack	406190144000PAC	40.61.9.014
Wash tight	406190144001	40.61.9.014
Ten pack	406190144001PAC	40.61.9.014
AgSnO2 contacts (40.31/40.51/40.61 only)	406190144003	40.61.9.014
Normally Open contact configuration	406190144300	40.61.9.014
Ten pack	406190144300PAC	40.61.9.014
Normally Open contact configuration	406190144301	40.61.9.014

Ten pack	406190144301PAC	40.61.9.014
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190180000	40.61.9.018
Ten pack	406190180000PAC	40.61.9.018
Wash tight	406190180001	40.61.9.018
Ten pack	406190180001PAC	40.61.9.018
High temperature (+125°C); Wash Tight (DC only)	406190180003	40.61.9.018
Ten pack	406190180003PAC	40.61.9.018
Normally Open contact configuration	406190180300	40.61.9.018
Ten pack	406190180300PAC	40.61.9.018
Normally Open contact configuration	406190180301	40.61.9.018
Ten pack	406190180301PAC	40.61.9.018
Normally Open contact configuration	406190180303	40.61.9.018
Ten pack	406190180303PAC	40.61.9.018
AgSnO2 contacts (40.31/40.51/40.61 only)	406190184000	40.61.9.018
Ten pack	406190184000PAC	40.61.9.018
Wash tight	406190184001	40.61.9.018
Ten pack	406190184001PAC	40.61.9.018
Normally Open contact configuration	406190184300	40.61.9.018
Ten pack	406190184300PAC	40.61.9.018
Normally Open contact configuration	406190184301	40.61.9.018
Ten pack	406190184301PAC	40.61.9.018
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190210000	40.61.9.021
Ten pack	406190210000PAC	40.61.9.021
Wash tight	406190210001	40.61.9.021
Ten pack	406190210001PAC	40.61.9.021
High temperature (+125°C); Wash Tight (DC only)	406190210003	40.61.9.021

Ten pack	406190210003PAC	40.61.9.023
Normally Open contact configuration	406190210300	40.61.9.023
Ten pack	406190210300PAC	40.61.9.023
Normally Open contact configuration	406190210301	40.61.9.023
Ten pack	406190210301PAC	40.61.9.023
AgSnO2 contacts (40.31/40.51/40.61 only)	406190214000	40.61.9.023
Ten pack	406190214000PAC	40.61.9.023
Wash tight	406190214001	40.61.9.023
Ten pack	406190214001PAC	40.61.9.023
Normally Open contact configuration	406190214300	40.61.9.023
Ten pack	406190214300PAC	40.61.9.023
Normally Open contact configuration	406190214301	40.61.9.023
Ten pack	406190214301PAC	40.61.9.023
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190240000	40.61.9.024
Ten pack	406190240000PAC	40.61.9.024
Wash tight	406190240001	40.61.9.024
Ten pack	406190240001PAC	40.61.9.024
High temperature (+125°C); Wash Tight (DC only)	406190240003	40.61.9.024
Ten pack	406190240003PAC	40.61.9.024
Normally Open contact configuration	406190240300	40.61.9.024
Ten pack	406190240300PAC	40.61.9.024
Normally Open contact configuration	406190240301	40.61.9.024
Ten pack	406190240301PAC	40.61.9.024
Normally Open contact configuration	406190240303	40.61.9.024
Ten pack	406190240303PAC	40.61.9.024
AgCdO 85/15 contacts (40.61 only)	406190243000	40.61.9.024

Ten pack	406190243000PAC	40.61.9.024
Wash tight	406190243001	40.61.9.024
Ten pack	406190243001PAC	40.61.9.024
Normally Open contact configuration	406190243300	40.61.9.024
Ten pack	406190243300PAC	40.61.9.024
AgSnO2 contacts (40.31/40.51/40.61 only)	406190244000	40.61.9.024
Ten pack	406190244000PAC	40.61.9.024
Wash tight	406190244001	40.61.9.024
Ten pack	406190244001PAC	40.61.9.024
AgSnO2 contacts (40.31/40.51/40.61 only)	406190244003	40.61.9.024
Ten pack	406190244003PAC	40.61.9.024
Normally Open contact configuration	406190244300	40.61.9.024
Ten pack	406190244300PAC	40.61.9.024
Normally Open contact configuration	406190244301	40.61.9.024
Ten pack	406190244301PAC	40.61.9.024
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190280000	40.61.9.024
Ten pack	406190280000PAC	40.61.9.024
Wash tight	406190280001	40.61.9.024
Ten pack	406190280001PAC	40.61.9.024
High temperature (+125°C); Wash Tight (DC only)	406190280003	40.61.9.024
Ten pack	406190280003PAC	40.61.9.024
Normally Open contact configuration	406190280300	40.61.9.024
Ten pack	406190280300PAC	40.61.9.024
Normally Open contact configuration	406190280301	40.61.9.024
Ten pack	406190280301PAC	40.61.9.024
Normally Open contact configuration	406190280303	40.61.9.024

Ten pack	406190280303PAC	40.61.9.028
Wash tight	406190283001	40.61.9.028
Ten pack	406190283001PAC	40.61.9.028
AgSnO2 contacts (40.31/40.51/40.61 only)	406190284000	40.61.9.028
Ten pack	406190284000PAC	40.61.9.028
Wash tight	406190284001	40.61.9.028
Ten pack	406190284001PAC	40.61.9.028
Normally Open contact configuration	406190284300	40.61.9.028
Ten pack	406190284300PAC	40.61.9.028
Normally Open contact configuration	406190284301	40.61.9.028
Ten pack	406190284301PAC	40.61.9.028
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190360000	40.61.9.036
Ten pack	406190360000PAC	40.61.9.036
Wash tight	406190360001	40.61.9.036
Ten pack	406190360001PAC	40.61.9.036
High temperature (+125°C); Wash Tight (DC only)	406190360003	40.61.9.036
Ten pack	406190360003PAC	40.61.9.036
Normally Open contact configuration	406190360300	40.61.9.036
Ten pack	406190360300PAC	40.61.9.036
Normally Open contact configuration	406190360301	40.61.9.036
Ten pack	406190360301PAC	40.61.9.036
AgSnO2 contacts (40.31/40.51/40.61 only)	406190364000	40.61.9.036
Ten pack	406190364000PAC	40.61.9.036
Wash tight	406190364001	40.61.9.036
Ten pack	406190364001PAC	40.61.9.036
Normally Open contact configuration	406190364300	40.61.9.036

Ten pack	406190364300PAC	40.61.9.030
Normally Open contact configuration	406190364301	40.61.9.030
Ten pack	406190364301PAC	40.61.9.030
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190480000	40.61.9.040
Ten pack	406190480000PAC	40.61.9.040
Wash tight	406190480001	40.61.9.040
Ten pack	406190480001PAC	40.61.9.040
High temperature (+125°C); Wash Tight (DC only)	406190480003	40.61.9.040
Ten pack	406190480003PAC	40.61.9.040
Normally Open contact configuration	406190480300	40.61.9.040
Ten pack	406190480300PAC	40.61.9.040
Normally Open contact configuration	406190480301	40.61.9.040
Ten pack	406190480301PAC	40.61.9.040
Normally Open contact configuration	406190480303	40.61.9.040
Ten pack	406190480303PAC	40.61.9.040
AgSnO2 contacts (40.31/40.51/40.61 only)	406190484000	40.61.9.040
Ten pack	406190484000PAC	40.61.9.040
Wash tight	406190484001	40.61.9.040
Ten pack	406190484001PAC	40.61.9.040
Normally Open contact configuration	406190484300	40.61.9.040
Ten pack	406190484300PAC	40.61.9.040
Normally Open contact configuration	406190484301	40.61.9.040
Ten pack	406190484301PAC	40.61.9.040
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190600000	40.61.9.060
Ten pack	406190600000PAC	40.61.9.060
Wash tight	406190600001	40.61.9.060

Ten pack	406190600001PAC	40.61.9.060
High temperature (+125°C); Wash Tight (DC only)	406190600003	40.61.9.060
Ten pack	406190600003PAC	40.61.9.060
Normally Open contact configuration	406190600300	40.61.9.060
Ten pack	406190600300PAC	40.61.9.060
Normally Open contact configuration	406190600301	40.61.9.060
Ten pack	406190600301PAC	40.61.9.060
Normally Open contact configuration	406190600303	40.61.9.060
Ten pack	406190600303PAC	40.61.9.060
AgCdO 85/15 contacts (40.61 only)	406190603000	40.61.9.060
Ten pack	406190603000PAC	40.61.9.060
AgSnO ₂ contacts (40.31/40.51/40.61 only)	406190604000	40.61.9.060
Ten pack	406190604000PAC	40.61.9.060
Wash tight	406190604001	40.61.9.060
Ten pack	406190604001PAC	40.61.9.060
Normally Open contact configuration	406190604300	40.61.9.060
Ten pack	406190604300PAC	40.61.9.060
Normally Open contact configuration	406190604301	40.61.9.060
Ten pack	406190604301PAC	40.61.9.060
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190800000	40.61.9.080
Ten pack	406190800000PAC	40.61.9.080
Wash tight	406190800001	40.61.9.080
Ten pack	406190800001PAC	40.61.9.080
High temperature (+125°C); Wash Tight (DC only)	406190800003	40.61.9.080
Ten pack	406190800003PAC	40.61.9.080
Normally Open contact configuration	406190800300	40.61.9.080

Ten pack	406190800300PAC	40.61.9.080
Normally Open contact configuration	406190800301	40.61.9.080
Ten pack	406190800301PAC	40.61.9.080
AgSnO2 contacts (40.31/40.51/40.61 only)	406190804000	40.61.9.080
Ten pack	406190804000PAC	40.61.9.080
Wash tight	406190804001	40.61.9.080
Ten pack	406190804001PAC	40.61.9.080
Normally Open contact configuration	406190804300	40.61.9.080
Ten pack	406190804300PAC	40.61.9.080
Normally Open contact configuration	406190804301	40.61.9.080
Ten pack	406190804301PAC	40.61.9.080
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406190900000	40.61.9.090
Ten pack	406190900000PAC	40.61.9.090
Wash tight	406190900001	40.61.9.090
Ten pack	406190900001PAC	40.61.9.090
High temperature (+125°C); Wash Tight (DC only)	406190900003	40.61.9.090
Ten pack	406190900003PAC	40.61.9.090
Normally Open contact configuration	406190900300	40.61.9.090
Ten pack	406190900300PAC	40.61.9.090
Normally Open contact configuration	406190900301	40.61.9.090
Ten pack	406190900301PAC	40.61.9.090
AgSnO2 contacts (40.31/40.51/40.61 only)	406190904000	40.61.9.090
Ten pack	406190904000PAC	40.61.9.090
Wash tight	406190904001	40.61.9.090
Ten pack	406190904001PAC	40.61.9.090
Normally Open contact configuration	406190904300	40.61.9.090

Ten pack	406190904300PAC	40.61.9.090
Normally Open contact configuration	406190904301	40.61.9.090
Ten pack	406190904301PAC	40.61.9.090
5.0mm pinning; AgCdO; 1CO 16A; DC coil	406191100000	40.61.9.110
Ten pack	406191100000PAC	40.61.9.110
Wash tight	406191100001	40.61.9.110
Ten pack	406191100001PAC	40.61.9.110
High temperature (+125°C); Wash Tight (DC only)	406191100003	40.61.9.110
Ten pack	406191100003PAC	40.61.9.110
Normally Open contact configuration	406191100300	40.61.9.110
Ten pack	406191100300PAC	40.61.9.110
Normally Open contact configuration	406191100301	40.61.9.110
Ten pack	406191100301PAC	40.61.9.110
Normally Open contact configuration	406191100303	40.61.9.110
Ten pack	406191100303PAC	40.61.9.110
AgSnO2 contacts (40.31/40.51/40.61 only)	406191104000	40.61.9.110
Ten pack	406191104000PAC	40.61.9.110
Wash tight	406191104001	40.61.9.110
Ten pack	406191104001PAC	40.61.9.110
Normally Open contact configuration	406191104300	40.61.9.110
Ten pack	406191104300PAC	40.61.9.110
Normally Open contact configuration	406191104301	40.61.9.110
Ten pack	406191104301PAC	40.61.9.110
125,145VDC coil (add to 1st column price)	406191250000	40.61.9.125
Ten pack	406191250000PAC	40.61.9.125
Wash tight	406191250001	40.61.9.125

Ten pack	406191250001PAC	40.61.9.125
125,145VDC coil (add to 1st column price)	406191250003	40.61.9.125
Ten pack	406191250003PAC	40.61.9.125
Normally Open contact configuration	406191250300	40.61.9.125
Ten pack	406191250300PAC	40.61.9.125
Normally Open contact configuration	406191250301	40.61.9.125
Ten pack	406191250301PAC	40.61.9.125
Normally Open contact configuration	406191250303	40.61.9.125
Ten pack	406191250303PAC	40.61.9.125
125,145VDC coil (add to 1st column price)	406191254000	40.61.9.125
Ten pack	406191254000PAC	40.61.9.125
Wash tight	406191254001	40.61.9.125
Ten pack	406191254001PAC	40.61.9.125
Normally Open contact configuration	406191254300	40.61.9.125
Ten pack	406191254300PAC	40.61.9.125
Normally Open contact configuration	406191254301	40.61.9.125
Ten pack	406191254301PAC	40.61.9.125
125,145VDC coil (add to 1st column price)	406191450000	40.61.9.145
Ten pack	406191450000PAC	40.61.9.145
Wash tight	406191450001	40.61.9.145
Ten pack	406191450001PAC	40.61.9.145
125,145VDC coil (add to 1st column price)	406191450003	40.61.9.145
Ten pack	406191450003PAC	40.61.9.145
Normally Open contact configuration	406191450300	40.61.9.145
Ten pack	406191450300PAC	40.61.9.145
Normally Open contact configuration	406191450301	40.61.9.145

Ten pack	406191450301PAC	40.61.9.145
125,145VDC coil (add to 1st column price)	406191454000	40.61.9.145
Ten pack	406191454000PAC	40.61.9.145
Wash tight	406191454001	40.61.9.145
Ten pack	406191454001PAC	40.61.9.145
Normally Open contact configuration	406191454300	40.61.9.145
Ten pack	406191454300PAC	40.61.9.145
Normally Open contact configuration	406191454301	40.61.9.145
Ten pack	406191454301PAC	40.61.9.145
3.5mm pinning; AgNi; Flux proof; 1CO 12A	413190050010	41.31.9.005
Wash tight	413190050011	41.31.9.005
Normally Open contact configuration	413190050310	41.31.9.005
Normally Open contact configuration	413190050311	41.31.9.005
AgSnO2 contacts (41.31/41.61 only)	413190054010	41.31.9.005
AgSnO2 contacts (41.31/41.61 only)	413190054011	41.31.9.005
AgSnO2 contacts (41.31/41.61 only)	413190054310	41.31.9.005
AgSnO2 contacts (41.31/41.61 only)	413190054311	41.31.9.005
Low profile PCB relay	413190055010	41.31.9.005
Normally Open contact configuration	413190055310	41.31.9.005
3.5mm pinning; AgNi; Flux proof; 1CO 12A	413190060010	41.31.9.006
Wash tight	413190060011	41.31.9.006
Normally Open contact configuration	413190060310	41.31.9.006
Normally Open contact configuration	413190060311	41.31.9.006
AgSnO2 contacts (41.31/41.61 only)	413190064010	41.31.9.006
AgSnO2 contacts (41.31/41.61 only)	413190064011	41.31.9.006
AgSnO2 contacts (41.31/41.61 only)	413190064310	41.31.9.006

AgSnO2 contacts (41.31/41.61 only)	413190064311	41.31.9.000
Low profile PCB relay	413190065010	41.31.9.000
Wash tight	413190065011	41.31.9.000
Normally Open contact configuration	413190065310	41.31.9.000
Normally Open contact configuration	413190065311	41.31.9.000
3.5mm pinning; AgNi; Flux proof; 1CO 12A	413190090010	41.31.9.000
3.5mm pinning; AgNi; Flux proof; 1CO 12A	413190120010	41.31.9.012
Wash tight	413190120011	41.31.9.012
Normally Open contact configuration	413190120310	41.31.9.012
Normally Open contact configuration	413190120311	41.31.9.012
AgSnO2 contacts (41.31/41.61 only)	413190124010	41.31.9.012
AgSnO2 contacts (41.31/41.61 only)	413190124011	41.31.9.012
AgSnO2 contacts (41.31/41.61 only)	413190124310	41.31.9.012
AgSnO2 contacts (41.31/41.61 only)	413190124311	41.31.9.012
Low profile PCB relay	413190125010	41.31.9.012
Wash tight	413190125011	41.31.9.012
Normally Open contact configuration	413190125310	41.31.9.012
Normally Open contact configuration	413190125311	41.31.9.012
3.5mm pinning; AgNi; Flux proof; 1CO 12A	413190240010	41.31.9.024
Wash tight	413190240011	41.31.9.024
Normally Open contact configuration	413190240310	41.31.9.024
Normally Open contact configuration	413190240311	41.31.9.024
AgSnO2 contacts (41.31/41.61 only)	413190244010	41.31.9.024
AgSnO2 contacts (41.31/41.61 only)	413190244011	41.31.9.024
AgSnO2 contacts (41.31/41.61 only)	413190244310	41.31.9.024
AgSnO2 contacts (41.31/41.61 only)	413190244311	41.31.9.024

Low profile PCB relay	413190245010	41.31.9.024
Wash tight	413190245011	41.31.9.024
Normally Open contact configuration	413190245310	41.31.9.024
Normally Open contact configuration	413190245311	41.31.9.024
3.5mm pinning; AgNi; Flux proof; 1CO 12A	413190480010	41.31.9.048
Wash tight	413190480011	41.31.9.048
Normally Open contact configuration	413190480310	41.31.9.048
Normally Open contact configuration	413190480311	41.31.9.048
AgSnO2 contacts (41.31/41.61 only)	413190484010	41.31.9.048
AgSnO2 contacts (41.31/41.61 only)	413190484011	41.31.9.048
AgSnO2 contacts (41.31/41.61 only)	413190484310	41.31.9.048
AgSnO2 contacts (41.31/41.61 only)	413190484311	41.31.9.048
Low profile PCB relay	413190485010	41.31.9.048
Wash tight	413190485011	41.31.9.048
Normally Open contact configuration	413190485310	41.31.9.048
Normally Open contact configuration	413190485311	41.31.9.048
3.5mm pinning; AgNi; Flux proof; 1CO 12A	413190600010	41.31.9.060
Wash tight	413190600011	41.31.9.060
Normally Open contact configuration	413190600310	41.31.9.060
Normally Open contact configuration	413190600311	41.31.9.060
AgSnO2 contacts (41.31/41.61 only)	413190604010	41.31.9.060
AgSnO2 contacts (41.31/41.61 only)	413190604011	41.31.9.060
AgSnO2 contacts (41.31/41.61 only)	413190604310	41.31.9.060
AgSnO2 contacts (41.31/41.61 only)	413190604311	41.31.9.060
Low profile PCB relay	413190605010	41.31.9.060
Wash tight	413190605011	41.31.9.060

Normally Open contact configuration	413190605310	41.31.9.060
Normally Open contact configuration	413190605311	41.31.9.060
3.5mm pinning; AgNi; Flux proof; 1CO 12A	413191100010	41.31.9.110
Wash tight	413191100011	41.31.9.110
Normally Open contact configuration	413191100310	41.31.9.110
Normally Open contact configuration	413191100311	41.31.9.110
AgSnO2 contacts (41.31/41.61 only)	413191104010	41.31.9.110
AgSnO2 contacts (41.31/41.61 only)	413191104011	41.31.9.110
AgSnO2 contacts (41.31/41.61 only)	413191104310	41.31.9.110
AgSnO2 contacts (41.31/41.61 only)	413191104311	41.31.9.110
Low profile PCB relay	413191105010	41.31.9.110
Wash tight	413191105011	41.31.9.110
Normally Open contact configuration	413191105310	41.31.9.110
Normally Open contact configuration	413191105311	41.31.9.110
5.0mm pinning; AgNi; Flux proof; 2CO 8A BISTABLE TWO COILS	415260120006	41.52.6.012
5.0mm pinning; AgNi; Flux proof; 2CO 8A BISTABLE TWO COILS	415260240006	41.52.6.024
5.0mm pinning; AgNi; Flux proof; 2CO 8A	415290050010	41.52.9.005
Wash tight	415290050011	41.52.9.005
Normally Open contact configuration	415290050310	41.52.9.005
Normally Open contact configuration	415290050311	41.52.9.005
Low profile PCB relay	415290055010	41.52.9.005
Normally Open contact configuration	415290055310	41.52.9.005
5.0mm pinning; AgNi; Flux proof; 2CO 8A	415290060010	41.52.9.006
Wash tight	415290060011	41.52.9.006
Normally Open contact configuration	415290060310	41.52.9.006
Normally Open contact configuration	415290060311	41.52.9.006

Low profile PCB relay	415290065010	41.52.9.000
Wash tight	415290065011	41.52.9.000
Normally Open contact configuration	415290065310	41.52.9.000
Normally Open contact configuration	415290065311	41.52.9.000
5.0mm pinning; AgNi; Flux proof; 2CO 8A	415290090010	41.52.9.000
5.0mm pinning; AgNi; Flux proof; 2CO 8A	415290120010	41.52.9.010
Wash tight	415290120011	41.52.9.010
Normally Open contact configuration	415290120310	41.52.9.010
Normally Open contact configuration	415290120311	41.52.9.010
Low profile PCB relay	415290125010	41.52.9.010
Wash tight	415290125011	41.52.9.010
Normally Open contact configuration	415290125310	41.52.9.010
Normally Open contact configuration	415290125311	41.52.9.010
5.0mm pinning; AgNi; Flux proof; 2CO 8A	415290240010	41.52.9.020
Wash tight	415290240011	41.52.9.020
Normally Open contact configuration	415290240310	41.52.9.020
Normally Open contact configuration	415290240311	41.52.9.020
Low profile PCB relay	415290245010	41.52.9.020
Wash tight	415290245011	41.52.9.020
Normally Open contact configuration	415290245310	41.52.9.020
Normally Open contact configuration	415290245311	41.52.9.020
5.0mm pinning; AgNi; Flux proof; 2CO 8A	415290480010	41.52.9.040
Wash tight	415290480011	41.52.9.040
Normally Open contact configuration	415290480310	41.52.9.040
Normally Open contact configuration	415290480311	41.52.9.040
Low profile PCB relay	415290485010	41.52.9.040

Wash tight	415290485011	41.52.9.04
Normally Open contact configuration	415290485310	41.52.9.04
Normally Open contact configuration	415290485311	41.52.9.04
5.0mm pinning; AgNi; Flux proof; 2CO 8A	415290600010	41.52.9.06
Wash tight	415290600011	41.52.9.06
Normally Open contact configuration	415290600310	41.52.9.06
Normally Open contact configuration	415290600311	41.52.9.06
Low profile PCB relay	415290605010	41.52.9.06
Wash tight	415290605011	41.52.9.06
Normally Open contact configuration	415290605310	41.52.9.06
Normally Open contact configuration	415290605311	41.52.9.06
5.0mm pinning; AgNi; Flux proof; 2CO 8A	415291100010	41.52.9.11
Wash tight	415291100011	41.52.9.11
Normally Open contact configuration	415291100310	41.52.9.11
Normally Open contact configuration	415291100311	41.52.9.11
Low profile PCB relay	415291105010	41.52.9.11
Wash tight	415291105011	41.52.9.11
Normally Open contact configuration	415291105310	41.52.9.11
Normally Open contact configuration	415291105311	41.52.9.11
5.0mm pinning; AgSO; Flux proof; 1CO 16A; BISTABLE TWO COILS	416160124006	41.61.6.01
5.0mm pinning; AgSO; Flux proof; 1NO 16A; BISTABLE TWO COILS	416160124306	41.61.6.01
5.0mm pinning; AgSO; Flux proof; 1CO 16A; BISTABLE TWO COILS	416160244006	41.61.6.02
5.0mm pinning; AgSO; Flux proof; 1NO 16A; BISTABLE TWO COILS	416160244306	41.61.6.02
5.0mm pinning; AgNi; Flux proof; 1CO 16A	416190050010	41.61.9.00
Wash tight	416190050011	41.61.9.00
Normally Open contact configuration	416190050310	41.61.9.00

Normally Open contact configuration	416190050311	41.61.9.005
AgSnO2 contacts (41.31/41.61 only)	416190054010	41.61.9.005
AgSnO2 contacts (41.31/41.61 only)	416190054011	41.61.9.005
AgSnO2 contacts (41.31/41.61 only)	416190054310	41.61.9.005
AgSnO2 contacts (41.31/41.61 only)	416190054311	41.61.9.005
5.0mm pinning; AgNi; Flux proof; 1CO 16A	416190060010	41.61.9.006
Wash tight	416190060011	41.61.9.006
Normally Open contact configuration	416190060310	41.61.9.006
Normally Open contact configuration	416190060311	41.61.9.006
AgSnO2 contacts (41.31/41.61 only)	416190064010	41.61.9.006
AgSnO2 contacts (41.31/41.61 only)	416190064011	41.61.9.006
AgSnO2 contacts (41.31/41.61 only)	416190064310	41.61.9.006
AgSnO2 contacts (41.31/41.61 only)	416190064311	41.61.9.006
5.0mm pinning; AgNi; Flux proof; 1CO 16A	416190090010	41.61.9.009
5.0mm pinning; AgNi; Flux proof; 1CO 16A	416190120010	41.61.9.012
Wash tight	416190120011	41.61.9.012
Normally Open contact configuration	416190120310	41.61.9.012
Normally Open contact configuration	416190120311	41.61.9.012
AgSnO2 contacts (41.31/41.61 only)	416190124010	41.61.9.012
AgSnO2 contacts (41.31/41.61 only)	416190124011	41.61.9.012
AgSnO2 contacts (41.31/41.61 only)	416190124310	41.61.9.012
AgSnO2 contacts (41.31/41.61 only)	416190124311	41.61.9.012
5.0mm pinning; AgNi; Flux proof; 1CO 16A	416190240010	41.61.9.024
Wash tight	416190240011	41.61.9.024
Normally Open contact configuration	416190240310	41.61.9.024
Normally Open contact configuration	416190240311	41.61.9.024

AgSnO2 contacts (41.31/41.61 only)	416190244010	41.61.9.024
AgSnO2 contacts (41.31/41.61 only)	416190244011	41.61.9.024
AgSnO2 contacts (41.31/41.61 only)	416190244310	41.61.9.024
AgSnO2 contacts (41.31/41.61 only)	416190244311	41.61.9.024
5.0mm pinning; AgNi; Flux proof; 1CO 16A	416190480010	41.61.9.048
Wash tight	416190480011	41.61.9.048
Normally Open contact configuration	416190480310	41.61.9.048
Normally Open contact configuration	416190480311	41.61.9.048
AgSnO2 contacts (41.31/41.61 only)	416190484010	41.61.9.048
AgSnO2 contacts (41.31/41.61 only)	416190484011	41.61.9.048
AgSnO2 contacts (41.31/41.61 only)	416190484310	41.61.9.048
AgSnO2 contacts (41.31/41.61 only)	416190484311	41.61.9.048
5.0mm pinning; AgNi; Flux proof; 1CO 16A	416190600010	41.61.9.060
Wash tight	416190600011	41.61.9.060
Normally Open contact configuration	416190600310	41.61.9.060
Normally Open contact configuration	416190600311	41.61.9.060
AgSnO2 contacts (41.31/41.61 only)	416190604010	41.61.9.060
AgSnO2 contacts (41.31/41.61 only)	416190604011	41.61.9.060
AgSnO2 contacts (41.31/41.61 only)	416190604310	41.61.9.060
AgSnO2 contacts (41.31/41.61 only)	416190604311	41.61.9.060
5.0mm pinning; AgNi; Flux proof; 1CO 16A	416191100010	41.61.9.110
Wash tight	416191100011	41.61.9.110
Normally Open contact configuration	416191100310	41.61.9.110
Normally Open contact configuration	416191100311	41.61.9.110
AgSnO2 contacts (41.31/41.61 only)	416191104010	41.61.9.110
AgSnO2 contacts (41.31/41.61 only)	416191104011	41.61.9.110

AgSnO2 contacts (41.31/41.61 only)	416191104310	41.61.9.110
AgSnO2 contacts (41.31/41.61 only)	416191104311	41.61.9.110
Solid State Relay; 3A-240VAC,12VDC	418170128240	41.81.7.012
Solid State Relay; 5A-24VDC,12VDC	418170129024	41.81.7.012
Solid State Relay; 3A-240VAC,24VDC	418170248240	41.81.7.024
Solid State Relay; 5A-24VDC,24VDC	418170249024	41.81.7.024
3.2mm pinning; AgCdO; Flux proof 1CO 10A	434170032000	43.41.7.003
Wash tight (3,5,6,9,18,36,48VDC)	434170032001	43.41.7.003
Normally Open contact configuration	434170032300	43.41.7.003
Normally Open contact configuration	434170032301	43.41.7.003
AgSnO2 contacts	434170034000	43.41.7.003
AgSnO2 contacts	434170034001	43.41.7.003
AgSnO2 contacts	434170034300	43.41.7.003
AgSnO2 contacts	434170034301	43.41.7.003
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170035000	43.41.7.003
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170035001	43.41.7.003
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170035300	43.41.7.003
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170035301	43.41.7.003
3.2mm pinning; AgCdO; Flux proof 1CO 10A	434170052000	43.41.7.005
Wash tight (3,5,6,9,18,36,48VDC)	434170052001	43.41.7.005
Normally Open contact configuration	434170052300	43.41.7.005
Normally Open contact configuration	434170052301	43.41.7.005
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170055000	43.41.7.005
3.2mm pinning; AgCdO; Flux proof 1CO 10A	434170062000	43.41.7.006
Wash tight (3,5,6,9,18,36,48VDC)	434170062001	43.41.7.006
Normally Open contact configuration	434170062300	43.41.7.006

Normally Open contact configuration	434170062301	43.41.7.000
AgSnO2 contacts	434170064000	43.41.7.000
AgSnO2 contacts	434170064001	43.41.7.000
AgSnO2 contacts	434170064300	43.41.7.000
AgSnO2 contacts	434170064301	43.41.7.000
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170065000	43.41.7.000
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170065001	43.41.7.000
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170065300	43.41.7.000
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170065301	43.41.7.000
3.2mm pinning; AgCdO; Flux proof 1CO 10A	434170092000	43.41.7.000
Wash tight (3,5,6,9,18,36,48VDC)	434170092001	43.41.7.000
Normally Open contact configuration	434170092300	43.41.7.000
Normally Open contact configuration	434170092301	43.41.7.000
AgSnO2 contacts	434170094000	43.41.7.000
AgSnO2 contacts	434170094001	43.41.7.000
AgSnO2 contacts	434170094300	43.41.7.000
AgSnO2 contacts	434170094301	43.41.7.000
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170095000	43.41.7.000
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170095001	43.41.7.000
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170095300	43.41.7.000
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170095301	43.41.7.000
AgNi contacts	434170120001	43.41.7.010
3.2mm pinning; AgCdO; Flux proof 1CO 10A	434170122000	43.41.7.010
Wash tight (3,5,6,9,18,36,48VDC)	434170122001	43.41.7.010
Normally Open contact configuration	434170122300	43.41.7.010
Normally Open contact configuration	434170122301	43.41.7.010

AgSnO2 contacts	434170124000	43.41.7.012
AgSnO2 contacts	434170124001	43.41.7.012
AgSnO2 contacts	434170124300	43.41.7.012
AgSnO2 contacts	434170124301	43.41.7.012
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170125000	43.41.7.012
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170125001	43.41.7.012
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170125300	43.41.7.012
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170125301	43.41.7.012
3.2mm pinning; AgCdO; Flux proof 1CO 10A	434170182000	43.41.7.018
Wash tight (3,5,6,9,18,36,48VDC)	434170182001	43.41.7.018
Normally Open contact configuration	434170182300	43.41.7.018
Normally Open contact configuration	434170182301	43.41.7.018
AgSnO2 contacts	434170184000	43.41.7.018
AgSnO2 contacts	434170184001	43.41.7.018
AgSnO2 contacts	434170184300	43.41.7.018
AgSnO2 contacts	434170184301	43.41.7.018
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170185000	43.41.7.018
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170185001	43.41.7.018
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170185300	43.41.7.018
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170185301	43.41.7.018
AgNi contacts	434170240001	43.41.7.024
3.2mm pinning; AgCdO; Flux proof 1CO 10A	434170242000	43.41.7.024
Wash tight (3,5,6,9,18,36,48VDC)	434170242001	43.41.7.024
Normally Open contact configuration	434170242300	43.41.7.024
Normally Open contact configuration	434170242301	43.41.7.024
AgSnO2 contacts	434170244000	43.41.7.024

AgSnO2 contacts	434170244001	43.41.7.024
AgSnO2 contacts	434170244300	43.41.7.024
AgSnO2 contacts	434170244301	43.41.7.024
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170245000	43.41.7.024
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170245001	43.41.7.024
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170245300	43.41.7.024
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170245301	43.41.7.024
3.2mm pinning; AgCdO; Flux proof 1CO 10A	434170362000	43.41.7.036
Wash tight (3,5,6,9,18,36,48VDC)	434170362001	43.41.7.036
Normally Open contact configuration	434170362300	43.41.7.036
Normally Open contact configuration	434170362301	43.41.7.036
AgSnO2 contacts	434170364000	43.41.7.036
AgSnO2 contacts	434170364001	43.41.7.036
AgSnO2 contacts	434170364300	43.41.7.036
AgSnO2 contacts	434170364301	43.41.7.036
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170365000	43.41.7.036
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170365001	43.41.7.036
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170365300	43.41.7.036
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170365301	43.41.7.036
3.2mm pinning; AgCdO; Flux proof 1CO 10A	434170482000	43.41.7.048
Wash tight (3,5,6,9,18,36,48VDC)	434170482001	43.41.7.048
Normally Open contact configuration	434170482300	43.41.7.048
Normally Open contact configuration	434170482301	43.41.7.048
AgSnO2 contacts	434170484000	43.41.7.048
AgSnO2 contacts	434170484001	43.41.7.048
AgSnO2 contacts	434170484300	43.41.7.048

AgSnO2 contacts	434170484301	43.41.7.048
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170485000	43.41.7.048
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170485001	43.41.7.048
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170485300	43.41.7.048
AgNi+Au contacts (3,5,6,9,18,36,48VDC)	434170485301	43.41.7.048
5mm pinning; AgCdO; Flux proof 1NO 16A	436190062300	43.61.9.006
5mm pinning; AgCdO; Flux proof 1NO 16A	436190122300	43.61.9.012
AgSnO2 contacts	436190124300	43.61.9.012
5mm pinning; AgCdO; Flux proof 1NO 16A	436190242300	43.61.9.024
AgSnO2 contacts	436190244300	43.61.9.024
Sensitive DC coil	445270060000	44.52.7.006
Sensitive DC coil	445270060000PAC	44.52.7.006
Sensitive DC coil	445270090000	44.52.7.009
Sensitive DC coil	445270090000PAC	44.52.7.009
Sensitive DC coil	445270120000	44.52.7.012
Sensitive DC coil	445270120000PAC	44.52.7.012
Sensitive DC coil	445270125000	44.52.7.012
Sensitive DC coil	445270140000	44.52.7.014
Sensitive DC coil	445270140000PAC	44.52.7.014
Sensitive DC coil	445270240000	44.52.7.024
Sensitive DC coil	445270240000PAC	44.52.7.024
Sensitive DC coil	445270245000	44.52.7.024
Sensitive DC coil	445270280000	44.52.7.028
Sensitive DC coil	445270280000PAC	44.52.7.028
Sensitive DC coil	445270480000	44.52.7.048
Sensitive DC coil	445270480000PAC	44.52.7.048

Sensitive DC coil	445270485000	44.52.7.048
Sensitive DC coil	445270600000	44.52.7.060
Sensitive DC coil	445270600000PAC	44.52.7.060
Sensitive DC coil	445270605000	44.52.7.060
Sensitive DC coil	445271100000	44.52.7.110
Sensitive DC coil	445271100000PAC	44.52.7.110
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290060000	44.52.9.006
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290060000PAC	44.52.9.006
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290090000	44.52.9.009
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290090000PAC	44.52.9.009
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290120000	44.52.9.012
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290120000PAC	44.52.9.012
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290140000	44.52.9.014
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290140000PAC	44.52.9.014
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290240000	44.52.9.024
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290240000PAC	44.52.9.024
AgNi + Au	445290245000	44.52.9.024
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290280000	44.52.9.028
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290280000PAC	44.52.9.028
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290480000	44.52.9.048
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290480000PAC	44.52.9.048
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290600000	44.52.9.060
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445290600000PAC	44.52.9.060
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445291100000	44.52.9.110
5.0mm pinning; AgNi; Flux proof; 2CO 6A; DC coil	445291100000PAC	44.52.9.110
AgNi + Au	445291105000	44.52.9.110

Sensitive DC coil	446270050000	44.62.7.005
Sensitive DC coil	446270054000	44.62.7.005
Sensitive DC coil	446270054000PAC	44.62.7.005
Sensitive DC coil	446270060000	44.62.7.006
Sensitive DC coil	446270060000PAC	44.62.7.006
Sensitive DC coil	446270064000	44.62.7.006
Sensitive DC coil	446270064000PAC	44.62.7.006
Sensitive DC coil	446270090000	44.62.7.009
Sensitive DC coil	446270090000PAC	44.62.7.009
Sensitive DC coil	446270120000	44.62.7.012
Sensitive DC coil	446270120000PAC	44.62.7.012
Sensitive DC coil	446270124000	44.62.7.012
Sensitive DC coil	446270124000PAC	44.62.7.012
Sensitive DC coil	446270140000	44.62.7.014
Sensitive DC coil	446270140000PAC	44.62.7.014
Sensitive DC coil	446270144000	44.62.7.014
Sensitive DC coil	446270144000PAC	44.62.7.014
Sensitive DC coil	446270240000	44.62.7.024
Sensitive DC coil	446270240000PAC	44.62.7.024
Sensitive DC coil	446270244000	44.62.7.024
Sensitive DC coil	446270244000PAC	44.62.7.024
Sensitive DC coil	446270280000	44.62.7.028
Sensitive DC coil	446270280000PAC	44.62.7.028
Sensitive DC coil	446270284000	44.62.7.028
Sensitive DC coil	446270284000PAC	44.62.7.028
Sensitive DC coil	446270480000	44.62.7.048

Sensitive DC coil	446270480000PAC	44.62.7.048
Sensitive DC coil	446270484000	44.62.7.048
Sensitive DC coil	446270484000PAC	44.62.7.048
Sensitive DC coil	446270600000	44.62.7.060
Sensitive DC coil	446270600000PAC	44.62.7.060
Sensitive DC coil	446270604000	44.62.7.060
Sensitive DC coil	446270604000PAC	44.62.7.060
Sensitive DC coil	446271100000	44.62.7.110
Sensitive DC coil	446271100000PAC	44.62.7.110
Sensitive DC coil	446271104000	44.62.7.110
Sensitive DC coil	446271104000PAC	44.62.7.110
125VDC coil ; (add to 1st column price)	446271250000	44.62.7.125
125VDC coil ; (add to 1st column price)	446271250000PAC	44.62.7.125
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290060000	44.62.9.006
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290060000PAC	44.62.9.006
AgSnO2	446290064000	44.62.9.006
AgSnO2	446290064000PAC	44.62.9.006
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290090000	44.62.9.009
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290090000PAC	44.62.9.009
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290120000	44.62.9.012
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290120000PAC	44.62.9.012
AgSnO2	446290124000	44.62.9.012
AgSnO2	446290124000PAC	44.62.9.012
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290140000	44.62.9.014
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290140000PAC	44.62.9.014
AgSnO2	446290144000	44.62.9.014

AgSnO2	446290144000PAC	44.62.9.014
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290240000	44.62.9.024
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290240000PAC	44.62.9.024
AgSnO2	446290244000	44.62.9.024
AgSnO2	446290244000PAC	44.62.9.024
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290280000	44.62.9.028
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290280000PAC	44.62.9.028
AgSnO2	446290284000	44.62.9.028
AgSnO2	446290284000PAC	44.62.9.028
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290480000	44.62.9.048
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290480000PAC	44.62.9.048
AgSnO2	446290484000	44.62.9.048
AgSnO2	446290484000PAC	44.62.9.048
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290600000	44.62.9.060
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446290600000PAC	44.62.9.060
AgSnO2	446290604000	44.62.9.060
AgSnO2	446290604000PAC	44.62.9.060
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446291100000	44.62.9.110
5.0mm pinning; AgNi; Flux proof; 2CO 10A; DC coil	446291100000PAC	44.62.9.110
AgSnO2	446291104000	44.62.9.110
AgSnO2	446291104000PAC	44.62.9.110
5.0mm pinning (6.3x0.8mm);AgNi;1NO 16A - 12-24V DC Only	453170120310	45.31.7.012
AgCdO contacts (45.31/45.91 only)	453170122310	45.31.7.012
5.0mm pinning (6.3x0.8mm);AgNi;1NO 16A - 12-24V DC Only	453170240310	45.31.7.024
AgCdO contacts (45.31/45.91 only)	453170242310	45.31.7.024
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NO 16A	457170060310	45.71.7.006

5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NC 16A	457170060410	45.71.7.000
AgNi contacts	457170061310	45.71.7.000
AgNi contacts	457170061410	45.71.7.000
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NO 16A	457170090310	45.71.7.000
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NC 16A	457170090410	45.71.7.000
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NO 16A	457170120310	45.71.7.010
Wash tight	457170120311	45.71.7.010
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NC 16A	457170120410	45.71.7.010
AgNi contacts	457170121310	45.71.7.010
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NO 16A	457170150310	45.71.7.010
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NC 16A	457170150410	45.71.7.010
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NO 16A	457170240310	45.71.7.020
Wash tight	457170240311	45.71.7.020
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NC 16A	457170240410	45.71.7.020
AgNi contacts	457170241310	45.71.7.020
AgNi contacts	457170241311	45.71.7.020
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NO 16A	457170480310	45.71.7.040
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NC 16A	457170480410	45.71.7.040
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NO 16A	457170600310	45.71.7.060
5.0mm pinning + Faston 250(6.3x0.8mm);AgCdO;1NC 16A	457170600410	45.71.7.060
Low profile PCB relay	457190120310	45.71.9.010
3.0mm pinning + Faston 250(6.3x0.8mm);AgNi;1NO 16A	459170090310	45.91.7.000
AgCdO contacts (45.31/45.91 only)	459170092310	45.91.7.000
3.0mm pinning + Faston 250(6.3x0.8mm);AgNi;1NO 16A	459170120310	45.91.7.010
AgCdO contacts (45.31/45.91 only)	459170122310	45.91.7.010
3.0mm pinning + Faston 250(6.3x0.8mm);AgNi;1NO 16A	459170240310	45.91.7.020

AgCdO contacts (45.31/45.91 only)	459170242310	45.91.7.024
3.0mm pinning + Faston 250(6.3x0.8mm);AgNi;1NO 16A	459170600310	45.91.7.060
Flag indicator	465280120020	46.52.8.012
Plug-in; AgNi; 2CO 8A; lockable test button+flag indicator	465280120040	46.52.8.012
Lockable test button+flag indicator+LED	465280120054	46.52.8.012
AgNi+Au contacts - 2CO	465280125040	46.52.8.012
Flag indicator	465280240020	46.52.8.024
Plug-in; AgNi; 2CO 8A; lockable test button+flag indicator	465280240040	46.52.8.024
Lockable test button+flag indicator+LED	465280240054	46.52.8.024
AgNi+Au contacts - 2CO	465280245040	46.52.8.024
Flag indicator	465280480020	46.52.8.048
Plug-in; AgNi; 2CO 8A; lockable test button+flag indicator	465280480040	46.52.8.048
Lockable test button+flag indicator+LED	465280480054	46.52.8.048
Flag indicator	465281100020	46.52.8.110
Plug-in; AgNi; 2CO 8A; lockable test button+flag indicator	465281100040	46.52.8.110
Lockable test button+flag indicator+LED	465281100054	46.52.8.110
Flag indicator	465281200020	46.52.8.120
Plug-in; AgNi; 2CO 8A; lockable test button+flag indicator	465281200040	46.52.8.120
Lockable test button+flag indicator+LED	465281200054	46.52.8.120
Flag indicator	465282300020	46.52.8.230
Plug-in; AgNi; 2CO 8A; lockable test button+flag indicator	465282300040	46.52.8.230
Lockable test button+flag indicator+LED	465282300054	46.52.8.230
AgNi+Au contacts - 2CO	465282305040	46.52.8.230
Flag indicator	465290120020	46.52.9.012
Plug-in; AgNi; 2CO 8A; lockable test button+flag indicator	465290120040	46.52.9.012
Lockable test button + flag indicator + double LED	465290120074	46.52.9.012

Flag indicator; special version for railway applications	465290240000T	46.52.9.024
Flag indicator	465290240020	46.52.9.024
Plug-in; AgNi; 2CO 8A; lockable test button+flag indicator	465290240040	46.52.9.024
Lockable test button + flag indicator + double LED	465290240074	46.52.9.024
AgNi+Au contacts - 2CO	465290245040	46.52.9.024
Flag indicator	465290480020	46.52.9.048
Plug-in; AgNi; 2CO 8A; lockable test button+flag indicator	465290480040	46.52.9.048
Lockable test button + flag indicator + double LED	465290480074	46.52.9.048
Flag indicator	465290600020	46.52.9.060
Plug-in; AgNi; 2CO 8A; lockable test button+flag indicator	465290600040	46.52.9.060
Flag indicator; special version for railway applications	465291100000T	46.52.9.110
Flag indicator	465291100020	46.52.9.110
Plug-in; AgNi; 2CO 8A; lockable test button+flag indicator	465291100040	46.52.9.110
Lockable test button + flag indicator + double LED	465291100074	46.52.9.110
AgNi+Au contacts - 2CO	465291105040	46.52.9.110
Plug-in; AgNi; 2CO 8A; lockable test button+flag indicator	465291250040	46.52.9.125
Flag indicator	466180120020	46.61.8.012
Plug-in; AgNi; 1CO 16A; lockable test button+flag indicator	466180120040	46.61.8.012
Lockable test button+flag indicator+LED	466180120054	46.61.8.012
AgSnO2 contacts - 1CO	466180124040	46.61.8.012
Flag indicator	466180240020	46.61.8.024
Plug-in; AgNi; 1CO 16A; lockable test button+flag indicator	466180240040	46.61.8.024
Lockable test button+flag indicator+LED	466180240054	46.61.8.024
AgSnO2 contacts - 1CO	466180244040	46.61.8.024
Flag indicator	466180480020	46.61.8.048
Plug-in; AgNi; 1CO 16A; lockable test button+flag indicator	466180480040	46.61.8.048

Lockable test button+flag indicator+LED	466180480054	46.61.8.04
Flag indicator	466181100020	46.61.8.11
Plug-in; AgNi; 1CO 16A; lockable test button+flag indicator	466181100040	46.61.8.11
Lockable test button+flag indicator+LED	466181100054	46.61.8.11
Flag indicator	466181200020	46.61.8.12
Plug-in; AgNi; 1CO 16A; lockable test button+flag indicator	466181200040	46.61.8.12
Lockable test button+flag indicator+LED	466181200054	46.61.8.12
Flag indicator	466182300020	46.61.8.23
Plug-in; AgNi; 1CO 16A; lockable test button+flag indicator	466182300040	46.61.8.23
Lockable test button+flag indicator+LED	466182300054	46.61.8.23
AgSnO2 contacts - 1CO	466182304040	46.61.8.23
AgNi+Au contacts - 1CO	466182305040	46.61.8.23
Flag indicator	466190120020	46.61.9.01
Plug-in; AgNi; 1CO 16A; lockable test button+flag indicator	466190120040	46.61.9.01
Lockable test button + flag indicator + double LED	466190120074	46.61.9.01
AgSnO2 contacts - 1CO	466190124040	46.61.9.01
Flag indicator	466190240020	46.61.9.02
Plug-in; AgNi; 1CO 16A; lockable test button+flag indicator	466190240040	46.61.9.02
Lockable test button + flag indicator + double LED	466190240074	46.61.9.02
AgSnO2 contacts - 1CO	466190244040	46.61.9.02
AgNi+Au contacts - 1CO	466190245040	46.61.9.02
Flag indicator	466190480020	46.61.9.04
Plug-in; AgNi; 1CO 16A; lockable test button+flag indicator	466190480040	46.61.9.04
Lockable test button + flag indicator + double LED	466190480074	46.61.9.04
Flag indicator	466191100020	46.61.9.11
Plug-in; AgNi; 1CO 16A; lockable test button+flag indicator	466191100040	46.61.9.11

Lockable test button + flag indicator + double LED	466191100074	46.61.9.110
Safety relay; Retain/release clip; LED + diode; AgNi; 2CO 8A; 5VDC	481290051002SMA	48.12.9.005
Safety relay; Retain/release clip; LED + diode; AgNi; 2CO 8A; 6VDC	481290061002SMA	48.12.9.006
Safety relay; Retain/release clip; LED + diode; AgNi; 2CO 8A; 12VDC	481290121002SMA	48.12.9.012
Safety relay; Retain/release clip; LED + diode; AgNi; 2CO 8A; 24VDC	481290241002SMA	48.12.9.024
Safety relay; Retain/release clip; LED + diode; AgNi; 2CO 8A; 48VDC	481290481002SMA	48.12.9.048
Safety relay; Retain/release clip; LED + diode; AgNi; 2CO 8A; 60VDC	481290601002SMA	48.12.9.060
Safety relay; Retain/release clip; LED + diode; AgNi; 2CO 8A; 110VDC	481291101002SMA	48.12.9.110
Safety relay; Retain/release clip; LED + diode; AgNi; 2CO 8A; 125VDC	481291251002SMA	48.12.9.125
Retain/release clip; LED + diode; AgNi; 1CO 10A; 12VDC	483170120050SMA	48.31.7.012
Retain/release clip; LED + diode; AgNi; 1CO 10A; 12VDC	483170120050SPA	48.31.7.012
Relay interface module	483170120050SPB	48.31.7.012
Retain/release clip; LED + diode; AgNi; 1CO 10A; 24VDC	483170240050SMA	48.31.7.024
Retain/release clip; LED + diode; AgNi; 1CO 10A; 24VDC	483170240050SPA	48.31.7.024
Relay interface module	483170240050SPB	48.31.7.024
Retain/release clip; LED + diode; AgNi; 1CO 10A; 48VDC	483170480050SMA	48.31.7.048
Retain/release clip; LED + diode; AgNi; 1CO 10A; 48VDC	483170480050SPA	48.31.7.048
Relay interface module	483170480050SPB	48.31.7.048
Retain/release clip; LED + diode; AgNi; 1CO 10A; 125VDC	483171250050SMA	48.31.7.125
Retain/release clip; LED + diode; AgNi; 1CO 10A; 125VDC	483171250050SPA	48.31.7.125
Relay interface module	483171250050SPB	48.31.7.125
Retain/release clip; LED; AgNi; 1CO 10A; 12VAC	483180120060SMA	48.31.8.012
Retain/release clip; LED; AgNi; 1CO 10A; 12VAC	483180120060SPA	48.31.8.012
Relay interface module	483180120060SPB	48.31.8.012
Retain/release clip; LED; AgNi; 1CO 10A; 24VAC	483180240060SMA	48.31.8.024
Retain/release clip; LED; AgNi; 1CO 10A; 24VAC	483180240060SPA	48.31.8.024

Relay interface module	483180240060SPB	48.31.8.024
Retain/release clip; LED; AgNi; 1CO 10A; 48VAC	483180480060SMA	48.31.8.048
Retain/release clip; LED; AgNi; 1CO 10A; 48VAC	483180480060SPA	48.31.8.048
Retain/release clip; LED; AgNi; 1CO 10A; 110VAC	483181100060SMA	48.31.8.110
Retain/release clip; LED; AgNi; 1CO 10A; 110VAC	483181100060SPA	48.31.8.110
Relay interface module	483181100060SPB	48.31.8.110
Retain/release clip; LED; AgNi; 1CO 10A; 120VAC	483181200060SMA	48.31.8.120
Retain/release clip; LED; AgNi; 1CO 10A; 120VAC	483181200060SPA	48.31.8.120
Relay interface module	483181200060SPB	48.31.8.120
Retain/release clip; LED; AgNi; 1CO 10A; 230VAC	483182300060SMA	48.31.8.230
Retain/release clip; LED; AgNi; 1CO 10A; 230VAC	483182300060SPA	48.31.8.230
Relay interface module	483182300060SPB	48.31.8.230
Retain/release clip; LED + diode; AgNi; 2CO 8A; 12VDC	485270120050SMA	48.52.7.012
Retain/release clip; LED + diode; AgNi; 2CO 8A; 12VDC	485270120050SPA	48.52.7.012
Relay interface module	485270120050SPB	48.52.7.012
Retain/release clip; LED + diode; AgNi; 2CO 8A; 24VDC	485270240050SMA	48.52.7.024
Retain/release clip; LED + diode; AgNi; 2CO 8A; 24VDC	485270240050SPA	48.52.7.024
Relay interface module	485270240050SPB	48.52.7.024
Retain/release clip; LED + diode; AgNi+Au; 2CO 8A; 24VDC	485270245050SPA	48.52.7.024
Retain/release clip; LED + diode; AgNi; 2CO 8A; 48VDC	485270480050SMA	48.52.7.048
Retain/release clip; LED + diode; AgNi; 2CO 8A; 48VDC	485270480050SPA	48.52.7.048
Relay interface module	485270480050SPB	48.52.7.048
Retain/release clip; LED + diode; AgNi; 2CO 8A; 125VDC	485271250050SMA	48.52.7.125
Retain/release clip; LED + diode; AgNi; 2CO 8A; 125VDC	485271250050SPA	48.52.7.125
Relay interface module	485271250050SPB	48.52.7.125
Retain/release clip; LED; AgNi; 2CO 8A; 12VAC	485280120060SMA	48.52.8.012

Retain/release clip; LED; AgNi; 2CO 8A; 12VAC	485280120060SPA	48.52.8.012
Relay interface module	485280120060SPB	48.52.8.012
Retain/release clip; LED; AgNi; 2CO 8A; 24VAC	485280240060SMA	48.52.8.024
Retain/release clip; LED; AgNi; 2CO 8A; 24VAC	485280240060SPA	48.52.8.024
Relay interface module	485280240060SPB	48.52.8.024
Retain/release clip; LED; AgNi; 2CO 8A; 48VAC	485280480060SMA	48.52.8.048
Retain/release clip; LED; AgNi; 2CO 8A; 48VAC	485280480060SPA	48.52.8.048
Retain/release clip; LED; AgNi; 2CO 8A; 110VAC	485281100060SMA	48.52.8.110
Retain/release clip; LED; AgNi; 2CO 8A; 110VAC	485281100060SPA	48.52.8.110
Relay interface module	485281100060SPB	48.52.8.110
Retain/release clip; LED; AgNi; 2CO 8A; 120VAC	485281200060SMA	48.52.8.120
Retain/release clip; LED; AgNi; 2CO 8A; 120VAC	485281200060SPA	48.52.8.120
Relay interface module	485281200060SPB	48.52.8.120
Retain/release clip; LED; AgNi; 2CO 8A; 230VAC	485282300060SMA	48.52.8.230
Retain/release clip; LED; AgNi; 2CO 8A; 230VAC	485282300060SPA	48.52.8.230
Relay interface module	485282300060SPB	48.52.8.230
Retain/release clip; LED + diode; AgCdO;1CO 16A;12VDC	486170120050SMA	48.61.7.012
Retain/release clip; LED + diode; AgCdO;1CO 16A;12VDC	486170120050SPA	48.61.7.012
Relay interface module	486170120050SPB	48.61.7.012
Retain/release clip; LED + diode; AgCdO;1CO 16A;24VDC	486170240050SMA	48.61.7.024
Retain/release clip; LED + diode; AgCdO;1CO 16A;24VDC	486170240050SPA	48.61.7.024
Relay interface module	486170240050SPB	48.61.7.024
Retain/release clip; LED + diode; AgCdO;1CO 16A;48VDC	486170480050SMA	48.61.7.048
Retain/release clip; LED + diode; AgCdO;1CO 16A;48VDC	486170480050SPA	48.61.7.048
Relay interface module	486170480050SPB	48.61.7.048
Retain/release clip; LED + diode; AgCdO;1CO 16A;125VDC	486171250050SMA	48.61.7.125

Retain/release clip; LED + diode;AgCdO;1CO 16A;125VDC	486171250050SPA	48.61.7.125
Relay interface module	486171250050SPB	48.61.7.125
Retain/release clip; LED; AgCdO; 1CO 16A; 12VAC	486180120060SMA	48.61.8.012
Retain/release clip; LED; AgCdO; 1CO 16A; 12VAC	486180120060SPA	48.61.8.012
Relay interface module	486180120060SPB	48.61.8.012
Retain/release clip; LED; AgCdO; 1CO 16A; 24VAC	486180240060SMA	48.61.8.024
Retain/release clip; LED; AgCdO; 1CO 16A; 24VAC	486180240060SPA	48.61.8.024
Relay interface module	486180240060SPB	48.61.8.024
Retain/release clip; LED; AgCdO; 1CO 16A; 48VAC	486180480060SMA	48.61.8.048
Retain/release clip; LED; AgCdO; 1CO 16A; 48VAC	486180480060SPA	48.61.8.048
Retain/release clip; LED; AgCdO; 1CO 16A; 110VAC	486181100060SMA	48.61.8.110
Retain/release clip; LED; AgCdO; 1CO 16A; 110VAC	486181100060SPA	48.61.8.110
Relay interface module	486181100060SPB	48.61.8.110
Retain/release clip; LED; AgCdO; 1CO 16A; 120VAC	486181200060SMA	48.61.8.120
Retain/release clip; LED; AgCdO; 1CO 16A; 120VAC	486181200060SPA	48.61.8.120
Relay interface module	486181200060SPB	48.61.8.120
Retain/release clip; LED; AgCdO; 1CO 16A; 230VAC	486182300060SMA	48.61.8.230
Retain/release clip; LED; AgCdO; 1CO 16A; 230VAC	486182300060SPA	48.61.8.230
Relay interface module	486182300060SPB	48.61.8.230
Retain/release clip; LED + diode; AgNi; 2CO 10A; 12VDC	486270120050SMA	48.62.7.012
Retain/release clip; LED + diode; AgNi; 2CO 10A; 12VDC	486270120050SPA	48.62.7.012
Relay interface module	486270120050SPB	48.62.7.012
Retain/release clip; LED + diode; AgNi; 2CO 10A; 48VDC	486270240050SMA	48.62.7.024
Retain/release clip; LED + diode; AgNi; 2CO 10A; 24VDC	486270240050SPA	48.62.7.024
Relay interface module	486270240050SPB	48.62.7.024
Retain/release clip; LED + diode; AgNi; 2CO 10A; 125VDC	486271250050SMA	48.62.7.125

Retain/release clip; LED + diode; AgNi; 2CO 10A; 125VDC	486271250050SPA	48.62.7.12
Retain/release clip; LED + diode; AgNi; 1CO 10A; 12VDC	493170120050SPA	49.31.7.01
Relay interface module	493170120050SPB	49.31.7.01
Retain/release clip; LED + diode; AgNi; 1CO 10A; 24VDC	493170240050SPA	49.31.7.02
Relay interface module	493170240050SPB	49.31.7.02
Retain/release clip; LED + diode; AgNi; 1CO 10A; 12VAC	493180120060SPA	49.31.8.01
Relay interface module	493180120060SPB	49.31.8.01
Retain/release clip; LED + diode; AgNi; 1CO 10A; 24VAC	493180240060SPA	49.31.8.02
Relay interface module	493180240060SPB	49.31.8.02
Retain/release clip; LED + diode; AgNi; 1CO 10A; 230VAC	493182300060SPA	49.31.8.23
Relay interface module	493182300060SPB	49.31.8.23
Retain/release clip; LED + diode; AgNi; 2CO 8A; 12VDC	495270120050SPA	49.52.7.01
Relay interface module	495270120050SPB	49.52.7.01
Retain/release clip; LED + diode; AgNi; 2CO 8A; 24VDC	495270240050SPA	49.52.7.02
Relay interface module	495270240050SPB	49.52.7.02
Retain/release clip; LED; AgNi; 2CO 8A; 12VAC	495280120060SPA	49.52.8.01
Relay interface module	495280120060SPB	49.52.8.01
Retain/release clip; LED; AgNi; 2CO 8A; 24VAC	495280240060SPA	49.52.8.02
Relay interface module	495280240060SPB	49.52.8.02
Retain/release clip; LED; AgNi; 2CO 8A; 230VAC	495282300060SPA	49.52.8.23
Relay interface module	495282300060SPB	49.52.8.23
Retain/release clip; LED + diode; AgCdO;1CO 16A;12VDC	496170120050SPA	49.61.7.01
Relay interface module	496170120050SPB	49.61.7.01
Retain/release clip; LED + diode; AgCdO;1CO 16A;24VDC	496170240050SPA	49.61.7.02
Relay interface module	496170240050SPB	49.61.7.02
Retain/release clip; LED; AgCdO; 1CO 16A; 12VAC	496180120060SPA	49.61.8.01

Relay interface module	496180120060SPB	49.61.8.01
Retain/release clip; LED; AgCdO; 1CO 16A; 24VAC	496180240060SPA	49.61.8.02
Relay interface module	496180240060SPB	49.61.8.02
Retain/release clip; LED; AgCdO; 1CO 16A; 230VAC	496182300060SPA	49.61.8.23
Relay interface module	496182300060SPB	49.61.8.23
Retain/release clip; LED + diode; AgNi; 2CO 10A; 12VDC	496270120050SPA	49.62.7.01
Relay interface module	496270120050SPB	49.62.7.01
Retain/release clip; LED + diode; AgNi; 2CO 10A; 24VDC	496270240050SPA	49.62.7.02
Relay interface module	496270240050SPB	49.62.7.02
LED; AgNi; 1CO 16A; 12VAC	4C0180120060SPA	4C.01.8.01
LED; AgNi; 1CO 16A; 24VAC	4C0180240060SPA	4C.01.8.02
LED; AgNi; 1CO 16A; 48VAC	4C0180480060SPA	4C.01.8.04
LED; AgNi; 1CO 16A; 110VAC	4C0181100060SPA	4C.01.8.11
LED; AgNi; 1CO 16A; 120VAC	4C0181200060SPA	4C.01.8.12
LED; AgNi; 1CO 16A; 230VAC	4C0182300060SPA	4C.01.8.23
LED + diode; AgNi; 1CO 16A; 12VDC	4C0190120050SPA	4C.01.9.01
LED + diode; AgNi; 1CO 16A; 24VDC	4C0190240050SPA	4C.01.9.02
LED + diode; AgNi; 1CO 16A; 48VDC	4C0190480050SPA	4C.01.9.04
LED + diode; AgNi; 1CO 16A; 110VDC	4C0191100050SPA	4C.01.9.11
LED + diode; AgNi; 1CO 16A; 125VDC	4C0191250050SPA	4C.01.9.12
LED; AgNi; 2CO 8A; 12VAC	4C0280120060SPA	4C.02.8.01
LED; AgNi; 2CO 8A; 24VAC	4C0280240060SPA	4C.02.8.02
LED; AgNi; 2CO 8A; 48VAC	4C0280480060SPA	4C.02.8.04
LED; AgNi; 2CO 8A; 110VAC	4C0281100060SPA	4C.02.8.11
LED; AgNi; 2CO 8A; 120VAC	4C0281200060SPA	4C.02.8.12
LED; AgNi; 2CO 8A; 230VAC	4C0282300060SPA	4C.02.8.23

LED + diode; AgNi; 2CO 8A; 12VDC	4C0290120050SPA	4C.02.9.01
LED + diode; AgNi; 2CO 8A; 24VDC	4C0290240050SPA	4C.02.9.02
LED + diode; AgNi; 2CO 8A; 48VDC	4C0290480050SPA	4C.02.9.04
LED + diode; AgNi; 2CO 8A; 110VDC	4C0291100050SPA	4C.02.9.11
LED + diode; AgNi; 2CO 8A; 125VDC	4C0291250050SPA	4C.02.9.12
LED; AgNi; 1CO 16A; 12VAC	4C5180120060SPA	4C.51.8.01
LED; AgNi; 1CO 16A; 24VAC	4C5180240060SPA	4C.51.8.02
LED; AgNi; 1CO 16A; 48VAC	4C5180480060SPA	4C.51.8.04
LED; AgNi; 1CO 16A; 110VAC	4C5181100060SPA	4C.51.8.11
LED; AgNi; 1CO 16A; 120VAC	4C5181200060SPA	4C.51.8.12
LED; AgNi; 1CO 16A; 230VAC	4C5182300060SPA	4C.51.8.23
LED + diode; AgNi; 1CO 16A; 12VDC	4C5190120050SPA	4C.51.9.01
LED + diode; AgNi; 1CO 16A; 24VDC	4C5190240050SPA	4C.51.9.02
LED + diode; AgNi; 1CO 16A; 48VDC	4C5190480050SPA	4C.51.9.04
LED + diode; AgNi; 1CO 16A; 110VDC	4C5191100050SPA	4C.51.9.11
LED + diode; AgNi; 1CO 16A; 125VDC	4C5191250050SPA	4C.51.9.12
LED; AgNi; 2CO 8A; 12VAC	4C5280120060SPA	4C.52.8.01
LED; AgNi; 2CO 8A; 24VAC	4C5280240060SPA	4C.52.8.02
LED; AgNi; 2CO 8A; 48VAC	4C5280480060SPA	4C.52.8.04
LED; AgNi; 2CO 8A; 110VAC	4C5281100060SPA	4C.52.8.11
LED; AgNi; 2CO 8A; 120VAC	4C5281200060SPA	4C.52.8.12
LED; AgNi; 2CO 8A; 230VAC	4C5282300060SPA	4C.52.8.23
LED + diode; AgNi; 1CO 16A; 12VDC	4C5290120050SPA	4C.52.9.01
LED + diode; AgNi; 1CO 16A; 24VDC	4C5290240050SPA	4C.52.9.02
LED + diode; AgNi; 1CO 16A; 48VDC	4C5290480050SPA	4C.52.9.04
LED + diode; AgNi; 1CO 16A; 110VDC	4C5291100050SPA	4C.52.9.11

LED + diode; AgNi; 1CO 16A; 125VDC	4C5291250050SPA	4C.52.9.12
Safety relay - AgNi contacts	501290051000	50.12.9.00
Safety relay - AgNi contacts	501290051000PAC	50.12.9.00
Safety relay - AgNi contacts	501290051000PAS	50.12.9.00
Safety relay - AgNi contacts	501290121000	50.12.9.01
Safety relay - AgNi contacts	501290121000PAC	50.12.9.01
Safety relay - AgNi contacts	501290121000PAS	50.12.9.01
AgSnO2 contacts	501290124000	50.12.9.01
AgSnO2 contacts	501290124000PAS	50.12.9.01
AgNi+Au contacts	501290125000	50.12.9.01
Safety relay - AgNi contacts	501290241000	50.12.9.02
Safety relay - AgNi contacts	501290241000PAC	50.12.9.02
Safety relay - AgNi contacts	501290241000PAS	50.12.9.02
AgSnO2 contacts	501290244000	50.12.9.02
AgSnO2 contacts	501290244000PAS	50.12.9.02
AgNi+Au contacts	501290245000	50.12.9.02
AgNi+Au contacts	501290245000PAS	50.12.9.02
Safety relay - AgNi contacts	501290481000	50.12.9.04
Safety relay - AgNi contacts	501290481000PAC	50.12.9.04
Safety relay - AgNi contacts	501290481000PAS	50.12.9.04
Safety relay - AgNi contacts	501290601000	50.12.9.06
Safety relay - AgNi contacts	501290601000PAC	50.12.9.06
Safety relay - AgNi contacts	501290601000PAS	50.12.9.06
Safety relay - AgNi contacts	501291101000	50.12.9.11
Safety relay - AgNi contacts	501291101000PAC	50.12.9.11
Safety relay - AgNi contacts	501291101000PAS	50.12.9.11

Sunchange 125 VDC (add to 1st column price)	501291251000	50.12.9.125
Sunchange 125 VDC (add to 1st column price)	501291251000PAC	50.12.9.125
Sunchange 125 VDC (add to 1st column price)	501291251000PAS	50.12.9.125
PCB mount; AgNi; 2CO 10A	551280060000	55.12.8.000
AgCdO contacts	551280062000	55.12.8.000
AgNi+Au contacts	551280065000	55.12.8.000
PCB mount; AgNi; 2CO 10A	551280120000	55.12.8.012
PCB mount; AgNi; 2CO 10A	551280120000PAS	55.12.8.012
AgCdO contacts	551280122000	55.12.8.012
AgNi+Au contacts	551280125000	55.12.8.012
PCB mount; AgNi; 2CO 10A	551280240000	55.12.8.024
PCB mount; AgNi; 2CO 10A	551280240000PAS	55.12.8.024
Wash-proof (55.12/55.13/55.14 only)	551280240001	55.12.8.024
AgCdO contacts	551280242000	55.12.8.024
AgNi+Au contacts	551280245000	55.12.8.024
PCB mount; AgNi; 2CO 10A	551280480000	55.12.8.048
AgCdO contacts	551280482000	55.12.8.048
AgNi+Au contacts	551280485000	55.12.8.048
PCB mount; AgNi; 2CO 10A	551280600000	55.12.8.060
AgNi+Au contacts	551280605000	55.12.8.060
PCB mount; AgNi; 2CO 10A	551281100000	55.12.8.110
PCB mount; AgNi; 2CO 10A	551281100000PAS	55.12.8.110
AgCdO contacts	551281102000	55.12.8.110
AgNi+Au contacts	551281105000	55.12.8.110
PCB mount; AgNi; 2CO 10A	551281150000	55.12.8.115
PCB mount; AgNi; 2CO 10A	551281200000	55.12.8.120

AgCdO contacts	551281202000	55.12.8.120
PCB mount; AgNi; 2CO 10A	551281250000	55.12.8.125
AgNi+Au contacts	551281255000	55.12.8.125
PCB mount; AgNi; 2CO 10A	551282300000	55.12.8.230
PCB mount; AgNi; 2CO 10A	551282300000PAS	55.12.8.230
AgCdO contacts	551282302000	55.12.8.230
AgNi+Au contacts	551282305000	55.12.8.230
PCB mount; AgNi; 2CO 10A	551282400000	55.12.8.240
AgNi+Au contacts	551282405000	55.12.8.240
PCB mount; AgNi; 2CO 10A	551290060000	55.12.9.006
PCB mount; AgNi; 2CO 10A	551290060000PAS	55.12.9.006
AgCdO contacts	551290062000	55.12.9.006
AgNi+Au contacts	551290065000	55.12.9.006
PCB mount; AgNi; 2CO 10A	551290120000	55.12.9.012
PCB mount; AgNi; 2CO 10A	551290120000PAS	55.12.9.012
Wash-proof (55.12/55.13/55.14 only)	551290120001	55.12.9.012
AgCdO contacts	551290122000	55.12.9.012
AgNi+Au contacts	551290125000	55.12.9.012
PCB mount; AgNi; 2CO 10A	551290240000	55.12.9.024
PCB mount; AgNi; 2CO 10A	551290240000PAS	55.12.9.024
Wash-proof (55.12/55.13/55.14 only)	551290240001	55.12.9.024
AgCdO contacts	551290242000	55.12.9.024
AgNi+Au contacts	551290245000	55.12.9.024
PCB mount; AgNi; 2CO 10A	551290480000	55.12.9.048
PCB mount; AgNi; 2CO 10A	551290480000PAS	55.12.9.048
AgCdO contacts	551290482000	55.12.9.048

AgNi+Au contacts	551290485000	55.12.9.04
PCB mount; AgNi; 2CO 10A	551290600000	55.12.9.06
AgNi+Au contacts	551290605000	55.12.9.06
PCB mount; AgNi; 2CO 10A	551290800000	55.12.9.08
125,140,145VDC coil (add to 1st column price)	551291100000	55.12.9.11
125,140,145VDC coil (add to 1st column price)	551291102000	55.12.9.11
125,140,145VDC coil (add to 1st column price)	551291250000	55.12.9.12
125,140,145VDC coil (add to 1st column price)	551291400000	55.12.9.14
220VDC coil (add to 1st column price)	551292200000	55.12.9.22
PCB mount; AgNi; 3CO 10A	551380060000	55.13.8.00
AgNi+Au contacts	551380065000	55.13.8.00
PCB mount; AgNi; 3CO 10A	551380120000	55.13.8.01
AgNi+Au contacts	551380125000	55.13.8.01
PCB mount; AgNi; 3CO 10A	551380240000	55.13.8.02
PCB mount; AgNi; 3CO 10A	551380240000PAS	55.13.8.02
AgCdO contacts	551380242000	55.13.8.02
AgNi+Au contacts	551380245000	55.13.8.02
PCB mount; AgNi; 3CO 10A	551380480000	55.13.8.04
AgNi+Au contacts	551380485000	55.13.8.04
PCB mount; AgNi; 3CO 10A	551380600000	55.13.8.06
AgNi+Au contacts	551380605000	55.13.8.06
PCB mount; AgNi; 3CO 10A	551381100000	55.13.8.11
PCB mount; AgNi; 3CO 10A	551381100000PAS	55.13.8.11
AgCdO contacts	551381102000	55.13.8.11
AgNi+Au contacts	551381105000	55.13.8.11
PCB mount; AgNi; 3CO 10A	551381150000	55.13.8.11

PCB mount; AgNi; 3CO 10A	551381200000	55.13.8.120
AgCdO contacts	551381202000	55.13.8.120
PCB mount; AgNi; 3CO 10A	551381250000	55.13.8.125
AgNi+Au contacts	551381255000	55.13.8.125
PCB mount; AgNi; 3CO 10A	551382300000	55.13.8.230
PCB mount; AgNi; 3CO 10A	551382300000PAS	55.13.8.230
AgCdO contacts	551382302000	55.13.8.230
AgNi+Au contacts	551382305000	55.13.8.230
PCB mount; AgNi; 3CO 10A	551382400000	55.13.8.240
AgNi+Au contacts	551382405000	55.13.8.240
PCB mount; AgNi; 3CO 10A	551390060000	55.13.9.006
AgNi+Au contacts	551390065000	55.13.9.006
PCB mount; AgNi; 3CO 10A	551390120000	55.13.9.012
PCB mount; AgNi; 3CO 10A	551390120000PAS	55.13.9.012
AgCdO contacts	551390122000	55.13.9.012
AgNi+Au contacts	551390125000	55.13.9.012
PCB mount; AgNi; 3CO 10A	551390240000	55.13.9.024
PCB mount; AgNi; 3CO 10A	551390240000PAS	55.13.9.024
Wash-proof (55.12/55.13/55.14 only)	551390240001	55.13.9.024
AgCdO contacts	551390242000	55.13.9.024
AgNi+Au contacts	551390245000	55.13.9.024
PCB mount; AgNi; 3CO 10A	551390360000	55.13.9.036
PCB mount; AgNi; 3CO 10A	551390480000	55.13.9.048
PCB mount; AgNi; 3CO 10A	551390480000PAS	55.13.9.048
AgNi+Au contacts	551390485000	55.13.9.048
PCB mount; AgNi; 3CO 10A	551390600000	55.13.9.060

AgNi+Au contacts	551390605000	55.13.9.060
PCB mount; AgNi; 3CO 10A	551390800000	55.13.9.080
125,140,145VDC coil (add to 1st column price)	551391100000	55.13.9.110
125,140,145VDC coil (add to 1st column price)	551391105000	55.13.9.110
125,140,145VDC coil (add to 1st column price)	551391250000	55.13.9.125
125,140,145VDC coil (add to 1st column price)	551391252000	55.13.9.125
125,140,145VDC coil (add to 1st column price)	551391255000	55.13.9.125
125,140,145VDC coil (add to 1st column price)	551391450000	55.13.9.145
220VDC coil (add to 1st column price)	551392200000	55.13.9.220
PCB mount; AgNi; 4CO 7A	551480060000	55.14.8.006
PCB mount; AgNi; 4CO 7A	551480120000	55.14.8.012
PCB mount; AgNi; 4CO 7A	551480120000PAS	55.14.8.012
AgNi+Au contacts	551480125000	55.14.8.012
PCB mount; AgNi; 4CO 7A	551480240000	55.14.8.024
PCB mount; AgNi; 4CO 7A	551480240000PAS	55.14.8.024
Wash-proof (55.12/55.13/55.14 only)	551480240001	55.14.8.024
AgNi+Au contacts	551480245000	55.14.8.024
PCB mount; AgNi; 4CO 7A	551480480000	55.14.8.048
PCB mount; AgNi; 4CO 7A	551480480000PAS	55.14.8.048
AgNi+Au contacts	551480485000	55.14.8.048
PCB mount; AgNi; 4CO 7A	551480600000	55.14.8.060
AgCdO contacts	551480602000	55.14.8.060
AgNi+Au contacts	551480605000	55.14.8.060
PCB mount; AgNi; 4CO 7A	551481100000	55.14.8.110
PCB mount; AgNi; 4CO 7A	551481100000PAS	55.14.8.110
AgNi+Au contacts	551481105000	55.14.8.110

PCB mount; AgNi; 4CO 7A	551481200000	55.14.8.120
PCB mount; AgNi; 4CO 7A	551481250000	55.14.8.125
AgNi+Au contacts	551481255000	55.14.8.125
PCB mount; AgNi; 4CO 7A	551482300000	55.14.8.230
PCB mount; AgNi; 4CO 7A	551482300000PAS	55.14.8.230
Wash-proof (55.12/55.13/55.14 only)	551482300001	55.14.8.230
AgCdO contacts	551482302000	55.14.8.230
AgNi+Au contacts	551482305000	55.14.8.230
PCB mount; AgNi; 4CO 7A	551482400000	55.14.8.240
PCB mount; AgNi; 4CO 7A	551490060000	55.14.9.006
PCB mount; AgNi; 4CO 7A	551490060000PAS	55.14.9.006
AgCdO contacts	551490062000	55.14.9.006
PCB mount; AgNi; 4CO 7A	551490120000	55.14.9.012
PCB mount; AgNi; 4CO 7A	551490120000PAS	55.14.9.012
AgCdO contacts	551490122000	55.14.9.012
AgNi+Au contacts	551490125000	55.14.9.012
PCB mount; AgNi; 4CO 7A	551490240000	55.14.9.024
PCB mount; AgNi; 4CO 7A	551490240000PAS	55.14.9.024
AgCdO contacts	551490242000	55.14.9.024
AgNi+Au contacts	551490245000	55.14.9.024
AgNi+Au contacts	551490365000	55.14.9.036
PCB mount; AgNi; 4CO 7A	551490480000	55.14.9.048
PCB mount; AgNi; 4CO 7A	551490480000PAS	55.14.9.048
AgNi+Au contacts	551490485000	55.14.9.048
PCB mount; AgNi; 4CO 7A	551490600000	55.14.9.060
AgNi+Au contacts	551490605000	55.14.9.060

125,140,145VDC coil (add to 1st column price)	551491100000	55.14.9.110
125,140,145VDC coil (add to 1st column price)	551491105000	55.14.9.110
125,140,145VDC coil (add to 1st column price)	551491250000	55.14.9.125
220VDC coil (add to 1st column price)	551492200000	55.14.9.220
General purpose relay	553280060000	55.32.8.000
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553280060040	55.32.8.000
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553280060050	55.32.8.000
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553280060054	55.32.8.000
AgNi+Au contacts	553280065000	55.32.8.000
General purpose relay	553280120000	55.32.8.012
Flag indicator (55.32/55.34 only)	553280120020	55.32.8.012
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553280120030	55.32.8.012
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553280120040	55.32.8.012
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553280120040PAS	55.32.8.012
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553280120050	55.32.8.012
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553280120054	55.32.8.012
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553280120054PAS	55.32.8.012
AgCdO contacts	553280122000	55.32.8.012
AgCdO contacts	553280122040	55.32.8.012
AgNi+Au contacts	553280125000	55.32.8.012
AgNi+Au contacts	553280125040	55.32.8.012
General purpose relay	553280240000	55.32.8.024
Flag indicator (55.32/55.34 only)	553280240020	55.32.8.024
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553280240030	55.32.8.024
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553280240040	55.32.8.024

Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553280240040PAS	55.32.8.024
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553280240050	55.32.8.024
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553280240054	55.32.8.024
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553280240054PAS	55.32.8.024
AgCdO contacts	553280242000	55.32.8.024
AgCdO contacts	553280242030	55.32.8.024
AgCdO contacts	553280242040	55.32.8.024
AgCdO contacts	553280242050	55.32.8.024
AgCdO contacts	553280242054	55.32.8.024
AgNi+Au contacts	553280245000	55.32.8.024
AgNi+Au contacts	553280245020	55.32.8.024
AgNi+Au contacts	553280245030	55.32.8.024
AgNi+Au contacts	553280245040	55.32.8.024
AgNi+Au contacts	553280245050	55.32.8.024
AgNi+Au contacts	553280245054	55.32.8.024
General purpose relay	553280360000	55.32.8.030
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553280360040	55.32.8.030
General purpose relay	553280480000	55.32.8.040
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553280480030	55.32.8.040
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553280480040	55.32.8.040
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553280480040PAS	55.32.8.040
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553280480050	55.32.8.040
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553280480054	55.32.8.040
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553280480054PAS	55.32.8.040
AgNi+Au contacts	553280485000	55.32.8.040

General purpose relay	553280600000	55.32.8.060
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553280600040	55.32.8.060
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553280600054	55.32.8.060
AgCdO contacts	553280602000	55.32.8.060
AgNi+Au contacts	553280605000	55.32.8.060
General purpose relay	553281100000	55.32.8.110
Flag indicator (55.32/55.34 only)	553281100020	55.32.8.110
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553281100030	55.32.8.110
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553281100040	55.32.8.110
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553281100040PAS	55.32.8.110
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553281100050	55.32.8.110
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553281100054	55.32.8.110
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553281100054PAS	55.32.8.110
AgCdO contacts	553281102000	55.32.8.110
AgCdO contacts	553281102040	55.32.8.110
AgNi+Au contacts	553281105000	55.32.8.110
AgNi+Au contacts	553281105040	55.32.8.110
General purpose relay	553281150000	55.32.8.115
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553281150040	55.32.8.115
General purpose relay	553281200000	55.32.8.120
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553281200030	55.32.8.120
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553281200040	55.32.8.120
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553281200040PAS	55.32.8.120
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553281200050	55.32.8.120
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553281200054	55.32.8.120

Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553281200054PAS	55.32.8.120
AgCdO contacts	553281202030	55.32.8.120
AgCdO contacts	553281202040	55.32.8.120
AgCdO contacts	553281202050	55.32.8.120
AgNi+Au contacts	553281205000	55.32.8.120
AgNi+Au contacts	553281205020	55.32.8.120
AgNi+Au contacts	553281205030	55.32.8.120
AgNi+Au contacts	553281205050	55.32.8.120
General purpose relay	553281250000	55.32.8.120
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553281250040	55.32.8.120
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553281250040PAS	55.32.8.120
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553281250050	55.32.8.120
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553281250054	55.32.8.120
AgCdO contacts	553281252040	55.32.8.120
AgNi+Au contacts	553281255000	55.32.8.120
General purpose relay	553282300000	55.32.8.230
General purpose relay	553282300000PAS	55.32.8.230
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553282300030	55.32.8.230
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553282300040	55.32.8.230
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553282300040PAS	55.32.8.230
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553282300050	55.32.8.230
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553282300054	55.32.8.230
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553282300054PAS	55.32.8.230
AgCdO contacts	553282302000	55.32.8.230
AgCdO contacts	553282302040	55.32.8.230

AgCdO contacts	553282302050	55.32.8.230
AgNi+Au contacts	553282305000	55.32.8.230
AgNi+Au contacts	553282305040	55.32.8.230
General purpose relay	553282400000	55.32.8.240
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553282400030	55.32.8.240
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553282400040	55.32.8.240
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553282400040PAS	55.32.8.240
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553282400050	55.32.8.240
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553282400054	55.32.8.240
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553282400054PAS	55.32.8.240
AgNi+Au contacts	553282405000	55.32.8.240
AgNi+Au contacts	553282405040	55.32.8.240
General purpose relay	553290060000	55.32.9.000
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553290060040	55.32.9.000
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553290060040PAS	55.32.9.000
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553290060070	55.32.9.000
Lockable test button + flag indicator + LED + diode; positive to pin A2/14 (55.32/55.34 coil voltages up to 125V DC only)	553290060074	55.32.9.000
LED + diode; positive to pin A1/ 13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290060080	55.32.9.000
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290060090	55.32.9.000
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553290060094	55.32.9.000
AgNi+Au contacts	553290065000	55.32.9.000
General purpose relay	553290120000	55.32.9.010
Flag indicator (55.32/55.34 only)	553290120020	55.32.9.010
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553290120040	55.32.9.010
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553290120040PAS	55.32.9.010

LED + diode; positive to pin A2/ 14 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290120060	55.32.9.012
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553290120070	55.32.9.012
Lockable test button + flag indicator + LED + diode; positive to pin A2/14 (55.32/55.34 coil voltages up to 125V DC only)	553290120074	55.32.9.012
Lockable test button + flag indicator + LED + diode; positive to pin A2/14 (55.32/55.34 coil voltages up to 125V DC only)	553290120074PAS	55.32.9.012
LED + diode; positive to pin A1/ 13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290120080	55.32.9.012
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290120090	55.32.9.012
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553290120094	55.32.9.012
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553290120094PAS	55.32.9.012
AgCdO contacts	553290122000	55.32.9.012
AgNi+Au contacts	553290125000	55.32.9.012
General purpose relay	553290240000	55.32.9.024
General purpose relay	553290240000PAS	55.32.9.024
Flag indicator (55.32/55.34 only)	553290240020	55.32.9.024
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553290240040	55.32.9.024
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553290240040PAS	55.32.9.024
LED + diode; positive to pin A2/ 14 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290240060	55.32.9.024
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553290240070	55.32.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A2/14 (55.32/55.34 coil voltages up to 125V DC only)	553290240074	55.32.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A2/14 (55.32/55.34 coil voltages up to 125V DC only)	553290240074PAS	55.32.9.024
LED + diode; positive to pin A1/ 13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290240080	55.32.9.024
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290240090	55.32.9.024
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290240090PAS	55.32.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553290240094	55.32.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553290240094PAS	55.32.9.024

AgCdO contacts	553290242000	55.32.9.024
AgCdO contacts	553290242020	55.32.9.024
AgCdO contacts	553290242040	55.32.9.024
AgCdO contacts	553290242070	55.32.9.024
AgCdO contacts	553290242074	55.32.9.024
AgCdO contacts	553290242080	55.32.9.024
AgCdO contacts	553290242090	55.32.9.024
AgCdO contacts	553290242094	55.32.9.024
AgNi+Au contacts	553290245000	55.32.9.024
AgNi+Au contacts	553290245020	55.32.9.024
AgNi+Au contacts	553290245040	55.32.9.024
AgNi+Au contacts	553290245060	55.32.9.024
AgNi+Au contacts	553290245070	55.32.9.024
AgNi+Au contacts	553290245074	55.32.9.024
AgNi+Au contacts	553290245080	55.32.9.024
AgNi+Au contacts	553290245090	55.32.9.024
AgNi+Au contacts	553290245094	55.32.9.024
General purpose relay	553290360000	55.32.9.036
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553290360040	55.32.9.036
General purpose relay	553290480000	55.32.9.048
Flag indicator (55.32/55.34 only)	553290480020	55.32.9.048
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553290480040	55.32.9.048
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553290480040PAS	55.32.9.048
LED + diode; positive to pin A2/ 14 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290480060	55.32.9.048
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553290480070	55.32.9.048

Lockable test button + flag indicator + LED + diode; positive to pin A2/14 (55.32/55.34 coil voltages up to 125V DC only)	553290480074	55.32.9.04
LED + diode; positive to pin A1/ 13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290480080	55.32.9.04
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290480090	55.32.9.04
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553290480094	55.32.9.04
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553290480094PAS	55.32.9.04
AgCdO contacts	553290482000	55.32.9.04
AgNi+Au contacts	553290485000	55.32.9.04
AgNi+Au contacts	553290485040	55.32.9.04
AgNi+Au contacts	553290485060	55.32.9.04
General purpose relay	553290600000	55.32.9.06
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553290600040	55.32.9.06
Plug-in; AgNi; 2CO 10A; lockable test button+flag indicator	553290600040PAS	55.32.9.06
LED + diode; positive to pin A2/ 14 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290600060	55.32.9.06
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553290600070	55.32.9.06
LED + diode; positive to pin A1/ 13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290600080	55.32.9.06
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553290600090	55.32.9.06
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553290600094	55.32.9.06
AgNi+Au contacts	553290605000	55.32.9.06
AgNi+Au contacts	553290605040	55.32.9.06
AgNi+Au contacts	553290605090	55.32.9.06
125,140,145VDC coil (add to 1st column price)	553291100000	55.32.9.11
125,140,145VDC coil (add to 1st column price)	553291100040	55.32.9.11
125,140,145VDC coil (add to 1st column price)	553291100040PAS	55.32.9.11
125,140,145VDC coil (add to 1st column price)	553291100060	55.32.9.11
125,140,145VDC coil (add to 1st column price)	553291100070	55.32.9.11

125,140,145VDC coil (add to 1st column price)	553291100074	55.32.9.110
125,140,145VDC coil (add to 1st column price)	553291100080	55.32.9.110
125,140,145VDC coil (add to 1st column price)	553291100090	55.32.9.110
125,140,145VDC coil (add to 1st column price)	553291100094	55.32.9.110
125,140,145VDC coil (add to 1st column price)	553291100094PAS	55.32.9.110
125,140,145VDC coil (add to 1st column price)	553291102000	55.32.9.110
125,140,145VDC coil (add to 1st column price)	553291102070	55.32.9.110
125,140,145VDC coil (add to 1st column price)	553291105000	55.32.9.110
125,140,145VDC coil (add to 1st column price)	553291105040	55.32.9.110
125,140,145VDC coil (add to 1st column price)	553291105060	55.32.9.110
125,140,145VDC coil (add to 1st column price)	553291105080	55.32.9.110
125,140,145VDC coil (add to 1st column price)	553291250000	55.32.9.125
125,140,145VDC coil (add to 1st column price)	553291250040	55.32.9.125
125,140,145VDC coil (add to 1st column price)	553291250070	55.32.9.125
125,140,145VDC coil (add to 1st column price)	553291250074	55.32.9.125
125,140,145VDC coil (add to 1st column price)	553291250080	55.32.9.125
125,140,145VDC coil (add to 1st column price)	553291250094	55.32.9.125
125,140,145VDC coil (add to 1st column price)	553291252000	55.32.9.125
125,140,145VDC coil (add to 1st column price)	553291252040	55.32.9.125
125,140,145VDC coil (add to 1st column price)	553291255040	55.32.9.125
125,140,145VDC coil (add to 1st column price)	553291400000	55.32.9.140
125,140,145VDC coil (add to 1st column price)	553291400040	55.32.9.140
125,140,145VDC coil (add to 1st column price)	553291450000	55.32.9.145
125,140,145VDC coil (add to 1st column price)	553291450040	55.32.9.145
220VDC coil (add to 1st column price)	553292200000	55.32.9.220
220VDC coil (add to 1st column price)	553292200040	55.32.9.220

220VDC coil (add to 1st column price)	553292200040PAS	55.32.9.220
220VDC coil (add to 1st column price)	553292202000	55.32.9.220
220VDC coil (add to 1st column price)	553292205040	55.32.9.220
General purpose relay	553380060000	55.33.8.000
Plug-in; AgNi; 3CO 10A; lockable test button	553380060010	55.33.8.000
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553380060050	55.33.8.000
AgNi+Au contacts	553380065000	55.33.8.000
General purpose relay	553380120000	55.33.8.010
General purpose relay	553380120000PAS	55.33.8.010
Plug-in; AgNi; 3CO 10A; lockable test button	553380120010	55.33.8.010
Plug-in; AgNi; 3CO 10A; lockable test button	553380120010PAS	55.33.8.010
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553380120030	55.33.8.010
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553380120050	55.33.8.010
AgNi+Au contacts	553380125000	55.33.8.010
General purpose relay	553380240000	55.33.8.020
General purpose relay	553380240000PAS	55.33.8.020
Plug-in; AgNi; 3CO 10A; lockable test button	553380240010	55.33.8.020
Plug-in; AgNi; 3CO 10A; lockable test button	553380240010PAS	55.33.8.020
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553380240030	55.33.8.020
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553380240050	55.33.8.020
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553380240050PAS	55.33.8.020
AgCdO contacts	553380242000	55.33.8.020
AgCdO contacts	553380242010	55.33.8.020
AgNi+Au contacts	553380245000	55.33.8.020
AgNi+Au contacts	553380245010	55.33.8.020
Plug-in; AgNi; 3CO 10A; lockable test button	553380360010	55.33.8.030

General purpose relay	553380480000	55.33.8.04
General purpose relay	553380480000PAS	55.33.8.04
Plug-in; AgNi; 3CO 10A; lockable test button	553380480010	55.33.8.04
Plug-in; AgNi; 3CO 10A; lockable test button	553380480010PAS	55.33.8.04
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553380480050	55.33.8.04
AgNi+Au contacts	553380485000	55.33.8.04
General purpose relay	553380600000	55.33.8.06
Plug-in; AgNi; 3CO 10A; lockable test button	553380600010	55.33.8.06
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553380600050	55.33.8.06
AgCdO contacts	553380602000	55.33.8.06
AgNi+Au contacts	553380605000	55.33.8.06
General purpose relay	553381100000	55.33.8.11
General purpose relay	553381100000PAS	55.33.8.11
Plug-in; AgNi; 3CO 10A; lockable test button	553381100010	55.33.8.11
Plug-in; AgNi; 3CO 10A; lockable test button	553381100010PAS	55.33.8.11
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553381100030	55.33.8.11
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553381100050	55.33.8.11
AgCdO contacts	553381102000	55.33.8.11
AgCdO contacts	553381102030	55.33.8.11
AgNi+Au contacts	553381105000	55.33.8.11
AgNi+Au contacts	553381105010	55.33.8.11
AgNi+Au contacts	553381105030	55.33.8.11
AgNi+Au contacts	553381105050	55.33.8.11
General purpose relay	553381150000	55.33.8.11
Plug-in; AgNi; 3CO 10A; lockable test button	553381150010	55.33.8.11
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553381150050	55.33.8.11

General purpose relay	553381200000	55.33.8.120
General purpose relay	553381200000PAS	55.33.8.120
Plug-in; AgNi; 3CO 10A; lockable test button	553381200010	55.33.8.120
Plug-in; AgNi; 3CO 10A; lockable test button	553381200010PAS	55.33.8.120
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553381200030	55.33.8.120
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553381200050	55.33.8.120
AgCdO contacts	553381202050	55.33.8.120
AgNi+Au contacts	553381205000	55.33.8.120
General purpose relay	553381250000	55.33.8.120
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553381250050	55.33.8.120
AgNi+Au contacts	553381255000	55.33.8.120
AgNi+Au contacts	553381255050	55.33.8.120
General purpose relay	553382300000	55.33.8.230
General purpose relay	553382300000PAS	55.33.8.230
Plug-in; AgNi; 3CO 10A; lockable test button	553382300010	55.33.8.230
Plug-in; AgNi; 3CO 10A; lockable test button	553382300010PAS	55.33.8.230
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553382300030	55.33.8.230
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553382300050	55.33.8.230
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553382300050PAS	55.33.8.230
AgCdO contacts	553382302000	55.33.8.230
AgCdO contacts	553382302010	55.33.8.230
AgCdO contacts	553382302030	55.33.8.230
AgNi+Au contacts	553382305000	55.33.8.230
AgNi+Au contacts	553382305010	55.33.8.230
AgNi+Au contacts	553382305030	55.33.8.230
AgNi+Au contacts	553382305050	55.33.8.230

General purpose relay	553382400000	55.33.8.24
Plug-in; AgNi; 3CO 10A; lockable test button	553382400010	55.33.8.24
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553382400030	55.33.8.24
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553382400050	55.33.8.24
AgNi+Au contacts	553382405000	55.33.8.24
General purpose relay	553390060000	55.33.9.00
Plug-in; AgNi; 3CO 10A; lockable test button	553390060010	55.33.9.00
AgNi+Au contacts	553390065000	55.33.9.00
General purpose relay	553390120000	55.33.9.01
General purpose relay	553390120000PAS	55.33.9.01
Plug-in; AgNi; 3CO 10A; lockable test button	553390120010	55.33.9.01
Plug-in; AgNi; 3CO 10A; lockable test button	553390120010PAS	55.33.9.01
LED + diode; positive to pin A2/ 14 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553390120060	55.33.9.01
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553390120070	55.33.9.01
LED + diode; positive to pin A1/ 13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553390120080	55.33.9.01
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553390120090	55.33.9.01
AgCdO contacts	553390122010	55.33.9.01
AgNi+Au contacts	553390125000	55.33.9.01
General purpose relay	553390240000	55.33.9.02
General purpose relay	553390240000PAS	55.33.9.02
Plug-in; AgNi; 3CO 10A; lockable test button	553390240010	55.33.9.02
Plug-in; AgNi; 3CO 10A; lockable test button	553390240010PAS	55.33.9.02
LED + diode; positive to pin A2/ 14 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553390240060	55.33.9.02
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553390240070	55.33.9.02
LED + diode; positive to pin A1/ 13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553390240080	55.33.9.02

Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553390240090	55.33.9.024
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553390240090PAS	55.33.9.024
AgCdO contacts	553390242000	55.33.9.024
AgCdO contacts	553390242010	55.33.9.024
AgCdO contacts	553390242060	55.33.9.024
AgCdO contacts	553390242080	55.33.9.024
AgCdO contacts	553390242090	55.33.9.024
AgNi+Au contacts	553390245000	55.33.9.024
AgNi+Au contacts	553390245010	55.33.9.024
AgNi+Au contacts	553390245060	55.33.9.024
AgNi+Au contacts	553390245080	55.33.9.024
AgNi+Au contacts	553390245090	55.33.9.024
General purpose relay	553390360000	55.33.9.036
Plug-in; AgNi; 3CO 10A; lockable test button	553390360010	55.33.9.036
General purpose relay	553390480000	55.33.9.048
General purpose relay	553390480000PAS	55.33.9.048
Plug-in; AgNi; 3CO 10A; lockable test button	553390480010	55.33.9.048
Plug-in; AgNi; 3CO 10A; lockable test button	553390480010PAS	55.33.9.048
LED + diode; positive to pin A2/ 14 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553390480060	55.33.9.048
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553390480070	55.33.9.048
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553390480090	55.33.9.048
AgCdO contacts	553390482000	55.33.9.048
AgNi+Au contacts	553390485000	55.33.9.048
General purpose relay	553390600000	55.33.9.060
General purpose relay	553390600000PAS	55.33.9.060

Plug-in; AgNi; 3CO 10A; lockable test button	553390600010	55.33.9.060
Plug-in; AgNi; 3CO 10A; lockable test button	553390600010PAS	55.33.9.060
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553390600070	55.33.9.060
AgCdO contacts	553390602000	55.33.9.060
AgCdO contacts	553390602010	55.33.9.060
AgNi+Au contacts	553390605000	55.33.9.060
General purpose relay	553390800000	55.33.9.080
125,140,145VDC coil (add to 1st column price)	553391100000	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391100000PAS	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391100010	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391100010PAS	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391100060	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391100070	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391100080	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391100090	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391100090PAS	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391102000	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391105000	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391105080	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391105090	55.33.9.110
125,140,145VDC coil (add to 1st column price)	553391250000	55.33.9.120
125,140,145VDC coil (add to 1st column price)	553391250010	55.33.9.120
125,140,145VDC coil (add to 1st column price)	553391250070	55.33.9.120
125,140,145VDC coil (add to 1st column price)	553391250080	55.33.9.120
125,140,145VDC coil (add to 1st column price)	553391250090	55.33.9.120
125,140,145VDC coil (add to 1st column price)	553391252000	55.33.9.120

125,140,145VDC coil (add to 1st column price)	553391252080	55.33.9.125
125,140,145VDC coil (add to 1st column price)	553391255000	55.33.9.125
125,140,145VDC coil (add to 1st column price)	553391255010	55.33.9.125
125,140,145VDC coil (add to 1st column price)	553391400000	55.33.9.140
125,140,145VDC coil (add to 1st column price)	553391400010	55.33.9.140
125,140,145VDC coil (add to 1st column price)	553391450000	55.33.9.145
220VDC coil (add to 1st column price)	553392200000	55.33.9.220
220VDC coil (add to 1st column price)	553392200000PAS	55.33.9.220
220VDC coil (add to 1st column price)	553392200010	55.33.9.220
220VDC coil (add to 1st column price)	553392200010PAS	55.33.9.220
220VDC coil (add to 1st column price)	553392202000	55.33.9.220
220VDC coil (add to 1st column price)	553392205010	55.33.9.220
General purpose relay	553480060000	55.34.8.006
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553480060030	55.34.8.006
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553480060040	55.34.8.006
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553480060040PAS	55.34.8.006
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553480060054	55.34.8.006
AgNi+Au contacts	553480065000	55.34.8.006
AgNi+Au contacts	553480065050	55.34.8.006
General purpose relay	553480120000	55.34.8.012
Flag indicator (55.32/55.34 only)	553480120020	55.34.8.012
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553480120030	55.34.8.012
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553480120040	55.34.8.012
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553480120040PAS	55.34.8.012
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553480120050	55.34.8.012

Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553480120054	55.34.8.012
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553480120054PAS	55.34.8.012
AgCdO contacts	553480122040	55.34.8.012
AgNi+Au contacts	553480125000	55.34.8.012
AgNi+Au contacts	553480125030	55.34.8.012
AgNi+Au contacts	553480125040	55.34.8.012
AgNi+Au contacts	553480125050	55.34.8.012
General purpose relay	553480240000	55.34.8.024
Flag indicator (55.32/55.34 only)	553480240020	55.34.8.024
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553480240030	55.34.8.024
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553480240040	55.34.8.024
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553480240040PAS	55.34.8.024
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553480240050	55.34.8.024
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553480240054	55.34.8.024
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553480240054PAS	55.34.8.024
AgCdO contacts	553480242000	55.34.8.024
AgCdO contacts	553480242030	55.34.8.024
AgCdO contacts	553480242040	55.34.8.024
AgCdO contacts	553480242050	55.34.8.024
AgNi+Au contacts	553480245000	55.34.8.024
AgNi+Au contacts	553480245020	55.34.8.024
AgNi+Au contacts	553480245030	55.34.8.024
AgNi+Au contacts	553480245040	55.34.8.024
AgNi+Au contacts	553480245040PAS	55.34.8.024
AgNi+Au contacts	553480245050	55.34.8.024

AgNi+Au contacts	553480245054	55.34.8.024
General purpose relay	553480360000	55.34.8.036
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553480360040	55.34.8.036
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553480360054	55.34.8.036
General purpose relay	553480480000	55.34.8.048
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553480480030	55.34.8.048
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553480480040	55.34.8.048
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553480480040PAS	55.34.8.048
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553480480050	55.34.8.048
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553480480054	55.34.8.048
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553480480054PAS	55.34.8.048
AgCdO contacts	553480482000	55.34.8.048
AgCdO contacts	553480482040	55.34.8.048
AgNi+Au contacts	553480485000	55.34.8.048
AgNi+Au contacts	553480485020	55.34.8.048
AgNi+Au contacts	553480485030	55.34.8.048
AgNi+Au contacts	553480485040	55.34.8.048
AgNi+Au contacts	553480485050	55.34.8.048
General purpose relay	553480600000	55.34.8.060
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553480600040	55.34.8.060
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553480600050	55.34.8.060
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553480600054	55.34.8.060
AgNi+Au contacts	553480605000	55.34.8.060
AgNi+Au contacts	553480605040	55.34.8.060
General purpose relay	553481100000	55.34.8.110

Flag indicator (55.32/55.34 only)	553481100020	55.34.8.110
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553481100030	55.34.8.110
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553481100040	55.34.8.110
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553481100040PAS	55.34.8.110
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553481100050	55.34.8.110
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553481100054	55.34.8.110
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553481100054PAS	55.34.8.110
AgCdO contacts	553481102000	55.34.8.110
AgCdO contacts	553481102030	55.34.8.110
AgCdO contacts	553481102040	55.34.8.110
AgCdO contacts	553481102050	55.34.8.110
AgNi+Au contacts	553481105000	55.34.8.110
AgNi+Au contacts	553481105030	55.34.8.110
AgNi+Au contacts	553481105040	55.34.8.110
AgNi+Au contacts	553481105050	55.34.8.110
AgNi+Au contacts	553481105054	55.34.8.110
General purpose relay	553481150000	55.34.8.115
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553481150030	55.34.8.115
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553481150040	55.34.8.115
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553481150054	55.34.8.115
AgNi+Au contacts	553481155030	55.34.8.115
AgNi+Au contacts	553481155040	55.34.8.115
General purpose relay	553481200000	55.34.8.120
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553481200030	55.34.8.120
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553481200040	55.34.8.120

Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553481200040PAS	55.34.8.120
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553481200050	55.34.8.120
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553481200054	55.34.8.120
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553481200054PAS	55.34.8.120
AgCdO contacts	553481202000	55.34.8.120
AgCdO contacts	553481202030	55.34.8.120
AgCdO contacts	553481202050	55.34.8.120
AgNi+Au contacts	553481205000	55.34.8.120
AgNi+Au contacts	553481205030	55.34.8.120
AgNi+Au contacts	553481205040	55.34.8.120
AgNi+Au contacts	553481205050	55.34.8.120
AgNi+Au contacts	553481205054	55.34.8.120
General purpose relay	553481250000	55.34.8.120
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553481250030	55.34.8.120
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553481250040	55.34.8.120
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553481250040PAS	55.34.8.120
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553481250050	55.34.8.120
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553481250054	55.34.8.120
AgCdO contacts	553481252020	55.34.8.120
AgCdO contacts	553481252040	55.34.8.120
AgNi+Au contacts	553481255000	55.34.8.120
AgNi+Au contacts	553481255030	55.34.8.120
AgNi+Au contacts	553481255040	55.34.8.120
AgNi+Au contacts	553481255050	55.34.8.120
General purpose relay	553482300000	55.34.8.230

Flag indicator (55.32/55.34 only)	553482300020	55.34.8.230
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553482300030	55.34.8.230
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553482300040	55.34.8.230
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553482300040PAS	55.34.8.230
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553482300050	55.34.8.230
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553482300054	55.34.8.230
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553482300054PAS	55.34.8.230
AgCdO contacts	553482302000	55.34.8.230
AgCdO contacts	553482302030	55.34.8.230
AgCdO contacts	553482302040	55.34.8.230
AgCdO contacts	553482302050	55.34.8.230
AgCdO contacts	553482302054	55.34.8.230
AgNi+Au contacts	553482305000	55.34.8.230
AgNi+Au contacts	553482305020	55.34.8.230
AgNi+Au contacts	553482305030	55.34.8.230
AgNi+Au contacts	553482305040	55.34.8.230
AgNi+Au contacts	553482305050	55.34.8.230
AgNi+Au contacts	553482305054	55.34.8.230
AgNi+Au contacts	553482305054PAS	55.34.8.230
General purpose relay	553482400000	55.34.8.240
LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553482400030	55.34.8.240
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553482400040	55.34.8.240
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553482400040PAS	55.34.8.240
Lockable test button + LED (55.32/55.33/55.34 coil voltages up to 240V AC only)	553482400050	55.34.8.240
Lockable test button+flag indicator+LED(55.32/55.34 coil voltages up to 240V AC only)	553482400054	55.34.8.240

AgCdO contacts	553482402000	55.34.8.240
AgCdO contacts	553482402040	55.34.8.240
AgNi+Au contacts	553482405000	55.34.8.240
AgNi+Au contacts	553482405030	55.34.8.240
AgNi+Au contacts	553482405050	55.34.8.240
AgNi+Au contacts	553482405054	55.34.8.240
General purpose relay	553490060000	55.34.9.000
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553490060040	55.34.9.000
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553490060040PAS	55.34.9.000
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553490060070	55.34.9.000
LED + diode; positive to pin A1/ 13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490060080	55.34.9.000
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490060090	55.34.9.000
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553490060094	55.34.9.000
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553490060094PAS	55.34.9.000
AgNi+Au contacts	553490065000	55.34.9.000
AgNi+Au contacts	553490065040	55.34.9.000
AgNi+Au contacts	553490065090	55.34.9.000
General purpose relay	553490120000	55.34.9.010
Flag indicator (55.32/55.34 only)	553490120020	55.34.9.010
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553490120040	55.34.9.010
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553490120040PAS	55.34.9.010
LED + diode; positive to pin A2/ 14 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490120060	55.34.9.010
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553490120070	55.34.9.010
Lockable test button + flag indicator + LED + diode; positive to pin A2/14 (55.32/55.34 coil voltages up to 125V DC only)	553490120074	55.34.9.010
Lockable test button + flag indicator + LED + diode; positive to pin A2/14 (55.32/55.34 coil voltages up to 125V DC only)	553490120074PAS	55.34.9.010

LED + diode; positive to pin A1/ 13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490120080	55.34.9.012
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490120090	55.34.9.012
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490120090PAS	55.34.9.012
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553490120094	55.34.9.012
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553490120094PAS	55.34.9.012
AgCdO contacts	553490122000	55.34.9.012
AgCdO contacts	553490122040	55.34.9.012
AgCdO contacts	553490122080	55.34.9.012
AgCdO contacts	553490122090	55.34.9.012
AgNi+Au contacts	553490125000	55.34.9.012
AgNi+Au contacts	553490125040	55.34.9.012
AgNi+Au contacts	553490125070	55.34.9.012
AgNi+Au contacts	553490125074	55.34.9.012
AgNi+Au contacts	553490125080	55.34.9.012
AgNi+Au contacts	553490125090	55.34.9.012
AgNi+Au contacts	553490125094	55.34.9.012
General purpose relay	553490240000	55.34.9.024
General purpose relay	553490240000PAS	55.34.9.024
Flag indicator (55.32/55.34 only)	553490240020	55.34.9.024
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553490240040	55.34.9.024
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553490240040PAS	55.34.9.024
LED + diode; positive to pin A2/ 14 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490240060	55.34.9.024
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553490240070	55.34.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A2/14 (55.32/55.34 coil voltages up to 125V DC only)	553490240074	55.34.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A2/14 (55.32/55.34 coil voltages up to 125V DC only)	553490240074PAS	55.34.9.024

LED + diode; positive to pin A1/ 13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490240080	55.34.9.024
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490240090	55.34.9.024
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490240090PAS	55.34.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553490240094	55.34.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553490240094PAS	55.34.9.024
AgCdO contacts	553490242000	55.34.9.024
AgCdO contacts	553490242040	55.34.9.024
AgCdO contacts	553490242060	55.34.9.024
AgCdO contacts	553490242070	55.34.9.024
AgCdO contacts	553490242074	55.34.9.024
AgCdO contacts	553490242080	55.34.9.024
AgCdO contacts	553490242090	55.34.9.024
AgCdO contacts	553490242094	55.34.9.024
AgNi+Au contacts	553490245000	55.34.9.024
AgNi+Au contacts	553490245020	55.34.9.024
AgNi+Au contacts	553490245040	55.34.9.024
AgNi+Au contacts	553490245060	55.34.9.024
AgNi+Au contacts	553490245070	55.34.9.024
AgNi+Au contacts	553490245074	55.34.9.024
AgNi+Au contacts	553490245080	55.34.9.024
AgNi+Au contacts	553490245090	55.34.9.024
AgNi+Au contacts	553490245094	55.34.9.024
General purpose relay	553490360000	55.34.9.036
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553490360040	55.34.9.036
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553490360094	55.34.9.036

General purpose relay	553490480000	55.34.9.048
Flag indicator (55.32/55.34 only)	553490480020	55.34.9.048
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553490480040	55.34.9.048
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553490480040PAS	55.34.9.048
LED + diode; positive to pin A2/ 14 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490480060	55.34.9.048
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553490480070	55.34.9.048
Lockable test button + flag indicator + LED + diode; positive to pin A2/14 (55.32/55.34 coil voltages up to 125V DC only)	553490480074	55.34.9.048
LED + diode; positive to pin A1/ 13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490480080	55.34.9.048
Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490480090	55.34.9.048
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553490480094	55.34.9.048
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553490480094PAS	55.34.9.048
AgCdO contacts	553490482040	55.34.9.048
AgNi+Au contacts	553490485000	55.34.9.048
AgNi+Au contacts	553490485040	55.34.9.048
AgNi+Au contacts	553490485060	55.34.9.048
AgNi+Au contacts	553490485070	55.34.9.048
AgNi+Au contacts	553490485074	55.34.9.048
AgNi+Au contacts	553490485080	55.34.9.048
AgNi+Au contacts	553490485090	55.34.9.048
General purpose relay	553490600000	55.34.9.060
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553490600040	55.34.9.060
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553490600040PAS	55.34.9.060
LED + diode; positive to pin A2/ 14 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490600060	55.34.9.060
Lockable test button + LED + diode; positive to pin A2/14 (55.32/33.33/55.34 coil voltages up to 125V DC only)	553490600070	55.34.9.060
LED + diode; positive to pin A1/ 13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490600080	55.34.9.060

Lockable test button + LED + diode; positive to pin A1/13 (55.32/55.33/55.34 coil voltages up to 125V DC only)	553490600090	55.34.9.060
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553490600094	55.34.9.060
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553490600094PAS	55.34.9.060
AgCdO contacts	553490602000	55.34.9.060
AgCdO contacts	553490602040	55.34.9.060
AgCdO contacts	553490602090	55.34.9.060
AgNi+Au contacts	553490605000	55.34.9.060
AgNi+Au contacts	553490605040	55.34.9.060
AgNi+Au contacts	553490605070	55.34.9.060
AgNi+Au contacts	553490605074	55.34.9.060
AgNi+Au contacts	553490605080	55.34.9.060
AgNi+Au contacts	553490605090	55.34.9.060
General purpose relay	553490800000	55.34.9.080
Plug-in; AgNi; 4CO 7A; lockable test button + flag indicator	553490800040	55.34.9.080
Lockable test button + flag indicator + LED + diode; positive to pin A1/13 (55.32/55.34 coil voltages up to 125V DC only)	553490800094	55.34.9.080
125,140,145VDC coil (add to 1st column price)	553491100000	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491100020	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491100040	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491100040PAS	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491100060	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491100070	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491100074	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491100080	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491100090	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491100094	55.34.9.110

125,140,145VDC coil (add to 1st column price)	553491100094PAS	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491102000	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491102040	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491102090	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491105000	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491105040	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491105060	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491105080	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491105090	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491105094	55.34.9.110
125,140,145VDC coil (add to 1st column price)	553491250000	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491250020	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491250040	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491250040PAS	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491250060	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491250070	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491250074	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491250080	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491250090	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491250094	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491250094PAS	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491252000	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491252040	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491252074	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491255000	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491255040	55.34.9.125

125,140,145VDC coil (add to 1st column price)	553491255070	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491255094	55.34.9.125
125,140,145VDC coil (add to 1st column price)	553491400000	55.34.9.140
125,140,145VDC coil (add to 1st column price)	553491400020	55.34.9.140
125,140,145VDC coil (add to 1st column price)	553491400040	55.34.9.140
125,140,145VDC coil (add to 1st column price)	553491405040	55.34.9.140
125,140,145VDC coil (add to 1st column price)	553491405070	55.34.9.140
125,140,145VDC coil (add to 1st column price)	553491405074	55.34.9.140
125,140,145VDC coil (add to 1st column price)	553491450000	55.34.9.145
125,140,145VDC coil (add to 1st column price)	553491450040	55.34.9.145
220VDC coil (add to 1st column price)	553492200000	55.34.9.220
220VDC coil (add to 1st column price)	553492200020	55.34.9.220
220VDC coil (add to 1st column price)	553492200040	55.34.9.220
220VDC coil (add to 1st column price)	553492200040PAS	55.34.9.220
220VDC coil (add to 1st column price)	553492202000	55.34.9.220
220VDC coil (add to 1st column price)	553492202020	55.34.9.220
220VDC coil (add to 1st column price)	553492202040	55.34.9.220
220VDC coil (add to 1st column price)	553492205000	55.34.9.220
220VDC coil (add to 1st column price)	553492205040	55.34.9.220
Power relay	563280060000	56.32.8.000
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563280060040	56.32.8.000
Plug-in; AgNi; 2NO 12A; AC only	563280060300	56.32.8.000
Power relay	563280120000	56.32.8.012
LED (56.3x coil voltages up to 240V AC only)	563280120030	56.32.8.012
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563280120040	56.32.8.012
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563280120040PAS	56.32.8.012

Lockable test button + LED coil voltages up to 240V AC only	563280120050	56.32.8.012
Lockable test button+flag indicator+LED coil voltages up to 240V AC only	563280120054	56.32.8.012
Plug-in; AgNi; 2NO 12A; AC only	563280120300	56.32.8.012
AgCdO contacts	563280122000	56.32.8.012
AgCdO contacts	563280122040	56.32.8.012
Power relay	563280240000	56.32.8.024
LED (56.3x coil voltages up to 240V AC only)	563280240030	56.32.8.024
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563280240040	56.32.8.024
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563280240040PAS	56.32.8.024
Lockable test button + LED coil voltages up to 240V AC only	563280240050	56.32.8.024
Lockable test button+flag indicator+LED coil voltages up to 240V AC only	563280240054	56.32.8.024
Lockable test button+flag indicator+LED coil voltages up to 240V AC only	563280240054PAS	56.32.8.024
Plug-in; AgNi; 2NO 12A; AC only	563280240300	56.32.8.024
Plug-in; AgNi; 2NO 12A; AC only	563280240300PAS	56.32.8.024
AgCdO contacts	563280242000	56.32.8.024
AgCdO contacts	563280242040	56.32.8.024
AgSnO2 contacts	563280244040	56.32.8.024
Power relay	563280480000	56.32.8.048
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563280480040	56.32.8.048
Lockable test button + LED coil voltages up to 240V AC only	563280480050	56.32.8.048
Lockable test button+flag indicator+LED coil voltages up to 240V AC only	563280480054	56.32.8.048
Plug-in; AgNi; 2NO 12A; AC only	563280480300	56.32.8.048
AgCdO contacts	563280482000	56.32.8.048
Power relay	563280600000	56.32.8.060
Plug-in; AgNi; 2NO 12A; AC only	563280600300	56.32.8.060
Power relay	563281100000	56.32.8.110

LED (56.3x coil voltages up to 240V AC only)	563281100030	56.32.8.110
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563281100040	56.32.8.110
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563281100040PAS	56.32.8.110
Lockable test button + LED coil voltages up to 240V AC only	563281100050	56.32.8.110
Lockable test button+flag indicator+LED coil voltages up to 240V AC only	563281100054	56.32.8.110
Plug-in; AgNi; 2NO 12A; AC only	563281100300	56.32.8.110
AgCdO contacts	563281102000	56.32.8.110
AgCdO contacts	563281102040	56.32.8.110
AgCdO contacts	563281102050	56.32.8.110
AgCdO contacts	563281102054	56.32.8.110
AgSnO2 contacts	563281104040	56.32.8.110
Power relay	563281150000	56.32.8.110
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563281150040	56.32.8.110
Power relay	563281200000	56.32.8.120
LED (56.3x coil voltages up to 240V AC only)	563281200030	56.32.8.120
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563281200040	56.32.8.120
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563281200040PAS	56.32.8.120
Lockable test button + LED coil voltages up to 240V AC only	563281200050	56.32.8.120
Lockable test button+flag indicator+LED coil voltages up to 240V AC only	563281200054	56.32.8.120
AgCdO contacts	563281202000	56.32.8.120
Power relay	563281250000	56.32.8.120
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563281250040	56.32.8.120
Lockable test button+flag indicator+LED coil voltages up to 240V AC only	563281250054	56.32.8.120
Plug-in; AgNi; 2NO 12A; AC only	563281250300	56.32.8.120
Power relay	563282300000	56.32.8.230
Power relay	563282300000PAS	56.32.8.230

LED (56.3x coil voltages up to 240V AC only)	563282300030	56.32.8.230
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563282300040	56.32.8.230
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563282300040PAS	56.32.8.230
Lockable test button + LED coil voltages up to 240V AC only	563282300050	56.32.8.230
Lockable test button+flag indicator+LED coil voltages up to 240V AC only	563282300054	56.32.8.230
Plug-in; AgNi; 2NO 12A; AC only	563282300300	56.32.8.230
Plug-in; AgNi; 2NO 12A; AC only	563282300300PAS	56.32.8.230
AgCdO contacts	563282302000	56.32.8.230
AgCdO contacts	563282302040	56.32.8.230
AgCdO contacts	563282302300	56.32.8.230
AgSnO2 contacts	563282304000	56.32.8.230
AgSnO2 contacts	563282304040	56.32.8.230
AgSnO2 contacts	563282304300	56.32.8.230
Power relay	563282400000	56.32.8.240
LED (56.3x coil voltages up to 240V AC only)	563282400030	56.32.8.240
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563282400040	56.32.8.240
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563282400040PAS	56.32.8.240
Lockable test button + LED coil voltages up to 240V AC only	563282400050	56.32.8.240
Lockable test button+flag indicator+LED coil voltages up to 240V AC only	563282400054	56.32.8.240
Lockable test button+flag indicator+LED coil voltages up to 240V AC only	563282400054PAS	56.32.8.240
AgCdO contacts	563282402000	56.32.8.240
Power relay	563290060000	56.32.9.000
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563290060040	56.32.9.000
AgSnO2 contacts	563290064000	56.32.9.000
Power relay	563290120000	56.32.9.010
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563290120040	56.32.9.010

Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563290120040PAS	56.32.9.012
LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563290120060	56.32.9.012
Lockable test button + LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563290120070	56.32.9.012
Lockable test button + flag indicator + LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563290120074	56.32.9.012
Lockable test button + flag indicator + LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563290120074PAS	56.32.9.012
LED + diode; positive to pin A2/ 14 coil voltages up to 125V DC only	563290120080	56.32.9.012
Lockable test button + LED + diode; positive to pin A1/7 coil voltages up to 125V DC only	563290120090	56.32.9.012
Lockable test button + flag indicator + LED + diode; positive to pin A1/7 coil voltages up to 125V DC only	563290120094	56.32.9.012
AgCdO contacts	563290122000	56.32.9.012
AgCdO contacts	563290122040	56.32.9.012
AgSnO2 contacts	563290124040	56.32.9.012
Power relay	563290240000	56.32.9.024
Power relay	563290240000PAS	56.32.9.024
special version for railway applications	563290240000T	56.32.9.024
Flag indicator	563290240020	56.32.9.024
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563290240040	56.32.9.024
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563290240040PAS	56.32.9.024
LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563290240060	56.32.9.024
Lockable test button + LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563290240070	56.32.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563290240074	56.32.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563290240074PAS	56.32.9.024
LED + diode; positive to pin A2/ 14 coil voltages up to 125V DC only	563290240080	56.32.9.024
Lockable test button + LED + diode; positive to pin A1/7 coil voltages up to 125V DC only	563290240090	56.32.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A1/7 coil voltages up to 125V DC only	563290240094	56.32.9.024
AgCdO contacts	563290242000	56.32.9.024

AgCdO contacts	563290242000T	56.32.9.024
AgCdO contacts	563290242020	56.32.9.024
AgCdO contacts	563290242040	56.32.9.024
AgCdO contacts	563290242070	56.32.9.024
AgCdO contacts	563290242080	56.32.9.024
AgCdO contacts	563290242090	56.32.9.024
AgCdO contacts	563290242094	56.32.9.024
AgSnO2 contacts	563290244000	56.32.9.024
AgSnO2 contacts	563290244040	56.32.9.024
Power relay	563290480000	56.32.9.048
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563290480040	56.32.9.048
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563290480040PAS	56.32.9.048
Lockable test button + LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563290480070	56.32.9.048
Lockable test button + flag indicator + LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563290480074	56.32.9.048
LED + diode; positive to pin A2/ 14 coil voltages up to 125V DC only	563290480080	56.32.9.048
Lockable test button + flag indicator + LED + diode; positive to pin A1/7 coil voltages up to 125V DC only	563290480094	56.32.9.048
Power relay	563290600000	56.32.9.060
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563290600040	56.32.9.060
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563290600040PAS	56.32.9.060
Lockable test button + LED + diode; positive to pin A1/7 coil voltages up to 125V DC only	563290600090	56.32.9.060
Power relay	563290800000	56.32.9.080
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563290800040	56.32.9.080
Power relay	563291100000	56.32.9.110
special version for railway applications	563291100000T	56.32.9.110
Flag indicator	563291100020	56.32.9.110

Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563291100040	56.32.9.110
Plug-in; AgNi; 2CO 12A; lockable test button+flag indicator	563291100040PAS	56.32.9.110
Lockable test button + LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563291100070	56.32.9.110
Lockable test button + flag indicator + LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563291100074	56.32.9.110
LED + diode; positive to pin A2/ 14 coil voltages up to 125V DC only	563291100080	56.32.9.110
Lockable test button + LED + diode; positive to pin A1/7 coil voltages up to 125V DC only	563291100090	56.32.9.110
Lockable test button + flag indicator + LED + diode; positive to pin A1/7 coil voltages up to 125V DC only	563291100094	56.32.9.110
AgCdO contacts	563291102000T	56.32.9.110
AgCdO contacts	563291102040	56.32.9.110
AgCdO contacts	563291102080	56.32.9.110
125VDC coil (add to 1st column price)	563291250000	56.32.9.125
125VDC coil (add to 1st column price)	563291250040	56.32.9.125
125VDC coil (add to 1st column price)	563291250040PAS	56.32.9.125
125VDC coil (add to 1st column price)	563291250060	56.32.9.125
125VDC coil (add to 1st column price)	563291250090	56.32.9.125
125VDC coil (add to 1st column price)	563291250094	56.32.9.125
125VDC coil (add to 1st column price)	563291252000	56.32.9.125
125VDC coil (add to 1st column price)	563291252040	56.32.9.125
145VDC coil (add to 1st column price)	563291452040	56.32.9.145
220VDC coil (add to 1st column price)	563292200000	56.32.9.220
220VDC coil (add to 1st column price)	563292200040	56.32.9.220
220VDC coil (add to 1st column price)	563292200040PAS	56.32.9.220
Test button	563480060010	56.34.8.000
Plug-in; AgNi; 4CO 12A	563480060040	56.34.8.000
Plug-in; AgNi; 4CO 12A	563480060040PAS	56.34.8.000

Test button	563480120010	56.34.8.012
Test button	563480120010PAS	56.34.8.012
Plug-in; AgNi; 4CO 12A	563480120040	56.34.8.012
Plug-in; AgNi; 4CO 12A	563480120040PAS	56.34.8.012
Test button	563480240010	56.34.8.024
Test button	563480240010PAS	56.34.8.024
Plug-in; AgNi; 4CO 12A	563480240040	56.34.8.024
Plug-in; AgNi; 4CO 12A	563480240040PAS	56.34.8.024
AgCdO contacts	563480242000	56.34.8.024
AgCdO contacts	563480242010	56.34.8.024
AgSnO2 contacts	563480244000	56.34.8.024
AgSnO2 contacts	563480244010	56.34.8.024
Test button	563480480010	56.34.8.048
Test button	563480480010PAS	56.34.8.048
Plug-in; AgNi; 4CO 12A	563480480040	56.34.8.048
Plug-in; AgNi; 4CO 12A	563480480040PAS	56.34.8.048
AgCdO contacts	563480482000	56.34.8.048
Test button	563480600010	56.34.8.060
Plug-in; AgNi; 4CO 12A	563480600040	56.34.8.060
Test button	563481100010	56.34.8.110
Test button	563481100010PAS	56.34.8.110
Plug-in; AgNi; 4CO 12A	563481100040	56.34.8.110
Plug-in; AgNi; 4CO 12A	563481100040PAS	56.34.8.110
AgCdO contacts	563481102000	56.34.8.110
AgCdO contacts	563481102010	56.34.8.110
AgSnO2 contacts	563481104000	56.34.8.110

AgSnO2 contacts	563481104010	56.34.8.110
Test button	563481200010	56.34.8.120
Test button	563481200010PAS	56.34.8.120
LED (56.3x coil voltages up to 240V AC only)	563481200030	56.34.8.120
Plug-in; AgNi; 4CO 12A	563481200040	56.34.8.120
Plug-in; AgNi; 4CO 12A	563481200040PAS	56.34.8.120
Lockable test button + LED coil voltages up to 240V AC only	563481200050	56.34.8.120
Lockable test button+flag indicator+LED coil voltages up to 240V AC only	563481200054	56.34.8.120
AgSnO2 contacts	563481204000	56.34.8.120
Test button	563481250010	56.34.8.120
Test button	563482300010	56.34.8.230
Test button	563482300010PAS	56.34.8.230
Plug-in; AgNi; 4CO 12A	563482300040	56.34.8.230
Plug-in; AgNi; 4CO 12A	563482300040PAS	56.34.8.230
AgCdO contacts	563482302000	56.34.8.230
AgCdO contacts	563482302010	56.34.8.230
AgSnO2 contacts	563482304000	56.34.8.230
AgSnO2 contacts	563482304010	56.34.8.230
AgSnO2 contacts	563482304040	56.34.8.230
Test button	563482400010	56.34.8.240
Plug-in; AgNi; 4CO 12A	563482400040	56.34.8.240
AgCdO contacts	563482402000	56.34.8.240
400VAC coil; (4CO only); (add to 1st column price)	563484000010	56.34.8.400
Test button	563490060010	56.34.9.000
Plug-in; AgNi; 4CO 12A	563490060040	56.34.9.000
Test button	563490120010	56.34.9.010

Test button	563490120010PAS	56.34.9.012
Plug-in; AgNi; 4CO 12A	563490120040	56.34.9.012
Plug-in; AgNi; 4CO 12A	563490120040PAS	56.34.9.012
AgCdO contacts	563490122000	56.34.9.012
AgCdO contacts	563490122010	56.34.9.012
special version for railway applications	563490240000T	56.34.9.024
Test button	563490240010	56.34.9.024
Plug-in; AgNi; 4CO 12A	563490240040	56.34.9.024
Plug-in; AgNi; 4CO 12A	563490240040PAS	56.34.9.024
LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563490240060	56.34.9.024
Lockable test button + LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563490240070	56.34.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A2/8 coil voltages up to 125V DC only	563490240074	56.34.9.024
AgCdO contacts	563490242000	56.34.9.024
AgCdO contacts	563490242000T	56.34.9.024
AgCdO contacts	563490242010	56.34.9.024
AgCdO contacts	563490242010PAS	56.34.9.024
AgCdO contacts	563490242040	56.34.9.024
AgSnO2 contacts	563490244000	56.34.9.024
AgSnO2 contacts	563490244010	56.34.9.024
Test button	563490360010	56.34.9.036
Test button	563490480010	56.34.9.048
Test button	563490480010PAS	56.34.9.048
Plug-in; AgNi; 4CO 12A	563490480040	56.34.9.048
Plug-in; AgNi; 4CO 12A	563490480040PAS	56.34.9.048
AgCdO contacts	563490482000	56.34.9.048

AgCdO contacts	563490482010	56.34.9.04
Test button	563490600010	56.34.9.06
Test button	563490600010PAS	56.34.9.06
Plug-in; AgNi; 4CO 12A	563490600040	56.34.9.06
AgSnO2 contacts	563490604000	56.34.9.06
Test button	563490800010	56.34.9.08
special version for railway applications	563491100000T	56.34.9.11
Test button	563491100010	56.34.9.11
Test button	563491100010PAS	56.34.9.11
Plug-in; AgNi; 4CO 12A	563491100040	56.34.9.11
Plug-in; AgNi; 4CO 12A	563491100040PAS	56.34.9.11
AgCdO contacts	563491102000	56.34.9.11
AgCdO contacts	563491102000T	56.34.9.11
AgCdO contacts	563491102010	56.34.9.11
125VDC coil (add to 1st column price)	563491250010	56.34.9.12
125VDC coil (add to 1st column price)	563491250010PAS	56.34.9.12
125VDC coil (add to 1st column price)	563491252000	56.34.9.12
125VDC coil (add to 1st column price)	563491252010	56.34.9.12
125VDC coil (add to 1st column price)	563491254010	56.34.9.12
145VDC coil (add to 1st column price)	563491452000	56.34.9.14
220VDC coil (add to 1st column price)	563492200010	56.34.9.22
220VDC coil (add to 1st column price)	563492200010PAS	56.34.9.22
220VDC coil (add to 1st column price)	563492200040	56.34.9.22
PCB mount; AgNi; 2CO 12A	564280060000	56.42.8.00
PCB mount; AgNi; 2NO 12A; AC only	564280060300	56.42.8.00
PCB mount; AgNi; 2CO 12A	564280120000	56.42.8.01

PCB mount; AgNi; 2NO 12A; AC only	564280120300	56.42.8.012
PCB mount; AgNi; 2CO 12A	564280240000	56.42.8.024
PCB mount; AgNi; 2CO 12A	564280240000PAS	56.42.8.024
PCB mount; AgNi; 2NO 12A; AC only	564280240300	56.42.8.024
AgCdO contacts	564280242000	56.42.8.024
PCB mount; AgNi; 2CO 12A	564280480000	56.42.8.048
PCB mount; AgNi; 2NO 12A; AC only	564280480300	56.42.8.048
PCB mount; AgNi; 2CO 12A	564280600000	56.42.8.060
PCB mount; AgNi; 2NO 12A; AC only	564280600300	56.42.8.060
PCB mount; AgNi; 2CO 12A	564281100000	56.42.8.110
PCB mount; AgNi; 2NO 12A; AC only	564281100300	56.42.8.110
AgCdO contacts	564281102000	56.42.8.110
PCB mount; AgNi; 2CO 12A	564281200000	56.42.8.120
AgCdO contacts	564281202000	56.42.8.120
PCB mount; AgNi; 2CO 12A	564281250000	56.42.8.125
PCB mount; AgNi; 2CO 12A	564282300000	56.42.8.230
PCB mount; AgNi; 2CO 12A	564282300000PAS	56.42.8.230
PCB mount; AgNi; 2NO 12A; AC only	564282300300	56.42.8.230
AgCdO contacts	564282302000	56.42.8.230
AgSnO2 contacts	564282304000	56.42.8.230
PCB mount; AgNi; 2CO 12A	564282400000	56.42.8.240
AgCdO contacts	564282402300	56.42.8.240
AgSnO2 contacts	564282404300	56.42.8.240
PCB mount; AgNi; 2CO 12A	564290060000	56.42.9.006
PCB mount; AgNi; 2CO 12A	564290120000	56.42.9.012
PCB mount; AgNi; 2CO 12A	564290120000PAS	56.42.9.012

AgCdO contacts	564290122000	56.42.9.012
AgSnO2 contacts	564290124000	56.42.9.012
PCB mount; AgNi; 2CO 12A	564290240000	56.42.9.024
PCB mount; AgNi; 2CO 12A	564290240000PAS	56.42.9.024
AgCdO contacts	564290242000	56.42.9.024
AgSnO2 contacts	564290244000	56.42.9.024
PCB mount; AgNi; 2CO 12A	564290480000	56.42.9.048
PCB mount; AgNi; 2CO 12A	564290600000	56.42.9.060
PCB mount; AgNi; 2CO 12A	564291100000	56.42.9.110
AgCdO contacts	564291102000	56.42.9.110
125VDC coil (add to 1st column price)	564291250000	56.42.9.125
PCB mount; AgNi; 4CO 12A	564480060000	56.44.8.006
PCB mount; AgNi; 4CO 12A	564480120000	56.44.8.012
PCB mount; AgNi; 4CO 12A	564480240000	56.44.8.024
PCB mount; AgNi; 4CO 12A	564480240000PAS	56.44.8.024
AgCdO contacts	564480242000	56.44.8.024
AgSnO2 contacts	564480244000	56.44.8.024
PCB mount; AgNi; 4CO 12A	564480480000	56.44.8.048
PCB mount; AgNi; 4CO 12A	564480600000	56.44.8.060
PCB mount; AgNi; 4CO 12A	564481100000	56.44.8.110
AgCdO contacts	564481102000	56.44.8.110
PCB mount; AgNi; 4CO 12A	564481200000	56.44.8.120
AgCdO contacts	564481202000	56.44.8.120
PCB mount; AgNi; 4CO 12A	564481250000	56.44.8.125
PCB mount; AgNi; 4CO 12A	564482300000	56.44.8.230
PCB mount; AgNi; 4CO 12A	564482300000PAS	56.44.8.230

AgCdO contacts	564482302000	56.44.8.230
AgSnO2 contacts	564482304000	56.44.8.230
PCB mount; AgNi; 4CO 12A	564482400000	56.44.8.240
400VAC coil; (4CO only); (add to 1st column price)	564484000000	56.44.8.400
PCB mount; AgNi; 4CO 12A	564490060000	56.44.9.000
PCB mount; AgNi; 4CO 12A	564490120000	56.44.9.010
PCB mount; AgNi; 4CO 12A	564490120000PAS	56.44.9.010
AgCdO contacts	564490122000	56.44.9.010
AgSnO2 contacts	564490124000	56.44.9.010
PCB mount; AgNi; 4CO 12A	564490240000	56.44.9.020
PCB mount; AgNi; 4CO 12A	564490240000PAS	56.44.9.020
AgCdO contacts	564490242000	56.44.9.020
AgSnO2 contacts	564490244000	56.44.9.020
PCB mount; AgNi; 4CO 12A	564490480000	56.44.9.040
AgCdO contacts	564490482000	56.44.9.040
PCB mount; AgNi; 4CO 12A	564490600000	56.44.9.060
PCB mount; AgNi; 4CO 12A	564490800000	56.44.9.080
PCB mount; AgNi; 4CO 12A	564491100000	56.44.9.110
AgCdO contacts	564491102000	56.44.9.110
125VDC coil (add to 1st column price)	564491250000	56.44.9.125
220VDC coil (add to 1st column price)	564492200000	56.44.9.220
Metal retaining clip; LED; AgNi; 2CO 10A; 12VAC	583280120060SMA	58.32.8.010
Plastic retain and release clip; LED; AgNi; 2CO 10A; 12VAC	583280120060SPA	58.32.8.010
Relay interface module	583280120060SPB	58.32.8.010
Metal retaining clip; LED; AgNi; 2CO 10A; 24VAC	583280240060SMA	58.32.8.020
Plastic retain and release clip; LED; AgNi; 2CO 10A; 24VAC	583280240060SPA	58.32.8.020

Relay interface module	583280240060SPB	58.32.8.024
Metal retaining clip; LED; AgNi; 2CO 10A; 48VAC	583280480060SMA	58.32.8.048
Plastic retain and release clip; LED; AgNi; 2CO 10A; 48VAC	583280480060SPA	58.32.8.048
Relay interface module	583280480060SPB	58.32.8.048
Metal retaining clip; LED; AgNi; 2CO 10A; 110VAC	583281100060SMA	58.32.8.110
Plastic retain and release clip; LED; AgNi; 2CO 10A; 110VAC	583281100060SPA	58.32.8.110
Relay interface module	583281100060SPB	58.32.8.110
Metal retaining clip; LED; AgNi; 2CO 10A; 120VAC	583281200060SMA	58.32.8.120
Plastic retain and release clip; LED; AgNi; 2CO 10A; 120VAC	583281200060SPA	58.32.8.120
Relay interface module	583281200060SPB	58.32.8.120
Metal retaining clip; LED; AgNi; 2CO 10A; 230VAC	583282300060SMA	58.32.8.230
Plastic retain and release clip; LED; AgNi; 2CO 10A; 230VAC	583282300060SPA	58.32.8.230
Relay interface module	583282300060SPB	58.32.8.230
Metal retaining clip; LED + diode; AgNi; 2CO 10A; 12VDC	583290120050SMA	58.32.9.012
Plastic retain and release clip; LED + diode; AgNi; 2CO 10A; 12VDC	583290120050SPA	58.32.9.012
Relay interface module	583290120050SPB	58.32.9.012
Metal retaining clip; LED + diode; AgNi; 2CO 10A; 24VDC	583290240050SMA	58.32.9.024
Plastic retain and release clip; LED + diode; AgNi; 2CO 10A; 24VDC	583290240050SPA	58.32.9.024
Relay interface module	583290240050SPB	58.32.9.024
Metal retaining clip; LED + diode; AgNi; 2CO 10A; 48VDC	583290480050SMA	58.32.9.048
Plastic retain and release clip; LED + diode; AgNi; 2CO 10A; 48VDC	583290480050SPA	58.32.9.048
Relay interface module	583290480050SPB	58.32.9.048
Metal retaining clip; LED + diode; AgNi; 2CO 10A; 125VDC	583291250050SMA	58.32.9.125
Plastic retain and release clip; LED + diode; AgNi; 2CO 10A; 125VDC	583291250050SPA	58.32.9.125
Relay interface module	583291250050SPB	58.32.9.125
Metal retaining clip; LED; AgNi; 3CO 10A; 12VAC	583380120060SMA	58.33.8.012

Plastic retain and release clip; LED; AgNi; 3CO 10A; 12VAC	583380120060SPA	58.33.8.012
Relay interface module	583380120060SPB	58.33.8.012
Metal retaining clip; LED; AgNi; 3CO 10A; 24VAC	583380240060SMA	58.33.8.024
Plastic retain and release clip; LED; AgNi; 3CO 10A; 24VAC	583380240060SPA	58.33.8.024
Relay interface module	583380240060SPB	58.33.8.024
Metal retaining clip; LED; AgNi; 3CO 10A; 48VAC	583380480060SMA	58.33.8.048
Plastic retain and release clip; LED; AgNi; 3CO 10A; 48VAC	583380480060SPA	58.33.8.048
Relay interface module	583380480060SPB	58.33.8.048
Metal retaining clip; LED; AgNi; 3CO 10A; 110VAC	583381100060SMA	58.33.8.110
Plastic retain and release clip; LED; AgNi; 3CO 10A; 110VAC	583381100060SPA	58.33.8.110
Relay interface module	583381100060SPB	58.33.8.110
Metal retaining clip; LED; AgNi; 3CO 10A; 120VAC	583381200060SMA	58.33.8.120
Plastic retain and release clip; LED; AgNi; 3CO 10A; 120VAC	583381200060SPA	58.33.8.120
Relay interface module	583381200060SPB	58.33.8.120
Metal retaining clip; LED; AgNi; 3CO 10A; 230VAC	583382300060SMA	58.33.8.230
Plastic retain and release clip; LED; AgNi; 3CO 10A; 230VAC	583382300060SPA	58.33.8.230
Relay interface module	583382300060SPB	58.33.8.230
Metal retaining clip; LED + diode; AgNi; 3CO 10A; 12VDC	583390120050SMA	58.33.9.012
Plastic retain and release clip; LED + diode; AgNi; 3CO 10A; 12VDC	583390120050SPA	58.33.9.012
Relay interface module	583390120050SPB	58.33.9.012
Metal retaining clip; LED + diode; AgNi; 3CO 10A; 24VDC	583390240050SMA	58.33.9.024
Plastic retain and release clip; LED + diode; AgNi; 3CO 10A; 24VDC	583390240050SPA	58.33.9.024
Relay interface module	583390240050SPB	58.33.9.024
Metal retaining clip; LED + diode; AgNi; 3CO 10A; 48VDC	583390480050SMA	58.33.9.048
Plastic retain and release clip; LED + diode; AgNi; 3CO 10A; 48VDC	583390480050SPA	58.33.9.048
Relay interface module	583390480050SPB	58.33.9.048

Metal retaining clip; LED + diode; AgNi; 3CO 10A; 125VDC	583391250050SMA	58.33.9.125
Plastic retain and release clip; LED + diode; AgNi; 3CO 10A; 125VDC	583391250050SPA	58.33.9.125
Relay interface module	583391250050SPB	58.33.9.125
Metal retaining clip; LED; AgNi; 4CO 7A; 12VAC	583480120060SMA	58.34.8.012
Plastic retain and release clip; LED; AgNi; 4CO 7A; 12VAC	583480120060SPA	58.34.8.012
Relay interface module	583480120060SPB	58.34.8.012
Metal retaining clip; LED; AgNi; 4CO 7A; 24VAC	583480240060SMA	58.34.8.024
Plastic retain and release clip; LED; AgNi; 4CO 7A; 24VAC	583480240060SPA	58.34.8.024
Relay interface module	583480240060SPB	58.34.8.024
Metal retaining clip; LED; AgNi; 4CO 7A; 48VAC	583480480060SMA	58.34.8.048
Plastic retain and release clip; LED; AgNi; 4CO 7A; 48VAC	583480480060SPA	58.34.8.048
Relay interface module	583480480060SPB	58.34.8.048
Metal retaining clip; LED; AgNi; 4CO 7A; 110VAC	583481100060SMA	58.34.8.110
Plastic retain and release clip; LED; AgNi; 4CO 7A; 110VAC	583481100060SPA	58.34.8.110
Relay interface module	583481100060SPB	58.34.8.110
Metal retaining clip; LED; AgNi; 4CO 7A; 120VAC	583481200060SMA	58.34.8.120
Plastic retain and release clip; LED; AgNi; 4CO 7A; 120VAC	583481200060SPA	58.34.8.120
Relay interface module	583481200060SPB	58.34.8.120
Metal retaining clip; LED; AgNi; 4CO 7A; 230VAC	583482300060SMA	58.34.8.230
Plastic retain and release clip; LED; AgNi; 4CO 7A; 230VAC	583482300060SPA	58.34.8.230
Relay interface module	583482300060SPB	58.34.8.230
Metal retaining clip; LED + diode; AgNi; 4CO 7A; 12VDC	583490120050SMA	58.34.9.012
Plastic retain and release clip; LED + diode; AgNi; 4CO 7A; 12VDC	583490120050SPA	58.34.9.012
Relay interface module	583490120050SPB	58.34.9.012
Metal retaining clip; LED + diode; AgNi; 4CO 7A; 24VDC	583490240050SMA	58.34.9.024
Plastic retain and release clip; LED + diode; AgNi; 4CO 7A; 24VDC	583490240050SPA	58.34.9.024

Relay interface module	583490240050SPB	58.34.9.024
Metal retaining clip; LED + diode; AgNi; 4CO 7A; 48VDC	583490480050SMA	58.34.9.048
Plastic retain and release clip; LED + diode; AgNi; 4CO 7A; 48VDC	583490480050SPA	58.34.9.048
Relay interface module	583490480050SPB	58.34.9.048
Metal retaining clip; LED + diode; AgNi; 4CO 7A; 125VDC	583491250050SMA	58.34.9.125
Plastic retain and release clip; LED + diode; AgNi; 4CO 7A; 125VDC	583491250050SPA	58.34.9.125
Relay interface module	583491250050SPB	58.34.9.125
Metal retaining clip; LED; AgNi; 2CO 10A; 12VAC	593280120060SMA	59.32.8.012
Plastic retain and release clip; LED; AgNi; 2CO 10A; 12VAC	593280120060SPA	59.32.8.012
Metal retaining clip; LED; AgNi; 2CO 10A; 24VAC	593280240060SMA	59.32.8.024
Plastic retain and release clip; LED; AgNi; 2CO 10A; 24VAC	593280240060SPA	59.32.8.024
Metal retaining clip; LED; AgNi; 2CO 10A; 110VAC	593281100060SMA	59.32.8.110
Plastic retain and release clip; LED; AgNi; 2CO 10A;110VAC	593281100060SPA	59.32.8.110
Metal retaining clip; LED; AgNi; 2CO 10A; 230VAC	593282300060SMA	59.32.8.230
Plastic retain and release clip; LED; AgNi; 2CO 10A;230VAC	593282300060SPA	59.32.8.230
Metal retaining clip; LED + diode; AgNi; 2CO 10A; 12VDC	593290120050SMA	59.32.9.012
Plastic retain and release clip; LED + diode; AgNi; 2CO 10A; 12VDC	593290120050SPA	59.32.9.012
Metal retaining clip; LED + diode; AgNi; 2CO 10A; 24VDC	593290240050SMA	59.32.9.024
Plastic retain and release clip; LED + diode; AgNi; 2CO 10A; 24VDC	593290240050SPA	59.32.9.024
Metal retaining clip; LED; AgNi; 4CO 7A; 12VAC	593480120060SMA	59.34.8.012
Plastic retain and release clip; LED; AgNi; 4CO 7A; 12VAC	593480120060SPA	59.34.8.012
Metal retaining clip; LED; AgNi; 4CO 7A; 24VAC	593480240060SMA	59.34.8.024
Plastic retain and release clip; LED; AgNi; 4CO 7A; 24VAC	593480240060SPA	59.34.8.024
Metal retaining clip; LED; AgNi; 4CO 7A; 110VAC	593481100060SMA	59.34.8.110
Plastic retain and release clip; LED; AgNi; 4CO 7A;110VAC	593481100060SPA	59.34.8.110
Metal retaining clip; LED; AgNi; 4CO 7A; 230VAC	593482300060SMA	59.34.8.230

Plastic retain and release clip; LED; AgNi; 4CO 7A; 230VAC	593482300060SPA	59.34.8.230
Metal retaining clip; LED + diode; AgNi; 4CO 7A; 12VDC	593490120050SMA	59.34.9.012
Plastic retain and release clip; LED + diode; AgNi; 4CO 7A; 12VDC	593490120050SPA	59.34.9.012
Metal retaining clip; LED + diode; AgNi; 4CO 7A; 24VDC	593490240050SMA	59.34.9.024
Plastic retain and release clip; LED + diode; AgNi; 4CO 7A; 24VDC	593490240050SPA	59.34.9.024
Current sensing coil; (add to 1st column price)	601240110040	60.12.4.011
Current sensing coil; (add to 1st column price)	601240110040PAS	60.12.4.011
Current sensing coil; (add to 1st column price)	601240120040	60.12.4.012
Current sensing coil; (add to 1st column price)	601240120040PAS	60.12.4.012
Current sensing coil; (add to 1st column price)	601240210040	60.12.4.021
Current sensing coil; (add to 1st column price)	601240210040PAS	60.12.4.021
Current sensing coil; (add to 1st column price)	601240220040	60.12.4.022
Current sensing coil; (add to 1st column price)	601240220040PAS	60.12.4.022
Current sensing coil; (add to 1st column price)	601240310040	60.12.4.031
Current sensing coil; (add to 1st column price)	601240310040PAS	60.12.4.031
Current sensing coil; (add to 1st column price)	601240320040	60.12.4.032
Current sensing coil; (add to 1st column price)	601240320040PAS	60.12.4.032
Current sensing coil; (add to 1st column price)	601240410040	60.12.4.041
Current sensing coil; (add to 1st column price)	601240410040PAS	60.12.4.041
Current sensing coil; (add to 1st column price)	601240420040	60.12.4.042
Current sensing coil; (add to 1st column price)	601240420040PAS	60.12.4.042
Current sensing coil; (add to 1st column price)	601240510040	60.12.4.051
Current sensing coil; (add to 1st column price)	601240510040PAS	60.12.4.051
Current sensing coil; (add to 1st column price)	601240520040	60.12.4.052
Current sensing coil; (add to 1st column price)	601240520040PAS	60.12.4.052
Current sensing coil; (add to 1st column price)	601240610040	60.12.4.061

Current sensing coil; (add to 1st column price)	601240610040PAS	60.12.4.062
Current sensing coil; (add to 1st column price)	601240620040	60.12.4.062
Current sensing coil; (add to 1st column price)	601240620040PAS	60.12.4.062
Current sensing coil; (add to 1st column price)	601240710040	60.12.4.072
Current sensing coil; (add to 1st column price)	601240710040PAS	60.12.4.072
Current sensing coil; (add to 1st column price)	601240720040	60.12.4.072
Current sensing coil; (add to 1st column price)	601240720040PAS	60.12.4.072
Current sensing coil; (add to 1st column price)	601240810040	60.12.4.082
Current sensing coil; (add to 1st column price)	601240810040PAS	60.12.4.082
Current sensing coil; (add to 1st column price)	601240820040	60.12.4.082
Current sensing coil; (add to 1st column price)	601240820040PAS	60.12.4.082
Current sensing coil; (add to 1st column price)	601240910040	60.12.4.092
Current sensing coil; (add to 1st column price)	601240910040PAS	60.12.4.092
Current sensing coil; (add to 1st column price)	601240920040	60.12.4.092
Current sensing coil; (add to 1st column price)	601240920040PAS	60.12.4.092
Current sensing coil; (add to 1st column price)	601241010040	60.12.4.102
Current sensing coil; (add to 1st column price)	601241010040PAS	60.12.4.102
Current sensing coil; (add to 1st column price)	601241020040	60.12.4.102
Current sensing coil; (add to 1st column price)	601241020040PAS	60.12.4.102
Current sensing coil; (add to 1st column price)	601241210040	60.12.4.122
Current sensing coil; (add to 1st column price)	601241210040PAS	60.12.4.122
Current sensing coil; (add to 1st column price)	601241220040	60.12.4.122
Current sensing coil; (add to 1st column price)	601241220040PAS	60.12.4.122
Current sensing coil; (add to 1st column price)	601241410040	60.12.4.142
Current sensing coil; (add to 1st column price)	601241410040PAS	60.12.4.142
Current sensing coil; (add to 1st column price)	601241420040	60.12.4.142

Current sensing coil; (add to 1st column price)	601241420040PAS	60.12.4.142
Current sensing coil; (add to 1st column price)	601241610040	60.12.4.161
Current sensing coil; (add to 1st column price)	601241610040PAS	60.12.4.161
Current sensing coil; (add to 1st column price)	601241620040	60.12.4.162
Current sensing coil; (add to 1st column price)	601241620040PAS	60.12.4.162
Current sensing coil; (add to 1st column price)	601241810040	60.12.4.181
Current sensing coil; (add to 1st column price)	601241810040PAS	60.12.4.181
Current sensing coil; (add to 1st column price)	601241820040	60.12.4.182
Current sensing coil; (add to 1st column price)	601241820040PAS	60.12.4.182
Current sensing coil; (add to 1st column price)	601242010040	60.12.4.201
Current sensing coil; (add to 1st column price)	601242010040PAS	60.12.4.201
Current sensing coil; (add to 1st column price)	601242020040	60.12.4.202
Current sensing coil; (add to 1st column price)	601242020040PAS	60.12.4.202
Current sensing coil; (add to 1st column price)	601242220040	60.12.4.222
Current sensing coil; (add to 1st column price)	601242220040PAS	60.12.4.222
Current sensing coil; (add to 1st column price)	601242310040	60.12.4.231
Current sensing coil; (add to 1st column price)	601242310040PAS	60.12.4.231
Current sensing coil; (add to 1st column price)	601242510040	60.12.4.251
Current sensing coil; (add to 1st column price)	601242510040PAS	60.12.4.251
Current sensing coil; (add to 1st column price)	601242520040	60.12.4.252
Current sensing coil; (add to 1st column price)	601242520040PAS	60.12.4.252
Current sensing coil; (add to 1st column price)	601242810040	60.12.4.281
Current sensing coil; (add to 1st column price)	601242810040PAS	60.12.4.281
Current sensing coil; (add to 1st column price)	601242820040	60.12.4.282
Current sensing coil; (add to 1st column price)	601242820040PAS	60.12.4.282
Current sensing coil; (add to 1st column price)	601243210040	60.12.4.321

Current sensing coil; (add to 1st column price)	601243210040PAS	60.12.4.32
Current sensing coil; (add to 1st column price)	601243220040	60.12.4.32
Current sensing coil; (add to 1st column price)	601243220040PAS	60.12.4.32
Current sensing coil; (add to 1st column price)	601243610040	60.12.4.36
Current sensing coil; (add to 1st column price)	601243610040PAS	60.12.4.36
Current sensing coil; (add to 1st column price)	601243620040	60.12.4.36
Current sensing coil; (add to 1st column price)	601243620040PAS	60.12.4.36
Current sensing coil; (add to 1st column price)	601244010040	60.12.4.40
Current sensing coil; (add to 1st column price)	601244010040PAS	60.12.4.40
Current sensing coil; (add to 1st column price)	601244020040	60.12.4.40
Current sensing coil; (add to 1st column price)	601244020040PAS	60.12.4.40
Current sensing coil; (add to 1st column price)	601244510040	60.12.4.45
Current sensing coil; (add to 1st column price)	601244510040PAS	60.12.4.45
Current sensing coil; (add to 1st column price)	601244520040	60.12.4.45
Current sensing coil; (add to 1st column price)	601244520040PAS	60.12.4.45
Current sensing coil; (add to 1st column price)	601245010040	60.12.4.50
Current sensing coil; (add to 1st column price)	601245010040PAS	60.12.4.50
Current sensing coil; (add to 1st column price)	601245020040	60.12.4.50
Current sensing coil; (add to 1st column price)	601245020040PAS	60.12.4.50
General purpose relay	601280060000	60.12.8.00
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601280060040	60.12.8.00
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601280060040PAS	60.12.8.00
General purpose relay	601280120000	60.12.8.01
Flag indicator (60.12/60.13 only)	601280120020	60.12.8.01
LED (60.12/60.13 coil voltages up to 240V AC only)	601280120030	60.12.8.01
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601280120040	60.12.8.01

8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601280120040PAS	60.12.8.012
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601280120050	60.12.8.012
AgCdO contacts (60.12/60.13 only)	601280122000	60.12.8.012
AgCdO contacts (60.12/60.13 only)	601280122040	60.12.8.012
AgCdO contacts (60.12/60.13 only)	601280122050	60.12.8.012
AgNi+Au contacts (60.12/60.13 only)	601280125000	60.12.8.012
General purpose relay	601280240000	60.12.8.024
Flag indicator (60.12/60.13 only)	601280240020	60.12.8.024
LED (60.12/60.13 coil voltages up to 240V AC only)	601280240030	60.12.8.024
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601280240040	60.12.8.024
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601280240040PAS	60.12.8.024
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601280240050	60.12.8.024
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601280240054	60.12.8.024
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601280240054PAS	60.12.8.024
AgCdO contacts (60.12/60.13 only)	601280242000	60.12.8.024
AgCdO contacts (60.12/60.13 only)	601280242040	60.12.8.024
AgNi+Au contacts (60.12/60.13 only)	601280245000	60.12.8.024
AgNi+Au contacts (60.12/60.13 only)	601280245030	60.12.8.024
AgNi+Au contacts (60.12/60.13 only)	601280245040	60.12.8.024
General purpose relay	601280360000	60.12.8.036
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601280360040	60.12.8.036
General purpose relay	601280480000	60.12.8.048
LED (60.12/60.13 coil voltages up to 240V AC only)	601280480030	60.12.8.048
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601280480040	60.12.8.048
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601280480040PAS	60.12.8.048

Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601280480050	60.12.8.04
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601280480054	60.12.8.04
AgCdO contacts (60.12/60.13 only)	601280482000	60.12.8.04
AgCdO contacts (60.12/60.13 only)	601280482040	60.12.8.04
General purpose relay	601280600000	60.12.8.06
LED (60.12/60.13 coil voltages up to 240V AC only)	601280600030	60.12.8.06
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601280600040	60.12.8.06
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601280600040PAS	60.12.8.06
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601280600050	60.12.8.06
AgNi+Au contacts (60.12/60.13 only)	601280605000	60.12.8.06
General purpose relay	601281100000	60.12.8.11
Flag indicator (60.12/60.13 only)	601281100020	60.12.8.11
LED (60.12/60.13 coil voltages up to 240V AC only)	601281100030	60.12.8.11
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601281100040	60.12.8.11
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601281100040PAS	60.12.8.11
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601281100050	60.12.8.11
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601281100054	60.12.8.11
Bifurcated contacts (60.12/60.13 only)	601281100240	60.12.8.11
AgCdO contacts (60.12/60.13 only)	601281102000	60.12.8.11
AgCdO contacts (60.12/60.13 only)	601281102030	60.12.8.11
AgCdO contacts (60.12/60.13 only)	601281102040	60.12.8.11
AgNi+Au contacts (60.12/60.13 only)	601281105000	60.12.8.11
AgNi+Au contacts (60.12/60.13 only)	601281105040	60.12.8.11
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601281150040	60.12.8.11
General purpose relay	601281200000	60.12.8.12

LED (60.12/60.13 coil voltages up to 240V AC only)	601281200030	60.12.8.123
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601281200040	60.12.8.123
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601281200040PAS	60.12.8.123
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601281200050	60.12.8.123
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601281200054	60.12.8.123
AgCdO contacts (60.12/60.13 only)	601281202000	60.12.8.123
AgCdO contacts (60.12/60.13 only)	601281202030	60.12.8.123
AgCdO contacts (60.12/60.13 only)	601281202040	60.12.8.123
AgNi+Au contacts (60.12/60.13 only)	601281205040	60.12.8.123
AgNi+Au contacts (60.12/60.13 only)	601281205040PAS	60.12.8.123
General purpose relay	601281250000	60.12.8.123
LED (60.12/60.13 coil voltages up to 240V AC only)	601281250030	60.12.8.123
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601281250040	60.12.8.123
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601281250040PAS	60.12.8.123
AgCdO contacts (60.12/60.13 only)	601281252000	60.12.8.123
AgNi+Au contacts (60.12/60.13 only)	601281255000	60.12.8.123
AgNi+Au contacts (60.12/60.13 only)	601281255040	60.12.8.123
General purpose relay	601282300000	60.12.8.230
Flag indicator (60.12/60.13 only)	601282300020	60.12.8.230
LED (60.12/60.13 coil voltages up to 240V AC only)	601282300030	60.12.8.230
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601282300040	60.12.8.230
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601282300040PAS	60.12.8.230
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601282300050	60.12.8.230
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601282300054	60.12.8.230
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601282300054PAS	60.12.8.230

Bifurcated contacts (60.12/60.13 only)	601282300240	60.12.8.230
AgCdO contacts (60.12/60.13 only)	601282302000	60.12.8.230
AgCdO contacts (60.12/60.13 only)	601282302040	60.12.8.230
AgNi+Au contacts (60.12/60.13 only)	601282305000	60.12.8.230
AgNi+Au contacts (60.12/60.13 only)	601282305040	60.12.8.230
AgNi+Au contacts (60.12/60.13 only)	601282305040PAS	60.12.8.230
General purpose relay	601282400000	60.12.8.240
LED (60.12/60.13 coil voltages up to 240V AC only)	601282400030	60.12.8.240
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601282400040	60.12.8.240
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601282400040PAS	60.12.8.240
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601282400050	60.12.8.240
AgCdO contacts (60.12/60.13 only)	601282402000	60.12.8.240
AgCdO contacts (60.12/60.13 only)	601282402040	60.12.8.240
AgNi+Au contacts (60.12/60.13 only)	601282405000	60.12.8.240
AgNi+Au contacts (60.12/60.13 only)	601282405040	60.12.8.240
400VAC coil; (add to 1st column price)	601284000040	60.12.8.400
400VAC coil; (add to 1st column price)	601284000040PAS	60.12.8.400
General purpose relay	601290060000	60.12.9.000
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601290060040	60.12.9.000
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601290060040PAS	60.12.9.000
General purpose relay	601290120000	60.12.9.010
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601290120040	60.12.9.010
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601290120040PAS	60.12.9.010
LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601290120060	60.12.9.010
Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601290120070	60.12.9.010

Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601290120074	60.12.9.012
AgCdO contacts (60.12/60.13 only)	601290122000	60.12.9.012
AgCdO contacts (60.12/60.13 only)	601290122040	60.12.9.012
AgNi+Au contacts (60.12/60.13 only)	601290125040	60.12.9.012
AgNi+Au contacts (60.12/60.13 only)	601290125040PAS	60.12.9.012
General purpose relay	601290240000	60.12.9.024
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601290240040	60.12.9.024
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601290240040PAS	60.12.9.024
LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601290240060	60.12.9.024
Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601290240070	60.12.9.024
Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601290240074	60.12.9.024
Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601290240074PAS	60.12.9.024
Bifurcated contacts (60.12/60.13 only)	601290240240	60.12.9.024
AgCdO contacts (60.12/60.13 only)	601290242000	60.12.9.024
AgCdO contacts (60.12/60.13 only)	601290242040	60.12.9.024
AgCdO contacts (60.12/60.13 only)	601290242070	60.12.9.024
AgCdO contacts (60.12/60.13 only)	601290242074	60.12.9.024
AgNi+Au contacts (60.12/60.13 only)	601290245000	60.12.9.024
AgNi+Au contacts (60.12/60.13 only)	601290245040	60.12.9.024
General purpose relay	601290360000	60.12.9.036
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601290360040	60.12.9.036
General purpose relay	601290480000	60.12.9.048
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601290480040	60.12.9.048
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601290480040PAS	60.12.9.048
LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601290480060	60.12.9.048

Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601290480070	60.12.9.04
Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601290480074	60.12.9.04
AgCdO contacts (60.12/60.13 only)	601290482000	60.12.9.04
AgCdO contacts (60.12/60.13 only)	601290482040	60.12.9.04
AgNi+Au contacts (60.12/60.13 only)	601290485040	60.12.9.04
General purpose relay	601290600000	60.12.9.06
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601290600040	60.12.9.06
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601290600040PAS	60.12.9.06
LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601290600060	60.12.9.06
AgNi+Au contacts (60.12/60.13 only)	601290605040	60.12.9.06
General purpose relay	601290800000	60.12.9.08
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601290800040	60.12.9.08
General purpose relay	601291100000	60.12.9.11
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601291100040	60.12.9.11
8-pin;Plug-in;AgNi;2CO 10A;lockable test btton+flag indicator	601291100040PAS	60.12.9.11
LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601291100060	60.12.9.11
Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601291100070	60.12.9.11
Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601291100074	60.12.9.11
AgCdO contacts (60.12/60.13 only)	601291102000	60.12.9.11
AgCdO contacts (60.12/60.13 only)	601291102040	60.12.9.11
AgNi+Au contacts (60.12/60.13 only)	601291105000	60.12.9.11
AgNi+Au contacts (60.12/60.13 only)	601291105040	60.12.9.11
125VDC coil (add to 1st column price)	601291250000	60.12.9.12
125VDC coil (add to 1st column price)	601291250040	60.12.9.12
125VDC coil (add to 1st column price)	601291250040PAS	60.12.9.12

125VDC coil (add to 1st column price)	601291250060	60.12.9.125
125VDC coil (add to 1st column price)	601291255000	60.12.9.125
140,145VDC coil (add to 1st column price)	601291400000	60.12.9.140
140,145VDC coil (add to 1st column price)	601291400040	60.12.9.140
140,145VDC coil (add to 1st column price)	601291450000	60.12.9.140
140,145VDC coil (add to 1st column price)	601291450040	60.12.9.140
220VDC coil (add to 1st column price)	601292200000	60.12.9.220
220VDC coil (add to 1st column price)	601292200040	60.12.9.220
220VDC coil (add to 1st column price)	601292200040PAS	60.12.9.220
Current sensing coil; (add to 1st column price)	601340110040	60.13.4.010
Current sensing coil; (add to 1st column price)	601340110040PAS	60.13.4.010
Current sensing coil; (add to 1st column price)	601340120040	60.13.4.010
Current sensing coil; (add to 1st column price)	601340120040PAS	60.13.4.010
Current sensing coil; (add to 1st column price)	601340210040	60.13.4.020
Current sensing coil; (add to 1st column price)	601340210040PAS	60.13.4.020
Current sensing coil; (add to 1st column price)	601340220040	60.13.4.020
Current sensing coil; (add to 1st column price)	601340220040PAS	60.13.4.020
Current sensing coil; (add to 1st column price)	601340310040	60.13.4.030
Current sensing coil; (add to 1st column price)	601340310040PAS	60.13.4.030
Current sensing coil; (add to 1st column price)	601340320040	60.13.4.030
Current sensing coil; (add to 1st column price)	601340320040PAS	60.13.4.030
Current sensing coil; (add to 1st column price)	601340410040	60.13.4.040
Current sensing coil; (add to 1st column price)	601340410040PAS	60.13.4.040
Current sensing coil; (add to 1st column price)	601340420040	60.13.4.040
Current sensing coil; (add to 1st column price)	601340420040PAS	60.13.4.040
Current sensing coil; (add to 1st column price)	601340510040	60.13.4.050

Current sensing coil; (add to 1st column price)	601340510040PAS	60.13.4.052
Current sensing coil; (add to 1st column price)	601340520040	60.13.4.052
Current sensing coil; (add to 1st column price)	601340520040PAS	60.13.4.052
Current sensing coil; (add to 1st column price)	601340610040	60.13.4.062
Current sensing coil; (add to 1st column price)	601340610040PAS	60.13.4.062
Current sensing coil; (add to 1st column price)	601340620040	60.13.4.062
Current sensing coil; (add to 1st column price)	601340620040PAS	60.13.4.062
Current sensing coil; (add to 1st column price)	601340710040	60.13.4.072
Current sensing coil; (add to 1st column price)	601340710040PAS	60.13.4.072
Current sensing coil; (add to 1st column price)	601340720040	60.13.4.072
Current sensing coil; (add to 1st column price)	601340720040PAS	60.13.4.072
Current sensing coil; (add to 1st column price)	601340810040	60.13.4.082
Current sensing coil; (add to 1st column price)	601340810040PAS	60.13.4.082
Current sensing coil; (add to 1st column price)	601340820040	60.13.4.082
Current sensing coil; (add to 1st column price)	601340820040PAS	60.13.4.082
Current sensing coil; (add to 1st column price)	601340910040	60.13.4.092
Current sensing coil; (add to 1st column price)	601340910040PAS	60.13.4.092
Current sensing coil; (add to 1st column price)	601340920040	60.13.4.092
Current sensing coil; (add to 1st column price)	601340920040PAS	60.13.4.092
Current sensing coil; (add to 1st column price)	601341010040	60.13.4.102
Current sensing coil; (add to 1st column price)	601341010040PAS	60.13.4.102
Current sensing coil; (add to 1st column price)	601341020040	60.13.4.102
Current sensing coil; (add to 1st column price)	601341020040PAS	60.13.4.102
Current sensing coil; (add to 1st column price)	601341210040	60.13.4.122
Current sensing coil; (add to 1st column price)	601341210040PAS	60.13.4.122
Current sensing coil; (add to 1st column price)	601341220040	60.13.4.122

Current sensing coil; (add to 1st column price)	601341220040PAS	60.13.4.12
Current sensing coil; (add to 1st column price)	601341410040	60.13.4.14
Current sensing coil; (add to 1st column price)	601341410040PAS	60.13.4.14
Current sensing coil; (add to 1st column price)	601341420040	60.13.4.14
Current sensing coil; (add to 1st column price)	601341420040PAS	60.13.4.14
Current sensing coil; (add to 1st column price)	601341610040	60.13.4.16
Current sensing coil; (add to 1st column price)	601341610040PAS	60.13.4.16
Current sensing coil; (add to 1st column price)	601341620040	60.13.4.16
Current sensing coil; (add to 1st column price)	601341620040PAS	60.13.4.16
Current sensing coil; (add to 1st column price)	601341810040	60.13.4.18
Current sensing coil; (add to 1st column price)	601341810040PAS	60.13.4.18
Current sensing coil; (add to 1st column price)	601341820040	60.13.4.18
Current sensing coil; (add to 1st column price)	601341820040PAS	60.13.4.18
Current sensing coil; (add to 1st column price)	601342010040	60.13.4.20
Current sensing coil; (add to 1st column price)	601342010040PAS	60.13.4.20
Current sensing coil; (add to 1st column price)	601342020040	60.13.4.20
Current sensing coil; (add to 1st column price)	601342020040PAS	60.13.4.20
Current sensing coil; (add to 1st column price)	601342220040	60.13.4.22
Current sensing coil; (add to 1st column price)	601342220040PAS	60.13.4.22
Current sensing coil; (add to 1st column price)	601342310040	60.13.4.23
Current sensing coil; (add to 1st column price)	601342310040PAS	60.13.4.23
Current sensing coil; (add to 1st column price)	601342510040	60.13.4.25
Current sensing coil; (add to 1st column price)	601342510040PAS	60.13.4.25
Current sensing coil; (add to 1st column price)	601342520040	60.13.4.25
Current sensing coil; (add to 1st column price)	601342520040PAS	60.13.4.25
Current sensing coil; (add to 1st column price)	601342810040	60.13.4.28

Current sensing coil; (add to 1st column price)	601342810040PAS	60.13.4.28
Current sensing coil; (add to 1st column price)	601342820040	60.13.4.28
Current sensing coil; (add to 1st column price)	601342820040PAS	60.13.4.28
Current sensing coil; (add to 1st column price)	601343210040	60.13.4.32
Current sensing coil; (add to 1st column price)	601343210040PAS	60.13.4.32
Current sensing coil; (add to 1st column price)	601343220040	60.13.4.32
Current sensing coil; (add to 1st column price)	601343220040PAS	60.13.4.32
Current sensing coil; (add to 1st column price)	601343610040	60.13.4.36
Current sensing coil; (add to 1st column price)	601343610040PAS	60.13.4.36
Current sensing coil; (add to 1st column price)	601343620040	60.13.4.36
Current sensing coil; (add to 1st column price)	601343620040PAS	60.13.4.36
Current sensing coil; (add to 1st column price)	601344010040	60.13.4.40
Current sensing coil; (add to 1st column price)	601344010040PAS	60.13.4.40
Current sensing coil; (add to 1st column price)	601344020040	60.13.4.40
Current sensing coil; (add to 1st column price)	601344020040PAS	60.13.4.40
Current sensing coil; (add to 1st column price)	601344510040	60.13.4.45
Current sensing coil; (add to 1st column price)	601344510040PAS	60.13.4.45
Current sensing coil; (add to 1st column price)	601344520040	60.13.4.45
Current sensing coil; (add to 1st column price)	601344520040PAS	60.13.4.45
Current sensing coil; (add to 1st column price)	601345010040	60.13.4.50
Current sensing coil; (add to 1st column price)	601345010040PAS	60.13.4.50
Current sensing coil; (add to 1st column price)	601345020040	60.13.4.50
Current sensing coil; (add to 1st column price)	601345020040PAS	60.13.4.50
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601380060040	60.13.8.00
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601380060040PAS	60.13.8.00
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601380060054	60.13.8.00

AgCdO contacts (60.12/60.13 only)	601380062040	60.13.8.00
AgNi+Au contacts (60.12/60.13 only)	601380065040	60.13.8.00
General purpose relay	601380120000	60.13.8.01
Flag indicator (60.12/60.13 only)	601380120020	60.13.8.01
LED (60.12/60.13 coil voltages up to 240V AC only)	601380120030	60.13.8.01
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601380120040	60.13.8.01
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601380120040PAS	60.13.8.01
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601380120050	60.13.8.01
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601380120054	60.13.8.01
Bifurcated contacts (60.12/60.13 only)	601380120240	60.13.8.01
AgCdO contacts (60.12/60.13 only)	601380122000	60.13.8.01
AgCdO contacts (60.12/60.13 only)	601380122030	60.13.8.01
AgCdO contacts (60.12/60.13 only)	601380122050	60.13.8.01
AgNi+Au contacts (60.12/60.13 only)	601380125040	60.13.8.01
AgNi+Au contacts (60.12/60.13 only)	601380125050	60.13.8.01
AgNi+Au contacts (60.12/60.13 only)	601380125240	60.13.8.01
General purpose relay	601380240000	60.13.8.02
Flag indicator (60.12/60.13 only)	601380240020	60.13.8.02
LED (60.12/60.13 coil voltages up to 240V AC only)	601380240030	60.13.8.02
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601380240040	60.13.8.02
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601380240040PAS	60.13.8.02
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601380240050	60.13.8.02
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601380240054	60.13.8.02
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601380240054PAS	60.13.8.02
Bifurcated contacts (60.12/60.13 only)	601380240240	60.13.8.02

AgCdO contacts (60.12/60.13 only)	601380242000	60.13.8.024
AgCdO contacts (60.12/60.13 only)	601380242020	60.13.8.024
AgCdO contacts (60.12/60.13 only)	601380242030	60.13.8.024
AgCdO contacts (60.12/60.13 only)	601380242040	60.13.8.024
AgCdO contacts (60.12/60.13 only)	601380242050	60.13.8.024
AgCdO contacts (60.12/60.13 only)	601380242054	60.13.8.024
AgNi+Au contacts (60.12/60.13 only)	601380245000	60.13.8.024
AgNi+Au contacts (60.12/60.13 only)	601380245040	60.13.8.024
AgNi+Au contacts (60.12/60.13 only)	601380245050	60.13.8.024
AgNi+Au contacts (60.12/60.13 only)	601380245054	60.13.8.024
AgNi+Au contacts (60.12/60.13 only)	601380245240	60.13.8.024
AgNi+Au contacts (60.12/60.13 only)	601380245250	60.13.8.024
General purpose relay	601380360000	60.13.8.036
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601380360040	60.13.8.036
General purpose relay	601380480000	60.13.8.048
LED (60.12/60.13 coil voltages up to 240V AC only)	601380480030	60.13.8.048
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601380480040	60.13.8.048
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601380480040PAS	60.13.8.048
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601380480050	60.13.8.048
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601380480054	60.13.8.048
AgCdO contacts (60.12/60.13 only)	601380482000	60.13.8.048
AgCdO contacts (60.12/60.13 only)	601380482040	60.13.8.048
AgNi+Au contacts (60.12/60.13 only)	601380485000	60.13.8.048
AgNi+Au contacts (60.12/60.13 only)	601380485040	60.13.8.048
AgNi+Au contacts (60.12/60.13 only)	601380485050	60.13.8.048
General purpose relay	601380600000	60.13.8.060

LED (60.12/60.13 coil voltages up to 240V AC only)	601380600030	60.13.8.060
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601380600040	60.13.8.060
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601380600040PAS	60.13.8.060
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601380600054	60.13.8.060
AgCdO contacts (60.12/60.13 only)	601380602000	60.13.8.060
AgNi+Au contacts (60.12/60.13 only)	601380605040	60.13.8.060
General purpose relay	601381100000	60.13.8.110
Flag indicator (60.12/60.13 only)	601381100020	60.13.8.110
LED (60.12/60.13 coil voltages up to 240V AC only)	601381100030	60.13.8.110
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601381100040	60.13.8.110
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601381100040PAS	60.13.8.110
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601381100050	60.13.8.110
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601381100054	60.13.8.110
Bifurcated contacts (60.12/60.13 only)	601381100240	60.13.8.110
Bifurcated contacts (60.12/60.13 only)	601381100250	60.13.8.110
AgCdO contacts (60.12/60.13 only)	601381102000	60.13.8.110
AgCdO contacts (60.12/60.13 only)	601381102020	60.13.8.110
AgCdO contacts (60.12/60.13 only)	601381102030	60.13.8.110
AgCdO contacts (60.12/60.13 only)	601381102040	60.13.8.110
AgCdO contacts (60.12/60.13 only)	601381102050	60.13.8.110
AgCdO contacts (60.12/60.13 only)	601381102054	60.13.8.110
AgNi+Au contacts (60.12/60.13 only)	601381105000	60.13.8.110
AgNi+Au contacts (60.12/60.13 only)	601381105030	60.13.8.110
AgNi+Au contacts (60.12/60.13 only)	601381105040	60.13.8.110
AgNi+Au contacts (60.12/60.13 only)	601381105050	60.13.8.110

AgNi+Au contacts (60.12/60.13 only)	601381105054	60.13.8.115
General purpose relay	601381150000	60.13.8.115
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601381150040	60.13.8.115
Bifurcated contacts (60.12/60.13 only)	601381150240	60.13.8.115
General purpose relay	601381200000	60.13.8.125
LED (60.12/60.13 coil voltages up to 240V AC only)	601381200030	60.13.8.125
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601381200040	60.13.8.125
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601381200040PAS	60.13.8.125
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601381200050	60.13.8.125
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601381200054	60.13.8.125
Bifurcated contacts (60.12/60.13 only)	601381200240	60.13.8.125
Bifurcated contacts (60.12/60.13 only)	601381200250	60.13.8.125
AgCdO contacts (60.12/60.13 only)	601381202000	60.13.8.125
AgCdO contacts (60.12/60.13 only)	601381202030	60.13.8.125
AgCdO contacts (60.12/60.13 only)	601381202040	60.13.8.125
AgNi+Au contacts (60.12/60.13 only)	601381205000	60.13.8.125
AgNi+Au contacts (60.12/60.13 only)	601381205040	60.13.8.125
AgNi+Au contacts (60.12/60.13 only)	601381205050	60.13.8.125
General purpose relay	601381250000	60.13.8.125
Flag indicator (60.12/60.13 only)	601381250020	60.13.8.125
LED (60.12/60.13 coil voltages up to 240V AC only)	601381250030	60.13.8.125
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601381250040	60.13.8.125
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601381250040PAS	60.13.8.125
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601381250050	60.13.8.125
AgCdO contacts (60.12/60.13 only)	601381252000	60.13.8.125
AgCdO contacts (60.12/60.13 only)	601381252040	60.13.8.125

AgNi+Au contacts (60.12/60.13 only)	601381255040	60.13.8.123
AgNi+Au contacts (60.12/60.13 only)	601381255050	60.13.8.123
General purpose relay	601382300000	60.13.8.230
Flag indicator (60.12/60.13 only)	601382300020	60.13.8.230
LED (60.12/60.13 coil voltages up to 240V AC only)	601382300030	60.13.8.230
LED (60.12/60.13 coil voltages up to 240V AC only)	601382300030PAS	60.13.8.230
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601382300040	60.13.8.230
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601382300040PAS	60.13.8.230
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601382300050	60.13.8.230
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601382300054	60.13.8.230
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601382300054PAS	60.13.8.230
Bifurcated contacts (60.12/60.13 only)	601382300200	60.13.8.230
Bifurcated contacts (60.12/60.13 only)	601382300240	60.13.8.230
Bifurcated contacts (60.12/60.13 only)	601382300254	60.13.8.230
AgCdO contacts (60.12/60.13 only)	601382302000	60.13.8.230
AgCdO contacts (60.12/60.13 only)	601382302040	60.13.8.230
AgCdO contacts (60.12/60.13 only)	601382302050	60.13.8.230
AgCdO contacts (60.12/60.13 only)	601382302054	60.13.8.230
AgNi+Au contacts (60.12/60.13 only)	601382305000	60.13.8.230
AgNi+Au contacts (60.12/60.13 only)	601382305020	60.13.8.230
AgNi+Au contacts (60.12/60.13 only)	601382305030	60.13.8.230
AgNi+Au contacts (60.12/60.13 only)	601382305040	60.13.8.230
AgNi+Au contacts (60.12/60.13 only)	601382305050	60.13.8.230
AgNi+Au contacts (60.12/60.13 only)	601382305054	60.13.8.230
General purpose relay	601382400000	60.13.8.240

Flag indicator (60.12/60.13 only)	601382400020	60.13.8.240
LED (60.12/60.13 coil voltages up to 240V AC only)	601382400030	60.13.8.240
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601382400040	60.13.8.240
Lockable test button + LED (60.12/60.13 coil voltages up to 240V AC only)	601382400050	60.13.8.240
Lckble test btton+flag indicator+LED(60.12/60.13 coil voltages up to 240V AC only)	601382400054	60.13.8.240
Bifurcated contacts (60.12/60.13 only)	601382400240	60.13.8.240
AgCdO contacts (60.12/60.13 only)	601382402040	60.13.8.240
AgCdO contacts (60.12/60.13 only)	601382402050	60.13.8.240
AgNi+Au contacts (60.12/60.13 only)	601382405000	60.13.8.240
AgNi+Au contacts (60.12/60.13 only)	601382405030	60.13.8.240
AgNi+Au contacts (60.12/60.13 only)	601382405040	60.13.8.240
AgNi+Au contacts (60.12/60.13 only)	601382405054	60.13.8.240
400VAC coil; (add to 1st column price)	601384000040	60.13.8.400
General purpose relay	601390060000	60.13.9.000
Flag indicator (60.12/60.13 only)	601390060020	60.13.9.000
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601390060040	60.13.9.000
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601390060040PAS	60.13.9.000
Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390060074	60.13.9.000
AgCdO contacts (60.12/60.13 only)	601390062040	60.13.9.000
AgNi+Au contacts (60.12/60.13 only)	601390065040	60.13.9.000
General purpose relay	601390120000	60.13.9.010
Flag indicator (60.12/60.13 only)	601390120020	60.13.9.010
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601390120040	60.13.9.010
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601390120040PAS	60.13.9.010
LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390120060	60.13.9.010

Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390120070	60.13.9.012
Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390120070PAS	60.13.9.012
Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390120074	60.13.9.012
Bifurcated contacts (60.12/60.13 only)	601390120240	60.13.9.012
AgCdO contacts (60.12/60.13 only)	601390122000	60.13.9.012
AgCdO contacts (60.12/60.13 only)	601390122040	60.13.9.012
AgCdO contacts (60.12/60.13 only)	601390122070	60.13.9.012
AgNi+Au contacts (60.12/60.13 only)	601390125000	60.13.9.012
AgNi+Au contacts (60.12/60.13 only)	601390125040	60.13.9.012
AgNi+Au contacts (60.12/60.13 only)	601390125070	60.13.9.012
AgNi+Au contacts (60.12/60.13 only)	601390125074	60.13.9.012
AgNi+Au contacts (60.12/60.13 only)	601390125240	60.13.9.012
AgNi+Au contacts (60.12/60.13 only)	601390125274	60.13.9.012
General purpose relay	601390240000	60.13.9.024
Flag indicator (60.12/60.13 only)	601390240020	60.13.9.024
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601390240040	60.13.9.024
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601390240040PAS	60.13.9.024
LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390240060	60.13.9.024
Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390240070	60.13.9.024
Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390240070PAS	60.13.9.024
Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390240074	60.13.9.024
Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390240074PAS	60.13.9.024
Bifurcated contacts (60.12/60.13 only)	601390240200	60.13.9.024
Bifurcated contacts (60.12/60.13 only)	601390240240	60.13.9.024
Bifurcated contacts (60.12/60.13 only)	601390240270	60.13.9.024

Bifurcated contacts (60.12/60.13 only)	601390240274	60.13.9.024
AgCdO contacts (60.12/60.13 only)	601390242000	60.13.9.024
AgCdO contacts (60.12/60.13 only)	601390242020	60.13.9.024
AgCdO contacts (60.12/60.13 only)	601390242040	60.13.9.024
AgCdO contacts (60.12/60.13 only)	601390242070	60.13.9.024
AgCdO contacts (60.12/60.13 only)	601390242074	60.13.9.024
AgNi+Au contacts (60.12/60.13 only)	601390245000	60.13.9.024
AgNi+Au contacts (60.12/60.13 only)	601390245020	60.13.9.024
AgNi+Au contacts (60.12/60.13 only)	601390245040	60.13.9.024
AgNi+Au contacts (60.12/60.13 only)	601390245060	60.13.9.024
AgNi+Au contacts (60.12/60.13 only)	601390245070	60.13.9.024
AgNi+Au contacts (60.12/60.13 only)	601390245074	60.13.9.024
AgNi+Au contacts (60.12/60.13 only)	601390245240	60.13.9.024
General purpose relay	601390360000	60.13.9.036
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601390360040	60.13.9.036
LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390360060	60.13.9.036
Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390360074	60.13.9.036
General purpose relay	601390480000	60.13.9.048
Flag indicator (60.12/60.13 only)	601390480020	60.13.9.048
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601390480040	60.13.9.048
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601390480040PAS	60.13.9.048
LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390480060	60.13.9.048
Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390480070	60.13.9.048
Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390480074	60.13.9.048
Bifurcated contacts (60.12/60.13 only)	601390480240	60.13.9.048

Bifurcated contacts (60.12/60.13 only)	601390480270	60.13.9.04
AgCdO contacts (60.12/60.13 only)	601390482000	60.13.9.04
AgCdO contacts (60.12/60.13 only)	601390482040	60.13.9.04
AgCdO contacts (60.12/60.13 only)	601390482070	60.13.9.04
AgNi+Au contacts (60.12/60.13 only)	601390485000	60.13.9.04
AgNi+Au contacts (60.12/60.13 only)	601390485040	60.13.9.04
AgNi+Au contacts (60.12/60.13 only)	601390485060	60.13.9.04
AgNi+Au contacts (60.12/60.13 only)	601390485070	60.13.9.04
AgNi+Au contacts (60.12/60.13 only)	601390485074	60.13.9.04
General purpose relay	601390600000	60.13.9.06
Flag indicator (60.12/60.13 only)	601390600020	60.13.9.06
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601390600040	60.13.9.06
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601390600040PAS	60.13.9.06
LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390600060	60.13.9.06
Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390600070	60.13.9.06
Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390600070PAS	60.13.9.06
Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390600074	60.13.9.06
AgCdO contacts (60.12/60.13 only)	601390602000	60.13.9.06
AgCdO contacts (60.12/60.13 only)	601390602040	60.13.9.06
AgCdO contacts (60.12/60.13 only)	601390602060	60.13.9.06
AgNi+Au contacts (60.12/60.13 only)	601390605000	60.13.9.06
AgNi+Au contacts (60.12/60.13 only)	601390605020	60.13.9.06
AgNi+Au contacts (60.12/60.13 only)	601390605040	60.13.9.06
AgNi+Au contacts (60.12/60.13 only)	601390605240	60.13.9.06
General purpose relay	601390800000	60.13.9.08

11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601390800040	60.13.9.080
Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601390800070	60.13.9.080
General purpose relay	601391100000	60.13.9.110
Flag indicator (60.12/60.13 only)	601391100020	60.13.9.110
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601391100040	60.13.9.110
11-pin;Plug-in;AgNi;3CO 10A;lockable test btton+flag indictr	601391100040PAS	60.13.9.110
LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601391100060	60.13.9.110
Lockable test button + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601391100070	60.13.9.110
Lockable test button + flag indicator + LED + diode; positive to pin 2 (60.12/60.13 coil voltages up to 125V DC only)	601391100074	60.13.9.110
AgCdO contacts (60.12/60.13 only)	601391102000	60.13.9.110
AgCdO contacts (60.12/60.13 only)	601391102040	60.13.9.110
AgCdO contacts (60.12/60.13 only)	601391102074	60.13.9.110
AgNi+Au contacts (60.12/60.13 only)	601391105000	60.13.9.110
AgNi+Au contacts (60.12/60.13 only)	601391105040	60.13.9.110
AgNi+Au contacts (60.12/60.13 only)	601391105070	60.13.9.110
AgNi+Au contacts (60.12/60.13 only)	601391105074	60.13.9.110
AgNi+Au contacts (60.12/60.13 only)	601391105240	60.13.9.110
125VDC coil (add to 1st column price)	601391250000	60.13.9.120
125VDC coil (add to 1st column price)	601391250020	60.13.9.120
125VDC coil (add to 1st column price)	601391250040	60.13.9.120
125VDC coil (add to 1st column price)	601391250040PAS	60.13.9.120
125VDC coil (add to 1st column price)	601391250060	60.13.9.120
125VDC coil (add to 1st column price)	601391250070	60.13.9.120
125VDC coil (add to 1st column price)	601391250074	60.13.9.120
125VDC coil (add to 1st column price)	601391250240	60.13.9.120

125VDC coil (add to 1st column price)	601391252040	60.13.9.125
125VDC coil (add to 1st column price)	601391255040	60.13.9.125
125VDC coil (add to 1st column price)	601391255060	60.13.9.125
125VDC coil (add to 1st column price)	601391255074	60.13.9.125
140,145VDC coil (add to 1st column price)	601391400000	60.13.9.140
140,145VDC coil (add to 1st column price)	601391400040	60.13.9.140
140,145VDC coil (add to 1st column price)	601391400074	60.13.9.140
140,145VDC coil (add to 1st column price)	601391450000	60.13.9.140
140,145VDC coil (add to 1st column price)	601391450040	60.13.9.140
220VDC coil (add to 1st column price)	601392200000	60.13.9.220
220VDC coil (add to 1st column price)	601392200020	60.13.9.220
220VDC coil (add to 1st column price)	601392200040	60.13.9.220
220VDC coil (add to 1st column price)	601392200040PAS	60.13.9.220
220VDC coil (add to 1st column price)	601392202040	60.13.9.220
220VDC coil (add to 1st column price)	601392205000	60.13.9.220
220VDC coil (add to 1st column price)	601392205020	60.13.9.220
220VDC coil (add to 1st column price)	601392205040	60.13.9.220
Faston 187 AgNi; 2CO 10A	603280060000	60.32.8.000
Faston 187 AgNi; 2CO 10A	603280120000	60.32.8.010
Faston 187 AgNi; 2CO 10A	603280240000	60.32.8.020
Faston 187 AgNi; 2CO 10A	603280480000	60.32.8.040
Faston 187 AgNi; 2CO 10A	603280600000	60.32.8.060
Faston 187 AgNi; 2CO 10A	603281100000	60.32.8.110
Faston 187 AgNi; 2CO 10A	603281200000	60.32.8.120
Faston 187 AgNi; 2CO 10A	603281250000	60.32.8.125
Faston 187 AgNi; 2CO 10A	603282300000	60.32.8.230

Faston 187 AgNi; 2CO 10A	603282400000	60.32.8.24
Faston 187 AgNi; 2CO 10A	603290060000	60.32.9.00
Faston 187 AgNi; 2CO 10A	603290120000	60.32.9.01
Faston 187 AgNi; 2CO 10A	603290240000	60.32.9.02
Faston 187 AgNi; 2CO 10A	603290360000	60.32.9.03
Faston 187 AgNi; 2CO 10A	603290480000	60.32.9.04
Faston 187 AgNi; 2CO 10A	603290600000	60.32.9.06
Faston 187 AgNi; 2CO 10A	603290800000	60.32.9.08
Faston 187 AgNi; 2CO 10A	603291100000	60.32.9.11
125VDC coil (add to 1st column price)	603291250000	60.32.9.12
Faston 187 AgNi; 3CO 10A	603380060000	60.33.8.00
Faston 187 AgNi; 3CO 10A	603380120000	60.33.8.01
Faston 187 AgNi; 3CO 10A	603380240000	60.33.8.02
Faston 187 AgNi; 3CO 10A	603380480000	60.33.8.04
Faston 187 AgNi; 3CO 10A	603380600000	60.33.8.06
Faston 187 AgNi; 3CO 10A	603381100000	60.33.8.11
Faston 187 AgNi; 3CO 10A	603381200000	60.33.8.12
Faston 187 AgNi; 3CO 10A	603381250000	60.33.8.12
Faston 187 AgNi; 3CO 10A	603382300000	60.33.8.23
Faston 187 AgNi; 3CO 10A	603382400000	60.33.8.24
400VAC coil; (add to 1st column price)	603384000000	60.33.8.40
Faston 187 AgNi; 3CO 10A	603390060000	60.33.9.00
Faston 187 AgNi; 3CO 10A	603390120000	60.33.9.01
Faston 187 AgNi; 3CO 10A	603390240000	60.33.9.02
Faston 187 AgNi; 3CO 10A	603390480000	60.33.9.04
Faston 187 AgNi; 3CO 10A	603390600000	60.33.9.06

Faston 187 AgNi; 3CO 10A	603390800000	60.33.9.080
Faston 187 AgNi; 3CO 10A	603391100000	60.33.9.110
125VDC coil (add to 1st column price)	603391250000	60.33.9.125
140,145VDC coil (add to 1st column price)	603391400000	60.33.9.140
220VDC coil (add to 1st column price)	603392200000	60.33.9.220
PCB mount AgNi; 2CO 10A	604280060000	60.42.8.006
PCB mount AgNi; 2CO 10A	604280120000	60.42.8.012
PCB mount AgNi; 2CO 10A	604280240000	60.42.8.024
PCB mount AgNi; 2CO 10A	604280480000	60.42.8.048
PCB mount AgNi; 2CO 10A	604280600000	60.42.8.060
PCB mount AgNi; 2CO 10A	604281100000	60.42.8.110
PCB mount AgNi; 2CO 10A	604281200000	60.42.8.120
PCB mount AgNi; 2CO 10A	604281250000	60.42.8.125
PCB mount AgNi; 2CO 10A	604282300000	60.42.8.230
PCB mount AgNi; 2CO 10A	604282400000	60.42.8.240
PCB mount AgNi; 2CO 10A	604290060000	60.42.9.006
PCB mount AgNi; 2CO 10A	604290120000	60.42.9.012
PCB mount AgNi; 2CO 10A	604290240000	60.42.9.024
PCB mount AgNi; 2CO 10A	604290480000	60.42.9.048
PCB mount AgNi; 2CO 10A	604290600000	60.42.9.060
PCB mount AgNi; 2CO 10A	604291100000	60.42.9.110
125VDC coil (add to 1st column price)	604291250000	60.42.9.125
220VDC coil (add to 1st column price)	604292200000	60.42.9.220
PCB mount AgNi; 3CO 10A	604380060000	60.43.8.006
PCB mount AgNi; 3CO 10A	604380120000	60.43.8.012
PCB mount AgNi; 3CO 10A	604380240000	60.43.8.024

PCB mount AgNi; 3CO 10A	604380480000	60.43.8.04
PCB mount AgNi; 3CO 10A	604380600000	60.43.8.06
PCB mount AgNi; 3CO 10A	604381100000	60.43.8.11
PCB mount AgNi; 3CO 10A	604381150000	60.43.8.115
PCB mount AgNi; 3CO 10A	604381200000	60.43.8.12
PCB mount AgNi; 3CO 10A	604381250000	60.43.8.125
PCB mount AgNi; 3CO 10A	604382300000	60.43.8.23
PCB mount AgNi; 3CO 10A	604382400000	60.43.8.24
PCB mount AgNi; 3CO 10A	604390060000	60.43.9.006
PCB mount AgNi; 3CO 10A	604390120000	60.43.9.012
PCB mount AgNi; 3CO 10A	604390240000	60.43.9.024
PCB mount AgNi; 3CO 10A	604390480000	60.43.9.048
PCB mount AgNi; 3CO 10A	604390600000	60.43.9.06
PCB mount AgNi; 3CO 10A	604391100000	60.43.9.11
125VDC coil (add to 1st column price)	604391250000	60.43.9.125
220VDC coil (add to 1st column price)	604392200000	60.43.9.22
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606280060000	60.62.8.006
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606280120000	60.62.8.012
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606280240000	60.62.8.024
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606280360000	60.62.8.036
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606280480000	60.62.8.048
General purpose relay	606280480008	60.62.8.048
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606280600000	60.62.8.06
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606281100000	60.62.8.11
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606281200000	60.62.8.12
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606281250000	60.62.8.125

Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606282300000	60.62.8.230
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606282400000	60.62.8.240
400VAC coil; (add to 1st column price)	606284000000	60.62.8.400
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606290060000	60.62.9.006
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606290120000	60.62.9.012
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606290240000	60.62.9.024
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606290360000	60.62.9.036
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606290480000	60.62.9.048
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606290600000	60.62.9.060
Faston 187(4.8x0.8mm) rear flange mount;AgNi;2CO 10A;	606291100000	60.62.9.110
125VDC coil (add to 1st column price)	606291250000	60.62.9.125
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606380060000	60.63.8.006
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606380120000	60.63.8.012
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606380240000	60.63.8.024
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606380360000	60.63.8.036
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606380480000	60.63.8.048
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606380600000	60.63.8.060
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606381100000	60.63.8.110
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606381150000	60.63.8.115
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606381200000	60.63.8.120
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606381250000	60.63.8.125
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606382300000	60.63.8.230
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606382400000	60.63.8.240
400VAC coil; (add to 1st column price)	606384000000	60.63.8.400
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606390060000	60.63.9.006
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606390120000	60.63.9.012

Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606390240000	60.63.9.024
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606390360000	60.63.9.036
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606390480000	60.63.9.048
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606390600000	60.63.9.060
Faston 187(4.8x0.8mm) rear flange mount;AgNi;3CO 10A;	606391100000	60.63.9.110
125VDC coil (add to 1st column price)	606391250000	60.63.9.125
220VDC coil (add to 1st column price)	606392200000	60.63.9.220
PCB mount; AgCdO; 2CO 16A	622280120000	62.22.8.012
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622280120300	62.22.8.012
PCB mount; AgCdO; 2CO 16A	622280240000	62.22.8.024
PCB mount; AgCdO; 2CO 16A	622280240000PAS	62.22.8.024
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622280240300	62.22.8.024
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622280240300PAS	62.22.8.024
AgSnO2 contacts	622280244300	62.22.8.024
PCB mount; AgCdO; 2CO 16A	622280480000	62.22.8.048
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622280480300	62.22.8.048
PCB mount; AgCdO; 2CO 16A	622280600000	62.22.8.060
PCB mount; AgCdO; 2CO 16A	622281100000	62.22.8.110
PCB mount; AgCdO; 2CO 16A	622281100000PAS	62.22.8.110
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622281100300	62.22.8.110
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622281100300PAS	62.22.8.110
AgSnO2 contacts	622281104300	62.22.8.110
PCB mount; AgCdO; 2CO 16A	622281200000	62.22.8.120
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622281200300	62.22.8.120
AgSnO2 contacts	622281204000	62.22.8.120
PCB mount; AgCdO; 2CO 16A	622282300000	62.22.8.230

PCB mount; AgCdO; 2CO 16A	622282300000PAS	62.22.8.230
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622282300300	62.22.8.230
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622282300300PAS	62.22.8.230
AgSnO2 contacts	622282304300	62.22.8.230
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	622282400030	62.22.8.240
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622282400300	62.22.8.240
AgSnO2 contacts	622282404000	62.22.8.240
PCB mount; AgCdO; 2CO 16A	622290060000	62.22.9.000
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	622290064600	62.22.9.000
PCB mount; AgCdO; 2CO 16A	622290120000	62.22.9.010
PCB mount; AgCdO; 2CO 16A	622290120000PAS	62.22.9.010
General purpose relay	622290120040	62.22.9.010
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622290120300	62.22.9.010
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622290120300PAS	62.22.9.010
AgSnO2 contacts	622290124000	62.22.9.010
AgSnO2 contacts	622290124300	62.22.9.010
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	622290124600	62.22.9.010
PCB mount; AgCdO; 2CO 16A	622290240000	62.22.9.020
PCB mount; AgCdO; 2CO 16A	622290240000PAS	62.22.9.020
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622290240300	62.22.9.020
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622290240300PAS	62.22.9.020
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	622290240500	62.22.9.020
AgSnO2 contacts	622290244000	62.22.9.020
AgSnO2 contacts	622290244300	62.22.9.020
PCB mount; AgCdO; 2CO 16A	622290480000	62.22.9.040

PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622290480300	62.22.9.04
PCB mount; AgCdO; 2CO 16A	622290600000	62.22.9.06
PCB mount; AgCdO; 2CO 16A	622290600000PAS	62.22.9.06
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622290600300	62.22.9.06
AgSnO2 contacts	622290604000	62.22.9.06
PCB mount; AgCdO; 2CO 16A	622291100000	62.22.9.11
PCB mount; AgCdO; 2NO (with 3mm gap) 16A	622291100300	62.22.9.11
PCB mount; AgCdO; 3CO 16A	622380060000	62.23.8.00
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622380060300	62.23.8.00
PCB mount; AgCdO; 3CO 16A	622380120000	62.23.8.01
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622380120300	62.23.8.01
PCB mount; AgCdO; 3CO 16A	622380240000	62.23.8.02
PCB mount; AgCdO; 3CO 16A	622380240000PAS	62.23.8.02
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622380240300	62.23.8.02
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622380240300PAS	62.23.8.02
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	622380240500	62.23.8.02
PCB mount; AgCdO; 3CO 16A	622380480000	62.23.8.04
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622380480300	62.23.8.04
PCB mount; AgCdO; 3CO 16A	622380600000	62.23.8.06
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622380600300	62.23.8.06
PCB mount; AgCdO; 3CO 16A	622381100000	62.23.8.11
PCB mount; AgCdO; 3CO 16A	622381100000PAS	62.23.8.11
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622381100300	62.23.8.11
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622381100300PAS	62.23.8.11
PCB mount; AgCdO; 3CO 16A	622381200000	62.23.8.12
PCB mount; AgCdO; 3CO 16A	622381250000	62.23.8.12

PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622381250300	62.23.8.125
PCB mount; AgCdO; 3CO 16A	622382300000	62.23.8.230
PCB mount; AgCdO; 3CO 16A	622382300000PAS	62.23.8.230
General purpose relay	622382300040	62.23.8.230
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622382300300	62.23.8.230
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622382300300PAS	62.23.8.230
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	622382300600	62.23.8.230
AgSnO2 contacts	622382304000	62.23.8.230
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622382400300	62.23.8.240
400VAC coil; (add to 1st column price)	622384000040	62.23.8.400
400VAC coil; (add to 1st column price)	6223840000300	62.23.8.400
PCB mount; AgCdO; 3CO 16A	622390060000	62.23.9.000
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622390060300	62.23.9.000
PCB mount; AgCdO; 3CO 16A	622390120000	62.23.9.012
PCB mount; AgCdO; 3CO 16A	622390120000PAS	62.23.9.012
General purpose relay	622390120040	62.23.9.012
Special version for solar market application	622390120200S	62.23.9.012
Special version for solar market application	622390120200SPAS	62.23.9.012
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622390120300	62.23.9.012
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622390120300PAS	62.23.9.012
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	622390120600	62.23.9.012
AgSnO2 contacts	622390124300	62.23.9.012
PCB mount; AgCdO; 3CO 16A	622390240000	62.23.9.024
PCB mount; AgCdO; 3CO 16A	622390240000PAS	62.23.9.024
General purpose relay	622390240040	62.23.9.024

PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622390240300	62.23.9.024
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622390240300PAS	62.23.9.024
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	622390240500	62.23.9.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	622390240600	62.23.9.024
AgSnO2 contacts	622390244000	62.23.9.024
AgSnO2 contacts	622390244300	62.23.9.024
PCB mount; AgCdO; 3CO 16A	622390480000	62.23.9.048
General purpose relay	622390480040	62.23.9.048
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622390480300	62.23.9.048
PCB mount; AgCdO; 3CO 16A	622390600000	62.23.9.060
PCB mount; AgCdO; 3CO 16A	622391100000	62.23.9.110
General purpose relay	622391100040	62.23.9.110
PCB mount; AgCdO; 3NO (with 3mm gap) 16A	622391100300	62.23.9.110
125VDC coil (add to 1st column price)	622391250000	62.23.9.125
125VDC coil (add to 1st column price)	622391250300	62.23.9.125
125VDC coil (add to 1st column price)	622391254300	62.23.9.125
140,145VDC coil (add to 1st column price)	622391450000	62.23.9.145
General purpose relay	623280060000	62.32.8.006
Rear flange mount (62.32/62.33 only)	623280060006	62.32.8.006
Plug-in Faston 187 (4.8x0.5mm; AgCdO;2CO 16A;lockable test button + flag indicator	623280060040	62.32.8.006
General purpose relay	623280120000	62.32.8.012
Plug-in Faston 187 (4.8x0.5mm; AgCdO;2CO 16A;lockable test button + flag indicator	623280120040	62.32.8.012
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623280120050	62.32.8.012
Plug-in Faston 187 (4.8x0.5mm);AgCdO;2NO (with 3mm gap) 16A	623280120300	62.32.8.012
General purpose relay	623280240000	62.32.8.024

Rear flange mount (62.32/62.33 only)	623280240006	62.32.8.024
Flag indicator (62.32/62.33/62.82/62.83 only)	623280240020	62.32.8.024
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623280240030	62.32.8.024
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623280240040	62.32.8.024
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623280240040PAS	62.32.8.024
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623280240050	62.32.8.024
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623280240056	62.32.8.024
Plug-in Faston 187 (4.8x0.5mm;)AgCdO;2NO (with 3mm gap) 16A	623280240300	62.32.8.024
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623280240540	62.32.8.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623280240600	62.32.8.024
AgSnO2 contacts	623280244030	62.32.8.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623280244600	62.32.8.024
General purpose relay	623280480000	62.32.8.048
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623280480040	62.32.8.048
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623280480050	62.32.8.048
Plug-in Faston 187 (4.8x0.5mm;)AgCdO;2NO (with 3mm gap) 16A	623280480300	62.32.8.048
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623280480500	62.32.8.048
General purpose relay	623280600000	62.32.8.060
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623280600030	62.32.8.060
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623280600040	62.32.8.060
General purpose relay	623281100000	62.32.8.110
Rear flange mount (62.32/62.33 only)	623281100006	62.32.8.110
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623281100030	62.32.8.110
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623281100040	62.32.8.110

Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623281100040PAS	62.32.8.11
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623281100050	62.32.8.11
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623281100056	62.32.8.11
Plug-in Faston 187 (4.8x0.5mm);AgCdO;2NO (with 3mm gap) 16A	623281100300	62.32.8.11
AgSnO2 contacts	623281104054	62.32.8.11
General purpose relay	623281150000	62.32.8.11
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623281150040	62.32.8.11
Plug-in Faston 187 (4.8x0.5mm);AgCdO;2NO (with 3mm gap) 16A	623281150300	62.32.8.11
General purpose relay	623281200000	62.32.8.12
Rear flange mount (62.32/62.33 only)	623281200006	62.32.8.12
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623281200030	62.32.8.12
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623281200040	62.32.8.12
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623281200040PAS	62.32.8.12
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623281200050	62.32.8.12
Lockable test button+flag indicatr+LED(62.32/62.33 coil voltages up to 240V AC only)	623281200054	62.32.8.12
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623281200056	62.32.8.12
General purpose relay	623281250000	62.32.8.12
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623281250040	62.32.8.12
General purpose relay	623282300000	62.32.8.23
Rear flange mount (62.32/62.33 only)	623282300006	62.32.8.23
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623282300030	62.32.8.23
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623282300040	62.32.8.23
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623282300040PAS	62.32.8.23
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623282300050	62.32.8.23

Lockable test button+flag indicatr+LED(62.32/62.33 coil voltages up to 240V AC only)	623282300054	62.32.8.230
Plug-in Faston 187 (4.8x0.5mm);AgCdO;2NO (with 3mm gap) 16A	623282300300	62.32.8.230
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623282300500	62.32.8.230
AgSnO2 contacts	623282304000	62.32.8.230
AgSnO2 contacts	623282304040	62.32.8.230
AgSnO2 contacts	623282304300	62.32.8.230
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623282304500	62.32.8.230
General purpose relay	623282400000	62.32.8.240
Rear flange mount (62.32/62.33 only)	623282400006	62.32.8.240
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623282400030	62.32.8.240
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623282400040	62.32.8.240
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623282400050	62.32.8.240
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623282400600	62.32.8.240
400VAC coil; (add to 1st column price)	623284000040	62.32.8.400
400VAC coil; (add to 1st column price)	623284000300	62.32.8.400
General purpose relay	623290060000	62.32.9.000
Rear flange mount (62.32/62.33 only)	623290060006	62.32.9.000
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623290060040	62.32.9.000
Plug-in Faston 187 (4.8x0.5mm);AgCdO;2NO (with 3mm gap) 16A	623290060300	62.32.9.000
General purpose relay	623290120000	62.32.9.010
Rear flange mount (62.32/62.33 only)	623290120006	62.32.9.010
Flag indicator (62.32/62.33/62.82/62.83 only)	623290120020	62.32.9.010
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623290120040	62.32.9.010
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623290120040PAS	62.32.9.010
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623290120060	62.32.9.010

Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	623290120070	62.32.9.012
Plug-in Faston 187 (4.8x0.5mm);AgCdO;2NO (with 3mm gap) 16A	623290120300	62.32.9.012
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623290120500	62.32.9.012
General purpose relay	623290240000	62.32.9.024
Rear flange mount (62.32/62.33 only)	623290240006	62.32.9.024
Plug-in Faston 187 (4.8x0.5mm); AgCdO;2CO 16A;lockable test button + flag indicator	623290240040	62.32.9.024
Plug-in Faston 187 (4.8x0.5mm); AgCdO;2CO 16A;lockable test button + flag indicator	623290240040PAS	62.32.9.024
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623290240060	62.32.9.024
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	623290240070	62.32.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A/A1 (62.32/62.33 coil voltages up to 125V DC only)	623290240074	62.32.9.024
Plug-in Faston 187 (4.8x0.5mm);AgCdO;2NO (with 3mm gap) 16A	623290240300	62.32.9.024
Plug-in Faston 187 (4.8x0.5mm);AgCdO;2NO (with 3mm gap) 16A	623290240300PAS	62.32.9.024
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623290240360	62.32.9.024
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623290240500	62.32.9.024
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623290240506	62.32.9.024
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623290240540	62.32.9.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623290240600	62.32.9.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623290240600PAS	62.32.9.024
AgSnO2 contacts	623290244000	62.32.9.024
AgSnO2 contacts	623290244040	62.32.9.024
AgSnO2 contacts	623290244060	62.32.9.024
AgSnO2 contacts	623290244300	62.32.9.024
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623290244500	62.32.9.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623290244600	62.32.9.024

Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623290360040	62.32.9.030
General purpose relay	623290480000	62.32.9.040
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623290480040	62.32.9.040
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623290480040PAS	62.32.9.040
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623290480060	62.32.9.040
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	623290480070	62.32.9.040
Lockable test button + flag indicator + LED + diode; positive to pin A/A1 (62.32/62.33 coil voltages up to 125V DC only)	623290480074	62.32.9.040
Plug-in Faston 187 (4.8x0.5mm);AgCdO;2NO (with 3mm gap) 16A	623290480300	62.32.9.040
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623290480360	62.32.9.040
General purpose relay	623290600000	62.32.9.060
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623290600040	62.32.9.060
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	623290600070	62.32.9.060
Plug-in Faston 187 (4.8x0.5mm);AgCdO;2NO (with 3mm gap) 16A	623290600300	62.32.9.060
General purpose relay	623291100000	62.32.9.110
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623291100040	62.32.9.110
Plug-in Faston 187 (4.8x0.5mm;) AgCdO;2CO 16A;lockable test button + flag indicator	623291100040PAS	62.32.9.110
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623291100060	62.32.9.110
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	623291100070	62.32.9.110
Plug-in Faston 187 (4.8x0.5mm);AgCdO;2NO (with 3mm gap) 16A	623291100300	62.32.9.110
AgSnO2 contacts	623291104070	62.32.9.110
125VDC coil (add to 1st column price)	623291250000	62.32.9.125
125VDC coil (add to 1st column price)	623291250040	62.32.9.125
125VDC coil (add to 1st column price)	623291250060	62.32.9.125
125VDC coil (add to 1st column price)	623291250300	62.32.9.125

125VDC coil (add to 1st column price)	623291250360	62.32.9.125
140,145VDC coil (add to 1st column price)	623291400040	62.32.9.140
220VDC coil (add to 1st column price)	623292200000	62.32.9.220
220VDC coil (add to 1st column price)	623292200040	62.32.9.220
220VDC coil (add to 1st column price)	623292200040PAS	62.32.9.220
220VDC coil (add to 1st column price)	623292200300	62.32.9.220
General purpose relay	623380060000	62.33.8.000
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623380060040	62.33.8.000
General purpose relay	623380120000	62.33.8.012
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623380120030	62.33.8.012
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623380120040	62.33.8.012
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623380120040PAS	62.33.8.012
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623380120050	62.33.8.012
AgSnO2 contacts	623380124040	62.33.8.012
General purpose relay	623380240000	62.33.8.024
Rear flange mount (62.32/62.33 only)	623380240006	62.33.8.024
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623380240030	62.33.8.024
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623380240040	62.33.8.024
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623380240040PAS	62.33.8.024
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623380240050	62.33.8.024
Lockable test button+flag indicatr+LED(62.32/62.33 coil voltages up to 240V AC only)	623380240054	62.33.8.024
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623380240056	62.33.8.024
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3NO (with 3mm gap) 16A	623380240300	62.33.8.024
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623380240330	62.33.8.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623380240600	62.33.8.024

AgSnO2 contacts	623380244000	62.33.8.024
AgSnO2 contacts	623380244040	62.33.8.024
General purpose relay	623380480000	62.33.8.048
Rear flange mount (62.32/62.33 only)	623380480006	62.33.8.048
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623380480040	62.33.8.048
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623380480500	62.33.8.048
AgSnO2 contacts	623380484040	62.33.8.048
General purpose relay	623380600000	62.33.8.060
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623380600040	62.33.8.060
General purpose relay	623381100000	62.33.8.110
Rear flange mount (62.32/62.33 only)	623381100006	62.33.8.110
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623381100030	62.33.8.110
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623381100040	62.33.8.110
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623381100040PAS	62.33.8.110
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623381100050	62.33.8.110
Lockable test button+flag indicatr+LED(62.32/62.33 coil voltages up to 240V AC only)	623381100054	62.33.8.110
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623381100056	62.33.8.110
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3NO (with 3mm gap) 16A	623381100300	62.33.8.110
AgSnO2 contacts	623381104000	62.33.8.110
AgSnO2 contacts	623381104300	62.33.8.110
General purpose relay	623381150000	62.33.8.115
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623381150040	62.33.8.115
General purpose relay	623381200000	62.33.8.120
Rear flange mount (62.32/62.33 only)	623381200006	62.33.8.120
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623381200030	62.33.8.120

Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623381200040	62.33.8.12
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623381200040PAS	62.33.8.12
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623381200050	62.33.8.12
Lockable test button+flag indicatr+LED(62.32/62.33 coil voltages up to 240V AC only)	623381200054	62.33.8.12
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623381200330	62.33.8.12
AgSnO2 contacts	623381204300	62.33.8.12
AgSnO2 contacts	623381204306	62.33.8.12
General purpose relay	623381250000	62.33.8.12
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623381250040	62.33.8.12
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623381250050	62.33.8.12
General purpose relay	623382300000	62.33.8.23
Rear flange mount (62.32/62.33 only)	623382300006	62.33.8.23
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623382300030	62.33.8.23
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623382300040	62.33.8.23
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623382300050	62.33.8.23
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623382300050PAS	62.33.8.23
Lockable test button+flag indicatr+LED(62.32/62.33 coil voltages up to 240V AC only)	623382300054	62.33.8.23
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3NO (with 3mm gap) 16A	623382300300	62.33.8.23
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3NO (with 3mm gap) 16A	623382300300PAS	62.33.8.23
Rear flange mount (62.32/62.33 only)	623382300306	62.33.8.23
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623382300330	62.33.8.23
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623382300500	62.33.8.23
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623382300600	62.33.8.23
AgSnO2 contacts	623382304000	62.33.8.23

AgSnO2 contacts	623382304040	62.33.8.230
AgSnO2 contacts	623382304054	62.33.8.230
AgSnO2 contacts	623382304300	62.33.8.230
AgSnO2 contacts	623382304306	62.33.8.230
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623382304500	62.33.8.230
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623382304600	62.33.8.230
General purpose relay	623382400000	62.33.8.240
Rear flange mount (62.32/62.33 only)	623382400006	62.33.8.240
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623382400030	62.33.8.240
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623382400040	62.33.8.240
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	623382400050	62.33.8.240
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3NO (with 3mm gap) 16A	623382400300	62.33.8.240
AgSnO2 contacts	623382404040	62.33.8.240
AgSnO2 contacts	623382404300	62.33.8.240
400VAC coil; (add to 1st column price)	623384000040	62.33.8.400
400VAC coil; (add to 1st column price)	623384000300	62.33.8.400
400VAC coil; (add to 1st column price)	623384000306	62.33.8.400
General purpose relay	623390060000	62.33.9.000
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623390060040	62.33.9.000
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	623390060070	62.33.9.000
General purpose relay	623390120000	62.33.9.010
Rear flange mount (62.32/62.33 only)	623390120006	62.33.9.010
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623390120040	62.33.9.010
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623390120040PAS	62.33.9.010
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623390120060	62.33.9.010

Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	623390120070	62.33.9.012
Lockable test button + flag indicator + LED + diode; positive to pin A/A1 (62.32/62.33 coil voltages up to 125V DC only)	623390120074	62.33.9.012
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3NO (with 3mm gap) 16A	623390120300	62.33.9.012
Rear flange mount (62.32/62.33 only)	623390120306	62.33.9.012
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623390120500	62.33.9.012
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623390120540	62.33.9.012
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623390120600	62.33.9.012
AgSnO2 contacts	623390124000	62.33.9.012
AgSnO2 contacts	623390124040	62.33.9.012
AgSnO2 contacts	623390124070	62.33.9.012
AgSnO2 contacts	623390124074	62.33.9.012
AgSnO2 contacts	623390124300	62.33.9.012
General purpose relay	623390240000	62.33.9.024
Rear flange mount (62.32/62.33 only)	623390240006	62.33.9.024
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623390240040	62.33.9.024
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623390240040PAS	62.33.9.024
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623390240060	62.33.9.024
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	623390240070	62.33.9.024
Lockable test button + flag indicator + LED + diode; positive to pin A/A1 (62.32/62.33 coil voltages up to 125V DC only)	623390240074	62.33.9.024
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	623390240076	62.33.9.024
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3NO (with 3mm gap) 16A	623390240300	62.33.9.024
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3NO (with 3mm gap) 16A	623390240300PAS	62.33.9.024
Rear flange mount (62.32/62.33 only)	623390240306	62.33.9.024
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623390240360	62.33.9.024

Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623390240500	62.33.9.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623390240600	62.33.9.024
AgSnO2 contacts	623390244000	62.33.9.024
AgSnO2 contacts	623390244040	62.33.9.024
AgSnO2 contacts	623390244070	62.33.9.024
AgSnO2 contacts	623390244074	62.33.9.024
AgSnO2 contacts	623390244300	62.33.9.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623390244600	62.33.9.024
General purpose relay	623390360000	62.33.9.036
Rear flange mount (62.32/62.33 only)	623390360006	62.33.9.036
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623390360040	62.33.9.036
General purpose relay	623390480000	62.33.9.048
Rear flange mount (62.32/62.33 only)	623390480006	62.33.9.048
Flag indicator (62.32/62.33/62.82/62.83 only)	623390480020	62.33.9.048
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623390480040	62.33.9.048
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623390480040PAS	62.33.9.048
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623390480060	62.33.9.048
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	623390480070	62.33.9.048
Lockable test button + flag indicator + LED + diode; positive to pin A/A1 (62.32/62.33 coil voltages up to 125V DC only)	623390480074	62.33.9.048
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3NO (with 3mm gap) 16A	623390480300	62.33.9.048
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3NO (with 3mm gap) 16A	623390480300PAS	62.33.9.048
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623390480360	62.33.9.048
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623390480500	62.33.9.048
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623390480540	62.33.9.048

Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	623390480600	62.33.9.04
AgSnO2 contacts	623390484000	62.33.9.04
AgSnO2 contacts	623390484040	62.33.9.04
AgSnO2 contacts	623390484300	62.33.9.04
General purpose relay	623390600000	62.33.9.06
Rear flange mount (62.32/62.33 only)	623390600006	62.33.9.06
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623390600040	62.33.9.06
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	623390600070	62.33.9.06
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3NO (with 3mm gap) 16A	623390600300	62.33.9.06
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	623390600540	62.33.9.06
AgSnO2 contacts	623390604000	62.33.9.06
AgSnO2 contacts	623390604300	62.33.9.06
General purpose relay	623390800000	62.33.9.08
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623390800040	62.33.9.08
General purpose relay	623391100000	62.33.9.11
Flag indicator (62.32/62.33/62.82/62.83 only)	623391100020	62.33.9.11
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623391100040	62.33.9.11
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3CO 16A;lockable test button + flag indicator	623391100040PAS	62.33.9.11
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623391100060	62.33.9.11
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	623391100070	62.33.9.11
Lockable test button + flag indicator + LED + diode; positive to pin A/A1 (62.32/62.33 coil voltages up to 125V DC only)	623391100074	62.33.9.11
Plug-in Faston 187 (4.8x0.5mm);AgCdO;3NO (with 3mm gap) 16A	623391100300	62.33.9.11
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	623391100360	62.33.9.11
AgSnO2 contacts	623391104000	62.33.9.11

AgSnO2 contacts	623391104040	62.33.9.110
AgSnO2 contacts	623391104300	62.33.9.110
125VDC coil (add to 1st column price)	623391250000	62.33.9.125
125VDC coil (add to 1st column price)	623391250020	62.33.9.125
125VDC coil (add to 1st column price)	623391250040	62.33.9.125
125VDC coil (add to 1st column price)	623391250040PAS	62.33.9.125
125VDC coil (add to 1st column price)	623391250060	62.33.9.125
125VDC coil (add to 1st column price)	623391250070	62.33.9.125
125VDC coil (add to 1st column price)	623391250074	62.33.9.125
125VDC coil (add to 1st column price)	623391250300	62.33.9.125
125VDC coil (add to 1st column price)	623391250360	62.33.9.125
140,145VDC coil (add to 1st column price)	623391400000	62.33.9.140
140,145VDC coil (add to 1st column price)	623391400040	62.33.9.140
140,145VDC coil (add to 1st column price)	623391400060	62.33.9.140
140,145VDC coil (add to 1st column price)	623391400070	62.33.9.140
140,145VDC coil (add to 1st column price)	623391400074	62.33.9.140
220VDC coil (add to 1st column price)	623392200000	62.33.9.220
220VDC coil (add to 1st column price)	623392200020	62.33.9.220
220VDC coil (add to 1st column price)	623392200040	62.33.9.220
220VDC coil (add to 1st column price)	623392200040PAS	62.33.9.220
220VDC coil (add to 1st column price)	623392200300	62.33.9.220
220VDC coil (add to 1st column price)	623392204000	62.33.9.220
220VDC coil (add to 1st column price)	623392204040	62.33.9.220
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628280060000	62.82.8.000
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628280060040	62.82.8.000
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628280120000	62.82.8.010

Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628280120040	62.82.8.01
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628280120300	62.82.8.01
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628280240000	62.82.8.02
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628280240000PAS	62.82.8.02
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628280240009	62.82.8.02
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628280240030	62.82.8.02
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628280240040	62.82.8.02
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628280240050	62.82.8.02
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628280240300	62.82.8.02
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628280240300PAS	62.82.8.02
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628280240309	62.82.8.02
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	628280240500	62.82.8.02
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	628280240600	62.82.8.02
AgSnO2 contacts	628280244000	62.82.8.02
AgSnO2 contacts	628280244300	62.82.8.02
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628280480000	62.82.8.04
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628280480040	62.82.8.04
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628280480300	62.82.8.04
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628280600000	62.82.8.06
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628281100000	62.82.8.11
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628281100000PAS	62.82.8.11
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628281100009	62.82.8.11
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628281100040	62.82.8.11
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628281100050	62.82.8.11
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628281100300	62.82.8.11

Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628281100309	62.82.8.110
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	628281104600	62.82.8.110
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628281150000	62.82.8.110
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628281150300	62.82.8.110
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628281200000	62.82.8.120
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628281200000PAS	62.82.8.120
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628281200009	62.82.8.120
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628281200030	62.82.8.120
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628281200040	62.82.8.120
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628281200050	62.82.8.120
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628281200300	62.82.8.120
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	628281200500	62.82.8.120
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	628281200600	62.82.8.120
AgSnO2 contacts	628281204000	62.82.8.120
AgSnO2 contacts	628281204300	62.82.8.120
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628281250000	62.82.8.120
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628281250050	62.82.8.120
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628282300000	62.82.8.230
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628282300000PAS	62.82.8.230
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628282300009	62.82.8.230
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628282300030	62.82.8.230
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628282300040	62.82.8.230
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628282300040PAS	62.82.8.230
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628282300050	62.82.8.230
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628282300300	62.82.8.230

Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628282300300PAS	62.82.8.230
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628282300309	62.82.8.230
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	628282300500	62.82.8.230
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	628282300600	62.82.8.230
AgSnO2 contacts	628282304000	62.82.8.230
AgSnO2 contacts	628282304009	62.82.8.230
AgSnO2 contacts	628282304300	62.82.8.230
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628282400000	62.82.8.240
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628282400040	62.82.8.240
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628282400050	62.82.8.240
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628282400300	62.82.8.240
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	628282400500	62.82.8.240
AgSnO2 contacts	628282404300	62.82.8.240
400VAC coil; (add to 1st column price)	628284000000	62.82.8.400
400VAC coil; (add to 1st column price)	628284000300	62.82.8.400
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628290060000	62.82.9.000
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628290060040	62.82.9.000
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628290120000	62.82.9.010
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628290120000PAS	62.82.9.010
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628290120009	62.82.9.010
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628290120040	62.82.9.010
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	628290120060	62.82.9.010
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	628290120070	62.82.9.010
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628290120300	62.82.9.010
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628290120300PAS	62.82.9.010

Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628290120309	62.82.9.012
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	628290120500	62.82.9.012
AgSnO2 contacts	628290124000	62.82.9.012
AgSnO2 contacts	628290124300	62.82.9.012
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628290240000	62.82.9.024
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628290240000PAS	62.82.9.024
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628290240009	62.82.9.024
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628290240040	62.82.9.024
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	628290240060	62.82.9.024
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	628290240070	62.82.9.024
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628290240300	62.82.9.024
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628290240300PAS	62.82.9.024
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628290240309	62.82.9.024
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	628290240500	62.82.9.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	628290240600	62.82.9.024
AgSnO2 contacts	628290244000	62.82.9.024
AgSnO2 contacts	628290244300	62.82.9.024
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628290360000	62.82.9.036
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628290480000	62.82.9.048
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628290480040	62.82.9.048
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628290480300	62.82.9.048
AgSnO2 contacts	628290484000	62.82.9.048
AgSnO2 contacts	628290484300	62.82.9.048
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628290600000	62.82.9.060
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628290600040	62.82.9.060

Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628290600300	62.82.9.060
AgSnO2 contacts	628290604000	62.82.9.060
AgSnO2 contacts	628290604300	62.82.9.060
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 16A	628291100000	62.82.9.110
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628291100009	62.82.9.110
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628291100040	62.82.9.110
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;2NO (with 3mm gap) 16A	628291100300	62.82.9.110
AgSnO2 contacts	628291104000	62.82.9.110
AgSnO2 contacts	628291104300	62.82.9.110
125VDC coil (add to 1st column price)	628291250000	62.82.9.125
125VDC coil (add to 1st column price)	628291250300	62.82.9.125
140,145VDC coil (add to 1st column price)	628291400000	62.82.9.140
220VDC coil (add to 1st column price)	628292200000	62.82.9.220
220VDC coil (add to 1st column price)	628292200300	62.82.9.220
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628380060000	62.83.8.000
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628380120000	62.83.8.010
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628380120040	62.83.8.010
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628380120300	62.83.8.010
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628380240000	62.83.8.020
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628380240000PAS	62.83.8.020
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628380240009	62.83.8.020
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628380240030	62.83.8.020
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628380240040	62.83.8.020
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628380240050	62.83.8.020
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628380240300	62.83.8.020
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628380240300PAS	62.83.8.020

Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628380240309	62.83.8.024
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	628380240500	62.83.8.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	628380240600	62.83.8.024
AgSnO2 contacts	628380244000	62.83.8.024
AgSnO2 contacts	628380244009	62.83.8.024
AgSnO2 contacts	628380244300	62.83.8.024
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628380480000	62.83.8.048
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628380480009	62.83.8.048
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628380480040	62.83.8.048
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628380480300	62.83.8.048
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628380600000	62.83.8.060
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628381100000	62.83.8.110
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628381100000PAS	62.83.8.110
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628381100009	62.83.8.110
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628381100040	62.83.8.110
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628381100050	62.83.8.110
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628381100300	62.83.8.110
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628381200000	62.83.8.120
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628381200000PAS	62.83.8.120
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628381200009	62.83.8.120
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628381200030	62.83.8.120
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628381200040	62.83.8.120
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628381200050	62.83.8.120
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628381200300	62.83.8.120
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	628381200500	62.83.8.120

Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	628381200600	62.83.8.120
AgSnO2 contacts	628381204000	62.83.8.120
AgSnO2 contacts	628381204300	62.83.8.120
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628381250000	62.83.8.120
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628381250300	62.83.8.120
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628382300000	62.83.8.230
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628382300000PAS	62.83.8.230
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628382300009	62.83.8.230
LED (62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628382300030	62.83.8.230
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628382300040	62.83.8.230
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628382300040PAS	62.83.8.230
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628382300050	62.83.8.230
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628382300300	62.83.8.230
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628382300300PAS	62.83.8.230
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628382300309	62.83.8.230
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	628382300500	62.83.8.230
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	628382300600	62.83.8.230
AgSnO2 contacts	628382304000	62.83.8.230
AgSnO2 contacts	628382304300	62.83.8.230
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	628382304600	62.83.8.230
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628382400000	62.83.8.240
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628382400009	62.83.8.240
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628382400040	62.83.8.240
Lockable test button+LED(62.32/62.33/62.82/62.83 coil voltages up to 240V AC only)	628382400050	62.83.8.240
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628382400300	62.83.8.240

Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628382400309	62.83.8.24
AgSnO2 contacts	628382404300	62.83.8.24
400VAC coil; (add to 1st column price)	628384000000	62.83.8.40
400VAC coil; (add to 1st column price)	628384000300	62.83.8.40
400VAC coil; (add to 1st column price)	628384000600	62.83.8.40
400VAC coil; (add to 1st column price)	628384004300	62.83.8.40
400VAC coil; (add to 1st column price)	628384004600	62.83.8.40
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628390060000	62.83.9.00
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628390060300	62.83.9.00
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628390120000	62.83.9.01
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628390120000PAS	62.83.9.01
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628390120009	62.83.9.01
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628390120040	62.83.9.01
LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	628390120060	62.83.9.01
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	628390120070	62.83.9.01
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628390120300	62.83.9.01
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628390120300PAS	62.83.9.01
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628390120309	62.83.9.01
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	628390120500	62.83.9.01
AgSnO2 contacts	628390124000	62.83.9.01
AgSnO2 contacts	628390124300	62.83.9.01
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628390240000	62.83.9.02
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628390240000PAS	62.83.9.02
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628390240009	62.83.9.02
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628390240040	62.83.9.02

LED + diode; positive to pin A/A1 (62.32/62.33/62.82/62.83 coil voltages up to 125V DC only)	628390240060	62.83.9.024
Lockable test button, LED + diode; positive to pin A/A1 (62.32/62.33/ 62.82/62.83 coil voltages up to 125V DC only)	628390240070	62.83.9.024
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628390240300	62.83.9.024
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628390240300PAS	62.83.9.024
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628390240309	62.83.9.024
Physical separator between coil + contacts for SELV; CO (add to "0000" version price)	628390240500	62.83.9.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	628390240600	62.83.9.024
AgSnO2 contacts	628390244000	62.83.9.024
AgSnO2 contacts	628390244300	62.83.9.024
Physical separator between coil + contacts for SELV; NO (add to "0300" version price)	628390244600	62.83.9.024
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628390480000	62.83.9.048
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628390480009	62.83.9.048
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628390480300	62.83.9.048
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628390480309	62.83.9.048
AgSnO2 contacts	628390484000	62.83.9.048
AgSnO2 contacts	628390484300	62.83.9.048
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628390600000	62.83.9.060
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628390600009	62.83.9.060
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628390600040	62.83.9.060
Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628390600300	62.83.9.060
AgSnO2 contacts	628390604000	62.83.9.060
AgSnO2 contacts	628390604300	62.83.9.060
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;3CO 16A	628391100000	62.83.9.110
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628391100009	62.83.9.110
Lockable test button + flag indicator (62.82/62.83 only - standard on 62.32/62.33)	628391100040	62.83.9.110

Rear flange mount Faston 250 (6.3x0.8mm);AgCdO;3NO (with 3mm gap) 16A	628391100300	62.83.9.110
Faston 250 (6.3x0.8mm);no rear flange (62.82/62.83 only)	628391100309	62.83.9.110
AgSnO2 contacts	628391104000	62.83.9.110
AgSnO2 contacts	628391104300	62.83.9.110
125VDC coil (add to 1st column price)	628391250000	62.83.9.125
125VDC coil (add to 1st column price)	628391250009	62.83.9.125
125VDC coil (add to 1st column price)	628391250300	62.83.9.125
140,145VDC coil (add to 1st column price)	628391400000	62.83.9.140
220VDC coil (add to 1st column price)	628392200000	62.83.9.220
220VDC coil (add to 1st column price)	628392200000PAS	62.83.9.220
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653180060000	65.31.8.000
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653180060300	65.31.8.000
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653180120000	65.31.8.010
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653180120000PAS	65.31.8.010
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653180120009	65.31.8.010
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653180120300	65.31.8.010
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653180120300PAS	65.31.8.010
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653180240000	65.31.8.020
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653180240000PAS	65.31.8.020
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653180240009	65.31.8.020
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653180240300	65.31.8.020
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653180240300PAS	65.31.8.020
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653180480000	65.31.8.040
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653180480009	65.31.8.040
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653180480300	65.31.8.040
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653180600000	65.31.8.060

Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653180600300	65.31.8.06
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653181100000	65.31.8.11
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653181100000PAS	65.31.8.11
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653181100009	65.31.8.11
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653181100300	65.31.8.11
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653181100300PAS	65.31.8.11
AgSnO2 contacts	653181104300	65.31.8.11
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653181150000	65.31.8.11
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653181150300	65.31.8.11
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653181200000	65.31.8.12
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653181200000PAS	65.31.8.12
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653181200300	65.31.8.12
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653181200300PAS	65.31.8.12
AgSnO2 contacts	653181204300	65.31.8.12
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653181250000	65.31.8.12
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653181250300	65.31.8.12
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653182300000	65.31.8.23
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653182300000PAS	65.31.8.23
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653182300009	65.31.8.23
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653182300300	65.31.8.23
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653182300300PAS	65.31.8.23
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653182300309	65.31.8.23
AgSnO2 contacts	653182304000	65.31.8.23
AgSnO2 contacts	653182304300	65.31.8.23
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653182400000	65.31.8.24
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653182400000PAS	65.31.8.24

Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653182400300	65.31.8.24
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653182400300PAS	65.31.8.24
400VAC coil; (add to 1st column price)	653184000000	65.31.8.40
400VAC coil; (add to 1st column price)	653184000300	65.31.8.40
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653190060000	65.31.9.00
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653190060300	65.31.9.00
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653190120000	65.31.9.01
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653190120000PAS	65.31.9.01
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653190120009	65.31.9.01
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653190120300	65.31.9.01
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653190120300PAS	65.31.9.01
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653190120309	65.31.9.01
AgSnO2 contacts	653190124300	65.31.9.01
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653190240000	65.31.9.02
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653190240000PAS	65.31.9.02
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653190240009	65.31.9.02
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653190240300	65.31.9.02
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653190240300PAS	65.31.9.02
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653190240309	65.31.9.02
AgSnO2 contacts	653190244300	65.31.9.02
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653190360000	65.31.9.03
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653190360300	65.31.9.03
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653190480000	65.31.9.04
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653190480000PAS	65.31.9.04
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653190480009	65.31.9.04
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653190480300	65.31.9.04

Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653190480300PAS	65.31.9.04
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653190480309	65.31.9.04
AgSnO2 contacts	653190484300	65.31.9.04
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653190600000	65.31.9.06
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653190600000PAS	65.31.9.06
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653190600009	65.31.9.06
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653190600300	65.31.9.06
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653190600300PAS	65.31.9.06
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653190600309	65.31.9.06
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653190800300	65.31.9.08
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO+1NC 20A	653191100000	65.31.9.11
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653191100009	65.31.9.11
Rear flange mount Faston 250 (6.3x0.8mm); AgCdO; 1NO (with 3mm gap) 30A	653191100300	65.31.9.11
Faston 250 (6.3x0.8mm);no rear flange (65.31only)	653191100309	65.31.9.11
125VDC coil (add to 1st column price)	653191250000	65.31.9.12
125VDC coil (add to 1st column price)	653191250300	65.31.9.12
220VDC coil (add to 1st column price)	653192200000	65.31.9.22
220VDC coil (add to 1st column price)	653192200300	65.31.9.22
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656180060300	65.61.8.00
PCB mount; AgCdO; 1NO+1NC 20A	656180120000	65.61.8.01
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656180120300	65.61.8.01
PCB mount; AgCdO; 1NO+1NC 20A	656180240000	65.61.8.02
PCB mount; AgCdO; 1NO+1NC 20A	656180240000PAS	65.61.8.02
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656180240300	65.61.8.02
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656180240300PAS	65.61.8.02
PCB mount; AgCdO; 1NO+1NC 20A	656180480000	65.61.8.04

PCB mount; AgCdO; 1NO+1NC 20A	656181100000	65.61.8.110
PCB mount; AgCdO; 1NO+1NC 20A	656181100000PAS	65.61.8.110
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656181100300	65.61.8.110
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656181100300PAS	65.61.8.110
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656181150300	65.61.8.110
PCB mount; AgCdO; 1NO+1NC 20A	656181200000	65.61.8.120
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656181200300	65.61.8.120
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656181200300PAS	65.61.8.120
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656181250300	65.61.8.120
PCB mount; AgCdO; 1NO+1NC 20A	656182300000	65.61.8.230
PCB mount; AgCdO; 1NO+1NC 20A	656182300000PAS	65.61.8.230
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656182300300	65.61.8.230
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656182300300PAS	65.61.8.230
AgSnO2 contacts	656182304300	65.61.8.230
PCB mount; AgCdO; 1NO+1NC 20A	656182400000	65.61.8.240
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656182400300	65.61.8.240
400VAC coil; (add to 1st column price)	656184000000	65.61.8.400
400VAC coil; (add to 1st column price)	656184000300	65.61.8.400
PCB mount; AgCdO; 1NO+1NC 20A	656190060000	65.61.9.000
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656190060300	65.61.9.000
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656190060300S	65.61.9.000
PCB mount; AgCdO; 1NO+1NC 20A	656190120000	65.61.9.010
PCB mount; AgCdO; 1NO+1NC 20A	656190120000PAS	65.61.9.010
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656190120300	65.61.9.010
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656190120300S	65.61.9.010
AgSnO2 contacts	656190124300	65.61.9.010

PCB mount; AgCdO; 1NO+1NC 20A	656190240000	65.61.9.024
PCB mount; AgCdO; 1NO+1NC 20A	656190240000PAS	65.61.9.024
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656190240300	65.61.9.024
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656190240300PAS	65.61.9.024
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656190240300S	65.61.9.024
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656190240300SPAS	65.61.9.024
PCB mount; AgCdO; 1NO+1NC 20A	656190480000	65.61.9.048
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656190480300	65.61.9.048
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656190480300PAS	65.61.9.048
PCB mount; AgCdO; 1NO+1NC 20A	656190600000	65.61.9.060
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656190600300	65.61.9.060
PCB mount; AgCdO; 1NO+1NC 20A	656191100000	65.61.9.110
PCB mount; AgCdO; 1NO (with 3mm gap) 30A	656191100300	65.61.9.110
125VDC coil (add to 1st column price)	656191250000	65.61.9.125
125VDC coil (add to 1st column price)	656191250300	65.61.9.125
PCB mount; AgCdO; 2CO; 30A	662280120000	66.22.8.012
PCB mount; AgCdO; 2NO; 30A	662280120300	66.22.8.012
PCB mount; AgNi; 2CO; 30A	662280121000	66.22.8.012
PCB mount; AgNi; 2NO; 30A	662280121300	66.22.8.012
PCB mount; AgCdO; 2CO; 30A	662280240000	66.22.8.024
PCB mount; AgCdO; 2CO; 30A	662280240000PAS	66.22.8.024
PCB mount; AgCdO; 2NO; 30A	662280240300	66.22.8.024
PCB mount; AgCdO; 2NO; 30A	662280240300PAS	66.22.8.024
PCB mount; AgNi; 2CO; 30A	662280241000	66.22.8.024
PCB mount; AgNi; 2NO; 30A	662280241300	66.22.8.024
PCB mount; AgNi; 2CO; 30A	662280481000	66.22.8.048

PCB mount; AgNi; 2NO; 30A	662280481300	66.22.8.04
PCB mount; AgCdO; 2CO; 30A	662281100000	66.22.8.11
PCB mount; AgCdO; 2CO; 30A	662281100000PAS	66.22.8.11
PCB mount; AgCdO; 2NO; 30A	662281100300	66.22.8.11
PCB mount; AgCdO; 2NO; 30A	662281100300PAS	66.22.8.11
PCB mount; AgNi; 2CO; 30A	662281101000	66.22.8.11
PCB mount; AgNi; 2NO; 30A	662281101300	66.22.8.11
PCB mount; AgCdO; 2CO; 30A	662281200000	66.22.8.12
PCB mount; AgCdO; 2CO; 30A	662281200000PAS	66.22.8.12
Wash tight	662281200001	66.22.8.12
PCB mount; AgCdO; 2NO; 30A	662281200300	66.22.8.12
PCB mount; AgCdO; 2NO; 30A	662281200300PAS	66.22.8.12
PCB mount; AgNi; 2CO; 30A	662281201000	66.22.8.12
PCB mount; AgNi; 2NO; 30A	662281201300	66.22.8.12
PCB mount; AgCdO; 2CO; 30A	662282300000	66.22.8.23
PCB mount; AgCdO; 2CO; 30A	662282300000PAS	66.22.8.23
Wash tight	662282300001	66.22.8.23
PCB mount; AgCdO; 2NO; 30A	662282300300	66.22.8.23
PCB mount; AgCdO; 2NO; 30A	662282300300PAS	66.22.8.23
Wash tight	662282300301	66.22.8.23
PCB mount; AgNi; 2CO; 30A	662282301000	66.22.8.23
PCB mount; AgNi; 2NO; 30A	662282301300	66.22.8.23
PCB mount; AgCdO; 2CO; 30A	662282400000	66.22.8.24
PCB mount; AgCdO; 2NO; 30A	662282400300	66.22.8.24
Wash tight	662282400301	66.22.8.24
PCB mount; AgCdO; 2CO; 30A	662290120000	66.22.9.01

PCB mount; AgCdO; 2CO; 30A	662290120000PAS	66.22.9.012
Wash tight	662290120001	66.22.9.012
PCB mount; AgCdO; 2NO; 30A	662290120300	66.22.9.012
PCB mount; AgCdO; 2NO; 30A	662290120300PAS	66.22.9.012
PCB mount; AgNi; 2CO; 30A	662290121000	66.22.9.012
PCB mount; AgNi; 2NO; 30A	662290121300	66.22.9.012
PCB mount; AgCdO; 2CO; 30A	662290240000	66.22.9.024
PCB mount; AgCdO; 2CO; 30A	662290240000PAS	66.22.9.024
Wash tight	662290240001	66.22.9.024
PCB mount; AgCdO; 2NO; 30A	662290240300	66.22.9.024
PCB mount; AgCdO; 2NO; 30A	662290240300PAS	66.22.9.024
PCB mount; AgNi; 2CO; 30A	662290241000	66.22.9.024
PCB mount; AgNi; 2NO; 30A	662290241300	66.22.9.024
PCB mount; AgCdO; 2CO; 30A	662290480000	66.22.9.048
PCB mount; AgCdO; 2CO; 30A	662291100000	66.22.9.110
PCB mount; AgCdO; 2NO; 30A	662291100300	66.22.9.110
PCB mount; AgNi; 2CO; 30A	662291101000	66.22.9.110
PCB mount; AgNi; 2NO; 30A	662291101300	66.22.9.110
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668280120000	66.82.8.012
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668280120300	66.82.8.012
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2CO 30A	668280121000	66.82.8.012
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2NO 30A	668280121300	66.82.8.012
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668280240000	66.82.8.024
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668280240000PAS	66.82.8.024
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668280240300	66.82.8.024
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668280240300PAS	66.82.8.024

Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2CO 30A	668280241000	66.82.8.024
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2NO 30A	668280241300	66.82.8.024
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668280480300	66.82.8.048
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2CO 30A	668280481000	66.82.8.048
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2NO 30A	668280481300	66.82.8.048
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668281100000	66.82.8.110
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668281100000PAS	66.82.8.110
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668281100300	66.82.8.110
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668281100300PAS	66.82.8.110
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2CO 30A	668281101000	66.82.8.110
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2NO 30A	668281101300	66.82.8.110
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668281200000	66.82.8.120
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668281200000PAS	66.82.8.120
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668281200300	66.82.8.120
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668281200300PAS	66.82.8.120
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2CO 30A	668281201000	66.82.8.120
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2NO 30A	668281201300	66.82.8.120
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668282300000	66.82.8.230
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668282300000PAS	66.82.8.230
Wash tight	668282300001	66.82.8.230
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668282300300	66.82.8.230
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668282300300PAS	66.82.8.230
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2CO 30A	668282301000	66.82.8.230
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2NO 30A	668282301300	66.82.8.230
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668282400000	66.82.8.240
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668282400000PAS	66.82.8.240

Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668282400300	66.82.8.24
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668282400300PAS	66.82.8.24
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668290120000	66.82.9.01
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668290120000PAS	66.82.9.01
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668290120300	66.82.9.01
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668290120300PAS	66.82.9.01
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668290120600	66.82.9.01
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668290120600PAS	66.82.9.01
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2CO 30A	668290121000	66.82.9.01
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2NO 30A	668290121300	66.82.9.01
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668290240000	66.82.9.02
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668290240000PAS	66.82.9.02
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668290240300	66.82.9.02
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668290240300PAS	66.82.9.02
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668290240600	66.82.9.02
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668290240600PAS	66.82.9.02
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2CO 30A	668290241000	66.82.9.02
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2NO 30A	668290241300	66.82.9.02
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2CO 30A	668291100000	66.82.9.11
Rear flange mnt Faston 250(6.3x0.8mm);AgCdO;2NO 30A	668291100300	66.82.9.11
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2CO 30A	668291101000	66.82.9.11
Rear flange mnt Faston 250(6.3x0.8mm);AgNi;2NO 30A	668291101300	66.82.9.11
PCB mount power relay - 2NO; 50A; 3mm contacts gap	672290124300	67.22.9.01
PCB mount power relay - 2NO; 50A; 3mm contacts gap	672290124300PAS	67.22.9.01
PCB mount power relay - 3NO; 50A; 3mm contacts gap	672390124300	67.23.9.01
PCB mount power relay - 3NO; 50A; 3mm contacts gap	672390124300PAS	67.23.9.01

PCB mount power relay - 3NO; 50A; 5,2mm contacts gap	672390124500	67.23.9.012
PCB mount power relay - 3NO; 50A; 5,2mm contacts gap	672390124500PAS	67.23.9.012
PCB mount power relay - 3NO; 50A; 3mm contacts gap	672390244300	67.23.9.024
PCB mount power relay - 3NO; 50A; 3mm contacts gap	672390244300PAS	67.23.9.024
1-phase Under/Over voltage or window mode adjustable - 17,5mm wide - 1CO 6A	701182302022	70.11.8.230
1-phase Under/Over voltage or window mode adjustable - 17,5mm wide - 1CO 6A	701182302022PAS	70.11.8.230
3-phase Under/Over voltage or window mode adjustable, phase failure, phase rotation - 36mm wide - 1CO 6A	703184002022	70.31.8.400
3-phase Under/Over voltage or window mode adjustable, phase failure, phase rotation - 36mm wide - 1CO 6A	703184002022PAS	70.31.8.400
3-phase Under/Over voltage or window mode adjustable, phase failure, phase rotation, assymetry, neutral monitoring - 36mm wide - 1CO 6A	704184002030	70.41.8.400
3-phase Under/Over voltage or window mode adjustable, phase failure, phase rotation, assymetry, neutral monitoring - 36mm wide - 1CO 6A	704184002030PAS	70.41.8.400
3 - phase Rotation and phase loss monitoring relay	706184000000	70.61.8.400
3 - phase Rotation and phase loss monitoring relay	706184000000PAS	70.61.8.400
3 - phase Rotation and phase loss monitoring relay; 2CO; modular 22,5 wide	706284000000	70.62.8.400
1-phase, Under/Over voltage (fixed - 0.75 & 1.2UN) monitoring relay	711182300010	71.11.8.230
1-phase, Under/Over voltage (fixed - 0.75 & 1.2UN) monitoring relay	711182300010PAS	71.11.8.230
1-phase, Under/Over voltage (adjustable +- 5 ~ 20%UN) monitoring relay	711182301010	71.11.8.230
1-phase, Under/Over voltage (adjustable +- 5 ~ 20%UN) monitoring relay	711182301010PAS	71.11.8.230
3-phase, Under/Over voltage (adjustable +- 5 ~ 20%UN) monitoring relay	713184001010	71.31.8.400
3-phase, Under/Over voltage (adjustable +- 5 ~ 20%UN) monitoring relay	713184001010PAS	71.31.8.400
3-phase, Under/Over voltage (0.8~0.95)UN> U >1.15UN) + Memory monitoring relay	713184001021	71.31.8.400
3-phase, Under/Over voltage (0.8~0.95)UN> U >1.15UN) + Memory monitoring relay	713184001021PAS	71.31.8.400
3-phase, Phase symmetry, phase interruption and rotation monitoring relay	713184002000	71.31.8.400
3-phase, Phase symmetry, phase interruption and rotation monitoring relay	713184002000PAS	71.31.8.400
Universal AC/DC voltage monitoring relay, range 15~700v DC, 15~480vAC, Adjustable upper and lower value; Adjustable hysteresis & Memory	714182301021	71.41.8.230
Universal AC/DC voltage monitoring relay, range 15~700v DC, 15~480vAC, Adjustable upper and lower value; Adjustable hysteresis & Memory	714182301021PAS	71.41.8.230

Universal AC/DC current monitoring relay, range 0.1~10A DC/AC, Adjustable upper and lower value; Adjustable hysteresis & Memory	715182301021	71.51.8.230
Universal AC/DC current monitoring relay, range 0.1~10A DC/AC, Adjustable upper and lower value; Adjustable hysteresis & Memory	715182301021PAS	71.51.8.230
Thermistor relay (PTC)	719100240300	71.91.0.024
Thermistor relay (PTC)	719100240300PAS	71.91.0.024
Thermistor relay (PTC)	719182300300	71.91.8.230
Thermistor relay (PTC)	719182300300PAS	71.91.8.230
Thermistor relay (PTC)	719200240001	71.92.0.024
Thermistor relay (PTC)	719200240001PAS	71.92.0.024
Thermistor relay (PTC)	719282300001	71.92.8.230
Thermistor relay (PTC)	719282300001PAS	71.92.8.230
Sensitivity range 5...150kOhm adjustable; 35mm rail mount; 24 V AC	720180240000	72.01.8.024
Sensitivity range 5...150kOhm adjustable; 35mm rail mount; 24 V AC	720180240000PAS	72.01.8.024
Sensitivity range 5...150kOhm adjustable; 35mm rail mount; 24 V AC + 2 x 0720206	720180240000POA	72.01.8.024
Sensitivity range 5...450kOhm adjustable; 35mm rail mount; 24 V AC	720180240002	72.01.8.024
Sensitivity range 5...450kOhm adjustable; 35mm rail mount; 24 V AC	720180240002PAS	72.01.8.024
Sensitivity range 5...150kOhm adjustable; 35mm rail mount; 110...125 VAC	720181250000	72.01.8.125
Sensitivity range 5...150kOhm adjustable; 35mm rail mount; 110...125 VAC	720181250000PAS	72.01.8.125
Sensitivity range 5...150kOhm adjustable; 35mm rail mount; 230...240 VAC	720182400000	72.01.8.240
Sensitivity range 5...150kOhm adjustable; 35mm rail mount; 230...240 VAC	720182400000PAS	72.01.8.240
Sensitivity range 5...150kOhm adjustable; 35mm rail mount; 230...240 VAC + 2 x 0720206	720182400000POA	72.01.8.240
Sensitivity range 5...450kOhm adjustable; 35mm rail mount; 230...240 VAC	720182400002	72.01.8.240
Sensitivity range 5...450kOhm adjustable; 35mm rail mount; 230...240 VAC	720182400002PAS	72.01.8.240
Sensitivity range 5...450kOhm adjustable; 35mm rail mount; 230...240 VAC	720182405002	72.01.8.240
Sensitivity range 5...450kOhm adjustable; 35mm rail mount; 230...240 VAC	720182405002PAS	72.01.8.240
Sensitivity range 5...150kOhm adjustable; 35mm rail mount; 400 VAC	720184000000	72.01.8.400

Sensitivity range 5...150kOhm adjustable; 35mm rail mount; 400 VAC	720184000000PAS	72.01.8.400
Sensitivity range 5...150kOhm adjustable; 35mm rail mount; 24 V DC	720190240000	72.01.9.024
Sensitivity range 5...150kOhm adjustable; 35mm rail mount; 24 V DC	720190240000PAS	72.01.9.024
Sensitivity range fixed 150kOhm; 35mm rail mount; 24 V AC	721180240000	72.11.8.024
Sensitivity range fixed 150kOhm; 35mm rail mount; 24 V AC	721180240000PAS	72.11.8.024
Sensitivity range fixed 150kOhm ; 35mm rail mount; 110...125 VAC	721181250000	72.11.8.125
Sensitivity range fixed 150kOhm ; 35mm rail mount; 110...125 VAC	721181250000PAS	72.11.8.125
Sensitivity range fixed 150kOhm ; 35mm rail mount; 230...240 VAC	721182400000	72.11.8.240
Sensitivity range fixed 150kOhm ; 35mm rail mount; 230...240 VAC	721182400000PAS	72.11.8.240
Sensitivity range fixed 150kOhm; 35mm rail mount; 24 V DC	721190240000	72.11.9.024
Sensitivity range fixed 150kOhm; 35mm rail mount; 24 V DC	721190240000PAS	72.11.9.024
Alternating load relay	724200240000	72.42.0.024
Alternating load relay	724200240000PAS	72.42.0.024
Alternating load relay	724202300000	72.42.0.230
Alternating load relay	724202300000PAS	72.42.0.230
Floating switch - 2 watertight chambers float switch for plumbing pumps and water systems automation PVC 5MT.	72A100000500	72.A1.0.000
Floating switch - 2 watertight chambers float switch for plumbing pumps and water systems automation NEOPRENE 5MT.	72A100000501	72.A1.0.000
Floating switch - 2 watertight chambers float switch for plumbing pumps and water systems automation PVC 10MT.	72A100001000	72.A1.0.000
Floating switch - 2 watertight chambers float switch for plumbing pumps and water systems automation PVC 10MT.	72A100001001	72.A1.0.000
Floating switch - 3 watertight chambers floating switch for level control in drainage plants, pumping stations and dirty water PVC 10MT.	72B100001000	72.B1.0.000
Floating switch - 3 watertight chambers floating switch for level control in drainage plants, pumping stations and dirty water NEOPRENE 10MT.	72B100001001	72.B1.0.000
Floating switch - 3 watertight chambers floating switch for level control in drainage plants, pumping stations and dirty water NEOPRENE 20.MT.	72B100002001	72.B1.0.000
Modular monostable solid state relay; 12...24VDC-24VAC	770100248050	77.01.0.024
Modular monostable solid state relay; 12...24VDC-24VAC	770100248050PAS	77.01.0.024
Modular monostable solid state relay; 12...24VDC-24VAC Random function	770100248051	77.01.0.024

Modular monostable solid state relay; 12...24VDC-24VAC Random function	770100248051PAS	77.01.0.024
Modular monostable solid state relay; 110...240VAC	770182308050	77.01.8.230
Modular monostable solid state relay; 110...240VAC	770182308050PAS	77.01.8.230
Modular monostable solid state relay; 110...240VAC Random function	770182308051	77.01.8.230
Modular monostable solid state relay; 110...240VAC Random function	770182308051PAS	77.01.8.230
DIN rail SSR 15 A - zero crossing, 230V AC - contactor connection	771182308250	77.11.8.230
DIN rail SSR 15 A - zero crossing, 230V AC - contactor connection	771182308250PAS	77.11.8.230
DIN rail SSR 15 A - random switch on, 230V AC - contactor connection	771182308251	77.11.8.230
DIN rail SSR 15 A - random switch on, 230V AC - contactor connection	771182308251PAS	77.11.8.230
DIN rail SSR 15 A - zero crossing, 230V AC - relay connection	771190248250	77.11.9.024
DIN rail SSR 15 A - zero crossing, 230V AC - relay connection	771190248250PAS	77.11.9.024
DIN rail SSR 15 A - random switch on, 230V AC - relay connection	771190248251	77.11.9.024
DIN rail SSR 15 A - random switch on, 230V AC - relay connection	771190248251PAS	77.11.9.024
DIN rail SSR 30 A - zero crossing, 230V AC - relay connection	773182308050	77.31.8.230
DIN rail SSR 30 A - zero crossing, 230V AC - relay connection	773182308050PAS	77.31.8.230
DIN rail SSR 30 A - random switch on, 230V AC - relay connection	773182308051	77.31.8.230
DIN rail SSR 30 A - random switch on, 230V AC - relay connection	773182308051PAS	77.31.8.230
DIN rail SSR 30 A - zero crossing, 230V AC - contactor connection	773182308070	77.31.8.230
DIN rail SSR 30 A - zero crossing, 230V AC - contactor connection	773182308070PAS	77.31.8.230
DIN rail SSR 30 A - random switch on, 230V AC - contactor connection	773182308071	77.31.8.230
DIN rail SSR 30 A - random switch on, 230V AC - contactor connection	773182308071PAS	77.31.8.230
DIN rail SSR 30 A - zero crossing, 24V DC - relay connection	773190248050	77.31.9.024
DIN rail SSR 30 A - zero crossing, 24V DC - relay connection	773190248050PAS	77.31.9.024
DIN rail SSR 30 A - random switch on, 24V DC - relay connection	773190248051	77.31.9.024
DIN rail SSR 30 A - random switch on, 24V DC - relay connection	773190248051PAS	77.31.9.024
DIN rail SSR 30 A - zero crossing, 24V DC - contactor connection	773190248070	77.31.9.024

DIN rail SSR 30 A - zero crossing, 24V DC - contactor connection	773190248070PAS	77.31.9.024
DIN rail SSR 30 A - random switch on - 24 V DC - contactor connection	773190248071	77.31.9.024
DIN rail SSR 30 A - random switch on - 24 V DC - contactor connection	773190248071PAS	77.31.9.024
Modular Switching Power Supply - 12W (12V DC) 110-240 V AC - 1 module	781212301200	78.12.1.230
Modular Switching Power Supply - 12W (12V DC) 110-240 V AC - 1 module	781212301200PAS	78.12.1.230
Modular Switching Power Supply - 12W (24V DC) 110-240 V AC - 1 module	781212302400	78.12.1.230
Modular Switching Power Supply - 12W (24V DC) 110-240 V AC - 1 module	781212302400PAS	78.12.1.230
Modular Switching Power Supply - 36W (24V DC) 110-240 V AC - 4 modules	783612302401	78.36.1.230
Modular Switching Power Supply - 36W (24V DC) 110-240 V AC - 4 modules	783612302401PAS	78.36.1.230
Modular Switching Power Supply - 50W (12V DC) 110-240 V AC - 4 modules	785012301203	78.50.1.230
Modular Switching Power Supply - 50W (12V DC) 110-240 V AC - 4 modules	785012301203PAS	78.50.1.230
Modular Switching Power Supply - 60W (24V DC) 110-240 V AC - 4 modules	786012302403	78.60.1.230
Modular Switching Power Supply - 60W (24V DC) 110-240 V AC - 4 modules	786012302403PAS	78.60.1.230
Energy meter 10(25) A 1-phase - Mechanical display	7E1282300002	7E.12.8.230
Energy meter 10(25) A 1-phase - Mechanical display	7E1282300002PAS	7E.12.8.230
Energy meter 5(32)A 1-phase - Mechanical display	7E1382300000	7E.13.8.230
Energy meter 5(32)A 1-phase - Mechanical display	7E1382300000PAS	7E.13.8.230
Energy meter 5(32)A MID 1-phase - Mechanical display	7E1382300010	7E.13.8.230
Energy meter 5(32)A MID 1-phase - Mechanical display	7E1382300010PAS	7E.13.8.230
Energy meter 10(65)A 1-phase - Mechanical display	7E1682300000	7E.16.8.230
Energy meter 10(65)A 1-phase - Mechanical display	7E1682300000PAS	7E.16.8.230
Energy meter 10(65)A MID 1-phase - Mechanical display	7E1682300010	7E.16.8.230
Energy meter 10(65)A MID 1-phase - Mechanical display	7E1682300010PAS	7E.16.8.230
Energy meter 5(32)A 1-phase - Electronic display	7E2382300000	7E.23.8.230
Energy meter 5(32)A 1-phase - Electronic display	7E2382300000PAS	7E.23.8.230
Energy meter 5(32)A 1-phase - Electronic display - Monofunction - Low Cost	7E2382300001	7E.23.8.230

Energy meter 5(32)A 1-phase - Electronic display - Monofunction - Low Cost	7E2382300001PAS	7E.23.8.230
Energy meter 5(32)A, MID 1-phase - Electronic display	7E2382300010	7E.23.8.230
Energy meter 5(32)A, MID 1-phase - Electronic display	7E2382300010PAS	7E.23.8.230
Energy meter 10(65)A 3-phase - Mechanical display	7E3684000000	7E.36.8.400
Energy meter 10(65)A 3-phase - Mechanical display	7E3684000000PAS	7E.36.8.400
Energy meter 10(65)A Dual Tariff 3-phase - Mechanical display	7E3684000002	7E.36.8.400
Energy meter 10(65)A Dual Tariff 3-phase - Mechanical display	7E3684000002PAS	7E.36.8.400
Energy meter 10(65)A Dual Tariff 3-phase - Mechanical display	7E3684000010	7E.36.8.400
Energy meter 10(65)A Dual Tariff 3-phase - Mechanical display	7E3684000010PAS	7E.36.8.400
Energy meter 10(65)A Dual Tariff 3-phase - Mechanical display	7E3684000012	7E.36.8.400
Energy meter 10(65)A Dual Tariff 3-phase - Mechanical display	7E3684000012PAS	7E.36.8.400
Energy meter 10(65)A Dual Tariff 3-phase - Electronic display	7E4684000002	7E.46.8.400
Energy meter 10(65)A Dual Tariff 3-phase - Electronic display	7E4684000002PAS	7E.46.8.400
Energy meter 10(65)A, MID Dual Tariff 3 - Electronic display	7E4684000012	7E.46.8.400
Energy meter 10(65)A, MID Dual Tariff 3 - Electronic display	7E4684000012PAS	7E.46.8.400
Energy meter 10(65)A 3-phase - Electronic display for current transformer	7E5684000000	7E.56.8.400
Energy meter 10(65)A 3-phase - Electronic display for current transformer	7E5684000000PAS	7E.56.8.400
Energy meter 10(65)A, MID 3-phase - Electronic display	7E5684000010	7E.56.8.400
Energy meter 10(65)A, MID 3-phase - Electronic display	7E5684000010PAS	7E.56.8.400
Standard exhaust filter	7F0500001000	7F.05.0.000
Standard exhaust filter	7F0500002000	7F.05.0.000
Standard exhaust filter	7F0500003000	7F.05.0.000
Standard exhaust filter	7F0500004000	7F.05.0.000
Standard exhaust filter	7F0500005000	7F.05.0.000
EMC exhaust filter	7F0700001000	7F.07.0.000
EMC exhaust filter	7F0700002000	7F.07.0.000

EMC exhaust filter	7F0700003000	7F.07.0.000
EMC exhaust filter	7F0700004000	7F.07.0.000
EMC exhaust filter	7F0700005000	7F.07.0.000
Standard filter fan	7F5081201020	7F.50.8.120
Standard filter fan	7F5081202055	7F.50.8.120
Standard filter fan	7F5081203100	7F.50.8.120
Standard filter fan	7F5081204230	7F.50.8.120
Standard filter fan	7F5081204370	7F.50.8.120
Standard filter fan	7F5081205500	7F.50.8.120
Standard filter fan	7F5082301020	7F.50.8.230
Standard filter fan	7F5082302055	7F.50.8.230
Standard filter fan	7F5082303100	7F.50.8.230
Standard filter fan	7F5082304230	7F.50.8.230
Standard filter fan	7F5082304370	7F.50.8.230
Standard filter fan	7F5082305500	7F.50.8.230
Standard filter fan	7F5090241020	7F.50.9.024
Standard filter fan	7F5090242055	7F.50.9.024
Standard filter fan	7F5090243100	7F.50.9.024
Standard filter fan	7F5090244230	7F.50.9.024
EMC filter fan	7F7082301020	7F.70.8.230
EMC filter fan	7F7082302055	7F.70.8.230
EMC filter fan	7F7082303100	7F.70.8.230
EMC filter fan	7F7082304230	7F.70.8.230
EMC filter fan	7F7082304370	7F.70.8.230
EMC filter fan	7F7082305500	7F.70.8.230
EMC filter fan	7F7090241020	7F.70.9.024

EMC filter fan	7F7090242055	7F.70.9.024
EMC filter fan	7F7090243100	7F.70.9.024
EMC filter fan	7F7090244230	7F.70.9.024
Replaceable Modules, Spark-gap N-PE (only for 7P.02)	7P0010000050	7P.00.1.000
Replaceable Modules, Spark-gap N-PE	7P0010000100	7P.00.1.000
Replaceable Modules, Varistor (260VAC)	7P0082600025	7P.00.8.260
SPD Type 1+2 (1 varistor group/spark gap)	7P0182601025	7P.01.8.260
SPD Type 1+2 (1 varistor group/spark gap + 1 spark-gap)	7P0282601025	7P.02.8.260
SPD Type 1+2 (3 varistor group/spark gap)	7P0382601025	7P.03.8.260
SPD Type 1+2 (3 varistor group/spark gap + 1 spark-gap)	7P0482601025	7P.04.8.260
SPD Type 1+2 (4 varistor group/spark gap)	7P0582601025	7P.05.8.260
SPD Type 1+2 (spark gap)	7P0912550100	7P.09.1.255
Replaceable Modules, Spark-gap N-PE	7P1010000025	7P.10.1.000
Replaceable Modules, Varistor (275 V AC)	7P1082750012	7P.10.8.275
SPD Type 1 (1 varistor + 1 spark-gap)	7P1282751012	7P.12.8.275
SPD Type 1 (3 varistors)	7P1382751012	7P.13.8.275
SPD Type 1 (3 varistor + 1 spark-gap)	7P1482751012	7P.14.8.275
SPD Type 1 (4 varistors)	7P1582751012	7P.15.8.275
Replaceable Modules, spark gap N-PE	7P2010000020	7P.20.1.000
Replaceable Modules, Varistor (275 V AC)	7P2082750020	7P.20.8.275
Replaceable Modules, Varistor (375V DC)	7P2093750020	7P.20.9.375
Replaceable Modules, Varistor (500V DC)	7P2095000015	7P.20.9.500
Replaceable Modules, Varistor (600V DC)	7P2096000015	7P.20.9.600
SPD Type 2 (1 varistor)	7P2182751020	7P.21.8.275
SPD Type 2 (1 varistor + 1 spark-gap)	7P2282751020	7P.22.8.275
SPD Type 2 (3 varistors)	7P2382751020	7P.23.8.275

SPD Type 2 (3 varistors) for 1000V DC photovoltaic systems	7P2390001015	7P.23.9.000
SPD Type 2 (3 varistors) for 1200V DC photovoltaic systems	7P2392001015	7P.23.9.200
SPD Type 2 (3 varistors) for 750V DC photovoltaic systems	7P2397501020	7P.23.9.750
SPD Type 2 (3 varistors + 1 spark-gap)	7P2482751020	7P.24.8.275
SPD Type 2 (4 varistors)	7P2582751020	7P.25.8.275
SPD Type 2 (2 varistors + 1 spark-gap) for 1000V DC photovoltaic systems	7P2690001015	7P.26.9.000
SPD Type 2 (2 varistors + 1 spark-gap) for 420V DC photovoltaic systems (EOS)	7P2694201020	7P.26.9.420
General purpose relay	7P3282752001	7P.32.8.275
Modular Safety relay 1NO + 1NC	7S1281205110	7S.12.8.120
Modular Safety relay 1NO + 1NC	7S1282305110	7S.12.8.230
Modular Safety relay 1NO + 1NC	7S1290245110	7S.12.9.024
Modular Safety relay 2NO + 2NC	7S1481200220	7S.14.8.120
Modular Safety relay 3NO + 1NC	7S1481200310	7S.14.8.120
Modular Safety relay 2NO + 2NC	7S1482300220	7S.14.8.230
Modular Safety relay 3NO + 1NC	7S1482300310	7S.14.8.230
Modular Safety relay 2NO + 2NC	7S1490240220	7S.14.9.024
Modular Safety relay 3NO + 1NC	7S1490240310	7S.14.9.024
Modular Safety relay 2NO + 2NC	7S1491100220	7S.14.9.110
Modular Safety relay 3NO + 1NC	7S1491100310	7S.14.9.110
Modular Safety relay 4NO + 2NC	7S1681200420	7S.16.8.120
Modular Safety relay 4NO + 2NC	7S1682300420	7S.16.8.230
Modular Safety relay 4NO + 2NC	7S1690240420	7S.16.9.024
Modular Safety relay 4NO + 2NC	7S1691100420	7S.16.9.110
Modular Industrial thermostat NO contact - NEW	7T8100002301	7T.81.0.000
Modular Industrial thermostat NO contact - NEW	7T8100002301PAS	7T.81.0.000
Modular Industrial thermostat NO contact - NEW	7T8100002303	7T.81.0.000

Modular Industrial thermostat NO contact - NEW	7T8100002303PAS	7T.81.0.000
Modular Industrial thermostat NC contact - NEW	7T8100002401	7T.81.0.000
Modular Industrial thermostat NC contact - NEW	7T8100002401PAS	7T.81.0.000
Modular Industrial thermostat NC contact - NEW	7T8100002403	7T.81.0.000
Modular Industrial thermostat NC contact - NEW	7T8100002403PAS	7T.81.0.000
Multi-function; multi-voltage; 17.5mm wide; 1CO 16A; Functions: AI,DI,SW,BE,CE,DE	800102400000	80.01.0.240
Multi-function; multi-voltage; 17.5mm wide; 1CO 16A; Functions: AI,DI,SW,BE,CE,DE	800102400000PAS	80.01.0.240
special version for railway applications	800102400000T	80.01.0.240
Multi-voltage; 17.5mm wide; 1CO 16A; ON Delay (AI)	801102400000	80.11.0.240
Multi-voltage; 17.5mm wide; 1CO 16A; ON Delay (AI)	801102400000PAS	80.11.0.240
special version for railway applications	801102400000T	80.11.0.240
Multi-voltage; 17.5mm wide; 1CO 16A; ON Pulse (DI)	802102400000	80.21.0.240
Multi-voltage; 17.5mm wide; 1CO 16A; ON Pulse (DI)	802102400000PAS	80.21.0.240
Multi-voltage; 17.5mm wide; 1CO 16A; Signal OFF delay (BE)	804102400000	80.41.0.240
Multi-voltage; 17.5mm wide; 1CO 16A; Signal OFF delay (BE)	804102400000PAS	80.41.0.240
special version for railway applications	804102400000T	80.41.0.240
Multi-function; multi-voltage; 17.5mm wide; 1CO 8A; Functions: AI,DI,SW,BE,CE,DE	805102400000	80.51.0.240
Multi-function; multi-voltage; 17.5mm wide; 1CO 8A; Functions: AI,DI,SW,BE,CE,DE	805102400000PAS	80.51.0.240
Multi-voltage; 17.5mm wide; 1CO 8A; True Off Delay (BI)	806102400000	80.61.0.240
Multi-voltage; 17.5mm wide; 1CO 8A; True Off Delay (BI)	806102400000PAS	80.61.0.240
special version for railway applications	806102400000T	80.61.0.240
Multi-function; multi-voltage; 1 output SST 1A; Functions: AI,DI,SW,BE,CE,DE	807102400000	80.71.0.240
Multi-function; multi-voltage; 1 output SST 1A; Functions: AI,DI,SW,BE,CE,DE	807102400000PAS	80.71.0.240
Multi-voltage; 17.5mm wide; 2NO 6A; Star-Delta (SD)	808202400000	80.82.0.240
Multi-voltage; 17.5mm wide; 2NO 6A; Star-Delta (SD)	808202400000PAS	80.82.0.240

Multi-voltage; 17.5mm wide; 1CO 16A; Asymmetrical recycler ON starting (LI); Signal asymmetrical recycler ON starting (LE);	809102400000	80.91.0.24
Multi-voltage; 17.5mm wide; 1CO 16A; Asymmetrical recycler ON starting (LI); Signal asymmetrical recycler ON starting (LE);	809102400000PAS	80.91.0.24
Multi-function; multi-voltage; 17.5mm wide; 1CO 16A; Functions: AI,DI,SW,SP,BE,DE,EE	810102300000	81.01.0.23
Multi-function; multi-voltage; 17.5mm wide; 1CO 16A; Functions: AI,DI,SW,SP,BE,DE,EE	810102300000PAS	81.01.0.23
special version for railway applications	810102300000T	81.01.0.23
Multi-function; multi-voltage; 22.5mm wide; 1CO 16A; Functions: AI,DI,SW,BE,CE,DE	830102400000	83.01.0.24
Multi-function; multi-voltage; 22.5mm wide; 1CO 16A; Functions: AI,DI,SW,BE,CE,DE	830102400000PAS	83.01.0.24
Multi-function; multi-voltage; 22.5mm wide; 2CO 8A; Functions: AI,DI,GI,SW,BE,CE,DE,EE	830202400000	83.02.0.24
Multi-function; multi-voltage; 22.5mm wide; 2CO 8A; Functions: AI,DI,GI,SW,BE,CE,DE,EE	830202400000PAS	83.02.0.24
Multi-voltage; 22.5mm wide; 1CO 16A; ON Delay (AI)	831102400000	83.11.0.24
Multi-voltage; 22.5mm wide; 1CO 16A; ON Delay (AI)	831102400000PAS	83.11.0.24
Multi-voltage; 22.5mm wide; 1CO 16A; ON Delay (AI)	832102400000	83.21.0.24
Multi-voltage; 22.5mm wide; 1CO 16A; ON Delay (AI)	832102400000PAS	83.21.0.24
Multi-voltage; 22.5mm wide; 1CO 16A; Signal OFF delay (BE)	834102400000	83.41.0.24
Multi-voltage; 22.5mm wide; 1CO 16A; Signal OFF delay (BE)	834102400000PAS	83.41.0.24
Multi-voltage; 22.5mm wide; 2CO 8A; True Off Delay (BI)	836202400000	83.62.0.24
Multi-voltage; 22.5mm wide; 2CO 8A; True Off Delay (BI)	836202400000PAS	83.62.0.24
Multi-voltage; 22.5mm wide; 2NO 8A; Star-Delta (SD)	838202400000	83.82.0.24
Multi-voltage; 22.5mm wide; 2NO 8A; Star-Delta (SD)	838202400000PAS	83.82.0.24
Multi-voltage; 22.5mm wide; 1CO 16A; Asymmetrical recycler ON starting (LI); Signal asymmetrical recycler ON starting (LE);	839102400000	83.91.0.24
Multi-voltage; 22.5mm wide; 1CO 16A; Asymmetrical recycler ON starting (LI); Signal asymmetrical recycler ON starting (LE);	839102400000PAS	83.91.0.24
2CO 10A; ON Delay (AI); ON Pulse (DI); Fixed pulse 0.5s delayed (GI); Symmetrical recycler On start (SW); Supplied with 094.81 metal retaining clip	850200120000	85.02.0.01
2CO 10A; ON Delay (AI); ON Pulse (DI); Fixed pulse 0.5s delayed (GI); Symmetrical recycler On start (SW); Supplied with 094.81 metal retaining clip	850200120000PAS	85.02.0.01
2CO 10A; ON Delay (AI); ON Pulse (DI); Fixed pulse 0.5s delayed (GI); Symmetrical recycler On start (SW); Supplied with 094.81 metal retaining clip	850200240000	85.02.0.02

4CO 7A; ON Delay (AI); ON Pulse (DI); Fixed pulse 0.5s delayed (GI); Symmetrical recycler On start (SW); Supplied with 094.81 metal retaining clip	850401250000	85.04.0.12
4CO 7A; ON Delay (AI); ON Pulse (DI); Fixed pulse 0.5s delayed (GI); Symmetrical recycler On start (SW); Supplied with 094.81 metal retaining clip	850401250000PAS	85.04.0.12
4CO 7A; ON Delay (AI); ON Pulse (DI); Fixed pulse 0.5s delayed (GI); Symmetrical recycler On start (SW); Supplied with 094.81 metal retaining clip	850482400000	85.04.8.24
4CO 7A; ON Delay (AI); ON Pulse (DI); Fixed pulse 0.5s delayed (GI); Symmetrical recycler On start (SW); Supplied with 094.81 metal retaining clip	850482400000PAS	85.04.8.24
Multi-function for use with 90.02, 90.03, 92.03, 96.04 sockets;0.05s-100h;12-240VAC/DC; Functions:AI,DI,SW,BE,CE,DE,EE,FE	860002400000	86.00.0.24
Multi-function for use with 90.02, 90.03, 92.03, 96.04 sockets;0.05s-100h;12-240VAC/DC; Functions:AI,DI,SW,BE,CE,DE,EE,FE	860002400000PAS	86.00.0.24
special version for railway applications	860002400000T	86.00.0.24
Multi-voltage for use with 90.02,90.03,92.03, 94.02, 94.03, 94.04, 95.03, 95.05, 96.02,96.04 and 97 sockets; ON Delay (AI); ON Pulse (DI)	863000240000	86.30.0.02
Multi-voltage for use with 90.02,90.03,92.03, 94.02, 94.03, 94.04, 95.03, 95.05, 96.02,96.04 and 97 sockets; ON Delay (AI); ON Pulse (DI)	863000240000PAS	86.30.0.02
special version for railway applications	863000240000T	86.30.0.02
Multi-voltage for use with 90.02,90.03,92.03, 94.02, 94.03, 94.04, 95.03, 95.05, 96.02, 96.04 and 97 sockets; ON Delay (AI); ON Pulse (DI)	863081200000	86.30.8.12
Multi-voltage for use with 90.02,90.03,92.03, 94.02, 94.03, 94.04, 95.03, 95.05, 96.02, 96.04 and 97 sockets; ON Delay (AI); ON Pulse (DI)	863081200000PAS	86.30.8.12
Multi-voltage for use with 90.02,90.03,92.03, 94.02, 94.03, 94.04, 95.03, 95.05, 96.02, 96.04 and 97 sockets; ON Delay (AI); ON Pulse (DI)	863082400000	86.30.8.24
Multi-voltage for use with 90.02,90.03,92.03, 94.02, 94.03, 94.04, 95.03, 95.05, 96.02, 96.04 and 97 sockets; ON Delay (AI); ON Pulse (DI)	863082400000PAS	86.30.8.24
11-pin;multi-function;2CO 8A; Functions:AE,BE,DE,HE,AI,SW	880202300002	88.02.0.23
11-pin;multi-function;2CO 8A; Functions:AE,BE,DE,HE,AI,SW	880202300002PAS	88.02.0.23
8-pin; multi-function;2 timed contacts or 1 instantaneous + 1 timed contact; Functions: AI a, AI , DI a, DI b	881202300002	88.12.0.23
8-pin; multi-function;2 timed contacts or 1 instantaneous + 1 timed contact; Functions: AI a, AI , DI a, DI b	881202300002PAS	88.12.0.23
General purpose relay	90020SMA	90.02.0.SMA
Screw terminal socket (screw cage clamps) for 60.12 relay/88.12 timer;takes 86.00/10/20, 99.02 modules;supplied with 090.33 metal retaining clip:blue	9002SMA	90.02.SMA
General purpose relay	90030SMA	90.03.0.SMA
Screw terminal socket (screw cage clamps) for 60.13 relay/88.02 timer;takes 86.00/10/20, 99.02 modules;supplied with 090.33 metal retaining clip:blue	9003SMA	90.03.SMA
Panel mount solder socket for 60.12 relay	9012	90.12

Flying solder socket for 60.12 relay/88.12 timer	90124	90.12.4
Panel mount solder socket for 60.13 relay	9013	90.13
Flying solder socket;for 60.13 relay/88.02 timer	90134	90.13.4
PCB socket;20.5mm for 60.12 relay	9014	90.14
PCB socket;17.5mm for 60.12 relay	90141	90.14.1
PCB socket;22mm for 60.13 relay	9015	90.15
PCB socket;19mm for 60.13 relay	90151	90.15.1
General purpose relay	90200SMA	90.20.0.SM
Screw terminal socket (screw cage clamps) for 60.12 relay/88.12 timer;takes 99.01 modules;blue;supplied with 090.33 metal retaining clip	9020SMA	90.20.SMA
General purpose relay	90210SMA	90.21.0.SM
Screw terminal socket (screw cage clamps) for 60.13 relay/88.02 timer;takes 99.01 modules;blue;supplied with 090.33 metal retaining clip	9021SMA	90.21.SMA
Screw terminal socket (screw cage clamps) for 60.12 relay;blue;supplied with 090.33 metal retaining clip	9022SMA	90.22.SMA
Screw terminal socket (screw cage clamps) for 60.12 relay;blue;supplied with 090.33 metal retaining clip	9022SMH	90.22.SMH
Screw terminal socket (screw cage clamps) for 60.13 relay;blue;supplied with 090.33 metal retaining clip	9023SMA	90.23.SMA
Screw terminal socket (screw cage clamps) for 60.13 relay;blue;supplied with 090.33 metal retaining clip	9023SMH	90.23.SMH
General purpose relay	90260SMA	90.26.0.SM
Screw terminal socket (plate clamps) for 60.12 relay/ 88.12 timer;blue;supplied w 090.33 metal retaining clip	9026SMA	90.26.SMA
Screw terminal socket (plate clamps) for 60.12 relay/ 88.12 timer;blue;supplied w 090.33 metal retaining clip	9027SMA	90.27.SMA
Screw terminal socket (screw cage clamps) for 60.12 relay;Varitec;blue	90823	90.82.3
Black version (minimum/multiple order quantity 1000pcs)	908230	90.82.3.0
Screw terminal socket (screw cage clamps) for 60.13 relay;blue	90833	90.83.3
Black version (minimum/multiple order quantity 1000pcs)	908330	90.83.3.0
General purpose relay	92030SMA	92.03.0.SM
Screw terminal socket (screw cage clamps) for 62.32/62.33 relays; takes 99.02/86.00/86.10/86.20 modules;blue;supplied with 092.71 metal retaining clip	9203SMA	92.03.SMA
PCB socket for 62.32/62.33 relays;supplied with 092.54 metal retaining clip	9213SMA	92.13.SMA

Panel mount solder socket for 62.32/62.33 relays;supplied with 092.54 metal retaining clip	9233SMA	92.33.SMA
General purpose relay	924310SMA	92.43.1.0SMA
Screw terminal socket (non-finger-safe plate clamps) for 62.32/62.33 relays;blue;supplied with 092.53 metal retaining clip	92431SMA	92.43.1.SMA
Screw terminal socket	93010024	93.01.0.024
Screw terminal socket	93010060	93.01.0.060
Screw terminal socket	93010125	93.01.0.125
Screw terminal socket	93010240	93.01.0.240
Screw terminal socket; Leakage current suppression	93013125	93.01.3.125
Screw terminal socket; Leakage current suppression	93013240	93.01.3.240
Screw terminal socket	93017024	93.01.7.024
Screw terminal socket	93017060	93.01.7.060
Screw terminal socket	93017125	93.01.7.125
Screw terminal socket	93018240	93.01.8.240
Screw terminal socket	93020024	93.02.0.024
Screw terminal socket	93020060	93.02.0.060
Screw terminal socket	93020125	93.02.0.125
Screw terminal socket	93020240	93.02.0.240
Screw terminal socket	93027024	93.02.7.024
Screw terminal socket	93027060	93.02.7.060
Screw terminal socket	93028230	93.02.8.230
PCB socket for 34.51/34.81	9311	93.11
Screw terminal TIMER SOCKET	93210024	93.21.0.024
Screwless terminal socket (spring cage clamps)	93510024	93.51.0.024
Screwless terminal socket (spring cage clamps)	93510060	93.51.0.060
Screwless terminal socket (spring cage clamps)	93510125	93.51.0.125

Screwless terminal socket (spring cage clamps)	93510240	93.51.0.240
Screwless terminal socket (spring cage clamps); Leakage current suppression	93513125	93.51.3.125
Screwless terminal socket (spring cage clamps); Leakage current suppression	93513240	93.51.3.240
Screwless terminal socket (spring cage clamps)	93517024	93.51.7.024
Screwless terminal socket (spring cage clamps)	93517060	93.51.7.060
Screwless terminal socket (spring cage clamps)	93520024	93.52.0.024
Screwless terminal socket (spring cage clamps)	93520060	93.52.0.060
Screwless terminal socket (spring cage clamps)	93520125	93.52.0.125
Screwless terminal socket (spring cage clamps)	93520240	93.52.0.240
Screwless terminal socket (spring cage clamps)	93527024	93.52.7.024
Screwless terminal socket (spring cage clamps)	93527060	93.52.7.060
Screwless terminal socket (spring cage clamps)	93528230	93.52.8.230
Screw terminal socket (Master Basic)	93617024	93.61.7.024
Screw terminal socket (Master Basic)	93618230	93.61.8.230
Screw terminal socket (Master Output)	93620125	93.62.0.125
Screw terminal socket (Master Output)	93627024	93.62.7.024
Screw terminal socket (Master Output)	93628230	93.62.8.230
Screw terminal socket (Master Plus)	93630024	93.63.0.024
Screw terminal socket (Master Plus)	93630125	93.63.0.125
Screw terminal socket; Leakage current suppression (master Plus)	93633125	93.63.3.125
Screw terminal socket; Leakage current suppression (master Plus)	93633230	93.63.3.230
Screw terminal socket (Master Plus)	93637024	93.63.7.024
Screw terminal socket (Master Plus)	93637060	93.63.7.060
Screw terminal socket (Master Plus)	93637125	93.63.7.125
Screw terminal socket (Master Plus)	93637220	93.63.7.220
Screw terminal socket (Master Plus)	93638230	93.63.8.230

Screw terminal socket (Master Input)	93640024	93.64.0.024
Screw terminal socket (Master Input)	93640125	93.64.0.125
Screw terminal socket (Master Input)	93647220	93.64.7.220
Screw terminal socket (Master Input)	93648230	93.64.8.230
Screw terminal socket (Master Timer)	93680024	93.68.0.024
General purpose relay	94020SMA	94.02.0.SMA
General purpose relay	94020SPA	94.02.0.SPA
Screw terminal socket (screw cage clamps) for use with 55.32/85.02;takes 99.02/86.10/86.20 modules; blue; supplied with 094.71 metal retaining clip	9402SMA	94.02.SMA
Screw terminal socket (screw cage clamps) for use with 55.32/85.02;takes 99.02/86.10/86.20 modules; blue; supplied with 094.913 plastic retain and release clip	9402SPA	94.02.SPA
General purpose relay	94030SMA	94.03.0.SMA
General purpose relay	94030SPA	94.03.0.SPA
Screw terminal socket (screw cage clamps) for use with 55.33/85.03;takes 99.02/86.10/86.20 modules;blue; supplied with 094.71 metal retaining clip	9403SMA	94.03.SMA
Screw terminal socket (screw cage clamps) for use with 55.33/85.03;takes 99.02/86.10/86.20 modules;blue; supplied with 094.913 plastic retain and release clip	9403SPA	94.03.SPA
General purpose relay	94040SMA	94.04.0.SMA
General purpose relay	94040SPA	94.04.0.SPA
Screw terminal socket (screw cage clamps) for use with 55.32/85.02/55.34/85.04;takes 99.02/86.10/86.20 modules;blue;supplied with 094.71 metal retaining clip	9404SMA	94.04.SMA
Screw terminal socket (screw cage clamps) for use with 55.32/85.02/55.34/85.04;takes 99.02/86.10/86.20 modules;blue;supplied with 094.913 plastic retain and release clip	9404SPA	94.04.SPA
PCB socket for use with 55.32;supplied with 094.51 metal retaining clip	9412SMA	94.12.SMA
PCB socket for use with 55.33;supplied with 094.51 metal retaining clip	9413SMA	94.13.SMA
PCB socket for use with 55.32/55.34;supplied with 094.51 metal retaining clip; blue	9414SMA	94.14.SMA
Panel mount socket for use with 55.32;supplied with 094.51 metal retaining clip	9422SMA	94.22.SMA
Panel mount socket for use with 55.33;supplied with 094.51 metal retaining clip	9423SMA	94.23.SMA
Panel mount socket for use with 55.32/55.34;supplied with 094.51 metal retaining clip	9424SMA	94.24.SMA

Panel mount socket for use with 55.32;supplied with 094.51 metal retaining clip	9432SMA	94.32.SMA
Panel mount socket for use with 55.33;supplied with 094.51 metal retaining clip	9433SMA	94.33.SMA
Panel mount socket for use with 55.32/55.34;supplied with 094.51 metal retaining clip	9434SMA	94.34.SMA
Screwless Terminals (spring cage clamps) for use with 55.32/85.02/55.34/85.04;takes 99.80 modules; blue; NEW	9454SMA	94.54.SMA
Screwless Terminals (spring cage clamps) for use with 55.32/85.02/55.34/85.04;takes 99.80 modules; blue; NEW	9454SPA	94.54.SPA
Screw terminal socket for use with 55.32; supplied with 094.51 metal retaining clip	9462SMA	94.62.SMA
Screw terminal socket for use with 55.32/55.34; supplied with 094.51 metal retaining clip	9464SMA	94.64.SMA
General purpose relay	94720SMA	94.72.0.SM
Screw terminal socket (plate clamps);for use with 55.32/ 85.02;takes 99.01 modules;blue;supplied with 094.71 metal retaining clip	9472SMA	94.72.SMA
General purpose relay	94730SMA	94.73.0.SM
Screw terminal socket (plate clamps);for use with 55.33/ 85.03;takes 99.01 modules;blue;supplied with 094.71 metal retaining clip	9473SMA	94.73.SMA
General purpose relay	94740SMA	94.74.0.SM
Screw terminal socket (plate clamps);for use with 55.32/ 85.02/55.34/85.04;takes 99.01 modules;blue; supplied with 094.71 metal retaining clip	9474SMA	94.74.SMA
General purpose relay	94820SMA	94.82.0.SM
Black version (minimum/multiple order quantity 1000pcs)	948230SMA	94.82.3.0SF
Black version (minimum/multiple order quantity 1000pcs)	948230SPA	94.82.3.0SF
Screw terminal socket (screw cage clamps) for use with 55.32/85.02;takes 99.80 modules;blue;supplied with 094.71 metal retaining clip	94823SMA	94.82.3.SM
Screw terminal socket (screw cage clamps) for use with 55.32/85.02;takes 99.80 modules;blue;supplied with 094.91.3 plastic retain and release clip;blue	94823SPA	94.82.3.SPA
Screw terminal socket (plate clamps);for use with 55.32/ 85.02;takes 99.01 modules;blue;supplied with 094.71 metal retaining clip	9482SMA	94.82.SMA
Screw terminal socket (screw cage clamps) for use with 55.34;takes 99.80 modules;	94842	94.84.2
Black version (minimum/multiple order quantity 1000pcs)	948420	94.84.2.0
Black version (minimum/multiple order quantity 1000pcs)	948420SMA	94.84.2.0SF
Black version (minimum/multiple order quantity 1000pcs)	948420SPA	94.84.2.0SF
Screw terminal socket (screw cage clamps) for use with 55.34;takes 99.80 modules; blue; supplied with 094.71 metal retaining clip	94842SMA	94.84.2.SM

Screw terminal socket (screw cage clamps) for use with 55.34;takes 99.80 modules;blue;supplied with 094.80.2 plastic retain and release clip;blue	94842SPA	94.84.2.SPA
Black version (minimum/multiple order quantity 1000pcs)	948430SMA	94.84.3.0SI
Black version (minimum/multiple order quantity 1000pcs)	948430SPA	94.84.3.0SI
Screw terminal socket (screw cage clamps) for use with 55.32/85.02/55.34/85.04;takes 99.80 modules; blue; supplied with 094.71 metal retaining clip	94843SMA	94.84.3.SM
Screw terminal socket (screw cage clamps) for use with 55.32/55.34/85.02/85.04;takes 99.80 modules;blue;supplied with 094.91.3 plastic retain and release clip;blue	94843SPA	94.84.3.SPA
Black version (minimum/multiple order quantity 1000pcs)	949230SMA	94.92.3.0SI
Black version (minimum/multiple order quantity 1000pcs)	949230SPA	94.92.3.0SI
Screw terminal socket (screw cage clamps) for use with 55.32/85.02;takes 99.80 modules;black;supplied with 094.71 metal retain and release clip;blue	94923SMA	94.92.3.SM
Screw terminal socket (screw cage clamps) for use with 55.32/85.02;takes 99.80 modules;black;supplied with 094.91.3 plastic retain and release clip;blue	94923SPA	94.92.3.SPA
Black version (minimum/multiple order quantity 1000pcs)	949430SMA	94.94.3.0SI
Black version (minimum/multiple order quantity 1000pcs)	949430SPA	94.94.3.0SI
Screw terminal socket (screw cage clamps) for use with 55.32/85.02/55.34/85.04;takes 99.80 modules; blue; supplied with 094.91.3 plastic retaining clip	94943SMA	94.94.3.SM
Screw terminal socket (screw cage clamps) for use with 55.32/85.02/55.34/85.04;takes 99.80 modules; blue; supplied with 094.71 metal retaining clip	94943SPA	94.94.3.SPA
General purpose relay	95030SPA	95.03.0.SPA
Screw terminal socket (screw cage clamps) for use with 40.31 relays;takes 99.02/86.10/86.20 modules; blue;supplied with 095.71 metal retaining clip	9503SMA	95.03.SMA
Screw terminal socket (screw cage clamps) for use with 40.31 relays;takes 99.02/86.10/86.20 modules; blue;supplied with 095.01 plastic retain/release clip	9503SPA	95.03.SPA
General purpose relay	95050SPA	95.05.0.SPA
Screw terminal socket (screw cage clamps) for use with 40.51/40.52/40.61/44.52/44.62 relays;takes 99.02/86.10/86.20 modules;blue;supplied with 095.71 metal retaining clip	9505SMA	95.05.SMA
Screw terminal socket (screw cage clamps) for use with 40.51/40.52/40.61/44.52/44.62 relays;takes 99.02/86.10/86.20 modules;blue;supplied with 095.01 plastic retain/release clip	9505SPA	95.05.SPA
General purpose relay	951320SLA	95.13.2.0SI
General purpose relay	951320SMA	95.13.2.0SI
General purpose relay	951320SNA	95.13.2.0SI

PCB socket; for use with 41.31 relay; supplied with 095.42 plastic retaining clip;blue	95132SLA	95.13.2.SLA
PCB socket; for use with 40.31 relay; supplied with 095.51 metal retaining clip; blue	95132SMA	95.13.2.SM
PCB socket; for use with 41.31 relay; supplied with 095.41.3 metal retaining clip;blue	95132SNA	95.13.2.SNA
General purpose relay	951520SLA	95.15.2.0SLA
General purpose relay	951520SMA	95.15.2.0SM
General purpose relay	951520SNA	95.15.2.0SNA
PCB socket; for use with 41.52/41.61 relays; supplied with 095.42 plastic retaining clip;blue	95152SLA	95.15.2.SLA
PCB socket; for use with 40.51/40.52/40.61/44.52/44.62 relays; supplied with 095.51 metal retaining clip; blue	95152SMA	95.15.2.SM
PCB socket; for use with 41.52/41.61 relays; supplied with 095.41.3 metal retaining clip;blue	95152SNA	95.15.2.SNA
General purpose relay	95230SNA	95.23.0.SNA
PCB socket; for use with 43.41 relay; supplied with 095.43 metal retaining clip;blue	9523SNA	95.23.SNA
General purpose relay	95550SPA	95.55.0.SPA
Screw terminal socket (screw cage clamps) for use with 40.51, 40.52,40.61,44 relays;takes 99.80 modules;blue;supplied with 095.91.3 plastic retain/release clip	95553SPA	95.55.3.SPA
Screw terminal socket (screw cage clamps) for use with 40.51,40.52,40.61,44 relays;takes 99.02 modules;blue;supplied with 095.91.3 metal retain/release clip	9555SMA	95.55.SMA
Screw terminal socket (screw cage clamps) for use with 40.51,40.52,40.61,44 relays;takes 99.02 modules;blue;supplied with 095.91.3 plastic retain/release clip	9555SPA	95.55.SPA
Screw terminal socket (screw cage clamps) for use with 40.31 relays;takes 99.01 modules;blue;supplied with 095.71 metal retaining clip	9563SMA	95.63.SMA
Screw terminal socket (screw cage clamps) for use w 40.51/40.52/40.61/44.52/44.62 relays;takes 99.01 modules;blue;supplied w 095.71 metal retaining clip	9565SMA	95.65.SMA
General purpose relay	95750SMA	95.75.0.SM
Screw terminal socket (screw cage clamps) for use w 40.51/40.52/40.61/44.52/44.62 relays;takes 99.01 modules;blue;supplied w 095.71 metal retaining clip	9575SMA	95.75.SMA
General purpose relay	958330SMA	95.83.3.0.SMA
General purpose relay	958330SPA	95.83.3.0.SPA
Screw terminal socket (screw cage clamps) for use with 40.31 relays;takes 99.80 modules;blue;supplied with 095.71. metal retain clip	95833SMA	95.83.3.SM
Screw terminal socket (screw cage clamps) for use with 40.31 relays;takes 99.80 modules;blue;supplied with 095.91.3 plastic retain/release clip	95833SPA	95.83.3.SPA

General purpose relay	958530SMA	95.85.3.0.S
General purpose relay	958530SPA	95.85.3.0.S
Screw terminal socket (screw cage clamps) for use with 40.51/40.52/40.61/44.52/44.62 relays;takes 99.80modules; blue;supplied with 095.71 metal retainclip	95853SMA	95.85.3.SM
Screw terminal socket (screw cage clamps) for use with 40.51/40.52/40.61/44.52/44.62 relays;takes 99.80modules; blue;supplied with 095.91.3 plastic retain/release clip	95853SPA	95.85.3.SPA
General purpose relay	959330SPA	95.93.3.0.S
Screw terminal socket (screw cage clamps) for use with 40.31 relays;takes 99.80 modules; blue;supplied with 095.91.3 plastic retain/release clip	95933SPA	95.93.3.SPA
General purpose relay	959530SPA	95.95.3.0,S
Screw terminal socket (screw cage clamps) for use with 40.51/40.52/40.61/44.52/44.62 relays;takes 99.80 modules;blue;supplied with 095.91.3 plastic retain/release clip	95953SPA	95.95.3.SPA
Screw terminal socket (screw cage clamps) for use with 56.32;takes 99.02/86.30 modules; blue; supplied with 094.71 metal retaining clip	9602SMA	96.02.SMA
Screw terminal socket (screw cage clamps) for use with 56.32;takes 99.02/86.30 modules; blue; supplied with 094.91.3 plastic retaining clip	9602SPA	96.02.SPA
Screw terminal socket (screw cage clamps) for use with 56.34;takes 99.02/86,00/86.30 modules; blue; supplied with 096.71 metal retaining clip	9604SMA	96.04.SMA
PCB socket for use with 56.32 relay;supplied with 094.51 metal retaining clip	9612SMA	96.12.SMA
PCB socket for use with 56.34 relay;supplied with 094.51 metal retaining clip	9614SMA	96.14.SMA
General purpose relay	96720SMA	96.72.0.SM
Screw terminal socket (plate clamps) for use with 56.32 relay;blue;supplied with 094.71 metal retaining clip	9672SMA	96.72.SMA
General purpose relay	96740SMA	96.74.0.SM
Screw terminal socket (plate clamps) for use with 56.34 relay;blue;supplied with 096.71 metal retaining clip	9674SMA	96.74.SMA
Screw terminal socket (plate clamps) for use with 46,61 relays;	9701SMA	97.01.SMA
Screw terminal socket (screw cage clamps) for use with 46,61 relays;	9701SPA	97.01.SPA
General purpose relay	97020SPA	97.02.0.SPA
Screw terminal socket (plate clamps) for use with 46,52 relays;	9702SMA	97.02.SMA
Screw terminal socket (screw cage clamps) for use with 46,52 relays;	9702SPA	97.02.SPA
P.C.B socket (screw cage clamps) for use with 46,61/46,52 relays;	9711	97.11

P.C.B. socket (screw cage clamps) for use with 46,61/46,52 relays;	9712	97.12
Screw terminal socket (plate clamps) for use with 46,61 relays;	9751SMA	97.51.SMA
Screw terminal socket (screw cage clamps) for use with 46,61 relays;	9751SPA	97.51.SPA
Screw terminal socket (plate clamps) for use with 46,52 relays;	9752SMA	97.52.SMA
Screw terminal socket (screw cage clamps) for use with 46,52 relays;	9752SPA	97.52.SPA
Red LED + varistor; 6-24VAC/DC	9901002408	99.01.0.024
RC + varistor; 6-24VAC/DC	9901002409	99.01.0.024
Red LED; 6-24VAC/DC	9901002450	99.01.0.024
Green LED; 6-24VAC/DC	9901002459	99.01.0.024
Green LED + varistor; 6-24VAC/DC	9901002498	99.01.0.024
Red LED + varistor; 28-60VAC/DC	9901006008	99.01.0.060
RC + varistor; 28-60VAC/DC	9901006009	99.01.0.060
Red LED; 28-60VAC/DC	9901006050	99.01.0.060
Green LED; 28-60VAC/DC	9901006059	99.01.0.060
Green LED + varistor; 28-60VAC/DC	9901006098	99.01.0.060
Red LED + varistor; 110-240VAC/DC	9901023008	99.01.0.230
RC + varistor; 110-240VAC/DC	9901023009	99.01.0.230
Red LED; 110-240VAC/DC	9901023050	99.01.0.230
Green LED; 110-240VAC/DC	9901023059	99.01.0.230
Green LED + varistor; 110-240VAC/DC	9901023098	99.01.0.230
Diode (inverted polarity); 6-220VDC	9901200000	99.01.2.000
Diode (standard polarity); 6-220VDC	9901300000	99.01.3.000
Residual current bypass 110-240VAC	9901823007	99.01.8.230
Green LED + diode (inverted polarity); 6-24VDC	9901902479	99.01.9.024
Red LED + diode (standard polarity); 6-24VDC	9901902490	99.01.9.024
Green LED + diode (standard polarity); 6-24VDC	9901902499	99.01.9.024

Green LED + diode (inverted polarity); 28-60VDC	9901906079	99.01.9.060
Red LED + diode (standard polarity); 28-60VDC	9901906090	99.01.9.060
Green LED + diode (standard polarity); 28-60VDC	9901906099	99.01.9.060
Red LED + diode (standard polarity); 90-145VDC	9901914590	99.01.9.145
Green LED + diode (inverted polarity); 110-220VDC	9901922079	99.01.9.220
Red LED + diode (standard polarity); 110-220VDC	9901922090	99.01.9.220
Green LED + diode (standard polarity); 110-220VDC	9901922099	99.01.9.220
RC + varistor; 6-24VAC/DC	9902002409	99.02.0.024
Green LED; 6-24VAC/DC	9902002459	99.02.0.024
Green LED + varistor; 6-24VAC/DC	9902002498	99.02.0.024
RC + varistor; 28-60VAC/DC	9902006009	99.02.0.060
Green LED; 28-60VAC/DC	9902006059	99.02.0.060
Green LED + varistor; 28-60VAC/DC	9902006098	99.02.0.060
RC + varistor; 110-240VAC/DC	9902023009	99.02.0.230
Green LED; 110-240VAC/DC	9902023059	99.02.0.230
Green LED + varistor; 110-240VAC/DC	9902023098	99.02.0.230
Diode (inverted polarity); 6-220VDC	9902200000	99.02.2.000
Diode (standard polarity); 6-220VDC	9902300000	99.02.3.000
Residual current bypass 110-240VAC	9902823007	99.02.8.230
Green LED + diode (inverted polarity); 6-24VDC	9902902479	99.02.9.024
Green LED + diode (standard polarity); 6-24VDC	9902902499	99.02.9.024
Green LED + diode (inverted polarity); 28-60VDC	9902906079	99.02.9.060
Green LED + diode (standard polarity); 28-60VDC	9902906099	99.02.9.060
Green LED + diode (inverted polarity); 110-220VDC	9902922079	99.02.9.220
Green LED + diode (standard polarity); 110-220VDC	9902922099	99.02.9.220
Red LED + varistor; 6-24VAC/DC	9980002408	99.80.0.024

RC + varistor; 6-24VAC/DC	9980002409	99.80.0.024
Red LED; 6-24VAC/DC	9980002450	99.80.0.024
Green LED; 6-24VAC/DC	9980002459	99.80.0.024
Green LED + varistor; 6-24VAC/DC	9980002498	99.80.0.024
Red LED + varistor; 28-60VAC/DC	9980006008	99.80.0.060
RC + varistor; 28-60VAC/DC	9980006009	99.80.0.060
Red LED; 28-60VAC/DC	9980006050	99.80.0.060
Green LED; 28-60VAC/DC	9980006059	99.80.0.060
Green LED + varistor; 28-60VAC/DC	9980006098	99.80.0.060
Red LED + varistor; 110-240VAC/DC	9980023008	99.80.0.230
RC + varistor; 110-240VAC/DC	9980023009	99.80.0.230
Red LED; 110-240VAC/DC	9980023050	99.80.0.230
Green LED; 110-240VAC/DC	9980023059	99.80.0.230
Green LED + varistor; 110-240VAC/DC	9980023098	99.80.0.230
Diode (standard polarity); 6-220VDC	9980300000	99.80.3.000
Residual current bypass 110-240VAC	9980823007	99.80.8.230
Red LED + diode (standard polarity); 6-24VDC	9980902490	99.80.9.024
Green LED + diode (standard polarity); 6-24VDC	9980902499	99.80.9.024
Red LED + diode (standard polarity); 28-60VDC	9980906090	99.80.9.060
Green LED + diode (standard polarity); 28-60VDC	9980906099	99.80.9.060
Red LED + diode (standard polarity); 110-220VDC	9980922090	99.80.9.220
Green LED + diode (standard polarity); 110-220VDC	9980922099	99.80.9.220