

R5 Series Non-Fusible 16–80A



Product Description

R5 Series (UL® 508 listed) products are manually operated modular switches. Load break switching and isolation provide safety solutions for any low voltage circuit, particularly for machine and control circuits. The R5 Series products are manual motor controllers suitable as motor disconnect.



Features, Benefits and Functions

- Up to 65 kAIC short-circuit rating
- Direct or external operation
- Compact footprint
- DIN rail or base mount
- Wide range of accessories
- Up to eight-pole or four-pole MTS
- Open and enclosed devices
- Modular design
- Integrated terminals for additional safety
- Padlockable design (direct, toggle and external handles)



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Product Identification

- ① External front handle
- ② Shaft extension for external handle
- ③ Direct handle
- ④ Switched fourth-pole module
- ⑤ Terminal shroud
- ⑥ Auxiliary contacts

Note: For further details, please see the installation instructions supplied with each device.

Standards and Certifications

Conformity to Standards

- UL 508 listed, Guide NLRV, File E165150
- CSA® C22.2 No.14, File 217736
- IEC 60947-3, EN 60947-3
- CCC



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Rotary Disconnects

R5 Series (UL 508) Non-Fusible 16–80A

Product Selection

Direct Operation



Switch body + Direct handle

External Operation



Switch body + Shaft + External handle

R5 Series



Ampere Rating	Three-Pole Toggle Switch Only ^①	Three-Pole Rotary Switch Only	Direct Handle	Front and Right External Handle SH00 (Choose one)	Front and Right External Handle SH0 (Choose one)	Three-Position Front External Handle SH00 (Black) ^{②④}	Shaft for SH0 and SH00—5 x 5 mm—In (mm)
16	—	R5A3016U	DHR5	SH00 Black	SH0 Black	SH00 4, 4X	2.20 (55.5) SF55SH5X5
25	—	R5A3025U		3R, 12 SHB00N12	3R, 12 SHB0N12	I–0–II Open transition SHB00MTSOT	3.50 (90.0) SF90SH5X5
30	T5A3030U	R5A3030U		SH00 Red	SH0 Red	SH00 4, 4X	5.90 (150.0) SF150SH5X5
40	T5A3040U	R5A3040U		3R, 12 SHR00N12	3R, 12 SHR0N12	I–II–I Closed transition SHB00MTSCT	7.90 (200.0) SF200SH5X5
60	T5B3060U	R5B3060U		SH00 Black 4, 4X SHB00N4X	SH0 Black 4, 4X SHB0N4X		12.60 (320.0) SF320SH5X5
80	T5B3080U	R5B3080U		SH00 Red 4, 4X SHR00N4X	SH0 Red 4, 4X SHR0N4X		

Accessories



Ampere Rating	Switched Fourth-Pole Module	Unswitched Neutral Module	Auxiliary Contacts (Choose one)	Terminal Shrouds	Conversion Kit (Choose one) ^②	Door Mounting Kit ^③
16	S4PR516	UNMR5A	1NO + 1NC AC1NON	1P TS1R5A	6/8 pole CKR568	DMK
25	S4PR525					
30	S4PR530					
40	S4PR540		2NO AC2N	3P TS3R5A	Changeover switch Open transition I–0–II MTSCKR50T	
60	S4PR560 ^②	UNMR5B		1P TS1R5B		
80	S4PR580 ^②			3P TS3R5B	Changeover switch Closed transition I–II–I MTSCKR5CT	

Notes

- ① Toggle version includes direct handle.
- ② Available Q2 2011.
- ③ Includes shaft and accessory cap.
- ④ For use with conversion kits on Page 9, when external handle is required.

Handles

Direct Handle



Direct Handle

Ampere Rating	Handle Color	Catalog Number
16–80	Black	DHR5

Size 00 Handle



Door Interlocked External Handle (Defeatable) ①

Ampere Rating	Handle Color	Handle Size	NEMA Type Rating	Catalog Number
Front and Right Side Operation I–0				
16–80	Black	SH00	3R, 12	SHB00N12
16–80	Black	SH00	4, 4X	SHB00N4X
16–80	Red/Yellow	SH00	3R, 12	SHR00N12
16–80	Red/Yellow	SH00	4, 4X	SHR00N4X
For R5 Series Changeover Switches—Front Operation I–0–I				
16–80	Black	SH0	3R, 12	SHB0N12
16–80	Black	SH0	4, 4X	SHB0N4X
16–80	Red/Yellow	SH0	3R, 12	SHR0N12
16–80	Red/Yellow	SH0	4, 4X	SHR0N4X
For R5 Series Changeover Switches—Front Operation I–I–I				
16–80	Black	SH00	4, 4X	SHB00MTSOT
For R5 Series Changeover Switches—Front Operation I–I–I				
16–80	Black	SH00	4, 4X	SHB00MTSCT

Size 0 Handle



Shafts

Shaft 5 x 5



Shaft Extensions for External Handle

Description	Ampere Rating	Use with Handle Type	Shaft Length In (mm)	Catalog Number
Standard lengths: 55 mm, 90 mm, 150 mm, 200 mm, 320 mm	16–80	SH00/SH0	2.17 (55.0)	SF055SH5X5
	16–80	SH00/SH0	3.54 (90.0)	SF090SH5X5
For 3/4-pole switches: shafts are for external front and side handle	16–80	SH00/SH0	5.91 (150.0)	SF150SH5X5
	16–80	SH00/SH0	7.87 (200.0)	SF2003H5X5
For 6/8-pole switches and changeover switches: shafts are for external front and side handle	16–80	SH00/SH0	12.60 (320.0)	SF320SH5X5

Guide Cone



Description	Ampere Rating	Use with Handle Type	Catalog Number
The guide cone facilitates an easier connection between the shaft and a Size 00 or Size 0 external selector handle. It allows the shaft up to 10 mm of vertical play when making the connection	16–80	SH00 and SH0	SFGAB

Note

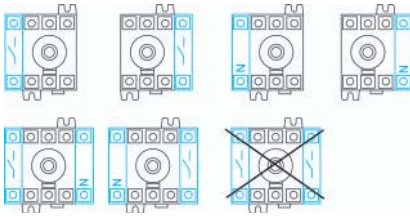
① Allows door to be opened when switch is in the ON position.

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Rotary Disconnects

R5 Series (UL 508) Non-Fusible 16–80A

Additional Pole Configurations



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Switched Fourth-Pole Module



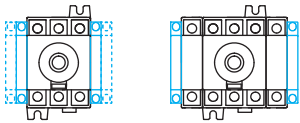
Description	Ampere Rating	Number of Poles	Type	Catalog Number
Add one or two poles and transform:	16	1	Switched	S4PR516
• Three-pole R5 Series load break switch into a four-pole	25	1	Switched	S4PR525
• Six-pole R5 Series switch into an eight-pole	30	1	Switched	S4PR530
• Three-pole changeover switch into a four-pole	40	1	Switched	S4PR540
	60	1	Switched	S4PR560
	80	1	Switched	S4PR580

Unswitched Neutral Pole Module



Description	Ampere Rating	Number of Poles	Type	Catalog Number
Transforms a three-pole switch into a three-pole + solid neutral	16–40	1	Unswitched	UNMR5A
	60–80	1	Unswitched	UNMR5B

Auxiliary Contact Configurations



Auxiliary Contact Module



Description	Ampere Rating	Type	Catalog Number
Early-break/same-make and signalization of positions 0 and I by NO + NC or 2NO auxiliary contacts. They can be mounted on the left or on the right side of the device. Two modules maximum.	16–80	1NO + NC	AC1N0NC
	16–80	2NO	AC2N0

Terminal Shrouds



Description	Ampere Rating	Number of Poles	Position	Catalog Number
Line and load protection against direct contact with the terminals or connection parts: single- or three-pole. Advantage: Perforations allowing thermographic inspection.	16–40	1	Line and load	TS1R5A
	16–40	3	Line and load	TS3R5A
	60–80	1	Line and load	TS1R5B
	60–80	3	Line and load	TS3R5B

Conversion kit to create a six- or eight-pole load break switch



Conversion Kits ①②③

Description	Ampere Rating	Type	Catalog Number
This accessory enables the assembly of two three-pole switches plus additional poles in order to achieve: <ul style="list-style-type: none"> • Six- or eight-pole load break switches • Direct handle included 	16–80	6/8-pole load break switches	CKR568

Conversion kits to create three- or four-pole changeover/transfer switch



These two accessory kits enable the assembly of two three-pole switches to create a changeover (transfer) switch. R5 Series changeover switches ensure switching, transfer of sources (I–O–I) or transfer of two low voltage circuits on load (I–I+II–II), with the continuity of power supply. Direct handle included	16–80	Changeover switches (I–O–II) Open transition	MTSCKR50T
	16–80	Changeover switches (I–I+II–II) Closed transition	MTSCKR5CT

Door/Panel Mounting Kit



Description	Ampere Rating	Number of Poles	Catalog Number
This kit enables direct mounting of the switch on the door panel. Moreover, the connection clamps of the switch are always accessible. The external handle is quick and easy to install due to an internal locking nut mounted on the inside of the enclosure.	16–80	3 and 4	DMK ④

Notes

- ① When external handle is required, please see options on Page 7.
- ② For use with two three-pole R5 Series switches (plus optional fourth-pole, if desired).
- ③ Available Q2 2011.
- ④ Includes shaft and accessory cap.

Technical Data and Specifications

UL 508 (CSA 22.2 No. 14) Manual Motor Controller “Suitable as Motor Disconnect” from 16–80A

Technical Characteristics	16A	25A	30A	40A	60A	80A
Approvals	UL 508/CSA 22.2 No. 14	UL 508/CSA 22.2 No. 14	UL 508/CSA 22.2 No. 14	UL 508/CSA 22.2 No. 14	UL 508/CSA 22.2 No. 14	UL 508/CSA 22.2 No. 14
Short-circuit rating at 600 Vac (kA) ^①	10/65	10/65	10/65	10/65	50/65	50/65
Branch circuit fuse type	J	J	J	J	J	J
Maximum fuse rating	60/30A	60/30A	60/30A	60/30A	100/60A	100/60A
Maximum UL Horsepower Ratings/Maximum Motor FLA Current, Three-Phase						
208 Vac	3/10.6	7.5/24.2	7.5/24.2	7.5/24.2	15/46.2	15/46.2
220–240 Vac	5/15	7.5/22	7.5/22	7.5/22	15/42	20/54
440–480 Vac	10/14	15/21	15/21	20/27	30/40	40/52
600 Vac	10/11	20/22	20/22	25/27	30/32	40/41
Connection						
Wire range (AWG), solid, single cable	#14–#10	#14–#10	#14–#10	#14–#10	#14–#10	#14–#10
Wire range (AWG), solid, two cables	2x #12	2x #12	2x #12	2x #12	2x #12	2x #12
Wire range (AWG), stranded, single cable	#14–#4	#14–#4	#14–#4	#14–#4	#14–#1	#14–#1
Wire range (AWG), stranded, two cables	2x (#14–#12)	2x (#14–#12)	2x (#14–#12)	2x (#14–#12)	2x (#10–#6)	2x (#10–#6)
Mechanical Characteristics						
Endurance, number of mechanical cycles	10,000	10,000	10,000	10,000	10,000	10,000
Auxiliary Contacts						
Electrical characteristics	A300	A300	A300	A300	A300	A300

IEC 60947-3 Characteristics

Technical Characteristics		16A	25A	32A	40A	63A	80A
Rated Operational Currents I_e (A)							
Rated Voltage	Load Duty Category	A/B ^②	A/B ^②	A/B ^②	A/B ^②	A/B ^②	A/B ^②
500 Vac	AC-22 A/AC-22 B	16/16	25/25	32/32	40/40	63/63	80/80
500 Vac	AC-23 A/AC-23 B	16/16	25/25	25/25	25/25	63/63	63/63
690 Vac	AC-21 A/AC-21 B	16/16	25/25	32/32	40/40	63/63	80/80
690 Vac	AC-22 A/AC-22 B	16/16	25/25	32/32	32/40	40/63	63/80
690 Vac	AC-23 A/AC-23 B	16/16	25/25	25/25	25/25	40/40	40/40
Thermal Current I_{th} at 40°C (A)							
Thermal current I_{th} (40°C)		16	25	32	40	63	80
Rated insulation voltage U_i (V)		800	800	800	800	800	800
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	8	8
Operational Power in AC-23 (kW)							
At 400 Vac without prebreaking AC in AC-23 (kW) ^{②③}		7.5	11	15	18.5	30	37
At 500 Vac without prebreaking AC in AC-23 (kW) ^{②③}		7.5	11	15	15	30	37
At 690 Vac without prebreaking AC in AC-23 (kW) ^{②③}		7.5	15	18.5	18.5	30	37
Fuse Protected Short-Circuit Withstand (kA rms Prospective)							
Prospective short-circuit current (kA rms) ^④		50	50	50	50	50	50
Associated fuse rating (A) ^④		16	25	32	40	63	80
Overload Capacity (U_e 415 Vac)							
Rated short-time withstand current 0.3 s. I_{CWT} (kA rms) ^④		2.5	2.5	2.5	2.5	3	3
Rated short-circuit making capacity I_{cm} (kA peak) ^④		6	6	6	6	9	9
Connection							
Minimum Cu cable cross section (mm ²)		1.5	1.5	1.5	1.5	2.5	2.5
Maximum Cu cable section (mm ²)		16	16	16	16	35	35
Tightening torque minimum/maximum (Nm)		2/2.2	2/2.2	2/2.2	2/2.2	3.5/3.85	3.5/3.85

Notes

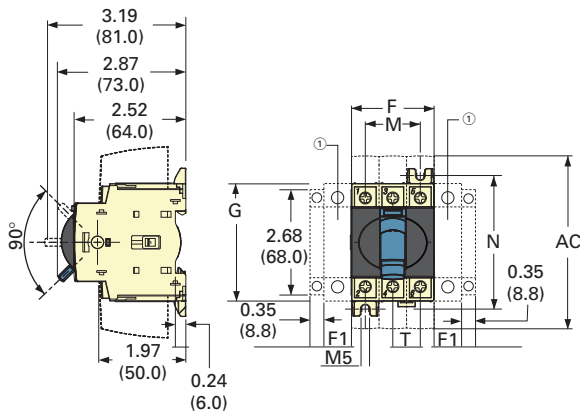
- ① Short-circuit rating achieved when used with respective fuse type and maximum fuse rating.
 ② A/B: Category with index A = frequent operation; category with index B = infrequent operation.
 ③ The power value is given for information only; the current values vary from one manufacturer to another.
 ④ For a rated operating voltage, $U_e = 400$ Vac.

Dimensions

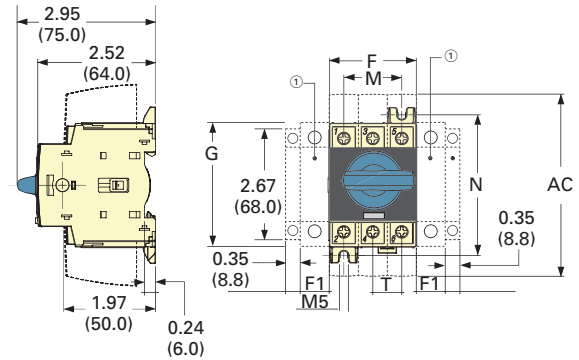
Approximate Dimensions in Inches (mm)

R5 Series 16–80A

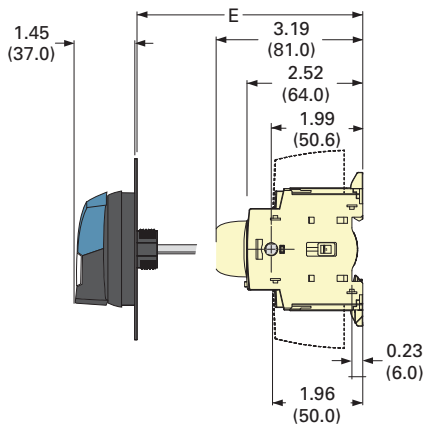
Toggle Operation



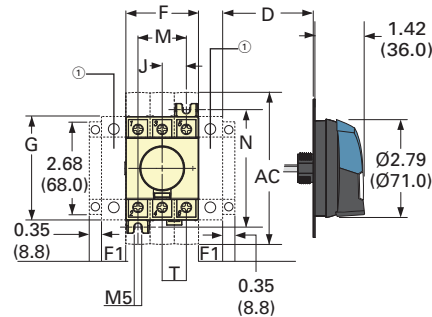
Direct Operation with Handle



External Front Operation



External Side Operation



R5 Series ^②

Ampere Rating	Overall Dimensions				Terminal Shrouds		Switch Body			Switch Mounting		Connection Terminal
	D Min.	D Max.	E Min.	E Max.	AC	F	F1	G	J	M	N	T
16–40	1.18 (30.0)	9.25 (235.0)	3.94 (100.0)	14.65 (372.0)	4.33 (110.0)	1.77 (45.0)	0.59 (15.0)	2.68 (68.0)	0.59 (15.0)	1.18 (30.0)	2.95 (75.0)	0.59 (15.0)
63–80	1.18 (30.0)	9.25 (235.0)	3.94 (100.0)	14.65 (372.0)	4.33 (110.0)	2.06 (52.5)	0.69 (17.5)	2.99 (76.0)	0.69 (17.5)	1.38 (35.0)	3.35 (85.0)	0.69 (17.5)

Notes

- ① One switched fourth-pole module (one per device maximum) or one unswitched neutral pole or one auxiliary contact.
- ② Maximum four additional blocks.

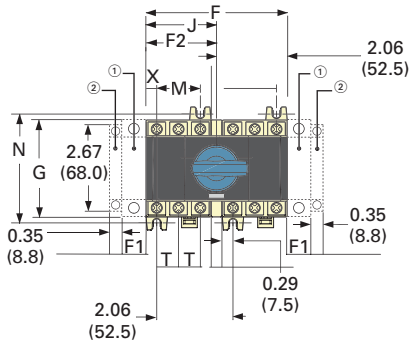
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Rotary Disconnects

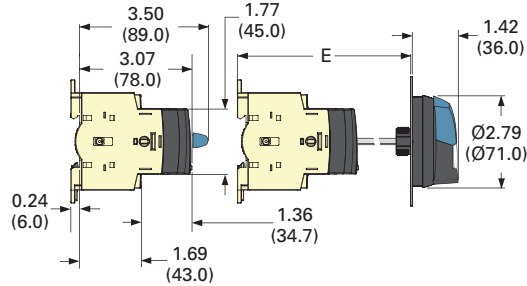
R5 Series (UL 508) Non-Fusible 16–80A

Approximate Dimensions in Inches (mm)

Direct Front Operation for 6/8-Pole R5 Load Break Switches or 3/4-Pole R5 Changeover Switches



External Front Operation



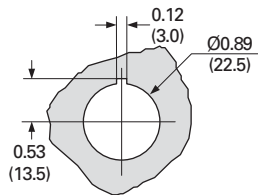
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R5 Series ③

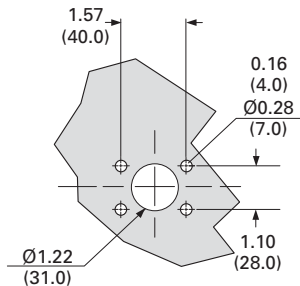
Ampere Rating	Overall Dimensions		Switch Body				Switch Mounting		Connection Terminals		
	E Min.	E Max.	F	F1	F2	G	J	M	N	T	X
16–40	4.13 (105.0)	14.64 (372.0)	3.83 (97.5)	0.59 (15.0)	1.77 (45.0)	2.67 (68.0)	1.92 (48.8)	1.18 (30.0)	2.95 (75.0)	0.59 (15.0)	0.29 (7.5)
63–80	4.13 (105.0)	14.65 (372.0)	4.13 (105.0)	0.69 (17.5)	2.06 (52.5)	2.99 (76.0)	2.06 (52.5)	1.38 (35.0)	3.35 (85.0)	0.69 (17.5)	0.34 (8.8)

Door Drilling—SH00/SH0

With Fixing Nut

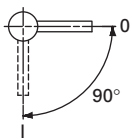


With Four Fixing Screws

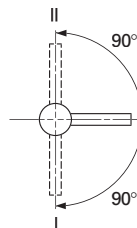


Operating Handle—SH00/SH0

Front and Right Side Operation



Front Operation for R5 Changeover Switches I–0–II or I–I+II–II



Notes

- ① One switched fourth-pole module (one per device maximum) or one unswitched neutral pole.
- ② Auxiliary contact.
- ③ Maximum four additional blocks.