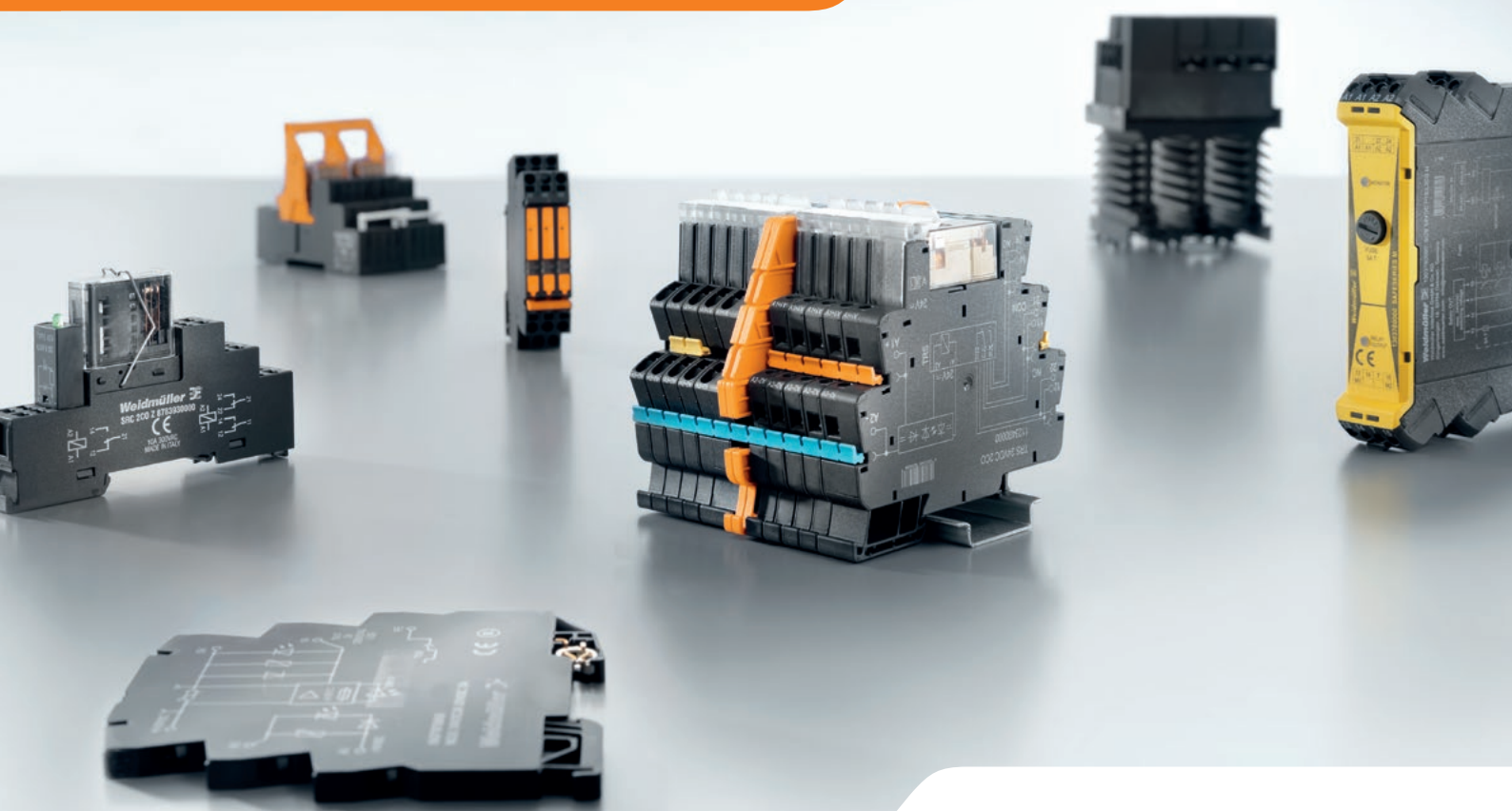


Relays, solid-state relays, timer and safety relays

Catalogue 2018/2019

Let's connect.

Relays and solid-state relays



Weidmüller 

Dear Customers,

The PDF versions of our catalogues offer practical additional functions, helping you to find your way around our product range and simplifying the ordering process.

In addition to the catalogue, the PDF also contains:

- Internal page links
- Links to the online catalogue

Try it out for yourself. Click the order number to obtain more detailed information and close-up images via your web browser. The links in the PDF file also enable you to go directly to the next desired catalogue page.

Further Weidmüller product catalogues can be accessed by clicking the following:



Relays, solid-state relays, timer and safety relays

Catalogue 4.2

Relays, solid-state relays, timer and safety relays

Relay modules and solid-state relays in 6 mm width

Industrial relay modules

Power electronics

Safety relay

Timer

A

B

C

D

E

Appendix

Service and support

Technical appendix/Glossary

Index

Index Type / Index Order No.
Addresses worldwide

V

W

X

The Weidmüller range at a glance

A world full of connections



Applications



Photovoltaics



Wind



Weidmüller Monitoring Systems



Machinery

Devices



Electronic housings



PCB RJ 45 sockets



PCB USB sockets



PCB power connectors
PUSH IN



PCB power connectors
screw



PCB power terminals
PUSH IN



PCB power terminals
screw



PCB signal connectors
PUSH IN



PCB signal connectors
screw



PCB signal terminals
PUSH IN



PCB signal terminals
screw

Cabinet



Wireless routers



Routers



IoT gateways



IoT controllers with
web-based engineering



Multi-touch panels



Communicative signal
processing



Remote I/O



Switches unmanaged



Switches managed



Cable connectors



Communication-capable
power supply



Service interfaces



Energy monitoring



Analogue signal conditioning



Solid-state relays



Power supplies



Buffer/USV/Batteries



Control voltage distribution



Safety relays



Surge protection signals



Terminals stud



Terminals screw



Terminals tension clamp



Terminals PUSH IN



Shielding and earthing



Interfaces



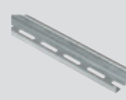
Surge protection power



Relay modules



Relays and solid-state relays



Mounting rails



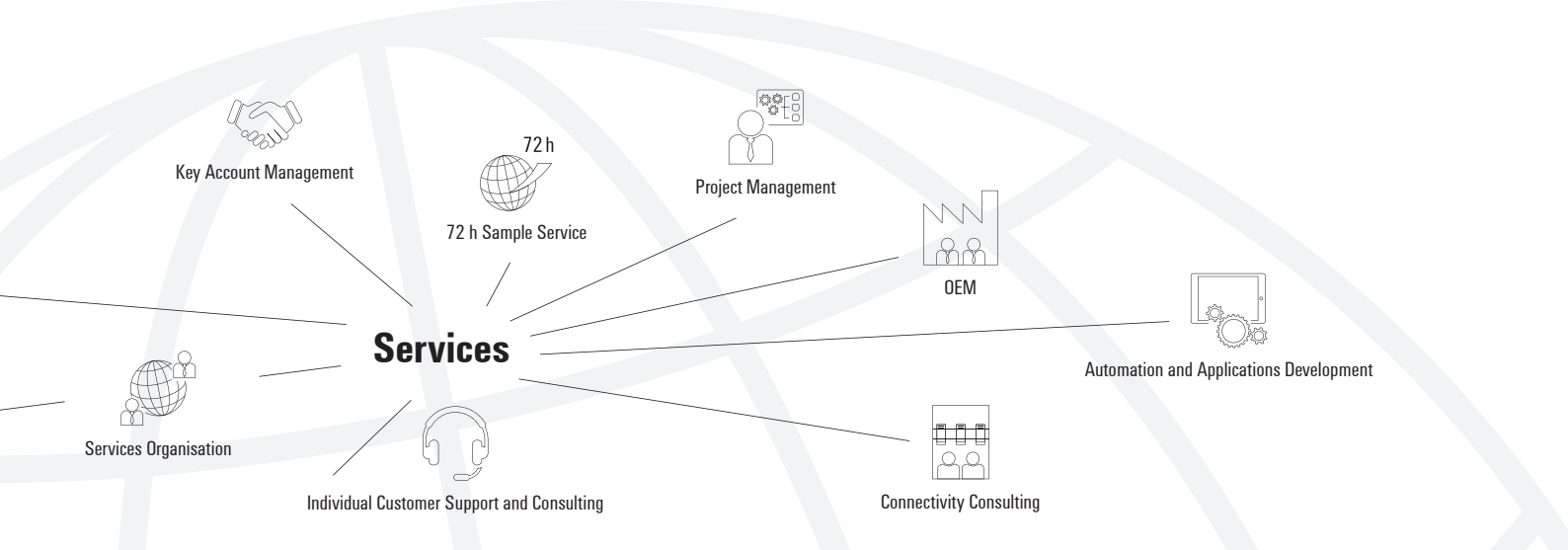
Assembled rails



Cable ducts



Filter fans



Remote Maintenance



Terminal Strip Assembly



Enclosure Assembly



Industrial Analytics

Field



IE connections



Unmanaged switches IP 67



Contactless power transmission



SAI remote I/O



SAI passive



SAI interfaces



Decentralised power bus systems



Heavy-duty connectors



HighPower connectors



IE interfaces



Cord sets



Cable entry systems



Stainless steel enclosures



Aluminium enclosures



Plastic enclosures



Cable glands

Workplace



Weidmüller Configurator



Systemised marking software



Printers (ink application)



Printers (thermal transfer)



Wire markers



Cable markers



Terminal markers



Device markers



Testing



Other tools



Cutting



Stripping



Crimping



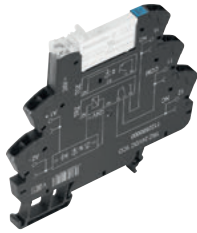
Machines

Relays and solid-state relays

An overview of our portfolio

TERMSERIES relay modules

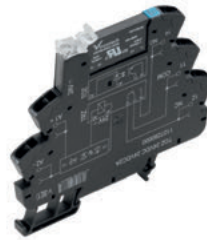
Page A.8



- All-purpose, pluggable relay modules
- Space-saving width
- AgNi contact with and without gold plating
- AgSnO contact variations
- Screw and tension clamp connection

TERMSERIES – solid-state relays

Page A.30



- All-purpose, pluggable solid-state relays
- Space-saving width
- DC and AC output variants
- Screw and tension clamp connection

TERMSERIES adapters

Page A.56



- Suitable for input and output logic
- Version for TERMSERIES base

TERMOPTO – solid-state relays

Page A.62



- Isolation of potentials in terminal format
- With PUSH IN technology
- Compact, enclosed design

MICROOPTO – solid-state relays

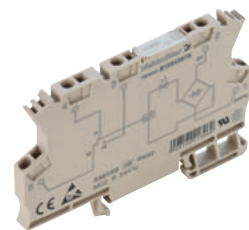
Page A.74



- Compact semiconductor switch in terminal format
- High power for loads up to 10 A
- Electrically isolates high-speed signals
- International approvals

MCZ SERIES relay modules

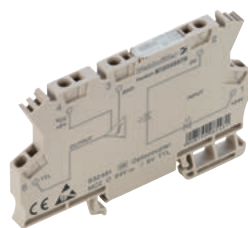
Page A.84



- Low profile with tension clamp connection
- TRAK version developed for the rail industry
- Large temperature range of -40 °C to +70 °C

MCZ-SERIES – solid-state relays

Page A.90



- Low profile with tension clamp connection
- Universal interface between controller and sensor/actuator
- TRAK version developed for the rail industry

D-SERIES relay modules

Page B.6



- Modularly designed product line
- Pluggable variants with 1 to 4 CO contacts
- Special variants for switching high DC loads

RIDERSERIES relay modules

Page B.60



- Modularly designed product line
- Pluggable variants with 1 to 4 CO contacts
- Innovative relay base with PUSH IN connection

RIDERSERIES FG relay modules

Page B.96



- Modularly designed product line
- Relays with forcibly guided contacts
- Screw or tension clamp connection

PSSR 1-phase Power solid-state relays

Page C.4



- Load circuit: 12...275 V AC / 25 A or 24...600 V AC/35 A
- Zero-cross switch
- Ready to use
- Attachable monitoring module

PSSR 1-phase Power solid-state relays

Page C.6



- Load circuit 24...510 V AC/22 A
- Instantaneous-switching output
- Ready to use
- Attachable monitoring module

PSSR 1-phase Power solid-state relays

Page C.9



- Load circuit: 24...600 V/50 A or 75 A
- No-voltage switch
- Compact design

PSSR 3-phase Power solid-state relays

Page C.12



- Load circuit: 24...520 V AC / 20 A at 55 °C
- No-voltage switch
- Ready to use

SIL relay

Page D.6



- TÜV "Safety-Approved"
- SIL3 acc. to EN61508
- De-energise/Energise to Safe applications

IT-Timer - industry timing relay

Page E.4



- Multi-voltage input 24...48 V DC / 24...20 V AC
- Space-saving construction
- 7 time functions with separate control input

BT-SERIES - Timer

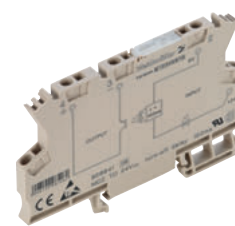
Page E.8



- Time range: 0.10 s...120 h
- Screw or tension clamp connection
- International approvals

Timer with 6 mm width

Page E.12



- Components for lengthening short pulses for the PLC
- Low input power
- DKZ Series with adjustable switch-off delay

Relay modules and solid-state relays in 6 mm width

Relay modules and solid-state relays in 6 mm width

Relay modules and solid-state relays in 6 mm width - Overview	A.2
TERMSERIES - Overview	A.4
TERMSERIES - relay modules	A.8
TERMSERIES - solid-state relays	A.30
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MICROOPTO - Overview	A.72
MICROOPTO - solid-state relays	A.74
MCZ-SERIES - relay modules	A.84
MCZ-SERIES - solid-state relays	A.90

Coupling modules in a terminal block design

Relay modules and solid-state relays in 6 mm width

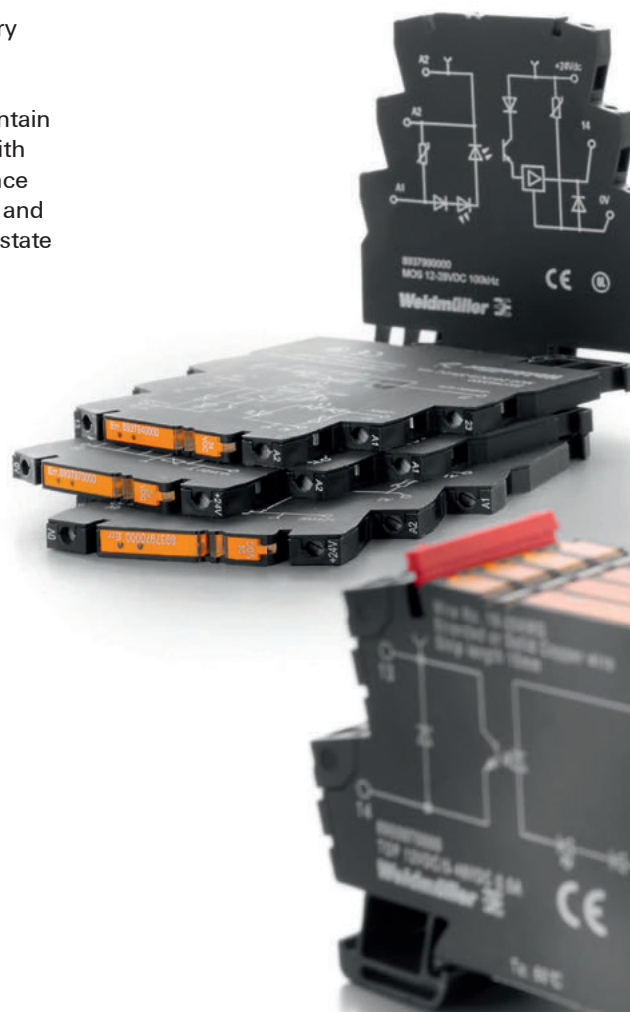
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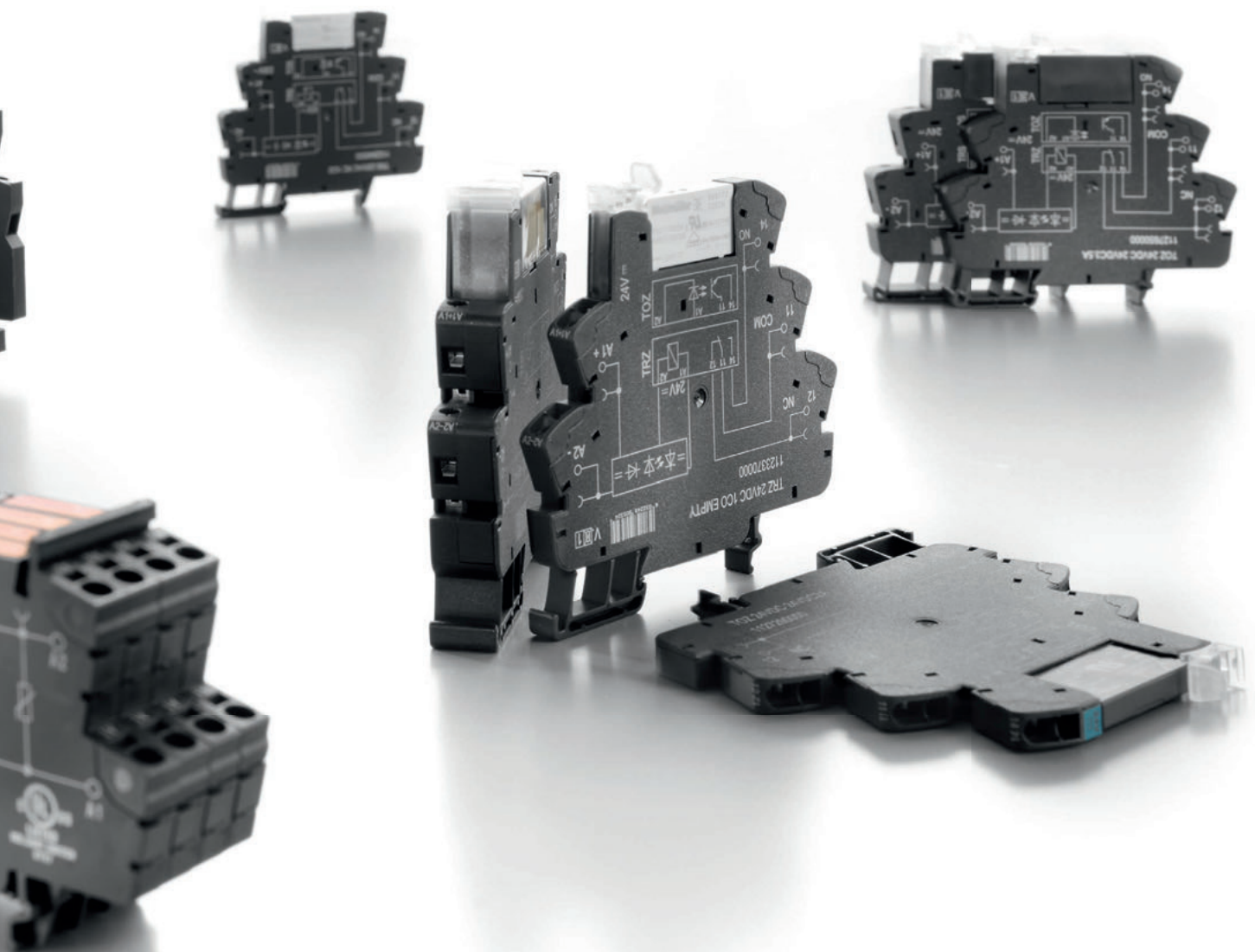
Weidmüller's relay modules and solid-state relays feature excellent electrical characteristics. They also take advantage of the same reliable connection technology that has proven itself countless times in terminal products. This product line is ideally complimented by a wide variety of system accessories such as labelling material and end brackets. This helps to reduce your inventory overhead and stock levels.

During the design of compact components, it is especially challenging to maintain minimal power loss since the small housing can exchange very little power with its surroundings. This challenge has already been mastered by Weidmüller since 1989. It was the first product in the terminal block format to come to market and it has been continually improved since then. Two compact but powerful solid-state relay switches TERMOPTO and MICROOPTO also meet this challenge.

The new TERMSERIES combines the proven properties of the established product lines with innovative technical solutions. A variable-voltage input has been specifically developed for the 6 mm disc design. This is the first time that the control of relay modules and solid-state relays can be used with voltages from 24 to 230 V DC/DC in this width. Another highlight is the ejector with integrated fibre-optic technology, which apart from allowing the simple and safe removal of the relay module and the solid-state relay, also illuminates the status indicator.

See for yourself, the quality of the Weidmüller's 6 mm products.

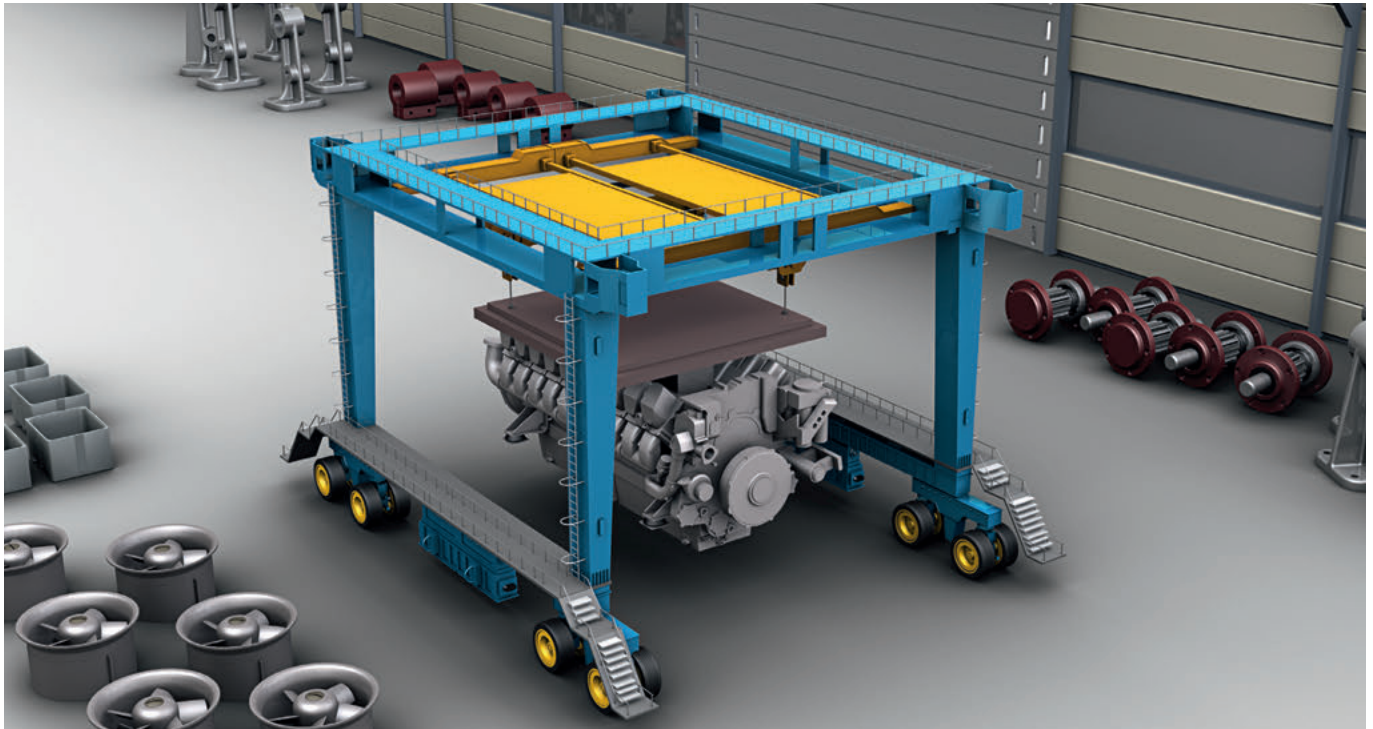




Seamless integration is your wish

Enjoy the solutions in our TERMSERIES, MICROOPTO and SAI series

A

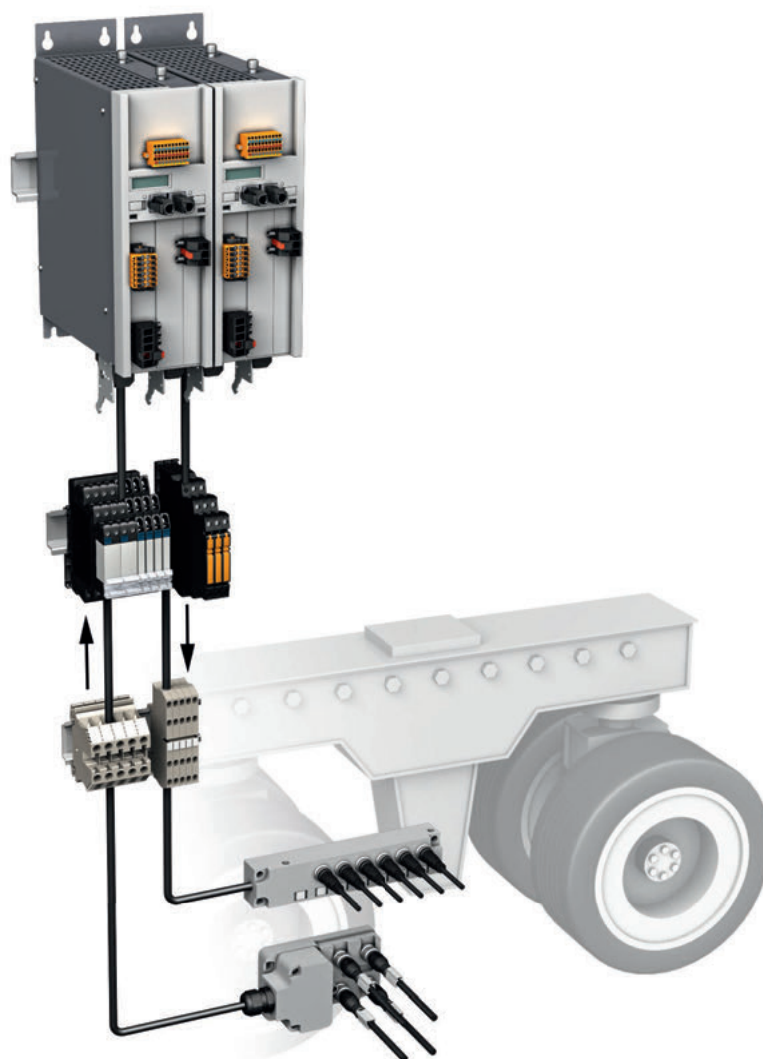


Materials and time savings in system and process automation are influenced by two critical factors. On the one hand, it is important to be able to work on complex systems with numerous sensor connections and a broad range of voltage inputs. On the other hand, the reliability of the actuator connections in terms of lifetime and speed play a major role.

The components in our TERMSERIES, MICROOPTO and SAI distributor series offer you this, in perfect combination. Our unique TERMSERIES multi-voltage input represents a universal relay module for all voltage inputs between 24 V and 230 V UC. These products also boast a slim terminal format and an eye-catching LED status display.

The MICROOPTO short circuit-proof solid-state relay switch has the benefit of a practically unlimited lifetime, compared to traditional relay technology. Any alarms, e.g. such as those set off by a short circuit on the output side, are directly analysed by the SPS, which reports the service needed – for instance, examining the supply line or a solenoid valve – to the relevant post.

Our solution is rounded off with the SAI distributor in IP68, which ensures safe, protected and flexible signal connections in the field, such as those for the crane forward/reverse switch and for wear-and-tear monitors, overheating switches and impact sensors in materials handling technology.



TERMSERIES

- 6 and 12 mm relay modules and solid-state relays switches
- Multi-voltage input for 24 V to 230 V DC and AC
- Ideal visibility thanks to the illuminated ejector
- Partition plates and cross-connections for universal use



MICROOPTO Solenoid

- Solid-state relays of 6 mm width earthed to mounting rail
- Short-circuit-proof output
- Short circuit alarm via signal contact
- MTBF means a long lifetime of more than 1,100 years



SAI distributors and lines

- M12 distributors which can be freely assembled in various formats
- Torsion-resistant wires available
- Very slim M8 distributor in line format
- All-metal distributor available

Reliably switch industrial loads on a permanent basis

TERMSERIES extension with increased power and longer service life

Generally speaking, industrial loads consist of either a capacitive element or an inductive element, which causes sparks during switch-on and switch-off operations. This shortens the service life of the relay contacts, thereby increasing the costs involved in running a plant.

The new relay modules from our TERMSERIES family feature special contacts that have been optimised (as regards arrangement and material selection) to the severe stresses of industrial use.

Whether they're deployed in machinery and plant engineering, robot technology, wind power, offshore technology or marine engineering – the compact variants from the TERMSERIES family of products allow you to reliably switch industrial loads for a long time and permanently minimise your application's operating costs.

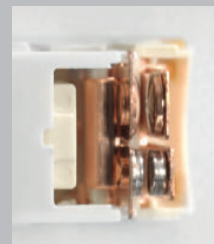


LED lamps feature an electronic ballast, with a switching regulator that guarantees a start-up peak more than 100 times higher thanks to its capacitive design. When plants are converted from conventional filament lamps to LED lighting, this quickly causes conventional relay contacts to overload. The compact and powerful TERMSERIES relays can be upgraded quickly and without any complications.

Your special advantages:

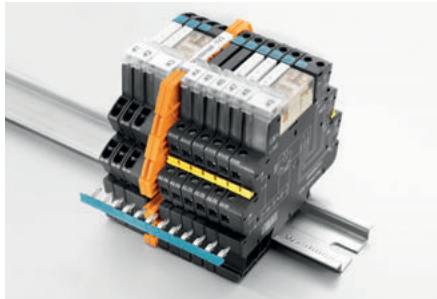
Permanently reliable

An pre-making tungsten contact prevents contacts from welding during switch-on when capacitive loads are being switched. This extends their service life.



Customised system approach

With suitable supply terminals, partition plates, cross-connections, other relay modules and solid-state relay variants, we offer you a flexible modular system to isolate and amplify signals.



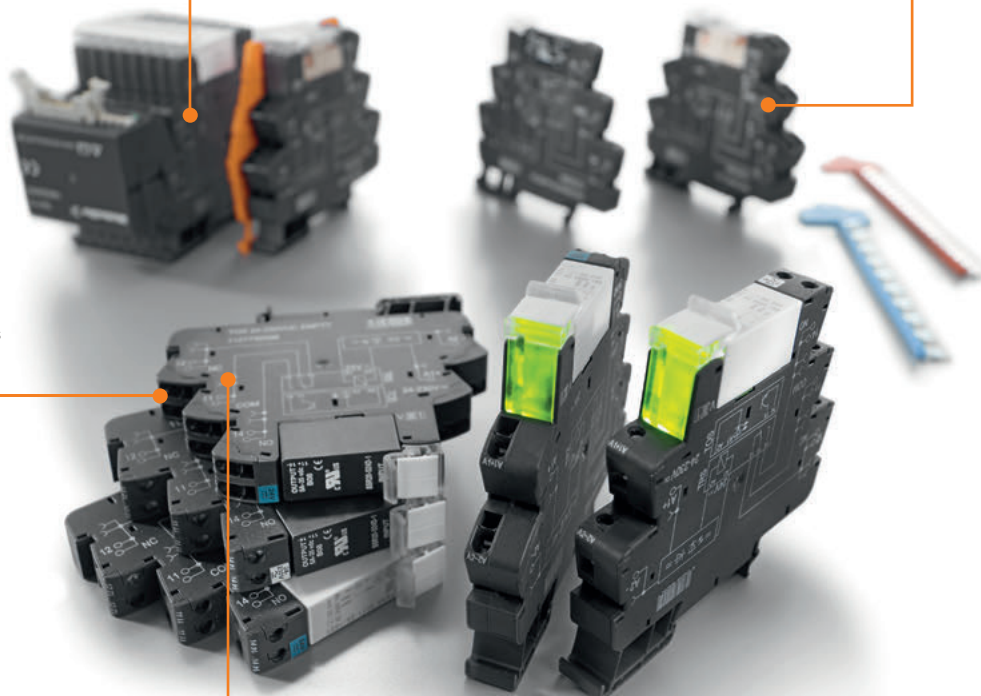
All-purpose in use

TERMSERIES is also available with the unique 24–230 V AC/DC multi-voltage input, which can be used with all relay and solid-state relay variants.



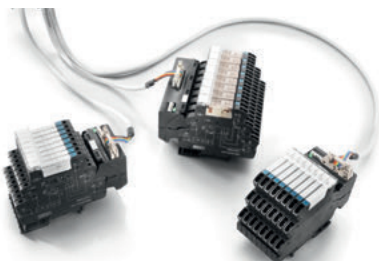
Extremely compact

Thanks to their compact width of just 12.8 mm, the modules fit just about anywhere on the DIN rail. This creates space in the cabinet.



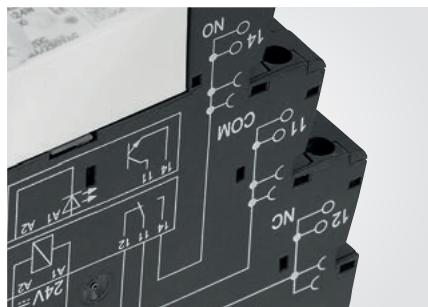
Interface adapter for TERMSERIES relays

Our pre-assembled plug-and-play solution with TERMSERIES interface adapter enables minimised cabling effort. The adapter has a universal fit and offers a genuine space advantage in interaction with the TERMSERIES products with identical contours.



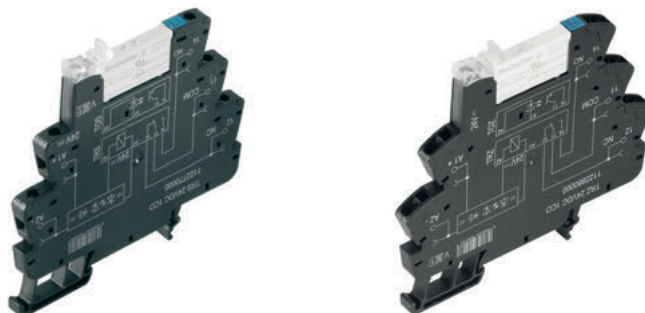
Minimal intervention

The new TERMSERIES variants can instantly switch the full 16 A load current thanks to the integrated cross-connection system.



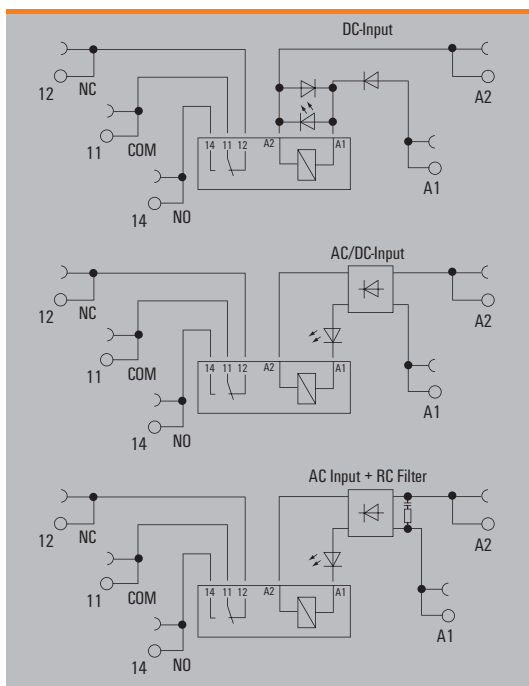
1 CO contact
AC/DC/UC coil

- Space saving, just 6.4 mm modular width
- AgNi contact
- Screw and tension clamp connection



Relay modules and solid-state relays in 6 mm width

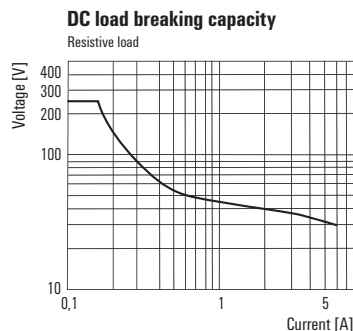
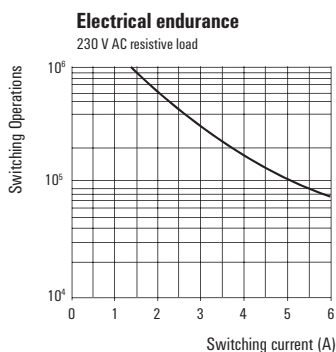
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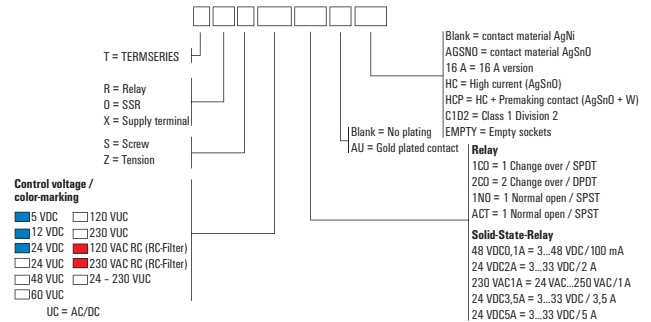
Technical data

Output			
Rated switching voltage / Continuous current	250 V AC / 6 A		
Max. switching voltage, AC	250 V		
Inrush current	20 A / 20 ms		
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V		
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA		
Contact material	AgNi		
Mechanical service life	5 x 10 ⁶ switching cycles		
Max. switching frequency at rated load	0.1 Hz		
Rated data			
Ambient temperature (operational)	-40 °C...60 °C		
Storage temperature	-40 °C...85 °C		
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation		
Approvals	CE, cULus, DNVGL, EAC		
Insulation coordinates			
Rated voltage	300 V		
Impulse withstand voltage	6 kV (1.2/50 µs)		
Dielectric strength input - output	4 kV _{eff} / 1 min.		
Dielectric strength of neighbouring contacts			
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.		
Creepage and clearance distance input - output	≥ 5.5 mm		
Overtoltage category	III		
Pollution degree	2		
Dimensions			
Clamping range (nominal / min. / max.)	mm ²	Screw connection	Tension clamp connection
		1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm	87.8 / 6.4 / 89.6 87.8 / 6.4 / 90.5	
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

Applications



1 CO contact
AC/DC/UC coil

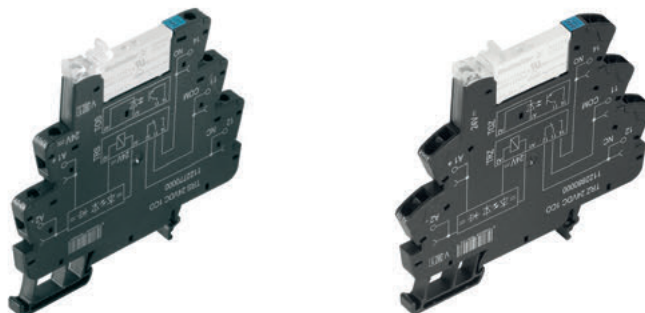


Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Input					
Rated control voltage	5 V DC ± 20 %	12 V DC ± 20 %	24 V DC ± 20 %	24 V UC ± 10 %	48 V UC ± 10 %
Rated current AC / DC	/ 33 mA	/ 18 mA	/ 11.5 mA	11.7 mA / 6.4 mA	8 mA / 7 mA
Power rating	170 mW	210 mW	280 mW	270 mVA / 154 mW	240 mVA / 192 mW
Pull-in/drop-out voltage, typ.	4 V / 1 V DC	9 V / 2 V DC	16 V / 3 V DC	16 V / 5 V AC 20 V / 6 V DC	32 V / 9 V AC 33 V / 8.5 V DC
Pull-in/drop-out current, typ.	22.5 mA / 4.5 mA DC	11.5 mA / 2 mA DC	7.5 mA / 1 mA DC	8.5 mA / 2 mA AC 5 mA / 1 mA DC	5.3 mA / 1.2 mA AC 4.5 mA / 0.8 mA DC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Output					
Switch-on delay	≤ 7 ms	≤ 6 ms	≤ 6 ms	≤ 6 ms	≤ 9 ms
Switch-off delay	≤ 6 ms	≤ 8 ms	≤ 15 ms	≤ 40 ms	≤ 23 ms
Ordering data					
Screw connection Type	TRS 5VDC 1CO	TRS 12VDC 1CO	TRS 24VDC 1CO	TRS 24VUC 1CO	TRS 48VUC 1CO
Order No.	1122740000	1122750000	1122770000	1122780000	1122790000
Tension-clamp conn. Type	TRZ 5VDC 1CO	TRZ 12VDC 1CO	TRZ 24VDC 1CO	TRZ 24VUC 1CO	TRZ 48VUC 1CO
Order No.	1122860000	1122870000	1122880000	1122890000	1122900000
Note	Spare relay Type: RSS113005 Orderno.: 4061580000	Spare relay Type: RSS113012 Orderno.: 4061610000	Spare relay Type: RSS113024 Orderno.: 4060120000	Spare relay Type: RSS113024 Orderno.: 4060120000	Spare relay Type: RSS113024 Orderno.: 4060120000
Ordering data					
Input					
Rated control voltage	60 V UC ± 10 %	120 V UC ± 10 %	230 V UC ± 10 %	120 V AC ± 10 %	230 V AC ± 10 %
Rated current AC / DC	4,8 mA / 2,85 mA	4 mA / 3,5 mA	3,5 mA / 2,9 mA	7 mA /	8,8 mA /
Power rating	170 mW	0,48 VA, 420 mW	0,8 VA, 700 mW	840 mVA	2,3 VA
Pull-in/drop-out voltage, typ.	33 V / 8 V AC 41,5 V / 9 V DC	89 V / 50 V AC 100 V / 57 V DC	164 V / 87 V AC 166 V / 89 V DC	88 V / 43 V AC	122 V / 45,5 V AC
Pull-in/drop-out current, typ.	2,8 mA / 0,6 mA AC 1,8 mA / 0,3 mA DC	2,7 mA / 1 mA AC 1,9 mA / 0,5 mA DC	2,4 mA / 0,9 mA AC 1,8 mA / 0,4 mA DC	4,8 mA / 2 mA AC	5,5 mA / 2 mA AC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element
Output					
Switch-on delay	≤ 7 ms	≤ 11 ms	≤ 14,5 ms	≤ 15 ms	≤ 16 ms
Switch-off delay	≤ 43 ms	≤ 40 ms	≤ 45 ms	≤ 45 ms	≤ 41 ms
Ordering data					
Screw connection Type	TRS 60VUC 1CO	TRS 120VUC 1CO	TRS 230VUC 1CO	TRS 120VAC RC 1CO	TRS 230VAC RC 1CO
Order No.	1122800000	1122810000	1122820000	1122830000	1122840000
Tension-clamp conn. Type	TRZ 60VUC 1CO	TRZ 120VUC 1CO	TRZ 230VUC 1CO	TRZ 120VAC RC 1CO	TRZ 230VAC RC 1CO
Order No.	1122910000	1122920000	1122930000	1122940000	1122950000
Note	Spare relay Type: RSS113060 Orderno.: 4061630000	Spare relay Type: RSS113060 Orderno.: 4061630000	Spare relay Type: RSS113060 Orderno.: 4061630000	Spare relay Type: RSS113060 Orderno.: 4061630000	Spare relay Type: RSS113060 Orderno.: 4061630000

1 CO contact with hard gold-plated contacts

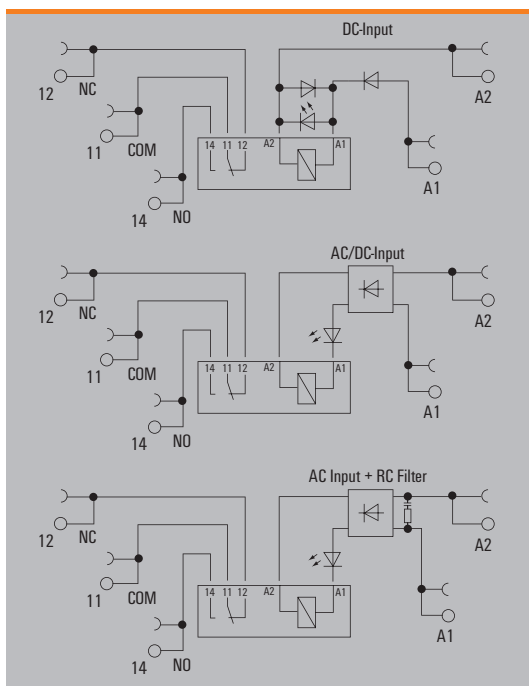
AC/DC/UC coil

- Space saving, just 6.4 mm modular width
- AgNi contact with gold plating
- Screw and tension clamp connection



Relay modules and solid-state relays in 6 mm width

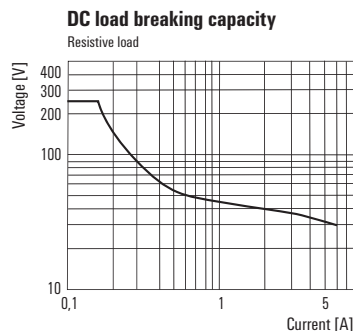
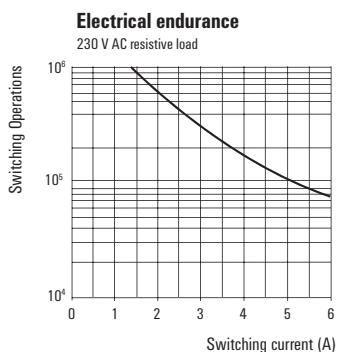
A



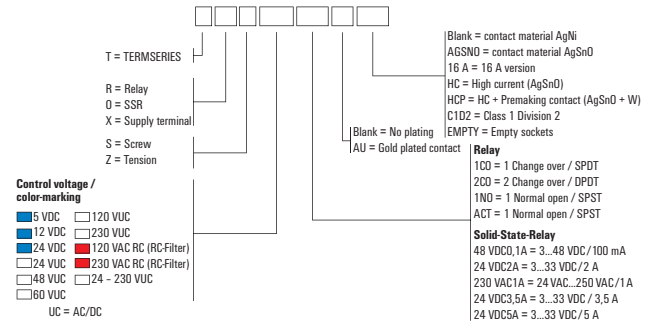
Technical data

Output			
Rated switching voltage / Continuous current	250 V AC / 6 A		
Max. switching voltage, AC	250 V		
Inrush current	20 A / 20 ms		
Min. switching power	1 mA @ 1 V		
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA		
Contact material	AgNi 5µm Au		
Mechanical service life	5 x 10 ⁶ switching cycles		
Max. switching frequency at rated load	0.1 Hz		
Rated data			
Ambient temperature (operational)	-40 °C...60 °C		
Storage temperature	-40 °C...85 °C		
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation		
Approvals	CE, cULus, DNVGL, EAC		
Insulation coordinates			
Rated voltage	300 V		
Impulse withstand voltage	6 kV (1.2/50 µs)		
Dielectric strength input - output	4 kV _{eff} / 1 min.		
Dielectric strength of neighbouring contacts			
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.		
Creepage and clearance distance input - output	≥ 5.5 mm		
Overtoltage category	III		
Pollution degree	2		
Dimensions		Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm ²	1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm	87.8 / 6.4 / 89.6	87.8 / 6.4 / 90.5
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

Applications



1 CO contact with hard gold-plated contacts
AC/DC/UC coil

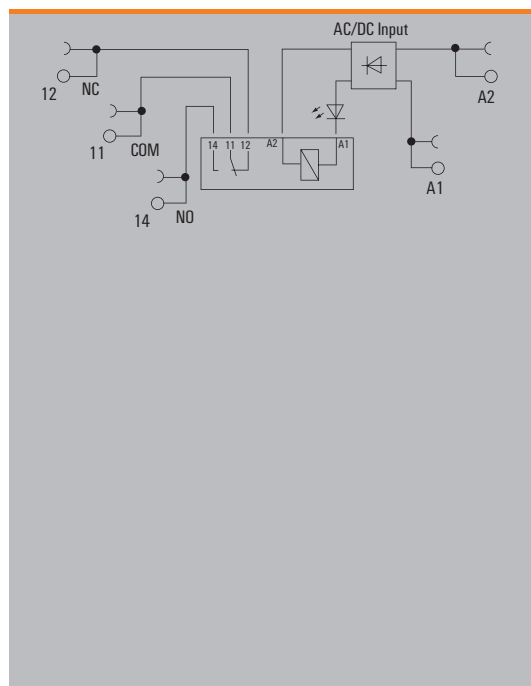
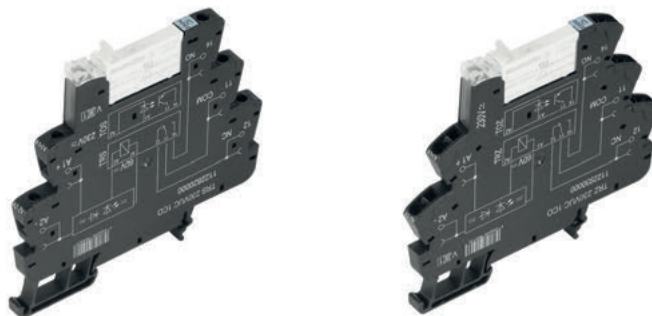


Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Input					
Rated control voltage	5 V DC ± 20 %	12 V DC ± 20 %	24 V DC ± 20 %	24 V UC ± 10 %	48 V UC ± 10 %
Rated current AC / DC	/ 33 mA	/ 18 mA	/ 11.5 mA	11.7 mA / 6.4 mA	8 mA / 7 mA
Power rating	170 mW	210 mW	280 mW	270 mVA / 154 mW	240 mVA / 192 mW
Pull-in/drop-out voltage, typ.	4 V / 1 V DC	9 V / 2 V DC	16 V / 3 V DC	16 V / 5 V AC 20 V / 6 V DC	32 V / 9 V AC 33 V / 8.5 V DC
Pull-in/drop-out current, typ.	22.5 mA / 4.5 mA DC	11.5 mA / 2 mA DC	7.5 mA / 1 mA DC	8.5 mA / 2 mA AC 5 mA / 1 mA DC	5.3 mA / 1.2 mA AC 4.5 mA / 0.8 mA DC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Output					
Switch-on delay	≤ 7 ms	≤ 6 ms	≤ 6 ms	≤ 6 ms	≤ 9 ms
Switch-off delay	≤ 6 ms	≤ 8 ms	≤ 15 ms	≤ 40 ms	≤ 23 ms
Ordering data					
Screw connexion Type Order No.	TRS 5VDC 1CO AU 1122980000	TRS 12VDC 1CO AU 1122990000	TRS 24VDC 1CO AU 1123000000	TRS 24VUC 1CO AU 1123010000	TRS 48VUC 1CO AU 1123020000
Tension-clamp conn. Type Order No.	TRZ 5VDC 1CO AU 1123100000	TRZ 12VDC 1CO AU 1123110000	TRZ 24VDC 1CO AU 1123120000	TRZ 24VUC 1CO AU 1123130000	TRZ 48VUC 1CO AU 1123140000
Note	Spare relay Type: RSS112005 Orderno.: 1174540000	Spare relay Type: RSS112012 Orderno.: 1220670000	Spare relay Type: RSS112024 Orderno.: 4061590000	Spare relay Type: RSS112024 Orderno.: 4061590000	Spare relay Type: RSS112024 Orderno.: 4061590000
Ordering data					
Input					
Rated control voltage	60 V UC ± 10 %	120 V UC ± 10 %	230 V UC ± 10 %	120 V AC ± 10 %	230 V AC ± 10 %
Rated current AC / DC	4,8 mA / 2,85 mA	4 mA / 3,5 mA	3,5 mA / 2,9 mA	7 mA /	10,1 mA /
Power rating	170 mW	0,48 VA, 420 mW	0,8 VA, 700 mW	840 mVA	2,3 VA
Pull-in/drop-out voltage, typ.	33 V / 8 V AC 41,5 V / 9 V DC	89 V / 50 V AC 100 V / 57 V DC	164 V / 87 V AC 166 V / 89 V DC	88 V / 43 V AC	169 V / 85 V AC
Pull-in/drop-out current, typ.	2,8 mA / 0,6 mA AC 1,8 mA / 0,3 mA DC	2,7 mA / 1 mA AC 1,9 mA / 0,5 mA DC	2,4 mA / 0,9 mA AC 1,8 mA / 0,4 mA DC	4,8 mA / 2 mA AC	7 mA / 3,3 mA AC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element
Output					
Switch-on delay	≤ 7 ms	≤ 11 ms	≤ 14,5 ms	≤ 15 ms	≤ 16 ms
Switch-off delay	≤ 43 ms	≤ 40 ms	≤ 45 ms	≤ 45 ms	≤ 41 ms
Ordering data					
Screw connexion Type Order No.	TRS 60VUC 1CO AU 1123030000	TRZ 120VUC 1CO AU 1123170000	TRS 230VUC 1CO AU 1123050000	TRS 120VAC RC 1CO AU 1123070000	TRS 230VAC RC 1CO AU 1123080000
Tension-clamp conn. Type Order No.	TRZ 60VUC 1CO AU 1123150000	TRS 120VUC 1CO AU 1123040000	TRZ 230VUC 1CO AU 1123180000	TRZ 120VAC RC 1CO AU 1123190000	TRZ 230VAC RC 1CO AU 1123200000
Note	Spare relay Type: RSS112060 Orderno.: 4061600000	Spare relay Type: RSS112060 Orderno.: 4061600000	Spare relay Type: RSS112060 Orderno.: 4061600000	Spare relay Type: RSS112060 Orderno.: 4061600000	Spare relay Type: RSS112060 Orderno.: 4061600000

1 CO contact

multi-voltage input

- Space saving, just 6.4 mm modular width
- AgNi contact
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Technical data

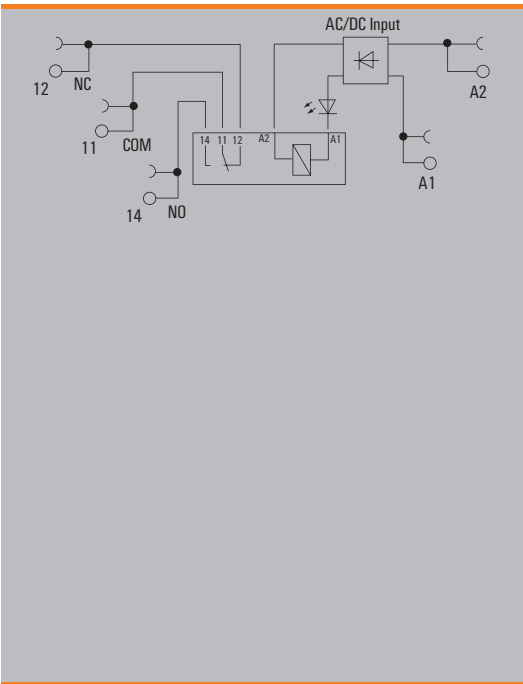
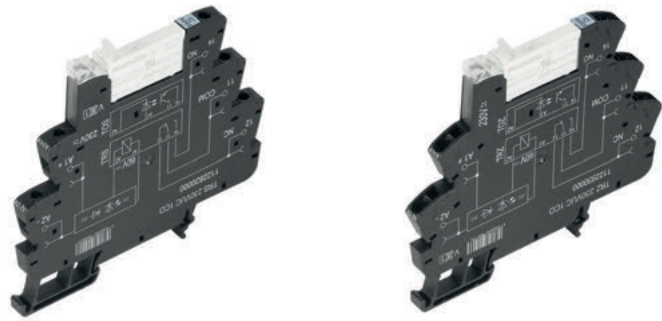
Output		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC	250 V	
Inrush current	20 A / 20 ms	
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V	
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA	
Contact material	AgNi	
Mechanical service life	5 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
Rated data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation	
Approvals	CE, cULus; DNVGL; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength input - output	4 kV _{eff} / 1 min.	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions		
	Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6	87.8 / 6.4 / 90.5
Note		
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.		

Ordering data

Input		24 V - 230 V UC
Rated control voltage	24...230 V UC ± 10 %	
Rated current AC / DC	4 mA @ 230 V AC ±10 %, 28 mA @ 24 V AC ±10 % / 22 mA @ 24 V DC ±10 %	
Power rating	530 mW @ 24 V DC, 930 mVA @ 230 V AC	
Pull-in/drop-out voltage, typ.	13 V / 7 V AC, 13 V / 5 V DC	
Pull-in/drop-out current, typ.	28.5 mA / 11 mA AC, 23 mA / 6.5 mA DC	
Status indicator	Green LED	
Protective circuit	Rectifier	
Output		
Switch-on delay	≤ 30 ms	
Switch-off delay	≤ 130 ms	
Ordering data		
Screw connection	Type	TRS 24-230VUC 1CO
	Order No.	1122850000
Tension-clamp conn.	Type	TRZ 24-230VUC 1CO
	Order No.	1122970000
Note		Spare relay Type: RSS113024 Orderno.: 4060120000

**1 CO contact with hard gold-plated contacts
multi-voltage input**

- Space saving, just 6.4 mm modular width
- AgNi contact with gold plating
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Technical data

Output		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC	250 V	
Inrush current	20 A / 20 ms	
Min. switching power	1 mA @ 1 V	
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA	
Contact material	AgNi 5µm Au	
Mechanical service life	5 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
Rated data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation	
Approvals	CE, cULus, DNVGL, EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength input - output	4 kV _{eff} / 1 min.	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions		
	Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6	87.8 / 6.4 / 90.5
Note		
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.		

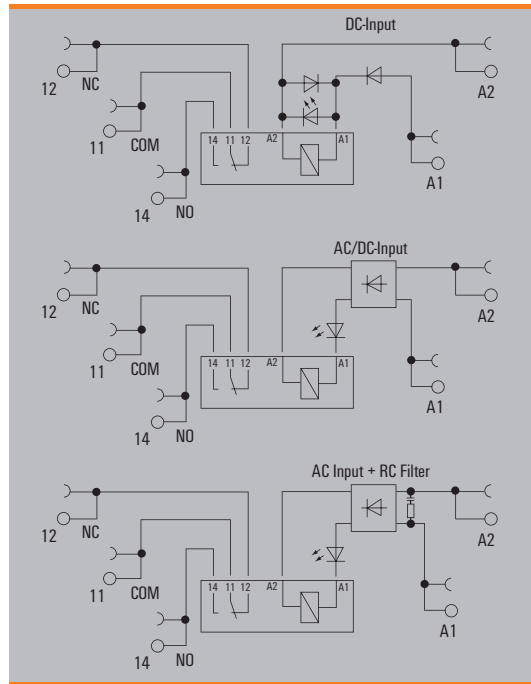
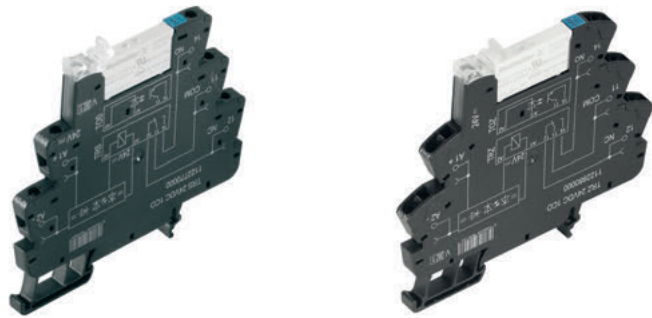
Ordering data

Input		24 V - 230 V UC
Rated control voltage	24...230 V UC ± 10 %	
Rated current AC / DC	4 mA @ 230 V AC ±10 % 28 mA @ 24 V AC ±10 % / 22 mA @ 24 V DC ±10 %	
Power rating	530 mW @ 24 V DC, 930 mVA @ 230 V AC	
Pull-in/drop-out voltage, typ.	13 V / 7 V AC 13 V / 5 V DC	
Pull-in/drop-out current, typ.	28.5 mA / 11 mA AC 23 mA / 6.5 mA DC	
Status indicator	Green LED	
Protective circuit	Rectifier	
Output		
Switch-on delay	≤ 30 ms	
Switch-off delay	≤ 130 ms	
Ordering data		
Screw connection	Type	TRS 24-230VUC 1CO AU
Order No.	1123090000	
Tension-clamp conn.	Type	TRZ 24-230VUC 1CO AU
Order No.	1123210000	
Note		Spare relay Type: RSS112024 Orderno.: 4061590000

1 CO contact (AgSnO)

AC / DC / UC coil

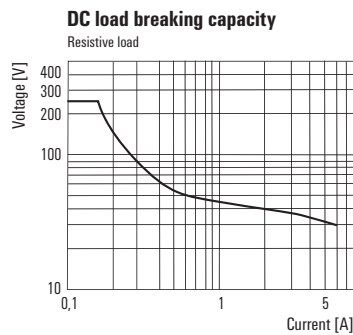
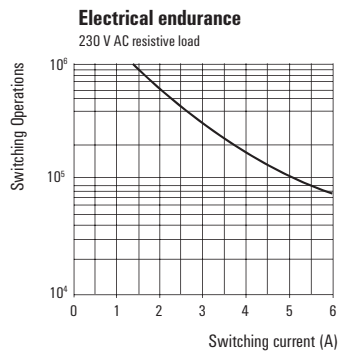
- Space-saving, only 6.4 mm wide
- AgSnO contact
- For capacitive and inductive loads
- Screw and tension clamp connection



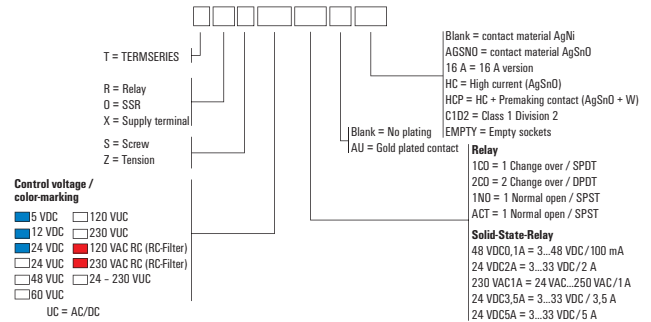
Technical data

Output		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC	250 V	
Inrush current	30 A / 20 ms	
Min. switching power	100 mA @ 12 V	
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA	
Contact material	AgSnO	
Mechanical service life	5 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
Rated data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation	
Approvals	CE, cULus, DNVGL	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength input - output	4 kV _{eff} / 1 min.	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overtoltage category	III	
Pollution degree	2	
Dimensions		
	Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6	87.8 / 6.4 / 90.5
Note		

Applications



1 CO contact (AgSnO)
AC / DC / UC coil



Ordering data

	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Input					
Rated control voltage	5 V DC ± 20 %	12 V DC ± 20 %	24 V DC ± 20 %	24 V UC ± 10 %	48 V UC ± 10 %
Rated current AC / DC	/ 33 mA	/ 18 mA	/ 11.5 mA	11.7 mA / 6.4 mA	8 mA / 7 mA
Power rating	170 mW	210 mW	280 mW	270 mVA / 154 mW	240 mVA / 192 mW
Pull-in/drop-out voltage, typ.	4 V / 1 V DC	9 V / 2 V DC	16 V / 3 V DC	16 V / 5 V AC 20 V / 6 V DC	32 V / 9 V AC 33 V / 8.5 V DC
Pull-in/drop-out current, typ.	22.5 mA / 4.5 mA DC	11.5 mA / 2 mA DC	7.5 mA / 1 mA DC	8.5 mA / 2 mA AC 5 mA / 1 mA DC	5.3 mA / 1.2 mA AC 4.5 mA / 0.8 mA DC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Output					
Switch-on delay	≤ 7 ms	≤ 6 ms	≤ 6 ms	≤ 6 ms	≤ 9 ms
Switch-off delay	≤ 6 ms	≤ 8 ms	≤ 15 ms	≤ 40 ms	≤ 23 ms

Ordering data						
Screw connection	Type	TRS 5VDC 1CO AGSNO	TRS 12VDC 1CO AGSNO	TRS 24VDC 1CO AGSNO	TRS 24VUC 1CO AGSNO	TRS 48VUC 1CO AGSNO
	Order No.	2152860000	2152880000	1984540000	2152940000	2153060000
Tension-clamp conn.	Type	TRZ 5VDC 1CO AGSNO	TRZ 12VDC 1CO AGSNO	TRZ 24VDC 1CO AGSNO	TRZ 24VUC 1CO AGSNO	TRZ 48VUC 1CO AGSNO
	Order No.	2152870000	2152890000	1984550000	2152970000	2153080000
Note						

Ordering data

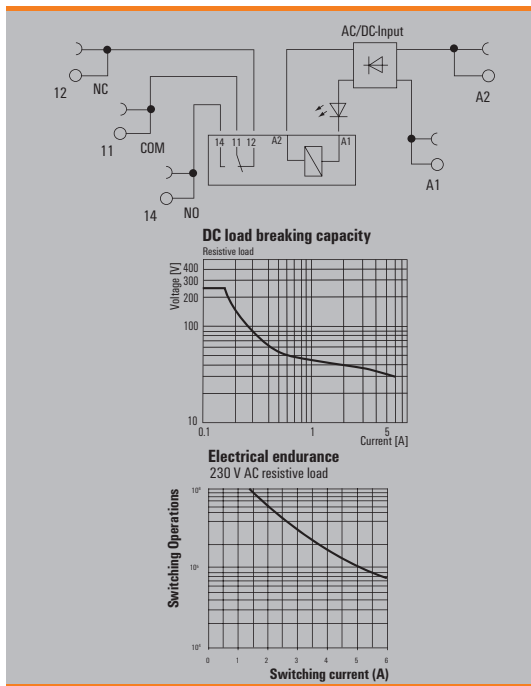
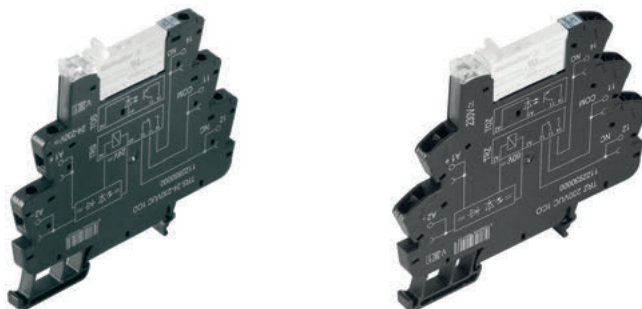
	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Input					
Rated control voltage	60 V UC ± 10 %	120 V UC ± 10 %	230 V UC ± 10 %	120 V AC ± 10 %	230 V AC ± 10 %
Rated current AC / DC	4,8 mA / 2,85 mA	4 mA / 3,5 mA	3,5 mA / 2,9 mA	7 mA /	10,1 mA /
Power rating	170 mW	0,48 VA, 420 mW	0,8 VA, 700 mW	840 mVA	2,3 VA
Pull-in/drop-out voltage, typ.	33 V / 8 V AC 41,5 V / 9 V DC	89 V / 50 V AC 100 V / 57 V DC	164 V / 87 V AC 166 V / 89 V DC	88 V / 43 V AC	169 V / 85 V AC
Pull-in/drop-out current, typ.	2,8 mA / 0,6 mA AC 1,8 mA / 0,3 mA DC	2,7 mA / 1 mA AC 1,9 mA / 0,5 mA DC	2,4 mA / 0,9 mA AC 1,8 mA / 0,4 mA DC	4,8 mA / 2 mA AC	7 mA / 3,3 mA AC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element
Output					
Switch-on delay	≤ 7 ms	≤ 11 ms	≤ 14,5 ms	≤ 15 ms	≤ 16 ms
Switch-off delay	≤ 43 ms	≤ 40 ms	≤ 45 ms	≤ 45 ms	≤ 41 ms

Ordering data						
Screw connection	Type	TRS 60VUC 1CO AGSNO	TRS 120VUC 1CO AGSNO	TRS 230VUC 1CO AGSNO	TRS 120VAC RC 1CO AGSNO	TRS 230VAC RC 1CO AGSNO
	Order No.	2153550000	2153570000	2153590000	2152900000	2152920000
Tension-clamp conn.	Type	TRZ 60VUC 1CO AGSNO	TRZ 120VUC 1CO AGSNO	TRZ 230VUC 1CO AGSNO	TRZ 120VAC RC 1CO AGSNO	TRZ 230VAC RC 1CO AGSNO
	Order No.	2153560000	2153580000	2153690000	2152910000	2152930000
Note						

1 CO contact (AgSnO)

Multi-voltage input

- Space-saving, only 6.4 mm wide
- AgSnO contact
- For capacitive and inductive loads
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Technical data

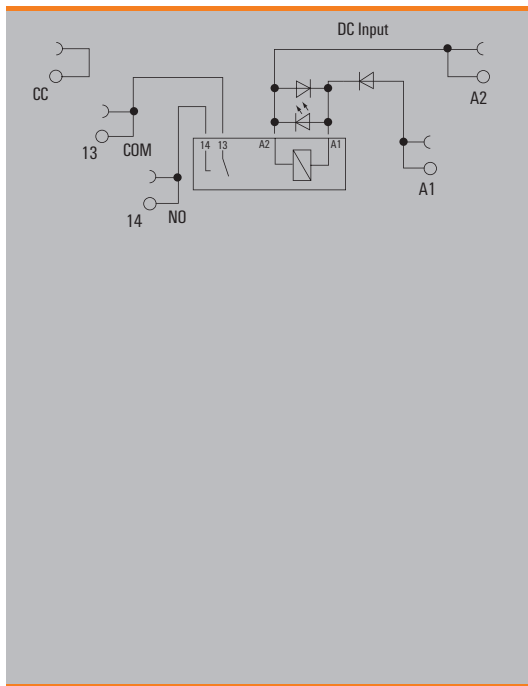
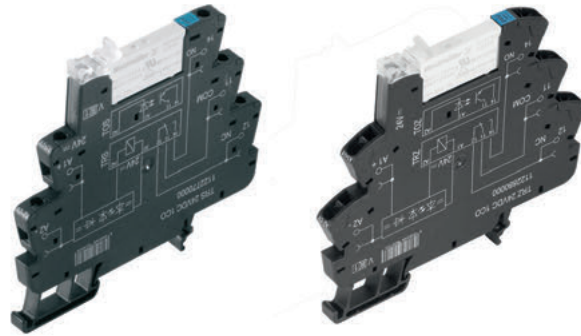
Output	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	250 V
Inrush current	30 A / 20 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA
Contact material	AgSnO
Mechanical service life	5 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULus, DNVGL
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength input - output	4 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6
	mm 87.8 / 6.4 / 90.5
Note	

Ordering data

24 V - 230 V UC	
Input	
Rated control voltage	24...230 V UC ± 10 %
Rated current AC / DC	4 mA @ 230 V AC ±10 % 28 mA @ 24 V AC ±10 % / 22 mA @ 24 V DC ±10 %
Power rating	530 mW @ 24 V DC, 930 mVA @ 230 V AC
Pull-in/drop-out voltage, typ.	13 V / 7 V AC 13 V / 5 V DC
Pull-in/drop-out current, typ.	28.5 mA / 11 mA AC 23 mA / 6.5 mA DC
Status indicator	Green LED
Protective circuit	Rectifier
Output	
Switch-on delay	≤ 30 ms
Switch-off delay	≤ 130 ms
Ordering data	
Screw connection Type	TRS 24-230VUC 1CO AGSNO
Order No.	2154970000
Tension-clamp conn. Type	TRZ 24-230VUC 1CO AGSNO
Order No.	2154980000
Note	

1 NO contact (actuator)

- Space-saving, only 6.4 mm wide
- AgNi contact
- Screw and tension clamp connection
- 24 V DC actuator version:
Bridgeable, potential-free connection in the output (CC)



Technical data

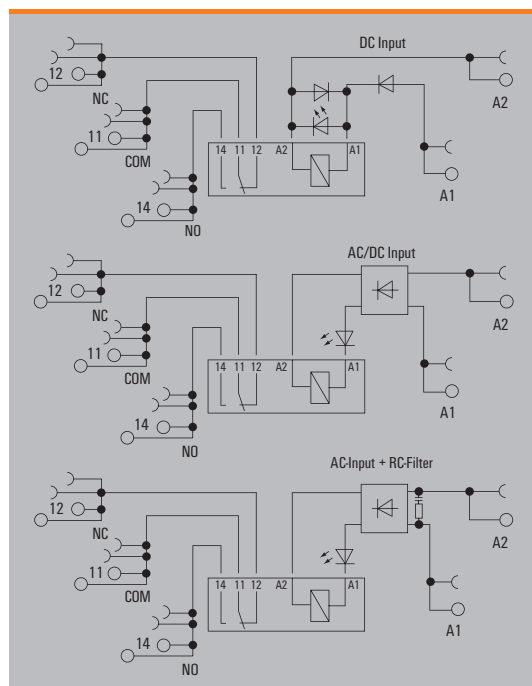
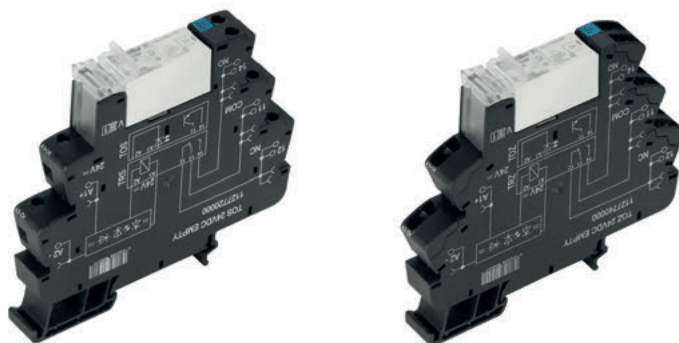
Output		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC	250 V	
Inrush current	20 A / 20 ms	
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V	
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA	
Contact material	AgNi	
Mechanical service life	5 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
Rated data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation	
Approvals	CE, cULus, DNVGL, EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength input - output	4 kV _{eff} / 1 min.	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions		
	Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6	87.8 / 6.4 / 90.5
Note		
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.		

Ordering data

24 V DC ACT	
Input	
Rated control voltage	24 V DC ± 20 %
Rated current AC / DC	/ 11.5 mA
Power rating	280 mW
Pull-in/drop-out voltage, typ.	16 V / 3 V DC
Pull-in/drop-out current, typ.	7.5 mA / 1 mA DC
Status indicator	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection
Output	
Switch-on delay	≤ 6 ms
Switch-off delay	≤ 15 ms
Ordering data	
Screw connection	Type TRS 24VDC ACT
Order No.	1381900000
Tension-clamp conn.	Type TRZ 24VDC ACT
Order No.	1391670000
Note	

1 CO contact
AC / DC / UC coil

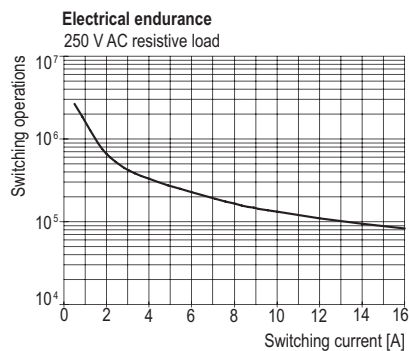
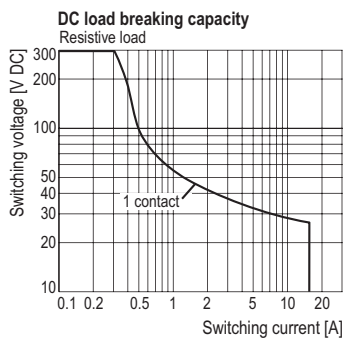
- Space-saving, 12.8 mm wide
- 16 A AgNi contact
- Internal cross-connection of the output terminals
- Screw and tension clamp connection



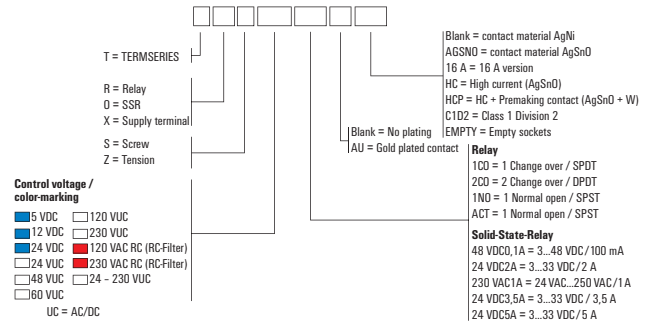
Technical data

Output			
Rated switching voltage / Continuous current	250 V AC / 16 A		
Max. switching voltage, AC	250 V		
Inrush current	30 A / 4 s		
Min. switching power	10 mA @ 10 V, 100 mA @ 5 V		
DC / AC Switching capacity (resistive), max.	384 W @ 24 V / 4000 VA		
Contact material	AgNi		
Mechanical service life	30 x 10 ⁶ switching cycles		
Max. switching frequency at rated load	0.1 Hz		
Rated data			
Ambient temperature (operational)	-40 °C...60 °C		
Storage temperature	-40 °C...85 °C		
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation		
Approvals	CE, cULus, DNVGL		
Insulation coordinates			
Rated voltage	300 V		
Impulse withstand voltage	6 kV (1.2/50 µs)		
Dielectric strength input - output	1.2 kV _{eff} / 5 s		
Dielectric strength of neighbouring contacts			
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.		
Creepage and clearance distance input - output	≥ 5.5 mm		
Oversoltage category	III		
Pollution degree	2		
Dimensions			
Clamping range (nominal / min. / max.)	mm ²	Screw connection	Tension clamp connection
		1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm	87.8 / 12.8 / 89.6	87.8 / 12.8 / 90.5
Note			

Applications



1 CO contact
AC / DC / UC coil

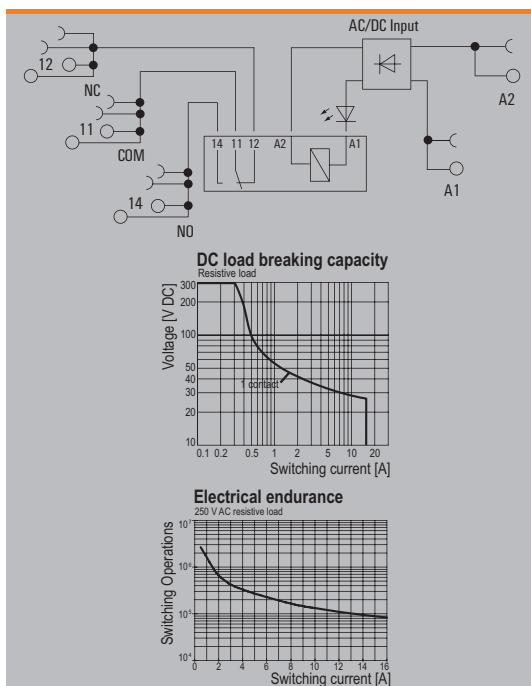
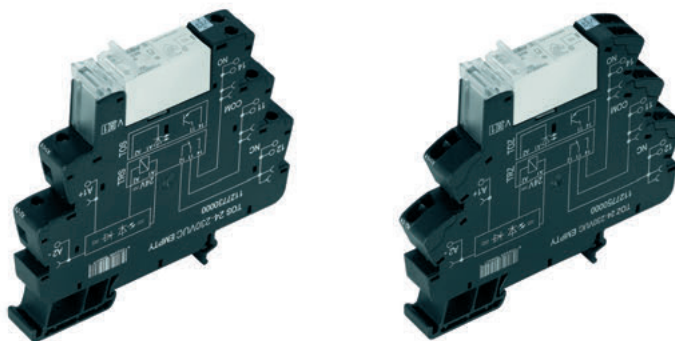


Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Input					
Rated control voltage	5 V DC ± 20 %	12 V DC ± 20 %	24 V DC ± 20 %	24 V UC ± 10 %	48 V UC ± 10 %
Rated current AC / DC	/ 70 mA	/ 33.3 mA	/ 21 mA	16 mA / 14 mA	9 mA / 7 mA
Power rating	400 mW	420 mW	530 mW	390 mVA / 350 mW	340 mW / 0.4 VA
Pull-in/drop-out voltage, typ.	3 V / 1.6 V DC	8 V / 3 V DC	18 V / 4 V DC	16 V / 9 V AC 18 V / 8 V DC	29 V / 11 V AC 33 V / 11 V DC
Pull-in/drop-out current, typ.	21.6 mA / 8 mA DC	21 mA / 5 mA DC	15.5 mA / 2.8 mA DC	11 mA / 4 mA AC 10 mA / 2 mA DC	6 mA / 3 mA AC 5 mA / 1.5 mA DC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Output					
Switch-on delay	≤ 11 ms	≤ 11 ms	≤ 7 ms	≤ 11 ms	≤ 11 ms
Switch-off delay	≤ 7 ms	≤ 8 ms	≤ 16 ms	≤ 7 ms	≤ 7 ms
Ordering data					
Screw connexion Type Order No.	TRS 5VDC 1CO 16A 1479650000	TRS 12VDC 1CO 16A 1479670000	TRS 24VDC 1CO 16A 1479680000	TRS 24VUC 1CO 16A 1479690000	TRS 48VUC 1CO 16A 1479700000
Tension-clamp conn. Type Order No.	TRZ 5VDC 1CO 16A 1479800000	TRZ 12VDC 1CO 16A 1479820000	TRZ 24VDC 1CO 16A 1479840000	TRZ 24VUC 1CO 16A 1479850000	TRZ 48VUC 1CO 16A 1479870000
Note					
Ordering data					
Input					
Rated control voltage	60 V UC ± 10 %	120 V UC ± 10 %	230 V UC ± 5 %	120 V AC ± 10 %	230 V AC ± 5 %
Rated current AC / DC	8 mA / 6.1 mA	3.5 mA / 3.5 mA	4 mA / 4 mA	5.5 mA /	10 mA /
Power rating	480 mVA / 360 mW	420 mVA / 420 mW	920 mVA / 920 mW	0.73 VA	2.1 VA
Pull-in/drop-out voltage, typ.	36 V / 13 V AC 40 V / 14 V DC	64 V / 26 V AC 69 V / 22 V DC	112 V / 43 V AC 129 V / 36 V DC	65 V / 23 V AC	112 V / 45 V AC
Pull-in/drop-out current, typ.	5 mA / 2.5 mA AC 4 mA / 1.2 mA DC	2 mA / 1 mA AC 2 mA / 1 mA DC	2 mA / 1 mA AC 2 mA / 1 mA DC	3.5 mA / 1 mA AC	5 mA / 2 mA AC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element
Output					
Switch-on delay	≤ 11 ms	≤ 11 ms	≤ 14 ms	≤ 11 ms	≤ 14 ms
Switch-off delay	≤ 7 ms	≤ 7 ms	≤ 22 ms	≤ 7 ms	≤ 12 ms
Ordering data					
Screw connexion Type Order No.	TRS 60VUC 1CO 16A 1479710000	TRS 120VUC 1CO 16A 1479730000	TRS 230VUC 1CO 16A 1479740000	TRS 120VAC RC 1CO 16A 1479750000	TRS 230VAC RC 1CO 16A 1479760000
Tension-clamp conn. Type Order No.	TRZ 60VUC 1CO 16A 1479880000	TRZ 120VUC 1CO 16A 1479890000	TRZ 230VUC 1CO 16A 1479900000	TRZ 120VAC RC 1CO 16A 1479910000	TRZ 230VAC RC 1CO 16A 1479920000
Note					

1 CO contact

Variable-voltage input

- Space-saving, 12.8 mm wide
- 16 A AgNi contact
- Internal cross-connection of the output terminals
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Technical data

Output		
Rated switching voltage / Continuous current	250 V AC / 16 A	
Max. switching voltage, AC	250 V	
Inrush current	30 A / 4 s	
Min. switching power	10 mA @ 10 V, 100 mA @ 5 V	
DC / AC Switching capacity (resistive), max.	384 W @ 24 V / 4000 VA	
Contact material	AgNi	
Mechanical service life	30 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
Rated data		
Ambient temperature (operational)	-40 °C...40 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation	
Approvals	CE, cULus, DNVGL	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength input – output	1.2 kV _{eff} / 5 s	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.	
Creepage and clearance distance input – output	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions		
	Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.6	87.8 / 12.8 / 90.5
Note		

Ordering data

24 V - 230 V UC

Input	
Rated control voltage	24...230 V UC ± 10 %
Rated current AC / DC	6 mA @ 230 V UC / 45 mA @ 24 VUC
Power rating	1.08 W @ 24 V UC, 1.38 W @ 230 V UC
Pull-in/drop-out voltage, typ.	15 V / 7 V AC 15 V / 5 V DC
Pull-in/drop-out current, typ.	42 mA / 15.5 mA AC 34 mA / 10 mA DC
Status indicator	Green LED
Protective circuit	Rectifier

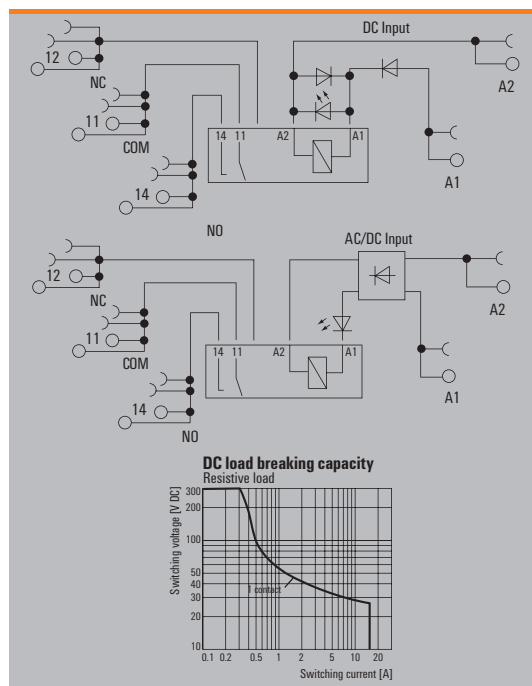
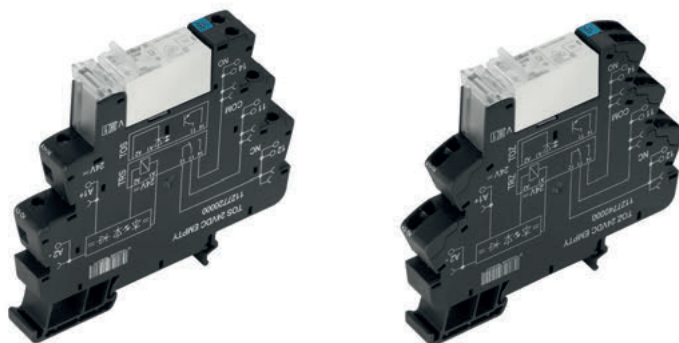
Output	
Switch-on delay	≤ 30 ms
Switch-off delay	≤ 75 ms

Ordering data	
Screw connection	Type TRS 24-230VUC 1CO 16A
Order No.	1479770000
Tension-clamp conn.	Type TRZ 24-230VUC 1CO 16A
Order No.	1479930000

Note	
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1 NO contact, inrush power HC

- Space-saving, 12.8 mm wide
- 16 A AgSnO contact
- Internal cross-connection of the output terminals
- Especially for inductive loads
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Technical data

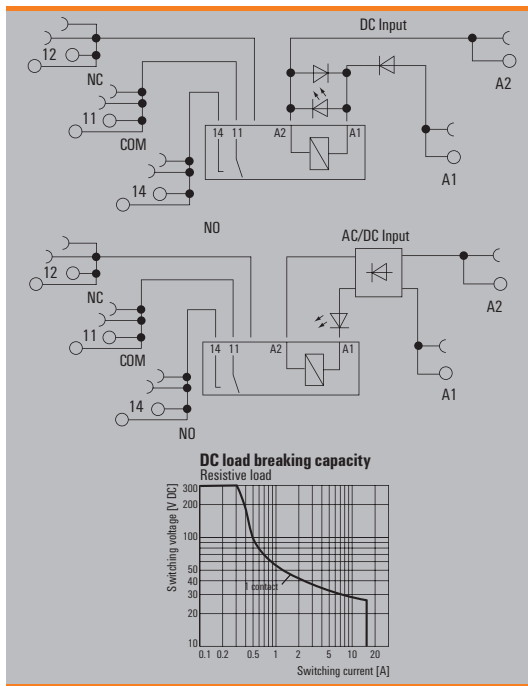
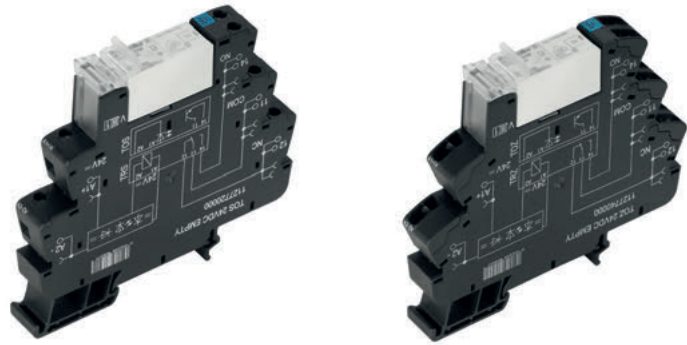
Output		
Rated switching voltage / Continuous current	250 V AC / 16 A	
Max. switching voltage, AC	250 V	
Inrush current	80 A / 20 ms	
Min. switching power	1 W	
DC / AC Switching capacity (resistive), max.	384 W @ 24 V / 4000 VA	
Contact material	AgSnO	
Mechanical service life	10 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
Rated data		
Ambient temperature (operational)	-40 °C...40 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation	
Approvals	CE, cULus, DNVGL	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength input - output	1.2 kV _{eff} / 5 s	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overtolerance category	III	
Pollution degree	2	
Dimensions		
	Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.6	87.8 / 12.8 / 90.5
Note		

Ordering data

	24 V DC	24 - 230 V UC
Input		
Rated control voltage	24 V DC ± 20 %	24...230 V UC ± 10 %
Rated current AC / DC	/ 21 mA	6 mA @ 230 V UC / 45 mA @ 24 VUC
Power rating	530 mW	1.08 W @ 24 V UC, 1.38 W @ 230 V UC
Pull-in/drop-out voltage, typ.	18 V / 4 V DC	15 V / 7 V AC 15 V / 5 V DC
Pull-in/drop-out current, typ.	15.5 mA / 2.8 mA DC	42 mA / 15.5 mA AC 34 mA / 10 mA DC
Status indicator	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Rectifier
Output		
Switch-on delay	≤ 7 ms	≤ 30 ms
Switch-off delay	≤ 16 ms	≤ 75 ms
Ordering data		
Screw connection Type	TRS 24VDC 1NO HC	TRS 24-230VUC 1NO HC
Order No.	1479780000	1479790000
Tension-clamp conn. Type	TRZ 24VDC 1NO HC	TRZ 24-230VUC 1NO HC
Order No.	1479940000	1479950000
Note		

1 NO contact, inrush power HCP

- Space-saving, only 12.8 mm wide
- 16 A AgSnO contact + leading tungsten contact
- Internal cross-connection of the output terminals
- Especially for capacitive loads
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Technical data

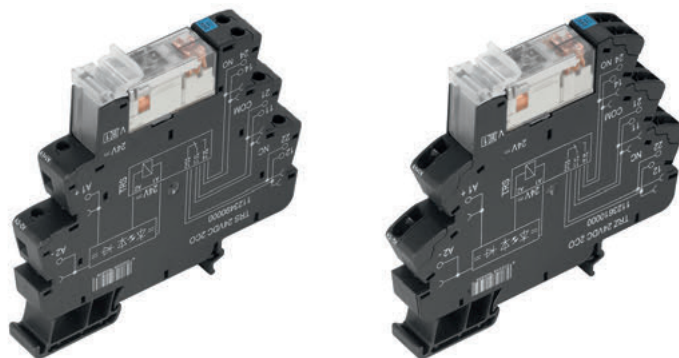
Output		
Rated switching voltage / Continuous current	250 V AC / 16 A	
Max. switching voltage, AC	250 V	
Inrush current	165 A / 20 ms, 800 A / 200 µs	
Min. switching power	1 W	
DC / AC Switching capacity (resistive), max.	384 W @ 24 V / 4000 VA	
Contact material	AgSnO ₂ + W	
Mechanical service life	5 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
Rated data		
Ambient temperature (operational)	-40 °C...40 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation	
Approvals	CE, cULus, DNVGL	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength input - output	1.2 kV _{eff} / 5 s	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overtoltage category	III	
Pollution degree	2	
Dimensions		
	Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.6	87.8 / 12.8 / 90.5
Note		

Ordering data

	24 V DC	24 V - 230 V UC
Input		
Rated control voltage	24 V DC ± 20 %	24...230 V UC ± 10 %
Rated current AC / DC	/ 21 mA	6 mA @ 230 V UC / 45 mA @ 24 VUC
Power rating	530 mW	1.08 W @ 24 V UC, 1.38 W @ 230 V UC
Pull-in/drop-out voltage, typ.	18 V / 4 V DC	15 V / 7 V AC 15 V / 5 V DC
Pull-in/drop-out current, typ.	15.5 mA / 2.8 mA DC	42 mA / 15.5 mA AC 34 mA / 10 mA DC
Status indicator	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Rectifier
Output		
Switch-on delay	≤ 7 ms	≤ 30 ms
Switch-off delay	≤ 16 ms	≤ 75 ms
Ordering data		
Screw connection Type	TRS 24VDC 1NO HCP	TRS 24-230VUC 1NO HCP
Order No.	1479810000	1479830000
Tension-clamp conn. Type	TRZ 24VDC 1NO HCP	TRZ 24-230VUC 1NO HCP
Order No.	1479970000	1479980000
Note		

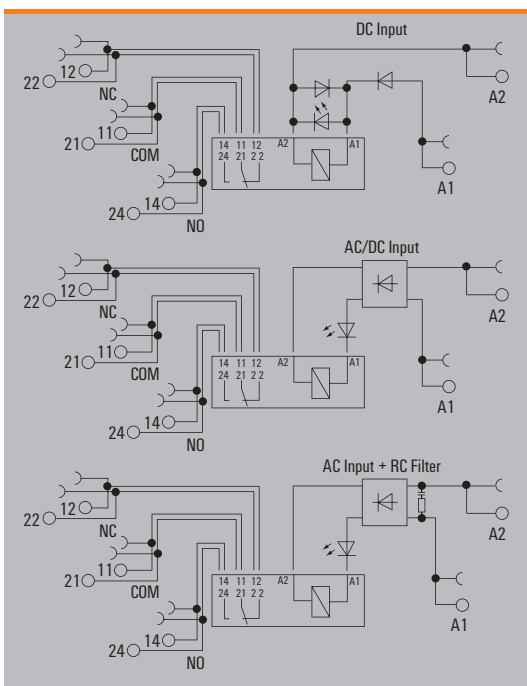
2 CO contacts
AC/DC/UC coil

- Space saving, just 12.8 mm modular width
- AgNi contact
- Screw and tension clamp connection



Relay modules and solid-state relays in 6 mm width

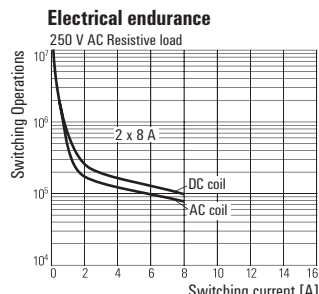
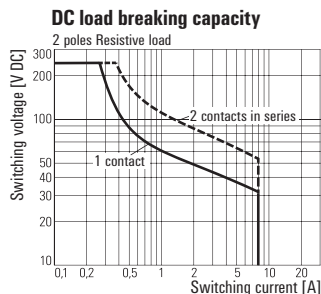
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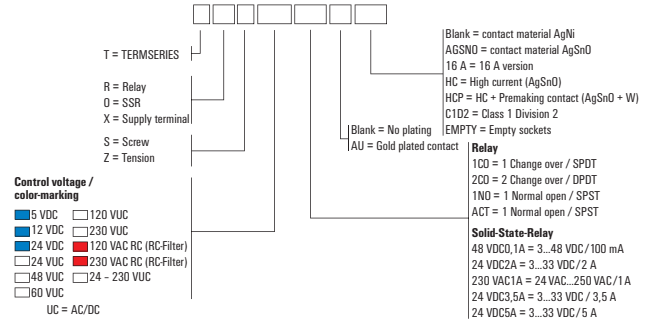
Technical data

Output			
Rated switching voltage / Continuous current	250 V AC / 8 A		
Max. switching voltage, AC	250 V		
Inrush current	15 A / 4 s		
Min. switching power	10 mA @ 10 V, 100 mA @ 5 V		
DC / AC Switching capacity (resistive), max.	192 W @ 24 V / 2000 VA		
Contact material	AgNi		
Mechanical service life	30 x 10 ⁶ switching cycles		
Max. switching frequency at rated load	0.1 Hz		
Rated data			
Ambient temperature (operational)	-40 °C...60 °C		
Storage temperature	-40 °C...85 °C		
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation		
Approvals	CE, cULus, DNVGL, EAC		
Insulation coordinates			
Rated voltage	300 V		
Impulse withstand voltage	6 kV (1.2/50 µs)		
Dielectric strength input - output	1.2 kV _{eff} / 5 s		
Dielectric strength of neighbouring contacts	2.5 kV _{eff}		
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.		
Creepage and clearance distance input - output	≥ 5.5 mm		
Overtoltage category	III		
Pollution degree	2		
Dimensions			
Clamping range (nominal / min. / max.)	mm ²	Screw connection	Tension clamp connection
		1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm	87.8 / 12.8 / 89.6	87.8 / 12.8 / 90.5
Note			
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.			

Applications



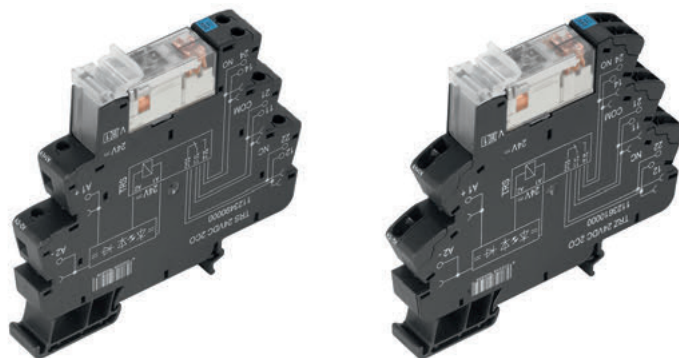
2 CO contacts
AC/DC/UC coil



Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Input					
Rated control voltage	5 V DC ± 20 %	12 V DC ± 20 %	24 V DC ± 20 %	24 V UC ± 10 %	48 V UC ± 10 %
Rated current AC / DC	/ 70 mA	/ 33 mA	/ 20 mA	16 mA / 14 mA	9 mA / 7 mA
Power rating	400 mW	400 mW	480 mW	390 mVA / 350 mW	340 mW / 0.4 VA
Pull-in/drop-out voltage, typ.	3 V / 1.6 V DC	9 V / 2 V DC	17 V / 3 V DC	19 V / 6.5 V AC 20.5 V / 6 V DC	29 V / 11 V AC 33 V / 11 V DC
Pull-in/drop-out current, typ.	21.6 mA / 8 mA DC	24 mA / 5 mA DC	14 mA / 2 mA DC	13 mA / 3 mA AC 12 mA / 2 mA DC	6 mA / 3 mA AC 5 mA / 1.5 mA DC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Output					
Switch-on delay	≤ 11 ms	≤ 11 ms	≤ 6 ms	≤ 11 ms	≤ 11 ms
Switch-off delay	≤ 7 ms	≤ 8 ms	≤ 18 ms	≤ 20 ms	≤ 7 ms
Ordering data					
Screw connexion Type	TRS 5VDC 2CO	TRS 12VDC 2CO	TRS 24VDC 2CO	TRS 24VUC 2CO	TRS 48VUC 2CO
Order No.	1123470000	1123480000	1123490000	1123500000	1123510000
Tension-clamp conn. Type	TRZ 5VDC 2CO	TRZ 12VDC 2CO	TRZ 24VDC 2CO	TRZ 24VUC 2CO	TRZ 48VUC 2CO
Order No.	1123590000	1123600000	1123610000	1123620000	1123630000
Note	Spare relay Type: RCL424005 Orderno.: 8693790000	Spare relay Type: RCL424012 Orderno.: 4058560000	Spare relay Type: RCL424024 Orderno.: 4058570000	Spare relay Type: RCL424024 Orderno.: 4058570000	Spare relay Type: RCL424048 Orderno.: 4058750000
Ordering data					
Input					
Rated control voltage	60 V UC ± 10 %	120 V UC ± 10 %	230 V UC ± 5 %	120 V AC ± 10 %	230 V AC ± 5 %
Rated current AC / DC	8 mA / 6.1 mA	3.5 mA / 3.5 mA	4 mA / 4 mA	5.5 mA /	10 mA /
Power rating	480 mVA / 360 mW	420 mVA / 420 mW	920 mVA / 920 mW	0.73 VA	2.3 VA
Pull-in/drop-out voltage, typ.	36 V / 13 V AC 40 V / 14 V DC	83 V / 28 V AC 90 V / 22 V DC	125 V / 39 V AC 140 V / 30 V DC	81 V / 30 V AC	112 V / 45 V AC
Pull-in/drop-out current, typ.	5 mA / 2.5 mA AC 4 mA / 1.2 mA DC	2.5 mA / 0.7 mA AC 2.6 mA / 0.58 mA DC	2.3 mA / 0.6 mA AC 2.5 mA / 0.4 mA DC	3.8 mA / 1.3 mA AC	5 mA / 2 mA AC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element
Output					
Switch-on delay	≤ 11 ms	≤ 12 ms	≤ 4.5 ms	≤ 9 ms	≤ 14 ms
Switch-off delay	≤ 7 ms	≤ 9 ms	≤ 15 ms	≤ 10 ms	≤ 12 ms
Ordering data					
Screw connexion Type	TRS 60VUC 2CO	TRS 120VUC 2CO	TRS 230VUC 2CO	TRS 120VAC RC 2CO	TRS 230VAC RC 2CO
Order No.	1123520000	1123530000	1123540000	1123550000	1123570000
Tension-clamp conn. Type	TRZ 60VUC 2CO	TRZ 120VUC 2CO	TRZ 230VUC 2CO	TRZ 120VAC RC 2CO	TRZ 230VAC RC 2CO
Order No.	1123640000	1123650000	1123670000	1123680000	1123690000
Note	Spare relay Type: RCL424060 Orderno.: 4058760000	Spare relay Type: RCL424110 Orderno.: 4058590000	Spare relay Type: RCL424110 Orderno.: 4058590000	Spare relay Type: RCL424110 Orderno.: 4058590000	Spare relay Type: RCL424110 Orderno.: 4058590000

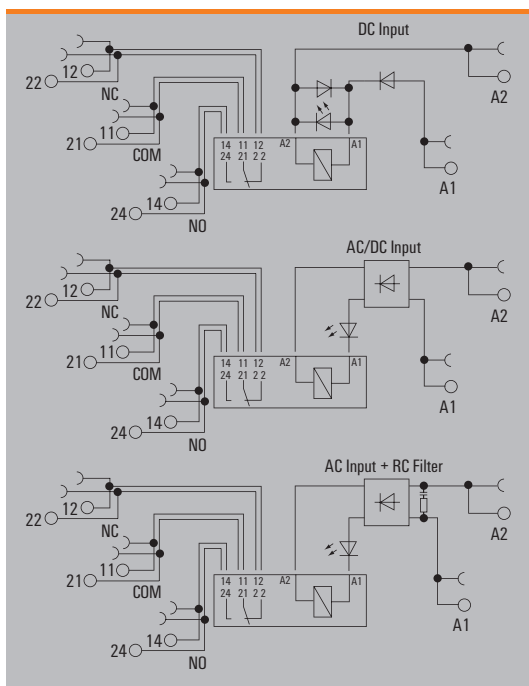
2 CO contact with hard gold-plated contacts
AC/DC/UC coil

- Space saving, just 12.8 mm modular width
- AgNi contact with gold plating
- Screw and tension clamp connection



Relay modules and solid-state relays in 6 mm width

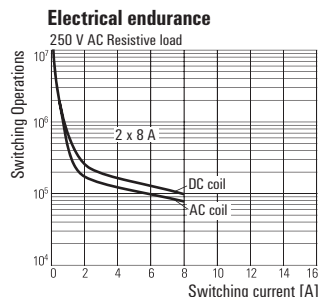
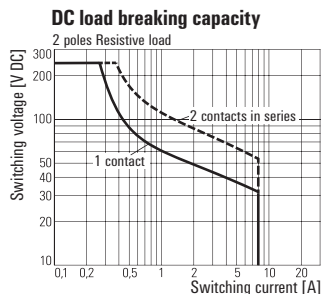
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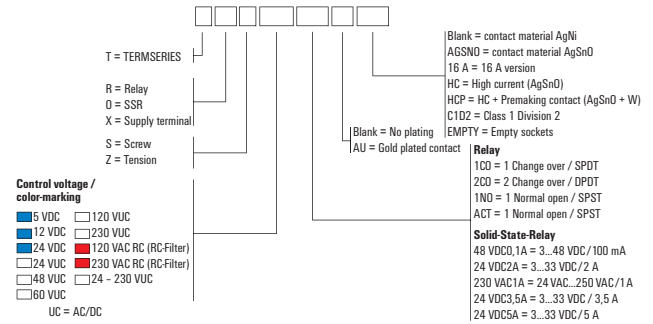
Technical data

Output			
Rated switching voltage / Continuous current	250 V AC / 8 A		
Max. switching voltage, AC	250 V		
Inrush current	15 A / 4 s		
Min. switching power	1 mA @ 1 V		
DC / AC Switching capacity (resistive), max.	192 W @ 24 V / 2000 VA		
Contact material	AgNi 5µm Au		
Mechanical service life	30 x 10 ⁶ switching cycles		
Max. switching frequency at rated load	0.1 Hz		
Rated data			
Ambient temperature (operational)	-40 °C...60 °C		
Storage temperature	-40 °C...85 °C		
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation		
Approvals	CE, cULus, DNVGL, EAC		
Insulation coordinates			
Rated voltage	300 V		
Impulse withstand voltage	6 kV (1.2/50 µs)		
Dielectric strength input - output	1.2 kV _{eff} / 5 s		
Dielectric strength of neighbouring contacts	2.5 kV _{eff}		
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.		
Creepage and clearance distance input - output	≥ 5.5 mm		
Overvoltage category	III		
Pollution degree	2		
Dimensions			
Clamping range (nominal / min. / max.)	mm ²	Screw connection	Tension clamp connection
		1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm	87.8 / 12.8 / 89.6	87.8 / 12.8 / 90.5
Note			
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.			

Applications



2 CO contact with hard gold-plated contacts
AC/DC/UC coil



Ordering data

	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Input					
Rated control voltage	5 V DC ± 20 %	12 V DC ± 20 %	24 V DC ± 20 %	24 V UC ± 10 %	48 V UC ± 10 %
Rated current AC / DC	/ 70 mA	/ 33 mA	/ 20 mA	16 mA / 14 mA	9 mA / 7 mA
Power rating	400 mW	400 mW	480 mW	390 mVA / 350 mW	340 mW / 0.4 VA
Pull-in/drop-out voltage, typ.	3 V / 1.6 V DC	9 V / 2 V DC	17 V / 3 V DC	19 V / 6.5 V AC 20.5 V / 6 V DC	29 V / 11 V AC 33 V / 11 V DC
Pull-in/drop-out current, typ.	21.6 mA / 8 mA DC	24 mA / 5 mA DC	14 mA / 2 mA DC	13 mA / 3 mA AC 12 mA / 2 mA DC	6 mA / 3 mA AC 5 mA / 1.5 mA DC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Output					
Switch-on delay	≤ 11 ms	≤ 11 ms	≤ 6 ms	≤ 11 ms	≤ 11 ms
Switch-off delay	≤ 7 ms	≤ 8 ms	≤ 18 ms	≤ 20 ms	≤ 7 ms

Ordering data					
Screw connexion	Type	TRS 5VDC 2CO AU	TRS 12VDC 2CO AU	TRS 24VDC 2CO AU	TRS 24VUC 2CO AU
	Order No.	1123710000	1123720000	1123730000	1123740000
Tension-clamp conn.	Type	TRZ 5VDC 2CO AU	TRZ 12VDC 2CO AU	TRZ 24VDC 2CO AU	TRZ 24VUC 2CO AU
	Order No.	1123830000	1123840000	1123850000	1123870000
Note	Spare relay Type: RCL425005 Orderno.: 1174490000	Spare relay Type: RCL425012 Orderno.: 4074580000	Spare relay Type: RCL425024 Orderno.: 4058580000	Spare relay Type: RCL425024 Orderno.: 4058580000	Spare relay Type: RCL425048 Orderno.: 1201230000

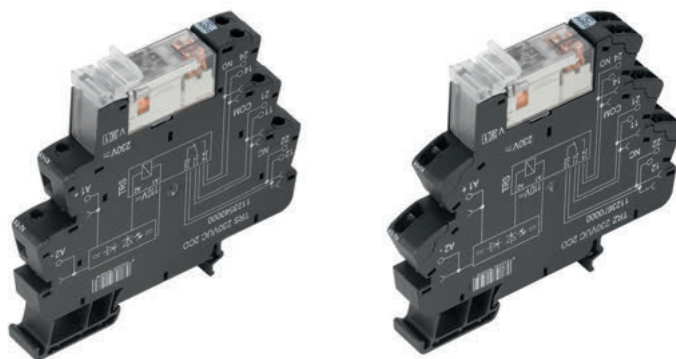
Ordering data

	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Input					
Rated control voltage	60 V UC ± 10 %	120 V UC ± 10 %	230 V UC ± 5 %	120 V AC ± 10 %	230 V AC ± 5 %
Rated current AC / DC	8 mA / 6.1 mA	3.5 mA / 3.5 mA	4 mA / 4 mA	5.5 mA /	10 mA /
Power rating	480 mVA / 360 mW	420 mVA / 420 mW	920 mVA / 920 mW	0.73 VA	2.3 VA
Pull-in/drop-out voltage, typ.	36 V / 13 V AC 40 V / 14 V DC	83 V / 28 V AC 90 V / 22 V DC	125 V / 39 V AC 140 V / 30 V DC	81 V / 30 V AC	112 V / 45 V AC
Pull-in/drop-out current, typ.	5 mA / 2.5 mA AC 4 mA / 1.2 mA DC	2.5 mA / 0.7 mA AC 2.6 mA / 0.58 mA DC	2.3 mA / 0.6 mA AC 2.5 mA / 0.4 mA DC	3.8 mA / 1.3 mA AC	5 mA / 2 mA AC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element
Output					
Switch-on delay	≤ 11 ms	≤ 12 ms	≤ 4.5 ms	≤ 9 ms	≤ 14 ms
Switch-off delay	≤ 7 ms	≤ 9 ms	≤ 15 ms	≤ 10 ms	≤ 12 ms

Ordering data					
Screw connexion	Type	TRS 60VUC 2CO AU	TRS 120VUC 2CO AU	TRS 230VUC 2CO AU	TRS 120VAC RC 2CO AU
	Order No.	1123770000	1123780000	1123790000	1123800000
Tension-clamp conn.	Type	TRZ 60VUC 2CO AU	TRZ 120VUC 2CO AU	TRZ 230VUC 2CO AU	TRZ 120VAC RC 2CO AU
	Order No.	1123890000	1123900000	1123910000	1123920000
Note	Spare relay Type: RCL425060 Orderno.: 1201260000	Spare relay Type: RCL425110 Orderno.: 8828370000	Spare relay Type: RCL425110 Orderno.: 8828370000	Spare relay Type: RCL425110 Orderno.: 8828370000	Spare relay Type: RCL425110 Orderno.: 8828370000

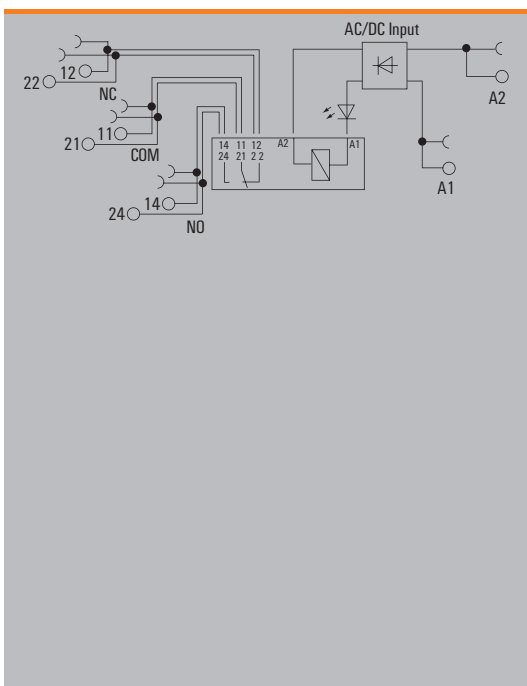
2 CO contacts
multi-voltage input

- Space saving, just 12.8 mm modular width
- AgNi contact
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Relay modules and solid-state relays in 6 mm width

A



Technical data

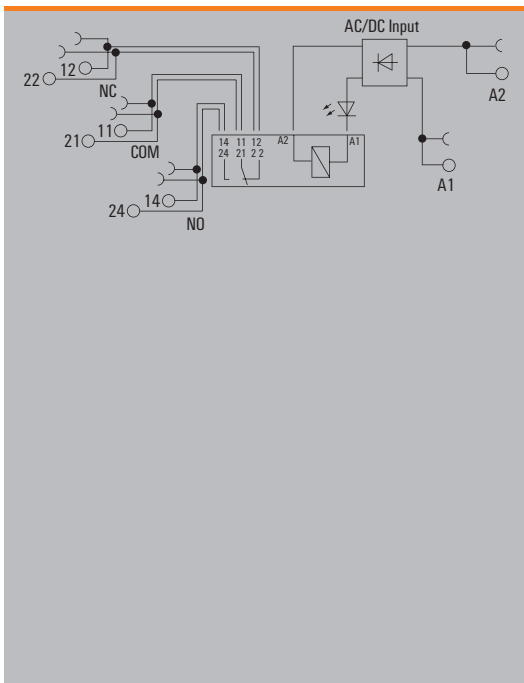
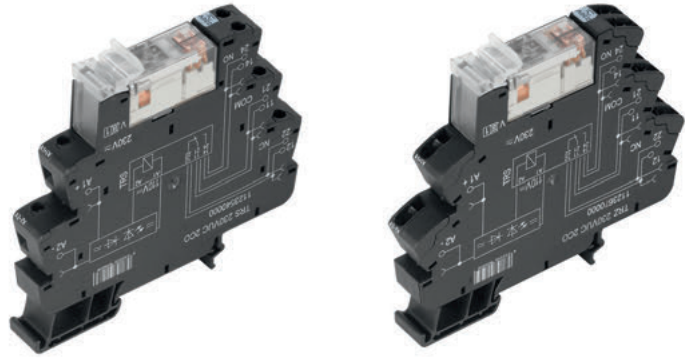
Output			
Rated switching voltage / Continuous current	250 V AC / 8 A		
Max. switching voltage, AC	250 V		
Inrush current	15 A / 4 s		
Min. switching power	10 mA @ 10 V, 100 mA @ 5 V		
DC / AC Switching capacity (resistive), max.	192 W @ 24 V / 2000 VA		
Contact material	AgNi		
Mechanical service life	30 x 10 ⁶ switching cycles		
Max. switching frequency at rated load	0.1 Hz		
Rated data			
Ambient temperature (operational)	-40 °C...40 °C		
Storage temperature	-40 °C...85 °C		
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation		
Approvals	CE, cULus, DNVGL, EAC		
Insulation coordinates			
Rated voltage	300 V		
Impulse withstand voltage	6 kV (1.2/50 µs)		
Dielectric strength input – output	1.2 kV _{eff} / 5 s		
Dielectric strength of neighbouring contacts	2.5 kV _{eff}		
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.		
Creepage and clearance distance input – output	≥ 5.5 mm		
Overtoltage category	III		
Pollution degree	2		
Dimensions			
Clamping range (nominal / min. / max.)	mm ²	Screw connection	Tension clamp connection
		1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm	87.8 / 12.8 / 89.6	87.8 / 12.8 / 90.5
Note			
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.			

Ordering data

Input		24 V - 230 V UC
Rated control voltage	24...230 V UC ± 10 %	
Rated current AC / DC	6 mA @ 230 V UC / 45 mA @ 24 VUC	
Power rating	1.08 W @ 24 V UC, 1.38 W @ 230 V UC	
Pull-in/drop-out voltage, typ.	18.5 V / 7 V AC 17.5 V / 5 V DC	
Pull-in/drop-out current, typ.	42 mA / 14 mA AC 38 mA / 10 mA DC	
Status indicator	Green LED	
Protective circuit	Rectifier	
Output		
Switch-on delay	≤ 40 ms	
Switch-off delay	≤ 80 ms	
Ordering data		
Screw connection	Type	TRS 24-230VUC 2CO
Order No.	1123580000	
Tension-clamp conn.	Type	TRZ 24-230VUC 2CO
Order No.	1123700000	
Note		Spare relay Type: RCL424024 Orderno.: 4058570000

2 CO contact with hard gold-plated contacts multi-voltage input

- Space saving, just 12.8 mm modular width
- AgNi contact with gold plating
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Technical data

Output			
Rated switching voltage / Continuous current	250 V AC / 8 A		
Max. switching voltage, AC	250 V		
Inrush current	15 A / 4 s		
Min. switching power	1 mA @ 1 V		
DC / AC Switching capacity (resistive), max.	192 W @ 24 V / 2000 VA		
Contact material	AgNi 5µm Au		
Mechanical service life	30 x 10 ⁶ switching cycles		
Max. switching frequency at rated load	0.1 Hz		
Rated data			
Ambient temperature (operational)	-40 °C...40 °C		
Storage temperature	-40 °C...85 °C		
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation		
Approvals	CE, cULus, DNVGL, EAC		
Insulation coordinates			
Rated voltage	300 V		
Impulse withstand voltage	6 kV (1.2/50 µs)		
Dielectric strength input - output	1.2 kV _{eff} / 5 s		
Dielectric strength of neighbouring contacts	2.5 kV _{eff}		
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.		
Creepage and clearance distance input - output	≥ 5.5 mm		
Overvoltage category	III		
Pollution degree	2		
Dimensions			
Clamping range (nominal / min. / max.)	mm ²	Screw connection	Tension clamp connection
		1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm	87.8 / 12.8 / 89.6	87.8 / 12.8 / 90.5
Note			
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.			

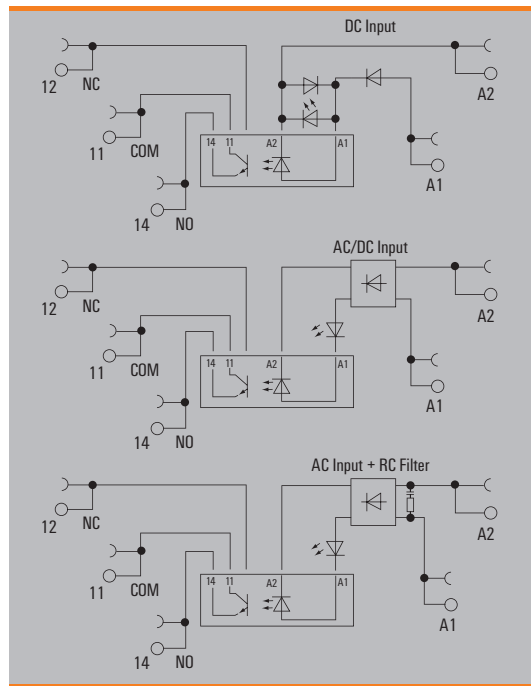
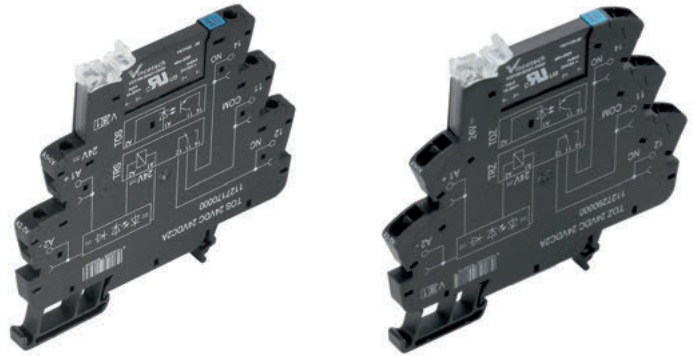
Ordering data

Input		24 V - 230 V UC
Rated control voltage		24...230 V UC ± 10 %
Rated current AC / DC		6 mA @ 230 V UC / 45 mA @ 24 VUC
Power rating		1.08 W @ 24 V UC, 1.38 W @ 230 V UC
Pull-in/drop-out voltage, typ.		18.5 V / 7 V AC 17.5 V / 5 V DC
Pull-in/drop-out current, typ.		42 mA / 14 mA AC 38 mA / 10 mA DC
Status indicator		Green LED
Protective circuit		Rectifier
Output		
Switch-on delay		≤ 40 ms
Switch-off delay		≤ 85 ms
Ordering data		
Screw connection	Type	TRS 24-230VUC 2CO AU
	Order No.	1123820000
Tension-clamp conn.	Type	TRZ 24-230VUC 2CO AU
	Order No.	1123940000
Note		
		Spare relay Type: RCL425024 Orderno.: 4058580000

Solid-state relay, 3...48 V DC / 100 mA

Output versions

- Space saving, just 6.4 mm modular width
- 5 cross-connection levels
- Screw and tension clamp connection

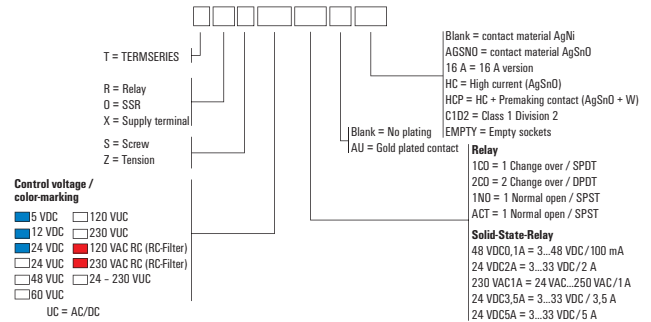


Technical data

Load side	
Rated switching voltage	0...48 V DC
Continuous current	100 mA
Inrush current	
Solid-state type	Bipolar transistor
Voltage drop at max. load	≤ 1 V
Leakage current	< 10 µA
Protective circuit, load side	Free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULus, DNVGL, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	2.5 kV _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6
	mm 87.8 / 6.4 / 90.5
Note	
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

Solid-state relay, 3...48 V DC / 100 mA

Output versions



Ordering data

	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	48 V UC ±10 %
Nominal control current	7 mA DC (±20 %)	5 mA DC (±20 %)	10 mA DC ±20 %	10 mA AC ±20 %, 6 mA DC (±20 %)	8 mA AC (±20 %), 7 mA DC (±20 %)
Power rating	35 mW	112 mW	280 mW	154 mW	290 mVA / 192 mW
Cut-in / dropout voltage	3.4 V / 1.5 V DC	4.9 V / 4 V DC	14.5 V / 11.5 V DC	18 V / 12 V AC 14 V / 13 V DC	36 V / 19 V AC 36 V / 19 V DC
max. switching frequency (DC control voltage)	10 Hz	10 Hz	300 Hz	100 Hz	100 Hz
max. switching frequency (AC control voltage)				3 Hz	3 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Load side					
Switch-on delay	< 6.5 ms	≤ 0.4 ms	< 50 μs	< 55 μs	< 55 μs
Switch-off delay	< 10 ms	≤ 3 ms	< 600 μs	< 4 ms	< 4 ms

Ordering data					
Screw connexion	Type TOS 5VDC 48VDC0,1A	Type TOS 12VDC 48VDC0,1A	Type TOS 24VDC 48VDC0,1A	Type TOS 24VUC 48VDC0,1A	Type TOS 48VUC 48VDC0,1A
Order No.	1126920000	1126930000	1126940000	1126950000	1126960000
Tension-clamp conn.	Type TOZ 5VDC 48VDC0,1A	Type TOZ 12VDC 48VDC0,1A	Type TOZ 24VDC 48VDC0,1A	Type TOZ 24VUC 48VDC0,1A	Type TOZ 48VUC 48VDC0,1A
Order No.	1127030000	1127040000	1127050000	1127060000	1127070000
Note					
	Spare solid-state relay Type: SSS 5 V/24 V 0.1 A DC Orderno.: 4064320000	Spare solid-state relay Type: SSS 5 V/24 V 0.1 A DC Orderno.: 4064320000	Spare solid-state relay Type: SSS 24 V/24 V 0.1 A DC Orderno.: 4061180000	Spare solid-state relay Type: SSS 24 V/24 V 0.1 A DC Orderno.: 4061180000	Spare solid-state relay Type: SSS 24 V/24 V 0.1 A DC Orderno.: 4061180000

Ordering data

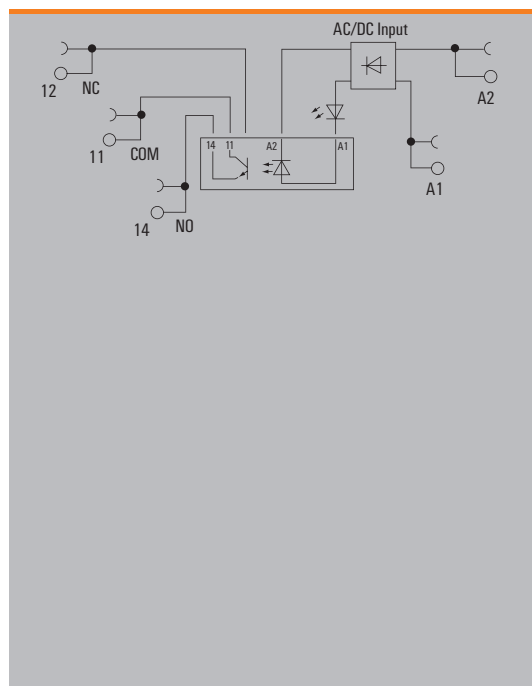
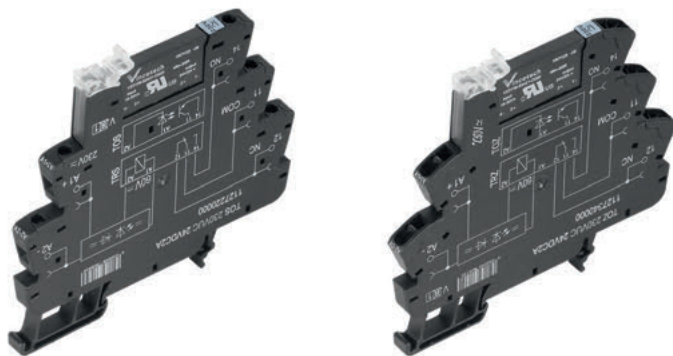
	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Control side					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC ±10 %	120 V AC ±10 %	230 V AC ±10 %
Nominal control current	5 mA AC (±20 %), 3 mA DC (±20 %)	5 mA AC (±30 %), 3 mA DC (±30 %)	3.5 mA AC (±30 %), 3 mA DC (±30 %)	7 mA AC (±20 %)	9 mA AC
Power rating	< 300 mW	0.48 VA	0.8 VA / 660 mW	0.84 VA	2.1 VA
Cut-in / dropout voltage	37 V / 20 V AC 35 V / 26 V DC	82 V / 65 V AC 86 V / 74 V DC	159 V / 99 V AC 145 V / 128 V DC	79 V / 60 V AC	129 V / 90 V AC
max. switching frequency (DC control voltage)	10 Hz	3 Hz	3 Hz		
max. switching frequency (AC control voltage)	3 Hz	3 Hz	3 Hz	3 Hz	3 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	RC element	RC element
Load side					
Switch-on delay	< 6.5 ms	< 6.5 ms	< 7 ms	< 6.5 ms	< 7 ms
Switch-off delay	< 10 ms	< 10 ms	< 10 ms	< 10 ms	< 10 ms

Ordering data					
Screw connexion	Type TOS 60VUC 48VDC0,1A	Type TOS 120VUC 48VDC0,1A	Type TOS 230VUC 48VDC0,1A	Type TOS 120VAC RC 48VDC0,1A	Type TOS 230VAC RC 48VDC0,1A
Order No.	1126970000	1126980000	1126990000	1127000000	1127010000
Tension-clamp conn.	Type TOZ 60VUC 48VDC0,1A	Type TOZ 120VUC 48VDC0,1A	Type TOZ 230VUC 48VDC0,1A	Type TOZ 120VAC RC 48VDC0,1A	Type TOZ 230VAC RC 48VDC0,1A
Order No.	1127080000	1127090000	1127100000	1127110000	1127120000
Note					
	Spare solid-state relay Type: SSS 60 V/24 V 0.1 A DC Orderno.: 4061230000	Spare solid-state relay Type: SSS 60 V/24 V 0.1 A DC Orderno.: 4061230000	Spare solid-state relay Type: SSS 60 V/24 V 0.1 A DC Orderno.: 4061230000	Spare solid-state relay Type: SSS 60 V/24 V 0.1 A DC Orderno.: 4061230000	Spare solid-state relay Type: SSS 60 V/24 V 0.1 A DC Orderno.: 4061230000

Solid-state relay, 3...48 V DC / 100 mA

Output versions, multi-voltage input

- Space saving, just 6.4 mm modular width
- 5 cross-connection levels
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Technical data

Load side					
Rated switching voltage	0...48 V DC				
Continuous current	100 mA				
Inrush current					
Solid-state type	Bipolar transistor				
Voltage drop at max. load	≤ 1 V				
Leakage current	< 10 µA				
Protective circuit, load side	Free-wheel diode				
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode				
General data					
Ambient temperature (operational)	-20 °C...60 °C				
Storage temperature	-40 °C...70 °C				
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation				
Approvals	CE, cULus, DNVGL, EAC				
Insulation coordinates					
Rated voltage	300 V				
Impulse withstand voltage	6 kV (1.2/50 µs)				
Dielectric strength for control side - load side	2.5 kV _{eff}				
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.				
Clearance and creepage distances for control side - load side	≥ 5.5 mm				
Overvoltage category	III				
Pollution degree	2				
Dimensions		Screw connection		Tension clamp conn.	
Clamping range (nominal / min. / max.)		mm ²		1.5 / 0.14 / 2.5	
Depth x width x height		mm		87.8 / 6.4 / 89.6	
				87.8 / 6.4 / 90.5	
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.			

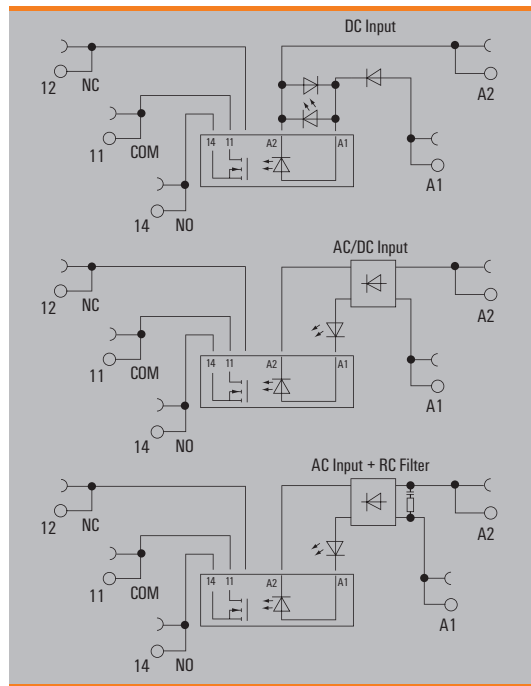
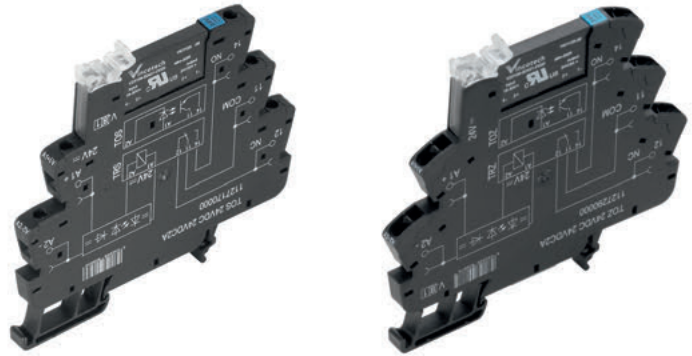
Ordering data

Control side		24 V - 230 V UC	
Rated control voltage		24...230 V UC ±10 %	
Nominal control current		22 mA @ 24 V DC, 4 mA @ 230 V AC	
Power rating		530 mW @ 24 V DC, 930 mVA @ 230 V AC	
Cut-in / dropout voltage		11.5 V / 9.5 V AC 11 V / 9 V DC	
max. switching frequency (DC control voltage)		3 Hz	
max. switching frequency (AC control voltage)		3 Hz	
Status indicator		Green LED	
Protective circuit		Rectifier	
Load side			
Switch-on delay		< 20 ms	
Switch-off delay		< 70 ms	
Ordering data			
Screw connection	Type	TOS 24-230VUC 48VDC0,1A	
	Order No.	1127020000	
Tension-clamp conn.	Type	TOZ 24-230VUC 48VDC0,1A	
	Order No.	1127130000	
Note		Spare solid-state relay Type: SSS 24 V/24 V 0.1A DC Orderno.: 4061180000	

Solid-state relay, 3...33 V DC / 2 A

Output versions

- Space saving, just 6.4 mm modular width
- 5 cross-connection levels
- Screw and tension clamp connection

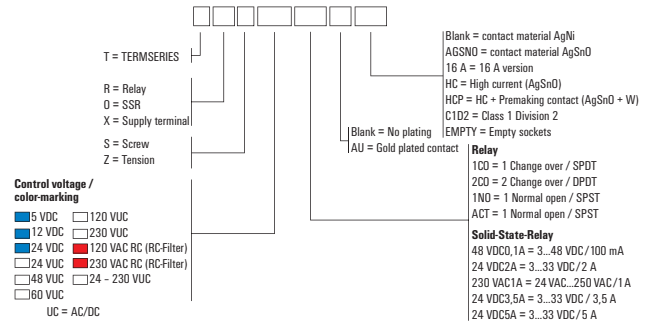


Technical data

Load side		
Rated switching voltage	3...33 V DC	
Continuous current	2 A	
Inrush current	15 A / 10 ms	
Solid-state type	MOS-FET	
Voltage drop at max. load	≤ 120 mV	
Leakage current	< 10 µA	
Protective circuit, load side	Free-wheel diode	
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode	
General data		
Ambient temperature (operational)	-20 °C...60 °C	
Storage temperature	-40 °C...70 °C	
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation	
Approvals	CE, cULus, DNVGL, EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength for control side - load side	2.5 kV _{eff}	
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.	
Clearance and creepage distances for control side - load side	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions		
Clamping range (nominal / min. / max.)	mm ²	1.5 / 0.14 / 2.5
Depth x width x height	mm	87.8 / 6.4 / 89.6
		87.8 / 6.4 / 90.5
Note		
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.		

Solid-state relay, 3...33 V DC / 2 A

Output versions



Ordering data

	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	48 V UC ±10 %
Nominal control current	11.5 mA DC (±20%)	9.6 mA DC (±20 %)	11.5 mA DC (±20%)	10 mA AC (±20 %), 6 mA DC (±20 %)	8 mA AC (±20 %), 7 mA DC (±20 %)
Power rating	50 mW	112 mW	0.29 W	154 mW	290 mVA / 192 mW
Cut-in / dropout voltage	2.3 V / 1.8 V DC	5.2 V / 4.5 V DC	14 V / 12.5 V DC	18 V / 12 V AC 14 V / 13 V DC	36 V / 19 V AC 36 V / 19 V DC
max. switching frequency (DC control voltage)	300 Hz	300 Hz	300 Hz	10 Hz	10 Hz
max. switching frequency (AC control voltage)				3 Hz	3 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Load side					
Switch-on delay	≤0,1 ms	≤0,1 ms	≤0,1 ms	< 6.5 ms	< 6.5 ms
Switch-off delay	< 1 ms	< 1 ms	< 1 ms	< 10 ms	< 10 ms

Ordering data

Screw connection	Type TOS 5VDC 24VDC2A	Type TOS 12VDC 24VDC2A	Type TOS 24VDC 24VDC2A	Type TOS 24VUC 24VDC2A	Type TOS 48VUC 24VDC2A
Order No.	1127140000	1127150000	1127170000	1127180000	1127190000
Tension-clamp conn.	Type TOZ 5VDC 24VDC2A	Type TOZ 12VDC 24VDC2A	Type TOZ 24VDC 24VDC2A	Type TOZ 24VUC 24VDC2A	Type TOZ 48VUC 24VDC2A
Order No.	1127270000	1127280000	1127290000	1127300000	1127310000
Note	Spare solid-state relay Type: SSS 5 V/24 V 2 A DC Orderno.: 4064310000	Spare solid-state relay Type: SSS 5 V/24 V 2 A DC Order no.: 4064310000	Spare solid-state relay Type: SSS 24 V/24 V 2 A DC Orderno.: 4061190000	Spare solid-state relay Type: SSS 24 V/24 V 2 A DC Orderno.: 4061190000	Spare solid-state relay Type: SSS 24 V/24 V 2 A DC Orderno.: 4061190000

Ordering data

	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Control side					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC ±10%	120 V AC ±10 %	230 V AC ±10 %
Nominal control current	5 mA AC (±20 %), 3 mA DC (±20 %)	4.1 mA AC (±10 %), 2.6 mA DC (±10%)	3.5 mA AC (±30 %), 3 mA DC (±30 %)	7 mA AC (±20 %)	9 mA AC
Power rating	< 300 mW	0.49 VA, 0.31 W	0.8 VA / 660 mW	0.84 VA	2.1 VA
Cut-in / dropout voltage	37 V / 20 V AC 35 V / 26 V DC	83 V / 61 V AC 91 V / 72 V DC	159 V / 99 V AC 145 V / 128 V DC	79 V / 60 V AC	129 V / 90 V AC
max. switching frequency (DC control voltage)	10 Hz	10 Hz	3 Hz		
max. switching frequency (AC control voltage)	3 Hz	10 Hz	3 Hz	3 Hz	3 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	RC element	RC element
Load side					
Switch-on delay	< 6.5 ms	< 6.5 ms	< 7 ms	< 6.5 ms	< 7 ms
Switch-off delay	< 10 ms	≤ 16 ms	< 10 ms	< 10 ms	< 10 ms

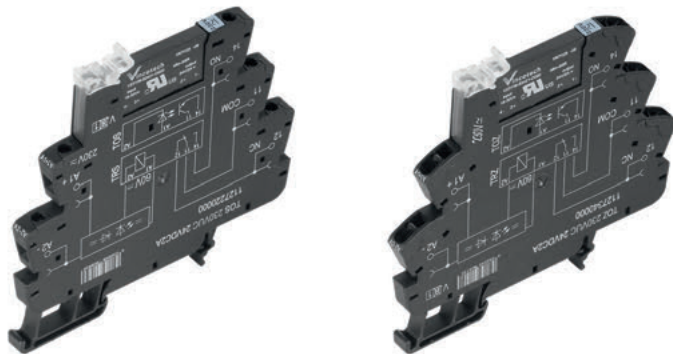
Ordering data

Screw connection	Type TOS 60VUC 24VDC2A	Type TOS 120VUC 24VDC2A	Type TOS 230VUC 24VDC2A	Type TOS 120VAC RC 24VDC2A	Type TOS 230VAC RC 24VDC2A
Order No.	1127200000	1127210000	1127220000	1127230000	1127240000
Tension-clamp conn.	Type TOZ 60VUC 24VDC2A	Type TOZ 120VUC 24VDC2A	Type TOZ 230VUC 24VDC2A	Type TOZ 120VAC RC 24VDC2A	Type TOZ 230VAC RC 24VDC2A
Order No.	1127320000	1127330000	1127340000	1127350000	1127370000
Note	Spare solid-state relay Type: SSS 60 V/24 V 2 A DC Orderno.: 4061200000	Spare solid-state relay Type: SSS 60 V/24 V 2 A DC Orderno.: 4061200000	Spare solid-state relay Type: SSS 60 V/24 V 2 A DC Orderno.: 4061200000	Spare solid-state relay Type: SSS 60 V/24 V 2 A DC Orderno.: 4061200000	Spare solid-state relay Type: SSS 60 V/24 V 2 A DC Orderno.: 4061200000

Solid-state relay, 3...33 V DC / 2 A

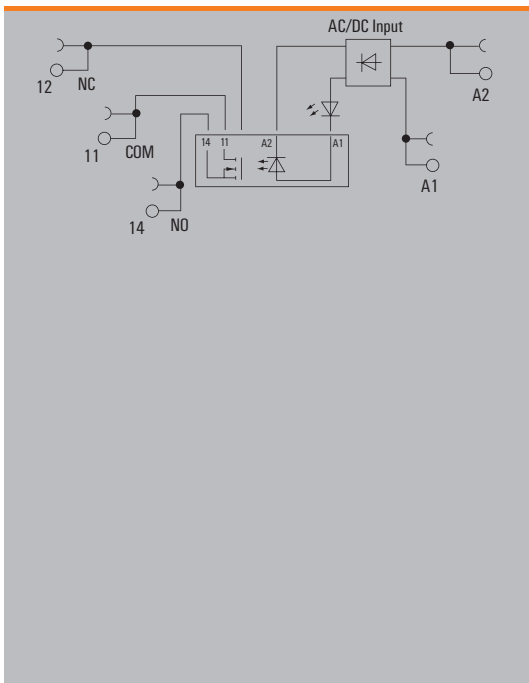
Output versions, multi-voltage input

- Space saving, just 6.4 mm modular width
- 5 cross-connection levels
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Relay modules and solid-state relays in 6 mm width

A



Technical data

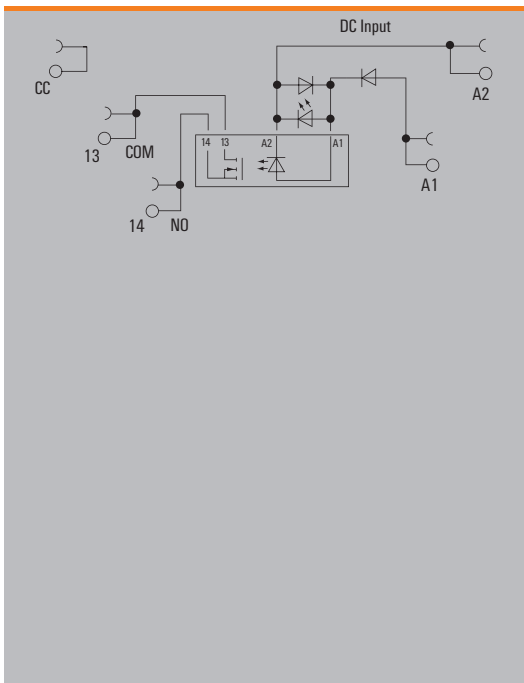
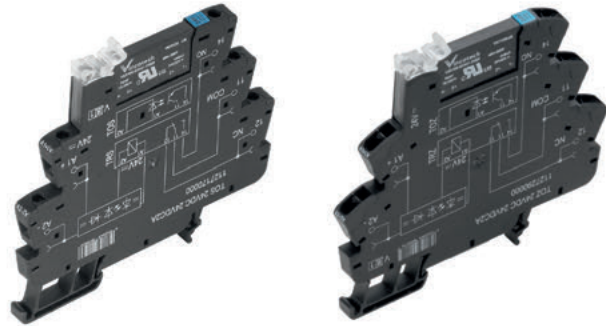
Load side					
Rated switching voltage	3...33 V DC				
Continuous current	2 A				
Inrush current	15 A / 10 ms				
Solid-state type	MOS-FET				
Voltage drop at max. load	≤ 120 mV				
Leakage current	< 10 µA				
Protective circuit, load side	Free-wheel diode				
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode				
General data					
Ambient temperature (operational)	-20 °C...60 °C				
Storage temperature	-40 °C...70 °C				
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation				
Approvals	CE, cULus, DNVGL, EAC				
Insulation coordinates					
Rated voltage	300 V				
Impulse withstand voltage	6 kV (1.2/50 µs)				
Dielectric strength for control side - load side	2.5 kV _{eff}				
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.				
Clearance and creepage distances for control side - load side	≥ 5.5 mm				
Overvoltage category	III				
Pollution degree	2				
Dimensions		Screw connection		Tension clamp conn.	
Clamping range (nominal / min. / max.)		mm ² 1.5 / 0.14 / 2.5		1.5 / 0.14 / 2.5	
Depth x width x height		mm 87.8 / 6.4 / 89.6		87.8 / 6.4 / 90.5	
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.			

Ordering data

Control side		24 V - 230 V UC	
Rated control voltage		24...230 V UC ±10 %	
Nominal control current		22 mA @ 24 V DC, 4 mA @ 230 V AC	
Power rating		530 mW @ 24 V DC, 930 mVA @ 230 V AC	
Cut-in / dropout voltage		11.5 V / 6 V AC 11.5 V / 5 V DC	
max. switching frequency (DC control voltage)		3 Hz	
max. switching frequency (AC control voltage)		3 Hz	
Status indicator		Green LED	
Protective circuit		Rectifier	
Load side			
Switch-on delay		< 20 ms	
Switch-off delay		< 100 ms	
Ordering data			
Screw connection	Type	TOS 24-230VUC 24VDC2A	
	Order No.	1127250000	
Tension-clamp conn.	Type	TOZ 24-230VUC 24VDC2A	
	Order No.	1127380000	
Note		Spare solid-state relay Type: SSS 24 V/24 V 2 A DC Orderno.: 4061190000	

Solid-state relay, 3...33 V DC / 2 A actuator versions

- Space-saving, only 6.4 mm wide
- AgNi contact
- Screw and tension clamp connection
- 24 V DC actuator version:
Bridgeable, potential-free connection in the output (CC)


Technical data

Load side	
Rated switching voltage	3...33 V DC
Continuous current	2 A
Inrush current	15 A / 10 ms
Solid-state type	MOS-FET
Voltage drop at max. load	≤ 120 mV
Leakage current	< 10 µA
Protective circuit, load side	Free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULus, DNVGL, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	2.5 kV _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6
	mm 87.8 / 6.4 / 90.5
Note	
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

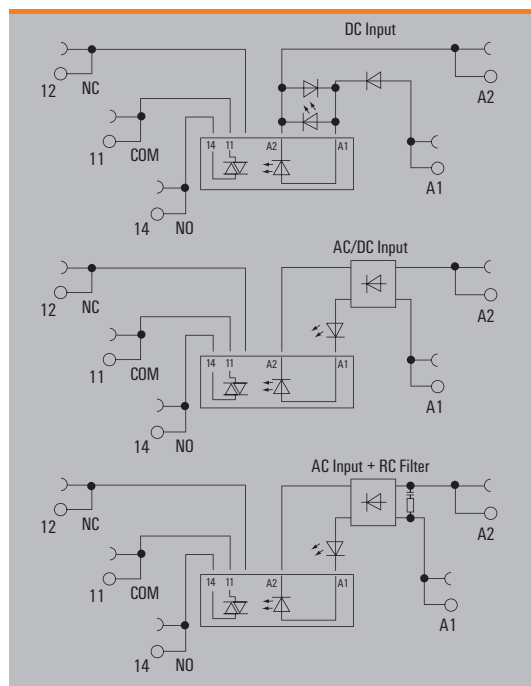
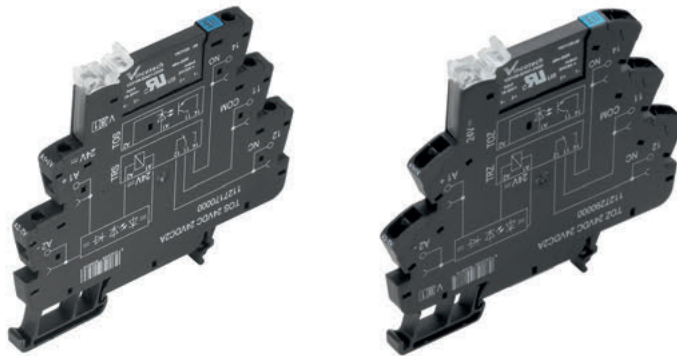
Ordering data

Control side		24 V DC
Rated control voltage		24 V DC ±20 %
Nominal control current		11.5 mA DC (±20%)
Power rating		280 mW
Cut-in / dropout voltage		14 V / 12.5 V DC
max. switching frequency (DC control voltage)		300 Hz
max. switching frequency (AC control voltage)		
Status indicator		Green LED
Protective circuit		Free-wheel diode, Reverse polarity protection
Load side		
Switch-on delay		≤ 0,1 ms
Switch-off delay		< 1 ms
Ordering data		
Screw connection	Type	TOS 24VDC ACT
	Order No.	1391680000
Tension-clamp conn.	Type	TOZ 24VDC ACT
	Order No.	1391690000
Note		

Solid-state relay, 24...230 V AC / 1 A

Output versions

- Space saving, just 6.4 mm modular width
- 5 cross-connection levels
- Screw and tension clamp connection



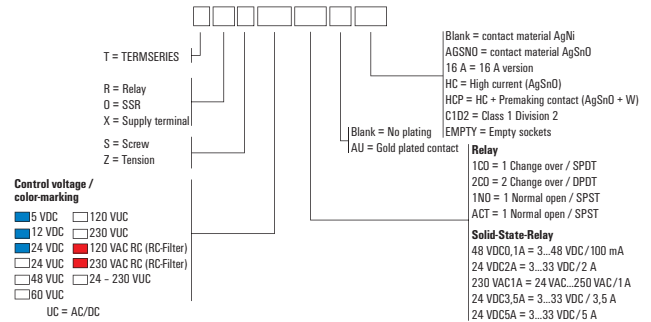
Technical data

Load side	
Rated switching voltage	24...240 V AC
Continuous current	1 A
Inrush current	15 A / 10 ms
Solid-state type	Triac (zero-cross switch)
Voltage drop at max. load	≤ 1.6 V
Leakage current	< 1.5 mA
Protective circuit, load side	RC element
Short-circuit-proof / Protective circuit, load side	No / RC element
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULus, DNVGL, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 μs)
Dielectric strength for control side - load side	2.5 kV _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6
Note	
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

	Screw connection	Tension clamp conn.
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6	87.8 / 6.4 / 90.5

Solid-state relay, 24...230 V AC / 1 A

Output versions



Ordering data

	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	48 V UC ±10 %
Nominal control current	15 mA DC (±20 %)	9.6 mA DC (±20 %)	10 mA DC ±20 %	10 mA AC ±20 %, 6 mA DC (±20 %)	6 mA AC (±20 %), 4 mA DC (±20 %)
Power rating	75 mW	112 mW	280 mW	154 mW	290 mVA / 192 mW
Cut-in / dropout voltage	3.4 V / 1.5 V DC	4.7 V / 4.6 V DC	12 V / 6.5 V DC	18 V / 12 V AC 14 V / 13 V DC	36 V / 19 V AC 36 V / 19 V DC
max. switching frequency (DC control voltage)	3 Hz	3 Hz	3 Hz	3 Hz	3 Hz
max. switching frequency (AC control voltage)				3 Hz	3 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Load side					
Switch-on delay	< 12 ms	< 12 ms	≤ 12 ms	< 11 ms	< 11 ms
Switch-off delay	< 12 ms	< 12 ms	≤ 12 ms	< 11 ms	< 11 ms

Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Screw connection Type	TOS 5VDC 230VAC1A	TOS 12VDC 230VAC1A	TOS 24VDC 230VAC1A	TOS 24VUC 230VAC1A	TOS 48VUC 230VAC1A
Order No.	1127390000	1127400000	1127410000	1127420000	1127430000
Tension-clamp conn. Type	TOZ 5VDC 230VAC1A	TOZ 12VDC 230VAC1A	TOZ 24VDC 230VAC1A	TOZ 24VUC 230VAC1A	TOZ 48VUC 230VAC1A
Order No.	1127510000	1127520000	1127530000	1127540000	1127550000
Note	Spare solid-state relay Type: SSS 5 V/230 V 1 A AC Orderno.: 1132260000	Spare solid-state relay Type: SSS 5 V/230 V 1 A AC Orderno.: 1132260000	Spare solid-state relay Type: SSS 24 V/230 V 1 A AC Orderno.: 4061210000	Spare solid-state relay Type: SSS 24 V/230 V 1 A AC Orderno.: 4061210000	Spare solid-state relay Type: SSS 24 V/230 V 1 A AC Orderno.: 4061210000

Ordering data

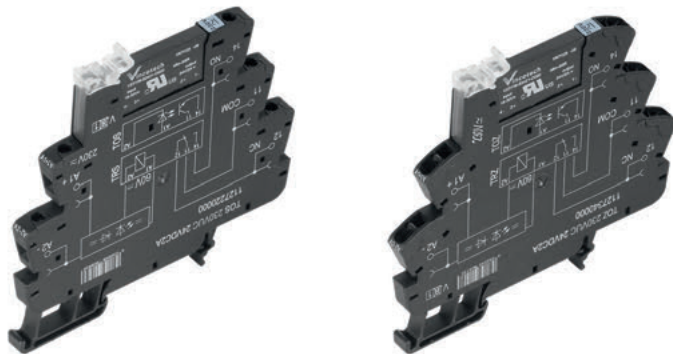
	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Control side					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC +5 %/-10 %	120 V AC ±10 %	230 V AC +5 %/-10 %
Nominal control current	5 mA AC (±20 %), 3 mA DC (±20 %)	5 mA AC (±30 %), 3 mA DC (±30 %)	3.5 mA AC (±30 %), 3 mA DC (±30 %)	7 mA AC (±20 %)	9 mA AC
Power rating	< 300 mW	0.48 VA	0.8 VA / 660 mW	0.84 VA	2.1 VA
Cut-in / dropout voltage	35 V / 20 V AC 35 V / 26 V DC	82 V / 65 V AC 86 V / 74 V DC	159 V / 99 V AC 145 V / 128 V DC	79 V / 60 V AC	142 V / 90 V AC
max. switching frequency (DC control voltage)	3 Hz	3 Hz	3 Hz		
max. switching frequency (AC control voltage)	3 Hz	3 Hz	3 Hz	3 Hz	3 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	RC element	RC element
Load side					
Switch-on delay	< 11 ms	< 11 ms	< 20 ms	< 11 ms	< 20 ms
Switch-off delay	< 11 ms	< 11 ms	< 20 ms	< 11 ms	< 20 ms

Ordering data	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Screw connection Type	TOS 60VUC 230VAC1A	TOS 120VUC 230VAC1A	TOS 230VUC 230VAC1A	TOS 120VAC RC 230VAC1A	TOS 230VAC RC 230VAC1A
Order No.	1127440000	1127450000	1127470000	1127480000	1127490000
Tension-clamp conn. Type	TOZ 60VUC 230VAC1A	TOZ 120VUC 230VAC1A	TOZ 230VUC 230VAC1A	TOZ 120VAC RC 230VAC1A	TOZ 230VAC RC 230VAC1A
Order No.	1127570000	1127580000	1127590000	1127600000	1127610000
Note	Spare solid-state relay Type: SSS 60 V/230 V 1 A AC Orderno.: 4061220000	Spare solid-state relay Type: SSS 60 V/230 V 1 A AC Orderno.: 4061220000	Spare solid-state relay Type: SSS 60 V/230 V 1 A AC Orderno.: 4061220000	Spare solid-state relay Type: SSS 60 V/230 V 1 A AC Orderno.: 4061220000	Spare solid-state relay Type: SSS 60 V/230 V 1 A AC Orderno.: 4061220000

Solid-state relay, 24 - 230 V AC / 1 A

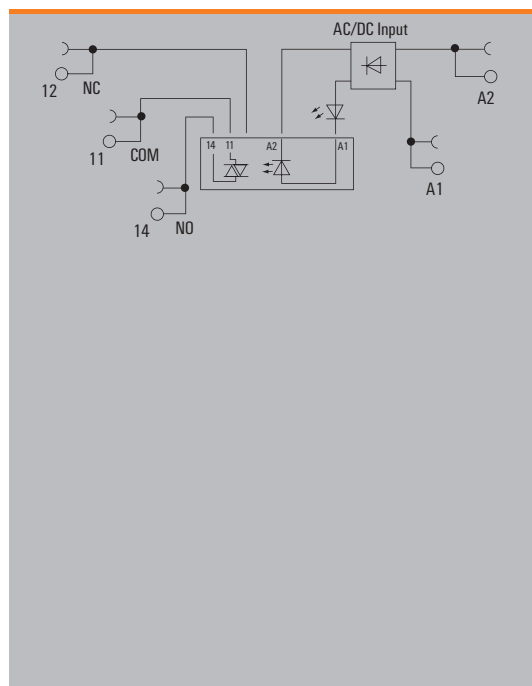
Output versions, multi-voltage input

- Space saving, just 6.4 mm modular width
- 5 cross-connection levels
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Relay modules and solid-state relays in 6 mm width

A



Technical data

Load side	
Rated switching voltage	24...240 V AC
Continuous current	1 A
Inrush current	15 A / 10 ms
Solid-state type	Triac (zero-cross switch)
Voltage drop at max. load	≤ 1 V
Leakage current	< 1.5 mA
Protective circuit, load side	RC element
Short-circuit-proof / Protective circuit, load side	No / RC element
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULus, DNVGL, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 μs)
Dielectric strength for control side - load side	2.5 kV _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6
	mm 87.8 / 6.4 / 90.5
Note	
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

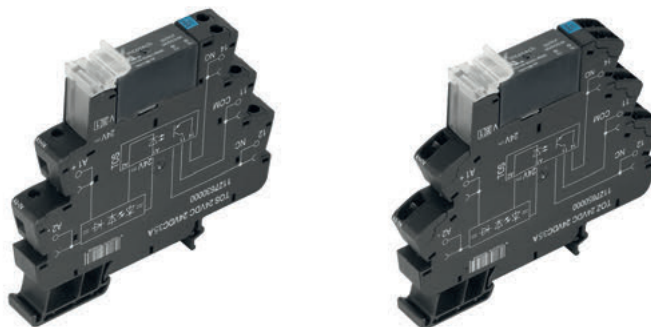
Ordering data

Control side		24 V - 230 V UC
Rated control voltage		24...230 V UC ±10 %
Nominal control current		22 mA @ 24 V DC, 4 mA @ 230 V AC
Power rating		530 mW @ 24 V DC, 930 mVA @ 230 V AC
Cut-in / dropout voltage		10.5 V / 7.7 V AC 11.5 V / 6.5 V DC
max. switching frequency (DC control voltage)		3 Hz
max. switching frequency (AC control voltage)		3 Hz
Status indicator		Green LED
Protective circuit		Rectifier
Load side		
Switch-on delay		< 20 ms
Switch-off delay		< 125 ms
Ordering data		
Screw connection	Type	TOS 24-230VUC 230VAC1A
	Order No.	1127500000
Tension-clamp conn.	Type	TOZ 24-230VUC 230VAC1A
	Order No.	1127620000
Note		
		Spare solid-state relay Type: SSS 24 V/230 V 1 A AC Orderno.: 4061210000

Solid-state relay, 0...33 V DC / 3.5 A

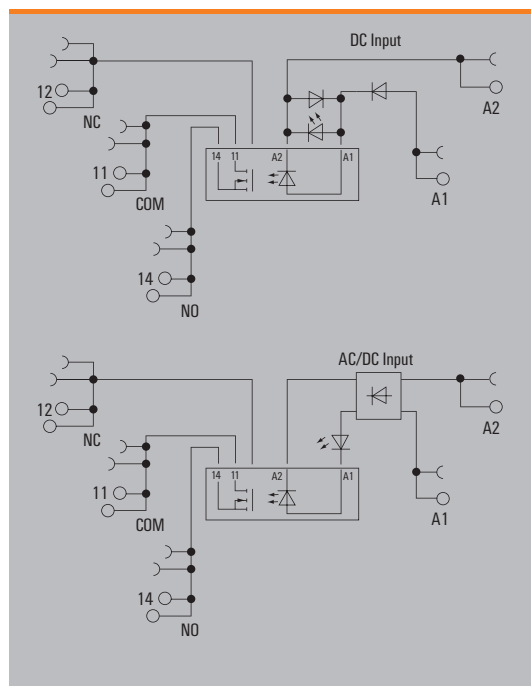
Output versions

- Space saving, just 12.8 mm modular width
- 5 cross-connection levels
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Relay modules and solid-state relays in 6 mm width

A



Technical data

Load side	
Rated switching voltage	3...33 V DC
Continuous current	3.5 A
Inrush current	
Solid-state type	MOS-FET
Voltage drop at max. load	≤ 0.3 V
Leakage current	< 10 µA
Protective circuit, load side	Free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULus, DNVGL, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	2.5 kV _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.6
Screw connection	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.6
Note	
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

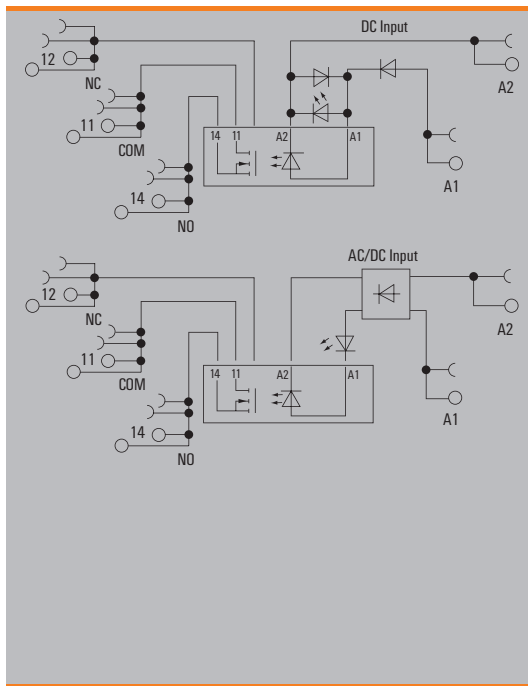
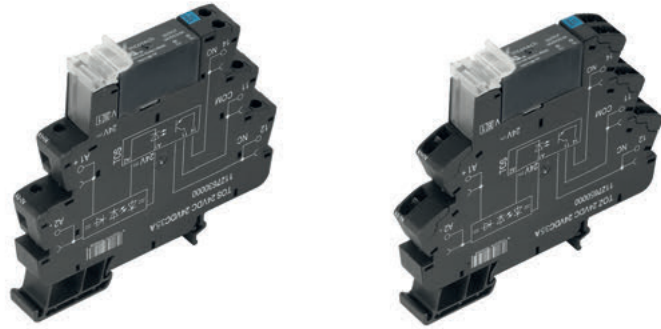
Ordering data

	24 V DC	24 V - 230 V UC
Control side		
Rated control voltage	24 V DC ±20 %	24...230 V UC ±10 %
Nominal control current	10 mA DC ±20 %	28 mA @ 24 V UC, 4 mA @ 230 V UC
Power rating	240 mW	672 mW @ 24 V UC, 920 mW @ 230 V UC
Cut-in / dropout voltage	15 V / 5 V DC	12 V / 6 V AC 12 V / 5 V DC
max. switching frequency (DC control voltage)	300 Hz	3 Hz
max. switching frequency (AC control voltage)		3 Hz
Status indicator	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Rectifier
Load side		
Switch-on delay	< 55 µs	≤ 10 ms
Switch-off delay	< 600 µs	< 100 ms
Ordering data		
Screw connection Type	TOS 24VDC 24VDC3,5A	TOS 24-230VUC 24VDC3,5A
Order No.	1127630000	1127640000
Tension-clamp conn. Type	TOZ 24VDC 24VDC3,5A	TOZ 24-230VUC 24VDC3,5A
Order No.	1127650000	1127670000
Note		
	Spare solid-state relay Type: SSR 10-32 V DC/0-35 V DC 5 A Orderno.: 1132310000	Spare solid-state relay Type: SSR 10-32 V DC/0-35 V DC 5 A Orderno.: 1132310000

Solid-state relay, 0...33 VDC / 5 A

Output versions

- Space-saving, 12.8 mm wide
- 5 A DC output current
- Internal cross-connection of the output terminals
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Technical data

Load side	
Rated switching voltage	3...33 V DC
Continuous current	5 A
Inrush current	
Solid-state type	MOS-FET
Voltage drop at max. load	≤ 0.3 V
Leakage current	< 10 µA
Protective circuit, load side	Free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULus, DNVGL
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	2.5 kV _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.6
	87.8 / 12.8 / 90.5
Note	

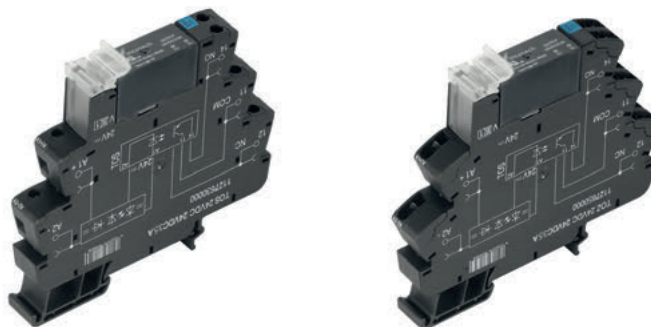
Ordering data

	24 V DC	24 V - 230 V UC
Control side		
Rated control voltage	24 V DC ±20 %	24...230 V UC ±10 %
Nominal control current	10 mA DC ±20 %	28 mA @ 24 V UC, 4 mA @ 230 V UC
Power rating	240 mW	672 mW @ 24 V UC, 920 mW @ 230 V UC
Cut-in / dropout voltage	4.5 V / 3 V DC	12 V / 6 V AC 12 V / 5 V DC
max. switching frequency (DC control voltage)	300 Hz	3 Hz
max. switching frequency (AC control voltage)		3 Hz
Status indicator	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Rectifier
Load side		
Switch-on delay	< 55 µs	≤ 10 ms
Switch-off delay	< 600 µs	< 100 ms
Ordering data		
Screw connection	Type TOS 24VDC 24VDC5A	Type TOS 24-230VUC 24VDC5A
Order No.	1990960000	1990970000
Tension-clamp conn.	Type TOZ 24VDC 24VDC5A	Type TOZ 24-230VUC 24VDC5A
Order No.	1990980000	1990990000
Note		

Solid-state relay, 12...275 V AC / 1 A

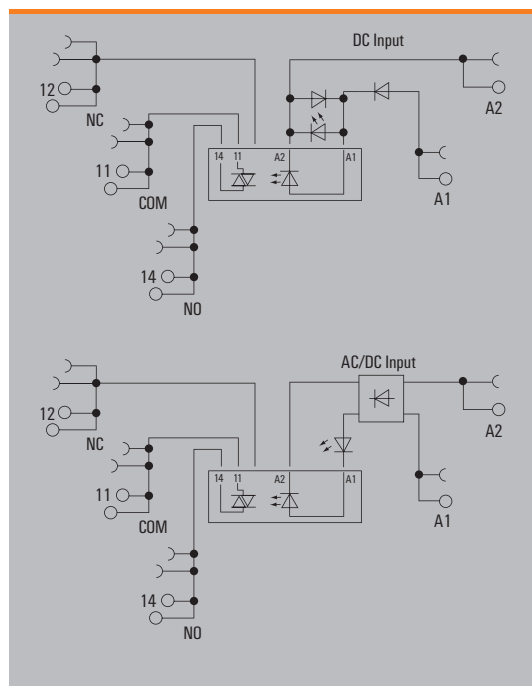
Output versions

- Space saving, just 12.8 mm modular width
- 5 cross-connection levels
- Screw and tension clamp connection
- Multi-voltage input: 24...230 V UC in one module



Relay modules and solid-state relays in 6 mm width

A



Technical data

Load side	
Rated switching voltage	12...275 V AC
Continuous current	1 A
Inrush current	15 A / 10 ms
Solid-state type	Triac (zero-cross switch)
Voltage drop at max. load	≤ 1.1 V
Leakage current	< 1.5 mA
Protective circuit, load side	RC element
Short-circuit-proof / Protective circuit, load side	No / RC element
General data	
Ambient temperature (operational)	-20 °C...40 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, DNVGL; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	2.5 kV _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.6
Screw connection	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.6
Note	
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

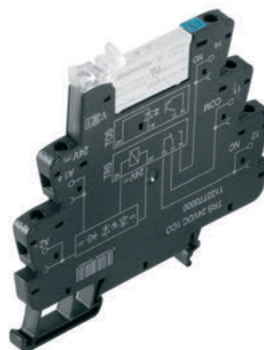
Ordering data

	24 V DC	24 V - 230 V UC
Control side		
Rated control voltage	24 V DC ±20 %	24...230 V UC ±10 %
Nominal control current	10 mA DC ±20 %	28 mA @ 24 V UC, 4 mA @ 230 V UC
Power rating	240 mW	672 mW @ 24 V UC, 920 mW @ 230 V UC
Cut-in / dropout voltage	15 V / 5 V DC	12 V / 6 V AC 12 V / 5 V DC
max. switching frequency (DC control voltage)	3 Hz	3 Hz
max. switching frequency (AC control voltage)		3 Hz
Status indicator	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Rectifier
Load side		
Switch-on delay	< 1 ms	≤ 12 ms
Switch-off delay	< 4 ms	< 125 ms
Ordering data		
Screw connection Type	TOS 24VDC 230VAC1A	TOS 24-230VUC 230VAC1A
Order No.	1127680000	1127690000
Tension-clamp conn. Type	TOZ 24VDC 230VAC1A	TOZ 24-230VUC 230VAC1A
Order No.	1127700000	1127710000
Note		
	Spare solid-state relay Type: SSR 10 - 32 VDC/ 12 - 275 VAC 3A Orderno.: 1132290000	Spare solid-state relay Type: SSR 10 - 32 VDC/ 12 - 275 VAC 3A Orderno.: 1132290000

1 CO contact, cl. 1, div. 2

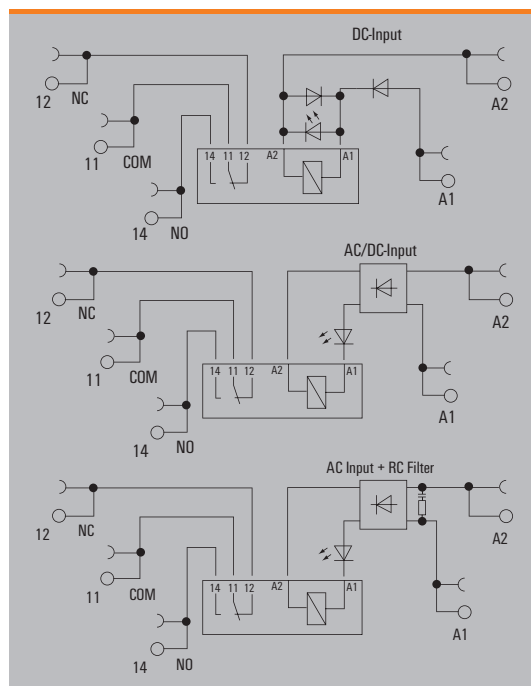
AC / DC / UC coil

- Space-saving, only 6.4 mm wide
- AgNi contact
- Multi-voltage input: 24...230 V UC in one module



Relay modules and solid-state relays in 6 mm width

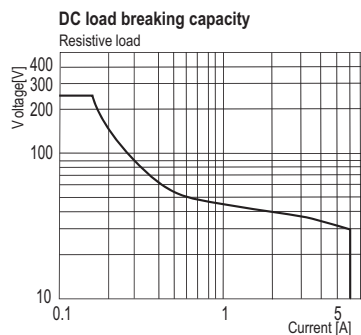
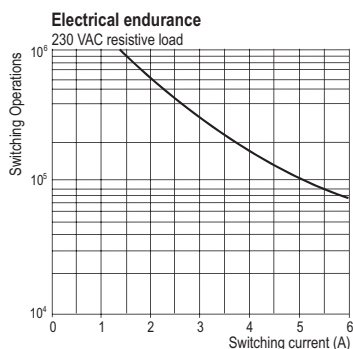
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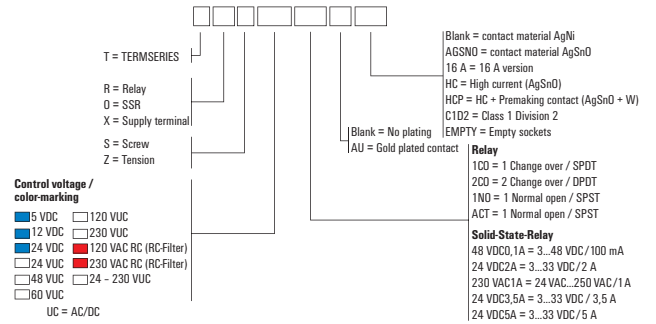
Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	250 V
Inrush current	20 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA
Contact material	AgNi
Mechanical service life	5 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULusEX
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength input - output	4 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overtoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6
Note	

Applications



1 CO contact, cl. 1, div. 2
AC / DC / UC coil



Ordering data	12 V DC	24 V DC	24 V UC	120 V AC RC	230 V AC RC
Input					
Rated control voltage	12 V DC ± 20 %	24 V DC ± 20 %	24 V UC ± 10 %	120 V AC ± 10 %	230 V AC ± 10 %
Rated current AC / DC	/ 18 mA	/ 11.5 mA	11.7 mA / 6.4 mA	7 mA /	10.1 mA /
Power rating	210 mW	280 mW	270 mVA / 154 mW	840 mVA	2.3 VA
Pull-in/drop-out voltage, typ.	9 V / 2 V DC	16 V / 3 V DC	16 V / 5 V AC 21 V / 6 V DC	79 V / 60 V AC	169 V / 85 V AC
Pull-in/drop-out current, typ.	11.5 mA / 2 mA DC	7.5 mA / 1 mA DC	8.5 mA / 2 mA AC 5 mA / 1 mA DC	4 mA / 2.5 mA AC	7 mA / 3.3 mA AC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier, RC element	Rectifier, RC element
Output					
Switch-on delay	≤ 6 ms	≤ 6 ms	≤ 6 ms	≤ 5.3 ms	≤ 16 ms
Switch-off delay	≤ 8 ms	≤ 15 ms	≤ 40 ms	≤ 4 ms	≤ 41 ms
Ordering data					
Screw connection	TRS 12VDC 1CO C1D2	TRS 24VDC 1CO C1D2	TRS 24VUC 1CO C1D2	TRS 120VACRC 1CO C1D2	TRS 230VACRC 1CO C1D2
Order No.	1984560000	1984570000	1984580000	1984590000	1984600000
Note					

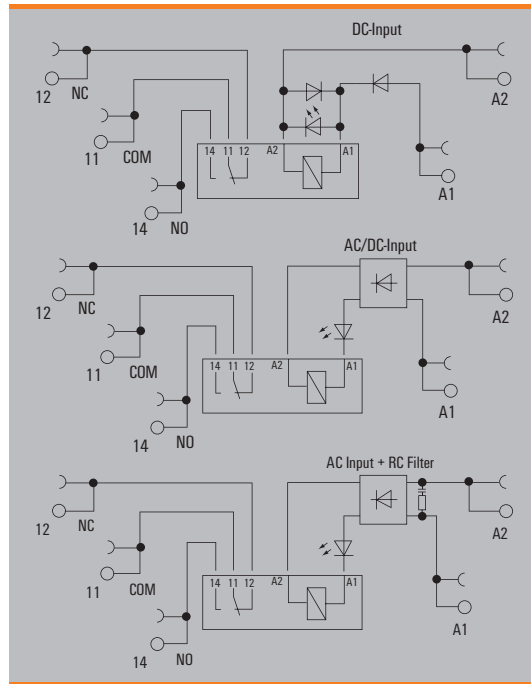
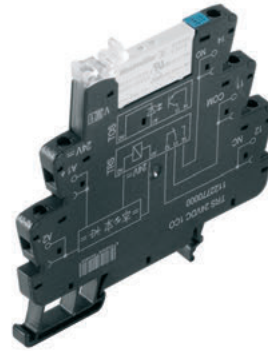
Ordering data	24...230 V UC
Input	
Rated control voltage	24...230 V UC ± 10 %
Rated current AC / DC	4 mA @ 230 V AC ± 10 %, 28 mA @ 24 V AC ± 10 % / 22 mA @ 24 V DC ± 10 %
Power rating	530 mW @ 24 V DC, 930 mVA @ 230 V AC
Pull-in/drop-out voltage, typ.	13 V / 7 V AC 13 V / 5 V DC
Pull-in/drop-out current, typ.	28.5 mA / 11 mA AC 23 mA / 6.5 mA DC
Status indicator	Green LED
Protective circuit	Rectifier
Output	
Switch-on delay	≤ 30 ms
Switch-off delay	≤ 130 ms
Ordering data	
Screw connection	TRS 24-230VUC 1CO C1D2
Order No.	1984610000
Note	

1 CO contact, cl. 1, div. 2

With hard gold-plated contacts

AC / DC / UC coil

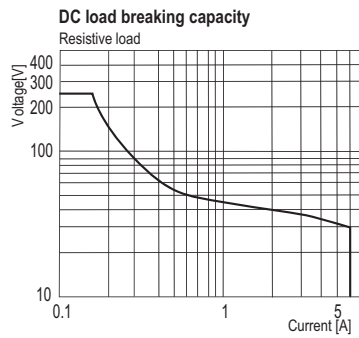
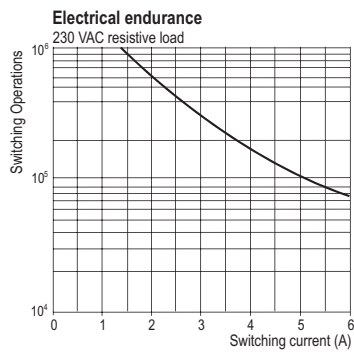
- Space-saving, only 6.4 mm wide
- AgNi contact
- Multi-voltage input: 24...230 V UC in one module



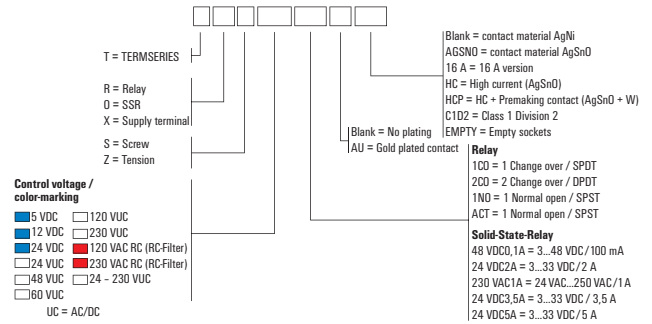
Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	250 V
Inrush current	20 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA
Contact material	AgNi 5µm Au
Mechanical service life	5 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULusEX
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength input - output	4 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overtolerance category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6
Note	

Applications



1 CO contact, cl. 1, div. 2
With hard gold-plated contacts
AC / DC / UC coil



Ordering data	12 V DC	24 V DC	120 V AC RC	24-230 V UC
Input				
Rated control voltage	12 V DC ± 20 %	24 V DC ± 20 %	120 V AC ± 10 %	24...230 V UC ± 10 %
Rated current AC / DC	/ 18 mA	/ 11.5 mA	7 mA /	4 mA @ 230 V AC ± 10 % 28 mA @ 24 V AC ± 10 % / 22 mA @ 24 V DC ± 10 %
Power rating	210 mW	280 mW	840 mVA	530 mW @ 24 V DC, 930 mVA @ 230 V AC
Pull-in/drop-out voltage, typ.	9 V / 2 V DC	16 V / 3 V DC	79 V / 60 V AC	13 V / 7 V AC 13 V / 5 V DC
Pull-in/drop-out current, typ.	11.5 mA / 2 mA DC	7.5 mA / 1 mA DC	4 mA / 2.5 mA AC	28.5 mA / 11 mA AC 23 mA / 6.5 mA DC
Status indicator	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier, RC element	Rectifier
Output				
Switch-on delay	≤ 6 ms	≤ 6 ms	≤ 5.3 ms	≤ 30 ms
Switch-off delay	≤ 8 ms	≤ 15 ms	≤ 4 ms	≤ 130 ms
Ordering data				
Screw connection	TRS 12VDC 1COAU C1D2	TRS 24VDC 1COAU C1D2	TRS 120VACRC 1COAU C1D2	TRS 24-230VUC 1COAUC1D2
Order No.	1984620000	1984630000	1984640000	1984650000
Type				
Order No.				
Note				

Relay modules and solid-state relays in 6 mm width

A

RSS Relais



Technical data	RSS113...	RSS112...	RSS111...
Contact type	1 CO contact (AgNi)	1 CO contact (AgNi 5uAu) ¹⁾	1 CO contact (AgSnO)
Max. switching voltage, AC	250 V	250 V	250 V
Max. switching voltage, DC	250 V	250 V	250 V
Rated switching voltage	6 A	6 A	6 A
Min. switching power	100 mA @ 5 V 10 mA @ 10 V 1 mA @ 24 V	1 mA @ 1 V	100 mA @ 12 V
Mechanical service life	5 x 10 ⁶	5 x 10 ⁶	5 x 10 ⁶
Switch-on delay	< 8 ms	< 8 ms	< 8 ms
Switch-off delay	< 4 ms	< 4 ms	< 4 ms
Operating temperature	-40 °C...85 °C	-40 °C...85 °C	-40 °C...85 °C
Storage temperature	-40 °C...85 °C	-40 °C...85 °C	-40 °C...85 °C
Pull-in/drop-out voltage, typ.	70 % / 5 % U _{NOM}	70 % / 5 % U _{NOM}	70 % / 5 % U _{NOM}
Note		1) AU-plate operate up to 0.25 W	

Similar to figure

Type	Rated control voltage	Rated current DC	Order No.	Order No.	Order No.
RSS...005	5 V DC	34 mA	4061580000	1174540000	1984100000
RSS...012	12 V DC	14 mA	4061610000	1220670000	1984110000
RSS...024	24 V DC	7 mA	4060120000	4061590000	1984090000
RSS...060	60 V DC	3 mA	4061630000	4061600000	1984120000

RCL relay module



Technical data	RCL424...	RCL425...
Contact type	2 CO contact (AgNi)	1 CO contact (AgNi 5uAu) ¹⁾
Max. switching voltage, AC	250 V	250 V
Max. switching voltage, DC	250 V	250 V
Rated switching voltage	8 A	8 A
Min. switching power	100 mA @ 5 V 10 mA @ 10 V 1 mA @ 24 V	1 mA @ 1 V
Mechanical service life	30 x 10 ⁶	30 x 10 ⁶
Switch-on delay	< 8 ms	< 8 ms
Switch-off delay	< 6 ms	< 6 ms
Operating temperature	-40 °C...85 °C	-40 °C...85 °C
Storage temperature	-40 °C...85 °C	-40 °C...85 °C
Pull-in/drop-out voltage, typ.	70 % / 10 % U _{NOM}	70 % / 10 % U _{NOM}
Note		1) AU-plate operate up to 0.25 W

Similar to figure

Type	Rated control voltage	Rated current DC	Order No.	Order No.
RCL...005	5 V DC	80 mA	8693790000	1174490000
RCL...012	12 V DC	33 mA	4058560000	4074580000
RCL...024	24 V DC	16 mA	4058570000	4058580000
RCL...048	48 V DC	8 mA	4058750000	1201230000
RCL...060	60 V DC	6 mA	4058760000	1201260000
RCL...110	110 V DC	3 mA	4058590000	8828370000

Small solid-state relay



Technical data
Contact type
Rated switching voltage
Continuous current
Min. switching current
Peak reverse voltage
Voltage drop at max. load
Leakage current
Dielectric strength for control side - load side
Operating temperature
Storage temperature

SSS...24 V 0,1 A DC
1 NO contact (Bipolar transistor)
0...48 V DC
100 mA DC
500 µA
54 V
≤ 1 V
< 10 µA
2.5 kV _{off}
-20 °C...60 °C
-40 °C...70 °C

SSS...24 V 2 A DC
1 NO contact (MOS-FET)
0...24 V DC
2 A
5 mA
33 V
≤ 120 mV
< 10 µA
2.5 kV _{off}
-20 °C...60 °C
-40 °C...70 °C

SSS...230 V 1 A AC
Contact type 1 NO contact (Triac (zero-cross switch))
24...240 V AC
1 A
20 mA
600 V
≤ 1 V
< 1.5 mA
2.5 kV _{off}
-20 °C...60 °C
-40 °C...70 °C

Similar to figure

Note

Note

Note

Note

Type
SSS 5 V...
SSS 24 V...
SSS 60 V...
SSS 5 V...
SSS 24 V...
SSS 60 V...
SSS 5 V...
SSS 24 V...
SSS 60 V...

Rated control voltage
5 V DC
24 V DC
60 V DC
5 V DC
24 V DC
60 V DC
5 V DC
24 V DC
60 V DC

Nominal control current
4 mA
7 mA
3 mA
9 mA
7 mA
3 mA
15 mA
7 mA
3 mA

Order No.
4064320000
4061180000
4061230000
-
-
-
-
-
-

Order No.
-
-
-
4064310000
4061190000
4061200000
-
-
-
-

Order No.
-
-
-
-
-
-
1132260000
4061210000
4061220000

Solid-state relay



Technical data
Contact type
Rated switching voltage
Continuous current
Min. switching current
Peak reverse voltage
Voltage drop at max. load
Leakage current
Dielectric strength for control side - load side
Operating temperature
Storage temperature

SSR.../0-35 V DC 3,5 A
1 NO contact (MOS-FET)
0...33 V DC
3.5 A
10 mA
35 V
≤ 0.3 V
< 10 µA
2.5 kV _{off}
-20 °C...60 °C
-40 °C...70 °C

SSR.../0-35VDC 5A
1 NO contact (MOS-FET)
0...35 V DC
5 A
1 mA
35 V
≤ 0.3 V
< 20 µA
2.5 kV _{off}
-20 °C...80 °C
-40 °C...100 °C

SSR.../12-275 V AC 1 A
Contact type 1 NO contact (Triac (zero-cross switch))
12...275 V AC
1 A
50 mA
600 V
≤ 1 V
< 1.5 mA
2.5 kV _{off}
-20 °C...60 °C
-40 °C...70 °C

Similar to figure

Note

Note

Note

Note

Type
SSR10...32 V DC/...

Rated control voltage
10...32 V DC

Nominal control current
3...13 mA

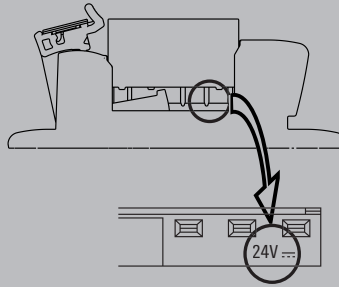
Order No.
1132310000

Order No.
1421450000

Order No.
1132290000

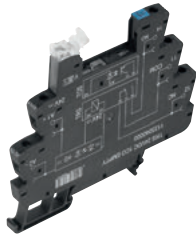
Accessories

The TERMSERIES relay bases are fitted with internal circuitry in the input which adapts the control voltage to the coil voltage of the connected relay. It should be ensured that the voltages of the base and the pluggable relay are compatible, since the control voltage and coil voltage are not always identical (see table below). For this reason, the coil voltage is printed on the relay sockets (refer to figure).



E.g.:
A 24 V DC relay is plugged into the TERMSERIES 24 V DC base (item no. 1123240000). The control voltage is transferred almost unchanged to the relay coil for this relay base.
Conversely, a 60V DC relay is plugged into the TERMSERIES 230 V AC relay base (item no. 1123320000). The internal circuitry adapts the applied coil voltage to the control voltage.

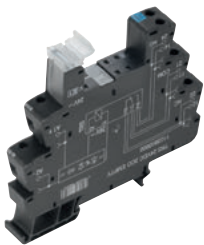
Empty socket 6,4 mm



Rated control voltage	Pluggable relay version	Qty.	Type / 1CO Screw connection	Order No.	Type / 1CO Tension clamp connection	Order No.
5 V DC	1	10	TRS 5VDC 1CO EMPTY	1123220000	TRZ 5VDC 1CO EMPTY	1123340000
12 V DC	2	10	TRS 12VDC 1CO EMPTY	1123230000	TRZ 12VDC 1CO EMPTY	1123350000
24 V DC	3	10	TRS 24VDC 1CO EMPTY	1123240000	TRZ 24VDC 1CO EMPTY	1123370000
24 V UC	3	10	TRS 24VUC 1CO EMPTY	1123250000	TRZ 24VUC 1CO EMPTY	1123380000
48 V UC	3	10	TRS 48VUC 1CO EMPTY	1123270000	TRZ 48VUC 1CO EMPTY	1123390000
60 V UC	4	10	TRS 60VUC 1CO EMPTY	1123280000	TRZ 60VUC 1CO EMPTY	1123400000
120 V UC	4	10	TRS 120VUC 1CO EMPTY	1123290000	TRZ 120VUC 1CO EMPTY	1123410000
230 V UC	4	10	TRS 230VUC 1CO EMPTY	1123300000	TRZ 230VUC 1CO EMPTY	1123420000
120 V AC	4	10	TRS 120VAC RC 1CO EMPTY	1123310000	TRZ 120VAC RC 1CO EMPTY	1123430000
230 V AC	4	10	TRS 230VAC RC 1CO EMPTY	1123320000	TRZ 230VAC RC 1CO EMPTY	1123440000
24...230 V AC / DC	3	10	TRS 24-230VUC 1CO EMPTY	1123330000	TRZ 24-230VUC 1CO EMPTY	1123450000

Pluggable relay version	Electromechanical relay	Solid-state relay
1	RSS...005	SSS 5V/...
2	RSS...012	-
3	RSS...024	SSS 24V/...
4	RSS...060	SSS 60V/...

Empty socket 12,8 mm



Rated control voltage	Pluggable relay version	Qty.	Type / 1CO Screw connection	Order No.	Type / 1CO Tension clamp connection	Order No.
24 V DC	1	10	TOS 24VDC EMPTY	1127720000	TOZ 24VDC EMPTY	1127740000
24...230 V UC	1	10	TOS 24-230VUC EMPTY	1127730000	TOZ 24-230VUC EMPTY	1127750000
Rated control voltage	Qty.	2CO Screw connection	Order No.	2CO Tension clamp connection	Order No.	
5 V DC	2	10	TRS 5VDC 2CO EMPTY	1123950000	TRZ 5VDC 2CO EMPTY	1124080000
12 V DC	3	10	TRS 12VDC 2CO EMPTY	1123970000	TRZ 12VDC 2CO EMPTY	1124090000
24 V DC	4	10	TRS 24VDC 2CO EMPTY	1123980000	TRZ 24VDC 2CO EMPTY	1124100000
24 V UC	4	10	TRS 24VUC 2CO EMPTY	1123990000	TRZ 24VUC 2CO EMPTY	1124110000
48 V UC	5	10	TRS 48VUC 2CO EMPTY	1124000000	TRZ 48VUC 2CO EMPTY	1124120000
60 V UC	6	10	TRS 60VUC 2CO EMPTY	1124010000	TRZ 60VUC 2CO EMPTY	1124130000
120 V UC	7	10	TRS 120VUC 2CO EMPTY	1124020000	TRZ 120VUC 2CO EMPTY	1124140000
230 V UC	7	10	TRS 230VUC 2CO EMPTY	1124030000	TRZ 230VUC 2CO EMPTY	1124150000
120 V AC	7	10	TRS 120VAC RC 2CO EMPTY	1124040000	TRZ 120VAC RC 2CO EMPTY	1124170000
230 V AC	7	10	TRS 230VAC RC 2CO EMPTY	1124050000	TRZ 230VAC RC 2CO EMPTY	1124180000
24...230 V AC / DC	7	10	TRS 24-230VUC 2CO EMPTY	1124070000	TRZ 24-230VUC 2CO EMPTY	1124190000

Pluggable relay version	Electromechanical relay	Solid-state relay
1	RCL31024 ; RCLS3L024W ; RCLS3T024W	SSR 10-32VDC... ; SSR 24 VDC...
2	RCL424005 ; RCL425005	-
3	RCL424012 ; RCL425012	-
4	RCL424024 ; RCL425024	SSR 10-32VDC... ; SSR 24 VDC...
5	RCL424048 ; RCL425048	-
6	RCL424060 ; RCL425060	-
7	RCL424110 ; RCL425110	SSR 10-32VDC... ; SSR 24 VDC...

Connection data

Gauge to IEC 60947-1		Size	Screw connection		A1 / B1	Tension clamp connection		A1 / B1
1 conductor								
Solid H07V-U		mm ²	0.14...2.5			0.14...1.5		
Finely stranded H07V-K		mm ²	0.14...1.5			0.14...1.5		
... with ferrule without collar		mm ²	0.25...1.5			0.14...1.5		
... with ferrule with collar		mm ²	0.25...1.5			0.14...1.5		
American Wire Gauge AWG.../1		AWG	26...14			26...16		
American Wire Gauge AWG.../7		AWG	26...16			26...16		
American Wire Gauge AWG.../19		AWG	26...16			26...16		
2 conductor with same size								
Solid H07V-U		mm ²	0.5...1.0					
Finely stranded H07V-K		mm ²	0.5...1.0					
... with twin ferrule		mm ²	0.5...1.0			0.5...1.0		
Tightening torque, max.		Nm	0.4					
Stripping length		mm	8			8		

Pluggable cross connection



Type	No. of poles / Pitch	Colour	Qty.	Order No.
ZQV 1.5N/R6.4/2 GE	2 / 6.4 mm	yellow	10	1193670000
ZQV 1.5N/R6.4/10 GE	10 / 6.4 mm	yellow	10	1193680000
ZQV 1.5N/R6.4/19 GE	19 / 6.4 mm	yellow	10	1193690000
ZQV 1.5N/R12.8/10 GE	10 / 12.8 mm	yellow	10	1193700000
ZQV 1.5N/R6.4/10 SW	10 / 6.4 mm	black	10	1391630000
ZQV 1.5N/R6.4/19 SW	19 / 6.4 mm	black	10	1391600000
ZQV 1.5N/R6.4/10 RT	10 / 6.4 mm	red	10	1391640000
ZQV 1.5N/R6.4/19 RT	19 / 6.4 mm	red	10	1391610000
ZQV 1.5N/R6.4/10 BL	10 / 6.4 mm	blue	10	1390350000
ZQV 1.5N/R6.4/19 BL	19 / 6.4 mm	blue	10	1391620000

Supply terminal



Type	Connection technology	Qty.	Order No.
TXS SUPPLY	Screw connection	10	1240780000
TXZ SUPPLY	Tension clamp connection	10	1240790000

Other accessories



Isolation plate	Note	Qty.	Order No.
TW TXS/TXZ R3.2	Isolation plate 3.2 mm pitch	10	1240800000

Markers	Note	Qty.	Order No.
WS 10/6 MC Middle	10 * 6 mm	600	1818400000

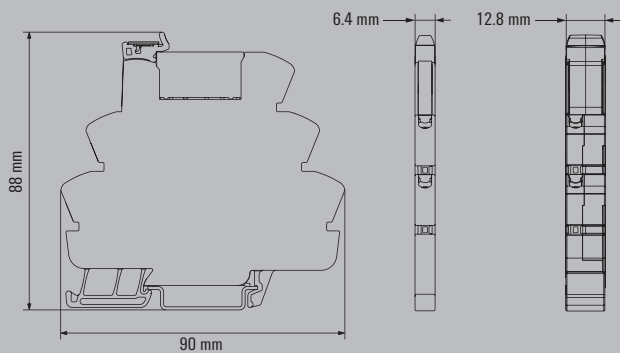


Screwdriver	Note	Qty.	Order No.
SDK PH0	only screw connection	1	9008470000
SD 0.6 x 3.5 x 100		1	9008330000
SD T0 0.6 x 3.0	only tension clamp connection (angled)	1	1323880000

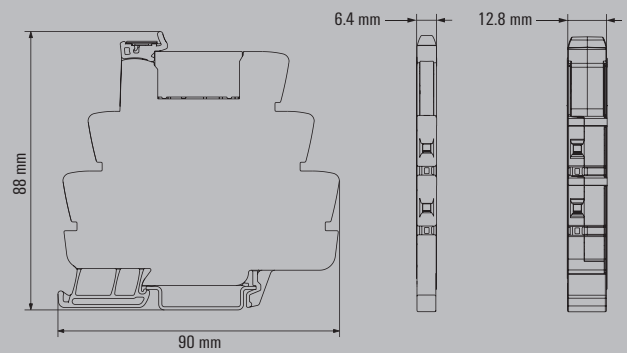
End bracket	Qty.	Order No.
WEW35/2 SW	100	1061210000

Dimensions

Tension clamp connection



Screw connection

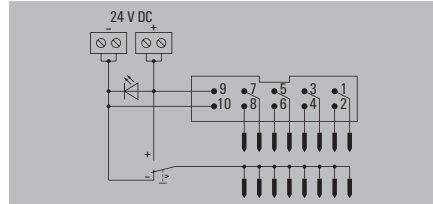
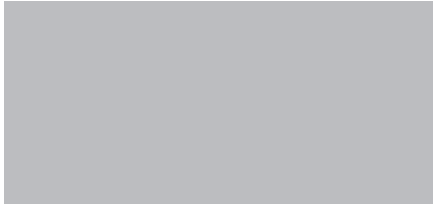


TERMSERIES – adapters

TERMSERIES – adapters

- Suitable for input and output logic
- Version for 6.4 mm TERMSERIES base
- Supply connections (PUSH IN) in double version for supply voltage bridging
- User-friendly and clear marking
- 10-pole connecting plug according to DIN EN 60603-13

TIA F10



Technical data

Supply	
Supply voltage	24 V DC ± 20 %
Status display	Green LED
Signals	
Rated voltage	24 V DC
Voltage, max.	30 V DC
Rated current (per signal path)	125 mA
Current (per signal path), max.	1 A
Total current of all signals, max.	1 A
Number of signal paths	8
Connection data (supply)	
Wire connection method	PUSH IN
Clamping range, rated connection, min.	0.13 mm ²
Clamping range, rated connection, max.	1.5 mm ²
Number of terminals	4 (+, +, -, -)
Connection data (signal)	
Plug type	10-pole plug according to DIN EN 60603-13, long locking lever
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5...95% (indoor), T _a = 40°C, no condensation
UL 94 flammability rating	V-0
Approvals	CE; cULus; DNVGL
Insulation coordination	
Pollution degree	2
Overvoltage category	III
Impulse withstand voltage	1.5 kV
Rated voltage	32 V
Protection degree	IP20 in installed state
Dimensions	
Depth x width x height	62 / 51 / 43 mm
Note	

Ordering data

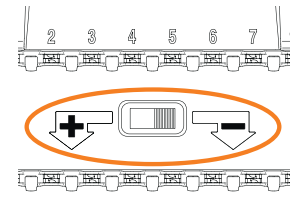
Type	Qty.	Order No.
TIA F10	1	1463520000

Note Suitable for 6.4 mm wide TERMSERIES base

Accessories

Note	
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Potential change-over switch



The potential change-over switch is located between contact rows of the TERMSERIES adaptor. It is used to switch the potential of the lower contact row to "+" or "-" potential of the supply voltage.

Installation input

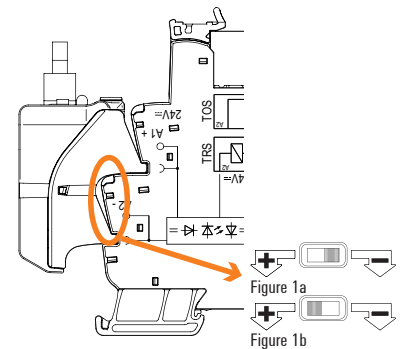


Figure 1a: **Positive-switching logic:** Potential change-over switch to "-", installation on **24 V DC input** (A1/A2).
Figure 1b: **Negative-switching logic:** Potential change-over switch to "+", installation on **24 V UC input** (A1/A2).

Installation output

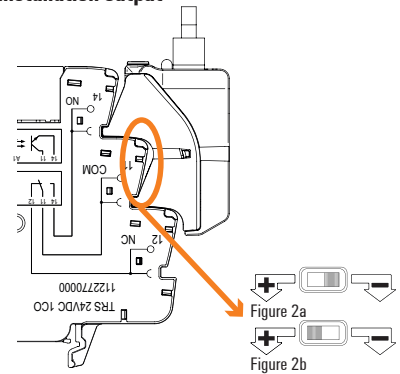
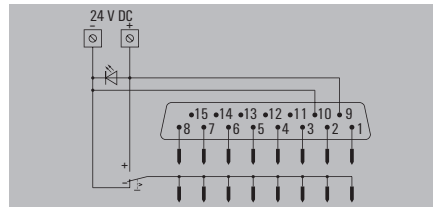


Figure 2a: **Positive-switching logic:** Potential change-over switch to "+", installation on output (11/14).
Figure 2b: **Negative-switching logic:** Potential change-over switch to "-", installation on output (11/14).

TERMSERIES – adapters

- Suitable for input and output logic
- Version for 6.4 mm TERMSERIES base
- User-friendly and clear marking
- 15-pole Sub-D plug-in connector according to DIN 41652 / IEC 60807

TIA SUBD 15S



Technical data

Supply

Supply voltage
Status display

Signals

Rated voltage
Voltage, max.
Rated current (per signal path)
Current (per signal path), max.
Total current of all signals, max.
Number of signal paths

Connection data (supply)

Wire connection method
Clamping range, rated connection, min.
Clamping range, rated connection, max.
Number of terminals

Connection data (signal)

Plug type

General data

Ambient temperature (operational)
Storage temperature
Humidity
UL 94 flammability rating
Approvals

Insulation coordination

Pollution degree
Overvoltage category
Impulse withstand voltage
Rated voltage
Protection degree

Dimensions

Depth x width x height

Note

Ordering data

Note

Accessories

Note

Supply

24 V DC ± 20 %
Green LED

Signals

24 V DC
30 V DC
125 mA
1 A
1 A
8

Connection data (supply)

PUSH IN
0.13 mm²
1.5 mm²
2 (+,-)

Connection data (signal)

Sub-D, 15-pole, DIN 41652 / IEC 60807

General data

-40 °C...60 °C
-40 °C...85 °C
5...95% (indoor, T_a = 40°C, no condensation)
V-0
CE; cULus; DNVGL

Insulation coordination

2
III
1.5 kV
32 V
IP20 in installed state

Dimensions

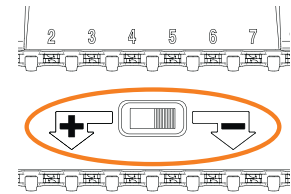
52 / 51 / 43

Note

Type	Qty.	Order No.
TIA SUBD 15S	1	1463530000

Suitable for 6.4 mm wide TERMSERIES base

Potential change-over switch



The potential change-over switch is located between contact rows of the TERMSERIES adaptor. It is used to switch the potential of the lower contact row to “+” or “-” potential of the supply voltage.

Installation input

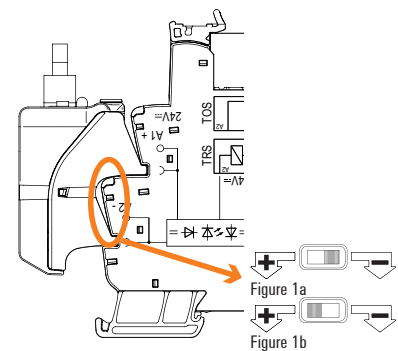


Figure 1a: **Positive-switching logic:** Potential change-over switch to “-”, installation on **24 V DC input** (A1/A2).
Figure 1b: **Negative-switching logic:** Potential change-over switch to “+”, installation on **24 V UC input** (A1/A2).

Installation output

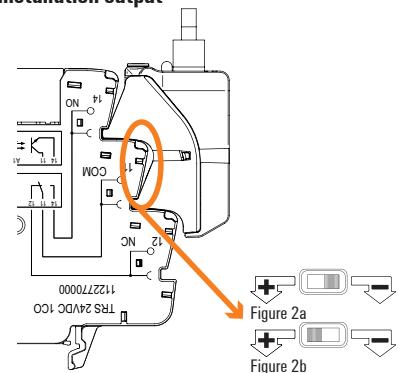


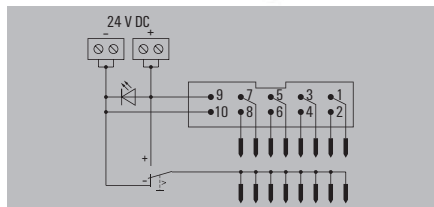
Figure 2a: **Positive-switching logic:** Potential change-over switch to “+”, installation on **output** (11/14).
Figure 2b: **Negative-switching logic:** Potential change-over switch to “-”, installation on **output** (11/14).

TERMSERIES – adapters

TERMSERIES – adapters

- Suitable for input and output logic
- Version for 12.8 mm TERMSERIES base
- Supply connections (PUSH IN) in double version for supply voltage bridging
- User-friendly and clear marking
- 10-pole connecting plug according to DIN EN 60603-13

TIAL F10



Technical data

Supply	
Supply voltage	24 V DC ± 20 %
Status display	Green LED
Signals	
Rated voltage	24 V DC
Voltage, max.	30 V DC
Rated current (per signal path)	125 mA
Current (per signal path), max.	1 A
Total current of all signals, max.	1 A
Number of signal paths	8
Connection data (supply)	
Wire connection method	PUSH IN
Clamping range, rated connection, min.	0.13 mm ²
Clamping range, rated connection, max.	1.5 mm ²
Number of terminals	4 (+, +, -, -)
Connection data (signal)	
Plug type	10-pole plug according to DIN EN 60603-13, long locking lever
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5...95% (indoor), T _a = 40°C, no condensation
UL 94 flammability rating	V-0
Approvals	CE; cULus; DNVGL
Insulation coordination	
Pollution degree	2
Overvoltage category	III
Impulse withstand voltage	1.5 kV
Rated voltage	32 V
Protection degree	IP20 in installed state
Dimensions	
Depth x width x height	62 / 102 / 43 mm
Note	

Ordering data

Type	Qty.	Order No.
TIAL F10	1	1463540000

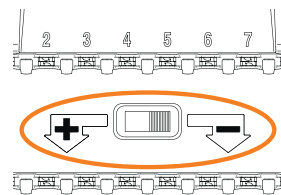
Note

Suitable for 12.8 mm wide TERMSERIES base

Accessories

Note

Potential change-over switch



The potential change-over switch is located between contact rows of the TERMSERIES adaptor. It is used to switch the potential of the lower contact row to "+" or "-" potential of the supply voltage.

Installation input

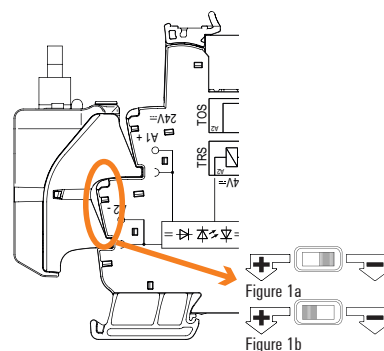


Figure 1a: **Positive-switching logic:** Potential change-over switch to "-", installation on **24 V DC input** (A1/A2).
 Figure 1b: **Negative-switching logic:** Potential change-over switch to "+", installation on **24 V UC input** (A1/A2).

Installation output

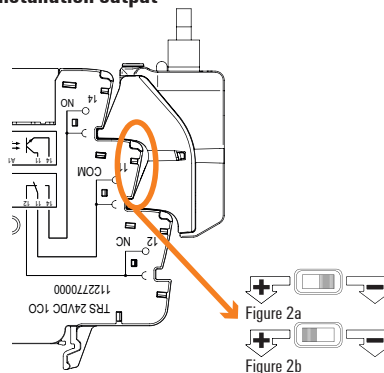


Figure 2a: **Positive-switching logic:** Potential change-over switch to "+", installation on **output** (11/14).
 Figure 2b: **Negative-switching logic:** Potential change-over switch to "-", installation on **output** (11/14).

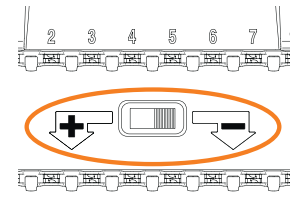
TERMSERIES – adapters

- Suitable for input and output logic
- Version for 6.4 mm TERMSERIES base
- Supply connections (PUSH IN) in double version for supply voltage bridging
- User-friendly and clear marking
- 20-pole connecting plug according to DIN EN 60603-13

TIAL F20



Potential change-over switch



The potential change-over switch is located between contact rows of the TERMSERIES adaptor. It is used to switch the potential of the lower contact row to “+” or “-” potential of the supply voltage.

Installation input

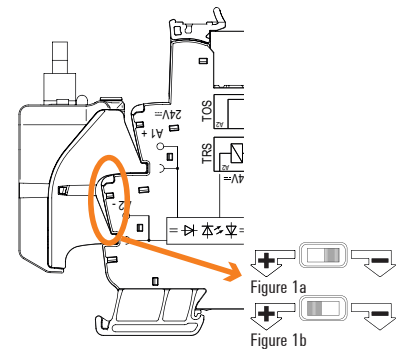


Figure 1a: **Positive-switching logic:** Potential change-over switch to “-”, installation on **24 V DC input (A1/A2)**.
Figure 1b: **Negative-switching logic:** Potential change-over switch to “+”, installation on **24 V UC input (A1/A2)**.

Installation output

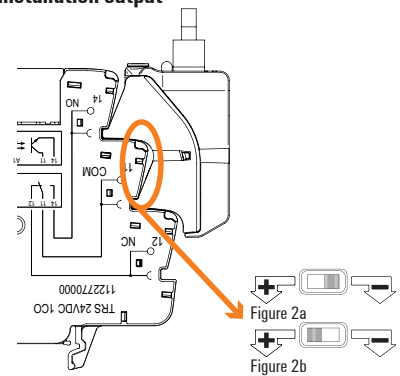
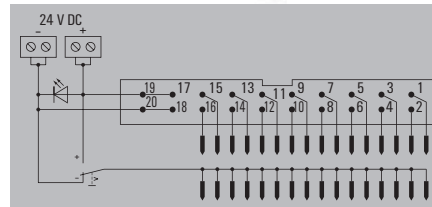


Figure 2a: **Positive-switching logic:** Potential change-over switch to “+”, installation on output (11/14).
Figure 2b: **Negative-switching logic:** Potential change-over switch to “-”, installation on output (11/14).



Technical data

Supply	
Supply voltage	24 V DC ± 20 %
Status display	Green LED
Signals	
Rated voltage	24 V DC
Voltage, max.	30 V DC
Rated current (per signal path)	60 mA
Current (per signal path), max.	1 A
Total current of all signals, max.	1 A
Number of signal paths	16
Connection data (supply)	
Wire connection method	PUSH IN
Clamping range, rated connection, min.	0.13 mm ²
Clamping range, rated connection, max.	1.5 mm ²
Number of terminals	4 (+, +, -, -)
Connection data (signal)	
Plug type	20-pole plug according to DIN EN 60603-13, long locking lever
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5...95% (indoor), T _a = 40°C, no condensation
UL 94 flammability rating	V-0
Approvals	CE; cULus; DNVGL
Insulation coordination	
Pollution degree	2
Overvoltage category	III
Impulse withstand voltage	1.5 kV
Rated voltage	32 V
Protection degree	IP20 in installed state
Dimensions	
Depth x width x height	62 / 102 / 43 mm
Note	

Technical data		
Supply voltage	24 V DC ± 20 %	
Status display	Green LED	
Signals		
Rated voltage	24 V DC	
Voltage, max.	30 V DC	
Rated current (per signal path)	60 mA	
Current (per signal path), max.	1 A	
Total current of all signals, max.	1 A	
Number of signal paths	16	
Connection data (supply)		
Wire connection method	PUSH IN	
Clamping range, rated connection, min.	0.13 mm ²	
Clamping range, rated connection, max.	1.5 mm ²	
Number of terminals	4 (+, +, -, -)	
Connection data (signal)		
Plug type	20-pole plug according to DIN EN 60603-13, long locking lever	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5...95% (indoor), T _a = 40°C, no condensation	
UL 94 flammability rating	V-0	
Approvals	CE; cULus; DNVGL	
Insulation coordination		
Pollution degree	2	
Overvoltage category	III	
Impulse withstand voltage	1.5 kV	
Rated voltage	32 V	
Protection degree	IP20 in installed state	
Dimensions		
Depth x width x height	62 / 102 / 43 mm	
Note		

Ordering data

Type	Qty.	Order No.
TIAL F20	1	1463550000

Note

Suitable for 6.4 mm wide TERMSERIES base

Accessories

Note

No-wear isolation of potentials in terminal block design

Space saving solid-state relay with PUSH IN connection technology

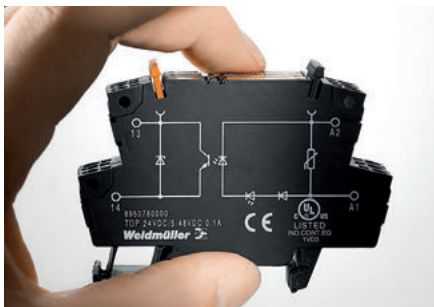


The TERMOPTO opto modules are characterised by a particularly compact design, pluggable cross-connections and an optimal price-performance ratio.

TERMOPTO offers a compact, electronic alternative to the electromechanical relay for electrical isolation and signal conditioning. Instead of an electromechanical solution that is susceptible to wear, a maintenance-free and compact terminal block with integrated electrical isolation is used. This saves space, reduces the amount of servicing and increases system availability. In addition, the overall accessory needs are reduced, because cross-connectors and markers from the terminal portfolio can be used.

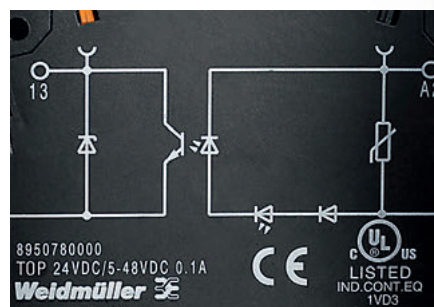
Compact

Compact design reduces space requirements in the switching cabinet by > 80 % compared to conventional relay solutions.



Long lifetime

Wear-free semiconductor switches and extensive protective circuits ensure long service life and reliable switching cycles.



Status indicator

LED status indicator provides information on the switching state.



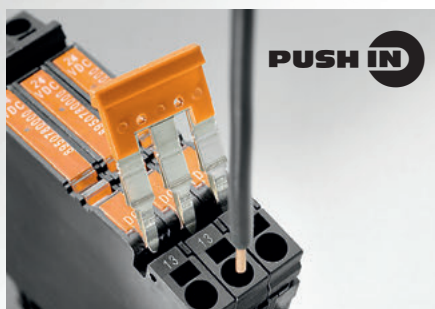
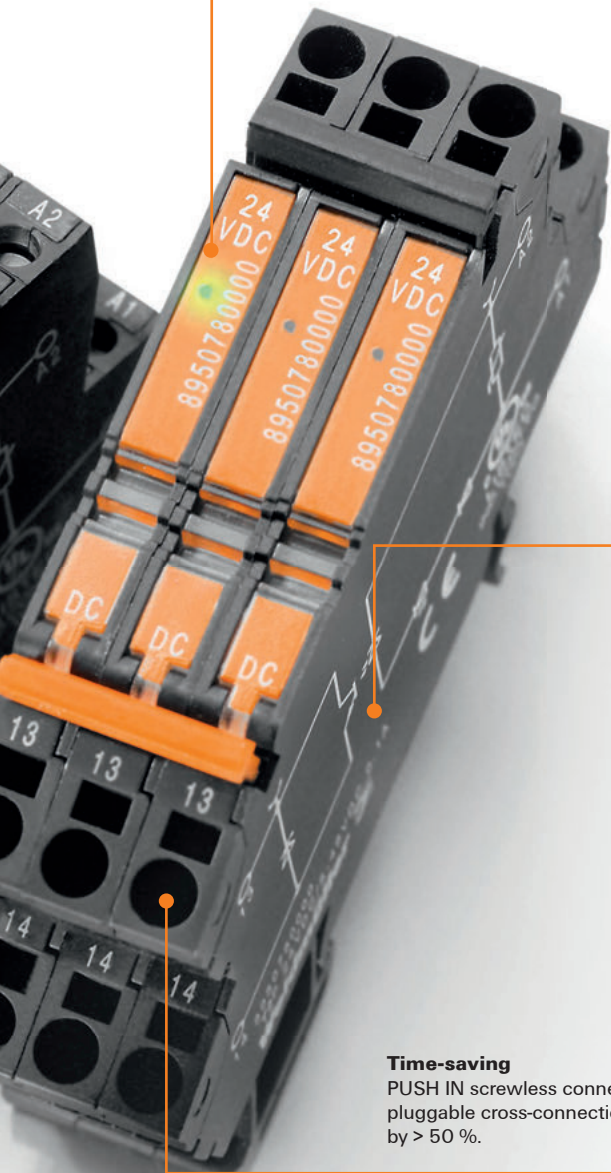
Closed design

Closed design for space-saving, side-by-side arrangement. No end plate necessary; the electronics are mechanically protected.



Time-saving

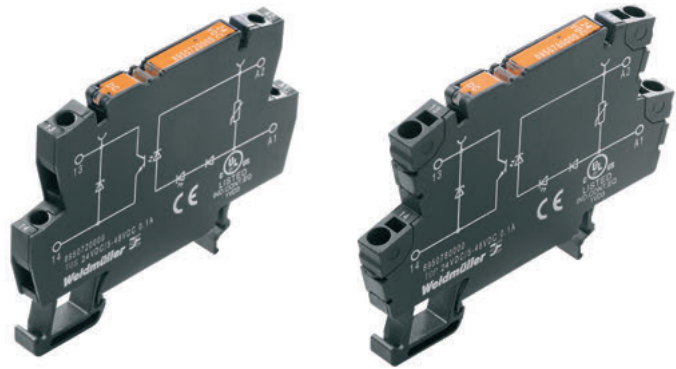
PUSH IN screwless connection system and the pluggable cross-connection reduce wiring time by > 50 %.



Solid-state relays 5...48 V DC / 100 mA

Output versions

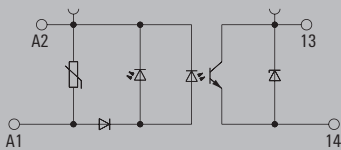
- Space-saving 6.1 mm width
- Plug-in cross-connections
- Screw and PUSH IN wire connection
- Enclosed design



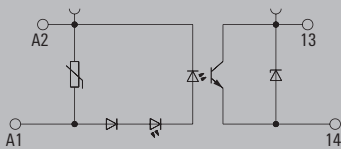
Relay modules and solid-state relays in 6 mm width

A

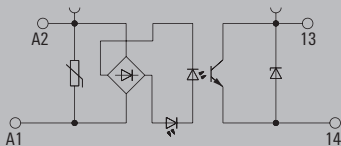
5 V DC



12...220 DC



24...230 V AC



Technical data

Load side	
Rated switching voltage	5...48 V DC
Continuous current	100 mA
Inrush current	
Solid-state type	Transistor
Voltage drop at max. load	< 1 V
Leakage current	< 10 µA
Protective circuit, load side	Free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULus, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Clearance and creepage distances for control side - load side	> 3 mm
Overvoltage category	III
Pollution degree	2

Dimensions	Screw connection	PUSH IN connection
Clamping range (nominal / min. / max.)	mm ² 2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Depth x width x height	mm 55 / 6.1 / 74.4	55 / 6.1 / 79.4

Note Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.

Applications

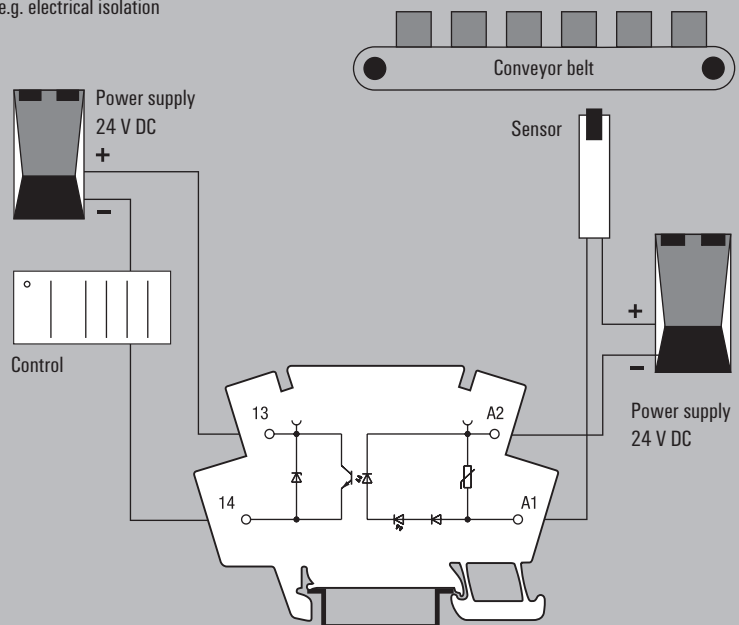
The **TERMOPTO** opto module is used in industrial applications in which electrical isolation and signal conditioning without switching amplification is sufficient.

The compact design in terminal-block format saves space on the rail and offers the option of a pluggable cross connection.

The choice between 10 input voltages and 3 output voltages, as well as screw or PUSH IN connection technology, gives 60 variations for different applications.

The integrated protective circuit ensures sufficient protection in applications with resistive, as well as slightly inductive and capacitive loads. For purely inductive, capacitive or comparable loads with high switch-on and switch-off peaks, such as solenoid valves or filament lamps, ensure that the module is dimensioned appropriately or an additional safeguard is used.

e.g. electrical isolation



Solid-state relays 5...48 V DC / 100 mA

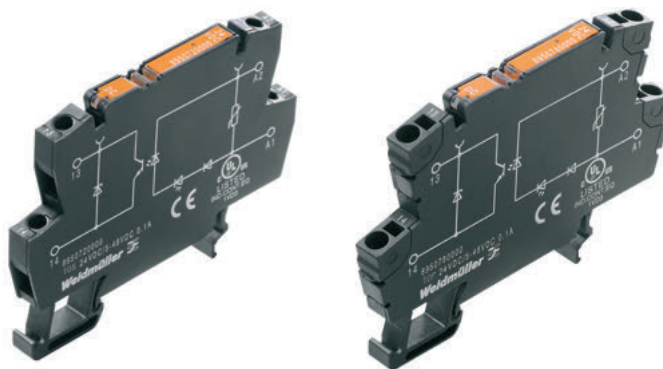
Output versions

Ordering data	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	48...60 V DC ±20 %	110 V DC ±20 %
Nominal control current	7.7 mA DC	7.8 mA DC	7 mA DC	4.3 mA DC	2.6 mA DC
Power rating	< 40 mW	< 95 mW	≤ 170 mW	< 200 mW	< 280 mW
Cut-in / dropout voltage	4 V / 1.25 V DC	9.6 V / 3 V DC	19.2 V / 6 V DC	38.4 V / 12 V DC	88 V / 27.5 V DC
max. switching frequency (DC control voltage)	3000 Hz	3000 Hz	3000 Hz	500 Hz	500 Hz
max. switching frequency (AC control voltage)					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection
Load side					
Switch-on delay	< 13 µs	< 13 µs	< 13 µs	< 170 µs	< 170 µs
Switch-off delay	< 42 µs	< 42 µs	< 42 µs	< 310 µs	< 310 µs
Ordering data					
Screw connection	Type TOS 5VDC/48VDC 0,1A	Type TOS 12VDC/48VDC 0,1A	Type TOS 24VDC/48VDC 0,1A	Type TOS 48-60VDC/48VDC 0,1A	Type TOS 110VDC/48VDC 0,1A
Order No.	8950700000	8950710000	8950720000	8950730000	8950740000
PUSH IN connection	Type TOP 5VDC/48VDC 0,1A	Type TOP 12VDC/48VDC 0,1A	Type TOP 24VDC/48VDC 0,1A	Type TOP 48-60VDC/48VDC 0,1A	Type TOP 110VDC/48VDC 0,1A
Order No.	8950760000	8950770000	8950780000	8950790000	8950800000
Note					
Ordering data					
Control side					
Rated control voltage	220 V DC +10 % / -15 %	24 V AC ±20%	48...60 V AC ±20 %	120 V AC ±20 %	230 V AC +10 % / -20 %
Nominal control current	1.65 mA DC	7.4 mA AC	4.3 mA AC	2.9 mA AC	1.75 mA AC
Power rating	≤ 360 mW	< 0.18 VA	≤ 0.2 VA	≤ 0.3 VA	≤ 0.4 VA
Cut-in / dropout voltage	187 V / 55 V DC	21.6 V / 9.6 V AC	38.4 V / 19.2 V AC	102 V / 48 V AC	207 V / 92 V AC
max. switching frequency (DC control voltage)	500 Hz				
max. switching frequency (AC control voltage)		10 Hz	10 Hz	10 Hz	10 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, Reverse polarity protection	Varistor	Varistor	Varistor	Varistor
Load side					
Switch-on delay	< 170 µs	< 12 ms	< 12 ms	< 12 ms	< 12 ms
Switch-off delay	< 310 µs	< 14 ms	< 14 ms	< 14 ms	< 14 ms
Ordering data					
Screw connection	Type TOS 220VDC/48VDC 0,1A	Type TOS 24VAC/48VDC 0,1A	Type TOS 48-60VAC/48VDC 0,1A	Type TOS 120VAC/48VDC 0,1A	Type TOS 230VAC/48VDC 0,1A
Order No.	8950750000	8950820000	8950830000	8950840000	8950850000
PUSH IN connection	Type TOP 220VDC/48VDC 0,1A	Type TOP 24VAC/48VDC 0,1A	Type TOP 48-60VAC/48VDC 0,1A	Type TOP 120VAC/48VDC 0,1A	Type TOP 230VAC/48VDC 0,1A
Order No.	8950810000	8950860000	8950870000	8950880000	8950890000
Note					

Solid-state relays, 5...48 V DC / 500 mA

Output versions

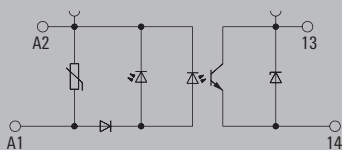
- Space-saving 6.1 mm width
- Plug-in cross-connections
- Screw and PUSH IN wire connection
- Enclosed design



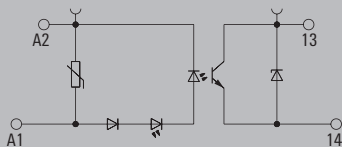
Relay modules and solid-state relays in 6 mm width

A

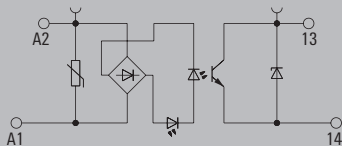
5 V DC



12...220 DC



24...230 V AC



Technical data

Load side	
Rated switching voltage	5...48 V DC
Continuous current	500 mA
Inrush current	
Solid-state type	Transistor
Voltage drop at max. load	< 1 V
Leakage current	< 10 µA
Protective circuit, load side	Free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULus, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Clearance and creepage distances for control side - load side	> 3 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 0.5 / 4
Depth x width x height	mm 55 / 6.1 / 74.4
Note	
Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

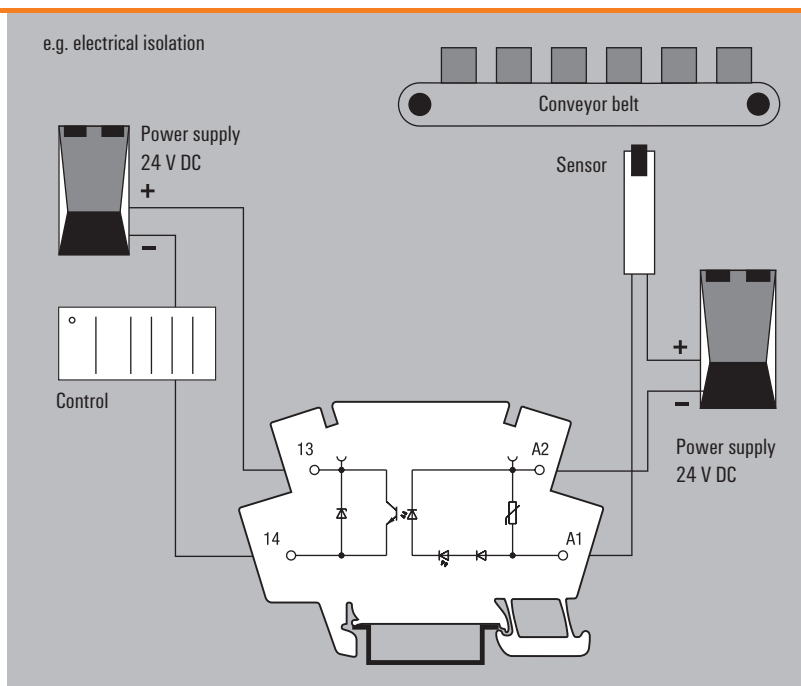
Applications

The **TERMOPTO** opto module is used in industrial applications in which electrical isolation and signal conditioning without switching amplification is sufficient.

The compact design in terminal-block format saves space on the rail and offers the option of a pluggable cross connection.

The choice between 10 input voltages and 3 output voltages, as well as screw or PUSH IN connection technology, gives 60 variations for different applications.

The integrated protective circuit ensures sufficient protection in applications with resistive, as well as slightly inductive and capacitive loads. For purely inductive, capacitive or comparable loads with high switch-on and switch-off peaks, such as solenoid valves or filament lamps, ensure that the module is dimensioned appropriately or an additional safeguard is used.



Solid-state relays, 5...48 V DC / 500 mA

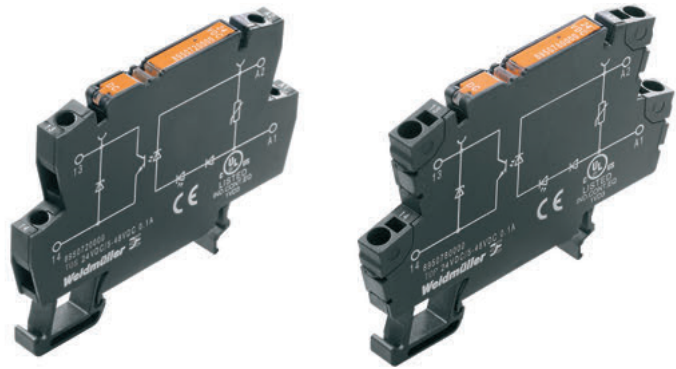
Output versions

Ordering data	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	48...60 V DC ±20 %	110 V DC ±20 %
Nominal control current	7.7 mA DC	7.8 mA DC	7 mA DC	4.3 mA DC	2.6 mA DC
Power rating	< 40 mW	< 95 mW	≤ 170 mW	≤ 200 mW	≤ 280 mW
Cut-in / dropout voltage	4 V / 1.25 V DC	9.6 V / 3 V DC	19.2 V / 6 V DC	38.4 V / 12 V DC	88 V / 27.5 V DC
max. switching frequency (DC control voltage)	200 Hz	200 Hz	200 Hz	200 Hz	200 Hz
max. switching frequency (AC control voltage)					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection
Load side					
Switch-on delay	< 20 µs	< 20 µs	< 20 µs	< 18 µs	< 18 µs
Switch-off delay	< 200 µs	< 200 µs	≤ 600 µs	< 340 µs	< 340 µs
Ordering data					
Screw connection Type	TOS 5VDC/48VDC 0,5A	TOS 12VDC/48VDC 0,5A	TOS 24VDC/48VDC 0,5A	TOS 48-60VDC/48VDC 0,5A	TOS 110VDC/48VDC 0,5A
Order No.	8950900000	8950910000	8950920000	8950930000	8950940000
PUSH IN connection Type	TOP 5VDC/48VDC 0,5A	TOP 12VDC/48VDC 0,5A	TOP 24VDC/48VDC 0,5A	TOP 48-60VDC/48VDC 0,5A	TOP 110VDC/48VDC 0,5A
Order No.	8950960000	8950970000	8950980000	8950990000	8951000000
Note					
Ordering data					
Control side					
Rated control voltage	220 V DC +10 % / -15 %	24 V AC ±20%	48...60 V AC ±20 %	120 V AC ±20 %	230 V AC +10 % / -20 %
Nominal control current	1.65 mA DC	7.4 mA AC	4.3 mA AC	2.9 mA AC	1.75 mA AC
Power rating	≤ 360 mW	< 0.18 VA	≤ 0.2 VA	≤ 0.3 VA	≤ 0.4 VA
Cut-in / dropout voltage	187 V / 55 V DC	21.6 V / 9.6 V AC	38.4 V / 19.2 V AC	102 V / 48 V AC	207 V / 92 V AC
max. switching frequency (DC control voltage)	200 Hz				
max. switching frequency (AC control voltage)		10 Hz	10 Hz	10 Hz	10 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, Reverse polarity protection	Varistor	Varistor	Varistor	Varistor
Load side					
Switch-on delay	< 18 µs	< 12 ms	< 12 ms	< 12 ms	< 12 ms
Switch-off delay	< 340 µs	< 14 ms	< 14 ms	< 14 ms	< 14 ms
Ordering data					
Screw connection Type	TOS 220VDC/48VDC 0,5A	TOS 24VAC/48VDC 0,5A	TOS 48-60VAC/48VDC 0,5A	TOS 120VAC/48VDC 0,5A	TOS 230VAC/48VDC 0,5A
Order No.	8950950000	8951020000	8951030000	8951040000	8951050000
PUSH IN connection Type	TOP 220VDC/48VDC 0,5A	TOP 24VAC/48VDC 0,5A	TOP 48-60VAC/48VDC 0,5A	TOP 120VAC/48VDC 0,5A	TOP 230VAC/48VDC 0,5A
Order No.	8951010000	8951060000	8951070000	8951080000	8951090000
Note					

Solid-state relays 24...230 V AC / 100 mA

Output versions

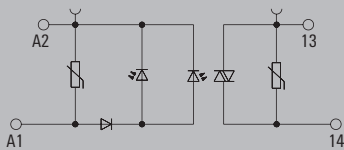
- Space-saving 6.1 mm width
- Plug-in cross-connections
- Screw and PUSH IN wire connection
- Enclosed design



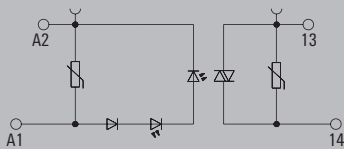
Relay modules and solid-state relays in 6 mm width

A

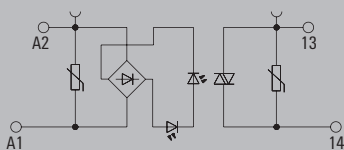
5 V DC



12...220 DC



24...230 V AC



Technical data

Load side			
Rated switching voltage	24...230 V AC		
Continuous current	100 mA		
Inrush current			
Solid-state type	Triac (zero-cross switch)		
Voltage drop at max. load	< 1.8 V		
Leakage current	< 1 mA		
Protective circuit, load side	Varistor, RC element		
Short-circuit-proof / Protective circuit, load side	No / Varistor, RC element		
General data			
Ambient temperature (operational)	-20 °C...60 °C		
Storage temperature	-40 °C...80 °C		
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation		
Approvals	CE, cULus, EAC		
Insulation coordinates			
Rated voltage	300 V		
Impulse withstand voltage	4 kV (1.2/50 µs)		
Dielectric strength for control side - load side	1.2 kV _{eff} / 1 min.		
Dielectric strength to mounting rail			
Clearance and creepage distances for control side - load side	> 3 mm		
Overvoltage category	III		
Pollution degree	2		
Dimensions		Screw connection	PUSH IN
Clamping range (nominal / min. / max.)	mm ²	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Depth x width x height	mm	55 / 6.1 / 74.4	55 / 6.1 / 79.4
Note		Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

Applications

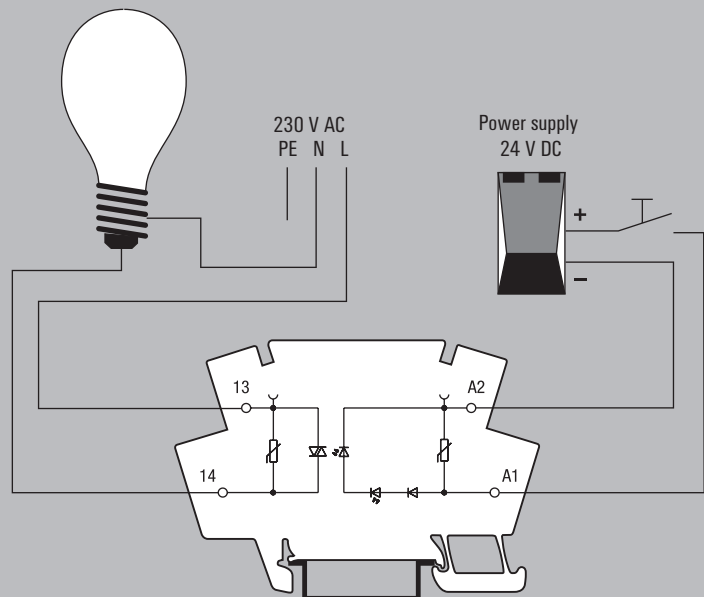
The TERMOPTO opto module is used in industrial applications in which electrical isolation and signal conditioning without switching amplification is sufficient.

The compact design in terminal-block format saves space on the rail and offers the option of a pluggable cross connection.

The choice between 10 input voltages and 3 output voltages as well as between screw or PUSH IN connection technology gives 60 variations for different applications.

The integrated protective circuit ensures sufficient protection in applications with resistive as well as slightly inductive and capacitive loads. For purely inductive, capacitive or comparable loads with high switch-on and switch-off peaks, such as solenoid valves or filament lamps, ensure that the module is dimensioned appropriately or an additional safeguard is used.

E.g. signal conditioning



Solid-state relays 24...230 V AC / 100 mA

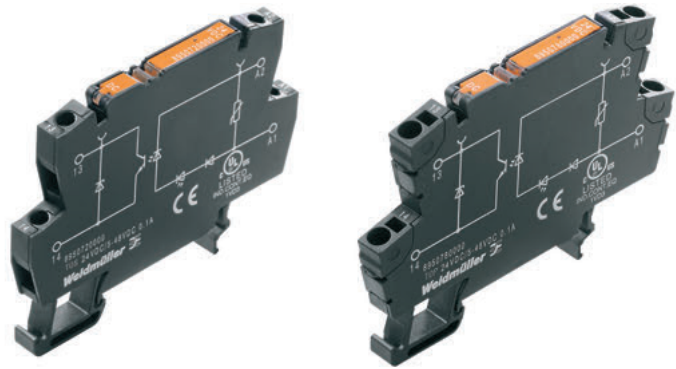
Output versions

Ordering data	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	48...60 V DC ±20 %	110 V DC ±20 %
Nominal control current	7.8 mA DC	3.6 mA DC	3.6 mA DC	3.7 mA DC	3.6 mA DC
Power rating	< 40 mW	< 45 mW	≤ 80 mW	≤ 170 mW	≤ 360 mW
Cut-in / dropout voltage	4 V / 1.25 V DC	9.6 V / 3 V DC	19.2 V / 6 V DC	38.4 V / 12 V DC	88 V / 27.5 V DC
max. switching frequency (DC control voltage)	10 Hz	10 Hz	10 Hz	10 Hz	10 Hz
max. switching frequency (AC control voltage)					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection
Load side					
Switch-on delay	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Switch-off delay	< 12 ms	< 12 ms	< 12 ms	< 12 ms	< 12 ms
Ordering data					
Screw connection	Type TOS 5VDC/230VAC 0,1A	Type TOS 12VDC/230VAC 0,1A	Type TOS 24VDC/230VAC 0,1A	Type TOS 48-60VDC/230VAC 0,1A	Type TOS 110VDC/230VAC 0,1A
Order No.	8951100000	8951110000	8951120000	8951130000	8951140000
PUSH IN connection	Type TOP 5VDC/230VAC 0,1A	Type TOP 12VDC/230VAC 0,1A	Type TOP 24VDC/230VAC 0,1A	Type TOP 48-60VDC/230VAC 0,1A	Type TOP 110VDC/230VAC 0,1A
Order No.	8951160000	8951170000	8951180000	8951190000	8951200000
Note					
Ordering data					
Control side					
Rated control voltage	220 V DC +10 % / -15 %	24 V AC ±20%	48...60 V AC ±20 %	120 V AC ±20 %	230 V AC +10 % / -20 %
Nominal control current	2.9 mA DC	8.8 mA AC	6.4 mA AC	8.5 mA AC	7.7 mA AC
Power rating	≤ 640 mW	≤ 0.2 VA	≤ 0.3 VA	≤ 1 VA	≤ 1.7 VA
Cut-in / dropout voltage	187 V / 55 V DC	19.2 V / 9.6 V AC	38.4 V / 19.2 V AC	96 V / 48 V AC	184 V / 92 V AC
max. switching frequency (DC control voltage)	10 Hz				
max. switching frequency (AC control voltage)		10 Hz	10 Hz	10 Hz	10 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, Reverse polarity protection	Varistor	Varistor	Varistor	Varistor
Load side					
Switch-on delay	≤ 10 ms	< 14 ms	< 14 ms	< 22 ms	< 22 ms
Switch-off delay	< 12 ms	< 16 ms	< 16 ms	< 18 ms	< 18 ms
Ordering data					
Screw connection	Type TOS 220VDC/230VAC 0,1A	Type TOS 24VAC/230VAC 0,1A	Type TOS 48-60VAC/230VAC 0,1A	Type TOS 120VAC/230VAC 0,1A	Type TOS 230VAC/230VAC 0,1A
Order No.	8951150000	8951220000	8951230000	8951240000	8951250000
PUSH IN connection	Type TOP 220VDC/230VAC 0,1A	Type TOP 24VAC/230VAC 0,1A	Type TOP 48-60VAC/230VAC 0,1A	Type TOP 120VAC/230VAC 0,1A	Type TOP 230VAC/230VAC 0,1A
Order No.	8951210000	8951260000	8951270000	8951280000	8951290000
Note					

Solid-state relays, 5...48 V DC / 500 mA

Output versions with RC element

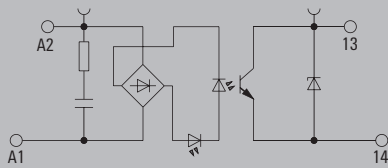
- Space-saving 6.1 mm width
- Plug-in cross-connections
- Screw and PUSH IN wire connection
- Enclosed design
- RC input circuitry for improved interference immunity



Relay modules and solid-state relays in 6 mm width

A

120 V...230 V AC



Technical data

Load side	
Rated switching voltage	5...48 V DC
Continuous current	500 mA
Inrush current	
Solid-state type	Transistor
Voltage drop at max. load	< 1 V
Leakage current	< 10 µA
Protective circuit, load side	Diode
Short-circuit-proof / Protective circuit, load side	No / Diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULus, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Clearance and creepage distances for control side - load side	> 3 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 0.5 / 4
Depth x width x height	mm 55 / 6.1 / 74.4
	mm 55 / 6.1 / 79.4
Note	
Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

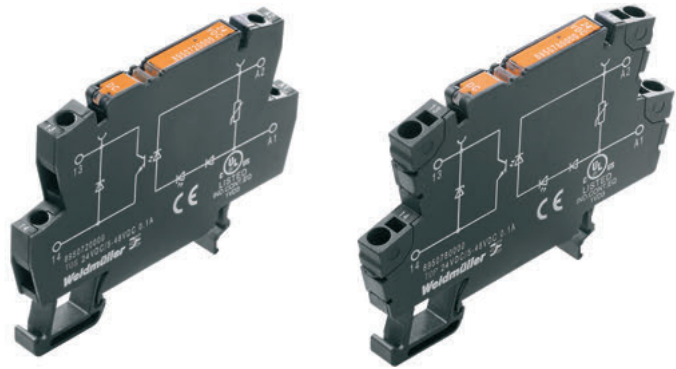
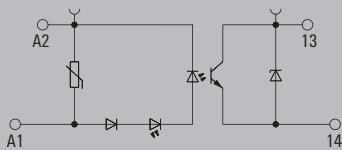
Ordering data

	120 V AC	230 V AC
Control side		
Rated control voltage	120 V AC ±20 %	230 V AC +10 %/-15 %
Nominal control current	6.4 mA AC	6.4 mA AC
Power rating	≤ 0.61 VA	≤ 1.5 VA
Cut-in / dropout voltage	102 V / 48 V AC	207 V / 92 V AC
max. switching frequency (DC control voltage)		
max. switching frequency (AC control voltage)	10 Hz	10 Hz
Status indicator	Green LED	Green LED
Protective circuit	RC element	RC element
Load side		
Switch-on delay	< 12.6 ms	< 12.6 ms
Switch-off delay	< 20.8 ms	< 20.8 ms

Ordering data			
Screw connection	Type	TOS 120VAC/48VDC 0.5A RC	TOS 230VAC/48VDC 0.5A RC
	Order No.	1180290000	1189270000
PUSH IN connection	Type	TOP 120VAC/48VDC 0.5A RC	TOP 230VAC/48VDC 0.5A RC
	Order No.	1188830000	1189260000
Note			

Solid-state relay, 3...33 V DC / 4 A**Output versions**

- Space-saving 6.1 mm width
- Plug-in cross-connections
- Screw and PUSH IN wire connection
- Enclosed design

**24 V DC****Technical data**

Load side	
Rated switching voltage	3...33 V DC
Continuous current	4 A
Inrush current	
Solid-state type	MOS-FET
Voltage drop at max. load	90 mV
Leakage current	< 10 µA
Protective circuit, load side	Varistor
Short-circuit-proof / Protective circuit, load side	No / Varistor
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Humidity	5-95% rel. humidity, T _v = 40°C, no condensation
Approvals	CE, cULus, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Clearance and creepage distances for control side - load side	> 3 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 0.5 / 4
Depth x width x height	mm 55 / 6.1 / 74.4
	mm 55 / 6.1 / 79.4
Note	
Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

Ordering data

Control side	
Rated control voltage	24 V DC ±20 %
Nominal control current	7 mA DC
Power rating	≤ 170 mW
Cut-in / dropout voltage	16.8 V / 6 V DC
max. switching frequency (DC control voltage)	10 Hz
max. switching frequency (AC control voltage)	
Status indicator	Green LED
Protective circuit	Varistor, Reverse polarity protection
Load side	
Switch-on delay	< 12 ms
Switch-off delay	< 14 ms

Ordering data	
Screw connection	Type TOS 24VDC/24VDC 4A
Order No.	1275100000
PUSH IN connection	Type TOP 24VDC/24VDC 4A
Order No.	1254880000

Note	

Accessories



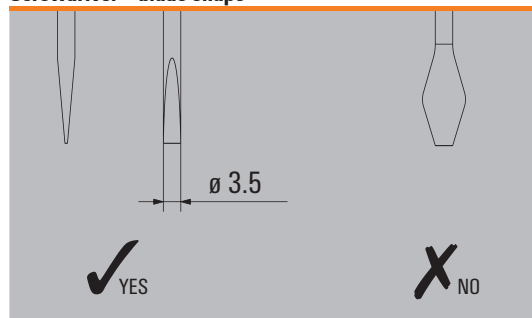
Plug-in cross-connection

Type	No. of poles	Qty.	Order No.
yellow			
ZQV 4N / 2 GE	2	60	1758250000
ZQV 4N / 3 GE	3	60	1762630000
ZQV 4N / 4 GE	4	60	1762620000
ZQV 4N / 10 GE	10	20	1758260000
ZQV 4N / 20 GE	20	20	1909020000
red			
ZQV 4N / 2 RT	2	60	1793950000
ZQV 4N / 3 RT	3	60	1793980000
ZQV 4N / 4 RT	4	60	1794010000
ZQV 4N / 10 RT	10	20	1794040000
ZQV 4N / 20 RT	20	20	1909150000
blue			
ZQV 4N / 2 BL	2	60	1793960000
ZQV 4N / 3 BL	3	60	1793990000
ZQV 4N / 4 BL	4	60	1794020000
ZQV 4N / 10 BL	10	20	1794050000
ZQV 4N / 20 BL	20	20	1909100000
black			
ZQV 4N / 2 SW	2	60	1793970000
ZQV 4N / 3 SW	3	60	1794000000
ZQV 4N / 4 SW	4	60	1794030000
ZQV 4N / 10 SW	10	20	1794060000
ZQV 4N / 20 SW	20	20	1909120000

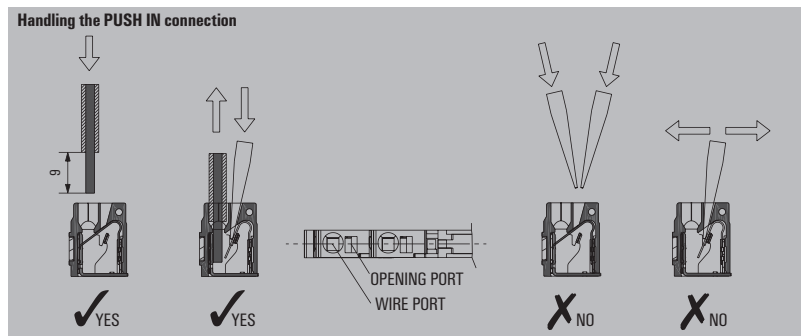
Other accessories

Type	Qty.	Order No.	
Markers			
WS 12/6	12 x 6 mm	600	1609900000
Screwdriver			
SD 0.6 x 3.5 x 100		10	9008330000

Screwdriver - blade shape



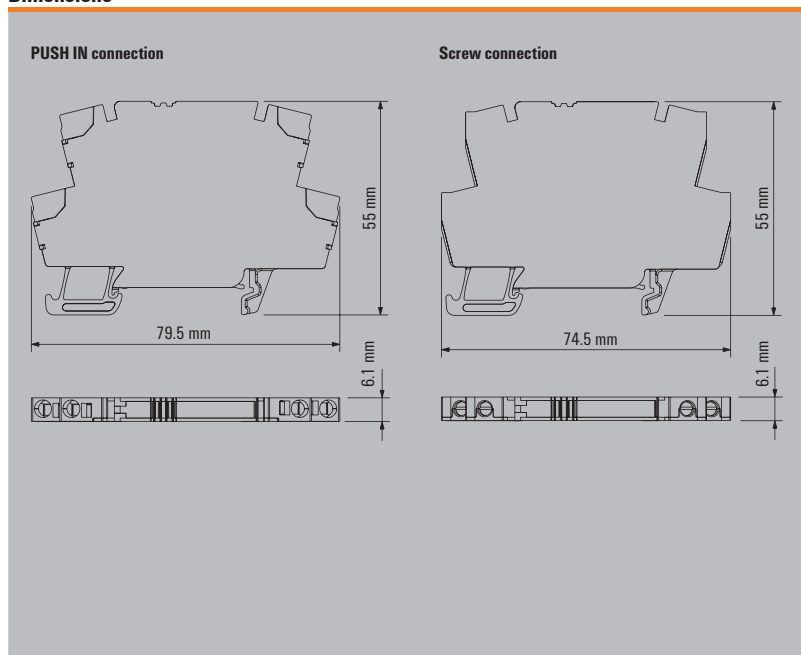
General data - TERMOPTO



Technical data

Conductor		PUSH IN connection	Screw-connection
Solid H07V-U	mm ²	0.5...1.5	0.5...2.5
Stranded H07V-K	mm ²	0.5...1.5	0.5...2.5
"f" with wire end ferrules to DIN 46228-1	mm ²	0.5...1.5	0.5...1.5
"f" with wire end ferrules with plastic collar	mm ²	0.5...1.5	0.5...1.5
Max. clamping range	mm ²	0.13...1.5	0.13...2.5
Plug gauge to IEC 60947-1	Size	A 2	A 3
General technical data			
Nominal torque	Nm	-	0.6
Continuous current for 2-pole cross-connection	A	10	10
Continuous current for multi-pole cross-connection	A	10	10
Stripping length	mm	10	9
Ingress protection class		IP 20	IP 20
Housing material		Wemid	Wemid
UL94 flammability rating		V-0	V-0
Nominal current	A	6	6
Nominal voltage	V	250	250

Dimensions



Short-circuit-proof switching amplifier for inductive loads up to 10 A

Powerful, compact solid-state relay with error signalling contact

The MICROOPTO family offers the customer high-quality optos and solid-state relays for application-oriented problem solutions. All products are designed in the space-saving 6 mm terminal size. The new solid-state relay can be connected in the output circuits of control systems and feedback control modules for selective activation of inductive loads up to 24 V DC / 10 A, such as solenoid valves, contactors etc. The error controlled output monitors short-circuits and, if necessary, switched off; a potential-free signalling contact provides feedback to the control system – the system can be shut down in a controlled manner for error rectification.

The powerful output of the MICROOPTO SOLENOID switches 10 A at 55 °C. The product can be used worldwide thanks to international approvals: CE, cULus and GL.

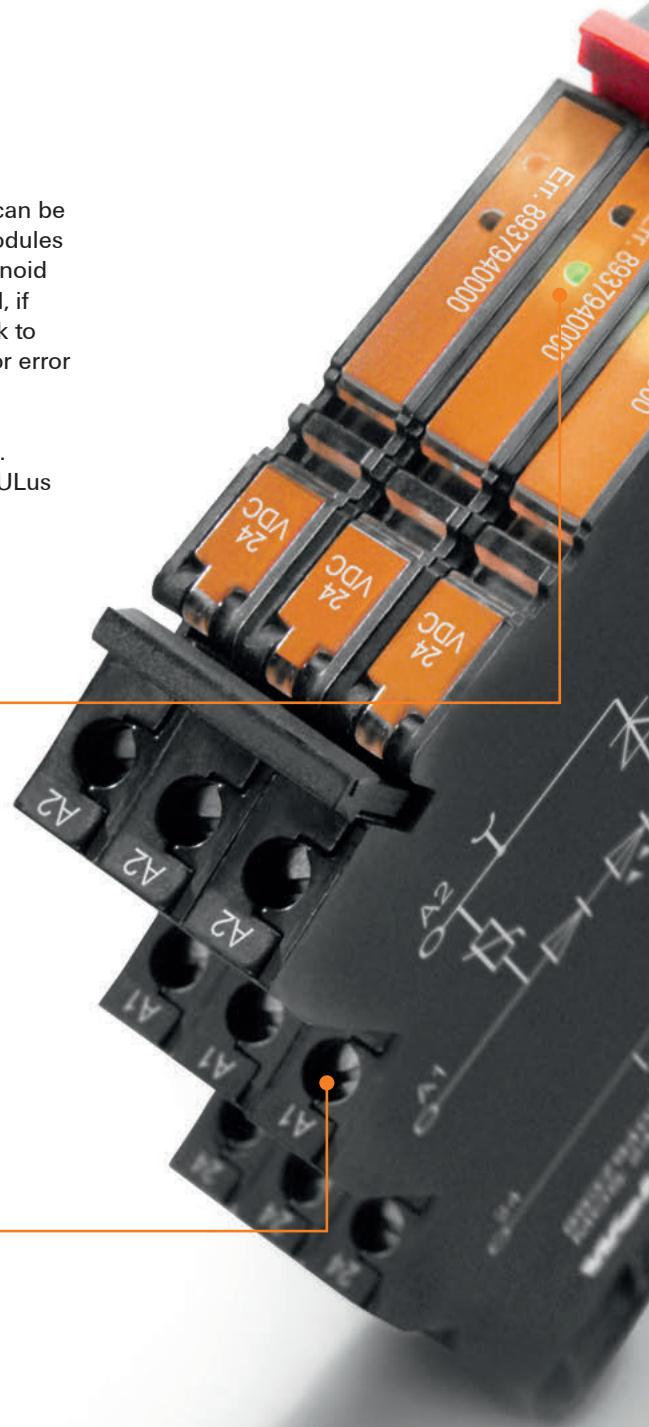
Alarm function

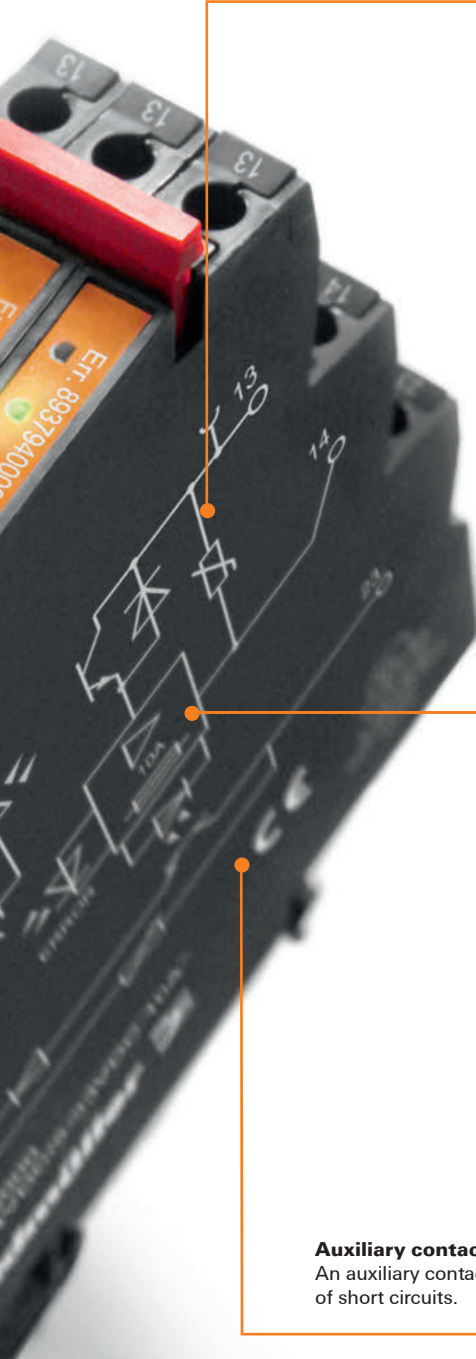
Clear condition display through status and error LEDs in the output.



Space-saving

Space-saving 6 mm modular width.





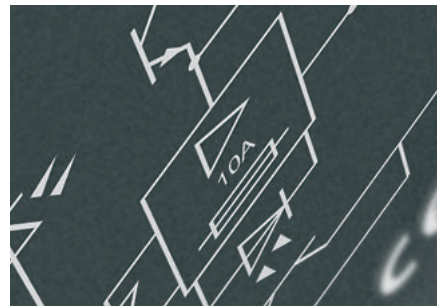
Not sensitive

Protected by suppressor circuit on input and output circuits.



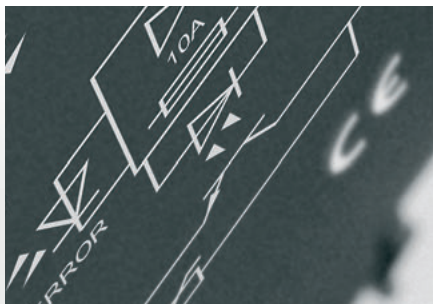
Tough and sturdy

With a short-circuit-proof output.



Auxiliary contact

An auxiliary contact issues alerts in event of short circuits.

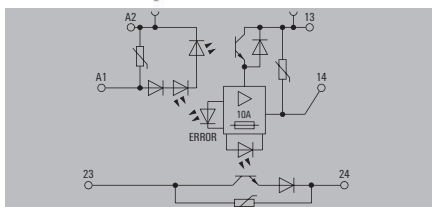


MICROOPTO – solid-state relays

For switching valves up to 24 VDC 10 A

- Width only 6 mm
- Plug-in cross-connector
- For mounting on TS 35
- Status display and error signaling contact with an error in the output

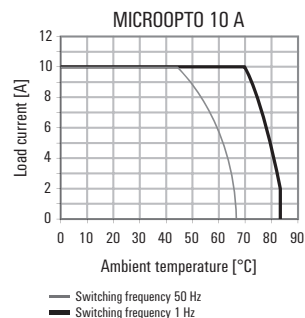
24 V DC / 5-33 V DC 10 A



The **MICROOPTO SOLENOID** solid-state relay is used specifically as a switching amplifier for actuators up to 24 V DC and 10 A with inductive loads such as solenoid valves and contactors.

A potential-free signalling contact transmits errors, such as short circuits, to the controller.

The **MICROOPTO SOLENOID** solid-state relay is short-circuit-proof and protected against power-related transients and voltage peaks by extensive protective circuits. The closed housing also offers a high level of protection against contact.



Technical data

Control side	
Rated control voltage	24 V DC ±20 %
Power rating	400 mW
Cut-in / dropout voltage	18 V / 13 V DC
Input frequency	50 Hz
Status indicator	Green LED
Protective circuit	Varistor, Reverse polarity protection
Load side	
Solid-state type	POWER MOS-FET
Rated switching voltage	5...33 V DC
Continuous current	10 A
Voltage drop at max. load	approx. 100 mV
Leakage current	< 1 mA
Short-circuit-proof / Protective circuit, load side	Yes (limited for 4 h / current limitation external < 200 A) / Current sensor, Varistor, Free-wheel diode
Switch-on delay / Switch-off delay	typical. 250 µs / typical. 700 µs
Pulse load, max. current	≤ 11 A (≤ 200 µs)
Load category	LC A
General data	
Ambient temperature (operational)	-25 °C...60 °C
Storage temperature	-40 °C...60 °C
UL 94 flammability rating	V-0
Humidity	5 - 93% rel. humidity, Tu = 40°C, no condensation
Approvals	CE; cULus; EAC; GL
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	3 kV _{eff} / 1 min.
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	> 3 mm
Overvoltage category	III
Pollution degree	2

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Ordering data

Screw connection

Note

Accessories

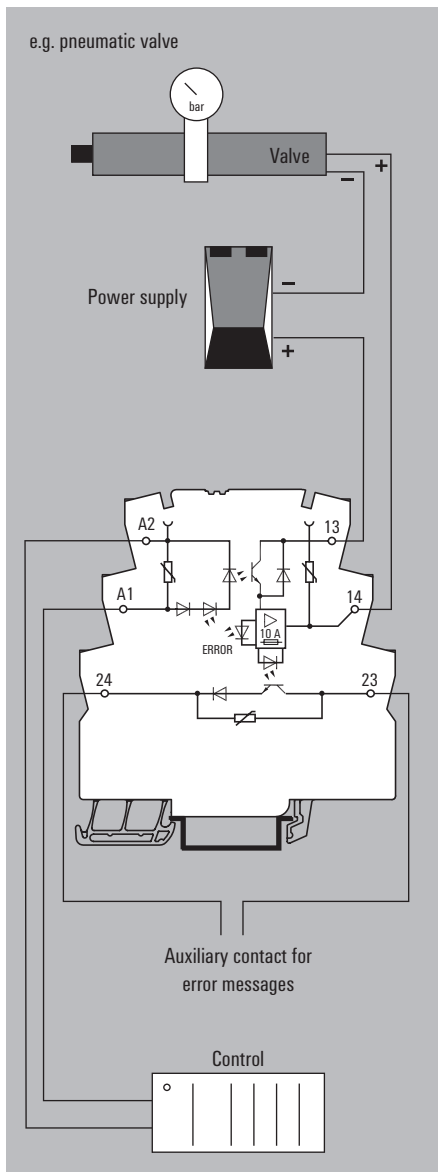
Note

Rated control voltage	24 V DC ±20 %
Power rating	400 mW
Cut-in / dropout voltage	18 V / 13 V DC
Input frequency	50 Hz
Status indicator	Green LED
Protective circuit	Varistor, Reverse polarity protection
Load side	
Solid-state type	POWER MOS-FET
Rated switching voltage	5...33 V DC
Continuous current	10 A
Voltage drop at max. load	approx. 100 mV
Leakage current	< 1 mA
Short-circuit-proof / Protective circuit, load side	Yes (limited for 4 h / current limitation external < 200 A) / Current sensor, Varistor, Free-wheel diode
Switch-on delay / Switch-off delay	typical. 250 µs / typical. 700 µs
Pulse load, max. current	≤ 11 A (≤ 200 µs)
Load category	LC A
General data	
Ambient temperature (operational)	-25 °C...60 °C
Storage temperature	-40 °C...60 °C
UL 94 flammability rating	V-0
Humidity	5 - 93% rel. humidity, Tu = 40°C, no condensation
Approvals	CE; cULus; EAC; GL
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	3 kV _{eff} / 1 min.
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	> 3 mm
Overvoltage category	III
Pollution degree	2
Screw connection	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Type	Qty.	Order No.
MOS 24VDC/5-33VDC 10A	1	8937940000

Note

Note



For DC loads up to 300 V DC and 1 A

- Only 6 mm modular width
- Plug-in cross-connection
- Power Boost: 20 A / 20 ms, 5 A / 1 sec

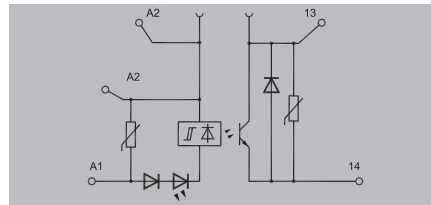
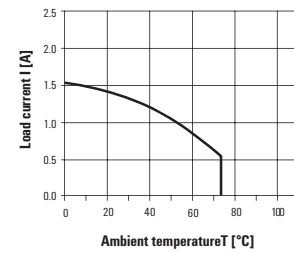
12...300 V DC 1 A



The solid-state relay **MICROOPTO 300 V DC** has been developed as a switching amplifier for high inductive loads up to 300 V DC and 1 A in motor brakes and contactors.

A power boost in the load circuit compensates transient overloads (20 A for 20 ms / 5 A for 1 s) such as making or breaking spikes. Additional protective circuits counter higher overloads.

derating curve



Technical data

Control side

Rated control voltage
Power rating
Cut-in / dropout voltage

24 V DC ±20 %
0.36 W
18.8 V / 14.7 V DC

Input frequency
Status indicator
Protective circuit

50...60 Hz
Green LED
Varistor, Reverse polarity protection

Load side

Solid-state type
Rated switching voltage
Continuous current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side

POWER MOS-FET
12...300 V DC
1 A
≤ 0.4 V
< 1 µA
No / Varistor, Free-wheel diode

Switch-on delay / Switch-off delay
Pulse load, max. current
Load category

< 18 µs / < 1 ms
27 A (10 ms)
LC A

General data

Ambient temperature (operational)
Storage temperature
UL 94 flammability rating
Humidity
Approvals

-25 °C...60 °C
-40 °C...80 °C
V-0
5-95% rel. humidity, T_b = 55°C, no condensation
CE; cULus; EAC; GL

Insulation coordinates

Rated voltage
Impulse withstand voltage
Dielectric strength for control side - load side
Dielectric strength to mounting rail
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

300 V
2.5 kV (1.2/50 µs)
3 kV_{eff} / 1 min.
4 kV_{eff} / 1 min.
> 3 mm
III
2

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Screw connection

2.5 / 0.5 / 4
97.8 / 6.1 / 88.1

Note

Ordering data

Screw connection

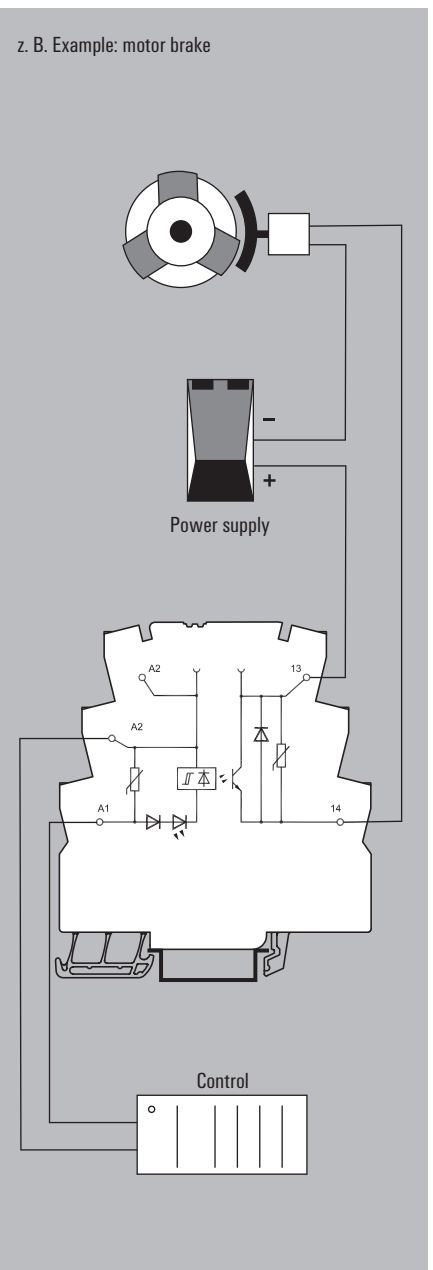
Type	Qty.	Order No.
MOS 24VDC/12-300VDC 1A	1	8937830000

Note

Accessories

Note

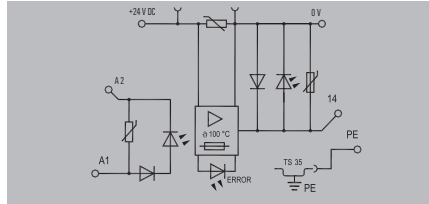
Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.



**For direct connection of actuators
up to 24 V DC 2 A**

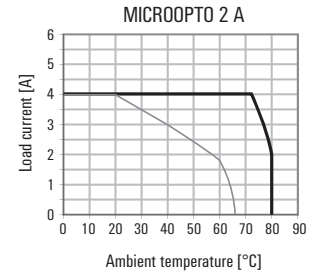
- Only 6 mm modular width
- Plug-in cross-connection
- PE connection direct to mounting rail
- Status display when error in output

8...30 V DC 2 A



The solid-state relay **MICROOPTO ACTOR** has been specifically designed as a switching amplifier for actuators up to 24 V DC and 2 A with inductive loads such as solenoid valves and contactors. 3-wire actuators can be connected directly to the module.

This is short-circuit proof and protected against application-related transients and spikes by extensive protective circuitry.



Technical data

Control side	
Rated control voltage	24 V DC ±20 %
Power rating	≤ 170 mW
Cut-in / dropout voltage	13.8 V / 13.6 V DC

Input frequency	125 Hz
Status indicator	
Protective circuit	Varistor, Reverse polarity protection

Load side	
Solid-state type	Intelligent POWER MOS-FET
Rated switching voltage	8...30 V DC
Continuous current	2 A
Voltage drop at max. load	≤ 50 mV
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	Yes (thermal cut-out) / Varistor, Free-wheel diode

Switch-on delay / Switch-off delay	0.1 ms / < 0.5 ms
Pulse load, max. current	
Load category	LC A

General data	
Ambient temperature (operational)	-25 °C...60 °C
Storage temperature	-40 °C...80 °C
UL 94 flammability rating	V-0
Humidity	5-95% rel. humidity, T _b = 55°C, no condensation
Approvals	CE; cULus; EAC; GL

Insulation coordinates	
Rated voltage	30 V
Impulse withstand voltage	500 V (1,2/50 µ)
Dielectric strength for control side - load side	350 V _{eff} / 1 min.
Dielectric strength to mounting rail	350 V _{eff} / 1 min.
Clearance and creepage distances for control side - load side	
Overvoltage category	III
Pollution degree	2

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	

Note	

Ordering data

	Screw connection
--	------------------

Note	

Accessories

Note	
	Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.

Rated control voltage	24 V DC ±20 %
Power rating	≤ 170 mW
Cut-in / dropout voltage	13.8 V / 13.6 V DC

Input frequency	125 Hz
Status indicator	
Protective circuit	Varistor, Reverse polarity protection

Load side	
Solid-state type	Intelligent POWER MOS-FET
Rated switching voltage	8...30 V DC
Continuous current	2 A
Voltage drop at max. load	≤ 50 mV
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	Yes (thermal cut-out) / Varistor, Free-wheel diode

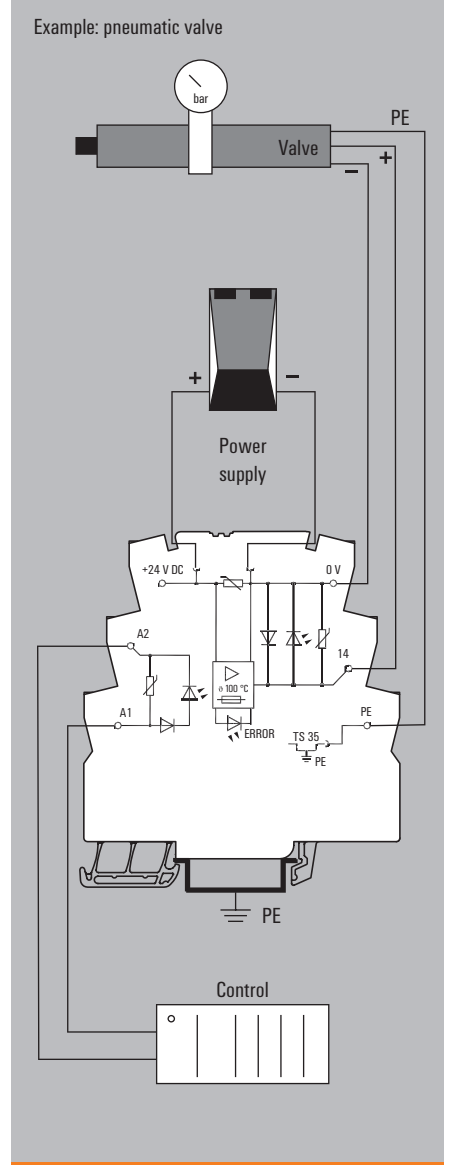
Switch-on delay / Switch-off delay	0.1 ms / < 0.5 ms
Pulse load, max. current	
Load category	LC A

General data	
Ambient temperature (operational)	-25 °C...60 °C
Storage temperature	-40 °C...80 °C
UL 94 flammability rating	V-0
Humidity	5-95% rel. humidity, T _b = 55°C, no condensation
Approvals	CE; cULus; EAC; GL

Insulation coordinates	
Rated voltage	30 V
Impulse withstand voltage	500 V (1,2/50 µ)
Dielectric strength for control side - load side	350 V _{eff} / 1 min.
Dielectric strength to mounting rail	350 V _{eff} / 1 min.
Clearance and creepage distances for control side - load side	
Overvoltage category	III
Pollution degree	2

Screw connection		
	2.5 / 0.5 / 4	
	97 / 6.1 / 88.1	

Type	Qty.	Order No.
MOS 24VDC/8-30VDC 2A	1	8937970000



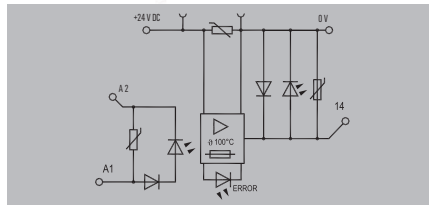
**For direct connection
of actuators up to 24 VDC 2 A**

- Width only 6 mm
- Plug-in cross-connector
- Status display when error in output

24 V DC / 8-30 V DC 2 A E



The solid-state relay **MICROOPTO ACTOR** has been specifically designed as a switching amplifier for actuators up to 24 V DC and 2 A with inductive loads such as solenoid valves and contactors. 3-wire actuators can be connected directly to the module. This is short-circuit proof and protected against application-related transients and spikes by extensive protective circuitry.



Technical data

Control side

Rated control voltage
Power rating
Cut-in / dropout voltage

24 V DC $\pm 20\%$
 ≤ 170 mW
13.8 V / 13.6 V DC

Input frequency
Status indicator
Protective circuit

10 Hz
Varistor, Reverse polarity protection

Load side

Solid-state type
Rated switching voltage
Continuous current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side

Intelligent POWER MOS-FET
8...30 V DC
2 A
 ≤ 50 mV
 < 10 μ A
Yes (thermal cut-out) / Varistor, Free-wheel diode

Switch-on delay / Switch-off delay
Pulse load, max. current
Load category

0.1 ms / < 0.5 ms
LC A

General data

Ambient temperature (operational)
Storage temperature
UL 94 flammability rating
Humidity
Approvals

-25 °C...60 °C
-40 °C...80 °C
V-0
5-95% rel. humidity, $T_b = 55^\circ\text{C}$, no condensation
EAC; GL

Insulation coordinates

Rated voltage
Impulse withstand voltage
Dielectric strength for control side - load side
Dielectric strength to mounting rail
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

30 V
500 V (1,2/50 μ)
350 V_{eff} / 1 min.
350 V_{eff} / 1 min.
III
2

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height

Screw connection
2.5 / 0.5 / 4
97.8 / 6.1 / 88.1

Note

Ordering data

Screw connection

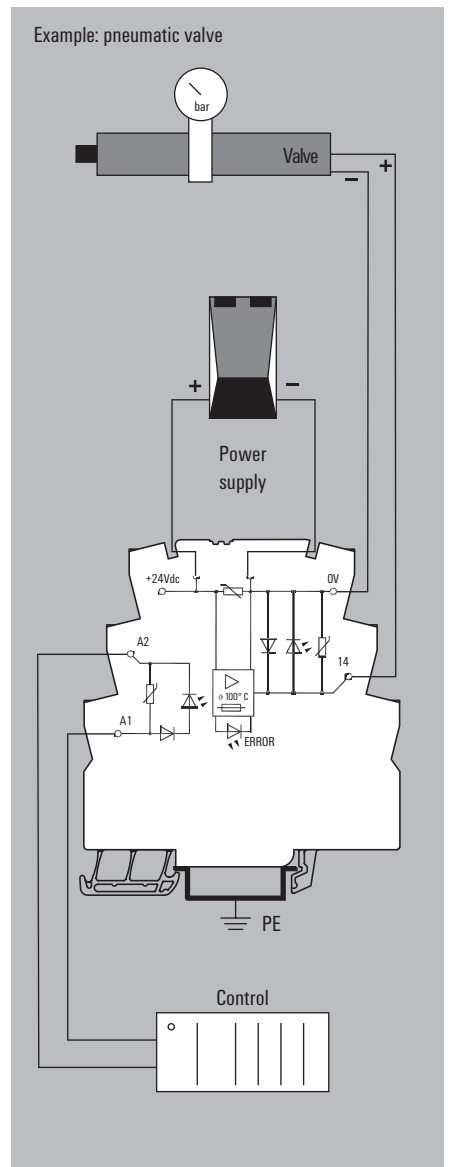
Type	Qty.	Order No.
MOS 24VDC/8-30VDC 2A E	10	1283230000

Note

Accessories

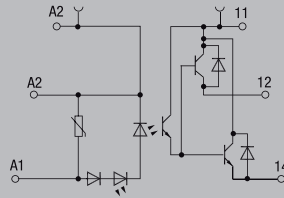
Note

Accessories and dimensional drawings: refer to the MICROOPTO Accessories page



For electronically switching
or inverting signals

24 V DC / 5-48 V DC 0.5 A



Electronic CO contacts are used anywhere output signals need to be changed over.

For this purpose, the input signal is directly switched through to the output side and inverted; as a result, the opto module can also be used as a pure inverter.

The advantage over electromechanical relays lies in the wear-free switching and the possibility of realising high switching frequencies.

Technical data

Control side	
Rated control voltage	24 V DC ±20 %
Power rating	160 mW
Cut-in / dropout voltage	19.5 V / 12 V DC
Input frequency	1 kHz
Status indicator	Green LED
Protective circuit	Varistor, Reverse polarity protection
Load side	
Solid-state type	Transistor
Rated switching voltage	5...48 V DC
Continuous current	500 mA
Voltage drop at max. load	Max. 1 V
Leakage current	< 1,5 mA
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode
Switch-on delay / Switch-off delay	< 30 µs / < 50 µs
Pulse load, max. current	LC A
Load category	LC A
General data	
Ambient temperature (operational)	-25 °C...60 °C
Storage temperature	-40 °C...60 °C
UL 94 flammability rating	V-0
Humidity	5 - 93% rel. humidity, Tu = 40°C, no condensation
Approvals	CE; cULus; EAC; GL
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	3 kV _{eff} / 1 min.
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	> 3 mm
Overvoltage category	III
Pollution degree	2

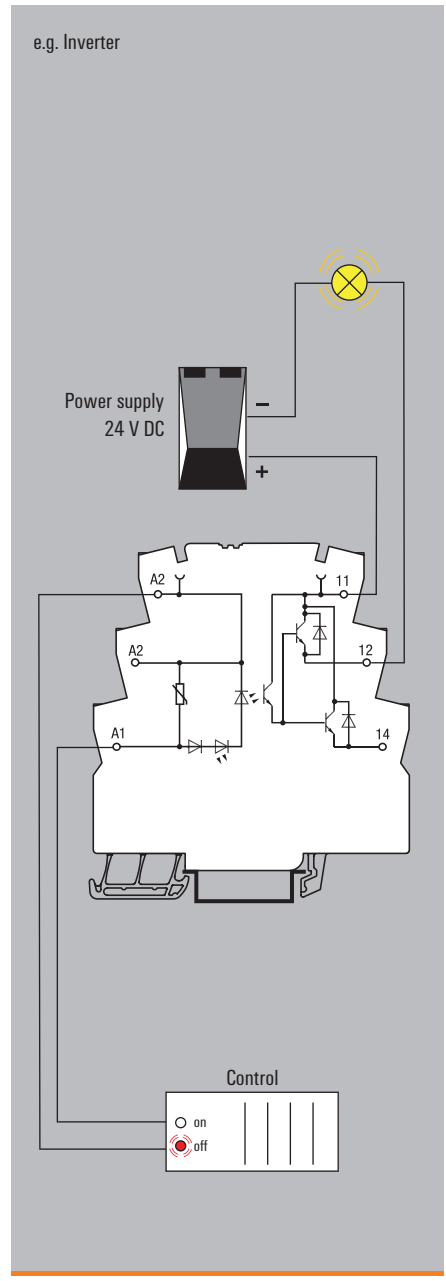
Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Ordering data	
Screw connection	
Note	

Accessories	
Note	

Technical data		
Rated control voltage	24 V DC ±20 %	
Power rating	160 mW	
Cut-in / dropout voltage	19.5 V / 12 V DC	
Input frequency	1 kHz	
Status indicator	Green LED	
Protective circuit	Varistor, Reverse polarity protection	
Load side		
Solid-state type	Transistor	
Rated switching voltage	5...48 V DC	
Continuous current	500 mA	
Voltage drop at max. load	Max. 1 V	
Leakage current	< 1,5 mA	
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode	
Switch-on delay / Switch-off delay	< 30 µs / < 50 µs	
Pulse load, max. current	LC A	
Load category	LC A	
General data		
Ambient temperature (operational)	-25 °C...60 °C	
Storage temperature	-40 °C...60 °C	
UL 94 flammability rating	V-0	
Humidity	5 - 93% rel. humidity, Tu = 40°C, no condensation	
Approvals	CE; cULus; EAC; GL	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	4 kV (1.2/50 µs)	
Dielectric strength for control side - load side	3 kV _{eff} / 1 min.	
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.	
Clearance and creepage distances for control side - load side	> 3 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions		
Clamping range (nominal / min. / max.)	mm ²	
Depth x width x height	mm	
Note		
Ordering data		
Screw connection		
Note		
Accessories		
Note		

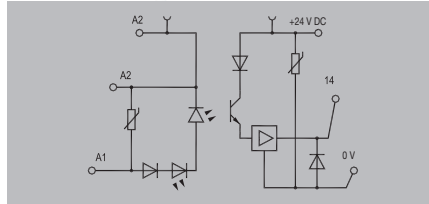
Type	Qty.	Order No.
MOS 24VDC/5-48VDC 0,5A	1	8937980000



**For high switching frequency
up to 100 kHz**

- Width only 6 mm
- Plug-in cross-connector
- For mounting on TS 35

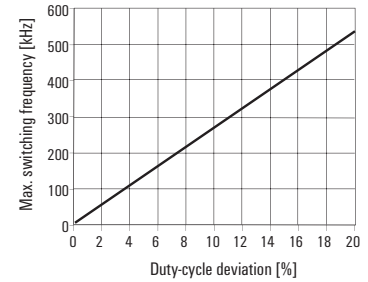
12...28 V DC 100 kHz



A special interior circuit in the opto module **MICROOPTO 100 kHz** ensures that rapidly transmitted signals are isolated from one another and that they can be transferred practically without delay. This allows switching frequencies up to 100 kHz to be achieved. Comprehensive suppressor circuits safeguard the module against conducted transients and voltage spikes.

**Max. switching frequency is dependent
on the duty cycle deviation**

MOS 12-28 V DC 100 kHz (switching current 50 mA, ohmic load)



Technical data

Control side

Rated control voltage
Power rating
Cut-in / dropout voltage

Input frequency
Status indicator
Protective circuit

Load side

Solid-state type
Rated switching voltage
Continuous current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side

Switch-on delay / Switch-off delay
Pulse load, max. current
Load category

General data

Ambient temperature (operational)
Storage temperature
UL 94 flammability rating
Humidity
Approvals

Insulation coordinates

Rated voltage
Impulse withstand voltage
Dielectric strength for control side - load side
Dielectric strength to mounting rail
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Note

Ordering data

Screw connection

Note

Accessories

Note

12 V DC...28 V DC
≤ 280 mW
5.6 V / 5 V DC

100 kHz
Green LED
Varistor, Reverse polarity protection

Transistor
19.6...28.8 V
50 mA
≤ 2 V
< 1 μA
No / Varistor, Reverse polarity protection

< 200 ns / < 400 ns
0.6 A (20 ms)
LC A

-25 °C...60 °C
-40 °C...80 °C
V-0
5-95% rel. humidity, T_b = 55 °C, no condensation
CE; cULus; EAC; GL

30 V
500 V (1,2/50 μ)
350 V_{eff} / 1 min.
350 V_{eff} / 1 min.
II
2

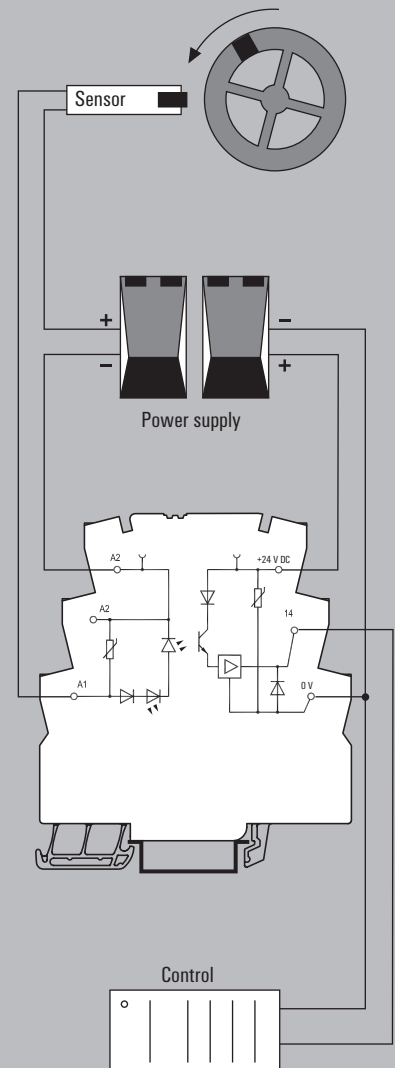
Screw connection

2.5 / 0.5 / 4
97.8 / 6.1 / 88.1

Type	Qty.	Order No.
MOS 12-28VDC 100kHz	1	8937990000

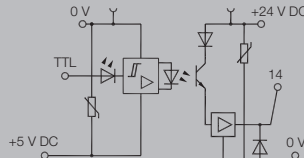
Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.

For example rotational speed measurement



For adjusting TTL signals

5 V TTL / 24 V DC 0.1 A



To adjust sensitive TTL signals to the typical voltage level of 24 V DC used in industrial automation applications, the **MICROOPTO TTL** modules are used.

For the protection of the electronics, the sensitive TTL signals require electrical isolation from the 24 V world.

To control the optical coupler circuit via the 5 V TTL signal, an additional auxiliary voltage is fed in.

Technical data

Control side	
Rated control voltage	5 V TTL
Power rating	< 0.5 mW
Cut-in / dropout voltage	2 V / 1 V DC
Input frequency	100 kHz
Status indicator	Green LED
Protective circuit	Varistor, Reverse polarity protection
Load side	
Solid-state type	Bipolar transistor
Rated switching voltage	24 VDC ±20%
Continuous current	100 mA
Voltage drop at max. load	< 1 V
Leakage current	< 20 µA
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode
Switch-on delay / Switch-off delay	< 1.3 µs / < 1 µs
Pulse load, max. current	LC A
Load category	LC A
General data	
Ambient temperature (operational)	-25 °C...60 °C
Storage temperature	-40 °C...60 °C
UL 94 flammability rating	V-0
Humidity	5 - 93% rel. humidity, Tu = 40°C, no condensation
Approvals	CE; cULus; EAC; GL
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	3 kV _{eff} / 1 min.
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	> 3 mm
Overvoltage category	III
Pollution degree	2

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Ordering data

Screw connection

Note

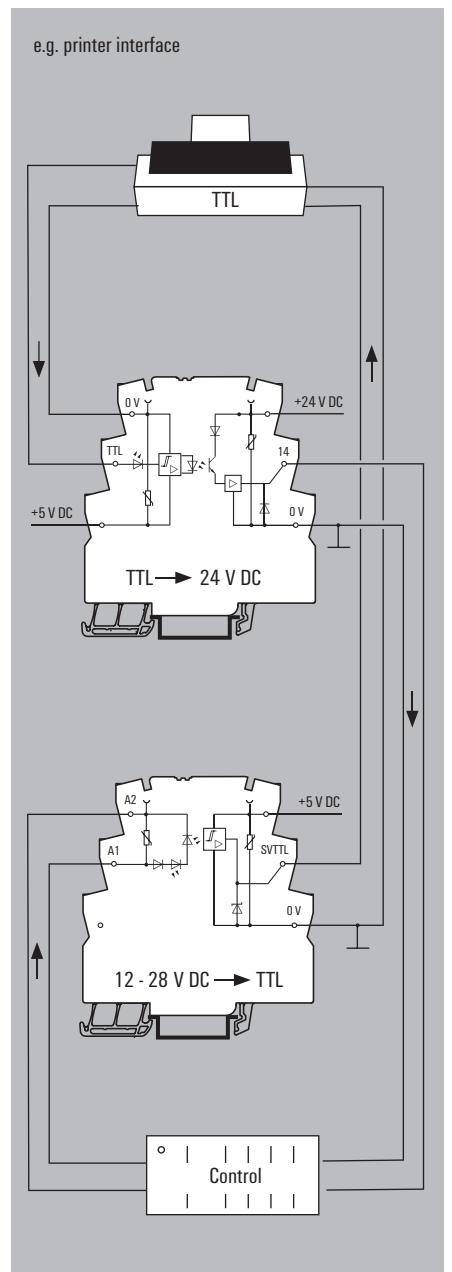
Accessories

Note

Screw connection		
Type	Qty.	Order No.
MOS 5VTTL/24VDC 0,1A	1	8937920000

Screw connection		
Type	Qty.	Order No.
MOS 5VTTL/24VDC 0,1A	1	8937920000

Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.



For adjusting TTL signals

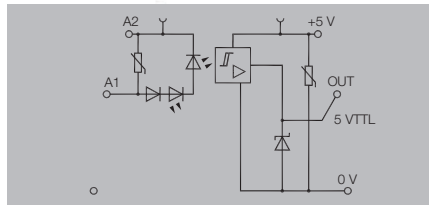
12-28 V DC / 5 V TTL



To adjust sensitive TTL signals to the typical voltage level of 24 V DC used in industrial automation applications, the MICROOPTO TTL modules are used.

For the protection of the electronics, the sensitive TTL signals require electrical isolation from the 24 V world.

To control the optical coupler circuit via the 5 V TTL signal, an additional auxiliary voltage is fed in.



Technical data

Control side	
Rated control voltage	12 V DC...28 V DC
Power rating	150 mW
Cut-in / dropout voltage	10.7 V / 10.6 V DC
Input frequency	100 kHz
Status indicator	Green LED
Protective circuit	Varistor, Reverse polarity protection
Load side	
Solid-state type	TTL
Rated switching voltage	5 V TTL
Continuous current	50 mA
Voltage drop at max. load	90 mV
Leakage current	< 1 µA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	typical. < 1 µs / typical. < 4 µs
Pulse load, max. current	
Load category	LC A
General data	
Ambient temperature (operational)	-25 °C...60 °C
Storage temperature	-40 °C...60 °C
UL 94 flammability rating	V-0
Humidity	5 - 93% rel. humidity, Tu = 40°C, no condensation
Approvals	CE; cULus; EAC; GL
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	3 kV _{eff} / 1 min.
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	> 3 mm
Overvoltage category	III
Pollution degree	2

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Ordering data

Screw connection

Note	
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Accessories

Note	
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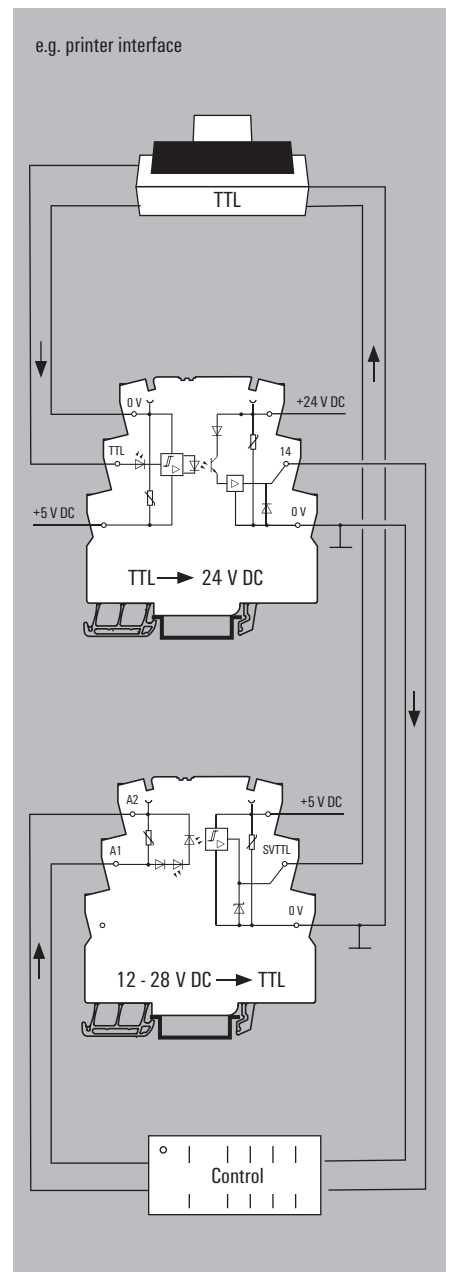
Screw connection	
2.5 / 0.5 / 4	
97.8 / 6.1 / 88.1	

Type		Qty.	Order No.
MOS 12-28VDC/5VTTL	1	8937930000	

Type		Qty.	Order No.
MOS 12-28VDC/5VTTL	1	8937930000	

Note	
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Note	
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Accessories

General data – MICROOPTO



Plug-in cross-connection

Type	No. of poles	Qty.	Order No.
yellow			
ZQV 4N / 2 GE	2	60	1758250000
ZQV 4N / 3 GE	3	60	1762630000
ZQV 4N / 4 GE	4	60	1762620000
ZQV 4N / 10 GE	10	20	1758260000
ZQV 4N / 20 GE	20	20	1909020000
red			
ZQV 4N / 2 RT	2	60	1793950000
ZQV 4N / 3 RT	3	60	1793980000
ZQV 4N / 4 RT	4	60	1794010000
ZQV 4N / 10 RT	10	20	1794040000
ZQV 4N / 20 RT	20	20	1909150000
blue			
ZQV 4N / 2 BL	2	60	1793960000
ZQV 4N / 3 BL	3	60	1793990000
ZQV 4N / 4 BL	4	60	1794020000
ZQV 4N / 10 BL	10	20	1794050000
ZQV 4N / 20 BL	20	20	1909100000
black			
ZQV 4N / 2 SW	2	60	1793970000
ZQV 4N / 3 SW	3	60	1794000000
ZQV 4N / 4 SW	4	60	1794030000
ZQV 4N / 10 SW	10	20	1794060000
ZQV 4N / 20 SW	20	20	1909120000

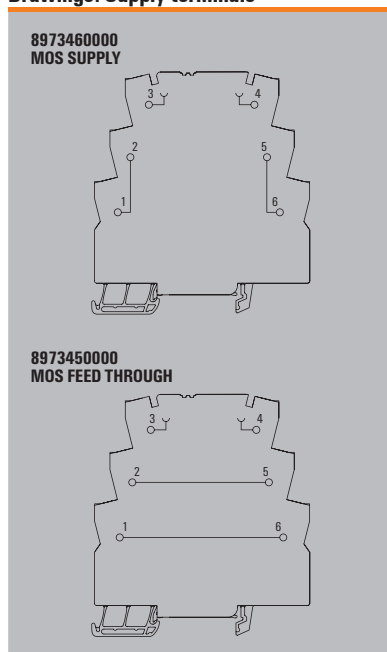
Technical data

Conductor		Screw-connection
Solid H07V-U	mm ²	0.5 ... 4.0
Stranded H07V-K	mm ²	0.5 ... 2.5
"f" with wire end ferrules to DIN 46228-1	mm ²	0.5 ... 1.5
"f" with wire end ferrules with plastic collar	mm ²	0.5 ... 1.5
Max. clamping range	mm ²	0.13 ... 4.0
Plug gauge to IEC 60947-1	Size	A 3
General technical data		
Nominal torque	Nm	0.6
Continuous current for 2-pole cross-connection	A	10
Continuous current for multi-pole cross-connection	A	10
Stripping length	mm	7
Ingress protection class		IP 20
Housing material		Wemid
UL 94 flammability rating		V-0
Nominal current	A	6
Nominal voltage	V	250

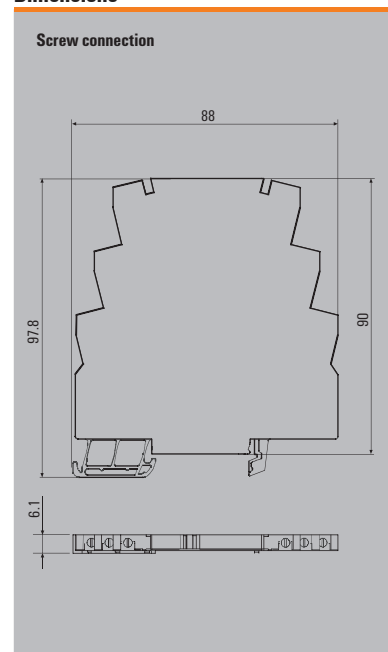
Other accessories

Type	Qty.	Order No.	
Supply terminals			
MOS SUPPLY	1	8973460000	
MOS FEED THROUGH	1	8973450000	
Markers			
WS 12/6	12 x 6 mm	600	1609900000
Screwdriver			
SD 0.6 x 3.5 x 100		10	9008330000
Cross-connector for plugging into the clamping point			
QB 75/6.2/15		10	0535200000
Coloured insulating profile for QB			
ISPF QB75 black		10	0526700000
ISPF QB75 blue		10	0526780000
ISPF QB75 red		10	0526760000
End bracket			
WEW 35/2		100	1061210000

Drawings: Supply terminals



Dimensions

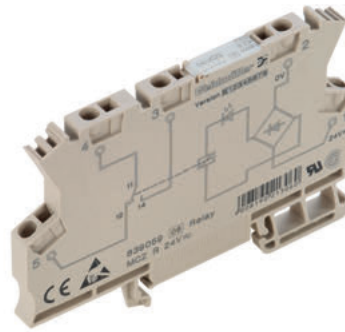


MiniConditioner MCZ R

1 CO contact AC/DC/UC coil

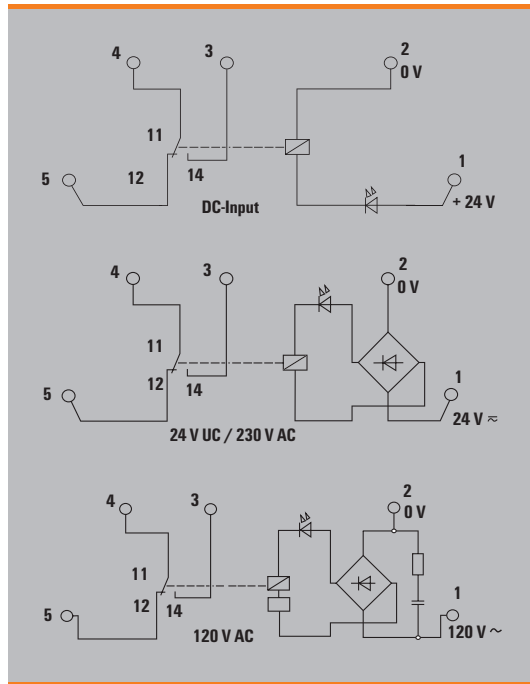
The module can be used as a universal interface between the controller and the actuator to switch small and medium-sized loads

- Reduced installation and commissioning costs, thanks to the use of the proven tension-spring connection system
- Pluggable cross-connection at input and output minimises the wiring workload.
- Width 6 mm
- For mounting on TS 35



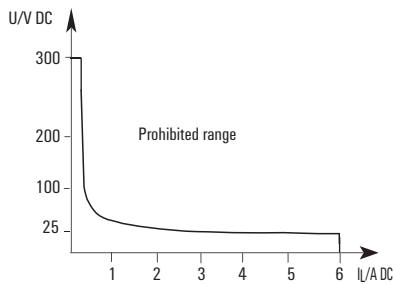
Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	250 V
Inrush current	6 A
Min. switching power	1 mA @ 24 V, 10 mA @ 10 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA
Contact material	AgSnO
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...50 °C
Storage temperature	-40 °C...60 °C
Humidity	5 - 93% rel. humidity, Tu = 40°C, no condensation
Approvals	CE, CSA, cURus, EAC, GL
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength input - output	4 kV _{eff} / 1 s
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overtoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.5 / 1.5
Depth x width x height	mm 63.2 / 6.1 / 91
Tension clamp connection	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.5 / 1.5
Depth x width x height	mm 63.2 / 6.1 / 91
Note	
End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.	

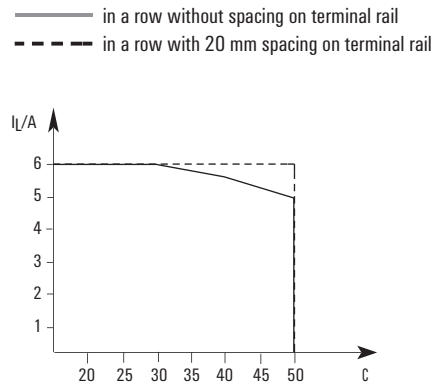


Applications

Limit curve



Derating curve



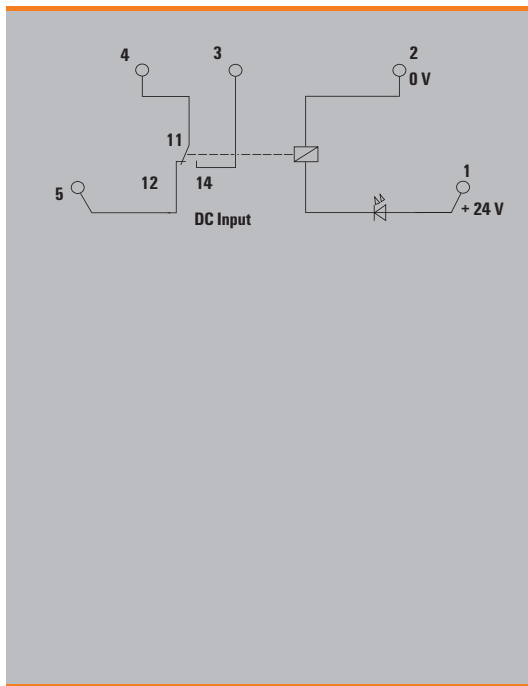
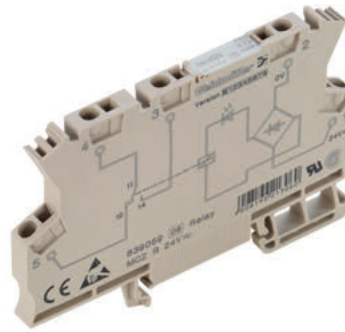
MiniConditioner MCZ R
1 CO contact AC/DC/UC coil

Ordering data		24 V DC 1 CO	24 V DC 1 CO Au	24 V UC 1 CO	110 V DC 1 CO
Input					
Rated control voltage		24 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	110 V DC ±10 %
Rated current AC / DC		/ 6.3 mA	/ 6.3 mA	11 mA / 6.4 mA	/ 2.85 mA
Power rating		156 mW	156 mW	160 mVA / 150 mW	340 mW
Pull-in/drop-out voltage, typ.		19 V / 4 V DC	19 V / 4 V DC	19.5 V / 3 V AC 19.5 V / 3 V DC	68 V / 19 V DC
Pull-in/drop-out current, typ.					1.6 mA / 0.6 mA DC
Status indicator		Green LED	Green LED	Green LED	Green LED
Protective circuit		Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Load side					
Switch-on delay		< 5 ms	< 5 ms	< 6 ms	< 6 ms
Switch-off delay		< 15 ms	< 15 ms	< 35 ms	< 15 ms
Ordering data Complete module					
CO contact	Type	MCZ R 24VDC	MCZ R 24VDC 5uAu	MCZ R 24VUC	MCZ R 110VDC
	Order No.	8365980000	8442960000	8390590000	8467470000
	Type				
	Order No.				
Note			Can safely switch a load of: 1...60 V AC/DC, 1...300 mA. If higher loads are switched this can damage the gold plating.		
Ordering data		120 V AC 1 CO	230 V AC 1 CO		
Input					
Rated control voltage		120 V AC -15 % / +10 %	230 V AC ±10 %		
Rated current AC / DC		7 mA /	9.5 mA /		
Power rating		0.85 VA	2.1 VA		
Pull-in/drop-out voltage, typ.		85 V / 17 V AC	150 V / 60 V AC		
Pull-in/drop-out current, typ.		4 mA / 1.3 mA AC	5 mA / 2.5 mA AC		
Status indicator		Green LED	Green LED		
Protective circuit		RC element, Rectifier	Rectifier		
Load side					
Switch-on delay		< 17 ms	< 11 ms		
Switch-off delay		< 35 ms	< 35 ms		
Ordering data Complete module					
CO contact	Type	MCZ R 120VAC	MCZ R 230VAC		
	Order No.	8420880000	8237710000		
	Type				
	Order No.				
Note					

MCZ R TRAK

1 CO contact or 1 NO contact DC coil

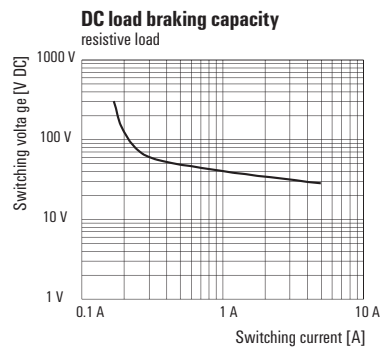
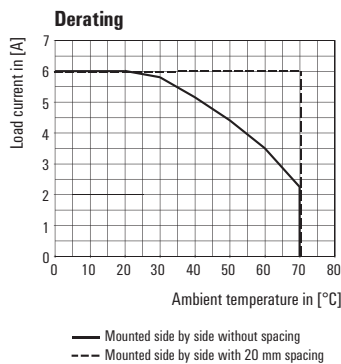
- 1 CO contact
- Component for rail industry applications
- Vibration requirements according to EN 61373, requirements category 1 class B
- Voltage fluctuations -30 %/+25 % and ±40 % for 0.1 sec
- Voltage interruptions at input up to 10 ms
- Condensation permissible



Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	250 V
Inrush current	6 A
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	120 W @ 24 V / 1500 VA
Contact material	AgSnO
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	95 % for 30 days, minimal condensation to EN 50155
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength input – output	4 kV _{eff} / 1 s
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Creepage and clearance distance input – output	≥ 5.5 mm
Overtoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.5 / 1.5
Depth x width x height	mm 63.2 / 6.1 / 91
Note	
End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.	

Applications



MCZ R TRAK

1 CO contact or 1 NO contact DC coil

Ordering data

	24 V DC TRAK	36 V DC TRAK	48...110 V DC TRAK
Input			
Rated control voltage	24 V DC +25 % / -30 %	36 V DC +25 % / -30 %	48 V...110 V DC +25 % / -30 %
Rated current AC / DC	/ 11.5...16.5 mA	/ 8...12 mA	/ < 3 mA
Power rating	195...500 mW	200...540 mW	< 300 mW
Pull-in/drop-out voltage, typ.	14 V / 3 V DC	18 V / 4.5 V DC	25 V / 6 V DC
Pull-in/drop-out current, typ.			
Status indicator	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Varistor, Reverse polarity protection	Free-wheel diode, Varistor, Reverse polarity protection	Free-wheel diode, Varistor, Reverse polarity protection
Load side			
Switch-on delay	< 11 ms	< 6 ms	< 4 ms
Switch-off delay	< 50 ms	< 70 ms	< 100 ms

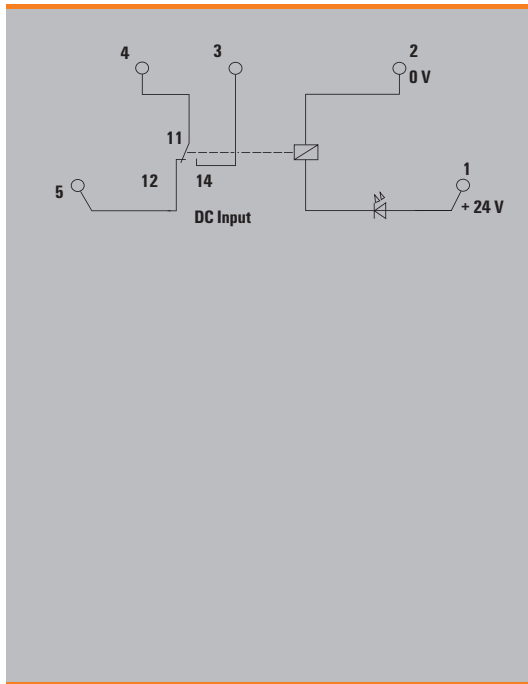
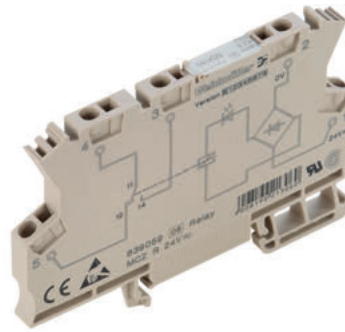
Ordering data				
Complete module				
CO contact	Type	MCZ R 24Vdc 1CO TRAK	MCZ R 36Vdc 1CO TRAK	MCZ R 48...110Vdc 1CO TRAK
	Order No.	8713890000	8713900000	8713910000
NO contact	Type	MCZ R 24Vdc 1NO TRAK		MCZ R 48...110Vdc 1NO TRAK
	Order No.	8499550000		8574070000

Note			

MCZ R TRAK Au

1 CO contact DC coil

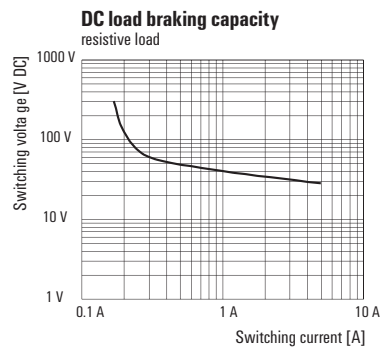
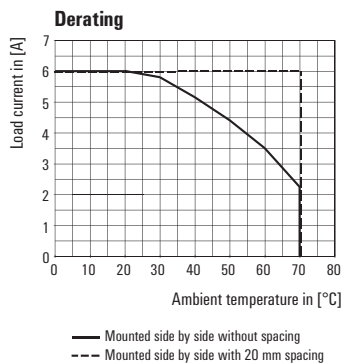
- 1 CO with hard gold-plated contacts
- Component for rail industry applications
- Vibration requirements according to EN 61373, requirements category 1 class B
- Voltage fluctuations -30 %/+25 % and ±40 % for 0.1 sec
- Voltage interruptions at input up to 10 ms
- Condensation permissible



Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	250 V
Inrush current	6 A
Min. switching power	1 mA @ 1 V
DC / AC Switching capacity (resistive), max.	120 W @ 24 V / 1500 VA
Contact material	AgSnO 5µm Au
Mechanical service life	10 x 10 ⁸ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	95 % for 30 days, minimal condensation to EN 50155
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength input - output	4 kV _{eff} / 1 s
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overtolerance category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.5 / 1.5
Depth x width x height	mm 63.2 / 6.1 / 9.1
Tension clamp connection	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.5 / 1.5
Depth x width x height	mm 63.2 / 6.1 / 9.1
Note	
End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.	

Applications



MCZ R TRAK Au
1 CO contact DC coil

Ordering data

	24 V DC TRAK Au	36 V DC TRAK Au	48...110 V DC TRAK Au
Input			
Rated control voltage	24 V DC +25 % / -30 %	36 V DC +25 % / -30 %	48 V...110 V DC +25 % / -30 %
Rated current AC / DC	11.5...16.5 mA	8...12 mA	< 3 mA
Power rating	195...500 mW	200...540 mW	< 300 mW
Pull-in/drop-out voltage, typ.	14 V / 3 V DC	18 V / 4.5 V DC	25 V / 6 V DC
Pull-in/drop-out current, typ.			
Status indicator	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Varistor, Reverse polarity protection	Free-wheel diode, Varistor, Reverse polarity protection	Free-wheel diode, Varistor, Reverse polarity protection
Load side			
Switch-on delay	< 11 ms	< 6 ms	< 4 ms
Switch-off delay	< 50 ms	< 70 ms	< 100 ms

Ordering data

CO contact	Type	MCZ R 24VDC 1CO AU TRAK	MCZ R 36VDC 1CO AU TRAK	MCZ R 48...110VDC 1CO AU TRAK
	Order No.	8790520000	8790510000	8790500000
	Type			
	Order No.			

Note	24 V DC TRAK Au	36 V DC TRAK Au	48...110 V DC TRAK Au
	Can safely switch a load of: 1...60 V AC/DC, 1...300 mA. If higher loads are switched this can damage the gold plating.	Can safely switch a load of: 1...60 V AC/DC, 1...300 mA. If higher loads are switched this can damage the gold plating.	Can safely switch a load of: 1...60 V AC/DC, 1...300 mA. If higher loads are switched this can damage the gold plating.

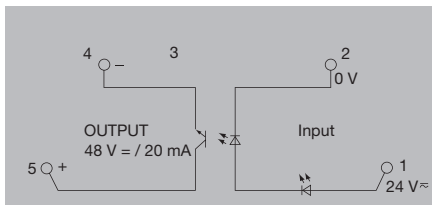
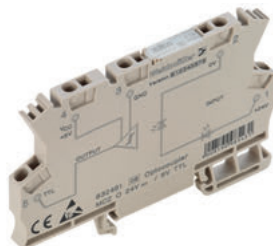
MCZ-SERIES – solid-state relays

MiniConditioner MCZ 0

- Universal interface between controller and sensor/ actuator
- Tension-clamp connection system
- Plug-in cross-connection
- 6 mm modular wide

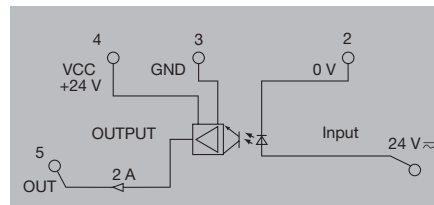
24 V UC

Connection system



24 V UC / 24 V 2 A

Connection system



Technical data

Control side	
Rated control voltage	24 V UC ±20 %
Nominal control current	10 mA DC ±20 %, 10 mA AC ±20 %
Cut-in / dropout voltage	14.4 V / 13 V AC 16.8 V / 15.7 V DC
Input frequency	AC: 5 Hz / DC: 10 Hz
Power rating	230 mW / 280 mVA
Status indicator	Green LED
Protective circuit	
Load side	
Rated switching voltage	5...48 V DC
Continuous current	20 mA
Inrush current	
Solid-state type	Transistor
Voltage drop at max. load	≤ 1 V
Leakage current	
Protective circuit, load side	Free-wheel diode
Short-circuit-proof	No
Switch-on delay	AC: 10 ms / DC: 20 ms
Switch-off delay	AC: 45 ms / DC: 40 ms
General data	
Ambient temperature (operational)	-25 °C...50 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	1 kV _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Rated switching voltage	24 V UC ±20 %
Continuous current	10 mA DC ±20 %, 10 mA AC ±20 %
Inrush current	14.4 V / 13 V AC 15 V / 15 V DC
Solid-state type	AC: 10 Hz / DC: 30 Hz
Power rating	195 mW / 220 mVA
Status indicator	LED
Protective circuit, load side	
Rated switching voltage	24 VDC ±20%
Continuous current	2 A
Inrush current	
Solid-state type	Transistor
Voltage drop at max. load	≤ 1.8 V
Leakage current	
Protective circuit, load side	Varistor
Short-circuit-proof	Yes
Switch-on delay	≤ 10 ms
Switch-off delay	≤ 10 ms
Ambient temperature (operational)	-25 °C...40 °C
Storage temperature	-40 °C...60 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; EAC
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	1 kV _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Tension clamp connection	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Tension clamp connection	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Ordering data

Type	Qty.	Order No.
MCZ 0 24VUC	10	8365940000

Type	Qty.	Order No.
MCZ 0 24VUC	10	8287730000

Type	Qty.	Order No.
MCZ 0 24VUC	10	8287730000

Note

Accessories

Note	End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.
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Note	End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.
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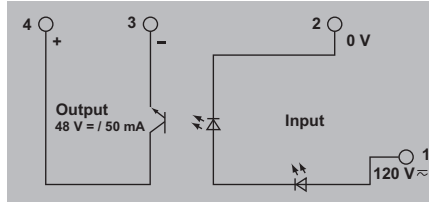
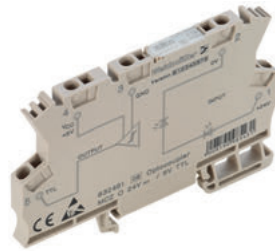
Note	End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.
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MiniConditioner MCZ O

- Universal interface between controller and sensor/ actuator
- Tension-clamp connection system
- Plug-in cross-connection
- 6 mm modular wide

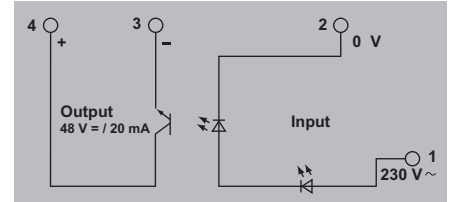
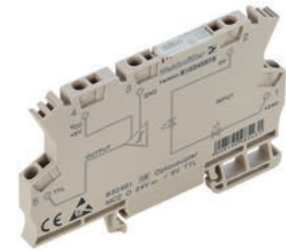
120 V UC

Connection system



230 V AC

Connection system



Technical data

Control side

Rated control voltage
Nominal control current
Cut-in / dropout voltage

Input frequency
Power rating
Status indicator
Protective circuit

Load side

Rated switching voltage
Continuous current
Inrush current
Solid-state type
Voltage drop at max. load
Leakage current
Protective circuit, load side
Short-circuit-proof
Switch-on delay
Switch-off delay

General data

Ambient temperature (operational)
Storage temperature
Humidity
Approvals

Insulation coordinates

Rated voltage
Impulse withstand voltage
Dielectric strength for control side - load side
Dielectric strength to mounting rail
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Note

Ordering data

Tension-clamp connection

Note

Accessories

Note

Technical data

120 V UC +5 / -15 %
3 mA DC (±10 %), 3 mA AC (±10 %)
65 V / 64 V AC
70 V / 64 V DC
AC: 5 Hz / DC: 20 Hz
350 mW / 400 mVA
Green LED

Load side

5...48 V DC
50 mA
Transistor
1.6 V
≤ 1 mA
Free-wheel diode
No
≤ 30 ms
≤ 40 ms

General data

-25 °C...40 °C
-40 °C...60 °C
40 °C / 93 % rel. humidity, no condensation
CE; CSA; cURus; EAC

Insulation coordinates

300 V
6 kV (1.2/50 µs)
1 kV_{eff} / 1 s
4 kV_{eff} / 1 min.
≥ 5.5 mm
III
2

Tension clamp connection

1.5 / 0.5 / 1.5
63.2 / 6.1 / 91

Type	Qty.	Order No.
MCZ O 120VUC	10	8421060000

Note

End plate AP MCZ 1.5: 8389030000
Accessories and dimensional drawings: refer to the MCZ Accessories page.

Technical data

230 V AC +5 % / -15 %
10 mA AC ±20 %
175 V / 125 V AC
AC: 5 Hz duty factor 1:2
2.3 VA
Green LED

Load side

5...48 V DC
20 mA
Transistor
1.6 V
≤ 1 mA
Free-wheel diode
No
≤ 30 ms
≤ 40 ms

General data

-25 °C...40 °C
-40 °C...60 °C
40 °C / 93 % rel. humidity, no condensation
CE; CSA; cURus; EAC

Insulation coordinates

300 V
6 kV (1.2/50 µs)
1 kV_{eff} / 1 s
4 kV_{eff} / 1 min.
≥ 5.5 mm
III
2

Tension clamp connection

1.5 / 0.5 / 1.5
63.2 / 6.1 / 91

Type	Qty.	Order No.
MCZ O 230VAC	10	8421380000

Note

End plate AP MCZ 1.5: 8389030000
Accessories and dimensional drawings: refer to the MCZ Accessories page.

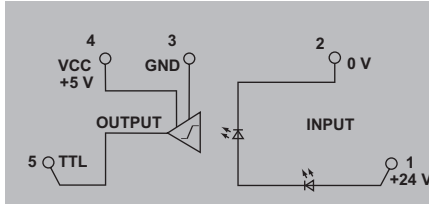
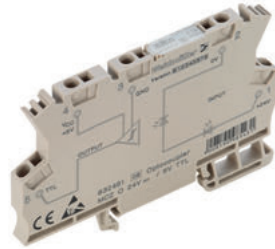
MCZ-SERIES – solid-state relays

MiniConditioner MCZ 0

- Universal interface between controller and sensor/ actuator
- Tension-clamp connection system
- Plug-in cross-connection
- 6 mm modular wide

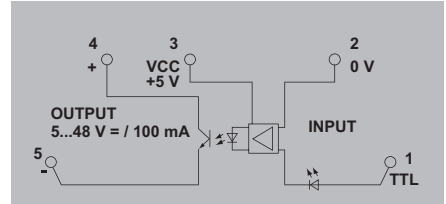
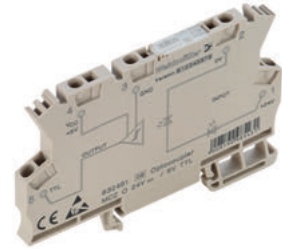
24 V DC / 5 V TTL

Connection system



5 V TTL / 5...48 V DC

Connection system



Technical data

Control side	
Rated control voltage	24 V DC ±16 %
Nominal control current	5 mA DC (±20 %)
Cut-in / dropout voltage	16.8 V / 16.5 V DC
Input frequency	100 kHz
Power rating	112 mW
Status indicator	Green LED
Protective circuit	
Load side	
Rated switching voltage	5 V TTL
Continuous current	8 ma, Fan out = 20 LS-TTL
Inrush current	
Solid-state type	TTL
Voltage drop at max. load	
Leakage current	
Protective circuit, load side	
Short-circuit-proof	No
Switch-on delay	1 µs (at 20 V DC)
Switch-off delay	2.5 µs (at 28 V DC)
General data	
Ambient temperature (operational)	-25 °C...40 °C
Storage temperature	-40 °C...60 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	1 kV _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Rated control voltage	24 V DC ±16 %
Nominal control current	5 mA DC (±20 %)
Cut-in / dropout voltage	16.8 V / 16.5 V DC
Input frequency	100 kHz
Power rating	112 mW
Status indicator	Green LED
Protective circuit	
Rated switching voltage	5 V TTL
Continuous current	8 ma, Fan out = 20 LS-TTL
Inrush current	
Solid-state type	TTL
Voltage drop at max. load	
Leakage current	
Protective circuit, load side	
Short-circuit-proof	No
Switch-on delay	1 µs (at 20 V DC)
Switch-off delay	2.5 µs (at 28 V DC)
Ambient temperature (operational)	-25 °C...40 °C
Storage temperature	-40 °C...60 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; EAC
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	1 kV _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Rated control voltage	5 V TTL
Nominal control current	1.65 mA DC
Cut-in / dropout voltage	
Input frequency	2.4 kHz
Power rating	10 mW
Status indicator	Green LED
Protective circuit	
Rated switching voltage	5...48 V DC
Continuous current	100 mA
Inrush current	
Solid-state type	TTL
Voltage drop at max. load	≤ 1.8 V
Leakage current	
Protective circuit, load side	
Short-circuit-proof	No
Switch-on delay	< 17 µs
Switch-off delay	< 250 µs
Ambient temperature (operational)	-25 °C...40 °C
Storage temperature	-40 °C...60 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; EAC
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	1 kV _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions

Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Tension clamp connection

Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Tension clamp connection

Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Ordering data

Tension-clamp connection	
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Type	Qty.	Order No.
MCZ 0 24VDC	10	8324610000

Type	Qty.	Order No.
MCZ 0 5VTTL	10	8398940000

Note

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Note

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Note

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Accessories

Note	
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End plate AP MCZ 1.5: 8389030000
Accessories and dimensional drawings: refer to the MCZ Accessories page.

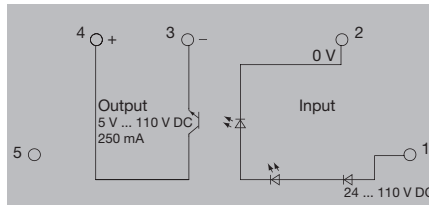
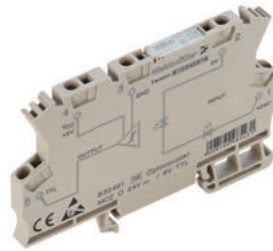
End plate AP MCZ 1.5: 8389030000
Accessories and dimensional drawings: refer to the MCZ Accessories page.

MCZ O TRAK

- Component for railway engineering
- Meets the requirements of EN 50155
- Voltage fluctuations of -30% / +25%
- Operating temperature: -25 °C...+70 °C (85 °C / 10 min.) acc. to EN 50155
- Condensation permissible

24 V DC TRAK

Connection system



Technical data

Control side	
Rated control voltage	24...110 V DC -30 / +25 %
Nominal control current	2.8 mA DC
Cut-in / dropout voltage	14 V / 13.5 V DC
Input frequency	10 Hz
Power rating	
Status indicator	Green LED
Protective circuit	
Load side	
Rated switching voltage	5...137.5 V DC
Continuous current	250 mA @ 50 °C
Inrush current	
Solid-state type	Transistor
Voltage drop at max. load	≤ 1.7 V
Leakage current	
Protective circuit, load side	Varistor, Free-wheel diode
Short-circuit-proof	No
Switch-on delay	≤ 10 ms
Switch-off delay	≤ 50 ms
General data	
Ambient temperature (operational)	-25 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	95 % for 30 days, minimal condensation to EN 50155
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	1 kV _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Ordering data

Tension-clamp connection	
Note	

Tension clamp connection	
1.5 / 0.5 / 1.5	
63.2 / 6.1 / 91	
Note	

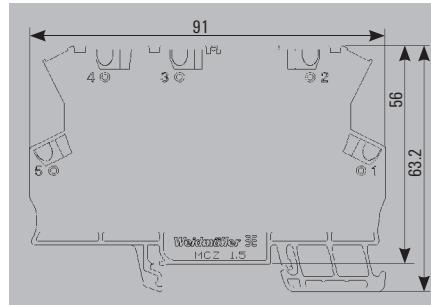
Type	Qty.	Order No.
MCZ O TRAK 24.110VDC	10	8820710000

Accessories

Note

End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.

MCZ accessories



Ordering data

End plate

Type	Qty.	Order No.
AP MCZ 1.5	50	8389030000



Ordering data

	No. of poles
Plug-in cross-connection, yellow	2
Plug-in cross-connection, yellow	3
Plug-in cross-connection, yellow	4
Plug-in cross-connection, yellow	10
Plug-in cross-connection, yellow	20
Plug-in cross-connection, red	2
Plug-in cross-connection, red	3
Plug-in cross-connection, red	4
Plug-in cross-connection, red	10
Plug-in cross-connection, red	20
Plug-in cross-connection, blue	2
Plug-in cross-connection, blue	3
Plug-in cross-connection, blue	4
Plug-in cross-connection, blue	10
Plug-in cross-connection, blue	20
Plug-in cross-connection, black	2
Plug-in cross-connection, black	3
Plug-in cross-connection, black	4
Plug-in cross-connection, black	10
Plug-in cross-connection, black	20

Type	Qty.	Order No.
ZQV 4N / 2 GE	60	1758250000
ZQV 4N / 3 GE	60	1762630000
ZQV 4N / 4 GE	60	1762620000
ZQV 4N / 10 GE	20	1758260000
ZQV 4N / 20 GE	20	1909020000
red		
ZQV 4N / 2 RT	60	1793950000
ZQV 4N / 3 RT	60	1793980000
ZQV 4N / 4 RT	60	1794010000
ZQV 4N / 10 RT	20	1794040000
ZQV 4N / 20 RT	20	1909150000
blue		
ZQV 4N / 2 BL	60	1793960000
ZQV 4N / 3 BL	60	1793990000
ZQV 4N / 4 BL	60	1794020000
ZQV 4N / 10 BL	20	1794050000
ZQV 4N / 20 BL	20	1909100000
black		
ZQV 4N / 2 SW	60	1793970000
ZQV 4N / 3 SW	60	1794000000
ZQV 4N / 4 SW	60	1794030000
ZQV 4N / 10 SW	20	1794060000
ZQV 4N / 20 SW	20	1909120000



Ordering data

Terminal markers
Screwdriver
End bracket

Type	Qty.	Order No.
WS 10/6 MC NEUTRAL	600	1828450000
SDS 0.6x3.5x100	1	9008330000
WEW 35/2	100	1061200000

Industrial relay modules

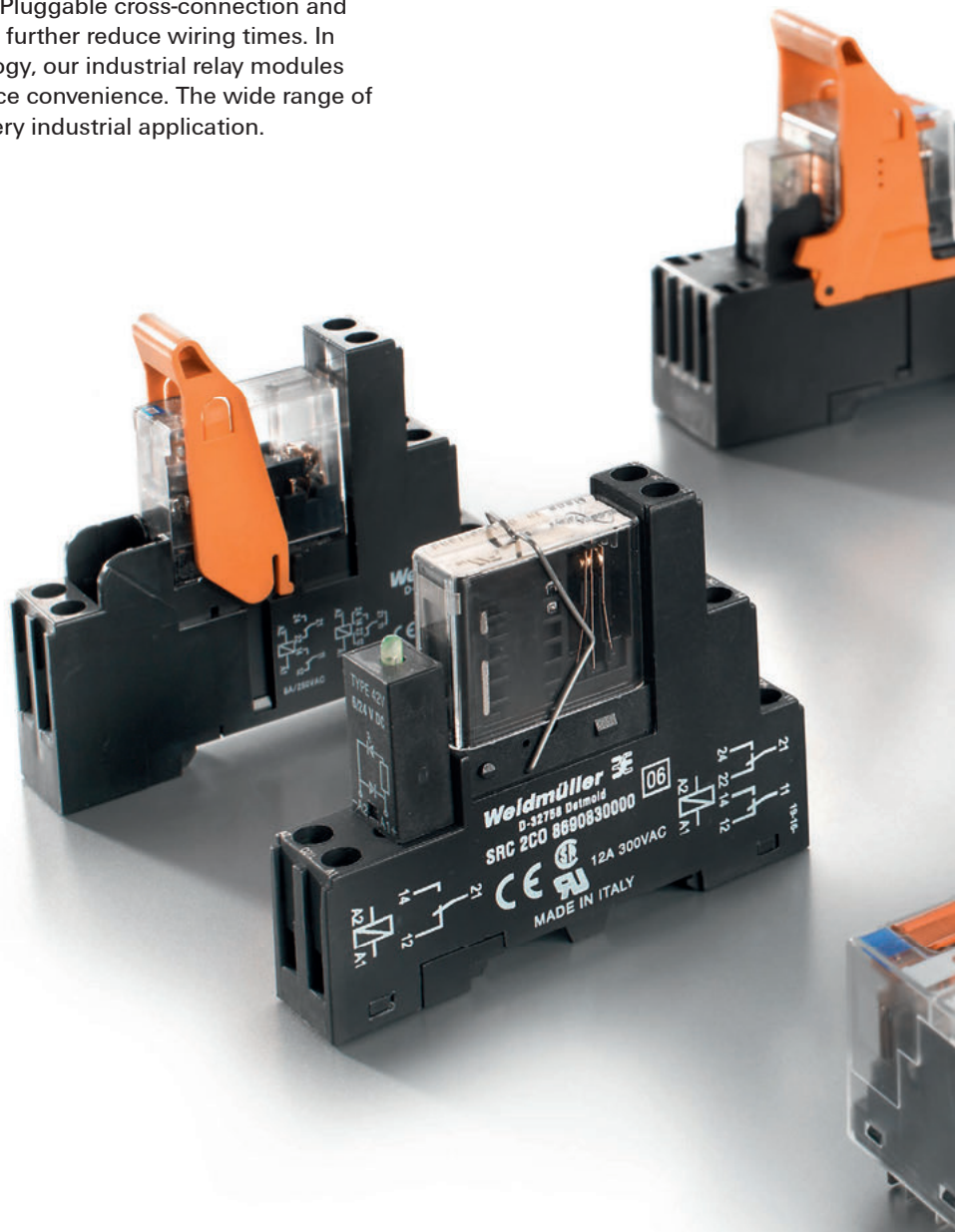
Industrial relay modules	Industrial relay modules - Overview	B.2
	D-SERIES - Overview	B.4
	D-SERIES - relay modules	B.6
	RIDERSERIES - Overview	B.58
	RIDERSERIES - relay modules	B.60
	RIDERSERIES FG - Overview	B.94
	RIDERSERIES FG - relay module with forcibly guided contacts	B.96

Industrial relay module with the proven connection technology

Easy handling and safe connections

B

Weidmüller's relay bases are remarkable for their secure connection systems and their ease of use during wiring and installation. Pluggable cross-connection and the extra-quick PUSH IN connection help you to further reduce wiring times. In combination with the established relay technology, our industrial relay modules provide users with excellent reliability and service convenience. The wide range of relay modules provides the right solution for every industrial application.





A long service life is a key factor in a wide range of industrial applications

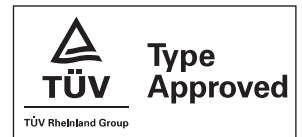
D-SERIES relay modules deliver impressively long-lasting high performance

B

In many industrial applications, voltages between 110 and 220 V are used to control actuators. Load currents greater than 100 mA cause these high voltages to create wear-intensive light arcs on the relay contacts.

We have specially designed our D-SERIES relay modules for all-purpose use in a wide range of industrial applications. They are much more reliable than conventional solutions and so help to minimise maintenance and replacement costs.

The formation of light arcs is effectively avoided with D-SERIES products thanks to contact series connection, built-in blow magnets and low-wear contacts – for a noticeably longer service life.



Reliable at high currents and voltages

Requirements increase where current consumption is high. D-SERIES industrial relay modules are used where high voltages and load currents impact on the actuators. For example, when motors, solenoid valves or brakes are actuated in machine construction.

For convenient servicing

Optional LED status indicator and test button.

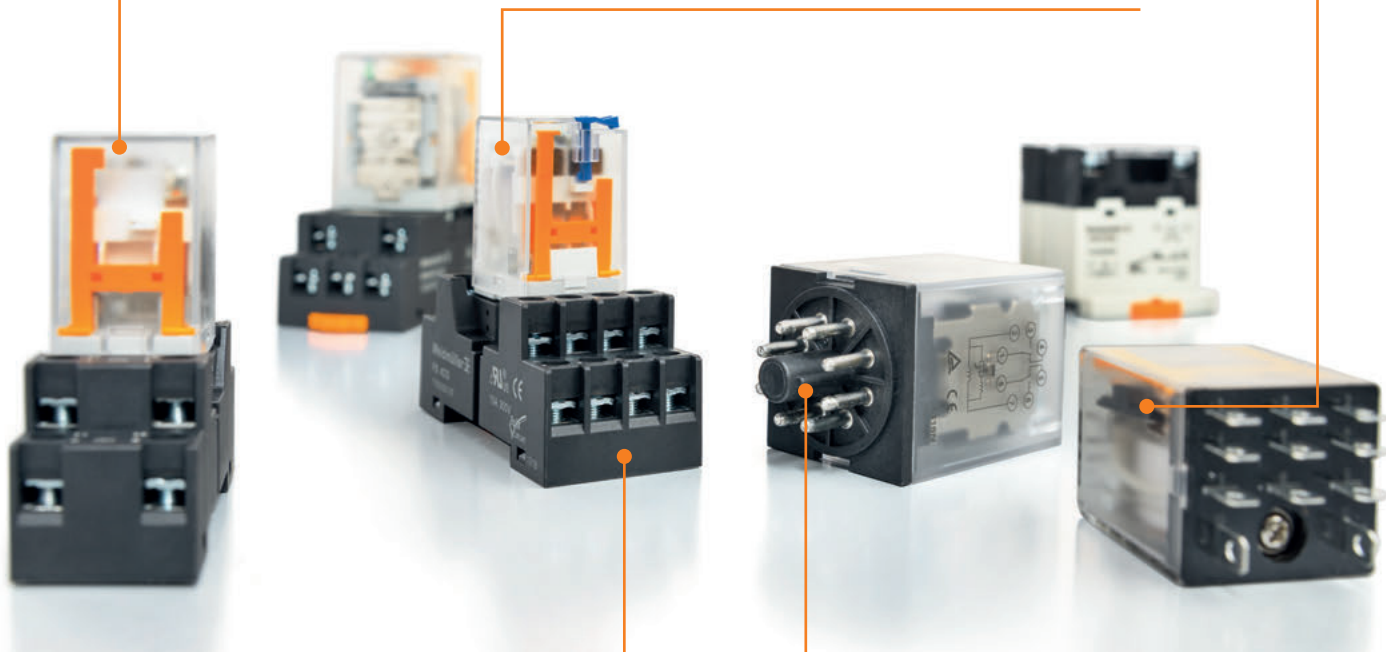


With a long service life

The smart contact series connection and a built-in blow magnet reduce the contact erosion at loads of up to 220 V DC/10 A.

Contacts for every application

Thanks to various contact materials (AgNi, AgSnO, AgCdO), the products of the D-SERIES are equipped for small, medium and high loads.



With extensive accessories

Flexible in use thanks to relay bases, markers and pluggable circuits (e.g. LED or free-wheel diode).



For every control voltage

The wide range of coil voltages from 5 V DC – 380 V AC enable them to be used on any control voltage imaginable.



D-SERIES – relay modules

DRI KIT

1 CO contact, AC/DC coil

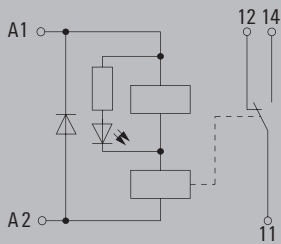
- Assembled kit comprising relay, base and retaining clip, incl. Label
- 100% function-tested
- 100% monitoring of the dielectric strength input - output
- Optional: test button with coloured control voltage marking (AC coil: red / DC coil: blue) and mechanical switch position indicator
- Bright status LED (AC coil: red / DC coil: green)



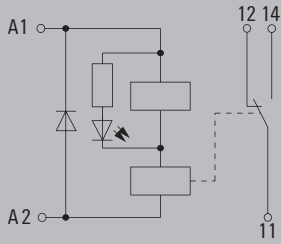
B

Circuit diagram

DC coil LED+diode



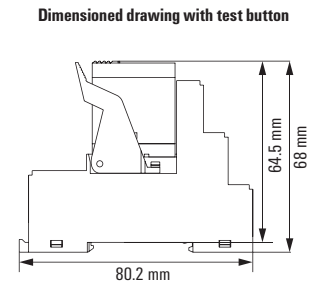
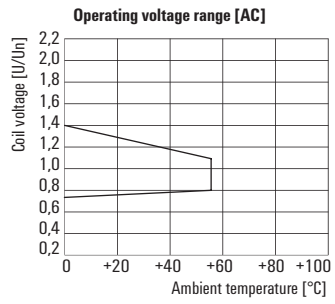
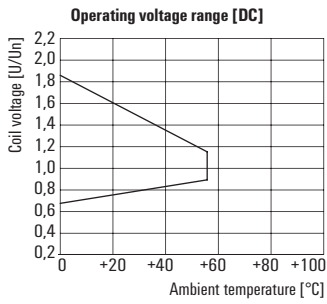
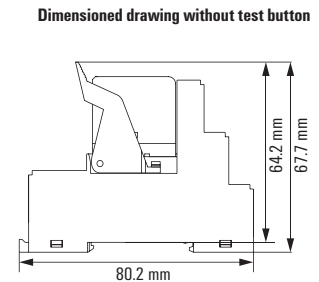
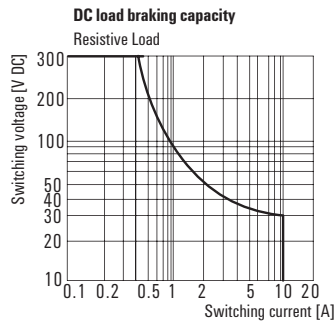
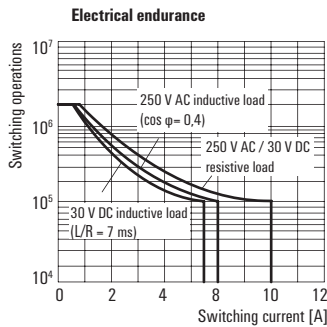
AC coil LED:



Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	240 W @ 24 V / 2500 VA
Contact material	AgNi
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...85 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Dielectric strength input - output	4 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 3 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.25 / 4
Depth x width x height	see dimensioned drawing
Screw connection	
	see dimensioned drawing
Note	

Applications



DRI KIT
1 CO contact, AC/DC coil

Type code	DRIKIT			
Type	DRIKIT			
Coil voltage	12VDC	24VAC		
	24VDC	115VAC		
	48VDC	230VAC		
	110VDC			
Type of contact	1CO	1 Change over / SPDT		
	2CO	2 Change over / DPDT		
Status LED / protective circuit	LD	DC coil: LED green + free wheeling diode		
		AC coil: LED red		
Test button	/PB	DC coil: Test button blue		
		AC coil: Test button red		
		Blank: No test button		

Ordering data

	12 V DC 1CO	24 V DC 1CO	48 V DC 1CO	110 V DC 1CO
Input				
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC	/ 44,4 mA	/ 21,8 mA	/ 11,2 mA	/ 4,8 mA
Power rating	530 mW	530 mW	530 mW	530 mW
Pull-in/drop-out voltage, typ.	9 V / 1.8 V DC	18 V / 3.6 V DC	36 V / 7.2 V DC	82.5 V / 16.5 V DC
Status indicator	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode	Free-wheel diode	Free-wheel diode	Free-wheel diode
Output				
Switch-on delay	≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms

Ordering data					
with test button	Type	DRIKIT 12VDC 1CO LD/PB	DRIKIT 24VDC 1CO LD/PB	DRIKIT 48VDC 1CO LD/PB	DRIKIT 110VDC 1CO LD/PB
	Order No.	2476740000	2476750000	2476760000	2476770000
without test button	Type	DRIKIT 12VDC 1CO LD	DRIKIT 24VDC 1CO LD	DRIKIT 48VDC 1CO LD	DRIKIT 110VDC 1CO LD
	Order No.	2476340000	2476680000	2476690000	2476700000
	Type				
	Order No.				
	Type				
	Order No.				

Note				

Ordering data

	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Input			
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	50 mA /	9.3 mA /	4,9 mA /
Power rating	1.2 VA	1.1 VA	1.1 VA
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Status indicator	red LED	red LED	red LED
Protective circuit			
Output			
Switch-on delay	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay	≤ 10 ms	≤ 10 ms	≤ 10 ms

Ordering data				
with test button	Type	DRIKIT 24VAC 1CO LD/PB	DRIKIT 115VAC 1CO LD/PB	DRIKIT 230VAC 1CO LD/PB
	Order No.	2476780000	2476790000	2476800000
without test button	Type	DRIKIT 24VAC 1CO LD	DRIKIT 115VAC 1CO LD	DRIKIT 230VAC 1CO LD
	Order No.	2476710000	2476720000	2476730000
	Type			
	Order No.			
	Type			
	Order No.			

Note			

D-SERIES – relay modules

DRI KIT

2 CO contact, AC/DC coil

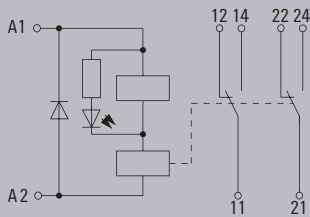
- Assembled kit comprising relay, base and retaining clip, incl. Label
- 100% function-tested
- 100% monitoring of the dielectric strength input - output
- Optional: test button with coloured control voltage marking (AC coil: red / DC coil: blue) and mechanical switch position indicator
- Bright status LED (AC coil: red / DC coil: green)



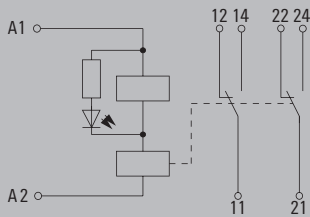
B

Circuit diagram

DC coil LED+diode



AC coil LED:

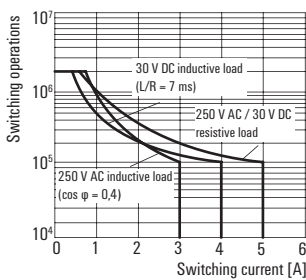


Technical data

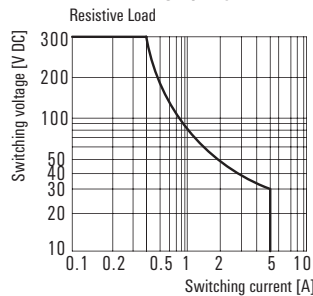
Output	
Rated switching voltage / Continuous current	250 V AC / 5 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	150 W @ 24 V / 1250 VA
Contact material	AgNi
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...85 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Dielectric strength input - output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.5 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 3 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.25 / 4
Depth x width x height	see dimensioned drawing
Screw connection	
see dimensioned drawing	
Note	

Applications

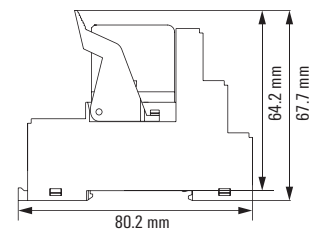
Electrical endurance



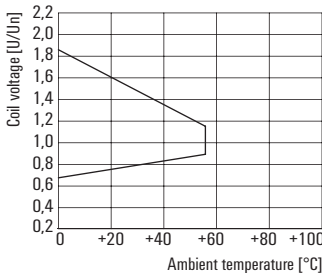
DC load braking capacity



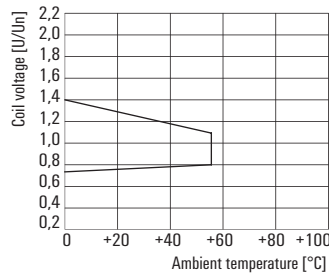
Dimensioned drawing without test button



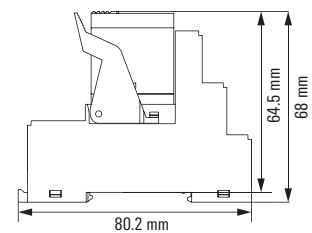
Operating voltage range [DC]



Operating voltage range [AC]



Dimensioned drawing with test button



DRI KIT
2 CO contact, AC/DC coil

Type code	DRIKIT				
Type	DRIKIT				
Coil voltage	12VDC	24VAC			
	24VDC	115VAC			
	48VDC	230VAC			
	110VDC				
Type of contact	1CO	1 Change over / SPDT			
	2CO	2 Change over / DPDT			
Status LED / protective circuit	LD	DC coil: LED green + free wheeling diode			
		AC coil: LED red			
Test button	/PB	DC coil: Test button blue			
		AC coil: Test button red			
		Blank: No test button			

Ordering data

	12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO
Input				
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC	/ 44,4 mA	/ 21,8 mA	/ 11,2 mA	/ 4,8 mA
Power rating	530 mW	530 mW	530 mW	530 mW
Pull-in/drop-out voltage, typ.	9 V / 1.8 V DC	18 V / 3.6 V DC	36 V / 7.2 V DC	82.5 V / 16.5 V DC
Status indicator	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode	Free-wheel diode	Free-wheel diode	Free-wheel diode
Output				
Switch-on delay	≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms

Ordering data					
with test button	Type	DRIKIT 12VDC 2CO LD/PB	DRIKIT 24VDC 2CO LD/PB	DRIKIT 48VDC 2CO LD/PB	DRIKIT 110VDC 2CO LD/PB
	Order No.	2476880000	2476890000	2476900000	2476910000
without test button	Type	DRIKIT 12VDC 2CO LD	DRIKIT 24VDC 2CO LD	DRIKIT 48VDC 2CO LD	DRIKIT 110VDC 2CO LD
	Order No.	2476810000	2476820000	2476830000	2476840000
	Type				
	Order No.				
	Type				
	Order No.				

Note				

Ordering data

	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Input			
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	50 mA /	9.3 mA /	4,9 mA /
Power rating	1.2 VA	1.1 VA	1.1 VA
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Status indicator	red LED	red LED	red LED
Protective circuit			
Output			
Switch-on delay	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay	≤ 10 ms	≤ 10 ms	≤ 10 ms

Ordering data				
with test button	Type	DRIKIT 24VAC 2CO LD/PB	DRIKIT 115VAC 2CO LD/PB	DRIKIT 230VAC 2CO LD/PB
	Order No.	2476920000	2476930000	2476940000
without test button	Type	DRIKIT 24VAC 2CO LD	DRIKIT 115VAC 2CO LD	DRIKIT 230VAC 2CO LD
	Order No.	2476850000	2476860000	2476870000
	Type			
	Order No.			
	Type			
	Order No.			

Note			

D-SERIES – relay modules

DRI relay

1 CO contact, AC/DC coil

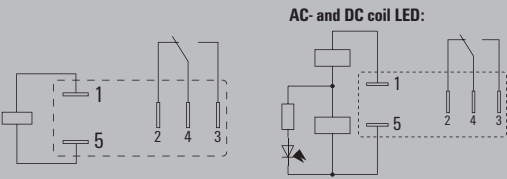
- Robust industrial plug-in connections
- Optional: latching / spring return operable test button with coloured control voltage identification (AC coil: red / DC coil: blue) and mechanical switch position indication (for version with test button)
- Optional: Bright status LED (AC coil: red / DC coil: green)
- Optional: free-wheeling diode



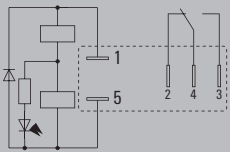
B

Circuit diagram

View on Pins from below



DC coil LED+diode



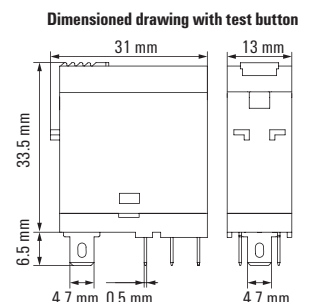
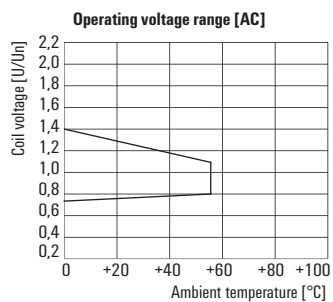
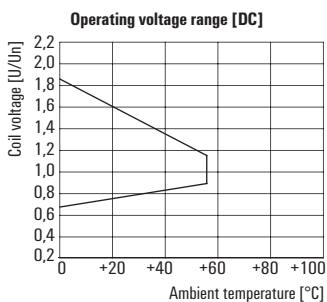
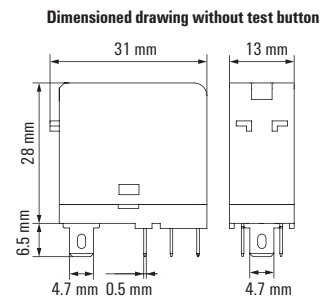
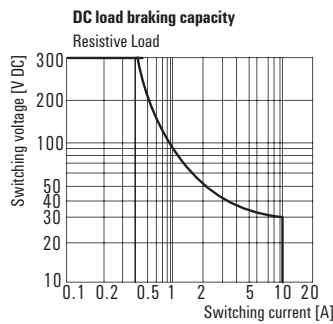
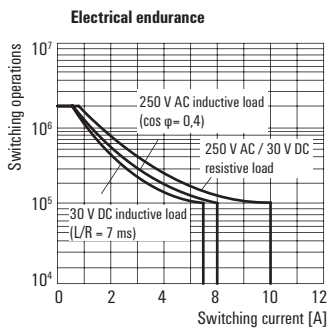
Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	240 W @ 24 V / 2500 VA
Contact material	AgNi
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...85 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE; cURus
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2

Dimensions	Flat blade connections (4.7 mm x 0.5 mm)
Depth x width x height	see dimensioned drawing

Note

Applications



DRI relay
1 CO contact, AC/DC coil

Type code	DRI									
Type	DRI									
Type of construction	314	1 CO contact								
	424	2 CO contacts								
Coil voltage	012	12 V DC	524	24 V AC						
	024	24 V DC	615	115 V AC						
	048	48 V DC	730	230 V AC						
	110	110 V DC								
LED	L (Red for AC coil; green for DC coil)									
Test lever including mechanical status indicator	T (Red lever for AC coil; blue lever for DC coil)									
Free wheeling diode	D (DC coil only)									

Ordering data

		12 V DC 1CO	24 V DC 1CO	48 V DC 1CO	110 V DC 1CO
Input					
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 44,4 mA	/ 21,8 mA	/ 11,2 mA	/ 4,8 mA
Power rating		530 mW	530 mW	530 mW	530 mW
Pull-in/drop-out voltage, typ.		9 V / 1.8 V DC	18 V / 3.6 V DC	36 V / 7.2 V DC	82.5 V / 16.5 V DC
Output					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data					
Standard	Type	DRI314012	DRI314024	DRI314048	DRI314110
	Order No.	7760056296	7760056297	7760056298	7760056299
with LED	Type	DRI314012L	DRI314024L	DRI314048L	DRI314110L
	Order No.	7760056303	7760056304	7760056305	7760056306
with LED + freewheel diode	Type	DRI314012LD	DRI314024LD	DRI314048LD	DRI314110LD
	Order No.	7760056310	7760056311	7760056312	7760056313
with test button + LED	Type	DRI314012LTD	DRI314024LTD	DRI314048LTD	DRI314110LTD
+ Free-wheel diode	Order No.	7760056314	7760056315	7760056316	7760056317

Note				
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Ordering data

		24 V AC 1CO	115 V AC 1CO	230 V AC 1 CO
Input				
Rated control voltage		24 V AC	115 V AC	230 V AC
Rated current AC / DC		50 mA /	9.3 mA /	4,9 mA /
Power rating		1.2 VA	1.1 VA	1.1 VA
Pull-in/drop-out voltage, typ.		19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Output				
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data				
Standard	Type	DRI314524	DRI314615	DRI314730
	Order No.	7760056300	7760056301	7760056302
with LED	Type	DRI314524L	DRI314615L	DRI314730L
	Order No.	7760056307	7760056308	7760056309
with test button + LED	Type	DRI314524LT	DRI314615LT	DRI314730LT
	Order No.	7760056318	7760056319	7760056320
	Type			
	Order No.			

Note			
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D-SERIES – relay modules

Accessories for DRI relays

- Base, logical construction, input and output isolated
- Terminal-rail unlocking using screwdriver
- Wide assortment of functional modules

Technical data

Output

Rated switching voltage
Max. switching voltage, AC
Continuous current

Rated data

Ambient temperature (operational)
Storage temperature
Approvals

Insulation coordination

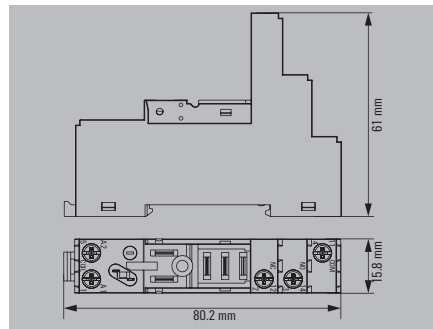
Protection degree
Creepage and clearance distance input - output
Dielectric strength input - output
Dielectric strength of neighbouring contacts
Impulse withstand voltage

Connection data

Clamping range (nominal / min. / max.)
Tightening torque
Stripping length, rated connection

Note

Socket with clamping yoke connection, 1 CO contact



250 V AC
250 V
12 A

-40 °C...70 °C
-40 °C...85 °C

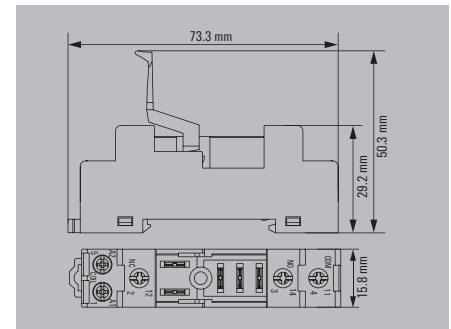
CE; cURus

IP20
≥ 3 mm
4 kV_{eff} / 1 min.

4.8 kV (1.2/50 µs)

1.5 / 0.25 / 4 mm²
0.5...0.8 Nm
8 mm

Socket with pressure clamping plate, 1 CO contact



250 V AC
250 V
12 A

-40 °C...70 °C
-40 °C...85 °C

CE

IP20
≥ 3 mm
4 kV_{eff} / 1 min.

4.8 kV (1.2/50 µs)

1.5 / 0.5 / 2.5 mm²
0.5...0.8 Nm
8 mm

Ordering data

Base on TS35 DIN rail

Note

Type	Qty.	Order No.
SDI 1CO	10	7760056350

Type	Qty.	Order No.
SDI 1CO F ECO	10	7760056348

Accessories

LED module / protection modules

Free-wheeling diode 6 - 230 V DC
LED 6 - 24 V DC green and freewheeling diode
LED 24 - 60 V DC green and free-wheeling diode
LED 110 - 230 V DC green and free-wheeling diode
LED 6 - 24 V UC green
LED 24 - 60 V UC green
LED 110 - 230 V UC green
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF
RC element 110 - 230 V AC; 100 Ω / 220 nF and LED green

Retaining clip

Plastic retaining clip

Markers

white

Screwdriver

Screwdriver, insulated PH1
Screwdriver, insulated PH1 SlimLine
Screwdriver PH1

Cross-connection

Cross-connection, 8-pole

Insulated cable connector

Fork-type cable lug 0.5mm² - 1mm²
Fork-type cable lug 1.5mm² - 2.5mm²
Fork-type cable lug 0.5mm² - 1mm²
Fork-type cable lug 1.5mm² - 2.5mm²

Type	Qty.	Order No.
RIM 1 6/230VDC	10	7760056169
RIM 2 6/24VDC	10	7760056015
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 3 110/230VAC	10	7760056014
RIM 3 110/230VAC LED	10	7760056045

Type	Qty.	Order No.
SDI CLIP	10	7760056352

Type	Qty.	Order No.
ESG 6/15 SDI MC NE WS	200	2558340000

Type	Qty.	Order No.
SDIK PH1	1	9008570000

Type	Qty.	Order No.
SDIK PH1 SL	1	1274710000

Type	Qty.	Order No.
SDK PH1	1	9008480000

Type	Qty.	Order No.
SRC-I QV S	10	1132070000

Type	Qty.	Order No.

Type	Qty.	Order No.
SDIK PH1	1	9008570000

Type	Qty.	Order No.
SDIK PH1 SL	1	1274710000

Type	Qty.	Order No.
SDK PH1	1	9008480000

Type	Qty.	Order No.

Type	Qty.	Order No.
KQIG-M3/-1	100	1492520000

Type	Qty.	Order No.
KQIG-M3/-2,5	100	1492600000

Type	Qty.	Order No.
KQIG-M3,5/-1	100	1492530000

Type	Qty.	Order No.
KQIG-M3,5/-2,5	100	1492610000

Note

LED and protective modules are not compatible with this base.

D-SERIES – relay modules

DRI relay

2 CO contacts, AC/DC coil

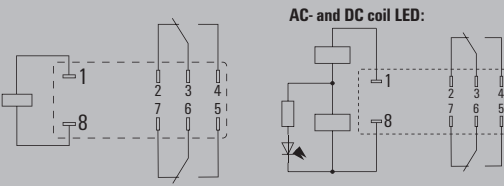
- Robust industrial plug-in connections
- Optional: latching / spring return operable test button with coloured control voltage identification (AC coil: red / DC coil: blue) and mechanical switch position indication (for version with test button)
- Optional: Bright status LED (AC coil: red / DC coil: green)
- Optional: free-wheeling diode



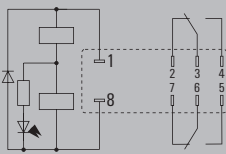
B

Circuit diagram

View on Pins from below



DC coil LED+diode



Technical data

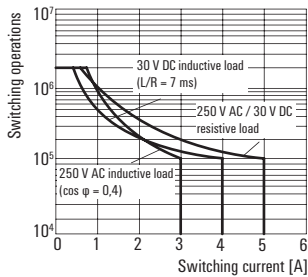
Output	
Rated switching voltage / Continuous current	250 V AC / 5 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	150 W @ 24 V / 1250 VA
Contact material	AgNi
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...85 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE; cURus
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	1.5 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2

Dimensions	Flat blade connections (2.5 mm x 0.5 mm)
Depth x width x height	see dimensioned drawing

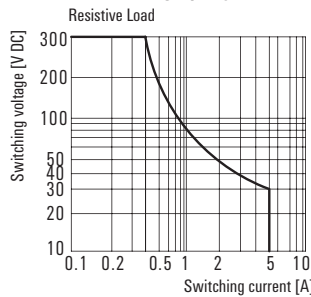
Note

Applications

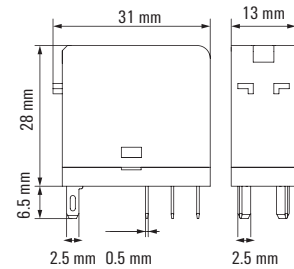
Electrical endurance



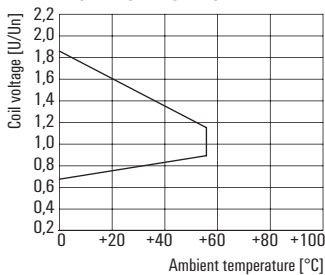
DC load braking capacity



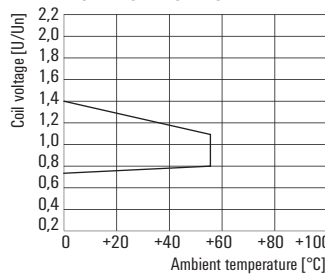
Dimensioned drawing without test button



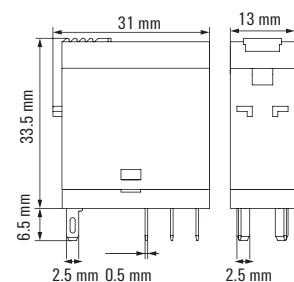
Operating voltage range [DC]



Operating voltage range [AC]



Dimensioned drawing with test button



DRI relay
2 CO contacts, AC/DC coil

Type code	DRI								
Type	DRI								
Type of construction	314	1 CO contact							
	424	2 CO contacts							
Coil voltage	012	12 V DC	524	24 V AC					
	024	24 V DC	615	115 V AC					
	048	48 V DC	730	230 V AC					
	110	110 V DC							
LED	L (Red for AC coil; green for DC coil)								
Test lever including mechanical status indicator	T (Red lever for AC coil; blue lever for DC coil)								
Free wheeling diode	D (DC coil only)								

Ordering data

		12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO
Input					
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 44,4 mA	/ 21,8 mA	/ 11,2 mA	/ 4,8 mA
Power rating		530 mW	530 mW	530 mW	530 mW
Pull-in/drop-out voltage, typ.		9 V / 1.8 V DC	18 V / 3.6 V DC	36 V / 7.2 V DC	82.5 V / 16.5 V DC
Output					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data					
Standard	Type	DRI424012	DRI424024	DRI424048	DRI424110
	Order No.	7760056321	7760056322	7760056323	7760056324
with LED	Type	DRI424012L	DRI424024L	DRI424048L	DRI424110L
	Order No.	7760056328	7760056329	7760056330	7760056331
with LED + freewheel diode	Type	DRI424012LD	DRI424024LD	DRI424048LD	DRI424110LD
	Order No.	7760056335	7760056336	7760056337	7760056338
with test button + LED	Type	DRI424012LTD	DRI424024LTD	DRI424048LTD	DRI424110LTD
+ Free-wheel diode	Order No.	7760056339	7760056340	7760056341	7760056342
Note					

Ordering data

		24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Input				
Rated control voltage		24 V AC	115 V AC	230 V AC
Rated current AC / DC		50 mA /	9.3 mA /	4,9 mA /
Power rating		1.2 VA	1.1 VA	1.1 VA
Pull-in/drop-out voltage, typ.		19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Output				
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data				
Standard	Type	DRI424524	DRI424615	DRI424730
	Order No.	7760056325	7760056326	7760056327
with LED	Type	DRI424524L	DRI424615L	DRI424730L
	Order No.	7760056332	7760056333	7760056334
with test button + LED	Type	DRI424524LT	DRI424615LT	DRI424730LT
	Order No.	7760056343	7760056344	7760056345
Note				

D-SERIES – relay modules

Accessories for DRI relays

- Base, logical construction, input and output isolated
- Terminal-rail unlocking using screwdriver
- Wide assortment of functional modules

Technical data

Output
Rated switching voltage
Max. switching voltage, AC
Continuous current
Rated data
Ambient temperature (operational)
Storage temperature
Approvals
Insulation coordination
Protection degree
Creepage and clearance distance input - output
Dielectric strength input - output
Dielectric strength of neighbouring contacts
Impulse withstand voltage
Connection data
Clamping range (nominal / min. / max.)
Tightening torque
Stripping length, rated connection
Note

Ordering data

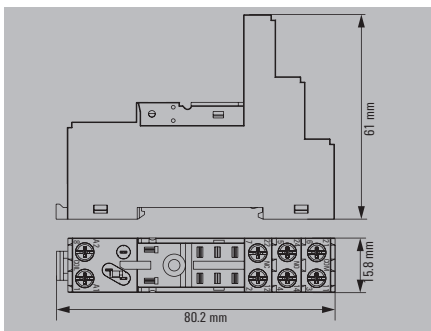
Base on TS35 DIN rail
Note

Accessories

LED module / protection modules
Free-wheeling diode 6 - 230 V DC
LED 6 - 24 V DC green and freewheeling diode
LED 24 - 60 V DC green and free-wheeling diode
LED 110 - 230 V DC green and free-wheeling diode
LED 6 - 24 V UC green
LED 24 - 60 V UC green
LED 110 - 230 V UC green
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF
RC element 110 - 230 V AC; 100 Ω / 220 nF and LED green
Retaining clip
Plastic retaining clip
Markers
white
Screwdriver
Screwdriver, insulated PH1
Screwdriver, insulated PH1 SlimLine
Screwdriver PH1
Cross-connection
Cross-connection, 8-pole
Insulated cable connector
Fork-type cable lug 0.5mm ² - 1mm ²
Fork-type cable lug 1.5mm ² - 2.5mm ²

Note

Socket with clamping yoke connection, 2 CO contacts



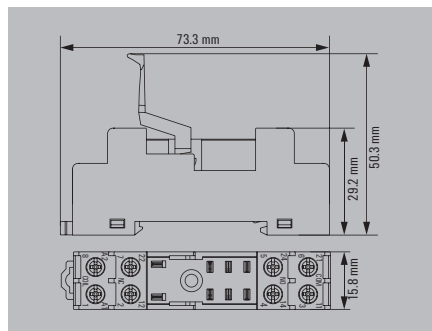
250 V AC
250 V
8 A
-40 °C...70 °C
-40 °C...85 °C
CE; cURus
IP20
≥ 3 mm
4 kV _{eff} / 1 min.
2.5 kV _{eff} / 1 min.
4.8 kV (1.2/50 μs)
1.5 / 0.25 / 4 mm ²
0.5...0.8 Nm
8 mm

Type	Qty.	Order No.
SDI 2CO	10	7760056351

Type	Qty.	Order No.
RIM 1 6/230VDC	10	7760056169
RIM 2 6/24VDC	10	7760056015
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 3 110/230VAC	10	7760056014
RIM 3 110/230VAC LED	10	7760056045
SDI CLIP	10	7760056352
ESG 6/15 SDI MC NE WS	200	2558340000
SDIK PH1	1	9008570000
SDIK PH1 SL	1	1274710000
SDK PH1	1	9008480000
SRC-I QV S	10	1132070000

Note

Socket with pressure clamping plate, 2 CO contacts



250 V AC
250 V
8 A
-40 °C...70 °C
-40 °C...85 °C
CE
IP20
≥ 3 mm
4 kV _{eff} / 1 min.
2.5 kV _{eff} / 1 min.
4.8 kV (1.2/50 μs)
1.5 / 0.5 / 2.5 mm ²
0.5...0.8 Nm
8 mm

Type	Qty.	Order No.
SDI 2CO F ECO	10	7760056349

Type	Qty.	Order No.
SDIK PH1	1	9008570000
SDIK PH1 SL	1	1274710000
SDK PH1	1	9008480000
KQIG-M3-/1	100	1492520000
KQIG-M3-/2,5	100	1492600000

LED and protective modules are not compatible with this base.

D-SERIES – relay modules

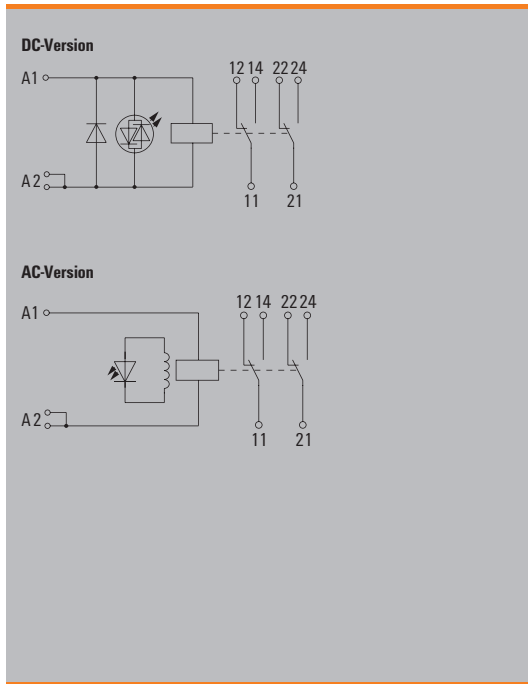
DRM KIT with screw connection

2 CO contacts

- Assembled kit consisting of relay, socket and retaining clip, incl. label
- 100% function-tested
- Full monitoring of the dielectric strength at input and output
- Mechanical switch position indicator
- Bright status LED (AC coil: red, DC coil: green)
- Optional: test button with coloured control voltage marking (AC coil: red, DC coil: blue)



B



Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	20 A / 50 ms
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	240 W @ 24 V / 2500 VA
Contact material	AgNi 0,15 µm Au
Mechanical service life	20 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	
Approvals	
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Dielectric strength input - output	1.8 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	/ 0.5 / 2.5
Depth x width x height	mm 66.8 / 27.2 / 79.9
Screw connection	
Note	

Ordering data		24 V DC 2CO	220 V DC 2CO	24 V AC 2CO	230 V AC 2CO
Input					
Rated control voltage		24 V DC	220 V DC	24 V AC	230 V AC
Rated current AC / DC		/ 36.9 mA	/ 5.2 mA	62.4 mA (50 Hz), 52.2 mA (60 Hz) /	6.1 mA (50 Hz), 5.2 mA (60 Hz) /
Power rating		0.9 W	1.2 W	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)
Pull-in/drop-out voltage, typ.		18 V / 2.4 V DC	154 V / 22 V DC	19.2 V / 7.2 V AC	184 V / 69 V AC
Status indicator		Green LED	Green LED	red LED	red LED
Protective circuit		Free-wheel diode	Free-wheel diode		
Output					
Switch-on delay		< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay		< 20 ms	< 20 ms	< 20 ms	< 20 ms
Ordering data					
with test button	Type	DRMKIT 24VDC 2CO LD/PB	DRMKIT 220VDC 2CO LD/PB	DRMKIT 24VAC 2CO LD/PB	DRMKIT 230VAC 2CO LD/PB
	Order No.	1542460000	1542470000	1542480000	1542490000
without test button	Type	DRMKIT 24VDC 2CO LD	DRMKIT 220VDC 2CO LD	DRMKIT 24VAC 2CO LD	DRMKIT 230VAC 2CO LD
	Order No.	1542360000	1542370000	1542380000	1542390000
Ordering data					
Spare relay					
	Type	w. test button w.o. test button	w. test button w.o. test button	w. test button w.o. test button	w. test button w.o. test button
	Order No.	DRM270024LT DRM270024L 7760056069 7760056060	DRM270220LT DRM270220L 7760056072 7760056063	DRM270524LT DRM270524L 7760056073 7760056064	DRM270730LT DRM270730L 7760056076 7760056067
Note					

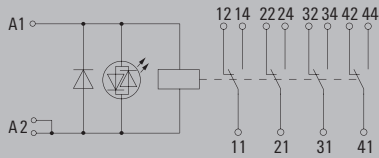
DRM KIT with screw connection

4 CO contacts

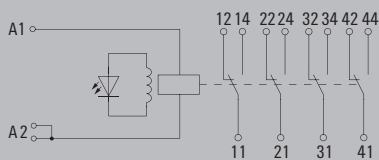
- Assembled kit consisting of relay, socket and retaining clip, incl. label
- 100% function-tested
- Full monitoring of the dielectric strength at input and output
- Mechanical switch position indicator
- Bright status LED (AC coil: red, DC coil: green)
- Optional: test button with coloured control voltage marking (AC coil: red, DC coil: blue)



DC-Version



AC-Version



Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 5 A
Max. switching voltage, AC	250 V
Inrush current	10 A / 50 ms
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	120 W @ 24 V / 1250 VA
Contact material	AgNi 0,15 µm Au
Mechanical service life	20 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	
Approvals	
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Dielectric strength input - output	1.8 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	/ 0.5 / 2.5
Depth x width x height	mm 66.8 / 27.2 / 79.9
Screw connection	
Note	

Ordering data

Input		24 V DC 4CO	220 V DC 4CO	24 V AC 4CO	230 V AC 4CO
Rated control voltage		24 V DC	220 V DC	24 V AC	230 V AC
Rated current AC / DC		/ 36.9 mA	/ 5.2 mA	62.4 mA (50 Hz), 52.2 mA (60 Hz) /	6.1 mA (50 Hz), 5.2 mA (60 Hz) /
Power rating		0.9 W	1.2 W	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)
Pull-in/drop-out voltage, typ.		18 V / 2.4 V DC	154 V / 22 V DC	19.2 V / 7.2 V AC	184 V / 69 V AC
Status indicator		Green LED	Green LED	red LED	red LED
Protective circuit		Free-wheel diode	Free-wheel diode		
Output					
Switch-on delay		< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay		< 20 ms	< 20 ms	< 20 ms	< 20 ms

Ordering data		24 V DC 4CO	220 V DC 4CO	24 V AC 4CO	230 V AC 4CO
with test button	Type	DRMKIT 24VDC 4CO LD/PB	DRMKIT 220VDC 4CO LD/PB	DRMKIT 24VAC 4CO LD/PB	DRMKIT 230VAC 4CO LD/PB
	Order No.	1542510000	1542520000	1542530000	1542540000
without test button	Type	DRMKIT 24VDC 4CO LD	DRMKIT 220VDC 4CO LD	DRMKIT 24VAC 4CO LD	DRMKIT 230VAC 4CO LD
	Order No.	1542410000	1542420000	1542430000	1542450000

Ordering data		24 V DC 4CO		220 V DC 4CO		24 V AC 4CO		230 V AC 4CO	
Spare relay		w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button
	Type	DRM570024LT	DRM570024L	DRM570220LT	DRM570220L	DRM570524LT	DRM570524L	DRM570730LT	DRM570730L
	Order No.	7760056097	7760056088	7760056100	7760056091	7760056101	7760056092	7760056104	7760056095

Note	

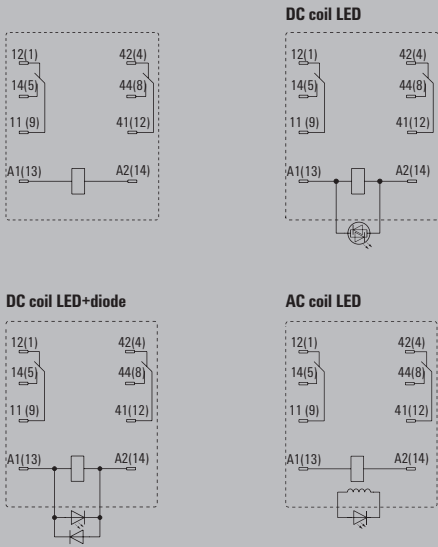
D-SERIES – relay modules

DRM 270 relay
2 CO, AC/DC coil

- Compact design combined with high switching capacity
- Wide range of coil voltages
- Optional test button (AC red, DC blue)
- Optional status LED (AC red, DC green)
- Optional free-wheel diode



Circuit diagram

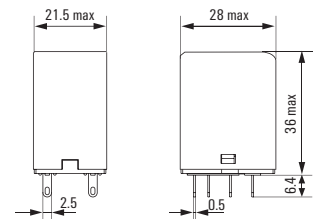
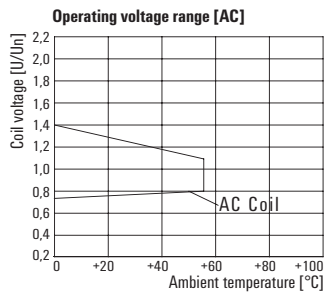
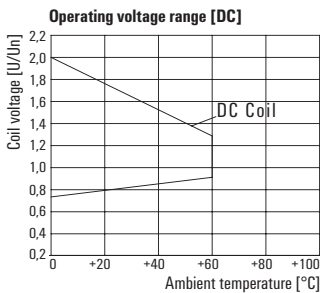
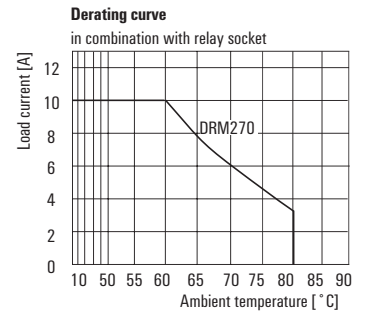
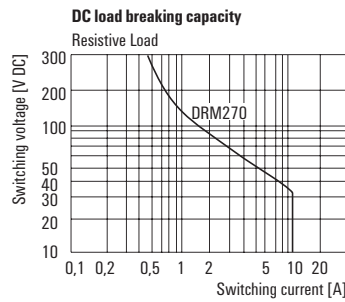
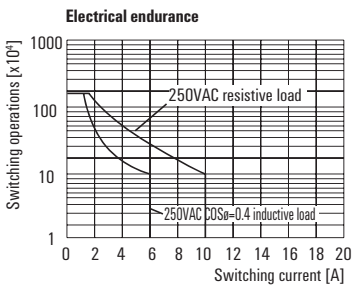


Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	20 A / 50 ms
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	240 W @ 24 V / 2500 VA
Contact material	AgNi 0,15 µm Au
Mechanical service life	20 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength input - output	1.8 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Depth x width x height	mm 35.7 / 21 / 27.4
Plug-in connection	

Note

Applications



DRM 270 relay
2 CO, AC/DC coil

Type code		DRM					
Type	DRM						
Type of construction	270 2 change over contact						
Coil voltage	006	6 V DC / 012	12 V DC				
	024	24 V DC / 048	48 V DC				
	110	110 V DC / 220	220 V DC				
	524	24 V AC / 548	48 V AC				
	615	115 V AC / 730	230 V AC				
LED	L (Red for AC coil; green for DC coil)						
Test lever	T (Red for AC coil; green for DC coil)						
Free-wheel diode	D						

Ordering data

	12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO	220 V DC 2CO
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 75 mA	/ 36.9 mA	/ 18.5 mA	/ 10 mA	/ 5.2 mA
Power rating	0.9 W	0.9 W	0.9 W	1.2 W	1.2 W
Pull-in/drop-out voltage, typ.	9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11 V DC	154 V / 22 V DC
Pull-in/drop-out current, typ.					
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms

Ordering data						
Standard	Type	DRM270012	DRM270024	DRM270048	DRM270110	DRM270220
	Order No.	7760056050	7760056051	7760056052	7760056053	7760056054
with LED	Type	DRM270012L	DRM270024L	DRM270048L	DRM270110L	DRM270220L
	Order No.	7760056059	7760056060	7760056061	7760056062	7760056063
with test button + LED	Type	DRM270012LT	DRM270024LT	DRM270048LT	DRM270110LT	DRM270220LT
	Order No.	7760056068	7760056069	7760056070	7760056071	7760056072
with LED	Type		DRM270024LD			
+ Free-wheel diode	Order No.		7760056077			

Note					

Ordering data

	24 V AC 2CO	48 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Input				
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC	62.4 mA (50 Hz), 52.2 mA (60 Hz) /	33.3 mA (50 Hz), 27.8 mA (60 Hz) /	12.6 mA (50 Hz), 10.8 mA (60 Hz) /	6.1 mA (50 Hz), 5.2 mA (60 Hz) /
Power rating	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	38.4 V / 14.4 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Pull-in/drop-out current, typ.				
Output				
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms

Ordering data					
Standard	Type	DRM270524	DRM270548	DRM270615	DRM270730
	Order No.	7760056055	7760056056	7760056057	7760056058
with LED	Type	DRM270524L	DRM270548L	DRM270615L	DRM270730L
	Order No.	7760056064	7760056065	7760056066	7760056067
with test button + LED	Type	DRM270524LT	DRM270548LT	DRM270615LT	DRM270730LT
	Order No.	7760056073	7760056074	7760056075	7760056076
	Type				
	Order No.				

Note				

D-SERIES – relay modules

Accessories for DRM relays

- Isolated input and output
- Terminal rail can be unlocked with a screwdriver
- Wide assortment of functional modules

Technical data

Output
Rated switching voltage
Max. switching voltage, AC
Continuous current
Rated data
Ambient temperature (operational)
Storage temperature
Approvals
Insulation coordination
Protection degree
Creepage and clearance distance input - output
Dielectric strength input - output
Dielectric strength of neighbouring contacts
Impulse withstand voltage
Connection data
Clamping range (nominal / min. / max.)
Tightening torque
Stripping length, rated connection
Note

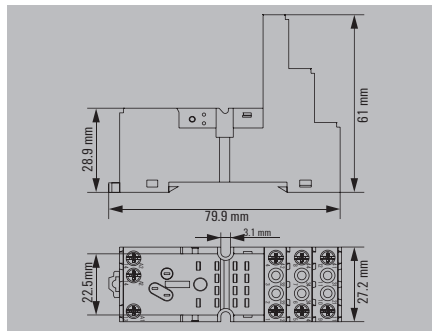
Ordering data

Socket, DIN rail mounted
Note

Accessories

LED module / protection modules
LED 6 - 24 V UC green
LED 24 - 60 V UC green
LED 110 - 230 V UC green
LED 24 - 60 V DC green and free-wheeling diode
LED 110 - 230 V DC green and free-wheeling diode
LED 6 - 24 V DC green and freewheeling diode
RC element 110 - 230 V AC; 100 Ω / 220 nF and LED green
RC element 110 - 230 V AC; 4.7 k Ω / 10 nF
Free-wheeling diode 6 - 230 V DC
Retaining clip
Metal retaining clip
Markers
white
yellow
grey
Cross-connection
8-pole
Screwdriver
Screwdriver, insulated PH1 SlimLine
Screwdriver, insulated PH1
Screwdriver PH1
Note

Socket module with clamping yoke connection, 2 CO contacts



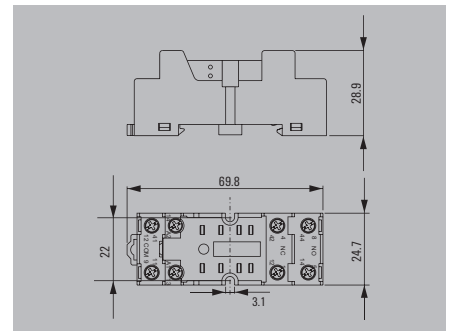
250 V AC
300 V
12 A
-40 °C...70 °C
-40 °C...70 °C
CE; cURus; EAC
IP20
≥ 5.5 mm
4 kV _{eff} / 1 min
4 kV _{eff} / 1 min
4.8 kV (1.2/50 μ s)
/ 0.5 / 2.5 mm ²
0.5...0.8 Nm
7 mm

Type	Qty.	Order No.
SCM 2CO ECO	10	7760056263

Type	Qty.	Order No.
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 2 6/24VDC	10	7760056015
RIM 3 110/230VAC LED	10	7760056045
RIM 3 110/230VAC	10	7760056014
RIM 1 6/230VDC	10	7760056169
DRM/DRL CLIP M	10	7760056108
ESG 9/26 SCM ECO MC NE WS	80	1520980000
ESG 9/26 SCM ECO MC NE GE	80	1520990000
ESG 9/26 SCM ECO MC NE GR	80	1521000000
SCMH QV S	10	1132080000
SDIK PH1 SL	1	1274710000
SDIK PH1	1	9008570000
SDK PH1	1	9008480000

Note

Socket module with leaf spring connection, 2 CO contacts



250 V AC
300 V
12 A
-40 °C...70 °C
-40 °C...70 °C
CE; cURus; EAC
IP10
≥ 4 mm
2 kV _{eff} / 1 min
2 kV _{eff} / 1 min
4 kV (1.2/50 μ s)
/ 0.5 / 2.5 mm ²
0.5...0.8 Nm
7 mm

Type	Qty.	Order No.
FS 2CO	10	7760056106

Type	Qty.	Order No.
DRM/DRL CLIP M	10	7760056108
SDIK PH1 SL	1	1274710000
SDIK PH1	1	9008570000
SDK PH1	1	9008480000

LED and protective modules are not compatible with this base.

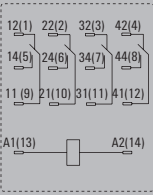
D-SERIES – relay modules

DRM 570 relay
4 CO AC/DC coil

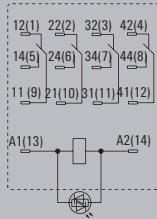
- Compact design combined with high switching capacity
- Wide range of coil voltages
- Optional test button (AC red, DC blue)
- Optional status LED (AC red, DC green)
- Optional free-wheel diode



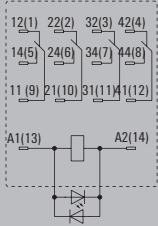
Circuit diagram



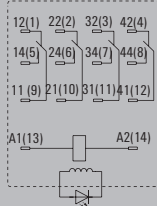
DC coil LED



DC coil LED+diode



AC coil LED

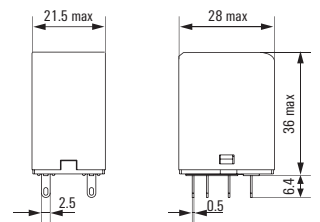
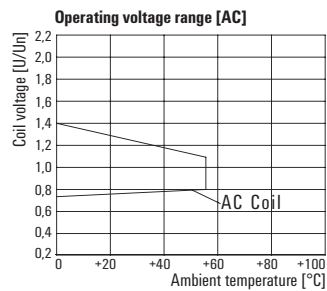
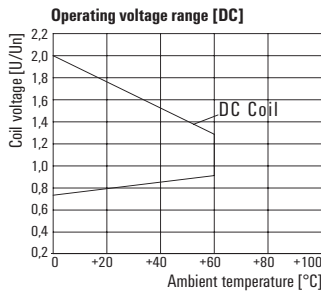
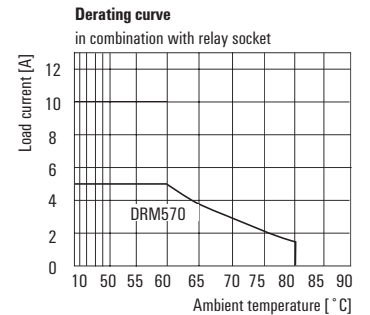
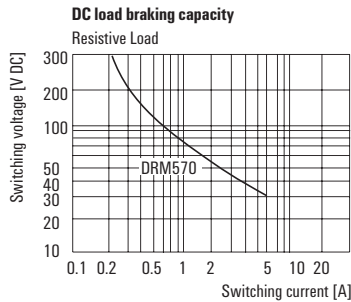
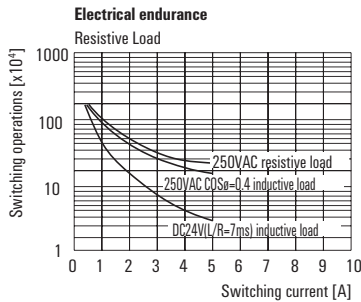


Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 5 A
Max. switching voltage, AC	250 V
Inrush current	10 A / 50 ms
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	120 W @ 24 V / 1250 VA
Contact material	AgNi 0,15 µm Au
Mechanical service life	20 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength input - output	1.8 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Depth x width x height	mm 35.7 / 21 / 27.4
Plug-in connection	

Note

Applications



DRM 570 relay
4 CO AC/DC coil

Type code		DRM					
Type	DRM						
Type of construction	570 4 change over contact						
Coil voltage	006	6 V DC / 012	12 V DC				
	024	24 V DC / 048	48 V DC				
	110	110 V DC / 220	220 V DC				
	524	24 V AC / 548	48 V AC				
	615	115 V AC / 730	230 V AC				
LED	L (Red for AC coil; green for DC coil)						
Test lever	T (Red for AC coil; green for DC coil)						
Free-wheel diode	D						

Ordering data

	12 V DC 4CO	24 V DC 4CO	48 V DC 4CO	110 V DC 4CO	220 V DC 4CO
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 75 mA	/ 36.9 mA	/ 18.5 mA	/ 10 mA	/ 5.2 mA
Power rating	0.9 W	0.9 W	0.9 W	1.2 W	1.2 W
Pull-in/drop-out voltage, typ.	9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11 V DC	154 V / 22 V DC
Pull-in/drop-out current, typ.					
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Ordering data					
Standard Type	DRM570012	DRM570024	DRM570048	DRM570110	DRM570220
Order No.	7760056078	7760056079	7760056080	7760056081	7760056082
with LED Type	DRM570012L	DRM570024L	DRM570048L	DRM570110L	DRM570220L
Order No.	7760056087	7760056088	7760056089	7760056090	7760056091
with test button + LED Type	DRM570012LT	DRM570024LT	DRM570048LT	DRM570110LT	DRM570220LT
Order No.	7760056096	7760056097	7760056098	7760056099	7760056100
with LED Type		DRM570024LD			
+ Free-wheel diode Order No.		7760056105			
Note					

Ordering data

	24 V AC 4CO	48 V AC 4CO	115 V AC 4CO	230 V AC 4CO
Input				
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC	62.4 mA (50 Hz), 52.2 mA (60 Hz) /	33.3 mA (50 Hz), 27.8 mA (60 Hz) /	12.6 mA (50 Hz), 10.8 mA (60 Hz) /	6.1 mA (50 Hz), 5.2 mA (60 Hz) /
Power rating	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	38.4 V / 14.4 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Pull-in/drop-out current, typ.				
Output				
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Ordering data				
Standard Type	DRM570524	DRM570548	DRM570615	DRM570730
Order No.	7760056083	7760056084	7760056085	7760056086
with LED Type	DRM570524L	DRM570548L	DRM570615L	DRM570730L
Order No.	7760056092	7760056093	7760056094	7760056095
with test button + LED Type	DRM570524LT	DRM570548LT	DRM570615LT	DRM570730LT
Order No.	7760056101	7760056102	7760056103	7760056104
Type				
Order No.				
Note				

D-SERIES – relay modules

Accessories for DRM relays

- Isolated input and output
- Terminal rail can be unlocked with a screwdriver
- Wide assortment of functional modules

Technical data

Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	300 V
Continuous current	6 A
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Approvals	CE; cURus; EAC
Insulation coordination	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 5.5 mm
Dielectric strength input - output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	4 kV _{eff} / 1 min
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Connection data	
Clamping range (nominal / min. / max.)	/ 0.5 / 2.5 mm ²
Tightening torque	0.5...0.8 Nm
Stripping length, rated connection	7 mm
Note	

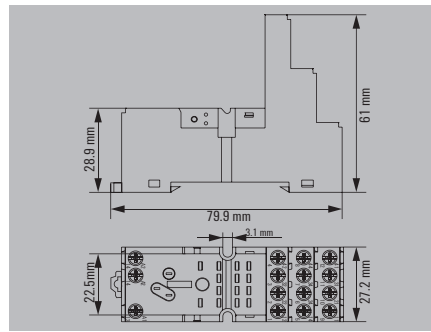
Ordering data

	Socket, DIN rail mounted
Note	

Accessories

LED module / protection modules	
LED 6 - 24 V UC green	
LED 24 - 60 V UC green	
LED 110 - 230 V UC green	
LED 24 - 60 V DC green and free-wheeling diode	
LED 110 - 230 V DC green and free-wheeling diode	
LED 6 - 24 V DC green and freewheeling diode	
RC element 110 - 230 V AC; 100 Ω / 220 nF and LED green	
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF	
Free-wheeling diode 6 - 230 V DC	
Retaining clip	Metal retaining clip
Markers	white yellow grey
Cross-connection	8-pole
Screwdriver	Screwdriver, insulated PH1 SlimLine Screwdriver, insulated PH1 Screwdriver PH1
Note	

Socket module with clamping yoke connection, 4 CO contacts

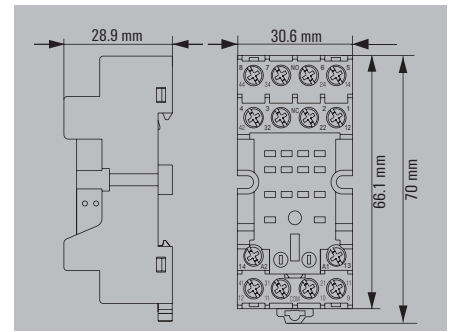


Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	300 V
Continuous current	6 A
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Approvals	CE; cURus; EAC
Insulation coordination	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 5.5 mm
Dielectric strength input - output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	4 kV _{eff} / 1 min
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Connection data	
Clamping range (nominal / min. / max.)	/ 0.5 / 2.5 mm ²
Tightening torque	0.5...0.8 Nm
Stripping length, rated connection	7 mm
Note	

Type	Qty.	Order No.
SCM 4CO ECO	10	7760056264

Type	Qty.	Order No.
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 2 6/24VDC	10	7760056015
RIM 3 110/230VAC LED	10	7760056045
RIM 3 110/230VAC	10	7760056014
RIM 1 6/230VDC	10	7760056169
DRM/DRL CLIP M	10	7760056108
ESG 9/26 SCM ECO MC NE WS	80	1520980000
ESG 9/26 SCM ECO MC NE GE	80	1520990000
ESG 9/26 SCM ECO MC NE GR	80	1521000000
SCM-I QV S	10	1132080000
SDIK PH1 SL	1	1274710000
SDIK PH1	1	9008570000
SDK PH1	1	9008480000
Note		

Socket module with leaf spring connection, 4 CO contacts



Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	300 V
Continuous current	10 A
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Approvals	CE; cURus; EAC
Insulation coordination	
Protection degree	IP10
Creepage and clearance distance input - output	≥ 4 mm
Dielectric strength input - output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Impulse withstand voltage	4 kV (1.2/50 µs)
Connection data	
Clamping range (nominal / min. / max.)	/ 0.5 / 2.5 mm ²
Tightening torque	0.5...0.8 Nm
Stripping length, rated connection	7 mm
Note	

Type	Qty.	Order No.
FS 4CO	10	7760056107

Type	Qty.	Order No.
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 2 6/24VDC	10	7760056015
RIM 3 110/230VAC	10	7760056014
RIM 1 6/230VDC	10	7760056169
DRM/DRL CLIP M	10	7760056108
SDIK PH1 SL	1	1274710000
SDIK PH1	1	9008570000
SDK PH1	1	9008480000
Note		

D-SERIES – relay modules

DRL power relay

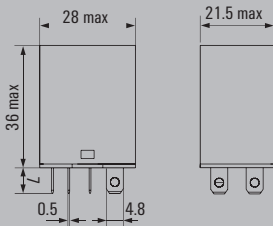
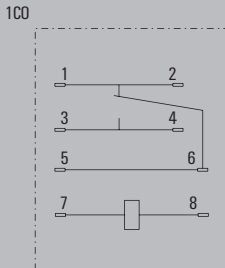
1 CO AC/DC coil

- High wear resistance in case of AC loads
- High dielectric strength: 2,000 V



B

Circuit diagram

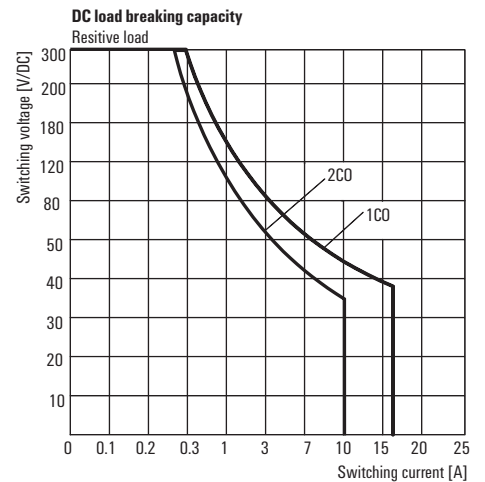
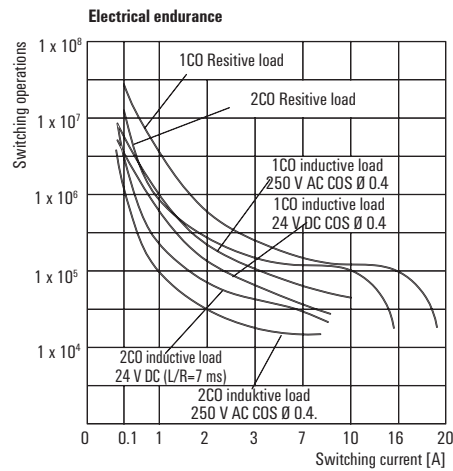
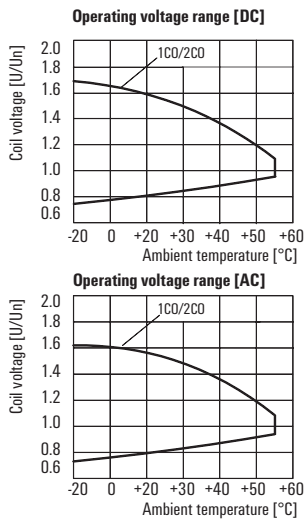


Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 16 A
Max. switching voltage, AC	250 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	384 W @ 24 V / 4000 VA
Contact material	AgCdO
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
	Flat blade connections (4.8 mm x 0.5 mm)
Depth x width x height	mm 36 / 21.5 / 28

Note

Applications



**DRL power relay
1 CO AC/DC coil**

Type code	DRL			
Type	DRL			
Type of construction	170 1 change over contact 270 2 change over contacts			
Coil voltage	012 12 V DC / 024 24 V DC 048 48 V DC / 110 110 V DC 220 220 V DC / 524 24 V AC 615 115 V AC / 730 230 V AC			
LED indicator	L			

Ordering data

	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 75 mA	/ 36.9 mA	/ 18.5 mA	/ 10 mA	/ 5.2 mA
Power rating	0.9 W	0.9 W	0.9 W	0.9 W	0.9 W
Pull-in/drop-out voltage, typ.	9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11 V DC	154 V / 22 V DC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms

Ordering data						
1 CO contact	Type	DRL170012L	DRL170024L	DRL170048L	DRL170110L	DRL170220L
	Order No.	1133450000	1133460000	1133470000	1133480000	1133490000
	Type					
	Order No.					
Note						

Ordering data

	24 V AC	115 V AC	230 V AC
Input			
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	54 mA /	12,9 mA /	6.8 mA /
Power rating	1.2 VA	1.2 VA	1.2 VA
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Pull-in/drop-out current, typ.			
Status indicator	red LED	red LED	red LED
Output			
Switch-on delay	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms

Ordering data				
1 CO contact	Type	DRL170524L	DRL170615L	DRL170730L
	Order No.	1133840000	1133850000	1133860000
	Type			
	Order No.			
Note				

D-SERIES – relay modules

DRL power relay

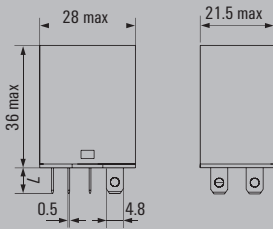
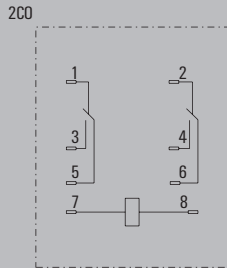
2 CO AC/DC coil

- High wear resistance in case of AC loads
- High dielectric strength: 2,000 V



B

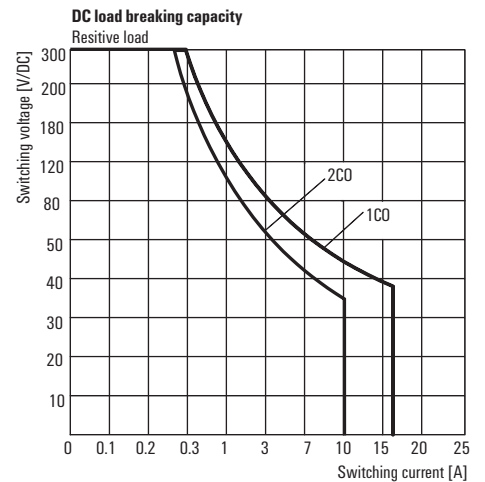
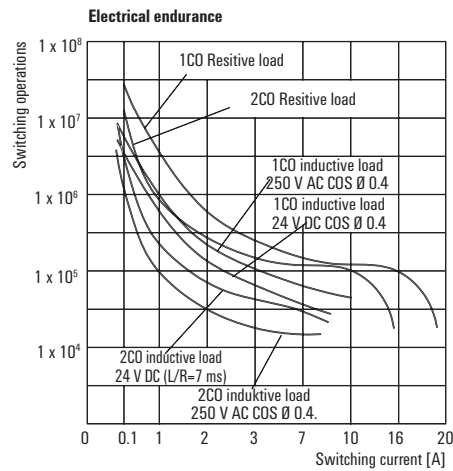
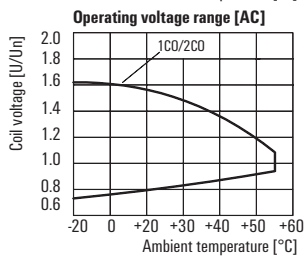
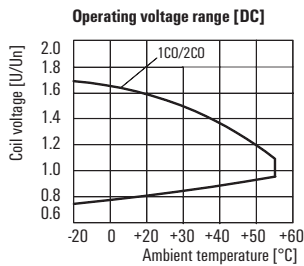
Circuit diagram



Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	240 W @ 24 V / 2500 VA
Contact material	AgCdO
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Flat blade connections (4.8 mm x 0.5 mm)	
Depth x width x height	mm 36 / 21.5 / 28
Note	

Applications



**DRL power relay
2 CO AC/DC coil**

Type code	DRL			
Type	DRL			
Type of construction	170 1 change over contact			
	270 2 change over contacts			
Coil voltage	012 12 V DC / 024 24 V DC			
	048 48 V DC / 110 110 V DC			
	220 220 V DC / 524 24 V AC			
	615 115 V AC / 730 230 V AC			
LED indicator	L			

Ordering data

	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 75 mA	/ 36.9 mA	/ 18.5 mA	/ 10 mA	/ 5.2 mA
Power rating	0.9 W	0.9 W	0.9 W	0.9 W	0.9 W
Pull-in/drop-out voltage, typ.	9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11 V DC	154 V / 22 V DC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms

Ordering data					
2 change over contacts Type	DRL270012L	DRL270024L	DRL270048L	DRL270110L	DRL270220L
Order No.	1133510000	1133520000	1133530000	1133540000	1133550000
Type					
Order No.					
Note					

Ordering data

	24 V AC	115 V AC	230 V AC
Input			
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	54 mA /	12,9 mA /	6.8 mA /
Power rating	1.2 VA	1.2 VA	1.2 VA
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Pull-in/drop-out current, typ.			
Status indicator	red LED	red LED	red LED
Output			
Switch-on delay	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms

Ordering data			
2 change over contacts Type	DRL270524L	DRL270615L	DRL270730L
Order No.	1133870000	1133880000	1133890000
Type			
Order No.			
Note			

D-SERIES – relay modules

DRL power relay

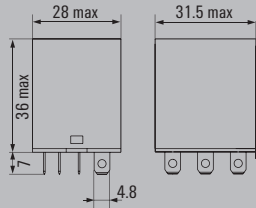
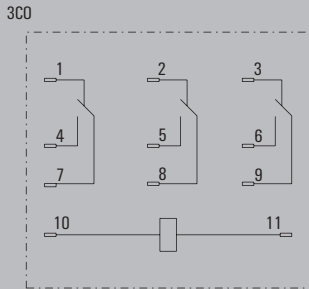
3 CO AC/DC coil

- High wear resistance in case of AC loads
- High dielectric strength: 2,000 V



B

Circuit diagram

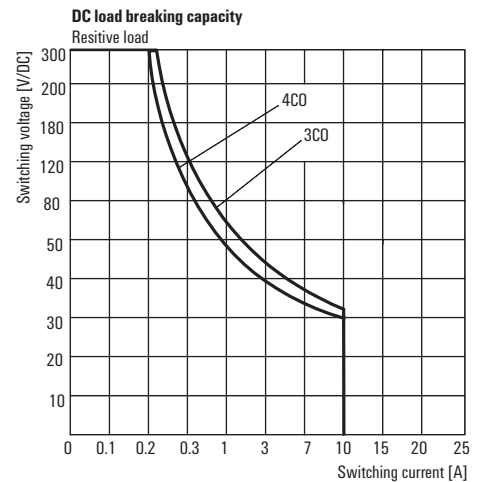
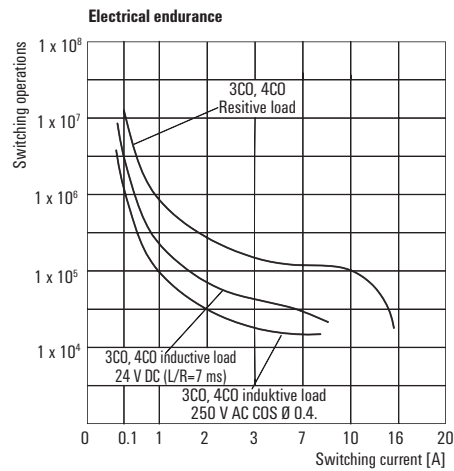
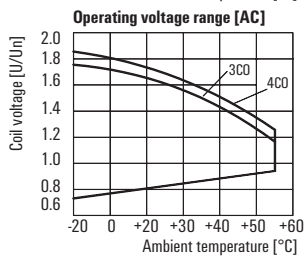
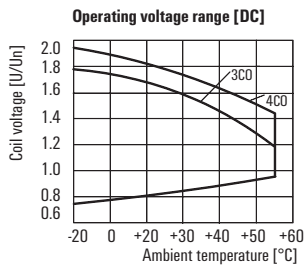


Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	240 W @ 24 V / 2500 VA
Contact material	AgCdO
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overtoltage category	III
Pollution degree	3
Dimensions	
	Flat blade connections (4.8 mm x 0.5 mm)
Depth x width x height	mm 36 / 31.5 / 28

Note

Applications



**DRL power relay
3 CO AC/DC coil**

Type code	DRL			
Type	DRL			
Type of construction	370 3 change over contact 570 4 change over contacts			
Coil voltage	012 12 V DC / 024 24 V DC 048 48 V DC / 110 110 V DC 220 220 V DC / 524 24 V AC 615 115 V AC / 730 230 V AC			
LED indicator	L			

Ordering data

	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 120 mA	/ 60 mA	/ 30 mA	/ 13.1 mA	/ 6.7 mA
Power rating	1.4 W	1.4 W	1.4 W	1.4 W	1.4 W
Pull-in/drop-out voltage, typ.	9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11 V DC	154 V / 22 V DC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms

Ordering data					
3 change over contacts Type	DRL370012L	DRL370024L	DRL370048L	DRL370110L	DRL370220L
Order No.	1133570000	1133580000	1133590000	1133600000	1133610000
Type					
Order No.					
Note					

Ordering data

	24 V AC	115 V AC	230 V AC
Input			
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	80 mA /	16 mA /	10 mA /
Power rating	2 VA	2 VA	2 VA
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Pull-in/drop-out current, typ.			
Status indicator	red LED	red LED	red LED
Output			
Switch-on delay	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms

Ordering data			
3 change over contacts Type	DRL370524L	DRL370615L	DRL370730L
Order No.	1133910000	1133920000	1133930000
Type			
Order No.			
Note			

D-SERIES – relay modules

DRL power relay

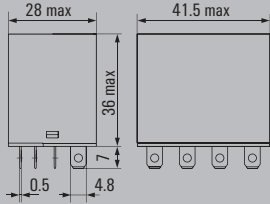
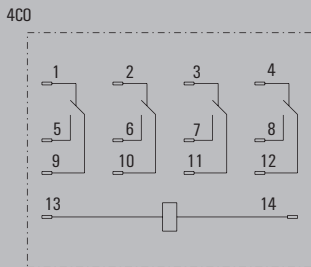
4 CO AC/DC coil

- High wear resistance in case of AC loads
- High dielectric strength: 2,000 V



B

Circuit diagram

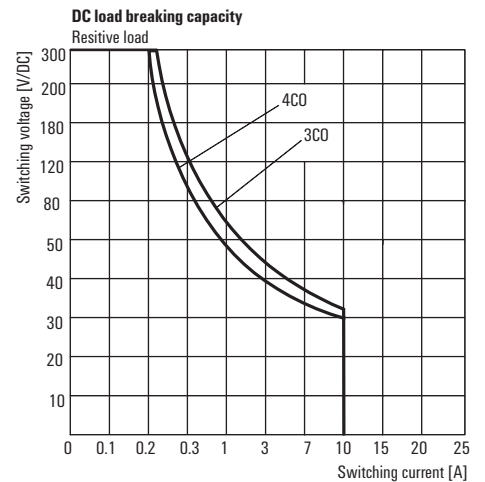
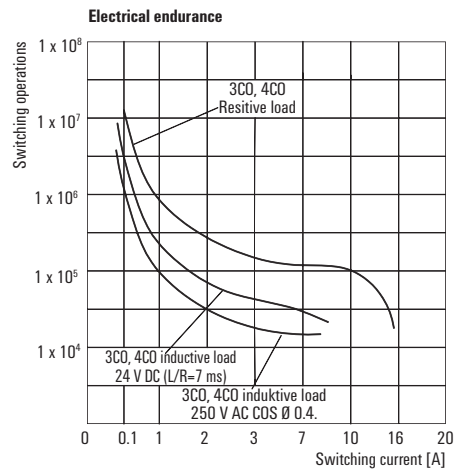
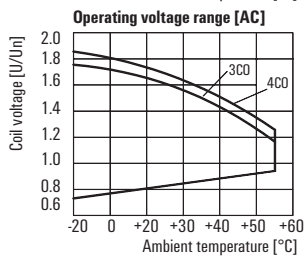
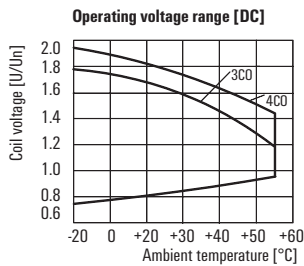


Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	240 W @ 24 V / 2500 VA
Contact material	AgCdO
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Flat blade connections (4.8 mm x 0.5 mm)	
Depth x width x height	mm 36 / 41.5 / 28

Note

Applications



**DRL power relay
4 CO AC/DC coil**

Type code	DRL			
Type	DRL			
Type of construction	370 3 change over contact 570 4 change over contacts			
Coil voltage	012 12 V DC / 024 24 V DC 048 48 V DC / 110 110 V DC 220 220 V DC / 524 24 V AC 615 115 V AC / 730 230 V AC			
LED indicator	L			

Ordering data

	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 125 mA	/ 66.7 mA	/ 31.2 mA	/ 16.2 mA	/ 7.6 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Pull-in/drop-out voltage, typ.	9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11 V DC	154 V / 22 V DC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms

Ordering data					
4 change over contacts Type	DRL570012L	DRL570024L	DRL570048L	DRL570110L	DRL570220L
Order No.	1133620000	1133630000	1133640000	1133650000	1133660000
Type Order No.					
Note					

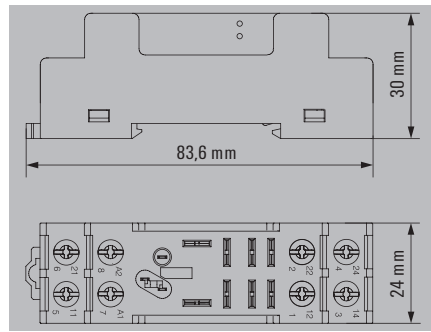
Ordering data

	24 V AC	115 V AC	230 V AC
Input			
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 93.5 mA	/ 25.5 mA	/ 13.1 mA
Power rating	2.5 VA	2.5 VA	2.5 VA
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Pull-in/drop-out current, typ.			
Status indicator	red LED	red LED	red LED
Output			
Switch-on delay	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms

Ordering data			
4 change over contacts Type	DRL570524L	DRL570615L	DRL570730L
Order No.	1133940000	1133950000	1133960000
Type Order No.			
Note			

D-SERIES – relay modules

Accessories for DRL relays

Socket module with
leaf spring connection, 2 CO contacts

Technical data

Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	250 V
Continuous current	10 A
Rated data	
Ambient temperature (operational)	-40 °C...65 °C
Storage temperature	-40 °C...85 °C
Approvals	CE, cURus
Insulation coordination	
Protection degree	IP10
Creepage and clearance distance input - output	≥ 6 mm
Dielectric strength input - output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Impulse withstand voltage	4 kV (1.2/50 µs)
Connection data	
Clamping range (nominal / min. / max.)	/ 0.5 / 2.5 mm ²
Tightening torque	0.8...1 Nm
Stripping length, rated connection	8 mm
Note	

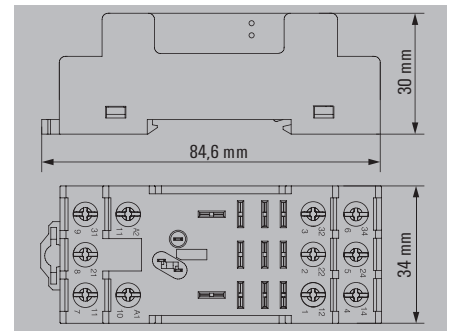
Ordering data

Type	Qty.	Order No.
SLD F 2CO	10	7760056225
Note	Socket, DIN rail mounted	

Accessories

Retaining clip	Type	Qty.	Order No.
Metal retaining clip	DRM/DRL CLIP M	10	7760056108
LED module / protection modules	Type	Qty.	Order No.
LED 110 - 230 V UC green	RIM 3 110/230VUC	20	7940018455
LED 24 - 60 V UC green	RIM 3 24/60VUC	10	7760056018
LED 6 - 24 V UC green	RIM 3 6/24VUC	20	7940018457
LED 110 - 230 V DC green and free-wheeling diode	RIM 2 110/230VDC	10	7760056017
LED 24 - 60 V DC green and free-wheeling diode	RIM 2 24/60VDC	10	7760056016
LED 6 - 24 V DC green and free-wheeling diode	RIM 2 6/24VDC	10	7760056015
Free-wheeling diode 6 - 230 V DC	RIM 1 6/230VDC	10	7760056169
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF	RIM 3 110/230VAC	10	7760056014
RC element 110 - 230 V AC; 100 Ω / 220 nF and LED green	RIM 3 110/230VAC LED	10	7760056045
RC element 6 - 230 V AC			
Screwdriver	Type	Qty.	Order No.
Screwdriver, insulated PH2 SlimLine	SDIK PH2 SL	1	1274720000
Screwdriver, insulated PH2	SDIK PH2	1	9008580000
Screwdriver PH2	SDK PH2	1	9008490000

Note

Socket module with
leaf spring connection, 3 CO contacts

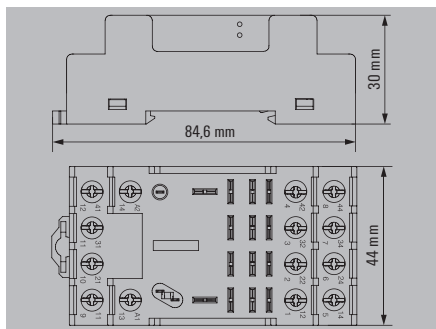
Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	250 V
Continuous current	10 A
Rated data	
Ambient temperature (operational)	-40 °C...65 °C
Storage temperature	-40 °C...85 °C
Approvals	CE, cURus
Insulation coordination	
Protection degree	IP10
Creepage and clearance distance input - output	≥ 6 mm
Dielectric strength input - output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Impulse withstand voltage	4 kV (1.2/50 µs)
Connection data	
Clamping range (nominal / min. / max.)	/ 0.5 / 2.5 mm ²
Tightening torque	0.8...1 Nm
Stripping length, rated connection	8 mm
Note	

Type	Qty.	Order No.
SLD F 3CO	10	7760056226

Type	Qty.	Order No.	
SLD CLIP 3CO M	10	7760056234	
LED module / protection modules	Type	Qty.	Order No.
LED 110 - 230 V UC green	RIM 3 110/230VUC	20	7940018455
LED 24 - 60 V UC green	RIM 3 24/60VUC	10	7760056018
LED 6 - 24 V UC green	RIM 3 6/24VUC	20	7940018457
LED 110 - 230 V DC green and free-wheeling diode	RIM 2 110/230VDC	10	7760056017
LED 24 - 60 V DC green and free-wheeling diode	RIM 2 24/60VDC	10	7760056016
LED 6 - 24 V DC green and free-wheeling diode	RIM 2 6/24VDC	10	7760056015
Free-wheeling diode 6 - 230 V DC	RIM 1 6/230VDC	10	7760056169
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF	RIM 3 110/230VAC	10	7760056014
RC element 110 - 230 V AC; 100 Ω / 220 nF and LED green	RIM 3 110/230VAC LED	10	7760056045
RC element 6 - 230 V AC			
Screwdriver	Type	Qty.	Order No.
Screwdriver, insulated PH2 SlimLine	SDIK PH2 SL	1	1274720000
Screwdriver, insulated PH2	SDIK PH2	1	9008580000
Screwdriver PH2	SDK PH2	1	9008490000

Note

Socket module with leaf spring connection, 4 CO contacts



250 V AC
250 V
10 A
-40 °C...65 °C
-40 °C...85 °C
CE; cURus
IP10
≥ 6 mm
2 kV _{eff} / 1 min
2 kV _{eff} / 1 min
4 kV (1.2/50 µs)
/ 0.5 / 2.5 mm ²
0.8...1 Nm
8 mm

Type	Qty.	Order No.
SLD F 4CO	10	7760056227

Type	Qty.	Order No.
SLD CLIP 4CO M	10	7760056235
RIM 5 6/230VDC	10	1174650000
RIM 5 6/230VAC	10	1174670000
SDIK PH2 SL	1	1274720000
SDIK PH2	1	9008580000
SDK PH2	1	9008490000

D-SERIES – relay modules

DRW power relay

2 CO AC/DC coil

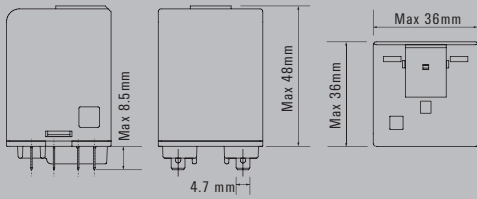
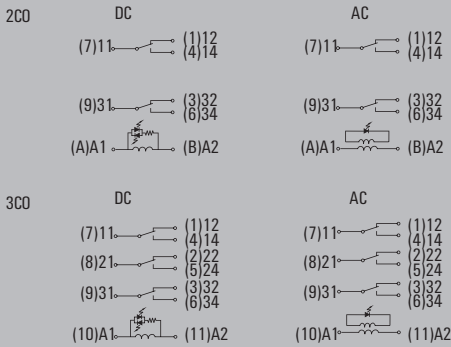
3 CO AC/DC coil

- Suitable for switching high load voltages
- With LED and test lever



B

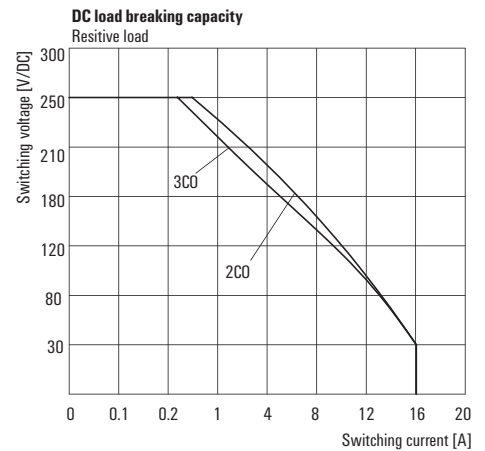
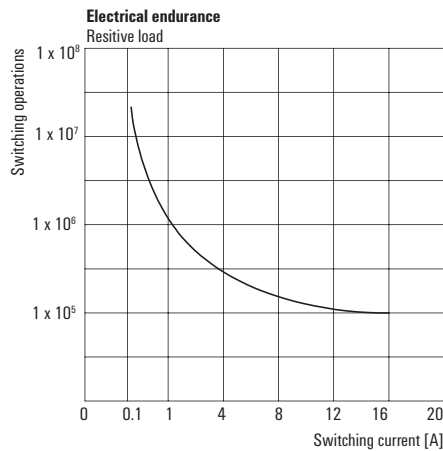
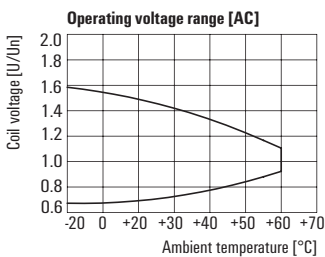
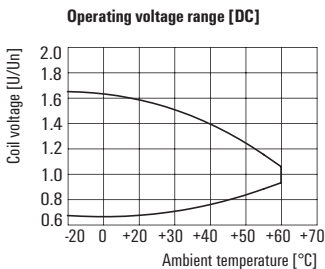
Circuit diagram



Technical data

Output	
Rated switching voltage / Continuous current	400 VAC / 16 A
Max. switching voltage, AC	400 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	384 W @ 24 V / 6400 VA
Contact material	AgCdO
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus
Insulation coordinates	
Rated voltage	400 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength input - output	2.5 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1.5 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Flat blade connections (4.8 mm x 0.5 mm)	
Depth x width x height	mm 48 / 36 / 36
Note	

Applications



DRW power relay
2 CO AC/DC coil
3 CO AC/DC coil

Type code	DRW			
Type	DRW			
Type of construction	270 2CO 174 1NC			
Coil voltage	012 12 V DC / 024 24 V DC 048 48 V DC / 110 110 V DC 220 220 V DC / 524 24 V AC 548 48 V AC / 615 115 V AC 730 230 V AC / 900 400 V AC			
With LED and test lever	LT			

Ordering data

	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 120 mA	/ 60 mA	/ 30 mA	/ 13 mA	/ 6.7 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Pull-in/drop-out voltage, typ.	9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11 V DC	165 V / 22 V DC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Ordering data					
2 CO contacts Type	DRW270012LT	DRW270024LT	DRW270048LT	DRW270110LT	DRW270220LT
Order No.	1219730000	1219740000	1219750000	1219760000	1219770000
3 CO contacts Type	DRW370012LT	DRW370024LT	DRW370048LT	DRW370110LT	DRW370220LT
Order No.	1219780000	1219790000	1219810000	1219820000	1219830000
Ordering data					
Test-button lock					
Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249	7760056249
Note					

Ordering data

	24 V AC	48 V AC	115 V AC	230 V AC	400 V AC
Input					
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC	400 V AC
Rated current AC / DC	101.7 mA /	50.5 mA /	21 mA /	10,6 mA /	6.1 mA /
Power rating	2.5 VA	2.5 VA	2.5 VA	2.5 VA	2.5 VA
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	38.4 V / 14.4 V AC	92 V / 34.5 V AC	184 V / 69 V AC	320 V / 120 V AC
Pull-in/drop-out current, typ.					
Status indicator	red LED	red LED	red LED	red LED	red LED
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Ordering data					
2 CO contacts Type	DRW270524LT	DRW270548LT	DRW270615LT	DRW270730LT	DRW270900LT
Order No.	1219350000	1219360000	1219370000	1219380000	1219390000
3 CO contacts Type	DRW370524LT	DRW370548LT	DRW370615LT	DRW370730LT	DRW370900LT
Order No.	1219410000	1219420000	1219430000	1219440000	1219450000
Ordering data					
Test-button lock					
Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249	7760056249
Note					

D-SERIES – relay modules

DRH DC relay

1 NO AC/DC coil

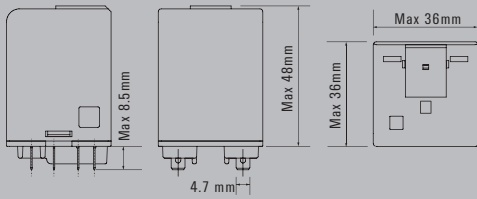
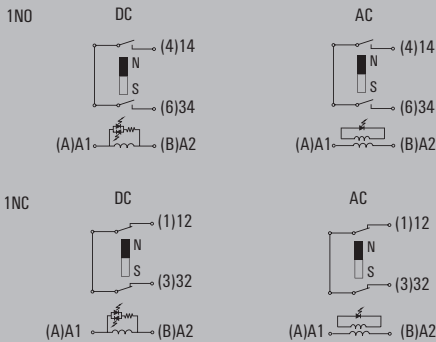
1 NC AC/DC coil

- Suitable for switching high DC loads
- With blowout magnet
- With LED and test button
- For switching high DC loads up to 10 A at 220 V DC



B

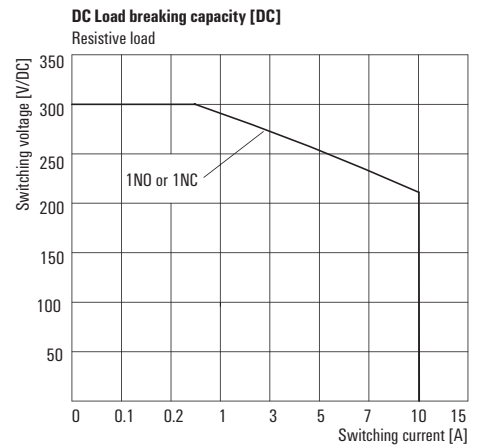
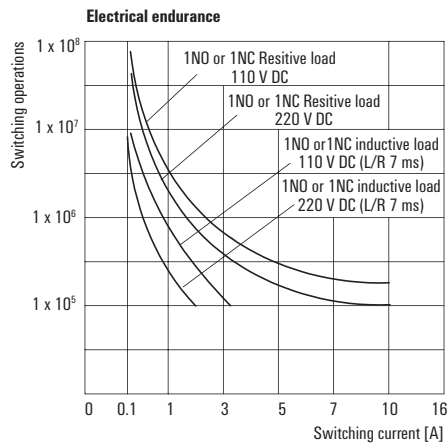
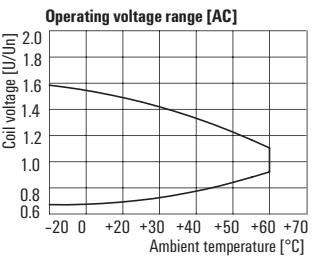
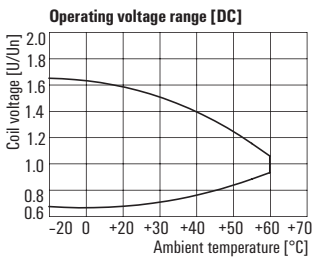
Circuit diagram



Technical data

Output	
Rated switching voltage / Continuous current	500 V AC / 16 A
Max. switching voltage, AC	500 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	2200 W @ 220 V / 8000 VA
Contact material	AgSnO2
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	500 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength input - output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Flat blade connections (4.8 mm x 0.5 mm)	
Depth x width x height	mm 48 / 36 / 36
Note	

Applications



DRH DC relay
1 NO AC/DC coil
1 NC AC/DC coil

Type code	DRH				
Type	DRH				
Type of construction	173 1NO		174 1NC		
Coil voltage	012	12 V DC / 024	24 V DC		
	048	48 V DC / 110	110 V DC		
	220	220 V DC / 524	24 V AC		
	548	48 V AC / 615	115 V AC		
	730	230 V AC			
With LED and test lever	LT				

Ordering data

	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 120 mA	/ 60 mA	/ 30 mA	/ 13 mA	/ 6.7 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Pull-in/drop-out voltage, typ.	9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11 V DC	154 V / 22 V DC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	red LED
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Ordering data					
1 NO contact	Type DRH173012LT	Type DRH173024LT	Type DRH173048LT	Type DRH173110LT	Type DRH173220LT
	Order No. 1219840000	Order No. 1219850000	Order No. 1219860000	Order No. 1219870000	Order No. 1219880000
1 NC contact	Type DRH174012LT	Type DRH174024LT	Type DRH174048LT	Type DRH174110LT	Type DRH174220LT
	Order No. 1219940000	Order No. 1219950000	Order No. 1219960000	Order No. 1219970000	Order No. 1219980000
Ordering data					
Test-button lock					
Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249	7760056249
Note					

Ordering data

	24 V AC	48 V AC	115 V AC	230 V AC
Input				
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC	101.7 mA /	50.5 mA /	21 mA /	10,6 mA /
Power rating	2.5 VA	2.5 VA	2.5 VA	2.5 VA
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	38.4 V / 14.4 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Pull-in/drop-out current, typ.				
Status indicator	red LED	red LED	red LED	red LED
Output				
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Ordering data				
1 NO contact	Type DRH173524LT	Type DRH173548LT	Type DRH173615LT	Type DRH173730LT
	Order No. 1219890000	Order No. 1219910000	Order No. 1219920000	Order No. 1219930000
1 NC contact	Type DRH174524LT	Type DRH174548LT	Type DRH174615LT	Type DRH174730LT
	Order No. 1219990000	Order No. 1220010000	Order No. 1220020000	Order No. 1220030000
Ordering data				
Test-button lock				
Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249
Note				

D-SERIES – relay modules

DRH DC relay

1 NO / 1 NC AC/DC coil

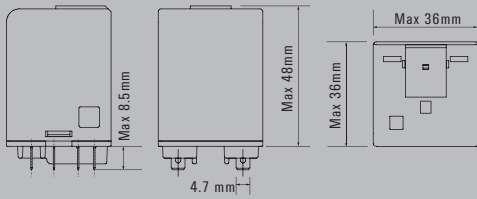
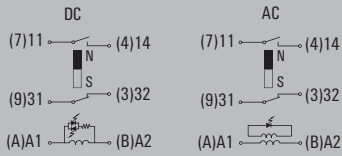
- Suitable for switching high DC loads
- With blowout magnet
- With LED and test button
- For switching high DC loads up to 3 A at 220 V DC



B

Circuit diagram

1NO/1NC

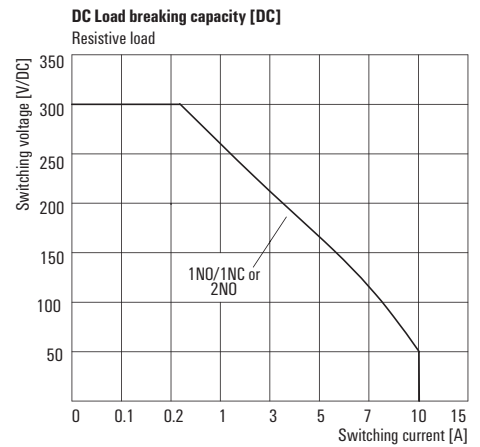
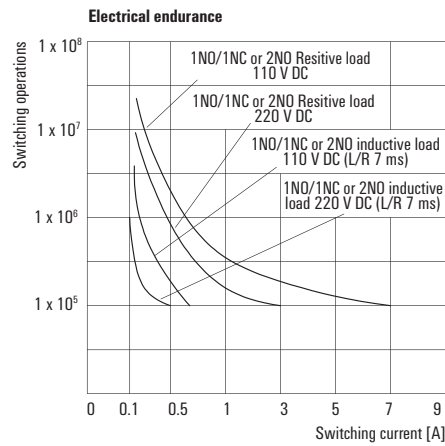
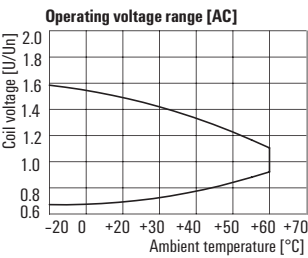
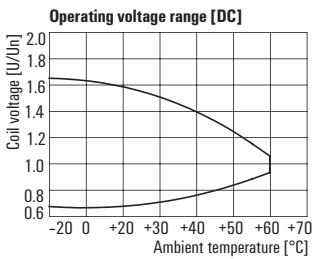


Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 16 A
Max. switching voltage, AC	250 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	660 W @ 220 V / 4000 VA
Contact material	AgSnO2
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	500 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength input - output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	4 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Flat blade connections (4.8 mm x 0.5 mm)	
Depth x width x height	mm 48 / 36 / 36

Note

Applications



DRH DC relay
1 NO / 1 NC AC/DC coil

Type code	DRH			
Type	DRH			
Type of construction	275 1NO/1NC			
	276 2NO			
Coil voltage	012 12 V DC / 024 24 V DC			
	048 48 V DC / 110 110 V DC			
	220 220 V DC / 524 24 V AC			
	548 48 V AC / 615 115 V AC			
	730 230 V AC			
With LED and test lever	LT			

Ordering data

	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 120 mA	/ 60 mA	/ 30 mA	/ 13 mA	/ 6.7 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Pull-in/drop-out voltage, typ.	9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11 V DC	154 V / 22 V DC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Ordering data					
1 NO / 1 NC contact	DRH275012LT	DRH275024LT	DRH275048LT	DRH275110LT	DRH275220LT
Type					
Order No.	1220040000	1220050000	1220060000	1220070000	1220080000
Type					
Order No.					
Ordering data					
Test-button lock					
Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249	7760056249
Note					

Ordering data

	24 V AC	48 V AC	115 V AC	230 V AC
Input				
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC	101.7 mA /	50.5 mA /	21 mA /	10,6 mA /
Power rating	2.5 VA	2.5 VA	2.5 VA	2.5 VA
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	38.4 V / 14.4 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Pull-in/drop-out current, typ.				
Status indicator	red LED	red LED	red LED	red LED
Output				
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Ordering data				
1 NO / 1 NC contact	DRH275524LT	DRH275548LT	DRH275615LT	DRH275730LT
Type				
Order No.	1220090000	1220110000	1220120000	1220130000
Type				
Order No.				
Ordering data				
Test-button lock				
Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249
Note				

D-SERIES – relay modules

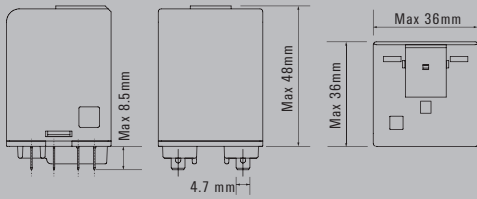
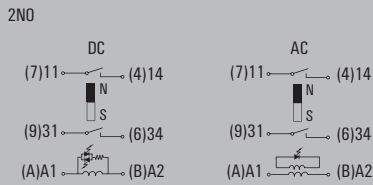
DRH DC relay
2 NO AC/DC coil

- Suitable for switching high DC loads
- With blowout magnet
- With LED and test button
- For switching high DC loads up to 3 A at 220 V DC



B

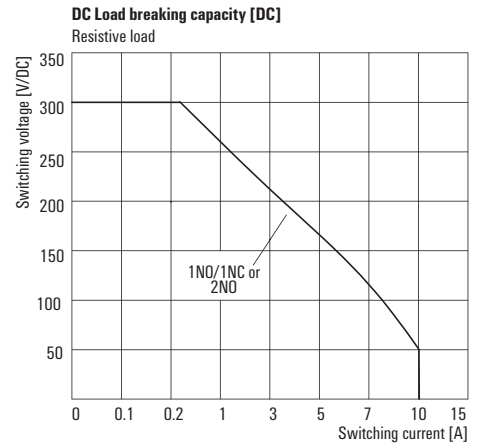
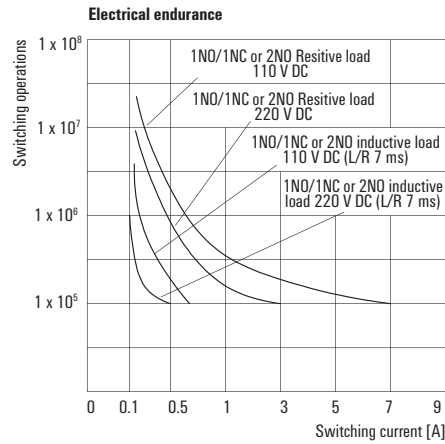
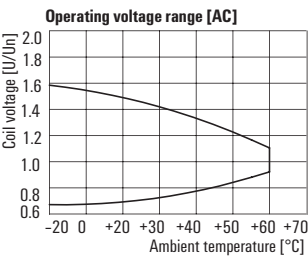
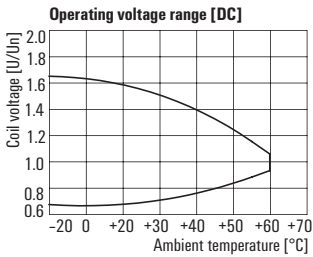
Circuit diagram



Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 16 A
Max. switching voltage, AC	250 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	660 W @ 220 V / 4000 VA
Contact material	AgSnO2
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	500 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength input - output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	4 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Flat blade connections (4.8 mm x 0.5 mm)	
Depth x width x height	mm 48 / 36 / 36
Note	

Applications



DRH DC relay
2 NO AC/DC coil

Type code	DRH			
Type	DRH			
Type of construction	275 1NO/1NC			
	276 2NO			
Coil voltage	012 12 V DC / 024 24 V DC			
	048 48 V DC / 110 110 V DC			
	220 220 V DC / 524 24 V AC			
	548 48 V AC / 615 115 V AC			
	730 230 V AC			
With LED and test lever	LT			

Ordering data

	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 120 mA	/ 60 mA	/ 30 mA	/ 13 mA	/ 6.7 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Pull-in/drop-out voltage, typ.	9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11 V DC	154 V / 22 V DC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Ordering data					
2 NO contact	Type DRH276012LT	Type DRH276024LT	Type DRH276048LT	Type DRH276110LT	Type DRH276220LT
Order No.	1220140000	1220150000	1220170000	1220180000	1220190000
Type					
Order No.					
Ordering data					
Test-button lock	Type Test Lever Block DRH/DRW	Type Test Lever Block DRH/DRW	Type Test Lever Block DRH/DRW	Type Test Lever Block DRH/DRW	Type Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249	7760056249
Note					

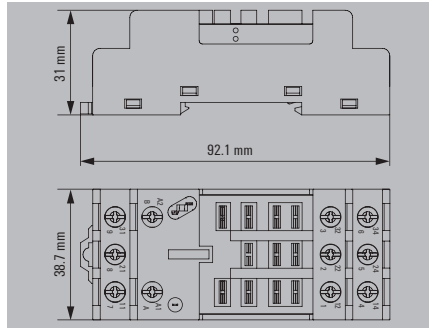
Ordering data

	24 V AC	48 V AC	115 V AC	230 V AC
Input				
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC	101.7 mA /	50.5 mA /	21 mA /	10,6 mA /
Power rating	2.5 VA	2.5 VA	2.5 VA	2.5 VA
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	38.4 V / 14.4 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Pull-in/drop-out current, typ.				
Status indicator	red LED	red LED	red LED	red LED
Output				
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Ordering data				
2 NO contact	Type DRH276524LT	Type DRH276548LT	Type DRH276615LT	Type DRH276730LT
Order No.	1220200000	1220210000	1220220000	1220230000
Type				
Order No.				
Ordering data				
Test-button lock	Type Test Lever Block DRH/DRW	Type Test Lever Block DRH/DRW	Type Test Lever Block DRH/DRW	Type Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249
Note				

D-SERIES – relay modules

Accessories for DRH and DRW relays

Socket module with leaf spring connection, 3 CO contacts



Technical data

Output	
Rated switching voltage	400 V AC
Max. switching voltage, AC	400 V
Continuous current	16 A
Rated data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Approvals	CE, cURus
Insulation coordination	
Protection degree	IP10
Creepage and clearance distance input - output	≥ 3 mm
Dielectric strength input - output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	4 kV _{eff} / 1 min
Impulse withstand voltage	7.3 kV (1.2/50 µs)
Connection data	
Clamping range (nominal / min. / max.)	/ 0.5 / 4 mm ²
Tightening torque	0.5...1.2 Nm
Stripping length, rated connection	8 mm
Note	

Ordering data

	Socket, DIN rail mounted		
Note			
Type	Qty.	Order No.	
SPW ECO 3CO	10	1220250000	

Accessories

LED module / protection modules			
	RC element 6 - 230 V AC		
	Free-wheeling diode 6 - 230 V DC		
Retaining clip			
	Metal retaining clip		
Screwdriver			
	Screwdriver, insulated PH2 SlimLine		
	Screwdriver, insulated PH2		
	Screwdriver PH2		
Type	Qty.	Order No.	
RIM 5 6/230VAC	10	1174670000	
RIM 5 6/230VDC	10	1174650000	
DRW/DRH CLIP M	10	1220260000	
SDIK PH2 SL	1	1274720000	
SDIK PH2	1	9008580000	
SDK PH2	1	9008490000	

Note

D-SERIES – relay modules

DRR power relay

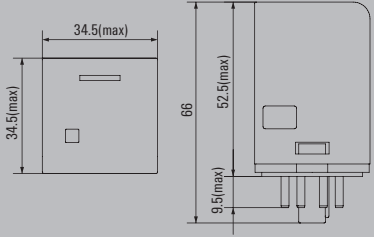
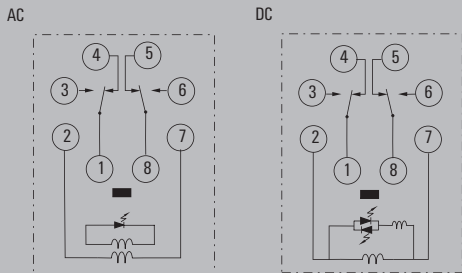
2 CO AC/DC coil

- 2,500 VA switching capacity
- 8-pole relay



B

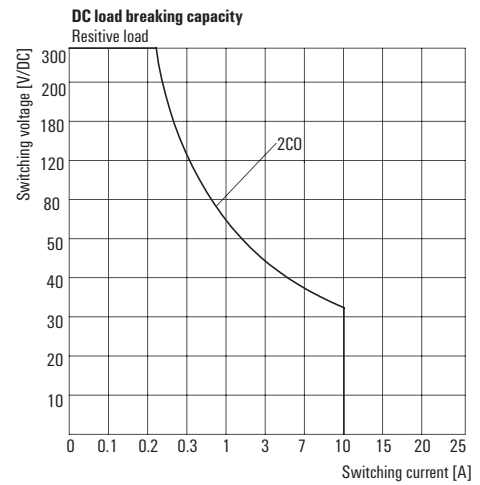
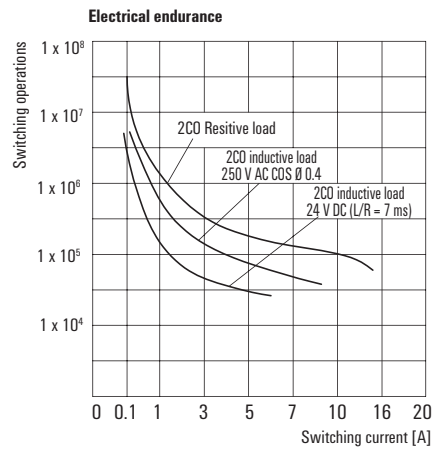
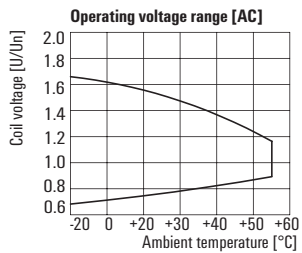
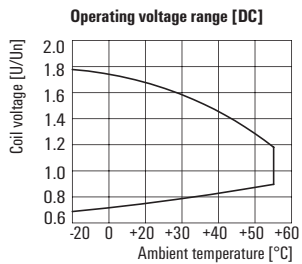
Circuit diagram



Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	240 W @ 24 V / 2500 VA
Contact material	AgNi
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	5...85 % rel. humidity, no condensation
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength input - output	2.5 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 3 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Depth x width x height	mm 66 / 34.5 / 34.5
Plug-in connection	
Depth x width x height	mm 66 / 34.5 / 34.5
Note	

Applications



**DRR power relay
2 CO AC/DC coil**

Type code	DRR			
Type	DRR			
Type of construction	270	2 change over contacts		
Coil voltage	012	12 V DC / 024	24 V DC	
	048	48 V DC / 110	110 V DC	
	220	220 V DC / 524	24 V AC	
	615	115 V AC / 730	230 V AC	
LED indicator	L			

Ordering data

	12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO	220 V DC 2CO
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 125 mA	/ 55.8 mA	/ 29.2 mA	/ 15 mA	/ 7.6 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Pull-in/drop-out voltage, typ.	9 V / 1.8 V DC	18 V / 3.6 V DC	36 V / 7.2 V DC	82.5 V / 16.5 V DC	165 V / 33 V DC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 30 ms	< 30 ms	< 30 ms	< 30 ms	< 30 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms

Ordering data					
Type	DRR270012L	DRR270024L	DRR270048L	DRR270110L	DRR270220L
Order No.	1133360000	1133370000	1133380000	1133390000	1133400000
Type					
Order No.					
Note					

Ordering data

	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Input			
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	130 mA (50 Hz), 116 mA (60 Hz) /	29.8 mA (50 Hz), 25.4 mA (60 Hz) /	14.9 mA (50 Hz), 12.7 mA (60 Hz) /
Power rating	2.7 VA	2.7 VA	2.7 VA
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Pull-in/drop-out current, typ.			
Status indicator	red LED	red LED	red LED
Output			
Switch-on delay	< 30 ms	< 30 ms	< 30 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms

Ordering data			
Type	DRR270524L	DRR270615L	DRR270730L
Order No.	1133760000	1133780000	1133800000
Type			
Order No.			
Note			

D-SERIES – relay modules

DRR power relay

3 CO AC/DC coil

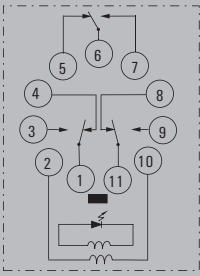
- 2,500 VA switching capacity
- 11-pole relay



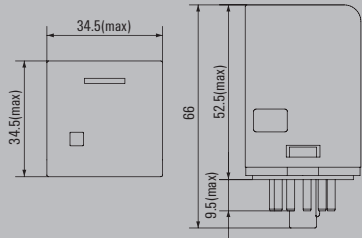
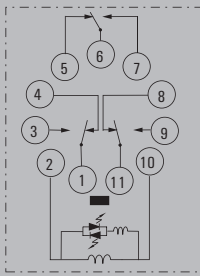
Circuit diagram

DRR310

AC



DC



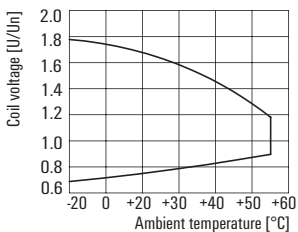
Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	240 W @ 24 V / 2500 VA
Contact material	AgNi
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	5...85 % rel. humidity, no condensation
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength input - output	2.5 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 3 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Depth x width x height	mm 66 / 34.5 / 34.5
Plug-in connection	
Depth x width x height	mm 66 / 34.5 / 34.5

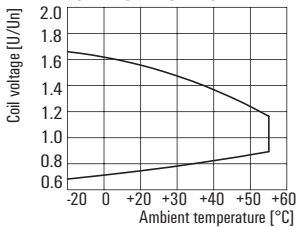
Note

Applications

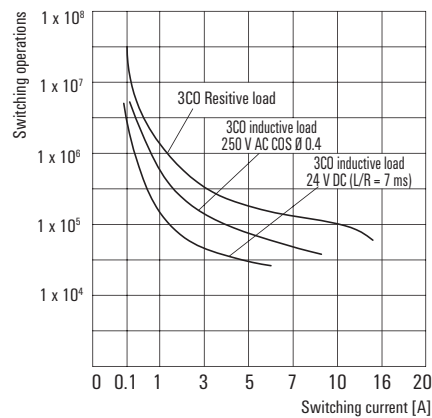
Operating voltage range [DC]



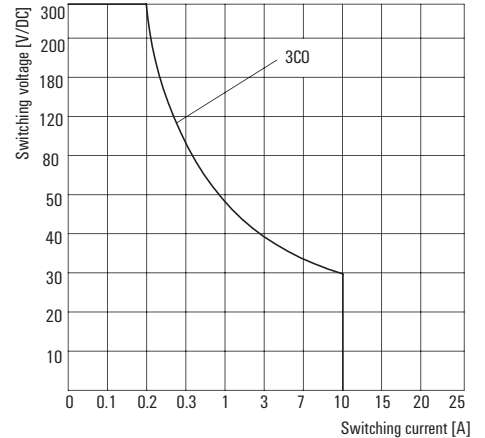
Operating voltage range [AC]



Electrical endurance



DC load breaking capacity
Resistive load



**DRR power relay
3 CO AC/DC coil**

Type code	DRR			
Type	DRR			
Type of construction	370	3 change over contacts		
Coil voltage	012	12 V DC / 024	24 V DC	
	048	48 V DC / 110	110 V DC	
	220	220 V DC / 524	24 V AC	
	615	115 V AC / 730	230 V AC	
LED indicator	L			

Ordering data

	12 V DC 3CO	24 V DC 3CO	48 V DC 3CO	110 V DC 3CO	220 V DC 3CO
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 125 mA	/ 55.8 mA	/ 29.2 mA	/ 15 mA	/ 7.6 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Pull-in/drop-out voltage, typ.	9 V / 1.8 V DC	18 V / 3.6 V DC	36 V / 7.2 V DC	82.5 V / 16.5 V DC	165 V / 33 V DC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 30 ms	< 30 ms	< 30 ms	< 30 ms	< 30 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms

Ordering data					
Type	DRR370012L	DRR370024L	DRR370048L	DRR370110L	DRR370220L
Order No.	1133410000	1133420000	1133430000	1133440000	1133560000
Type					
Order No.					
Note					

Ordering data

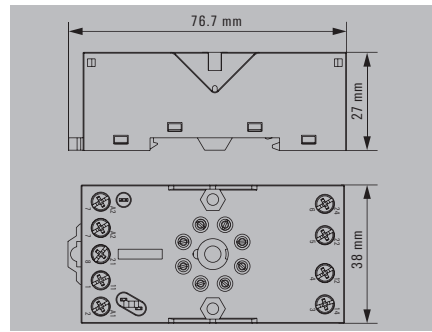
	24 V AC 3CO	115 V AC 3CO	230 V AC 3CO
Input			
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	130 mA (50 Hz), 116 mA (60 Hz) /	29.8 mA (50 Hz), 25.4 mA (60 Hz) /	14.9 mA (50 Hz), 12.7 mA (60 Hz) /
Power rating	2.7 VA	2.7 VA	2.7 VA
Pull-in/drop-out voltage, typ.	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Pull-in/drop-out current, typ.			
Status indicator	red LED	red LED	red LED
Output			
Switch-on delay	< 30 ms	< 30 ms	< 30 ms
Switch-off delay	< 20 ms	< 20 ms	< 20 ms

Ordering data			
Type	DRR370524L	DRR370615L	DRR370730L
Order No.	1133810000	1133820000	1133830000
Type			
Order No.			
Note			

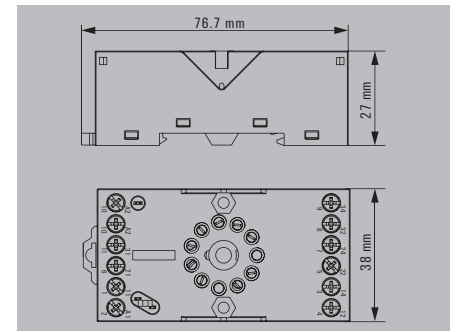
D-SERIES – relay modules

Accessories for DRR relays

Socket module with leaf spring connection, 2 CO contacts



Socket module with leaf spring connection, 3 CO contacts



Technical data

Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	300 V
Continuous current	12 A
Rated data	
Ambient temperature (operational)	-40 °C...65 °C
Storage temperature	-40 °C...85 °C
Approvals	CE; cURus; EAC
Insulation coordination	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 4 mm
Dielectric strength input - output	2.5 KV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2.21 kV _{eff} /1 min
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Connection data	
Clamping range (nominal / min. / max.)	/ 0.5 / 2.5 mm ²
Tightening torque	0.5...1 Nm
Stripping length, rated connection	7 mm
Note	

Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	300 V
Continuous current	12 A
Rated data	
Ambient temperature (operational)	-40 °C...65 °C
Storage temperature	-40 °C...85 °C
Approvals	CE; cURus; EAC
Insulation coordination	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 4 mm
Dielectric strength input - output	2.5 KV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2.21 kV _{eff} /1 min
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Connection data	
Clamping range (nominal / min. / max.)	/ 0.5 / 2.5 mm ²
Tightening torque	0.5...1 Nm
Stripping length, rated connection	7 mm
Note	

Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	300 V
Continuous current	12 A
Rated data	
Ambient temperature (operational)	-40 °C...65 °C
Storage temperature	-40 °C...85 °C
Approvals	CE; cURus; EAC
Insulation coordination	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 4 mm
Dielectric strength input - output	2.5 KV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2.21 kV _{eff} /1 min
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Connection data	
Clamping range (nominal / min. / max.)	/ 0.5 / 2.5 mm ²
Tightening torque	0.5...1 Nm
Stripping length, rated connection	7 mm
Note	

Ordering data

	Socket, DIN rail mounted
Note	

Type	Qty.	Order No.
SRD ECO 2CO	10	1132810000

Type	Qty.	Order No.
SRD ECO 3CO	10	1132820000

Accessories

LED module / protection modules	
	RC element 6 - 230 V AC
	Free-wheeling diode 6 - 230 V DC
Retaining clip	Metal retaining clip
Screwdriver	Screwdriver, insulated PH1 SlimLine
	Screwdriver, insulated PH1
	Screwdriver PH1

Type	Qty.	Order No.
RIM 5 6/230VAC	10	1174670000
RIM 5 6/230VDC	10	1174650000
DRR CLIP M	10	1134160000
SDIK PH1 SL	1	1274710000
SDIK PH1	1	9008570000
SDK PH1	1	9008480000

Type	Qty.	Order No.
RIM 5 6/230VAC	10	1174670000
RIM 5 6/230VDC	10	1174650000
DRR CLIP M	10	1134160000
SDIK PH1 SL	1	1274710000
SDIK PH1	1	9008570000
SDK PH1	1	9008480000

Note	
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Note	
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Note	
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D-SERIES – relay modules

PWR high-power relay

1 NO AC/DC coil

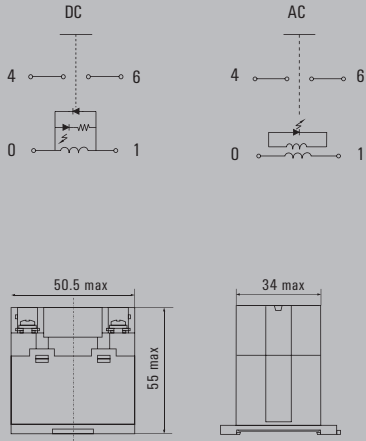
- Max. load current: 30 A



B

Circuit diagram

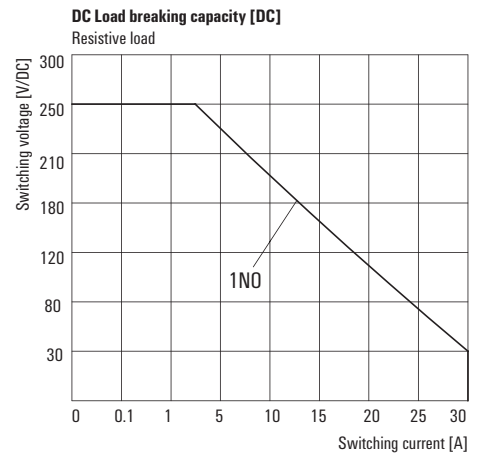
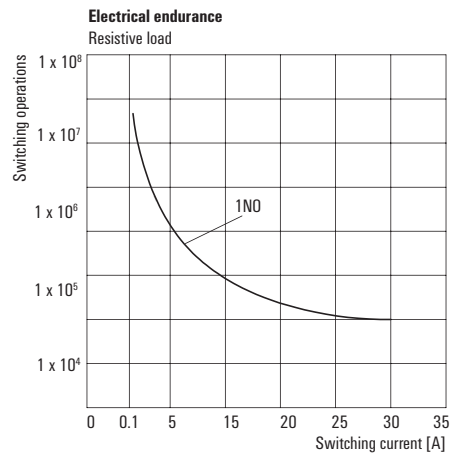
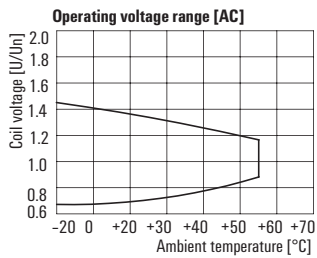
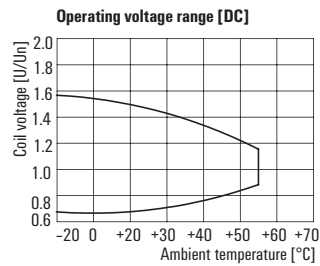
1NO



Technical data

Output	
Rated switching voltage / Continuous current	277 V AC / 30 A
Max. switching voltage, AC	277 V
Inrush current	150 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	720 W @ 24 V / 8300 VA
Contact material	AgSnO2
Mechanical service life	
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength input - output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Depth x width x height	mm 55 / 50.5 / 34
Note	

Applications



**PWR high-power relay
1 NO AC/DC coil**

Type code	PWR			
Type	PWR			
Type of construction and mounting	173 1N.O. contact, DIN-rail mounting			
Coil voltage	006	6 V DC / 012	12 V DC	
	024	24 V DC / 048	48 V DC	
	110	110 V DC / 220	220 V DC	
	524	24 V AC / 548	48 V AC	
	615	115 V AC / 730	230 V AC	
	880	380 V AC		
LED indicator	L with LED			

Ordering data

	12 V DC 1 NO	24 V DC 1 NO	48 V DC 1 NO	110 V DC 1 NO	220 V DC 1 NO
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 160 mA	/ 79.2 mA	/ 39.3 mA	/ 17.3 mA	/ 8.7 mA
Power rating	1.9 W	1.9 W	1.9 W	1.9 W	1.9 W
Pull-in/drop-out voltage, typ.	9 V / 1.8 V DC	18 V / 3.6 V DC	36 V / 7.2 V DC	82.5 V / 16.5 V DC	165 V / 33 V DC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 10 ms	< 10 ms	< 10 ms	< 10 ms	< 10 ms

Ordering data						
Rail mounting	Type	PWR173012L	PWR173024L	PWR173048L	PWR173110L	PWR173220L
	Order No.	1219470000	1219480000	1219490000	1219510000	1219520000
	Type					
	Order No.					
Note						

Ordering data

	24 V AC 1 NO	48 V AC 1 NO	115 V AC 1 NO	230 V AC 1 NO	380 V AC 1 NO
Input					
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC	380 V AC
Rated current AC / DC	87.3 mA /	43.6 mA /	22.1 mA /	11 mA /	6.1 mA /
Power rating	2.5 VA	2.5 VA	2.5 VA	2.5 VA	2.5 VA
Pull-in/drop-out voltage, typ.	18 V / 3.6 V AC	36 V / 7.2 V AC	86.3 V / 17.3 V AC	172.5 V / 34.5 V AC	285 V / 57 V AC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 20 ms	< 20 ms	< 20 ms	< 20 ms	< 20 ms
Switch-off delay	< 10 ms	< 10 ms	< 10 ms	< 10 ms	< 10 ms

Ordering data						
Rail mounting	Type	PWR173524L	PWR173548L	PWR173615L	PWR173730L	PWR173880L
	Order No.	1219090000	1219120000	1219130000	1219140000	1219150000
	Type					
	Order No.					
Note						

D-SERIES – relay modules

PWR high-power relay

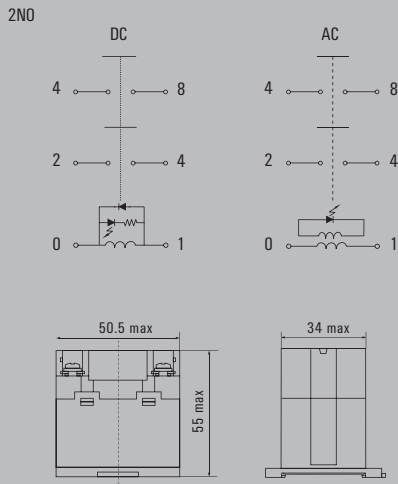
2 NO AC/DC coil

- Max. load current: 25 A



B

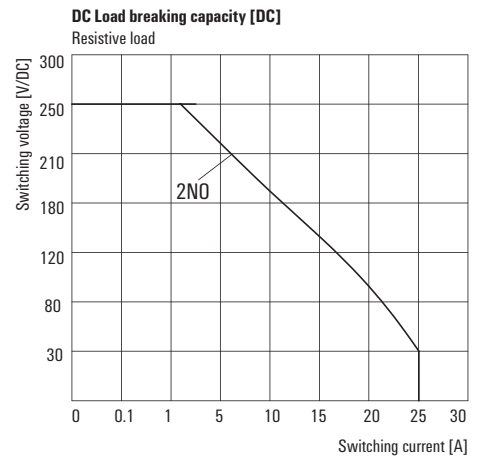
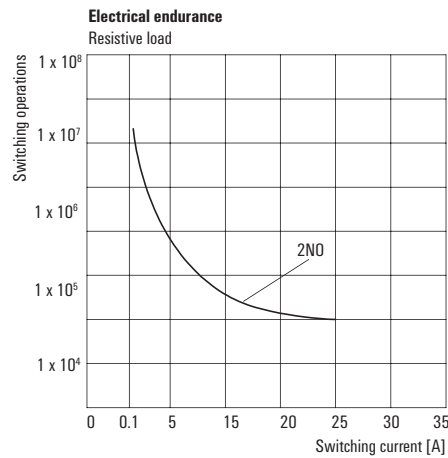
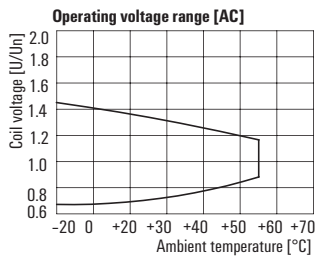
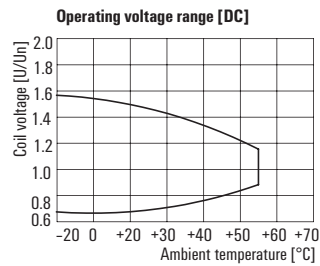
Circuit diagram



Technical data

Output	
Rated switching voltage / Continuous current	277 V AC / 25 A
Max. switching voltage, AC	277 V
Inrush current	120 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	600 W @ 24 V / 6900 VA
Contact material	AgSnO2
Mechanical service life	
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength input - output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Depth x width x height	mm 55 / 50.5 / 34
Note	

Applications



**PWR high-power relay
2 NO AC/DC coil**

Type code	PWR			
Type	PWR			
Type of construction and mounting	276 2N.O. contact, DIN-rail mounting			
Coil voltage	006	6 V DC / 012	12 V DC	
	024	24 V DC / 048	48 V DC	
	110	110 V DC / 220	220 V DC	
	524	24 V AC / 548	48 V AC	
	615	115 V AC / 730	230 V AC	
	880	380 V AC		
LED indicator	L with LED			

Ordering data

	12 V DC 2 NO	24 V DC 2 NO	48 V DC 2 NO	110 V DC 2 NO	220 V DC 2 NO
Input					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 160 mA	/ 79.2 mA	/ 39.3 mA	/ 17.3 mA	/ 8.7 mA
Power rating	1.9 W	1.9 W	1.9 W	1.9 W	1.9 W
Pull-in/drop-out voltage, typ.	9 V / 1.8 V DC	18 V / 3.6 V DC	36 V / 7.2 V DC	82.5 V / 16.5 V DC	165 V / 33 V DC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 30 ms	< 30 ms	< 30 ms	< 30 ms	< 30 ms
Switch-off delay	< 30 ms	< 30 ms	< 30 ms	< 30 ms	< 30 ms

Ordering data					
Rail mounting	Type	PWR276012L	PWR276024L	PWR276048L	PWR276110L
	Order No.	1219540000	1219550000	1219560000	1219570000
	Type				
	Order No.				
Note					

Ordering data

	24 V AC 2 NO	48 V AC 2 NO	115 V AC 2 NO	230 V AC 2 NO	380 V AC 2 NO
Input					
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC	380 V AC
Rated current AC / DC	87.3 mA /	43.6 mA /	22.1 mA /	11 mA /	6.1 mA /
Power rating	2.5 VA	2.5 VA	2.5 VA	2.5 VA	2.5 VA
Pull-in/drop-out voltage, typ.	18 V / 3.6 V AC	36 V / 7.2 V AC	86.3 V / 17.3 V AC	172.5 V / 34.5 V AC	285 V / 57 V AC
Pull-in/drop-out current, typ.					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Output					
Switch-on delay	< 30 ms	< 30 ms	< 30 ms	< 30 ms	< 30 ms
Switch-off delay	< 30 ms	< 30 ms	< 30 ms	< 30 ms	< 30 ms

Ordering data					
Rail mounting	Type	PWR276524L	PWR276548L	PWR276615L	PWR276730L
	Order No.	1219160000	1219170000	1219180000	1219190000
	Type				
	Order No.				
Note					

Coupling modules – the industrial standard

Relay module with 1 to 4 CO contacts

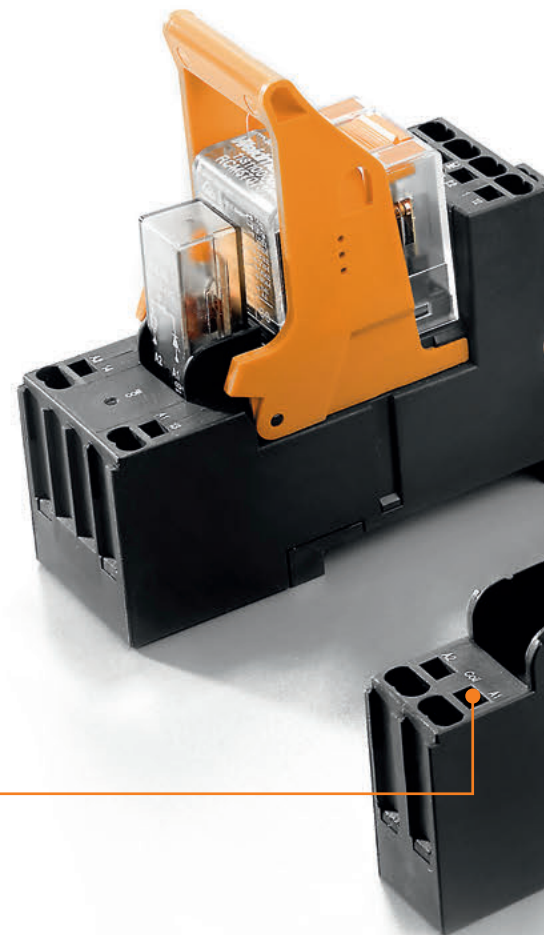


B

The RIDER SERIES and its RCI, RCM, RRD and RPW product lines have been successfully integrated into the entire Weidmüller line of relay products. This modular-designed product series formally complies with international standards. A variety of pluggable versions are available with from one to four CO contacts and your choice of connection method.

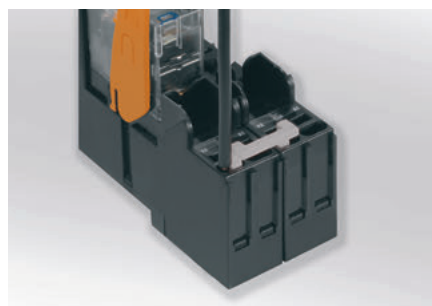
Our innovative relay bases with PUSH IN connection systems are available for both the RCI/RCL and RCM product lines. PUSH IN technology is safe and easy to use and it allows you to reduce costs with less wiring time. The relay modules are designed for industrial applications and feature sturdy relay pins and industrial-standard pinning. A mechanically operated, stay-down test button is integrated into the design. It enables switching statuses to be simulated during initial commissioning. Additional product features include LED status indicators and free-wheel diodes (DC).

Our relay kits are particularly convenient to use. They include the relay module with status display and the base with ejection lever. The kits are delivered fully assembled and with completely tested functionality. This saves time during assembly and reduces the number of products required.



Saves time

No-screw PUSH IN connections and cross-connections can reduce wiring time by more than 50 %.



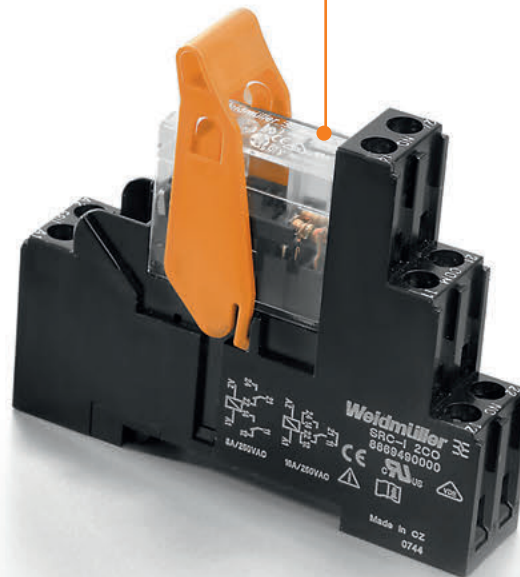
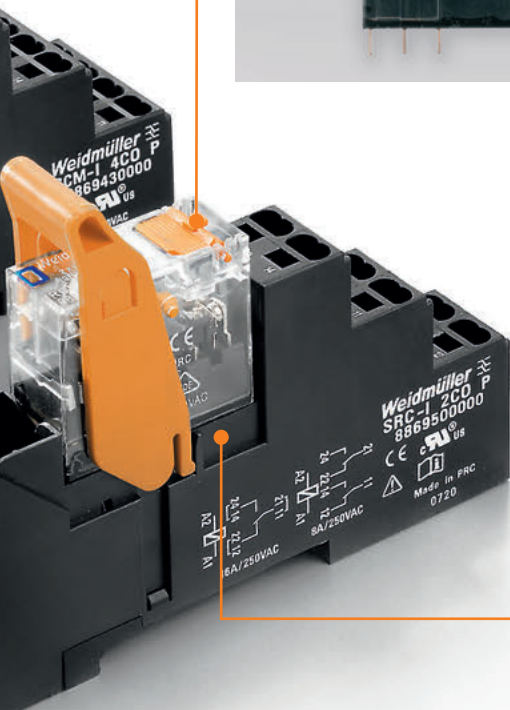
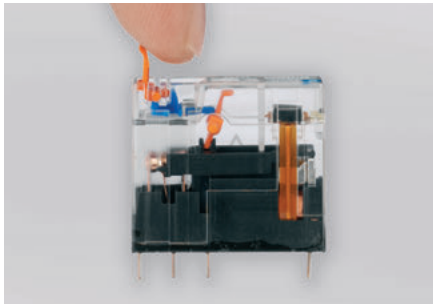
Customised

Suppressor circuitry and LED can be integrated into a relay module or as a pluggable module at the base.



Simple

The stay-down test button simplifies commissioning and service work.



Safe

The heavy-duty industrial pins ensure a reliable connection.

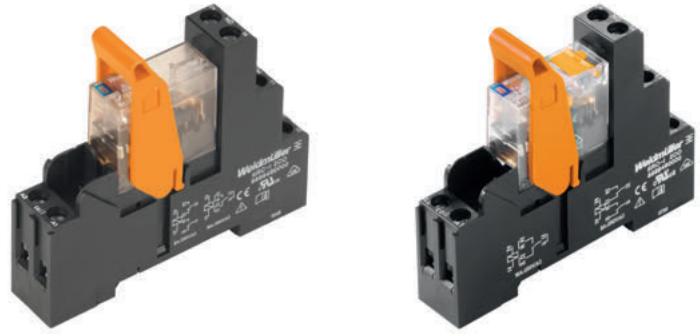


RIDERSERIES – relay modules

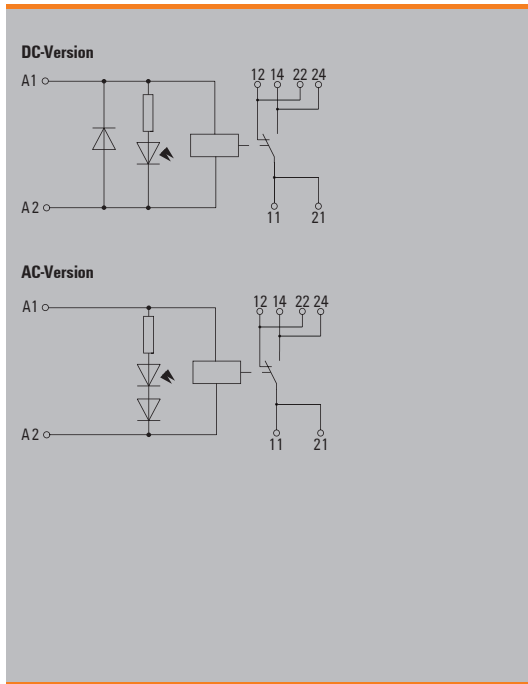
RCI KIT with screw connection

1 CO contact

- 4000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay
- Protective suppressor circuit for DC coil
- Optional test button with latching function and inspection window
- Identification of coils (AC red / DC blue)



B



Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 16 A ¹⁾
Max. switching voltage, AC	400 V
Inrush current	30 A / 4 s
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	384 W @ 24 V / 4000 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 5 x 10 ⁶ Switch. cycles, DC coil 10 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input – output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input – output	≥ 8 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 1 / 2.5
Depth x width x height	mm 70.2 / 15.8 / 77
Screw connection	
1) For full continuous current (16 A), relay connections 11 - 21, 12 - 22 and 14 - 24 must be bridged.	

Ordering data

	24 V DC 1CO	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Input				
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 16.7 mA	31.6 mA /	7 mA /	3.5 mA /
Power rating	420 mW	0.75 VA	0.8 VA	0.8 VA
Pull-in/drop-out voltage, typ.	16.8 V / 2.4 V DC	18 V / 3.6 V AC	86.3 V / 17.3 V AC	172.5 V / 34.5 V AC
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheel diode			
Output				
Switch-on delay	≤ 8 ms	≤ 8 ms	≤ 8 ms	≤ 8 ms
Switch-off delay	≤ 6 ms	≤ 6 ms	≤ 6 ms	≤ 6 ms

Ordering data

	24 V DC 1CO	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
with test button	RCIKIT 24VDC 1CO LD/PB	RCIKIT 24VAC 1CO LD	RCIKIT 115VAC 1CO LD/PB	RCIKIT 230VAC 1CO LD/PB
Order No.	8881580000	8871010000	8897060000	8881600000
without test button	RCIKIT 24VDC 1CO LD	RCIKIT 24VAC 1CO LD/PB	RCIKIT 115VAC 1CO LD	RCIKIT 230VAC 1CO LD
Order No.	8871000000	8881590000	8897090000	8871020000

Ordering data

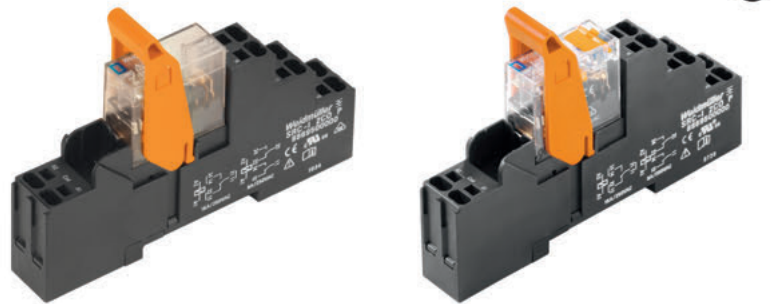
Spare relay	w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button
Type	RCI374AC4	RCI314AC4	RCI374R24	RCI314R24	RCI374S15	RCI314S15	RCI374T30	RCI314T30
Order No.	8870250000	8870100000	8870280000	8870130000	8870290000	8870140000	8870300000	8870150000

Note				
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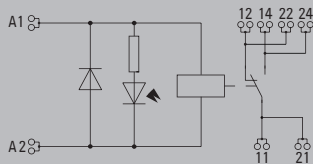
RCI-KITP with PUSH IN connection

1 CO contact

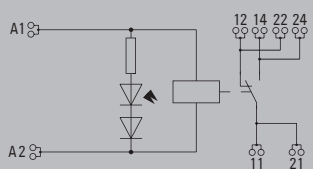
- 4000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay
- Protective suppressor circuit for DC coil
- Optional test button with latching function and inspection window
- Identification of coils (AC red / DC blue)



DC-Version



AC-Version



Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 16 A ¹⁾
Max. switching voltage, AC	400 V
Inrush current	30 A / 4 s
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	384 W @ 24 V / 4000 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 5 x 10 ⁶ Switch. cycles, DC coil 10 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.75 / 1.5
Depth x width x height	mm 69.6 / 15.8 / 98
Note	
1) For full continuous current (16 A), relay connections 11 - 21, 12 - 22 and 14 - 24 must be bridged.	

Ordering data

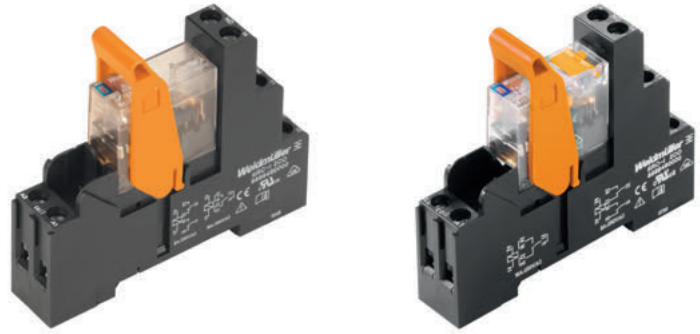
Input		24 V DC 1CO	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Rated control voltage		24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC		/ 16.7 mA	31.6 mA /	7 mA /	3.5 mA /
Power rating		420 mW	0.75 VA	0.8 VA	0.8 VA
Pull-in/drop-out voltage, typ.		16.8 V / 2.4 V DC	18 V / 3.6 V AC	86.3 V / 17.3 V AC	172.5 V / 34.5 V AC
Status indicator		Green LED	red LED	red LED	red LED
Protective circuit		Free-wheel diode			
Output					
Switch-on delay		≤ 8 ms	≤ 8 ms	≤ 8 ms	≤ 8 ms
Switch-off delay		≤ 6 ms	≤ 6 ms	≤ 6 ms	≤ 6 ms
Ordering data					
with test button	Type	RCIKITP 24VDC 1CO LD/PB	RCIKITP 24VAC 1CO LD/PB	RCIKITP115VAC 1CO LD/PB	RCIKITP230VAC 1CO LD/PB
	Order No.	8897190000	8897200000	8897210000	8897220000
without test button	Type	RCIKITP 24VDC 1CO LD	RCIKITP 24VAC 1CO LD	RCIKITP 115VAC 1CO LD	RCIKITP 230VAC 1CO LD
	Order No.	8897110000	8897120000	8897130000	8897140000
Ordering data					
Spare relay	Type	w. test button	w.o. test button	w. test button	w.o. test button
	Order No.	RCI374R24	RCI314R24	RCI374S15	RCI314S15
		8870280000	8870130000	8870290000	8870150000
Note					

RIDERSERIES – relay modules

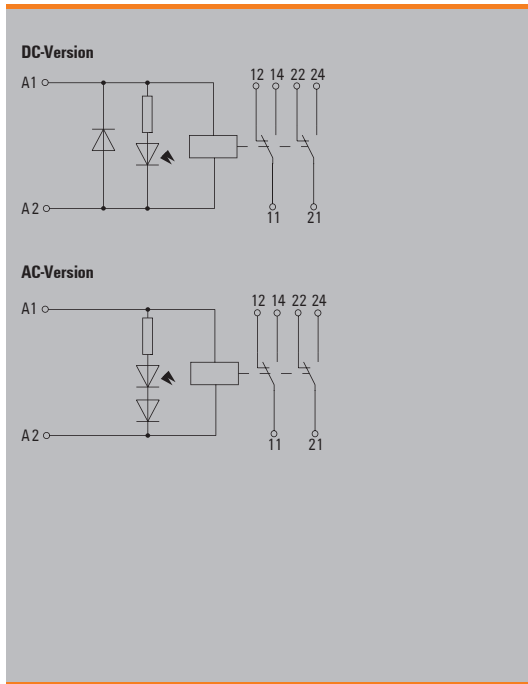
RCI KIT with screw connection

2 CO contacts

- 2000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay
- Protective suppressor circuit for DC coil
- Optional test button with latching function and inspection window
- Identification of coils (AC red / DC blue)



B



Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 8 A
Max. switching voltage, AC	400 V
Inrush current	15 A / 4 s
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	192 W @ 24 V / 2000 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 5 x 10 ⁶ Switch. cycles, DC coil 10 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 1 / 2.5
Depth x width x height	mm 70.2 / 15.8 / 77
Screw connection	
Note	

Ordering data

	24 V DC 2CO	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Input				
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 16.7 mA	31.6 mA /	7 mA /	3.5 mA /
Power rating	420 mW	0.75 VA	0.8 VA	0.8 VA
Pull-in/drop-out voltage, typ.	16.8 V / 2.4 V DC	18 V / 3.6 V AC	86.3 V / 17.3 V AC	172.5 V / 34.5 V AC
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheel diode			
Output				
Switch-on delay	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Switch-off delay	≤ 6 ms	≤ 6 ms	≤ 6 ms	≤ 6 ms

Ordering data

	24 V DC 2CO	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
with test button	RCIKIT 24VDC 2CO LD/PB	RCIKIT 24VAC 2CO LD/PB	RCIKIT 115VAC 2CO LD/PB	RCIKIT 230VAC 2CO LD/PB
Order No.	8881610000	8881620000	8897080000	8881630000
without test button	RCIKIT 24VDC 2CO LD	RCIKIT 24VAC 2CO LD	RCIKIT 115VAC 2CO LD	RCIKIT 230VAC 2CO LD
Order No.	8871030000	8871040000	8897100000	8871050000

Ordering data

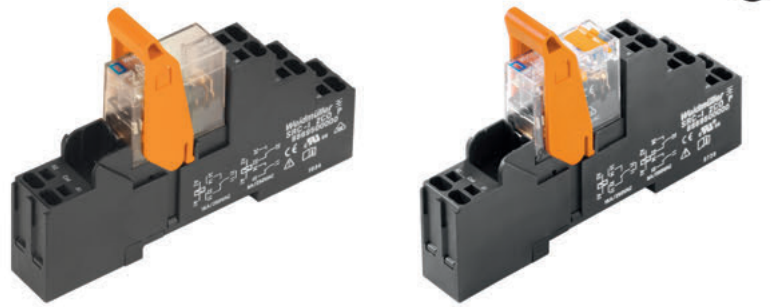
Spare relay	w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button
Type	RCI484AC4	RCI424AC4	RCI484R24	RCI424R24	RCI484S15	RCI424S15	RCI484T30	RCI424T30
Order No.	8870320000	8870180000	8870350000	8870210000	8870360000	8870220000	8870370000	8870230000

Note

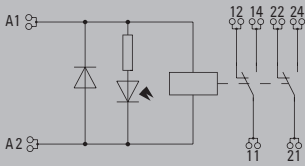
RCI-KITP with PUSH IN connection

2 CO contacts

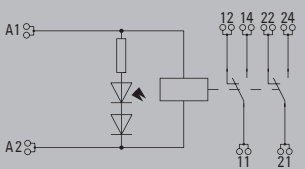
- 2000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay
- Protective suppressor circuit for DC coil
- Optional test button with latching function and inspection window
- Identification of coils (AC red / DC blue)



DC-Version



AC-Version



Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 8 A
Max. switching voltage, AC	400 V
Inrush current	15 A / 4 s
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	192 W @ 24 V / 2000 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 5 x 10 ⁶ Switch. cycles, DC coil 10 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
PUSH IN	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.75 / 1.5
Depth x width x height	mm 69.6 / 15.8 / 98
Note	

Ordering data

Input		24 V DC 2CO	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Rated control voltage		24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC		/ 16.7 mA	31.6 mA /	7 mA /	3.5 mA /
Power rating		420 mW	0.75 VA	0.8 VA	0.8 VA
Pull-in/drop-out voltage, typ.		16.8 V / 2.4 V DC	18 V / 3.6 V AC	86.3 V / 17.3 V AC	172.5 V / 34.5 V AC
Status indicator		Green LED	red LED	red LED	red LED
Protective circuit		Free-wheel diode			
Output					
Switch-on delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Switch-off delay		≤ 6 ms	≤ 6 ms	≤ 6 ms	≤ 6 ms
Ordering data					
with test button	Type	RCIKITP 24VDC 2CO LD/PB	RCIKITP 24VAC 2CO LD/PB	RCIKITP115VAC 2CO LD/PB	RCIKITP230VAC 2CO LD/PB
	Order No.	8897230000	8897240000	8897250000	8897260000
without test button	Type	RCIKITP 24VDC 2CO LD	RCIKITP 24VAC 2CO LD	RCIKITP 115VAC 2CO LD	RCIKITP 230VAC 2CO LD
	Order No.	8897150000	8897160000	8897170000	8897180000
Ordering data					
Spare relay	Type	w. test button w.o. test button	w. test button w.o. test button	w. test button w.o. test button	w. test button w.o. test button
	Order No.	RCI484AC4 RCI424AC4	RCI484R24 RCI424R24	RCI484S15 RCI424S15	RCI484T30 RCI424T30
		8870320000 8870180000	8870350000 8870210000	8870360000 8870220000	8870370000 8870230000
Note					

RIDERSERIES – relay modules

RCI relay

1 CO contact AC/DC coil

- 4000 VA switching capacity
- Stable plug-in connections
- Optional test button with latching function and inspection window
- Optional status indicator (AC red / DC green)
- Optional protective suppressor circuit
- Identification of coils (AC red / DC blue)

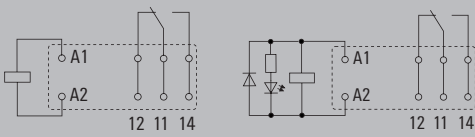


B

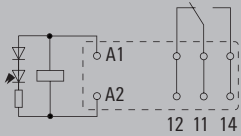
Circuit diagram

View on solder pins

DC coil LED + Diode



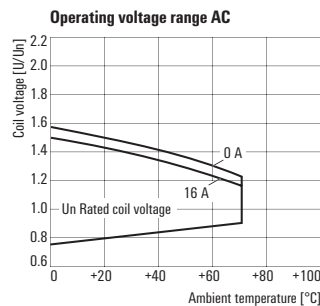
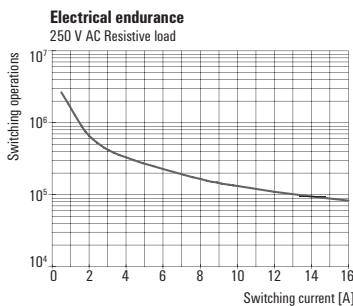
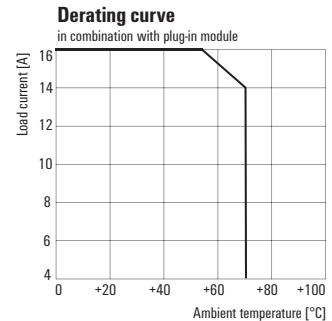
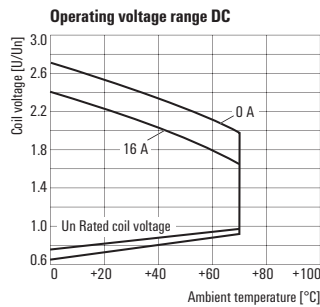
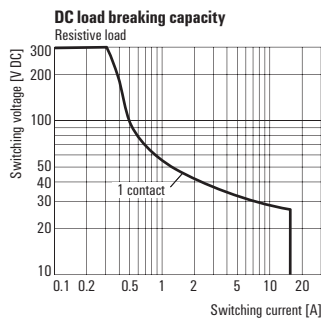
AC coil LED



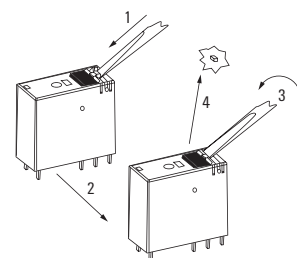
Technical data

Output	
Rated switching voltage / Continuous current	240 V AC / 16 A
Max. switching voltage, AC	400 V
Inrush current	30 A / 4 s
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	384 W @ 24 V / 4000 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 5 x 10 ⁶ Switch. cycles, DC coil 10 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, CSA, cURus, EAC, VDE
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overtoltage category	III
Pollution degree	2
Dimensions	
Depth x width x height	mm 25.6 / 13 / 29
Plug-in connection	
Note	

Applications



Removal of snap lock



RCI relay

1 CO contact AC/DC coil

Type code	RCI				
Type	RIDER Control Industrial				
Type of construction	3 1-pole, 16 A 4 2-pole, 8 A				
Type of contact	1 1 CO contact without test button 2 2 CO contacts without test button 7 1 CO contact with test button 8 2 CO contacts with test button				
Contact material	4 AgNi 90/10				
Coil	012 12 V DC 024 24 V DC 048 48 V DC 110 110 V DC 524 24 V AC 615 115 V AC 730 230 V AC AB2 12 V DC+LED+diode AC4 24 V DC+LED+diode AE8 48 V DC+LED+diode BB0 110 V DC+LED+diode R24 24 V AC+LED S15 115 V AC+LED T30 230 V AC+LED				

Ordering data

Input		12 V DC 1CO	24 V DC 1CO	48 V DC 1CO	110 V DC 1CO
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 33.3 mA	/ 16.7 mA	/ 8.7 mA	/ 4.1 mA
Power rating		400 mW	400 mW	400 mW	400 mW
Pull-in/drop-out voltage, typ.		8.4 V / 1.2 V DC	16.8 V / 2.4 V DC	33.6 V / 4.8 V DC	77 V / 11 V DC
Output					
Switch-on delay		≤ 8 ms	≤ 8 ms	≤ 8 ms	≤ 8 ms
Switch-off delay		≤ 6 ms	≤ 6 ms	≤ 6 ms	≤ 6 ms
Ordering data					
Standard	Type	RCI314012	RCI314024	RCI314048	RCI314110
	Order No.	886980000	8869810000	8869820000	8869830000
with test button	Type	RCI374012	RCI374024		
	Order No.	8869950000	8869960000		
with LED + freewheel diode	Type	RCI314AB2	RCI314AC4	RCI314AE8	RCI314BB0
	Order No.	8870090000	8870100000	8870110000	8870120000
with test button + LED + Free-wheel diode	Type	RCI374AB2	RCI374AC4	RCI374AE8	RCI374BB0
	Order No.	8870240000	8870250000	8870260000	8870270000
Note					

Ordering data

Input		24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Rated control voltage		24 V AC	115 V AC	230 V AC
Rated current AC / DC		31.6 mA /	6.6 mA /	3.2 mA /
Power rating		0.75 VA	0.75 VA	0.75 VA
Pull-in/drop-out voltage, typ.		18 V / 3.6 V AC	86.3 V / 17.3 V AC	172.5 V / 34.5 V AC
Output				
Switch-on delay		≤ 8 ms	≤ 8 ms	≤ 8 ms
Switch-off delay		≤ 6 ms	≤ 6 ms	≤ 6 ms
Ordering data				
Standard	Type	RCI314524	RCI314615	RCI314730
	Order No.	8869840000	8869850000	8869860000
with test button	Type	RCI374524		RCI374730
	Order No.	8869990000		8870010000
with LED	Type	RCI314R24	RCI314S15	RCI314T30
	Order No.	8870130000	8870140000	8870150000
with test button + LED	Type	RCI374R24	RCI374S15	RCI374T30
	Order No.	8870280000	8870290000	8870300000
Note				

RIDERSERIES – relay modules

RCI relay

2 CO contact AC / DC coil

- 2000 VA switching capacity
- Stable plug-in connections
- Optional test button with latching function and inspection window
- Optional status indicator (AC red / DC green)
- Optional protective suppressor circuit
- Identification of coils (AC red / DC blue)

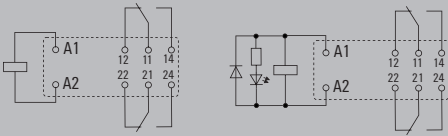


B

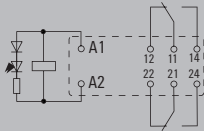
Circuit diagram

View on solder pins
dimensions in mm

DC coil LED + Diode



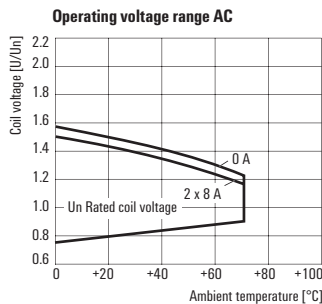
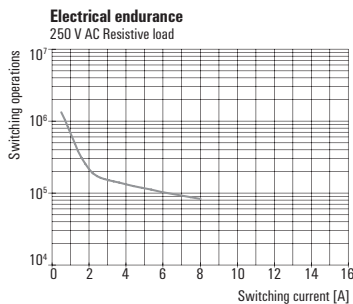
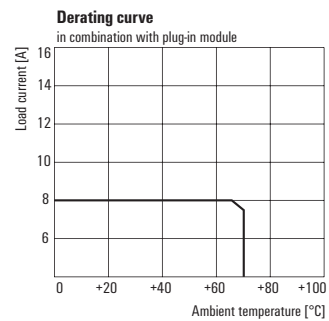
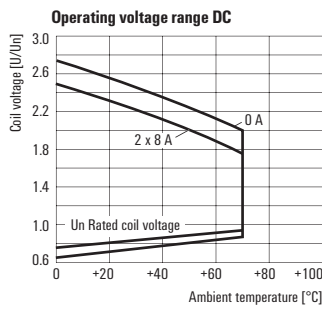
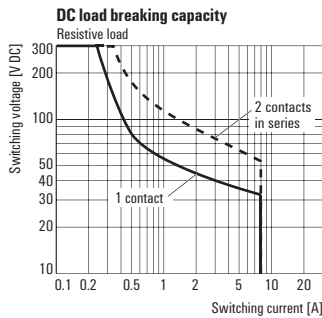
AC coil LED



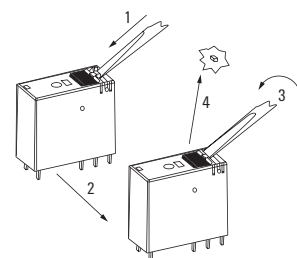
Technical data

Output	
Rated switching voltage / Continuous current	240 V AC / 8 A
Max. switching voltage, AC	400 V
Inrush current	15 A / 4 s
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	192 W @ 24 V / 2000 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 5 x 10 ⁶ Switch. cycles, DC coil 10 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, CSA, cURus, EAC, VDE
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Depth x width x height	mm 25.6 / 13 / 29
Plug-in connection	
Note	
	x = 25.5 without test button / 26.7 with test button

Applications



Removal of snap lock



RCI relay
2 CO contact AC / DC coil

Type code	RCI				
Type	RIDER Control Industrial				
Type of construction	3 1-pole, 16 A 4 2-pole, 8 A				
Type of contact	1 1 CO contact without test button 2 2 CO contacts without test button 7 1 CO contact with test button 8 2 CO contacts with test button				
Contact material	4 AgNi 90/10				
Coil	012 12 V DC 024 24 V DC 048 48 V DC 110 110 V DC 524 24 V AC 615 115 V AC 730 230 V AC AB2 12 V DC+LED+diode AC4 24 V DC+LED+diode AE8 48 V DC+LED+diode BB0 110 V DC+LED+diode R24 24 V AC+LED S15 115 V AC+LED T30 230 V AC+LED				

Ordering data

		12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO
Input					
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 33.3 mA	/ 16.7 mA	/ 8.7 mA	/ 4.1 mA
Power rating		400 mW	400 mW	400 mW	400 mW
Pull-in/drop-out voltage, typ.		8.4 V / 1.2 V DC	16.8 V / 2.4 V DC	33.6 V / 4.8 V DC	77 V / 11 V DC
Output					
Switch-on delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Switch-off delay		≤ 6 ms	≤ 6 ms	≤ 6 ms	≤ 6 ms
Ordering data					
Standard	Type	RCI424012	RCI424024	RCI424048	RCI424110
	Order No.	8869870000	8869890000	8869900000	8869910000
with test button	Type	RCI484012	RCI484024	RCI484048	RCI484110
	Order No.	8870020000	8870030000	8870040000	8870050000
with LED + freewheel diode	Type	RCI424AB2	RCI424AC4	RCI424AE8	RCI424BB0
	Order No.	8870170000	8870180000	8870190000	8870200000
with test button + LED + Free-wheel diode	Type	RCI484AB2	RCI484AC4	RCI484AE8	RCI484BB0
	Order No.	8870310000	8870320000	8870330000	8870340000
Note					

Ordering data

		24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Input				
Rated control voltage		24 V AC	115 V AC	230 V AC
Rated current AC / DC		31.6 mA /	6.6 mA /	3.2 mA /
Power rating		0.75 VA	0.75 VA	0.75 VA
Pull-in/drop-out voltage, typ.		18 V / 3.6 V AC	86.3 V / 17.3 V AC	172.5 V / 34.5 V AC
Output				
Switch-on delay		≤ 10 ms	≤ 10 ms	≤ 10 ms
Switch-off delay		≤ 6 ms	≤ 6 ms	≤ 6 ms
Ordering data				
Standard	Type	RCI424524	RCI424615	RCI424730
	Order No.	8869920000	8869930000	8869940000
with test button	Type	RCI484524	RCI484615	RCI484730
	Order No.	8870060000	8870070000	8870080000
with LED	Type	RCI424R24	RCI424S15	RCI424T30
	Order No.	8870210000	8870220000	8870230000
with test button + LED	Type	RCI484R24	RCI484S15	RCI484T30
	Order No.	8870350000	8870360000	8870370000
Note				

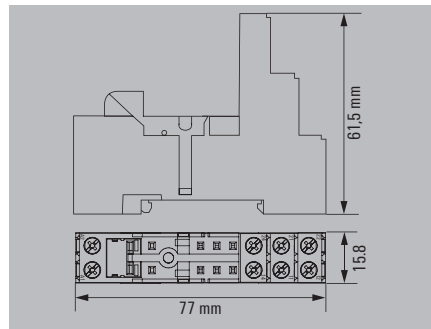
RIDERSERIES – relay modules

Accessories for RCI relays

1 CO contact and 2 CO contacts

- Tool-free unlocking of the terminal rail
- Wide assortment of functional modules

Standard-height socket module with clamping yoke connection, 2 CO contacts



Technical data

Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	400 V
Continuous current	12 A, 16 A ¹⁾
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Approvals	CE; CSA; cURus; EAC
Insulation coordination	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 10 mm
Dielectric strength input - output	5 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 min.
Impulse withstand voltage	
Connection data	
Clamping range (nominal / min. / max.)	2.5 / 1 / 2.5 mm ²
Tightening torque	0.5...0.7 Nm
Stripping length, rated connection	8 mm
Note	
1) For full continuous current (16 A), relay connections 11-21, 12-22 and 14-24 must be bridged.	

Ordering data

Type	Qty.	Order No.
SRC-I 2CO	10	8869490000
Note		
Socket, DIN rail mounted		

Accessories

Type	Qty.	Order No.
Cross-connection		
Cross-connection, 8-pole		
Retaining clip		
Plastic retaining clip		
Metal retaining clip		
Markers		
Label, not PrintJet compatible, no MultiCard white		
LED module / protection modules		
Free-wheeling diode 6 - 230 V DC	10	8869580000
Load resistance 110 - 230 V UC	10	8870830000
LED 6 - 24 V DC green and freewheeling diode	10	8869600000
LED 24 - 60 V DC green and free-wheeling diode	10	8869680000
LED 110 - 230 V DC green and free-wheeling diode	10	8869700000
LED 6 - 24 V UC green	10	8869640000
LED 24 - 60 V UC green	10	8869620000
LED 110 - 230 V UC green	10	8869660000
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF	10	8869790000
RC element 230 V UC; 1.1 kΩ / 200 nF	10	1172210000
Protective varistor; S07K30	10	8869710000
Protective varistor; S07K130	10	8869730000
Protective varistor; S07K275	10	8869750000
Screwdriver		
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

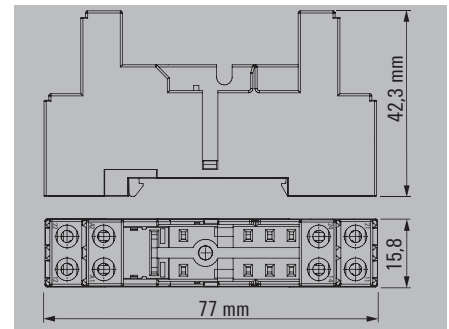
Note

Type	Qty.	Order No.
SRC-I 2CO	10	8869490000
Note		
1) For full continuous current (16 A), relay connections 11-21, 12-22 and 14-24 must be bridged.		

Type	Qty.	Order No.
SRC-I QV S	10	1132070000
SRC-I CLIP HP	10	8869510000
SRC-I CLIP HM RCI	20	1132090000
SRC-I MARK	10	8869530000
ESG 6/15 SRC-I MC NE WS	200	2558350000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

Article numbers for LED modules with red LED are to be found at catalog.weidmueller.com

Low-height socket module with clamping yoke connection, 2 CO contacts

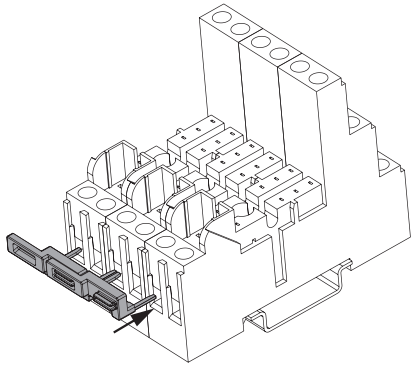


Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	400 V
Continuous current	12 A, 16 A ¹⁾
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Approvals	CE; CSA; cURus; EAC
Insulation coordination	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 4 mm
Dielectric strength input - output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 min.
Impulse withstand voltage	
Connection data	
Clamping range (nominal / min. / max.)	2.5 / 1 / 2.5 mm ²
Tightening torque	0.5...0.7 Nm
Stripping length, rated connection	8 mm
Note	
1) For full continuous current (16 A), relay connections 11-21, 12-22 and 14-24 must be bridged.	

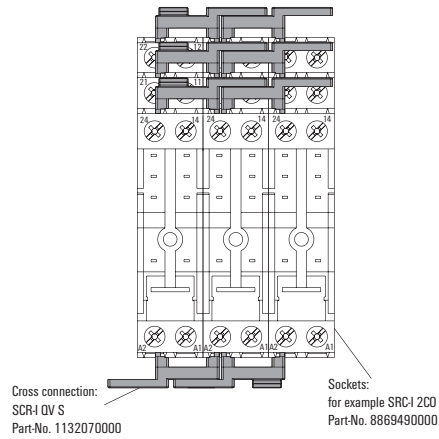
Type	Qty.	Order No.
SRC-I 2CO N	10	8869480000
Note		
Socket, DIN rail mounted		

Type	Qty.	Order No.
SRC-I QV S	10	1132070000
SRC-I CLIP HP	10	8869510000
SRC-I CLIP HM RCI	20	1132090000
SRC-I MARK	10	8869530000
ESG 6/15 SRC-I MC NE WS	200	2558350000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

Article numbers for LED modules with red LED are to be found at catalog.weidmueller.com

Installation of the cross-connection on the relay base

Plug the cross connection into wire-connection opening
and fix it with tighten the screw

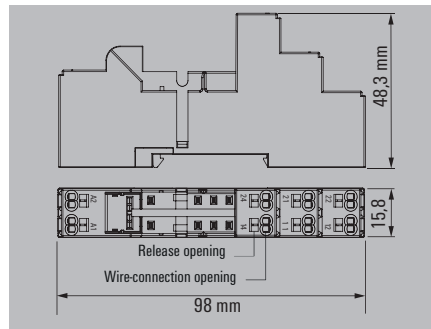


RIDERSERIES – relay modules

Accessories for RCI relays

1 CO contact and 2 CO contacts

- Tool-free unlocking of the terminal rail
- Wide assortment of functional modules

Socket module with
PUSH IN connection, 2 CO contacts

Technical data

Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	400 V
Continuous current	12 A, 16 A ¹⁾
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Approvals	CE, CSA, cURus, EAC
Insulation coordination	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 10 mm
Dielectric strength input - output	5 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 min.
Impulse withstand voltage	
Connection data	
Clamping range (nominal / min. / max.)	1.5 / 0.75 / 1.5 mm ²
Tightening torque	...
Stripping length, rated connection	12 mm
Note	1) For full continuous current (16 A), relay connections 11-21, 12-22 and 14-24 must be bridged.

Ordering data

Type	Qty.	Order No.
SRC-I 2CO P	10	8869500000
Note: Socket, DIN rail mounted		

Accessories

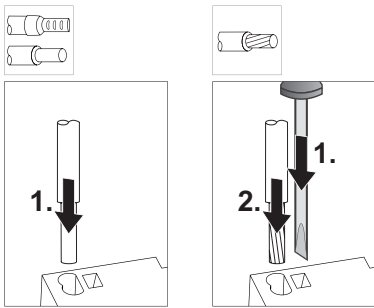
Type	Qty.	Order No.
SRC-I QV P	10	8870840000
SRC-I CLIP HP	10	8869510000
SRC-I CLIP HM RCI	20	1132090000
SRC-I MARK	10	8869530000
ESG 6/15 SRC-I MC NE WS	200	2558350000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 6/60VAC RC	10	8869770000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIS SL 0.6X3.5X100	1	1274660000

Screwdriver	
	Standard

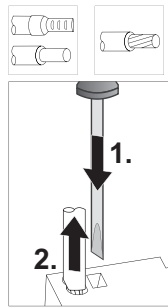
Note	Article numbers for LED modules with red LED are to be found at catalog.weidmueller.com
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PUSH IN connection operation

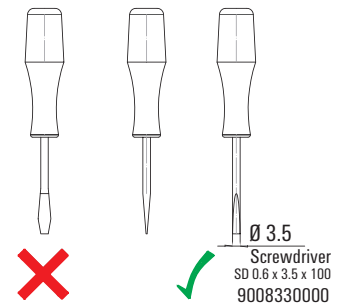
Insert connector



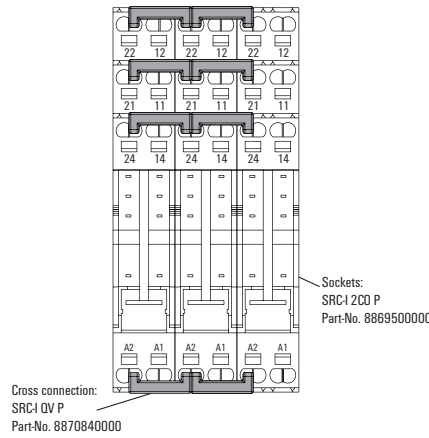
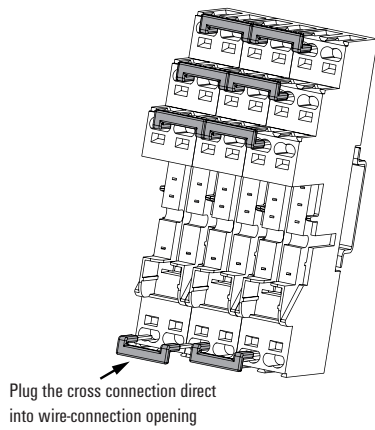
Remove connector



Recommended screwdriver



Installation of the cross-connection on the relay base



If more than 2 poles are connected with stacked cross-connection ridges, then the bottom ridges must be stripped to the appropriate length and shortened for correct fitting.

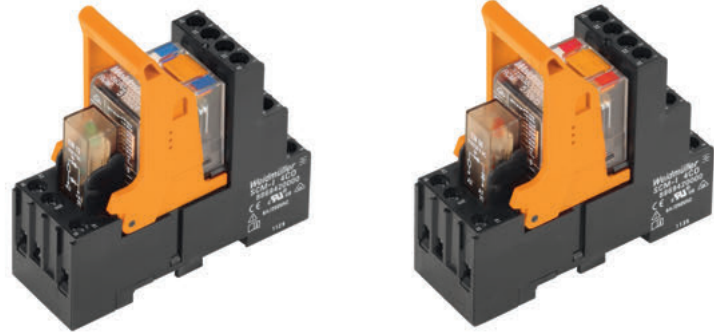
RIDERSERIES – relay modules

RCM KIT with screw connection

2 CO contacts, AC/ DC coil

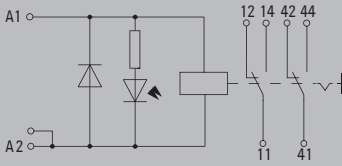
Modular system comprising of:

- Relay socket for rail mounting
- LED display unit (AC red / DC green)
- Retaining clip
- Pluggable relays with coil identification (AC red / DC blue)
- Markers

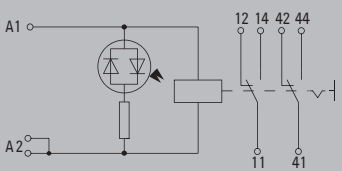


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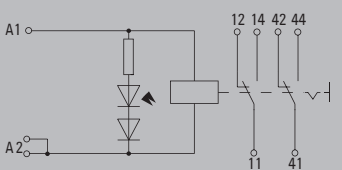
DC-Version



AC-Version



AC-Version 115 V AC / 230 V AC



Technical data

Output	
Rated switching voltage / Continuous current	240 V AC / 12 A
Max. switching voltage, AC	400 V
Inrush current	24 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	288 W @ 24 V / 3000 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 20 x 10 ⁶ Switch. cycles, DC coil 30 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2.5 KV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2.5 KV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 1 / 2.5
Depth x width x height	mm 78.3 / 27.2 / 77
Screw connection	
Note	

Ordering data

	24 V DC 2CO LED	24 V AC 2CO LED	115 V AC 2CO LED	230 V AC 2CO LED
Input				
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 31.3 mA	41.6 mA /	8.8 mA /	4.3 mA /
Power rating	740 mW	1.0 VA	1.0 VA	1.0 VA
Pull-in/drop-out voltage, typ.	18 V / 2.4 V DC	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheel diode			
Output				
Switch-on delay	≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms

Ordering data

Screw connection	Type	RCMKIT-I 24VDC 2CO LD	RCMKIT-I 24VAC 2CO LD	RCMKIT-I 115VAC 2CO LD	RCMKIT-I 230VAC 2CO LD
	Order No.	8920940000	8920950000	8920960000	8920970000
	Type				
	Order No.				

Ordering data

Spare relay (pluggable)	Type	RCM270024	RCM270524	RCM270615	RCM270730
	Order No.	8689860000	8689760000	8689800000	8689820000

Note

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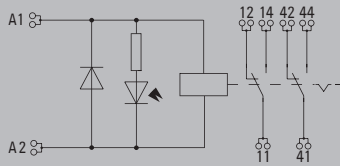
RCM KIT with PUSH IN connection 2 CO contacts AC/DC coil

Modular system comprising of:

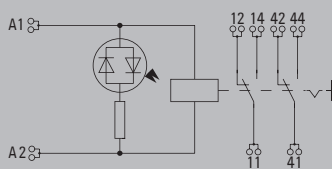
- Relay socket for rail mounting
- LED display unit (AC red / DC green)
- Retaining clip
- Pluggable relays with coil identification (AC red / DC blue)
- Markers



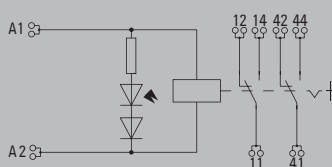
DC-Version



AC-Version



AC-Version 115 V AC / 230 V AC



Technical data

Output	
Rated switching voltage / Continuous current	240 V AC / 12 A
Max. switching voltage, AC	400 V
Inrush current	24 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	288 W @ 24 V / 3000 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 20 x 10 ⁶ Switch. cycles, DC coil 30 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2.5 KV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2.5 KV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.75 / 1.5
Depth x width x height	mm 78.3 / 28 / 98
Note	

Ordering data

		24 V DC 2CO LED	24 V AC 2CO LED	115 V AC 2CO LED	230 V AC 2CO LED
Input					
Rated control voltage		24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC		/ 31.3 mA	41.6 mA /	8.8 mA /	4.3 mA /
Power rating		740 mW	1.0 VA	1.0 VA	1.0 VA
Pull-in/drop-out voltage, typ.		18 V / 2.4 V DC	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Status indicator		Green LED	red LED	red LED	red LED
Protective circuit		Free-wheel diode			
Output					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data					
PUSH IN connection	Type	RCMKITP-I 24VDC 2CO LD	RCMKITP-I 24VAC 2CO LD	RCMKITP-I 115VAC 2CO LD	RCMKITP-I 230VAC 2CO LD
	Order No.	8921080000	8921090000	8921100000	8921110000
	Type				
	Order No.				
Ordering data					
Spare relay (pluggable)	Type	RCM270024	RCM270524	RCM270615	RCM270730
	Order No.	8689860000	8689760000	8689800000	8689820000
Note					

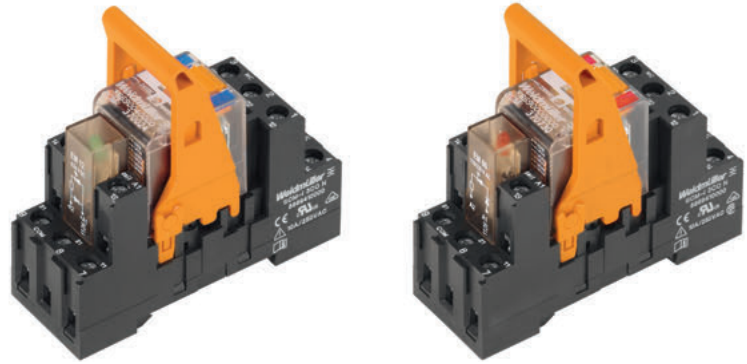
RIDERSERIES – relay modules

RCM KIT with screw connection

3 CO contacts, AC/ DC coil

Modular system comprising of:

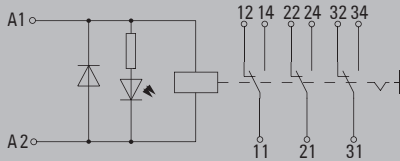
- Relay socket for rail mounting
- LED display unit (AC red / DC green)
- Retaining clip
- Pluggable relay modules
- Identification of coils (AC red / DC blue)
- Markers



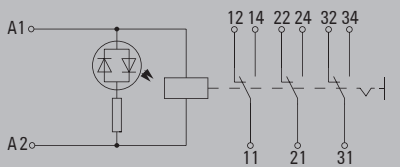
Technical data

Output	
Rated switching voltage / Continuous current	240 V AC / 10 A
Max. switching voltage, AC	400 V
Inrush current	20 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	240 W @ 24 V / 2500 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 20 x 10 ⁶ Switch. cycles, DC coil 30 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, DNVGL, EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2.5 KV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2.5 KV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 1 / 2.5
Depth x width x height	mm 71.6 / 27.2 / 73.5
Screw connection	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 1 / 2.5
Depth x width x height	mm 71.6 / 27.2 / 73.5
Note	

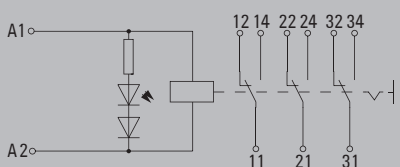
DC-Version



AC-Version



AC-Version 115 V AC / 230 V AC



Ordering data

Input		24 V DC 3CO LED	24 V AC 3CO LED	115 V AC 3CO LED	230 V AC 3CO LED
Rated control voltage		24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC		/ 31.3 mA	41.6 mA /	8.8 mA /	4.3 mA /
Power rating		740 mW	1.0 VA	1.0 VA	1.0 VA
Pull-in/drop-out voltage, typ.		18 V / 2.4 V DC	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Status indicator		Green LED	red LED	red LED	red LED
Protective circuit		Free-wheel diode			
Output					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data					
Screw connection	Type	RCMKIT-I 24VDC 3CO LD	RCMKIT-I 24VAC 3CO LD	RCMKIT-I 115VAC 3CO LD	RCMKIT-I 230VAC 3CO LD
	Order No.	8920980000	8920990000	8921010000	8921020000
	Type				
	Order No.				
Ordering data					
Spare relay (pluggable)	Type	RCM370024	RCM370524	RCM370615	RCM370730
	Order No.	8690040000	8690030000	8689980000	8690000000
Note					

RIDERSERIES – relay modules

RCM KIT with screw connection

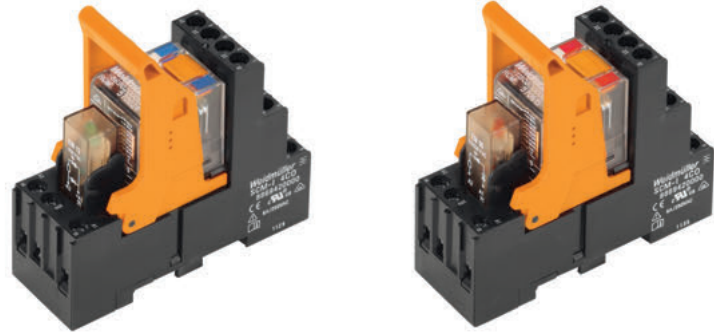
4 CO contacts, AC/ DC coil

Modular system comprising of:

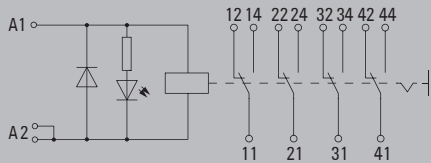
- relay socket for rail mounting
- LED display unit (AC red / DC green)
- retaining clip
- pluggable relays with coil identification (AC red / DC blue)
- Markers

Independent of connection system:

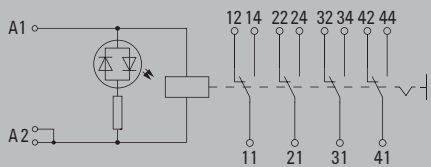
- Screw or PUSH IN connection system



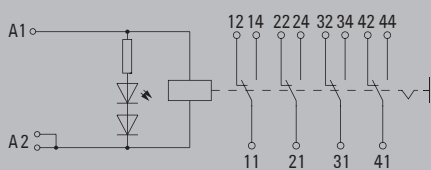
DC-Version



AC-Version



AC-Version 115 V AC / 230 V AC



Technical data

Output	
Rated switching voltage / Continuous current	240 V AC / 6 A
Max. switching voltage, AC	240 V
Inrush current	12 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 20 x 10 ⁶ Switch. cycles, DC coil 30 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2.5 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 1 / 2.5
Depth x width x height	mm 78.3 / 27.2 / 77
Screw connection	
Note	

Ordering data

Input		24 V DC 4CO LED	24 V AC 4CO LED	115 V AC 4CO LED	230 V AC 4CO LED
Rated control voltage		24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC		/ 31.3 mA	41.6 mA /	8.8 mA /	4.3 mA /
Power rating		740 mW	1.0 VA	1.0 VA	1.0 VA
Pull-in/drop-out voltage, typ.		18 V / 2.4 V DC	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Status indicator		Green LED	red LED	red LED	red LED
Protective circuit		Free-wheel diode			
Output					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data					
Screw connection	Type	RCMKIT-I 24VDC 4CO LD	RCMKIT-I 24VAC 4CO LD	RCMKIT-I 115VAC 4CO LD	RCMKIT-I 230VAC 4CO LD
	Order No.	8921030000	8921040000	8921050000	8921060000
	Type				
	Order No.				
Ordering data					
Spare relay (pluggable)	Type	RCM570024	RCM570524	RCM570615	RCM570730
	Order No.	8690200000	8690110000	1180800000	1181100000
Note					

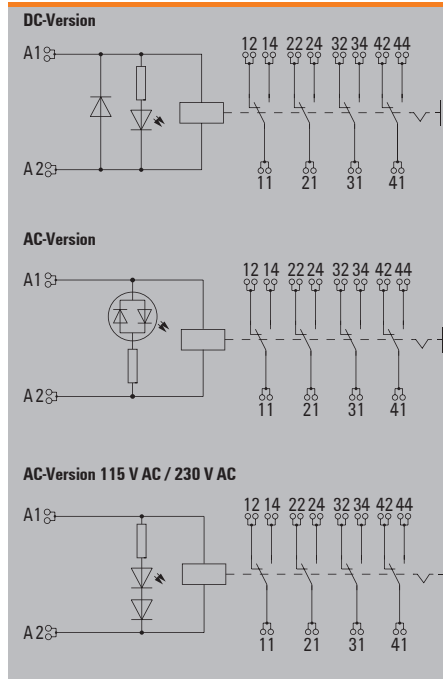
RCM KIT with PUSH IN connection**4 CO contacts AC/DC coil**

Modular system comprising of:

- relay socket for rail mounting
- LED display unit (AC red / DC green)
- retaining clip
- pluggable relays with coil identification (AC red / DC blue)
- Markers

Independent of connection system:

- Screw or PUSH IN connection system

**Technical data**

Output	
Rated switching voltage / Continuous current	240 V AC / 6 A
Max. switching voltage, AC	240 V
Inrush current	12 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 20 x 10 ⁶ Switch. cycles, DC coil 30 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2.5 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.75 / 1.5
Depth x width x height	mm 78.3 / 28 / 98
Note	

Ordering data

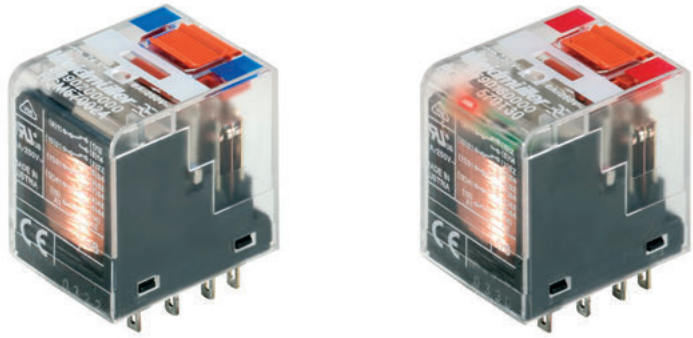
		24 V DC 4CO LED	24 V AC 4CO LED	115 V AC 4CO LED	230 V AC 4CO LED
Input					
Rated control voltage		24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC		/ 31.3 mA	41.6 mA /	8.8 mA /	4.3 mA /
Power rating		740 mW	1.0 VA	1.0 VA	1.0 VA
Pull-in/drop-out voltage, typ.		18 V / 2.4 V DC	19.2 V / 7.2 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Status indicator		Green LED	red LED	red LED	red LED
Protective circuit		Free-wheel diode			
Output					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data					
PUSH IN connection	Type	RCMKITP-I 24VDC 4CO LD	RCMKITP-I 24VAC 4CO LD	RCMKITP-I 115VAC 4CO LD	RCMKITP-I 230VAC 4CO LD
	Order No.	8921120000	8921130000	8921140000	8921150000
	Type				
	Order No.				
Ordering data					
Spare relay (pluggable)	Type	RCM570024	RCM570524	RCM570615	RCM570730
	Order No.	8690200000	8690110000	1180800000	1181100000
Note					

RIDERSERIES – relay modules

RCM relay

2 CO contacts, AC/DC coil

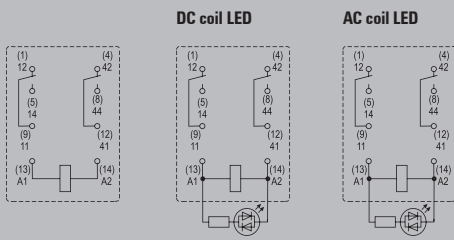
- 3000 VA switching capacity
- Solder and plug connection
- Safe-to-touch test button, selectable locking
- White labelling panel
- Identification of coils (AC red / DC blue)



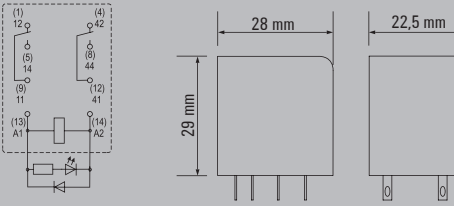
B

Circuit diagram

View on pins from below



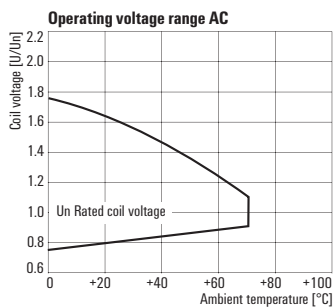
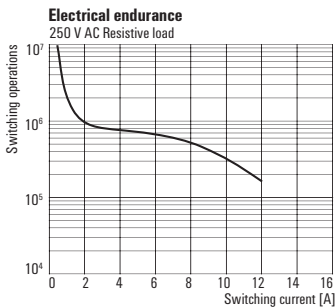
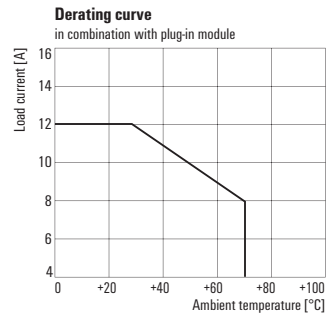
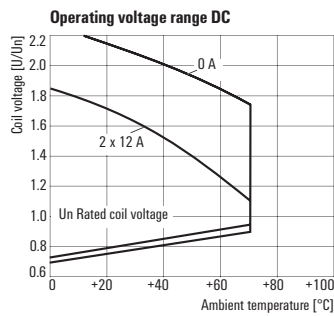
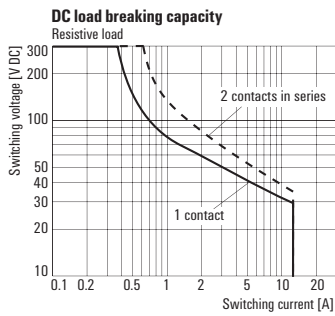
DC coil LED + diode



Technical data

Output	
Rated switching voltage / Continuous current	240 V AC / 12 A
Max. switching voltage, AC	400 V
Inrush current	24 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	288 W @ 24 V / 3000 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 20 x 10 ⁶ Switch. cycles, DC coil 30 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, CSA, cURus, EAC, VDE
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2.5 KV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2.5 KV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	/ /
Depth x width x height	mm 29 / 22.5 / 28
Plug-in connection	
Note	

Applications



RCM relay
2 CO contacts, AC/DC coil

Type code	RCM				
Type	RIDER Control Multiple				
Contacts	2 2 CO contacts				
	3 3 CO contacts				
	5 4 CO contacts				
Contact material	7 AgNi 90/10, with test button				
	8 AgNi 90/10 hgp, with test button				
Type of construction	0 Standard, 2.8 mm Faston				

DC coil			with LED + diode
006	6 V DC	L06	
012	12 V DC	L12	AB2
024	24 V DC	L24	AC4
048	48 V DC	L48	AE8
060	60 V DC	L60	
110	110 V DC	M10	BB0
220	220 V DC	N20	

AC coil		
506	6 V AC	R06
512	12 V AC	R12
524	24 V AC	R24
548	48 V AC	R48
615	115 V AC	S15
730	230 V AC	T30

Ordering data

Input	12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC	/ 62.5 mA	/ 31.3 mA	/ 15.6 mA	/ 6.8 mA
Power rating	750 mW	750 mW	750 mW	750 mW
Pull-in/drop-out voltage, typ.	9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11.5 V DC
Output				
Switch-on delay	≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data				
without LED Type	RCM270012	RCM270024	RCM270048	RCM270110
AgNi 90/10 Order No.	8689840000	8689860000	8689880000	8689900000
with LED Type	RCM270L12	RCM270L24	RCM270L48	
AgNi 90/10 Order No.	8689850000	8689870000	8689890000	
with LED + freewheel diode Type	RCM270AB2	RCM270AC4		
AgNi 90/10 Order No.	8957020000	8957030000		
Type Order No.				

Note				

Ordering data

Input	24 V AC 2CO	48 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC	41.6 mA /	21.3 mA /	8.8 mA /	4.3 mA /
Power rating	1.0 VA	1.0 VA	1.0 VA	1.0 VA
Pull-in/drop-out voltage, typ.	38.4 V / 14.4 V AC	48 V / 18 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Output				
Switch-on delay	≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data				
without LED Type	RCM270524	RCM270548	RCM270615	RCM270730
AgNi 90/10 Order No.	8689760000	8689780000	8689800000	8689820000
with LED Type	RCM270R24		RCM270S15	RCM270T30
AgNi 90/10 Order No.	8689770000		8689810000	8689830000
Type Order No.				
Type Order No.				

Note				

RIDERSERIES – relay modules

Accessories for RCM relays, 2 CO contacts

- Tool-free unlocking of the terminal rail
- Wide assortment of functional modules

Technical data

Output

Rated switching voltage
Max. switching voltage, AC
Continuous current

Rated data

Ambient temperature (operational)
Storage temperature
Approvals

Insulation coordination

Protection degree
Creepage and clearance distance input - output
Dielectric strength input - output
Dielectric strength of neighbouring contacts
Impulse withstand voltage

Connection data

Clamping range (nominal / min. / max.)
Tightening torque
Stripping length, rated connection

Note

Ordering data

Socket, DIN rail mounted

Note

Accessories

Cross-connection

8-pole

Retaining clip

Plastic retaining clip
Metal retaining clip

Markers

Label, not PrintJet compatible, no MultiCard
white

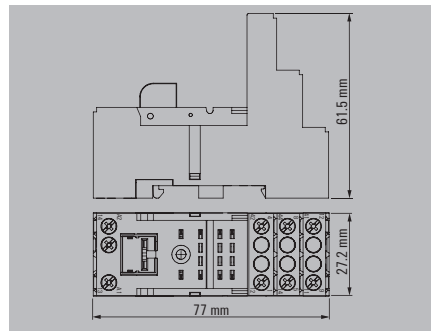
LED module / protection modules

Free-wheeling diode 6 - 230 V DC
Load resistance 110 - 230 V UC
LED 6 - 24 V DC green and freewheeling diode
LED 24 - 60 V DC green and free-wheeling diode
LED 110 - 230 V DC green and free-wheeling diode
LED 6 - 24 V UC green
LED 24 - 60 V UC green
LED 110 - 230 V UC green
RC element 6 - 60 V UC; 470 Ω / 220 nF
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF
RC element 230 V UC; 1.1 kΩ / 200 nF
Protective varistor; S07K30
Protective varistor; S07K130
Protective varistor; S07K275

Screwdriver

Note

Standard version socket module with clamping yoke connection, 2 CO contacts



250 V AC
400 V
12 A

-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus; EAC; VDE

IP20
≥ 4 mm
2.5 kV_{eff} / 1 min.
2.5 kV_{eff} / 1 min.

2.5 / 1 / 2.5 mm²
0.5...0.7 Nm
8 mm

Type	Qty.	Order No.
SCM-H 2CO	10	8869400000

Type	Qty.	Order No.
SCM-H QV S	10	1132080000
SCM-H CLIP P	10	8869440000
SCM-H CLIP M	10	8869450000

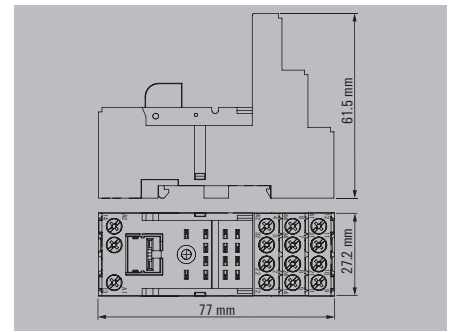
Type	Qty.	Order No.
SCM-H MARK	10	8869460000
ESG 9/26 SCM-H MC NE WS	80	2558330000

Type	Qty.	Order No.
RIM-H 1 6/230V	10	8869580000
RIM-H 1 R 110/230V	10	8870830000
RIM-H 2 6/24VDC GN	10	8869600000
RIM-H 2 24/60VDC GN	10	8869680000
RIM-H 2 110/230VDC GN	10	8869700000
RIM-H 3 6/24VUC GN	10	8869640000
RIM-H 3 24/60VUC GN	10	8869620000
RIM-H 3 110/230VUC GN	10	8869660000
RIM-H 3 6/60VAC RC	10	8869770000
RIM-H 3 110/230VAC RC	10	8869790000
RIM-H 3 230VAC RC	10	1172210000
RIM-H 4 24VUC VAR	10	8869710000
RIM-H 4 110VUC VAR	10	8869730000
RIM-H 4 230VUC VAR	10	8869750000

Type	Qty.	Order No.
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

Article numbers for LED modules with red LED are to be found at catalog.weidmueller.com

Standard version socket module with clamping yoke connection, 4 CO contacts



250 V AC
250 V
6 A

-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus; EAC; VDE

IP20
≥ 4 mm
2.5 kV_{eff} / 1 min.
2 kV_{eff} / 1 min

2.5 / 1 / 2.5 mm²
0.5...0.7 Nm
8 mm

Type	Qty.	Order No.
SCM-H 4CO	10	8869420000

Type	Qty.	Order No.
SCM-H QV S	10	1132080000
SCM-H CLIP P	10	8869440000
SCM-H CLIP M	10	8869450000

Type	Qty.	Order No.
SCM-H MARK	10	8869460000
ESG 9/26 SCM-H MC NE WS	80	2558330000

Type	Qty.	Order No.
RIM-H 1 6/230V	10	8869580000
RIM-H 1 R 110/230V	10	8870830000
RIM-H 2 6/24VDC GN	10	8869600000
RIM-H 2 24/60VDC GN	10	8869680000
RIM-H 2 110/230VDC GN	10	8869700000
RIM-H 3 6/24VUC GN	10	8869640000
RIM-H 3 24/60VUC GN	10	8869620000
RIM-H 3 110/230VUC GN	10	8869660000
RIM-H 3 6/60VAC RC	10	8869770000
RIM-H 3 110/230VAC RC	10	8869790000
RIM-H 3 230VAC RC	10	1172210000
RIM-H 4 24VUC VAR	10	8869710000
RIM-H 4 110VUC VAR	10	8869730000
RIM-H 4 230VUC VAR	10	8869750000

Type	Qty.	Order No.
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

Article numbers for LED modules with red LED are to be found at catalog.weidmueller.com

Accessories for RCM relays, 2 CO contacts

- Tool-free unlocking of the terminal rail
- Wide assortment of functional modules

Technical data

Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	250 V
Continuous current	6 A
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Approvals	CE, CSA, cURus, EAC, VDE
Insulation coordination	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 4 mm
Dielectric strength input - output	2.5 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Impulse withstand voltage	
Connection data	
Clamping range (nominal / min. / max.)	2.5 / 1 / 2.5 mm ²
Tightening torque	0.5...0.7 Nm
Stripping length, rated connection	8 mm
Note	

Ordering data

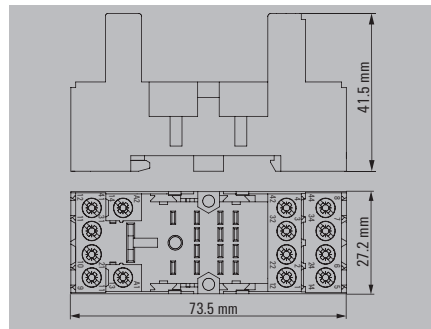
	Socket, DIN rail mounted
Note	

Accessories

Cross-connection	8-pole
Retaining clip	Plastic retaining clip Metal retaining clip
Markers	Label, not PrintJet compatible, no MultiCard white
LED module / protection modules	Free-wheeling diode 6 - 230 V DC Load resistance 110 - 230 V UC LED 6 - 24 V DC green and freewheeling diode LED 24 - 60 V DC green and free-wheeling diode LED 110 - 230 V DC green and free-wheeling diode LED 6 - 24 V UC green LED 24 - 60 V UC green LED 110 - 230 V UC green RC element 6 - 60 V UC; 470 Ω / 220 nF RC element 110 - 230 V AC; 4.7 kΩ / 10 nF RC element 230 V UC; 1.1 kΩ / 200 nF Protective varistor; S07K30 Protective varistor; S07K130 Protective varistor; S07K275
Screwdriver	

Note

Low-height socket module with clamping yoke connection, 4 CO contacts



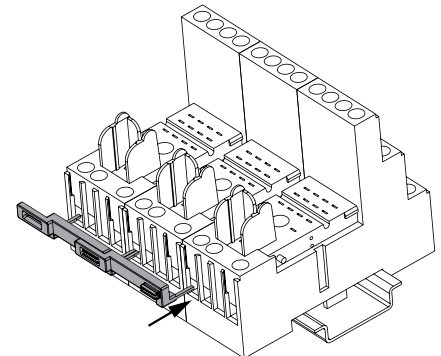
Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	250 V
Continuous current	6 A
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Approvals	CE, CSA, cURus, EAC, VDE
Insulation coordination	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 4 mm
Dielectric strength input - output	2.5 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Impulse withstand voltage	
Connection data	
Clamping range (nominal / min. / max.)	2.5 / 1 / 2.5 mm ²
Tightening torque	0.5...0.7 Nm
Stripping length, rated connection	8 mm
Note	

Type	Qty.	Order No.
SCM-I 4CO N	10	8869390000

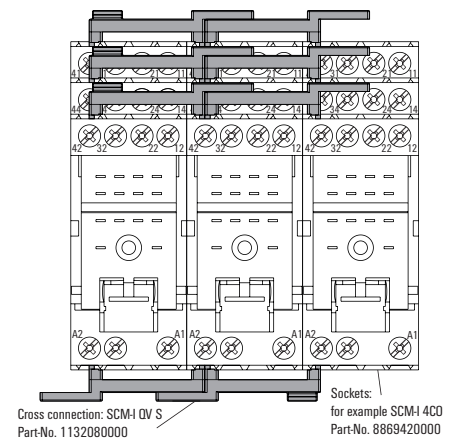
Type	Qty.	Order No.
SCM-I QV S	10	1132080000
SCM-I CLIP N	10	8875620000
SCM-I CLIP M	10	8869450000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 6/60VAC RC	10	8869770000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

Article numbers for LED modules with red LED are to be found at catalog.weidmueller.com

Cross-connection 1132080000 installed in the same way as the plug-in module 8869420000:



Plug the cross connection into wire-connection opening and fix it with tighten the screw



RIDERSERIES – relay modules

Accessories for RCM relays, 2 CO contacts

- Tool-free unlocking of the terminal rail
- Wide assortment of functional modules

Technical data

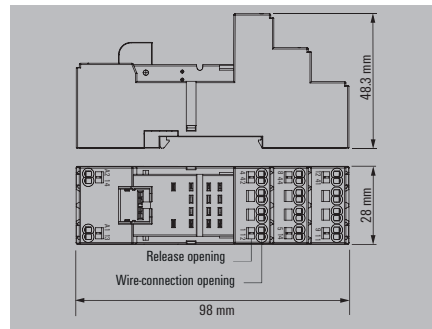
Output
Rated switching voltage
Max. switching voltage, AC
Continuous current
Rated data
Ambient temperature (operational)
Storage temperature
Approvals
Insulation coordination
Protection degree
Creepage and clearance distance input - output
Dielectric strength input - output
Dielectric strength of neighbouring contacts
Impulse withstand voltage
Connection data
Clamping range (nominal / min. / max.)
Tightening torque
Stripping length, rated connection
Note

Ordering data

	Socket, DIN rail mounted
Note	

Accessories

Retaining clip	Metal retaining clip Plastic retaining clip
Cross-connection	2-pole
Markers	Label, not PrintJet compatible, no MultiCard white
LED module / protection modules	Free-wheeling diode 6 - 230 V DC Load resistance 110 - 230 V UC LED 6 - 24 V DC green and freewheeling diode LED 24 - 60 V DC green and free-wheeling diode LED 110 - 230 V DC green and free-wheeling diode LED 6 - 24 V UC green LED 24 - 60 V UC green LED 110 - 230 V UC green RC element 6 - 60 V UC; 470 Ω / 220 nF RC element 110 - 230 V AC; 4.7 kΩ / 10 nF RC element 230 V UC; 1.1 kΩ / 200 nF Protective varistor; S07K130 Protective varistor; S07K275 Protective varistor; S07K30
Screwdriver	Standard
Note	

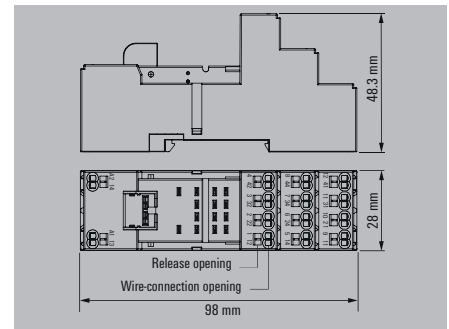
Socket module with
PUSH IN connection, 2 CO contacts

	250 V AC
	400 V
	12 A
	-40 °C...70 °C
	-40 °C...70 °C
	CE; CSA; cURus; EAC; VDE
	IP20
	≥ 4 mm
	2.5 kV _{eff} / 1 min.
	2.5 kV _{eff} / 1 min.
	1.5 / 0.75 / 1.5 mm ²
	...
	12 mm
Note	

Type	Qty.	Order No.
SCM-H 2CO P	10	8876220000
Note		

Type	Qty.	Order No.
SCM-H CLIP M	10	8869450000
SCM-H CLIP P	10	8869440000
SCM-H QV P	10	8870850000
SCM-H MARK	10	8869460000
ESG 9/26 SCM-H MC NE WS	80	2558330000
RIM-H 1 6/230V	10	8869580000
RIM-H 1 R 110/230V	10	8870830000
RIM-H 2 6/24VDC GN	10	8869600000
RIM-H 2 24/60VDC GN	10	8869680000
RIM-H 2 110/230VDC GN	10	8869700000
RIM-H 3 6/24VUC GN	10	8869640000
RIM-H 3 24/60VUC GN	10	8869620000
RIM-H 3 110/230VUC GN	10	8869660000
RIM-H 3 6/60VAC RC	10	8869770000
RIM-H 3 110/230VAC RC	10	8869790000
RIM-H 3 230VAC RC	10	1172210000
RIM-H 4 110VUC VAR	10	8869730000
RIM-H 4 230VUC VAR	10	8869750000
RIM-H 4 24VUC VAR	10	8869710000
SDIS SL 0.6X3.5X100	1	1274660000
Note		

Article numbers for LED modules with red LED are to be found at catalog.weidmueller.com

Socket module with
PUSH IN connection, 4 CO contacts

	250 V AC
	250 V
	6 A
	-40 °C...70 °C
	-40 °C...70 °C
	CE; CSA; cURus; EAC; VDE
	IP20
	≥ 4 mm
	2.5 kV _{eff} / 1 min.
	2 kV _{eff} / 1 min.
	1.5 / 0.75 / 1.5 mm ²
	...
	12 mm
Note	

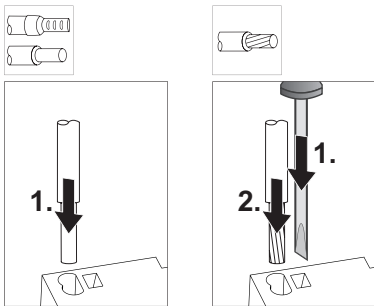
Type	Qty.	Order No.
SCM-H 4CO P	10	8869430000
Note		

Type	Qty.	Order No.
SCM-H CLIP M	10	8869450000
SCM-H CLIP P	10	8869440000
SCM-H QV P	10	8870850000
SCM-H MARK	10	8869460000
ESG 9/26 SCM-H MC NE WS	80	2558330000
RIM-H 1 6/230V	10	8869580000
RIM-H 1 R 110/230V	10	8870830000
RIM-H 2 6/24VDC GN	10	8869600000
RIM-H 2 24/60VDC GN	10	8869680000
RIM-H 2 110/230VDC GN	10	8869700000
RIM-H 3 6/24VUC GN	10	8869640000
RIM-H 3 24/60VUC GN	10	8869620000
RIM-H 3 110/230VUC GN	10	8869660000
RIM-H 3 6/60VAC RC	10	8869770000
RIM-H 3 110/230VAC RC	10	8869790000
RIM-H 3 230VAC RC	10	1172210000
RIM-H 4 110VUC VAR	10	8869730000
RIM-H 4 230VUC VAR	10	8869750000
RIM-H 4 24VUC VAR	10	8869710000
SDIS SL 0.6X3.5X100	1	1274660000
Note		

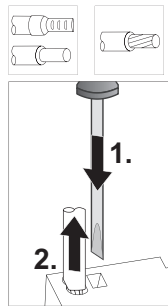
Article numbers for LED modules with red LED are to be found at catalog.weidmueller.com

PUSH IN connection operation

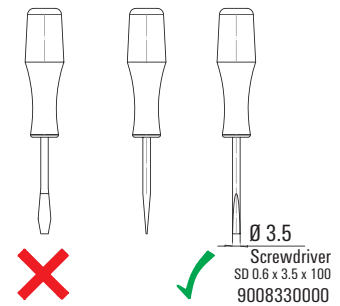
Insert connector



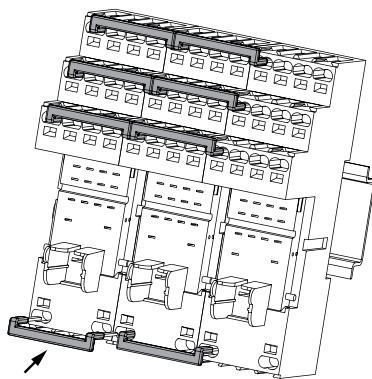
Remove connector



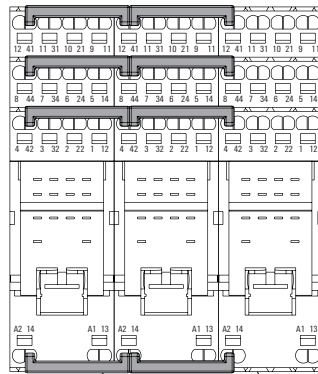
Recommended screwdriver



Installation of the cross-connection



Plug cross connection direct into wire-connection opening



Cross connection:
SCM-I QV P
Part-No. 8870850000

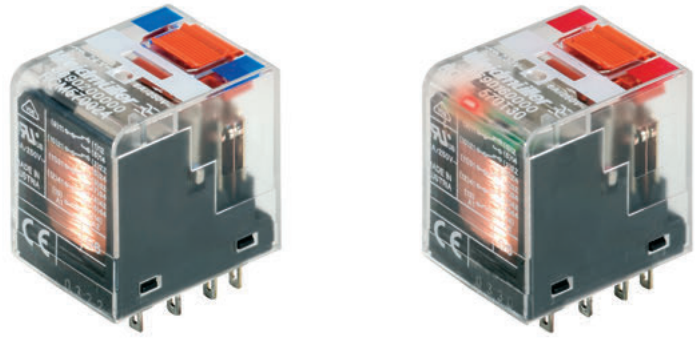
Sockets:
SCM-I xCO P

If more than 2 poles are connected with stacked cross-connection ridges, then the bottom ridges must be stripped to the appropriate length and shortened for correct fitting.

RCM relay

3 CO contacts, AC/DC coil

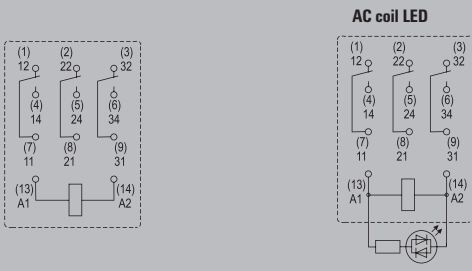
- 2500 VA switching capacity
- Solder and plug connection
- Safe-to-touch test button
- White labelling panel
- Identification of coils (AC red / DC blue)



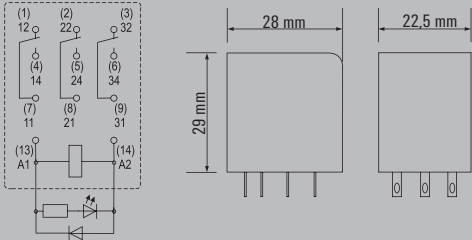
B

Circuit diagram

View on pins from below



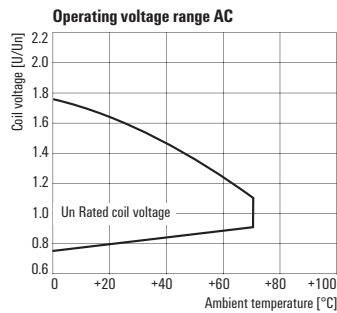
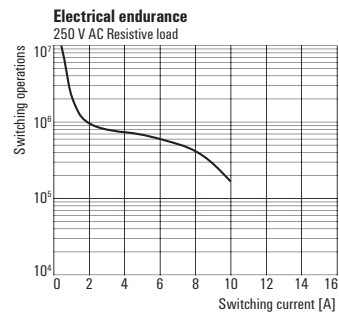
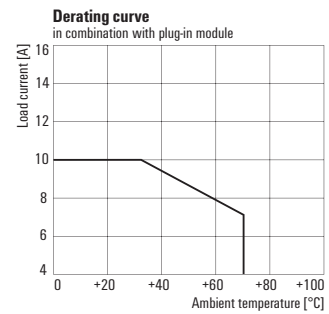
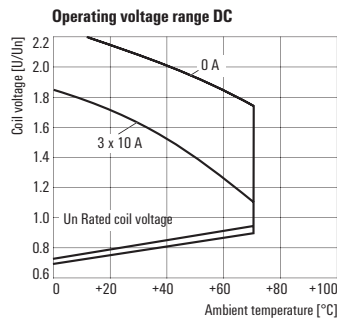
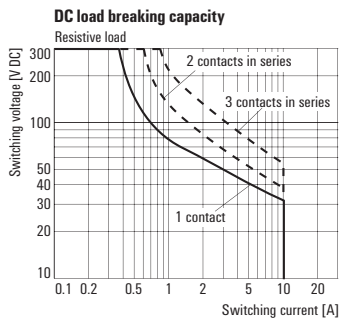
DC coil LED + diode



Technical data

Output	
Rated switching voltage / Continuous current	240 V AC / 10 A
Max. switching voltage, AC	400 V
Inrush current	20 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	240 W @ 24 V / 2500 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 20 x 10 ⁶ Switch. cycles, DC coil 30 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, CSA, cURus, EAC, VDE
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2.5 KV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2.5 KV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	/ /
Depth x width x height	mm 29 / 22.5 / 28
Plug-in connection	
Note	

Applications



RCM relay
3 CO contacts, AC/DC coil

Type code		RCM								
Type	RIDER Control Multiple									
Contacts	2 2 CO contacts									
	3 3 CO contacts									
	5 4 CO contacts									
Contact material	7 AgNi 90/10, with test button									
	8 AgNi 90/10 hgp, with test button									
Type of construction	0 Standard, 2.8 mm Faston									
DC coil										
006	6 V DC									with LED + diode
012	12 V DC									L06
024	24 V DC									L12 AB2
048	48 V DC									L24 AC4
060	60 V DC									L48 AE8
110	110 V DC									L60
220	220 V DC									M10 BBO
										N20
AC coil										
506	6 V AC									R06
512	12 V AC									R12
524	24 V AC									R24
548	48 V AC									R48
615	115 V AC									S15
730	230 V AC									T30

Ordering data

		12 V DC 3CO	24 V DC 3CO	48 V DC 3CO	110 V DC 3CO
Input					
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 62.5 mA	/ 31.3 mA	/ 15.6 mA	/ 6.8 mA
Power rating		750 mW	750 mW	750 mW	750 mW
Pull-in/drop-out voltage, typ.		9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11.5 V DC
Output					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data					
without LED	Type	RCM370012	RCM370024	RCM370048	RCM370110
AgNi 90/10	Order No.	8690020000	8690040000	8690060000	8690080000
with LED + freewheel diode	Type	RCM370AB2	RCM370AC4		RCM370BB0
AgNi 90/10	Order No.	8957090000	8957100000		8957120000
	Type				
	Order No.				
	Type				
	Order No.				

Note					
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Ordering data

		24 V AC 3CO	48 V AC 3CO	115 V AC 3CO	230 V AC 3CO
Input					
Rated control voltage		24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC		41.6 mA /	21.3 mA /	8.8 mA /	4.3 mA /
Power rating		1.0 VA	1.0 VA	1.0 VA	1.0 VA
Pull-in/drop-out voltage, typ.		19.2 V / 7.2 V AC		92 V / 34.5 V AC	184 V / 69 V AC
Output					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data					
without LED	Type	RCM370524		RCM370615	RCM370730
AgNi 90/10	Order No.	8690030000		8689980000	8690000000
with LED	Type	RCM370R24	RCM370R48	RCM370S15	RCM370T30
AgNi 90/10	Order No.	8689950000	8689970000	8689990000	8690010000
	Type				
	Order No.				
	Type				
	Order No.				

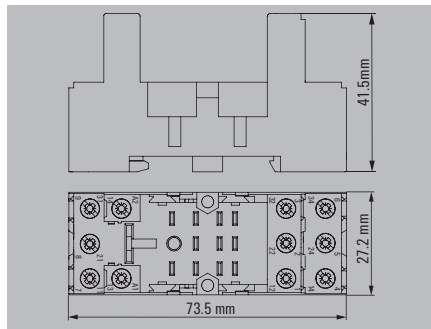
Note					
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RIDERSERIES – relay modules

Accessories for RCM relays, 3 CO contacts

- Tool-free unlocking of the terminal rail
- Wide assortment of functional modules

Low-height socket module with clamping yoke connection, 3 CO contacts



Technical data

Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	400 V
Continuous current	10 A
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Approvals	CE, CSA, cURus, EAC, VDE
Insulation coordination	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 4 mm
Dielectric strength input - output	2.5 KV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2.5 KV _{eff} / 1 min.
Impulse withstand voltage	
Connection data	
Clamping range (nominal / min. / max.)	2.5 / 1 / 2.5 mm ²
Tightening torque	0.5...0.7 Nm
Stripping length, rated connection	8 mm
Note	

Ordering data

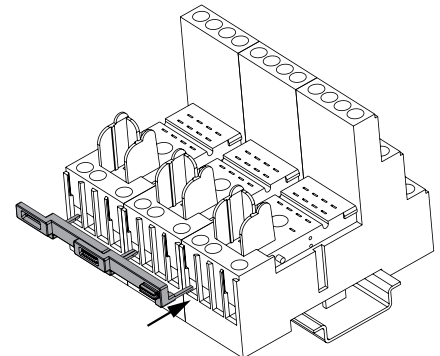
Type	Qty.	Order No.
SCM-I 3CO N	10	8869410000
Note	Socket, DIN rail mounted	

Accessories

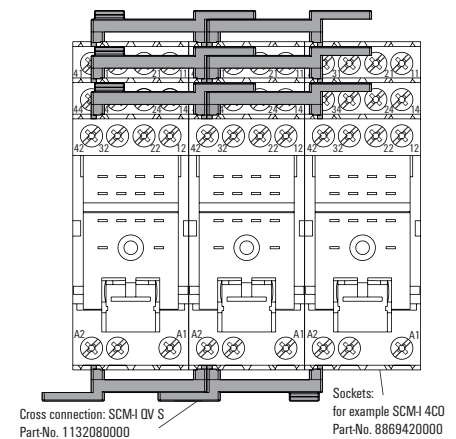
Type	Qty.	Order No.
SCM-I QV S	10	1132080000
Retaining clip	Metal retaining clip	
	Plastic retaining clip	
Markers	Label, not PrintJet compatible, no MultiCard	
	white	
LED module / protection modules		
	Free-wheeling diode 6 - 230 V DC	
	Load resistance 110 - 230 V UC	
	LED 6 - 24 V DC green and freewheeling diode	
	LED 24 - 60 V DC green and free-wheeling diode	
	LED 110 - 230 V DC green and free-wheeling diode	
	LED 6 - 24 V UC green	
	LED 24 - 60 V UC green	
	LED 110 - 230 V UC green	
	RC element 6 - 60 V UC; 470 Ω / 220 nF	
	RC element 110 - 230 V AC; 4.7 kΩ / 10 nF	
	RC element 230 V UC; 1.1 kΩ / 200 nF	
	Protective varistor; S07K30	
	Protective varistor; S07K130	
	Protective varistor; S07K275	
Screwdriver		
	SDIK PZ1 SL	
	SDIK PZ1	
	SDK PZ1	

Note	
	Article numbers for LED modules with red LED are to be found at catalog.weidmueller.com

Cross-connection 1132080000 installed in the same way as the plug-in module 8869420000:



Plug the cross connection into wire-connection opening and fix it with tighten the screw

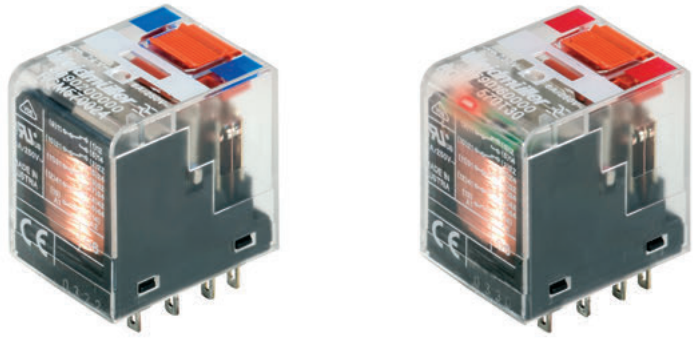


RIDERSERIES – relay modules

RCM relay

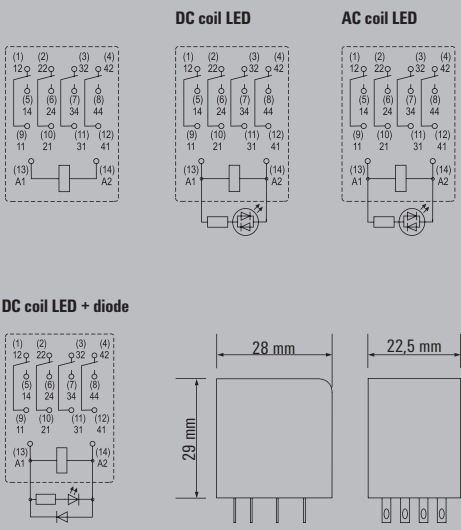
4 CO contacts, AC/DC coil

- 1500 VA switching capacity
- Solder and plug connection
- AC/DC versions also with gold-plated contacts
- Safe-to-touch test button, selectable locking
- White labelling panel
- Identification of coils (AC red / DC blue)



Circuit diagram

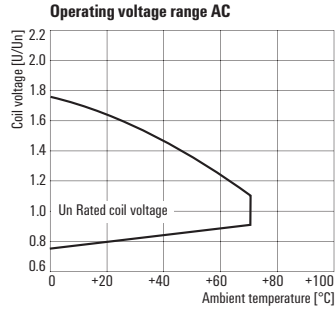
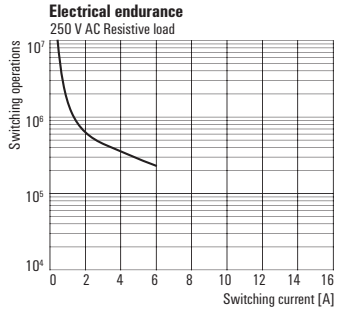
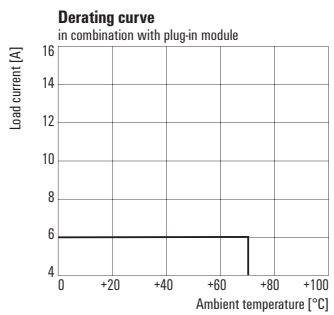
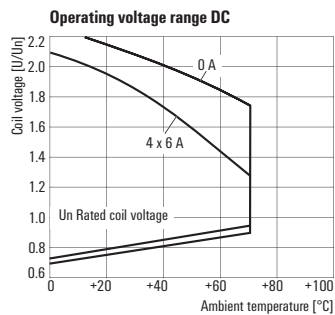
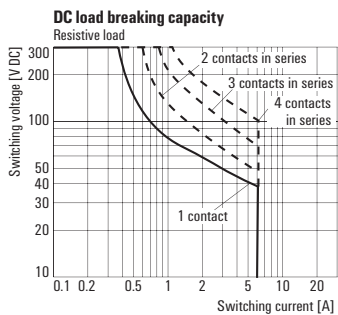
View on pins from below



Technical data

Output	
Rated switching voltage / Continuous current	240 V AC / 6 A
Max. switching voltage, AC	240 V
Inrush current	12 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA
Contact material	AgNi 90/10
Mechanical service life	AC coil 20 x 10 ⁶ Switch. cycles, DC coil 30 x 10 ⁶ Switch. cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, CSA, cURus, EAC, VDE
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2.5 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Plug-in connection	
Clamping range (nominal / min. / max.)	/ /
Depth x width x height	mm 29 / 22.5 / 28
Note	

Applications



RCM relay
4 CO contacts, AC/DC coil

Type code		RCM						
Type	RIDER Control Multiple							
Contacts	2 2 CO contacts							
	3 3 CO contacts							
	5 4 CO contacts							
Contact material	7 AgNi 90/10, with test button							
	8 AgNi 90/10 hgp, with test button							
Type of construction	0 Standard, 2.8 mm Faston							
DC coil								
006	6 V DC							with LED + diode
012	12 V DC							L06
024	24 V DC							L12 AB2
048	48 V DC							L24 AC4
060	60 V DC							L48 AE8
110	110 V DC							L60
220	220 V DC							M10 BBO
AC coil								
506	6 V AC							R06
512	12 V AC							R12
524	24 V AC							R24
548	48 V AC							R48
615	115 V AC							S15
730	230 V AC							T30

Ordering data

		12 V DC 4CO	24 V DC 4CO	48 V DC 4CO	110 V DC 4CO
Input					
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 62.5 mA	/ 31.3 mA	/ 15.6 mA	/ 6.8 mA
Power rating		750 mW	750 mW	750 mW	750 mW
Pull-in/drop-out voltage, typ.		9 V / 1.2 V DC	18 V / 2.4 V DC	36 V / 4.8 V DC	82.5 V / 11.5 V DC
Output					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data					
without LED	Type	RCM570012	RCM570024	RCM570048	RCM570110
AgNi 90/10	Order No.	8054360000	8690200000	8074670000	8074700000
with LED	Type	RCM570L12	RCM570L24	RCM570L48	RCM570M10
AgNi 90/10	Order No.	8690180000	8690220000	8690230000	8690240000
without LED	Type	RCM580012	RCM580024	RCM580048	
AgNi 5µm Au	Order No.	on request	8694460000	on request	
with LED + freewheel diode	Type	RCM570AB2	RCM570AC4	RCM570AE8	RCM570BBO
AgNi 90/10	Order No.	8957160000	8957170000	8957180000	8957190000

Note					
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Ordering data

		24 V AC 4CO	48 V AC 4CO	115 V AC 4CO	230 V AC 4CO
Input					
Rated control voltage		24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC		41.6 mA /	21.3 mA /	8.8 mA /	4.3 mA /
Power rating		1.0 VA	1.0 VA	1.0 VA	1.0 VA
Pull-in/drop-out voltage, typ.		19.2 V / 7.2 V AC	38.4 V / 14.4 V AC	92 V / 34.5 V AC	184 V / 69 V AC
Output					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data					
without LED	Type	RCM570524	RCM570548	RCM570615	RCM570730
AgNi 90/10	Order No.	8690110000	1180900000	1180800000	1181100000
with LED	Type	RCM570R24	RCM570R48	RCM570S15	RCM570T30
AgNi 90/10	Order No.	8690120000	8690130000	8690150000	8690160000
	Type			RCM580615	RCM580730
	Order No.			8824860000	7940007637

Note					
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RIDERSERIES – relay modules

Accessories for RCM relays, 4 CO contacts

- Tool-free unlocking of the terminal rail
- Wide assortment of functional modules

Technical data

Output
Rated switching voltage
Max. switching voltage, AC
Continuous current
Rated data
Ambient temperature (operational)
Storage temperature
Approvals
Insulation coordination
Protection degree
Creepage and clearance distance input - output
Dielectric strength input - output
Dielectric strength of neighbouring contacts
Impulse withstand voltage
Connection data
Clamping range (nominal / min. / max.)
Tightening torque
Stripping length, rated connection
Note

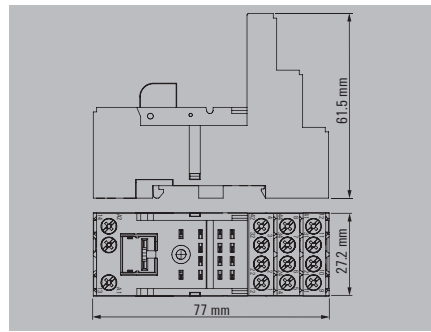
Ordering data

	Socket, DIN rail mounted
Note	

Accessories

Cross-connection	8-pole
Retaining clip	Plastic retaining clip Metal retaining clip
Markers	Label, not PrintJet compatible, no MultiCard white
LED module / protection modules	Free-wheeling diode 6 - 230 V DC Load resistance 110 - 230 V UC LED 6 - 24 V DC green and freewheeling diode LED 24 - 60 V DC green and free-wheeling diode LED 110 - 230 V DC green and free-wheeling diode LED 6 - 24 V UC green LED 24 - 60 V UC green LED 110 - 230 V UC green RC element 6 - 60 V UC; 470 Ω / 220 nF RC element 110 - 230 V AC; 4.7 kΩ / 10 nF RC element 230 V UC; 1.1 kΩ / 200 nF Protective varistor; S07K30 Protective varistor; S07K130 Protective varistor; S07K275
Screwdriver	
Note	

Standard version socket module with clamping yoke connection, 4 CO contacts



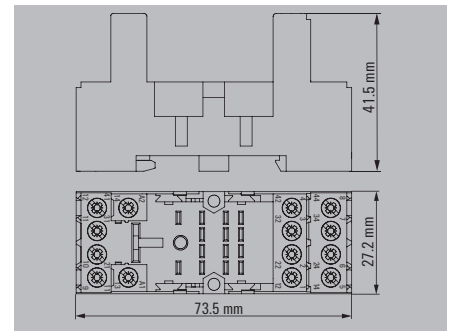
250 V AC
250 V
6 A
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus; EAC; VDE
IP20
≥ 4 mm
2.5 kV _{eff} / 1 min.
2 kV _{eff} / 1 min
2.5 / 1 / 2.5 mm ²
0.5...0.7 Nm
8 mm

Type	Qty.	Order No.
SCM-I 4CO	10	8869420000

Type	Qty.	Order No.
SCM-I QV S	10	1132080000
SCM-I CLIP P	10	8869440000
SCM-I CLIP M	10	8869450000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 6/60VAC RC	10	8869770000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

Article numbers for LED modules with red LED are to be found at catalog.weidmueller.com

Low-height socket module with clamping yoke connection, 4 CO contacts



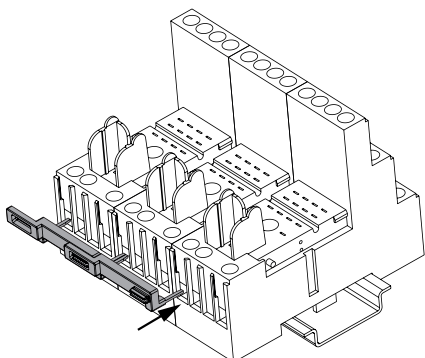
250 V AC
250 V
6 A
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus; EAC; VDE
IP20
≥ 4 mm
2.5 kV _{eff} / 1 min.
2 kV _{eff} / 1 min
2.5 / 1 / 2.5 mm ²
0.5...0.7 Nm
8 mm

Type	Qty.	Order No.
SCM-I 4CO N	10	8869390000

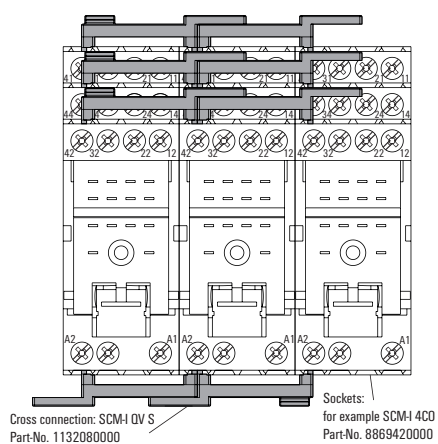
Type	Qty.	Order No.
SCM-I QV S	10	1132080000
SCM-I CLIP N	10	8875620000
SCM-I CLIP M	10	8869450000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 6/60VAC RC	10	8869770000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

Article numbers for LED modules with red LED are to be found at catalog.weidmueller.com

Cross-connection 1132080000 installed in the same way as the plug-in module 8869420000:



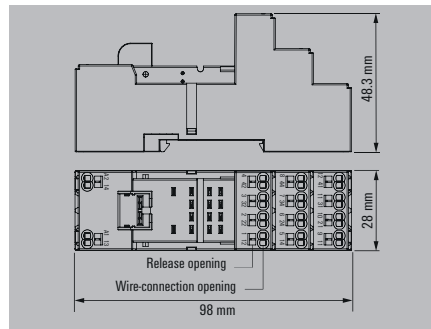
Plug the cross connection into wire-connection opening and fix it with tighten the screw



RIDERSERIES – relay modules

Accessories for RCM relays, 4 CO contacts

- Tool-free unlocking of the terminal rail
- Wide assortment of functional modules

Socket module with
PUSH IN connection, 4 CO contacts

Technical data

Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	250 V
Continuous current	6 A
Rated data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Approvals	CE, CSA, cURus, EAC, VDE
Insulation coordination	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 4 mm
Dielectric strength input - output	2.5 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Impulse withstand voltage	
Connection data	
Clamping range (nominal / min. / max.)	1.5 / 0.75 / 1.5 mm ²
Tightening torque	...
Stripping length, rated connection	12 mm
Note	

Ordering data

Type	Qty.	Order No.
SCM-I 4CO P	10	8869430000
Note	Socket, DIN rail mounted	

Accessories

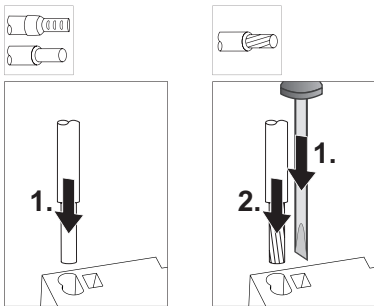
Retaining clip	Type	Qty.	Order No.
	Plastic retaining clip	10	8869440000
	Metal retaining clip	10	8869450000
Cross-connection			
	2-pole	10	8870850000
Markers			
	Label, not PrintJet compatible, no MultiCard	10	8869460000
	white	80	2558330000
LED module / protection modules			
	Free-wheeling diode 6 - 230 V DC	10	8869580000
	Load resistance 110 - 230 V UC	10	8870830000
	LED 6 - 24 V DC green and freewheeling diode	10	8869600000
	LED 24 - 60 V DC green and free-wheeling diode	10	8869680000
	LED 110 - 230 V DC green and free-wheeling diode	10	8869700000
	LED 6 - 24 V UC green	10	8869640000
	LED 24 - 60 V UC green	10	8869620000
	LED 110 - 230 V UC green	10	8869660000
	RC element 6 - 60 V UC; 470 Ω / 220 nF	10	8869770000
	RC element 110 - 230 V AC; 4.7 kΩ / 10 nF	10	8869790000
	RC element 230 V UC; 1.1 kΩ / 200 nF	10	1172210000
	Protective varistor; S07K130	10	8869730000
	Protective varistor; S07K275	10	8869750000
	Protective varistor; S07K30	10	8869710000
Screwdriver			
	Standard	1	1274660000

Note

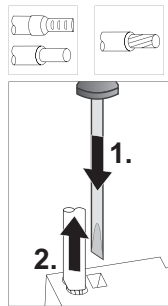
Article numbers for LED modules with red LED are to be found at catalog.weidmueller.com

PUSH IN connection operation

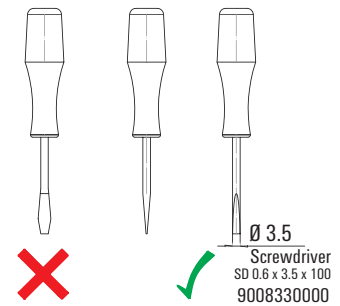
Insert connector



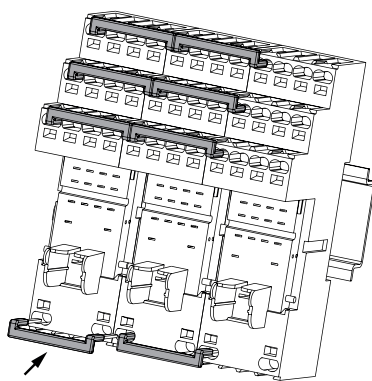
Remove connector



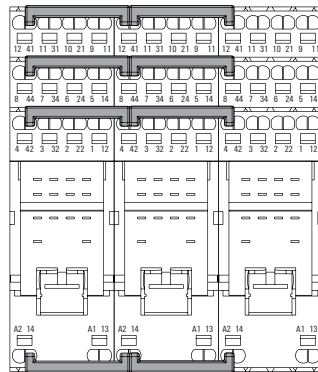
Recommended screwdriver



Installation of the cross-connection



Plug cross connection direct into wire-connection opening



Cross connection:
SCM-I QV P
Part-No. 8870850000

Sockets:
SCM-I xCO P

If more than 2 poles are connected with stacked cross-connection ridges, then the bottom ridges must be stripped to the appropriate length and shortened for correct fitting.

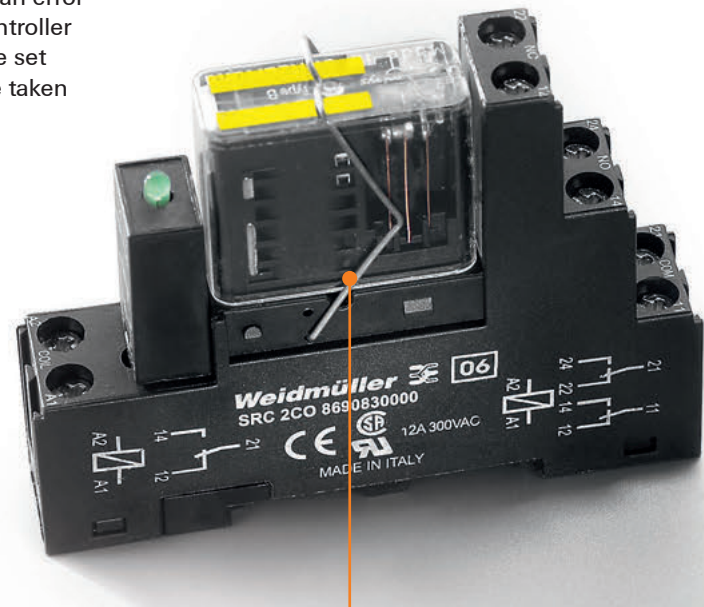
B

Signal monitoring in safety-critical circuits

Coupling relays with forcibly guided contacts

Weidmüller has expanded the RIDERSERIES to include a relay variant with forcibly guided contacts. Relays with forcibly guided contacts have a 99 % diagnostics coverage and an excellent reputation for use in safety systems.

The contacts interlock mechanically with each other in order to ensure a synchronous switching status of both contacts. This guarantees that the alert contact will maintain the same switching status in the event of an error (for example, if the working contact melts from an overload). The controller (or safety controller) detects the alert contact and then compares the set point and actual values. If a difference occurs, measures can then be taken to protect equipment and human life.



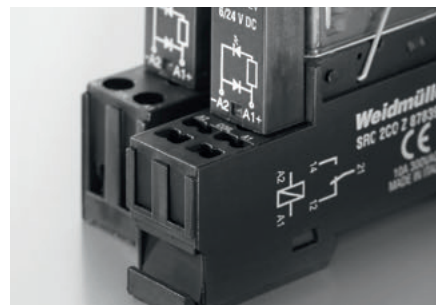
Resistant to vibration

A metal clip ensures that the relay module remains secure even under vibration / mechanical shock conditions.



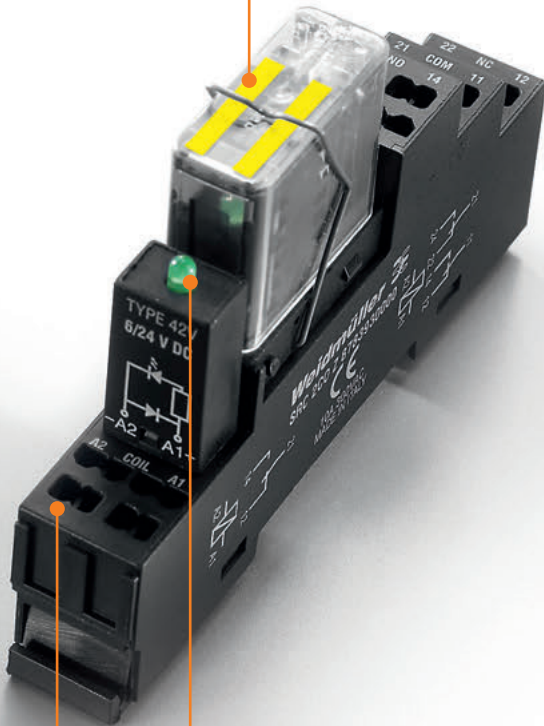
A variety of connection options

The base is available either with the proven screw clamp connection or the time saving tension clamp connection.



Convenient

Relay modules can be replaced quickly in the event of a fault without removing the connecting cable.

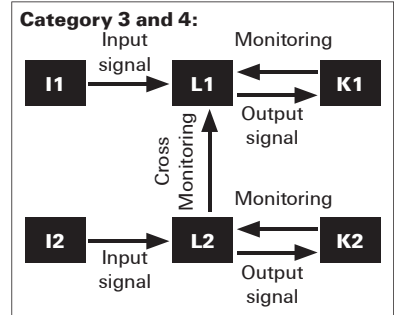


On site diagnostics

An easy to view LED display module with an integrated free wheeling diode is used to protect the series connected electronics.

Safety-based output relay controls

By connecting two coupling relays together with a safety based controller or safety switching devices, it is possible to set up a safe and efficient control mechanism that complies with the structure specified in EN ISO 13849-1 (Category 3 and 4).



RIDERSERIES FG – relay module with forcibly guided contacts

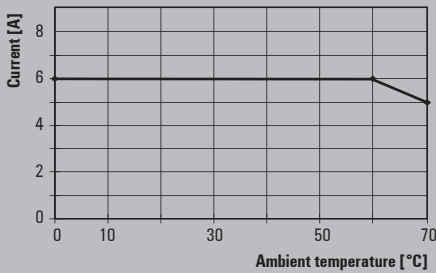
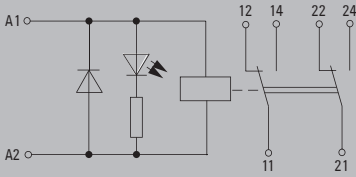
RCI KIT with forcibly guided contacts

2 CO DC coil

- Modular system comprising of:
- Relay socket for rail mounting
 - LED indicator unit
 - Retaining clip
 - Pluggable relay modules
 - Markers



B



Technical data

Output		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC	250 V	
Inrush current	15 A / 20 ms	
Min. switching power	1 mA @ 24 V, 10 mA @ 10 V, 100 mA @ 5 V	
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA	
Contact material	AgCuNi	
Mechanical service life	> 50 x 10 ⁸ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
Rated data		
Ambient temperature (operational)	-40 °C...70 °C	
Storage temperature	-40 °C...85 °C	
Humidity	40 °C / 95 % rel. humidity, no condensation	
Approvals	CE, EAC	
Insulation coordinates		
Rated voltage	250 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength input - output	2.5 KV _{eff} / 1 min.	
Dielectric strength of neighbouring contacts	2.5 KV _{eff} / 1 min.	
Dielectric strength to mounting rail		
Creepage and clearance distance input - output	≥ 10 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions		
	Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm ² 2.5 / 0.5 / 2.5	1.5 / 0.5 / 1.5
Depth x width x height	mm 61.6 / 15.6 / 77.6	63.8 / 16 / 98.1
Note		

Ordering data

Input		24 V DC 2CO LED	
Rated control voltage		24 V DC	
Rated current AC / DC		/ 31.6 mA	
Power rating		700 mW	
Pull-in/drop-out voltage, typ.		18 V / 2.4 V DC	
Status indicator		Green LED	
Protective circuit		Free-wheel diode	
Output			
Switch-on delay		≤ 12 ms	
Switch-off delay		≤ 6 ms	

Ordering data			
Screw connection	Type	RCIKIT 24VDC 2CO LD/FG	
	Order No.	1218410000	
Tension-clamp conn.	Type	RCIKITZ 24VDC 2CO LD/FG	
	Order No.	1218390000	

Ordering data			
Spare relay	Type	RCI42424FG	
	Order No.	1218380000	

Note			

Power electronics

Power electronics	Power solid-state relays - Overview	C.2
	Power solid-state relays	C.4

Power solid state relays

Switch high AC loads up to 75 A completely wear-free and noiseless

C

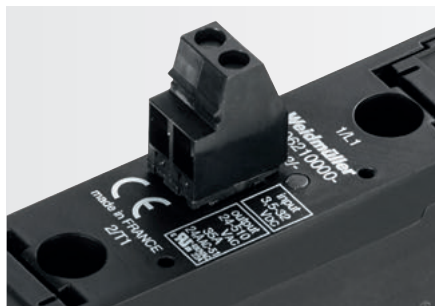
Due to their high shock and vibration resistance, the large switching current and the option of simple fusing, our power solid state relays outperform by far any electromagnetic relays, especially in the process industry.

The compact modules have low power drive requirements, fast response times and operate odourless. The optional 1PH-Control-Unit allows the current monitoring of up to five parallel connected loads.

Our new power solid state relays are ideally suited for a multitude of diverse tasks: switching pipe trace heating, phase controls for infrared heating, and permanent current monitoring.

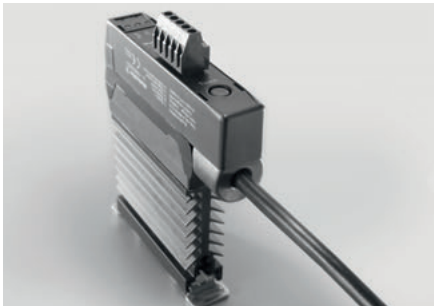
High current load integral

The high current load integral I^2t of 6,000 A²s allows affordable conductor protection using standard circuit breakers for variants with 35 A load current.



Simple current monitoring

The optional, plug-on monitoring module warns when current drops by 16 % or more. Short-circuit, line-break and defective loads are detected.



High output current

Ideal for controlling pipe trace heating due to the high output current of 50 or 75 A. The compact design allows directing mounting at application site.

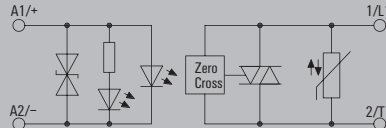


Power solid-state relays

PSSR - 1-phase

- Single-phase load circuit: 12-275 V AC / 25 A
- Ready-to-use: snap on-connect-ready
- Zero-cross switch
- Noiseless, wear-free switching
- Attachable monitoring module

PSSR 24 V DC / 1 PH AC 25 A



Technical data

Control side

Rated control voltage
Power rating
Cut-in / dropout voltage
Input frequency
Status indicator
Protective circuit

Load side

Solid-state type
Rated switching voltage
Continuous current
Min. switching current
Max. switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side
Switch-on delay / Switch-off delay
Output voltage frequency range
Pulse load, max. current
Load category
Load limit integral (I^2t) <10 ms

General data

Ambient temperature (operational)
Storage temperature
Humidity
Approvals
Standards

Insulation coordinates

Impulse withstand voltage
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

3.5...32 V DC

< 500 mW

3 V / 2 V DC

10 Hz

LED yellow

Suppressor diode

Triac (zero-cross switch)

12...275 V AC

17 A (AC51) at 40 °C, 3.5 A (AC 53)

5 mA

25 A

≤1.25 V

≤ 1 mA

No / Varistor

≤ 10 ms / ≤ 10 ms

50...60 Hz

250 A (10 ms), non-recurrent

AC 51, AC 53

340 A²s

-55 °C...100 °C

-55 °C...125 °C

40...85 % (indoor) no condensation

CE: cURus; EAC

EN 60947-4-3, EN 60950, IEC 60335-1

4 kV (1.2/50 μs)

≥ 6,5 mm

III

2

Dimensions

Clamping range (rated / min. / max.) control side mm²
Clamping range (rated / min. / max.) load side mm²

Note

1.5 / 0.13 / 3.3

6 / 1.5 / 6

Ordering data

Screw connection

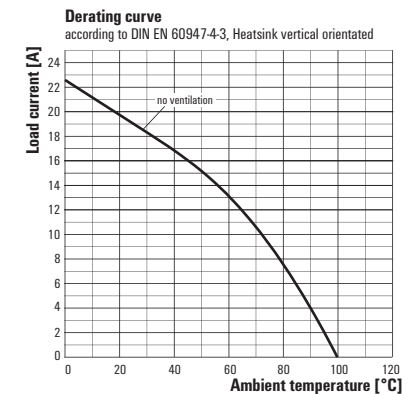
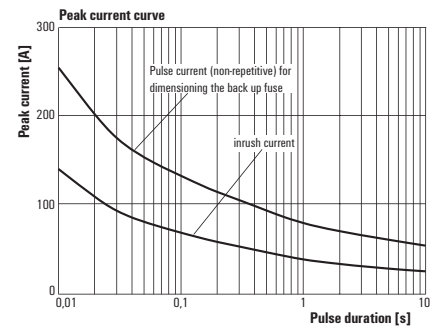
Type	Qty.	Order No.
PSSR 24VDC/1PH AC 25A	1	1406200000

Note

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

Accessories

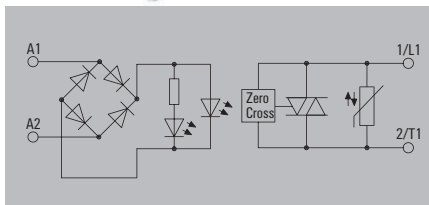
Note



PSSR - 1-phase

- Single-phase load circuit: 12-275 V AC / 25 A
- Ready-to-use: snap on-connect-ready
- Zero-cross switch
- Noiseless, wear-free switching
- Attachable monitoring module

PSSR 230 V AC / 1 PH AC 25 A



Technical data

Control side

Rated control voltage
Power rating
Cut-in / dropout voltage

Input frequency
Status indicator
Protective circuit

Load side

Solid-state type
Rated switching voltage
Continuous current
Min. switching current
Max. switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side
Switch-on delay / Switch-off delay
Output voltage frequency range
Pulse load, max. current
Load category
Load limit integral (I²t) <10 ms

General data

Ambient temperature (operational)
Storage temperature
Humidity
Approvals
Standards

Insulation coordinates

Impulse withstand voltage
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

Dimensions

Clamping range (rated / min. / max.) control side mm²
Clamping range (rated / min. / max.) load side mm²

Note

Ordering data

Screw connection

160...240 V AC/DC
≤ 1.38 VA
160 V / 5 V AC
160 V / 5 V DC
10 Hz
LED yellow
Rectifier
Triac (zero-cross switch)
12...275 V AC
17 A (AC51) at 40 °C, 3.5 A (AC 53)
5 mA
25 A
≤ 1.25 V
≤ 1 mA
No / Varistor
≤ 30 ms / ≤ 30 ms
50...60 Hz
250 A (10 ms), non-recurrent
AC 51, AC 53
340 A ² s

-55 °C...100 °C
-55 °C...125 °C
40...85 % (indoor) no condensation
CE; cURus; EAC
EN 60947-4-3, EN 60950, IEC 60335-1
4 kV (1.2/50 μs)
≥ 6,5 mm
III
2

1.5 / 0.13 / 3.3
6 / 1.5 / 6

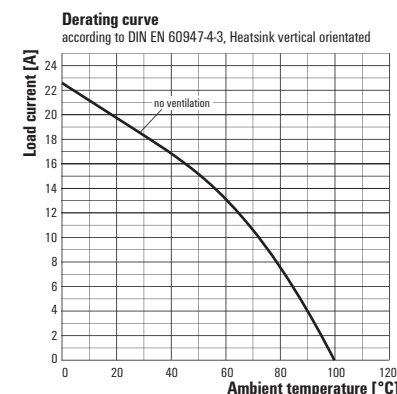
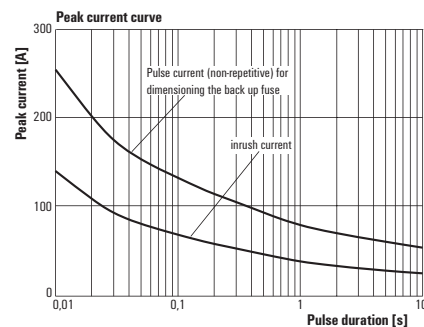
Type	Qty.	Order No.
PSSR 230VAC/1PH AC 25A	1	1406220000

Note

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

Accessories

Note

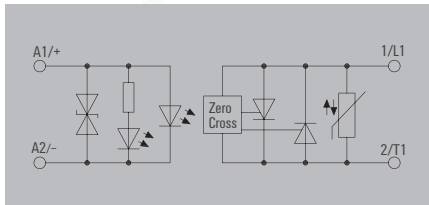


Power solid-state relays

PSSR - 1-phase

- Single-phase load circuit: 24–510 V AC / 35 A
- Ready-to-use: snap on-connect-ready
- Zero-cross switch
- Noiseless, wear-free switching
- Attachable monitoring module
- High capacity for handling surge currents
I²t = 6000 A²s (10 ms)
- Fusing with B circuit breaker possible

PSSR 24 V DC / 1 PH AC 35 A



Technical data

Control side

Rated control voltage
Power rating
Cut-in / dropout voltage
Input frequency
Status indicator
Protective circuit

3.5...32 V DC
≤ 280 mW
3 V / 2 V DC
10 Hz
LED yellow
Suppressor diode

Load side

Solid-state type
Rated switching voltage
Continuous current
Min. switching current
Max. switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side
Switch-on delay / Switch-off delay
Output voltage frequency range
Pulse load, max. current
Load category
Load limit integral (I²t) <10 ms

Thyristor (zero-cross switch)
24...510 V AC
23 A (AC51) at 40 °C, 12 A (AC 53)
5 mA
50 A
≤ 1.35 V
≤ 1 mA
No / Varistor
≤ 10 ms / ≤ 10 ms
50...60 Hz
1100 A (10 ms), non-recurrent
AC 51, AC 53
6000 A²s

General data

Ambient temperature (operational)
Storage temperature
Humidity
Approvals
Standards

-55 °C...100 °C
-55 °C...125 °C
40...85 % (indoor) no condensation
CE: cURus; EAC
EN 60947-4-3, EN 60950, IEC 60335-1

Insulation coordinates

Impulse withstand voltage
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

4 kV (1.2/50 µs)
≥ 6,5 mm
III
2

Dimensions

Clamping range (rated / min. / max.) control side mm²
Clamping range (rated / min. / max.) load side mm²

1.5 / 0.13 / 3.3
6 / 1.5 / 6

Note

Ordering data

Screw connection

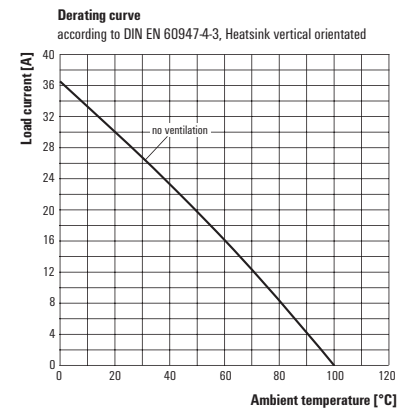
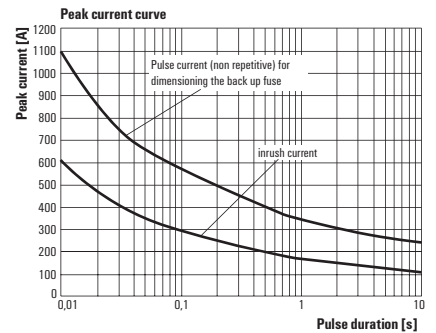
Type	Qty.	Order No.
PSSR 24VDC/1PH AC 35A	1	1406210000

Note

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

Accessories

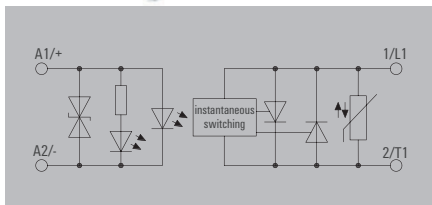
Note



PSSR - 1-phase

- Load circuit 1-phase 24...510 V AC, 22 A at 40°C ambient temperature
- Ready-to-use: snap on-connect-ready
- Instantaneous-switching output
- Wear-free & silent switching
- Plug-in monitoring module

PSSR 24 V DC / 1 PH AC 22 A I



Technical data

Control side	
Rated control voltage	3.5...32 V DC
Power rating	< 500 mW
Cut-in / dropout voltage	3 V / 2 V DC
Input frequency	10 Hz
Status indicator	LED yellow
Protective circuit	Suppressor diode
Load side	
Solid-state type	Thyristor (instantaneous-switching)
Rated switching voltage	24...510 V AC
Continuous current	22 A (AC51) at 40 °C, 7 A (AC 53)
Min. switching current	5 mA
Max. switching current	50 A
Voltage drop at max. load	≤1.25 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤0,1 ms / ≤ 10 ms
Output voltage frequency range	50...60 Hz
Pulse load, max. current	530 A (10 ms), non-recurrent
Load category	AC 51, AC 53
Load limit integral (I²t) <10 ms	1400 A²s
General data	
Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	
Standards	
Insulation coordinates	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 6,5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	
Clamping range (rated / min. / max.) control side	mm² 1,5 / 0,13 / 3,3
Clamping range (rated / min. / max.) load side	mm² 6 / 1,5 / 6
Note	

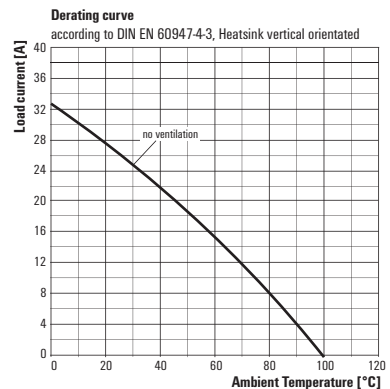
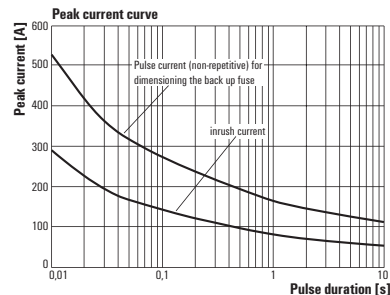
Ordering data

Screw connection	Type	Qty.	Order No.
	PSSR 24VDC/1PH AC 22A I	1	2531050000

Note	Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.
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Accessories

Note	
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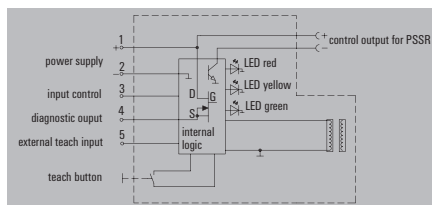


Power solid-state relays

PSSR control unit

- Monitoring of up to 5 consumers connected in parallel
- Can be attached to the single-phase PSSRs
- Error message feedback output
- Undercurrent switching threshold: $0.84 \times I_{teach}$
- Teach button on the module and external teach input

PSSR 1 PH CONTROL UNIT



Technical data

Control side

Rated control voltage
Rated control current
Cut-in / dropout voltage
Rated control voltage (external teach input)
Nominal control current (external teach input)

Supply

Supply voltage
Current consumption

Feedback output

Solid-state type
Nominal switching voltage
Continuous current
Undercurrent switching threshold
Current measurement range AC, min.
Current measurement range AC, max.
Switch-on delay
Switch-off delay

Control output to the PSSR

Nominal switching voltage
Solid-state type
Switch-on delay
Switch-off delay

General data

Ambient temperature (operational)
Storage temperature
Humidity
Current sensor hole diameter
Approvals
Standards

Insulation coordinates

Impulse withstand voltage
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

Dimensions

Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm

Note

4...30 V DC
≤ 2.5 mA
2 V DC
4...30 V DC
≤ 2.5 mA

8...30 V DC
≤ 20 mA (feedback output unloaded), ≤ 120 mA (switched feedback output max. loaded)

MOS-FET
8...30 V DC
0.1 A
$0.84 \times I_{teach}$
2 A
40 A
≤ 100 ms
≤ 100 ms

8...30 V DC
Transistor
≤ 15 ms
≤ 16 ms

-40 °C...80 °C
-40 °C...125 °C
40...85 % (indoor) no condensation
9 mm
CE, EAC
EN 60947-4-3, EN 60950

Screw connection

1.5 / 0.15 / 2.5
65 / 25 / 112.3

Ordering data

Screw connection

Note

Type	Qty.	Order No.
PSSR 1PH CONTROL UNIT	1	1406230000

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

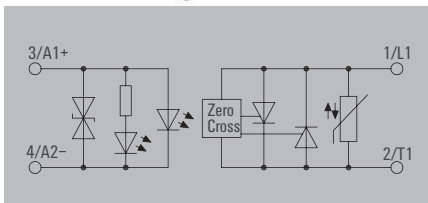
Accessories

Note

PSSR - 1-phase

- Single-phase load circuit: 24–600 V AC / 50 A
- Compact design
- Zero-cross switch
- Noiseless, wear-free switching

PSSR 24 V DC / 1 PH AC 50 A HP



Technical data

Control side

Rated control voltage
Power rating
Cut-in / dropout voltage
Input frequency
Status indicator
Protective circuit

Load side

Solid-state type
Rated switching voltage
Continuous current
Min. switching current
Max. switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side
Switch-on delay / Switch-off delay
Output voltage frequency range
Pulse load, max. current
Load category
Load limit integral (I ² t) <10 ms

General data

Ambient temperature (operational)
Storage temperature
Humidity
Approvals
Standards

Insulation coordinates

Impulse withstand voltage
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

Dimensions

Clamping range (rated / min. / max.) control side	mm ²
Clamping range (rated / min. / max.) load side	mm ²

Note

Ordering data

Screw connection

Note

Accessories

Note

3.5...32 V DC

Rated control voltage
Power rating
Cut-in / dropout voltage
Input frequency
Status indicator
Protective circuit

Thyristor (zero-cross switch)

Rated switching voltage
Continuous current
Min. switching current
Max. switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side
Switch-on delay / Switch-off delay
Output voltage frequency range
Pulse load, max. current
Load category
Load limit integral (I ² t) <10 ms

-55 °C...100 °C

Ambient temperature (operational)
Storage temperature
Humidity
Approvals
Standards

4 kV (1.2/50 µs)

Impulse withstand voltage
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

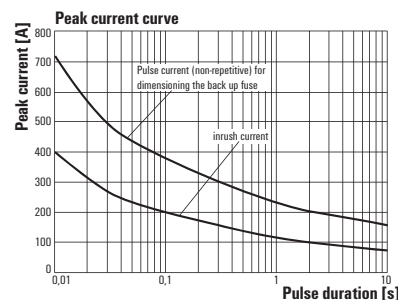
1.5 / 0.75 / 2.5

Clamping range (rated / min. / max.) control side	mm ²
Clamping range (rated / min. / max.) load side	mm ²

Type

Type	Qty.	Order No.
PSSR 24VDC/1PH AC50A HP	2	1406240000

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

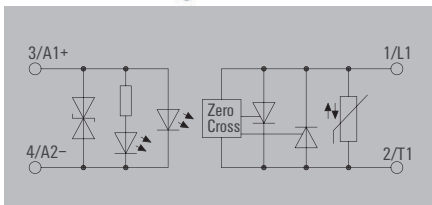


Power solid-state relays

PSSR - 1-phase

- Single-phase load circuit: 24–600 V AC / 75 A
- Compact design
- Zero-cross switch
- Noiseless, wear-free switching
- High capacity for handling surge currents
I²t = 6000 A²s (10 ms)
- Fusing with B circuit breaker possible

PSSR 24 V DC / 1 PH AC 75 A HP



Technical data

Control side

Rated control voltage
Power rating
Cut-in / dropout voltage
Input frequency
Status indicator
Protective circuit

Load side

Solid-state type
Rated switching voltage
Continuous current
Min. switching current
Max. switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side
Switch-on delay / Switch-off delay
Output voltage frequency range
Pulse load, max. current
Load category
Load limit integral (I ² t) <10 ms

General data

Ambient temperature (operational)
Storage temperature
Humidity
Approvals
Standards

Insulation coordinates

Impulse withstand voltage
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

Dimensions

Clamping range (rated / min. / max.) control side	mm ²
Clamping range (rated / min. / max.) load side	mm ²

Note

Ordering data

Screw connection

Note

Accessories

Note

3.5...32 V DC

≤ 280 mW
3 V / 2 V DC
10 Hz
Green LED
Suppressor diode

Thyristor (zero-cross switch)

24...600 V AC
62 A (AC51) at 40 °C, mounted on heatsink with 0.75 K/W
5 mA
90 A
≤ 1.4 V
≤ 1 mA
No / Varistor
≤ 10 ms / ≤ 10 ms
50 / 60 Hz
1100 A (10 ms), non-recurrent
AC 51
6000 A ² s

-55 °C...100 °C
-55 °C...125 °C
40...85 % (indoor) no condensation
CE: cURus; EAC
EN 60947-4-3, EN 60950, IEC 60335-1

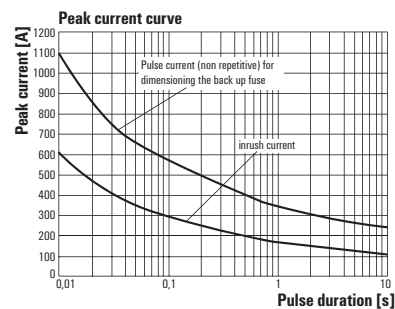
4 kV (1.2/50 µs)
≥ 8 mm
III
2

1.5 / 0.75 / 2.5

10 / 1.5 / 10

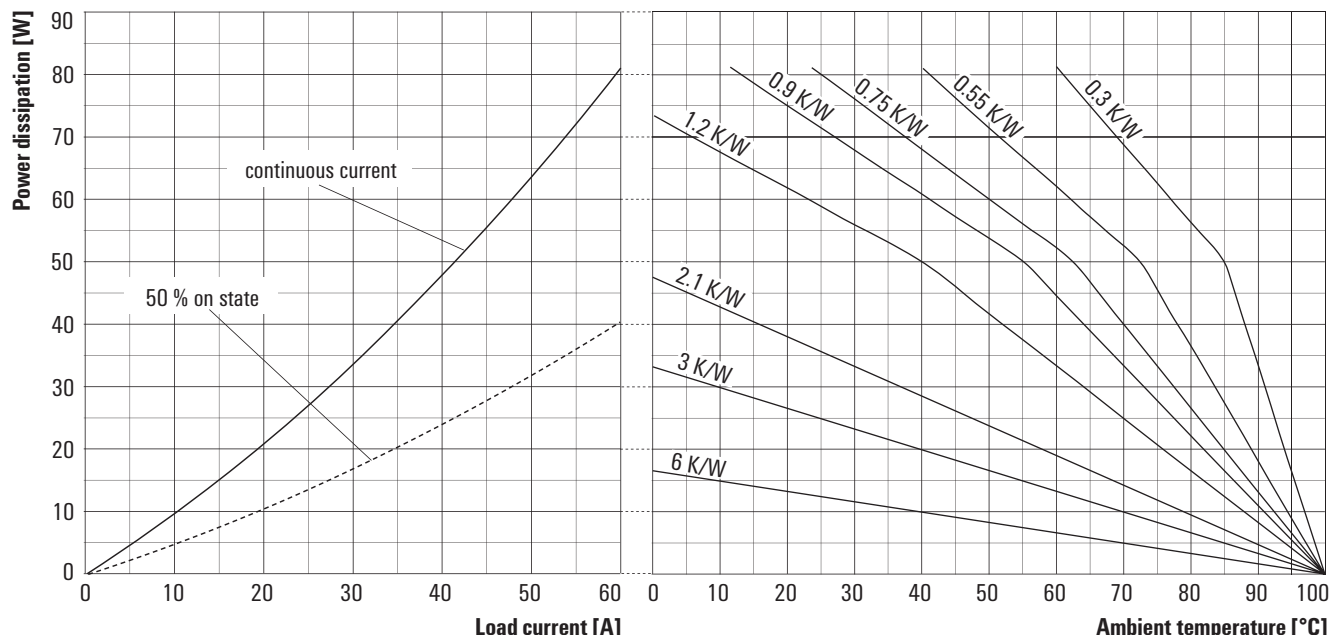
Type	Qty.	Order No.
PSSR 24VDC/1PH AC75A HP	2	1406250000

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

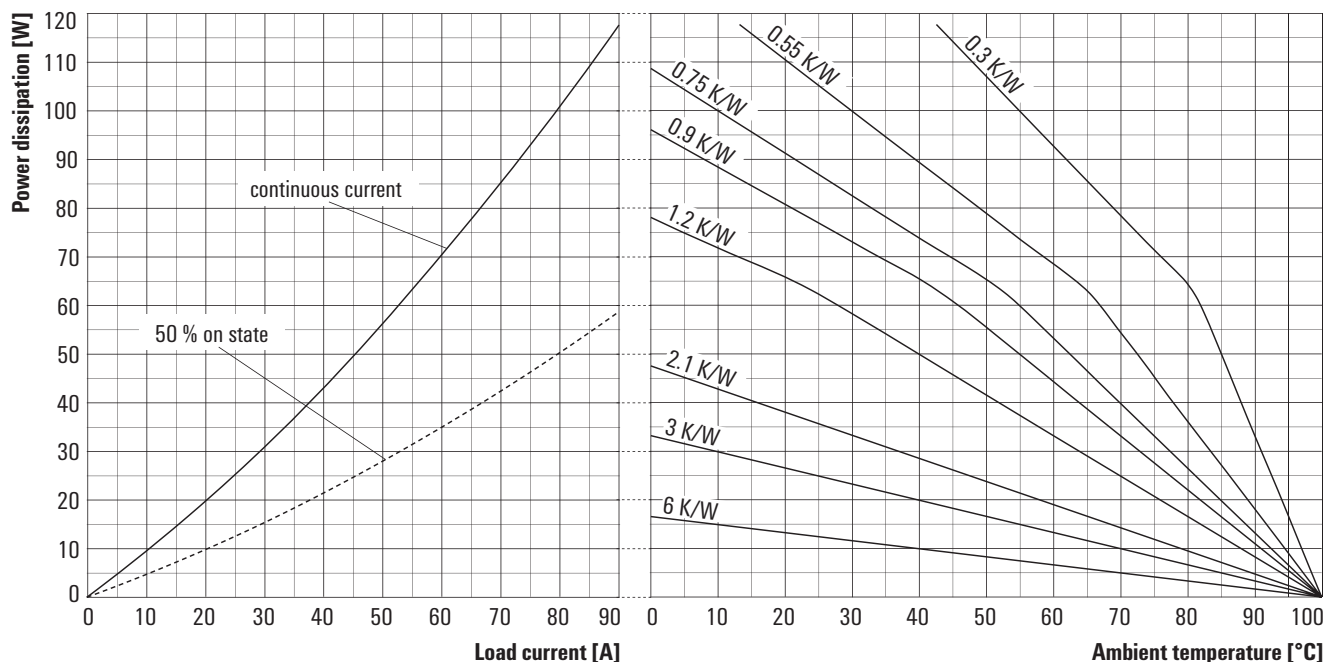


Power loss and selection of heat sink

Order No. 1406240000



Order No. 1406250000

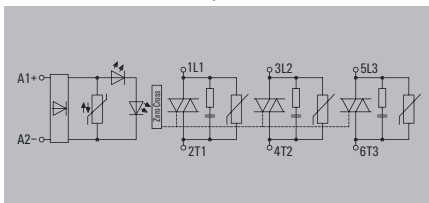


Power solid-state relays

PSSR - 3-phase

- Three-phase load circuit 24...520 V AC / 20 A at 55°C
- Ready-to-use: snap on - connect - ready
- Zero-cross switch
- Wear-free and noiseless switching

PSSR 24 V DC / 3 PH AC 20 A



Technical data

Control side

Rated control voltage
Power rating
Cut-in / dropout voltage

Input frequency
Status indicator
Protective circuit

Load side

Solid-state type
Rated switching voltage
Continuous current
Min. switching current
Max. switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit
Switch-on delay / Switch-off delay
Output voltage frequency range
Pulse load, max. current / Cartridge fuse
Load category
Load limit integral (I²t) <10 ms

General data

Ambient temperature (operational)
Storage temperature
Humidity
Approvals
Standards

Insulation coordination

Rated voltage
Impulse withstand voltage
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

Dimensions

Clamping range (rated / min. / max.) control side mm²
Clamping range (rated / min. / max.) load side mm²

Note

8...30 V DC / 10...30 V AC

0.1...2 W

10 V / 4 V AC

8 V / 4 V DC

10 Hz

Green LED

RC element, Varistor

Triac (zero-cross switch)

24...520 V AC

20 A @ 55 °C, 12 A (AC 53)

5 mA

1.4 V

< 1 mA

No / RC element, Varistor

30 ms / 30 ms

50 / 60 Hz

300 A (10 ms), non-recurrent /

AC 53: 3 x 12 A

1500 A²s

-40 °C...80 °C

-40 °C...100 °C

40...85 % (indoor) no condensation

cURus; EAC

DIN EN 60950, IEC 60947-4-3

4 kV (1.2/50 μs)

≥ 6.4 mm

III

2

1.5 / 0.75 / 2.5

10 / 10 / 1.5

Ordering data

Screw connection

Type	Qty.	Order No.
PSSR 24VDC/3PH AC 20A	1	8952130000

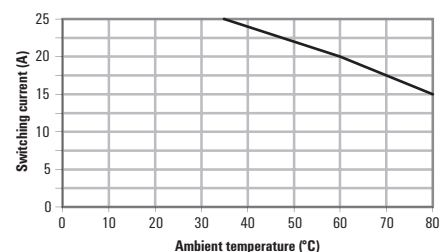
Note

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

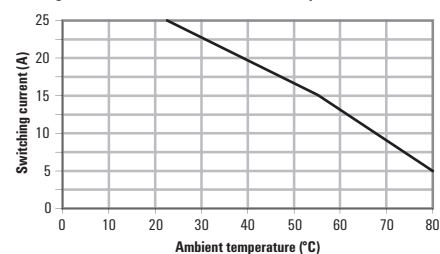
Accessories

Note

Derating curve with moderate ventilation and 50 % operational running time



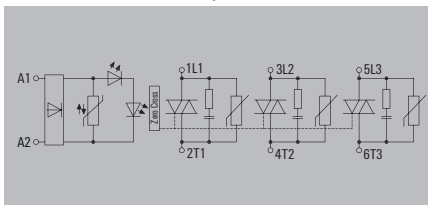
Derating curve without ventilation and in continual operation



PSSR - 3-phase

- Three-phase load circuit 24...520 V AC / 20 A at 55°C
- Ready-to-use: snap on - connect - ready
- Zero-cross switch
- Wear-free and noiseless switching

PSSR 230 V AC / 3 PH AC 20 A



Technical data

Control side	
Rated control voltage	90...240 V AC / DC
Power rating	0.4...2.6 W
Cut-in / dropout voltage	90 V / 15 V AC 90 V / 15 V DC
Input frequency	10 Hz
Status indicator	Green LED
Protective circuit	RC element, Varistor
Load side	
Solid-state type	Triac (zero-cross switch)
Rated switching voltage	24...520 V AC
Continuous current	20 A @ 55 °C, 12 A (AC 53)
Min. switching current	5 mA
Max. switching current	
Voltage drop at max. load	1.4 V
Leakage current	< 1 mA
Short-circuit-proof / Protective circuit	No / RC element, Varistor
Switch-on delay / Switch-off delay	30 ms / 30 ms
Output voltage frequency range	50 / 60 Hz
Pulse load, max. current / Cartridge fuse	300 A (10 ms), non-recurrent /
Load category	AC 53: 3 x 12 A
Load limit integral (I²t) <10 ms	1500 A²s
General data	
Ambient temperature (operational)	-40 °C...80 °C
Storage temperature	-40 °C...100 °C
Humidity	40...85 % (indoor) no condensation
Approvals	cURus; EAC
Standards	DIN EN 60950, IEC 60947-4-3
Insulation coordination	
Rated voltage	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 6.4 mm
Overtoltage category	III
Pollution degree	2
Dimensions	
Clamping range (rated / min. / max.) control side	mm² 1.5 / 0.75 / 2.5
Clamping range (rated / min. / max.) load side	mm² 10 / 1.5 / 10
Note	

Ordering data

Screw connection

Type	Qty.	Order No.
PSSR 230VAC/3PH AC 20A	1	8952140000

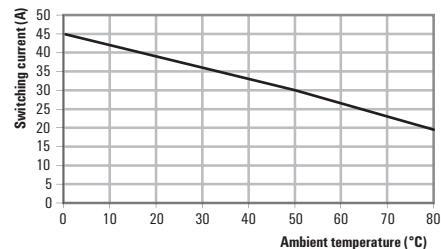
Note

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

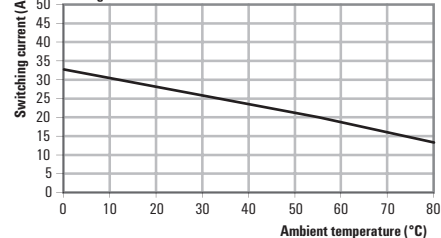
Accessories

Note

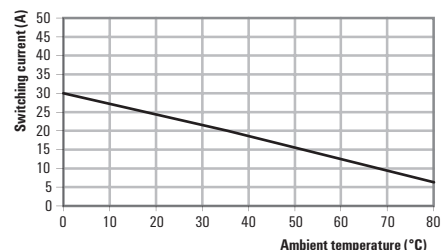
Derating curve with maximum ventilation



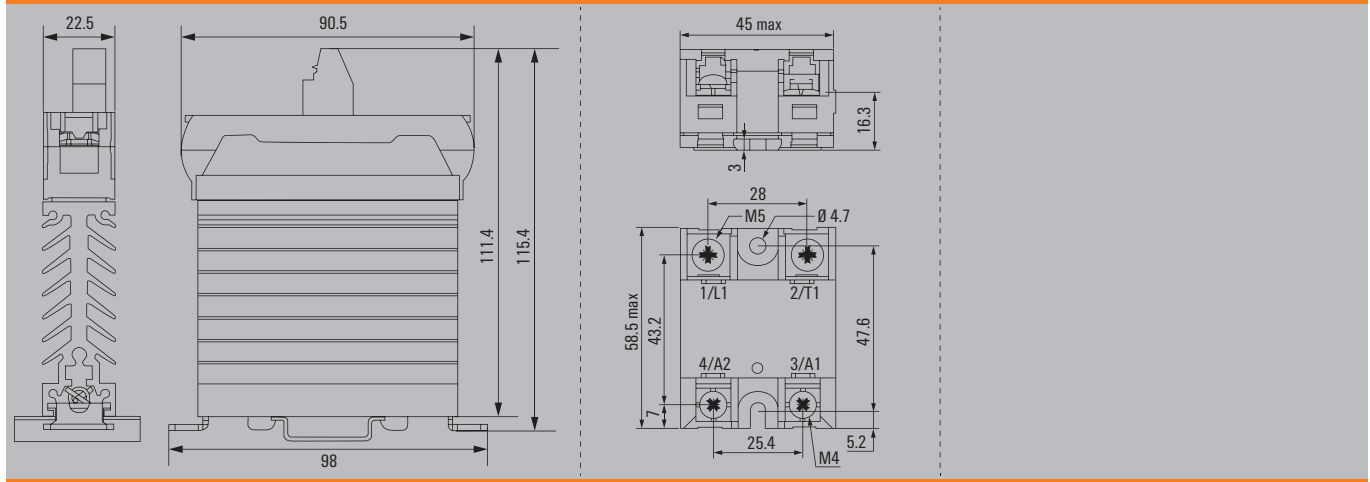
Derating curve with moderate ventilation and 50% operational running time



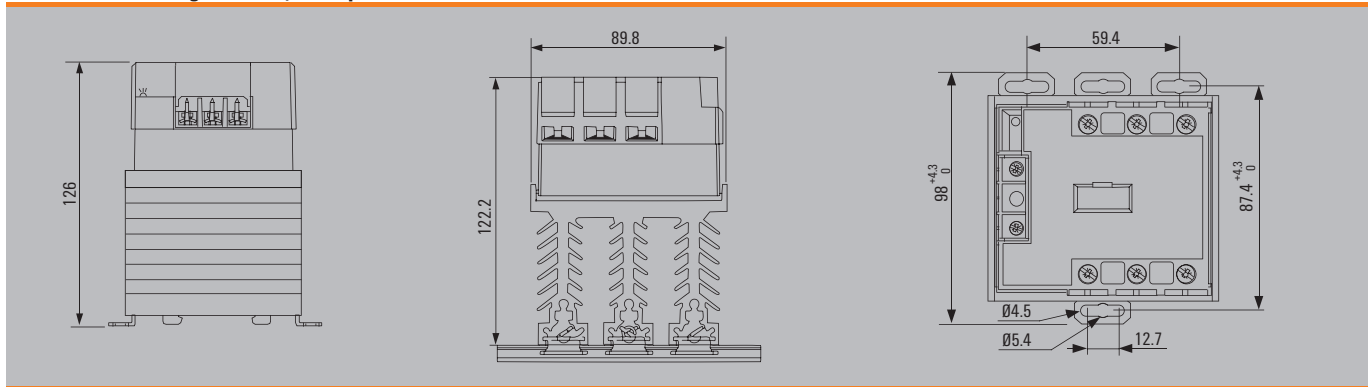
Derating curve without ventilation and in continual operation



Dimensioned drawing for PSSR, single-phase



Dimensioned drawing for PSSR, three-phase



Uninsulated screwdriver

Weidmüller SoftFinish screwdriver for general uses. Blade made from fully hardened, high-alloy chromium-vanadium-molybdenum steel, matt chrome finish.



SD S

Slotted screwdriver with rounded blade SD DIN 5265, ISO 2380/2, output to DIN 5264, ISO 2380/1. ChromTop tip, SoftFinish® grip

Type	Size / AF	A	B	C	Order No.
SDS 0.6x3.5x100		0.6	3.5	100	9008330000



SDK PZ

Crosshead screwdriver, Pozidriv, SDK PZ DIN 5262, ISO 8764/2-PZ, output to ISO 8764/1-PZ, ChromTop tip, SoftFinish® grip

SDK PZ2	2			100	9008540000
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Safety relay

Safety relay	SAFESERIES SIL relays - Overview	D.2
	SAFESERIES SIL relays	D.6

SAFESERIES SIL relays

Functional safety for process applications

Whether for a burner control system, secure emergency shut down or, for example, for pump controllers – our safety relay guarantees safe conditions and encompasses highly superior and significant features.

D

Their integration into distributed control systems (DCSs) is even better, with an input filter which makes the SIL circuit immune to the test impulse which is typically used by a DCS. You will also benefit from simple maintenance: the fuses are accessible from the outside and can easily be changed. You can see the status of the safety and the monitoring devices clearly on the displays mounted directly to the device.

All devices are accredited though certification by the internationally recognised TÜV-NORD group – for secure process applications around the globe. Let's connect.



Safe control of back-up systems
 Equipped with wide range input voltages in the monitoring circuit from 24 V AC/DC to 230 V AC/DC, the relay is designed for individual use, e.g. in back-up systems or the overfill prevention devices of tank farms.



Safe monitoring of furnace firing systems
 The feed-in of fuel must be interrupted as soon as a boiler plant reaches any safety criterion limits. The SAFESERIES offers you a safety switch-off for the feed-in of fuel to furnace firing systems up to safety integrity level (SIL) 3.





Safe activation and deactivation

This universal device can be used for either the energise-to-safe or de-energise-to-safe operation modes, as you wish. This makes it suitable, e.g. for pump controllers or extinguishing systems.



You have strict requirements for the functional reliability of your systems

We connect your safety-related applications reliably

D



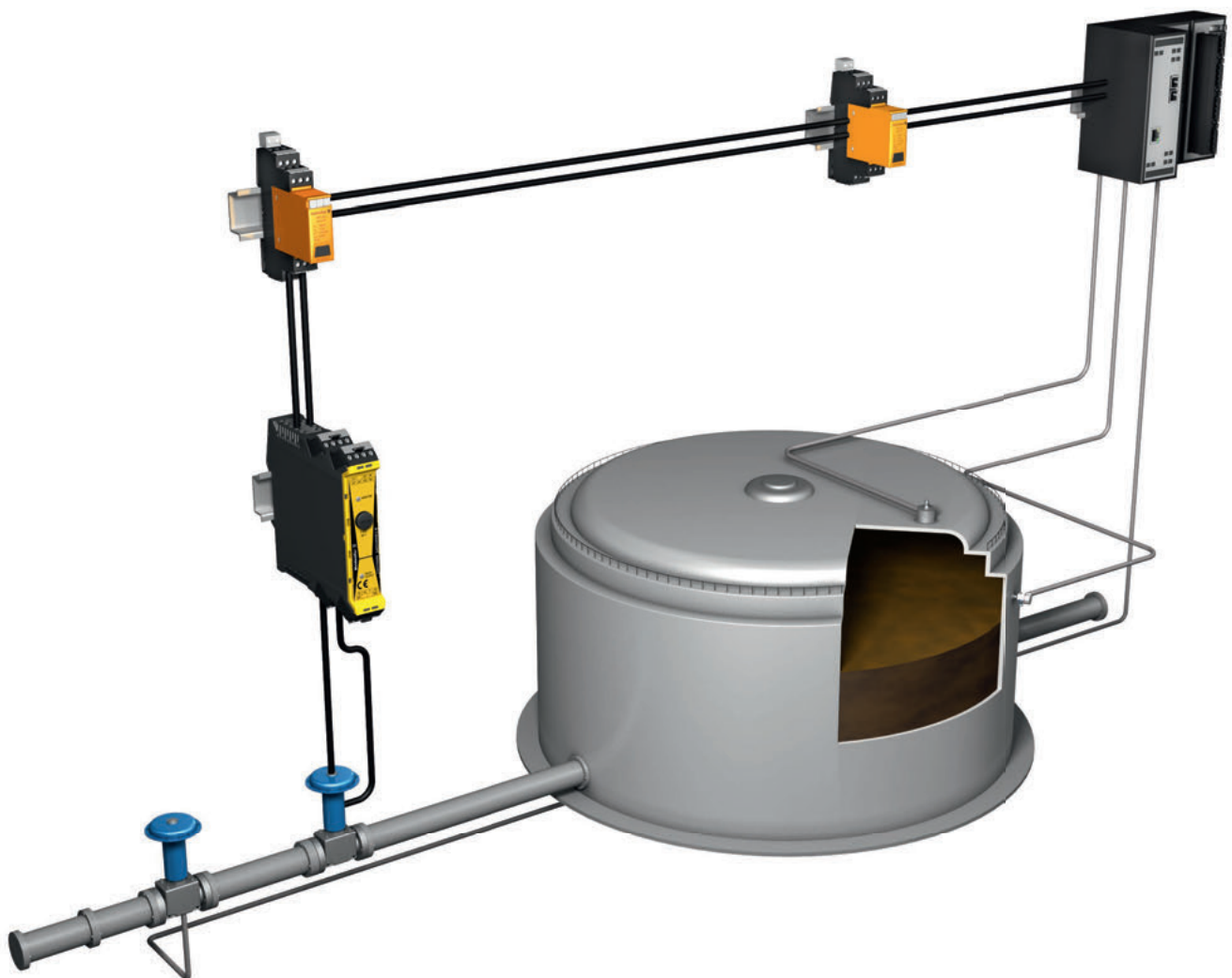
Safe process and power technology is a top priority for you. For example, a reliable emergency shutdown, which initiates appropriate countermeasures in hazardous situations, is indispensable. These might extend to the automatic shutdown of the system or subsystems within it.

As a specialist in industrial connectivity, we offer a comprehensive solution for safety-sensitive areas, from the control room through to the field.

The SAFESERIES SIL relay is ideally suited for use in safety-related applications. It is designed for low and high demand modes.

With the wide range input voltage in the protective circuit of 24 V UC to 230 V UC, for example, you can control back-up systems with high DC voltage. You get additional flexibility for your applications with the optional "G3" coating for use in harsh environments.

The safe and reliable coupling of measuring instruments, actuators and sub-assemblies to the safety-relevant signal circuit is handled by our VARITECTOR SPC, the lightning and surge protection for signal circuits. Certified for safety requirement level SIL 3 according to EN 61508, and accredited by TÜV NORD, it can easily be incorporated into your safety calculations.



SAFESERIES

- Certified to EN 61508 for SIL3
- Wide voltage input from 24 to 230 V AC/DC for the monitoring of field signals
- Variant with G3 protection for extreme conditions
- Other variants for burner management or on/off switching



VARITECTOR SPC

- 2 analogue or 4 digital signals on a width of just 17.8 mm
- Monitoring with status indicator and message function
- Testable with V-TEST according to IEC62305
- Variants with SIL certification or EX approval

SAFESERIES SIL relays

SIL3 relays

- With and without monitoring circuit
- Wide-range input voltage in the monitoring circuit
- Externally accessible fuse
- TÜV certified "Approved Safety Function"

Technical data

Temperatures

Ambient temperature (operational)
Storage temperature

-25...50 °C
-40...85 °C

General data

Noxious gas resistance to EN 60068-2-60

Yes (art. No.: 1304040000 only)

Input (safety circuit)

Rated control voltage
Guaranteed current consumption of 24 VDC -10%
Power consumption
Status indicator

24 V DC ± 20%
35 mA
42 mA
LED yellow

Input (monitor circuit)

Rated control voltage
Current consumption
Status indicator

24 V UC...230 V UC ± 10 %
23 mA @ 24 V DC, 4.4 mA @ 230 V AC
LED yellow

Output (safety circuit)

Contact design
max. switching current, internal fuse
max. switching current, external fuse
max. permitted switching voltage
max. permitted switching current
min. switching power
max. switching power
Switch-on time
Base material of the contact
Internal fuse
External back-up fuse
Short-circuit-proof

NO contact
5 A (refer to derating curve)
5 A (refer to derating curve)
250 V AC / 30 V DC
8 A
10 mA @ 12 V
2000 VA
typ. 7 ms
AgNi 0.15 gold flashed
5 A time-lag
5 A time lag
No

Output (monitor circuit)

Contact design
max. permitted switching voltage
max. permitted switching current
min. switching power
Base material of the contact
Switch-on time
Short-circuit-proof

CO contact
24 V DC
30 mA
1 mA @ 1 V
AgNi 5µm Au
typ. 17 ms
No

Insulation coordination

Rated voltage
Creepage and clearance distance input - output
Creepage and clearance distance output - output
Dielectric strength input - output
Dielectric strength output - output
Dielectric strength to mounting rail
Impulse withstand voltage
Overvoltage category
Pollution degree

300 V
≥ 5.5 mm
≥ 5.5 mm
4 kV_{eff} / 1 min
4 kV_{eff} / 1 min
4 kV_{eff} / 1 min.
6 kV (1.2/50 µs)
III
2

Further details of approvals / standards

Standards

EN 50178, EN 61000, EN 61326-3-2

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Dimensions

1.5 / 0.13 / 2.5
114.1 / 22.5 / 117.3

Note

Ordering data

	with monitoring
	without monitoring
	with monitoring and G3 gas-corrosion resistant

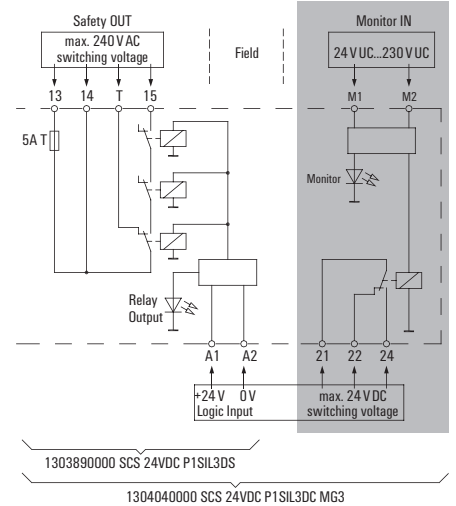
Note

Type	Qty.	Order No.
SCS 24VDC P1SIL3DS M	1	1303760000
SCS 24VDC P1SIL3DS	1	1303890000
SCS 24VDC P1SIL3DS MG3	1	1304040000

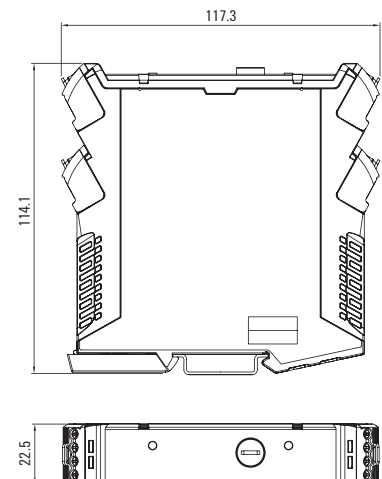
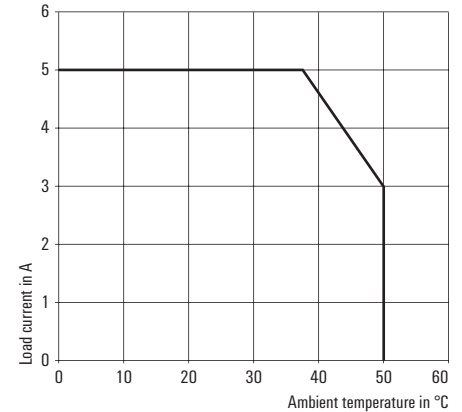
SCS 24 V DC P1SIL3DS



The SCS 24VDC P1SIL3DS safety relay is used in areas that require a functionally safe shutdown. This component fulfils the requirements of EN 61508, SIL 3.



Derating curve safety output



SIL3 relay

- Immune against test pulses from Triconex® output modules
- For the use with the systems Tricon™, Trident™ und Tri-GP™ a proof of compatibility is available
- Externally accessible fuse
- TÜV certified "Approved Safety Function"

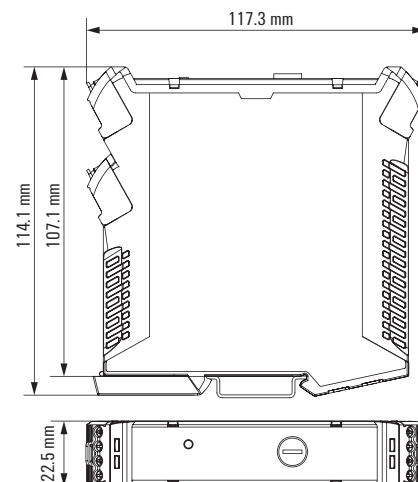
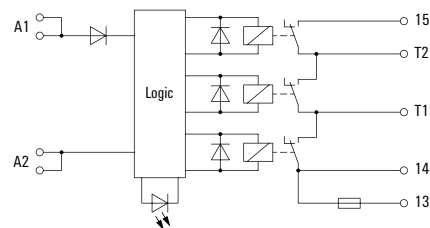
SCS 24 V DC P1SIL3DS I



The SCS 24VDC P1SIL3DS I safety relay is used in areas that require a functionally safe shutdown. This component fulfils the requirements of EN 61508, SIL 3.

Technical data

Temperatures	
Ambient temperature (operational)	-25...50 °C
Storage temperature	-40...85 °C
Input (safety circuit)	
Rated control voltage	24 V DC (16...36 V DC)
Power consumption	50 mA
Status indicator	LED yellow
Output (safety circuit)	
Contact design	NO contact
max. switching current, internal fuse	5 A
max. switching current, external fuse	5 A
max. permitted switching voltage	250 V AC / 30 V DC
max. permitted switching current	5 A
min. switching power	10 mA @ 12 V
max. switching power	2000 VA
Switch-on time	≤ 25 ms
Base material of the contact	AgNi
Internal fuse	5 A time-lag
External back-up fuse	5 A time lag
Short-circuit-proof	No
Insulation coordination	
Rated voltage	300 V
Creepage and clearance distance input - output	≥ 6 mm
Dielectric strength input - output	3.51 kV _{eff} /5 s
Dielectric strength to mounting rail	
Impulse withstand voltage	6 kV (1.2/50 µs)
Overtoltage category	III
Pollution degree	2
Further details of approvals / standards	
Standards	EN 61010-2:2013 + AC:2013, EN 61326-1:2013, EN 61326-3-1:2008, EN 61326-3-2:2008



Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Ordering data

	with monitoring	Type	Qty.	Order No.
		SCS 24VDC P1SIL3DS I	1	2500980000

Note

Note

SAFESERIES SIL relays

SIL3 relays

- Energised / de-energised to safe
- All pins can be disconnected
- Test inputs for testing the relay contacts
- Externally accessible fuse
- TÜV certified "Approved Safety Function"

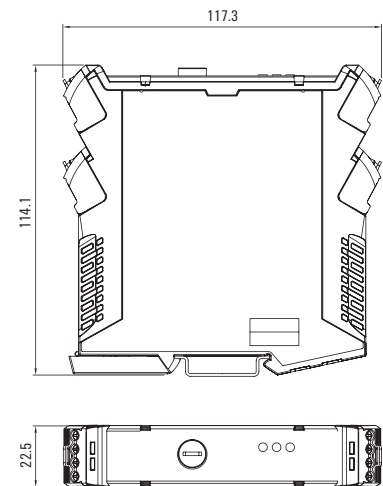
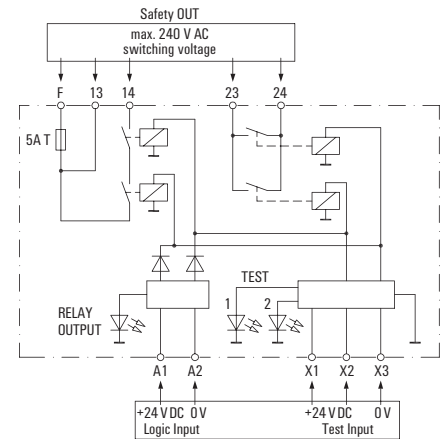
Technical data

Temperatures	
Ambient temperature (operational)	-25 °C...50 °C
Storage temperature	-40 °C...85 °C
Input (safety circuit)	
Rated control voltage	24 V DC -15 / +20%
Guaranteed current consumption of 24 VDC -10%	35 mA
Power consumption	45 mA
Status indicator	LED yellow
Test inputs	
Rated control voltage	24 V DC
Status indicator	LED red flashing: test input is triggered
Number of test inputs	2
Output (safety circuit)	
Contact design	1 x de-energised to safe (NO contact), 1 x energised to safe (NO contact)
max. switching current, internal fuse	5 A (refer to derating curve)
max. switching current, external fuse	5 A (refer to derating curve)
max. permitted switching voltage	250 V AC
max. permitted switching current	8 A
min. switching power	10 mA @ 12 V
max. switching power	2000 VA
Switch-on time	< 5,5 ms (DTS), < 5 ms (ETS)
Base material of the contact	AgNi 0.15 gold flashed
Internal fuse	5 A time-lag
External back-up fuse	5 A time lag
Short-circuit-proof	No
Insulation coordination	
Rated voltage	300 V
Creepage and clearance distance input - output	≥ 5,5 mm
Creepage and clearance distance output - output	≥ 5,5 mm
Dielectric strength input - output	4 kV _{eff} / 1 min
Dielectric strength output - output	4 kV _{eff} / 1 min
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Impulse withstand voltage	6 kV (1.2/50 µs)
Overtoltage category	III
Pollution degree	2
Further details of approvals / standards	
Standards	EN 50178, EN 61000, EN 61326-3-2

SCS 24 V DC P2SIL3DSES



The safety relay SCS 24VDC P2SIL3DSES is used in areas that require functionally safe deactivation or activation. The requirements according to EN 61508, SIL3 can be fulfilled with this module.



Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Depth x width x height	mm
Note	

Ordering data

Type	
SCS 24VDC P2SIL3DSES	
Note	

Type	Qty.	Order No.
SCS 24VDC P2SIL3DSES	1	1319270000
Note		

SIL3 relays

- Positively-driven contacts
- 2-channel design
- Insert according to EN 50156
- TÜV certified "Approved Safety Function"

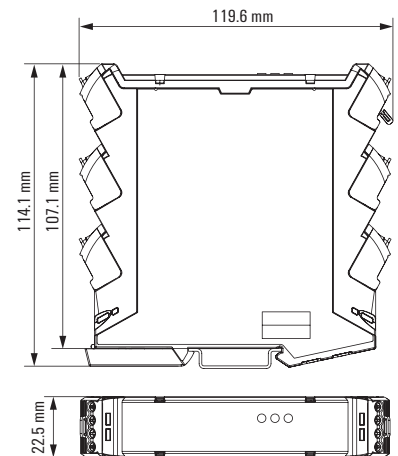
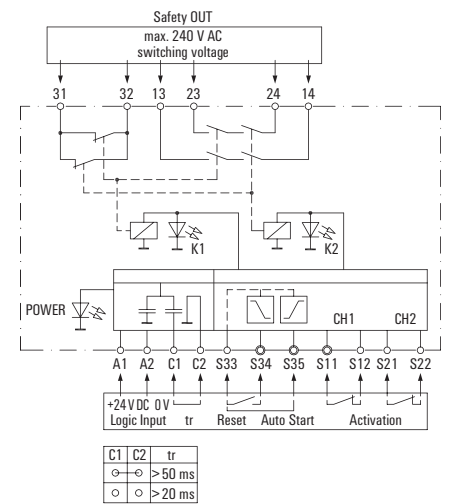
SCS 24 V DC P2SIL3ES



The feed-in of fuel must be interrupted as soon as a boiler plant reaches any safety criterion limits. The safety relay SCS 24VDC P2SIL3ES enables you to carry out a safety shutdown of the fuel supply, to safety level SIL 3.

Technical data

Temperatures	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-40 °C...85 °C
Start circuit	
Operating voltage	22 V DC, from internal power supply
Function	falling edge (button via S33/S34), rising edge (permanent bridge via S33/S35)
Input (supply)	
Rated control voltage	24 V DC ±15 %, 24 VDC +15% / -10% during auto-start
Current consumption	55 mA (release circuit enabled), 6 mA (release circuit not enabled)
Guaranteed current consumption at 24 V DC -10%	35 mA
Response time	with bridge via C1/C2: typ. 50 ms, without bridge via C1/C2: typ. 20 ms
Status display	LED green, power, LED yellow, signal
Short-circuit detection	Yes, max 4 s up to switch-off (Polyfuse)
Monitoring circuit	
Operating voltage	22 V DC, from internal power supply
Input	2, each externally bridgeable
Output (release circuit)	
Contact version	2 NO positively-driven (EN 50205 type B)
Switching voltage AC, max.	250.000000 V
max. permitted switching current	6 A
min. switching power	10 mA @ 12 V
max. switching power	2000 VA
Switch-on time	55 ms (C1/C2 bridged, switched via A1/A2), 30 ms (opening/closing of monitoring circuit)
Switch-off time	20 ms (C1/C2 bridged, switched via A1/A2), 15 ms (opening/closing of monitoring circuit)
Contact base material	AgSnO
max. switching current, external fuse	5 A
external back-up fuse	5 A time lag
Feedback output	
Contact version	1 NC positively-driven (EN 50205 type B)
Switching voltage AC, max.	250 V
Max. switching current	1 A
Insulation coordination	
Rated voltage	300 V
Creepage and clearance distance input - output	≥ 5.5 mm
Creepage and clearance distance output - output	≥ 5.5 mm
Dielectric strength input - output	4 kV _{eff} / 1 min
Dielectric strength output - output	4 kV _{eff} / 1 min
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Impulse withstand voltage	6 kV (1.2/50 µs)
Overvoltage category	III
Pollution degree	2
Further details of approvals / standards	
Standards	EN 50178, EN 61000, EN 61326-3-2, EN ISO 13849-1 (PLe)
Dimensions	
Clamping range (nominal / min. / max.)	1.5 / 0.13 / 2.5 mm ²
Depth x width x height	114.1 / 22.5 / 119.6 mm
Note	



Ordering data

Type	Qty.	Order No.
SCS 24VDC P2SIL3ES	1	1319280000

Note	
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Timer

Timer	IT-TIMER - Timing relay	E.2
	BT-SERIES - Overview	E.6
	BT-SERIES - Timer	E.8
	MCZ-SERIES - Timer	E.12

Compact timing relay for easy adjustment of the control signals

IT-TIMER multi-functional timing relay with multi-voltage input

Timing relays are frequently used in automation engineering in order to compensate malfunctions caused by high cycle rates. Short pulses are extended and hence are reliably identified by downstream control components.

The timing relay offers high functionality on a small footprint. Due to the flat front panel, an easy-to-read LED display as well as operating elements adjustable by standard tools, the configuration is particularly straightforward.

With the IT-TIMER, Weidmüller offers a highly efficient multi-functional timing relay with multi-voltage input, which fulfils the product standards in accordance with IEC 61812-1.



The IT-TIMER timing relays are used in factory automation for easy adjustment of the control signals.

Your special advantages:

A compact device with easy configuration of the time functions

Its compact size, the multi-voltage input and an easy configuration of the time functions make the IT-TIMER a smart solution for your application.

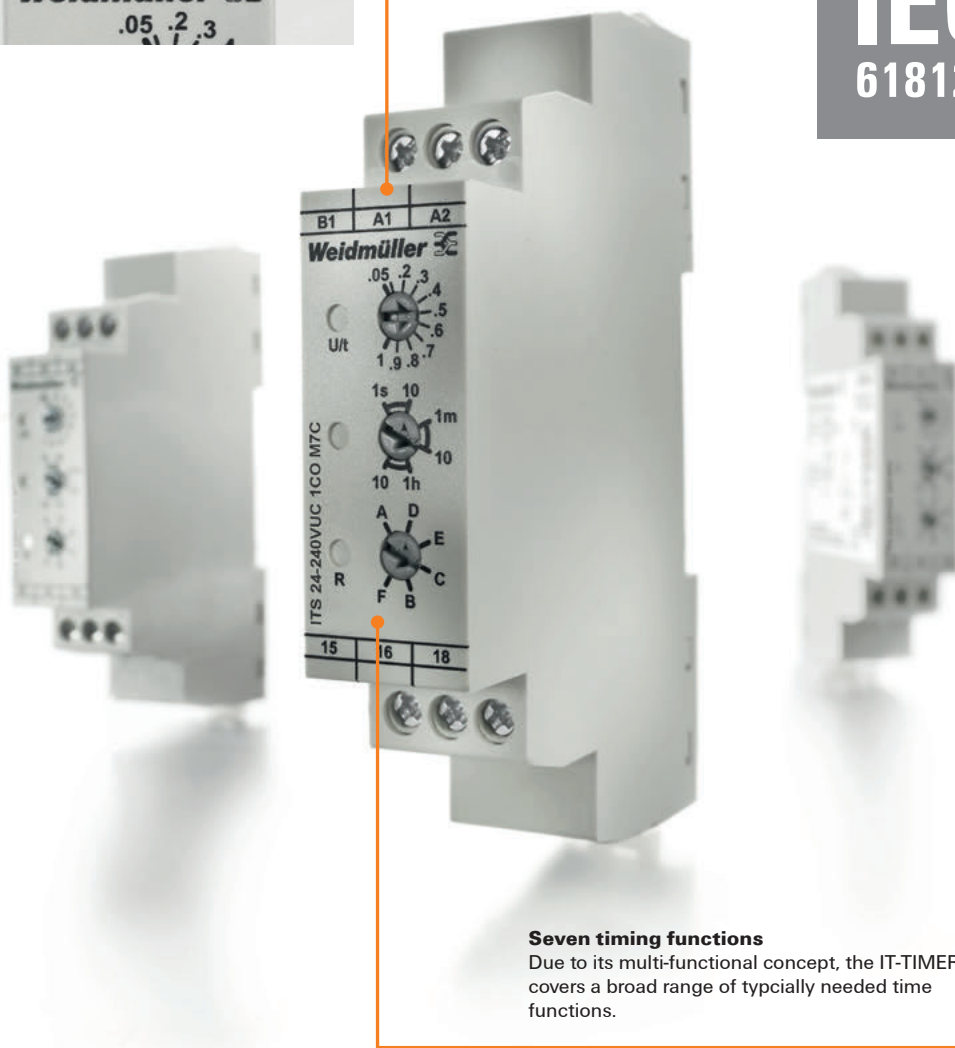
Multi-voltage input

The timing relay operates from 24 V DC up to 48 V DC and from 24 V AC up to 240 V AC. It can therefore be used in a wide range of applications.



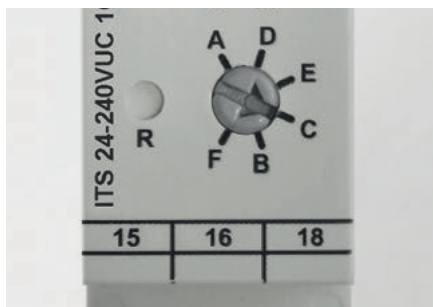
Global standard

International usage is guaranteed in accordance with the standard IEC 61812-1.



Seven timing functions

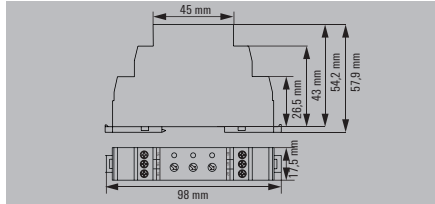
Due to its multi-functional concept, the IT-TIMER covers a broad range of typically needed time functions.



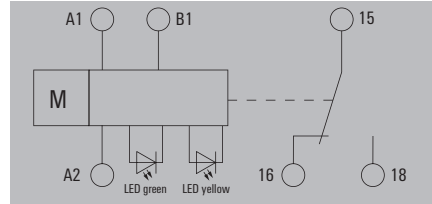
IT TIMER – Timing relay

Timing relay

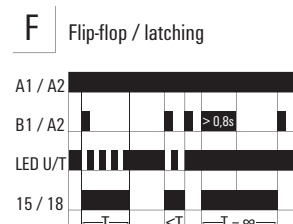
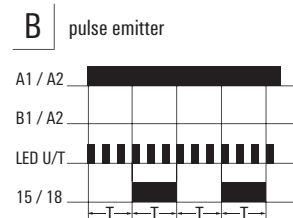
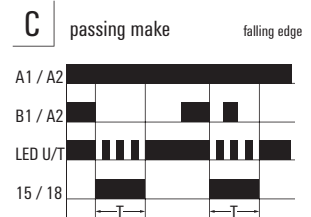
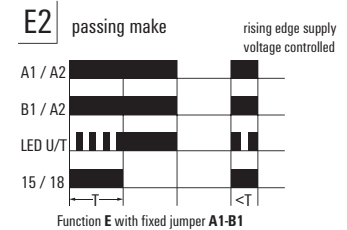
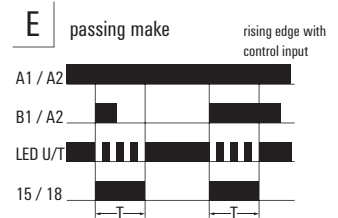
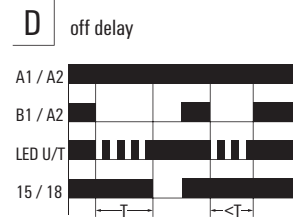
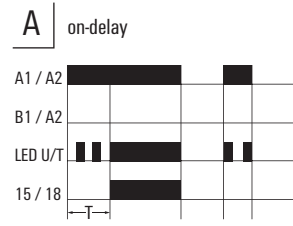
- Multi-voltage input:
24...48 V DC
24...240 V AC
- Space-saving construction
- 7 time functions with separate control input



ITS 24-240 V UC 1 CO M7C



Time functions



Technical data

Input	
Rated control voltage	24..48 V DC - 15 % / + 10 % / 24..240 V AC - 15 % / + 10 %
Power rating	8 VA @ 230 V AC, 0.4 W at 24 V DC
Status indicator	LED green (U/t): flashes when time runs, lights permanently with supply voltage applied, LED yellow (R): relay closed
Repeat accuracy	< 0.5 % or ±5 ms
Basic accuracy	< 1.5 % (of scale-end value)
Setting tolerance	5 %
Min. pulse duration	50 ms
Time ranges	0.05 s - 1 s, 0.5 s - 10 s, 3 s - 60 s, 0.5 min - 10 min, 3 min - 1 h, 0.5 h - 10 h
Max. reset time after voltage interruption	100
Output	
Rated switching voltage	250 V AC
Max. switching voltage, AC	250
Max. switching voltage, DC	30 V
Continuous current	5 A
AC switching capacity (resistive), max.	1250 VA
DC switching capacity (resistive), max.	90 W
Max. switching frequency at rated load	0.1 Hz
Contact material	AgNi
Mechanical service life	1 x 10 ⁶ switching cycles
General data	
Ambient temperature (operational)	-25 °C...50 °C
Storage temperature	-40 °C...70 °C
Humidity	25 - 75%, no condensation
Version	with separate control input
Resistance to vibration EN 61812-1	10 Hz...60 Hz: 0.15 mm, 60 Hz...150 Hz: 2 g
Approvals	CE
Insulation coordination	
Rated voltage	300 V
Creepage and clearance distance input - output	≥ 1.5 mm
Dielectric strength input - output	1.6 kV
Impulse withstand voltage	2.5 kV
Protection degree	IP20
Dimensions	
Clamping range (nominal / min. / max.)	2.5 / 0.25 / 2.5 mm ²
Depth x width x height	57.9 / 17.5 / 98 mm
Note	

Type	Qty.	Order No.
ITS 24-240VUC 1CO M7C	1	2496190000
ITS 24-240VUC M7C PU10	10	2545120000

Ordering data

	Screw connection
	Screw connection

Note

Accessories

Note

Installation timer

The electronic timer from the BT product range offers ideal solutions for industrial applications.

The BT product range provides the following functions:

- Pick-up delay (BTR)
- Pulse emitter (BTTT)
- Multifunction with control input (BTM)
- Multifunction without control input (BTMF)
- Star-delta change-over

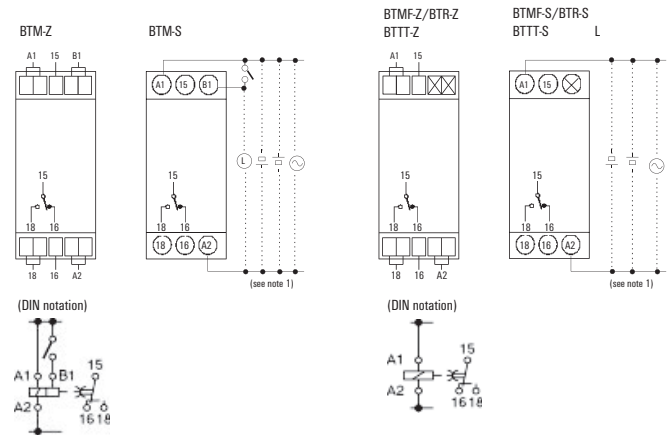
E

Time ranges and power supplies for timer


Using the central button, you can select the functions of the modules over either 4 or 8 time ranges.

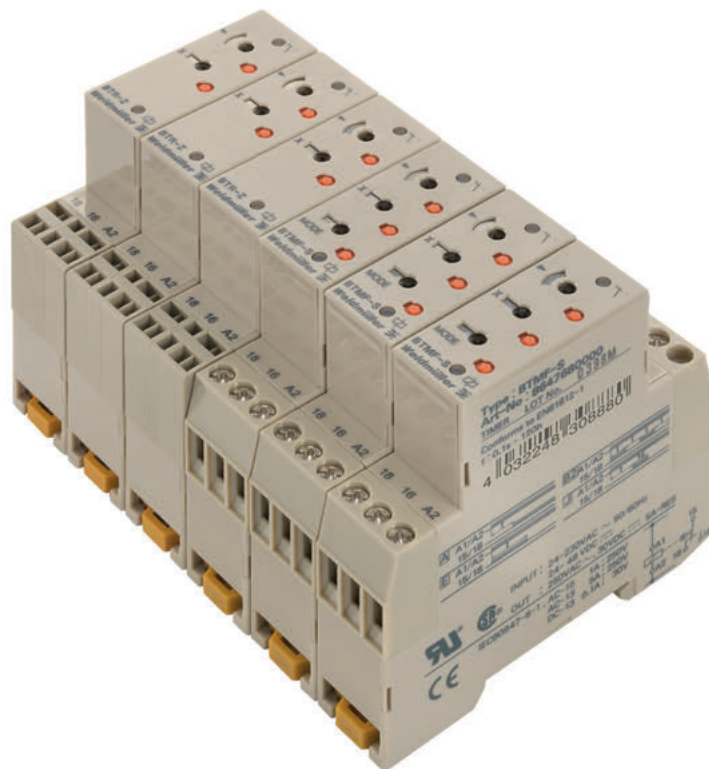
The multi-voltage supply range offers a wide bandwidth for industrial use (see technical data).

Connection of the timer



Note: 1. Pole numbers are not necessary for DC voltage supply.

2. The contact symbol of BTM is marked with  as it provides several operating modes and differs from the delayed contacts of conventional timer.



Time ranges

Display of time scale	Time ranges
0.1 s	0.1 to 1.2 s
1 s	1 to 12 s
0.1 min	0.1 to 1.2 min
1 min	1 to 12 min
0.1 h	0.1 to 1.2 h
1 h	1 to 12 h
10 h	10 to 120 h

Note:

If the rotary button for time adjustment is set to "0", the output will be switched without delay.

Choosing the time range

The time range is chosen by turning the rotary switch for the ON-time scale and OFF-time scale. The time scales are visible in the display to the left of the rotary switch in the following order: 0.1 s, 1 s, 0.1 m, 1 m, 0.1 h, 1 h.

Note:

The time scales "1 s" and "0.1 h" are given twice. Both adjustments represent the same time scale.

Locking/unlocking of selectors and time setting dial

The rotary switches for the ON/OFF time adjustment and the option selector for the time scale can be locked with the locking key.

This pen-style special tool is available separately. To lock either rotary switches or the option selector, simply insert the locking key into the keyhole bottom right of the rotary switch/option selector and turn it clockwise until the button/switch is totally covered by the red cover. To unlock, simply turn the key in the opposite direction.

Connection system

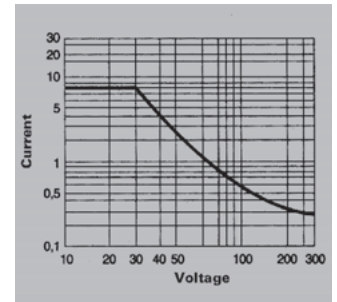
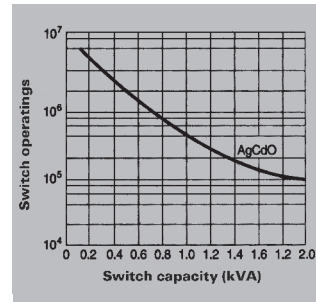
The units offers the following connection technologies:

Screw connection

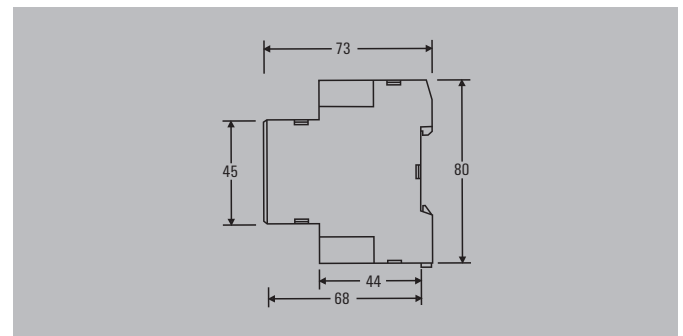
- 2 x 1.5 mm² with wire end ferrule,
- 2 x 2.5 mm² without wire end ferrule

Tension clamp connection

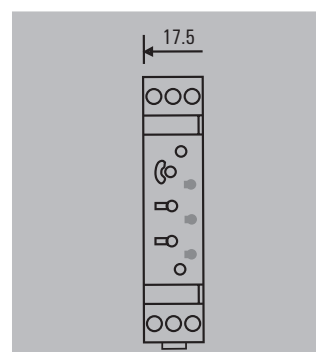
- 2 x 1.5 mm² with wire end ferrule,
- 2 x 1.5 mm² without wire end ferrule



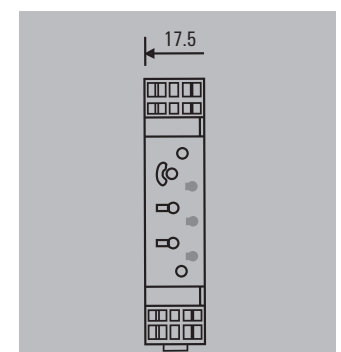
Dimensions



Screw connection



Tension clamp connection



Installation timer

- Screw or tension clamp connection
- LED status indicator
- Approvals

Input:
Output:

508
EN 61812-1
IEC 60947-5-1
IEC 60664-1
EN 55011

voltage present
output active
22.2 Nr. 14
IEC 60664-1
EN 61812-1
IEC 60947-5-1
EN 50082-2



Type designation:

- B** = Building
- T** = Timer
- R** = Response Delay
- TT** = Two Times
- M** = Multifunction, 8 ranges
- MF** = Multifunction, 4 ranges
- DS** = Delta, Star
- S** = Screw
- Z** = Tension

Input		Contacts hard gold plated	
Rated voltage		24 ... 230 V AC, 50/60 Hz, 24 ... 48 V DC	
Voltage tolerance		85 ... 110 % of rated voltage	
Breaking voltage		Max. 2.4 V AC/DC	
Power consumption per type	V AC	21...33 VA at 230 V	
	V DC	0.6...1.3 W at 24 V	
Reset time		Min. 0.1 s (BTDS: 0.5 s)	
Insulation			
Insulation resistance		100 MΩ min., at 500 V DC	
Insulation test voltage	between input and output, to enclosure	2000 V AC, 50/60 Hz, 1 min	
	between non-adjacent contacts	1000 V AC, 50/60 Hz, 1 min	
Ingress protection class		IP30, terminal block IP20	
Output			
Contact/contact material		1 change-over contact (BTDS 2 NOC) / AgNi 90/10	
Switch output		5 A at 250 V AC, resistive load (cos φ=1)	
Service life	mechanical min.	10 ⁷ switching cycles (no load, 1800/h)	
	electrical min.	10 ⁶ switching cycles (5A at 250 V AC, resistive load at 1800/h)	
Time range		0,10 s...120 h	
Repetition accuracy		± 1 %	
Other data			
Flammability class as per UL94		V-2	
Ambient temperature/storage temperature		-10...+55 °C / -25...+65 °C (without condensation)	
Humidity		35...85 % rel. humidity, no condensation	
Clamping range (nominal/min/max)	mm ²	Screw connection	Tension clamp connection
		1.5 / 0.5 / 2.5	1.5 / 0.2 / 1.5
Depth x Width x Height	mm	73.0 x 17.5 x 80.0	

Accessories

Designation
Locking and adjusting key

Type	Qty.	Order No.
BT Lock Pen	1	8659840000

Multifunction relay with control input (BTM)



Ordering data

Connection system	Type	Qty.	Order No.
Screw connection	BTM-S	1	8647700000
Tension clamp	BTM-Z	1	8647710000

Functions

Function A - on-delay

Connect power supply (A1/A2). When the input signal (B1/A2) is applied, the set time T begins to delay. After the time has expired, the output R (15/18) disconnects the load. To reset, the input signal needs to be switched off.



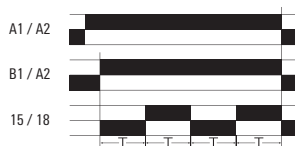
Function E - passing make function (Watchdog)

Connect power supply (A1/A2). After applying the input signal (B1/A2), output R (15/18) connects the load immediately. At the end of the set delay time T, output R (15/18) switches the load off again.



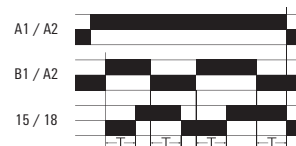
Function B - pulse emitter (starting at normal position)

Connect power supply (A1/A2). After applying the input signal (B1/A2), output R (15/18) switches the load synchronously and alternately between the normal and operated positions within the set time T. In this function, the cycle starts at the normal position.



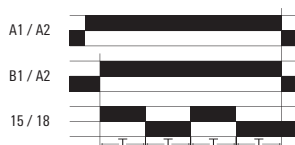
Function G - on and off-delay function

Connect power supply (A1/A2). Time delay T begins after applying the input signal (B1/A2). At the end of this time, output R (15/18) connects the load (on-delayed). After the input signal (B1/A2) has been switched off again, the output switches the load off again after the set time (off-delayed).



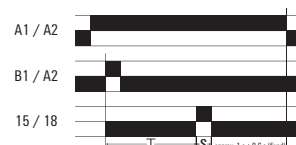
Function B2 - pulse emitter (starting at operated position)

Connect power supply (A1/A2). After applying the input signal (B1/A2), output R (15/18) switches the load synchronously and alternately between the normal and operated positions within the set time T. In this function, the cycle starts at the operated position.



Function J - on-delay with pulse

Connect power supply (A1/A2). Time delay T begins after applying the input signal (B1/A2). At the end of this time, the output R (15/18) connects the load for 1 second.



Function C - interval time-delay

Connect power supply (A1/A2). After applying the input signal (B1/A2), output R (15/18) connects the load for the set time T. Output R (15/18) switches the load off again at the end of time T. After switching off the input signal (B1/A2), output R (15/18) connects the load again for the set time T. Output R (15/18) switches the load off again at the end of time T.



Function D - off-delay function

Connect power supply (A1/A2). After applying the input signal (B1/A2), output R (15/18) connects the load. The time delay T begins after the input signal (B1/A2) has been switched off. At the end of time T, output R (15/18) switches the load off again.



Multi-function relay without control input (BTMF)



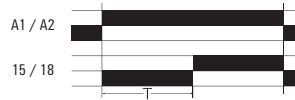
Ordering data

Connection system	Type	Qty.	Order No.
Screw connection	BTMF-S	1	8647680000
Tension clamp	BTMF-Z	1	8647690000

Functions

Function A – on-delay

When the input signal (A1/A2) is applied, the on-delay lasting for the set time T starts. The output R (15/18) connects the load at the end of the set time. To reset, the power supply has to be switched off.



Timer (BTR)



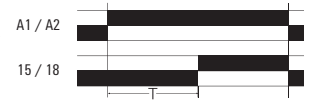
Ordering data

Connection system	Type	Qty.	Order No.
Screw connection	BTR-S	1	8647720000
Tension clamp	BTR-Z	1	8647730000

Functions

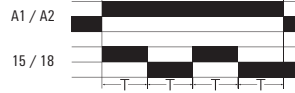
Function A – on-delay

When the power supply is connected (A1/A2), the on-delay lasting for the set time T starts. The output R (15/18) connects the load at the end of the set time.



Function B2 – pulse emitter (starting at operated condition)

After applying the input signal (A1/A2), output R (15/18) switches the load synchronously and alternately between the normal and operated positions within the set time T. In this function, the cycle starts at the operated position.



Function E – passing make function

After applying the input signal (A1/A2), output R (15/18) connects the load immediately. At the end of the set delay time T, output R (15/18) switches the load off again.



Function J – on-delay with pulse

Time delay T begins after applying the input signal (A1/A2). At the end of this time, the output R (15/18) connects the load for 1 second.



Timer (BTTT)



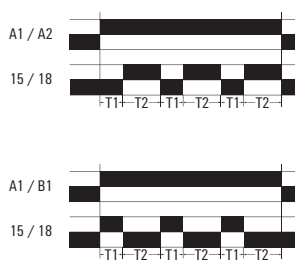
Ordering data

Connection system	Type	Qty.	Order No.
Screw connection	BTTT-S	1	8647740000

Functions

Function BTTT - pulse emitter

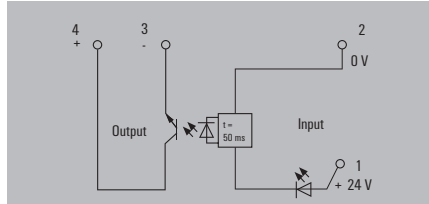
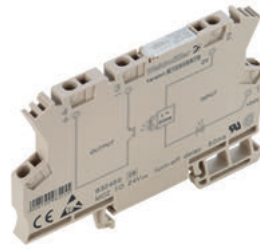
When the power supply is connected (A1/A2), the repeat cycle begins with two independently adjustable times. The standard setting is to start at the normal position. A bridge between connections A1 and A2 allows the module to start at the operated position.



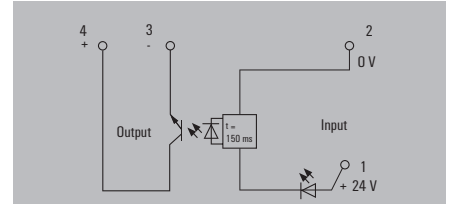
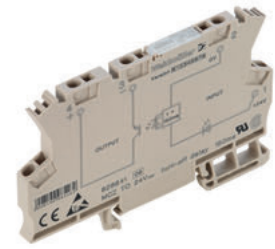
Miniconditioner MCZ T0

- Components for lengthening short pulses for the PLC
- Fixed switch-off delay
- Low input power
- Screw connection system
- Width 6 mm
- For mounting on TS 35

24 V DC 50 ms



24 V DC 150 ms



Technical data

Input	
Rated control voltage	24 V DC ±10 %
Rated current AC / DC	/ 6.7 mA ±10 %
Power rating	160 mW
Min. pulse duration	2 ms
Status indicator	Green LED
Output	
Rated switching voltage	5...48 V DC
Continuous current	20 mA
Switch-off delay	50 ms
Max. switching frequency at rated load	5 Hz
Rated data	
Ambient temperature (operational)	-25 °C...50 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, CSA, cURus, EAC
Insulation coordinates	
Rated voltage	300 V
Overvoltage category	IV
Dielectric strength input - output	1 kV _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Creepage and clearance distance input - output	≥ 5.5 mm
Impulse withstand voltage	6 kV (1.2/50 µs)
Pollution degree	2

Input	
Rated control voltage	24 V DC ±10 %
Rated current AC / DC	/ 6.7 mA ±10 %
Power rating	160 mW
Min. pulse duration	2 ms
Status indicator	Green LED
Output	
Rated switching voltage	5...48 V DC
Continuous current	20 mA
Switch-off delay	150 ms
Max. switching frequency at rated load	3 Hz
Rated data	
Ambient temperature (operational)	-25 °C...50 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, CSA, cURus, EAC
Insulation coordinates	
Rated voltage	300 V
Overvoltage category	IV
Dielectric strength input - output	1 kV _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Creepage and clearance distance input - output	≥ 5.5 mm
Impulse withstand voltage	6 kV (1.2/50 µs)
Pollution degree	2

Input	
Rated control voltage	24 V DC ±10 %
Rated current AC / DC	/ 6.7 mA ±10 %
Power rating	160 mW
Min. pulse duration	3.5 ms
Status indicator	Green LED
Output	
Rated switching voltage	5...48 V DC
Continuous current	20 mA
Switch-off delay	150 ms
Max. switching frequency at rated load	3 Hz
Rated data	
Ambient temperature (operational)	-25 °C...50 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, CSA, cURus, EAC
Insulation coordinates	
Rated voltage	300 V
Overvoltage category	IV
Dielectric strength input - output	1 kV _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 min.
Creepage and clearance distance input - output	≥ 5.5 mm
Impulse withstand voltage	6 kV (1.2/50 µs)
Pollution degree	2

Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.5 / 1.5
Depth x width x height	mm 63.2 / 6.1 / 91
Note	
For mounting on TS 35 rail	

Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.5 / 1.5
Depth x width x height	mm 63.2 / 6.1 / 91
Note	
For mounting on TS 35 rail	

Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.5 / 1.5
Depth x width x height	mm 63.2 / 6.1 / 91
Note	
For mounting on TS 35 rail	

Ordering data

Tension-clamp connection

Type	Qty.	Order No.
MCZ T0 24VDC/50MS	10	8324590000

Type	Qty.	Order No.
MCZ T0 24VDC/150MS	10	8286410000

Note

Note

Note

Accessories

Note

AP MCZ end plate 8389030000

AP MCZ end plate 8389030000

Service and support

Service and support	Our expertise for your requirements	V.2
	Benefit from optimum support when using our products	V.4

Our expertise for your requirements

Service connects - worldwide

Automation technology functions are becoming more complex in a globally-oriented world facing ambitious targets in terms of energy efficiency and smart production. We are your equal partners for the best connections in Industrial Connectivity. Our worldwide network of industrial managers for machine construction, process automation, energy and traffic engineering and for device manufacturers know the challenges you face and can support you in your specific applications.

Training course on technologies, applications and the detailed functionality of our products is available to you locally or at our headquarter in Germany. Our personal support can answer any questions reliably and expertly. Our online services are available 365 day a year around the clock to provide answers to your questions on our products - from user documentation through software to planning tools.

In short: Weidmüller's global service combines our expertise with your requirements.





Professional advice on planning

Our global network of industrial managers has extensive experience in automation technology and electrical connectivity. This expertise allows us to assist you with advice and planning support in order to work with you on resolving the everyday challenges of your applications.



Technology and application training

Industrial automation is moving towards smart production. It faces the challenges of new technologies and applications. Our varied range of training courses develops this knowledge further or provides more in-depth information on the handling of our products and solutions. Our seminars are modular and can be customised. We can train you and your employees in our academy, on your premises if you wish or online in our webinars at any time.



Customised installation

The challenges for the future are reducing costs and increasing efficiency. This requires intelligent, individual solutions which are tailored to your requirements. We can offer a highly qualified customer-specific production service in our application centre. Whether you need modified products, pre-assembled terminal rails or complete small cabinets: we produce the solutions developed for your application quickly and flexibly.

Online support and downloads

Exactly the right help and information on our solutions and products

If our products are used in your automation technology applications, you need the best possible individual support, from planning through installation to operation.

For every stage of your application, we can offer the right tools and information for our products and solutions. Up-to-date, uncomplicated, comprehensive and around the clock via our service portal at www.weidmueller.com/service.

Fast access to our support and services is available via Weidmüller webcodes. Simply select the service you want on the right hand side, then enter the webcode made up of five digits with a preceding hashtag into the search field in the top right corner of www.weidmueller.com and it will bring up the details you need.



Online and personal support

From planning through installation to operation, we can provide exactly the right help and information for each step of your application based on our solutions and products: up-to-date, uncomplicated and comprehensive, around the clock, online or in person.



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As a developer, you need simple processes and system-wide tools. We support you in your development environment with comprehensive data, software tools and interfaces, product selection guides and development samples.

Technical data and downloads

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Commercial support

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Product software
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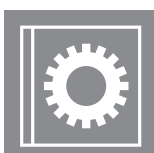
Whitepaper for device connectivity
Webcode #11359



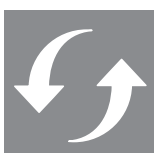
Security Advisory Board
Webcode #11424



Technical catalogue in PDF Format
Webcode #01218



Engineering software
Webcode #11377



Product Change Notification
Webcode #11425



Product configurators, product selection guides and samples
Webcode #01214

More offers in online support and downloads

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Approvals, certificates and declaration of conformity
Webcode #11374

Here you will find information on the CE declaration of conformity, on RoHS and REACH and other company related certificates and approvals.

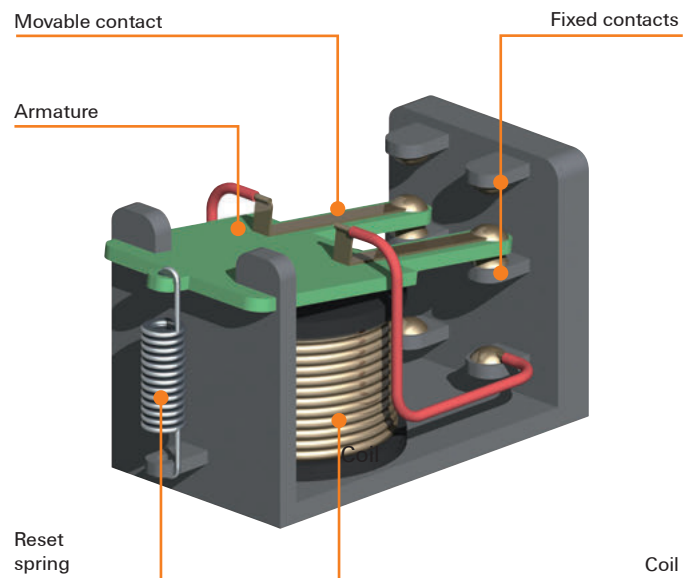
Technical appendix/Glossary

Technical appendix/Glossary	Relay modules and solid-state relays - Comparison	W.2
	Technical appendix: Relay modules	W.4
	Glossary: Relay modules	W.8
	Technical appendix: Solid-state relays	W.28
	Glossary: Solid-state relays	W.36

Relay modules and solid-state relays – Comparison

Advantages of electromechanical relay modules (EMR)

- + AC and DC operation in load circuit possible
Versatile (advantage as interface between different plant equipment)
- + No leakage current in the load circuit
A semi-conductor does not achieve 100 % isolation
- + Low residual voltage in the load circuit
Low voltage drop
- + No power loss in the load circuit
In contrast to the semi-conductor in opto modules there is no electrical resistance in the contacts of the electromechanical relay modules that can lead to a rise in temperature when under load. Therefore, heat sinks are not necessary.
- + Multiple contacts possible
A single control signal can switch several load circuits.
- + Control circuit less sensitive to *transients**)
Unwanted switching operations caused by voltage fluctuations are prevented by the make capacity of the magnetic coil.

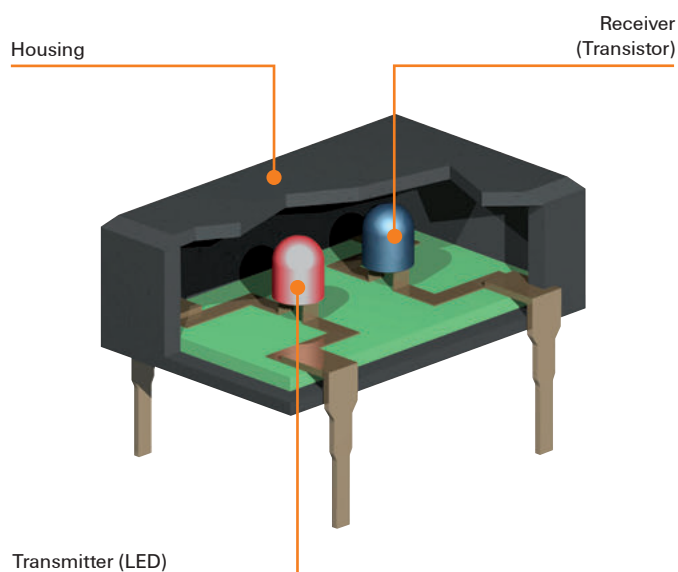


*) Refer to page W.8 in the Glossary for a detailed explanation of this term.

Depending on the requirements, the choice between electromechanical and solid-state relays is made based on the different advantages that the different versions offer:

Advantages of solid-state relays (SSR)

- + Long operational lifetime and reliability
No moving parts or contact wear
- + Small dimensions
Saves space on the PCB and mounting rail
- + Low control power
An LED is activated - no mechanical parts are moved
- + Fast response times
Fast switching, which allows high frequencies to be achieved
- + No contact bounce
Reduces switching delays
- + No switching noise
Suitable for use in noise-sensitive environments
- + Not susceptible to shock and vibration
Prevents unwanted switching statuses
- + No electromagnetic radiation due to switching sparks or coils
No interference of adjacent assemblies or electronics components



Relay modules – an overview

Historical background

The term 'relay' was originally used for a station where stagecoaches were able to change their tired horses for fresh ones. The term 'relay' was given a totally different meaning by the English physicist Charles Wheatstone (1802–1875). In Wheatstone's times, departing trains were advised of by a bell ringing at the next railway station up the line.

This was achieved by connecting a battery in the first station to a bell in the second. However, as the railway stations were generally several kilometres apart the power arriving at the second station was often insufficient to ring the bell. Wheatstone invented a switchgear apparatus that was installed at the second railway station. This continued to function even with low power supply levels. The switchgear apparatus switched a second electrical circuit that actuated the bell. This was the birth of the electromagnetic relay.

How a relay functions

A relay is an electromagnetic switch comprising of two galvanically isolated circuits. Firstly the control circuit and secondly the open circuit with the normally open contact. As soon as the control circuit is energised, the coil creates a magnetic field in the core/yoke and attracts the armature. The actuator now actuates the switch at the output, the normally open contact (make contact) closes and the normally closed contact (break contact) opens. When the control circuit is turned off, the magnetic field diminishes and the return spring returns the armature to its initial position. The actuator moves the normally open (make contact) back to its normal position, the normally open contact opens, the normally closed contact (break contact) closes.

Consequently, with low power input – battery power for example – a relay provides the option of switching heavy loads as well as being able to serve as a switching amplifier. Thanks to the isolation between the input and output, relays are also suitable for providing separation when the power of the control and the open circuits differ. Equipped with several NO (make) contacts, a relay can also be utilised for multiplying signals.

From relay to relay module

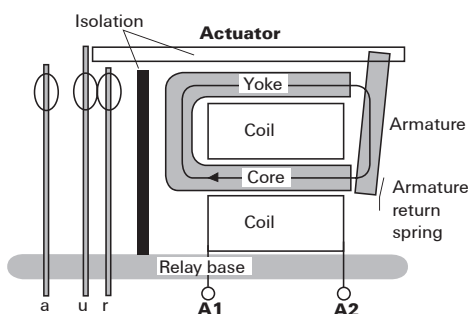
There are two alternative methods that make a relay module suitable for use in industrial applications: mounting onto a PCB – in combination with the corresponding assembly techniques and circuitry – or plugging onto a specially designed relay base.

Generally, the design and rating data determine if a relay coupler is or is not suitable for a particular application.

For example, relay modules with plugged on relays are only partly suitable for use in applications subjected to heavy vibrations. In this case, relay modules with soldered relays should be preferred. Low, compact designs such as those provided by the RIDERSERIES are utilised in small consumer units where the overall available height is limited. Conversely, the compact design of the TERMSERIES helps to save space in electrical cabinets.

Protective separation

It is essential that all electrical equipment required to provide protective separation be designed in such a manner that the insulation cannot be impaired, for example by mechanical errors. If a mechanical error occurs in a relay (bent soldering pin, broken winding wire or broken spring), 'protective separation' must be guaranteed. Relays are specified and tested in accordance with EN 61810-1. However, the standard makes no reference to EN 50178 (Electronic equipment for use in power installations); equally no definition is given for the term 'protective separation'. Things are made worse by the fact that different measurement conditions are given for the test voltages stipulated for relays. As a consequence, the test voltages cannot be applied to the standards EN 50178 or EN 61140. And because the user is nevertheless increasingly deploying electrical equipment that is supposed to guarantee 'protective separation', a large number of manufacturers of relays point to the EN 61140 and carry out the tests accordingly. And of course the values are then 'protective separation' conform.



Standards

The following individual standards are applied in accordance with the corresponding requirements:

Relay modules

- DIN EN 50178:
Electronic equipment for use in power installations

Relays

- DIN EN 61810-1:
Electromechanical elementary relays (electromechanical elementary relays without specified time response characteristics)
Part 1: General and safety requirements

Relay base

- DIN EN 61984
Connectors - Safety requirements and tests

EMC – Electromagnetic compatibility

DIN EN 61000-6-1

Part 6-1: Generic standards; Immunity for residential, commercial and light-industrial environments

DIN EN 61000-6-2

Part 6-2: Generic standards - Immunity for industrial environments

DIN EN 61000-6-3

Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments

DIN EN 61000-6-4

Part 6-4: Generic standards - Emission standard for industrial environments

Coil suppression circuit

In DC circuits, the inductance of the relay coil generates a release voltage when de-energised that is capable of damaging or destroying the connected control electronics. A free wheel diode connected in parallel to the coil limits the release voltage, protects the control electronics and prevents induction of the cut-off voltage to other signal lines.

Large circuits or long cable runs are subjected to increased electrical and electromechanical interference and damage. Malfunctions or even total failure of the relay module can result. The radiated interference, and not to forget leakage currents emanating from trigger modules, can also mean that a triggered relay does not drop out. As standards specify that the drop-out voltage is limited to about 15 percent of the rated voltage, the interference voltage generated can be sufficient to prevent the relay from opening. One way of resolving this problem is to connect an RC combination line side to filter out disturbances and provide capacitive suppression of interference voltages.

TERMSERIES products are supplied ex works with these protective circuits already integrated in the electronics; for the RIDERSERIES these are available as modular series electronics.

The same principles apply as with contact protection circuits.

Relay modules – an overview

Switching large and small capacities

Basically, the reliability of the contacts in a relay reaches a maximum at a medium current load thanks to the continuous self-cleaning effect. As the contact load increases and hence leads to more severe erosion of the contacts, the switching reliability decreases with an increasing number of switching operations. This reduces the service life of the contacts. Although at very low loads the minimal erosion of the contacts does raise the service life more or less to the level of the mechanical service life, the lack of a self-cleaning effect contributes to a lower contact reliability.

Reliable contact at low currents, especially when only small voltages are involved as well, depends on the choice of contact material. Contacts of silver-nickel, which is standard for the majority of Weidmüller relays, are generally suitable for currents of approx. 10 mA and higher. Such large-surface contacts can switch both low and high currents. However, at low currents occasional failures can occur due to erosion and the lack of the self-cleaning effect. The higher the current, the more reliable is the contact – thanks to the self-cleaning. Silver-nickel is suitable as a contact material for low currents/voltages. It provides, however, only **moderate switching reliability**. If this is acceptable, then conventional standard relays represent an inexpensive solution.

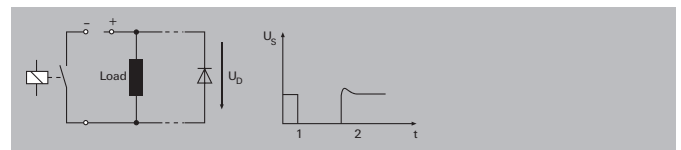
For applications that call for **improved contact reliability** or low currents/voltages, conventional relays with hard-plated gold contacts are preferable because they do not erode and therefore operate more reliably.

If **maximum switching reliability** is necessary, especially for low currents/voltages, a relay should not be your first choice. In these instances Weidmüller advises the use of solid-state relays. Wear and abrasion caused by mechanical movements are non-existent in solid-state relays.

Protective circuits for the contacts

The switching of inductive or capacitive loads produces switching sparks which can influence the electrical service life of the relays. The following protective circuits for the contacts reduce contact wear:

Diode



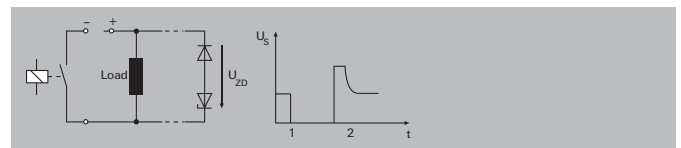
Free-wheeling diodes (DC)

Free-wheeling diodes are used primarily to protect against overvoltages, which occur through self-induction when switching off inductive DC loads (electric motors, relay coils). Voltage spikes are limited to the equivalent value of the diode forward voltage and excess voltage is discharged via the diode. However, this leads to a delay in the voltage drop and as such also delays the switching operation.

Advantage: Can be used for all capacities, low surge, minimum space required, low price

Disadvantage: Very long release delay

Diode and Z-diode



Zener diode / suppressor diode (DC)

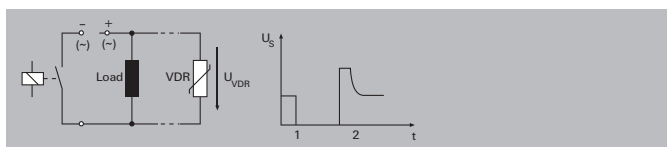
These function as normal diodes in the forward conducting direction. In the blocking direction they become low resistant at a certain voltage (breakdown voltage).

High levels of overvoltages can lead to the destruction of the zener diode / suppressor diode.

Advantage: Low surge (defined by Z-diode), short release delay

Disadvantage: Cannot be used for large capacities

Varistor

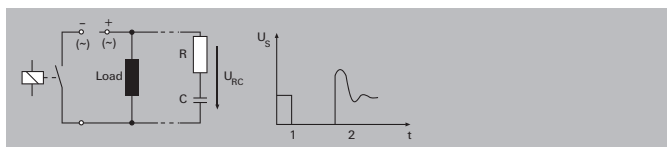


Varistor (AC/DC)

The functional principle of the varistor is also based on a breakdown voltage, but with faster reaction times. This allows higher levels of energy to be shunted, however, these lead to the component aging. This in turn reduces the breakdown voltage over time and increases the leakage current.

- Advantage: Low surge, short release delay
- Disadvantage: High current load on the contacts when switching on; more complicated and expensive at greater capacities

RC combination



RC-element (AC)

The RC element compensates voltage spikes by means of a capacitor. Due to the charging and discharging characteristics interference pulses are filtered out when the voltage is rising and not first when overload is reached. For this reason, RC elements are used to protect against interference pulses and exclude faulty switching operations.

- Advantage: Short release delay, low price
- Disadvantage: Cannot be used for all operating voltages and capacities

U_s = Voltage progression 1 = Closing 2 = Opening



Glossary: Relay modules

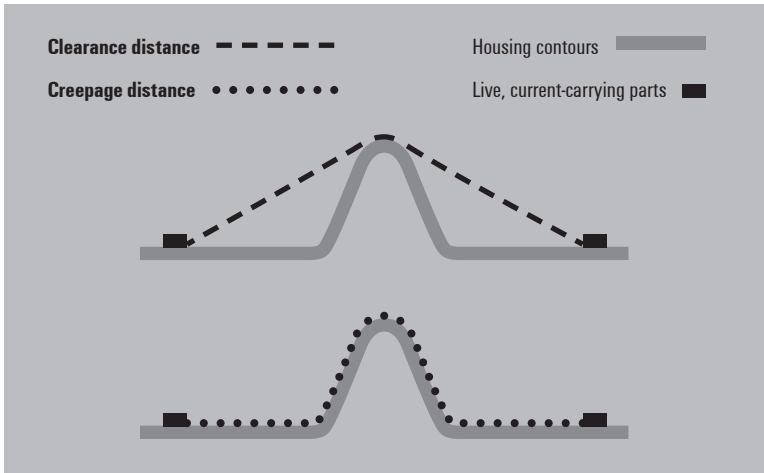
A

AC	Refers both to alternating values (such as voltage or current) as well as to those devices and variables which reference these devices. Specifications are valid for 50 Hz, unless otherwise indicated.
AC coil, alternating current coil	Relay; excitation with alternating current (AC). Specifications are valid for 50 Hz, unless otherwise indicated.
Adhesion (contacts)	This refers to when the relay armature does not return back to its starting position after the coil voltage has been turned off. The armature can get stuck if there is too much retentivity in the iron core or if the reset force is too small.
Approvals and testing marks	<p>Testing approvals are independent confirmation from governmental or private registration services and testing facilities. They certify that the product complies with the relevant regulations and maintains the specified product characteristics. Note: The ordering scheme gives you the choice of many variations, but not all variations are established as standard types (order numbers). Therefore, they may not be included in the list of approved relays. Technical specifications and list of approved types are available on request.</p> <p>CSA Canadian Standards Association, Canada GL Germanischer Lloyd, Germany TÜV Technical Monitoring Association, Germany UL Underwriters Laboratories, Inc., USA; UR Component Recognition Mark for the United States cUR UL Component Recognition Mark for Canada cURus UL Component Recognition Mark for the United States and Canada cULus UL Component Listing Mark for the United States and Canada VDE VDE testing location, Germany (advisory reports with production monitoring)</p>

B

B10	The number of switching cycles for a load where 10 % of the relays fail. This value is used to determine the probability of system failure.
Bounce (chatter)	An unintended phenomenon that may arise during the closing or opening of a contact circuit when the contact elements touch and separate again before they have reached their final positions.
Bounce times	The time (average value) between the first and last closing (or first and last opening) of a relay contact. These times are valid when the rated voltage is used for excitation, without other components in series or in parallel to the coil, and at the reference temperature.
Breaking capacity	Maximum switching current that a relay contact can switch off under specified conditions, whereby the switching current must not be greater than the nominal current.
Burn-off	Loss of contact material due to switching electrical arcs.

W

<p>C</p>	
<p>CE</p>	<p>Abbreviation for Communauté Européenne (the European Community). Manufacturers use the CE label to confirm that their products comply with the corresponding EC directives and the “essential requirements” therein. The EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC are currently binding.</p>
<p>Clearance and creepage distances</p>	<p>Clearance and creepage distances are critical factors that affect the insulating capacity of electrical components. The creepage distance denotes the minimum clearance that two live parts along a surface must have in order to prohibit a flow of current across the insulating material at the specified operating voltage. The operating voltage, the choice of insulation material (material group) and the protective measures taken against contamination (pollution degree) all influence the creepage distance. The clearance distance denotes the minimum direct clearance (through the air) that two live parts must have to one another in order to prohibit a charge passing through the air (an arc). The expected surge voltage (rated impulse voltage) forms the basis for calculating the distances. The surge protection category and pollution severity are further factors that influence dimensional design considerations.</p> 
<p>Coil resistance</p>	<p>DC resistance of a relay coil at the reference temperature (+20 °C); Higher coil temperatures increase the resistance value by 0.4 % / K. For actual operations, the excitation voltage should be adjusted accordingly (> sparkover value). For AC coils, the inductive resistance is much greater than the DC value. This is why the current consumption of the coil is also specified at nominal excitation.</p>
<p>Coil specifications</p>	<p>The coil specifications are specified according to IEC 61810-1. Unless otherwise specified, these values apply under the following conditions: ambient temperature 23 °C; coil at ambient temperature (cold coil, without pre-excitation); 50 Hz for AC voltage excitation; operating range of class 2; densely assembled (mounting gap of 0 mm). A relative duty cycle of 100 % (continuous excitation) is permitted.</p>

Combination of relay and plug-in socket, Insulation requirements

The combination of relay and plug-in socket is described in the new relay standard IEC 61810-1. The relay sockets must meet the requirements of IEC 61984 and the insulation requirements of IEC 60664-1. Even if the socket itself already meets (or surpasses) the insulation requirements, there may still be reduced clearance and creepage distances (and thus reduced insulation rated voltage) for the combination of the relay and plug-in socket. Restrictions – such as a reduced voltage range or reduced pollution degree – should be expected for the relay/socket combination. This should be taken into consideration for miniature multi-pole relays with plug-in sockets which have minimal gaps between the contact circuits.

In addition to the insulation properties, the thermal properties of the combined relay/socket are very important (refer to the derating curves). The plug-in frames from different manufacturers cannot be compared directly, which is why the technical specifications are only guaranteed for approved relay/socket combinations. Possible risks of fire or reduced dielectric strength may result when non-approved combinations are in use.

Contact material

The list below provides an overview of the most important performance coatings and contact materials. The load capacity of the contacts and their life span can vary depending on the contact material and construction used. It is important to achieve the best combination of relay function and contact material. The specifications for individual relay types are only partially valid for other variants.

1) Performance coatings:

Pure gold – the best corrosion resistance but too soft when used as solid metal; high tendency toward cold welding in layer thickness > 1 µm (gold-flashed); only functions as a gold gilding and does not protect against corrosive gases.

2) Contact material:

Hard gold (hard gold-plated) - Very good corrosion resistance for dry loads; measuring and switching circuits; control inputs (1 mV – 10 V, 0.1 mA – 100 mA); low and constant contact resistance with the smallest switching power; low cold-welding tendency and low current/voltage switching; recommended operating range > 1 V, 1 mA, 50 mW. After switching higher loads (> 10 V, 100 mA), small loads can no longer be switched.

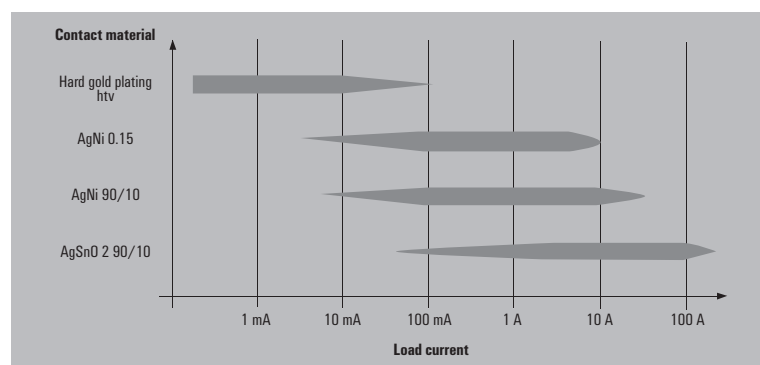
Silver Nickel AgNi90/10 - High resistance to burn-off; minimal tendency towards cold welding; higher contact resistance than AgNi0,15; circuits with medium to high loads; DC and AC circuits (solenoid valves, fans, heaters); not suitable for high capacitive in-rush currents; range of use > 12 V, 10 mA.

Fine-grain silver AgNi0,15 - Relatively low contact resistance; low resistance to corrosive gases; all-purpose use for average loads and low loads; preferably in DC circuits (solenoid valves, fans, heaters); not suitable for high currents; range of use > 12 V, 10 mA.

Silver-tin-oxide AgSnO2 - Minimal tendency to weld; high resistance to burn-off at high switching capacity; low material migration; circuits with high input and output loads; DC and AC circuits (lamp loads, capacitive loads, fluorescent tubes, switching power supplies, etc.). Well suited for resistive, inductive and capacitive DC applications due to low occurrence of material migration, range of use > 12 V, 100 mA..

Silver-cadmium oxide AgCdO – minimal tendency to weld; high resistance to burn-off; especially suitable for switching inductive loads; AC circuits, range of use > 12 V, 100 mA.

Tungsten W – highest melting point; for high switching frequency at minimal duty cycle; as a lead contact in circuits with high in-rush and switch-off loads.



Continuous current limit	<p>The highest current value (RMS value for AC) which a closed contact can continuously conduct at specified temperature limits; this corresponds to the thermal continuous current limit I_{th}.</p> <p>Unless otherwise specified, the data refers to the following conditions: equal load on all contact circuits, input voltage is 110 % of rated coil voltage, maximum ambient temperature, opened vent, dense mounting (mounting clearances of 0 mm), and test conditions according to the positioning for the heating test in IEC EC 6 18 10-1 Appendix B.</p>
Continuous current	<p>The current that can be continuously conducted without exceeding the contact-overheating values under defined conditions.</p>
Continuous operation	<p>Operating mode in which a relay remains energised until it reaches thermal equilibrium.</p>

D

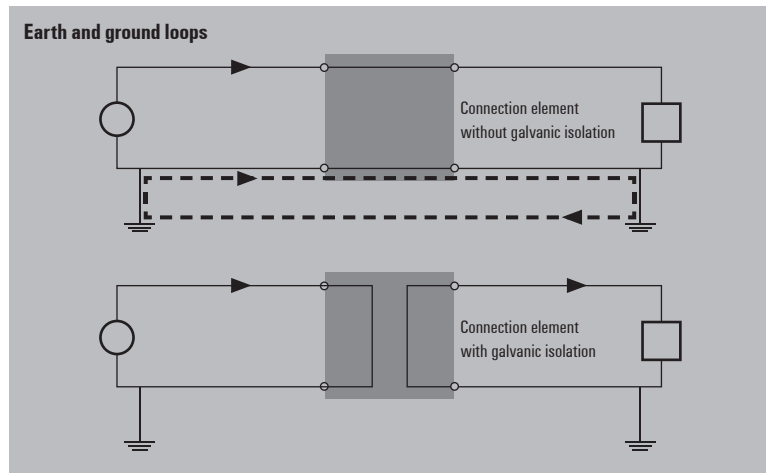
DC	<p>Refers to the electrical variables such as voltage or current (DC, DC voltage) that are not dependent on time.</p>
DC switch-off capacity, Direct-current switch-off capacity	<p>Values below the DC switch-off capacity curve (for max. permitted switching voltage/current at resistive load) can be switched on and off reliably; e.g. an arc is extinguished (max. arc duration is 10 ms at resistive load). The position and shape of the load-limit curve is influenced by the contact material and relay construction (contact gap, opening speed of the contacts, etc.). Information about the electrical lifespan should not be derived from these curves!</p> <div> <p>The graph shows the DC load breaking capacity for resistive loads. The y-axis represents switching voltage in V DC on a logarithmic scale from 10 to 300. The x-axis represents switching current in A on a logarithmic scale from 0.1 to 20. Three curves are shown: a solid line for '1 contact', a dashed line for '2 contacts in series', and a dotted line for '3 contacts in series'. All curves show that as the switching current increases, the maximum switching voltage that can be safely handled decreases. The 3-contact curve is the highest, followed by the 2-contact curve, and the 1-contact curve is the lowest.</p> </div>

<p>Derating / derating curve</p>	<p>The continuous current is reduced at higher ambient temperatures; this is shown using a derating curve (a load reduction curve). Current flow generates heat, which increases as the current increases. Electrical components have an upper temperature limit which limits their ability to function.</p> <p>The temperature influencing the components is a combination of the ambient temperature and the heat generated by the current. So to ensure that the limit temperature is not exceeded, the current must be reduced when the overall temperature rises. The derating curve depicts the relationship between the prevailing temperature and the resulting maximum amperage with regards to the temperature limit.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Derating curve</p> </div>
<p>Dielectric strength, test voltage</p>	<p>Voltage (RMS value for AC voltage, 50 Hz, 1 min) which can be applied between mutually insulated relay components during the voltage test.</p>
<p>Dimensions</p>	<p>Dimensions in millimetres.</p> <div style="border: 1px solid black; padding: 5px;"> </div>
<p>DIN rail</p>	<p>Unless otherwise noted, Weidmüller's products are built and tested for mounting on DIN rail (rails according to TH35-7.5 / EN60175). Other installations (e.g. TH35-15) may function but have not been tested or approved.</p>
<p>Duty cycle, relative duty cycle</p>	<p>Describes the ratio of the excitation duration of a relay (duty cycle) to the entire cycle time in intermittent, continuous or short-time operations. The duty cycle is expressed as a percentage of the total cycle duration.</p>

E

Earth and ground loops

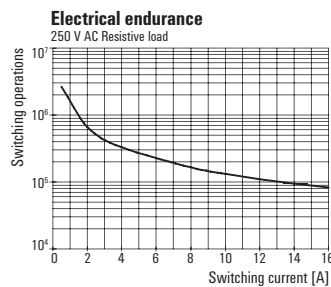
Denotes the connection of two potentials via their earth or ground connection. A potential difference between the earth or ground connection of two devices (for example, a sensor and controller) that are directly wired to one another causes current flow via the earth of the shared housing. These interference currents can lead to different problems, for example in the acquisition of measurement signals or when controlling actuators. When transmitting switching or measurement signals using a device with electrical isolation between the control and load circuits, it is important that a closed circuit via the earth or ground connection can never occur – so that no interference currents are generated.



Electrical lifespan curve

The curve for the electrical lifespan specifies the typical lifespan as the mean cycles to failure (MCTF) and is based on the Weibull distribution. No guaranteed minimum values can be interpreted from this statistical data.

Note: The curve for the electrical lifespan applies only to the specified contact materials (or those in the datasheet). The lifespans for other contact materials cannot be derived from this curve. It is also not possible to derive information about the electrical lifespan by extrapolating the curve.



W

<p>Electrical lifespan, lifespan of contact</p>	<p>Number of switching cycles for a relay with electrical contact load under full operational capacity (according to IEC 61810-1 and IEC 61810-2). Unless indicated otherwise, the contact data and electrical lifespan are valid under the following conditions:</p> <ul style="list-style-type: none"> • On NO contact, • AC mains frequency of 50 Hz, • 50 % relative duty cycle, • Nominal switching frequency, • Contact load, schedule A, • Resistive load, • Rated voltage (coil), • Ambient temperature 23 °C, • Protection degree RTII - flux-proof • Individual assembly • Vertically installed (the connections of a PCB relay point downwards). <p>The electrical lifespan is specified according to the criteria for “useful life”, severity level B according to IEC 61810-2. The data does not cover all usage beyond the specified electrical lifespan. The user is obliged to avoid such situations. Experience shows that the electrical lifespan remains relatively constant up to a 0.8 power factor. When working with loads that have a power factor less than 0.8, we recommend consulting with the user.</p>
<p>Error, relay failure</p>	<p>According to IEC 61810, a relay failure is defined as the occurrence of malfunctions that exceed a certain number:</p> <ul style="list-style-type: none"> • Malfunction On contact closing • Malfunction on contact opening (contact bridging for CO contact, as special type of malfunction during contact opening) or as • Insufficient dielectric strength. <p>Such malfunctions must be considered in the scope of the application – they should not create any risks. Depending on the specific loads and the contact power, a malfunction can cause excessive heat or even a fire. The user is responsible for taking the necessary precautions in accordance with the relevant regulations.</p>
<p>F</p>	
<p>Flammability according to UL</p>	<p>Indicates the flammability class according to the specification from UL 94 (Underwriters Laboratories, Inc., USA). Flammability tests according to UL 94: for testing plastic materials and classifying the propagation/extinction characteristics when the material burns. The UL 94 flammability classes which are relevant to relays are V-0, V-1, V-2 and HB.</p>

G

Galvanic isolation	Potential-free isolation between electrical components. Electrical (or galvanic) isolation means that no charge can flow from one circuit to another. There is no conductive electrical connection between the circuits. The circuits can nevertheless exchange electrical power or signals via magnetic fields, infrared radiation or by charge displacements.
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H

Humidity / condensation	<p>Standard conditions: annual average relative humidity > 75 % at an ambient temperature of 21 °C, in 30 days, evenly distributed throughout the year, and 95 % at ambient temperature w of 25 °C. On other days: occasionally 85 % at 23 °C. No icing or condensation is allowed - affects storage and/or operation. When storing or operating under other conditions, you must take steps to avoid temperature changes which could cause icing or condensation. Operating and storage should be within the limits specified in the graphic.</p> <p>Environmental conditions</p> <p>Relative humidity [% RH]</p> <p>Ambient temperature [°C]</p> <p>Area of usage and storage</p> <p>Avoid condensation</p> <p>Avoid icing</p> <p>$T_{amb} > 0^\circ$</p> <p>$T_{amb} < 0^\circ$</p>
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I

Impulse withstand voltage	The highest withstand voltage of a specified shape and polarity that does not lead to an insulation breakthrough or flash-over, under the specific conditions.
Inductive loads	Refer to usage categories.
Inrush current	Specified as the switching current by resistive loads that can turn on a relay under defined conditions. The data refers to the NO contact, nominal voltage, and a current value for a duration of max. 20 ms for at least 100 switching cycles, or 4 seconds with a relative duty cycle of 10 %, unless otherwise indicated.

Insulating material group	<p>According to their CTI (comparative tracking index) values, the insulating materials are categorised in one of the following four groups:</p> <p>Group I 600 CTI Group II 400 CTI < 600 Group IIIa 175 CTI < 400 Group IIIb 100 CTI < 175</p> <p>The figures for the comparative tracking index, according to IEC 60112 (DIN IEC 60112 / DIN VDE 0303-1) are determined using special samples prepared for this purpose with test solution A.</p>
Insulation according to EN 50178	<p>Specifications for insulation coordination with:</p> <ul style="list-style-type: none"> • Type of insulation • Nominal voltage of the supply system • Pollution severity level • Impulse withstand voltage • Surge voltage category

M

Max. switching current	The max. switching current indicates the maximum level of current that can be switched.
Max. switching frequency at rated load	The number of switching operations that occur in a specific unit of time. The maximum switching frequency for average loads may be higher than the value specified for the nominal load when the switching characteristics of the load (such as arcing) do not cause the contact temperature to increase. The maximum switching frequency for no-load switching can also be used for loads where no arcing will take place (purely resistive loads cause no significant arcs up to 12 V or 50 mA at 12 – 250 V, because the arc breaks off fairly quickly through the contact opening (insulation)).
Max. switching power	The switching capacity is calculated as the product of the switching voltage and the switching power (in VA for AC; in W for DC).
Mechanical service life	Number of switching cycles for de-energised relay contacts, where a relay must remain functional within specific conditions.
Micro-switch-off	<p>Reasonable contact opening in at least one contact that ensures functional safety.</p> <p>Note: The contact opening has a requirement for the dielectric strength but not for the dimensions.</p>
Minimum switching capacity	Calculated product of switching current and switching voltage – a measure of reliable switching. Low contact resistance values are realised only above a certain load. Greatly increased resistances may occur at lower switching loads which can prevent the load circuit from being safely switched. The minimum contact loads for different contact materials should also be taken into account.
Mono-stable relay, switching behaviour	A relay is referred to as mono-stable when its contacts return to the idle state automatically after the energising parameter (the input voltage) is switched off.
Mono-stable, non-polarized relay, neutral relay	The switch position change in a neutral, mono-stable relay does not depend on the polarity of its excitation.

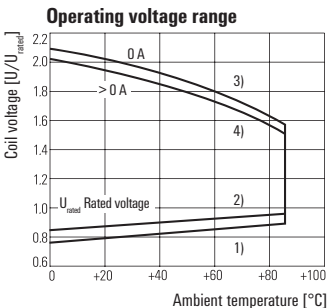
Mounting distance	<p>Distance between two adjacent components when using parallel, uni-directional positioning; or the distance to other electrical components. Because of the insulation requirements, you may need to increase the minimum gap between the components or select a different positioning. These values refer to components in "single-file arrangement", unless otherwise indicated.</p> <p>Also relevant for this definition:</p> <ul style="list-style-type: none"> • Density of assembly: assembled with minimum mounting clearances; this minimum distance is determined by the insulation requirements at 230 V AC and/or mechanical requirements for the installation (e.g. use of sockets), • Individual installation: components are mounted with gaps so that there is NO thermal influences from adjacent components.
Mounting position	<p>Mechanical and electronic relays can usually be installed in any position when there are no qualifying limitations. To ensure the proper current flow and heat dissipation, the connections must be properly contacted and the cross-sections must be adequate. Several factors must be taken into consideration when positioning: including the insulation requirements, heat dissipation and the possible mutual magnetic influence.</p>

N

Nominal current (contact)	<p>Current that a relay contact can switch off or on under specific conditions, or the current that the relay accessories can conduct. The nominal current specification covers the following data, unless otherwise specified:</p> <ul style="list-style-type: none"> • Contact current, switching current • Continuous current limit <p>The conditions for the relay are specified under the contact lifespan; For accessories, the nominal current is specified for a relative duty cycle of 50 %, at the nominal switching frequency, and for an ambient temperature of 23 °C.</p>
Nominal switching voltage (contact)	<p>Voltage between the switching contacts - before the contact closes or after it opens.</p>
Nominal torque	<p>The specified value for the torque of the screws (screw connection) must not be exceeded.</p>
Number of contacts	<p>Number of working contacts in a relay (normally-open, normally-closed or change-over)</p>

O

Operating temperature	<p>Permissible ambient temperature – relative to a specific relative humidity – at which a product should be operated at nominal load.</p>
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Operational voltage range	<p>Allowable input voltage range – depending on the ambient temperature. The top part of the range is specified by the maximum voltage; the lower part of the range is specified by the response/minimum voltage.</p> <p>Curve 1: response time/minimum voltage U_0 (without pre-excitation) Curve 2: response time/minimum voltage U_1 (after pre-excitation) Curve 3: maximum voltage U_2, contact current = 0 A Curve 4: maximum voltage at contact current I_{nom}</p> 
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<h2>P</h2>	
Packing unit	Indicates the smallest amount (a pack, for example) or the quantity per carton.
Plug-in cycles	Sockets and accessories are designed for 10 insertion cycles without electrical load – unless otherwise specified.
Pollution severity level	<p>Pollution (contamination) includes any foreign material – whether it is solid, liquid or gaseous (ionised gas) – which is capable of influencing the surface resistance of the insulating material. The standard defines four degrees of pollution. Their numbering and classification is based on the quantity of the contaminant or the frequency with which the contaminant reduces the dielectric strength and/or surface resistance.</p> <p>Pollution degree 1:</p> <ul style="list-style-type: none"> there is no contamination or only dry occurrences of non-conductive pollution. The pollution has no influence. <p>Pollution degree 2:</p> <ul style="list-style-type: none"> there is only non-conductive pollution. Temporary occurrences of conductivity caused by condensation may also occur. <p>Pollution degree 3:</p> <ul style="list-style-type: none"> conductive pollution or dry, non-conductive pollution that can become conductive due to condensation is likely to occur. <p>Pollution degree 4:</p> <ul style="list-style-type: none"> the contamination leads to continual conductivity which can be caused by contaminants such as conductive dust, rain or snow. <p>Note: Pollution degree 3 is typical for industrial environments and similar settings; pollution degree 2 is typical for households or similar.</p>

Positively-driven contacts	Arrangement of contacts in accordance with EN 50205, with at least one NO and one NC contact; mechanically constructed so that the NO and NC contacts of the entire contact system can never (even in the event of a malfunction) be closed at the same time. Such relays are used in safety engineering controls in order to prevent injury and property damage.
Power rating	The nominal value of the power that is converted when the nominal control voltage is applied.
Protection degree - (IEC 60529), IP	<p>The degree of protection afforded by an enclosure is indicated by the IP Code (IP = International Protection). This specification is equally valid for industrial relays and accessories.</p> <p>For the purposes of "component" relays (such as PCB relays), refer to the RT protection degree.</p> <p>A two-digit number is used to indicate the protection provided against touch contact and foreign bodies (the first number) and against humidity (the second number).</p> <p>Protection levels for touch contact and foreign bodies (the first digit): the first digit indicates the degree of protection inside the housing against ingress of solid foreign objects and against any human access to hazardous parts.</p> <p>0: no protection 1: protection for large body parts with a diameter > 50 mm 2: finger protection (diameter 12 mm) 3: tools and wires (diameter > 2.5 mm) 4: tools and wires (diameter > 1 mm) 5: full protection against touch contact 6: full protection against touch contact</p> <p>Degree of water protection (the second digit)</p> <p>The second digit indicates the degree of protection provided against the ingress of water into the housing:</p> <p>0: no protection 1: protection against vertically falling drops of water 2: protection against water droplets falling diagonally (up to 15°) 3: protection against water spray that falls at an angle up to 60° from vertical 4: protection against splashed water from all sides 5: protection against water jets 6: protection against powerful jets of water (flooding) 7: protection against sporadic submersion 8: protection against constant submersion</p>
Pull-in / drop-out current, AC/DC coil	Value of the coil current at which a relay responds (spark-over) or drops out.

R

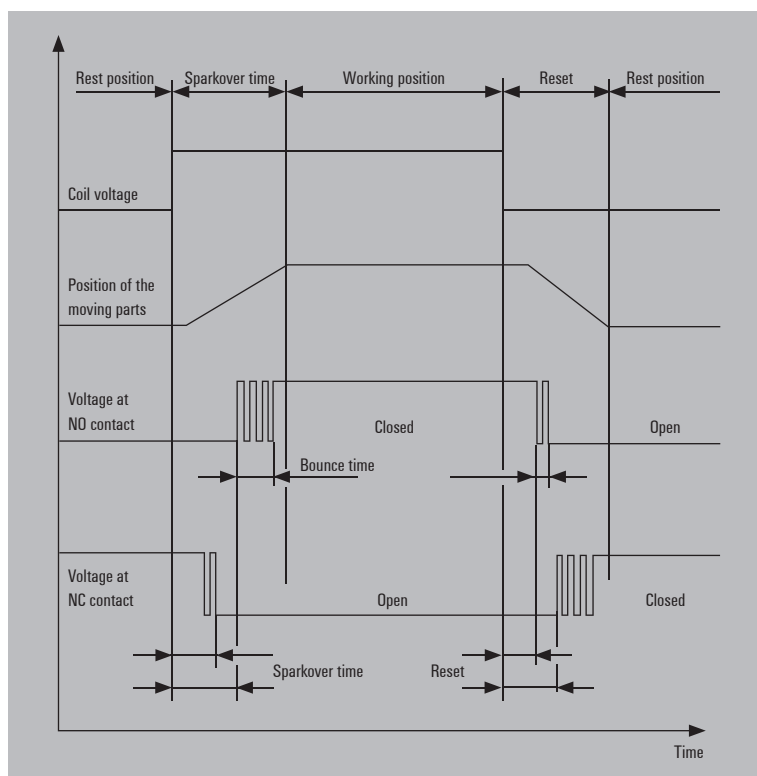
Rated control voltage	The nominal value of the sparkover voltage for the relay.
Rated voltage (Isolation)	Voltage level at which the insulation specifications are measured – this is the basis for sizing the creepage distance.

Relay times (time response)

Because of the self-inductance of the coil and the inertia of the moving parts, the steps involved in operating a relay do not occur instantaneously. The following chart illustrates several time-function terms for the main contact variants of non-delayed switching relays.

These specified times are valid when the rated voltage is used for excitation, without other components in series or in parallel to the coil, and at the reference temperature.

- Sparkover time
- Drop-out/reset time
- Bounce time
- Min. excitation period



Relays and sockets

The relays in this catalogue have been designed, specified and tested in accordance with the relay standard IEC 61810-1 "Electro-mechanical elementary relays - part 1: General considerations and safety-related requirements". Where the appropriate approvals have been specified in the data sheet, the relays and sockets have been tested according to IEC 61810 or EN 61984 and UL 508.

Reliability

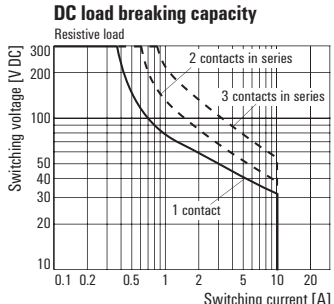
Electro-mechanical components such as relays are subject to wear (both mechanical and electrical). A typical "bathtub curve" depicts the reliability. This means that there may be isolated statistical exceptions which are below the typical levels of reliability.

Reset

Process in which a mono-stable relay resets from the working position to the rest position.

Reset time	Time interval (average) between when a mono-stable relay is in its working state with the coil voltage switched off and the time at which the final output circuit is closed or opened (not including the bounce time). These specified times are valid when the rated voltage is used for excitation, without other components in series or in parallel to the coil, and at the reference temperature.
Reset voltage	Value of the input voltage at which a mono-stable relay reliably returns to the rest position while at the reference temperature.
Response	The process in which the relay transitions from the normally-closed (break) contact position into the normally-open (make) contact position.
Response voltage / drop-out voltage AC/DC coil	Value of the coil voltage at which a relay responds (spark-over) or drops out.
Rest position	The switched position of a mono-stable relay in its unexcited state.
RoHS Directive 2002/95/EC	RoHS stands for "Restriction of (the use of certain) Hazardous Substances". According to the EU Directive 2002/95/EC from 01.07.2006, all EU member nations must forbid the use of hazardous substances which damage human health and the environment (including mercury (Hg), cadmium (Cd), lead (Pb), hexavalent chrome (Cr6), polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)) in new electrical and electronic devices. The term "compliant" means that the entire product group meets the requirements of the RoHS Directive. The maximum weight percentage in homogeneous materials is below the limits specified in the directive: 0.1 % for lead, hexavalent chrome, mercury, PBB and PBDE; and below 0.01 % for cadmium, or qualifies for an exemption in accordance with the annex to the RoHS Directive .

S

Self-heating	The heating up of an operational component based on the power loss from the relay coil and the switching contacts.
Series-circuit relay contacts	When two or more NO contacts in a relay are connected in series, the contact opening is increased while switching off. Arcs which occur from DC loads are cleared more quickly which results in reduced burn-off on the contact. This increases the electrical lifespan and the breaking (switch-off) capacity. 

W

SIL	Safety Integrity Level. The components must meet the requirements of IEC 61508 in order to reduce risk. This standard provides general requirements for avoiding and minimising device and equipment outages. It stipulates organisation and technical requirements concerning device design and operation. Four safety levels are defined (from SIL1 for minimal risk to SIL4 for very high risk) for classifying facilities and risk-reduction measures. Measures taken to reduce risk must be more reliable when the classified risk level is higher.
Standardised labelling of connections	A1, A2: coil 13, 14: NO contact (contact closes when applying a voltage to the coil) 11, 12: NC contact 11, 12, 14: CO contact (11 is the common contact, i.e. the root)
Status indicator	The status LED display on the input control circuit can differ from the state of the contact circuit in the following cases: <ul style="list-style-type: none"> • when there are welded-together or broken switching elements, • when there is interference or residual voltages on the signal lines. A reduction in light intensity may result when the ambient temperatures are greater than 50 °C.
Storage temperature	The permitted ambient temperature, related to a specific relative humidity level, for which the product should be stored while in a current-free state.
Surge voltage category	<p>The overvoltage category of a circuit or an electrical system is numbered conventionally (from I to IV) and is based on limiting the assumed surge voltage values that can occur in a circuit (or electrical system with different mains voltages). The assignment to a particular overvoltage category is dependent on the measures which are used to influence (reduce) the surge voltages.</p> <p>Overvoltage category I</p> <ul style="list-style-type: none"> • Devices that are intended to be connected to the permanent electrical building installation. <p>The measures for limiting transient surge voltages to the proper level are taken outside of the device. The protective mechanisms can either be in the permanent installation or between the permanent installation and the device.</p> <p>Overvoltage category II</p> <ul style="list-style-type: none"> • Devices that are intended to be connected to the permanent electrical building installation (such as household appliances or portable tools). <p>Overvoltage category III</p> <ul style="list-style-type: none"> • Devices that are a part of the permanent installation and other devices where a higher degree of availability is required. This includes the distributor panels, power switches, distribution systems (including cable, busbars, distributor boxes, switches and outlets) that are part of the permanent installation, devices intended for industrial use, and devices that are continually connected to the permanent installation (such as stationary motors). <p>Overvoltage category IV</p> <ul style="list-style-type: none"> • Devices that are intended to be used on or near the power feed in a building's electrical installation – ranging from the main distribution to the mains power system. This includes electrical meters, surge protection switches and ripple control equipment.

Switch-off delay	Usual time interval from switching off the coil voltage of a switched relay until the first opening or closing of the last output circuit (not including the bounce time).
Switch-on delay	Usual time interval from switching on the coil voltage of an idle relay until the first opening or closing of the last output circuit (not including the bounce time). Coil voltage: pulse or square wave excitation, with rated voltage at the reference temperature of 20 °C.
Switching capacity	The calculated product of the switching current and switching voltage (in W for DC, in VA for AC).
Switching current	Current strength required to switch a relay on or off.
Switching cycle	A single occurrence of the sparkover and subsequent reset.
Switching voltage	The voltage between the switch contacts (contact elements) that is applied prior to the closing or after the opening of the contact (DC for DC voltage; AC for AC voltage).
Switching voltage, max.	The maximum allowable voltage between the contact elements prior to closing and after opening a relay contact.

T

Test button, manual operation	For operating the relay manually: the test button is used only for test purposes during the initial commissioning and testing of equipment. The test button is not appropriate for normal on/off switching and has not been designed for continuous electrical load while in the mechanical ON position. The button should also not be used as a switch. Before pressing the test button, make sure there is no danger posed by loads or other connected devices. Only trained personnel should operate the test button. This prevents the facility's safety mechanisms from being circumvented and the insulation requirements from being compromised.
Transients	Transients are short-term current or voltage spikes caused by interferences in the mains supply grid or by electromagnetic radiation. On the control side of the optocoupler these can trigger unintended switching operations or, in extreme cases, cause the destruction of the component. In an AC-driven load circuit, transients can lead to the maximum permissible forward voltage being exceeded, which in turn can activate the thyristor or Triac. As these operate at quite high switching speeds, even very short pulses can suffice to falsely trigger a switching operation.
Type code	The ordering scheme gives you the choice of many variations, but not all possible variations in the current product line are established as standard types (building codes, ordering designations). Special versions are available on request to meet customer specifications.

W

Type of contact	<p>DIN 41020 describes various switching functions of the relay contacts and the specific contact configurations, constructions and descriptions based on these functions.</p> <ul style="list-style-type: none"> • NO (normally open) contact: contact which is closed in the relay's operating position and open in its rest position. • NC (normally closed) contact: contact which is closed in the relay's rest position and open in its working position. • CO (change-over) contact: a CO consists of an NO and an NC contact with a common terminal (root) connection. When changing the switch position, first the previously closed contact opens and then the previously opened contact closes. <p>Note: A temporary electrical connection may be established between the NC and NO contacts due to the switch-off arc.</p>
Type of insulation	<p>Quality of the insulation system, depending on the design and application conditions:</p> <ul style="list-style-type: none"> • Functional insulation: insulation between live components – necessary so the relay functions properly. • Basic insulation: insulation of live parts to provide basic protection against electrical shock. • Doubled insulation: consisting of a base insulation and additional insulation. • Reinforced insulation: a single "enhanced" insulation of active components, which ensures the same protection against electric shock as doubled insulation. The doubled insulation is composed of a base insulation and an additional insulation; the extra insulation protects against electric shock if the basic insulation fails.

U

Usage category according to EN 60947 (mechanical relays)	AC1: non-inductive or slightly inductive load, such as heating elements AC14: small electro-magnetic loads (< 72 VA), such as mini-contactors AC15: small electro-magnetic loads (< 72 VA), such as power contactors DC1: non-inductive or slightly inductive load, such as heating elements DC13: electro-magnetic loads, such as solenoid valves
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W

Wash resistant	Wash-resistant relays can withstand a washing process. During the wash process, none of the cleaning agent should be able to penetrate inside the relay.
Withstand test voltage	The voltage applied to a device under specific test conditions which causes no breakthrough or flash-over of the test piece.

Definition / mode of operation

Opto modules – mode of operation

Opto modules are electronic components for switching load circuits by means of a control circuit. On the one hand this allows applications with different performance ratings to be operated by relatively low switching currents. And on the other *electrical isolation**) between control and load circuits is provided to assure protection of components should a malfunction occur.

In contrast to electromechanical relay modules opto modules do not have any mechanical parts that are prone to wear. To enable the switching operation a light signal is triggered via an LED in the control circuit that causes a light-sensitive semiconductor receiver to complete a connected load circuit. Transmitter (LED) and receiver (for example a phototransistor) are embedded in a light conducting plastic material and encased in a light-proof casing that protects against outside influences.

Two design types are differentiated:

Face-to-face design with LED and transistor mounted across from each other with direct light contact

Coplanar design with LED and transistor on the same level. In this case the beam of light is transferred by reflection according to the principle of fibre-optics.

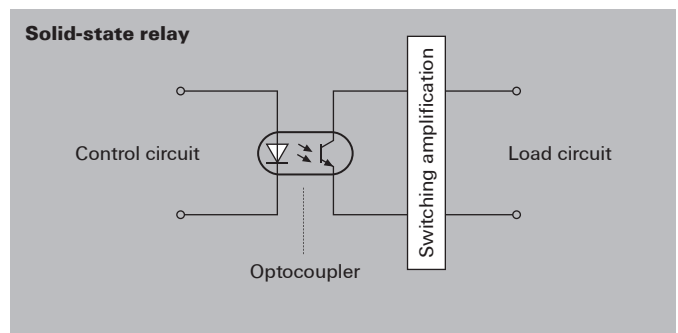
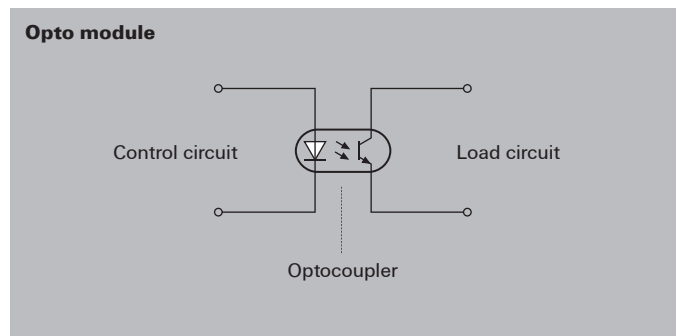
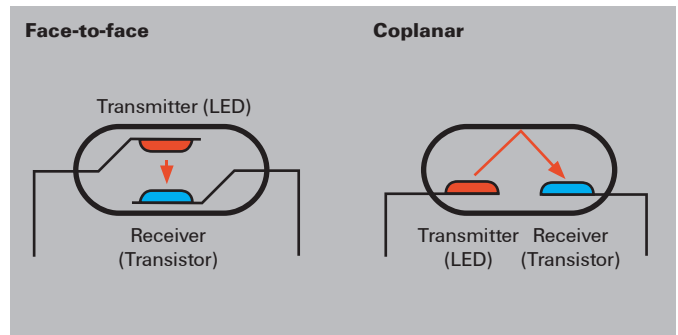
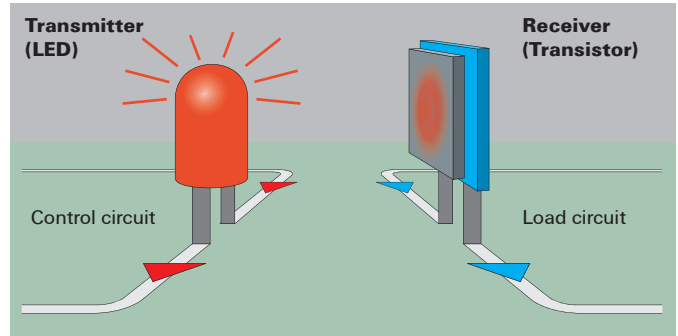
Opto module

The voltage, which can be applied to the opto output itself, is restricted by the sensitivity of the semiconductor receiver (phototransistor). In applications in which only low currents or voltages are required in the load circuit it is possible to use the component without an additional auxiliary circuit in an opto module.

Solid-State Relay

In order to switch higher currents it is necessary to make adaptations to accommodate the different performance levels of the phototransistor and the load circuit (switching amplification).

Modules other than optos equipped with a switching amplifier are called **solid-state relays** (SSR).



* Refer to page W.36 in the Glossary for a detailed explanation of this term.

Basic functions

Opto modules and solid-state relays are generally used in the following fields of applications:

Potential isolation

Many applications require that the control circuit is electrically isolated from the load circuit. This primarily protects the control level from interference from the field, such as:

- Interference currents e.g. from *earth and ground loops**)
- Interference pulses e.g. from inductive effects of *transients**)

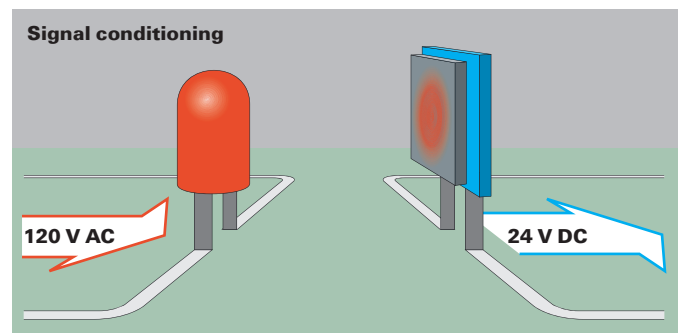
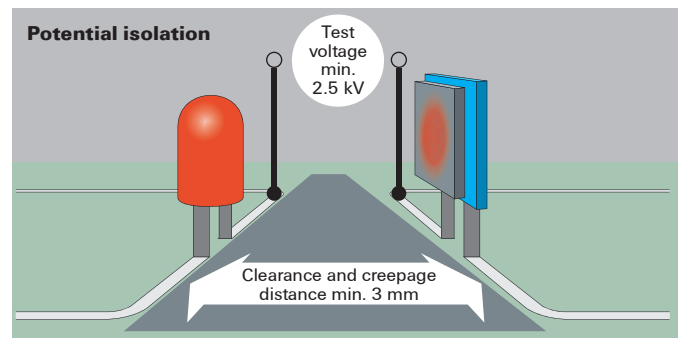
The separation of the control and load circuits in the opto module provides the required isolation. However, this must withstand an isolation test of at least 2.5 kV in all opto modules and solid-state relays. To guarantee isolation it is necessary that a minimum of 3 mm clearance and *creepage distance**) be maintained in all components.

Signal conditioning

The separation of the load and control circuits, in conjunction with the variety of options this offers to configure both circuits separately, means that opto modules are often used for signal conditioning purposes. This allows the different electrical potentials of signals from the control and load circuits (for example sensors and control) to be equalised.

Switching amplification

Applications with current and voltage values that exceed the capacity of the phototransistor require an auxiliary circuit on the output side of the opto module for switching amplification purposes. During the switching operation the opto module LED activates a base current in the phototransistor. This activates a second semiconductor (transistor, thyristor) selected to meet application requirements which then becomes conductive for the load current.



* Refer to page W.36 in the Glossary for a detailed explanation of this term.

Control circuit

The input circuits (control circuit)

Most industrial applications cannot be connected directly to an opto module, generally requiring voltage regulation by means of series-connected resistances or capacitors. To obtain exact-as-possible switching points a *Schmitt Trigger**) can be used to assign the control signals an unambiguous status (0 - 1) when moving from high to low or low to high, which is then passed on to the opto module.

Depending on the design, all Weidmüller opto modules and solid-state relays are equipped with suitable protective devices (varistors, diodes) and filters to protect against interference pulses from the control circuit.

DC input:

An additional reverse-polarity protection diode guarantees protection against the opto module being destroyed if the control voltage is incorrectly wired. The switching status of the control circuit is signalled by a status indicator.

AC/DC input:

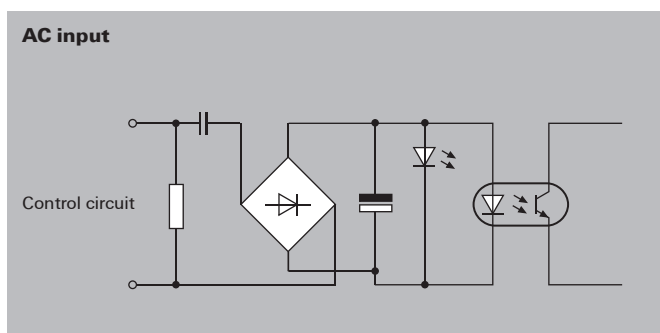
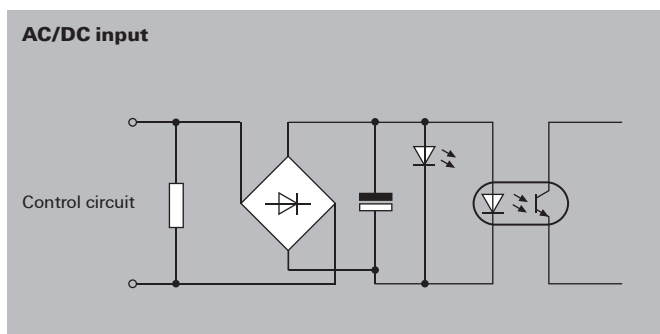
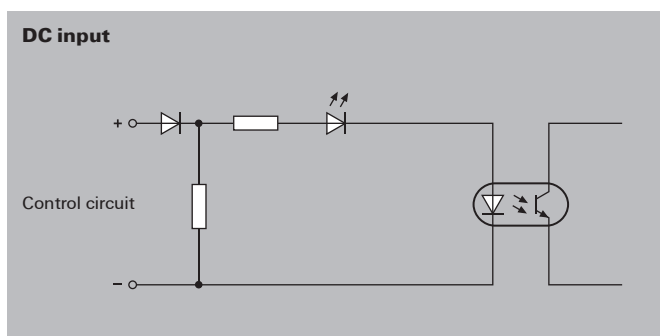
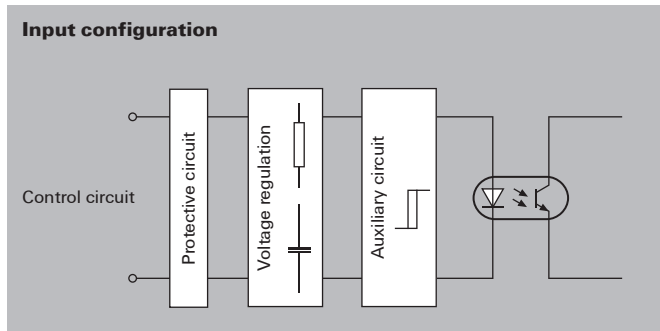
A rectifier with smoothing capacitor is connected in series for AC control voltages. Reverse polarity protection for DC current is not necessary. The following construction corresponds to a DC circuit.

Due to the smoothing capacitor the switching frequency of AC control signals is fundamentally less than half the mains frequency. A higher switching frequency would result in the control signal being constantly switched through in rhythm with the mains frequency.

The advantage of being able to choose between an AC or a DC current input contrasts with the disadvantage that the smoothing capacitor also restricts the switching frequency of the DC control signal.

AC input:

The circuit diagram corresponds in principle with an AC/DC circuit. Instead of series resistors it is possible to use capacitors to regulate the voltage in a purely AC operation. In contrast to resistors there is no power loss with capacitors and as a result no heat that needs to be dissipated.



* Refer to page W.36 in the Glossary for a detailed explanation of this term.

Load circuit

The output circuit (load circuit)

As a rule, an operating voltage range is stated for the rated switching voltage of opto modules and solid-state relays (for example 5 ... 48 V DC); it is not permitted to exceed or fall below this value.

The same applies to continuous current. Exceeding this value too often can result in premature wear-out and destruction of the opto modules semiconductor.

As a direct correlation exists between the current and ambient temperature a *derating curve**) is provided for all opto modules and solid-state relays.

Overvoltages are shunted by protective devices such as diodes or varistors.

To prevent damage caused by current spikes (for example starting or off pulses) some modules are equipped with a *power boost**) which is capable of carrying higher levels of current than the maximum stated for a short period of time.

It is possible to connect AC or DC loads subject to the output circuit having corresponding amplifier semiconductors.

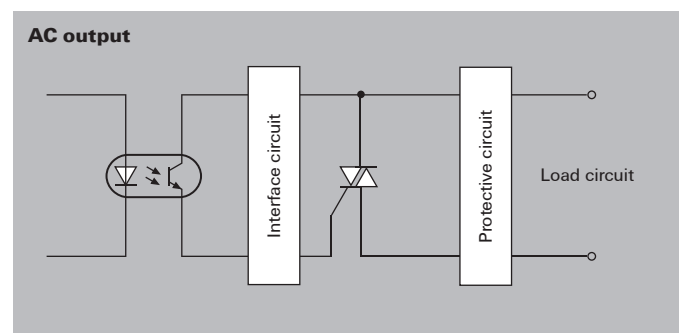
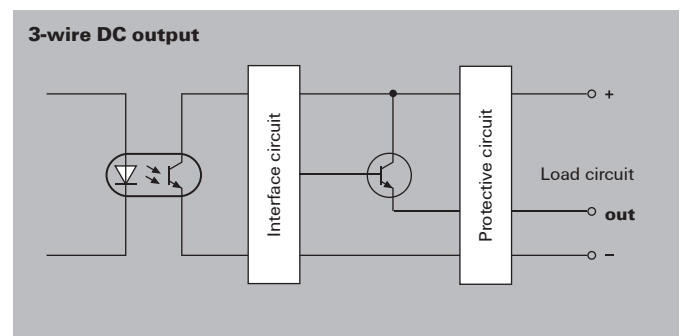
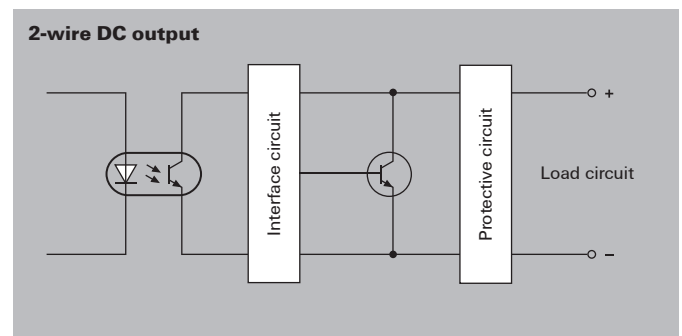
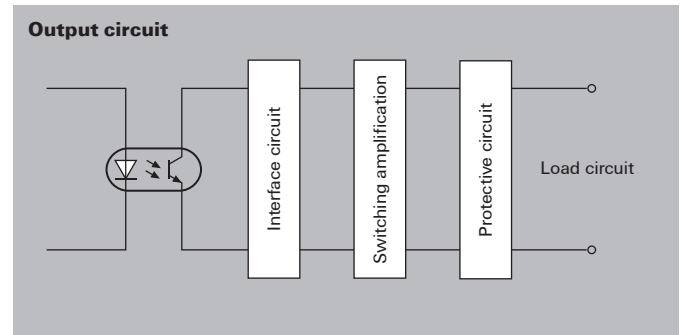
DC output:

With a 2-pole DC output the connection terminals are to be considered in the same manner as with a conventional switch. All that is required is that care is taken to observe the predetermined polarity.

With a 3-pole DC connection an auxiliary voltage assists the output circuit to control the amplifying transistor more precisely. Several applications also require this auxiliary voltage for short-circuit protection in the interface or protective circuitry.

AC output:

To activate AC switching and control devices a semiconductor is connected on the load side of the opto module component to switch the AC voltage (TRIAC or thyristor).



* Refer to page W.36 in the Glossary for a detailed explanation of this term.

Switching amplification

The phototransistor of the opto module has a low current and voltage rating. As a consequence, an additional semiconductor element is accessed for larger output loads that is capable of switching the corresponding rated switching voltages and rated switching currents.

Bipolar Transistor (DC)

Used for low currents (0.5 A).

The bipolar transistor has short response times, which makes high switching frequencies possible as a result.

MOSFET (DC)

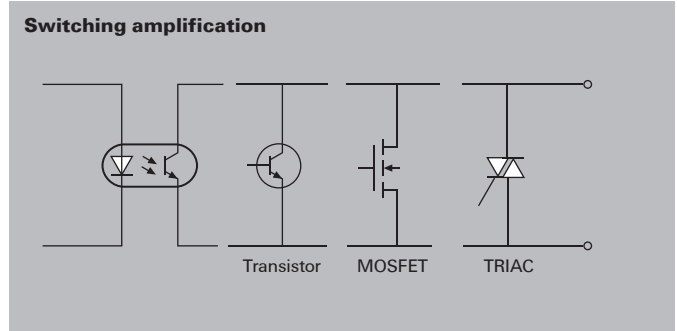
Used for high load currents (up to 10 A).

The low contact resistance of the MOSFET create only very small leakage currents ($< 10 \mu\text{A}$) with low power loss.

Triac (AC)

A Triac combines the functional principle of antiparallel connected thyristors in a single component.

The mode of function of a thyristor is comparable with that of a one-way diode. Therefore, an opposing parallel circuit configuration consisting of two thyristors is used for AC currents.



Switching diverse loads

The different types of loads resulting from the possible applications (resistive, inductive, capacitive loads) represent a particular challenge for the load circuit arrangements of opto modules and solid-state relays. With reference to the planned application, one should always be aware of what effects the loads will have on the modules and how the corresponding protective devices have to be designed.

Generally speaking, it must be ensured that the power loss at the amplifier semiconductor does not exceed the permitted limit for any length of time. This would lead to overheating and finally to the destruction of the component.

Switching resistive loads

Due to the fact that in resistive loads the amperage in the load circuit and the voltage across the amplifier semiconductor are inversely proportional to one another these do not generally pose a problem. It is sufficient to adhere to the maximum current and voltage ratings of the modules.

Switching glow lamps represents a special case. It is possible that when being switched on that overcurrents 10 to 20 times the operating current can occur due to the low cold resistance.

Therefore, the components must be designed to cope with these possible overloads situations which correspond to the effect of capacitive loads.

Switching capacitive loads

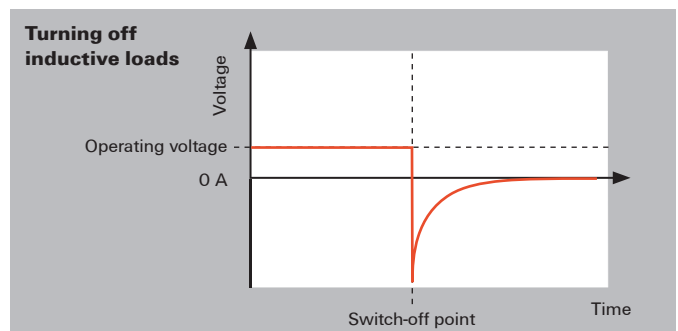
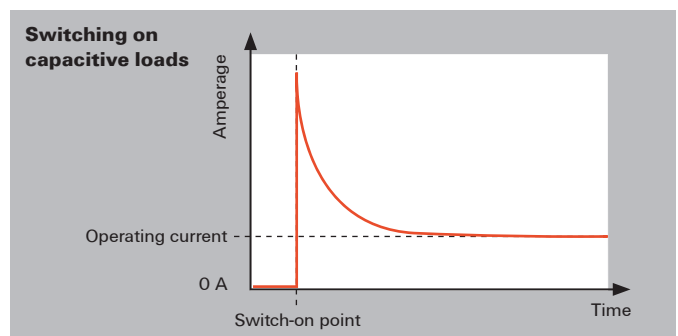
Capacitive loads occur if there is a capacitor in the load circuit. The effect is similar to a short-circuit at the point of activation and results in a high inrush current.

If this current is not limited it can lead to the destruction of the amplifier semiconductor.

Switching inductive loads

Problems can arise with inductive loads when they are being switched off, in particular when coils are used in the load circuit. The flow of current in the coil builds up a magnetic field that suddenly collapses and creates a high induction voltage.

This voltage spike has to be short-circuited via a diode connected in parallel (free-wheeling diode). However, the time required leads to delayed release.



Protective measures

The construction of the opto module enables fast and sensitive switching, however, the component is also more prone to interference. For this reason, all Weidmüller opto modules and solid-state relays are equipped with a variety of measures to protect against overloading and interference pulses.

Free-wheeling diodes (DC)

Free-wheeling diodes are used primarily to protect against overvoltages, which occur through self-induction when switching off inductive DC loads (electric motors, relay coils). Voltage spikes are limited to the equivalent value of the diode forward voltage and excess voltage is discharged via the diode. However, this leads to a delay in the voltage drop and as such also delays the switching operation.

Zener diode / suppressor diode (DC)

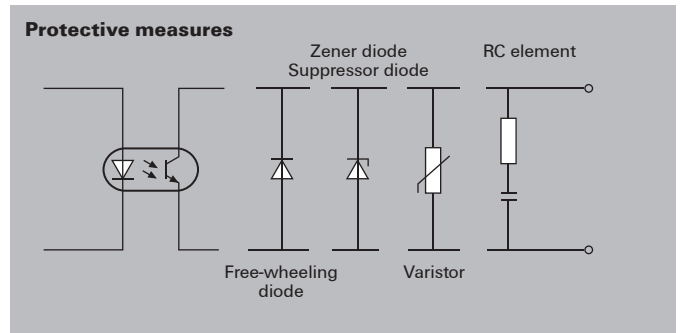
These function as normal diodes in the forward conducting direction. In the blocking direction they become low resistant at a certain voltage (breakdown voltage). High levels of overvoltages can lead to the destruction of the zener diode / suppressor diode.

Varistor (AC/DC)

The functional principle of the varistor is also based on a breakdown voltage, but with faster reaction times. This allows higher levels of energy to be shunted, however, these lead to the component aging. This in turn reduces the breakdown voltage over time and increases the leakage current.

RC-element (AC)

The RC element compensates voltage spikes by means of a capacitor. Due to the charging and discharging characteristics interference pulses are filtered out when the voltage is rising and not first when overload is reached. For this reason, RC elements are used to protect against interference pulses and exclude faulty switching operations.



Glossary: Solid-state relays

A

AC	Refers both to alternating values (such as voltage or current) as well as to those devices and variables which reference these devices. Specifications are valid for 50 Hz, unless otherwise indicated.
Approvals and testing marks	<p>Testing approvals are independent confirmation from governmental or private registration services and testing facilities. They certify that the product complies with the relevant regulations and maintain the specified product characteristics. Note: The ordering scheme gives you the choice of many variations, but not all variations are established as standard types (order numbers). Therefore, they may not be included in the list of approved relays. Technical specifications and list of approved types are available on request.</p> <p>CSA Canadian Standards Association, Canada GL Germanischer Lloyd, Germany TÜV Technical Monitoring Association, Germany UL Underwriters Laboratories, Inc., USA; UR Component Recognition Mark for the United States cUR UL Component Recognition Mark for Canada cURus UL Component Recognition Mark for the United States and Canada cULus UL Component Listing Mark for the United States and Canada VDE VDE testing location, Germany (advisory reports with production monitoring)</p>

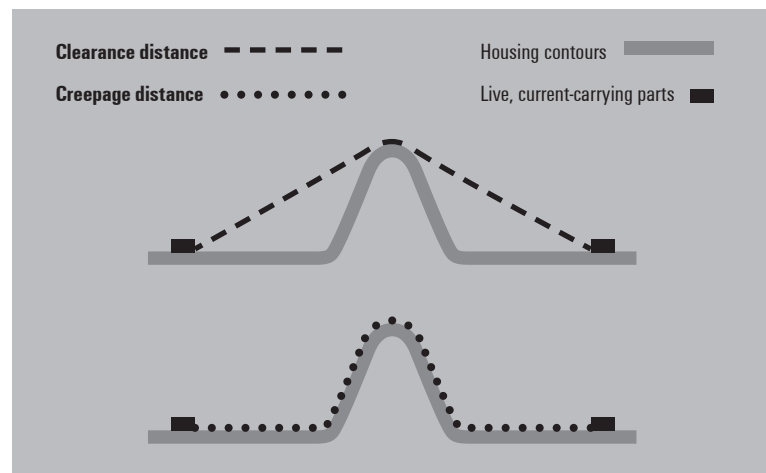
C

CE	<p>Abbreviation for Communauté Européenne (the European Community). The CE marking is a way for the manufacturer to confirm that their product complies with the relevant EC directives and the "essential requirements" contained therein. The EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC are currently binding.</p>
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Clearance and creepage distances

Clearance and creepage distances are critical factors which influence the insulation capability of electrical components. The creepage distance denotes the minimum clearance that two live parts along a surface must have in order to prohibit a flow of current across the insulating material at the specified operating voltage.

In addition to the operating voltage, the choice of insulating material (material group) and the protective measures to counteract pollution (pollution severity) affect the creepage distance. The clearance distance denotes the minimum direct clearance (through the air) that two live parts must have to one another in order to prohibit a charge passing through the air (an arc). The expected surge voltage (rated impulse voltage) forms the basis for calculating the distances. The surge protection category and pollution severity are further factors that influence dimensional design considerations.

**Continuous current**

The current can be continuously conducted without exceeding the overheating values under defined conditions.

Cut-in (switch-on) voltage

The voltage level at which an opto module or solid-state relay is conductive.

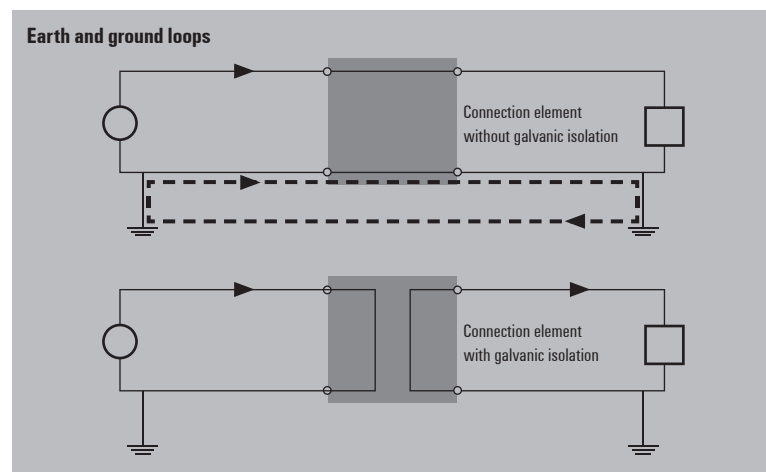
D

DC	Refers to the electrical variables such as voltage or current (DC, DC voltage) that are not dependent on time.
Derating / derating curve	<p>The continuous current is reduced at higher ambient temperatures; this is shown using a derating curve (a load reduction curve). Current flow generates heat, which increases as the current increases. Electrical components have an upper temperature limit which limits their ability to function. The temperature influencing the components is a combination of the ambient temperature and the heat generated by the current. So to ensure that the limit temperature is not exceeded, the current must be reduced when the overall temperature rises. The derating curve depicts this relationship between the prevailing temperature and the resulting maximum amperage with regard to the limit temperature.</p> <div> <p>The figure is a graph titled 'Derating curve'. The vertical axis is labeled 'Current strength' and the horizontal axis is labeled 'Temperature'. A white area under a downward-sloping curve is labeled 'Operating range'. The area above the curve and to the right of a vertical line at the end of the curve is shaded grey and labeled 'Over the limit'.</p> </div>
Dimensions	<p>Dimensions in millimetres.</p> <div> <p>The drawing shows a top view and a side view of a component. The top view has dimension lines for 'Length' (vertical), 'Height' (horizontal), and 'Width' (horizontal). The side view shows the component's profile with a 'Width' dimension line.</p> </div>
DIN rail	Unless otherwise noted, Weidmüller's products are built and tested for mounting on DIN rail (rails according to TH35-7.5 / EN60175). Other installations (e.g. TH35-15) may function but have not been tested or approved.
Dropout voltage	The voltage level at which an opto module or solid-state relay blocks itself.

W

E**Earth and ground loops**

Denote the connection of two potentials via their earth or ground connection. A potential difference between the earth or ground connection of two devices (for example, a sensor and controller) that are directly wired to one another causes current flow via the earth of the shared housing. These interference currents can lead to different problems, for example in the acquisition of measurement signals or when controlling actuators. When transmitting switching signals or measurement signals using a device with electrical isolation between the control and load circuits, it is important that a closed circuit via the earth or ground connection can never occur – so that no interference currents are generated.

**F****Flammability according to UL**

Indicates the flammability class according to the specification from UL 94 (Underwriters Laboratories, Inc., USA). Flammability tests according to UL 94: for testing plastic materials and classifying the propagation/extinction characteristics when the material burns. The UL 94 flammability classes which are relevant to the relay are V-0, V-1, V-2 and HB.

G**Galvanic isolation**

Potential-free isolation between electrical components. Electrical (or galvanic) isolation means that no charge can flow from one circuit to another. There is no conductive electrical connection between the circuits. The circuits can nevertheless exchange electrical power or signals via magnetic fields, infrared radiation or by charge displacements.

H

<p>Humidity / condensation</p>	<p>Standard conditions: annual average relative humidity > 75 % at an ambient temperature of 21 °C, in 30 days, evenly distributed throughout the year, and 95 % at ambient temperature w of 25 °C. On other days: occasionally 85 % at 23 °C. No icing or condensation is allowed - affects storage and/or operation.</p> <p>When storing or operating under other conditions, you must takes steps to avoid temperature changes which could cause icing or condensation. Operating and storage should be within the limits specified in the graphic.</p> <div> </div>
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I

<p>Impulse withstand voltage</p>	<p>The highest withstand voltage of a specified shape and polarity that does not lead to an insulation breakthrough or flash-over, under the specific conditions.</p>
<p>Inductive loads</p>	<p>Refer to load category</p>
<p>Input frequency</p>	<p>The number of switching operations that occur in a specific unit of time. The maximum switching frequency for medium loads may be higher than the value specified for the nominal load, as long as the switching of the load does not result in an increased temperature.</p>
<p>Insulating material group</p>	<p>According to their CTI (comparative tracking index) values, the insulating materials are categorised into one of the following four groups: Group I 600 CTI Group II 400 CTI < 600 Group IIIa 175 CTI < 400 Group IIIb 100 CTI < 175</p> <p>The figures for the comparative tracking index, according to IEC 60112 (DIN IEC 60112 / DIN VDE 0303-1) are determined using special samples prepared for this purpose with test solution A.</p>
<p>Insulation according to EN 50178</p>	<p>Specifications for insulation coordination with:</p> <ul style="list-style-type: none"> • Type of insulation • Nominal voltage of the supply system • Pollution severity level • Impulse withstand voltage • Surge voltage category

W

L

Leakage current	The current on the load side of an opto module or solid-state relay that flows towards the output stage while in a blocked state.
Load category (solid-state relay)	Classification of the load of a solid state relay, in accordance with EN 62314 LC A – resistive loads or minimally inductive loads LC B – motor loads LC C – electrical discharge lamps LC D – incandescent filament lamps LC E – transformers LC F – capacitive loads

M

Max. switching current	The max. switching current indicates the maximum level of current that can be switched.
Max. switching power	The switching capacity is calculated as the product of switching voltage and switching current (in VA for AC / in W for DC).
Mounting distance	Distance between two adjacent components in parallel, uni-directional positioning; or the proximity to other electrical components. Because of the insulation requirements, you may need to increase the minimum distance between the components or select a different positioning. These values refer to components in "single-file arrangement", unless otherwise indicated. Also relevant for this definition: <ul style="list-style-type: none"> • density of assembly: assembled with minimum mounting clearances; this minimum distance is determined by the insulation requirements at 230 V AC and/or mechanical requirements for the installation(e.g. use of sockets), • individual installation: components are mounted with gaps so that there are no thermal influences from adjacent components.
Mounting position	Mechanical and electronic relays can usually be installed in any position when there are no qualifying limitations. To ensure the proper current flow and heat dissipation, the connections must be properly contacted and the cross-sections must be adequate. Several factors must be taken into consideration when positioning: including the insulation requirements, heat dissipation and the possible mutual magnetic influence.

N

Nominal control current	Input current that is required, under specific conditions, to switch the output.
Nominal switching voltage	Voltage at the output - before the closing or opening of the contact.
Nominal torque	The specified value for the torque of the screws (screw connection) must not be exceeded.

O

Operating temperature	Permissible ambient temperature – relative to a specific relative humidity – at which a product should be operated at nominal load.
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W

P

Packing unit	Indicates the smallest amount (a pack, for example) or the quantity per carton.
Plug-in cycles	Sockets and accessories are designed for 10 insertion cycles without electrical load – unless otherwise specified.
Pollution severity level	<p>Pollution (contamination) includes any foreign material – whether it is solid, liquid or gaseous (ionised gas) – which is capable of influencing the surface resistance of the insulating material. The standard defines four degrees of pollution. Their numbering and classification is based on the quantity of the contaminant or the frequency with which the contaminant reduces the dielectric strength and/or surface resistance.</p> <p>Pollution degree 1:</p> <ul style="list-style-type: none"> • there is no contamination or only dry occurrences of non-conductive pollution. The pollution has no influence. <p>Pollution degree 2:</p> <ul style="list-style-type: none"> • there is only non-conductive pollution. Temporary occurrences of conductivity caused by condensation may also occur. <p>Pollution degree 3:</p> <ul style="list-style-type: none"> • conductive pollution or dry, non-conductive pollution that can become conductive due to condensation is likely to occur. <p>Pollution degree 4:</p> <ul style="list-style-type: none"> • the contamination leads to continual conductivity which can be caused by contaminants such as conductive dust, rain or snow. <p>Note: Pollution degree 3 is typical for industrial environments and similar settings; pollution degree 2 is typical for households or similar.</p>
Power rating	The nominal value of the power that is converted when the nominal control voltage is applied.

Protection degree - (IEC 60529), IP	<p>The degree of protection afforded by an enclosure is shown using the IP Code (IP = International Protection). This information is equally relevant for industrial relays and accessories.</p> <p>For the purposes of “component” relays (such as PCB relays), refer to the RT protection degree.</p> <p>A two-digit number is used to indicate the protection provided against touch contact and foreign bodies (the first number) and against humidity (the second number).</p> <p>Protection levels for touch contact and foreign bodies (the first digit): the first digit indicates the degree of protection inside the housing against ingress of solid foreign objects and against any human access to hazardous parts.</p> <p>0: no protection 1: protection for large body parts with a diameter > 50 mm 2: finger protection (diameter 12 mm) 3: tools and wires (diameter > 2.5 mm) 4: tools and wires (diameter > 1 mm) 5: full protection against touch contact 6: full protection against touch contact</p> <p>Degree of water protection (the second digit)</p> <p>The second digit indicates the degree of protection provided against the ingress of water into the housing:</p> <p>0: no protection 1: protection against vertically falling drops of water 2: protection against water droplets falling diagonally (up to 15°) 3: protection against water spray that falls at an angle up to 60° from vertical 4: protection against splashed water from all sides 5: protection against water jets 6: protection against powerful jets of water (flooding) 7: protection against sporadic submersion 8: protection against constant submersion</p>
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R

Rated control voltage	The nominal value of the sparkover (response) voltage for the solid-state relay
Rated voltage (Isolation)	Voltage level at which the insulation specifications are measured – this is the basis for sizing the creepage distance.
ROHS Directive 2002/95/EC	<p>RoHS stands for the “Restriction of (the use of certain) Hazardous Substances” According to the EU Directive 2002/95/EC from 01.07.2006, all EU member nations must forbid the use of hazardous substances which damage human health and the environment (including mercury (Hg), cadmium (Cd), lead (Pb), hexavalent chrome (Cr6), polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)) in new electrical and electronic devices.</p> <p>The term “compliant” means that the entire product group meets the requirements of the RoHS Directive. The maximum weight percentage in homogeneous materials is below the limits specified in the directive: 0.1 % for lead, hexavalent chrome, mercury, PBB and PBDE; and below 0.01 % for cadmium, or qualifies for an exemption in accordance with the annex to the RoHS Directive .</p>

S

Schmitt trigger	Strictly speaking, switching voltages for digital control follow an analogue pattern (no changeover from 0 to 1 between maximum and minimum voltages). This can lead to inaccuracies in switching results, above all when signals are being transmitted rapidly. In this case, the Schmitt trigger functions as a threshold switch. If the threshold voltage set in the Schmitt Trigger is exceeded, the output assumes the maximum possible output voltage (logic 1). Otherwise it is the minimum possible output voltage (logic 0). The Schmitt trigger is normally designed with a hysteresis. The threshold voltage set for activating is higher than that for deactivating. That prevents small irregularities from triggering a switching operation.
Self-heating	The heating up of an operational component based on the power loss from the relay coil and the switching contacts. For semiconductors (such as a transistor output), the increase in heat is caused by power loss.
Short-circuit-proof	Shuts off the output stage of a solid-state relay when there is a short circuit, in order to prevent the output circuit from being damaged.
Solid-state relay	Semiconductor relay that uses an electronic component as the switching mechanism, such as a transistor, thyristor or Triac. Semiconductor relays function with no wearing parts and have a high switching frequency compared with normal relays. But compared to normal relays they have a higher power loss in the load current circuit. An integrated optocoupler is used for galvanic isolation.
Status indicator	The status LED display on the input control circuit can differ from the state of the contact circuit in the following cases: <ul style="list-style-type: none"> • when there are welded-together or broken switching elements, • when there is interference or residual voltages on the signal lines. A reduction in light intensity may result when the ambient temperatures are greater than 50 °C.
Storage temperature	The permitted ambient temperature, related to a specific relative humidity level, for which the product should be stored while in a current-free state.

W

Surge voltage category	<p>The overvoltage category of a circuit or an electrical system is numbered conventionally (from I to IV) and is based on limiting the assumed surge voltage values that can occur in a circuit (or electrical system with different mains voltages). The assignment to a particular overvoltage category is dependent on the measures which are used to influence (reduce) the surge voltages.</p> <p>Overvoltage category I</p> <ul style="list-style-type: none"> • Devices that are intended to be connected to the permanent electrical building installation. <p>The measures for limiting transient surge voltages to the proper level are taken outside of the device. The protective mechanisms can either be in the permanent installation or between the permanent installation and the device.</p> <p>Overvoltage category II</p> <ul style="list-style-type: none"> • Devices that are intended to be connected to the permanent electrical building installation (such as household appliances or portable tools). <p>Overvoltage category III</p> <ul style="list-style-type: none"> • Devices that are a part of the permanent installation and other devices where a higher degree of availability is required. This includes the distributor panels, power switches, distribution systems (including cables, busbars, distributor boxes, switches and outlets) that are part of the permanent installation, devices intended for industrial use, and devices that are continually connected to the permanent installation (such as stationary motors).
Switch-off delay	The usual time interval from switching off the control voltage of a conducting solid-state relay to the time when the output circuit is blocked.
Switch-on delay	The usual time interval from switching on the control voltage of a closed solid-state relay to the time when the output circuit is conductive.

T

Transients	Transients are short-term current or voltage peaks caused by interferences in the mains supply grid or by electromagnetic radiation. On the control side of the optocoupler these can trigger unintended switching operations or, in extreme cases, cause the destruction of the component. In an AC-driven load circuit, transients can lead to the maximum permissible forward voltage being exceeded, which in turn can activate the thyristor or Triac. As these operate at quite high switching speeds, even very short pulses can suffice to falsely trigger a switching operation.
Type of insulation	Quality of the insulation system, depending on the design and application conditions: <ul style="list-style-type: none"> • Functional insulation: insulation between live components – necessary so the relay functions properly. • Basic insulation: insulation of live parts to provide basic protection against electrical shock. • Doubled insulation: consisting of a base insulation and additional insulation. • Reinforced insulation: a single “enhanced” insulation of active components, which ensures the same protection against electric shock as doubled insulation. The doubled insulation is composed of a base and an additional insulation; the extra insulation protects against electric shock if the basic insulation fails.

V

Voltage drop	The reduction of voltage via the opto module, when measured under full load
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W

Withstand test voltage	The voltage applied to a device under specific test conditions which causes no breakthrough or flash-over of the test piece.
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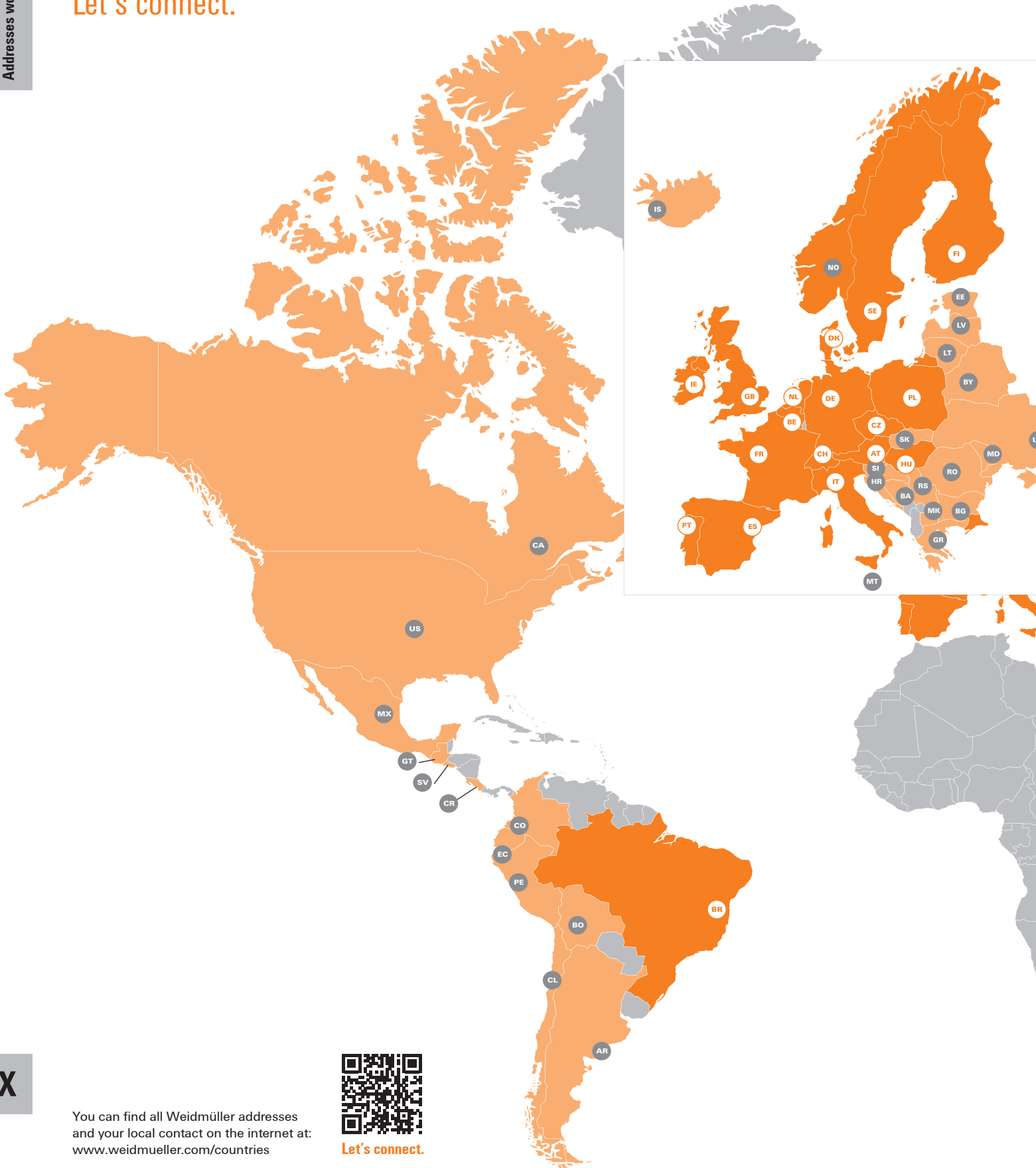
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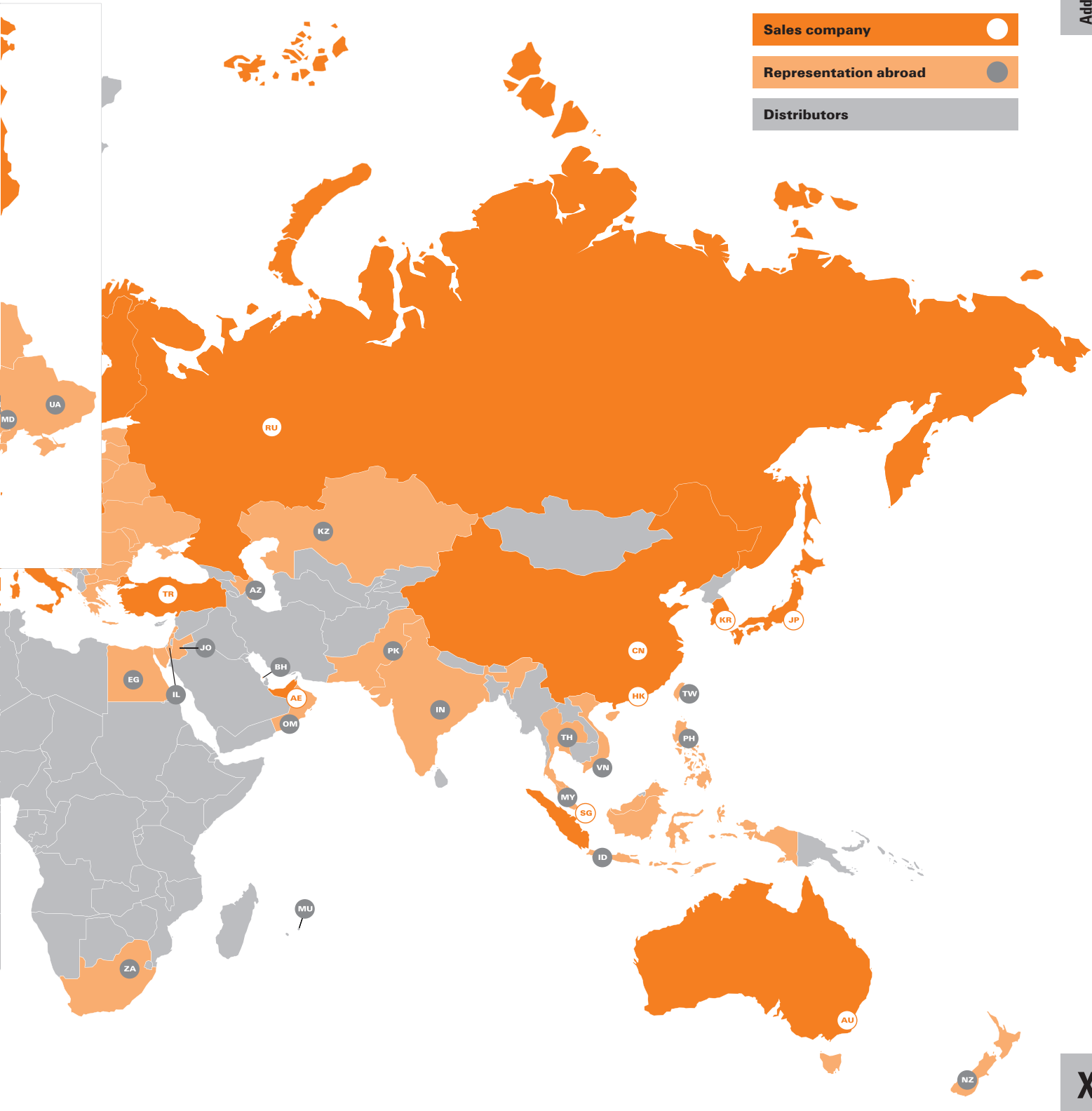


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