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**D-SERIES – relay modules**

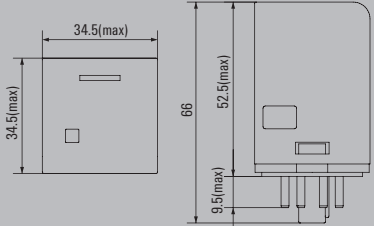
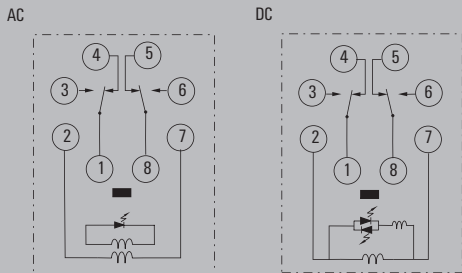
**DRR power relay**

**2 CO AC/DC coil**

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



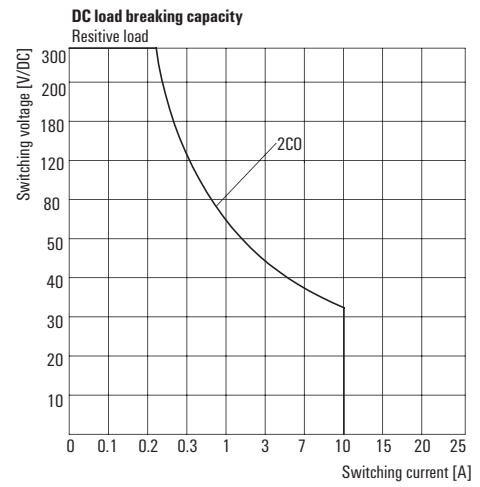
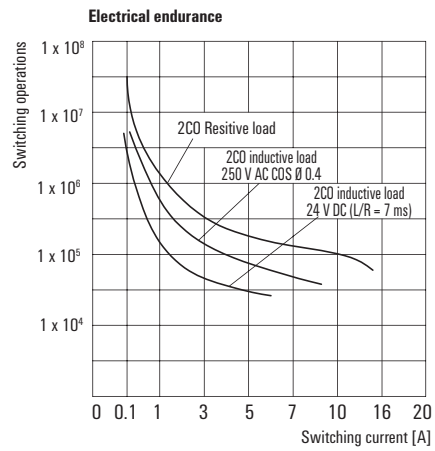
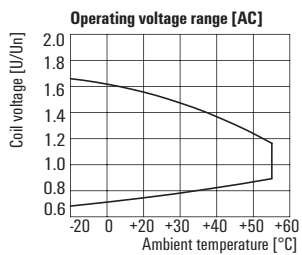
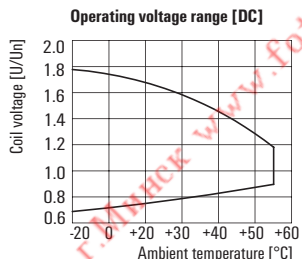
**Circuit diagram**



**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 <sup>6</sup> 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 <sub>eff</sub> / 1 min.
Dielectric strength of neighbouring contacts	1.2 kV <sub>eff</sub> / 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
<b>Input</b>					
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
<b>Output</b>					
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.					
<b>Note</b>					

**Ordering data**

	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
<b>Input</b>			
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
<b>Output</b>			
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.			
<b>Note</b>			

**D-SERIES – relay modules**

**DRR power relay**

**3 CO AC/DC coil**

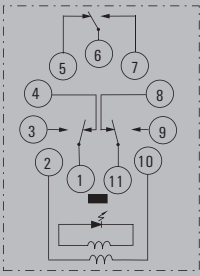
- 2,500 VA switching capacity
- 11-pole relay



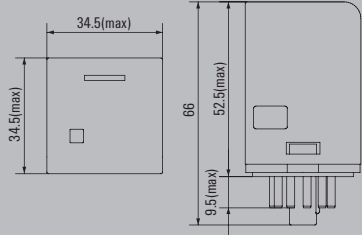
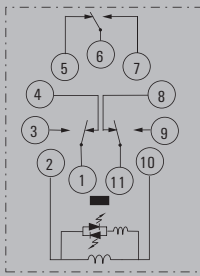
**Circuit diagram**

**DRR310**

AC



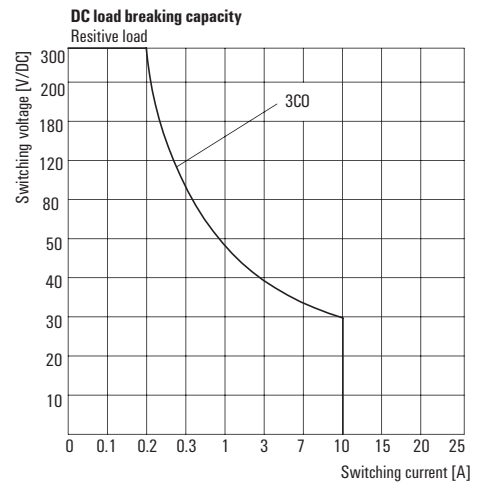
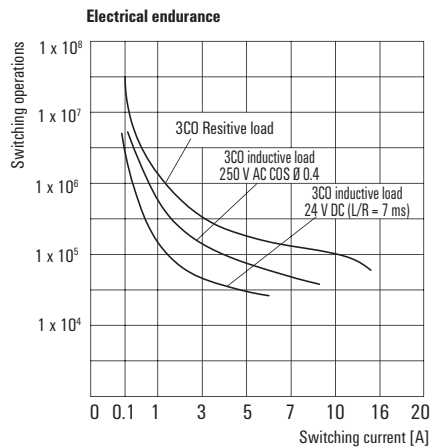
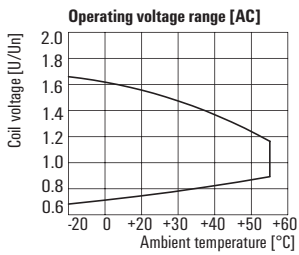
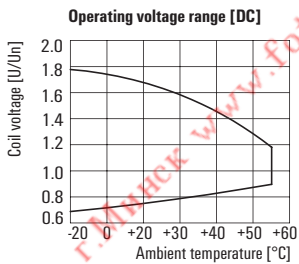
DC



**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 <sup>6</sup> 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 <sub>eff</sub> / 1 min.
Dielectric strength of neighbouring contacts	1.2 kV <sub>eff</sub> / 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  
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
<b>Input</b>					
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
<b>Output</b>					
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.					
<b>Note</b>					

**Ordering data**

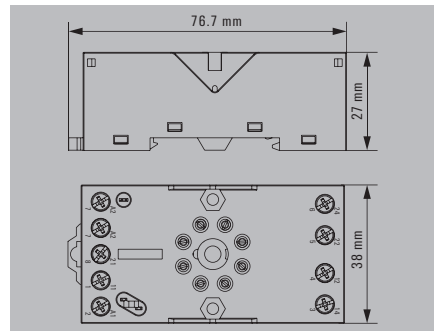
	24 V AC 3CO	115 V AC 3CO	230 V AC 3CO
<b>Input</b>			
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	130 mA (50 Hz), 116 mA (60 Hz) /	29.8 mA (50 Hz), 25.4 mA (60 Hz) /	14.9 mA (50 Hz), 12.7 mA (60 Hz) /
Power rating	2.7 VA	2.7 VA	2.7 VA
Pull-in/drop-out voltage, typ.	19.2 V / 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
<b>Output</b>			
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.			
<b>Note</b>			

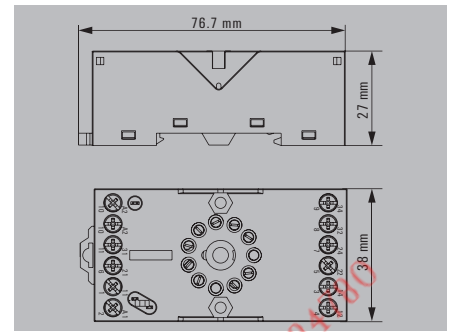
**D-SERIES – relay modules**

**Accessories for DRR relays**

**Socket module with leaf spring connection, 2 CO contacts**



**Socket module with leaf spring connection, 3 CO contacts**



**Technical data**

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

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

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

**Ordering data**

	Socket, DIN rail mounted
<b>Note</b>	

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

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

**Accessories**

<b>LED module / protection modules</b>	
	RC element 6 - 230 V AC
	Free-wheeling diode 6 - 230 V DC
<b>Retaining clip</b>	Metal retaining clip
<b>Screwdriver</b>	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

<b>Note</b>	
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<b>Note</b>	
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**D-SERIES – relay modules**

**PWR high-power relay**

**1 NO AC/DC coil**

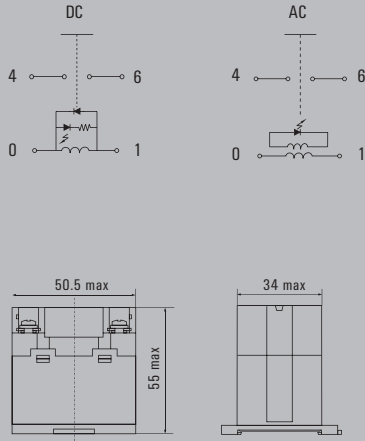
- Max. load current: 30 A



**B**

**Circuit diagram**

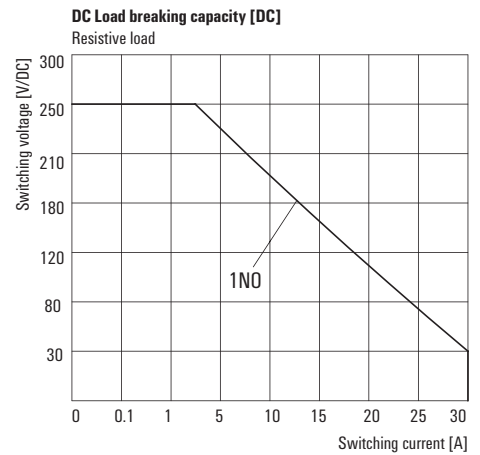
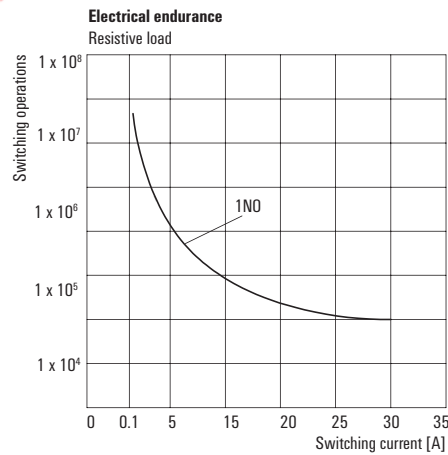
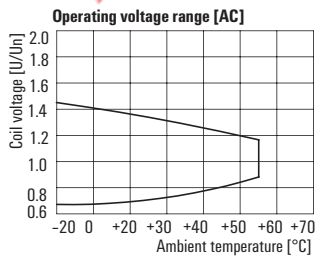
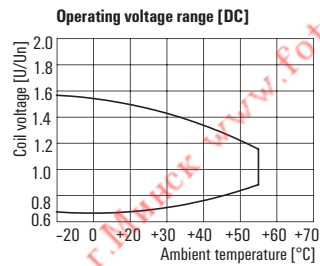
1NO



**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 <sub>eff</sub> / 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
<b>Input</b>					
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
<b>Output</b>					
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
	Order No.	1219470000	1219480000	1219490000	1219510000
	Type				
	Order No.				
<b>Note</b>					

**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
<b>Input</b>					
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
<b>Output</b>					
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
	Order No.	1219090000	1219120000	1219130000	1219140000
	Type				
	Order No.				
<b>Note</b>					

**D-SERIES – relay modules**

**PWR high-power relay**

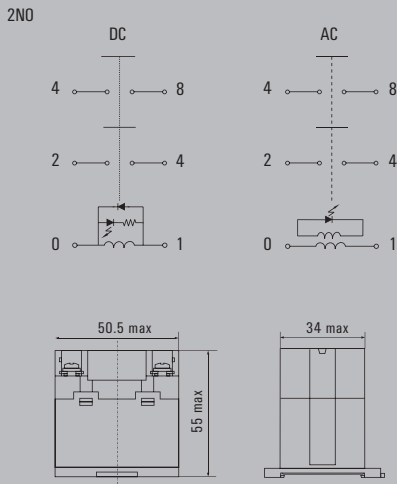
**2 NO AC/DC coil**

- Max. load current: 25 A



**B**

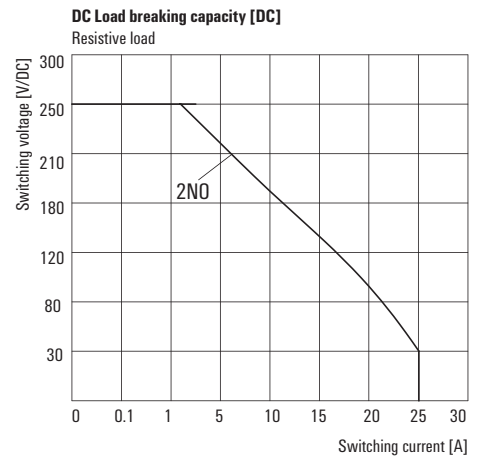
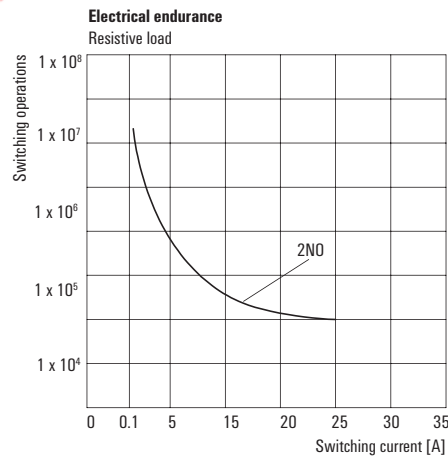
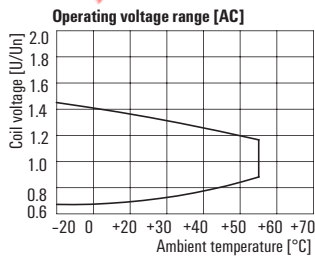
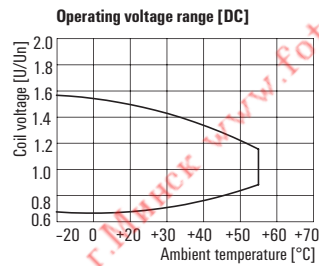
**Circuit diagram**



**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 <sub>eff</sub> / 1 min
Dielectric strength of neighbouring contacts	2 kV <sub>eff</sub> / 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**

<b>Type code</b>	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
<b>Input</b>					
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
<b>Output</b>					
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	PWR276220L
	Order No.	<b>1219540000</b>	<b>1219550000</b>	<b>1219560000</b>	<b>1219570000</b>	<b>1219580000</b>
	Type					
	Order No.					
<b>Note</b>						

**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
<b>Input</b>					
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
<b>Output</b>					
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	PWR276880L
	Order No.	<b>1219160000</b>	<b>1219170000</b>	<b>1219180000</b>	<b>1219190000</b>	<b>1219220000</b>
	Type					
	Order No.					
<b>Note</b>						

## 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.

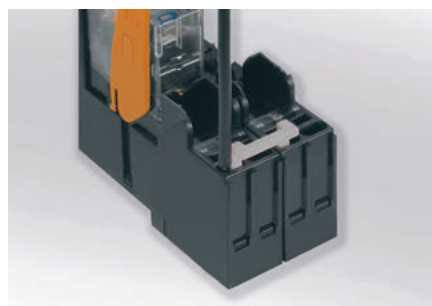
Our innovative relay bases with PUSH IN connection systems are available for both the RCI/RCL and RCM product lines. PUSH IN technology is safe and easy to use and it allows you to reduce costs with less wiring time. The relay modules are designed for industrial applications and feature sturdy relay 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 %.



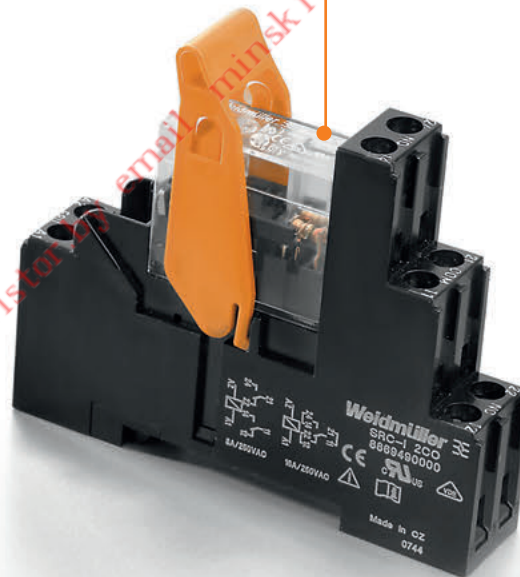
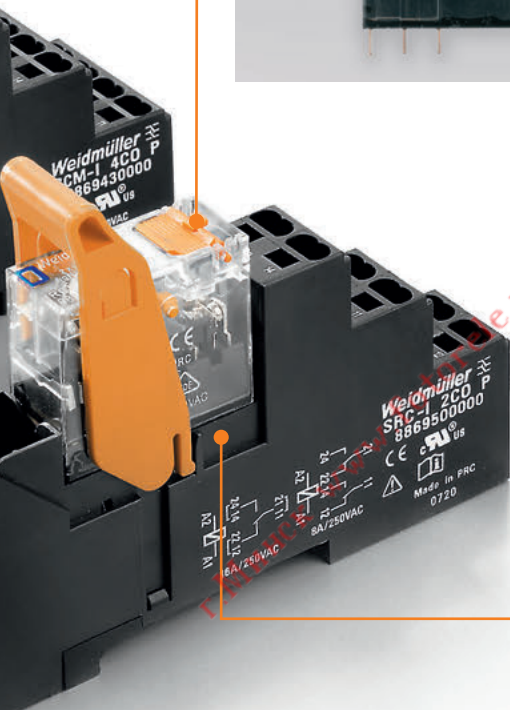
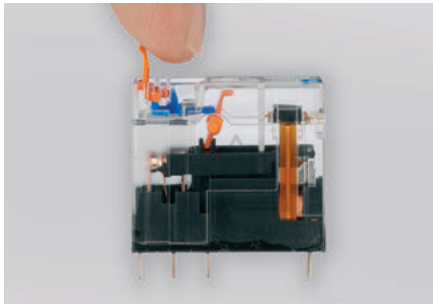
**Customised**

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.

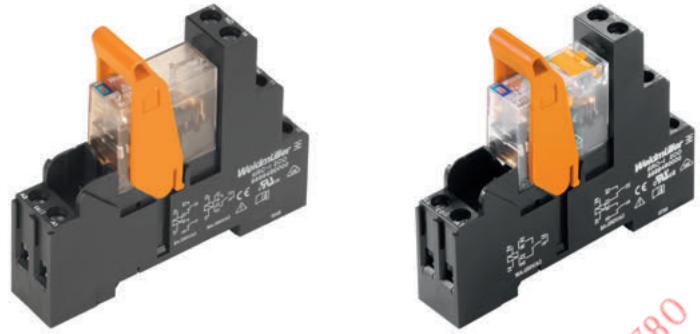


**RIDERSERIES – relay modules**

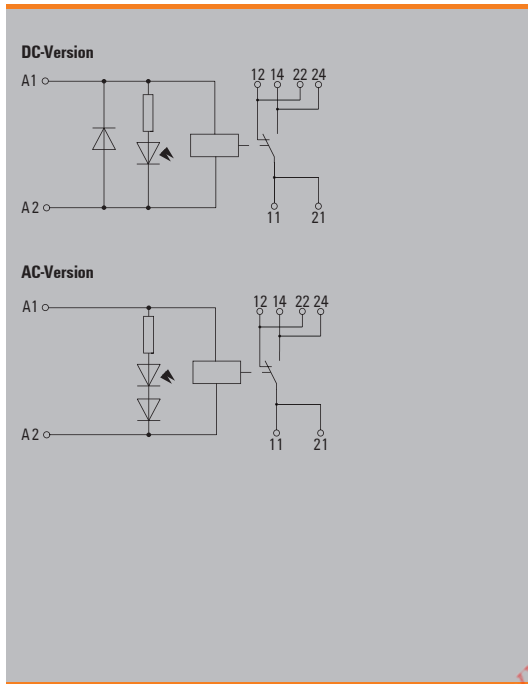
**RCI KIT with screw connection**

**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 <sup>1)</sup>
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 <sup>6</sup> Switch. cycles, DC coil 10 x 10 <sup>6</sup> 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 <sub>eff</sub> / 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	
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 2.5 / 1 / 2.5
Depth x width x height	mm 70.2 / 15.8 / 77
Screw connection	
<b>Note</b> 1) For full continuous current (16 A), relay connections 11 - 21, 12 - 22 and 14 - 24 must be bridged.	

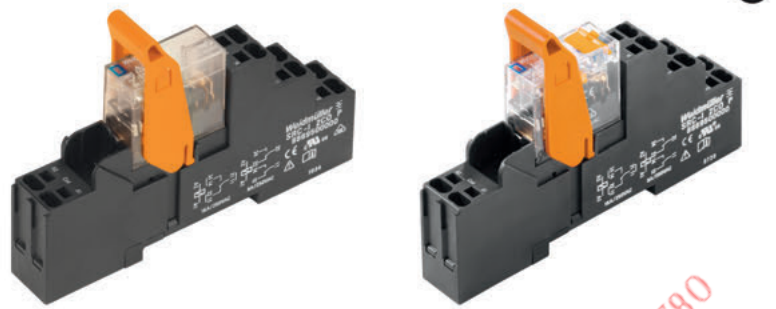
**Ordering data**

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	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	Type	RCIKIT 24VDC 1CO LD		RCIKIT 24VAC 1CO LD/PB		RCIKIT 115VAC 1CO LD		RCIKIT 230VAC 1CO LD	
	Order No.	8871000000		8881590000		8897090000		8881020000	
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.	RCI374AC4	RCI314AC4	RCI374R24	RCI314R24	RCI374S15	RCI314S15	RCI374T30	RCI314T30
		8870250000	8870100000	8870280000	8870130000	8870290000	8870140000	8870300000	8870150000
Note									

## 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)

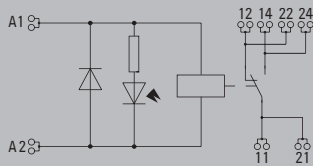


PUSH IN

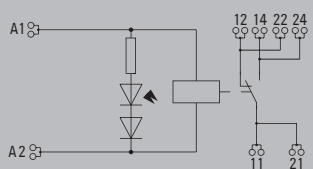
## Technical data

Output	
Rated switching voltage / Continuous current	250 V AC / 16 A <sup>1)</sup>
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 <sup>6</sup> Switch. cycles, DC coil 10 x 10 <sup>6</sup> 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 <sub>eff</sub> / 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 <sup>2</sup> 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.

## DC-Version



## AC-Version



## 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	7 / 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

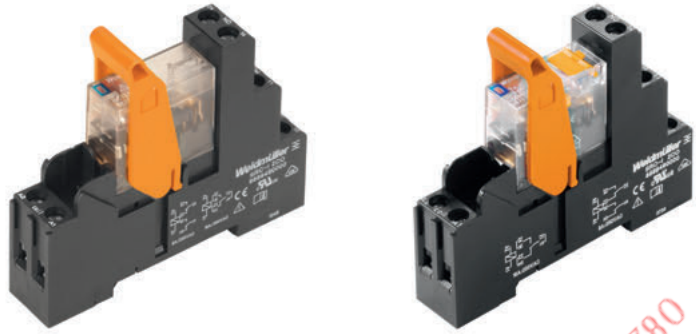
Spare relay	Type	w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button
	Order No.	RCI374R24	RCI314R24	RCI374R24	RCI314R24	RCI374S15	RCI314S15
		8870280000	8870130000	8870290000	8870140000	8870300000	8870150000

## Note

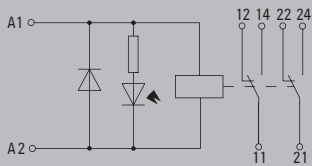
## RCI KIT with screw connection

## 2 CO contacts

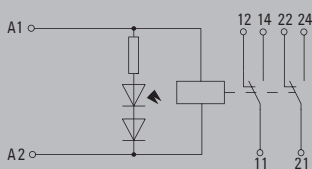
- 2000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay
- Protective suppressor circuit for DC coil
- Optional test button with latching function and inspection window
- Identification of coils (AC red / DC blue)



## 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 <sup>6</sup> Switch. cycles, DC coil 10 x 10 <sup>6</sup> 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 <sub>eff</sub> / 1min
Dielectric strength of neighbouring contacts	2.5 kV <sub>eff</sub> / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overtoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 2.5 / 1 / 2.5
Depth x width x height	mm 70.2 / 15.8 / 77
Screw connection	
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 2.5 / 1 / 2.5
Depth x width x height	mm 70.2 / 15.8 / 77
Note	

## Ordering data

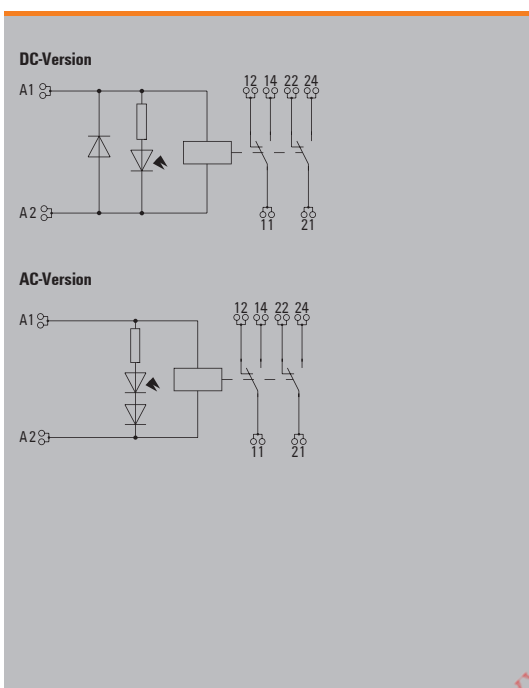
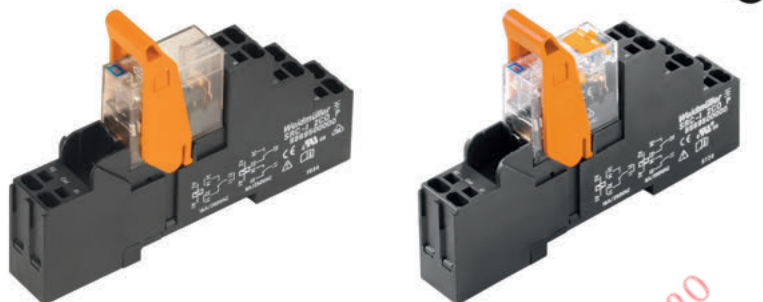
Input		24 V DC 2CO		24 V AC 2CO		115 V AC 2CO		230 V AC 2CO	
Rated control voltage		24 V DC		24 V AC		115 V AC		230 V AC	
Rated current AC / DC		/ 16.7 mA		31.6 mA /		7 mA /		3.5 mA /	
Power rating		420 mW		0.75 VA		0.8 VA		0.8 VA	
Pull-in/drop-out voltage, typ.		16.8 V / 2.4 V DC		18 V / 3.6 V AC		86.3 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	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	Type	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	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									



### 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)



#### 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 <sup>6</sup> Switch. cycles, DC coil 10 x 10 <sup>6</sup> 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 <sub>eff</sub> / 1min
Dielectric strength of neighbouring contacts	2.5 kV <sub>eff</sub> / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
<b>PUSH IN</b>	
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 1.5 / 0.75 / 1.5
Depth x width x height	mm 69.6 / 15.8 / 98
Note	

#### Ordering data

		24 V DC 2CO		24 V AC 2CO		115 V AC 2CO		230 V AC 2CO	
Input		24 V DC		24 V AC		115 V AC		230 V AC	
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		≤ 10 ms		≤ 10 ms		≤ 10 ms		≤ 10 ms	
Switch-on delay		≤ 6 ms		≤ 6 ms		≤ 6 ms		≤ 6 ms	
Switch-off delay									
Ordering data									
with test button		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		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		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 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)

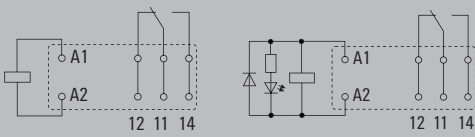


**B**

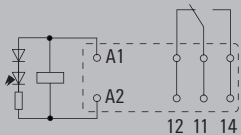
**Circuit diagram**

View on solder pins

**DC coil LED + Diode**



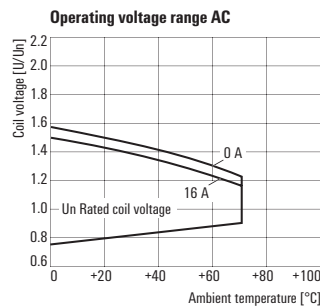
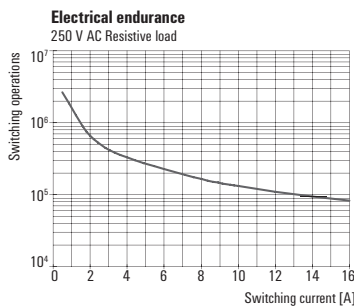
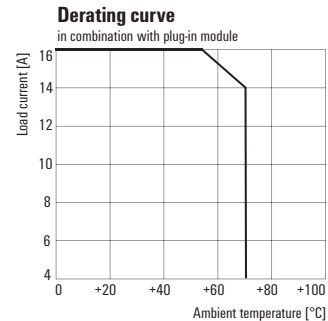
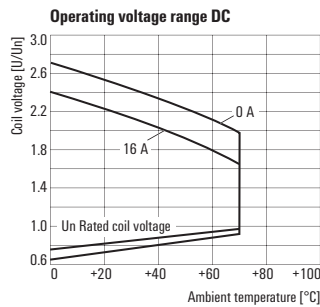
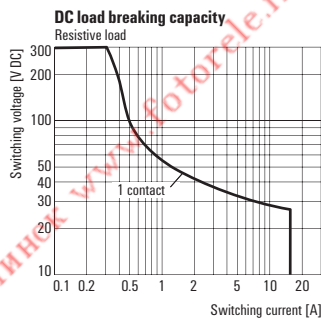
**AC coil LED**



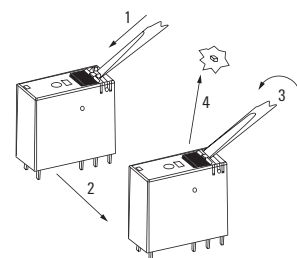
**Technical data**

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 <sup>6</sup> Switch. cycles, DC coil 10 x 10 <sup>6</sup> 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 <sub>eff</sub> / 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	
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.	<b>886980000</b>	<b>886981000</b>	<b>886982000</b>	<b>886983000</b>
with test button	Type	RCI374012	RCI374024		
	Order No.	<b>886995000</b>	<b>886996000</b>		
with LED + freewheel diode	Type	RCI314AB2	RCI314AC4	RCI314AE8	RCI314BB0
	Order No.	<b>887009000</b>	<b>887010000</b>	<b>887011000</b>	<b>887012000</b>
with test button + LED	Type	RCI374AB2	RCI374AC4	RCI374AE8	RCI374BB0
+ Free-wheel diode	Order No.	<b>887024000</b>	<b>887025000</b>	<b>887026000</b>	<b>887027000</b>
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.	<b>886984000</b>	<b>886985000</b>	<b>886986000</b>
with test button	Type	RCI374524		RCI374730
	Order No.	<b>886999000</b>		<b>887001000</b>
with LED	Type	RCI314R24	RCI314S15	RCI314T30
	Order No.	<b>887013000</b>	<b>887014000</b>	<b>887015000</b>
with test button + LED	Type	RCI374R24	RCI374S15	RCI374T30
	Order No.	<b>887028000</b>	<b>887029000</b>	<b>887030000</b>
Note				

**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)

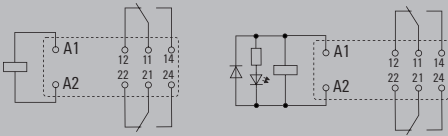


**B**

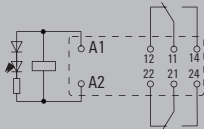
**Circuit diagram**

View on solder pins  
dimensions in mm

**DC coil LED + Diode**



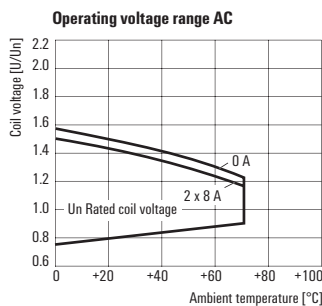
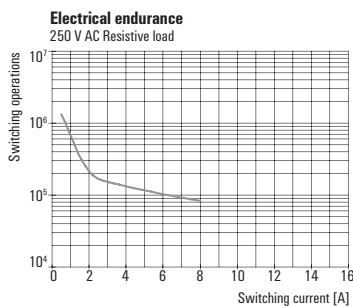
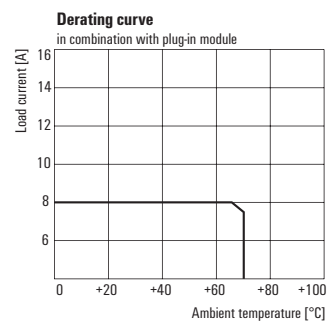
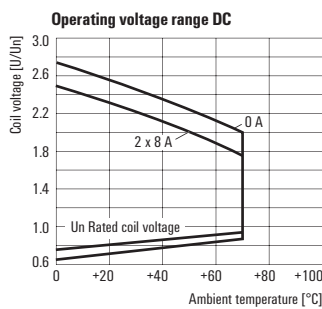
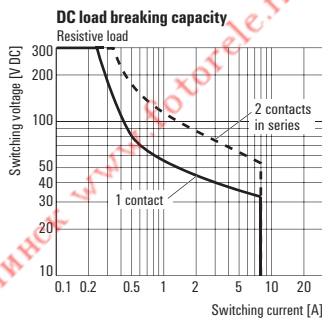
**AC coil LED**



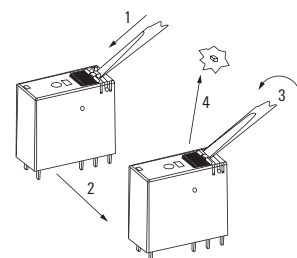
**Technical data**

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 <sup>6</sup> Switch. cycles, DC coil 10 x 10 <sup>6</sup> 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 <sub>eff</sub> / 1min
Dielectric strength of neighbouring contacts	2.5 kV <sub>eff</sub> / 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
<b>Input</b>					
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
<b>Output</b>					
Switch-on delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Switch-off delay		≤ 6 ms	≤ 6 ms	≤ 6 ms	≤ 6 ms
<b>Ordering data</b>					
Standard	Type	RCI424012	RCI424024	RCI424048	RCI424110
	Order No.	<b>8869870000</b>	<b>8869890000</b>	<b>8869900000</b>	<b>8869910000</b>
with test button	Type	RCI484012	RCI484024	RCI484048	RCI484110
	Order No.	<b>8870020000</b>	<b>8870030000</b>	<b>8870040000</b>	<b>8870050000</b>
with LED + freewheel diode	Type	RCI424AB2	RCI424AC4	RCI424AE8	RCI424BB0
	Order No.	<b>8870170000</b>	<b>8870180000</b>	<b>8870190000</b>	<b>8870200000</b>
with test button + LED + Free-wheel diode	Type	RCI484AB2	RCI484AC4	RCI484AE8	RCI484BB0
	Order No.	<b>8870310000</b>	<b>8870320000</b>	<b>8870330000</b>	<b>8870340000</b>
<b>Note</b>					

**Ordering data**

		24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
<b>Input</b>				
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
<b>Output</b>				
Switch-on delay		≤ 10 ms	≤ 10 ms	≤ 10 ms
Switch-off delay		≤ 6 ms	≤ 6 ms	≤ 6 ms
<b>Ordering data</b>				
Standard	Type	RCI424524	RCI424615	RCI424730
	Order No.	<b>8869920000</b>	<b>8869930000</b>	<b>8869940000</b>
with test button	Type	RCI484524	RCI484615	RCI484730
	Order No.	<b>8870060000</b>	<b>8870070000</b>	<b>8870080000</b>
with LED	Type	RCI424R24	RCI424S15	RCI424T30
	Order No.	<b>8870210000</b>	<b>8870220000</b>	<b>8870230000</b>
with test button + LED	Type	RCI484R24	RCI484S15	RCI484T30
	Order No.	<b>8870350000</b>	<b>8870360000</b>	<b>8870370000</b>
<b>Note</b>				

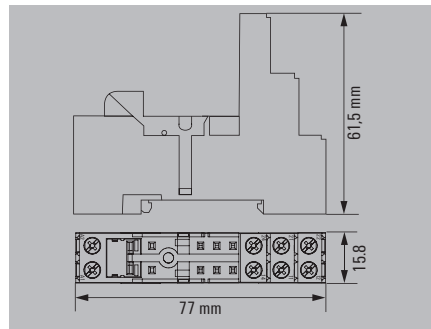
## RIDERSERIES – relay modules

## Accessories for RCI relays

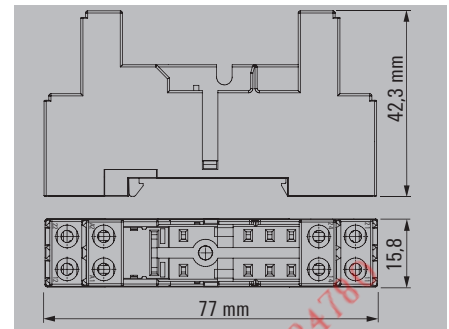
## 1 CO contact and 2 CO contacts

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

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



## Low-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 <sup>1)</sup>
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 <sub>eff</sub> / 1 min
Dielectric strength of neighbouring contacts	2.5 kV <sub>eff</sub> / 1 min.
Impulse withstand voltage	
Connection data	
Clamping range (nominal / min. / max.)	2.5 / 1 / 2.5 mm <sup>2</sup>
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.	

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

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

## Ordering data

Socket, DIN rail mounted	
Note	

Type	Qty.	Order No.
SRC-I 2CO	10	8869490000

Type	Qty.	Order No.
SRC-I 2CO N	10	8869480000

## Accessories

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	
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 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	

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

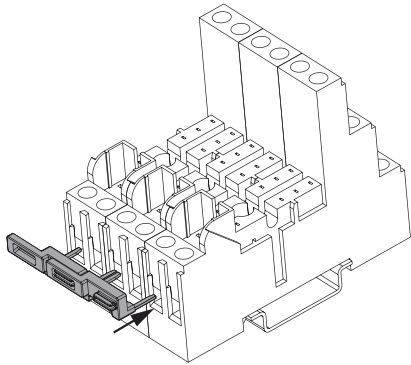
Type	Qty.	Order No.
SRC-I QV S	10	1132070000
SRC-I CLIP HP	10	8869510000
SRC-I CLIP HM RCI	20	1132090000
SRC-I MARK	10	8869530000
ESG 6/15 SRC-I MC NE WS	200	2558350000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 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

Note

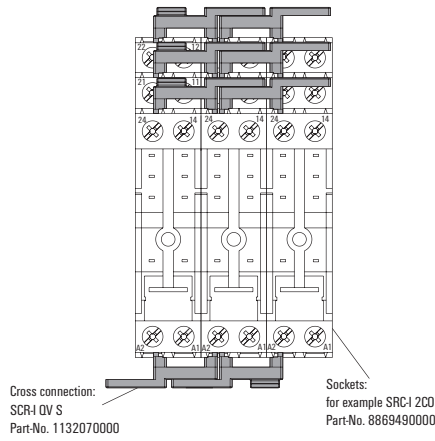
Article numbers for LED modules with red LED are to be found at [catalog.weidmueller.com](http://catalog.weidmueller.com)

Article numbers for LED modules with red LED are to be found at [catalog.weidmueller.com](http://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



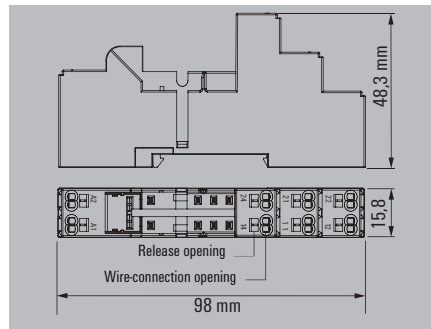
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## RIDERSERIES – relay modules

## 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

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

## Ordering data

	Socket, DIN rail mounted	
<b>Note</b>		
<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
SRC-I 2CO P	10	8869500000

## Accessories

<b>Pluggable cross-connection</b>	2-pole	
<b>Retaining clip</b>	Plastic retaining clip Metal retaining clip	
<b>Markers</b>	Label, not PrintJet compatible, no MultiCard white	
<b>LED module / protection modules</b>	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	
<b>Screwdriver</b>	Standard	
<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
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

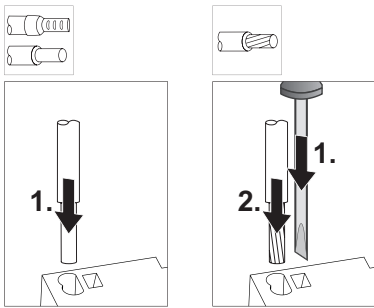
**Note**

Article numbers for LED modules with red LED are to be found at [catalog.weidmueller.com](http://catalog.weidmueller.com)

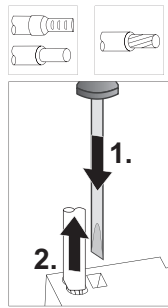


**PUSH IN connection operation**

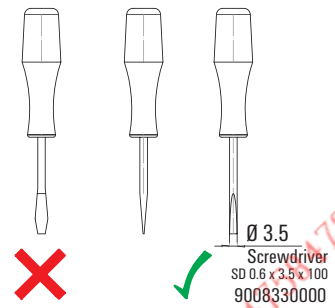
Insert connector



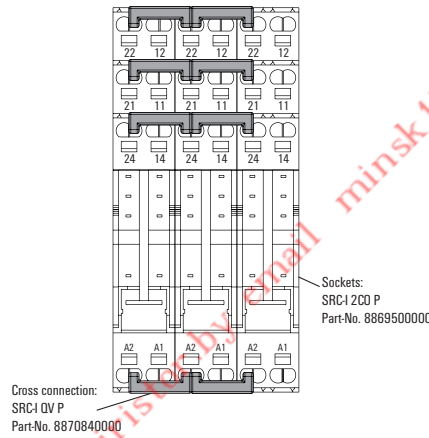
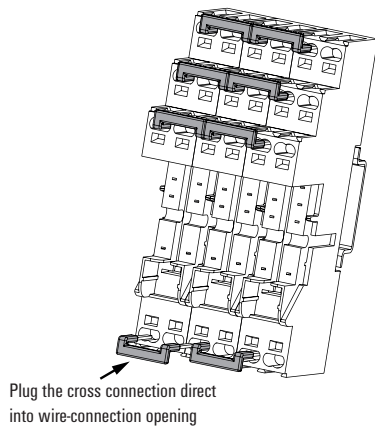
Remove connector



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.

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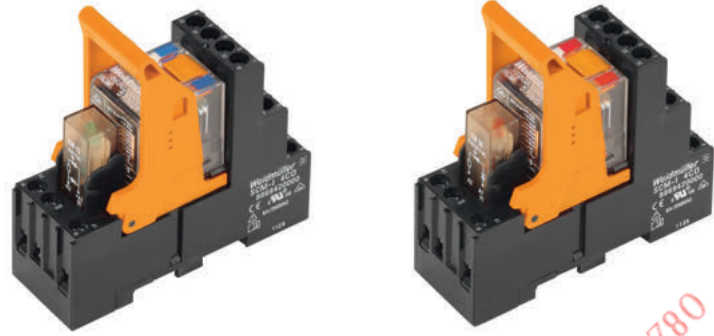
**RIDERSERIES – relay modules**

**RCM KIT with screw connection**

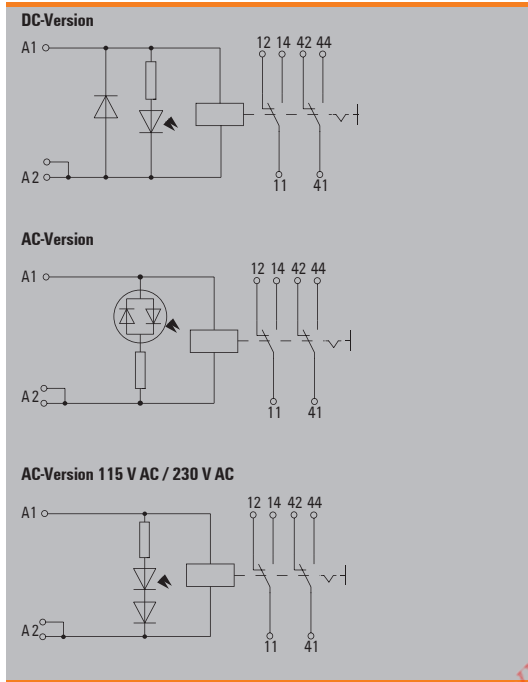
**2 CO contacts, AC/ DC coil**

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



**B**



**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 <sup>6</sup> Switch. cycles, DC coil 30 x 10 <sup>6</sup> 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 <sub>eff</sub> / 1 min.
Dielectric strength of neighbouring contacts	2.5 KV <sub>eff</sub> / 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 <sup>2</sup> 2.5 / 1 / 2.5
Depth x width x height	mm 78.3 / 27.2 / 77
Screw connection	
<b>Note</b>	

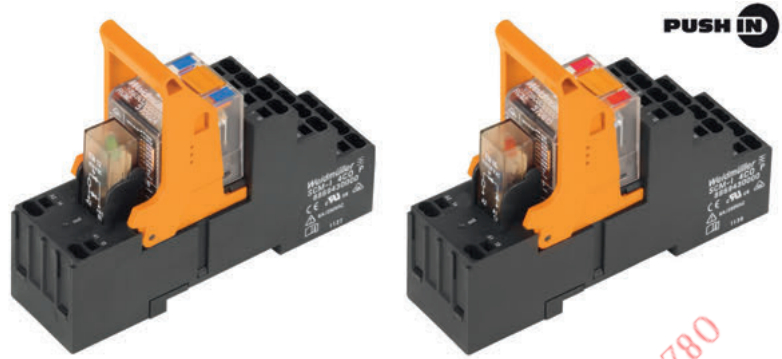
**Ordering data**

	24 V DC 2CO LED	24 V AC 2CO LED	115 V AC 2CO LED	230 V AC 2CO LED
<b>Input</b>				
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	7 / 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			
<b>Output</b>				
Switch-on delay	≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
<b>Ordering data</b>				
Screw connection	RCMKIT-I 24VDC 2CO LD	RCMKIT-I 24VAC 2CO LD	RCMKIT-I 115VAC 2CO LD	RCMKIT-I 230VAC 2CO LD
Type				
Order No.	8920940000	8920950000	8920960000	8920970000
Type				
Order No.				
<b>Ordering data</b>				
Spare relay (pluggable)				
Type	RCM270024	RCM270524	RCM270615	RCM270730
Order No.	8689860000	8689760000	8689800000	8689820000
<b>Note</b>				

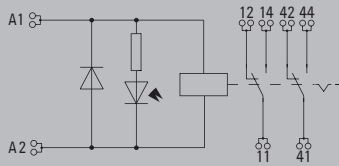
## RCM KIT with PUSH IN connection 2 CO contacts AC/DC coil

Modular system comprising of:

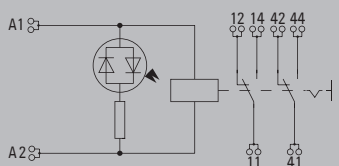
- Relay socket for rail mounting
- LED display unit (AC red / DC green)
- Retaining clip
- Pluggable relays with coil identification (AC red / DC blue)
- Markers



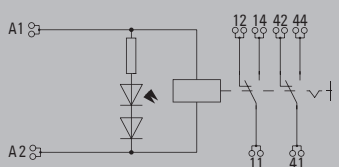
### DC-Version



### 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 <sup>6</sup> Switch. cycles, DC coil 30 x 10 <sup>6</sup> 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 <sub>eff</sub> / 1 min.
Dielectric strength of neighbouring contacts	2.5 KV <sub>eff</sub> / 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 <sup>2</sup> 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		7 / 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					

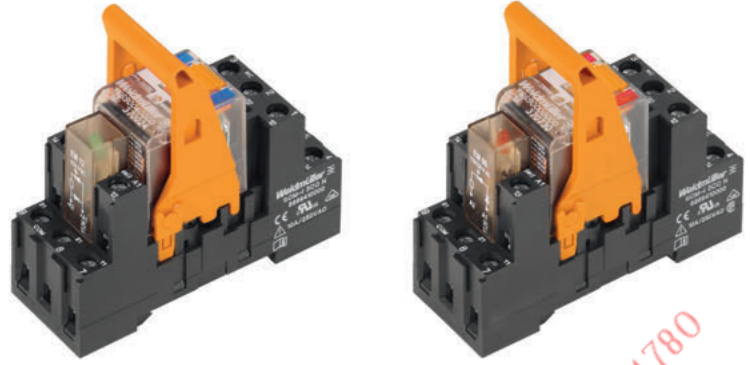
**RIDERSERIES – relay modules**

**RCM KIT with screw connection**

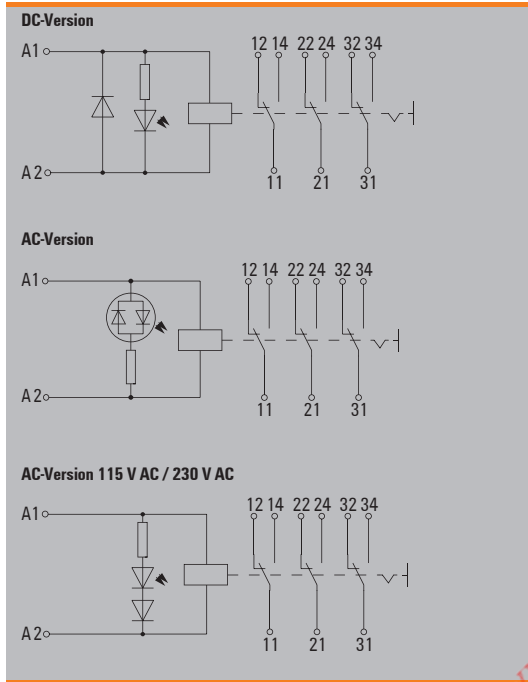
**3 CO contacts, AC/ DC coil**

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



**B**



**Technical data**

<b>Output</b>	
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 <sup>6</sup> Switch. cycles, DC coil 30 x 10 <sup>6</sup> Switch. cycles
Max. switching frequency at rated load	0.1 Hz
<b>Rated data</b>	
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
<b>Insulation coordinates</b>	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2.5 KV <sub>eff</sub> / 1 min.
Dielectric strength of neighbouring contacts	2.5 KV <sub>eff</sub> / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
<b>Dimensions</b>	
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 2.5 / 1 / 2.5
Depth x width x height	mm 71.6 / 27.2 / 73.5
<b>Note</b>	

**Ordering data**

		24 V DC 3CO LED	24 V AC 3CO LED	115 V AC 3CO LED	230 V AC 3CO LED
<b>Input</b>					
Rated control voltage		24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC		7 / 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			
<b>Output</b>					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
<b>Ordering data</b>					
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.				
<b>Ordering data</b>					
Spare relay (pluggable)	Type	RCM370024	RCM370524	RCM370615	RCM370730
	Order No.	8690040000	8690030000	8689980000	8690000000
<b>Note</b>					

г.Минск [www.fotorele.net](http://www.fotorele.net) [www.tiristor.by](http://www.tiristor.by) email [minsk17@tut.by](mailto:minsk17@tut.by) тел.+375447584780

## RIDERSERIES – relay modules

## RCM KIT with screw connection

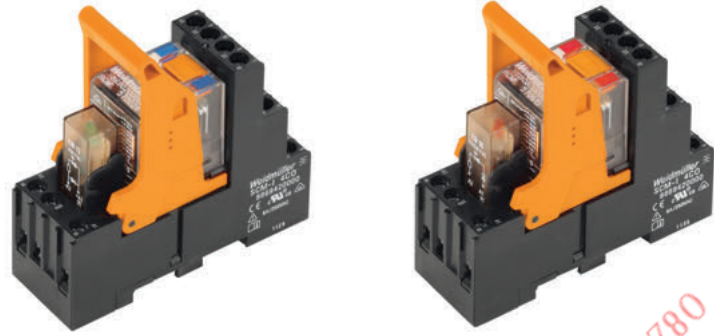
## 4 CO contacts, AC/ DC coil

Modular system comprising of:

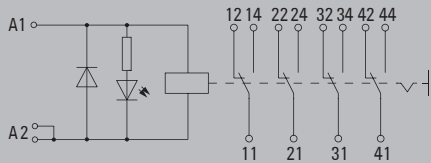
- relay socket for rail mounting
- LED display unit (AC red / DC green)
- retaining clip
- pluggable relays with coil identification (AC red / DC blue)
- Markers

Independent of connection system:

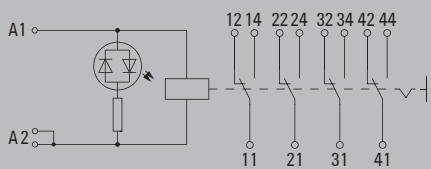
- Screw or PUSH IN connection system



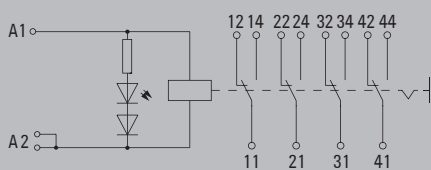
## DC-Version



## 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 <sup>6</sup> Switch. cycles, DC coil 30 x 10 <sup>6</sup> 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 <sub>eff</sub> / 1 min.
Dielectric strength of neighbouring contacts	2 kV <sub>eff</sub> / 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 <sup>2</sup> 2.5 / 1 / 2.5
Depth x width x height	mm 78.3 / 27.2 / 77
Screw connection	
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 2.5 / 1 / 2.5
Depth x width x height	mm 78.3 / 27.2 / 77
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		7 / 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					

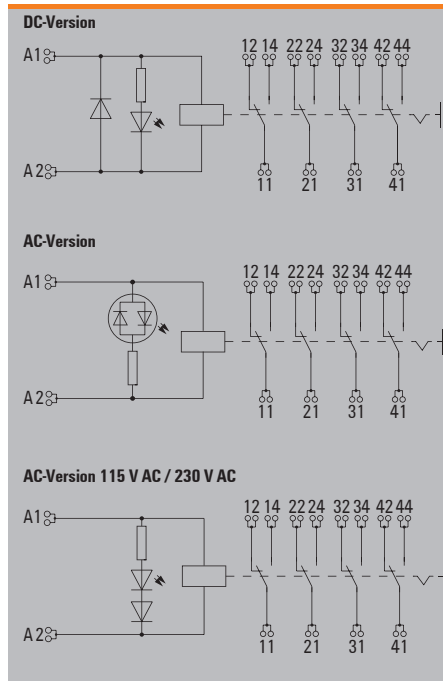
**RCM KIT with PUSH IN connection****4 CO contacts AC/DC coil**

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**

<b>Output</b>	
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 <sup>6</sup> Switch. cycles, DC coil 30 x 10 <sup>6</sup> Switch. cycles
Max. switching frequency at rated load	0.1 Hz
<b>Rated data</b>	
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
<b>Insulation coordinates</b>	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength input - output	2.5 kV <sub>eff</sub> / 1 min.
Dielectric strength of neighbouring contacts	2 kV <sub>eff</sub> / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
<b>Dimensions</b>	
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 1.5 / 0.75 / 1.5
Depth x width x height	mm 78.3 / 28 / 98
<b>Note</b>	

**Ordering data**

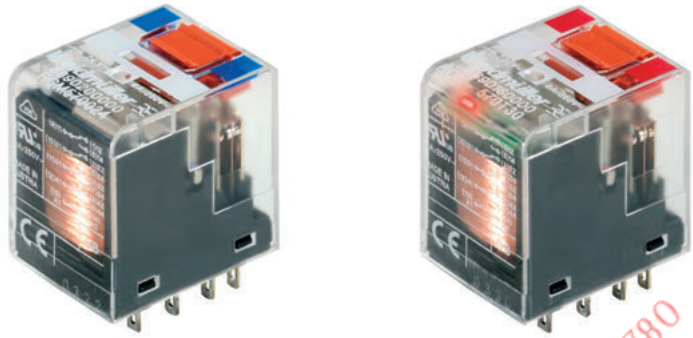
		<b>24 V DC 4CO LED</b>	<b>24 V AC 4CO LED</b>	<b>115 V AC 4CO LED</b>	<b>230 V AC 4CO LED</b>
<b>Input</b>					
Rated control voltage		24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC		7 / 31.3 mA	41.6 mA /	8.8 mA /	4.3 mA /
Power rating		740 mW	1.0 VA	1.0 VA	1.0 VA
Pull-in/drop-out voltage, typ.		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			
<b>Output</b>					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
<b>Ordering data</b>					
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.	<b>8921120000</b>	<b>8921130000</b>	<b>8921140000</b>	<b>8921150000</b>
	Type				
	Order No.				
<b>Ordering data</b>					
Spare relay (pluggable)	Type	RCM570024	RCM570524	RCM570615	RCM570730
	Order No.	<b>8690200000</b>	<b>8690110000</b>	<b>1180800000</b>	<b>1181100000</b>
<b>Note</b>					

**RIDERSERIES – relay modules**

**RCM relay**

**2 CO contacts, AC/DC coil**

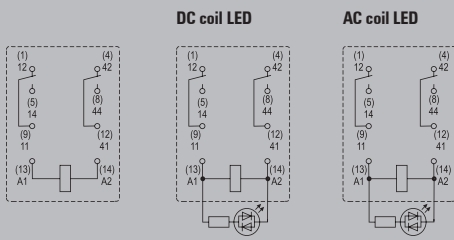
- 3000 VA switching capacity
- Solder and plug connection
- Safe-to-touch test button, selectable locking
- White labelling panel
- Identification of coils (AC red / DC blue)



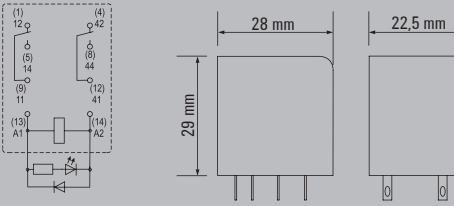
**B**

**Circuit diagram**

View on pins from below



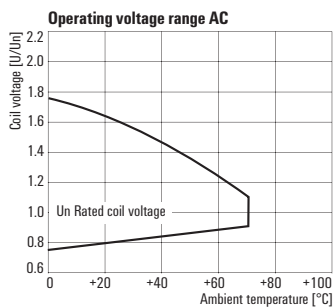
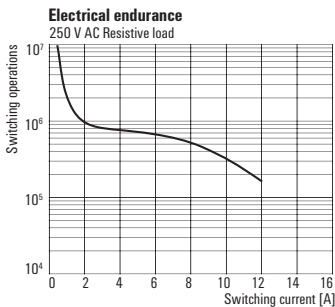
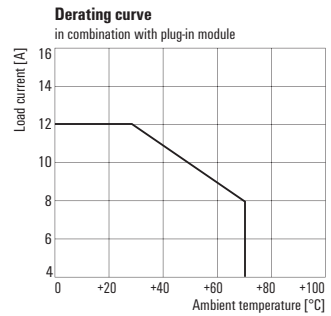
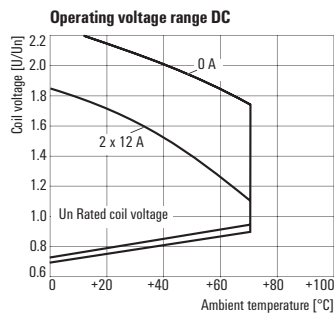
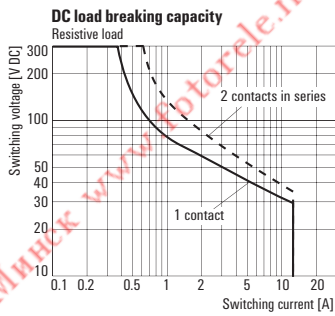
**DC coil LED + diode**



**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 <sup>6</sup> Switch. cycles, DC coil 30 x 10 <sup>6</sup> 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 <sub>eff</sub> / 1 min.
Dielectric strength of neighbouring contacts	2.5 KV <sub>eff</sub> / 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							LED 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							M110 BBO
220	220 V DC							N220
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							S115
730	230 V AC							T30

### Ordering data

		12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO
<b>Input</b>					
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
<b>Output</b>					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
<b>Ordering data</b>					
without LED	Type	RCM270012	RCM270024	RCM270048	RCM270110
AgNi 90/10	Order No.	<b>8689840000</b>	<b>8689860000</b>	<b>8689880000</b>	<b>8689900000</b>
with LED	Type	RCM270L12	RCM270L24	RCM270L48	
AgNi 90/10	Order No.	<b>8689850000</b>	<b>8689870000</b>	<b>8689890000</b>	
with LED + freewheel diode	Type	RCM270AB2	RCM270AC4		
AgNi 90/10	Order No.	<b>8957020000</b>	<b>8957030000</b>		
	Type				
	Order No.				

### Note

### Ordering data

		24 V AC 2CO	48 V AC 2CO	115 V AC 2CO	230 V AC 2CO
<b>Input</b>					
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
<b>Output</b>					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
<b>Ordering data</b>					
without LED	Type	RCM270524	RCM270548	RCM270615	RCM270730
AgNi 90/10	Order No.	<b>8689760000</b>	<b>8689780000</b>	<b>8689800000</b>	<b>8689820000</b>
with LED	Type	RCM270R24		RCM270S15	RCM270T30
AgNi 90/10	Order No.	<b>8689770000</b>		<b>8689810000</b>	<b>8689830000</b>
	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

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

## Ordering data

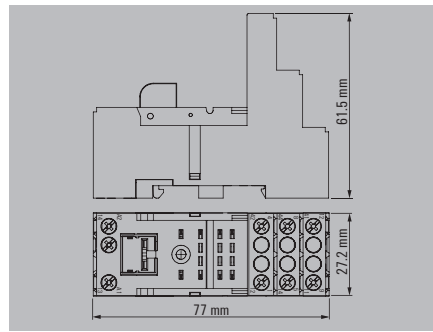
	Socket, DIN rail mounted
<b>Note</b>	

## Accessories

<b>Cross-connection</b>	8-pole
<b>Retaining clip</b>	Plastic retaining clip Metal retaining clip
<b>Markers</b>	Label, not PrintJet compatible, no MultiCard white
<b>LED module / protection modules</b>	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
<b>Screwdriver</b>	

**Note**

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



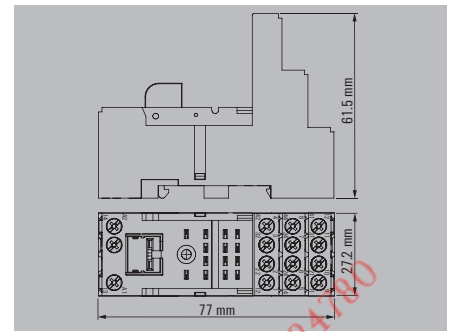
250 V AC
400 V
12 A
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus; EAC; VDE
IP20
≥ 4 mm
2.5 kV <sub>eff</sub> / 1 min.
2.5 kV <sub>eff</sub> / 1 min.
2.5 / 1 / 2.5 mm <sup>2</sup>
0.5...0.7 Nm
8 mm

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

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](http://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 <sub>eff</sub> / 1 min.
2 kV <sub>eff</sub> / 1 min.
2.5 / 1 / 2.5 mm <sup>2</sup>
0.5...0.7 Nm
8 mm

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

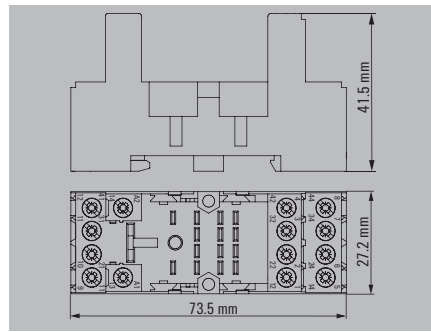
Type	Qty.	Order No.
SCM-I QV S	10	1132080000
SCM-I CLIP P	10	8869440000
SCM-I CLIP M	10	8869450000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC 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](http://catalog.weidmueller.com)

**Accessories for RCM relays, 2 CO contacts**

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

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



**Technical data**

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

**Ordering data**

	Socket, DIN rail mounted
<b>Note</b>	

**Accessories**

<b>Cross-connection</b>	8-pole
<b>Retaining clip</b>	Plastic retaining clip Metal retaining clip
<b>Markers</b>	Label, not PrintJet compatible, no MultiCard white
<b>LED module / protection modules</b>	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
<b>Screwdriver</b>	

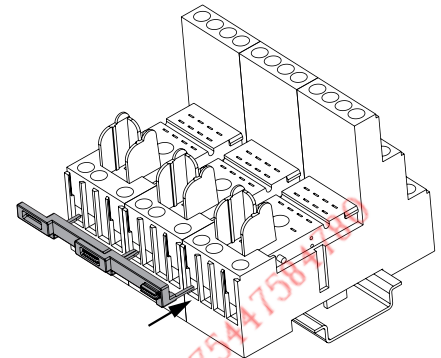
<b>Note</b>	
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Type	Qty.	Order No.
SCM-I 4CO N	10	8869390000

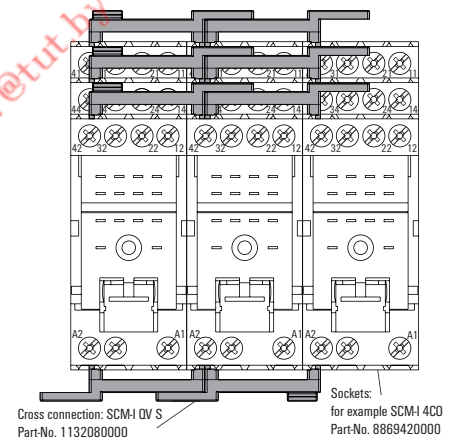
Type	Qty.	Order No.
SCM-I QV S	10	1132080000
SCM-I CLIP N	10	8875620000
SCM-I CLIP M	10	8869450000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC 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

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



Cross connection: SCM-I QV S Part-No. 1132080000  
Sockets: for example SCM-I 4CO Part-No. 8869420000

## RIDERSERIES – relay modules

## Accessories for RCM relays, 2 CO contacts

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

## Technical data

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

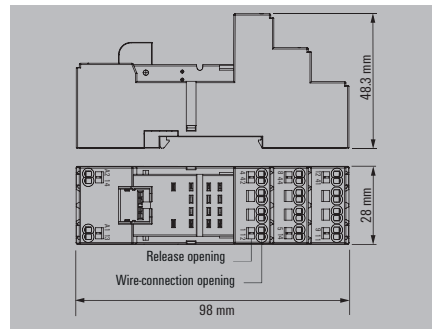
## Ordering data

	Socket, DIN rail mounted
<b>Note</b>	

## Accessories

<b>Retaining clip</b>	Metal retaining clip Plastic retaining clip
<b>Cross-connection</b>	2-pole
<b>Markers</b>	Label, not PrintJet compatible, no MultiCard white
<b>LED module / protection modules</b>	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
<b>Screwdriver</b>	Standard

## Note

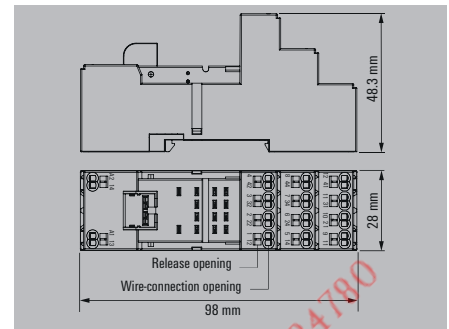
Socket module with  
PUSH IN connection, 2 CO contacts

	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 <sub>eff</sub> / 1 min.
	2.5 kV <sub>eff</sub> / 1 min.
	1.5 / 0.75 / 1.5 mm <sup>2</sup>
	...
	12 mm

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

Type	Qty.	Order No.
SCM-I CLIP M	10	8869450000
SCM-I CLIP P	10	8869440000
SCM-I QV P	10	8870850000
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 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
RIM-I 4 24VUC VAR	10	8869710000
SDIS SL 0.6X3.5X100	1	1274660000

Article numbers for LED modules with red LED are to be found at [catalog.weidmueller.com](http://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 <sub>eff</sub> / 1 min.
	2 kV <sub>eff</sub> / 1 min.
	1.5 / 0.75 / 1.5 mm <sup>2</sup>
	...
	12 mm

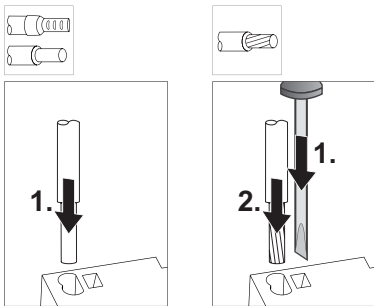
Type	Qty.	Order No.
SCM-I 4CO P	10	8869430000

Type	Qty.	Order No.
SCM-I CLIP M	10	8869450000
SCM-I CLIP P	10	8869440000
SCM-I QV P	10	8870850000
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 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
RIM-I 4 24VUC VAR	10	8869710000
SDIS SL 0.6X3.5X100	1	1274660000

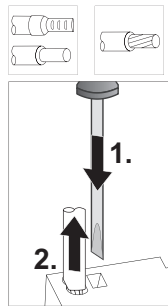
Article numbers for LED modules with red LED are to be found at [catalog.weidmueller.com](http://catalog.weidmueller.com)

**PUSH IN connection operation**

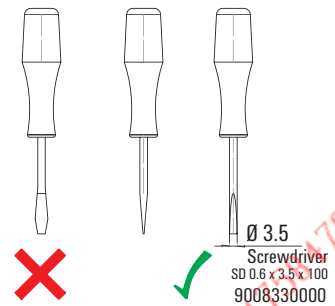
Insert connector



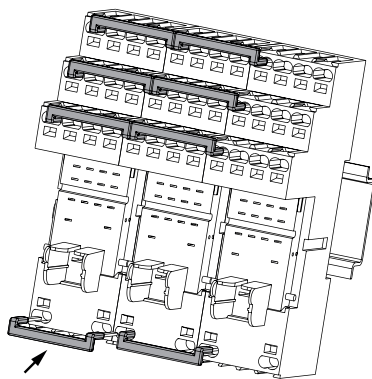
Remove connector



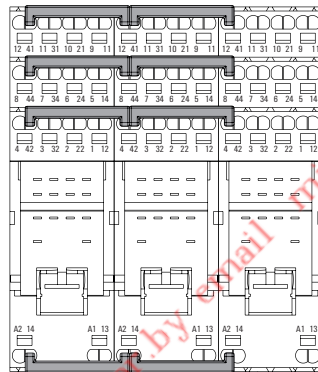
Recommended screwdriver



**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

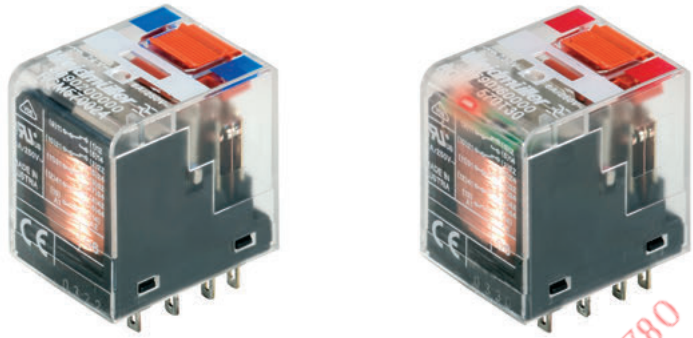
If more than 2 poles are connected with stacked cross-connection ridges, then the bottom ridges must be stripped to the appropriate length and shortened for correct fitting.

www.fotorele.net  
www.tristo.by  
Т.Мінск тел.+37544 4780 1760

**RCM relay**

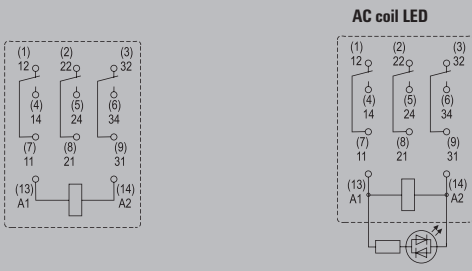
**3 CO contacts, AC/DC coil**

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

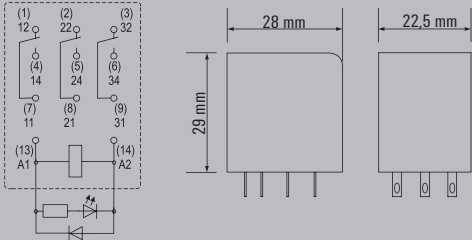


**Circuit diagram**

View on pins from below



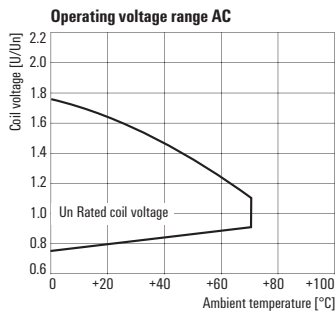
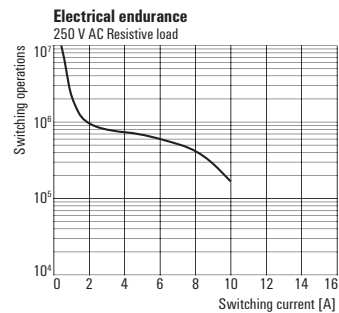
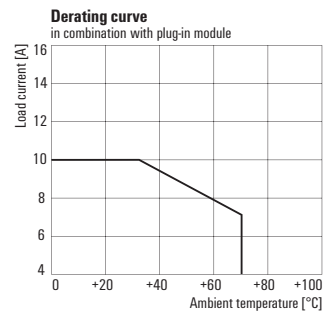
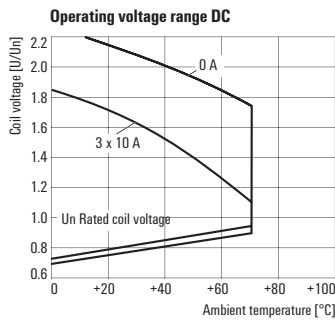
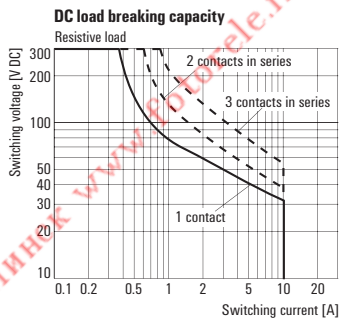
**DC coil LED + diode**



**Technical data**

<b>Output</b>	
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 <sup>6</sup> Switch. cycles, DC coil 30 x 10 <sup>6</sup> Switch. cycles
Max. switching frequency at rated load	0.1 Hz
<b>Rated data</b>	
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
<b>Insulation coordinates</b>	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 μs)
Dielectric strength input - output	2.5 KV <sub>eff</sub> / 1 min.
Dielectric strength of neighbouring contacts	2.5 KV <sub>eff</sub> / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
<b>Dimensions</b>	
Clamping range (nominal / min. / max.)	/ /
Depth x width x height	mm 29 / 22.5 / 28
<b>Plug-in connection</b>	
Note	

**Applications**



**RCM relay**  
**3 CO contacts, AC/DC coil**

Type code		RCM									
Type	RIDER Control Multiple									with LED + diode	
Contacts	2 2 CO contacts 3 3 CO contacts 5 4 CO contacts									with LED	
Contact material	7 AgNi 90/10, with test button 8 AgNi 90/10 hgp, with test button									LED	+ diode
Type of construction	0 Standard, 2.8 mm Faston										
		<b>DC coil</b>									
		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	B00						
		220	220 V DC	N20							
		<b>AC coil</b>									
		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
<b>Input</b>					
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
<b>Output</b>					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
<b>Ordering data</b>					
without LED	Type	RCM370012	RCM370024	RCM370048	RCM370110
AgNi 90/10	Order No.	<b>8690020000</b>	<b>8690040000</b>	<b>8690060000</b>	<b>8690080000</b>
with LED + freewheel diode	Type	RCM370AB2	RCM370AC4		RCM370BB0
AgNi 90/10	Order No.	<b>8957090000</b>	<b>8957100000</b>		<b>8957120000</b>
	Type				
	Order No.				
	Type				
	Order No.				
<b>Note</b>					

**Ordering data**

		24 V AC 3CO	48 V AC 3CO	115 V AC 3CO	230 V AC 3CO
<b>Input</b>					
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
<b>Output</b>					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
<b>Ordering data</b>					
without LED	Type	RCM370524		RCM370615	RCM370730
AgNi 90/10	Order No.	<b>8690030000</b>		<b>8689980000</b>	<b>8690000000</b>
with LED	Type	RCM370R24	RCM370R48	RCM370S15	RCM370T30
AgNi 90/10	Order No.	<b>8689950000</b>	<b>8689970000</b>	<b>8689990000</b>	<b>8690010000</b>
	Type				
	Order No.				
	Type				
	Order No.				
<b>Note</b>					

## RIDERSERIES – relay modules

## Accessories for RCM relays, 3 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

Metal retaining clip  
Plastic retaining clip

## Markers

Label, not PrintJet compatible, no MultiCard  
white

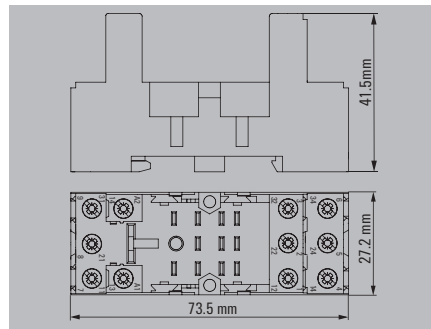
## LED module / protection modules

Free-wheeling diode 6 - 230 V DC  
Load resistance 110 - 230 V UC  
LED 6 - 24 V DC green and free-wheeling 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, 3 CO contacts



250 V AC  
400 V  
10 A

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

IP20  
≥ 4 mm  
2.5 kV<sub>eff</sub> / 1 min.  
2.5 kV<sub>eff</sub> / 1 min.

2.5 / 1 / 2.5 mm<sup>2</sup>  
0.5...0.7 Nm  
8 mm

Type	Qty.	Order No.
SCM-I 3CO N	10	8869410000

Type	Qty.	Order No.
SCM-I QV S	10	1132080000
SCM-I CLIP M	10	8869450000
SCM-I CLIP N	10	8875620000

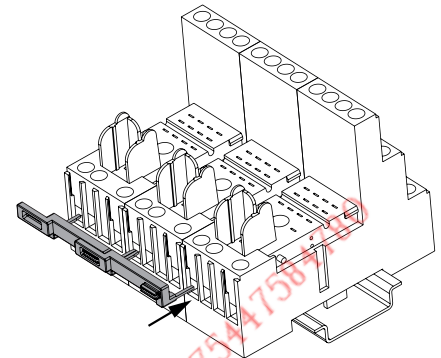
Type	Qty.	Order No.
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000

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

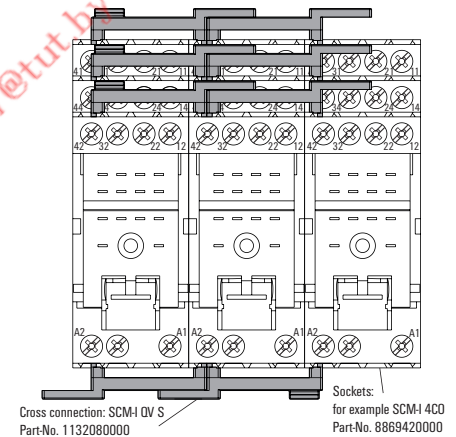
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

Article numbers for LED modules with red LED are to be found at [catalog.weidmueller.com](http://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



Cross connection: SCM-I QV S  
Part-No. 1132080000  
Sockets:  
for example SCM-I 4CO  
Part-No. 8869420000



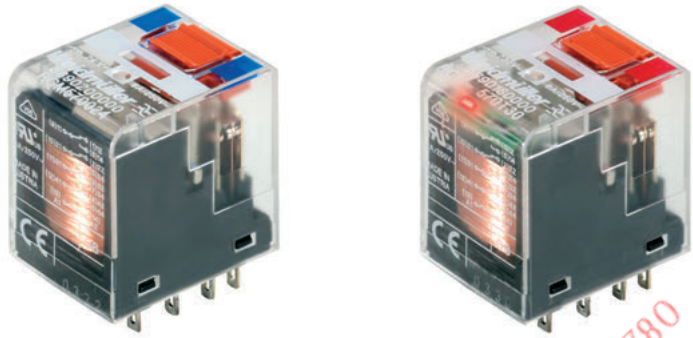
г.Минск [www.fotorele.net](http://www.fotorele.net) [www.tiristor.by](http://www.tiristor.by) email [minsk17@tut.by](mailto:minsk17@tut.by) тел.+375447584780

**RIDERSERIES – relay modules**

**RCM relay**

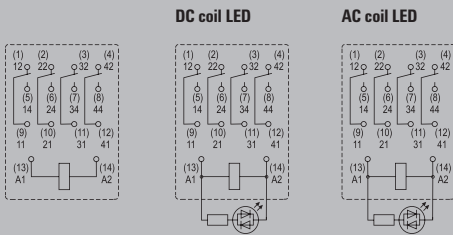
**4 CO contacts, AC/DC coil**

- 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)

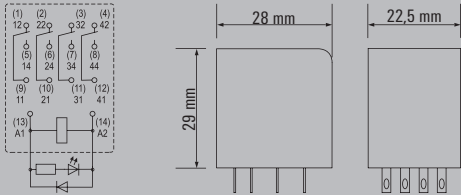


**Circuit diagram**

View on pins from below



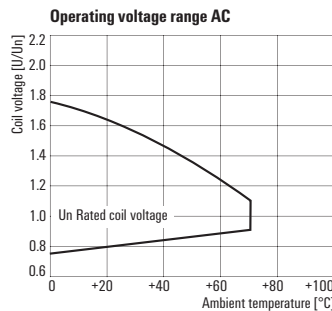
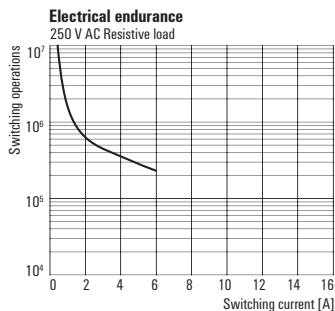
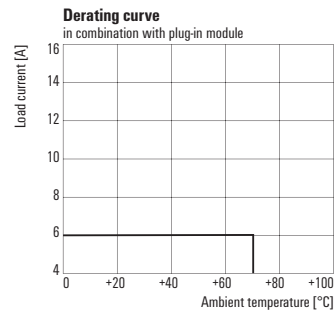
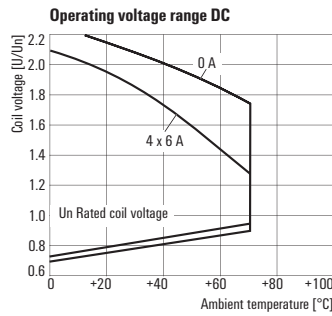
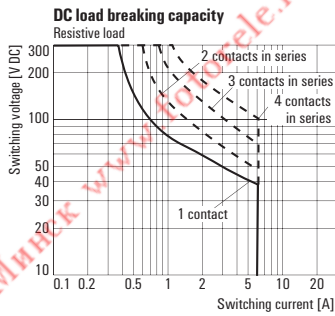
**DC coil LED + diode**



**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 <sup>6</sup> Switch. cycles, DC coil 30 x 10 <sup>6</sup> 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 <sub>eff</sub> / 1 min.
Dielectric strength of neighbouring contacts	2 kV <sub>eff</sub> / 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

### 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
012	12 V DC								LED
024	24 V DC								+ diode
048	48 V DC								
060	60 V DC								
110	110 V DC								
220	220 V DC								
AC coil									
506	6 V AC								
512	12 V AC								
524	24 V AC								
548	48 V AC								
615	115 V AC								
730	230 V AC								

### Ordering data

	12 V DC 4CO	24 V DC 4CO	48 V DC 4CO	110 V DC 4CO
<b>Input</b>				
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
<b>Output</b>				
Switch-on delay	≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
<b>Ordering data</b>				
without LED Type	RCM570012	RCM570024	RCM570048	RCM570110
AgNi 90/10 Order No.	<b>8054360000</b>	<b>8690200000</b>	<b>8074670000</b>	<b>8074700000</b>
with LED Type	RCM570L12	RCM570L24	RCM570L48	RCM570M10
AgNi 90/10 Order No.	<b>8690180000</b>	<b>8690220000</b>	<b>8690230000</b>	<b>8690240000</b>
without LED Type	RCM580012	RCM580024	RCM580048	
AgNi 5µm Au Order No.	<b>on request</b>	<b>8694460000</b>	<b>on request</b>	
with LED + freewheel diode Type	RCM570AB2	RCM570AC4	RCM570AE8	RCM570BB0
AgNi 90/10 Order No.	<b>8957160000</b>	<b>8957170000</b>	<b>8957180000</b>	<b>8957190000</b>

### Note

### Ordering data

	24 V AC 4CO	48 V AC 4CO	115 V AC 4CO	230 V AC 4CO
<b>Input</b>				
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
<b>Output</b>				
Switch-on delay	≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
<b>Ordering data</b>				
without LED Type	RCM570524	RCM570548	RCM570615	RCM570730
AgNi 90/10 Order No.	<b>8690110000</b>	<b>1180900000</b>	<b>1180800000</b>	<b>1181100000</b>
with LED Type	RCM570R24	RCM570R48	RCM570S15	RCM570T30
AgNi 90/10 Order No.	<b>8690120000</b>	<b>8690130000</b>	<b>8690150000</b>	<b>8690160000</b>
Type			RCM580615	RCM580730
Order No.			<b>8824860000</b>	<b>7940007637</b>
Type				
Order No.				

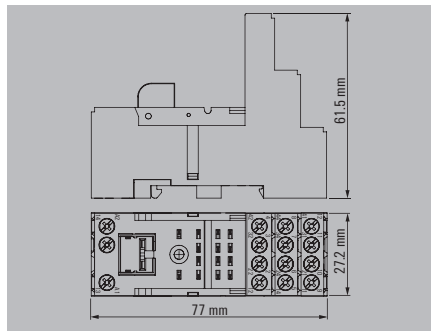
### Note

## RIDERSERIES – relay modules

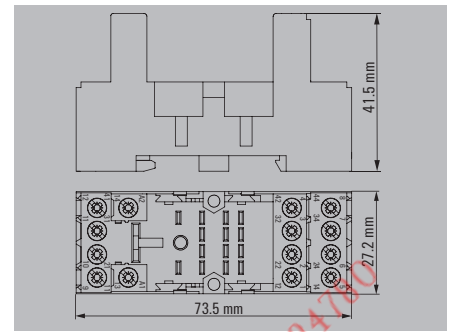
## Accessories for RCM relays, 4 CO contacts

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

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



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



## Technical data

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

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

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

## Ordering data

	Socket, DIN rail mounted
<b>Note</b>	

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

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

## Accessories

<b>Cross-connection</b>	8-pole
<b>Retaining clip</b>	Plastic retaining clip Metal retaining clip
<b>Markers</b>	Label, not PrintJet compatible, no MultiCard white
<b>LED module / protection modules</b>	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
<b>Screwdriver</b>	
<b>Note</b>	

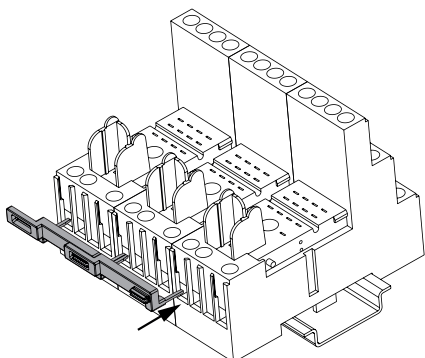
Type	Qty.	Order No.
SCM-H QV S	10	1132080000
SCM-H CLIP P	10	8869440000
SCM-H CLIP M	10	8869450000
SCM-H MARK	10	8869460000
ESG 9/26 SCM-H MC NE WS	80	2558330000
RIM-H 1 6/230V	10	8869580000
RIM-H 1 R 110/230V	10	8870830000
RIM-H 2 6/24VDC GN	10	8869600000
RIM-H 2 24/60VDC GN	10	8869680000
RIM-H 2 110/230VDC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

Type	Qty.	Order No.
SCM-H QV S	10	1132080000
SCM-H CLIP N	10	8875620000
SCM-H CLIP M	10	8869450000
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 24VUC VAR	10	8869710000
RIM-H 4 110VUC VAR	10	8869730000
RIM-H 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

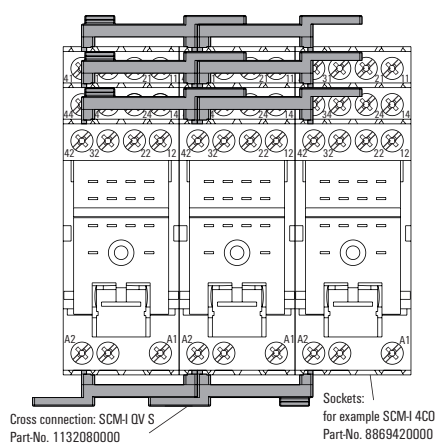
Article numbers for LED modules with red LED are to be found at [catalog.weidmueller.com](http://catalog.weidmueller.com)

Article numbers for LED modules with red LED are to be found at [catalog.weidmueller.com](http://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

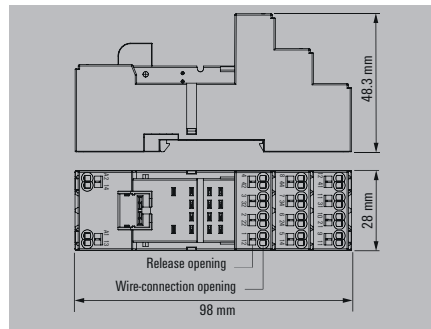


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## RIDERSERIES – relay modules

## Accessories for RCM relays, 4 CO contacts

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

Socket module with  
PUSH IN connection, 4 CO contacts

## Technical data

## Output

Rated switching voltage  
Max. switching voltage, AC  
Continuous current

250 V AC  
250 V  
6 A

## Rated data

Ambient temperature (operational)  
Storage temperature  
Approvals

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

## Insulation coordination

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

IP20  
≥ 4 mm  
2.5 kV<sub>eff</sub> / 1 min.  
2 kV<sub>eff</sub> / 1 min

## Connection data

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

1.5 / 0.75 / 1.5 mm<sup>2</sup>  
...  
12 mm

## Note

## Ordering data

Socket, DIN rail mounted

## Note

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

## Accessories

## Retaining clip

Plastic retaining clip  
Metal retaining clip

Type	Qty.	Order No.
SCM-I CLIP P	10	8869440000
SCM-I CLIP M	10	8869450000

## Cross-connection

2-pole

## Markers

Label, not PrintJet compatible, no MultiCard  
white

Type	Qty.	Order No.
SCM-I QV P	10	8870850000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000

## 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

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 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
RIM-I 4 24VUC VAR	10	8869710000

## Screwdriver

Standard

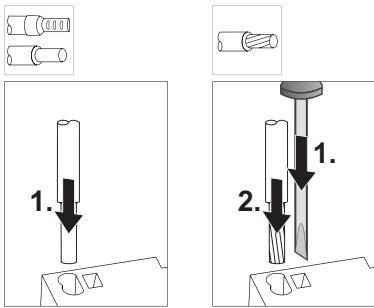
SDIS SL 0.6X3.5X100	1	1274660000
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## Note

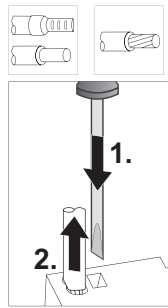
Article numbers for LED modules with red LED are to be found at  
catalog.weidmueller.com

**PUSH IN connection operation**

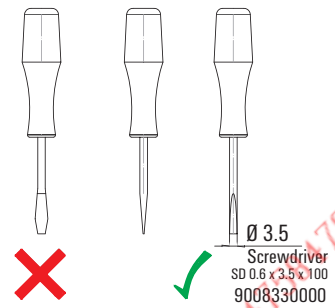
Insert connector



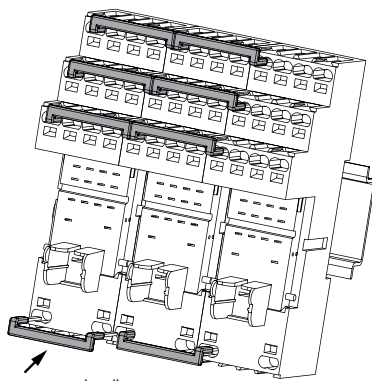
Remove connector



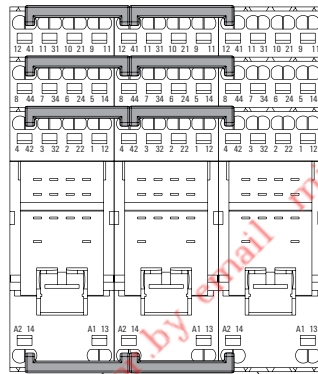
Recommended screwdriver



**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.

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www.tristo.by  
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Тел. +375 44 478 1780  
e-mail: trinsk176@tristo.by

B

# Signal monitoring in safety-critical circuits

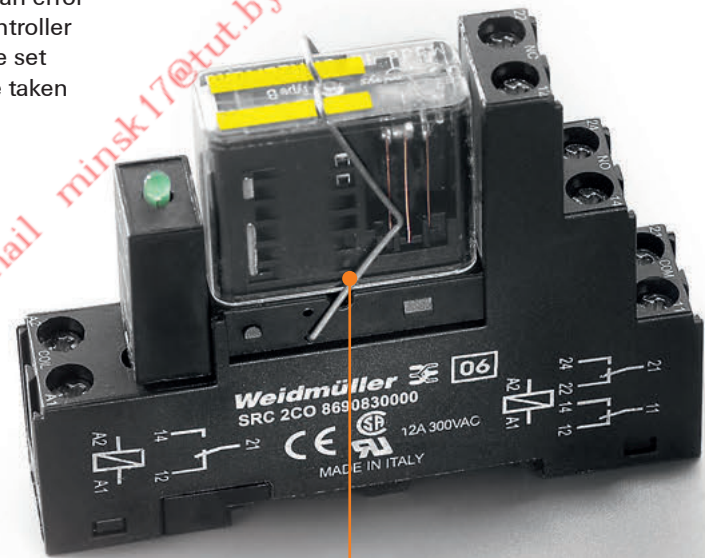
## Coupling relays with forcibly guided contacts

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.

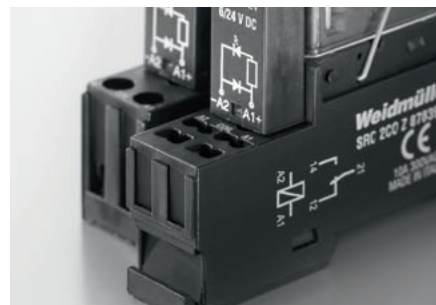
**Resistant to vibration**

A metal clip ensures that the relay module remains secure even under vibration / mechanical shock conditions.



**A variety of connection options**

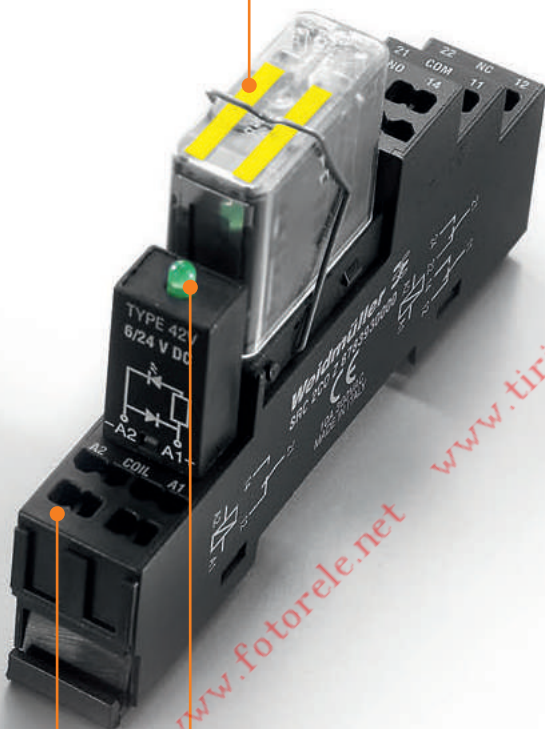
The base is available either with the proven screw clamp connection or the time saving tension clamp connection.





**Convenient**

Relay modules can be replaced quickly in the event of a fault without removing the connecting cable.

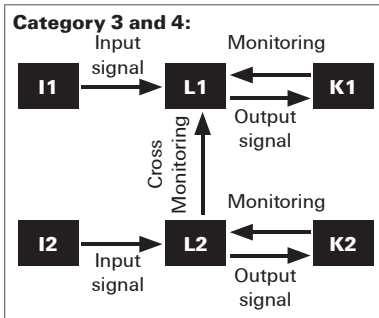


**On site diagnostics**

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).

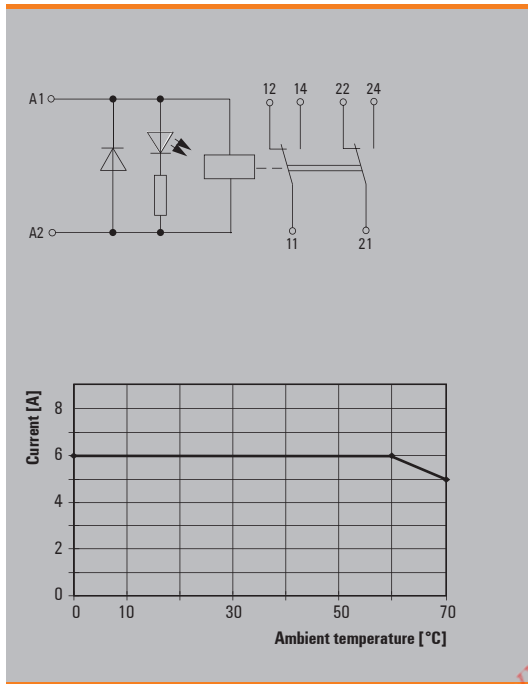


**RIDERSERIES FG – relay module with forcibly guided contacts**

**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



**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 <sup>8</sup> 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 <sub>eff</sub> / 1 min.		
Dielectric strength of neighbouring contacts	2.5 KV <sub>eff</sub> / 1 min.		
Dielectric strength to mounting rail			
Creepage and clearance distance input - output	≥ 10 mm		
Overvoltage category	III		
Pollution degree	2		
Dimensions			
Clamping range (nominal / min. / max.)	mm <sup>2</sup>	2.5 / 0.5 / 2.5	1.5 / 0.5 / 1.5
	mm	61.6 / 15.6 / 77.6	63.8 / 16 / 98.1
<b>Note</b>			

**Ordering data**

Input		24 V DC 2CO LED	
Rated control voltage		24 V DC	
Rated current AC / DC		7 / 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

г.Минск www.fotorele.net www.tiristor.by email minsk17@tut.by тел.+375447584780

# 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 A<sup>2</sup>s 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.



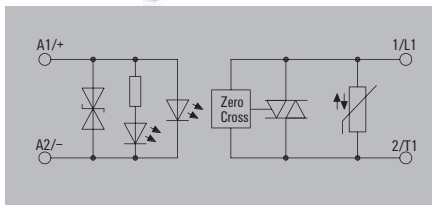
г.Мінск www.fotorele.by email: tiristor.by minsk17@tut.by тел.+375447584780

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	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	Triac (zero-cross switch)
Rated switching voltage	12...275 V AC
Continuous current	17 A (AC51) at 40 °C, 3.5 A (AC 53)
Min. switching current	5 mA
Max. switching current	25 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	≤ 10 ms / ≤ 10 ms
Output voltage frequency range	50...60 Hz
Pulse load, max. current	250 A (10 ms), non-recurrent
Load category	AC 51, AC 53
Load limit integral (I²t) <10 ms	340 A²s
General data	
Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE: cURus; EAC
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
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

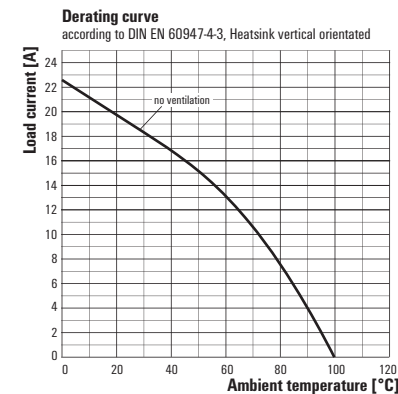
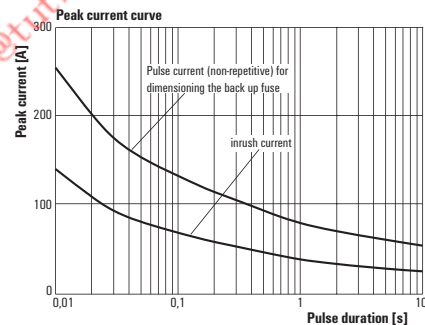
Screw connection
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Type	Qty.	Order No.
PSSR 24VDC/1PH AC 25A	1	1406200000

Note
Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

Accessories

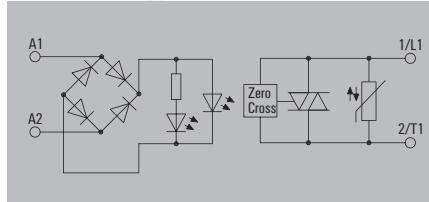
Note



**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 (I<sup>2</sup>t) <10 ms

**General data**

Ambient temperature (operational)  
Storage temperature  
Humidity  
Approvals  
Standards

**Insulation coordinates**

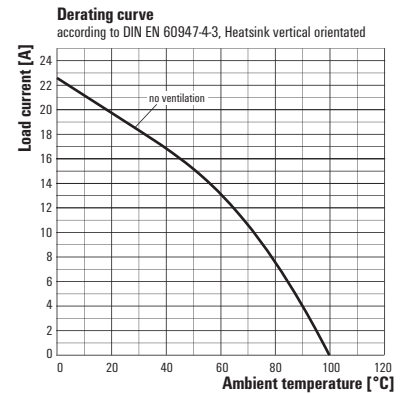
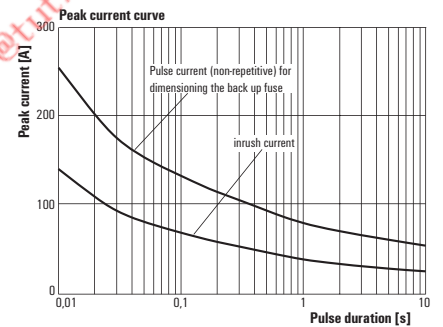
Impulse withstand voltage  
Clearance and creepage distances for control side - load side  
Overvoltage category  
Pollution degree

**Dimensions**

Clamping range (rated / min. / max.) control side mm<sup>2</sup>  
Clamping range (rated / min. / max.) load side mm<sup>2</sup>

**Note**

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 <sup>2</sup> 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



**Ordering data**

Screw connection

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**

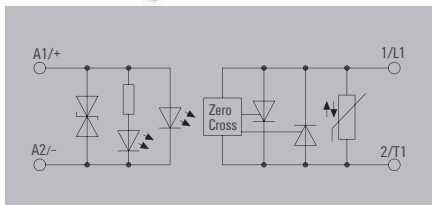
**Note**

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  
I<sup>2</sup>t = 6000 A<sup>2</sup>s (10 ms)
- Fusing with B circuit breaker possible

PSSR 24 V DC / 1 PH AC 35 A



Technical data

Control side	
Rated control voltage	3.5...32 V DC
Power rating	≤ 280 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 (zero-cross switch)
Rated switching voltage	24...510 V AC
Continuous current	23 A (AC51) at 40 °C, 12 A (AC 53)
Min. switching current	5 mA
Max. switching current	50 A
Voltage drop at max. load	≤ 1.35 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤ 10 ms / ≤ 10 ms
Output voltage frequency range	50...60 Hz
Pulse load, max. current	1100 A (10 ms), non-recurrent
Load category	AC 51, AC 53
Load limit integral (I <sup>2</sup> t) <10 ms	6000 A <sup>2</sup> s
General data	
Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE: cURus; EAC
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
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	mm <sup>2</sup> 1.5 / 0.13 / 3.3
Clamping range (rated / min. / max.) load side	mm <sup>2</sup> 6 / 1.5 / 6
Note	

Ordering data

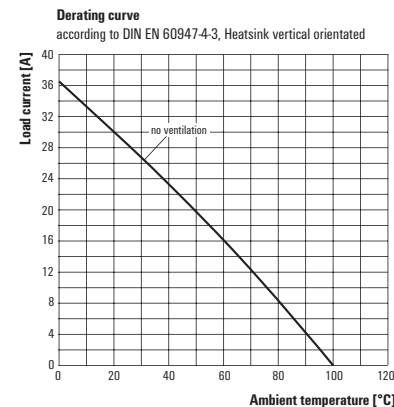
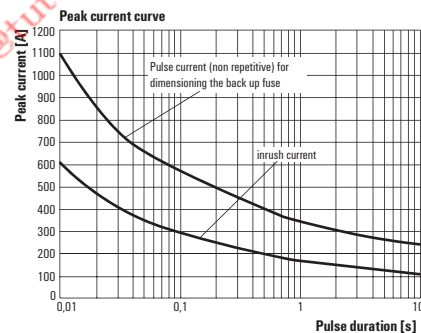
Screw connection
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Type	Qty.	Order No.
PSSR 24VDC/1PH AC 35A	1	1406210000

Note	Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.
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Accessories

Note	
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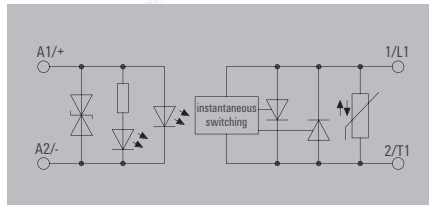




**PSSR - 1-phase**

- 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**

<b>Control side</b>	
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
<b>Load side</b>	
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
<b>General data</b>	
Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	
Standards	
<b>Insulation coordinates</b>	
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

<b>Dimensions</b>	
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
<b>Note</b>	

**Ordering data**

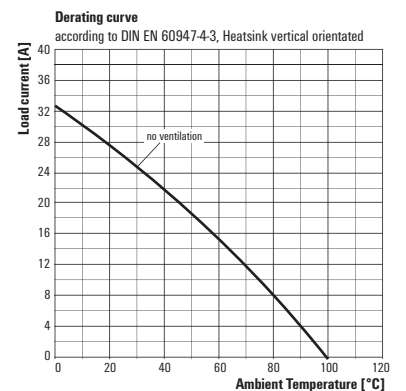
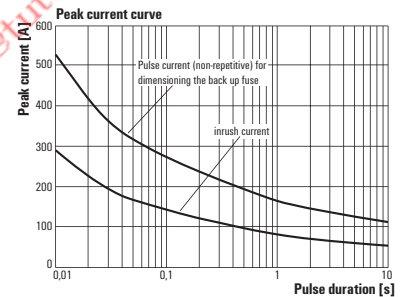
Screw connection
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Type	Qty.	Order No.
PSSR 24VDC/1PH AC 22A I	1	2531050000

<b>Note</b>	Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.
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**Accessories**

<b>Note</b>
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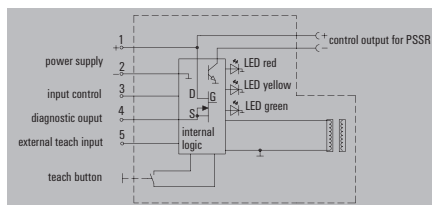


## Power solid-state relays

## 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)

4...30 V DC
≤ 2.5 mA
2 V DC
4...30 V DC
≤ 2.5 mA

## Supply

Supply voltage
Current consumption

8...30 V DC
≤ 20 mA (feedback output unloaded), ≤ 120 mA (switched feedback output max. loaded)

## 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

MOS-FET
8...30 V DC
0.1 A
$0.84 \times I_{teach}$
2 A
40 A
≤ 100 ms
≤ 100 ms

## Control output to the PSSR

Nominal switching voltage
Solid-state type
Switch-on delay
Switch-off delay

8...30 V DC
Transistor
≤ 15 ms
≤ 16 ms

## General data

Ambient temperature (operational)
Storage temperature
Humidity
Current sensor hole diameter
Approvals
Standards

-40 °C...80 °C
-40 °C...125 °C
40...85 % (indoor) no condensation
9 mm
CE, EAC
EN 60947-4-3, EN 60950

## Insulation coordinates

Impulse withstand voltage
Clearance and creepage distances for control side - load side
Overvoltage category
Pollution degree

III
2

## Dimensions

Clamping range (nominal / min. / max.)	mm <sup>2</sup>
Depth x width x height	mm

<b>Screw connection</b>
1.5 / 0.15 / 2.5
65 / 25 / 112.3

## Note

## Ordering data

Screw connection
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Type	Qty.	Order No.
PSSR 1PH CONTROL UNIT	1	1406230000

## Note

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

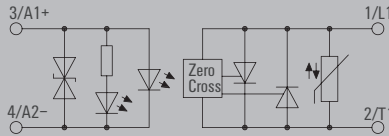
## Accessories

## 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 ( $I^2t$ ) <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

**Dimensions**

Clamping range (rated / min. / max.) control side mm<sup>2</sup>  
Clamping range (rated / min. / max.) load side mm<sup>2</sup>

**Note**

**Ordering data**

Screw connection

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  
52 A (AC51) at 40 °C, mounted on heatsink with 0.75 K/W  
5 mA  
60 A  
≤ 1.35 V  
≤ 1 mA  
No / Varistor  
≤ 10 ms / ≤ 10 ms  
50 / 60 Hz  
700 A (10 ms), non-recurrent  
AC 51  
2450 A<sup>2</sup>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

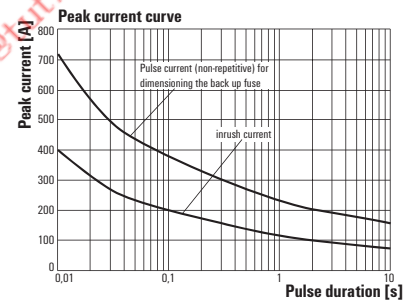
Type	Qty.	Order No.
PSSR 24VDC/1PH AC50A HP	2	1406240000

**Note**

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

**Accessories**

**Note**

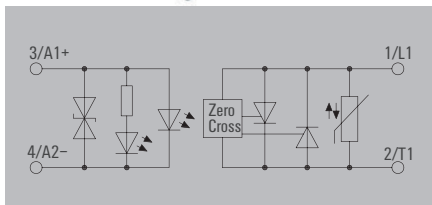


Power solid-state relays

PSSR - 1-phase

- Single-phase load circuit: 24–600 V AC / 75 A
- Compact design
- Zero-cross switch
- Noiseless, wear-free switching
- High capacity for handling surge currents  
I<sup>2</sup>t = 6000 A<sup>2</sup>s (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	3.5...32 V DC
Power rating	≤ 280 mW
Cut-in / dropout voltage	3 V / 2 V DC
Input frequency	10 Hz
Status indicator	Green LED
Protective circuit	Suppressor diode
Load side	
Solid-state type	Thyristor (zero-cross switch)
Rated switching voltage	24...600 V AC
Continuous current	62 A (AC51) at 40 °C, mounted on heatsink with 0.75 K/W
Min. switching current	5 mA
Max. switching current	90 A
Voltage drop at max. load	≤ 1.4 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤ 10 ms / ≤ 10 ms
Output voltage frequency range	50 / 60 Hz
Pulse load, max. current	1100 A (10 ms), non-recurrent
Load category	AC 51
Load limit integral (I <sup>2</sup> t) <10 ms	6000 A <sup>2</sup> s
General data	
Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE: cURus; EAC
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
Insulation coordinates	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 8 mm
Overtoltage category	III
Pollution degree	2

Dimensions	
Clamping range (rated / min. / max.) control side	mm <sup>2</sup> 1.5 / 0.75 / 2.5
Clamping range (rated / min. / max.) load side	mm <sup>2</sup> 10 / 1.5 / 10
Note	

Ordering data

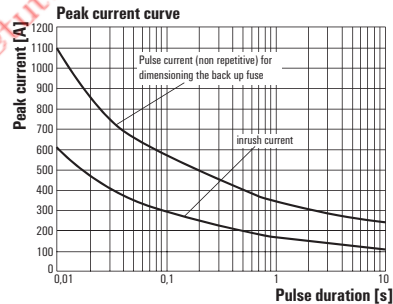
Screw connection
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Type	Qty.	Order No.
PSSR 24VDC/1PH AC75A HP	2	1406250000

Note	Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.
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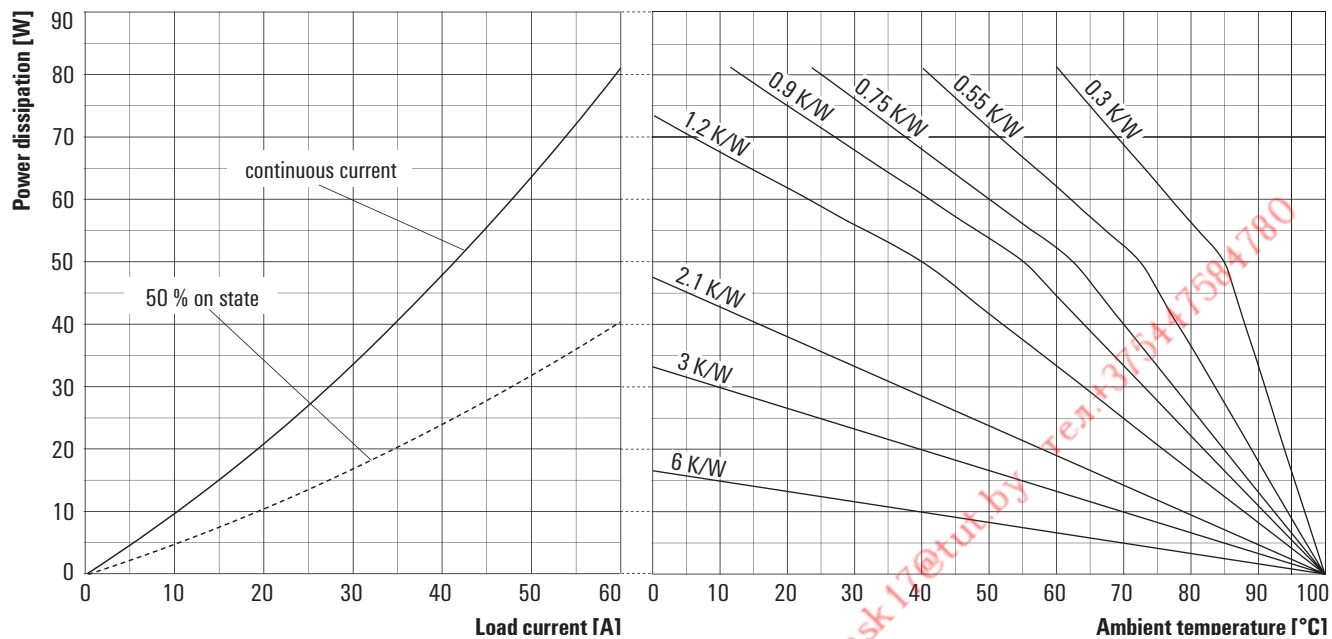
Accessories

Note	
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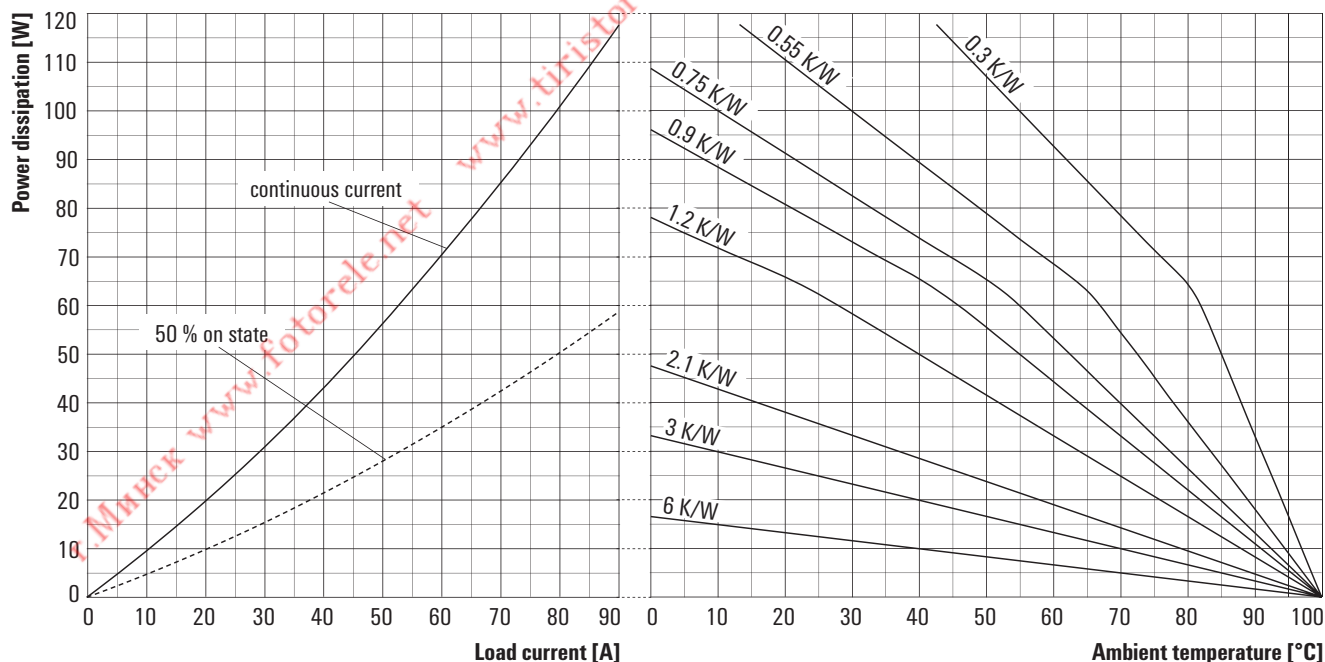


Power loss and selection of heat sink

Order No. 1406240000



Order No. 1406250000

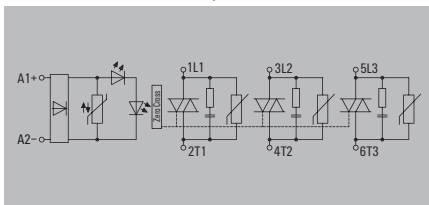


Power solid-state relays

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	8...30 V DC / 10...30 V AC
Power rating	0.1...2 W
Cut-in / dropout voltage	10 V / 4 V AC 8 V / 4 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	1.4 V
Voltage drop at max. load	< 1 mA
Leakage current	No / RC element, Varistor
Short-circuit-proof / Protective circuit	30 ms / 30 ms
Switch-on delay / Switch-off delay	50 / 60 Hz
Output voltage frequency range	300 A (10 ms), non-recurrent /
Pulse load, max. current / Cartridge fuse	AC 53: 3 x 12 A
Load category	1500 A <sup>2</sup> s
Load limit integral (I <sup>2</sup> t) <10 ms	
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
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (rated / min. / max.) control side	mm <sup>2</sup> 1.5 / 0.75 / 2.5
Clamping range (rated / min. / max.) load side	mm <sup>2</sup> 10 / 10 / 1.5
Note	

Ordering data

Screw connection
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Type	Qty.	Order No.
PSSR 24VDC/3PH AC 20A	1	8952130000

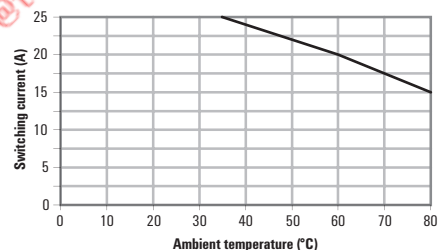
Note

Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

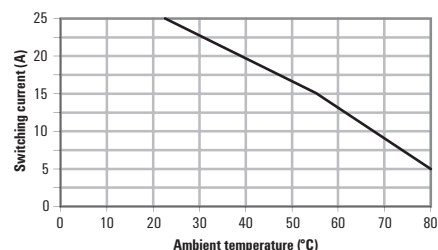
Accessories

Note
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Derating curve with moderate ventilation and 50 % operational running time



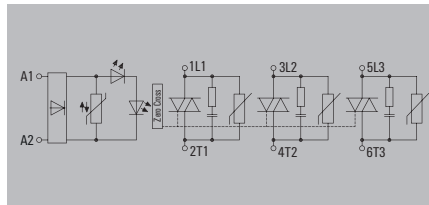
Derating curve without ventilation and in continual operation



**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	1.4 V
Voltage drop at max. load	< 1 mA
Leakage current	No / RC element, Varistor
Short-circuit-proof / Protective circuit	30 ms / 30 ms
Switch-on delay / Switch-off delay	50 / 60 Hz
Output voltage frequency range	300 A (10 ms), non-recurrent /
Pulse load, max. current / Cartridge fuse	AC 53: 3 x 12 A
Load category	1500 A²s
Load limit integral (I²t) <10 ms	
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	4 kV (1.2/50 µs)
Impulse withstand voltage	≥ 6.4 mm
Clearance and creepage distances for control side - load side	III
Overvoltage category	2
Pollution degree	
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	

Type	Qty.	Order No.
PSSR 230VAC/3PH AC 20A	1	8952140000

**Ordering data**

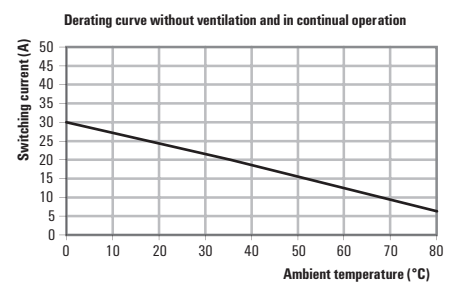
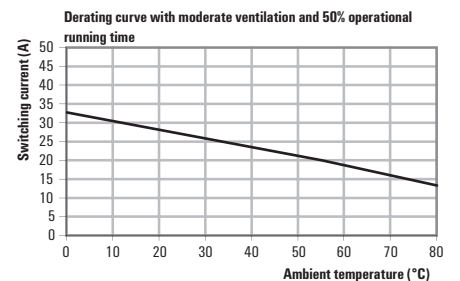
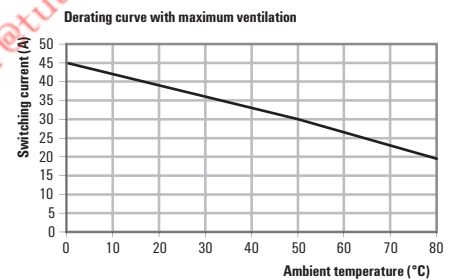
Screw connection

**Note**

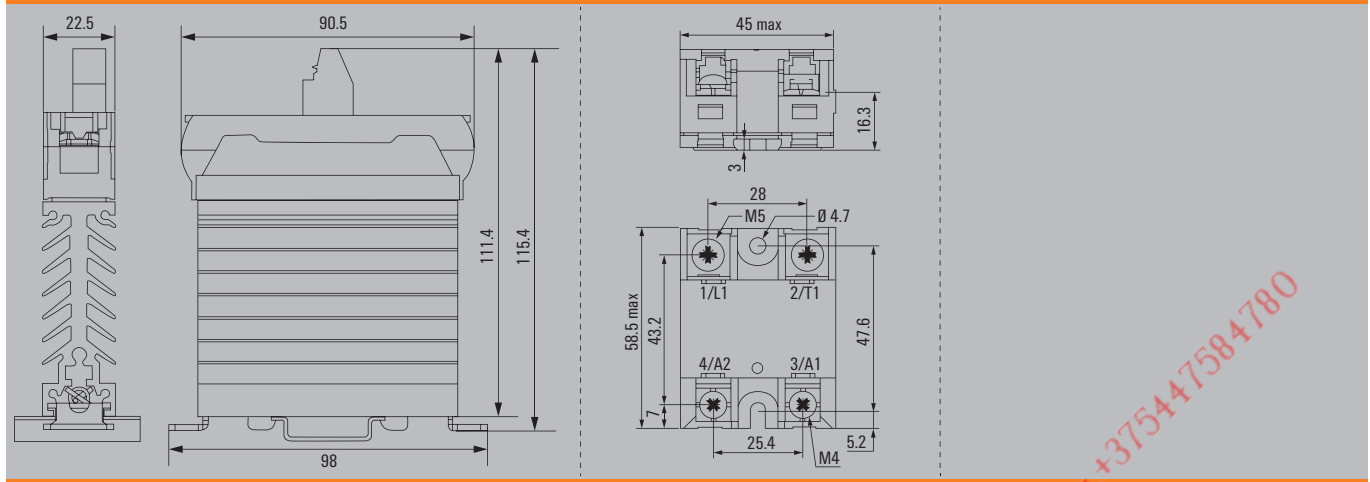
Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

**Accessories**

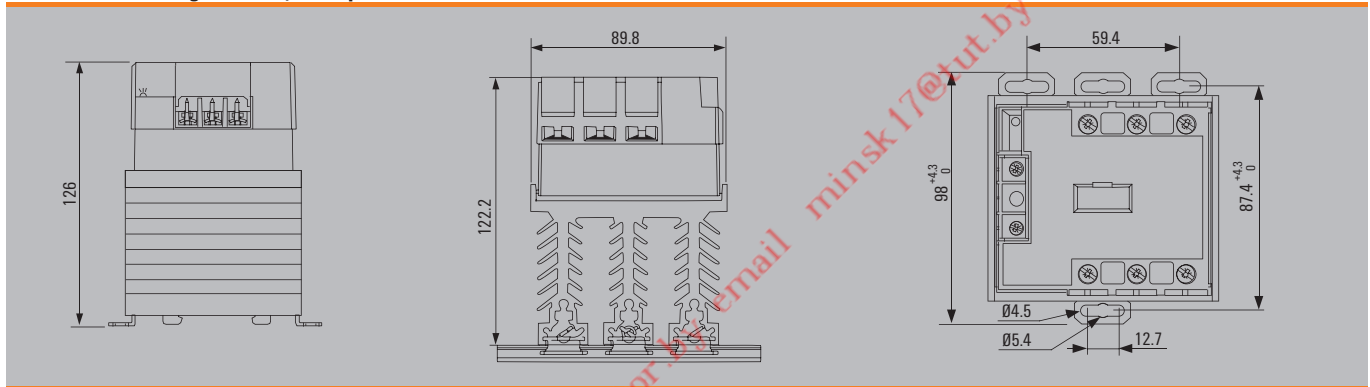
**Note**



Dimensioned drawing for PSSR, single-phase

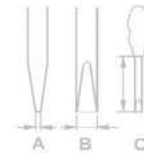


Dimensioned drawing for PSSR, three-phase



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

<b>Safety relay</b>	SAFESERIES SIL relays – Overview	D.2
	SAFESERIES SIL relays	D.6

г.Минск www.fotorele.net www.tiristor.by email minsk17@tut.by тел.+375447584780

# 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 overflow 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**

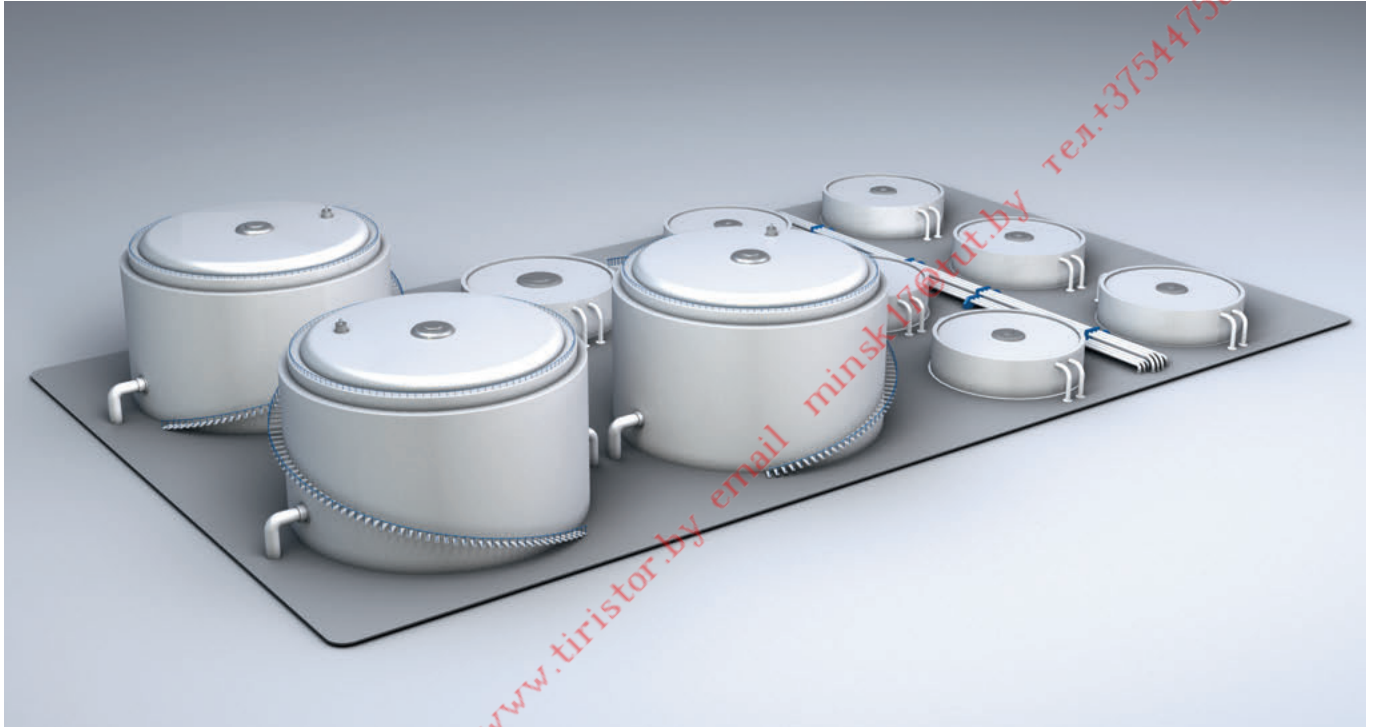
This universal device can be used for either the energise-to-safe or de-energise-to-safe operation modes, as you wish. This makes it suitable, e.g. for pump controllers or extinguishing systems.



## You have strict requirements for the functional reliability of your systems

We connect your safety-related applications reliably

D



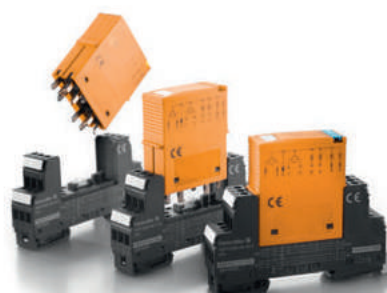
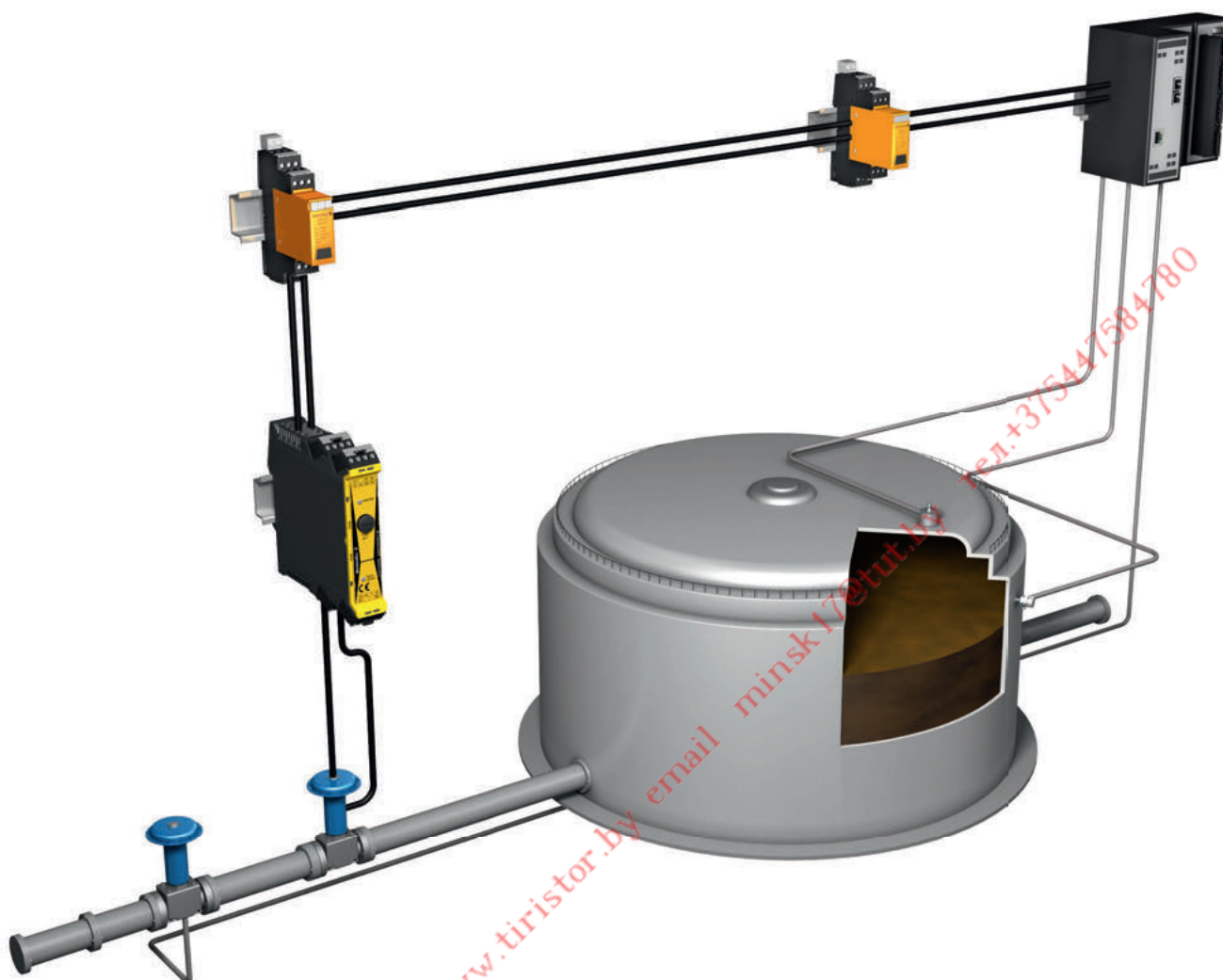
**Safe process and power technology is a top priority for you. For example, a reliable emergency shutdown, which initiates appropriate countermeasures in hazardous situations, is indispensable. These might extend to the automatic shutdown of the system or subsystems within it.**

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"

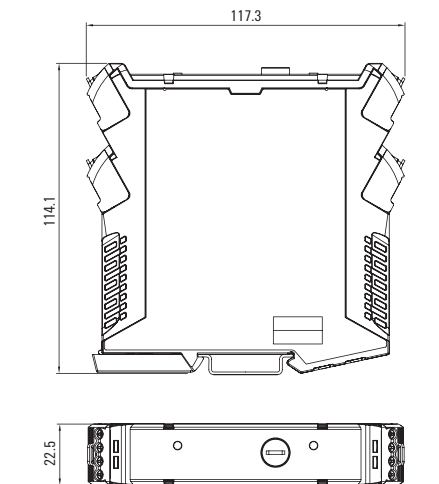
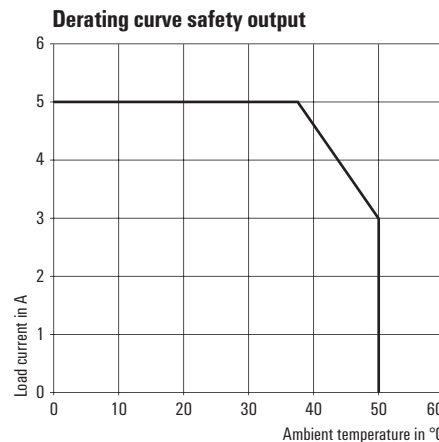
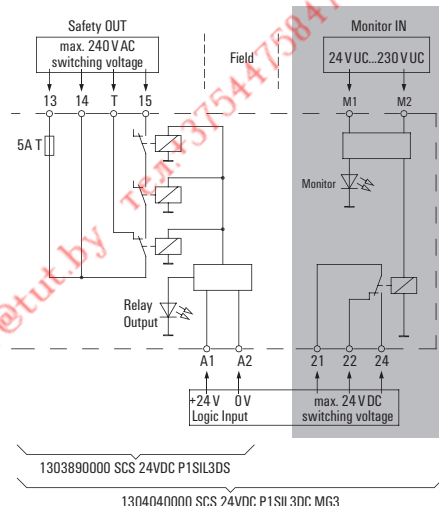
**SCS 24 V DC P1SIL3DS**



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.

**Technical data**

<b>Temperatures</b>	
Ambient temperature (operational)	-25...50 °C
Storage temperature	-40...85 °C
<b>General data</b>	
Noxious gas resistance to EN 60068-2-60	Yes (art. No.: 1304040000 only)
<b>Input (safety circuit)</b>	
Rated control voltage	24 V DC ± 20%
Guaranteed current consumption of 24 VDC -10%	35 mA
Power consumption	42 mA
Status indicator	LED yellow
<b>Input (monitor circuit)</b>	
Rated control voltage	24 V UC...230 V UC ± 10 %
Current consumption	23 mA @ 24 V DC, 4.4 mA @ 230 V AC
Status indicator	LED yellow
<b>Output (safety circuit)</b>	
Contact design	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 / 30 V DC
max. permitted switching current	8 A
min. switching power	10 mA @ 12 V
max. switching power	2000 VA
Switch-on time	typ. 7 ms
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
<b>Output (monitor circuit)</b>	
Contact design	CO contact
max. permitted switching voltage	24 V DC
max. permitted switching current	30 mA
min. switching power	1 mA @ 1 V
Base material of the contact	AgNi 5µm Au
Switch-on time	typ. 17 ms
Short-circuit-proof	No
<b>Insulation coordination</b>	
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 <sub>eff</sub> / 1 min
Dielectric strength output - output	4 kV <sub>eff</sub> / 1 min
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 1 min.
Impulse withstand voltage	6 kV (1.2/50 µs)
Overvoltage category	III
Pollution degree	2
<b>Further details of approvals / standards</b>	
Standards	EN 50178, EN 61000, EN 61326-3-2
<b>Dimensions</b>	
Clamping range (nominal / min. / max.)	1.5 / 0.13 / 2.5
Depth x width x height	114.1 / 22.5 / 117.3
<b>Note</b>	



**Ordering data**

	with monitoring	
	without monitoring	
	with monitoring and G3 gas-corrosion resistant	
<b>Note</b>		

Type	Qty.	Order No.
SCS 24VDC P1SIL3DS M	1	1303760000
SCS 24VDC P1SIL3DS	1	1303890000
SCS 24VDC P1SIL3DS MG3	1	1304040000

**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"

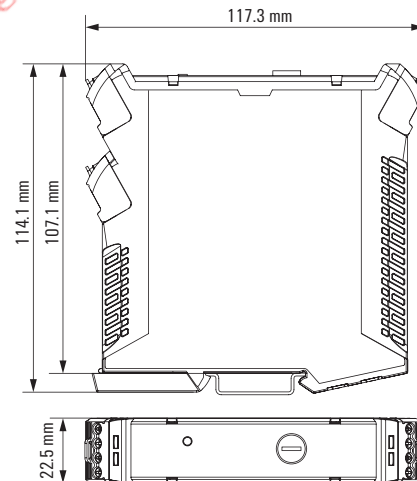
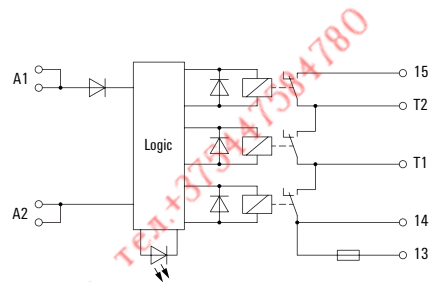
**Technical data**

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 <sub>eff</sub> /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 61010-2-201:2013 + AC:2013, EN 61326-1:2013, EN 61326-3-1:2008, EN 61326-3-2:2008

**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.



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

Dimensions	
Clamping range (nominal / min. / max.)	1.5 / 0.13 / 2.5
Depth x width x height	114.1 / 22.5 / 117.3
Note	

**Ordering data**

with monitoring
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Type	Qty.	Order No.
SCS 24VDC P1SIL3DS I	1	2500980000

Note
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**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"

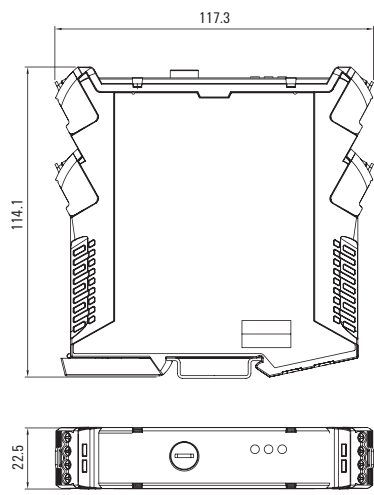
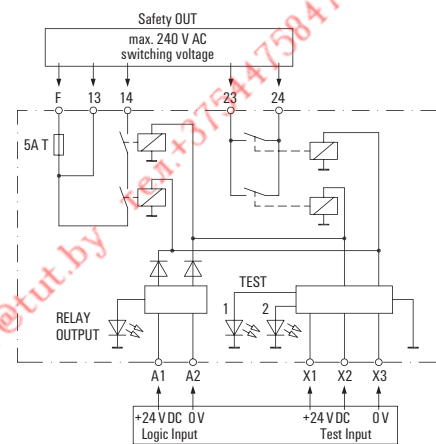
**SCS 24 V DC P2SIL3DSES**



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.

**Technical data**

<b>Temperatures</b>	
Ambient temperature (operational)	-25 °C...50 °C
Storage temperature	-40 °C...85 °C
<b>Input (safety circuit)</b>	
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
<b>Test inputs</b>	
Rated control voltage	24 V DC
Status indicator	LED red flashing: test input is triggered
Number of test inputs	2
<b>Output (safety circuit)</b>	
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
<b>Insulation coordination</b>	
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 <sub>eff</sub> / 1 min
Dielectric strength output - output	4 kV <sub>eff</sub> / 1 min
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 1 min.
Impulse withstand voltage	6 kV (1.2/50 µs)
Overvoltage category	III
Pollution degree	2
<b>Further details of approvals / standards</b>	
Standards	EN 50178, EN 61000, EN 61326-3-2



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

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

**Ordering data**

<b>Type</b>		
SCS 24VDC P2SIL3DSES	Qty.	Order No.
	1	1319270000

<b>Type</b>		
SCS 24VDC P2SIL3DSES	Qty.	Order No.
	1	1319270000

<b>Note</b>	
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<b>Note</b>	
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SIL3 relays

- Positively-driven contacts
- 2-channel design
- Insert according to EN 50156
- TÜV certified "Approved Safety Function"

SCS 24 V DC P2SIL3ES

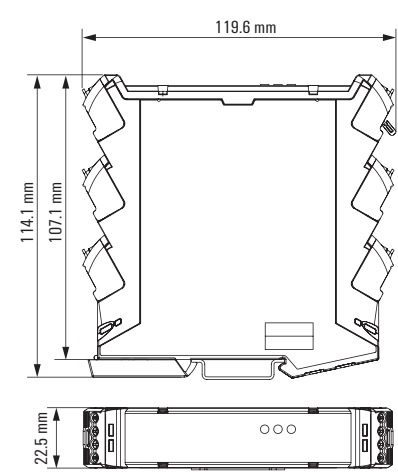
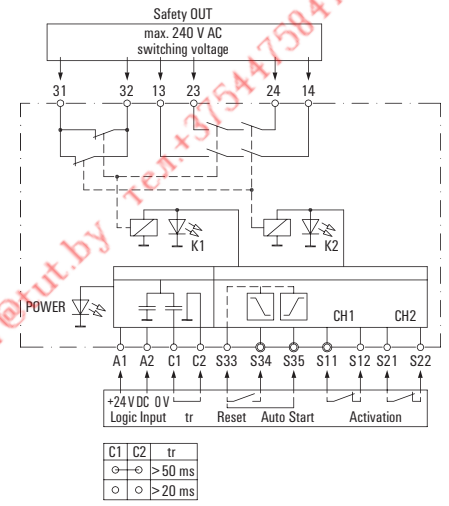


The feed-in of fuel must be interrupted as soon as a boiler plant reaches any safety criterion limits. The safety relay SCS 24VDC P2SIL3ES enables you to carry out a safety shutdown of the fuel supply, to safety level SIL 3.

Technical data

<b>Temperatures</b>	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-40 °C...85 °C
<b>Start circuit</b>	
Operating voltage	22 V DC, from internal power supply
Function	falling edge (button via S33/S34), rising edge (permanent bridge via S33/S35)
<b>Input (supply)</b>	
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)
<b>Monitoring circuit</b>	
Operating voltage	22 V DC, from internal power supply
Input	2, each externally bridgeable
<b>Output (release circuit)</b>	
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
<b>Feedback output</b>	
Contact version	1 NC positively-driven (EN 50205 type B)
Switching voltage AC, max.	250 V
Max. switching current	1 A
<b>Insulation coordination</b>	
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 <sub>eff</sub> / 1 min
Dielectric strength output - output	4 kV <sub>eff</sub> / 1 min
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 1 min.
Impulse withstand voltage	6 kV (1.2/50 μs)
Overvoltage category	III
Pollution degree	2
<b>Further details of approvals / standards</b>	
Standards	EN 50178, EN 61000, EN 61326-3-2, EN ISO 13849-1 (PLe)
<b>Dimensions</b>	
Clamping range (nominal / min. / max.)	1.5 / 0.13 / 2.5 mm <sup>2</sup>
Depth x width x height	114.1 / 22.5 / 119.6 mm
<b>Note</b>	

<b>Temperatures</b>	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-40 °C...85 °C
<b>Start circuit</b>	
Operating voltage	22 V DC, from internal power supply
Function	falling edge (button via S33/S34), rising edge (permanent bridge via S33/S35)
<b>Input (supply)</b>	
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)
<b>Monitoring circuit</b>	
Operating voltage	22 V DC, from internal power supply
Input	2, each externally bridgeable
<b>Output (release circuit)</b>	
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
<b>Feedback output</b>	
Contact version	1 NC positively-driven (EN 50205 type B)
Switching voltage AC, max.	250 V
Max. switching current	1 A
<b>Insulation coordination</b>	
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 <sub>eff</sub> / 1 min
Dielectric strength output - output	4 kV <sub>eff</sub> / 1 min
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 1 min.
Impulse withstand voltage	6 kV (1.2/50 μs)
Overvoltage category	III
Pollution degree	2
<b>Further details of approvals / standards</b>	
Standards	EN 50178, EN 61000, EN 61326-3-2, EN ISO 13849-1 (PLe)
<b>Dimensions</b>	
Clamping range (nominal / min. / max.)	1.5 / 0.13 / 2.5 mm <sup>2</sup>
Depth x width x height	114.1 / 22.5 / 119.6 mm
<b>Note</b>	



Ordering data

<b>Ordering data</b>	
<b>Note</b>	

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
SCS 24VDC P2SIL3ES	1	1319280000
<b>Note</b>		

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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

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## 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.

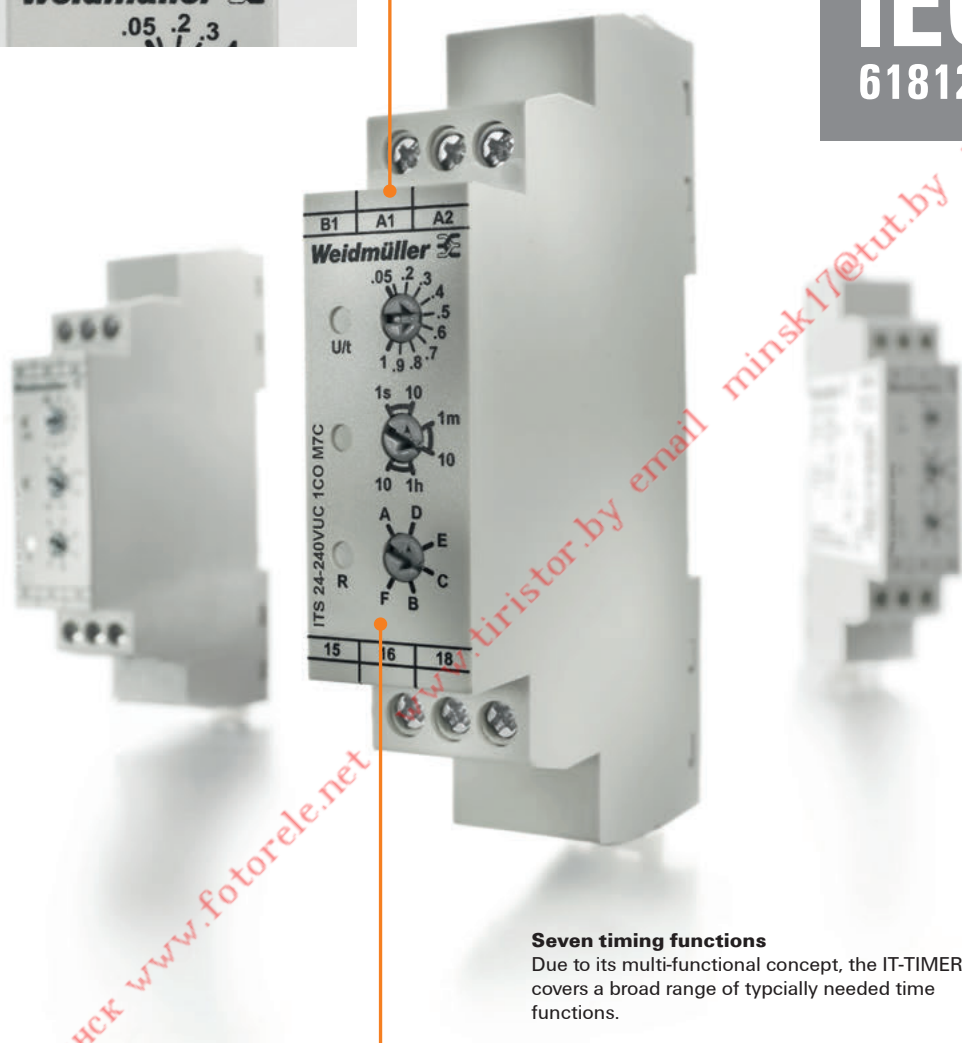
**Multi-voltage input**

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.



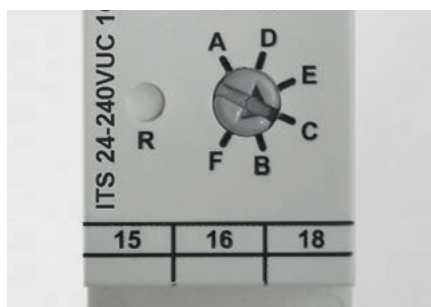
**Global standard**

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.

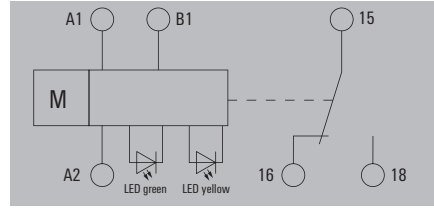
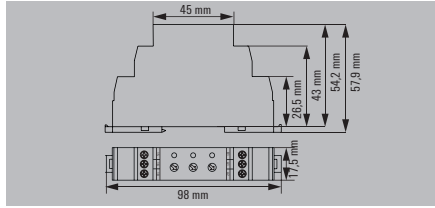


IT TIMER – Timing relay

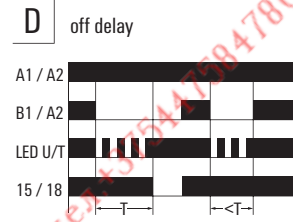
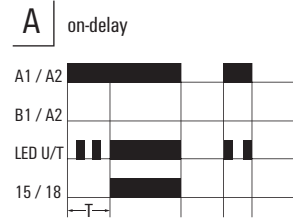
Timing relay

- 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 <sup>6</sup> 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 <sup>2</sup>
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

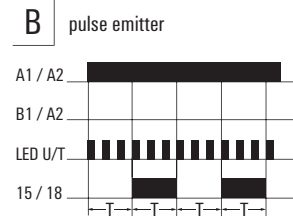
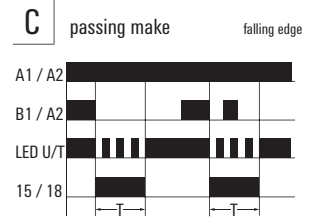
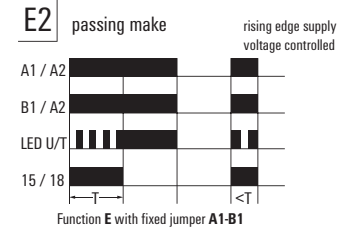
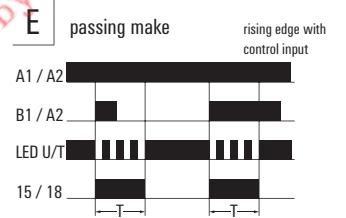
Ordering data

	Screw connection
	Screw connection

Note

Accessories

Note
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# Installation timer

The electronic timer from the BT product range offers ideal solutions for industrial applications.

## The BT product range provides the following functions:

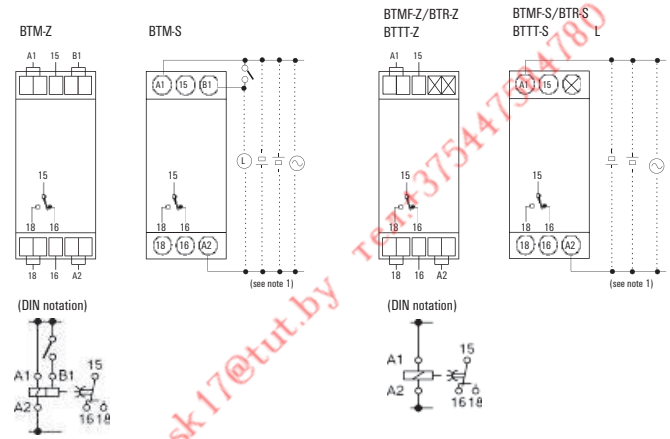
- Pick-up delay (BTR)
- Pulse emitter (BTTT)
- Multifunction with control input (BTM)
- Multifunction without control input (BTMF)
- Star-delta change-over


## Time ranges and power supplies for timer

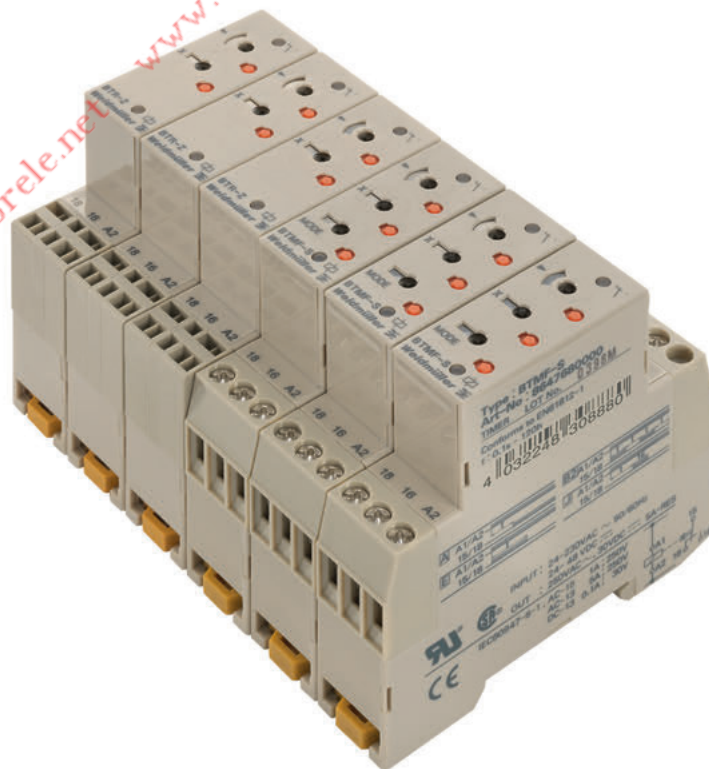
Using the central button, you can select the functions of the modules over either 4 or 8 time ranges.

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

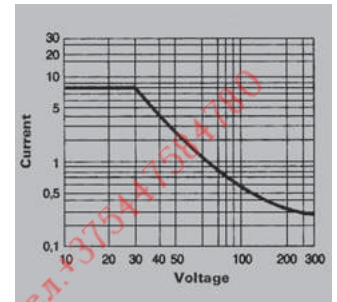
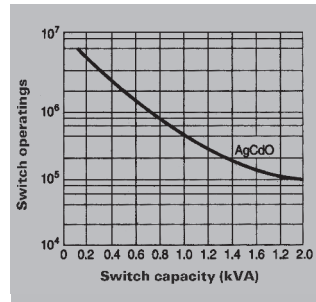
The units offers the following connection technologies:

Screw connection

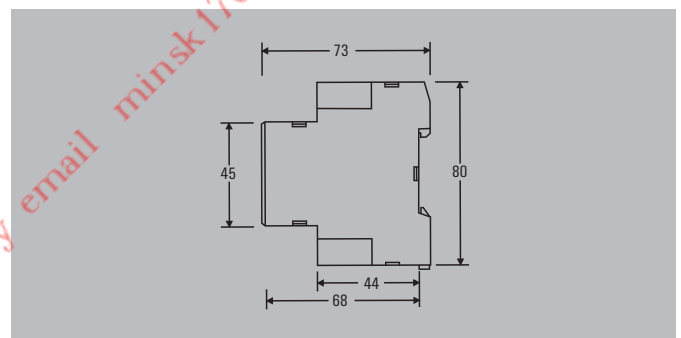
- 2 x 1.5 mm<sup>2</sup> with wire end ferrule,
- 2 x 2.5 mm<sup>2</sup> without wire end ferrule

Tension clamp connection

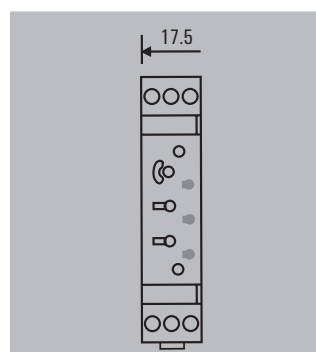
- 2 x 1.5 mm<sup>2</sup> with wire end ferrule,
- 2 x 1.5 mm<sup>2</sup> without wire end ferrule



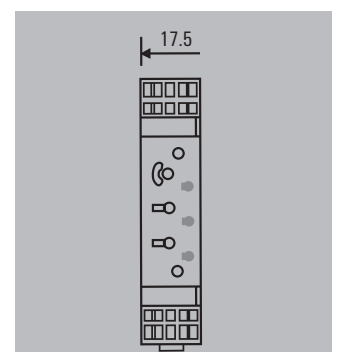
### Dimensions



### Screw connection



### Tension clamp connection



Installation timer

- Screw or tension clamp connection
- LED status indicator
- Approvals

Input: voltage present  
 Output: output active  
 508  
 EN 61812-1  
 IEC 60947-5-1  
 IEC 60664-1  
 EN 55011

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 <sup>7</sup> switching cycles (no load, 1800/h) electrical min. 10 <sup>6</sup> 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		
	<b>Screw connection</b>	<b>Tension clamp connection</b>	
Clamping range (nominal/min/max)	mm <sup>2</sup> 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)



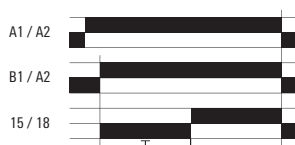
Ordering data

Connection system	Type	Qty.	Order No.
Screw connection	BTM-S	1	8647700000
Tension clamp	BTM-Z	1	8647710000

Functions

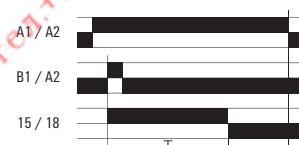
Function A - on-delay

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.



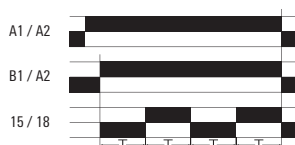
Function E - passing make function (Watchdog)

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.



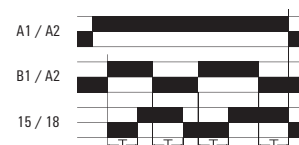
Function B - pulse emitter (starting at normal position)

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).



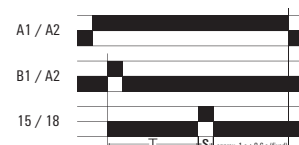
Function B2 - pulse emitter (starting at operated position)

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.



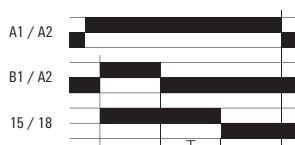
Function C - interval time-delay

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.



**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 (BTR)**



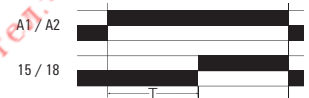
**Ordering data**

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.



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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.



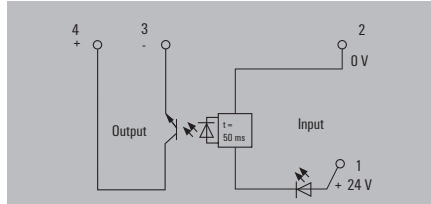
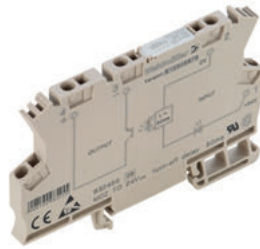
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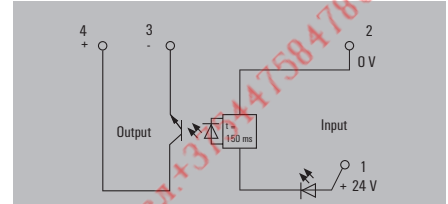
**Miniconditioner MCZ T0**

- 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 <sub>eff</sub> / 1 s
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 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 <sub>eff</sub> / 1 s
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 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 <sub>eff</sub> / 1 s
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 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 <sup>2</sup> 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 <sup>2</sup> 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 <sup>2</sup> 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	
Note	

Type	Qty.	Order No.
MCZ T0 24VDC/50MS	10	8324590000
Note		

Type	Qty.	Order No.
MCZ T0 24VDC/150MS	10	8286410000
Note		

**Accessories**

Note
AP MCZ end plate 8389030000

Note
AP MCZ end plate 8389030000

Note
AP MCZ end plate 8389030000

# Service and support

<b>Service and support</b>	Our expertise for your requirements	V.2
	Benefit from optimum support when using our products	V.4

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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.

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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.



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### Product software

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### Engineering software

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V

# Technical appendix/Glossary

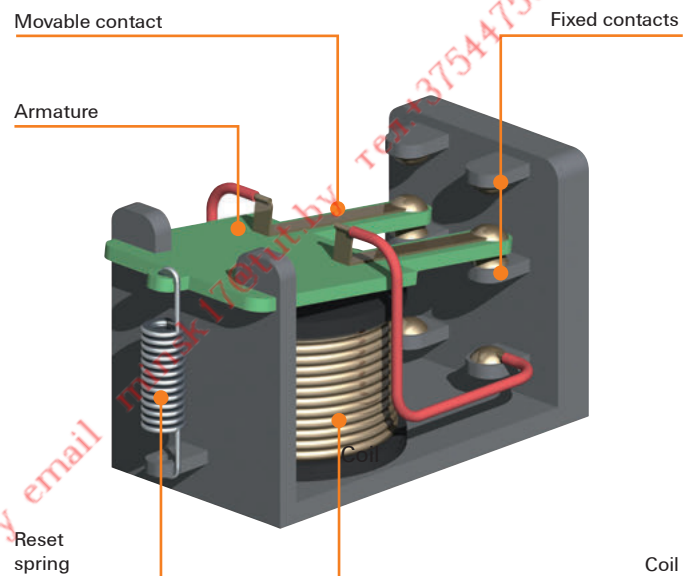
<b>Technical appendix/Glossary</b>	Relay modules and solid-state relays – Comparison	W.2
	Technical appendix: Relay modules	W.4
	Glossary: Relay modules	W.8
	Technical appendix: Solid-state relays	W.28
	Glossary: Solid-state relays	W.36

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# 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.

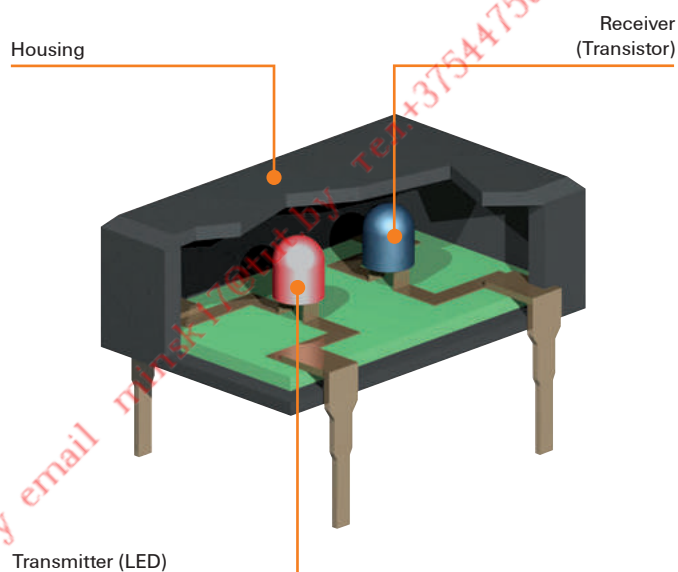


\*) Refer to page W.8 in the Glossary for a detailed explanation of this term.

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

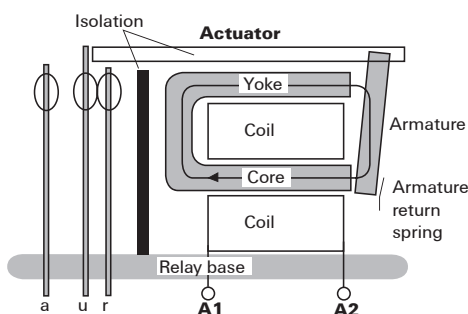
There are two alternative methods that make a relay module suitable for use in industrial applications: mounting onto a PCB – in combination with the corresponding assembly techniques and circuitry – or plugging onto a specially designed relay base.

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.



W



## 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.

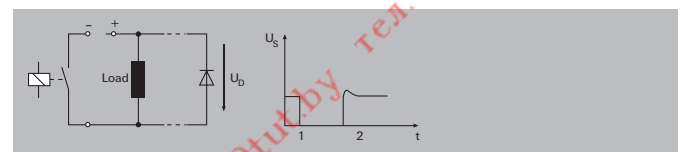
For applications that call for **improved contact reliability** or low currents/voltages, conventional relays with hard-plated gold contacts are preferable because they do not erode and therefore operate more reliably.

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

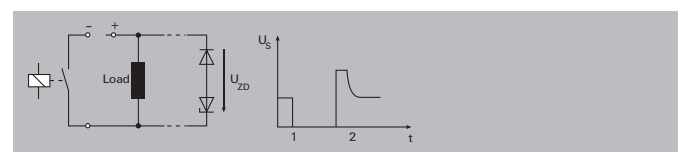


### Free-wheeling diodes (DC)

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



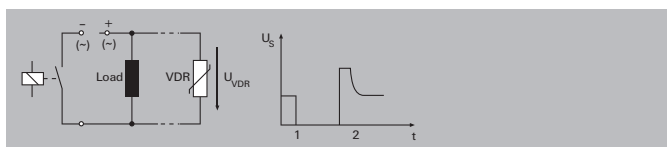
### Zener diode / suppressor diode (DC)

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

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### Varistor

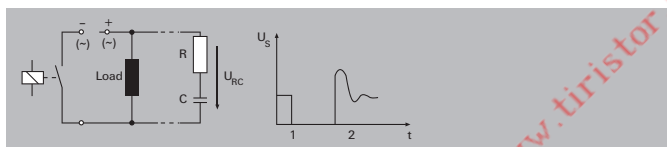


#### Varistor (AC/DC)

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

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# Glossary: Relay modules

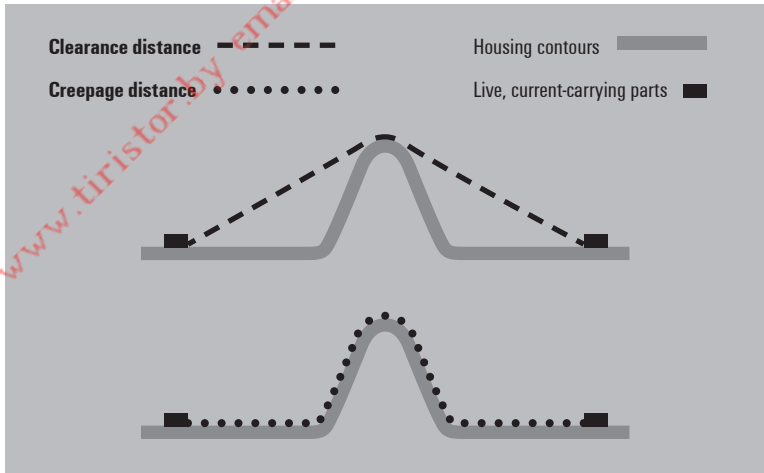
## A

<b>AC</b>	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.
<b>AC coil, alternating current coil</b>	Relay; excitation with alternating current (AC). Specifications are valid for 50 Hz, unless otherwise indicated.
<b>Adhesion (contacts)</b>	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.
<b>Approvals and testing marks</b>	<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

<b>B10</b>	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.
<b>Bounce (chatter)</b>	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.
<b>Bounce times</b>	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.
<b>Breaking capacity</b>	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.
<b>Burn-off</b>	Loss of contact material due to switching electrical arcs.

## W

<b>C</b>	
<b>CE</b>	<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>
<b>Clearance and creepage distances</b>	<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> 
<b>Coil resistance</b>	<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 (&gt; 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>
<b>Coil specifications</b>	<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.

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**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.

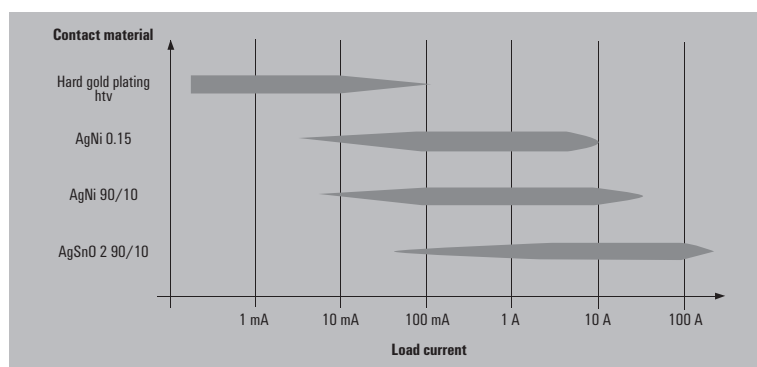
**Silver Nickel AgNi90/10** - High resistance to burn-off; minimal tendency towards cold welding; higher contact resistance than AgNi0,15; circuits with medium to high loads; DC and AC circuits (solenoid valves, fans, heaters); not suitable for high capacitive in-rush currents; range of use > 12 V, 10 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.

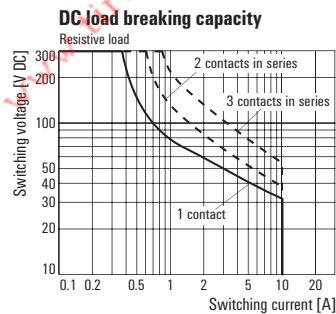
**Tungsten W** – highest melting point; for high switching frequency at minimal duty cycle; as a lead contact in circuits with high in-rush and switch-off loads.



<b>Continuous current limit</b>	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 $I_{th}$ . 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.
<b>Continuous current</b>	The current that can be continuously conducted without exceeding the contact-overheating values under defined conditions.
<b>Continuous operation</b>	Operating mode in which a relay remains energised until it reaches thermal equilibrium.

**D**

<b>DC</b>	Refers to the electrical variables such as voltage or current (DC, DC voltage) that are not dependent on time.
<b>DC switch-off capacity, Direct-current switch-off capacity</b>	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!



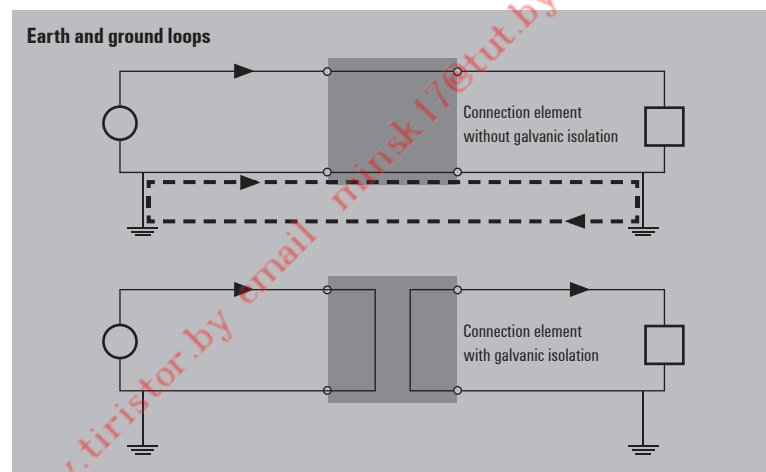


<p><b>Derating / derating curve</b></p>	<p>The continuous current is reduced at higher ambient temperatures; this is shown using a derating curve (a load reduction curve). Current flow generates heat, which increases as the current increases. Electrical components have an upper temperature limit which 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 data-bbox="592 786 1358 1122" style="border: 1px solid black; padding: 5px;"> <p><b>Derating curve</b></p> </div>
<p><b>Dielectric strength, test voltage</b></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><b>Dimensions</b></p>	<p>Dimensions in millimetres.</p> <div data-bbox="592 1279 1034 1603" style="border: 1px solid black; padding: 5px;"> </div>
<p><b>DIN rail</b></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><b>Duty cycle, relative duty cycle</b></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

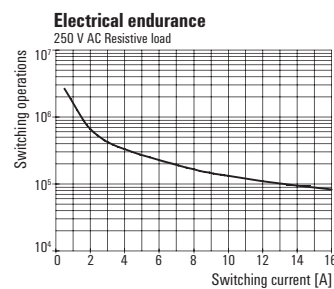
**Earth and ground loops**

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.



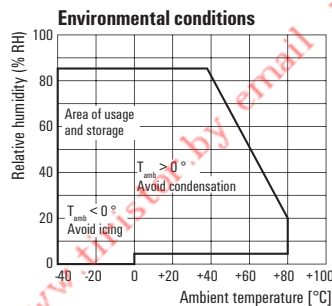
<b>Electrical lifespan, lifespan of contact</b>	<p>Number of switching cycles for a relay with electrical contact load under full operational capacity (according to IEC 61810-1 and IEC 61810-2). Unless indicated otherwise, the contact data and electrical lifespan are valid under the following conditions:</p> <ul style="list-style-type: none"> <li>• On NO contact,</li> <li>• AC mains frequency of 50 Hz,</li> <li>• 50 % relative duty cycle,</li> <li>• Nominal switching frequency,</li> <li>• Contact load, schedule A,</li> <li>• Resistive load,</li> <li>• Rated voltage (coil),</li> <li>• Ambient temperature 23 °C,</li> <li>• Protection degree RTII - flux-proof</li> <li>• Individual assembly</li> <li>• Vertically installed (the connections of a PCB relay point downwards).</li> </ul> <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>
<b>Error, relay failure</b>	<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"> <li>• Malfunction On contact closing</li> <li>• Malfunction on contact opening (contact bridging for CO contact, as special type of malfunction during contact opening) or as</li> <li>• Insufficient dielectric strength.</li> </ul> <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>
<h2 style="margin: 0;">F</h2>	
<b>Flammability according to UL</b>	<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**

<b>Galvanic isolation</b>	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**

<b>Humidity / condensation</b>	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.
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**I**

<b>Impulse withstand voltage</b>	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.
<b>Inductive loads</b>	Refer to usage categories.
<b>Inrush current</b>	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.

**W**

<b>Insulating material group</b>	<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 &lt; 600  Group IIIa 175 CTI &lt; 400  Group IIIb 100 CTI &lt; 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>
<b>Insulation according to EN 50178</b>	<p>Specifications for insulation coordination with:</p> <ul style="list-style-type: none"> <li>• Type of insulation</li> <li>• Nominal voltage of the supply system</li> <li>• Pollution severity level</li> <li>• Impulse withstand voltage</li> <li>• Surge voltage category</li> </ul>

## M

<b>Max. switching current</b>	The max. switching current indicates the maximum level of current that can be switched.
<b>Max. switching frequency at rated load</b>	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)).
<b>Max. switching power</b>	The switching capacity is calculated as the product of the switching voltage and the switching power (in VA for AC; in W for DC).
<b>Mechanical service life</b>	Number of switching cycles for de-energised relay contacts, where a relay must remain functional within specific conditions.
<b>Micro-switch-off</b>	<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>
<b>Minimum switching capacity</b>	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.
<b>Mono-stable relay, switching behaviour</b>	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.
<b>Mono-stable, non-polarized relay, neutral relay</b>	The switch position change in a neutral, mono-stable relay does not depend on the polarity of its excitation.

<b>Mounting distance</b>	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. Also relevant for this definition: <ul style="list-style-type: none"> <li>• 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),</li> <li>• Individual installation: components are mounted with gaps so that there is NO thermal influences from adjacent components.</li> </ul>
<b>Mounting position</b>	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.

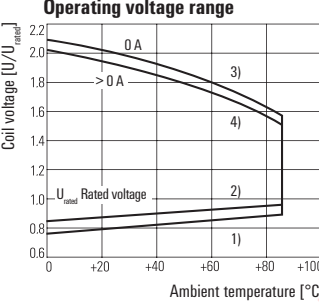
**N**

<b>Nominal current (contact)</b>	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: <ul style="list-style-type: none"> <li>• Contact current, switching current</li> <li>• Continuous current limit</li> </ul> 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.
<b>Nominal switching voltage (contact)</b>	Voltage between the switching contacts - before the contact closes or after it opens.
<b>Nominal torque</b>	The specified value for the torque of the screws (screw connection) must not be exceeded.
<b>Number of contacts</b>	Number of working contacts in a relay (normally-open, normally-closed or change-over)

**O**

<b>Operating temperature</b>	Permissible ambient temperature – relative to a specific relative humidity – at which a product should be operated at nominal load.
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**W**

<b>Operational voltage range</b>	<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 <math>U_0</math> (without pre-excitation)  Curve 2: response time/minimum voltage <math>U_1</math> (after pre-excitation)  Curve 3: maximum voltage <math>U_2</math>, contact current = 0 A  Curve 4: maximum voltage at contact current <math>I_{nom}</math></p> 
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## P

<b>Packing unit</b>	Indicates the smallest amount (a pack, for example) or the quantity per carton.
<b>Plug-in cycles</b>	Sockets and accessories are designed for 10 insertion cycles without electrical load – unless otherwise specified.
<b>Pollution severity level</b>	<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"> <li>there is no contamination or only dry occurrences of non-conductive pollution. The pollution has no influence.</li> </ul> <p>Pollution degree 2:</p> <ul style="list-style-type: none"> <li>there is only non-conductive pollution. Temporary occurrences of conductivity caused by condensation may also occur.</li> </ul> <p>Pollution degree 3:</p> <ul style="list-style-type: none"> <li>conductive pollution or dry, non-conductive pollution that can become conductive due to condensation is likely to occur.</li> </ul> <p>Pollution degree 4:</p> <ul style="list-style-type: none"> <li>the contamination leads to continual conductivity which can be caused by contaminants such as conductive dust, rain or snow.</li> </ul> <p>Note:  Pollution degree 3 is typical for industrial environments and similar settings; pollution degree 2 is typical for households or similar.</p>

<b>Positively-driven contacts</b>	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.
<b>Power rating</b>	The nominal value of the power that is converted when the nominal control voltage is applied.
<b>Protection degree - (IEC 60529), IP</b>	<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 &gt; 50 mm  2: finger protection (diameter 12 mm)  3: tools and wires (diameter &gt; 2.5 mm)  4: tools and wires (diameter &gt; 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>
<b>Pull-in / drop-out current, AC/DC coil</b>	Value of the coil current at which a relay responds (spark-over) or drops out.

## R

<b>Rated control voltage</b>	The nominal value of the sparkover voltage for the relay.
<b>Rated voltage (Isolation)</b>	Voltage level at which the insulation specifications are measured – this is the basis for sizing the creepage distance.

## W

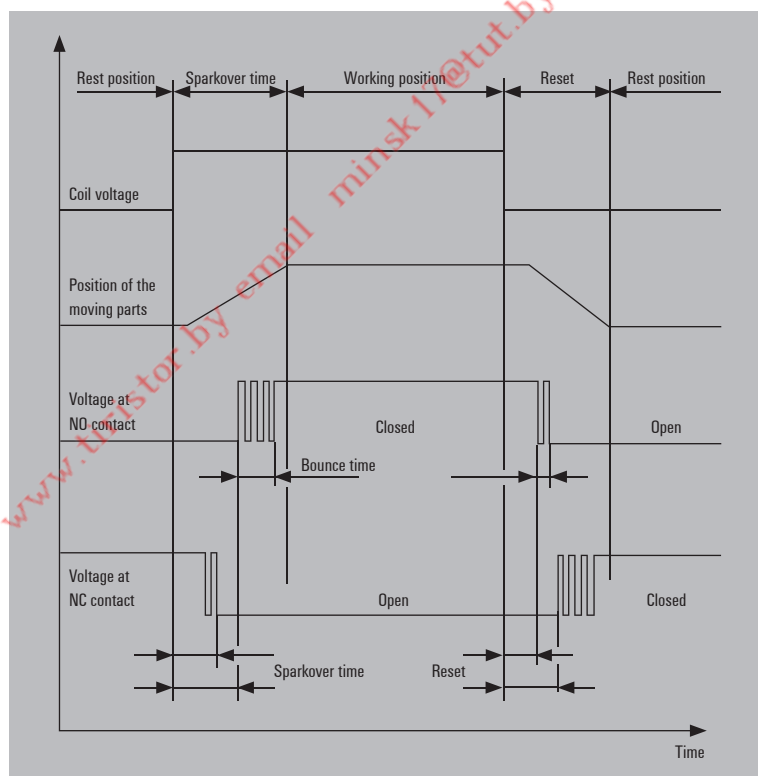


**Relay times (time response)**

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**

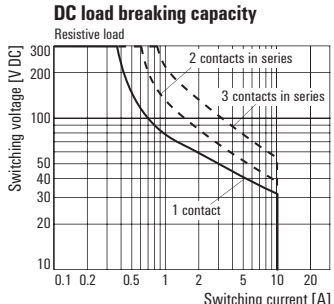
Electro-mechanical components such as relays are subject to wear (both mechanical and electrical). A typical "bathtub curve" depicts the reliability. This means that there may be isolated statistical exceptions which are below the typical levels of reliability.

**Reset**

Process in which a mono-stable relay resets from the working position to the rest position.

<b>Reset time</b>	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.
<b>Reset voltage</b>	Value of the input voltage at which a mono-stable relay reliably returns to the rest position while at the reference temperature.
<b>Response</b>	The process in which the relay transitions from the normally-closed (break) contact position into the normally-open (make) contact position.
<b>Response voltage / drop-out voltage AC/DC coil</b>	Value of the coil voltage at which a relay responds (spark-over) or drops out.
<b>Rest position</b>	The switched position of a mono-stable relay in its unexcited state.
<b>RoHS Directive 2002/95/EC</b>	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

<b>Self-heating</b>	The heating up of an operational component based on the power loss from the relay coil and the switching contacts.
<b>Series-circuit relay contacts</b>	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.   <p><b>DC load breaking capacity</b> Resistive load</p> <p>The graph plots Switching voltage [V(DC)] on the y-axis (log scale from 10 to 300) against Switching current [A] on the x-axis (log scale from 0.1 to 20). Three curves are shown: '1 contact' (solid line), '2 contacts in series' (dashed line), and '3 contacts in series' (dotted line). All curves show a decrease in switching voltage as switching current increases. The '3 contacts in series' curve is the highest, followed by '2 contacts in series', and then '1 contact'.</p>

## W

<b>SIL</b>	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.
<b>Standardised labelling of connections</b>	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)
<b>Status indicator</b>	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"> <li>• when there are welded-together or broken switching elements,</li> <li>• when there is interference or residual voltages on the signal lines.</li> </ul> A reduction in light intensity may result when the ambient temperatures are greater than 50 °C.
<b>Storage temperature</b>	The permitted ambient temperature, related to a specific relative humidity level, for which the product should be stored while in a current-free state.
<b>Surge voltage category</b>	<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"> <li>• Devices that are intended to be connected to the permanent electrical building installation.</li> </ul> <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"> <li>• Devices that are intended to be connected to the permanent electrical building installation (such as household appliances or portable tools).</li> </ul> <p>Overvoltage category III</p> <ul style="list-style-type: none"> <li>• 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).</li> </ul> <p>Overvoltage category IV</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>

<b>Switch-off delay</b>	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).
<b>Switch-on delay</b>	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.
<b>Switching capacity</b>	The calculated product of the switching current and switching voltage (in W for DC, in VA for AC).
<b>Switching current</b>	Current strength required to switch a relay on or off.
<b>Switching cycle</b>	A single occurrence of the sparkover and subsequent reset.
<b>Switching voltage</b>	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).
<b>Switching voltage, max.</b>	The maximum allowable voltage between the contact elements prior to closing and after opening a relay contact.

## T

<b>Test button, manual operation</b>	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.
<b>Transients</b>	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.
<b>Type code</b>	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

<b>Type of contact</b>	<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"> <li>• NO (normally open) contact: contact which is closed in the relay's operating position and open in its rest position.</li> <li>• NC (normally closed) contact: contact which is closed in the relay's rest position and open in its working position.</li> <li>• 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.</li> </ul> <p>Note: A temporary electrical connection may be established between the NC and NO contacts due to the switch-off arc.</p>
<b>Type of insulation</b>	<p>Quality of the insulation system, depending on the design and application conditions:</p> <ul style="list-style-type: none"> <li>• Functional insulation: insulation between live components – necessary so the relay functions properly.</li> <li>• Basic insulation: insulation of live parts to provide basic protection against electrical shock.</li> <li>• Doubled insulation: consisting of a base insulation and additional insulation.</li> <li>• 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.</li> </ul>

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**U**

<b>Usage category according to EN 60947 (mechanical relays)</b>	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**

<b>Wash resistant</b>	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.
<b>Withstand test voltage</b>	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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W

# 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.

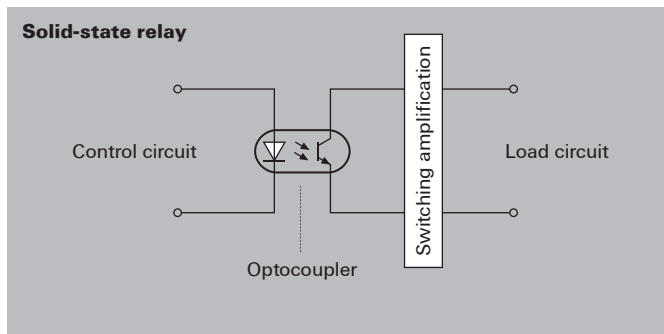
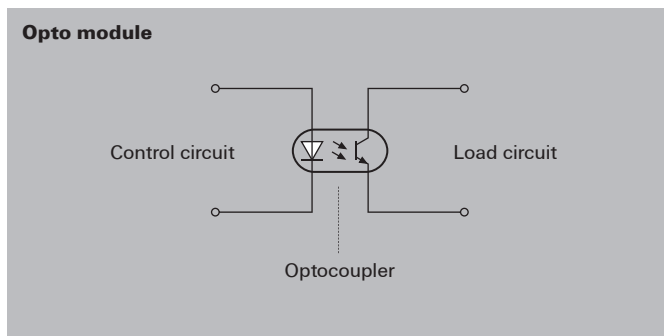
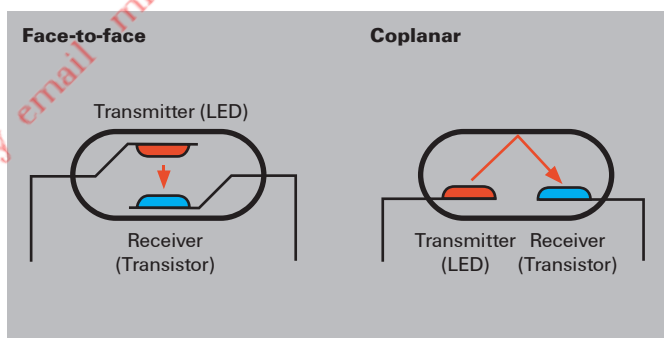
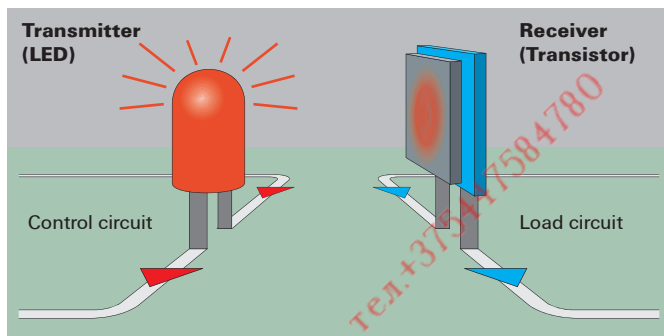
## Opto module

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*\*)

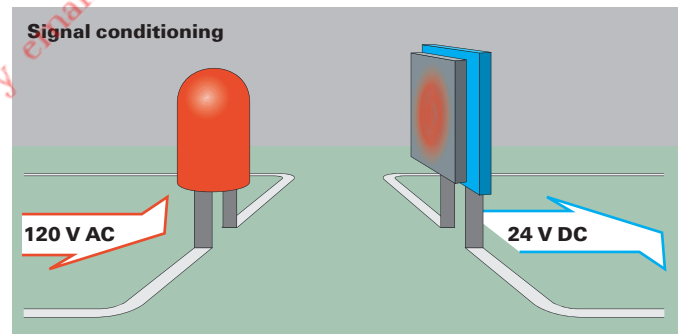
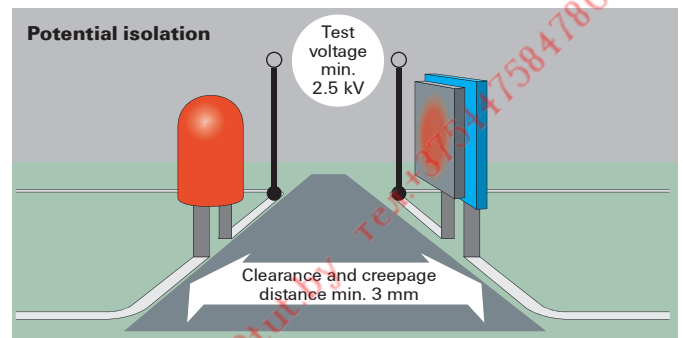
The separation of the control and load circuits in the opto module provides the required isolation. However, this must withstand an isolation test of at least 2.5 kV in all opto modules and solid-state relays. To guarantee isolation it is necessary that a minimum of 3 mm clearance and *creepage distance*\*) 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:

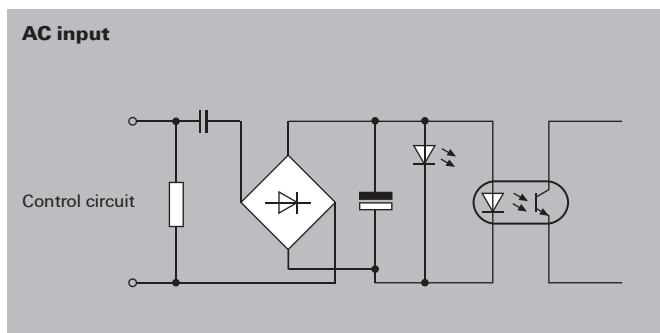
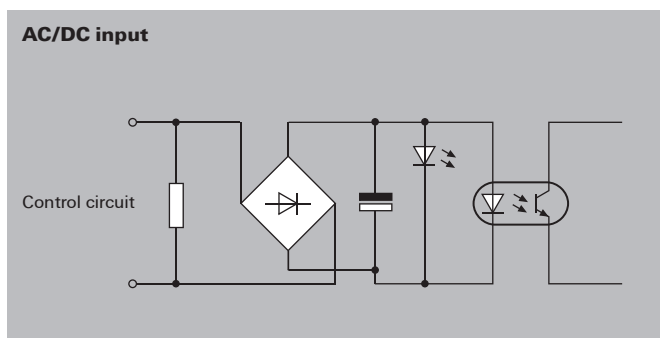
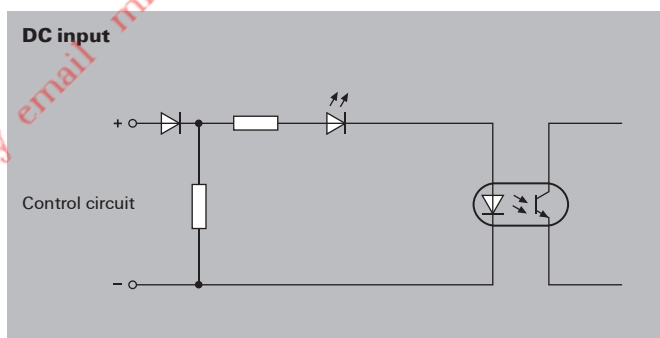
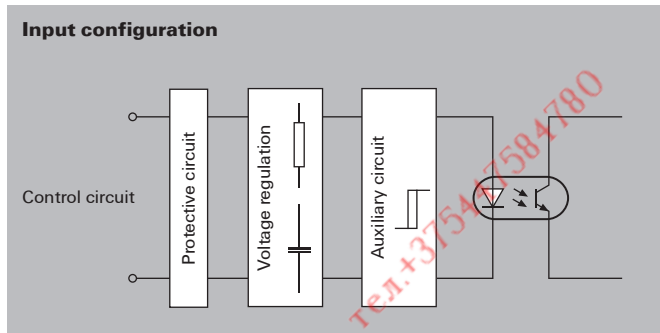
A rectifier with smoothing capacitor is connected in series for AC control voltages. Reverse polarity protection for DC current is not necessary. The following construction corresponds to a DC circuit.

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.

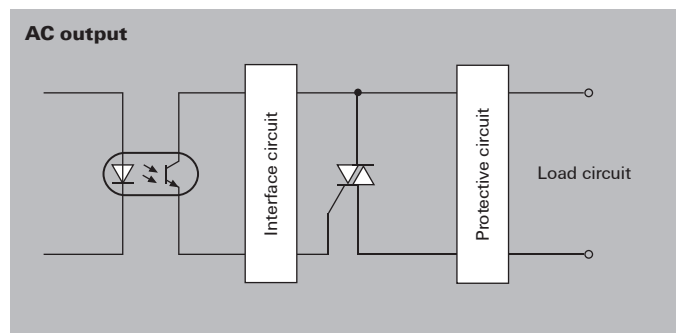
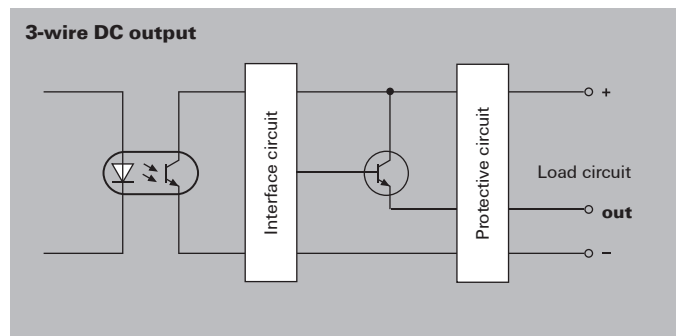
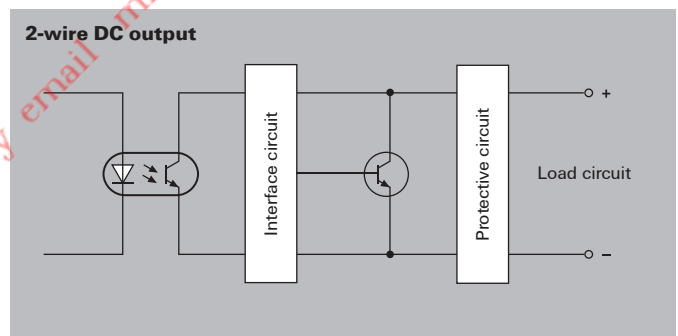
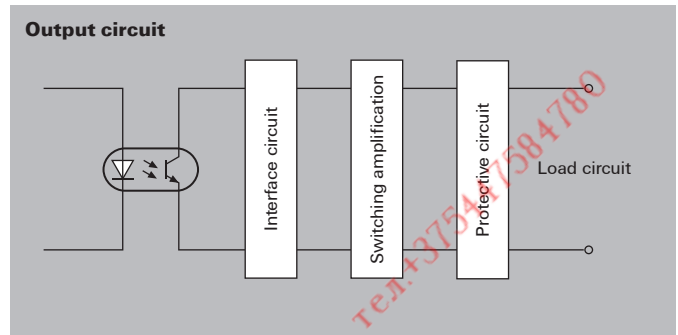
### DC output:

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)

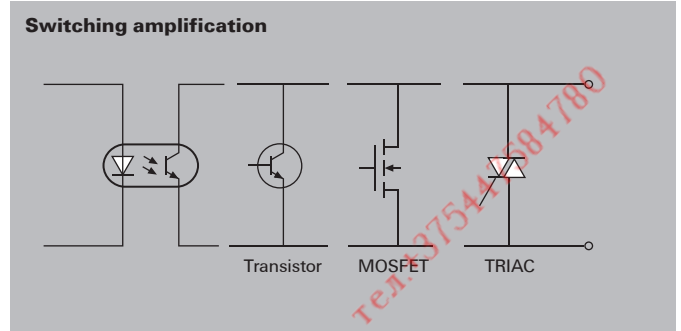
Used for high load currents (up to 10 A).

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.



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## 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

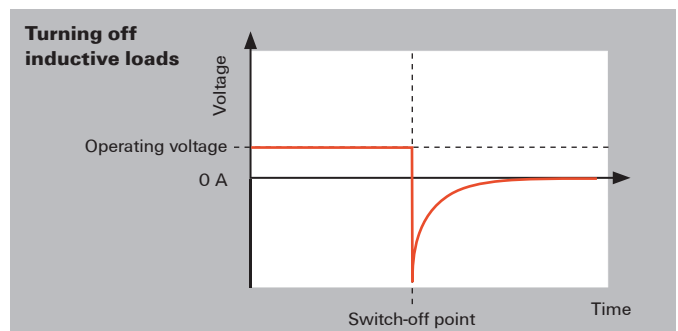
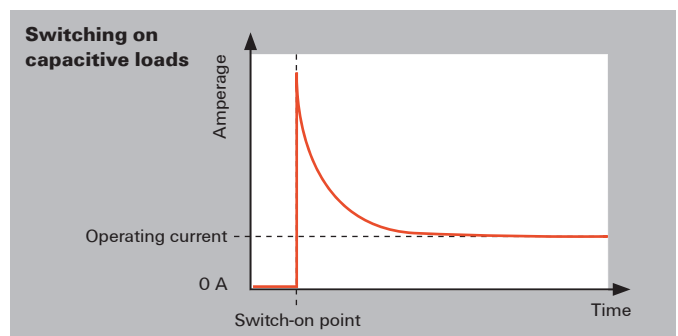
Capacitive loads occur if there is a capacitor in the load circuit. The effect is similar to a short-circuit at the point of activation and results in a high inrush current.

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)

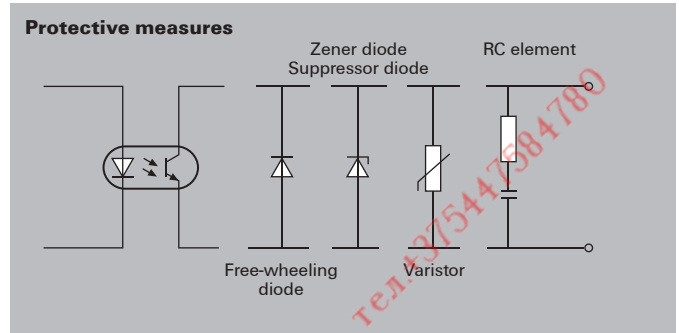
These function as normal diodes in the forward conducting direction. In the blocking direction they become low resistant at a certain voltage (breakdown voltage). High levels of overvoltages can lead to the destruction of the zener diode / suppressor diode.

### 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.



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W

## Glossary: Solid-state relays

<b>A</b>	
<b>AC</b>	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.
<b>Approvals and testing marks</b>	<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>
<b>C</b>	
<b>CE</b>	<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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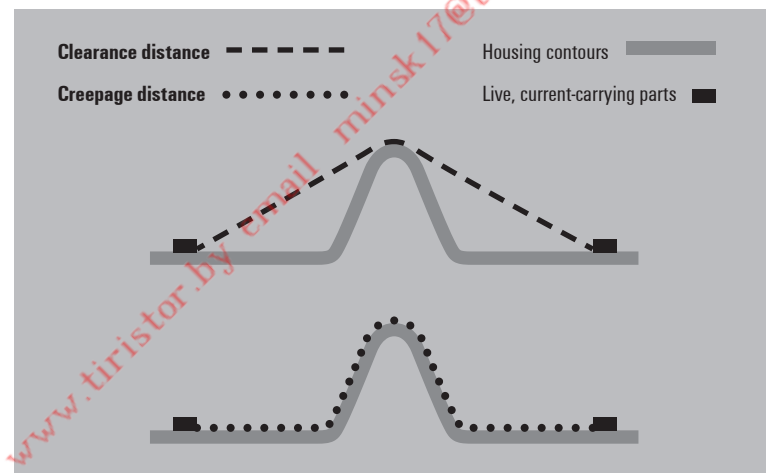
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**Clearance and creepage distances**

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.

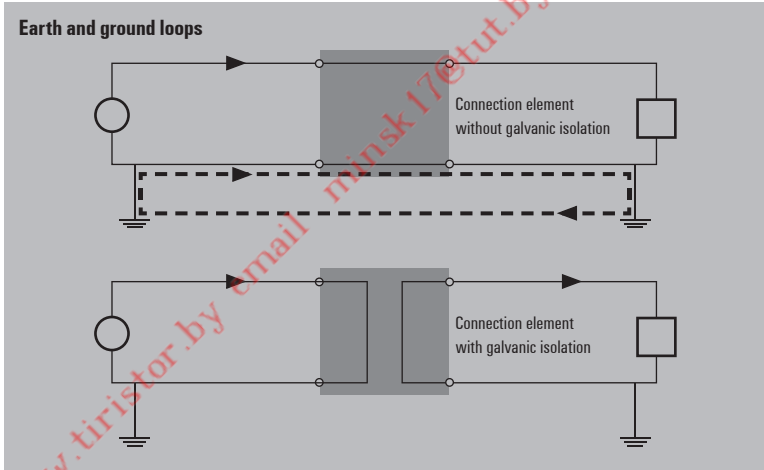
**Cut-in (switch-on) voltage**

The voltage level at which an opto module or solid-state relay is conductive.

# D

<b>DC</b>	Refers to the electrical variables such as voltage or current (DC, DC voltage) that are not dependent on time.
<b>Derating / derating curve</b>	<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 data-bbox="592 880 1359 1211"> <p>The graph shows a downward-sloping curve representing the relationship between current strength and temperature. The area under the curve is labeled 'Operating range', and the area above the curve is shaded grey and labeled 'Over the limit'. The y-axis is 'Current strength' and the x-axis is 'Temperature'.</p> </div>
<b>Dimensions</b>	<p>Dimensions in millimetres.</p> <div data-bbox="592 1308 1034 1630"> <p>The drawing shows a top view and a side view of the relay. The top view labels 'Length' (vertical dimension) and 'Height' (horizontal dimension). The side view labels 'Width' (horizontal dimension).</p> </div>
<b>DIN rail</b>	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.
<b>Dropout voltage</b>	The voltage level at which an opto module or solid-state relay blocks itself.

# W

<p><b>E</b></p> <p><b>Earth and ground loops</b></p>	<p>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.</p> 
<p><b>F</b></p> <p><b>Flammability according to UL</b></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 the relay are V-0, V-1, V-2 and HB.</p>
<p><b>G</b></p> <p><b>Galvanic isolation</b></p>	<p>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.</p>

# H

<p><b>Humidity / condensation</b></p>	<p>Standard conditions: annual average relative humidity &gt; 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 data-bbox="592 779 922 1088" data-label="Figure"> </div>
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# I

<p><b>Impulse withstand voltage</b></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><b>Inductive loads</b></p>	<p>Refer to load category</p>
<p><b>Input frequency</b></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><b>Insulating material group</b></p>	<p>According to their CTI (comparative tracking index) values, the insulating materials are categorised into one of the following four groups:</p> <ul style="list-style-type: none"> <li>Group I 600 CTI</li> <li>Group II 400 CTI &lt; 600</li> <li>Group IIIa 175 CTI &lt; 400</li> <li>Group IIIb 100 CTI &lt; 175</li> </ul> <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><b>Insulation according to EN 50178</b></p>	<p>Specifications for insulation coordination with:</p> <ul style="list-style-type: none"> <li>• Type of insulation</li> <li>• Nominal voltage of the supply system</li> <li>• Pollution severity level</li> <li>• Impulse withstand voltage</li> <li>• Surge voltage category</li> </ul>

# W

**L**

<b>Leakage current</b>	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.
<b>Load category (solid-state relay)</b>	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**

<b>Max. switching current</b>	The max. switching current indicates the maximum level of current that can be switched.
<b>Max. switching power</b>	The switching capacity is calculated as the product of switching voltage and switching current (in VA for AC / in W for DC).
<b>Mounting distance</b>	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"> <li>• 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),</li> <li>• individual installation: components are mounted with gaps so that there are no thermal influences from adjacent components.</li> </ul>
<b>Mounting position</b>	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**

<b>Nominal control current</b>	Input current that is required, under specific conditions, to switch the output.
<b>Nominal switching voltage</b>	Voltage at the output - before the closing or opening of the contact.
<b>Nominal torque</b>	The specified value for the torque of the screws (screw connection) must not be exceeded.

**O**

<b>Operating temperature</b>	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**

<b>Packing unit</b>	Indicates the smallest amount (a pack, for example) or the quantity per carton.
<b>Plug-in cycles</b>	Sockets and accessories are designed for 10 insertion cycles without electrical load – unless otherwise specified.
<b>Pollution severity level</b>	<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"> <li>there is no contamination or only dry occurrences of non-conductive pollution. The pollution has no influence.</li> </ul> <p>Pollution degree 2:</p> <ul style="list-style-type: none"> <li>there is only non-conductive pollution. Temporary occurrences of conductivity caused by condensation may also occur.</li> </ul> <p>Pollution degree 3:</p> <ul style="list-style-type: none"> <li>conductive pollution or dry, non-conductive pollution that can become conductive due to condensation is likely to occur.</li> </ul> <p>Pollution degree 4:</p> <ul style="list-style-type: none"> <li>the contamination leads to continual conductivity which can be caused by contaminants such as conductive dust, rain or snow.</li> </ul> <p>Note: Pollution degree 3 is typical for industrial environments and similar settings; pollution degree 2 is typical for households or similar.</p>
<b>Power rating</b>	The nominal value of the power that is converted when the nominal control voltage is applied.

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**W**

<b>Protection degree - (IEC 60529), IP</b>	<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 &gt; 50 mm  2: finger protection (diameter 12 mm)  3: tools and wires (diameter &gt; 2.5 mm)  4: tools and wires (diameter &gt; 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**

<b>Rated control voltage</b>	The nominal value of the sparkover (response) voltage for the solid-state relay
<b>Rated voltage (Isolation)</b>	Voltage level at which the insulation specifications are measured – this is the basis for sizing the creepage distance.
<b>ROHS Directive 2002/95/EC</b>	<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**

<b>Schmitt trigger</b>	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.
<b>Self-heating</b>	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.
<b>Short-circuit-proof</b>	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.
<b>Solid-state relay</b>	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.
<b>Status indicator</b>	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"> <li>• when there are welded-together or broken switching elements,</li> <li>• when there is interference or residual voltages on the signal lines.</li> </ul> A reduction in light intensity may result when the ambient temperatures are greater than 50 °C.
<b>Storage temperature</b>	The permitted ambient temperature, related to a specific relative humidity level, for which the product should be stored while in a current-free state.

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**W**



<b>Surge voltage category</b>	<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"> <li>• Devices that are intended to be connected to the permanent electrical building installation.</li> </ul> <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"> <li>• Devices that are intended to be connected to the permanent electrical building installation (such as household appliances or portable tools).</li> </ul> <p>Overvoltage category III</p> <ul style="list-style-type: none"> <li>• 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).</li> </ul>
<b>Switch-off delay</b>	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.
<b>Switch-on delay</b>	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.

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**T**

<b>Transients</b>	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.
<b>Type of insulation</b>	Quality of the insulation system, depending on the design and application conditions: <ul style="list-style-type: none"> <li>• Functional insulation: insulation between live components – necessary so the relay functions properly.</li> <li>• Basic insulation: insulation of live parts to provide basic protection against electrical shock.</li> <li>• Doubled insulation: consisting of a base insulation and additional insulation.</li> <li>• 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.</li> </ul>

**V**

<b>Voltage drop</b>	The reduction of voltage via the opto module, when measured under full load
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**W**

<b>Withstand test voltage</b>	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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# Index

Index	Index Type	X.2
	Index Order No.	X.6
	Addresses worldwide	X.10

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106000000

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112000000

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Table with columns: Order No., Type, Page

Large table listing order numbers, types, and pages for the 112300000 series.

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Table with columns: Order No., Type, Page

Table listing order numbers, types, and pages for the 117000000 series.

118000000

Table listing order numbers, types, and pages for the 118000000 series.

119000000

Table listing order numbers, types, and pages for the 119000000 series.

120000000

Table listing order numbers, types, and pages for the 120000000 series.

121000000

Large table listing order numbers, types, and pages for the 121000000 series.



Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1219940000 to 1219990000.

1220000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1220010000 to 1220670000.

1240000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1240780000 to 1240800000.

1250000000

Table with 3 columns: Order No., Type, Page. Contains entry for order number 1254880000.

1270000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1274660000 to 1275100000.

1280000000

Table with 3 columns: Order No., Type, Page. Contains entry for order number 1283230000.

1300000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1303760000 to 1304040000.

1310000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1319270000 to 1319280000.

1320000000

Table with 3 columns: Order No., Type, Page. Contains entry for order number 1323880000.

1380000000

Table with 3 columns: Order No., Type, Page. Contains entry for order number 1381900000.

1390000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1390350000 to 1391690000.

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1406200000 to 1406250000.

1400000000

1420000000

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1460000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1463520000 to 1463550000.

1470000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1479650000 to 1479980000.

1490000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1492520000 to 1492610000.

1520000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1520980000 to 1521000000.

1540000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1542360000 to 1542540000.

1600000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1609900000 to 1609900000.

1750000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1758250000 to 1758250000.

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1758250000 to 1758260000.

1760000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1762620000 to 1762630000.

1790000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1793950000 to 1794060000.

1810000000

Table with 3 columns: Order No., Type, Page. Contains entry for order number 1818400000.

1820000000

Table with 3 columns: Order No., Type, Page. Contains entry for order number 1828450000.

1900000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1909020000 to 1909150000.

1980000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1984090000 to 1984650000.

1990000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1990960000 to 1990970000.

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 1990980000 to 1990990000.

2150000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 2152860000 to 2154980000.

2470000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 2476340000 to 2476940000.

2490000000

Table with 3 columns: Order No., Type, Page. Contains entry for order number 2496190000.

2500000000

Table with 3 columns: Order No., Type, Page. Contains entry for order number 2500980000.

2530000000

Table with 3 columns: Order No., Type, Page. Contains entry for order number 2531050000.

2540000000

Table with 3 columns: Order No., Type, Page. Contains entry for order number 2545120000.

2550000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 2558330000 to 2558350000.

4050000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 4058560000 to 4058760000.

4060000000

Table with 3 columns: Order No., Type, Page. Contains entries for order numbers 4061020000 to 4061180000.



