Relay modules and solid-state relays
Catalogue 2014/2015
Let's connect.

Digital signal processing



Weidmüller

Dear Customers,

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

In addition to the catalogue, the PDF also contains:
- Internal page links
- Links to the online catalogue

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

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



Relay modules and solid-state relays
Catalogue 4.2

Relay modules and solid-state relays

Relay modules and solid-state relays in 6 mm width

Industrial relay modules

Power electronics

Safety relay

Timer

JACKPAC® (IP 67)

Appendix

Weidmüller Solutions & Service

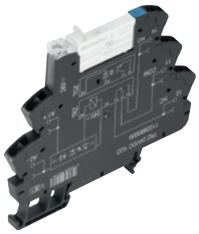
Technical appendix/Glossary

Index

Index Type / Index Order No.
Addresses worldwide

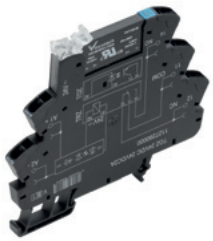
Relay modules and solid-state relays

TERMSERIES - Relay modules
Page A.8



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

TERMSERIES - Solid-state relays
Page A.22



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

TERMOPTO - Solid-state relays
Page A.42



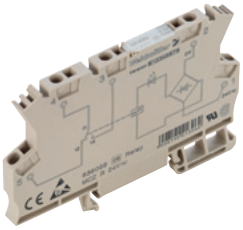
- Isolation of potentials in terminal format
- With PUSH IN technology
- Compact, enclosed design

MICROOPTO - Solid-state relays
Page A.54



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

MCZ-SERIES relay modules
Page A.64



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

MCZ-SERIES solid-state relays
Page A.70



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

RIDERSERIES - Relay modules
Page B.6



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

RIDERSERIES FG - Relay modules
Page B.46



- Modularly designed product line
- Relays with positively driven contacts
- Screw or tension clamp connection

PSSR 1-phase Power solid-state relays
Page C.4



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

PSSR 1-phase Power solid-state relays
Page C. 8



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

PSSR 1-phase phase angle control
Page C. 10



- Load circuit: 200...460 V AC/70 A
- 4–20 mA control input
- Manual phase angle calibration

PSSR 3-phase Power solid-state relays
Page C.12



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

SIL relay
Page D.6



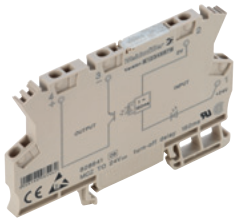
- TÜV “Safety-Approved”
- SIL3 acc. to EN61508
- De-energise/Energise to Safe applications

BT-SERIES - Timer
Page E.4



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

Timer with 6 mm width
Page E.8



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

JACKPAC®
Page F.3



- For use with decentralised wiring designs
- Integrates basic signal processing functionality
- IP 67 protection

Selection table for relay modules

Using the selection table, you can find the article number quickly and easily. Proceed as follows:
1.) Select the output configuration (contact type, number of contacts, contact material) for your required product.
2.) Select the input voltage.
3.) If the search results in multiple product article numbers, then you should also specify a product series or a connection system.
If your search comes up with no results, then you may be in need of a customised solution from the RIDERSERIES product line.
Almost any desired relay module can be put together from the large variety of input and output configurations. We would be glad to help you develop the proper solution for your requirements.
Detailed technical specifications may be found in the corresponding catalogue pages.

Preferred types

❶ Output										
										
Type of contact	NC	NO	CO							
Number of contacts	1	1	1		2		3	4		
Contact material	AgNi	AgNi / RhRu	AgNi / AgSnO	AgNi +5uAu	AgNi	AgNi + 5uAu	AgNi	AgNi	❸ Connection	❸ SERIES
❷ Voltage/Input/DC										
5 V DC			1122740000	1122980000	1123470000	1123710000			Screw	**TERMSERIES**
			1122860000	1123100000	1123590000	1123830000			Tension clamp	
12 V DC			1122750000	1122990000	1123480000	1123720000			Screw	**TERMSERIES**
			1122870000	1123110000	1123600000	1123840000			Tension clamp	
24 V DC		1381900000	1122770000	1123000000	1123490000	1123730000			Screw	**TERMSERIES**
			1122850000	1123090000	1123580000	1123820000				
		1391670000	1122880000	1123120000	1123610000	1123850000			Tension clamp	
			1122970000	1123210000	1123700000	1123940000				
			8881580000		8881610000				Screw	**RIDER - RCI KIT**
			8897190000		8897230000				PUSH IN	
					8920940000		8920980000	8921030000	Screw	**RIDER - RCM KIT**
					8921080000			8921120000	PUSH IN	
					9406121001				Screw	**RS 32**
			8365980000	8442960000					Tension clamp	**MCZ**
110 V/ 115 V DC			8467470000						Tension clamp	**MCZ**
Input UC										
24 V UC			1122780000	1123010000	1123500000	1123740000			Screw	**TERMSERIES**
			1122890000	1123130000	1123620000	1123870000			Tension clamp	
			8390590000						Tension clamp	**MCZ**
48 V UC			1122790000	1123020000	1123510000	1123750000			Screw	**TERMSERIES**
			1122900000	1123140000	1123630000	1123880000			Tension clamp	
60 V UC			1122800000	1123030000	1123520000	1123770000			Screw	**TERMSERIES**
			1122910000	1123150000	1123640000	1123890000			Tension clamp	
115 V/			1122810000	1123170000	1123530000	1123780000			Screw	**TERMSERIES**
120 V UC			1122920000	1123040000	1123650000	1123900000			Tension clamp	
230 V UC			1122820000	1123050000	1123540000	1123790000			Screw	**TERMSERIES**
			1122930000	1123180000	1123670000	1123910000			Tension clamp	

Preferred types

❶ Output										
									❸ Connection	❸ SERIES
Type of contact	NC	NO	CO							
Number of contacts	1	1	1		2		3	4		
Contact material	AgNi	AgNi / RhRu	AgNi / AgSnO	AgSnO +5uAu	AgNi	AgNi + 5uAu	AgNi	AgNi		
❷ Voltage/Input										
24 V AC			8881590000		8881620000				Screw	**RIDER - RCI KIT**
			8897200000		8897240000				PUSH IN	
					8920950000		8920990000	8921040000	Screw	**RIDER - RCM KIT**
					8921090000			8921130000	PUSH IN	
115 V/ 120 V AC			8897060000		8897080000				Screw	**RIDER - RCI KIT**
			8897210000		8897250000				PUSH IN	
					8920960000		8921010000	8921060000	Screw	**RIDER - RCM KIT**
					8921100000			8921140000	PUSH IN	
			8420880000						Tension clamp	**MCZ**
120 V AC RC			1122830000	1123070000	1123550000	1123800000			Screw	**TERMSERIES**
			1122940000	1123190000	1123680000	1123920000			Tension clamp	
230 V AC			8881600000		8881630000				Screw	**RIDER - RCI KIT**
			8897220000		8897260000				PUSH IN	
					8920970000		8921020000	8921060000	Screw	**RIDER - RCM KIT**
					8921110000			8921150000	PUSH IN	
			8237710000						Tension clamp	**MCZ**
230 V AC RC			1122840000	1123080000	1123570000	1123810000			Screw	**TERMSERIES**
			1122950000	1123200000	1123690000	1123930000			Tension clamp	

MCZ TRAK relay modules adapted to rail industry requirements (with tension-clamp connections)

❶ Output			
			
Contact	NO	CO	
Poles	1	1	
Contact material	AgSnO	AgSnO	AgSnO + 5uAu
❷ Voltage/Input			
24 V DC	8499550000	8713890000	8790520000
36 V DC		8713900000	8790510000
48-110 V DC	8574070000	8713910000	8790500000

Selection table for solid-state relays

Using the selection table, you can find the article number quickly and easily. Proceed as follows:
1.) Configure the load side for your desired product.
2.) Select the control voltage.
3.) If the search results in multiple product article numbers, then you should also specify a product series or a connection system.
We would be glad to help you develop the proper solution for your requirements.
Detailed technical specifications may be found in the corresponding catalogue pages.

Preferred types

❶ Load side										
Voltage type	DC					AC			❸ Connection	❸ SERIES
Switching voltage	5...48 V		24 V		5 V TTL	24...240 V				
Switching current	< 100 mA	<= 500 mA	<= 2 A	<= 5 A		<=100 mA	<=1 A	<=4 A		
❷ Control side										
Voltage/AC										
24 V AC	8950820000	8951020000				8951220000			Screw	**TERMOPTO**
	8950860000	8951060000				8951260000			PUSH IN	
48...60 V AC	8950830000	8951030000				8951230000			Screw	**TERMOPTO**
	8950870000	8951070000				8951270000			PUSH IN	
120 V AC	8950840000	8951040000				8951240000			Screw	**TERMOPTO**
	8950880000	8951080000				8951280000			PUSH IN	
120 V AC RC	1127000000		1127230000				1127480000		Screw	**TERMSERIES**
	1127110000		1127350000				1127600000		Tension clamp	
	1180290000								Screw	**TERMOPTO**
	1188830000								PUSH IN	
230 V AC	8950850000	8951050000				8951250000			Screw	**TERMOPTO**
	8950890000	8951090000				8951290000			PUSH IN	
	8421380000								Tension clamp	**MCZ**
230 V AC RC	1127010000		1127240000				1127490000		Screw	**TERMSERIES**
	1127120000		1127370000				1127610000		Tension clamp	
	1189270000								Screw	**TERMOPTO**
	1189260000								PUSH IN	
DC										
5VTTL	8398940000								Tension clamp	**MCZ**
	8937920000 100 kHz								Screw	**MICROOPTO**
5 V DC	1126920000		1127140000				1127390000		Screw	**TERMSERIES**
	1127030000		1127270000				1127510000		Tension clamp	
	8950700000	8950900000				8951100000			Screw	**TERMOPTO**
	8950760000	8950960000				8951160000			PUSH IN	
12 V DC	1126930000		1127150000				1127400000		Screw	**TERMSERIES**
	1127040000		1127280000				1127520000		Tension clamp	
	8950710000	8950910000				8951110000			Screw	**TERMOPTO**
	8950770000	8950970000				8951170000			PUSH IN	
					8937930000 100 kHz				Screw	**MICROOPTO**
24 V DC	1126940000		1127170000	1127630000			1127410000		Screw	**TERMSERIES**
			1391680000	1127680000					Screw	
	1127050000		1127290000	1127650000			1127530000		Tension clamp	
			1391690000	1127700000					Tension clamp	
	8937990000 100 kHz				8937930000 100 kHz				Screw	**MICROOPTO**
	8950720000	8950920000		1275100000		8951120000			Screw	**TERMOPTO**
	8950780000	8950980000		1254880000		8951180000			PUSH IN	
					8324610000				Tension clamp	**MCZ**
48...60 V DC	8950730000	8950930000				8951130000			Screw	**TERMOPTO**
	8950790000	8950990000				8951190000			PUSH IN	
110 V DC	8950740000	8950940000				8951140000			Screw	**TERMOPTO**
	8950800000	8951000000				8951200000			PUSH IN	
220 V DC	8950750000	8950950000				8951150000			Screw	**TERMOPTO**
	8950810000	8951010000				8951210000			PUSH IN	

Preferred types

❶ Load side										
Voltage type	DC					AC			❸ Connection	❸ SERIES
Switching voltage	5...48 V		24 V		5 V TTL	24...240 V				
Switching current	< 100 mA	<= 500 mA	<= 2 A	<= 5 A		<=100 mA	<=1 A	<=4 A		
❷ Control side										
Voltage/UC										
24 V UC	1126950000		1127180000				1127420000		Screw	TERMSERIES
	1127060000		1127300000				1127540000		Tension clamp	
	8365940000		8287730000						Tension clamp	MCZ
24...230 V UC	1127020000		1127250000	1127640000			1127500000		Screw	TERMSERIES
				1127690000					Screw	
	1127130000		1127380000	1127670000			1127620000		Tension clamp	
				1127710000					Tension clamp	
48 V UC	1126960000		1127190000				1127430000		Screw	TERMSERIES
	112707000		1127310000				1127550000		Tension clamp	
60 V UC	1126970000		1127200000				1127440000		Screw	TERMSERIES
	1127080000		1127320000				1127570000		Tension clamp	
115 V/ 120 V UC	1126980000		1127210000				1127450000		Screw	TERMSERIES
	1127090000		1127330000				1127580000		Tension clamp	
	8421060000								Tension clamp	MCZ
230 V UC	1126990000		1127220000				1127470000		Screw	TERMSERIES
	1127100000		1127340000				1127590000		Tension clamp	

MICROOPTO components specially customised for industrial applications (with screw connections)

❶ Load side				
Voltage type	DC			
Switching voltage	5...48 V DC	8...30 V DC	5...33 V DC	12...300 V DC
Switching current	0.5 A	2 A	10 A	1 A
❷ Control side/Voltage				
24 V DC	8937980000	8937970000	8937940000	8937830000
Remark	Electronic CO contact 1 kHz switching frequency	Short-circuit-proof Thermal overload fuse 3-wire actuator connection	Short-circuit-proof Alarm contact	Power Boost

PSSR high-performance semiconductor for single-phase AC currents (with screw connections)

❶ Load side					
Voltage type	AC	AC	AC	AC	AC
Switching voltage	single-phase 12...275 V AC	single-phase 24...600 V AC	single-phase 24...600 V AC	single-phase 24...600 V AC	single-phase 200...460 V AC
Switching current	25 A	35 A	50 A	75 A	70 A
Heatsinks	yes	yes	no	no	no
❷ Control side/Voltage					
3...32 V DC	1406200000	1406210000	1406240000	1406250000	
160...240 V AC/DC	1406220000				
Monitoring module (plug-in)	1406230000	1406230000			
❷ Control side/Voltage					Phase angle control
4...20 mA					1406270000

PSSR high-performance semiconductor for three-phase AC currents (with screw connections)

❶ Load side	
Voltage type	AC
Switching voltage	three-phase 24...520 V AC
Switching current	20 A
Heatsinks	yes
❷ Control side/Voltage	
8...30 V DC / 10...30 V AC	8952130000
9...240 V AC/DC	8952140000

Relay modules and solid-state relays in 6 mm width

Relay modules and solid-state relays in 6 mm width	Relay modules and solid-state relays in 6 mm width – Overview	A.2
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	MCZ-SERIES – relay modules	A.64
	MCZ-SERIES – solid-state relays	A.70

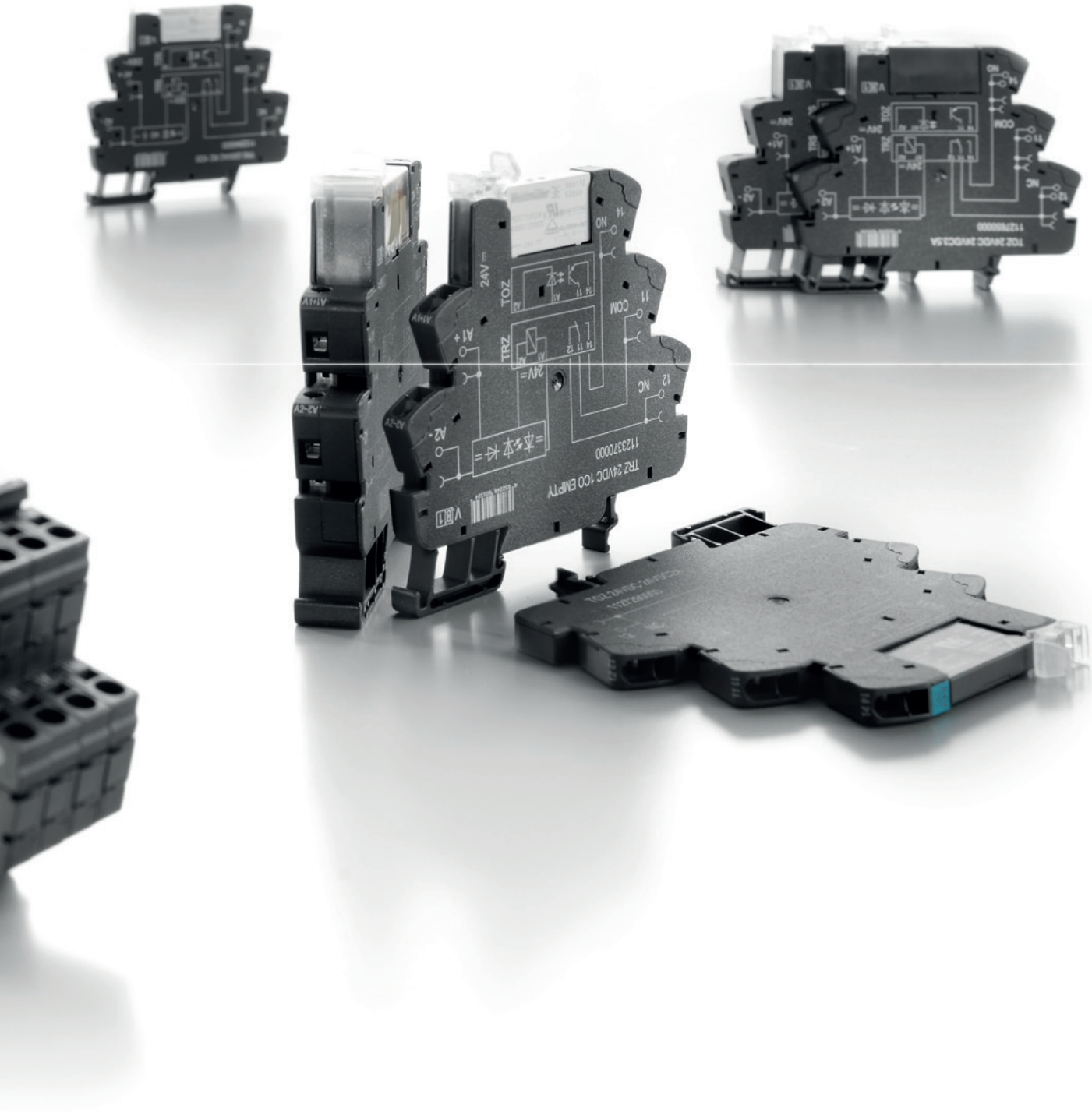
Coupling modules in a terminal block design

Relay modules and solid-state relays in 6 mm width

Weidmüller's relay couplers and solid-state relays feature excellent electrical characteristics. They also take advantage of the same reliable connection technology that has proven itself countless times in terminal products. This product line is ideally complimented by a wide variety of system accessories such as labelling material and end brackets. This helps to reduce your inventory overhead and stock levels. During the design of compact components, it is especially challenging to maintain minimal power loss since the small housing can exchange very little power with its surroundings. This challenge has already been mastered by Weidmüller since 1989. It was the first product in the terminal block format to come to market and it has been continually improved since then. Two compact but powerful semiconductor switches TERMOPTO and MICROOPTO also meet this challenge. The new TERMSERIES combines the proven properties of the established product lines with innovative technical solutions. A variable-voltage input has been specifically developed for the 6 mm disc design. This is the first time that the control of relay modules and solid- state relays can be used with voltages from 24 to 230 V DC/DC in this width. Another highlight is the ejector with integrated fibre-optic technology, which apart from allowing the simple and safe removal of the relay module and the solid-state relay, also illuminates the status indicator.

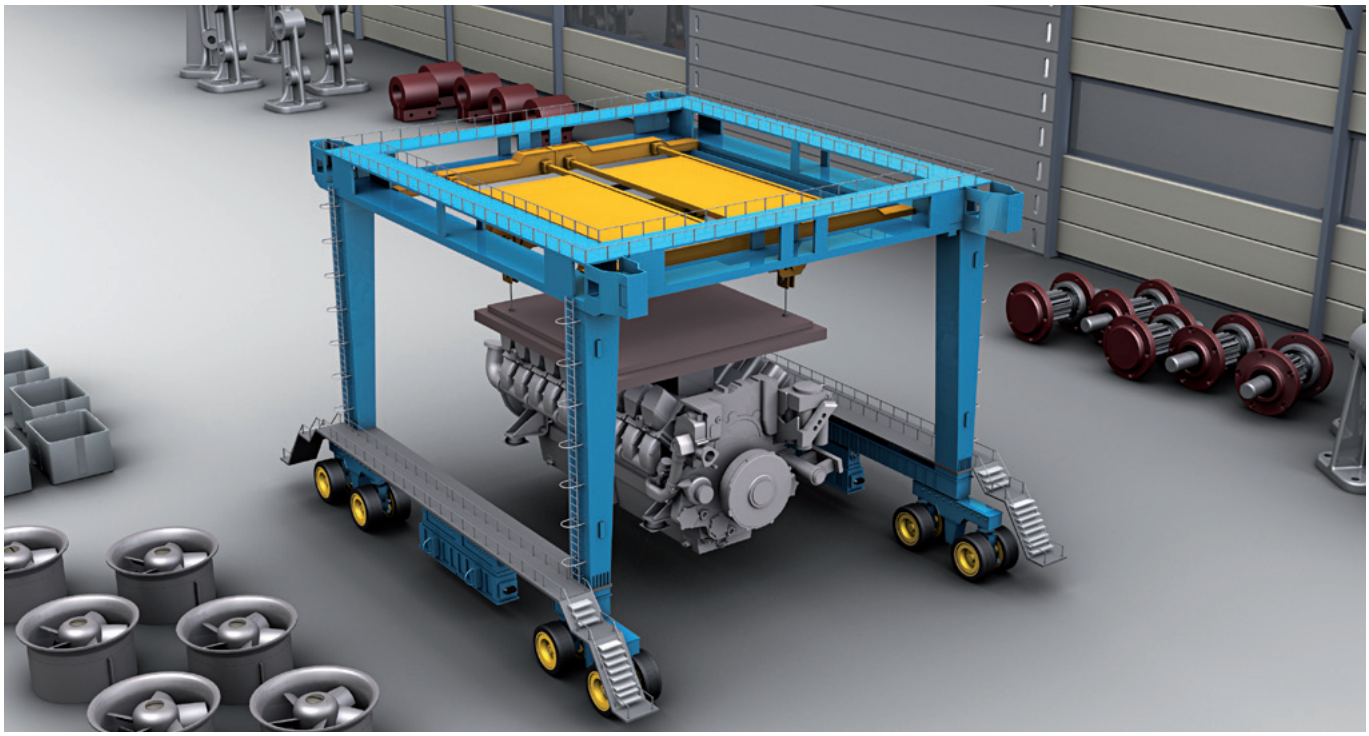
See for yourself, the quality of the Weidmüller's 6 mm products.




TRZ 24VDC 1CO EMPTY
1123370000
24V
TOZ
TRZ
A1+
A2-
COM
NO
NC

Seamless integration is your wish
Enjoy the solutions in our TERMSERIES, MICROOPTO and SAI series

Let's connect.

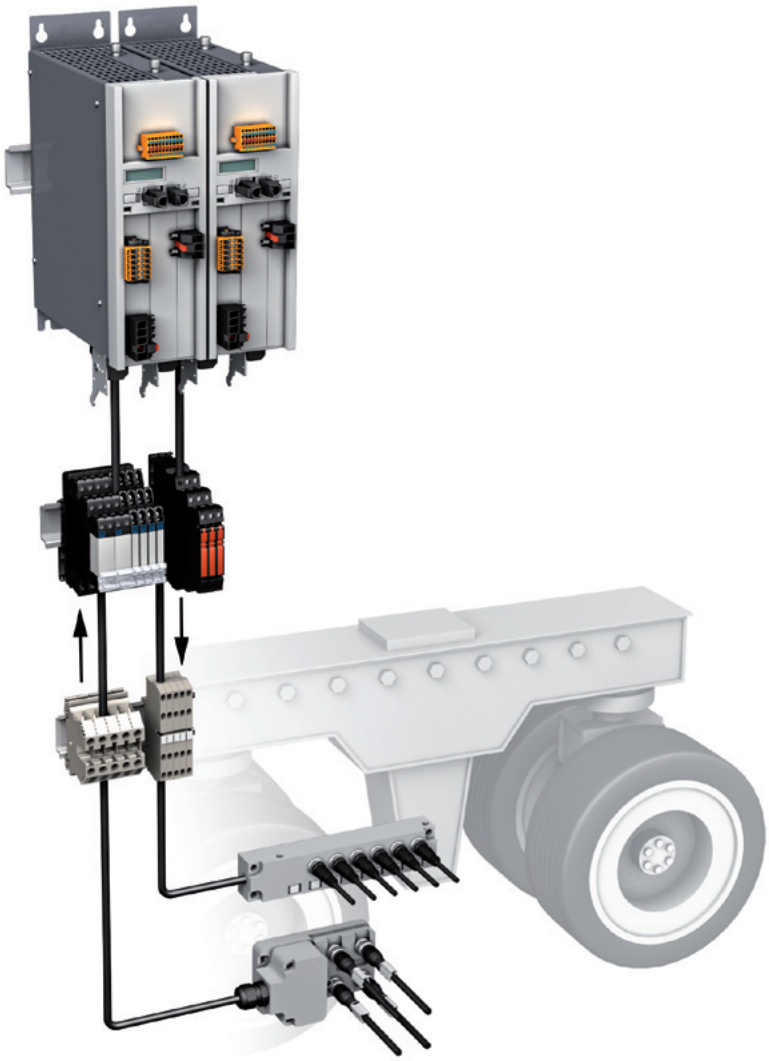


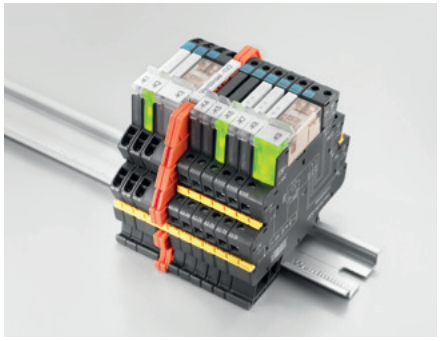
Materials and time savings in system and process automation are influenced by two critical factors. On the one hand, it is important to be able to work on complex systems with numerous sensor connections and a broad range of voltage inputs. On the other hand, the reliability of the actuator connections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

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

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

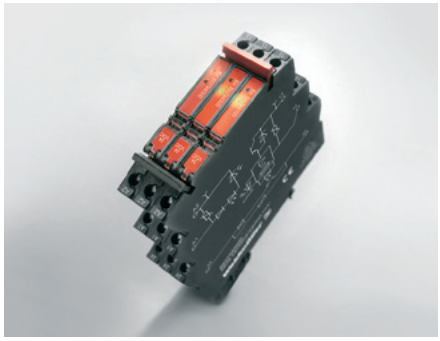
Our solution is rounded off with the SAI distributor in IP68, which ensures safe, protected and flexible signal connections in the field, such as those for the crane forward/reverse switch and for wear-and-tear monitors, overheating switches and impact sensors in materials handling technology.





TERMSERIES

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



MICROOPTO Solenoid

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



SAI distributors and lines

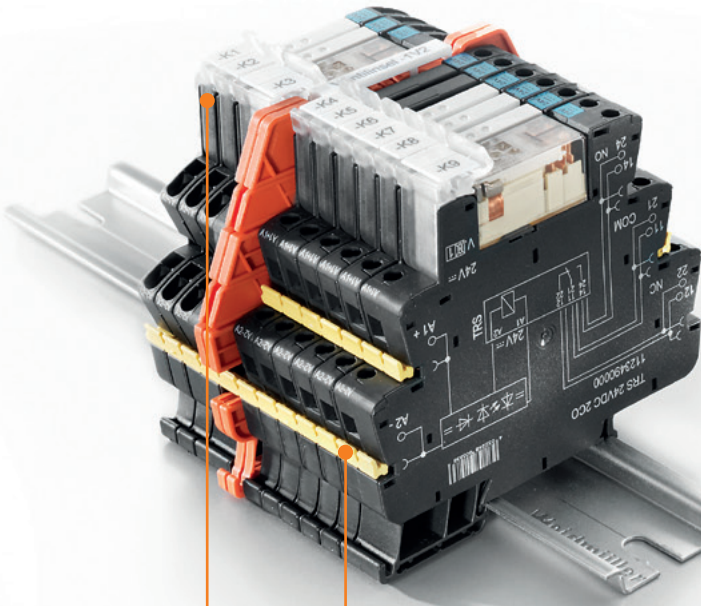
- M12 distributors which can be freely assembled in various formats
- Torsion-resistant wires available
- Very slim M8 distributor in line format
- All-metal distributor available

TERMSERIES – The All-rounder

Relays and solid-state relays for all purposes

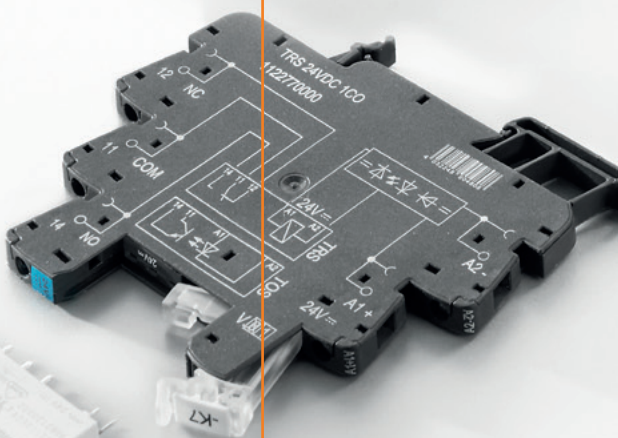
Relay modules are universal isolating elements for use in electrical automation. There are always different requirements for them because of this versatility. With the development of our TERMSERIES relay modules and solid-state relays, we have used these practical requirements as our highest benchmark.

Depending on the application, you can choose the product with the fixed-voltage inputs or with the multi-voltage input, which is currently a unique feature in this thin 6 mm terminal block format. Our practical design is reflected in the high-quality design without any sharp edges, a large number of variants with screw and tension-clamp connections, and a clear status display even in difficult viewing conditions. The product shape allows it to be installed in many different positions. Unlimited cross-connectivity, even across partition plates, assures versatile usage for your application regardless of how unusual your needs are.



Always the best overview
A distinct status display is available through an LED that completely illuminates the ejector. This ensures the safe removal of the switching element.

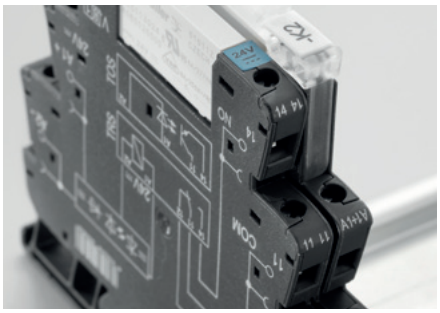




Well-designed handling of cross-connections
An exceptionally simple shortening of the cross-connections to the necessary length allows indentations between the poles. An additional bar supports the handling and mounting without having to grasp the contacts.



Clear marking
The unique legibility of all labelling is assured in different mounting positions and this, together with different voltage variant colour identification, reduces the danger of a false connection.

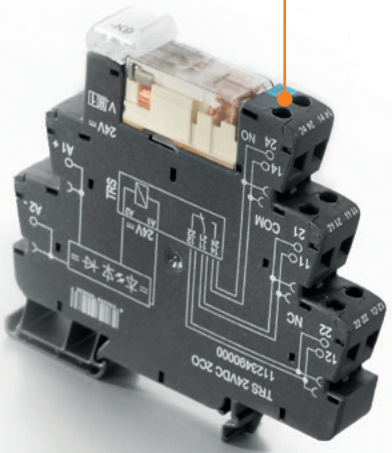


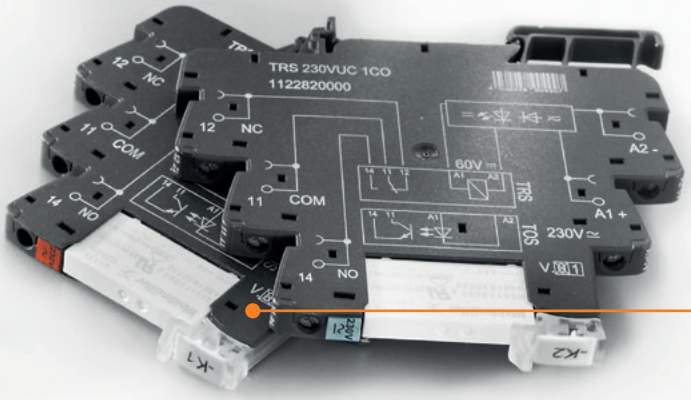
Unique multi-voltage input
Whether retro-fitting machines or in plant construction: with the multi-voltage input from 24 V to 230 V UC, the input signals are always optimally matched to your automation application.



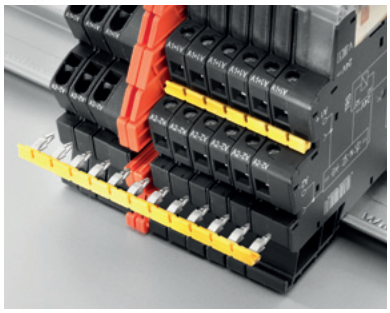
Any desired combinations
The variants with single or dual CO-contacts have the same shape and can be cross-connected with each other.







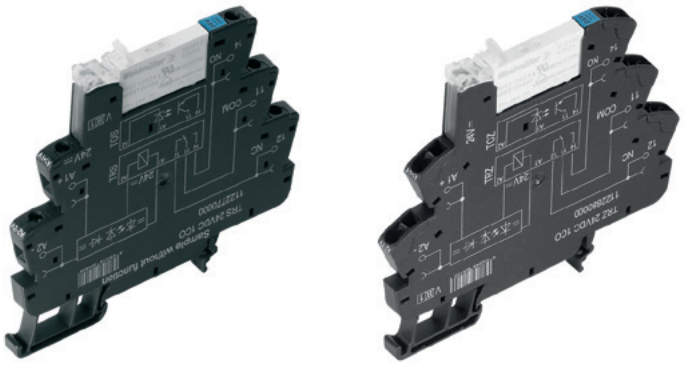
Custom-fit cross-connection
These cross-connectors are especially impressive because of their ease of use, good visibility and universal inter-connectivity – also across partition plates. Even the screw and tension-clamp variants can be cross-connected to each other.

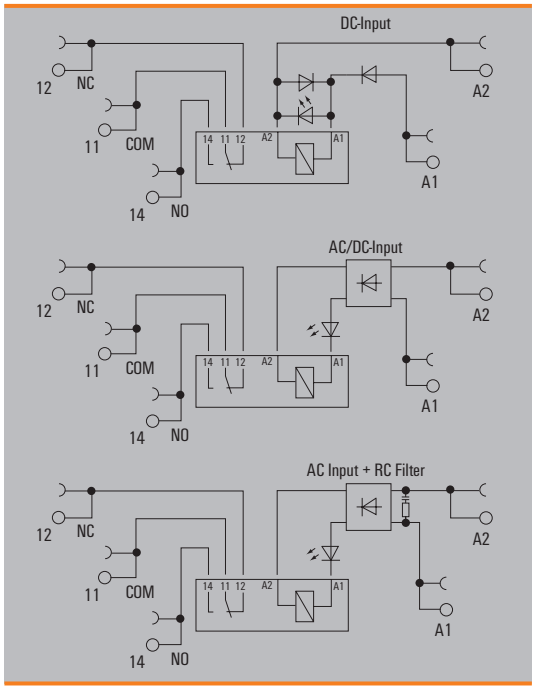


Partition plates for safety and clarity
The partition plate is a unique accessory because of its many different uses. It is used to group signals together visibly, to electrically isolate assemblies, or to add labelling for a better overview.

1 CO contact
AC/DC/UC coil

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





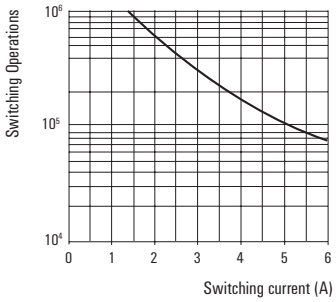
Technical data

Output			
Rated switching voltage / Continuous current		250 V AC / 6 A	
Max. switching voltage, AC		250 V	
Making current		6 A	
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA	
Max. switching power		1500 VA	
Contact material		AgNi	
Mechanical service life		5 x 10^6 switching cycles	
Max. switching frequency at rated load		0.1 Hz	
Rated data			
Ambient temperature (operational)		-40 °C...+60 °C	
Storage temperature		-40 °C...+85 °C	
Humidity		5–95% rel. humidity, T_u = 40°C, no condensation	
Approvals		CE; cULus; GL	
Insulation coordination (EN 50178)			
Rated voltage		300 V	
Impulse withstand voltage		6 kV (1.2/50 µs)	
Dielectric strength input – output			
Dielectric strength, contact / contact			
Dielectric strength to mounting rail		4 kV_{eff} / 1 min.	
Creepage and clearance distance input – output		≥ 5.5 mm	
Surge voltage category		III	
Pollution severity		2	
Dimensions		**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 6.4 / 90	88 / 6.4 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

Applications

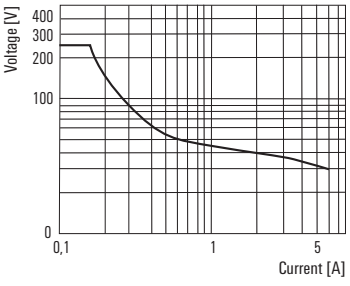
Electrical endurance

230 V AC resistive load

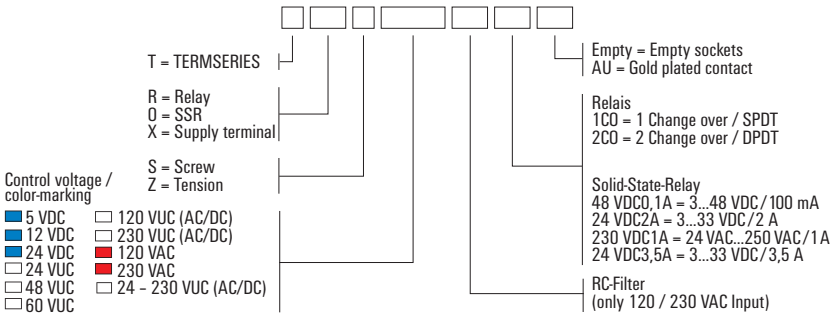


DC load breaking capacity

Resistive load



1 CO contact
AC/DC/UC coil

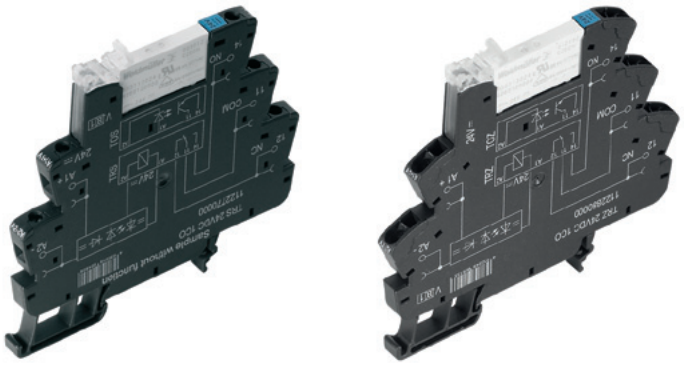


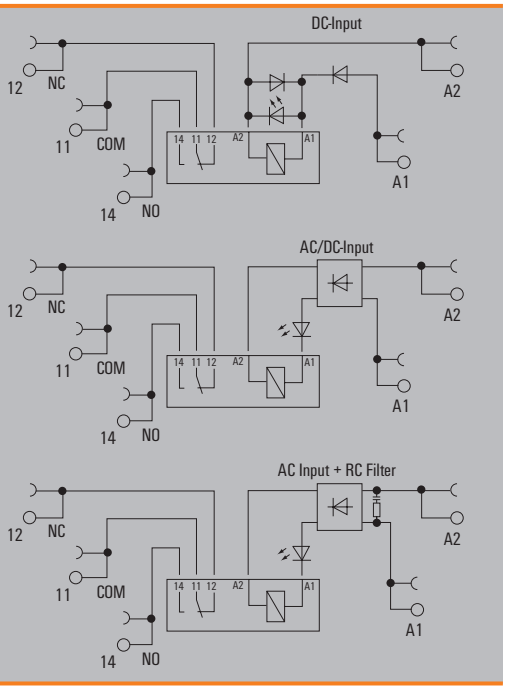
Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Input					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	48 V UC ±10 %
Rated current AC / DC	/ 35.8 mA	/ 18 mA	/ 10 mA	10.1 mA / 6.4 mA	8 mA / 7 mA
Power rating	200 mW	210 mW	240 mW	270 mVA / 154 mW	240 mVA / 192 mW
AC response/dropout Volt				16.6 V / 5 V	29 V / 10 V
DC response/dropout Volt	3.3 V / 1 V	8 V / 2 V	16.6 V / 5 V	16.6 V / 5 V	29 V / 10 V
AC pickup/dropout current				4 mA / 1 mA	4 mA / 1.3 mA
DC pickup/dropout current	21,6 mA / 8 mA	9 mA / 3 mA	7 mA / 2 mA	4 mA / 1.2 mA	4 mA / 1.2 mA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Output					
Switch-on delay	< 7 ms	< 7 ms	< 6 ms	< 4 ms	< 8 ms
Switch-off delay	< 4 ms	< 8 ms	< 7 ms	< 1.2 ms	< 4 ms
Ordering data					
Screw connection Type	TRS 5VDC 1CO	TRS 12VDC 1CO	TRS 24VDC 1CO	TRS 24VUC 1CO	TRS 48VUC 1CO
Order No.	**1122740000**	**1122750000**	**1122770000**	**1122780000**	**1122790000**
Tension clamp conn. Type	TRZ 5VDC 1CO	TRZ 12VDC 1CO	TRZ 24VDC 1CO	TRZ 24VUC 1CO	TRZ 48VUC 1CO
Order No.	**1122860000**	**1122870000**	**1122880000**	**1122890000**	**1122900000**
Note	Spare relay Type: RSS113005 Orderno.: 4061580000	Spare relay Type: RSS113012 Orderno.: 4061610000	Spare relay Type: RSS113024 Orderno.: 4060120000	Spare relay Type: RSS113024 Orderno.: 4060120000	Spare relay Type: RSS113024 Orderno.: 4060120000

Ordering data	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Input					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC ±10%	120 V AC ±10 %	230 V AC ±10 %
Rated current AC / DC	6.1 mA / 3,3 mA	4 mA / 3.5 mA	3.5 mA / 2.9 mA	7 mA	10.1 mA
Power rating	360 mW	0.48 VA, 420 mW	0.8 VA, 700 mW	0.84 VA	2.3 VA
AC response/dropout Volt	35 V / 11 V	79 V / 60 V	159 V / 100 V	79 V / 60 V	145 V / 90 V
DC response/dropout Volt	40 V / 10 V		159 V / 99 V		
AC pickup/dropout current		4 mA / 2.5 mA	2,2 mA / 1,3 mA	4 mA / 2.5 mA	9.13 mA / 4.78 mA
DC pickup/dropout current			1.7 mA / 0.7 mA		
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier	Rectifier
Output					
Switch-on delay	< 6 ms	< 8 ms	< 22 ms	< 5.3 ms	< 22 ms
Switch-off delay	< 6.5 ms	< 7 ms	< 30 ms	< 4 ms	< 30 ms
Ordering data					
Screw connection Type	TRS 60VUC 1CO	TRS 120VUC 1CO	TRS 230VUC 1CO	TRS 120VAC RC 1CO	TRS 230VAC RC 1CO
Order No.	**1122800000**	**1122810000**	**1122820000**	**1122830000**	**1122840000**
Tension clamp conn. Type	TRZ 60VUC 1CO	TRZ 120VUC 1CO	TRZ 230VUC 1CO	TRZ 120VAC RC 1CO	TRZ 230VAC RC 1CO
Order No.	**1122910000**	**1122920000**	**1122930000**	**1122940000**	**1122950000**
Note	Spare relay Type: RSS113060 Orderno.: 4061630000	Spare relay Type: RSS113060 Orderno.: 4061630000	Spare relay Type: RSS113060 Orderno.: 4061630000	Spare relay Type: RSS113060 Orderno.: 4061630000	Spare relay Type: RSS113060 Orderno.: 4061630000

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

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





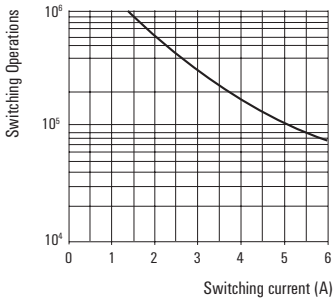
Technical data

Output			
Rated switching voltage / Continuous current		250 V AC / 6 A	
Max. switching voltage, AC		250 V	
Making current		6 A	
Min. switching power		1 V / 1 mA	
Max. switching power		1500 VA	
Contact material		AgNi 5µm Au	
Mechanical service life		5 x 10^6 switching cycles	
Max. switching frequency at rated load		0.1 Hz	
Rated data			
Ambient temperature (operational)		-40 °C...+60 °C	
Storage temperature		-40 °C...+85 °C	
Humidity		5–95% rel. humidity, T_u = 40°C, no condensation	
Approvals		CE; cULus; GL	
Insulation coordination (EN 50178)			
Rated voltage		300 V	
Impulse withstand voltage		6 kV (1.2/50 µs)	
Dielectric strength input – output			
Dielectric strength, contact / contact			
Dielectric strength to mounting rail		4 kV_{eff} / 1 min.	
Creepage and clearance distance input – output		≥ 5.5 mm	
Surge voltage category		III	
Pollution severity		2	
Dimensions		**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 6.4 / 90	88 / 6.4 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

Applications

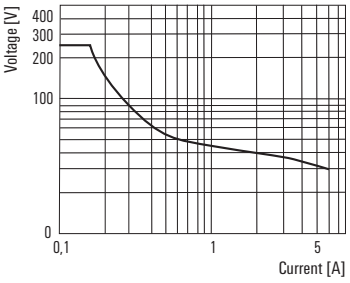
Electrical endurance

230 V AC resistive load

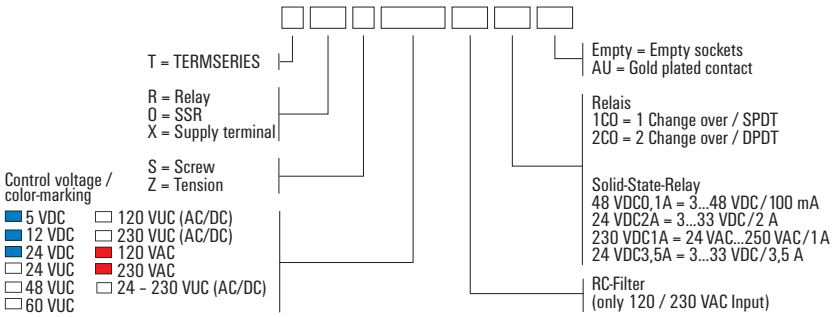


DC load breaking capacity

Resistive load



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

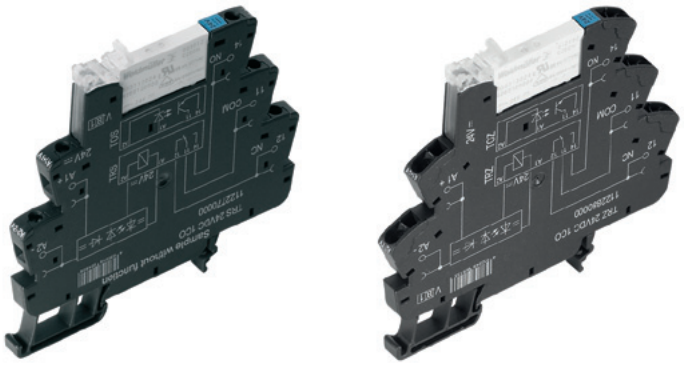


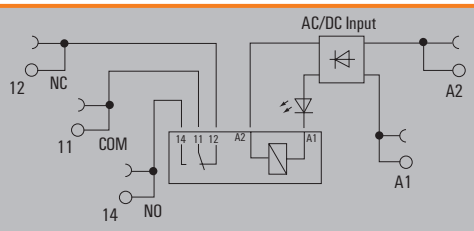
Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Input					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	48 V UC ±10 %
Rated current AC / DC	/ 35.8 mA	/ 18 mA	/ 10 mA	10.1 mA / 6.4 mA	8 mA / 7 mA
Power rating	200 mW	210 mW	240 mW	270 mVA / 154 mW	240 mVA / 192 mW
AC response/dropout Volt				16.6 V / 5 V	29 V / 10 V
DC response/dropout Volt	3.3 V / 1 V	8 V / 2 V	16.6 V / 5 V	16.6 V / 5 V	29 V / 10 V
AC pickup/dropout current				4 mA / 1 mA	4 mA / 1.3 mA
DC pickup/dropout current	21,6 mA / 8 mA	9 mA / 3 mA	7 mA / 2 mA	4 mA / 1.2 mA	4 mA / 1.2 mA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Output					
Switch-on delay	< 7 ms	< 7 ms	< 6 ms	< 4 ms	< 8 ms
Switch-off delay	< 4 ms	< 8 ms	< 7 ms	< 1.2 ms	< 4 ms
Ordering data					
Screw connection Type	TRS 5VDC 1CO AU	TRS 12VDC 1CO AU	TRS 24VDC 1CO AU	TRS 24VUC 1CO AU	TRS 48VUC 1CO AU
Order No.	**1122980000**	**1122990000**	**1123000000**	**1123010000**	**1123020000**
Tension clamp conn. Type	TRZ 5VDC 1CO AU	TRZ 12VDC 1CO AU	TRZ 24VDC 1CO AU	TRZ 24VUC 1CO AU	TRZ 48VUC 1CO AU
Order No.	**1123100000**	**1123110000**	**1123120000**	**1123130000**	**1123140000**
Note	Spare relay Type: RSS112005 Orderno.: 1174540000	Spare relay Type: RSS112012 Orderno.: 1220670000	Spare relay Type: RSS112024 Orderno.: 4061590000	Spare relay Type: RSS112024 Orderno.: 4061590000	Spare relay Type: RSS112024 Orderno.: 4061590000

Ordering data	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Input					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC ±10%	120 V AC ±10 %	230 V AC ±10 %
Rated current AC / DC	6.1 mA / 3,3 mA	4 mA / 3.5 mA	3.5 mA / 2.9 mA	7 mA	10.1 mA
Power rating	360 mW	0.48 VA, 420 mW	0.8 VA, 700 mW	0.84 VA	2.3 VA
AC response/dropout Volt	35 V / 11 V	79 V / 60 V	159 V / 100 V	79 V / 60 V	145 V / 90 V
DC response/dropout Volt	40 V / 10 V		159 V / 99 V		
AC pickup/dropout current		4 mA / 2.5 mA	2,2 mA / 1,3 mA	4 mA / 2.5 mA	9.13 mA / 4.78 mA
DC pickup/dropout current			1.7 mA / 0.7 mA		
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier	Rectifier
Output					
Switch-on delay	< 6 ms	< 8 ms	< 22 ms	< 5.3 ms	< 22 ms
Switch-off delay	< 6.5 ms	< 7 ms	< 30 ms	< 4 ms	< 30 ms
Ordering data					
Screw connection Type	TRS 60VUC 1CO AU	TRZ 120VUC 1CO AU	TRS 230VUC 1CO AU	TRS 120VAC RC 1CO AU	TRS 230VAC RC 1CO AU
Order No.	**1123030000**	**1123170000**	**1123050000**	**1123070000**	**1123080000**
Tension clamp conn. Type	TRZ 60VUC 1CO AU	TRS 120VUC 1CO AU	TRZ 230VUC 1CO AU	TRZ 120VAC RC 1CO AU	TRZ 230VAC RC 1CO AU
Order No.	**1123150000**	**1123040000**	**1123180000**	**1123190000**	**1123200000**
Note	Spare relay Type: RSS112060 Orderno.: 4061600000	Spare relay Type: RSS112060 Orderno.: 4061600000	Spare relay Type: RSS112060 Orderno.: 4061600000	Spare relay Type: RSS112060 Orderno.: 4061600000	Spare relay Type: RSS112060 Orderno.: 4061600000

1 CO contact
multi-voltage input

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





Technical data

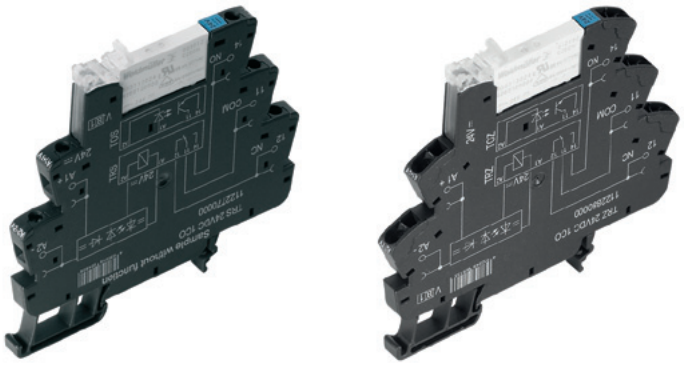
Output			
Rated switching voltage / Continuous current		250 V AC / 6 A	
Max. switching voltage, AC		250 V	
Making current		6 A	
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA	
Max. switching power		1500 VA	
Contact material		AgNi	
Mechanical service life		5 x 10^6 switching cycles	
Max. switching frequency at rated load		0.1 Hz	
Rated data			
Ambient temperature (operational)		-40 °C...+60 °C	
Storage temperature		-40 °C...+85 °C	
Humidity		5–95% rel. humidity, T_u = 40°C, no condensation	
Approvals		CE; cULus; GL	
Insulation coordination (EN 50178)			
Rated voltage		300 V	
Impulse withstand voltage		6 kV (1.2/50 µs)	
Dielectric strength input – output			
Dielectric strength, contact / contact			
Dielectric strength to mounting rail		4 kV_{eff} / 1 min.	
Creepage and clearance distance input – output		≥ 5.5 mm	
Surge voltage category		III	
Pollution severity		2	
Dimensions		**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 6.4 / 90	88 / 6.4 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

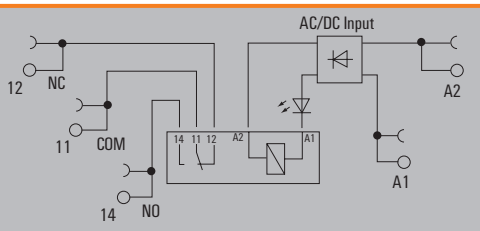
Ordering data

	24 V - 230 V UC
Input	
Rated control voltage	24...230 V UC ±10 %
Rated current AC / DC	4 mA @ 230 V AC ±10 %, 28 mA @ 24 V AC ±10 % / 22 mA @ 24 V DC ±10 %
Power rating	530 mW @ 24 V DC, 930 mVA @ 230 V AC
AC response/dropout Volt	11 V / 6 V
DC response/dropout Volt	11 V / 5 V
AC pickup/dropout current	
DC pickup/dropout current	
Status indicator	Green LED
Protective circuit	Rectifier
Output	
Switch-on delay	< 22 ms
Switch-off delay	< 100 ms
Ordering data	
Screw connection Type	TRS 24-230VUC 1CO
Order No.	**1122850000**
Tension clamp conn. Type	TRZ 24-230VUC 1CO
Order No.	**1122970000**
Note	Spare relay Type: RSS113024 Orderno.: 4060120000

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

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





Technical data

Output			
Rated switching voltage / Continuous current		250 V AC / 6 A	
Max. switching voltage, AC		250 V	
Making current		6 A	
Min. switching power		1 V / 1 mA	
Max. switching power		1500 VA	
Contact material		AgNi 5µm Au	
Mechanical service life		5 x 10^6 switching cycles	
Max. switching frequency at rated load		0.1 Hz	
Rated data			
Ambient temperature (operational)		-40 °C...+60 °C	
Storage temperature		-40 °C...+85 °C	
Humidity		5–95% rel. humidity, T_u = 40°C, no condensation	
Approvals		CE; cULus; GL	
Insulation coordination (EN 50178)			
Rated voltage		300 V	
Impulse withstand voltage		6 kV (1.2/50 µs)	
Dielectric strength input – output			
Dielectric strength, contact / contact			
Dielectric strength to mounting rail		4 kV_{eff} / 1 min.	
Creepage and clearance distance input – output		≥ 5.5 mm	
Surge voltage category		III	
Pollution severity		2	
Dimensions		**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 6.4 / 90	88 / 6.4 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

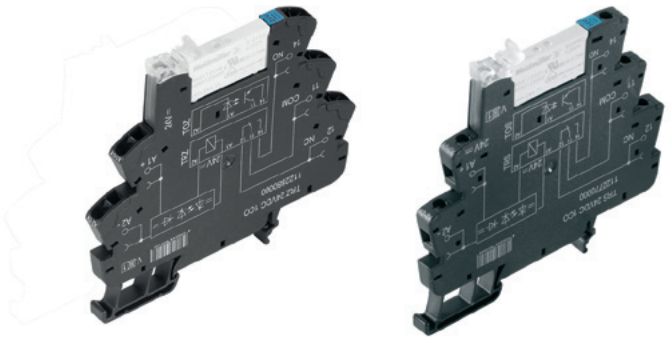
Ordering data

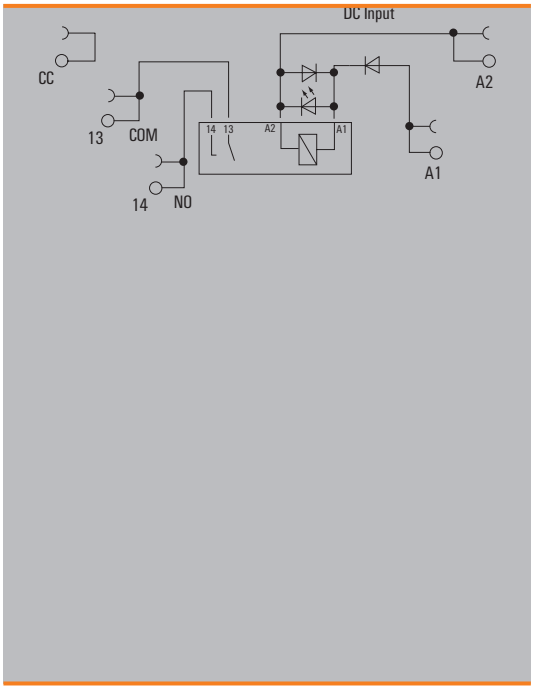
		24 V - 230 V UC
Input		
Rated control voltage		24...230 V UC ±10 %
Rated current AC / DC		4 mA @ 230 V AC ±10 %, 28 mA @ 24 V AC ±10 % / 22 mA @ 24 V DC ±10 %
Power rating		530 mW @ 24 V DC, 930 mVA @ 230 V AC
AC response/dropout Volt		11 V / 6 V
DC response/dropout Volt		11 V / 5 V
AC pickup/dropout current		
DC pickup/dropout current		
Status indicator		Green LED
Protective circuit		Rectifier
Output		
Switch-on delay		< 22 ms
Switch-off delay		< 100 ms
Ordering data		
Screw connection	Type	TRS 24-230VUC 1CO AU
	Order No.	**1123090000**
Tension clamp conn.	Type	TRZ 24-230VUC 1CO AU
	Order No.	**1123210000**
Note		Spare relay Type: RSS112024 Orderno.: 4061590000

1 NO contact (actuator)

- Space-saving, only 6.4 mm wide
- AgNi contact
- Screw and tension clamp connection
- 24 V DC actuator version:

Bridgeable, potential-free connection in the output (CC)





Technical data

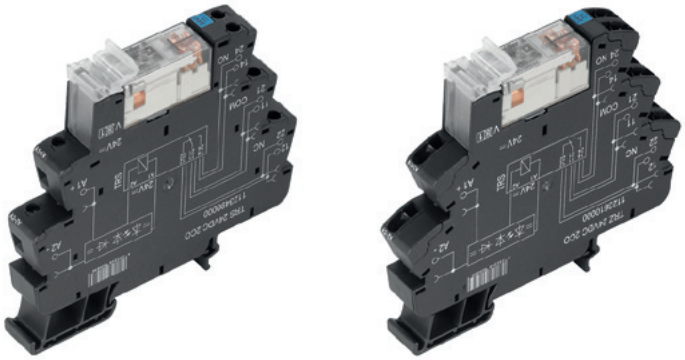
Output			
Rated switching voltage / Continuous current		250 V AC / 6 A	
Max. switching voltage, AC		250 V	
Making current		6 A	
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA	
Max. switching power		1500 VA	
Contact material		AgNi	
Mechanical service life		5 x 10^6 switching cycles	
Max. switching frequency at rated load		0.1 Hz	
Rated data			
Ambient temperature (operational)		-40 °C...+60 °C	
Storage temperature		-40 °C...+85 °C	
Humidity		5–95% rel. humidity, T_u = 40°C, no condensation	
Approvals			
Insulation coordination (EN 50178)			
Rated voltage		300 V	
Impulse withstand voltage		6 kV (1.2/50 µs)	
Dielectric strength input – output			
Dielectric strength, contact / contact			
Dielectric strength to mounting rail		4 kV_{eff} / 1 min.	
Creepage and clearance distance input – output		≥ 5.5 mm	
Surge voltage category		III	
Pollution severity		2	
Dimensions		**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 6.4 / 90	88 / 6.4 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

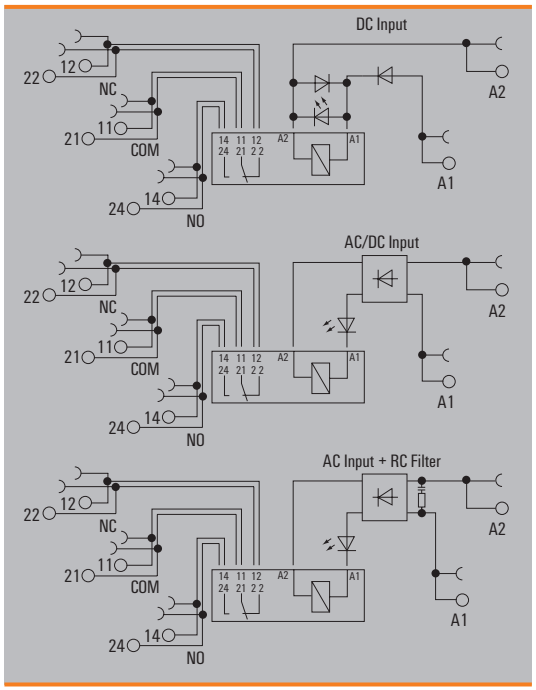
Ordering data

	24 V DC ACT
Input	
Rated control voltage	24 V DC ±20 %
Rated current AC / DC	/ 10 mA
Power rating	240 mW
AC response/dropout Volt	
DC response/dropout Volt	16.6 V / 5 V
AC pickup/dropout current	
DC pickup/dropout current	7 mA / 2 mA
Status indicator	Green LED
Protective circuit	Integrated free-wheel diode, Reverse polarity protection
Output	
Switch-on delay	< 6 ms
Switch-off delay	< 7 ms
Ordering data	
Screw connection Type	TRS 24VDC ACT
Order No.	**1381900000**
Tension clamp conn. Type	TRZ 24VDC ACT
Order No.	**1391670000**
Note	

2 CO contacts
AC/DC/UC coil

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



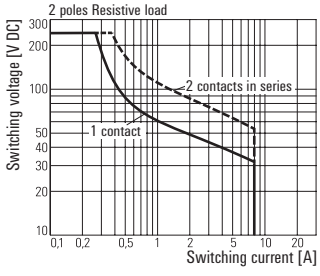


Technical data

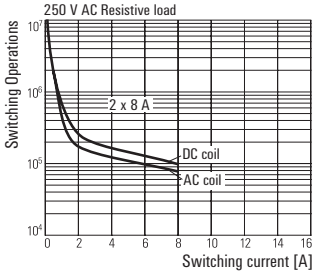
Output			
Rated switching voltage / Continuous current		250 V AC / 8 A	
Max. switching voltage, AC		250 V	
Making current		15 A / 4 s	
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA	
Max. switching power		2000 VA	
Contact material		AgNi	
Mechanical service life		30 x 10^6 switching cycles	
Max. switching frequency at rated load		0.1 Hz	
Rated data			
Ambient temperature (operational)		-40 °C...+60 °C	
Storage temperature		-40 °C...+85 °C	
Humidity		5–95% rel. humidity, T_u = 40°C, no condensation	
Approvals		CE; cULus; GL	
Insulation coordination (EN 50178)			
Rated voltage		300 V	
Impulse withstand voltage		6 kV (1.2/50 µs)	
Dielectric strength input – output		1.2 kV_{eff} / 5 s	
Dielectric strength, contact / contact		2.5 kV_{eff}	
Dielectric strength to mounting rail		4 kV_{eff} / 1 min.	
Creepage and clearance distance input – output		≥ 5.5 mm	
Surge voltage category		III	
Pollution severity		2	
Dimensions		**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 12.8 / 90	88 / 12.8 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

Applications

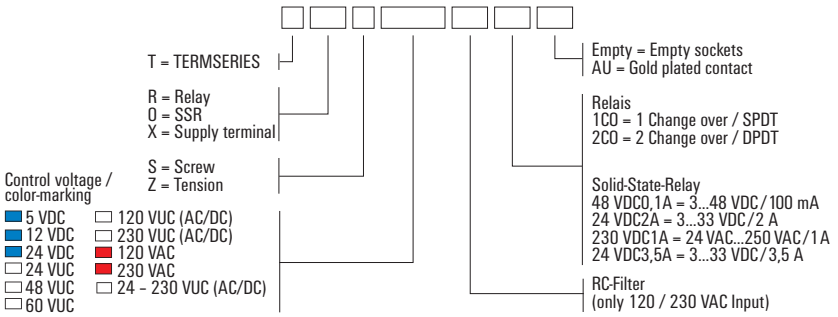
DC load breaking capacity



Electrical endurance



2 CO contacts
AC/DC/UC coil

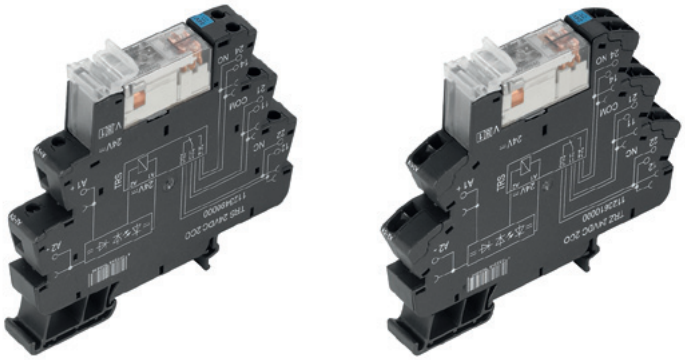


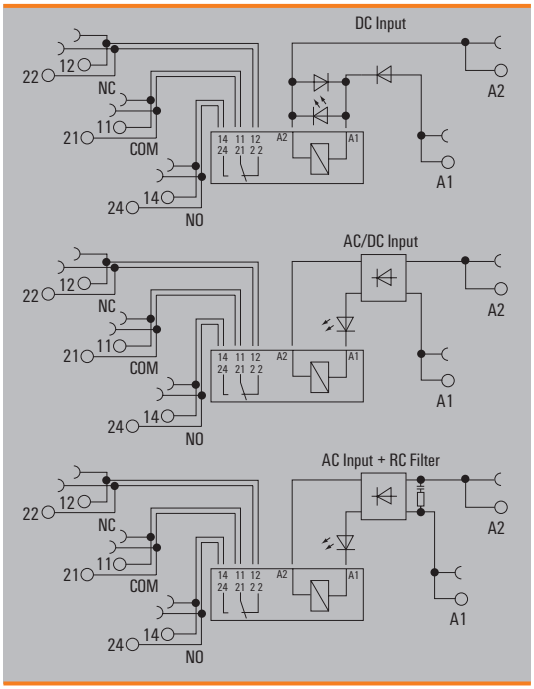
Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Input					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	48 V UC ±10 %
Rated current AC / DC	/ 80 mA	/ 33.3 mA	/ 16 mA	16 mA / 14 mA	9 mA / 7 mA
Power rating	400 mW	420 mW	384 mW	390 mVA / 350 mW	340 mW / 0.4 VA
AC response/dropout Volt				16 V / 9 V	29 V / 11 V
DC response/dropout Volt	3.2 V / 1.6 V	8.5 V / 3 V	16,6 V / 3,5 V	18 V / 8 V	33 V / 12 V
AC pickup/dropout current				11 mA / 4 mA	6.3 mA / 4.3 mA
DC pickup/dropout current	21,6 mA / 8 mA	21 mA / 5 mA	10 mA / 2 mA	10 mA / 2 mA	5 mA / 2 mA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Output					
Switch-on delay	< 7 ms	< 7 ms	< 8 ms	< 4 ms	< 8 ms
Switch-off delay	< 4 ms	< 8 ms	< 10 ms	< 1.2 ms	< 4 ms
Ordering data					
Screw connection Type	TRS 5VDC 2CO	TRS 12VDC 2CO	TRS 24VDC 2CO	TRS 24VUC 2CO	TRS 48VUC 2CO
Order No.	**1123470000**	**1123480000**	**1123490000**	**1123500000**	**1123510000**
Tension clamp conn. Type	TRZ 5VDC 2CO	TRZ 12VDC 2CO	TRZ 24VDC 2CO	TRZ 24VUC 2CO	TRZ 48VUC 2CO
Order No.	**1123590000**	**1123600000**	**1123610000**	**1123620000**	**1123630000**
Note	Spare relay Type: RCL424005 Orderno.: 8693790000	Spare relay Type: RCL424012 Orderno.: 4058560000	Spare relay Type: RCL424024 Orderno.: 4058570000	Spare relay Type: RCL424024 Orderno.: 4058570000	Spare relay Type: RCL424048 Orderno.: 4058750000

Ordering data	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Input					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC ±5 %	120 V AC ±10 %	230 V AC ±5 %
Rated current AC / DC	8 mA / 6.1 mA	3.5 mA / 3.5 mA	4 mA / 4 mA	6.1 mA	10.1 mA
Power rating	480 mVA / 360 mW	420 mVA / 420 mW	920 mVA / 920 mW	0.73 VA	2.3 VA
AC response/dropout Volt	36 V / 13 V	64 V / 26 V	112 V / 43 V	65 V / 23 V	112 V / 45 V
DC response/dropout Volt	40 V / 14 V	69 V / 22 V	129 V / 36 V		
AC pickup/dropout current	5 mA / 2.5 mA	2 mA / 1 mA	2 mA / 1 mA	3.6 mA / 1.3 mA	5 mA / 2.5 mA
DC pickup/dropout current	4 mA / 1.2 mA	2 mA / 1 mA	2 mA / 1 mA		
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier	Rectifier
Output					
Switch-on delay	< 6 ms	< 8 ms	< 14 ms	< 5 ms	< 14 ms
Switch-off delay	< 7 ms	< 7 ms	< 22 ms	< 4 ms	< 12 ms
Ordering data					
Screw connection Type	TRS 60VUC 2CO	TRS 120VUC 2CO	TRS 230VUC 2CO	TRS 120VAC RC 2CO	TRS 230VAC RC 2CO
Order No.	**1123520000**	**1123530000**	**1123540000**	**1123550000**	**1123570000**
Tension clamp conn. Type	TRZ 60VUC 2CO	TRZ 120VUC 2CO	TRZ 230VUC 2CO	TRZ 120VAC RC 2CO	TRZ 230VAC RC 2CO
Order No.	**1123640000**	**1123650000**	**1123670000**	**1123680000**	**1123690000**
Note	Spare relay Type: RCL424060 Orderno.: 4058760000	Spare relay Type: RCL424110 Orderno.: 4058590000	Spare relay Type: RCL424110 Orderno.: 4058590000	Spare relay Type: RCL424110 Orderno.: 4058590000	Spare relay Type: RCL424110 Orderno.: 4058590000

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

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



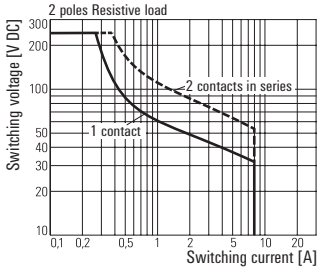


Technical data

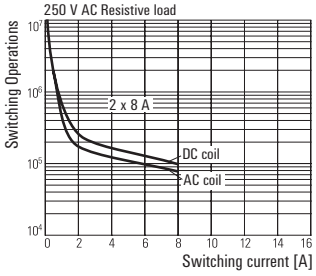
Output			
Rated switching voltage / Continuous current		250 V AC / 8 A	
Max. switching voltage, AC		250 V	
Making current		15 A / 4 s	
Min. switching power		1 V / 1 mA	
Max. switching power		2000 VA	
Contact material		AgNi 5µm Au	
Mechanical service life		30 x 10^6 switching cycles	
Max. switching frequency at rated load		0.1 Hz	
Rated data			
Ambient temperature (operational)		-40 °C...+60 °C	
Storage temperature		-40 °C...+85 °C	
Humidity		5–95% rel. humidity, T_u = 40°C, no condensation	
Approvals		CE; cULus; GL	
Insulation coordination (EN 50178)			
Rated voltage		300 V	
Impulse withstand voltage		6 kV (1.2/50 µs)	
Dielectric strength input – output		1.2 kV_{eff} / 5 s	
Dielectric strength, contact / contact		2.5 kV_{eff}	
Dielectric strength to mounting rail		4 kV_{eff} / 1 min.	
Creepage and clearance distance input – output		≥ 5.5 mm	
Surge voltage category		III	
Pollution severity		2	
Dimensions		**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 12.8 / 90	88 / 12.8 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

Applications

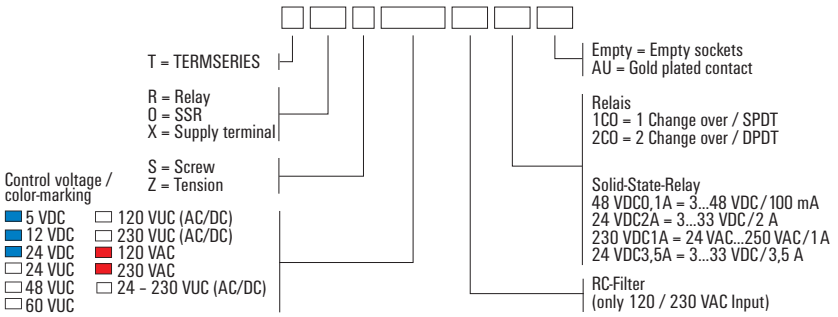
DC load breaking capacity



Electrical endurance



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

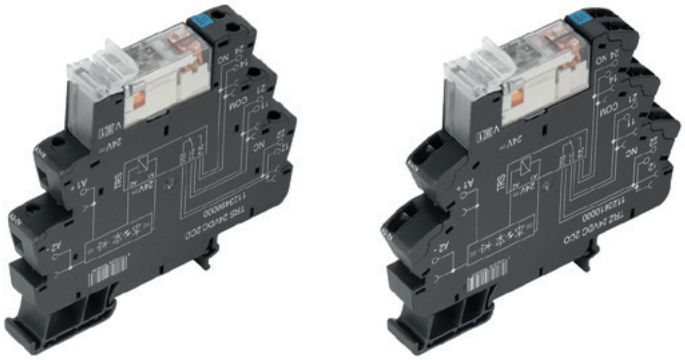


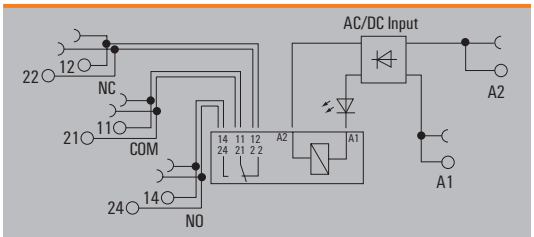
Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Input					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	48 V UC ±10 %
Rated current AC / DC	/ 80 mA	/ 33.3 mA	/ 16 mA	16 mA / 14 mA	9 mA / 7 mA
Power rating	400 mW	420 mW	384 mW	390 mVA / 350 mW	340 mW / 0.4 VA
AC response/dropout Volt				16 V / 9 V	29 V / 11 V
DC response/dropout Volt	3.2 V / 1.6 V	8.5 V / 3 V	16,6 V / 3,5 V	18 V / 8 V	33 V / 12 V
AC pickup/dropout current				11 mA / 4 mA	6.3 mA / 4.3 mA
DC pickup/dropout current	21,6 mA / 8 mA	21 mA / 5 mA	10 mA / 2 mA	10 mA / 2 mA	5 mA / 2 mA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Output					
Switch-on delay	< 7 ms	< 7 ms	< 8 ms	< 4 ms	< 8 ms
Switch-off delay	< 4 ms	< 8 ms	< 10 ms	< 1.2 ms	< 4 ms
Ordering data					
Screw connection Type	TRS 5VDC 2CO AU	TRS 12VDC 2CO AU	TRS 24VDC 2CO AU	TRS 24VUC 2CO AU	TRS 48VUC 2CO AU
Order No.	**1123710000**	**1123720000**	**1123730000**	**1123740000**	**1123750000**
Tension clamp conn. Type	TRZ 5VDC 2CO AU	TRZ 12VDC 2CO AU	TRZ 24VDC 2CO AU	TRZ 24VUC 2CO AU	TRZ 48VUC 2CO AU
Order No.	**1123830000**	**1123840000**	**1123850000**	**1123870000**	**1123880000**
Note	Spare relay Type: RCL425005 Orderno.: 1174490000	Spare relay Type:RCL425012 Orderno.: 4074580000	Spare relay Type: RCL425024 Orderno.: 4058580000	Spare relay Type: RCL425024 Orderno.: 4058580000	Spare relay Type: RCL425048 Orderno.: 1201230000

Ordering data	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Input					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC ±5 %	120 V AC ±10 %	230 V AC ±5 %
Rated current AC / DC	8 mA / 6.1 mA	3.5 mA / 3.5 mA	4 mA / 4 mA	6.1 mA	10.1 mA
Power rating	480 mVA / 360 mW	420 mVA / 420 mW	920 mVA / 920 mW	0.73 VA	2.3 VA
AC response/dropout Volt	36 V / 13 V	64 V / 26 V	112 V / 43 V	65 V / 23 V	112 V / 45 V
DC response/dropout Volt	40 V / 14 V	69 V / 22 V	129 V / 36 V		
AC pickup/dropout current	5 mA / 2.5 mA	2 mA / 1 mA	2 mA / 1 mA	3.6 mA / 1.3 mA	5 mA / 2.5 mA
DC pickup/dropout current	4 mA / 1.2 mA	2 mA / 1 mA	2 mA / 1 mA		
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier	Rectifier
Output					
Switch-on delay	< 6 ms	< 8 ms	< 14 ms	< 5 ms	< 14 ms
Switch-off delay	< 7 ms	< 7 ms	< 22 ms	< 4 ms	< 12 ms
Ordering data					
Screw connection Type	TRS 60VUC 2CO AU	TRS 120VUC 2CO AU	TRS 230VUC 2CO AU	TRS 120VAC RC 2CO AU	TRS 230VAC RC 2CO AU
Order No.	**1123770000**	**1123780000**	**1123790000**	**1123800000**	**1123810000**
Tension clamp conn. Type	TRZ 60VUC 2CO AU	TRZ 120VUC 2CO AU	TRZ 230VUC 2CO AU	TRZ 120VAC RC 2CO AU	TRZ 230VAC RC 2CO AU
Order No.	**1123890000**	**1123900000**	**1123910000**	**1123920000**	**1123930000**
Note	Spare relay Type: RCL425060 Orderno.: 1201260000	Spare relay Type: RCL425110 Orderno.: 8828370000	Spare relay Type: RCL425110 Orderno.: 8828370000	Spare relay Type: RCL425110 Orderno.: 8828370000	Spare relay Type: RCL425110 Orderno.: 8828370000

2 CO contacts
multi-voltage input

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





Technical data

Output		
Rated switching voltage / Continuous current		250 V AC / 8 A
Max. switching voltage, AC		250 V
Making current		15 A / 4 s
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		2000 VA
Contact material		AgNi
Mechanical service life		30 x 10^6 switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+60 °C
Storage temperature		-40 °C...+85 °C
Humidity		5–95% rel. humidity, T_u = 40°C, no condensation
Approvals		CE; cULus; GL
Insulation coordination (EN 50178)		
Rated voltage		300 V
Impulse withstand voltage		6 kV (1.2/50 µs)
Dielectric strength input – output		1.2 kV_{eff} / 5 s
Dielectric strength, contact / contact		2.5 kV_{eff}
Dielectric strength to mounting rail		4 kV_{eff} / 1 min.
Creepage and clearance distance input – output		≥ 5.5 mm
Surge voltage category		III
Pollution severity		2

Dimensions		Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 12.8 / 90	88 / 12.8 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

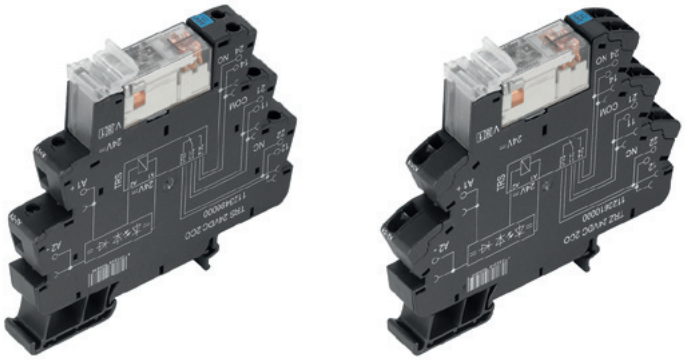
Ordering data

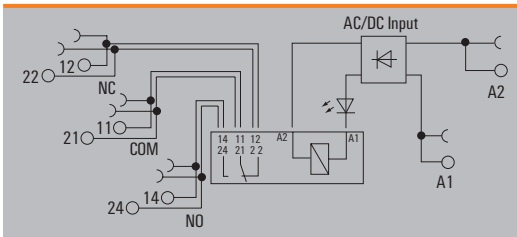
	24 V - 230 V UC
Input	
Rated control voltage	24...230 V UC ±10 %
Rated current AC / DC	6 mA @ 230 V AC / 45 mA @ 24 V DC
Power rating	530 mW @ 24 V DC, 930 mVA @ 230 V AC
AC response/dropout Volt	16.6 V / 5 V
DC response/dropout Volt	16.6 V / 5 V
AC pickup/dropout current	
DC pickup/dropout current	
Status indicator	Green LED
Protective circuit	Rectifier
Output	
Switch-on delay	< 22 ms
Switch-off delay	< 100 ms

Ordering data		
Screw connection	Type	TRS 24-230VUC 2CO
	Order No.	**1123580000**
Tension clamp conn.	Type	TRZ 24-230VUC 2CO
	Order No.	**1123700000**
Note		Spare relay Type: RCL424024 Orderno.: 4058570000

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

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





Technical data

Output			
Rated switching voltage / Continuous current		250 V AC / 8 A	
Max. switching voltage, AC		250 V	
Making current		15 A / 4 s	
Min. switching power		1 V / 1 mA	
Max. switching power		2000 VA	
Contact material		AgNi 5µm Au	
Mechanical service life		30 x 10^6 switching cycles	
Max. switching frequency at rated load		0.1 Hz	
Rated data			
Ambient temperature (operational)		-40 °C...+60 °C	
Storage temperature		-40 °C...+85 °C	
Humidity		5-95% rel. humidity, T_u = 40°C, no condensation	
Approvals		CE; cULus; GL	
Insulation coordination (EN 50178)			
Rated voltage		300 V	
Impulse withstand voltage		6 kV (1.2/50 µs)	
Dielectric strength input – output		1.2 kV_{eff} / 5 s	
Dielectric strength, contact / contact		2.5 kV_{eff}	
Dielectric strength to mounting rail		4 kV_{eff} / 1 min.	
Creepage and clearance distance input – output		≥ 5.5 mm	
Surge voltage category		III	
Pollution severity		2	
Dimensions		**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 12.8 / 90	88 / 12.8 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

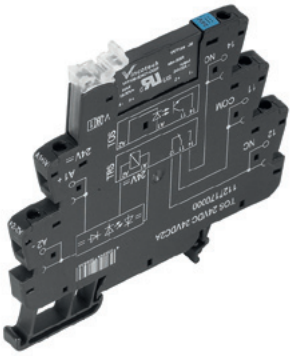
Ordering data

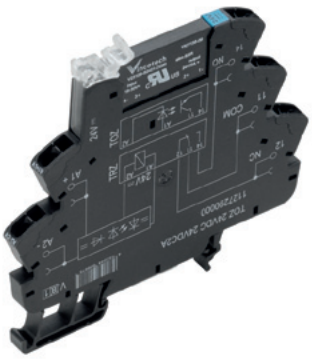
	24 V - 230 V UC
Input	
Rated control voltage	24...230 V UC ±10 %
Rated current AC / DC	6 mA @ 230 V AC / 45 mA @ 24 V DC
Power rating	530 mW @ 24 V DC, 930 mVA @ 230 V AC
AC response/dropout Volt	16.6 V / 5 V
DC response/dropout Volt	16.6 V / 5 V
AC pickup/dropout current	
DC pickup/dropout current	
Status indicator	Green LED
Protective circuit	Rectifier
Output	
Switch-on delay	< 22 ms
Switch-off delay	< 100 ms
Ordering data	
Screw connection Type	TRS 24-230VUC 2CO AU
Order No.	**1123820000**
Tension clamp conn. Type	TRZ 24-230VUC 2CO AU
Order No.	**1123940000**
Note	Spare relay Type: RCL425024 Orderno.: 4058580000

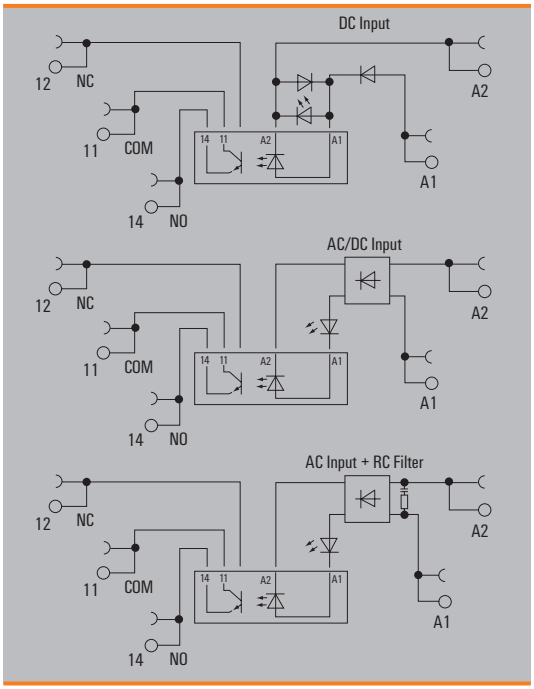
Solid-state relay, 3...48 V DC / 100 mA

Output versions

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







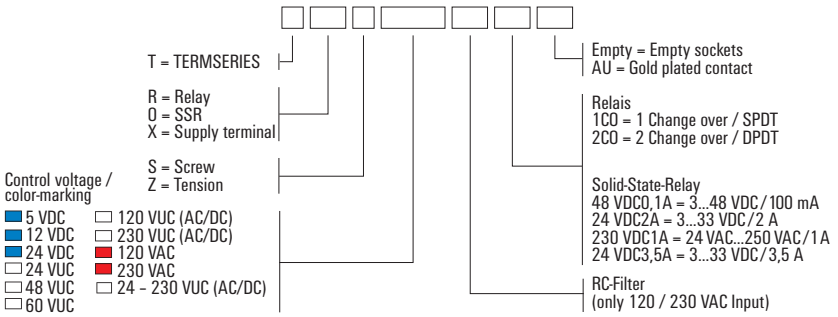
Technical data

Load side	
Rated switching voltage	3... 48 V DC
Continuous current	100 mA
Making current	
Solid-state type	Bipolar transistor
Voltage drop at max. load	≤ 1 V
Leakage current	< 10 µA
Protective circuit, load side	Integrated free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Integrated free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+70 °C
Humidity	5–95% rel. humidity, T_a = 40°C, no condensation
Approvals	CE; cULus; GL
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**	**Tension clamp conn.**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 6.4 / 90	88 / 6.4 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

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

Output versions



Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	48 V UC ±10 %
Nominal control current	7 mA DC (±20 %)	9.6 mA DC (±20 %)	10 mA DC ±20 %	10 mA AC ±20 %, 6 mA DC (±20 %)	8 mA AC (±20 %), 7 mA DC (±20 %)
Power rating	35 mW	112 mW	240 mW	154 mW	290 mVA / 192 mW
Cut-in (switch-on) voltage	≥ 3 V DC	≥ 4 V DC	≥ 15 V DC	≥ 14.4 V AC, ≥ 11.2 V DC	≥ 28 V AC, ≥ 28 V DC
Dropout voltage	≤ 1.7 V DC	≤ 6 V DC	≤ 15 V DC	≤ 15.7 V AC, ≤ 15.7 V DC	≤ 24 V AC, ≤ 24 V DC
Input frequency	10 Hz	10 Hz	300 Hz	DC: 100 Hz / AC: 3 Hz	DC: 100 Hz / AC: 3 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Reverse polarity protection, Integrated free-wheel diode	Reverse polarity protection, Integrated free-wheel diode	Reverse polarity protection, Integrated free-wheel diode	Rectifier	Rectifier
Load side					
Switch-on delay	< 6.5 ms	< 6.5 ms	< 35 µs	< 55 µs	< 55 µs
Switch-off delay	< 10 ms	< 10 ms	< 355 µs	< 4 ms	< 4 ms

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

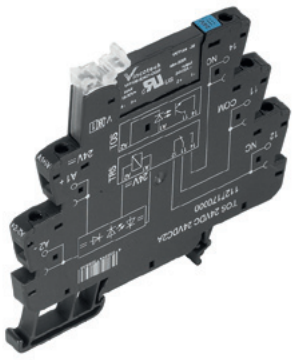
Ordering data	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Control side					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC ±10%	120 V AC ±10 %	230 V AC ±10 %
Nominal control current	5 mA AC (±20 %), 3 mA DC (±20 %)	5 mA AC (±30 %), 3 mA DC (±30 %)	3.5 mA AC (±30 %), 3 mA DC (±30 %)	7 mA AC (±20 %)	9 mA AC
Power rating	< 300 mW	0.48 VA	0.8 VA / 660 mW	0.84 VA	2.1 VA
Cut-in (switch-on) voltage	≥ 28 V AC, ≥ 28 V DC	≥ 65 V AC, ≥ 63 V DC	≥ 130 V AC, ≥ 107 V DC	≥ 65 V AC	≥ 103 V AC
Dropout voltage	≤ 24 V AC, ≤ 31.2 V DC	≤ 78 V AC, ≤ 89 V DC	≤ 126 V AC, ≤ 153 V DC	≤ 71.5 V AC	≤ 109 V AC
Input frequency	DC: 10 Hz / AC: 3 Hz	3 Hz	3 Hz	3 Hz	3 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	RC element	RC element
Load side					
Switch-on delay	< 6.5 ms	< 6.5 ms	< 7 ms	< 6.5 ms	< 7 ms
Switch-off delay	< 10 ms	< 10 ms	< 10 ms	< 10 ms	< 10 ms

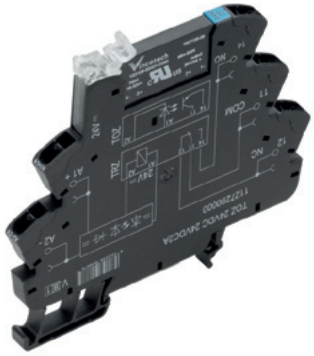
Ordering data						
Screw connection	Type	TOS 60VUC 48VDC0,1A	TOS 120VUC 48VDC0,1A	TOS 230VUC 48VDC0,1A	TOS 120VAC RC 48VDC0,1A	TOS 230VAC RC 48VDC0,1A
	Order No.	**1126970000**	**1126980000**	**1126990000**	**1127000000**	**1127010000**
Tension clamp conn.	Type	TOZ 60VUC 48VDC0,1A	TOZ 120VUC 48VDC0,1A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

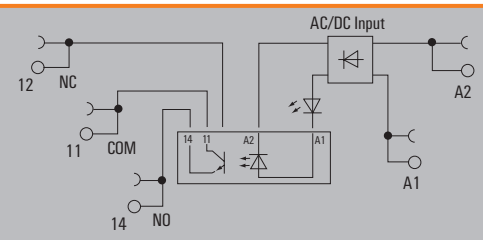
Solid-state relay, 3...48 V DC / 100 mA

Output versions, multi-voltage input

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







Technical data

Load side	
Rated switching voltage	3... 48 V DC
Continuous current	100 mA
Making current	
Solid-state type	Bipolar transistor
Voltage drop at max. load	≤ 1 V
Leakage current	< 10 µA
Protective circuit, load side	Integrated free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Integrated free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+70 °C
Humidity	5–95% rel. humidity, T_u = 40°C, no condensation
Approvals	CE; cULus; GL
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Surge voltage category	III
Pollution severity	2

Dimensions		Screw connection	Tension clamp conn.
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 6.4 / 90	88 / 6.4 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

Ordering data

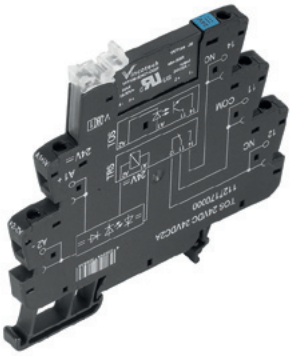
	24 V - 230 V UC
Control side	
Rated control voltage	24...230 V UC ±10 %
Nominal control current	22 mA @ 24 V DC, 4 mA @ 230 V AC
Power rating	530 mW @ 24 V DC, 930 mVA @ 230 V AC
Cut-in (switch-on) voltage	≥ 9,6 V AC, ≥ 9.6 V DC
Dropout voltage	≤ 7,5 V AC, ≤ 6 V DC
Input frequency	3 Hz
Status indicator	Green LED
Protective circuit	Rectifier
Load side	
Switch-on delay	< 20 ms
Switch-off delay	< 100 ms

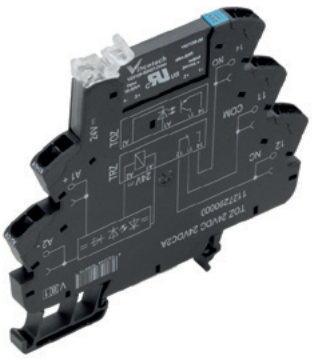
Ordering data		
Screw connection	Type	TOS 24-230VUC 48VDC0,1A
	Order No.	**1127020000**
Tension clamp conn.	Type	TOZ 24-230VUC 48VDC0,1A
	Order No.	**1127130000**
Note		Spare solid-state relay Type: SSS 24 V/24 V 0.1A DC Orderno.: 4061180000

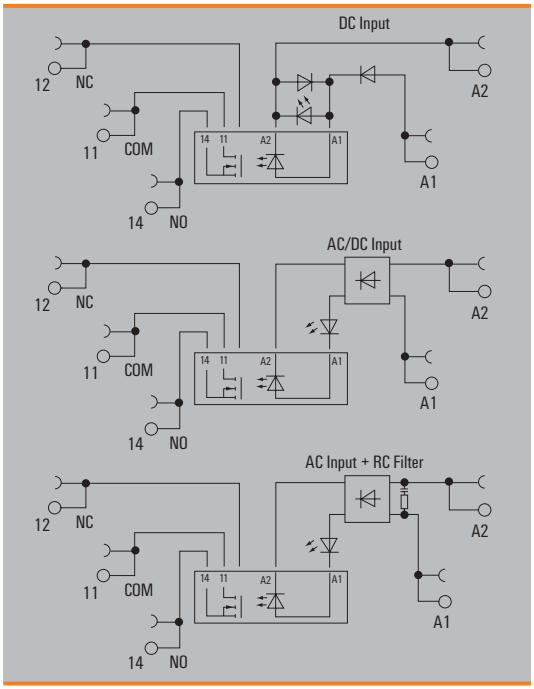
Solid-state relay, 3...33 V DC / 2 A

Output versions

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







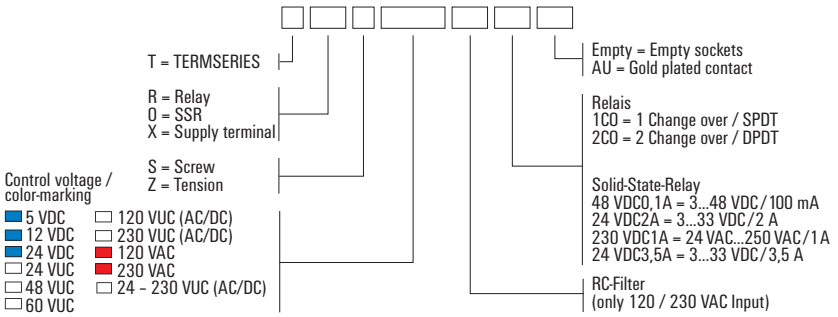
Technical data

Load side	
Rated switching voltage	3...33 V DC
Continuous current	2 A
Making current	
Solid-state type	MOS-FET
Voltage drop at max. load	≤ 120 mV
Leakage current	< 10 µA
Protective circuit, load side	Integrated free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Integrated free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+70 °C
Humidity	5–95% rel. humidity, T_a = 40°C, no condensation
Approvals	CE; cULus; GL
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**	**Tension clamp conn.**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 6.4 / 90	88 / 6.4 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

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

Output versions



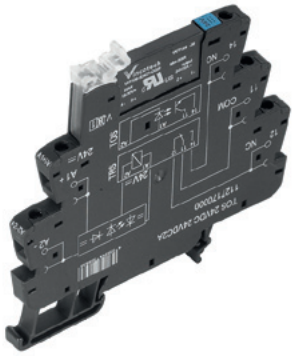
Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	48 V UC ±10 %
Nominal control current	10 mA DC ±20 %	9.6 mA DC (±20 %)	10 mA DC ±20 %	10 mA AC ±20 %, 6 mA DC (±20 %)	8 mA AC (±20 %), 7 mA DC (±20 %)
Power rating	50 mW	112 mW	240 mW	154 mW	290 mVA / 192 mW
Cut-in (switch-on) voltage	≥ 3 V DC	≥ 4 V DC	≥ 15 V DC	≥ 14.4 V AC, ≥ 11.2 V DC	≥ 28 V AC, ≥ 28 V DC
Dropout voltage	≤ 1.7 V DC	≤ 6 V DC	≤ 15 V DC	≤ 15.7 V AC, ≤ 15.7 V DC	≤ 24 V AC, ≤ 24 V DC
Input frequency	300 Hz	300 Hz	300 Hz	DC: 10 Hz / AC: 3 Hz	DC: 10 Hz / AC: 3 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Reverse polarity protection, Integrated free-wheel diode	Reverse polarity protection, Integrated free-wheel diode	Reverse polarity protection, Integrated free-wheel diode	Rectifier	Rectifier
Load side					
Switch-on delay	< 55 µs	< 55 µs	< 55 µs	< 6.5 ms	< 6.5 ms
Switch-off delay	< 1 ms	< 1.2 ms	< 1.2 ms	< 10 ms	< 10 ms
Ordering data					
Screw connection Type	TOS 5VDC 24VDC2A	TOS 12VDC 24VDC2A	TOS 24VDC 24VDC2A	TOS 24VUC 24VDC2A	TOS 48VUC 24VDC2A
Order No.	**1127140000**	**1127150000**	**1127170000**	**1127180000**	**1127190000**
Tension clamp conn. Type	TOZ 5VDC 24VDC2A	TOZ 12VDC 24VDC2A	TOZ 24VDC 24VDC2A	TOZ 24VUC 24VDC2A	TOZ 48VUC 24VDC2A
Order No.	**1127270000**	**1127280000**	**1127290000**	**1127300000**	**1127310000**
Note	Spare solid-state relay Type: SSS 5 V/24 V 2 A DC Orderno.: 4064310000	Spare solid-state relay Type: SSS 5 V/24 V 2A DC Order no.: 4064310000	Spare solid-state relay Type: SSS 24 V/24 V 2 A DC Orderno.: 4061190000	Spare solid-state relay Type: SSS 24 V/24 V 2 A DC Orderno.: 4061190000	Spare solid-state relay Type: SSS 24 V/24 V 2 A DC Orderno.: 4061190000

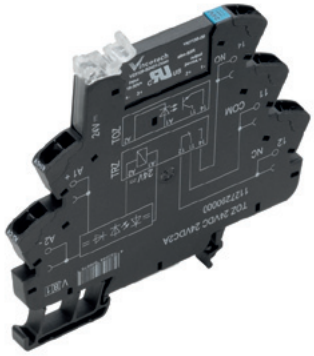
Ordering data	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Control side					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC ±10%	120 V AC ±10 %	230 V AC ±10 %
Nominal control current	5 mA AC (±20 %), 3 mA DC (±20 %)	5 mA AC (±30 %), 3 mA DC (±30 %)	3.5 mA AC (±30 %), 3 mA DC (±30 %)	7 mA AC (±20 %)	9 mA AC
Power rating	< 300 mW	0.48 VA	0.8 VA / 660 mW	0.84 VA	2.1 VA
Cut-in (switch-on) voltage	≥ 28 V AC, ≥ 28 V DC	≥ 65 V AC, ≥ 63 V DC	≥ 130 V AC, ≥ 107 V DC	≥ 65 V AC	≥ 103 V AC
Dropout voltage	≤ 24 V AC, ≤ 31.2 V DC	≤ 78 V AC, ≤ 89 V DC	≤ 126 V AC, ≤ 153 V DC	≤ 71.5 V AC	≤ 109 V AC
Input frequency	DC: 10 Hz / AC: 3 Hz	3 Hz	3 Hz	3 Hz	3 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	RC element	RC element
Load side					
Switch-on delay	< 6.5 ms	< 6.5 ms	< 7 ms	< 6.5 ms	< 7 ms
Switch-off delay	< 10 ms	< 10 ms	< 10 ms	< 10 ms	< 10 ms
Ordering data					
Screw connection Type	TOS 60VUC 24VDC2A	TOS 120VUC 24VDC2A	TOS 230VUC 24VDC2A	TOS 120VAC RC 24VDC2A	TOS 230VAC RC 24VDC2A
Order No.	**1127200000**	**1127210000**	**1127220000**	**1127230000**	**1127240000**
Tension clamp conn. Type	TOZ 60VUC 24VDC2A	TOZ 120VUC 24VDC2A	TOZ 230VUC 24VDC2A	TOZ 120VAC RC 24VDC2A	TOZ 230VAC RC 24VDC2A
Order No.	**1127320000**	**1127330000**	**1127340000**	**1127350000**	**1127370000**
Note	Spare solid-state relay Type: SSS 60 V/24 V 2 A DC Orderno.: 4061200000	Spare solid-state relay Type: SSS 60 V/24 V 2 A DC Orderno.: 4061200000	Spare solid-state relay Type: SSS 60 V/24 V 2 A DC Orderno.: 4061200000	Spare solid-state relay Type: SSS 60 V/24 V 2 A DC Orderno.: 4061200000	Spare solid-state relay Type: SSS 60 V/24 V 2 A DC Orderno.: 4061200000

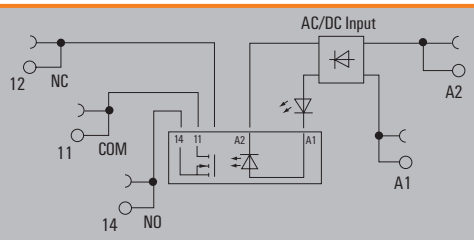
Solid-state relay, 3...33 V DC / 2 A

Output versions, multi-voltage input

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







Technical data

Load side	
Rated switching voltage	3...33 V DC
Continuous current	2 A
Making current	
Solid-state type	MOS-FET
Voltage drop at max. load	≤ 120 mV
Leakage current	< 10 µA
Protective circuit, load side	Integrated free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Integrated free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+70 °C
Humidity	5–95% rel. humidity, T_u = 40°C, no condensation
Approvals	CE; cULus; GL
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Surge voltage category	III
Pollution severity	2

Dimensions		Screw connection	Tension clamp conn.
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 6.4 / 90	88 / 6.4 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

Ordering data

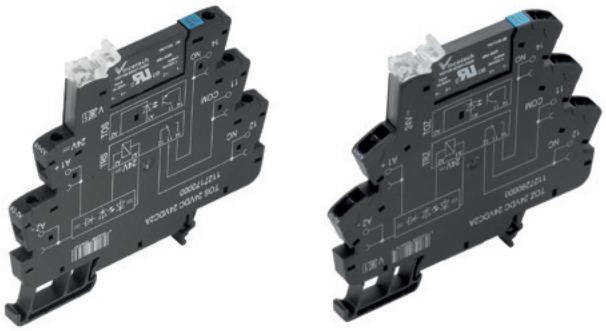
Control side	24 V - 230 V UC
Rated control voltage	24...230 V UC ±10 %
Nominal control current	22 mA @ 24 V DC, 4 mA @ 230 V AC
Power rating	530 mW @ 24 V DC, 930 mVA @ 230 V AC
Cut-in (switch-on) voltage	≥ 9,6 V AC, ≥ 9.6 V DC
Dropout voltage	≤ 7,5 V AC, ≤ 6 V DC
Input frequency	3 Hz
Status indicator	Green LED
Protective circuit	Rectifier
Load side	
Switch-on delay	< 20 ms
Switch-off delay	< 100 ms

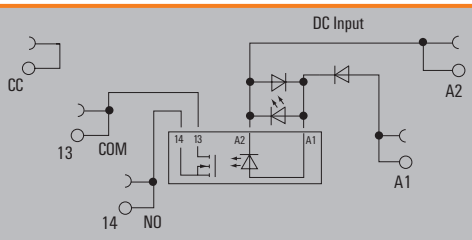
Ordering data		
Screw connection	Type	TOS 24-230VUC 24VDC2A
	Order No.	**1127250000**
Tension clamp conn.	Type	TOZ 24-230VUC 24VDC2A
	Order No.	**1127380000**
Note		Spare solid-state relay Type: SSS 24 V/24 V 2 A DC Orderno.: 4061190000

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

- Space-saving, only 6.4 mm wide
- AgNi contact
- Screw and tension clamp connection
- 24 V DC actuator version:

Bridgeable, potential-free connection in the output (CC)





Technical data

Load side	
Rated switching voltage	3...33 V DC
Continuous current	2 A
Making current	
Solid-state type	MOS-FET
Voltage drop at max. load	≤ 120 mV
Leakage current	< 10 µA
Protective circuit, load side	Integrated free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Integrated free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+70 °C
Humidity	5–95% rel. humidity, T_u = 40°C, no condensation
Approvals	
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**	**Tension clamp conn.**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 6.4 / 90	88 / 6.4 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

Ordering data

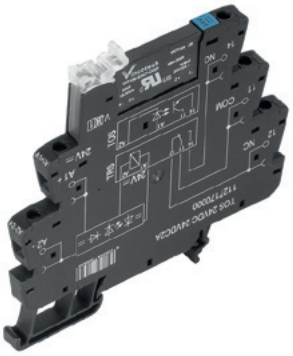
	24 V DC
Control side	
Rated control voltage	24 V DC ±20 %
Nominal control current	10 mA DC ±20 %
Power rating	240 mW
Cut-in (switch-on) voltage	≥ 15 V DC
Dropout voltage	≤ 15 V DC
Input frequency	300 Hz
Status indicator	Green LED
Protective circuit	Reverse polarity protection, Integrated free-wheel diode
Load side	
Switch-on delay	< 55 µs
Switch-off delay	< 1.2 ms

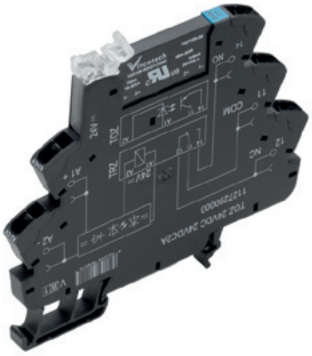
Ordering data		
Screw connection	Type	TOS 24VDC ACT
	Order No.	**1391680000**
Tension clamp conn.	Type	TOZ 24VDC ACT
	Order No.	**1391690000**
Note		

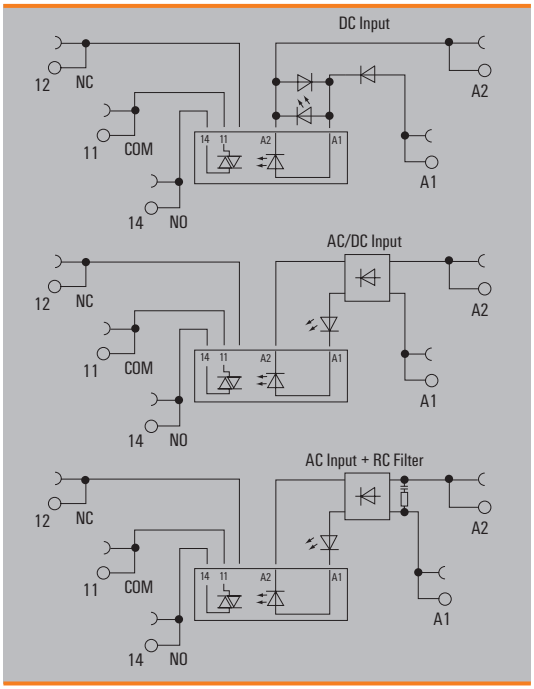
Solid-state relay, 24...230 V AC / 1 A

Output versions

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







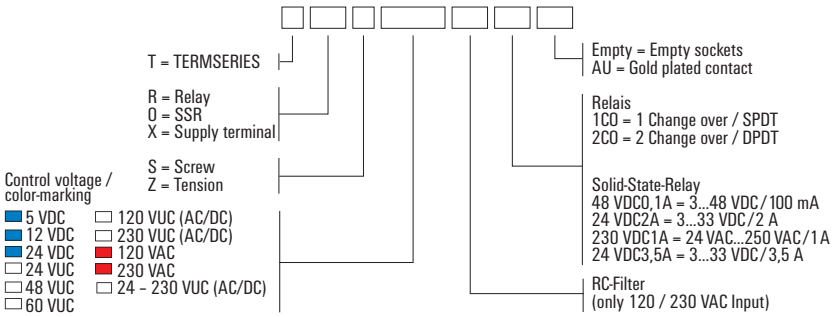
Technical data

Load side	
Rated switching voltage	24 V AC ... 250 V AC
Continuous current	1 A
Making current	
Solid-state type	Triac (zero-cross switch)
Voltage drop at max. load	≤ 1.6 V
Leakage current	< 10 µA
Protective circuit, load side	No
Short-circuit-proof / Protective circuit, load side	No / No
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+70 °C
Humidity	5–95% rel. humidity, T_u = 40°C, no condensation
Approvals	CE; cULus; GL
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**	**Tension clamp conn.**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 6.4 / 90	88 / 6.4 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

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

Output versions

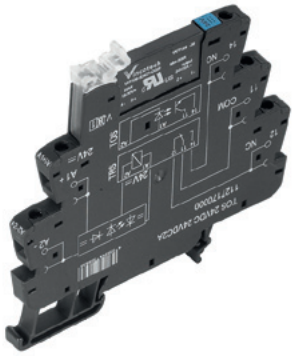


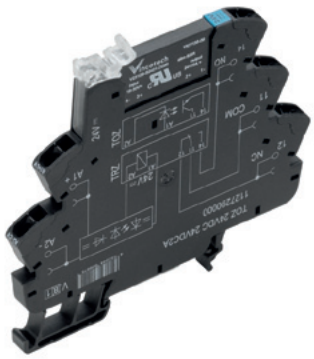
Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	48 V UC ±10 %
Nominal control current	15 mA DC (±20 %)	9.6 mA DC (±20 %)	10 mA DC ±20 %	10 mA AC ±20 %, 6 mA DC (±20 %)	6 mA AC (±20 %), 4 mA DC (±20 %)
Power rating	75 mW	112 mW	260 mW	154 mW	290 mVA / 192 mW
Cut-in (switch-on) voltage	≥ 3 V DC	≥ 4 V DC	≥ 15 V DC	≥ 14.4 V AC, ≥ 11.2 V DC	≥ 28 V AC, ≥ 28 V DC
Dropout voltage	≤ 1.7 V DC	≤ 6 V DC	≤ 15 V DC	≤ 15.7 V AC, ≤ 15.7 V DC	≤ 24 V AC, ≤ 24 V DC
Input frequency	3 Hz	3 Hz	3 Hz	3 Hz	3 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Reverse polarity protection, Integrated free-wheel diode	Reverse polarity protection, Integrated free-wheel diode	Reverse polarity protection, Integrated free-wheel diode	Rectifier	Rectifier
Load side					
Switch-on delay	< 12 ms	< 12 ms	< 11 ms	< 11 ms	< 11 ms
Switch-off delay	< 12 ms	< 12 ms	< 11 ms	< 11 ms	< 11 ms
Ordering data					
Screw connection Type	TOS 5VDC 230VAC1A	TOS 12VDC 230VAC1A	TOS 24VDC 230VAC1A	TOS 24VUC 230VAC1A	TOS 48VUC 230VAC1A
Order No.	**1127390000**	**1127400000**	**1127410000**	**1127420000**	**1127430000**
Tension clamp conn. Type	TOZ 5VDC 230VAC1A	TOZ 12VDC 230VAC1A	TOZ 24VDC 230VAC1A	TOZ 24VUC 230VAC1A	TOZ 48VUC 230VAC1A
Order No.	**1127510000**	**1127520000**	**1127530000**	**1127540000**	**1127550000**
Note	Spare solid-state relay Type: SSS 5 V/ 230 V 1 A AC Orderno.: 1132260000	Spare solid-state relay Type: SSS 5 V/230 V 1A AC Orderno.: 1132260000	Spare solid-state relay Type: SSS 24 V/230 V 1 A AC Orderno.: 4061210000	Spare solid-state relay Type: SSS 24 V/230 V 1 A AC Orderno.: 4061210000	Spare solid-state relay Type: SSS 24 V/230 V 1 A AC Orderno.: 4061210000

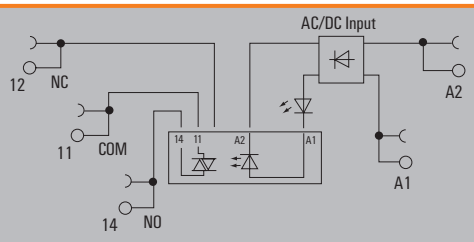
Ordering data	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Control side					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC +5 %/ -10 %	120 V AC ±10 %	230 V AC +5 % / -10 %
Nominal control current	5 mA AC (±20 %), 3 mA DC (±20 %)	5 mA AC (±30 %), 3 mA DC (±30 %)	3.5 mA AC (±30 %), 3 mA DC (±30 %)	7 mA AC (±20 %)	9 mA AC
Power rating	< 300 mW	0.48 VA	0.8 VA / 660 mW	0.84 VA	2.1 VA
Cut-in (switch-on) voltage	≥ 28 V AC, ≥ 28 V DC	≥ 65 V AC, ≥ 63 V DC	≥ 130 V AC, ≥ 107 V DC	≥ 65 V AC	≥ 103 V AC
Dropout voltage	≤ 22 V AC, ≤ 28.6 V DC	≤ 78 V AC, ≤ 89 V DC	≤ 126 V AC, ≤ 153 V DC	≤ 71.5 V AC	≤ 109 V AC
Input frequency	3 Hz	3 Hz	3 Hz	3 Hz	3 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	RC element	RC element
Load side					
Switch-on delay	< 11 ms	< 11 ms	< 20 ms	< 11 ms	< 20 ms
Switch-off delay	< 11 ms	< 11 ms	< 20 ms	< 11 ms	< 20 ms
Ordering data					
Screw connection Type	TOS 60VUC 230VAC1A	TOS 120VUC 230VAC1A	TOS 230VUC 230VAC1A	TOS 120VAC RC 230VAC1A	TOS 230VAC RC 230VAC1A
Order No.	**1127440000**	**1127450000**	**1127470000**	**1127480000**	**1127490000**
Tension clamp conn. Type	TOZ 60VUC 230VAC1A	TOZ 120VUC 230VAC1A	TOZ 230VUC 230VAC1A	TOZ 120VAC RC 230VAC1A	TOZ 230VAC RC 230VAC1A
Order No.	**1127570000**	**1127580000**	**1127590000**	**1127600000**	**1127610000**
Note	Spare solid-state relay Type: SSS 60 V/230 V 1 A AC Orderno.: 4061220000	Spare solid-state relay Type: SSS 60 V/230 V 1 A AC Orderno.: 4061220000	Spare solid-state relay Type: SSS 60 V/230 V 1 A AC Orderno.: 4061220000	Spare solid-state relay Type: SSS 60 V/230 V 1 A AC Orderno.: 4061220000	Spare solid-state relay Type: SSS 60 V/230 V 1 A AC Orderno.: 4061220000

Solid-state relay, 24...230 V AC / 1 A output versions, multi-voltage input

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







Technical data

Load side	
Rated switching voltage	24...230 V AC
Continuous current	1 A
Making current	
Solid-state type	Triac (zero-cross switch)
Voltage drop at max. load	≤ 1 V
Leakage current	< 10 µA
Protective circuit, load side	No
Short-circuit-proof / Protective circuit, load side	No / No
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+70 °C
Humidity	5-95% rel. humidity, T_u = 40°C, no condensation
Approvals	CE; cULus; GL
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**	**Tension clamp conn.**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 6.4 / 90	88 / 6.4 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

Ordering data

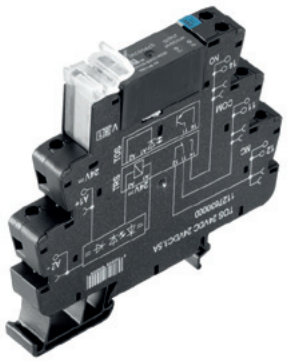
	24 V - 230 V UC
Control side	
Rated control voltage	24...230 V UC ±10 %
Nominal control current	22 mA @ 24 V DC, 4 mA @ 230 V AC
Power rating	530 mW @ 24 V DC, 930 mVA @ 230 V AC
Cut-in (switch-on) voltage	≥ 9,6 V AC, ≥ 9.6 V DC
Dropout voltage	≤ 7,5 V AC, ≤ 6 V DC
Input frequency	3 Hz
Status indicator	Green LED
Protective circuit	Rectifier
Load side	
Switch-on delay	< 20 ms
Switch-off delay	< 100 ms

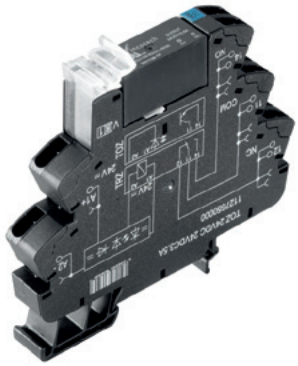
Ordering data		
Screw connection	Type	TOS 24-230VUC 230VAC1A
	Order No.	**1127500000**
Tension clamp conn.	Type	TOZ 24-230VUC 230VAC1A
	Order No.	**1127620000**
Note		Spare solid-state relay Type: SSS 24 V/230 V 1 A AC Orderno.: 4061210000

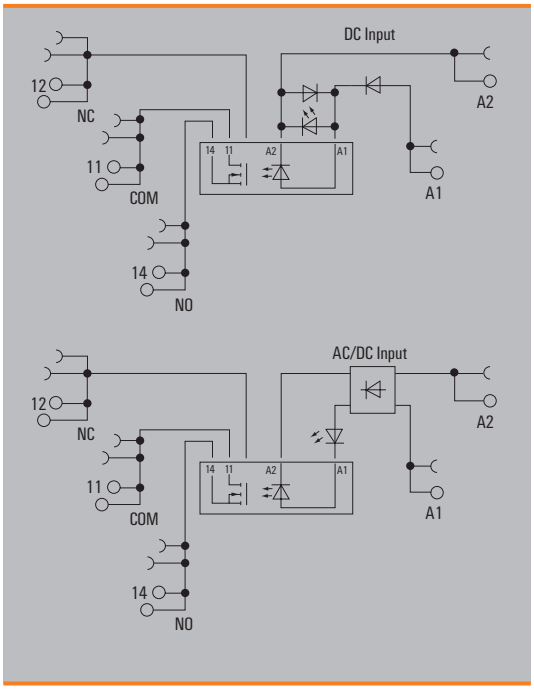
Solid-state relay, 0...33 V DC / 3.5 A

Output versions

- Space saving, just 12.8 mm modular width
- 5 cross-connection levels
- Screw and tension clamp connection







Technical data

Load side	
Rated switching voltage	3...33 V DC
Continuous current	3.5 A
Making current	
Solid-state type	MOS-FET
Voltage drop at max. load	≤ 0.3 V
Leakage current	< 10 µA
Protective circuit, load side	Integrated free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Integrated free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+85 °C
Humidity	5-95% rel. humidity, T_u = 40°C, no condensation
Approvals	CE; cULus; GL
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 12.8 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.

Ordering data

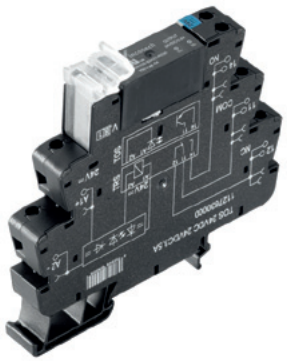
	24 V DC	24 V - 230 V UC
Control side		
Rated control voltage	24 V DC ±20 %	24...230 V UC ±10 %
Nominal control current	8 mA DC (±20 %)	22 mA @ 24 V DC, 4 mA @ 230 V AC
Power rating	≤ 200 mW	530 mW @ 24 V DC, 930 mVA @ 230 V AC
Cut-in (switch-on) voltage	≥ 11.2 V DC	≥ 9,6 V AC, ≥ 9.6 V DC
Dropout voltage	≤ 13 V DC	≤ 7,5 V AC, ≤ 6 V DC
Input frequency	300 Hz	3 Hz
Status indicator	Green LED	Green LED
Protective circuit	Reverse polarity protection, Integrated free-wheel diode	Rectifier
Load side		
Switch-on delay	< 50 µs	< 20 ms
Switch-off delay	< 250 µs	< 100 ms

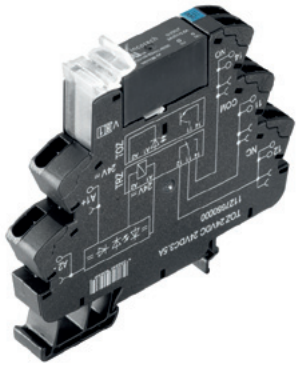
Ordering data			
Screw connection	Type	TOS 24VDC 24VDC3,5A	TOS 24-230VUC 24VDC3,5A
	Order No.	**1127630000**	**1127640000**
Tension clamp conn.	Type	TOZ 24VDC 24VDC3,5A	TOZ 24-230VUC 24VDC3,5A
	Order No.	**1127650000**	**1127670000**
Note		Spare solid-state relay Type: SSR 10-32 V DC/0-35 V DC 5 A Orderno.: 1132310000	Spare solid-state relay Type: SSR 10-32 V DC/0-35 V DC 5 A Orderno.: 1132310000

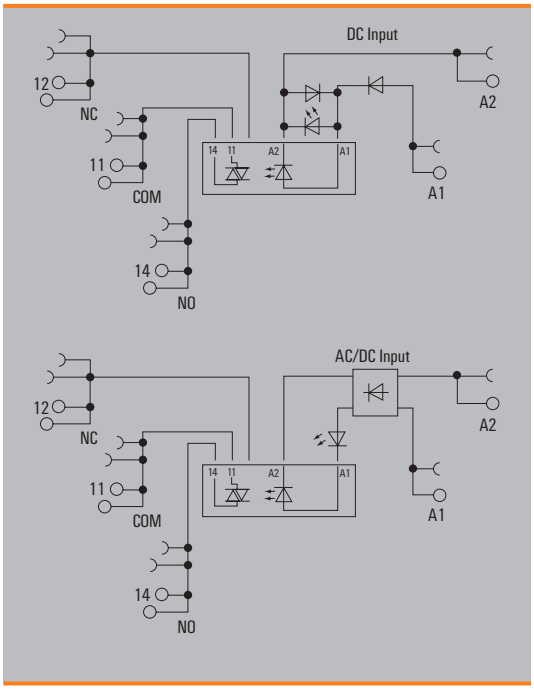
Solid-state relay, 12...275 V AC / 1 A

Output versions

- Space saving, just 12.8 mm modular width
- 5 cross-connection levels
- Screw and tension clamp connection







Technical data

Load side	
Rated switching voltage	12...275 V AC
Continuous current	1 A
Making current	
Solid-state type	Triac (zero-cross switch)
Voltage drop at max. load	≤ 1.1 V
Leakage current	< 10 µA
Protective circuit, load side	No
Short-circuit-proof / Protective circuit, load side	No / No
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+70 °C
Humidity	5-95% rel. humidity, T_u = 40°C, no condensation
Approvals	CE; GL
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.14 / 1.5
Depth x width x height	mm	88 / 12.8 / 90
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.

Ordering data

	24 V DC	24 V - 230 V UC
Control side		
Rated control voltage	24 V DC ±20 %	24...230 V UC ±10 %
Nominal control current	8 mA DC (±20 %)	22 mA @ 24 V DC, 4 mA @ 230 V AC
Power rating	≤ 200 mW	530 mW @ 24 V DC, 930 mVA @ 230 V AC
Cut-in (switch-on) voltage	≥ 11.2 V DC	≥ 9,6 V AC, ≥ 9.6 V DC
Dropout voltage	≤ 13 V DC	≤ 7,5 V AC, ≤ 6 V DC
Input frequency	3 Hz	3 Hz
Status indicator	Green LED	Green LED
Protective circuit	Reverse polarity protection, Integrated free-wheel diode	Rectifier
Load side		
Switch-on delay	< 50 µs	< 20 ms
Switch-off delay	< 250 µs	< 100 ms

Ordering data			
Screw connection	Type	TOS 24VDC 230VAC1A	TOS 24-230VUC 230VAC1A
	Order No.	**1127680000**	**1127690000**
Tension clamp conn.	Type	TOZ 24VDC 230VAC1A	TOZ 24-230VUC 230VAC1A
	Order No.	**1127700000**	**1127710000**
Note		Spare solid-state relay Type: SSR 10 - 32 VDC/ 12 - 275 VAC 3A Orderno.: 1132290000	Spare solid-state relay Type: SSR 10 - 32 VDC/ 12 - 275 VAC 3A Orderno.: 1132290000

RSS relay module



Technical data	RSS113...	RSS112...
Type of contact / Number of contacts	1 CO contact	1 CO contact
Contact material	AgNi	AgNi 5uAu [3]
Max. switching voltage / current	250 V / 6 A [1]	250 V / 6 A [1]
Min. switching voltage / current	5 V / 100 mA [2]	1 V / 1 mA
Min. mechanical lifetime	5 x 10^6 [1]	5 x 10^6 [1]
Min. electrical lifetime	NO: 5 x 10^4; NC: 3 x 10^4 [1]	NO: 5 x 10^4; NC: 3 x 10^4 [1]
Max. switch-on / switch-off delay	8 / 4 ms	8 / 4 ms
Ambient temperature (operational)	-40 °C ...+85 °C	-40 °C ...+85 °C
Making / Dropout voltage coil	typ. 70 % / 5 % U_{NOM}	typ. 70 % / 5 % U_{NOM}

Note

1) At resistive load
2) 10 V / 10 mA; 24 V / 1 mA
3) Au- plate operate up to 0.25 W

Coil data	Nominal voltage / current		Order No.	Order No.
RSS...005	5 V DC / 34 mA		**4061580000**	**1174540000**
RSS...012	12 V DC / 14 mA		**4061610000**	**1220670000**
RSS...024	24 V DC / 7 mA		**4060120000**	**4061590000**
RSS...060	60 V DC / 3 mA		**4061630000**	**4061600000**

RCL relay module



Technical data	RCL424...	RCL425...
Type of contact / Number of contacts	2 CO contacts	2 CO contacts
Contact material	AgNi	AgNi 5uAu [3]
Max. switching voltage / current	250 V / 8 A [1]	250 V / 8 A [1]
Min. switching voltage / current	5 V / 100 mA [2]	1 V / 1 mA
Min. mechanical lifetime	30 x 10^6 [1]	30 x 10^6 [1]
Min. electrical lifetime	10 x 10^3 [1]	10 x 10^3 [1]
Max. switch-on / switch-off delay	8 / 6 ms	8 / 6 ms
Ambient temperature (operational)	-40 °C ...+85 °C	-40 °C ...+85 °C
Making / Dropout voltage coil	typ. 70 % / 10 % U_{NOM}	typ. 70 % / 10 % U_{NOM}

Note

1) At resistive load
2) 10 V / 10 mA; 24 V / 1 mA
3) Au- plate operate up to 0.25 W

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

Small solid-state relay



Similar to illustration

Technical data	SSS...24 V 0.1 A DC	SSS...24 V 2 A DC	SSS...230 V 1 A AC
Output	Bipolar transistor	MOS-FET	TRIAC, zero cross switch
Switching voltage	0...48 V DC	0...24 V DC	24...240 V AC
Continuous current	100 mA	2 A	1 A
Peak reverse voltage	54 V	33 V	600 V
Forward voltage	< 1 V DC	< 120 mV	< 1 V
Test voltage input /output	2.5 kV	2.5 kV	3.75 kV
Ambient temperature (operational)	-20 °C ...+60 °C	-20 °C ...+60 °C	-20 °C ...+60 °C
Storage temperature	-40 °C ...+70 °C	-40 °C ...+70 °C	-40 °C ...+70 °C
Note			

Input	Nominal voltage / current	Order No.	Order No.	Order No.
SSS 5 V...	2.5...6 V DC / 4 mA	**4064320000**	–	–
SSS 24 V...	16...30 V DC / 7 mA	**4061180000**	–	–
SSS 60 V...	52...72 V DC / 3 mA	**4061230000**	–	–
SSS 5 V...	2.5...6 V DC / 9 mA	–	**4064310000**	–
SSS 24 V...	18...30 V DC / 7 mA	–	**4061190000**	–
SSS 60 V...	40...72 V DC / 3 mA	–	**4061200000**	–
SSS 5 V...	2.5...6 V DC / 15 mA	–	–	**1132260000**
SSS 24 V...	18...30 V DC / 7 mA	–	–	**4061210000**
SSS 60 V...	40...72 V DC / 3 mA	–	–	**4061220000**

Solid-state relay

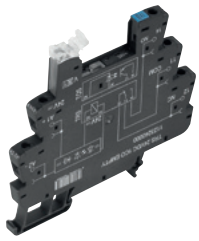


Similar to illustration

Technical data		SSR.../0-35 V DC 3,5 A	SSR.../12-275 V AC 1 A
Output		MOS-FET	TRIAC, zero cross switch
Switching voltage		0...33 V DC	12...275 V AC
Continuous current		1 mA...3,5 A	50 mA...1 A
Peak reverse voltage		35 V	600 V
Forward voltage		< 300 mV	< 1.1 V
Test voltage input /output		2.5 kV	
Ambient temperature (operational)		-20 °C ...+80 °C	
Storage temperature		-40 °C ...+100 °C	
Note			

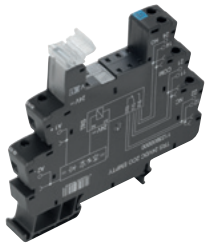
Coil data	Nominal voltage / current		Order No.	Order No.
SSR10...32 V DC/...	10...32 V/3...13 mA		**1132310000**	**1132290000**

Empty socket 6.4 mm



Input voltage	Qty.	Type / 1 CO, Screw connection	Order No.	Type / 1 CO, Tension clamp connection	Order No.
5 V DC [1]	10	TRS 5VDC 1CO empty	**1123220000**	TRZ 5VDC 1CO empty	**1123340000**
12 V DC [2]	10	TRS 12VDC 1CO empty	**1123230000**	TRZ 12VDC 1CO empty	**1123350000**
24 V DC [3]	10	TRS 24VDC 1CO empty	**1123240000**	TRZ 24VDC 1CO empty	**1123370000**
24 V UC [3]	10	TRS 24VUC 1CO empty	**1123250000**	TRZ 24VUC 1CO empty	**1123380000**
48 V UC [3]	10	TRS 48VUC 1CO empty	**1123270000**	TRZ 48VUC 1CO empty	**1123390000**
60 V UC [4]	10	TRS 60VUC 1CO empty	**1123280000**	TRZ 60VUC 1CO empty	**1123400000**
120 V UC [4]	10	TRS 120VUC 1CO empty	**1123290000**	TRZ 120VUC 1CO empty	**1123410000**
230 V UC [4]	10	TRS 230VUC 1CO empty	**1123300000**	TRZ 230VUC 1CO empty	**1123420000**
120 V AC [4]	10	TRS 120VAC RC 1CO empty	**1123310000**	TRZ 120VAC RC 1CO empty	**1123430000**
230 V AC [4]	10	TRS 230VAC RC 1CO empty	**1123320000**	TRZ 230VAC RC 1CO empty	**1123440000**
24...230 V AC / DC [3]	10	TRS 24-230VUC 1CO empty	**1123330000**	TRZ 24-230VUC 1CO empty	**1123450000**
Useable with [1] RSS...005; SSS 5V...		[2] RSS...012 [3] RSS...024; SSS 24V...		[4] RSS...60V; SSS 60V...	

Empty socket 12.8 mm



Input voltage	Qty.	Type / 1 CO, Screw connection	Order No.	Type / 1 CO, Tension clamp connection	Order No.
5 V DC [1]	10	TRS 5VDC 1CO empty	**1127720000**	TOZ 24VDC empty	**1127740000**
12 V DC [2]	10	TRS 12VDC 1CO empty	**1127730000**	TOZ 24-230VUC empty	**1127750000**
Input voltage	**Qty.**	**Type / 2 CO, Screw connection**	**Order No.**	**Type / 2 CO, Tension clamp connection**	**Order No.**
5 V DC [2]	10	TRS 5VDC 2CO empty	**1123950000**	TRZ 5VDC 2CO empty	**1124080000**
12 V DC [3]	10	TRS 12VDC 2CO empty	**1123970000**	TRZ 12VDC 2CO empty	**1124090000**
24 V DC [4]	10	TRS 24VDC 2CO empty	**1123980000**	TRZ 24VDC 2CO empty	**1124100000**
24 V UC [4]	10	TRS 24VUC 2CO empty	**1123990000**	TRZ 24VUC 2CO empty	**1124110000**
48 V UC [5]	10	TRS 48VUC 2CO empty	**1124000000**	TRZ 48VUC 2CO empty	**1124120000**
60 V UC [6]	10	TRS 60VUC 2CO empty	**1124010000**	TRZ 60VUC 2CO empty	**1124130000**
120 V UC [7]	10	TRS 120VUC 2CO empty	**1124020000**	TRZ 120VUC 2CO empty	**1124140000**
230 V UC [7]	10	TRS 230VUC 2CO empty	**1124030000**	TRZ 230VUC 2CO empty	**1124150000**
120 V AC [7]	10	TRS 120VAC RC 2CO empty	**1124040000**	TRZ 120VAC RC 2CO empty	**1124170000**
230 V AC [7]	10	TRS 230VAC RC 2CO empty	**1124050000**	TRZ 230VAC RC 2CO empty	**1124180000**
24...230 V AC / DC [7]	10	TRS 24-230VUC 2CO empty	**1124070000**	TRZ 24-230VUC 2CO empty	**1124190000**
Useable with [1] RCL31024;SSR 10...32VDC/...		[2] RCL42005, [3] RCL42012	[4] RCL42024	[5] RCL42048, [6] RCL42060,	[7] RCL42110

Technical data

Conductor		Screw connection	Tension clamp connection
Plug gauge to IEC 60947-1	Size	A1 / B1	A1 / B1
1 conductor			
Solid H07V-U	mm²	0.14...2.5	0.14...1.5
Stranded H07V-K	mm²	0.14...1.5	0.14...1.5
... with wire end ferrule	mm²	0.25...1.5	0.14...1.5
... with wire end ferrule with plastic collar	mm²	0.25...1.5	0.14...1.5
Clamping range AWG.../1	AWG	26...14	26...16
Clamping range AWG.../7	AWG	26...16	26...16
Clamping range AWG.../19	AWG	26...16	26...16
2 conductor with same size			
Solid H07V-U	mm²	0.5...1.0	
Stranded H07V-K	mm²	0.5...1.0	
... with twin wire end ferrule H...D ZH	mm²	0.5...1.0	0.5...1.0

General data			
Nominal torque	Nm	0.4	
Stripping length	mm	8	8
Continuous current ZQV 1.5N/R6.4	A	17.5; UL: 10	17.5; UL: 10
No. Contact durability relay / ZQV		10	10

Note		

Pluggable cross connection



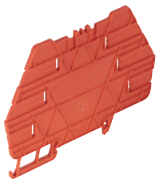
Type	No. of poles / Pitch	Colour	Qty.	Order No.
ZQV 1.5N/R6.4/2 GE	2 / 6.4 mm	yellow	10	1193670000
ZQV 1.5N/R6.4/10 GE	10 / 6.4 mm	yellow	10	1193680000
ZQV 1.5N/R6.4/19 GE	19 / 6.4 mm	yellow	10	1193690000
ZQV 1.5N/R12.8/10 GE	10 / 12.8 mm	yellow	10	1193700000
ZQV 1.5N/R6.4/10 SW	10 / 6.4 mm	black	10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

Supply terminal



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

Other accessories



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

Markers	Note		
WS 10/6 MC Middle	10 * 6 mm	600	1818400000

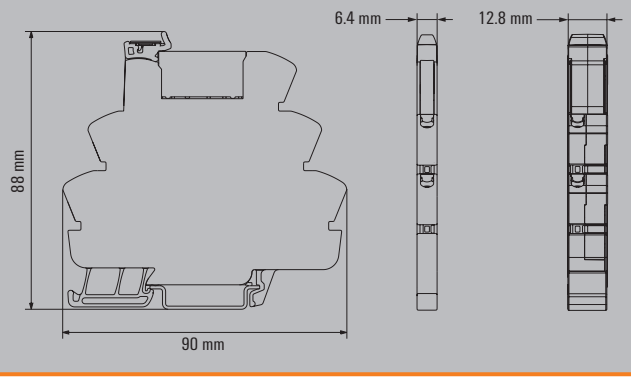


Screwdriver	Note		
SDK PH0	only screw connection	1	9008470000
SD 0.6 x 3.5 x 100		1	9008330000
SD TO 0.6 x 3.0	only tension clamp connection (angled)	1	1323880000

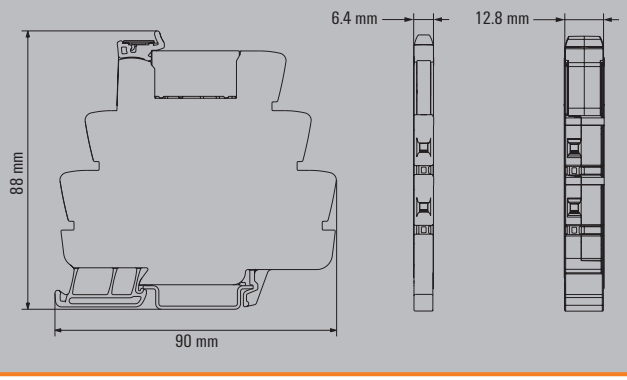
End bracket			
WEW35/2 SW		100	1061210000

Dimensions

Tension clamp connection



Screw connection



No-wear isolation of potentials in terminal block design

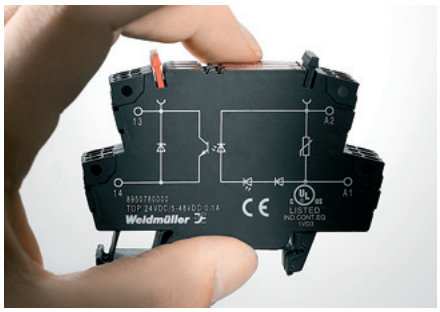
PUSH IN

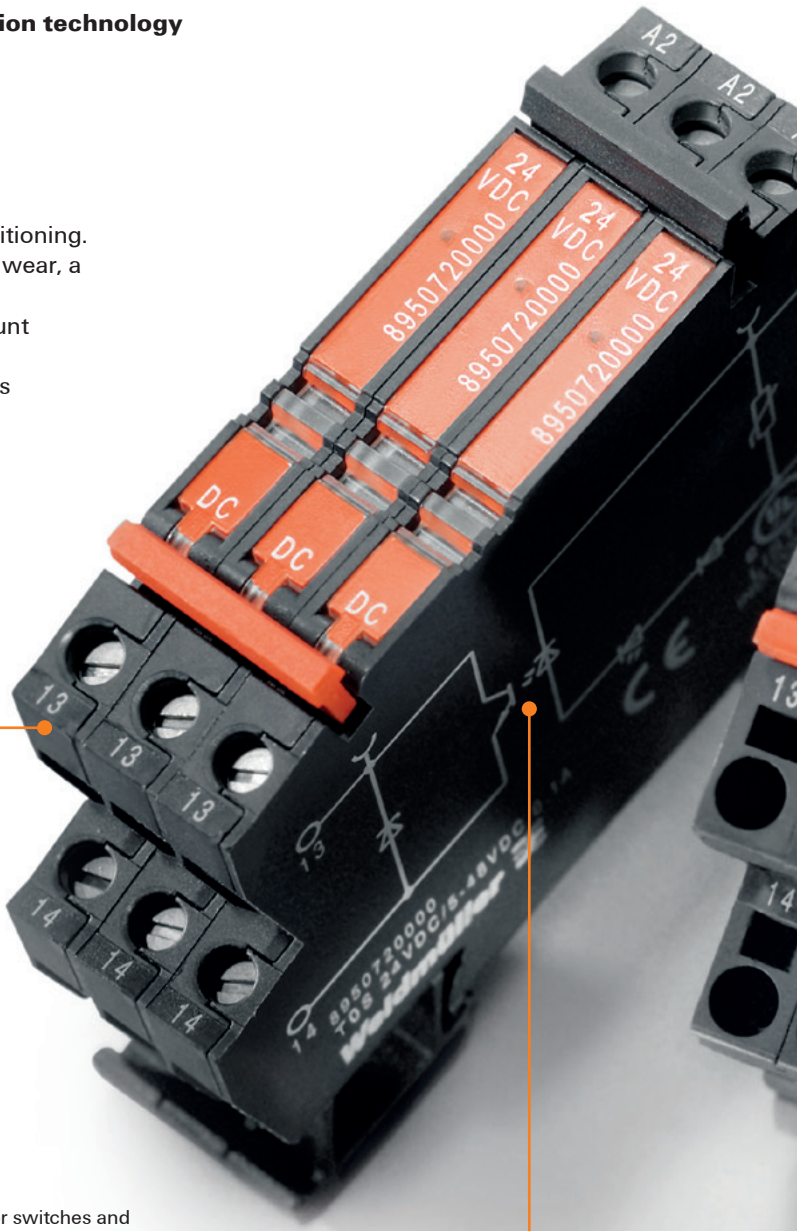
Space saving solid-state relay with "PUSH IN" connection technology

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

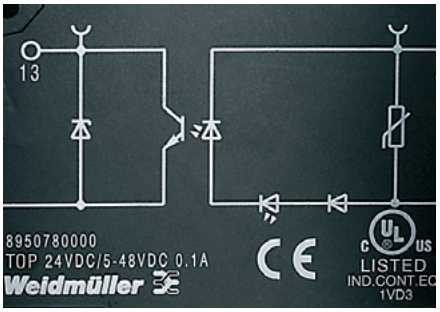
TERMOPTO offers a compact, electronic alternative to the electromechanical relay for electrical isolation and signal conditioning. Instead of an electromechanical solution that is susceptible to wear, a maintenance-free and compact terminal block with integrated electrical isolation is used. This saves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

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

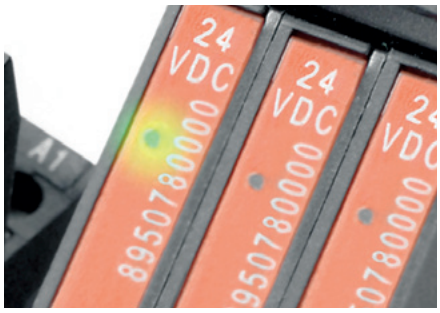


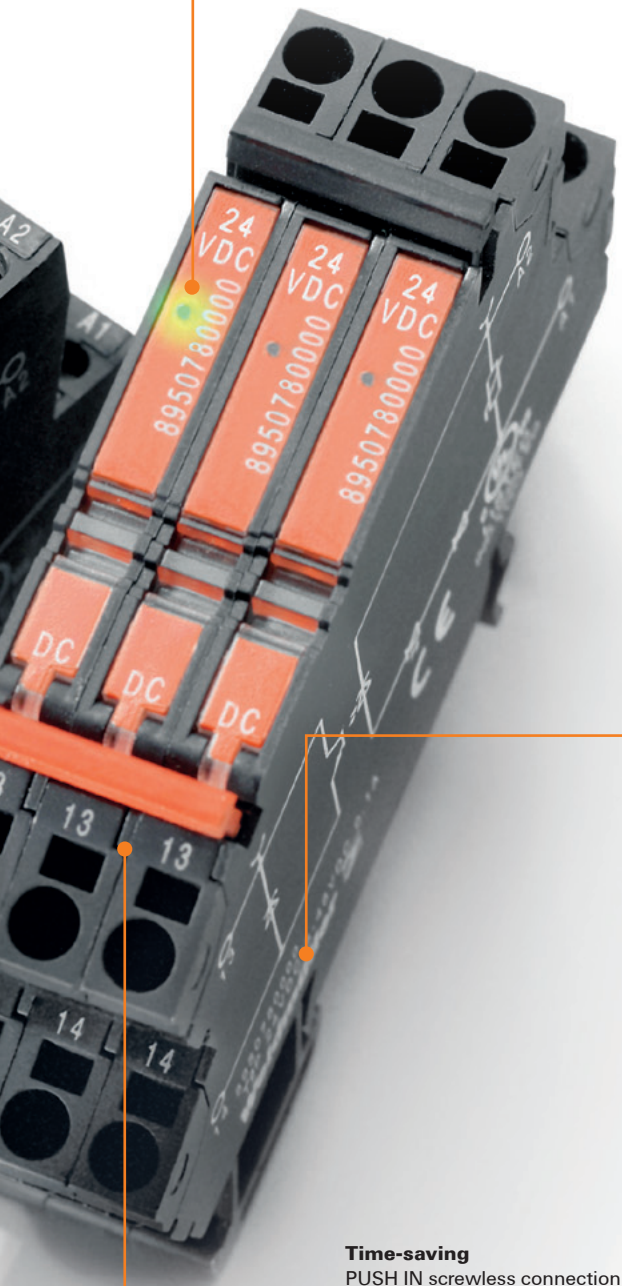


Long lifetime
Wear-free semiconductor switches and extensive protective circuits ensure long service life and reliable switching cycles.

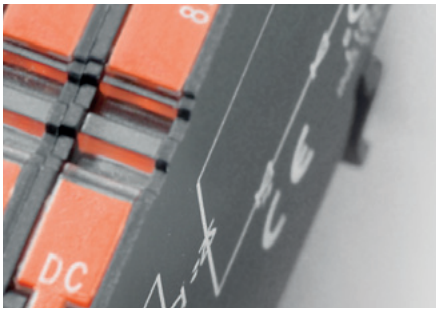


Status indicator
LED status indicator provides information on the switching state.

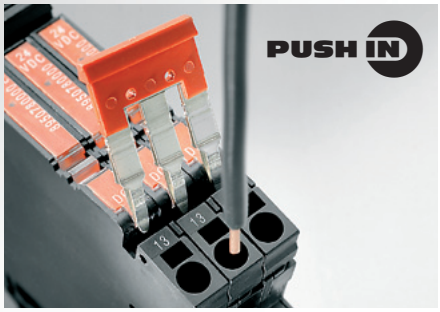




Closed design
Closed design for space-saving, side-by-side arrangement. No end plate necessary; the electronics are mechanically protected.



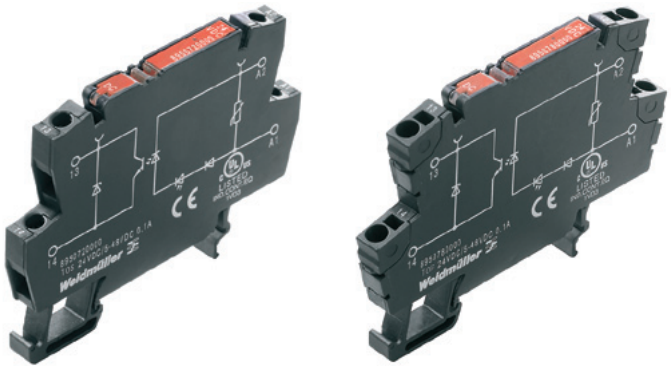
Time-saving
PUSH IN screwless connection system and the pluggable cross-connection reduce wiring time by > 50 %.



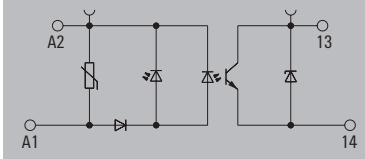
Solid-state relays 5...48 V DC / 100 mA

Output versions

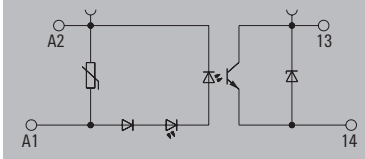
- Space-saving 6.1 mm width
- Plug-in cross-connections
- Screw and PUSH IN wire connection
- Enclosed design



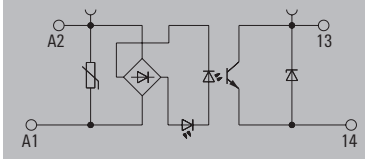
5 V DC



12...220 DC



24...230 V AC



Technical data

Load side			
Rated switching voltage		5...48 V DC	
Continuous current		100 mA	
Making current			
Solid-state type		Transistor	
Voltage drop at max. load		< 1 V	
Leakage current		< 10 µA	
Protective circuit, load side		Integrated free-wheel diode	
Short-circuit-proof / Protective circuit, load side		No / Integrated free-wheel diode	
General data			
Ambient temperature (operational)		-20 °C...+60 °C	
Storage temperature		-40 °C...+80 °C	
Humidity		5–95% rel. humidity, T_u = 40°C, no condensation	
Approvals		CE; cULus; GOSTME25	
Insulation coordination (EN 50178)			
Rated voltage		300 V	
Impulse withstand voltage		4 kV (1.2/50 µs)	
Dielectric strength for control side - load side		1.2 kV_{eff} / 1 min.	
Dielectric strength to mounting rail			
Clearance and creepage distances for control side - load side		> 3 mm	
Surge voltage category		III	
Pollution severity		2	

Dimensions		**Screw connection**	**PUSH IN connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Depth x width x height	mm	55 / 6.1 / 74.5	55 / 6.1 / 79.5
Note		Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

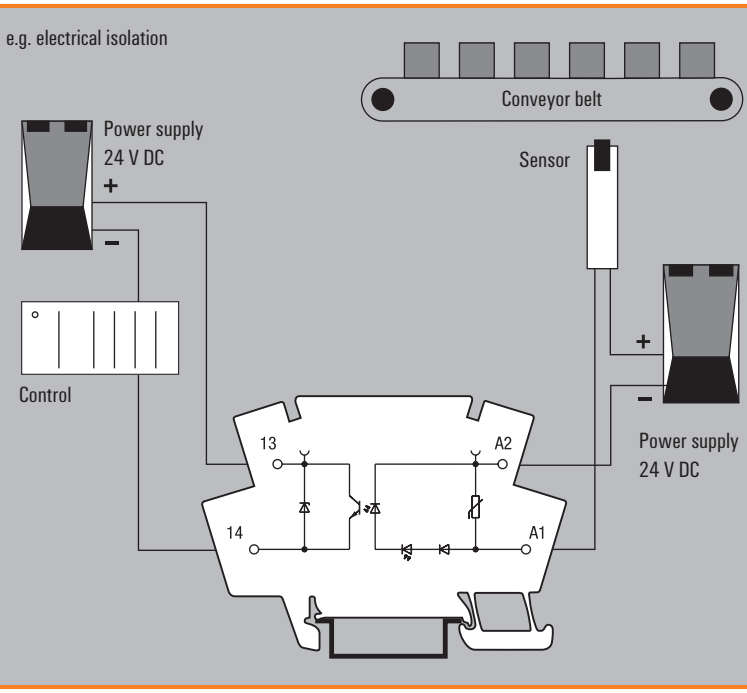
Applications

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

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

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

Output versions

Ordering data	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	48...60 V DC ±20 %	110 V DC ±20 %
Nominal control current	7.7 mA DC	7.8 mA DC	7 mA DC	4.3 mA DC	2.6 mA DC
Power rating	≤ 170 mW	< 95 mW	≤ 170 mW	< 200 mW	< 280 mW
Cut-in (switch-on) voltage	≥ 4 V DC	≥ 9.6 V DC	≥ 19.2 V DC	≥ 38.4 V AC	≥ 88 V DC
Dropout voltage	≤ 2 V DC	≤ 4.8 V DC	≤ 9.6 V DC	≤ 19.2 V DC	≤ 44 V DC
Input frequency	< 3000 Hz	< 3000 Hz	< 3000 Hz	< 500 Hz	< 500 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, rev. polarity protection	Varistor, rev. polarity protection	Varistor, rev. polarity protection	Varistor, rev. polarity protection	Varistor, rev. polarity protection
Load side					
Switch-on delay	< 13 µs	< 13 µs	< 13 µs	< 170 µs	< 170 µs
Switch-off delay	< 42 µs	< 42 µs	< 42 µs	< 310 µs	< 310 µs

Ordering data						
Screw connection	Type	TOS 5VDC/48VDC 0,1A	TOS 12VDC/48VDC 0,1A	TOS 24VDC/48VDC 0,1A	TOS 48-60VDC/48VDC 0,1A	TOS 110VDC/48VDC 0,1A
	Order No.	**8950700000**	**8950710000**	**8950720000**	**8950730000**	**8950740000**
PUSH IN connection	Type	TOP 5VDC/48VDC 0,1A	TOP 12VDC/48VDC 0,1A	TOP 24VDC/48VDC 0,1A	TOP 48-60VDC/48VDC 0,1A	TOP 110VDC/48VDC 0,1A
	Order No.	**8950760000**	**8950770000**	**8950780000**	**8950790000**	**8950800000**
Note						

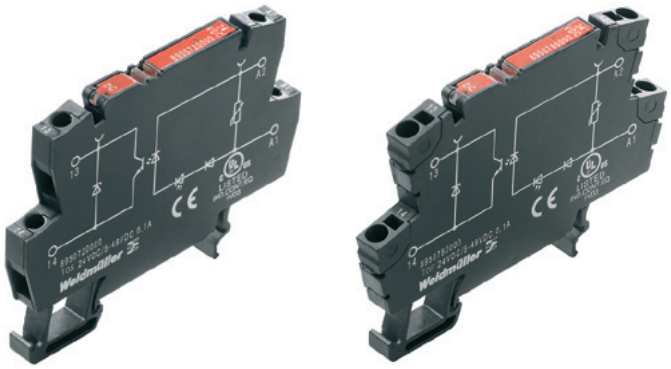
Ordering data	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
Control side					
Rated control voltage	220 V DC +10 % / -15 %	24 V AC ±20%	48...60 V AC ±20 %	120 V AC ±20 %	230 V AC +10 % / -20 %
Nominal control current	1.65 mA DC	7.4 mA AC	4.3 mA AC	2.9 mA AC	1.75 mA AC
Power rating	≤ 360 mW	< 0.18 VA	≤ 0.2 VA	≤ 0.3 VA	≤ 0.4 VA
Cut-in (switch-on) voltage	≥ 187 V DC	≥ 21.6 V AC	≥ 38.4 V AC	≥ 102 V AC	≥ 207 V AC
Dropout voltage	≤ 93.5 V DC	≤ 9.6 V AC	≤ 19.2 V AC	≤ 48 V AC	≤ 69 V AC
Input frequency	< 500 Hz	< 10 Hz	< 10 Hz	< 10 Hz	< 10 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, rev. polarity protection	Varistor	Varistor	Varistor	Varistor
Load side					
Switch-on delay	< 170 µs	< 12 ms	< 12 ms	< 12 ms	< 12 ms
Switch-off delay	< 310 µs	< 14 ms	< 14 ms	< 14 ms	< 14 ms

Ordering data						
Screw connection	Type	TOS 220VDC/48VDC 0,1A	TOS 24VAC/48VDC 0,1A	TOS 48-60VAC/48VDC 0,1A	TOS 120VAC/48VDC 0,1A	TOS 230VAC/48VDC 0,1A
	Order No.	**8950750000**	**8950820000**	**8950830000**	**8950840000**	**8950850000**
PUSH IN connection	Type	TOP 220VDC/48VDC 0,1A	TOP 24VAC/48VDC 0,1A	TOP 48-60VAC/48VDC 0,1A	TOP 120VAC/48VDC 0,1A	TOP 230VAC/48VDC 0,1A
	Order No.	**8950810000**	**8950860000**	**8950870000**	**8950880000**	**8950890000**
Note						

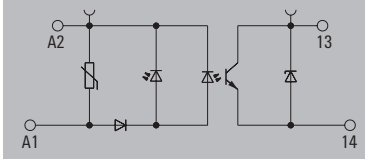
Solid-state relays, 5...48 V DC / 500 mA

Output versions

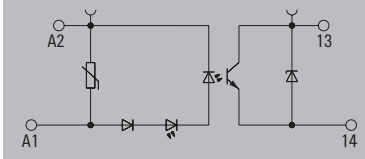
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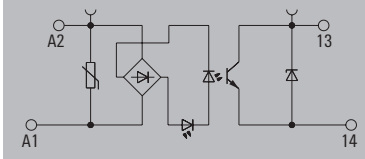
5 V DC



12...220 DC



24...230 V AC



Technical data

Load side			
Rated switching voltage		5...48 V DC	
Continuous current		500 mA	
Making current			
Solid-state type		Transistor	
Voltage drop at max. load		< 1 V	
Leakage current		< 10 µA	
Protective circuit, load side		Integrated free-wheel diode	
Short-circuit-proof / Protective circuit, load side		No / Integrated free-wheel diode	
General data			
Ambient temperature (operational)		-20 °C...+60 °C	
Storage temperature		-40 °C...+80 °C	
Humidity		5–95% rel. humidity, T_u = 40°C, no condensation	
Approvals		CE; cULus; GOSTME25	
Insulation coordination (EN 50178)			
Rated voltage		300 V	
Impulse withstand voltage		4 kV (1.2/50 µs)	
Dielectric strength for control side - load side		1.2 kV_{eff} / 1 min.	
Dielectric strength to mounting rail			
Clearance and creepage distances for control side - load side		> 3 mm	
Surge voltage category		III	
Pollution severity		2	

Dimensions		**Screw connection**	**PUSH IN connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Depth x width x height	mm	55 / 6.1 / 74.5	55 / 6.1 / 79.5
Note		Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

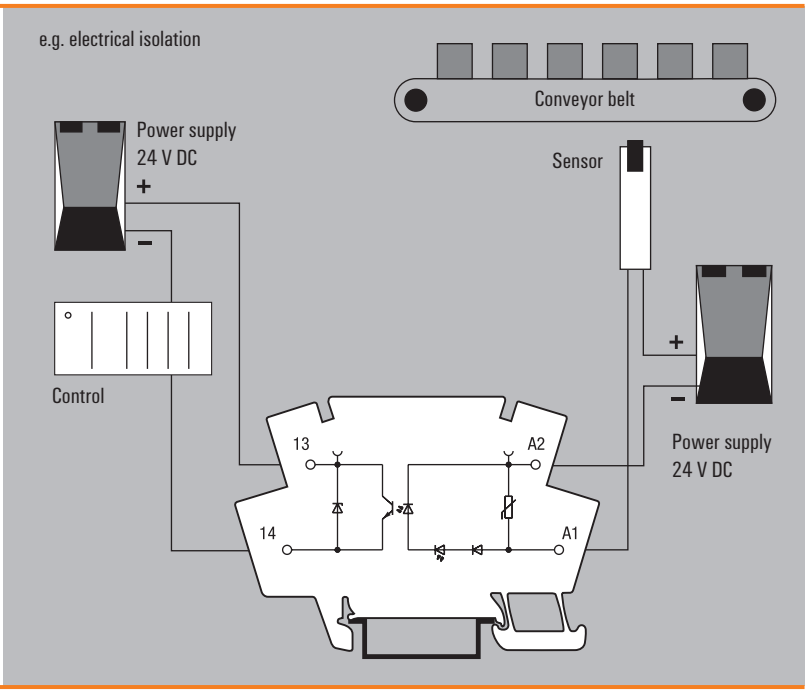
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Solid-state relays, 5...48 V DC / 500 mA

Output versions

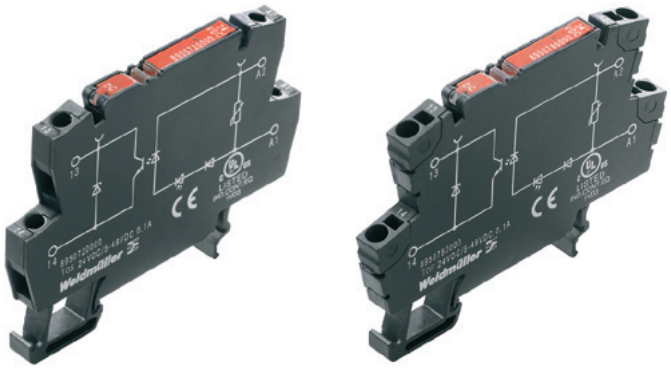
Ordering data	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	48...60 V DC ±20 %	110 V DC ±20 %
Nominal control current	7.7 mA DC	7.8 mA DC	7 mA DC	4.3 mA DC	2.6 mA DC
Power rating	< 40 mW	< 95 mW	≤ 170 mW	≤ 200 mW	≤ 280 mW
Cut-in (switch-on) voltage	≥ 4 V DC	≥ 9.6 V DC	≥ 19.2 V DC	≥ 38.4 V DC	≥ 88 V DC
Dropout voltage	≤ 2 V DC	≤ 4.8 V DC	≤ 9.6 V DC	≤ 19.2 V DC	≤ 44 V DC
Input frequency	< 200 Hz	< 200 Hz	< 200 Hz	< 200 Hz	< 200 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, rev. polarity protection	Varistor, rev. polarity protection	Varistor, rev. polarity protection	Varistor, rev. polarity protection	Varistor, rev. polarity protection
Load side					
Switch-on delay	< 5 µs	< 20 µs	< 20 µs	< 18 µs	< 18 µs
Switch-off delay	< 26 µs	< 200 µs	< 200 µs	< 340 µs	< 340 µs
Ordering data					
Screw connection Type	TOS 5VDC/48VDC 0,5A	TOS 12VDC/48VDC 0,5A	TOS 24VDC/48VDC 0,5A	TOS 48-60VDC/48VDC 0,5A	TOS 110VDC/48VDC 0,5A
Order No.	**8950900000**	**8950910000**	**8950920000**	**8950930000**	**8950940000**
PUSH IN connection Type	TOP 5VDC/48VDC 0,5A	TOP 12VDC/48VDC 0,5A	TOP 24VDC/48VDC 0,5A	TOP 48-60VDC/48VDC 0,5A	TOP 110VDC/48VDC 0,5A
Order No.	**8950960000**	**8950970000**	**8950980000**	**8950990000**	**8951000000**
Note					

Ordering data	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
Control side					
Rated control voltage	220 V DC +10 % / -15 %	24 V AC ±20%	48...60 V AC ±20 %	120 V AC ±20 %	230 V AC +10 % / -20 %
Nominal control current	1.65 mA DC	7.4 mA AC	4.3 mA AC	2.9 mA AC	1.75 mA AC
Power rating	≤ 360 mW	< 0.18 VA	≤ 0.2 VA	≤ 0.3 VA	≤ 0.4 VA
Cut-in (switch-on) voltage	≥ 187 V DC	≥ 21.6 V AC	≥ 38.4 V AC	≥ 102 V AC	≥ 207 V AC
Dropout voltage	≤ 88 V DC	≤ 9.6 V AC	≤ 19.2 V AC	≤ 48 V AC	≤ 69 V AC
Input frequency	< 200 Hz	< 10 Hz	< 10 Hz	< 10 Hz	< 10 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, rev. polarity protection	Varistor	Varistor	Varistor	Varistor
Load side					
Switch-on delay	< 18 µs	< 12 ms	< 12 ms	< 12 ms	< 12 ms
Switch-off delay	< 340 µs	< 14 ms	< 14 ms	< 14 ms	< 14 ms
Ordering data					
Screw connection Type	TOS 220VDC/48VDC 0,5A	TOS 24VAC/48VDC 0,5A	TOS 48-60VAC/48VDC 0,5A	TOS 120VAC/48VDC 0,5A	TOS 230VAC/48VDC 0,5A
Order No.	**8950950000**	**8951020000**	**8951030000**	**8951040000**	**8951050000**
PUSH IN connection Type	TOP 220VDC/48VDC 0,5A	TOP 24VAC/48VDC 0,5A	TOP 48-60VAC/48VDC 0,5A	TOP 120VAC/48VDC 0,5A	TOP 230VAC/48VDC 0,5A
Order No.	**8951010000**	**8951060000**	**8951070000**	**8951080000**	**8951090000**
Note					

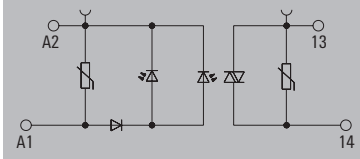
Solid-state relays 24...230 V AC / 100 mA

Output versions

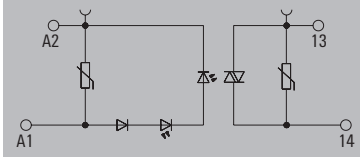
- Space-saving 6.1 mm width
- Plug-in cross-connections
- Screw and PUSH IN wire connection
- Enclosed design



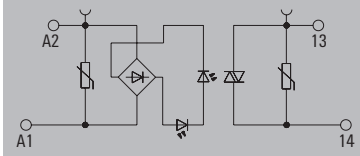
5 V DC



12...220 DC



24...230 V AC



Technical data

Load side			
Rated switching voltage		24...230 V AC	
Continuous current		100 mA	
Making current			
Solid-state type		Triac (zero-cross switch)	
Voltage drop at max. load		< 1.8 V	
Leakage current		< 10 µA	
Protective circuit, load side		Varistor	
Short-circuit-proof / Protective circuit, load side		No / Varistor	
General data			
Ambient temperature (operational)		-20 °C...+60 °C	
Storage temperature		-40 °C...+80 °C	
Humidity		5–95% rel. humidity, T_u = 40°C, no condensation	
Approvals		CE; cULus; GOSTME25	
Insulation coordination (EN 50178)			
Rated voltage		300 V	
Impulse withstand voltage		4 kV (1.2/50 µs)	
Dielectric strength for control side - load side		1.2 kV_{eff} / 1 min.	
Dielectric strength to mounting rail			
Clearance and creepage distances for control side - load side		> 3 mm	
Surge voltage category		III	
Pollution severity		2	

Dimensions		**Screw connection**	**PUSH IN connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Depth x width x height	mm	55 / 6.1 / 74.5	55 / 6.1 / 79.5
Note		Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

Applications

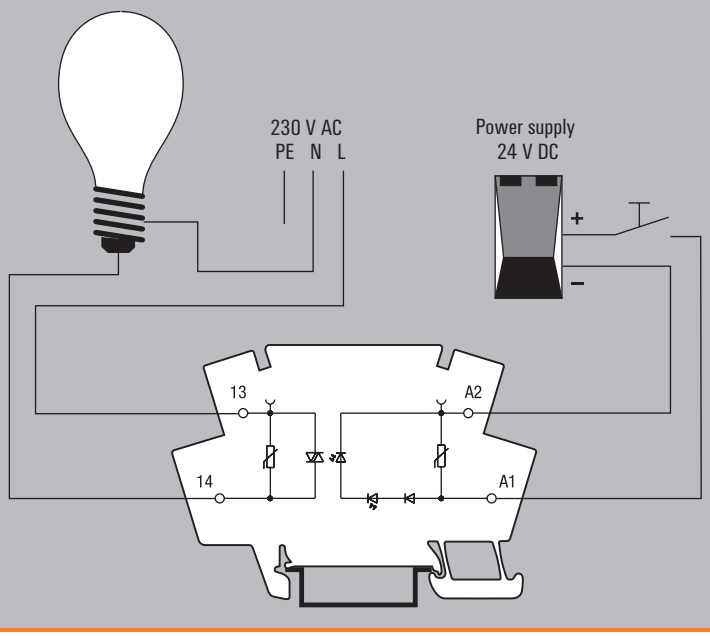
The **TERMOPTO** opto module is used in industrial applications in which electrical isolation and signal conditioning without switching amplification is sufficient.

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

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

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

E.g. signal conditioning



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

Output versions

Ordering data	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	48...60 V DC ±20 %	110 V DC ±20 %
Nominal control current	7.8 mA DC	3.6 mA DC	3.6 mA DC	3.7 mA DC	3.6 mA DC
Power rating	< 40 mW	< 45 mW	≤ 80 mW	≤ 170 mW	≤ 360 mW
Cut-in (switch-on) voltage	≥ 4 V DC	≥ 9.6 V DC	≥ 19.2 V DC	≥ 38.4 V DC	≥ 88 V DC
Dropout voltage	≤ 2 V DC	≤ 4.8 V DC	≤ 9.6 V DC	≤ 19.2 V DC	≤ 44 V DC
Input frequency	< 10 Hz	< 10 Hz	< 10 Hz	< 10 Hz	< 10 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, rev. polarity protection	Varistor, rev. polarity protection	Varistor, rev. polarity protection	Varistor, rev. polarity protection	Varistor, rev. polarity protection
Load side					
Switch-on delay	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Switch-off delay	< 12 ms	< 12 ms	< 12 ms	< 12 ms	< 12 ms

Ordering data						
Screw connection	Type	TOS 5VDC/230VAC 0,1A	TOS 12VDC/230VAC 0,1A	TOS 24VDC/230VAC 0,1A	TOS 48-60VDC/230VAC 0,1A	TOS 110VDC/230VAC 0,1A
	Order No.	**8951100000**	**8951110000**	**8951120000**	**8951130000**	**8951140000**
PUSH IN connection	Type	TOP 5VDC/230VAC 0,1A	TOP 12VDC/230VAC 0,1A	TOP 24VDC/230VAC 0,1A	TOP 48-60VDC/230VAC 0,1A	TOP 110VDC/230VAC 0,1A
	Order No.	**8951160000**	**8951170000**	**8951180000**	**8951190000**	**8951200000**
Note						

Output versions

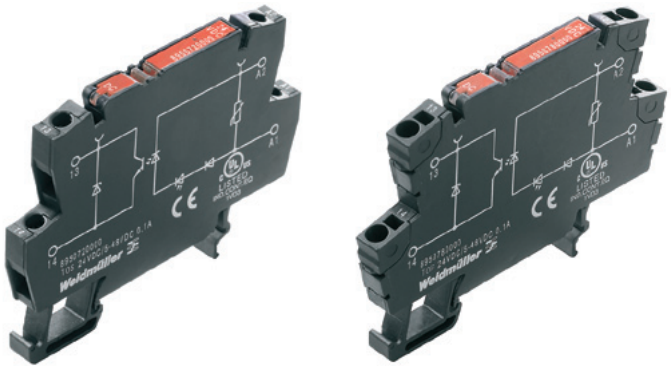
Ordering data	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
Control side					
Rated control voltage	220 V DC +10 % / -15 %	24 V AC ±20%	48...60 V AC ±20 %	120 V AC ±20 %	230 V AC +10 % / -20 %
Nominal control current	2.9 mA DC	8.8 mA AC	6.4 mA AC	8.5 mA AC	7.7 mA AC
Power rating	≤ 640 mW	≤ 0.2 VA	≤ 0.3 VA	≤ 1 VA	≤ 1.7 VA
Cut-in (switch-on) voltage	≥ 187 V DC	≥ 19.2 V AC	≥ 38.4 V AC	≥ 96 V AC	≥ 184 V AC
Dropout voltage	≤ 88 V DC	≤ 9.6 V AC	≤ 19.2 V AC	≤ 48 V AC	≤ 92 V AC
Input frequency	< 10 Hz	< 10 Hz	< 10 Hz	< 10 Hz	< 10 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, rev. polarity protection	Varistor	Varistor	Varistor	Varistor
Load side					
Switch-on delay	≤ 10 ms	< 14 ms	< 14 ms	< 22 ms	< 22 ms
Switch-off delay	< 12 ms	< 16 ms	< 16 ms	< 18 ms	< 18 ms

Ordering data						
Screw connection	Type	TOS 220VDC/230VAC 0,1A	TOS 24VAC/230VAC 0,1A	TOS 48-60VAC/230VAC 0,1A	TOS 120VAC/230VAC 0,1A	TOS 230VAC/230VAC 0,1A
	Order No.	**8951150000**	**8951220000**	**8951230000**	**8951240000**	**8951250000**
PUSH IN connection	Type	TOP 220VDC/230VAC 0,1A	TOP 24VAC/230VAC 0,1A	TOP 48-60VAC/230VAC 0,1A	TOP 120VAC/230VAC 0,1A	TOP 230VAC/230VAC 0,1A
	Order No.	**8951210000**	**8951260000**	**8951270000**	**8951280000**	**8951290000**
Note						

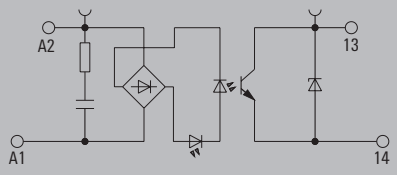
Solid-state relays, 5...48 V DC / 500 mA

Output versions with RC element

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



120 V...230 V AC



Technical data

Load side	
Rated switching voltage	5...48 V DC
Continuous current	500 mA
Making current	
Solid-state type	Transistor
Voltage drop at max. load	< 1 V
Leakage current	< 10 µA
Protective circuit, load side	Diode
Short-circuit-proof / Protective circuit, load side	No / Diode
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Humidity	5–95% rel. humidity, T_u = 40°C, no condensation
Approvals	CE; cULus
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV_{eff} / 1 min.
Dielectric strength to mounting rail	
Clearance and creepage distances for control side - load side	> 3 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**	**PUSH IN connection**
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Depth x width x height	mm	55 / 6.1 / 74.5	55 / 6.1 / 79.5
Note		Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

Ordering data

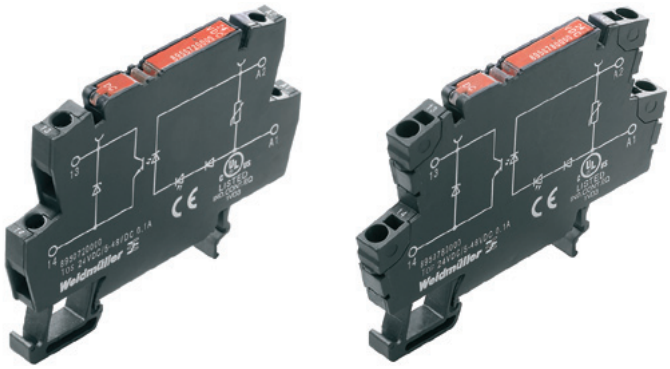
	120 V AC	230 V AC
Control side		
Rated control voltage	120 V AC ±20 %	230 V AC +10 %/ -15 %
Nominal control current	6.4 mA AC	6.4 mA AC
Power rating	≤ 0.61 VA	≤ 1.5 VA
Cut-in (switch-on) voltage	≥ 102 V AC	≥ 207 V AC
Dropout voltage	≤ 48 V AC	≤ 69 V AC
Input frequency	< 10 Hz	< 10 Hz
Status indicator	Green LED	Green LED
Protective circuit	RC element	RC element
Load side		
Switch-on delay	< 12.6 ms	< 12 ms
Switch-off delay	< 20.8 ms	< 14 ms

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

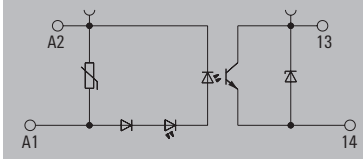
Solid-state relay, 3...33 V DC / 4 A

Output versions

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



24 V DC



Technical data

Load side	
Rated switching voltage	3...33 V DC
Continuous current	4 A
Making current	
Solid-state type	Transistor
Voltage drop at max. load	90 mV
Leakage current	< 10 µA
Protective circuit, load side	Integrated free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Integrated free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Humidity	5-95% rel. humidity, T_u = 40°C, no condensation
Approvals	CE; cULus
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV_{eff} / 1 min.
Dielectric strength to mounting rail	
Clearance and creepage distances for control side - load side	> 3 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**	**PUSH IN connection**
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Depth x width x height	mm	55 / 6.1 / 74.5	55 / 6.1 / 79.5
Note		Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

Ordering data

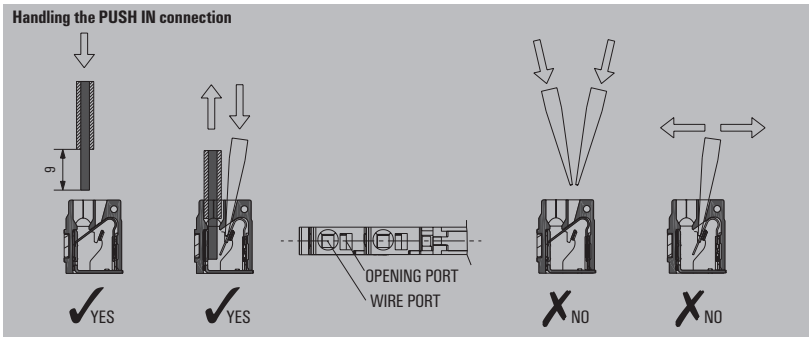
	24 V DC
Control side	
Rated control voltage	24 V DC ±20 %
Nominal control current	7 mA DC
Power rating	≤ 170 mW
Cut-in (switch-on) voltage	≥ 16.8 V DC
Dropout voltage	≤ 9.6 V DC
Input frequency	≤ 10 Hz
Status indicator	Green LED
Protective circuit	Varistor, rev. polarity protection
Load side	
Switch-on delay	< 13 µs
Switch-off delay	< 200 µs

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

Accessories



General data – TERMOPTO



Plug-in cross-connection

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

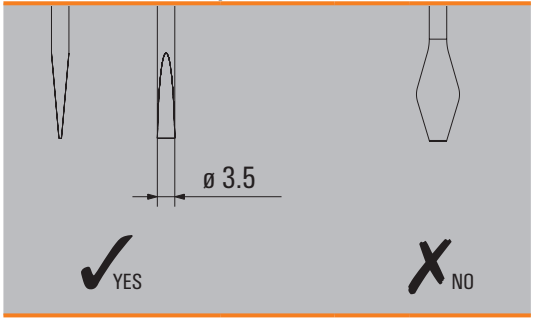
Technical data

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

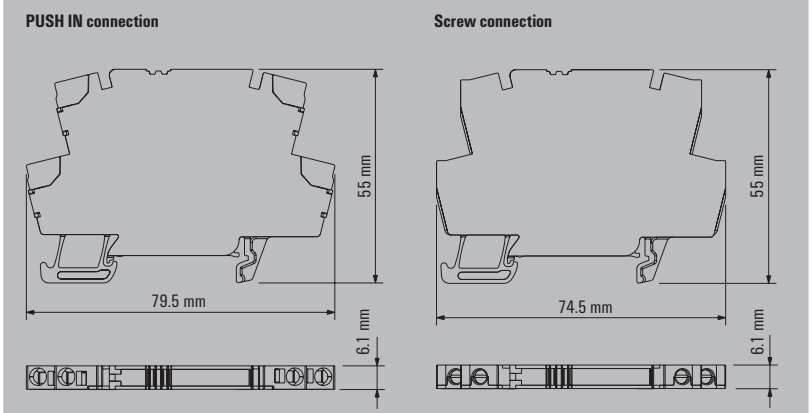
Other accessories

Type		Qty.	Order No.
Markers			
WS 12/6	12 x 6 mm	600	**1609900000**
Labels, Lasermark			
LM MT 300 15/6 ge	484 labels/sheet	10	**1686360000**
Screwdriver			
SD 0.6 x 3.5 x 100		10	**9008330000**

Screwdriver – blade shape



Dimensions



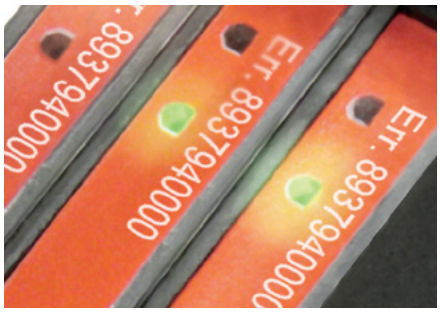
Short-circuit-proof switching amplifier for inductive loads up to 10 A

Powerful, compact solid-state relay with error signalling contact

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

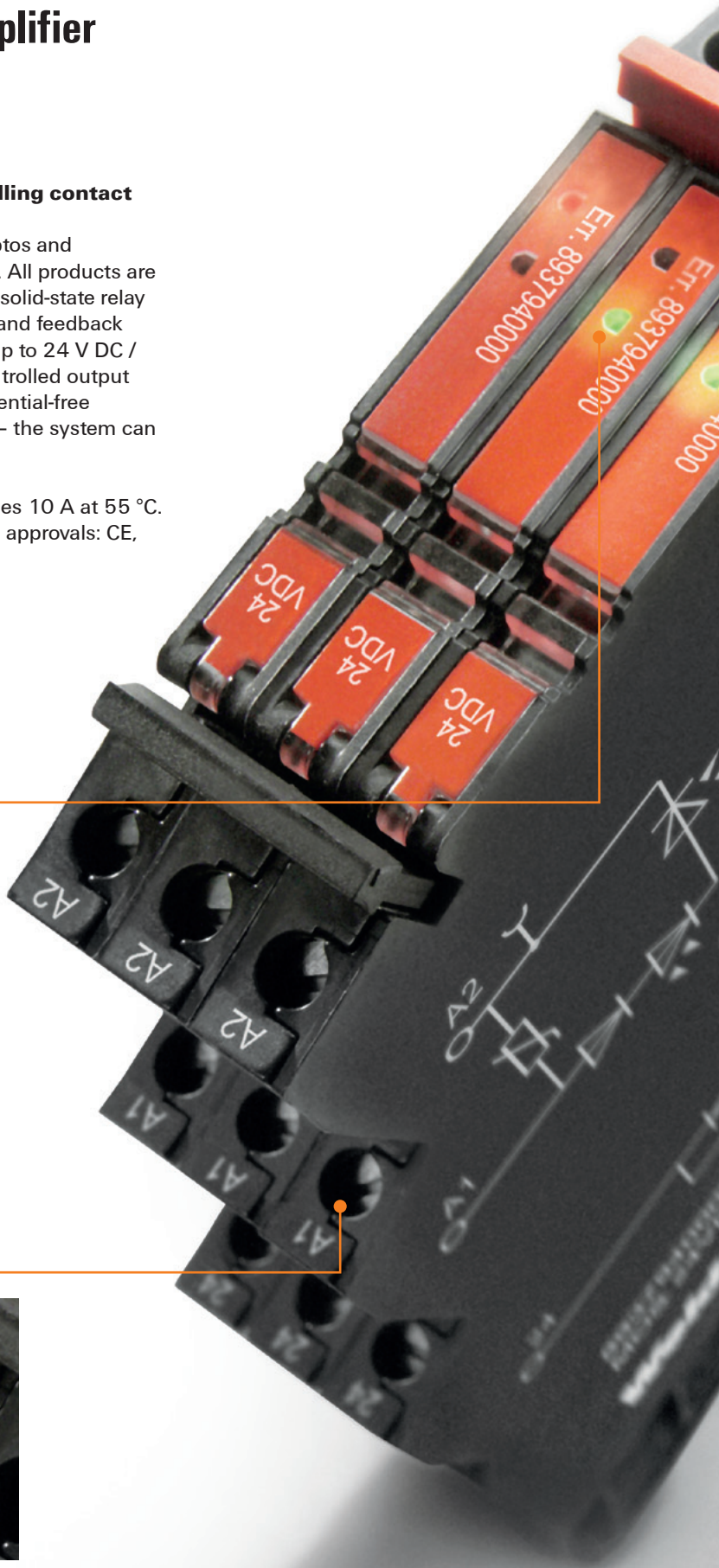
The powerful output of the MICROOPTO SOLENOID switches 10 A at 55 °C. The product can be used worldwide thanks to international approvals: CE, cULus and GL.

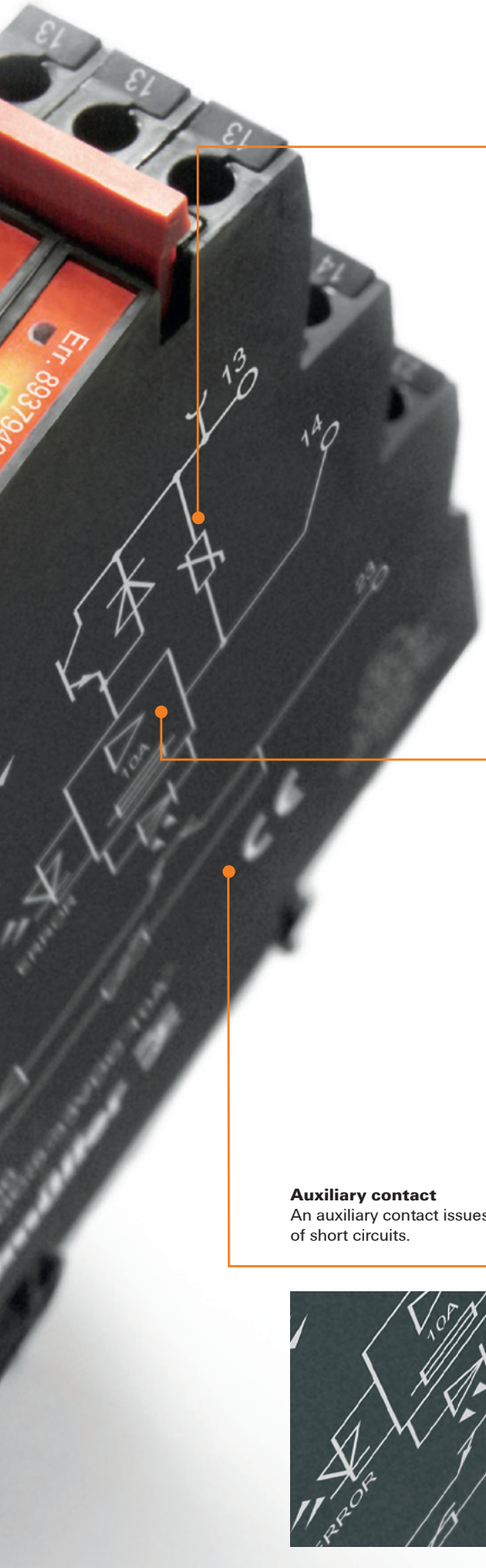
Alarm function
Clear condition display through status and error LEDs in the output.



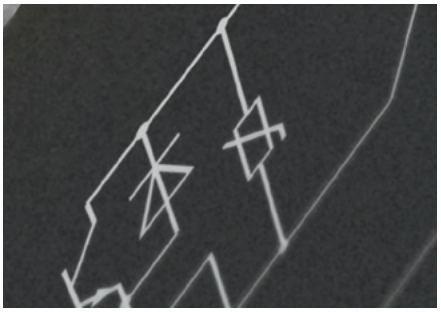
Space-saving
Space-saving 6 mm modular width.



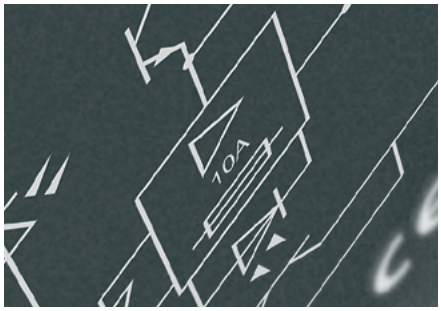




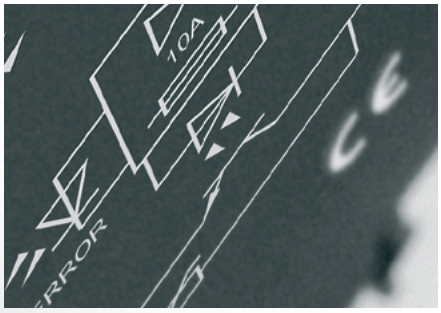
Not sensitive
Protected by suppressor circuit on input and output circuits.



Tough and sturdy
With a short-circuit-proof output.



Auxiliary contact
An auxiliary contact issues alerts in event of short circuits.

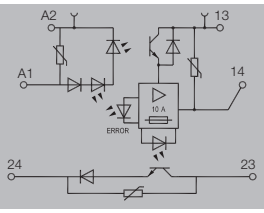


For switching valves up to 24 V DC 10 A

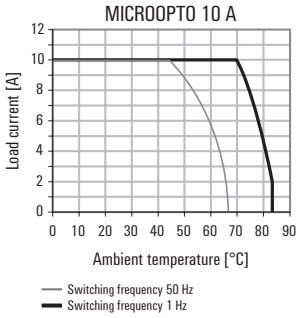
- Width only 6 mm
- Plug-in cross-connector
- For mounting on TS 35
- Status display and error signaling contact with an error in the output

24 V DC / 5-33 V DC 10 A





The **MICROOPTO SOLENOID** solid-state relay is used specifically as a switching amplifier for actuators up to 24 V DC and 10 A with inductive loads such as solenoid valves and contactors.
A potential-free signalling contact transmits errors, such as short circuits, to the controller.
The **MICROOPTO SOLENOID** solid-state relay is short-circuit-proof and protected against power-related transients and voltage peaks by extensive protective circuits. The closed housing also offers a high level of protection against contact.



Technical data

Control side	
Rated control voltage	24 V DC ±20 %
Power rating	400 mW
Cut-in (switch-on) voltage	> 18 V
Dropout voltage	< 13 V
Input frequency	50 Hz
Status indicator	Error LED red; Status LED green
Protective circuit	Varistor, rev. polarity protection
Load side	
Solid-state type	POWER MOS-FET
Rated switching voltage	5...33 V DC
Continuous current	10 A
Voltage drop at max. load	approx. 100 mV
Leakage current	< 1 mA
Short-circuit-proof / Protective circuit, load side	Resistance / Current sensor, Varistor, integrated free-wheel diode
Switch-on delay / Switch-off delay	typical. 250 µs / typical. 700 µs
Pulse load, max. current	
Load category	LC A
General data	
Alarm contact	5...48 V DC / 0.1 A
Ambient temperature (operational)	-25 °C...+60 °C
Storage temperature	-40 °C...+60 °C
UL 94 flammability rating	V-0
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; cULus; GL; GOSTME25
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV_{eff} / 1 min.
Dielectric strength to mounting rail	1.2 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	> 3 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4
Depth x width x height	mm	98 / 6.1 / 88
Note		Suppressor circuitry for inductive loads, 10 cm installation clearance to inductive switching devices.

Ordering data

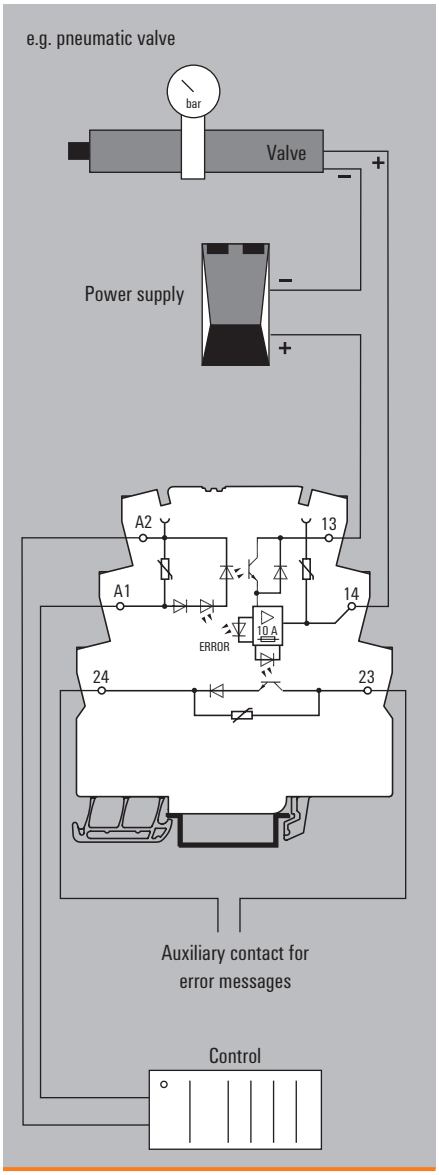
	Type	Qty.	Order No.
Screw connection	MOS 24VDC/5-33VDC 10A	1	**8937940000**

Note

Accessories

Note

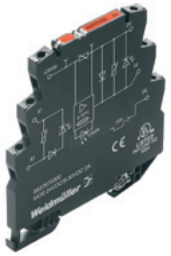
Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.

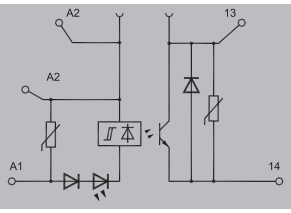


For DC loads up to 300 V DC and 1A

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

12...300 V DC 1 A

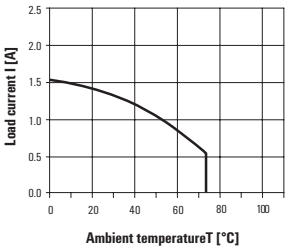




The solid-state relay **MICROOPTO 300 V DC** has been developed as a switching amplifier for high inductive loads up to 300 V DC and 1 A in motor brakes and contactors.

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

derating curve



Technical data

Control side	
Rated control voltage	24 V DC ±20 %
Power rating	0.36 W
Cut-in (switch-on) voltage	> 18.8 V
Dropout voltage	< 14.7 V
Input frequency	50...60 Hz
Status indicator	Green LED
Protective circuit	Varistor, rev. polarity protection
Load side	
Solid-state type	POWER MOS-FET
Rated switching voltage	12...300 V DC
Continuous current	1 A
Voltage drop at max. load	≤ 0.4 V
Leakage current	< 1 µA
Short-circuit-proof / Protective circuit, load side	No / Varistor, integrated free-wheel diode
Switch-on delay / Switch-off delay	< 18 µs / < 1 ms
Pulse load, max. current	27 A (10 ms)
Load category	LC A
General data	
Alarm contact	
Ambient temperature (operational)	-20 °C... °C
Storage temperature	-40 °C...+80 °C
UL 94 flammability rating	V-0
Humidity	5–95% rel. humidity, T_u = 55°C, no condensation
Approvals	CE; cULus; GL; GOSTME25
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	2.5 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV_{eff} / 1 min.
Dielectric strength to mounting rail	1.2 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	> 3 mm
Surge voltage category	II
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4
Depth x width x height	mm	98 / 6.1 / 88
Note		

Ordering data

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

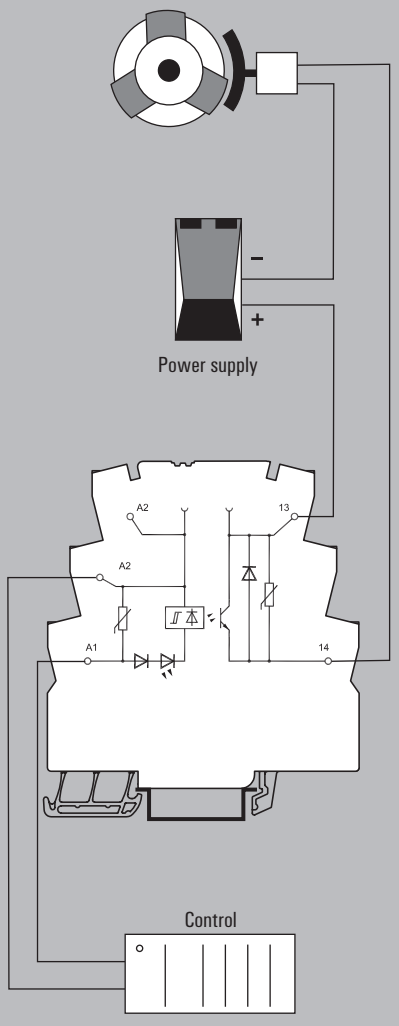
Note

Accessories

Note

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

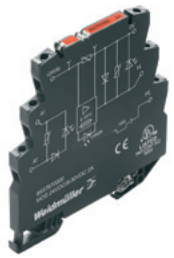
z. B. Example: motor brake



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

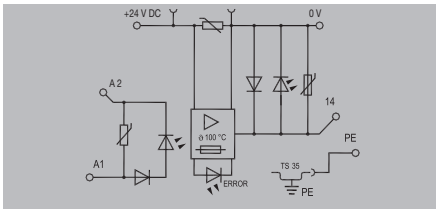
- Only 6 mm modular width
- Plug-in cross-connection
- PE connection direct to mounting rail
- Status display when error in output

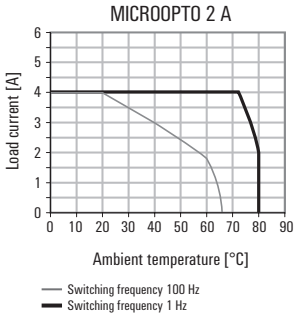
8...30 V DC 2 A



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

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





Technical data

Control side	
Rated control voltage	24 V DC ±20 %
Power rating	≤ 170 mW
Cut-in (switch-on) voltage	> 13.8 V
Dropout voltage	< 13.6 V
Input frequency	125 Hz
Status indicator	Error indication LED red; status LED green
Protective circuit	Varistor, rev. polarity protection
Load side	
Solid-state type	Intelligent POWER MOS-FET
Rated switching voltage	8...30 V DC
Continuous current	2 A
Voltage drop at max. load	≤ 50 mV
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	Yes (thermal cut-out) / Varistor, integrated free-wheel diode
Switch-on delay / Switch-off delay	0.1 ms / < 0.5 ms
Pulse load, max. current	
Load category	LC A
General data	
Alarm contact	
Ambient temperature (operational)	-20 °C... °C
Storage temperature	-40 °C...+80 °C
UL 94 flammability rating	V-0
Humidity	5–95% rel. humidity, T_u = 55°C, no condensation
Approvals	CE; cULus; GL; GOSTME25
Insulation coordination (EN 50178)	
Rated voltage	30 V
Impulse withstand voltage	500 V (1,2/50 µ)
Dielectric strength for control side - load side	350 V_{eff} / 1 min.
Dielectric strength to mounting rail	350 V_{eff} / 1 min.
Clearance and creepage distances for control side - load side	
Surge voltage category	II
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4
Depth x width x height		98 / 6.1 / 88
Note		

Ordering data

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

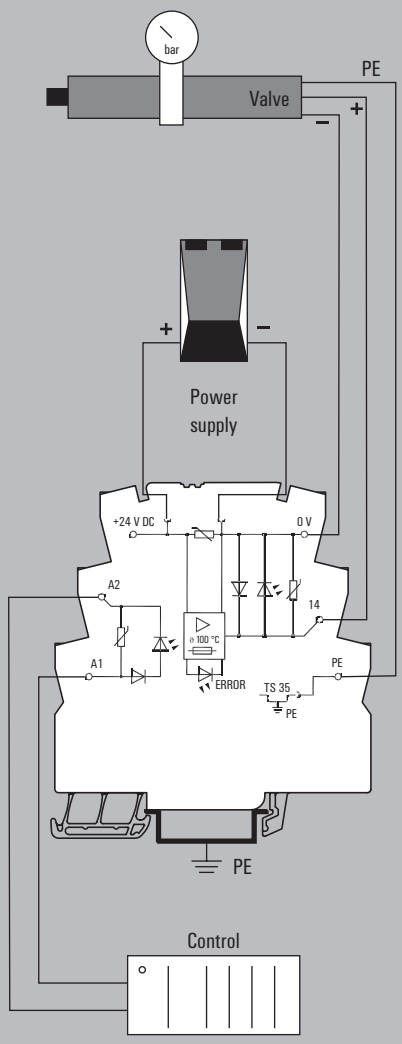
Note

Accessories

Note

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

Example: pneumatic valve



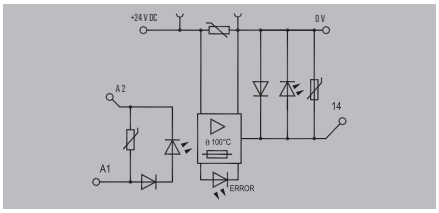
For direct connection of actuators up to 24 V DC 2 A

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

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



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



Technical data

Control side	
Rated control voltage	24 V DC ±20 %
Power rating	≤ 170 mW
Cut-in (switch-on) voltage	> 13.8 V
Dropout voltage	< 13.6 V
Input frequency	< 10 Hz
Status indicator	Error indication LED red; status LED green
Protective circuit	Varistor, rev. polarity protection
Load side	
Solid-state type	Intelligent POWER MOS-FET
Rated switching voltage	8...30 V DC
Continuous current	2 A
Voltage drop at max. load	≤ 50 mV
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	Yes (thermal cut-out) / Varistor, integrated free-wheel diode
Switch-on delay / Switch-off delay	0.1 ms / < 0.5 ms
Pulse load, max. current	
Load category	LC A
General data	
Alarm contact	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+80 °C
UL 94 flammability rating	V-0
Humidity	5–95% rel. humidity, T_u = 55°C, no condensation
Approvals	
Insulation coordination (EN 50178)	
Rated voltage	30 V
Impulse withstand voltage	500 V (1,2/50 µ)
Dielectric strength for control side - load side	350 V_{eff} / 1 min.
Dielectric strength to mounting rail	350 V_{eff} / 1 min.
Clearance and creepage distances for control side - load side	
Surge voltage category	II
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4
Depth x width x height	mm	98 / 6.1 / 88
Note		

Ordering data

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

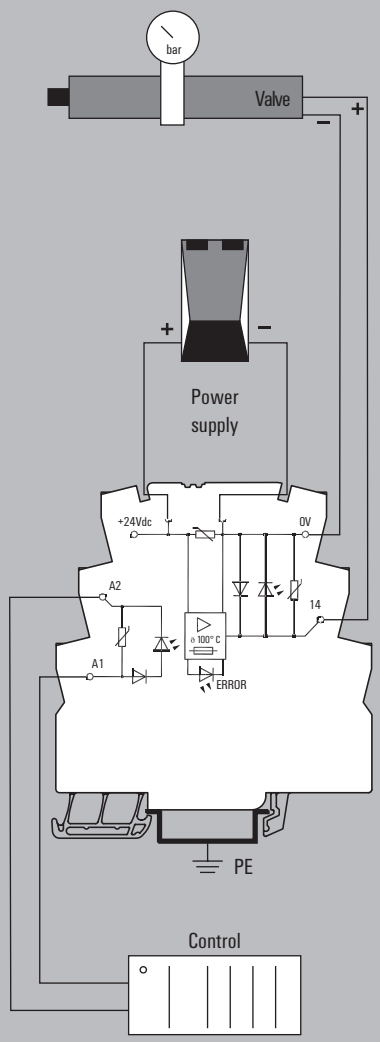
Note

Accessories

Note

Accessories and dimensional drawings: refer to the MICROOPTO Accessories page

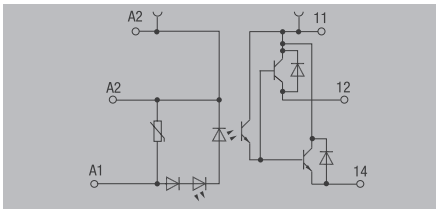
Example: pneumatic valve



For electronically switching or inverting signals

24 V DC / 5-48 V DC 0.5 A





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

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

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

Technical data

Control side	
Rated control voltage	24 V DC ±20 %
Power rating	160 mW
Cut-in (switch-on) voltage	> 18.8 V
Dropout voltage	
Input frequency	1 kHz
Status indicator	Green status LED
Protective circuit	Varistor, rev. polarity protection
Load side	
Solid-state type	Transistor
Rated switching voltage	5...48 V DC
Continuous current	500 mA
Voltage drop at max. load	Max. 1 V
Leakage current	< 1.5 mA
Short-circuit-proof / Protective circuit, load side	No / Integrated free-wheel diode
Switch-on delay / Switch-off delay	< 30 µs / < 50 µs
Pulse load, max. current	
Load category	LC A
General data	
Alarm contact	
Ambient temperature (operational)	-25 °C...+60 °C
Storage temperature	-40 °C...+60 °C
UL 94 flammability rating	V-0
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; cULus; GL; GOSTME25
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV_{eff} / 1 min.
Dielectric strength to mounting rail	1.2 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	> 3 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4
Depth x width x height	mm	98 / 6.1 / 88
Note		

Ordering data

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

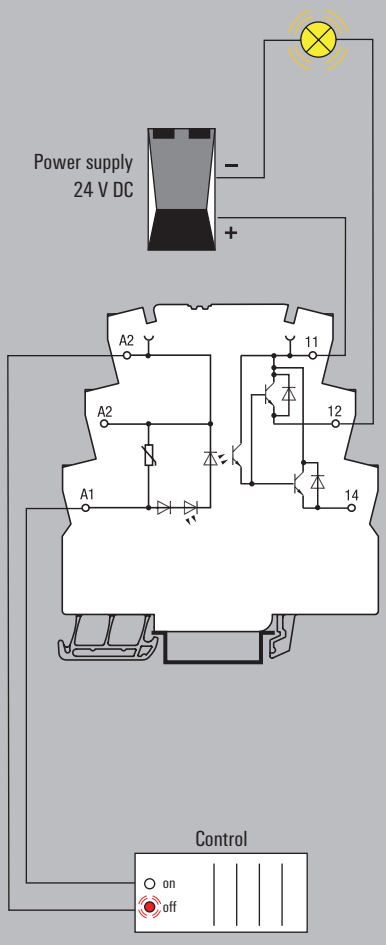
Note

Accessories

Note

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

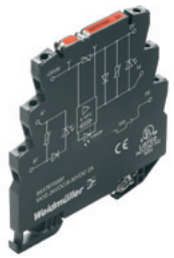
e.g. Inverter

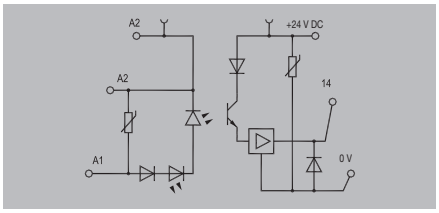


For high switching frequency up to 100kHz

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

12...28 V DC 100 kHz

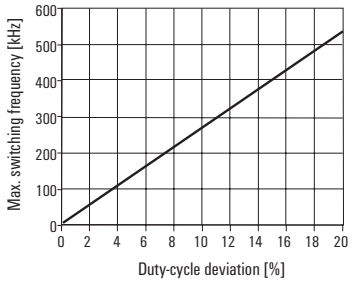




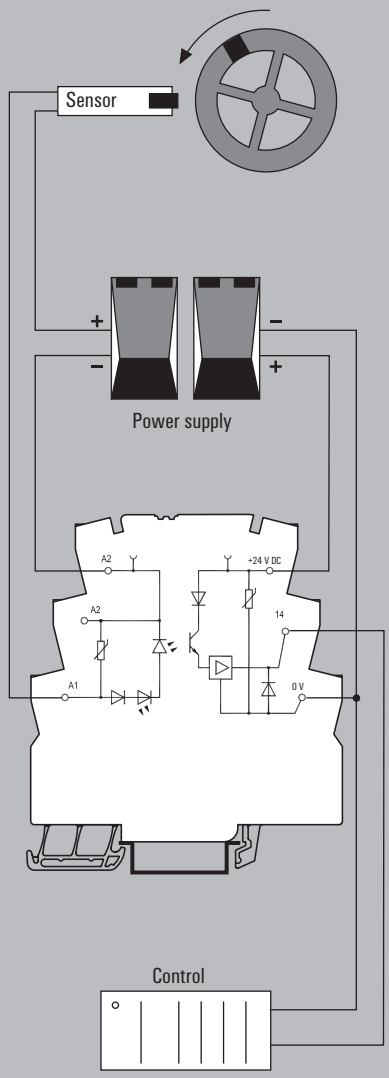
A special interior circuit in the opto module **MICROOPTO 100 kHz** ensures that rapidly transmitted signals are isolated from one another and that they can be transferred practically without delay. This allows switching frequencies up to 100 kHz to be achieved. Comprehensive suppressor circuits safeguard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

Max. switching frequency is dependent on the duty cycle deviation

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



For example rotational speed measurement



Technical data

Control side	
Rated control voltage	12 V DC...28 V DC
Power rating	≤ 280 mW
Cut-in (switch-on) voltage	> 5.6 V
Dropout voltage	≤ 15 V DC
Input frequency	100 kHz
Status indicator	Green LED
Protective circuit	Varistor, rev. polarity protection
Load side	
Solid-state type	Transistor
Rated switching voltage	19.6...28.8 V
Continuous current	max. 50 mA
Voltage drop at max. load	≤ 2 V
Leakage current	< 1 µA
Short-circuit-proof / Protective circuit, load side	No / Varistor, rev. polarity protection
Switch-on delay / Switch-off delay	< 200 ns / < 400 ns
Pulse load, max. current	0.6 A (20 ms)
Load category	LC A
General data	
Alarm contact	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+80 °C
UL 94 flammability rating	V-0
Humidity	5–95% rel. humidity, T_u = 55°C, no condensation
Approvals	CE; cULus; GL; GOSTME25
Insulation coordination (EN 50178)	
Rated voltage	30 V
Impulse withstand voltage	500 V (1,2/50 µ)
Dielectric strength for control side - load side	350 V_{eff} / 1 min.
Dielectric strength to mounting rail	350 V_{eff} / 1 min.
Clearance and creepage distances for control side - load side	
Surge voltage category	II
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4
Depth x width x height	mm	98 / 6.1 / 88
Note		

Ordering data

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

Note

Accessories

Note

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

For adjusting TTL signals

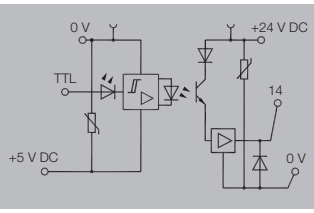
5 V TTL / 24 V DC 0.1 A



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

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

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



Technical data

Control side	
Rated control voltage	5 V TTL
Power rating	< 0.5 mW
Cut-in (switch-on) voltage	approx. 2 V
Dropout voltage	ca. 1 V
Input frequency	100 kHz
Status indicator	Green status LED
Protective circuit	Varistor, rev. polarity protection
Load side	
Solid-state type	TTL
Rated switching voltage	24 VDC ±20%
Continuous current	100 mA
Voltage drop at max. load	< 1 V
Leakage current	< 20 µA
Short-circuit-proof / Protective circuit, load side	No / Integrated free-wheel diode
Switch-on delay / Switch-off delay	< 1.3 µ / < 1 µs
Pulse load, max. current	
Load category	LC A
General data	
Alarm contact	
Ambient temperature (operational)	-25 °C...+60 °C
Storage temperature	-40 °C...+60 °C
UL 94 flammability rating	V-0
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; cULus; GOSTME25
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV_{eff} / 1 min.
Dielectric strength to mounting rail	1.2 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	> 3 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4
Depth x width x height	mm	98 / 6.1 / 88
Note		

Ordering data

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

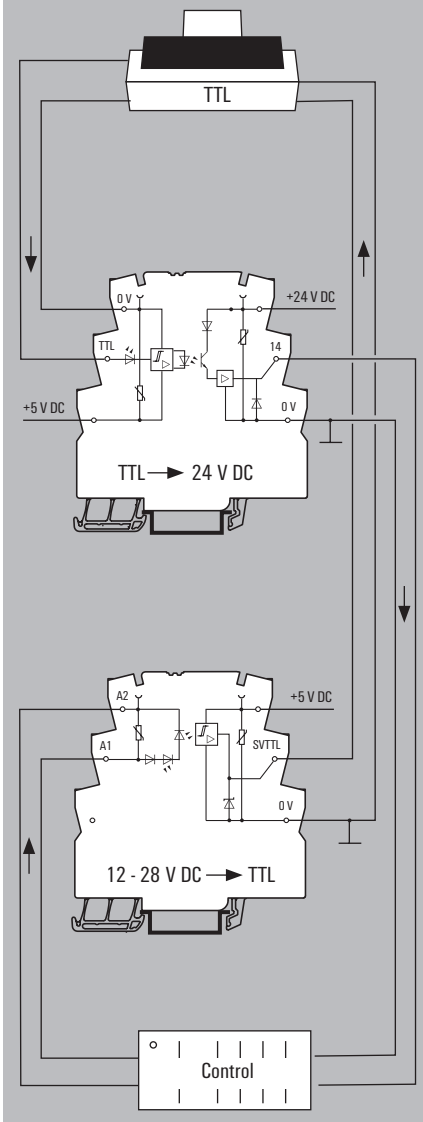
Note

Accessories

Note

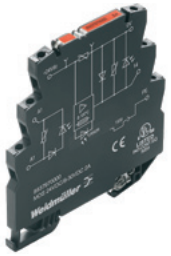
Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.

e.g. printer interface



For adjusting TTL signals

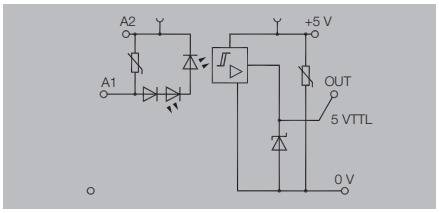
12-28 V DC / 5 V TTL



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

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

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



Technical data

Control side	
Rated control voltage	12 V DC...28 V DC
Power rating	150 mW
Cut-in (switch-on) voltage	> 10.7 V
Dropout voltage	< 10.6 V
Input frequency	100 kHz
Status indicator	Green status LED
Protective circuit	Varistor, rev. polarity protection
Load side	
Solid-state type	TTL
Rated switching voltage	5 V TTL
Continuous current	max. 50 mA
Voltage drop at max. load	90 mV
Leakage current	< 1 µA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	typical. < 1 µs / typical. < 4 µs
Pulse load, max. current	
Load category	LC A
General data	
Alarm contact	
Ambient temperature (operational)	-25 °C...+60 °C
Storage temperature	-40 °C...+60 °C
UL 94 flammability rating	V-0
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; cULus; GOSTME25
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV_{eff} / 1 min.
Dielectric strength to mounting rail	1.2 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	> 3 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4
Depth x width x height	mm	98 / 6.1 / 88
Note		

Ordering data

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

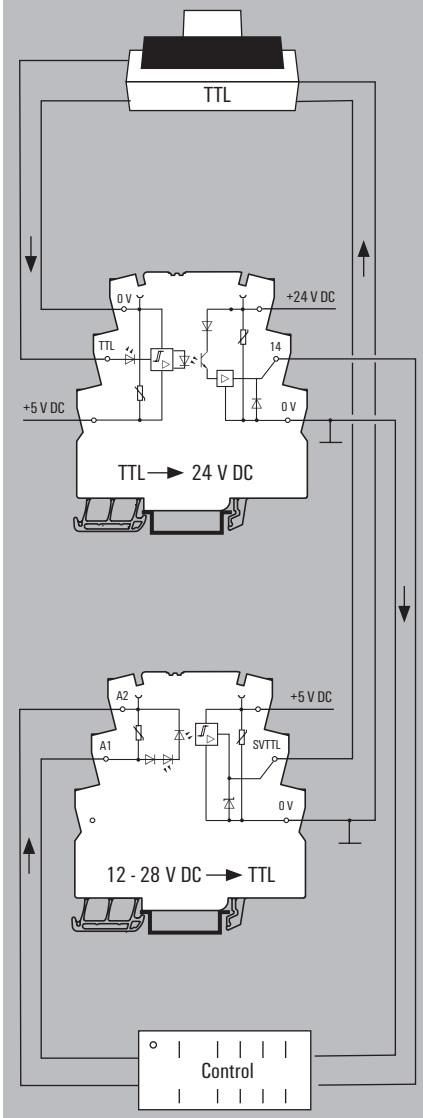
Note

Accessories

Note

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

e.g. printer interface



Accessories



General data – MICROOPTO

Plug-in cross-connection

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

Technical data

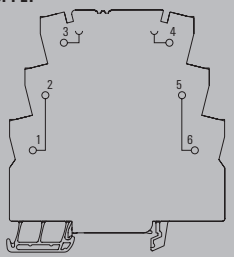
		Screw-connection
Conductor		
Solid H07V-U	mm²	0.5 ... 4.0
Stranded H07V-K	mm²	0.5 ... 2.5
"f" with wire end ferrules to DIN 46228-1	mm²	0.5 ... 1.5
"f" with wire end ferrules with plastic collar	mm²	0.5 ... 1.5
Max. clamping range	mm²	0.13 ... 4.0
Plug gauge to IEC 60947-1	Size	A 3
General technical data		
Nominal torque	Nm	0.6
Continuous current for 2-pole cross-connection	A	10
Continuous current for multi-pole cross-connection	A	10
Stripping length	mm	7
Ingress protection class		IP 20
Housing material		Wemid
UL 94 flammability rating		V-0
Nominal current	A	6
Nominal voltage	V	250

Other accessories

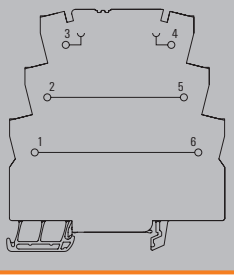
Type		Qty.	Order No.
Supply terminals			
MOS SUPPLY		1	**8973460000**
MOS FEED THROUGH		1	**8973450000**
Markers			
WS 12/6	12 x 6 mm	600	**1609900000**
Labels, Lasermark			
LM MT 300 15/6 ge	484 labels / sheet	10	**1686360000**
Screwdriver			
SD 0.6 x 3.5 x 100		10	**9008330000**
Cross-connector for plugging into the clamping point			
QB 75/6.2/15		10	**0535200000**
Coloured insulating profile for QB			
ISPF QB75 black		10	**0526700000**
ISPF QB75 blue		10	**0526780000**
ISPF QB75 red		10	**0526760000**
End bracket			
WEW 35/2		100	**1061210000**

Drawings: Supply terminals

8973460000
MOS SUPPLY

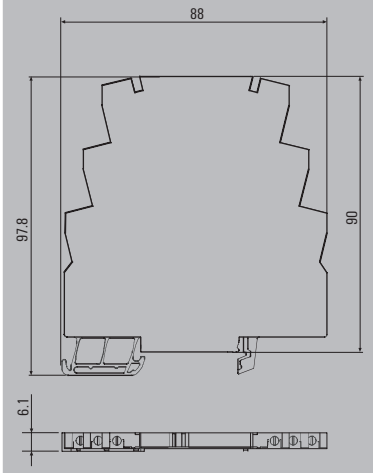


8973450000
MOS FEED THROUGH



Dimensions

Screw connection

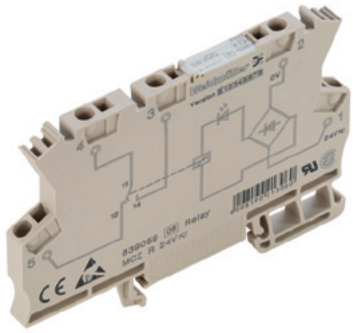


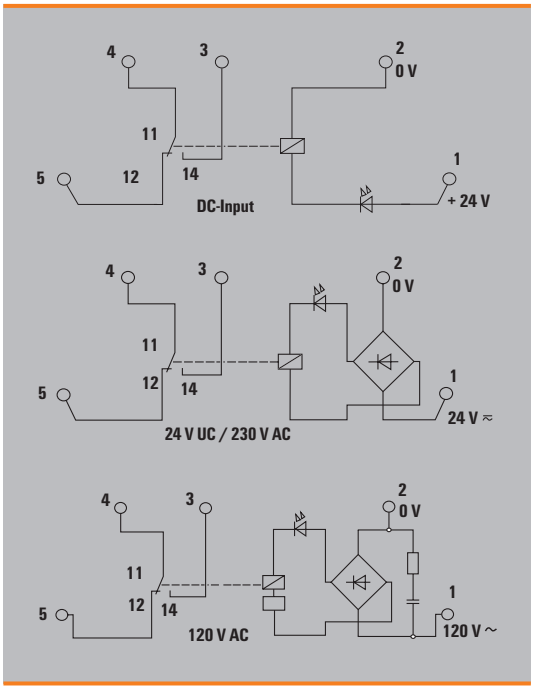
MiniConditioner MCZ R

1 CO contact AC/DC/UC coil

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

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



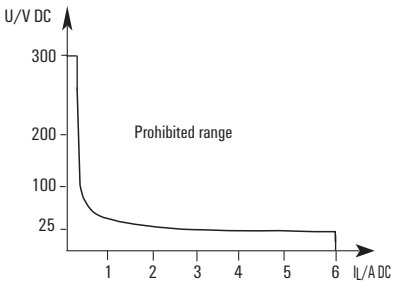


Technical data

Output		
Rated switching voltageContinuous current		250 V AC 6 A
Max. switching voltage, AC		250 V
Making current		6 A
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		1500 VA
Contact material		AgSnO2
Mechanical service life		20 x 10^6 switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-25 °C...+50 °C
Storage temperature		-40 °C...+60 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CE; CSA; cURus; GL; GOSTME25
Insulation coordination (EN 50178)		
Rated voltage		300 V
Impulse withstand voltage		4 kV (1.2/50 µs)
Dielectric strength input – output		4 kV_{eff} / 1 s
Dielectric strength, contact / contact		
Dielectric strength to mounting rail		4 kV_{eff} / 1 min.
Creepage and clearance distance input – output		≥ 5.5 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.5 / 2.5
Depth x width x height	mm	63.2 / 6 / 91
Note		End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.

Applications

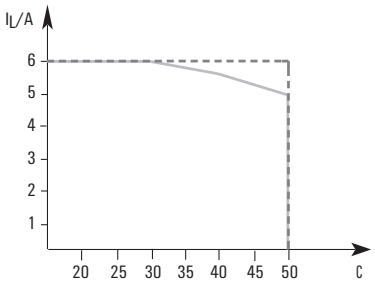
Limit curve



Derating curve

— in a row without spacing on terminal rail

- - - in a row with 20 mm spacing on terminal rail



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

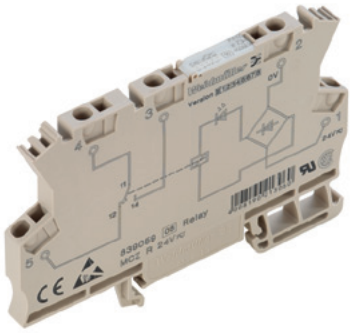
Ordering data	24 V DC 1 CO	24 V DC 1 CO Au	24 V UC 1 CO	110 V DC 1 CO
Input				
Rated control voltage	24 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	110 V DC ±10 %
Rated current AC / DC	/ 6.3 mA	/ 6.3 mA	11 mA / 6.4 mA	/ 2.85 mA
Power rating	156 mW	156 mW	160 mVA / 150 mW	340 mW
AC response/dropout Volt			19.5 V / 3 V	
DC response/dropout Volt	19 V / 4 V	19 V / 4 V	19.5 V / 3 V	approx. 68 V / approx. 19 V
AC pickup/dropout current				
DC pickup/dropout current				1,6 mA / 0,4 mA
Status indicator	Green LED	Green LED	Green LED	Green LED
Protective circuit	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
Load side				
Switch-on delay	< 5 ms	< 5 ms	< 6 ms	< 6 ms
Switch-off delay	< 15 ms	< 15 ms	< 35 ms	< 15 ms
Ordering data Complete module				
CO contact Type	MCZ R 24VDC	MCZ R 24VDC 5uAu	MCZ R 24VUC	MCZ R 110VDC
Order No.	**8365980000**	**8442960000**	**8390590000**	**8467470000**
Type				
Order No.				
Note		Can safely switch a load of: 1...60 V AC/DC, 1...300 mA. If higher loads are switched this can damage the gold plating.		

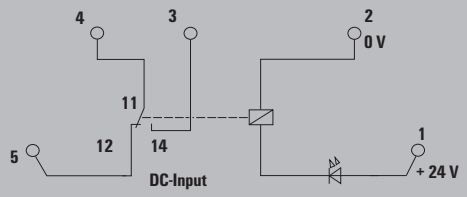
Ordering data	120 V AC 1 CO	230 V AC 1 CO
Input		
Rated control voltage	120 V AC -15 % / +10 %	230 V AC ±10 %
Rated current AC / DC	7 mA /	9.5 mA /
Power rating	0.85 VA	2.1 VA
AC response/dropout Volt	85 V / 17 V	150 V / 60 V
DC response/dropout Volt		
AC pickup/dropout current	4 mA / 1.3 mA	5 mA / 2.5 mA
DC pickup/dropout current		
Status indicator	Green LED	Green LED
Protective circuit	Rectifier	Rectifier
Load side		
Switch-on delay	< 17 ms	< 11 ms
Switch-off delay	< 35 ms	< 35 ms
Ordering data Complete module		
CO contact Type	MCZ R 120VAC	MCZ R 230VAC
Order No.	**8420880000**	**8237710000**
Type		
Order No.		
Note		

MCZ R TRAK

1 CO contact or 1 NO contact DC coil

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



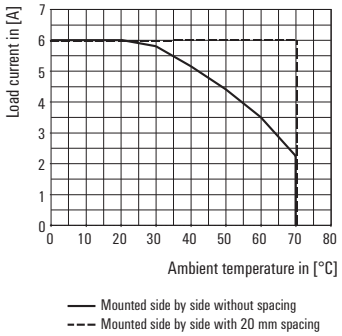


Technical data

Output		
Rated switching voltage / Continuous current		250 V AC / 6 A
Max. switching voltage, AC		250 V
Making current		6 A
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		1500 VA
Contact material		AgSnO
Mechanical service life		20 x 10^6 switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-25 °C...+70 °C
Storage temperature		-40 °C...+85 °C
Humidity		95 % for 30 days, minimal condensation to EN 50155
Approvals		CE; GOSTME25
Insulation coordination (EN 50178)		
Rated voltage		300 V
Impulse withstand voltage		4 kV (1.2/50 µs)
Dielectric strength input – output		4 kV_{eff} / 1 s
Dielectric strength, contact / contact		
Dielectric strength to mounting rail		4 kV_{eff} / 1 min.
Creepage and clearance distance input – output		≥ 5.5 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.5 / 2.5
Depth x width x height	mm	63.2 / 6 / 91
Note		End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.

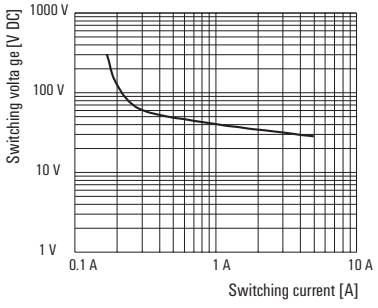
Applications

Derating



DC load braking capacity

resistive load



MCZ R TRAK

1 CO contact or 1 NO contact DC coil

Ordering data	24 V DC TRAK	36 V DC TRAK	48...110 V DC TRAK
Input			
Rated control voltage	24 V DC +25 % / -30 %	36 V DC +25 % / -30 %	48 V...110 V DC +25 % / -30 %
Rated current AC / DC	/ 11.5...16.5 mA	/ 8...12 mA	/ < 3 mA
Power rating	195...500 mW	200...540 mW	< 300 mW
AC response/dropout Volt			
DC response/dropout Volt	14 V / 3 V	18 V / 4,5 V	> 25 V / < 6 V
AC pickup/dropout current			
DC pickup/dropout current			
Status indicator	Green LED	Green LED	Green LED
Protective circuit	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection
Load side			
Switch-on delay	< 11 ms	< 6 ms	< 4 ms
Switch-off delay	< 50 ms	< 70 ms	< 100 ms

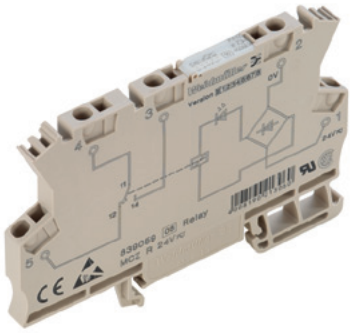
Ordering data Complete module				
CO contact	Type	MCZ R 24Vdc 1CO TRAK	MCZ R 36Vdc 1CO TRAK	MCZ R 48...110Vdc 1CO TRAK
	Order No.	**8713890000**	**8713900000**	**8713910000**
NO contact	Type	MCZ R 24Vdc 1NO TRAK		MCZ R 48...110Vdc 1NO TRAK
	Order No.	**8499550000**		**8574070000**

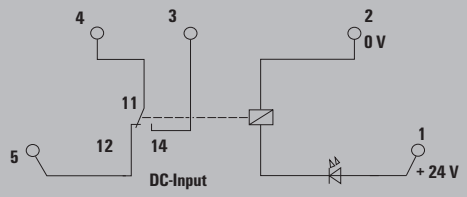
Note			

MCZ R TRAK Au

1 CO contact or 1 NO contact DC coil

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



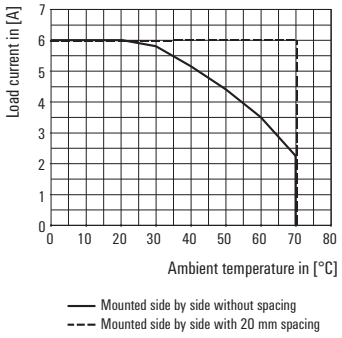


Technical data

Output		
Rated switching voltage / Continuous current		250 V AC / 6 A
Max. switching voltage, AC		250 V
Making current		6 A
Min. switching power		1 V / 1 mA
Max. switching power		1500 VA
Contact material		AgSnO 5µm Au
Mechanical service life		20 x 10^6 switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-25 °C...+70 °C
Storage temperature		-40 °C...+85 °C
Humidity		95 % for 30 days, minimal condensation to EN 50155
Approvals		CE; GOSTME25
Insulation coordination (EN 50178)		
Rated voltage		300 V
Impulse withstand voltage		4 kV (1.2/50 µs)
Dielectric strength input – output		4 kV_{eff} / 1 s
Dielectric strength, contact / contact		
Dielectric strength to mounting rail		4 kV_{eff} / 1 min.
Creepage and clearance distance input – output		≥ 5.5 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.5 / 2.5
Depth x width x height	mm	63.2 / 6 / 91
Note		End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.

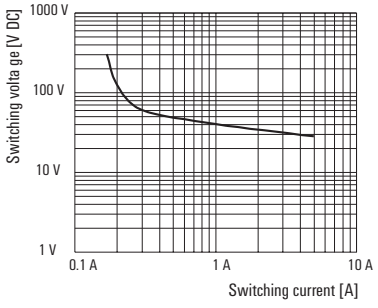
Applications

Derating



DC load braking capacity

resistive load



MCZ R TRAK Au

1 CO contact or 1 NO contact DC coil

Ordering data	24 V DC TRAK Au	36 V DC TRAK Au	48...110 V DC TRAK Au
Input			
Rated control voltage	24 V DC +25 % / -30 %	36 V DC +25 % / -30 %	48 V...110 V DC +25 % / -30 %
Rated current AC / DC	/ 11.5...16.5 mA	/ 8...12 mA	/ < 3 mA
Power rating	195...500 mW	200...540 mW	< 300 mW
AC response/dropout Volt			
DC response/dropout Volt	14 V / 3 V	18 V / 4,5 V	> 25 V / < 6 V
AC pickup/dropout current			
DC pickup/dropout current			
Status indicator	Green LED	Green LED	Green LED
Protective circuit	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection	Integrated free-wheel diode, Reverse polarity protection
Load side			
Switch-on delay	< 11 ms	< 6 ms	< 4 ms
Switch-off delay	< 50 ms	< 70 ms	< 100 ms

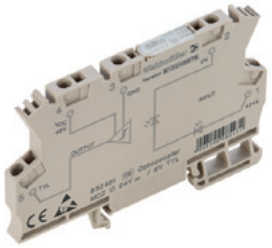
Ordering data				
CO contact	Type	MCZ R 24VDC 1CO AU TRAK	MCZ R 36VDC 1CO AU TRAK	MCZ R 48...110VDC 1CO AU TRAK
	Order No.	**8790520000**	**8790510000**	**8790500000**
	Type			
	Order No.			
Note		Can safely switch a load of: 1...60 V AC/DC, 1...300 mA. If higher loads are switched this can damage the gold plating.	Can safely switch a load of: 1...60 V AC/DC, 1...300 mA. If higher loads are switched this can damage the gold plating.	Can safely switch a load of: 1...60 V AC/DC, 1...300 mA. If higher loads are switched this can damage the gold plating.

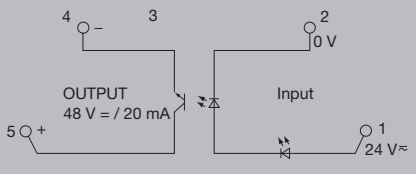
MiniConditioner MCZ O

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

24 V UC

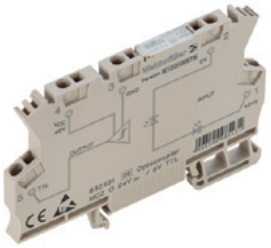
Connection system

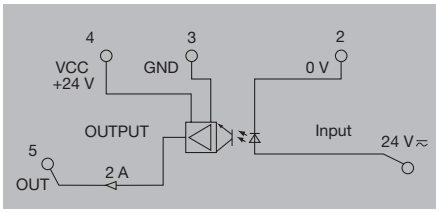




24 V UC / 24 V 2 A

Connection system





Technical data

Control side		
Rated control voltage	24 V UC ±20 %	24 V UC ±20 %
Nominal control current	10 mA DC ±20 %, 10 mA AC ±20 %	10 mA DC ±20 %, 10 mA AC ±20 %
Cut-in (switch-on) voltage	≥ 16.8 V DC, ≥ 14.4 V AC	≥ 14.4 V AC, ≥ 15 V DC
Dropout voltage	≤ 15.7 V DC, ≤ 13 V AC	≤ 13 V AC, ≤ 15 V DC
Input frequency	AC: 5 Hz / DC: 10 Hz	AC: 10 Hz / DC: 30 Hz
Power rating	230 mW / 280 mVA	195 mW / 220 mVA
Status indicator	Green LED	LED
Protective circuit		
Load side		
Rated switching voltage	5...48 V DC	24 VDC ±20%
Continuous current	20 mA	2 A
Making current		
Solid-state type	Transistor	Transistor
Voltage drop at max. load	≤ 1 V	≤ 1.8 V
Leakage current		
Protective circuit, load side	Integrated free-wheel diode	Varistor
Short-circuit-proof	No	Yes
Switch-on delay	AC: 10 ms / DC: 20 ms	≤ 10 ms
Switch-off delay	AC: 45 ms / DC: 40 ms	≤ 10 ms
General data		
Ambient temperature (operational)	-25 °C...+50 °C	-25 °C...+40 °C
Storage temperature	-40 °C...+85 °C	-40 °C...+60 °C
Humidity	40 °C / 93 % rel. humidity, no condensation	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; GOSTME25	CE; CSA; cURus; GOSTME25
Insulation coordination (EN 50178)		
Rated voltage	300 V	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	4 kV_{eff} / 1 min.	1.2 kV_{eff} / 5 s
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm	≥ 5.5 mm
Surge voltage category	III	III
Pollution severity	2	2

Dimensions			
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.5 / 1.5	1.5 / 0.5 / 1.5
Depth x width x height	mm	63.2 / 6 / 91	63.2 / 6 / 91
Note			* Status indicator: green = OK, yellow = partial short circuit, blinking red = short circuit

Ordering data

	Type	Qty.	Order No.
Tension-clamp connection	MCZ O 24VUC	10	**8365940000**

	Type	Qty.	Order No.
Tension-clamp connection	MCZ O 24VUC	10	**8287730000**

Note

Accessories

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

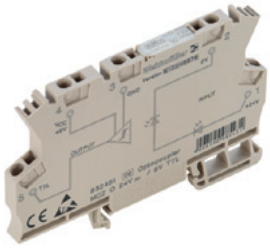
Note	
	End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.

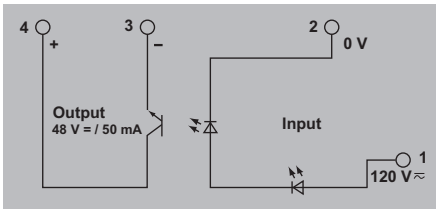
MiniConditioner MCZ O

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

120 V UC

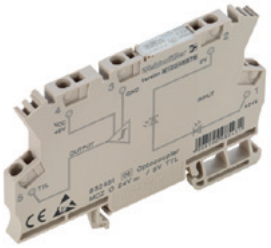
Connection system

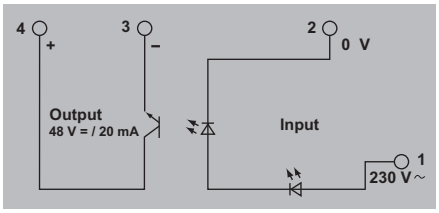




230 V AC

Connection system





Technical data

Control side		
Rated control voltage	120 V UC +5 / -15 %	230 V AC +5 % / -15 %
Nominal control current	3 mA DC (±10 %), 3 mA AC (±10 %)	10 mA AC ±20 %
Cut-in (switch-on) voltage	≥ 65 V AC, ≥ 70 V DC	≥ 175 V AC
Dropout voltage	≤ 64 V AC, ≤ 64 V DC	≤ 125 V AC
Input frequency	AC: 5 Hz duty factor 1:2, DC: 20 Hz duty factor 1:2	AC: 5 Hz duty factor 1:2
Power rating	350 mW / 400 mVA	2.3 VA
Status indicator	Green LED	Green LED
Protective circuit		
Load side		
Rated switching voltage	5...48 V DC	5...48 V DC
Continuous current	50 mA	20 mA
Making current		
Solid-state type	Transistor	Transistor
Voltage drop at max. load	1.6 V	1.6 V
Leakage current	≤ 1 mA	≤ 1 mA
Protective circuit, load side	Integrated free-wheel diode	Integrated free-wheel diode
Short-circuit-proof	No	No
Switch-on delay	≤ 30 ms	≤ 30 ms
Switch-off delay	≤ 40 ms	≤ 40 ms
General data		
Ambient temperature (operational)	-25 °C...+40 °C	-25 °C...+40 °C
Storage temperature	-40 °C...+60 °C	-40 °C...+60 °C
Humidity	40 °C / 93 % rel. humidity, no condensation	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; GOSTME25	CE; CSA; cURus; GOSTME25
Insulation coordination (EN 50178)		
Rated voltage	300 V	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV_{eff} / 5 s	1.2 kV_{eff} / 5 s
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm	≥ 5.5 mm
Surge voltage category	III	III
Pollution severity	2	2

Dimensions		**Tension clamp connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.5 / 1.5	1.5 / 0.5 / 1.5
Depth x width x height	mm	63.2 / 6 / 91	63.2 / 6 / 91
Note			

Ordering data

	Type	Qty.	Order No.	Type	Qty.	Order No.
Tension-clamp connection	MCZ O 120VUC	10	**8421060000**	MCZ O 230VAC	10	**8421380000**

Note

Accessories

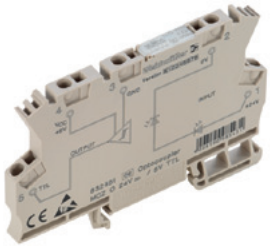
Note		
	End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.	End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.

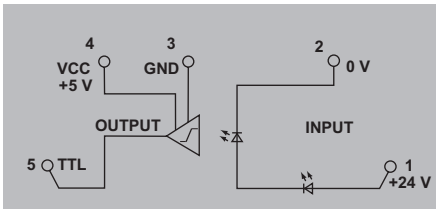
MiniConditioner MCZ O

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

24 V DC / 5 V TTL

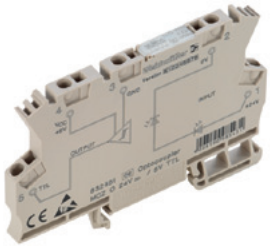
Connection system

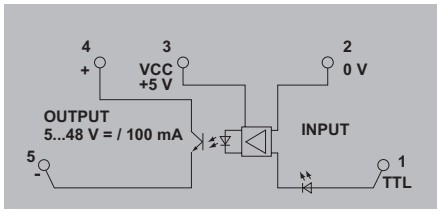




5 V TTL / 5...48 V DC

Connection system





Technical data

Control side		
Rated control voltage	24 V DC ±16 %	5 V TTL
Nominal control current	5 mA DC (±20 %)	1.65 mA DC
Cut-in (switch-on) voltage	≥ 16.8 V DC	
Dropout voltage	≤ 16,5 V DC	
Input frequency	100 kHz duty factor 1:2, 50 kHz duty factor 1:10	2.4 kHz
Power rating	112 mW	10 mW
Status indicator	Green LED	Green LED
Protective circuit		
Load side		
Rated switching voltage	5 V TTL	5...48 V DC
Continuous current	8 ma, Fan out = 20 LS-TTL	100 mA
Making current		
Solid-state type	TTL	TTL
Voltage drop at max. load		≤ 1.8 V
Leakage current		
Protective circuit, load side	Diode	Diode
Short-circuit-proof	No	No
Switch-on delay	1 µs (at 20 V DC)	< 17 µs
Switch-off delay	2.5 µs (at 28 V DC)	< 250 µs
General data		
Ambient temperature (operational)	-25 °C...+40 °C	-25 °C...+40 °C
Storage temperature	-40 °C...+60 °C	-40 °C...+60 °C
Humidity	40 °C / 93 % rel. humidity, no condensation	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; GOSTME25	CE; CSA; cURus; GOSTME25
Insulation coordination (EN 50178)		
Rated voltage	300 V	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV_{eff} / 5 s	1.2 kV_{eff} / 5 s
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm	≥ 5.5 mm
Surge voltage category	III	III
Pollution severity	2	2

Dimensions		**Tension clamp connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.5 / 1.5	1.5 / 0.5 / 1.5
Depth x width x height	mm	63.2 / 6 / 91	63.2 / 6 / 91
Note			

Ordering data

	Type	Qty.	Order No.	Type	Qty.	Order No.
Tension-clamp connection	MCZ O 24VDC	10	**8324610000**	MCZ O 5VTTL	10	**8398940000**

Note		

Accessories

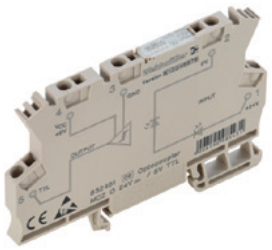
Note	End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.	End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.

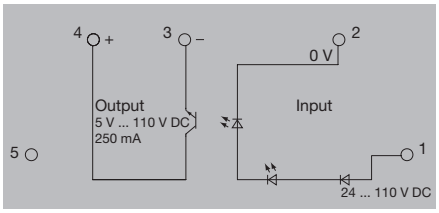
MCZ O TRAK

- Component for rail industry applications
- Fulfils requirements acc. to EN 50155
- Voltage fluctuations -30 % / +25 %
- Operating temperature -25...+70 °C (85 °C / 10 min.) acc. to EN 50155
- Condensation permissible

24 V DC TRAK

Connection system





Technical data

Control side	
Rated control voltage	24...110 V DC -30 / +25 %
Nominal control current	2.8 mA DC
Cut-in (switch-on) voltage	≥ 9.6 V DC
Dropout voltage	≤ 9 V DC
Input frequency	max. 10 Hz
Power rating	
Status indicator	Green LED
Protective circuit	
Load side	
Rated switching voltage	5...137.5 V DC
Continuous current	180 mA
Making current	
Solid-state type	Transistor
Voltage drop at max. load	≤ 1.7 V
Leakage current	
Protective circuit, load side	Varistor, integrated free-wheel diode
Short-circuit-proof	No
Switch-on delay	≤ 10 ms
Switch-off delay	≤ 40 ms
General data	
Ambient temperature (operational)	-25 °C...+70 °C
Storage temperature	-40 °C...+85 °C
Humidity	95 % for 30 days, minimal condensation to EN 50155
Approvals	CE; GOSTME25
Insulation coordination (EN 50178)	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV_{eff} / 5 s
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Surge voltage category	III
Pollution severity	2

Dimensions		**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.5 / 1.5
Depth x width x height	mm	63.2 / 6 / 91
Note		

Ordering data

	Type	**Qty.**	**Order No.**
Tension-clamp connection	MCZ O TRAK 24.110VDC	10	**8820710000**

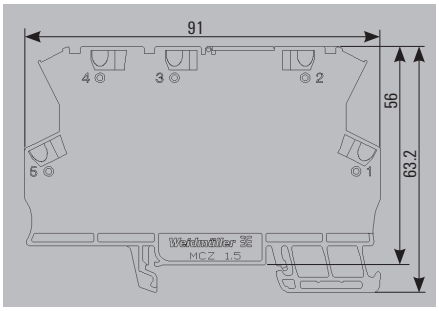
Note

Accessories

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

MCZ accessories





Ordering data

	Type	Qty.	Order No.
End plate	AP MCZ 1.5	50	8389030000



Ordering data

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



Ordering data

	Type	Qty.	Order No.
Terminal markers	WS 10/6 MC NEUTRAL	600	1828450000
Screwdriver	SD 0.6x3.5x100	1	9008330000
End bracket	WEW 35/2	100	1061200000

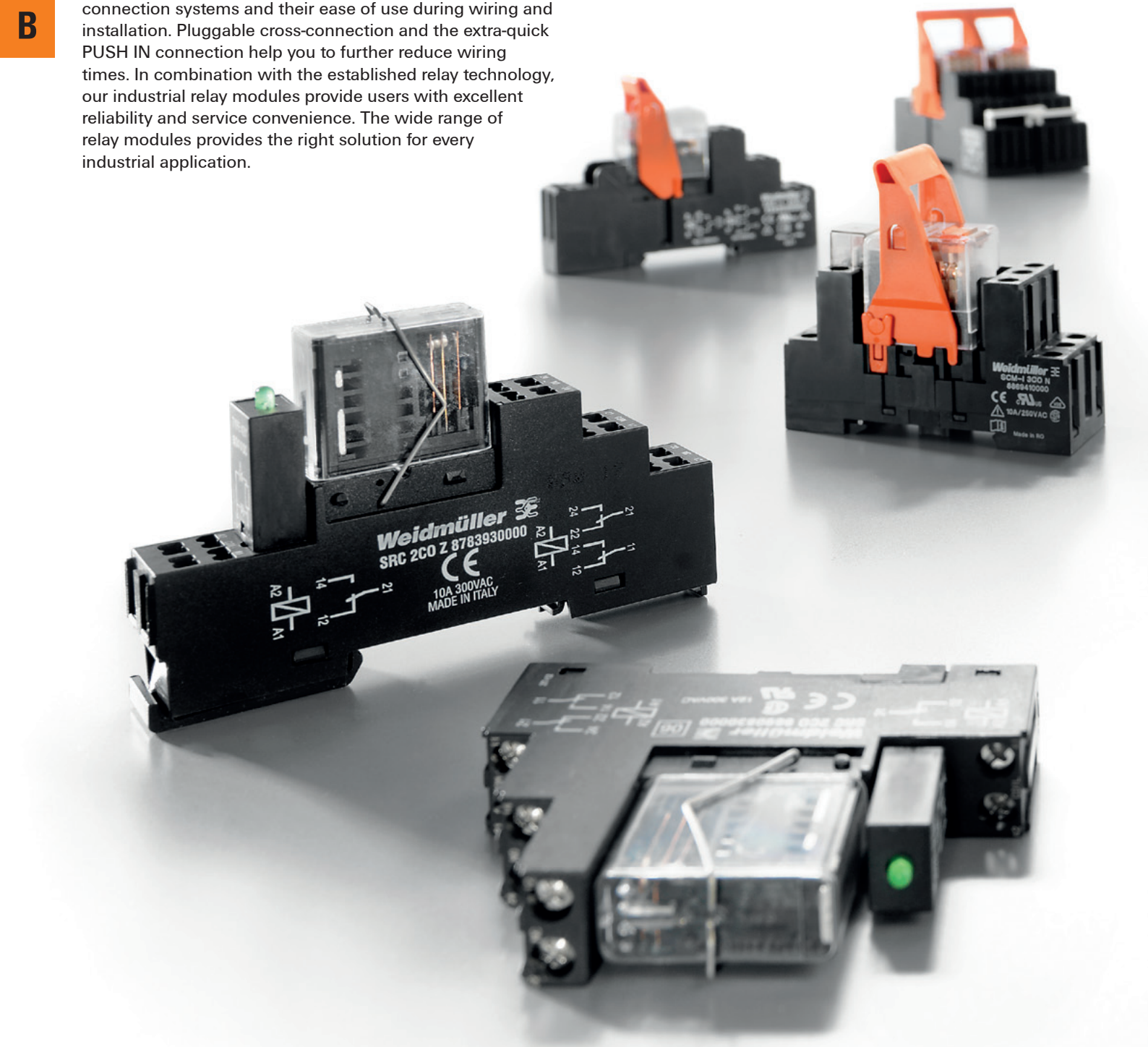
Industrial relay modules

Industrial relay modules	Industrial relay modules – Overview	B.2
	RIDERSERIES – Overview	B.4
	RIDERSERIES – relay modules	B.6
	RIDERSERIES FG – Overview	B.44
	RIDERSERIES FG – relay module with positively-driven contacts	B.46

Industrial relay module with the proven connection technology

Easy handling and safe connections

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





Coupling modules – the industrial standard

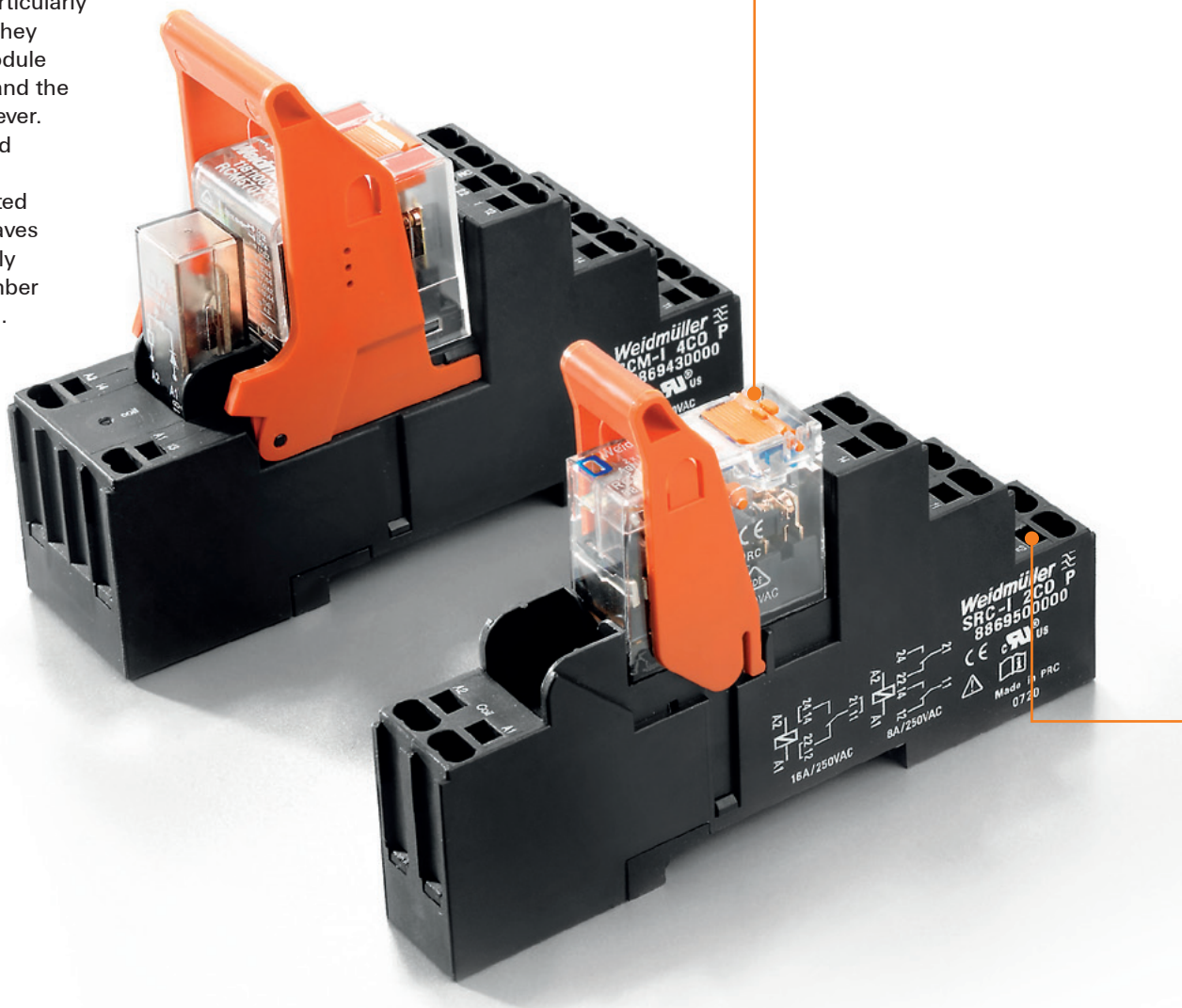
PUSH IN

Relay module with 1 to 4 CO contacts

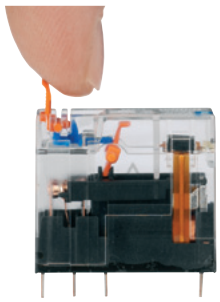
The RIDER SERIES and its RCI, RCM, RRD and RPW product lines have been successfully integrated into the entire Weidmüller line of relay products. This modular-designed product series formally complies with international standards. A variety of pluggable versions are available with from one to four CO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

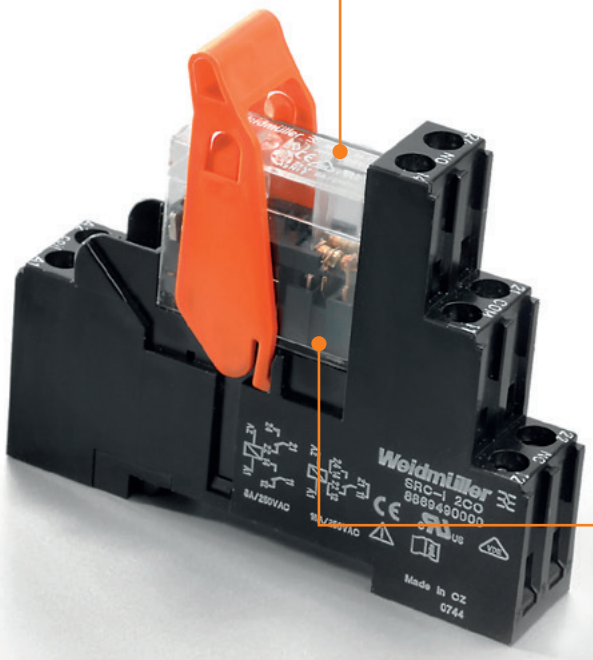


Simple
The stay-down test button simplifies commissioning and service work.

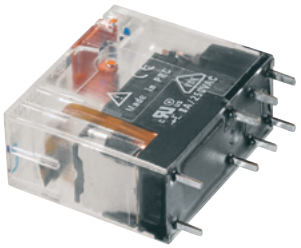


Customised
Suppressor circuitry and LED can be integrated into a relay module or as a pluggable module at the base.

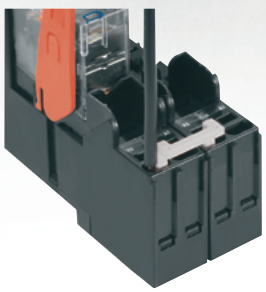




Safe
The heavy-duty industrial pins ensure a reliable connection.



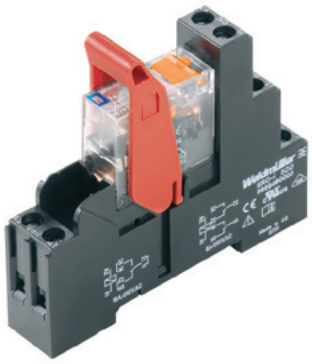
Saves time
No-screw PUSH IN connections and cross-connections can reduce wiring time by more than 50 %.



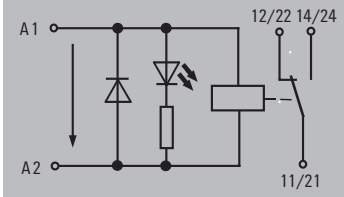
RCI KIT with screw connection

1 CO contact

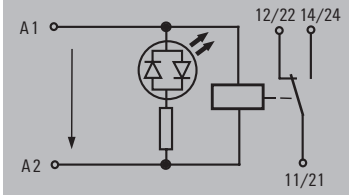
- 4000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay
- Protective suppressor circuit for DC coil
- Optional test button with latching function and inspection window
- Identification of coils (AC red / DC blue)



DC-Version



AC-Version



Technical data

Output		
Rated switching voltage / Continuous current		240 V AC / 16 A[1]
Max. switching voltage, AC		400 V
Making current		30 A / 4 s
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		4000 VA
Contact material		AgNi 90/10
Mechanical service life		AC coil 5 x 10^6 Switch. cycles, DC coil 10 x 10^6 Switch. cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+70 °C
Storage temperature		-40 °C...+70 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CE; GL; GOSTME25
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		5 kV (1.2/50 µs)
Dielectric strength input – output		5 kV_{eff}
Dielectric strength, contact / contact		
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≥ 8 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5
Depth x width x height	mm	70 / 15.5 / 77
Note		1) For full continuous current (16 A), relay connections 11 - 21, 12 - 22 and 14 - 24 must be bridged.

Ordering data

	24 V DC 1CO	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Input				
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 16.7 mA	31.6 mA	7 mA	3.5 mA
Power rating	420 mW	0.75 VA	0.8 VA	0.8 VA
AC response/dropout Volt		18 V / 3.6 V	86.3 V / 17.3 V	172.5 V / 34.5 V
DC response/dropout Volt	16.8 V / 2.4 V			
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Integrated 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 Relay with socket					
w. test button	Type	RCIKIT 24VDC 1CO LD/PB	RCIKIT 24VAC 1CO LD/PB	RCIKIT 115VAC 1CO LD/PB	RCIKIT 230VAC 1CO LD/PB
	Order No.	**8881580000**	**8881590000**	**8897060000**	**8881600000**
w.o. test button	Type	RCIKIT 24VDC 1CO LED	RCIKIT 24VAC 1CO LED	RCIKIT 115VAC 1CO LD	RCIKIT 230VAC 1CO LED
	Order No.	**8871000000**	**8871010000**	**8897090000**	**8871020000**

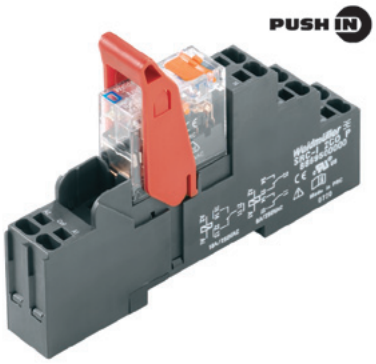
Ordering data Spare relay		w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button
	Type	RCI374AC4	RCI314AC4	RCI374R24	RCI314R24	RCI374S15	RCI314S15	RCI374T30	RCI314T30
	Order No.	**8870250000**	**8870100000**	**8870280000**	**8870130000**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

Note

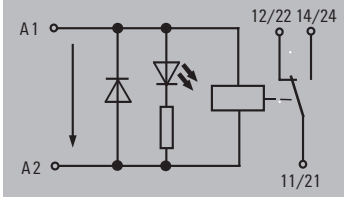
RCI-KITP with PUSH IN connection

1 CO contact

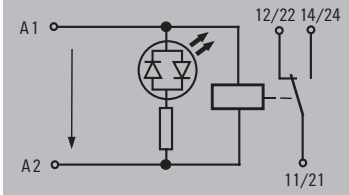
- 4000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay
- Protective suppressor circuit for DC coil
- Optional test button with latching function and inspection window
- Identification of coils (AC red / DC blue)



DC-Version



AC-Version



Technical data

Output		
Rated switching voltage / Continuous current		240 V AC / 16 A[1]
Max. switching voltage, AC		400 V
Making current		30 A / 4 s
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		4000 VA
Contact material		AgNi 90/10
Mechanical service life		AC coil 5 x 10^6 Switch. cycles, DC coil 10 x 10^6 Switch. cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+70 °C
Storage temperature		-40 °C...+70 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CE; GL; GOSTME25
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		5 kV (1.2/50 µs)
Dielectric strength input – output		5 kV_{eff}
Dielectric strength, contact / contact		
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≥ 8 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**PUSH IN spring connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.75 / 1.5
Depth x width x height	mm	70 / 15.5 / 98
Note		1) For full continuous current (16 A), relay connections 11 - 21, 12 - 22 and 14 - 24 must be bridged.

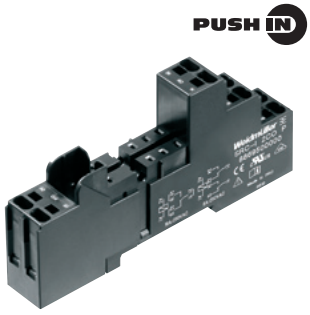
Ordering data

		24 V DC 1CO	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Input					
Rated control voltage		24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC		/ 16.7 mA	31.6 mA	7 mA	3.5 mA
Power rating		420 mW	0.75 VA	0.8 VA	0.8 VA
AC response/dropout Volt			18 V / 3.6 V	86.3 V / 17.3 V	172.5 V / 34.5 V
DC response/dropout Volt		16.8 V / 2.4 V			
Status indicator		Green LED	red LED	red LED	red LED
Protective circuit		Integrated 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 Relay with socket					
w. 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**
w.o. 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		w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button
	Type	RCI374AC4	RCI314AC4	RCI374R24	RCI314R24	RCI374S15	RCI314S15	RCI374T30	RCI314T30
	Order No.	**8870250000**	**8870100000**	**8870280000**	**8870130000**	**8870290000**	**8870140000**	**8870300000**	**8870150000**
Note									

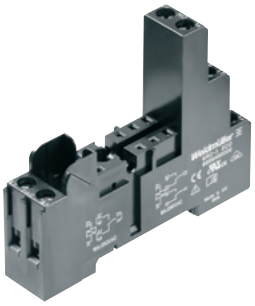
Accessories for RCI KIT relay modules, 1 CO

Plug-in module with PUSH IN connection



Plug-in module with screw connection

Standard height



Plug-in module with screw connection

Low height



Technical data

Rated current	2 x 12 A*)	2 x 12 A*)	2 x 12 A*)
Rated voltage	240 V AC	240 V AC	240 V AC
Dielectric strength of coil contacts	4000 V_{eff}	> 3000 V_{eff}	> 3000 V_{eff}
Ambient temperature (operational)	-25 °C...+85 °C	-25 °C...+85 °C	-25 °C...+85 °C
Protection class (IEC 61810)	IP 20	IP 20	IP 20
Stripping length	12 mm	8 mm	8 mm
Approvals	VDE, cURus, CSA	VDE, cURus, CSA	VDE, cURus, CSA
Connection cross-section			
- Solid-core wire	1 x 1.5 mm² / 2 x 1.0 mm²	2 x 2.5 mm²	2 x 2.5 mm²
- Stranded wire	1 x 1.5 mm² / 2 x 1.0 mm²	2 x 2.5 mm²	2 x 2.5 mm²
- with ferrule	1 x 1.0 mm² / 2 x 0.75 mm²	2 x 1.5 mm²	2 x 1.5 mm²
Rated torque acc. to IEC 61984 for screw connection		0.5 Nm / max. 0.7 Nm	0.5 Nm / max. 0.7 Nm

* For 1-pole relay modules (16 A), the following terminals must be connected: 11 with 21, 12 with 22, and 14 with 24.

Ordering data

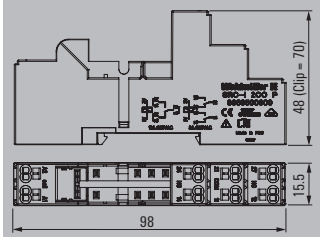
Description	Type	Qty.	Order No.
Plug-in module, snaps onto TS 35 DIN mounting rail, 2-pole	SRC-I 2CO P		**8869500000**
	SRC-I 2CO		**8869490000**
	SRC-I 2CO N		**8869480000**

Accessories

Description	Type	Qty.	Order No.
Plastic retaining clip	SRC-I CLIP HP	10	**8869510000**
Metal retaining clip	SRC-I CLIP HM RCI	20	**1132090000**
Label	SRC-I MARK	10	**8869530000**
MultiCard 6x15 mm	ESG 6/15 K MC NEUTR. WS	200	**1880100000**
 Cross-connector for PUSH IN base, 2-pole, 12 A	SRC-I QV P		**8870840000**
 Cross-connector for screw base, 8-pole	SRC-I QV S		**1132070000**

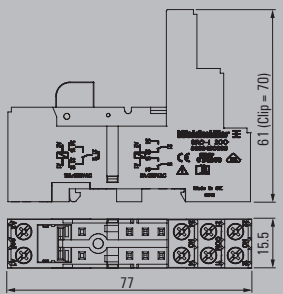
Dimensions

SRC-I 2 CO P



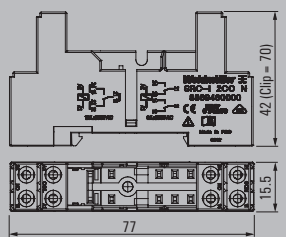
Dimensions

SRC-I 2 CO



Dimensions

SRC-I 2 CO N



Dimensions in mm

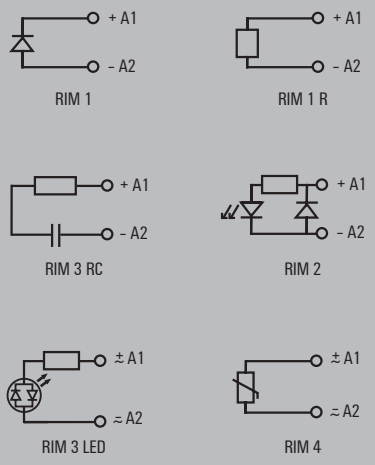
LED and protective modules for the SRC-I plug-in frame

Simply plug into the base module; reverse-connect protection. Connect parallel to coil.

Ordering data

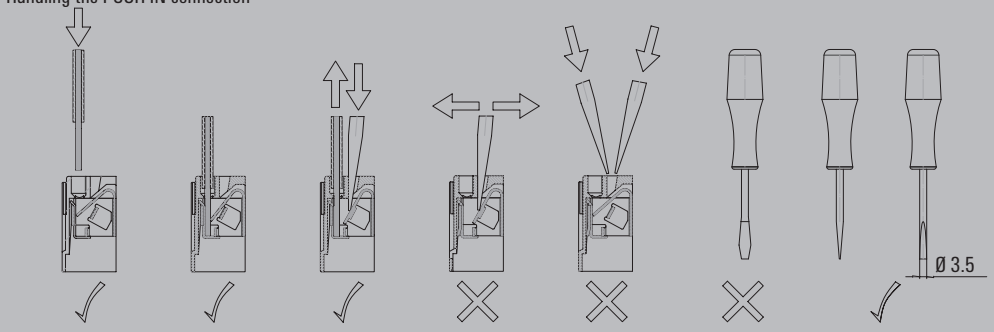
Description
Free Wheel diode 1N4007
Resistor 100 kΩ 1 Watt
RC-element 6 ... 60 V AC; 470 Ω / 220 nF
RC-element 110 ... 230 V AC; 4.7 Ω / 10 nF
Varistor protection 24 V; S07K30
Varistor protection 110 V; S07K130
Varistor protection 230 V; S07K275
LED
LED 6 ... 24 V DC with free wheel diode
LED 24 ... 60 V DC with free wheel diode
LED 110 ... 230 V DC with free wheel diode
LED 6 ... 24 V DC / V AC
LED 24 ... 60 V DC / V AC
LED 110 ... 230 V DC / V AC

Type	Qty.	Order No.	Order No.
RIM-I 1 6/230V	10	**8869580000**	
RIM-I 1 R 110/230V	10	**8870830000**	
RIM-I 3 6/60VAC	10	**8869770000**	
RIM-I 3 110/230VAC	10	**8869790000**	
RIM-I 4 24VUC	10	**8869710000**	
RIM-I 4 110VUC	10	**8869730000**	
RIM-I 4 230VUC	10	**8869750000**	
		red	**green**
RIM-I 2 6/24VDC	10	**8869590000**	**8869600000**
RIM-I 2 24/60VDC	10	**8869670000**	**8869680000**
RIM-I 2 110/230VDC	10	**8869690000**	**8869700000**
RIM-I 3 6/24VUC	10	**8869630000**	**8869640000**
RIM-I 3 24/60VUC	10	**8869610000**	**8869620000**
RIM-I 3 110/230VUC	10	**8869650000**	**8869660000**



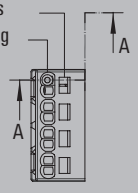
Warnings and notes on usage

Handling the PUSH IN connection

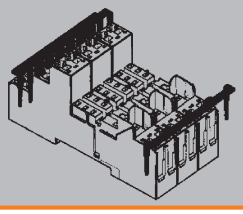


Screwdriver
SD 0.6 x 3.5 x 100
9008330000

Release openings
Wire-connection opening

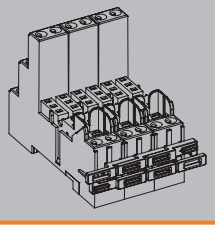


Cross-connector mounting for PUSH IN base



If more than two poles need to be connected with stacked cross-connector ridges, then the lower ridge must be stripped and shortened to the proper length so it will fit.

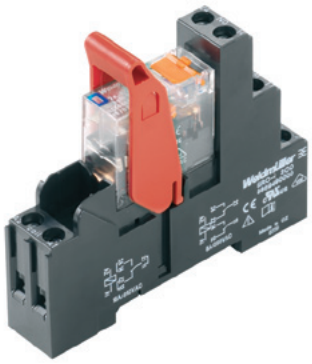
Cross-connector mounting for screw base



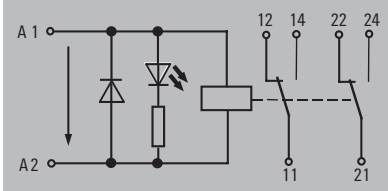
RCI KIT with screw connection

2 CO contacts

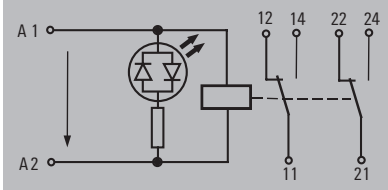
- 2000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay
- Protective suppressor circuit for DC coil
- Optional test button with latching function and inspection window
- Identification of coils (AC red / DC blue)



DC-Version



AC-Version



Technical data

Output		
Rated switching voltage / Continuous current		240 V AC / 8 A
Max. switching voltage, AC		400 V
Making current		15 A / 4 s
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		2000 VA
Contact material		AgNi 90/10
Mechanical service life		AC coil 5 x 10^6 Switch. cycles, DC coil 10 x 10^6 Switch. cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+70 °C
Storage temperature		-40 °C...+70 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CE; GL; GOSTME25
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		5 kV (1.2/50 µs)
Dielectric strength input – output		5 kV_{eff}
Dielectric strength, contact / contact		2.5 kV_{eff}
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≥ 8 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5
Depth x width x height	mm	70 / 15.5 / 77
Note		

Ordering data

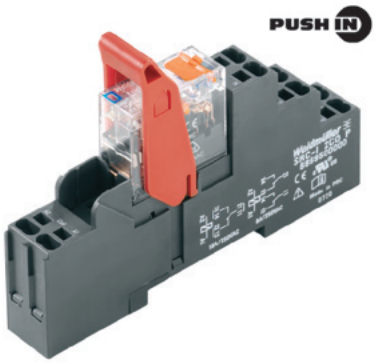
	24 V DC 2CO	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Input				
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 16.7 mA	31.6 mA	7 mA	3.5 mA
Power rating	420 mW	0.75 VA	0.8 VA	0.8 VA
AC response/dropout Volt		18 V / 3.6 V	86.3 V / 17.3 V	172.5 V / 34.5 V
DC response/dropout Volt	16.8 V / 2.4 V			
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Integrated 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 Relay with socket				
w. 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**
w.o. test button Type	RCIKIT 24VDC 2CO LED	RCIKIT 24VAC 2CO LED	RCIKIT 115VAC 2CO LD	RCIKIT 230VAC 2CO LED
Order No.	**8871030000**	**8871040000**	**8897100000**	**8871050000**

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

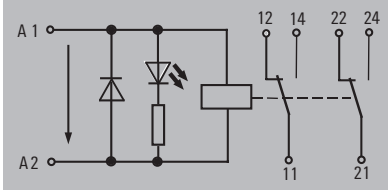
RCI-KITP with PUSH IN connection

2 CO contacts

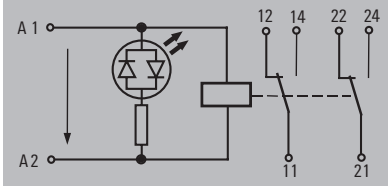
- 2000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay
- Protective suppressor circuit for DC coil
- Optional test button with latching function and inspection window
- Identification of coils (AC red / DC blue)



DC-Version



AC-Version



Technical data

Output		
Rated switching voltage / Continuous current		240 V AC / 8 A
Max. switching voltage, AC		400 V
Making current		15 A / 4 s
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		2000 VA
Contact material		AgNi 90/10
Mechanical service life		AC coil 5 x 10^6 Switch. cycles, DC coil 10 x 10^6 Switch. cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+70 °C
Storage temperature		-40 °C...+70 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CE; GL; GOSTME25
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		5 kV (1.2/50 µs)
Dielectric strength input – output		5 kV_{eff}
Dielectric strength, contact / contact		2.5 kV_{eff}
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≥ 8 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**PUSH IN spring connection**
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.75 / 1.5
Depth x width x height	mm	70 / 15.5 / 98
Note		

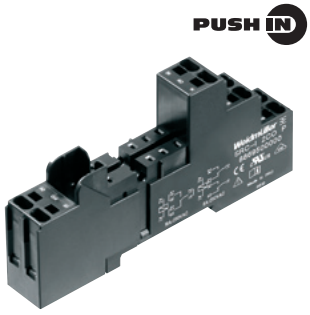
Ordering data

		24 V DC 2CO	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Input					
Rated control voltage		24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC		/ 16.7 mA	31.6 mA	7 mA	3.5 mA
Power rating		420 mW	0.75 VA	0.8 VA	0.8 VA
AC response/dropout Volt			18 V / 3.6 V	86.3 V / 17.3 V	172.5 V / 34.5 V
DC response/dropout Volt		16.8 V / 2.4 V			
Status indicator		Green LED	red LED	red LED	red LED
Protective circuit		Integrated 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					
Relay with socket					
w. test button	Type	RCIKITP 24VDC 2CO LD/PB	RCIKITP 24VAC 2CO LD/PB	RCIKITP115VAC 2CO LD/PB	RCIKITP230VAC 2CO LD/PB
	Order No.	**8897230000**	**8897240000**	**8897250000**	**8897260000**
w.o. test button	Type	RCIKITP 24VDC 2CO LD	RCIKITP 24VAC 2CO LD	RCIKITP 115VAC 2CO LD	RCIKITP 230VAC 2CO LD
	Order No.	**8897150000**	**8897160000**	**8897170000**	**8897180000**

		24 V DC 2CO		24 V AC 2CO		115 V AC 2CO		230 V AC 2CO	
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									

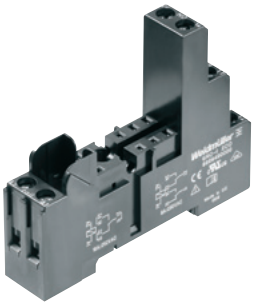
Accessories for RCI KIT relay modules, 2 CO

Plug-in module with PUSH IN connection



Plug-in module with screw connection

Standard height



Plug-in module with screw connection

Low height



Technical data

Rated current	2 x 12 A	2 x 12 A	2 x 12 A
Rated voltage	240 V AC	240 V AC	240 V AC
Dielectric strength of coil contacts	4000 V_{eff}	> 3000 V_{eff}	> 3000 V_{eff}
Ambient temperature (operational)	-25 °C...+85 °C	-25 °C...+85 °C	-25 °C...+85 °C
Protection class (IEC 61810)	IP 20	IP 20	IP 20
Stripping length	12 mm	8 mm	8 mm
Approvals	VDE, cURus, CSA	VDE, cURus, CSA	VDE, cURus, CSA
Connection cross-section			
- Solid-core wire	1 x 1.5 mm² / 2 x 1.0 mm²	2 x 2.5 mm²	2 x 2.5 mm²
- Stranded wire	1 x 1.5 mm² / 2 x 1.0 mm²	2 x 2.5 mm²	2 x 2.5 mm²
- with ferrule	1 x 1.0 mm² / 2 x 0.75 mm²	2 x 1.5 mm²	2 x 1.5 mm²
Rated torque acc. to IEC 61984 for screw connection		0.5 Nm / max. 0.7 Nm	0.5 Nm / max. 0.7 Nm

Ordering data

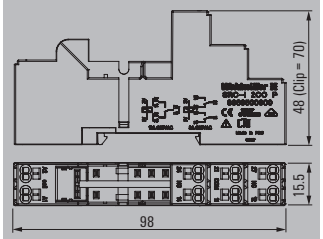
Description	Type	Qty.	Order No.
Plug-in module, snaps onto TS35 DIN mounting rail, 2-pole	SRC-I 2CO P		**8869500000**
	SRC-I 2CO		**8869490000**
	SRC-I 2CO N		**8869480000**

Accessories

Description	Type	Qty.	Order No.
Plastic retaining clip	SRC-I CLIP HP	10	**8869510000**
Metal retaining clip	SRC-I CLIP HM RCI	20	**1132090000**
Label	SRC-I MARK	10	**8869530000**
MultiCard 6x15 mm	ESG 6/15 K MC NEUTR. WS	200	**1880100000**
 Cross-connector for PUSH IN base, 2-pole, 12 A	SRC-I QV P		**8870840000**
 Cross-connector for screw base, 8-pole	SRC-I QV S		**1132070000**

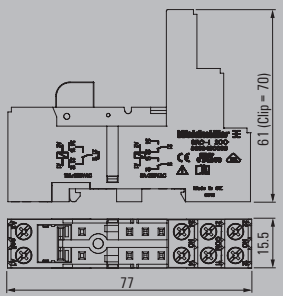
Dimensions

SRC-I 2 CO P



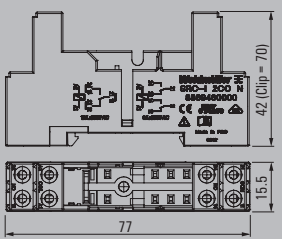
Dimensions

SRC-I 2 CO



Dimensions

SRC-I 2 CO N



Dimensions in mm

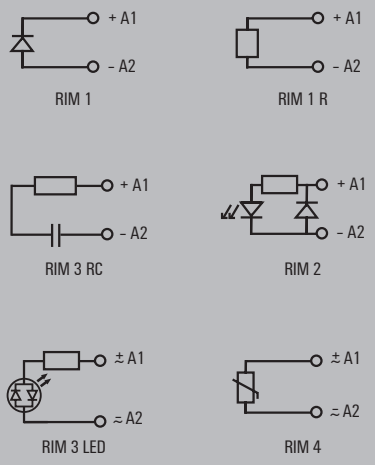
LED and protective modules for the SRC-I plug-in frame

Simply plug into the base module; reverse-connect protection. Connect parallel to coil.

Ordering data

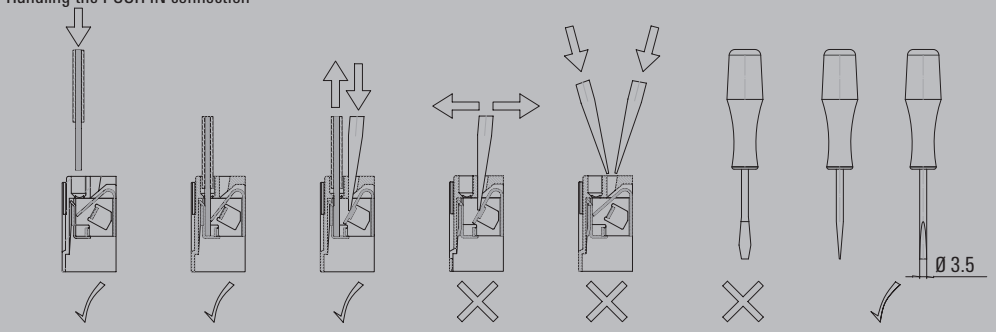
Description
Free Wheel diode 1N4007
Resistor 100 kΩ 1 Watt
RC-element 6 ... 60 V AC; 470 Ω / 220 nF
RC-element 110 ... 230 V AC; 4.7 Ω / 10 nF
Varistor protection 24 V; S07K30
Varistor protection 110 V; S07K130
Varistor protection 230 V; S07K275
LED
LED 6 ... 24 V DC with free wheel diode
LED 24 ... 60 V DC with free wheel diode
LED 110 ... 230 V DC with free wheel diode
LED 6 ... 24 V DC / V AC
LED 24 ... 60 V DC / V AC
LED 110 ... 230 V DC / V AC

Type	Qty.	Order No.	Order No.
RIM-I 1 6/230V	10	**8869580000**	
RIM-I 1 R 110/230V	10	**8870830000**	
RIM-I 3 6/60VAC	10	**8869770000**	
RIM-I 3 110/230VAC	10	**8869790000**	
RIM-I 4 24VUC	10	**8869710000**	
RIM-I 4 110VUC	10	**8869730000**	
RIM-I 4 230VUC	10	**8869750000**	
		red	**green**
RIM-I 2 6/24VDC	10	**8869590000**	**8869600000**
RIM-I 2 24/60VDC	10	**8869670000**	**8869680000**
RIM-I 2 110/230VDC	10	**8869690000**	**8869700000**
RIM-I 3 6/24VUC	10	**8869630000**	**8869640000**
RIM-I 3 24/60VUC	10	**8869610000**	**8869620000**
RIM-I 3 110/230VUC	10	**8869650000**	**8869660000**



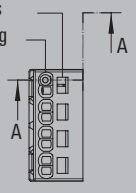
Warnings and notes on usage

Handling the PUSH IN connection

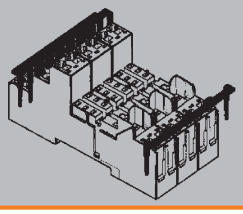


Screwdriver
SD 0.6 x 3.5 x 100
9008330000

Release openings
Wire-connection opening

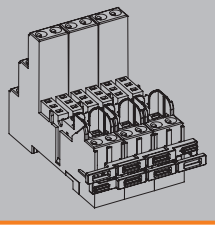


Cross-connector mounting for PUSH IN base



If more than two poles need to be connected with stacked cross-connector ridges, then the lower ridge must be stripped and shortened to the proper length so it will fit.

Cross-connector mounting for screw base



RCI relay

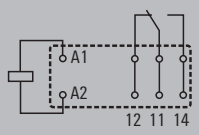
1 CO AC/DC coil

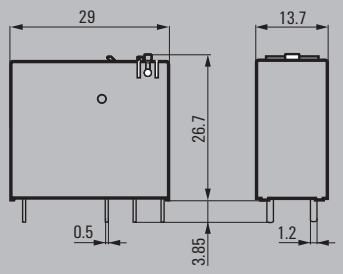
- 4000 VA switching capacity
- Stable plug-in connections
- Optional test button with latching function and inspection window
- Optional status indicator (AC red / DC green)
- Optional protective suppressor circuit
- Identification of coils (AC red / DC blue)



Circuit diagram
View on solder pins
dimensions in mm

1 C/O changeover contacts





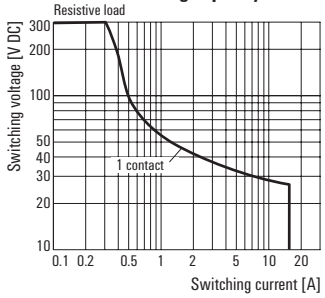
Technical data

Output		
Rated switching voltage / Continuous current		240 V AC / 16 A
Max. switching voltage, AC		400 V
Making current		30 A / 4 s
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		4000 VA
Contact material		AgNi 90/10
Mechanical service life		AC coil 5 x 10^6 Switch. cycles, DC coil 10 x 10^6 Switch. cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+70 °C
Storage temperature		-40 °C...+85 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CSA; cURus; GOSTME25; VDE
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		5 kV (1.2/50 µs)
Dielectric strength input – output		5 kV_{eff}
Dielectric strength, contact / contact		
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≥ 8 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Plug-in connection**
Depth x width x height	mm	25.5 / 13 / x
Note		x = 25.5 without test button / 26.7 with test button

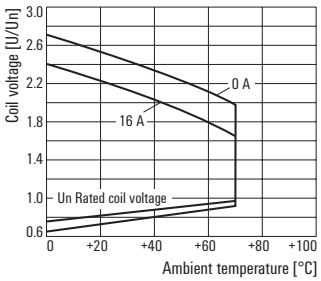
Applications

DC load breaking capacity

Resistive load

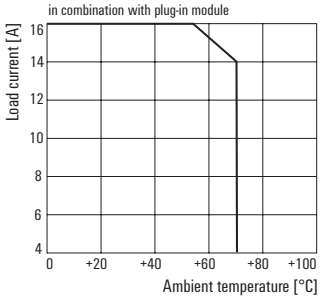


Operating voltage range DC



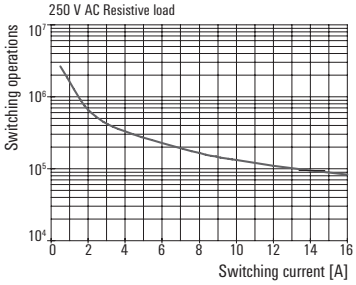
Derating curve

in combination with plug-in module

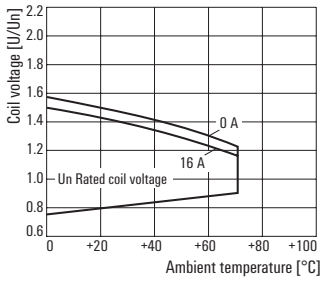


Electrical endurance

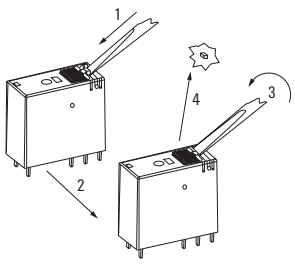
250 V AC Resistive load



Operating voltage range AC



Removal of snap lock



RCI relay
1 CO 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 1CO	24 V DC 1CO	48 V DC 1CO	110 V DC 1CO
Input					
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 33.3 mA	/ 16.7 mA	/ 8.7 mA	/ 4.1 mA
Power rating		400 mW	400 mW	400 mW	400 mW
AC response/dropout Volt					
DC response/dropout Volt		8.4 V / 1.2 V	16.8 V / 2.4 V	33.6 V / 4.8 V	77 V / 11 V
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					
Relay					
Standard	Type	RCI314012	RCI314024	RCI314048	RCI314110
	Order No.	**8869800000**	**8869810000**	**8869820000**	**8869830000**
w. test button	Type	RCI374012	RCI374024	RCI374048	RCI374110
	Order No.	**8869950000**	**8869960000**	**8869970000**	**8869980000**
With LED + freewheel diode	Type	RCI314AB2	RCI314AC4	RCI314AE8	RCI314BB0
	Order No.	**8870090000**	**8870100000**	**8870110000**	**8870120000**
With test button + LED	Type	RCI374AB2	RCI374AC4	RCI374AE8	RCI374BB0
+ Free-wheel diode	Order No.	**8870240000**	**8870250000**	**8870260000**	**8870270000**
Note					

Ordering data

		24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Input				
Rated control voltage		24 V AC	115 V AC	230 V AC
Rated current AC / DC		31.6 mA	6.6 mA	3.2 mA
Power rating		0.75 VA	0.75 VA	0.75 VA
AC response/dropout Volt		18 V / 3.6 V	86.3 V / 17.3 V	172.5 V / 34.5 V
DC response/dropout Volt				
Output				
Switch-on delay		≤ 8 ms	≤ 8 ms	≤ 8 ms
Switch-off delay		≤ 6 ms	≤ 6 ms	≤ 6 ms
Ordering data				
Relay				
Standard	Type	RCI314524	RCI314615	RCI314730
	Order No.	**8869840000**	**8869850000**	**8869860000**
w. test button	Type	RCI374524	RCI374615	RCI374730
	Order No.	**8869990000**	**8870000000**	**8870010000**
with LED	Type	RCI314R24	RCI314S15	RCI314T30
	Order No.	**8870130000**	**8870140000**	**8870150000**
With test button + LED	Type	RCI374R24	RCI374S15	RCI374T30
	Order No.	**8870280000**	**8870290000**	**8870300000**
Note				

RCI relay

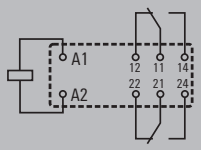
2 CO AC/DC coil

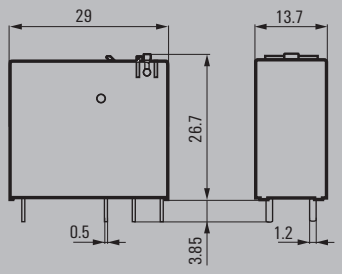
- 2000 VA switching capacity
- Stable plug-in connections
- Optional test button with latching function and inspection window
- Optional status indicator (AC red / DC green)
- Optional protective suppressor circuit
- Identification of coils (AC red / DC blue)



Circuit diagram
View on solder pins
dimensions in mm

2 C/O changeover contacts





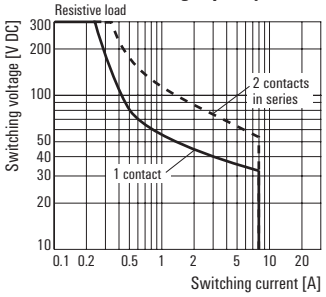
Technical data

Output		
Rated switching voltage / Continuous current		240 V AC / 8 A
Max. switching voltage, AC		400 V
Making current		15 A / 4 s
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		2000 VA
Contact material		AgNi 90/10
Mechanical service life		AC coil 5 x 10^6 Switch. cycles, DC coil 10 x 10^6 Switch. cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+70 °C
Storage temperature		-40 °C...+85 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CSA; cURus; GOSTME25; VDE
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		5 kV (1.2/50 µs)
Dielectric strength input – output		5 kV_{eff}
Dielectric strength, contact / contact		2.5 kV_{eff}
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≥ 8 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Plug-in connection**
Depth x width x height	mm	25.5 / 13 / x
Note		x = 25.5 without test button / 26.7 with test button

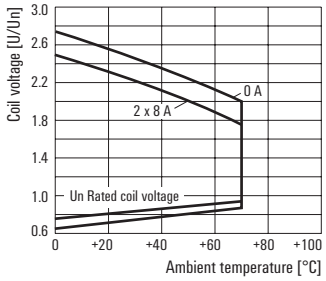
Applications

DC load breaking capacity

Resistive load

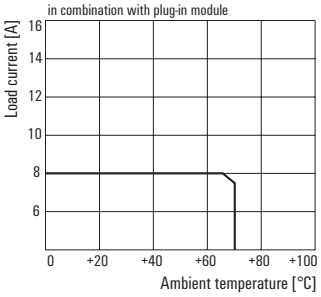


Operating voltage range DC



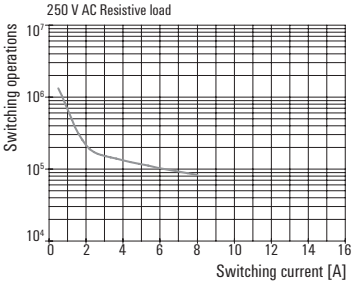
Derating curve

in combination with plug-in module

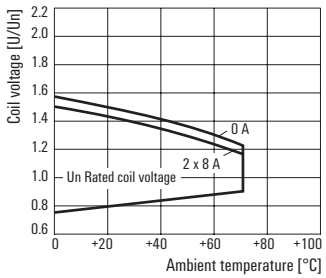


Electrical endurance

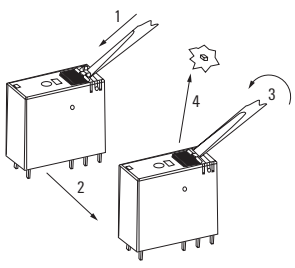
250 V AC Resistive load



Operating voltage range AC



Removal of snap lock



RCI relay
2 CO AC/DC coil

Type code RCI

Type RIDER Control Industrial

Type of construction
- 3 1-pole, 16 A
- 4 2-pole, 8 A

Type of contact
- 1 1 CO contact without test button
- 2 2 CO contacts without test button
- 7 1 CO contact with test button
- 8 2 CO contacts with test button

Contact material
- 4 AgNi 90/10

Coil

012	12 V DC
024	24 V DC
048	48 V DC
110	110 V DC
524	24 V AC
615	115 V AC
730	230 V AC
AB2	12 V DC+LED+diode
AC4	24 V DC+LED+diode
AE8	48 V DC+LED+diode
BB0	110 V DC+LED+diode
R24	24 V AC+LED
S15	115 V AC+LED
T30	230 V AC+LED

Ordering data

		12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO
Input					
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 33.3 mA	/ 16.7 mA	/ 8.7 mA	/ 4.1 mA
Power rating		400 mW	400 mW	400 mW	400 mW
AC response/dropout Volt					
DC response/dropout Volt		8.4 V / 1.2 V	16.8 V / 2.4 V	33.6 V / 4.8 V	77 V / 11 V
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					
Relay					
Standard	Type	RCI424012	RCI424024	RCI424048	RCI424110
	Order No.	**8869870000**	**8869890000**	**8869900000**	**8869910000**
w. test button	Type	RCI484012	RCI484024	RCI484048	RCI484110
	Order No.	**8870020000**	**8870030000**	**8870040000**	**8870050000**
With LED + freewheel diode	Type	RCI424AB2	RCI424AC4	RCI424AE8	RCI424BB0
	Order No.	**8870170000**	**8870180000**	**8870190000**	**8870200000**
With test button + LED	Type	RCI484AB2	RCI484AC4	RCI484AE8	RCI484BB0
+ Free-wheel diode	Order No.	**8870310000**	**8870320000**	**8870330000**	**8870340000**
Note					

Ordering data

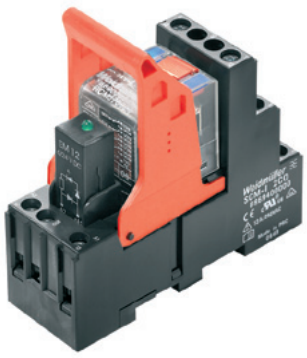
		24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Input				
Rated control voltage		24 V AC	115 V AC	230 V AC
Rated current AC / DC		31.6 mA	6.6 mA	3.2 mA
Power rating		0.75 VA	0.75 VA	0.75 VA
AC response/dropout Volt		18 V / 3.6 V	86.3 V / 17.3 V	172.5 V / 34.5 V
DC response/dropout Volt				
Output				
Switch-on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

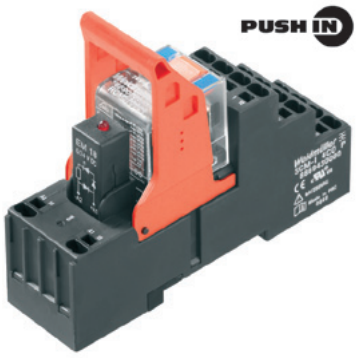
RCM KIT

2 CO contacts, AC/ DC coil

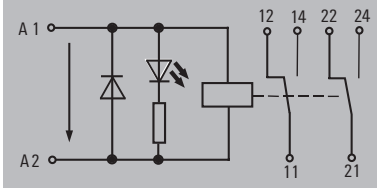
Modular system comprising of:
- Relay socket for rail mounting
- LED display unit (AC red / DC green)
- Retaining clip
- Pluggable relays with coil identification (AC red / DC blue)
- Markers

Independent of connection system:
- Screw or PUSH IN connection system

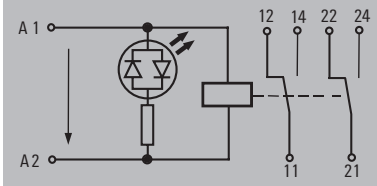




DC-Version



AC-Version



Technical data

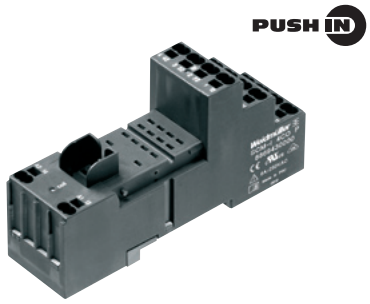
Output			
Rated switching voltage / Continuous current		240 V AC / 12 A	
Max. switching voltage, AC		400 V	
Making current		24 A / 20 ms	
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA	
Max. switching power		3000 VA	
Contact material		AgNi 90/10	
Mechanical service life		AC coil 20 x 10^6 Switch. cycles, DC coil 30 x 10^6 Switch. cycles	
Max. switching frequency at rated load		0.1 Hz	
Rated data			
Ambient temperature (operational)		-40 °C...+70 °C	
Storage temperature		-40 °C...+70 °C	
Humidity		40 °C / 93 % rel. humidity, no condensation	
Approvals		CE; GL; GOSTME25	
Insulation coordination (EN 50178)			
Rated voltage		250 V	
Impulse withstand voltage		5 kV (1.2/50 µs)	
Dielectric strength input – output		2.5 kV_{eff}	
Dielectric strength, contact / contact		2.5 kV_{eff}	
Dielectric strength to mounting rail			
Creepage and clearance distance input – output		≥ 4 mm	
Surge voltage category		III	
Pollution severity		2	
Dimensions		**Screw connection**	**PUSH IN spring connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5	1.5 / 0.75 / 1.5
Depth x width x height	mm	79 / 28 / 77	79 / 28 / 98
Note			

Ordering data

		24 V DC 2CO LED	24 V AC 2CO LED	115 V AC 2CO LED	230 V AC 2CO LED
Input					
Rated control voltage		24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC		/ 31.3 mA	41.6 mA	8.8 mA	4.3 mA
Power rating		740 mW	1.0 VA	1.0 VA	1.0 VA
AC response/dropout Volt			19.2 V / 7.2 V	92 V / 34.5 V	184.0 V / 69.0 V
DC response/dropout Volt		18.0 V / 2.4 V			
Status indicator		Green LED	red LED	red LED	red LED
Protective circuit		Integrated 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 Relay with socket					
Screw connection	Type	RCMKIT-I 24VDC 2CO LD	RCMKIT-I 24VAC 2CO LD	RCMKIT-I 115VAC 2CO LD	RCMKIT-I 230VAC 2CO LD
	Order No.	**8920940000**	**8920950000**	**8920960000**	**8920970000**
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**
Ordering data Spare relay (pluggable)					
	Type	RCM270024	RCM270524	RCM270615	RCM270730
	Order No.	**8689860000**	**8689760000**	**8689800000**	**8689820000**
Note					

Accessories for RCM KIT relay modules, 2 CO

Plug-in module with PUSH IN connection



Plug-in module with screw connection



Technical data

Rated current	12 A	12 A
Rated voltage	240 V AC	240 V AC
Dielectric strength of coil contacts	> 2500 V_{eff}	> 2500 V_{eff}
Ambient temperature (operational)	-45 °C ...+70 °C	-45 °C ...+70 °C
Insulation group (VDE 0110b)	C / 250 V AC	C / 250 V AC
Protection class (IEC 61810)	IP 20	IP 20
Stripping length	12 mm	8 mm
Approvals	VDE, cURus, CSA	VDE, cURus, CSA
Connection cross-section		
- Solid-core wire	1 x 0.75/1/1.5 mm^2 / 2 x 0.75/1 mm^2	2 x 2.5 mm^2
- Stranded wire	1 x 0.75/1/1.5 mm^2 / 2 x 0.75/1 mm^2	2 x 2.5 mm^2
- with ferrule	1 x 0.75/1 mm^2 / 2 x 0.75 mm^2	2 x 1.5 mm^2
Rated torque acc. to IEC 61984 for screw connection		0.5 Nm / max. 0.7 Nm
Plug-in cycles	A (10)	A (10)

Ordering data

Description	Type	Qty.	Order No.
Plug-in module, snaps onto TS35 DIN mounting rail, 2-pole	SCM-I 2CO P		**8876220000**

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

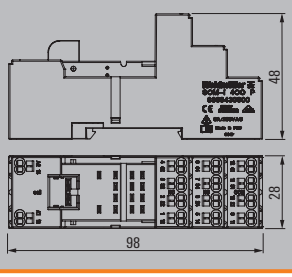
Accessories

Description	Type	Qty.	Order No.
Plastic retaining clip	SCM-I CLIP P	10	**8869440000**
Metal retaining clip	SCM-I CLIP M	10	**8869450000**
Marker	SCM-I MARK	10	**8869460000**
Marker, Multicard	ESG 9/11 K MC neutral	200	**1857440000**
 Cross-connector for PUSH IN base, 2-pole, 12 A	SCM-I QV P	10	**8870850000**
 Cross-connector for screw base, 6-pole			

Type	Qty.	Order No.
SCM-I CLIP P	10	**8869440000**
SCM-I CLIP M	10	**8869450000**
SCM-I MARK	10	**8869460000**
ESG 9/11 K MC neutral	200	**1857440000**
SCM-I QV S	10	**1132080000**

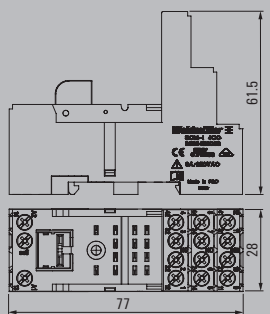
Dimensions

SCM-I 2CO P



Dimensions

SCM-I 2CO



Dimensions in mm

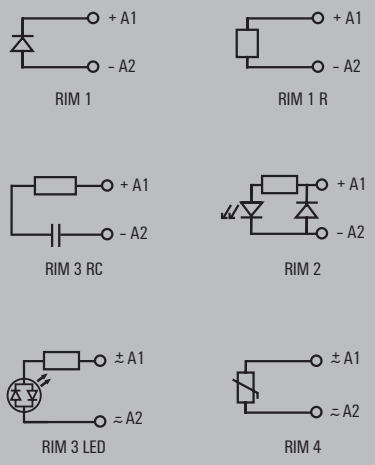
LED and protective modules for the SCM-I plug-in frame

Plug simply into the base module; reverse-connect protection. Connect parallel to coil.

Ordering data

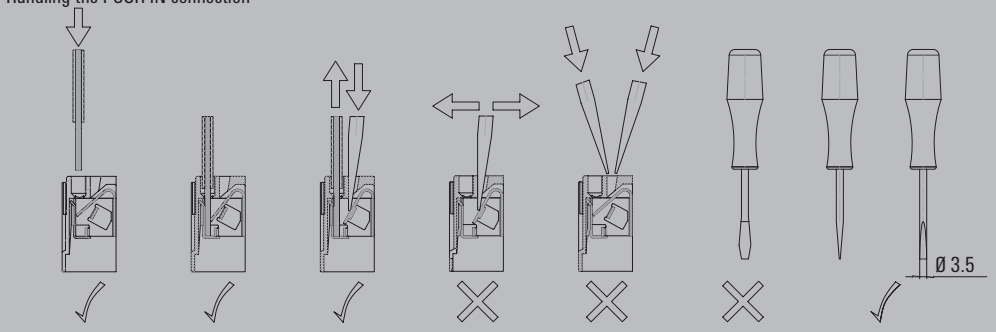
Description
Free Wheel diode 1N4007
Resistor 100 kΩ 1 Watt
RC element 6 ... 60 V AC; 470 Ω / 220 nF
RC element 110 ... 230 V AC; 4.7 Ω / 10 nF
Varistor protection 24 V; S07K30
Varistor protection 110 V; S07K130
Varistor protection 230 V; S07K275
LED
LED 6 ... 24 V DC with free wheel diode
LED 24 ... 60 V DC with free wheel diode
LED 110 ... 230 V DC with free wheel diode
LED 6 ... 24 V DC / V AC
LED 24 ... 60 V DC / V AC
LED 110 ... 230 V DC / V AC

Type	Qty.	Order No.	Order No.
RIM-I 1 6/230V	10	**8869580000**	
RIM-I 1 R 110/230V	10	**8870830000**	
RIM-I 3 6/60VAC	10	**8869770000**	
RIM-I 3 110/230VAC	10	**8869790000**	
RIM-I 4 24VUC	10	**8869710000**	
RIM-I 4 110VUC	10	**8869730000**	
RIM-I 4 230VUC	10	**8869750000**	
		red	**green**
RIM-I 2 6/24VDC	10	**8869590000**	**8869600000**
RIM-I 2 24/60VDC	10	**8869670000**	**8869680000**
RIM-I 2 110/230VDC	10	**8869690000**	**8869700000**
RIM-I 3 6/24VUC	10	**8869630000**	**8869640000**
RIM-I 3 24/60VUC	10	**8869610000**	**8869620000**
RIM-I 3 110/230VUC	10	**8869650000**	**8869660000**

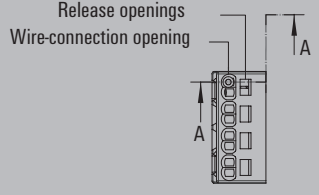


Warnings and notes on usage

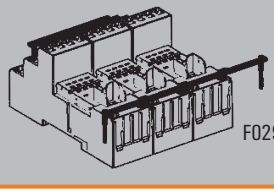
Handling the PUSH IN connection



Screwdriver
SD 0.6 x 3.5 x 100
9008330000



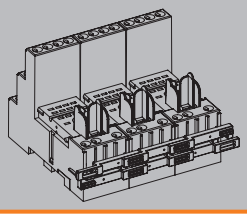
Cross-connector mounting for PUSH IN base



F0295-A

If more than two poles need to be connected with stacked cross-connector ridges, then the lower ridge must be stripped and shortened to the proper length so it will fit.

Cross-connector mounting for screw base

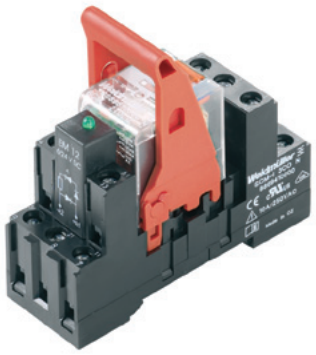


RCM KIT

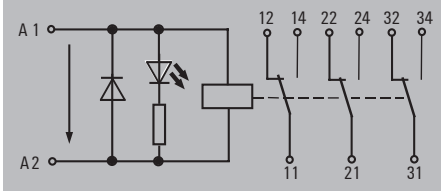
3 CO contacts, AC/ DC coil

Modular system comprising of:

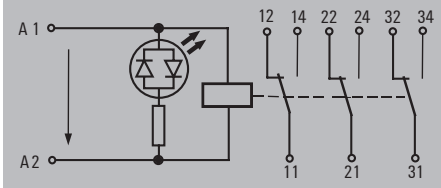
- Relay socket for rail mounting
- LED display unit (AC red / DC green)
- Retaining clip
- Pluggable relay modules
- Identification of coils (AC red / DC blue)
- Markers



DC-Version



AC-Version



Technical data

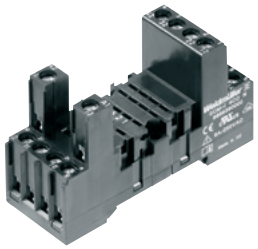
Output		
Rated switching voltage / Continuous current		240 V AC / 10 A
Max. switching voltage, AC		400 V
Making current		20 A / 20 ms
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		2500 VA
Contact material		AgNi 90/10
Mechanical service life		AC coil 20 x 10^6 Switch. cycles, DC coil 30 x 10^6 Switch. cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+70 °C
Storage temperature		-40 °C...+70 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CE; GL; GOSTME25
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		5 kV (1.2/50 µs)
Dielectric strength input – output		2.5 kV_{eff}
Dielectric strength, contact / contact		2.5 kV_{eff}
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≥ 4 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5
Depth x width x height	mm	72 / 28 / 74
Note		

Ordering data

	24 V DC 3CO LED	24 V AC 3CO LED	115 V AC 3CO LED	230 V AC 3CO LED
Input				
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 31.3 mA	41.6 mA	8.8 mA	4.3 mA
Power rating	740 mW	1.0 VA	1.0 VA	1.0 VA
AC response/dropout Volt		19.2 V / 7.2 V	92 V / 34.5 V	184.0 V / 69.0 V
DC response/dropout Volt	18.0 V / 2.4 V			
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Integrated 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 Relay with socket				
Screw connection Type	RCMKIT-I 24VDC 3CO LD	RCMKIT-I 24VAC 3CO LD	RCMKIT-I 115VAC 3CO LD	RCMKIT-I 230VAC 3CO LD
Order No.	**8920980000**	**8920990000**	**8921010000**	**8921020000**
Type				
Order No.				
Ordering data Spare relay (pluggable)				
Type	RCM370024	RCM370524	RCM370615	RCM370730
Order No.	**8690040000**	**8690030000**	**8689980000**	**8690000000**
Note				

Accessories for RCM KIT relay modules, 3 CO

Plug-in module with screw connection



Technical data

Rated current	10 A
Rated voltage	240 V AC
Dielectric strength of coil contacts	> 2500 V_{eff}
Ambient temperature (operational)	-45 °C ...+70 °C
Insulation group (VDE 0110b)	C / 250 V AC
Protection class (IEC 61810)	IP 20
Approvals	VDE, cURus, CSA
Connection cross-section	
- Solid-core wire	2 x 2.5 mm^2
- Stranded wire	2 x 2.5 mm^2
- with ferrule	2 x 1.5 mm^2
Rated torque acc. to IEC 61984 for screw connection	0.5 Nm / max. 0.7 Nm
Plug-in cycles	A (10)

Ordering data

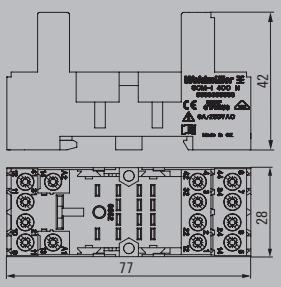
Description	Type	Qty.	Order No.
Plug-in module, snaps onto TS35 DIN mounting rail, 3-pole	SCM-I 3CO N		**8869410000**

Accessories

Description	Type	Qty.	Order No.
Plastic retaining clip	SCM-I CLIP N	10	**8875620000**
Metal retaining clip	SCM-I CLIP M	10	**8869450000**
Marker	SCM-I MARK	10	**8869460000**
Marker, Multicard	ESG 9/11 K MC neutral	200	**1857440000**
 Cross-connector for screw base, 6-pole	SCM-I QV S	10	**1132080000**

Dimensions

SCM-I 3 CO N



Dimensions in mm

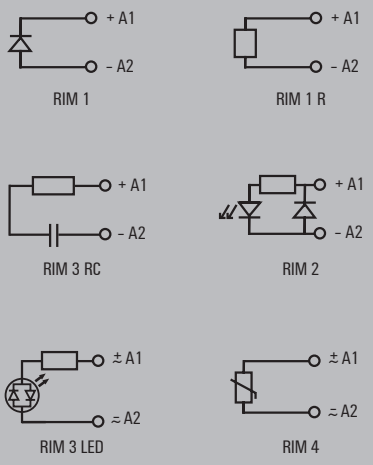
LED and protective modules for the SCM-I plug-in frame

Simply plug into the base module; reverse-connect protection. Connect parallel to coil.

Ordering data

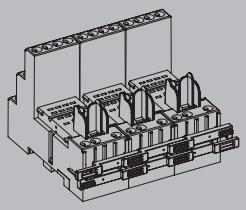
Description
Free Wheel diode 1N4007
Resistor 100 kΩ 1 Watt
RC element 6 ... 60 V AC; 470 Ω / 220 nF
RC element 110 ... 230 V AC; 4.7 Ω / 10 nF
Varistor protection 24 V; S07K30
Varistor protection 110 V; S07K130
Varistor protection 230 V; S07K275
LED
LED 6 ... 24 V DC with free wheel diode
LED 24 ... 60 V DC with free wheel diode
LED 110 ... 230 V DC with free wheel diode
LED 6 ... 24 V DC / V AC
LED 24 ... 60 V DC / V AC
LED 110 ... 230 V DC / V AC

Type	Qty.	Order No.	Order No.
RIM-I 1 6/230V	10	**8869580000**	
RIM-I 1 R 110/230V	10	**8870830000**	
RIM-I 3 6/60VAC	10	**8869770000**	
RIM-I 3 110/230VAC	10	**8869790000**	
RIM-I 4 24VUC	10	**8869710000**	
RIM-I 4 110VUC	10	**8869730000**	
RIM-I 4 230VUC	10	**8869750000**	
		red	**green**
RIM-I 2 6/24VDC	10	**8869590000**	**8869600000**
RIM-I 2 24/60VDC	10	**8869670000**	**8869680000**
RIM-I 2 110/230VDC	10	**8869690000**	**8869700000**
RIM-I 3 6/24VUC	10	**8869630000**	**8869640000**
RIM-I 3 24/60VUC	10	**8869610000**	**8869620000**
RIM-I 3 110/230VUC	10	**8869650000**	**8869660000**



Warnings and notes on usage

Cross-connector mounting for screw base

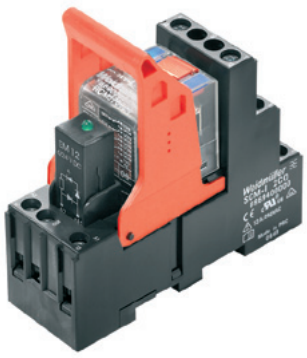


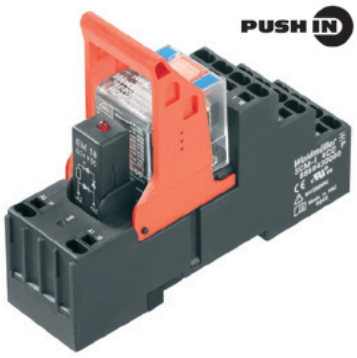
RCM KIT

4 CO contacts, AC/ DC coil

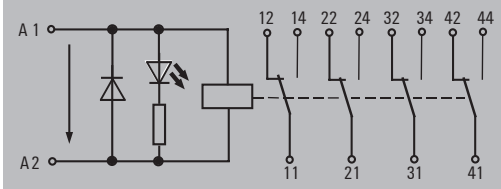
Modular system comprising of:
- relay socket for rail mounting
- LED display unit (AC red / DC green)
- retaining clip
- pluggable relays with coil identification (AC red / DC blue)
- Markers

Independent of connection system:
- Screw or PUSH IN connection system

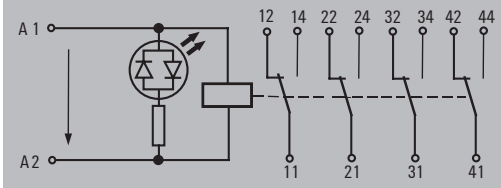




DC-Version



AC-Version



Technical data

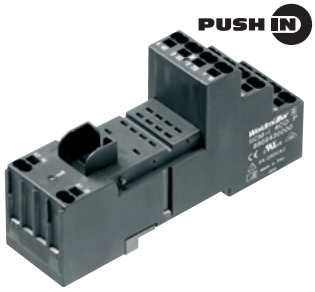
Output			
Rated switching voltageContinuous current		240 V AC 6 A	
Max. switching voltage, AC		240 V	
Making current		12 A / 20 ms	
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA	
Max. switching power		1500 VA	
Contact material		AgNi 90/10	
Mechanical service life		AC coil 20 x 10^6 Switch. cycles, DC coil 30 x 10^6 Switch. cycles	
Max. switching frequency at rated load		0.1 Hz	
Rated data			
Ambient temperature (operational)		-40 °C...+70 °C	
Storage temperature		-40 °C...+70 °C	
Humidity		40 °C / 93 % rel. humidity, no condensation	
Approvals		CE; GL; GOSTME25	
Insulation coordination (EN 50178)			
Rated voltage		250 V	
Impulse withstand voltage		5 kV (1.2/50 µs)	
Dielectric strength input – output		2.5 kV_{eff}	
Dielectric strength, contact / contact			
Dielectric strength to mounting rail			
Creepage and clearance distance input – output		≥ 4 mm	
Surge voltage category		III	
Pollution severity		2	
Dimensions		**Screw connection**	**PUSH IN spring connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5	1.5 / 0.75 / 1.5
Depth x width x height	mm	79 / 28 / 77	79 / 28 / 98
Note			

Ordering data

	24 V DC 4CO LED	24 V AC 4CO LED	115 V AC 4CO LED	230 V AC 4CO LED
Input				
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 31.3 mA	41.6 mA	8.8 mA	4.3 mA
Power rating	740 mW	1.0 VA	1.0 VA	1.0 VA
AC response/dropout Volt		19.2 V / 7.2 V	92 V / 34.5 V	184.0 V / 69.0 V
DC response/dropout Volt	18.0 V / 2.4 V			
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Integrated 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 Relay with socket				
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**
PUSH IN connection Type	RCMKITP-I 24VDC 4CO LD	RCMKITP-I 24VAC 4CO LD	RCMKITP-I 115VAC 4CO LD	RCMKITP-I 230VAC 4CO LD
Order No.	**8921120000**	**8921130000**	**8921140000**	**8921150000**
Ordering data Spare relay (pluggable)				
Type	RCM570024	RCM570524	RCM570615	RCM570730
Order No.	**8690200000**	**8690110000**	**1180800000**	**1181100000**
Note				

Accessories for RCM KIT relay modules, 4 CO

Plug-in module with PUSH IN connection



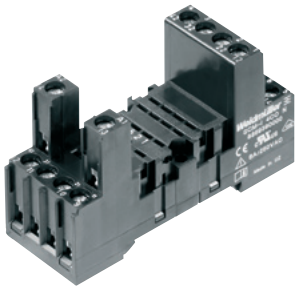
Plug-in module with screw connection

Standard height



Plug-in module with screw connection

Low height



Technical data

Rated current	6 A	6 A	6 A
Rated voltage	240 V AC	240 V AC	240 V AC
Dielectric strength of coil contacts	> 2500 V_{eff}	> 2500 V_{eff}	> 2500 V_{eff}
Ambient temperature (operational)	-45 °C ...+70 °C	-45 °C ...+70 °C	-45 °C ...+70 °C
Insulation group (VDE 0110b)	C / 250 V AC	C / 250 V AC	C / 250 V AC
Protection class (IEC 61810)	IP 20	IP 20	IP 20
Stripping length	12 mm	8 mm	8 mm
Approvals	VDE, cURus, CSA	VDE, cURus, CSA	VDE, cURus, CSA
Connection cross-section			
- Solid-core wire	1 x 0.75/1/1.5 mm^2 / 2 x 0.75/1 mm^2	2 x 2.5 mm^2	2 x 2.5 mm^2
- Stranded wire	1 x 0.75/1/1.5 mm^2 / 2 x 0.75/1 mm^2	2 x 2.5 mm^2	2 x 2.5 mm^2
- with ferrule	1 x 0.75/1 mm^2 / 2 x 0.75 mm^2	2 x 1.5 mm^2	2 x 1.5 mm^2
Rated torque acc. to IEC 61984 for screw connection		0.5 Nm / max. 0.7 Nm	0.5 Nm / max. 0.7 Nm
Plug-in cycles	A (10)	A (10)	A (10)

Ordering data

Description	Type	Qty.	Order No.
Plug-in module, snaps onto TS35 DIN mounting rail, 4-pole	SCM-I 4CO P		**8869430000**
	SCM-I 4CO		**8869420000**
	SCM-I 4CO N		**8869390000**

Accessories

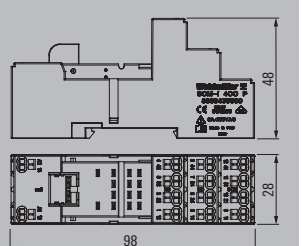
Description	Type	Qty.	Order No.
Plastic retaining clip	SCM-I CLIP P	10	**8869440000**
Plastic retaining clip			
Metal retaining clip	SCM-I CLIP M	10	**8869450000**
Marker	SCM-I MARK	10	**8869460000**
Marker, Multicard	ESG 9/11 K MC neutral	200	**1857440000**
 Cross-connector for PUSH IN base, 2-pole, 12 A	SCM-I QV P		**8870850000**
 Cross-connector for screw base, 6-pole	SCM-I QV S		**1132080000**

Description	Type	Qty.	Order No.
Plastic retaining clip	SCM-I CLIP P	10	**8869440000**
Plastic retaining clip			
Metal retaining clip	SCM-I CLIP M	10	**8869450000**
Marker	SCM-I MARK	10	**8869460000**
Marker, Multicard	ESG 9/11 K MC neutral	200	**1857440000**
Cross-connector for PUSH IN base, 2-pole, 12 A			
Cross-connector for screw base, 6-pole	SCM-I QV S		**1132080000**

Description	Type	Qty.	Order No.
Plastic retaining clip			
Plastic retaining clip	SCM-I CLIP N	10	**8875620000**
Metal retaining clip	SCM-I CLIP M	10	**8869450000**
Marker	SCM-I MARK	10	**8869460000**
Marker, Multicard	ESG 9/11 K MC neutral	200	**1857440000**
Cross-connector for PUSH IN base, 2-pole, 12 A			
Cross-connector for screw base, 6-pole	SCM-I QV S		**1132080000**

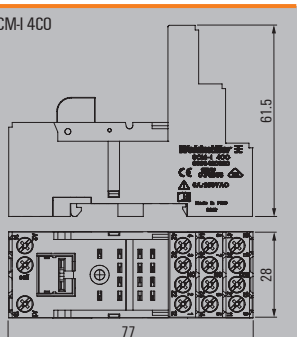
Dimensions

SCM-I 4CO P



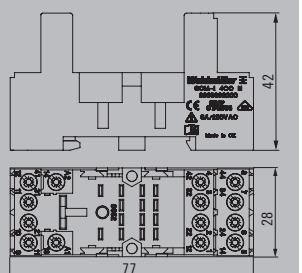
Dimensions

SCM-I 4CO



Dimensions

SCM-I 4CO N



Dimensions in mm

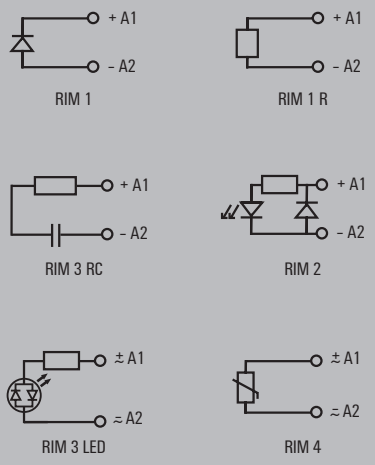
LED and protective modules for the SCM-I plug-in frame

Simply plug into the base module; reverse-connect protection. Connect parallel to coil.

Ordering data

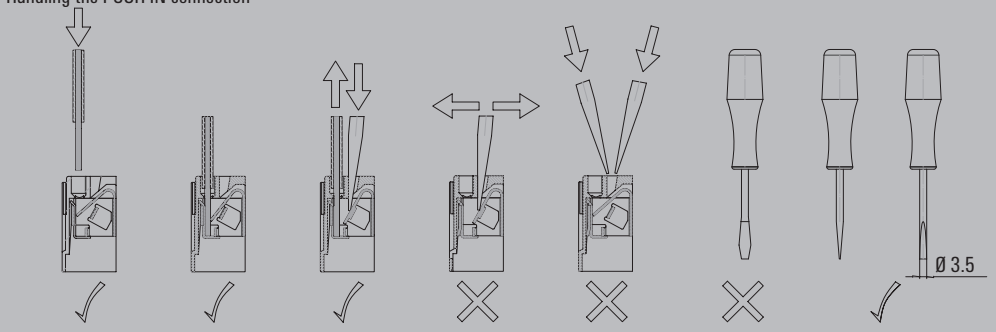
Description
Free Wheel diode 1N4007
Resistor 100 kΩ 1 Watt
RC element 6 ... 60 V AC; 470 Ω / 220 nF
RC element 110 ... 230 V AC; 4.7 Ω / 10 nF
Varistor protection 24 V; S07K30
Varistor protection 110 V; S07K130
Varistor protection 230 V; S07K275
LED
LED 6 ... 24 V DC with free wheel diode
LED 24 ... 60 V DC with free wheel diode
LED 110 ... 230 V DC with free wheel diode
LED 6 ... 24 V DC / V AC
LED 24 ... 60 V DC / V AC
LED 110 ... 230 V DC / V AC

Type	Qty.	Order No.	Order No.
RIM-I 1 6/230V	10	**8869580000**	
RIM-I 1 R 110/230V	10	**8870830000**	
RIM-I 3 6/60VAC	10	**8869770000**	
RIM-I 3 110/230VAC	10	**8869790000**	
RIM-I 4 24VUC	10	**8869710000**	
RIM-I 4 110VUC	10	**8869730000**	
RIM-I 4 230VUC	10	**8869750000**	
		red	**green**
RIM-I 2 6/24VDC	10	**8869590000**	**8869600000**
RIM-I 2 24/60VDC	10	**8869670000**	**8869680000**
RIM-I 2 110/230VDC	10	**8869690000**	**8869700000**
RIM-I 3 6/24VUC	10	**8869630000**	**8869640000**
RIM-I 3 24/60VUC	10	**8869610000**	**8869620000**
RIM-I 3 110/230VUC	10	**8869650000**	**8869660000**



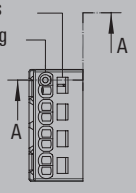
Warnings and notes on usage

Handling the PUSH IN connection

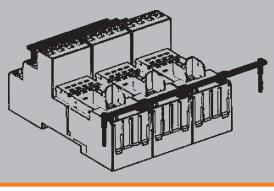


Screwdriver
SD 0.6 x 3.5 x 100
9008330000

Release openings
Wire-connection opening

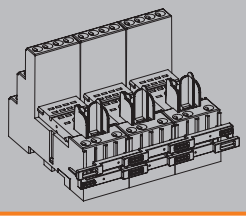


Cross-connector mounting for PUSH IN base



If more than two poles need to be connected with stacked cross-connector ridges, then the lower ridge must be stripped and shortened to the proper length so it will fit.

Cross-connector mounting for screw base



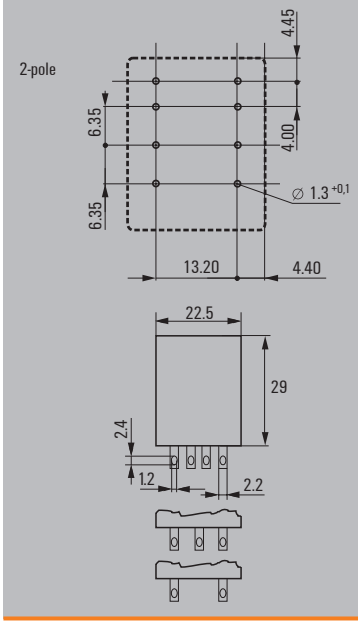
RCM relay

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)



Circuit diagram
Dimensions in mm



Technical data

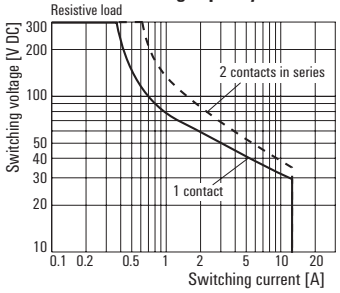
Output		
Rated switching voltage / Continuous current		240 V AC / 12 A
Max. switching voltage, AC		400 V
Making current		24 A / 20 ms
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		3000 VA
Contact material		AgNi 90/10
Mechanical service life		AC coil 20 x 10^6 Switch. cycles, DC coil 30 x 10^6 Switch. cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+70 °C
Storage temperature		-40 °C...+85 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CSA; cURus; GOSTME25; VDE
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		5 kV (1.2/50 µs)
Dielectric strength input – output		2.5 kV_{eff}
Dielectric strength, contact / contact		2.5 kV_{eff}
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≥ 4 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Plug-in connection**
Depth x width x height	mm	29 / 22.5 / 28

Note

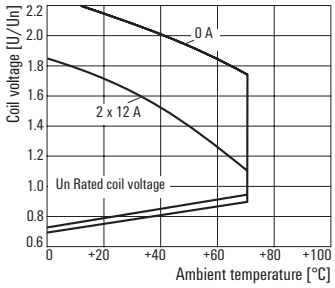
Applications

DC load breaking capacity

Resistive load

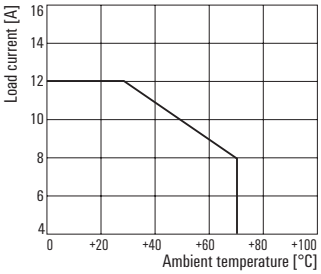


Operating voltage range DC



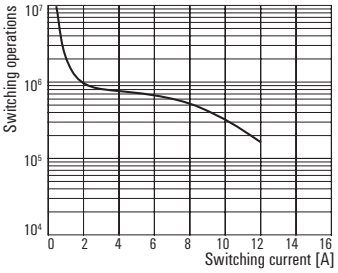
Derating curve

in combination with plug-in module

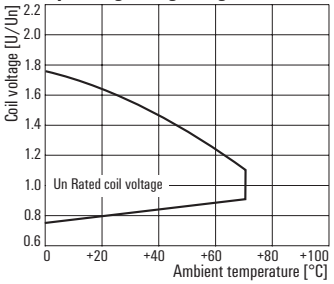


Electrical endurance

250 V AC Resistive load



Operating voltage range AC



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

		with LED	with LED +diode
DC coil			
006	6 V DC	L06	
012	12 V DC	L12	AB2
024	24 V DC	L24	AC4
048	48 V DC	L48	AE8
060	60 V DC	L60	
110	110 V DC	M10	BB0
220	220 V DC	N20	
AC coil			
506	6 V AC	R06	
512	12 V AC	R12	
524	24 V AC	R24	
548	48 V AC	R48	
615	115 V AC	S15	
730	230 V AC	T30	

Ordering data

		12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO
Input					
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 62.5 mA	/ 31.3 mA	/ 15.6 mA	
Power rating		750 mW	750 mW	750 mW	750 mW
AC response/dropout Volt					
DC response/dropout Volt		9.0 V / 1.2 V	18.0 V / 2.4 V	36.0 V / 4.8 V	82.5 V / 11.0 V
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					
Relay					
Without LED	Type	RCM270012	RCM270024	RCM270048	RCM270110
AgNi 90/10	Order No.	**8689840000**	**8689860000**	**8689880000**	**8689900000**
with LED	Type	RCM270L12	RCM270L24	RCM270L48	
AgNi 90/10	Order No.	**8689850000**	**8689870000**	**8689890000**	
With LED + freewheel diode	Type	RCM270AB2	RCM270AC4	RCM270AE8	RCM270BB0
AgNi 90/10	Order No.	**8957020000**	**8957030000**	**8957040000**	**8957050000**
	Type				
	Order No.				
Note					

Ordering data

		24 V AC 2CO	48 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Input					
Rated control voltage		24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC		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
AC response/dropout Volt		38.4 V / 14.4 V	48.0 V / 18.0 V	92.0 V / 34.5 V	184.0 V / 69.0 V
DC response/dropout Volt					
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					
Relay					
Without LED	Type	RCM270524	RCM270548	RCM270615	RCM270730
AgNi 90/10	Order No.	**8689760000**	**8689780000**	**8689800000**	**8689820000**
with LED	Type	RCM270R24		RCM270S15	RCM270T30
AgNi 90/10	Order No.	**8689770000**		**8689810000**	**8689830000**
	Type				
	Order No.				
	Type				
	Order No.				
Note					

RCM relay

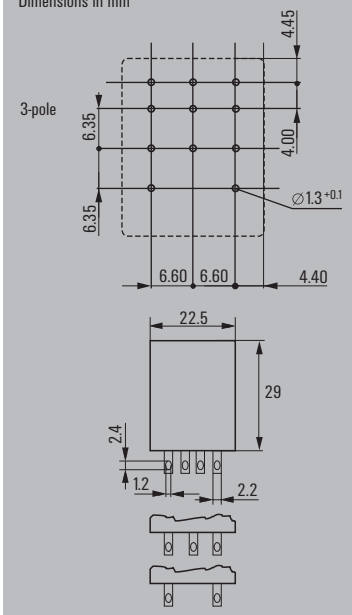
3 CO contacts, AC/DC coil

- 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

Dimensions in mm



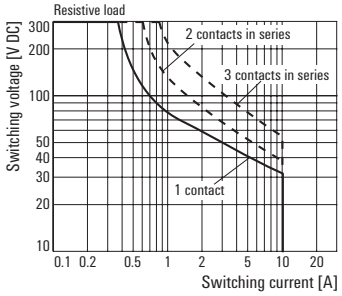
Technical data

Output		
Rated switching voltage / Continuous current		240 V AC / 10 A
Max. switching voltage, AC		400 V
Making current		20 A / 20 ms
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		2500 VA
Contact material		AgNi 90/10
Mechanical service life		AC coil 20 x 10^6 Switch. cycles, DC coil 30 x 10^6 Switch. cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+70 °C
Storage temperature		-40 °C...+85 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CSA; cURus; GOSTME25; VDE
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		5 kV (1.2/50 µs)
Dielectric strength input – output		2.5 kV_{eff}
Dielectric strength, contact / contact		2.5 kV_{eff}
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≥ 4 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Plug-in connection**
Depth x width x height	mm	29 / 22.5 / 28

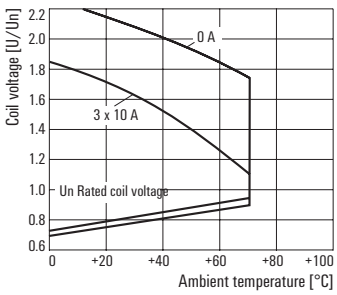
Note

Applications

DC load breaking capacity

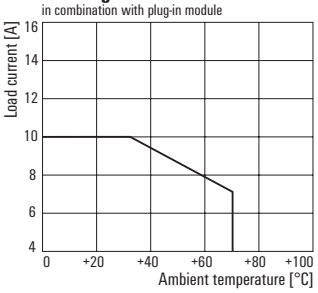


Operating voltage range DC



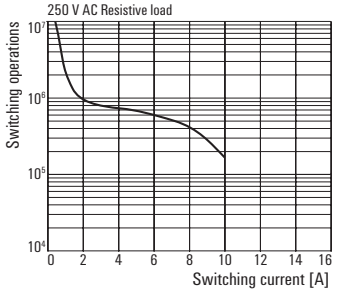
Derating curve

in combination with plug-in module

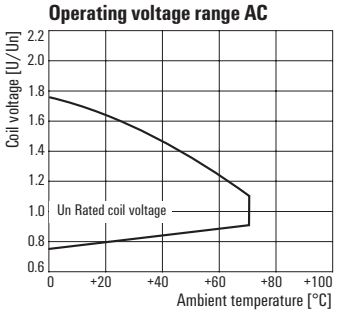


Electrical endurance

250 V AC Resistive load



Operating voltage range AC



RCM relay
3 CO contacts, AC/DC coil

Type code RCM ☐ ☐ ☐ ☐ ☐

Type RIDER Control Multiple

Contacts
- 2 2 CO contacts
- 3 3 CO contacts
- 5 4 CO contacts

Contact material
- 7 AgNi 90/10, with test button
- 8 AgNi 90/10 hgp, with test button

Type of construction
- 0 Standard, 2.8 mm Faston

		with LED	with LED +diode
DC coil			
006	6 V DC	L06	
012	12 V DC	L12	AB2
024	24 V DC	L24	AC4
048	48 V DC	L48	AE8
060	60 V DC	L60	
110	110 V DC	M10	BB0
220	220 V DC	N20	
AC coil			
506	6 V AC	R06	
512	12 V AC	R12	
524	24 V AC	R24	
548	48 V AC	R48	
615	115 V AC	S15	
730	230 V AC	T30	

Ordering data

		12 V DC 3CO	24 V DC 3CO	48 V DC 3CO	110 V DC 3CO
Input					
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 62.5 mA	/ 31.3 mA	/ 15.6 mA	/ 6.8 mA
Power rating		750 mW	750 mW	750 mW	750 mW
AC response/dropout Volt					
DC response/dropout Volt		9.0 V / 1.2 V	18.0 V / 2.4 V	36.0 V / 4.8 V	82.5 V / 11.0 V
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					
Relay					
Without LED	Type	RCM370012	RCM370024	RCM370048	RCM370110
AgNi 90/10	Order No.	**8690020000**	**8690040000**	**8690060000**	**8690080000**
With LED + freewheel diode	Type	RCM370AB2	RCM370AC4	RCM370AE8	RCM370BB0
AgNi 90/10	Order No.	**8957090000**	**8957100000**	**8957110000**	**8957120000**
	Type				
	Order No.				
	Type				
	Order No.				
Note					

Ordering data

		24 V AC 3CO	48 V AC 3CO	115 V AC 3CO	230 V AC 3CO
Input					
Rated control voltage		24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC		41.6 mA	21.3 mA	8.8 mA	4.3 mA
Power rating		1.0 VA	1.0 VA	1.0 VA	1.0 VA
AC response/dropout Volt		19.2 V / 7.2 V	38.4 V / 14.4 V	92.0 V / 34.5 V	184.0 V / 69.0 V
DC response/dropout Volt			165 V / 22 V		
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					
Relay					
Without LED	Type	RCM370524		RCM370615	RCM370730
AgNi 90/10	Order No.	**8690030000**		**8689980000**	**8690000000**
with LED	Type	RCM370R24	RCM370R48	RCM370S15	RCM370T30
AgNi 90/10	Order No.	**8689950000**	**8689970000**	**8689990000**	**8690010000**
	Type				
	Order No.				
	Type				
	Order No.				
Note					

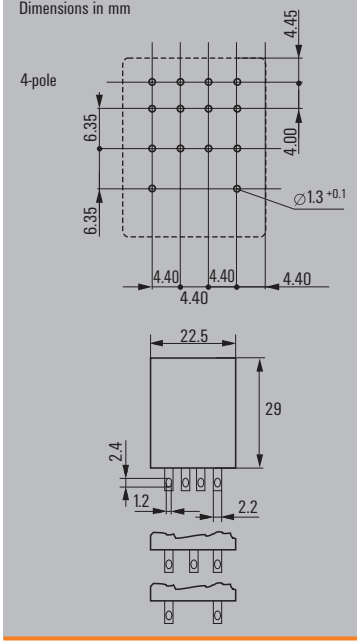
RCM relay

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
Dimensions in mm



Technical data

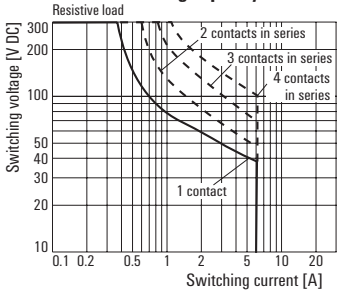
Output		
Rated switching voltage / Continuous current		240 V AC / 6 A
Max. switching voltage, AC		240 V
Making current		12 A / 20 ms
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		1500 VA
Contact material		AgNi 90/10
Mechanical service life		AC coil 20 x 10^6 Switch. cycles, DC coil 30 x 10^6 Switch. cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+70 °C
Storage temperature		-40 °C...+85 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CSA; cURus; GOSTME25; VDE
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		5 kV (1.2/50 µs)
Dielectric strength input – output		2.5 kV_{eff}
Dielectric strength, contact / contact		2 kV_{eff}
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≥ 4 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Plug-in connection**
Depth x width x height	mm	29 / 22.5 / 28

Note

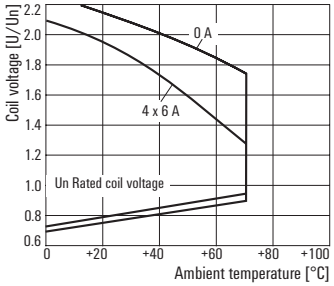
Applications

DC load breaking capacity

Resistive load

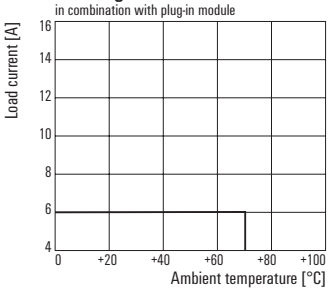


Operating voltage range DC



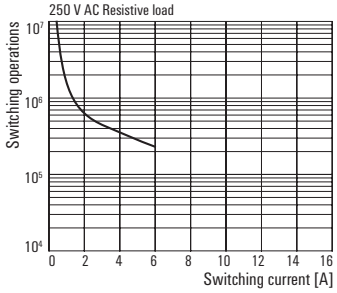
Derating curve

in combination with plug-in module

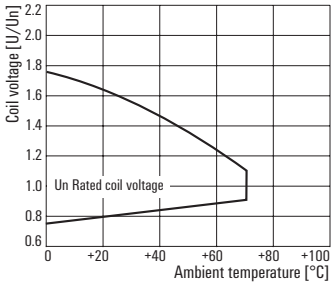


Electrical endurance

250 V AC Resistive load



Operating voltage range AC



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

		with LED	with LED +diode
DC coil			
006	6 V DC	L06	
012	12 V DC	L12	AB2
024	24 V DC	L24	AC4
048	48 V DC	L48	AE8
060	60 V DC	L60	
110	110 V DC	M10	BB0
220	220 V DC	N20	
AC coil			
506	6 V AC	R06	
512	12 V AC	R12	
524	24 V AC	R24	
548	48 V AC	R48	
615	115 V AC	S15	
730	230 V AC	T30	

Ordering data

		12 V DC 4CO	24 V DC 4CO	48 V DC 4CO	110 V DC 4CO
Input					
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 62.5 mA	/ 31.3 mA	/ 15.6 mA	
Power rating		750 mW	750 mW	750 mW	750 mW
AC response/dropout Volt					
DC response/dropout Volt		9 V / 1.2 V	18 V / 2.4 V	36 V / 4.8 V	82.5 V / 11 V
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					
Relay					
Without LED	Type	RCM570012	RCM570024	RCM570048	RCM570110
AgNi 90/10	Order No.	**8054360000**	**8690200000**	**8074670000**	**8074700000**
with LED	Type	RCM570L12	RCM570L24	RCM570L48	RCM570M10
AgNi 90/10	Order No.	**8690180000**	**8690220000**	**8690230000**	**8690240000**
Without LED	Type	RCM580012	RCM580024	RCM580048	
AgNi 5µm Au	Order No.	**on request**	**8694460000**	**on request**	
With LED + freewheel diode	Type	RCM570AB2	RCM570AC4	RCM570AE8	RCM570BB0
AgNi 90/10	Order No.	**8957160000**	**8957170000**	**8957180000**	**8957190000**
Note					

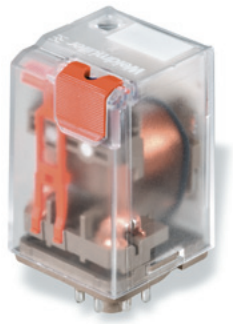
Ordering data

		24 V AC 4CO	48 V AC 4CO	115 V AC 4CO	230 V AC 4CO
Input					
Rated control voltage		24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC		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
AC response/dropout Volt		19.2 V / 7.2 V	38.4 V / 14.4 V	92 V / 34.5 V	184 V / 69 V
DC response/dropout Volt					
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					
Relay					
Without LED	Type	RCM570524	RCM570548	RCM570615	RCM570730
AgNi 90/10	Order No.	**8690110000**	**1180900000**	**1180800000**	**1181100000**
with LED	Type	RCM570R24	RCM570R48	RCM570S15	RCM570T30
AgNi 90/10	Order No.	**8690120000**	**8690130000**	**8690150000**	**8690160000**
Without LED	Type	RCM580524		RCM580615	RCM580730
AgNi 5µm Au	Order No.	**7940008171**		**8824860000**	**7940007637**
	Type				
	Order No.				
Note					

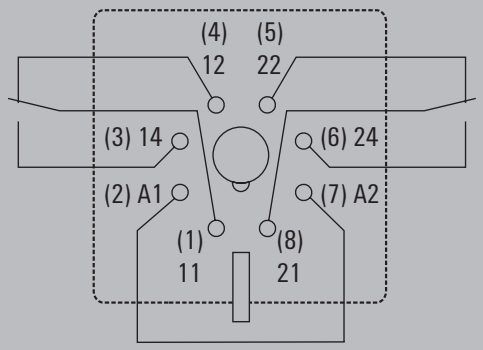
RRD relay

2 CO contacts, AC/DC coil

- 2 CO contacts
- 2500 VA switching capacity
- Mechanical operating display
- Safe-to-touch test button, selectable locking



Circuit diagram
View of connections



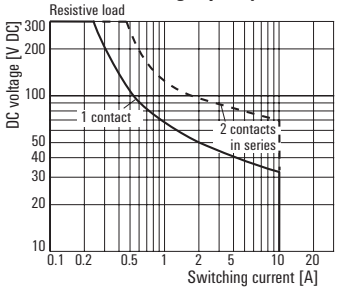
Technical data

Output		
Rated switching voltage / Continuous current		240 V AC / 10 A
Max. switching voltage, AC		400 V
Making current		20 A / 20 ms
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		2500 VA
Contact material		AgNi 90/10
Mechanical service life		20 x 10^6 switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+60 °C
Storage temperature		-40 °C...+60 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CSA; cURus; GOSTME25; VDE
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		2.5 kV (1.2/50 µs)
Dielectric strength input – output		2.5 kV_{eff}
Dielectric strength, contact / contact		2.5 kV_{eff}
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≤ 3 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Plug-in connection**
Depth x width x height	mm	57 / 35.5 / 35.5

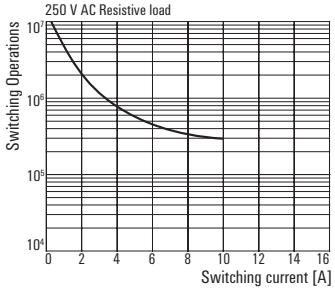
Note

Applications

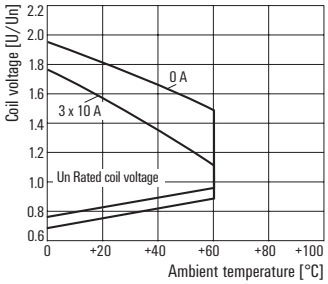
DC load breaking capacity



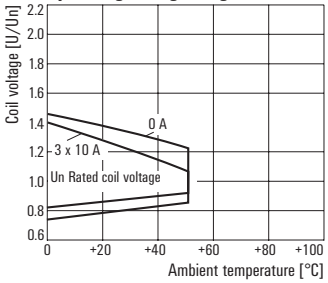
Electrical endurance



Operating voltage range DC



Operating voltage range AC



RRD relay
2 CO contacts, AC/DC coil

Type code RRD [ ] [ ] [ ] [ ]

Type RIDER RounD

Contacts
- 2 2 change-over contacts, 8-pole
- 3 3 change-over contacts, 11-pole

Contact material
- 2 AgNi 90/10

Type of construction
- 1 DC coil with test button
- 3 DC coil with test button and bi-polar LED
- 6 AC coil with test button
- 8 AC coil with test button and bi-polar LED

		Free wheel diode
DC coil		
006	6 V DC	
012	12 V DC	
024	24 V DC	0C4
048	48 V DC	0E8
060	60 V DC	0G0
110	110 V DC	1B0
220	220 V DC	2C0
AC coil		
006	6 V AC	
012	12 V AC	
024	24 V AC	
048	48 V AC	
115	115 V AC	
230	230 V AC	

Ordering data

		24 V AC 2CO	115 V AC 2CO	230 V AC 2CO	48 V DC 2CO
Input					
Rated control voltage		24 V AC	115 V AC	230 V AC	48 V DC
Rated current AC / DC		94.2 mA	20.6 mA	10.1 mA	
Power rating		2.3 VA	2.3 VA	2.3 VA	1.2 W
AC response/dropout Volt		19.2 V / 7.2 V	92.0 V / 34.5 V	184 V / 92 V	
DC response/dropout Volt					36.0 V / 4.8 V
Output					
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms	≤ 15 µs
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data					
Relay					
w. test button	Type	RRD226024	RRD226115	RRD226230	
AgNi 90/10	Order No.	**8690270000**	**8690310000**	**8690330000**	
With test button + LED	Type	RRD228024	RRD228115	RRD228230	RRD223048
AgNi 90/10	Order No.	**8690280000**	**8690320000**	**8690340000**	**8690400000**
	Type				
	Order No.				
	Type				
	Order No.				
Note					

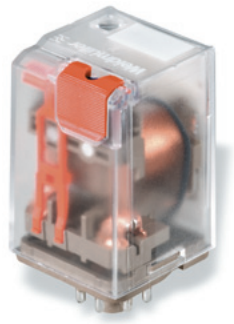
Ordering data

		24 V DC 2CO
Input		
Rated control voltage		24 V DC
Rated current AC / DC		/ 50.5 mA
Power rating		1.2 W
AC response/dropout Volt		
DC response/dropout Volt		18 V / 2.4 V
Output		
Switch-on delay		≤ 15 ms
Switch-off delay		≤ 10 ms
Ordering data		
Relay		
w. test button	Type	RRD221024
AgNi 90/10	Order No.	**8690370000**
With test button + LED	Type	RRD223024
AgNi 90/10	Order No.	**8690380000**
	Type	
	Order No.	
	Type	
	Order No.	
Note		

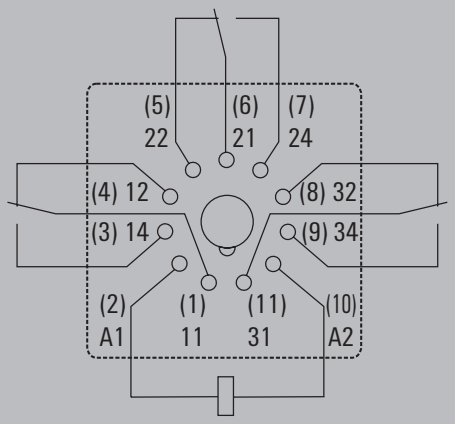
RRD relay

3 CO contacts, AC/DC coil

- 3 CO contacts
- 500 VA switching capacity
- Mechanical operating display
- Safe-to-touch test button, selectable locking



Circuit diagram
View of connections



Technical data

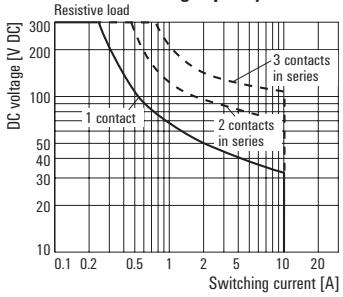
Output		
Rated switching voltage / Continuous current		240 V AC / 10 A
Max. switching voltage, AC		400 V
Making current		20 A / 20 ms
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Max. switching power		2500 VA
Contact material		AgNi 90/10
Mechanical service life		20 x 10^6 switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-40 °C...+60 °C
Storage temperature		-40 °C...+60 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CSA; cURus; GOSTME25; VDE
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		2.5 kV (1.2/50 µs)
Dielectric strength input – output		2.5 kV_{eff}
Dielectric strength, contact / contact		2.5 kV_{eff}
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≤ 3 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Plug-in connection**
Depth x width x height	mm	57 / 35.5 / 35.5

Note

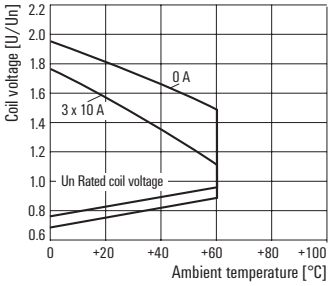
Applications

DC load breaking capacity

Resistive load

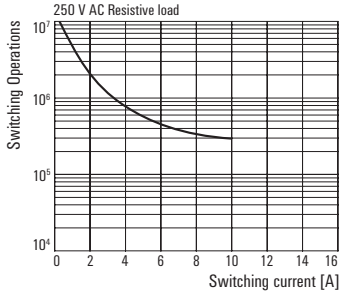


Operating voltage range DC

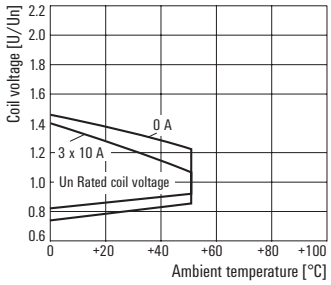


Electrical endurance

250 V AC Resistive load



Operating voltage range AC



RRD relay
3 CO contacts, AC/DC coil

Type code RRD

Type RIDER RounD

Contacts
- 2 2 change-over contacts, 8-pole
- 3 3 change-over contacts, 11-pole

Contact material
- 2 AgNi 90/10

Type of construction
- 1 DC coil with test button
- 3 DC coil with test button and bi-polar LED
- 6 AC coil with test button
- 8 AC coil with test button and bi-polar LED

		Free wheel diode
DC coil		
006	6 V DC	
012	12 V DC	
024	24 V DC	0C4
048	48 V DC	0E8
060	60 V DC	0G0
110	110 V DC	1B0
220	220 V DC	2C0
AC coil		
006	6 V AC	
012	12 V AC	
024	24 V AC	
048	48 V AC	
115	115 V AC	
230	230 V AC	

Ordering data

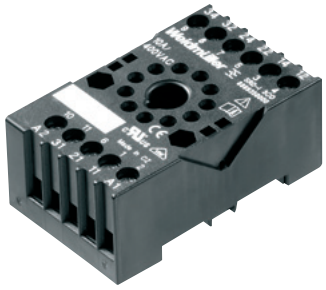
		12 V DC 3CO	24 V DC 3CO	110 V DC 3CO	220 V DC 3CO
Input					
Rated control voltage		12 V DC	24 V DC	110 V DC	220 V DC
Rated current AC / DC			/ 50.5 mA	/ 11 mA	/ 5.5 mA
Power rating		1.2 W	1.2 W	1.2 W	1.2 W
AC response/dropout Volt					
DC response/dropout Volt		9 V / 1.2 V	18 V / 2.4 V	82.5 V / 11.5 V	165 V / 22 V
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					
Relay					
w. test button	Type	RRD321012	RRD321024	RRD321110	RRD321220
	Order No.	**8799030000**	**8690610000**	**8690650000**	**7940007742**
With test button + LED	Type		RRD323024	RRD323110	RRD323220
	Order No.		**8690620000**	**8690660000**	**8798610000**
w. test button	Type		RRD3210C4	RRD3211B0	RRD3212C0
+ Free-wheel diode	Order No.		**8797650000**	**8797640000**	**8797610000**
With test button + LED	Type		RRD3230C4		RRD3232C0
+ Free-wheel diode	Order No.		**7940007732**		**8829400000**
Note					

Ordering data

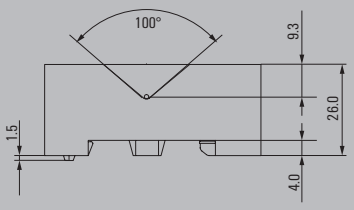
		24 V AC 3CO	48 V AC 3CO	115 V AC 3CO	230 V AC 3CO
Input					
Rated control voltage		24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC		94.2 mA	47.5 mA	20.6 mA	10.1 mA
Power rating		2.3 VA	2.3 VA	2.3 VA	2.3 VA
AC response/dropout Volt		19.2 V / 7.2 V	38.4 V / 14.4 V	92.0 V / 34.5 V	184 V / 92 V
DC response/dropout Volt					
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					
Relay					
w. test button	Type	RRD326024	RRD326048	RRD326115	RRD326230
	Order No.	**8690450000**	**8690470000**	**8690550000**	**8690570000**
With test button + LED	Type	RRD328024	RRD328048	RRD328115	RRD328230
	Order No.	**8690460000**	**8690480000**	**8690560000**	**8690580000**
	Type				
	Order No.				
	Type				
	Order No.				
Note					

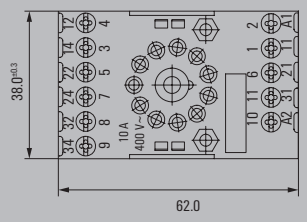
Accessories for RRD relay modules

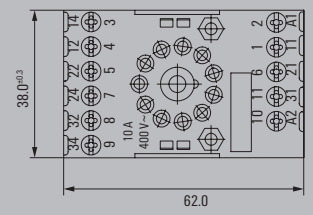
Plug-in module with screw connection



Dimensions in mm







Technical data

Contact data	
Nominal current	10 A
Nominal voltage	400 V AC
Dielectric strength, coil/contacts	>2500 V_{eff}
Ambient temperature	–20 °C ...+ 80 °C
Ingress protection class (IEC 61810)	IP 20
Approvals	cURus
Connection cross-section / with ferrule	2 x 2.5 mm^2 / 2 x 1.5 mm^2
Terminal torque	0.5 / 0.7 Nm
Humidity	40 °C/93 rel. humidity, no condensation

Ordering data

Description	Type	Qty.	Order No.
Plug-in module with screw connections, 8-pole	SRD-I 2CO	10	**8869360000**
Plug-in module with screw connections, 11-pole	SRD-I 3CO	10	**8869350000**

Accessories

Description	Type	Order No.
End bracket	WEW 35/2	**1061200000**
Screwdriver	SD 0.6/3.5/100	**9008330000**
Metal retaining clip, RRD	SRD-I CLIP M	**8869370000**

RPW relay

2 CO contacts, AC/ DC coil

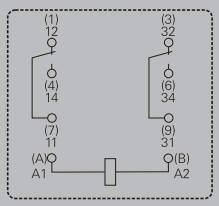
3 CO contacts, AC/ DC coil

- 6000 VA switching capacity
- Mechanical operating display
- With and without test button

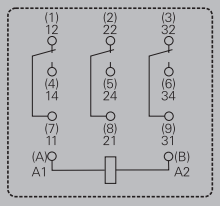


Circuit diagram
View of connections

2 changeover contacts



3 changeover contacts



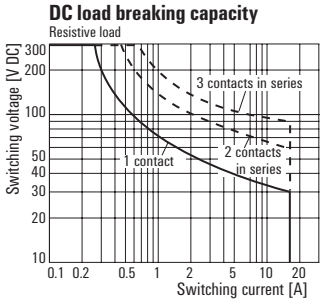
Technical data

Output		
Rated switching voltage / Continuous current		400 VAC / 16 A
Max. switching voltage, AC		440 V
Making current		40 A / 20 ms
Min. switching power		24 V / 100 mA
Max. switching power		6000 VA
Contact material		AgCdO
Mechanical service life		20 x 10^6 switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Ambient temperature (operational)		-45 °C...+60 °C
Storage temperature		-40 °C...+60 °C
Humidity		40 °C / 93 % rel. humidity, no condensation
Approvals		CSA; cURus; GOSTME25; VDE
Insulation coordination (EN 50178)		
Rated voltage		250 V
Impulse withstand voltage		5 kV (1.2/50 µs)
Dielectric strength input – output		2.5 kV_{eff}
Dielectric strength, contact / contact		2.5 kV_{eff}
Dielectric strength to mounting rail		
Creepage and clearance distance input – output		≥ 4 mm
Surge voltage category		III
Pollution severity		2
Dimensions		**Plug-in connection**
Depth x width x height	mm	48.5 / 38.5 / 35.5

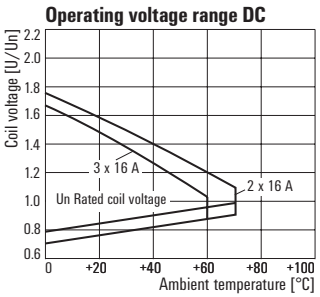
Note

Applications

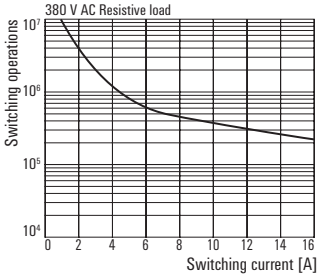
DC load breaking capacity



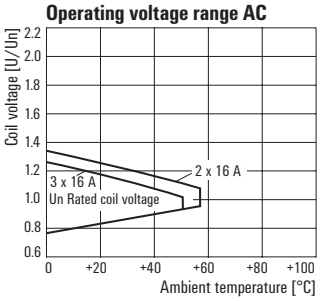
Operating voltage range DC



Electrical endurance



Operating voltage range AC



RPW relay
2 CO contacts, AC/ DC coil
3 CO contacts, AC/ DC coil

Type code RPW [ ] [ ] [ ] [ ]

Typ RIDER PoWer

Contacts
- 2 2 change-over contacts
- 7 3 change-over contacts

Type of construction
- 0 Without test button
- 3 With test button

Housing
- 2 Cap without lug, 4.8 mm Faston
- 5 Cap with lug, 6.3 mm Faston

DC coil

006	6 V DC
012	12 V DC
024	24 V DC
048	48 V DC
060	60 V DC
110	110 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

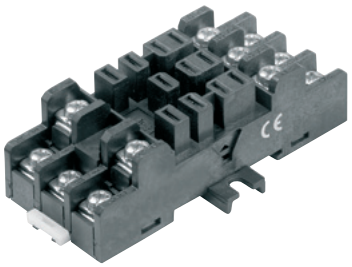
		24 V DC 2CO	24 V AC 2CO	230 V AC 2CO
Input				
Rated control voltage		24 V DC	24 V AC	230 V AC
Rated current AC / DC		/ 50.5 mA	94.2 mA	10.1 mA
Power rating		1.2 W	2.3 VA	2.3 VA
AC response/dropout Volt			19.2 V / 9.6 V	184 V / 69 V
DC response/dropout Volt		18 V / 2.4 V		
Output				
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data				
Relay				
w.o. test button	Type	RPW202024	RPW202524	RPW202730
AgCdO	Order No.	**8690730000**	**on request**	**8690720000**
	Type			
	Order No.			
	Type			
	Order No.			
	Type			
	Order No.			
Note				

Ordering data

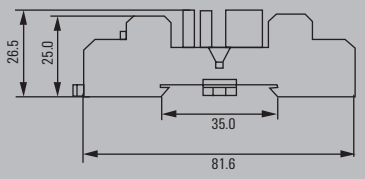
		24 V DC 3CO	24 V AC 3CO	230 V AC 3CO
Input				
Rated control voltage		24 V DC	24 V AC	230 V AC
Rated current AC / DC		/ 69.6 mA	109.2 mA	11.7 mA
Power rating		1.6 W	2.8 VA	2.8 VA
AC response/dropout Volt			19.2 V / 7.2 V	184 V / 69 V
DC response/dropout Volt		18 V / 2.4 V		
Output				
Switch-on delay		≤ 15 ms	≤ 15 ms	≤ 15 ms
Switch-off delay		≤ 10 ms	≤ 10 ms	≤ 10 ms
Ordering data				
Relay				
w.o. test button	Type	RPW702024	RPW702524	RPW702730
AgCdO	Order No.	**8690760000**	**8690740000**	**8690750000**
	Type			
	Order No.			
	Type			
	Order No.			
	Type			
	Order No.			
Note				

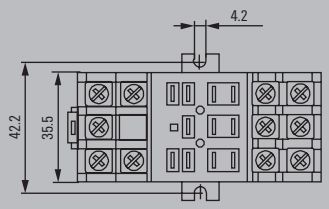
Accessories for RPW

Plug-in module with screw connection



Dimensions in mm





Technical data

Contact data	
Nominal current	16 A
Nominal voltage	250 V AC
Dielectric strength, coil/contacts	>2500 Vms
Ambient temperature (operational)	–40 °C ...+40 °C
Terminal torque	0.8 Nm
max.	1.2 Nm
Humidity	40 °C/93 rel. humidity, no condensation

Ordering data

Description	Type	Qty.	Order No.
Plug-in module with screw connections	SPW 3C0	25	**8697680000**

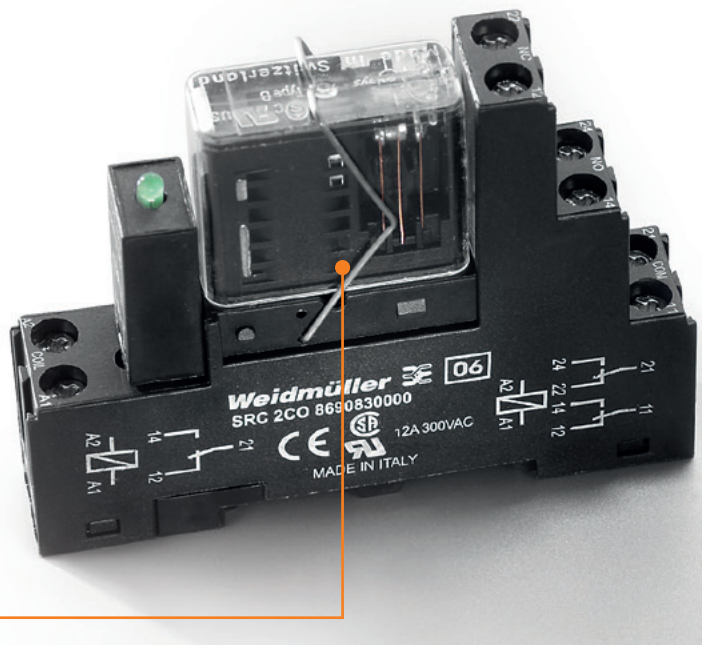
Accessories

Description	Type	Order No.
End bracket	WEW 35/2	**1061200000**
Screwdriver	SD 0,6/3,5/100	**9008330000**

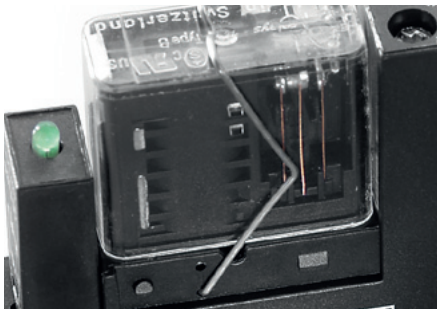
Signal monitoring in safety-critical circuits

Coupling relays with positively driven contacts

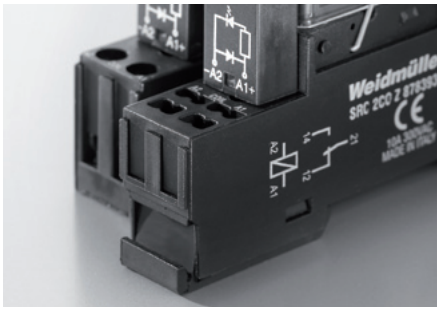
Weidmüller has expanded the RIDERSERIES to include a relay variant with force-guided contacts. Relays with force-guided contacts have a 99 % diagnostics coverage and an excellent reputation for use in safety systems. The contacts interlock mechanically with each other in order to ensure a synchronous 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.



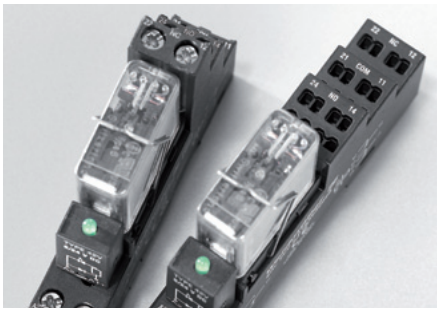
Resistant to vibration
A metal clip ensures that the relay module remains secure even under vibration / mechanical shock conditions.



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

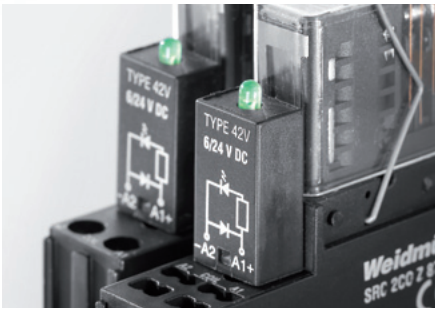


Convenient
Relay modules can be replaced quickly in the event of a fault without removing the connecting cable.



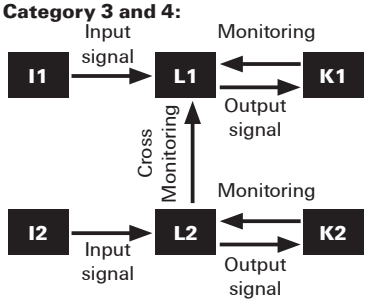


On site diagnostics
An easy to view LED display module with an integrated free wheeling diode is used to protect the series connected electronics.



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).

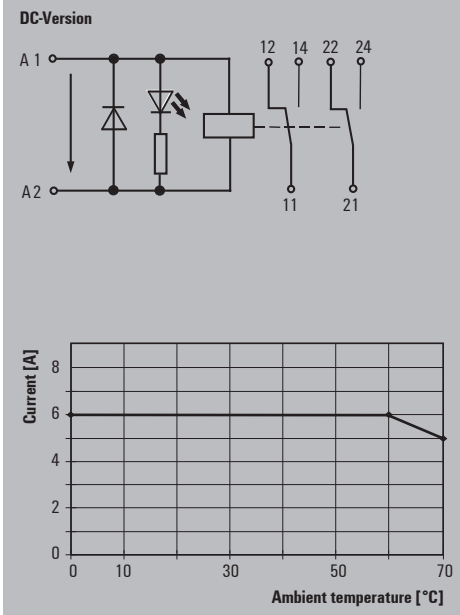
Category 3 and 4:



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	
Making current		15 A / 20 ms	
Min. switching power		100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA	
Max. switching power		1500 VA	
Contact material		AgCuNi	
Mechanical service life		> 50 x 10^6 switching cycles	
Max. switching frequency at rated load		20 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	
Insulation coordination (EN 50178)			
Rated voltage		250 V	
Impulse withstand voltage			
Dielectric strength input – output		5 kV_{eff} / 1min	
Dielectric strength, contact / contact		4 kV_{eff} / 1 min	
Dielectric strength to mounting rail			
Creepage and clearance distance input – output		≥ 10 mm	
Surge voltage category		III	
Pollution severity		3	
Dimensions		**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5	1.5 / 0.5 / 1.5
Depth x width x height	mm	62 / 15.5 / 77	63.2 / 16 / 97
Note			

Ordering data

		24 V DC 2CO LED
Input		
Rated control voltage		24 V DC
Rated current AC / DC		/ 35.8 mA
Power rating		0.82 W
AC response/dropout Volt		
DC response/dropout Volt		18 V / 2.4 V
Status indicator		Green LED
Protective circuit		Integrated 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 connection	Type	RCIKITZ 24VDC 2CO LD/FG
	Order No.	**1218390000**

Ordering data **Spare relay**		
	Type	RCI42424FG
	Order No.	**1218380000**

Note	

Power electronics

Power electronics	Power solid-state relays – Overview	C.2
	Power solid-state relays	C.4

Power solid state relays

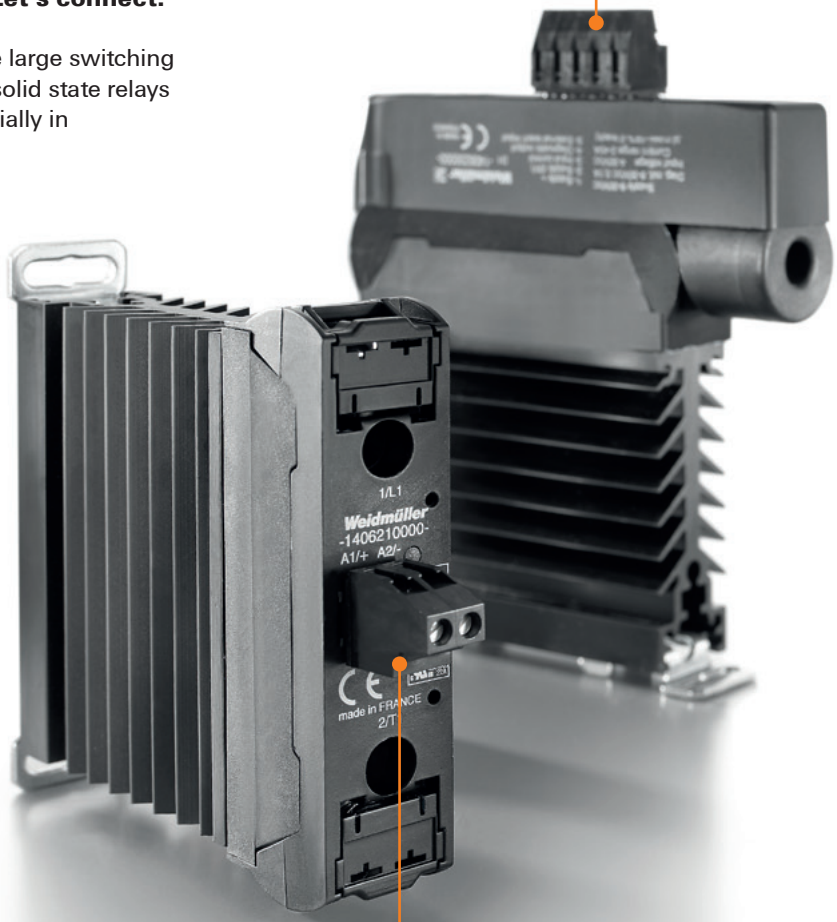
Switch high AC loads up to 75 A completely wear-free and noiseless

Your applications require switching capacities that conventional relays cannot handle? Our power solid state relays have an unrestricted service life – even in extreme environments. Let's connect.

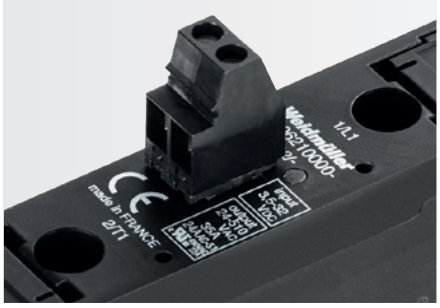
Due to their high shock and vibration resistance, the large switching current and the option of simple fusing, our power solid state relays outperform by far any electromagnetic relays, especially in the process industry.

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.

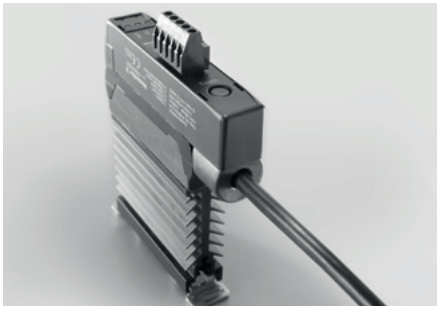
Our new power solid state relays are ideally suited for a multitude of diverse tasks: switching pipe trace heating, phase controls for motors and infrared heating, and permanent current monitoring.



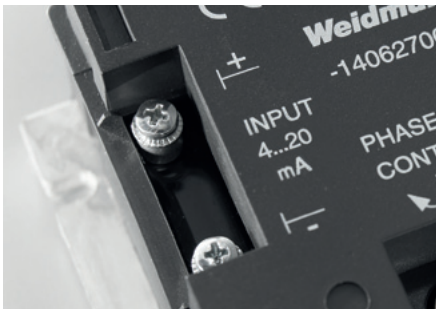
High current load integral
The high current load integral I^2t of 6,000 A^2s allows affordable conductor protection using standard circuit breakers for variants with 35 A load current.



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.



Simple current control
The 70 A phase control with analog input (4 – 20 mA) allows you to set up heating controls or the power control of single-phase motors.





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.

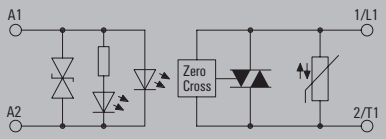


PSSR - 1-phase

- Single-phase load circuit: 12–275 V AC / 25 A
- Ready-to-use: simply clip on and connect
- Zero-cross switch
- Noiseless, wear-free switching
- Attachable monitoring module

PSSR 24 V DC / 1 PH AC 25 A



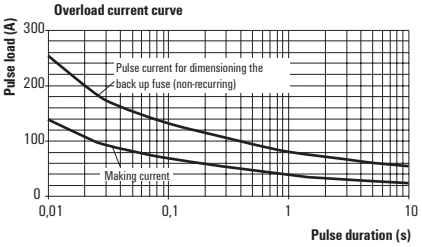


Technical data

Control side	
Rated control voltage	3.5...32 V DC
Power rating	≤ 280 mW
Cut-in (switch-on) voltage	≥ 3 V DC
Dropout voltage	≤ 2 V DC
Input frequency	max. 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	20 A (AC 51) @ 40 °C, 3.5 A (AC 53)
Min. switching current	5 mA
Max. switching current	25 A
Voltage drop at max. load	0.85 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	140 A (10 ms)
Load category	AC 51, AC 53
Load limit integral (I^2t) <10 ms	340 A^2s
General data	
Ambient temperature (operational)	-55 °C...+100 °C
Storage temperature	-55 °C...+125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
Insulation coordination (EN 50178)	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 8 mm
Surge voltage category	III
Pollution severity	2

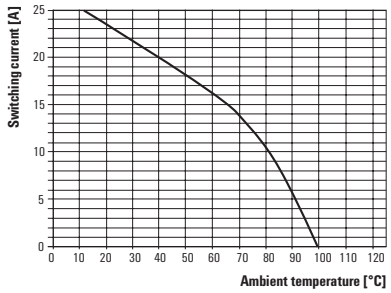
Dimensions		
Clamping range (rated / min. / max.) control side	mm^2	1.5 / 0.13 / 3.3
Clamping range (rated / min. / max.) load side	mm^2	10 / 1.5 / 10
Depth x width x height	mm	110 / 22.5 / 93
Note		

Overload current curve



Derating curve

Low ventilation



Ordering data

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

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

Accessories

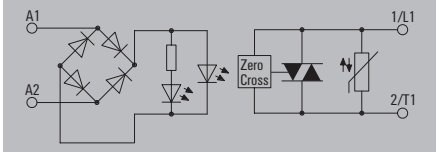
Note	

PSSR - 1-phase

- Single-phase load circuit: 12–275 V AC / 25 A
- Ready-to-use: simply clip on and connect
- Zero-cross switch
- Noiseless, wear-free switching
- Attachable monitoring module

PSSR 230 V AC / 1 PH AC 25 A

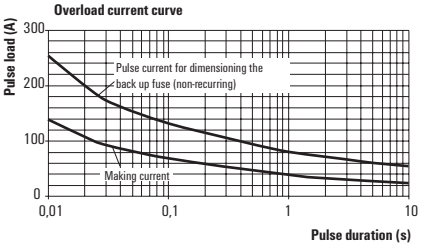


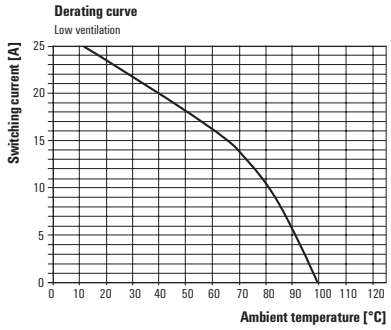


Technical data

Control side	
Rated control voltage	160...240 V AC/DC
Power rating	≤ 1.38 VA
Cut-in (switch-on) voltage	≥ 160 V AC, ≥ 160 V DC
Dropout voltage	≤ 5 V AC, ≤ 5 V DC
Input frequency	max. 10 Hz
Status indicator	LED yellow
Protective circuit	Rectifier
Load side	
Solid-state type	Triac (zero-cross switch)
Rated switching voltage	12...275 V AC
Continuous current	20 A (AC 51) @ 40 °C, 3.5 A (AC 53)
Min. switching current	5 mA
Max. switching current	25 A
Voltage drop at max. load	0.85 V
Leakage current	< 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤ 30 ms / ≤ 30 ms
Output voltage frequency range	50 / 60 Hz
Pulse load, max. current	140 A (10 ms)
Load category	AC 51, AC 53
Load limit integral (I^2t) <10 ms	340 A^2s
General data	
Ambient temperature (operational)	-55 °C...+100 °C
Storage temperature	-55 °C...+125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
Insulation coordination (EN 50178)	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 8 mm
Surge voltage category	III
Pollution severity	2

Dimensions		
Clamping range (rated / min. / max.) control side	mm^2	1.5 / 0.13 / 3.3
Clamping range (rated / min. / max.) load side	mm^2	10 / 1.5 / 10
Depth x width x height	mm	110 / 22.5 / 93
Note		





Ordering data

	Type	Qty.	Order No.
Screw connection	PSSR 230VAC/1PH AC 25A	1	1406220000

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

Accessories

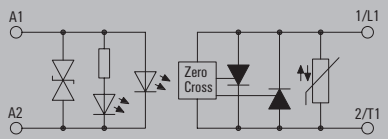
Note	

PSSR - 1-phase

PSSR 24 V DC / 1 PH AC 35 A

- Single-phase load circuit: 24–600 V AC / 35 A
- Ready-to-use: simply clip on and connect
- Zero-cross switch
- Noiseless, wear-free switching
- Attachable monitoring module
- High capacity for handling surge currents I^2t = 6000 A^2s (10 ms)
- Fusing with B circuit breaker possible



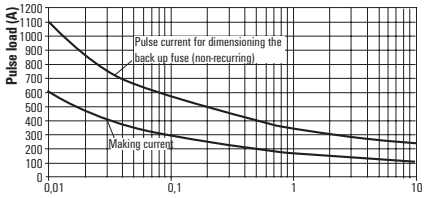


Technical data

Control side	
Rated control voltage	3.5...32 V DC
Power rating	≤ 280 mW
Cut-in (switch-on) voltage	≥ 3 V DC
Dropout voltage	≤ 2 V DC
Input frequency	max. 10 Hz
Status indicator	LED yellow
Protective circuit	Suppressor diode
Load side	
Solid-state type	Thyristor (zero-cross switch)
Rated switching voltage	24...600 V AC
Continuous current	24 A (AC 51) @ 40°C, 7 A (AC 53)
Min. switching current	5 mA
Max. switching current	50 A
Voltage drop at max. load	< 1 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	600 A (10 ms)
Load category	AC 51, AC 53
Load limit integral (I^2t) <10 ms	6000 A^2s
General data	
Ambient temperature (operational)	-55 °C...+100 °C
Storage temperature	-55 °C...+125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
Insulation coordination (EN 50178)	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 8 mm
Surge voltage category	III
Pollution severity	2

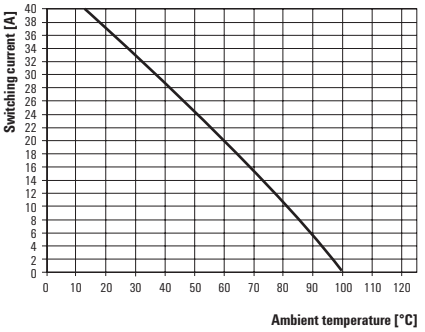
Dimensions		
Clamping range (rated / min. / max.) control side	mm^2	1.5 / 0.13 / 3.3
Clamping range (rated / min. / max.) load side	mm^2	10 / 1.5 / 10
Depth x width x height	mm	110 / 22.5 / 93
Note		

Overload current curve



Derating curve

Low ventilation



Ordering data

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

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

Accessories

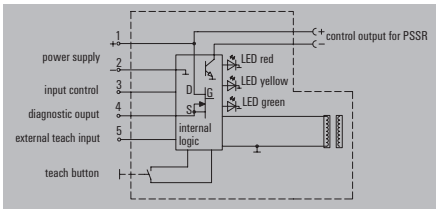
Note	

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 x I_{teach}
- Teach button on the module and external teach input

PSSR 1 PH CONTROL UNIT





Technical data

Control side		
Rated control voltage		4...30 V DC
Nominal control current		≤ 2.5 mA
Dropout voltage		≤ 2 V DC
Rated control voltage (external teach input)		4...30 V DC
Nominal control current (external teach input)		≤ 2.5 mA
Supply		
Supply voltage		8...30 V DC
Current consumption		< 20 mA
Feedback output		
Solid-state type		MOS-FET
Nominal switching voltage		8...30 V DC
Continuous current		0.1 A
Undercurrent switching threshold		0,84 x I_{teach}
Current measurement range AC, min.		2 A
Current measurement range AC, max.		40 A
Switch-on delay		≤ 100 ms
Switch-off delay		≤ 100 ms
Control output for PSSR		
Rated switching voltage		8...30 V DC
Solid-state type		Transistor
Switch-on delay		≤ 15 ms
Switch-off delay		≤ 16 ms
General data		
Ambient temperature (operational)		-40 °C...+80 °C
Storage temperature		-40 °C...+125 °C
Humidity		40...85 % (indoor) no condensation
Current sensor hole diameter		9 mm
Approvals		CE
Standards		EN 60947-4-3, EN 60950
Insulation coordination (EN 50178)		
Impulse withstand voltage		4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side		≥ 8 mm
Surge voltage category		III
Pollution severity		2
Dimensions		
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.15 / 2.5
Depth x width x height	mm	43 / 25 / 112
Note		

Ordering data

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

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

Accessories

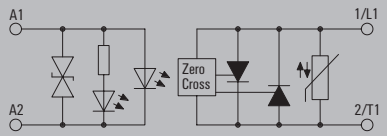
Note	

PSSR - 1-phase

- Single-phase load circuit: 24–600 V AC / 50 A
- Compact design
- Zero-cross switch
- Noiseless, wear-free switching

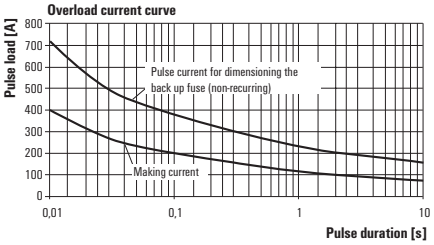
PSSR 24 V DC / 1 PH AC 50 A HP





Technical data

Control side	
Rated control voltage	3.5...32 V DC
Power rating	≤ 280 mW
Cut-in (switch-on) voltage	≥ 3 V DC
Dropout voltage	≤ 2 V DC
Input frequency	max. 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	50 A (AC 51)
Min. switching current	5 mA
Max. switching current	60 A
Voltage drop at max. load	< 1 V
Leakage current	< 1 mA
Short-circuit-proof / Protective circuit, load side	No / No
Switch-on delay / Switch-off delay	≤ 10 ms / ≤ 10 ms
Output voltage frequency range	50 / 60 Hz
Pulse load, max. current	400 A (10 ms)
Load category	AC 51
Load limit integral (I^2t) <10 ms	2450 A^2s
General data	
Ambient temperature (operational)	-55 °C...+100 °C
Storage temperature	-55 °C...+125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
Insulation coordination (EN 50178)	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 8 mm
Surge voltage category	III
Pollution severity	2



Dimensions		
Clamping range (rated / min. / max.) control side	mm^2	1.5 / 0.75 / 2.5
Clamping range (rated / min. / max.) load side	mm^2	10 / 1.5 / 10
Length x width x height	mm	58.5 / 45 / 29
Note		

Ordering data

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

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

Accessories

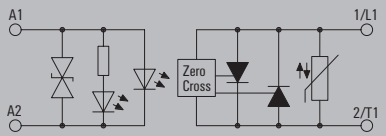
Note	

PSSR - 1-phase

- Single-phase load circuit: 24–600 V AC / 75 A
- Compact design
- Zero-cross switch
- Noiseless, wear-free switching
- High capacity for handling surge currents I^2t = 6000 A^2s (10 ms)
- Fusing with B circuit breaker possible

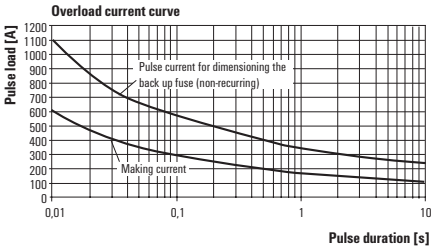
PSSR 24 V DC / 1 PH AC 75 A HP





Technical data

Control side	
Rated control voltage	3.5...32 V DC
Power rating	≤ 280 mW
Cut-in (switch-on) voltage	≥ 3 V DC
Dropout voltage	≤ 2 V DC
Input frequency	max. 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	75 A (AC 51)
Min. switching current	5 mA
Max. switching current	90 A
Voltage drop at max. load	< 1 V
Leakage current	< 1 mA
Short-circuit-proof / Protective circuit, load side	No / No
Switch-on delay / Switch-off delay	≤ 10 ms / ≤ 10 ms
Output voltage frequency range	50 / 60 Hz
Pulse load, max. current	600 A (10 ms)
Load category	AC 51
Load limit integral (I^2t) <10 ms	6000 A^2s
General data	
Ambient temperature (operational)	-55 °C...+100 °C
Storage temperature	-55 °C...+125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
Insulation coordination (EN 50178)	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 8 mm
Surge voltage category	III
Pollution severity	2



Dimensions		
Clamping range (rated / min. / max.) control side	mm^2	1.5 / 0.75 / 2.5
Clamping range (rated / min. / max.) load side	mm^2	10 / 1.5 / 10
Length x width x height	mm	58.5 / 45 / 29
Note		

Ordering data

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

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

Accessories

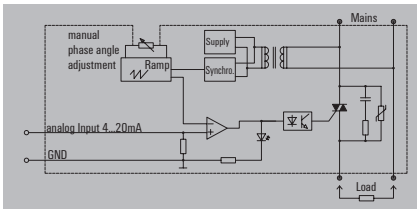
Note	

PSSR - 1-phase

- Single-phase load circuit: 200–460 V AC / 70 A
- 4–20 mA control input
- Manual phase angle adjustment
- Noiseless, wear-free switching

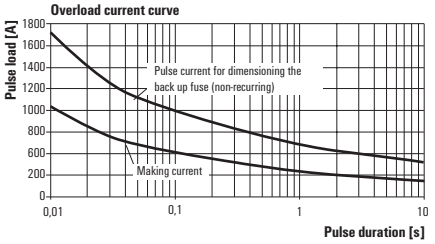
PSSR 20 MA / 1 PH AC 70 A PC





Technical data

Control side	
Nominal control current	4...20 mA ±15 %
Load side	
Solid-state type	Triac
Rated switching voltage	200...460 V AC
Continuous current	70 A
Min. switching current	10 mA
Max. switching current	
Voltage drop at max. load	≤ 1.6 V
Leakage current	< 5 mA
Short-circuit-proof / Protective circuit, load side	No / RC combination with varistor
Switch-on delay / Switch-off delay	≤ 10 ms / ≤ 50 ms
Output voltage frequency range	47–100 Hz (manual phase angle adjustment necessary)
Pulse load, max. current	870 A (10 ms)
Load category	AC 51
Load limit integral (I^2t) <10 ms	5000 A^2s
General data	
Ambient temperature (operational)	-40 °C...+85 °C
Storage temperature	-40 °C...+85 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE
Standards	EN 60947-4-3, EN 60950
Insulation coordination	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 8 mm
Surge voltage category	III
Pollution severity	2



Dimensions		
Conductor connection (control side)		M3 ring cable lug (insulated)
Conductor connection (load side)		M5 ring cable lug (insulated)
Length x width x height	mm	73.5 / 100 / 39.5
Note		

Ordering data

	Type	Qty.	Order No.
Screw connection	PSSR 20MA/1PH AC70A PC	1	1406270000

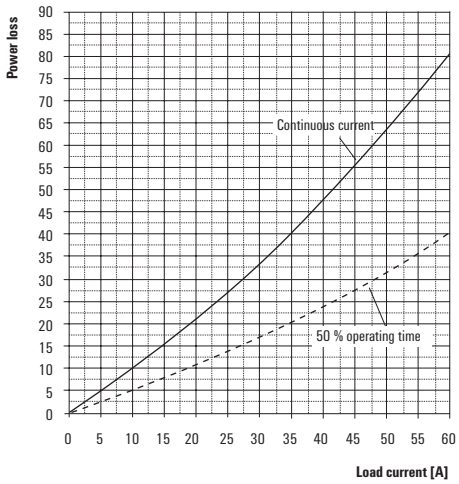
Note	Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

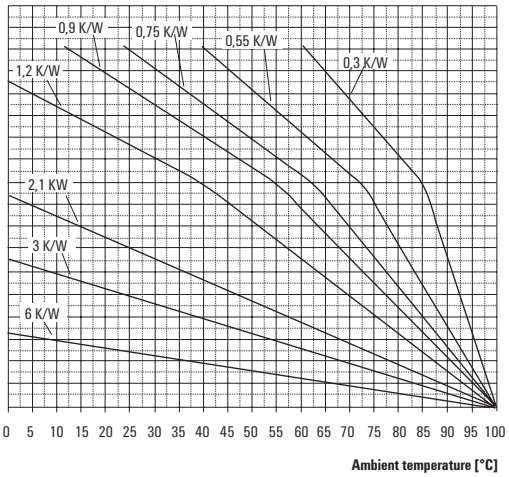
Accessories

Note	

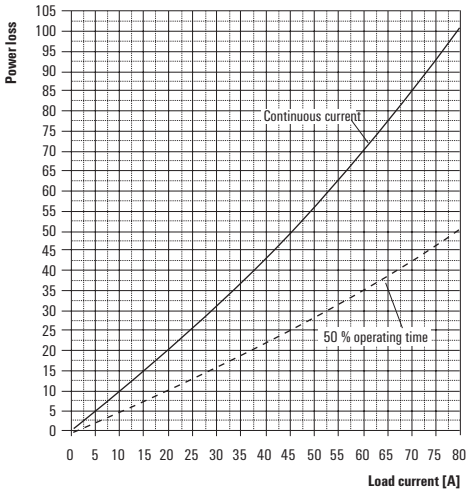
Power loss and selection of heat sink

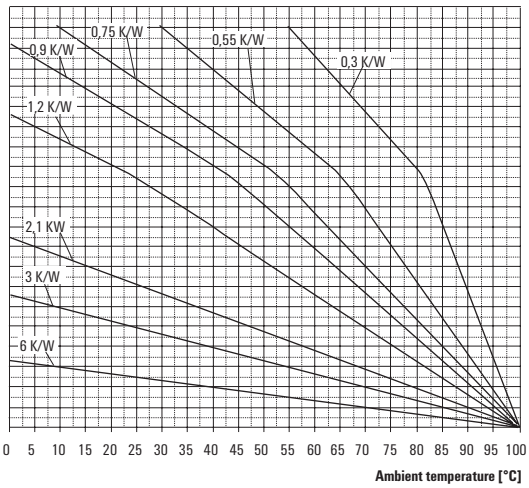
Order No. 1406240000



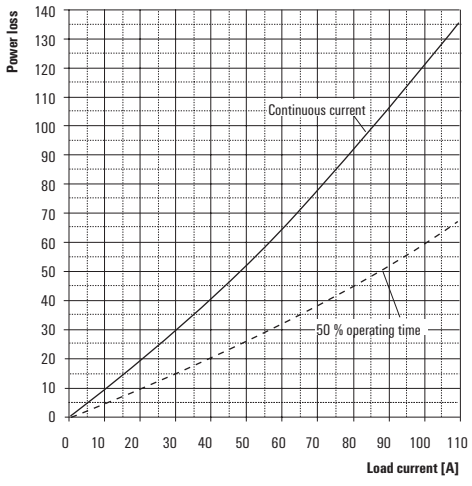


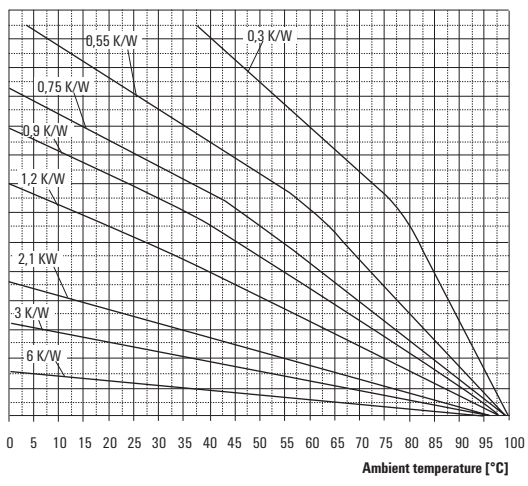
Order No. 1406250000





Order No. 1406270000



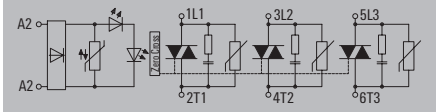


PSSR - 3-phase

- 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

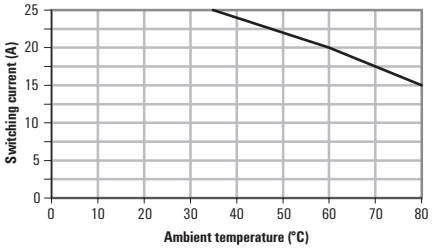




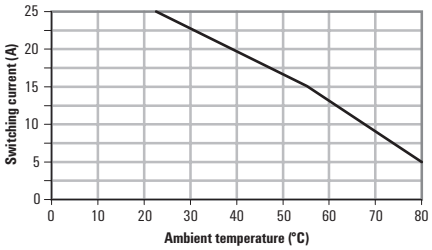
Technical data

Control side		
Rated control voltage		8...30 V DC / 10...30 V AC
Power rating		0.1...2 W
Cut-in (switch-on) voltage		8 V DC / 10 V AC
Dropout voltage		4 V
Input frequency		max. 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
Min. switching current		5 mA
Max. switching current		
Voltage drop at max. load		1.4 V
Leakage current		< 1 mA
Short-circuit-proof / Protective circuit		No / RC element, Varistor
Switch-on delay / Switch-off delay		30 ms / 30 ms
Output voltage frequency range		50 / 60 Hz
Pulse load, max. current / Cartridge fuse		300 A (10 ms / FERRAZ gRC 63 A 22x58 1353 A^2s
Load category		AC 53: 3 x 12 A
Load limit integral (I^2t) <10 ms		1500 A^2s
General data		
Ambient temperature (operational)		-40 °C...+80 °C
Storage temperature		-40 °C...+100 °C
Humidity		40...85 % (indoor) no condensation
Approvals		cURus; GOSTME25
Standards		DIN EN 60950, IEC 60947-4-3
Insulation coordination		
Rated voltage		300 V
Impulse withstand voltage		4 kV
Clearance and creepage distances for control side - load side		≥ 6.4 mm
Surge voltage category		III
Pollution severity		2
Dimensions		
Clamping range (rated / min. / max.) control side	mm^2	1.5 / 0.75 / 2.5
Clamping range (rated / min. / max.) load side	mm^2	10 / 10 / 1.5
Depth x width x height	mm	126.2 / 89.6 / 98
Note		

Derating curve with moderate ventilation and 50 % operational running time



Derating curve without ventilation and in continual operation



Ordering data

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

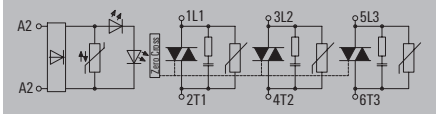
Note	

PSSR - 3-phase

PSSR 230 V AC / 3 PH AC 20 A

- 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

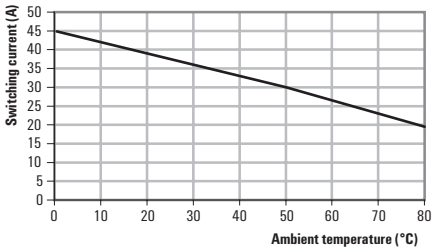




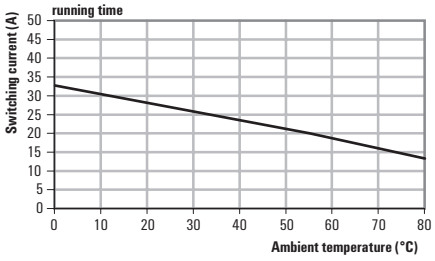
Technical data

Control side		
Rated control voltage		90...240 V AC / DC
Power rating		0.4...2.6 W
Cut-in (switch-on) voltage		90 V AC/DC
Dropout voltage		15 V
Input frequency		max. 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
Min. switching current		5 mA
Max. switching current		
Voltage drop at max. load		1.4 V
Leakage current		< 1 mA
Short-circuit-proof / Protective circuit		No / RC element, Varistor
Switch-on delay / Switch-off delay		30 ms / 30 ms
Output voltage frequency range		50 / 60 Hz
Pulse load, max. current / Cartridge fuse		300 A (10 ms / FERRAZ gRC 63 A 22x58 1353 A^2s
Load category		AC 53: 3 x 12 A
Load limit integral (I^2t) <10 ms		1500 A^2s
General data		
Ambient temperature (operational)		-40 °C...+80 °C
Storage temperature		-40 °C...+100 °C
Humidity		40...85 % (indoor) no condensation
Approvals		cURus; GOSTME25
Standards		DIN EN 60950, IEC 60947-4-3
Insulation coordination		
Rated voltage		300 V
Impulse withstand voltage		4 kV
Clearance and creepage distances for control side - load side		≥ 6.4 mm
Surge voltage category		III
Pollution severity		2
Dimensions		
Clamping range (rated / min. / max.) control side	mm^2	1.5 / 0.75 / 2.5
Clamping range (rated / min. / max.) load side	mm^2	10 / 1.5 / 10
Depth x width x height	mm	126.2 / 89.6 / 98
Note		

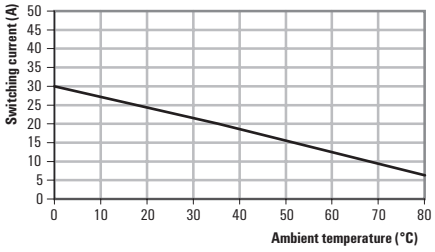
Derating curve with maximum ventilation



Derating curve with moderate ventilation and 50% operational running time



Derating curve without ventilation and in continual operation



Ordering data

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

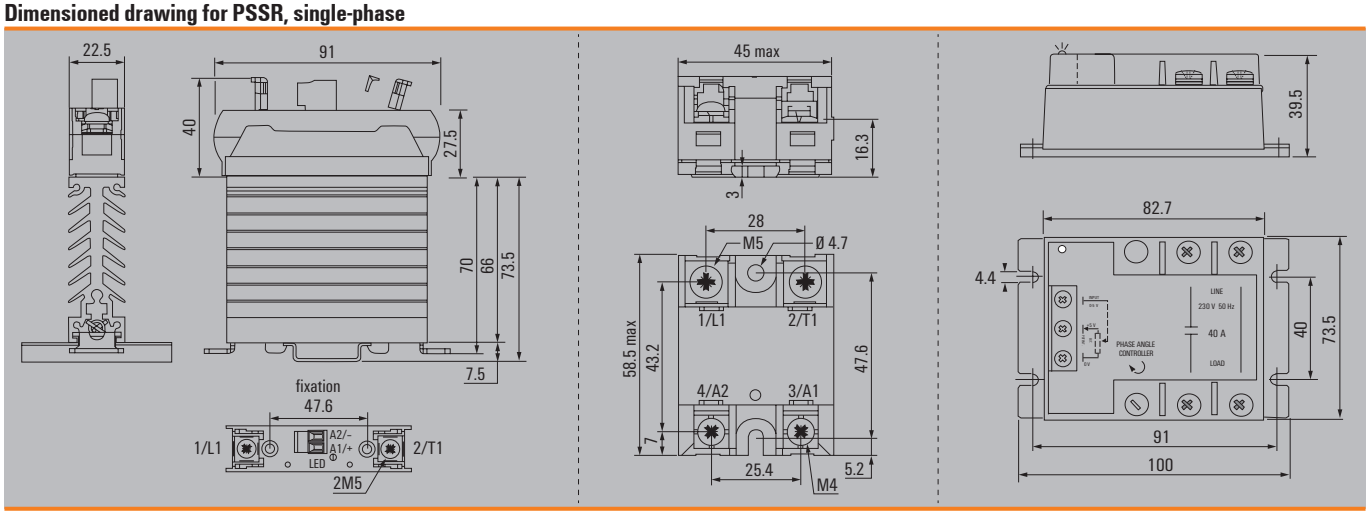
Note

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

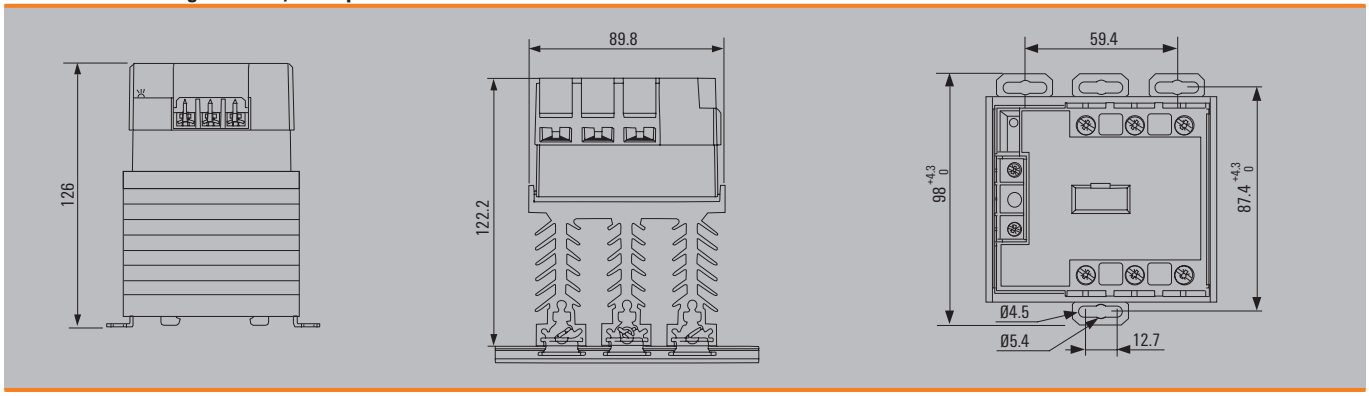
Accessories

Note

Dimensioned drawing for PSSR, single-phase

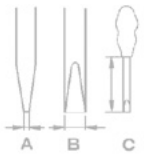


Dimensioned drawing for PSSR, three-phase



Uninsulated screwdriver

Weidmüller SoftFinish screwdriver for general uses.
Blade made from fully hardened, high-alloy chromium-vanadium-molybdenum steel, matt chrome finish.



Type	Size / AF	A	B	C	Order No.
SD S					
Slotted screwdriver with rounded blade SD DIN 5265, ISO 2380/2, output to DIN 5264, ISO 2380/1. ChromTop tip, SoftFinish® grip					
SD 0.5x3.0x80		0.5	3.0	80	**9008320000**
SDK PZ					
Crosshead screwdriver, Pozidriv, SDK PZ DIN 5262, ISO 8764/2-PZ, ouput to ISO 8764/1-PZ, ChromTop tip, SoftFinish® grip					
SDK PZ2	2			100	**9008540000**





Safety relay

Safety relay	SAFESERIES SIL relays – Overview	D.2
	SAFESERIES SIL relays	D.6

SAFESERIES SIL relays
Functional safety for process applications

When dealing with the core elements of a system with a large risk potential, it is especially critical to have the best system solution in place. Our SIL relays reliably switch off your systems in critical situations – and they have all been accredited. Let's connect.

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.

Their integration into distributed control systems (DCSs) is even better, with an input filter which makes the SIL circuit immune to the test impulse which is typically used by a DCS. You will also benefit from simple maintenance: the fuses are accessible from the outside and can easily be changed. You can see the status of the safety and the monitoring devices clearly on the displays mounted directly to the device.

All devices are accredited though certification by the internationally recognised TÜV-NORD group – for secure process applications around the globe. Let's connect.



Safe control of back-up systems
Equipped with wide range input voltages in the monitoring circuit from 24 V AC/DC to 230 V AC/DC, the relay is designed for individual use, e.g. in back-up systems or the overfill prevention devices of tank farms.



Safe monitoring of furnace firing systems
The feed-in of fuel must be interrupted as soon as a boiler plant reaches any safety criterion limits. The SAFESERIES offers you a safety switch-off for the feed-in of fuel to furnace firing systems up to safety integrity level (SIL) 3.





Safe use in corrosive environments
The SIL3 relay is also available with a G3 coating, which makes it especially suitable for use in aggressive environmental conditions.



Check out our Weidmüller customer magazine WIN! for more information. No. 11 (pages 11–13)

Signals under optimal protection

The VARITECTOR SPC series of surge protection devices with SIL certification by TÜV Nord provides the best protection of signals in safety circuits for the process industry.

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
Let's connect.



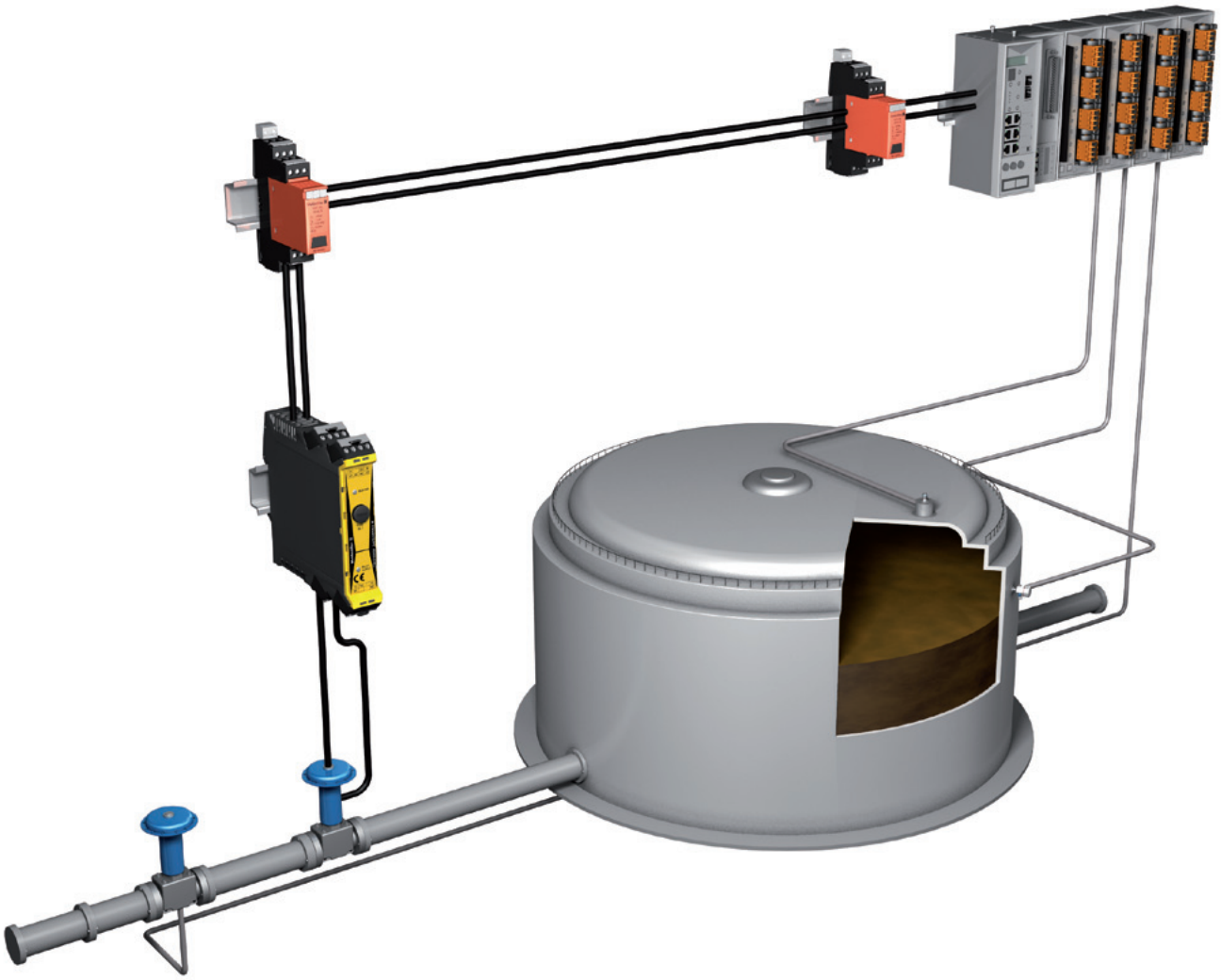
Safe process and power technology is a top priority for you. For example, a reliable emergency shutdown, which initiates appropriate countermeasures in hazardous situations, is indispensable. These might extend to the automatic shutdown of the system or subsystems within it.

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

SIL3 relays

- With and without monitoring circuit
- Wide-range input voltage in the monitoring circuit
- Externally accessible fuse
- TÜV certified „Safety Approved“

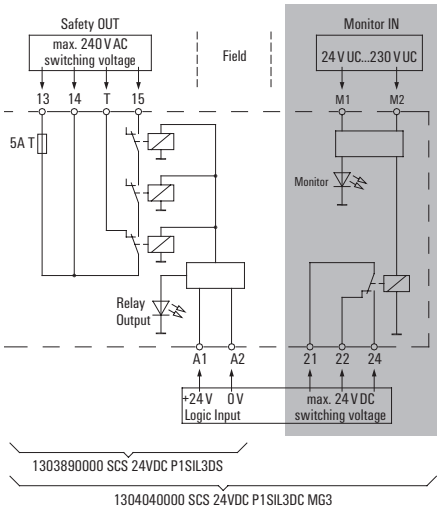
SCS 24 V DC P1SIL3DS



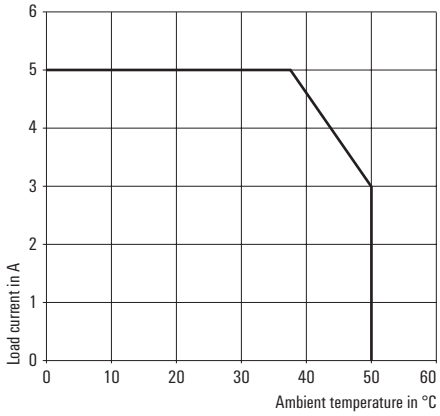
The SCS 24VDC P1SIL3DS safety relay is used in areas that require a functionally safe shutdown. This component fulfils the requirements of EN 61508, SIL 3.

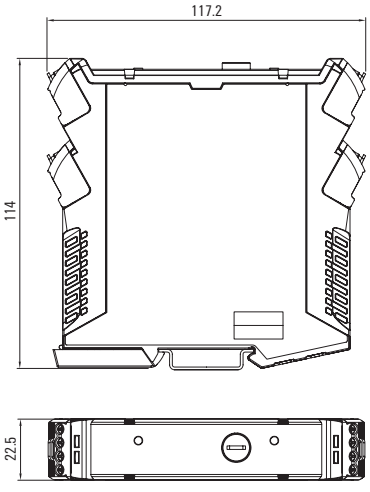
Technical data

Temperatures		
Ambient temperature (operational)		-25...+50 °C
Storage temperature		-40...+85 °C
General data		
Noxious gas resistance to EN 60068-2-60		Yes (art. No.: 1304040000 only)
Input (safety circuit)		
Rated control voltage		24 V DC ± 20%
Guaranteed current consumption of 24 V DC -10 %		35 mA
Power consumption		42 mA
Status indicator		LED yellow
Input (monitor circuit)		
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
Output (safety circuit)		
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		12 V / 10 mA
Max. switching power		2000 VA
Switch-on time		typ. 7 ms
Base material of the contact		Ag Ni 0.15
Internal fuse		5 A time-lag
External back-up fuse		
Short-circuit-proof		No
Output (monitor circuit)		
Contact design		CO contact
Max. permitted switching voltage		24 V DC
Max. allowed switching current		30 A
Min. switching capacity		1 V / 1 mA
Contact base material		AgNi 5µm Au
Switch-on time		typ. 17 ms
Short circuit resistant		No
Insulation coordination (EN 50178)		
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		1.2 kV_{eff} / 1 min.
Dielectric strength output – output		1.2 kV_{eff} / 1 min.
Dielectric strength to mounting rail		1.2 kV_{eff} / 1 min.
Impulse withstand voltage		6 kV (1.2/50 µs)
Surge voltage category		III
Pollution severity		2
Further details of approvals / standards		
Standards		EN 50178, EN 61000, EN 61326-3-2
Dimensions		
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.13 / 2.5
Depth x width x height	mm	114 / 22.5 / 117.2
Note		



Derating curve





Ordering data

Type	Qty.	Order No.
SCS 24VDC P1SIL3DS M with monitoring	1	**1303760000**
SCS 24VDC P1SIL3DS without monitoring	1	**1303890000**
SCS 24VDC P1SIL3DS MG3 with monitoring and G3 gas-corrosion resistant	1	**1304040000**

Note

SIL3 relays

- Energised / de-energised to safe
- All pins can be disconnected
- Test inputs for testing the relay contacts
- Externally accessible fuse
- TÜV certified „Safety Approved“

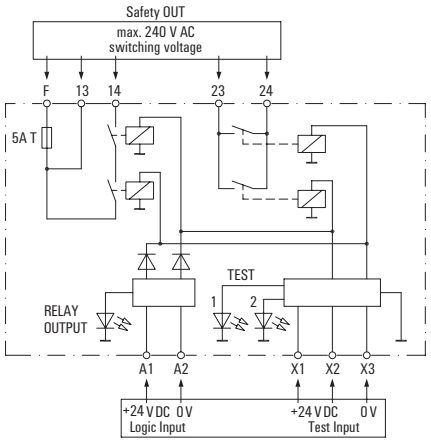
SCS 24 V DC P2SIL3DSES

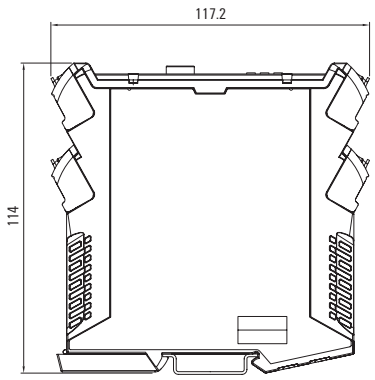


The safety relay SCS 24VDC P2SIL3DSES is used in areas that require functionally safe deactivation or activation. The requirements according to EN 61508, SIL3 can be fulfilled with this module.

Technical data

Temperatures	
Ambient temperature (operational)	-25 °C...+50 °C
Storage temperature	-40 °C...+85 °C
Input (safety circuit)	
Rated control voltage	24 V DC -15 / +20%
Guaranteed current consumption of 24 V DC -10 %	35 mA
Power consumption	45 mA
Status indicator	LED yellow
Test inputs	
Rated control voltage	24 V DC
Status indicator	LED red flashing: test input is triggered
Number of test inputs	2
Output (safety circuit)	
Contact design	1 x de-energised to safe (NO contact), 1 x energised to safe (NO contact)
Max. switching current, internal fuse	5 A (refer to derating curve)
Max. switching current, external fuse	5 A (refer to derating curve)
Max. permitted switching voltage	250 V AC
Max. permitted switching current	8 A
Min. switching power	12 V / 10 mA
Max. switching power	2000 VA
Switch-on time	< 5.5 ms (DTS), < 5 ms (ETS)
Base material of the contact	Ag Ni 0.15
Internal fuse	5 A time-lag
External back-up fuse	5 A time lag
Short-circuit-proof	No
Insulation coordination (EN 50178)	
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	1.2 kV_{eff} / 1 min.
Dielectric strength output – output	1.2 kV_{eff} / 1 min.
Dielectric strength to mounting rail	1.2 kV_{eff} / 1 min.
Impulse withstand voltage	6 kV (1.2/50 µs)
Surge voltage category	III
Pollution severity	2
Further details of approvals / standards	
Standards	EN 50178, EN 61000, EN 61326-3-2





Dimensions		
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.13 / 2.5
Depth x width x height	mm	114 / 22.5 / 117.2
Note		DTS (de-energised to safe) ETS (energised to safe)

Ordering data

Type	Qty.	Order No.
SCS 24VDC P2SIL3DSES	1	1319270000

Note	

SIL3 relays

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

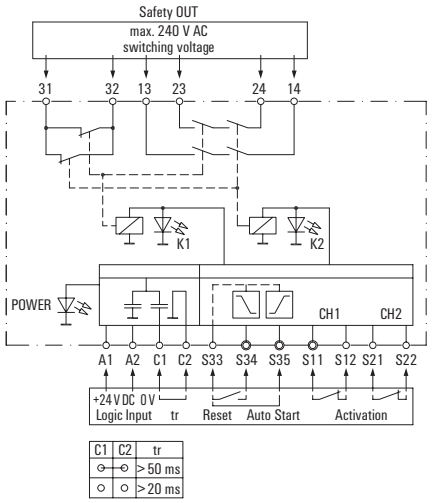
SCS 24 V DC P2SIL3ES

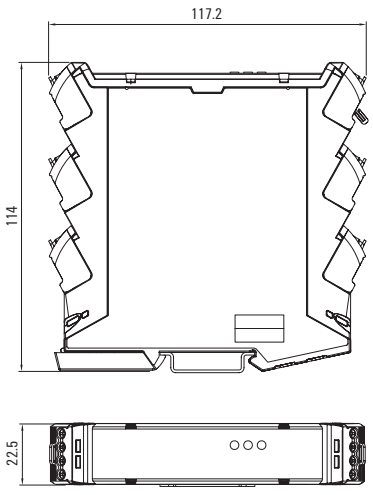


The feed-in of fuel must be interrupted as soon as a boiler plant reaches any safety criterion limits. The safety relay SCS 24VDC P2SIL3ES enables you to carry out a safety shutdown of the fuel supply, to safety level SIL 3.

Technical data

Temperatures		
Ambient temperature (operational)		-25 °C...+55 °C
Storage temperature		-40 °C...+85 °C
Start circuit		
Operating voltage		22 V DC, from internal power supply
Function		falling edge (button via S33/S34), rising edge (permanent bridge via S33/S35)
Input (supply)		
Rated control voltage		24 V DC ±15 %
Current consumption		55 mA (release circuit enabled), 6 mA (release circuit not enabled)
Guaranteed current consumption at 24 V DC -10 %		35 mA
Response time		with bridge via C1/C2: typ. 50 ms, without bridge via C1/C2: typ. 20 ms
Status display		LED green, power, LED yellow, signal
Short-circuit detection		Yes, max 4 s up to switch-off (Polyfuse)
Monitoring circuit		
Operating voltage		22 V DC, from internal power supply
Input		2, each externally bridgeable
Output (release circuit)		
Contact version		2 NO positively-driven (EN 50205)
Switching voltage AC, max.		250 V
Max. permitted switching current		6 A
Min. switching capacity		12 V / 10 mA
Max. switching power		2000 VA
Switch-on time		55 ms (C1/C2 bridged, switched via A1/A2), 30 ms (opening/closing of monitoring circuit)
Switch-off time		20 ms (C1/C2 bridged, switched via A1/A2), 15 ms (opening/closing of monitoring circuit)
Contact base material		AgSnO
Max. switching current, external fuse		5 A
external back-up fuse		5 A time lag
Feedback output		
Contact version		1 NC positively-driven (EN 50205 type B)
Switching voltage AC, max.		250 V
Max. switching current		1 A
Insulation coordination (EN 50178)		
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		1.2 kV_{eff} / 1 min.
Dielectric strength output – output		1.2 kV_{eff} / 1 min.
Dielectric strength to mounting rail		1.2 kV_{eff} / 1 min.
Impulse withstand voltage		6 kV (1.2/50 µs)
Surge voltage category		III
Pollution severity		2
Further details of approvals / standards		
Standards		EN 50178, EN 61000, EN 61326-3-2
Dimensions		
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.13 / 2.5
Depth x width x height	mm	114 / 22.5 / 117.2
Note		





Ordering data

Type	Qty.	Order No.
SCS 24VDC P2SIL3ES	1	1319280000

Note

Timer

Timer	BT-SERIES – Overview	E.2
	BT-SERIES – Timer	E.4
	MCZ-SERIES – Timer	E.8

Installation timer

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

The BT product range provides the following functions:

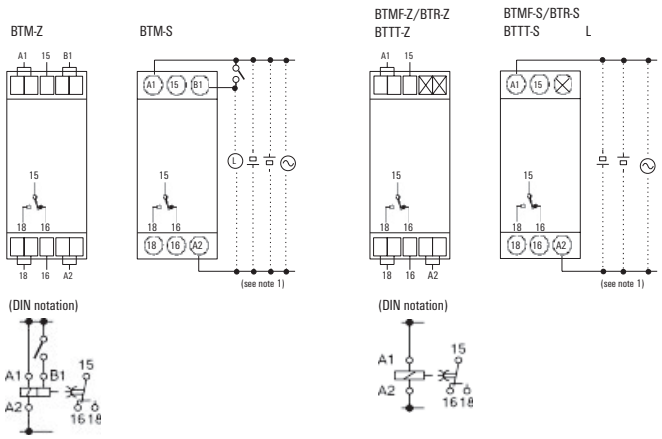
- Pick-up delay (BTR)
- Pulse emitter (BTTT)
- Multifunction with control input (BTM)
- Multifunction without control input (BTMF)
- Star-delta change-over

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.

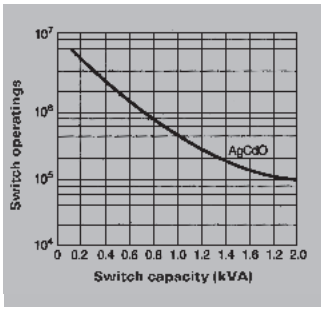
2. The contact symbol of BTM is marked with as it provides serveral operating modes and differs from the delayed contacts of conventional timer.

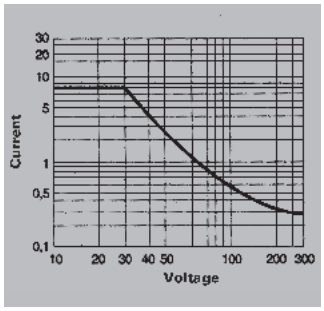


Time ranges

Display of time scale	Time ranges
0.1 s	0.1 to 1.2 s
1 s	1 to 12 s
0.1 min	0.1 to 1.2 min
1 min	1 to 12 min
0.1 h	0.1 to 1.2 h
1 h	1 to 12 h
10 h	10 to 120 h

Note:
If the rotary button for time adjustment is set to "0", the output will be switched without delay.





Choosing the time range

The time range is chosen by turning the rotary switch for the ON-time scale and OFF-time scale. The time scales are visible in the display to the left of the rotary switch in the following order: 0.1 s, 1 s, 0.1 m, 1 m, 0.1 h, 1 h.

Note:
The time scales "1 s" and "0.1 h" are given twice.
Both adjustments represent the same time scale.

Locking/unlocking of selectors and time setting dial

The rotary switches for the ON/OFF time adjustment and the option selector for the time scale can be locked with the locking key.
This pen-style special tool is available separately. To lock either rotary switches or the option selector, simply insert the locking key into the keyhole bottom right of the rotary switch/option selector and turn it clockwise until the button/switch is totally covered by the red cover. To unlock, simply turn the key in the opposite direction.

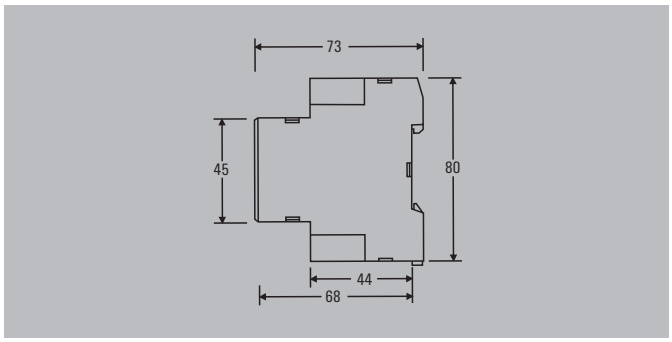
Connection system

The units offers the following connection technologies:

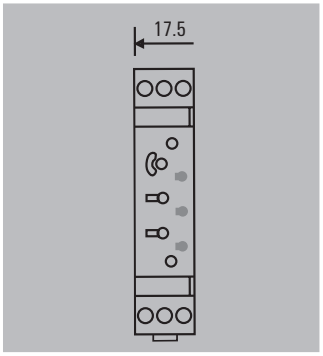
Screw connection
- 2 x 1.5 mm² with wire end ferrule,
- 2 x 2.5 mm² without wire end ferrule

Tension clamp connection
- 2 x 1.5 mm² with wire end ferrule,
- 2 x 1.5 mm² without wire end ferrule

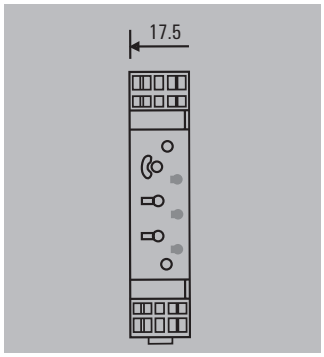
Dimensions



Screw connection



Tension clamp connection



Installation timer

- Screw or tension clamp connection
- LED status indicator Input: voltage present
  Output: output active
- Approvals cULus 508 / SP 22.2 Nr. 14
  EN 61812-1 / IEC 60664-1
  IEC 60947-5-1 / EN 61812-1
  IEC 60664-1 / IEC 60947-5-1
  EN 55011 / EN 50082-2



Type designation:

B = **B**uilding
T = **T**imer
R = **R**esponse Delay
TT = **T**wo **T**imes
M = **M**ultifunction, 8 ranges
MF = **M**ultifunction, 4 ranges
DS = **D**elta, **S**tar
S = **S**crew
Z = **T**ension

Input		**Contacts hard gold plated**
Rated voltage		24 ... 230 V AC, 50/60 Hz, 24 ... 48 V DC
Voltage tolerance		85 ... 110 % of rated voltage
Breaking voltage		Max. 2.4 V AC/DC
Power consumption per type	V AC	21...33 VA at 230 V
	V DC	0.6...1.3 W at 24 V
Reset time		Min. 0.1 s (BTDS: 0.5 s)
Insulation		
Insulation resistance		100 MΩ min., at 500 V DC
Insulation test voltage		
between input and output, to enclosure		2000 V AC, 50/60 Hz, 1 min
between non-adjacent contacts		1000 V AC, 50/60 Hz, 1 min
Ingress protection class		IP30, terminal block IP20
Output		
Contact/contact material		1 change-over contact (BTDS 2 NOC) / AgNi 90/10
Switch output		5 A at 250 V AC, resistive load (cos φ=1)
Service life	mechanical min.	10^7 switching cycles (no load, 1800/h)
	electrical min.	10^5 switching cycles (5A at 250 V AC, resistive load at 1800/h)
Time range		0,10 s...120 h
Repetition accuracy		± 1 %
Other data		
Flammability class as per UL94		V-2
Ambient temperature/storage temperature		-10...+55 °C / -25...+65 °C (without condensation)
Humidity		35...85 % rel. humidity, no condensation
Clamping range (nominal/min/max)	mm^2	
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

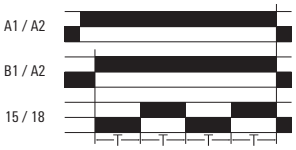
Function A – on-delay

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.



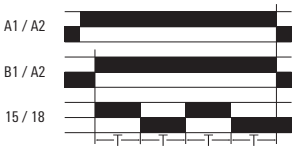
Function B – pulse emitter (starting at normal position)

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.



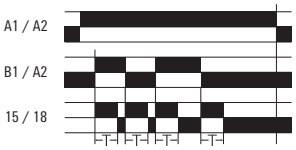
Function B2 – pulse emitter (starting at operated position)

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.



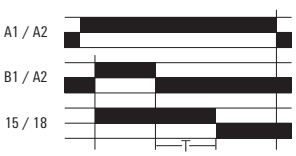
Function C – interval time-delay

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.



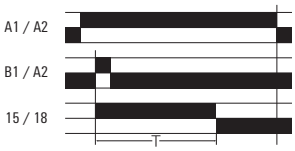
Function D – off-delay function

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.



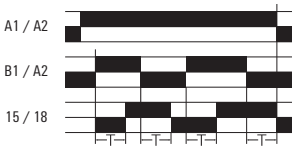
Function E – passing make function

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.



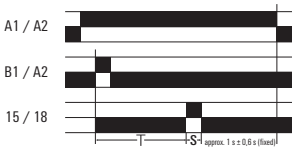
Function G – on and off-delay function

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 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.



Multi-function relay without control input (BTMF)



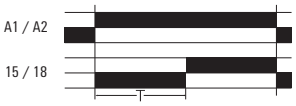
Ordering data

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.



Timer (BTTT)



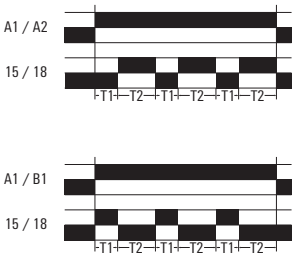
Ordering data

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.



Timer (BTDS)



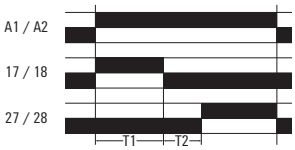
Ordering data

Connection system	Type	Qty.	Order No.
Screw connection	BTDS-S	1	8647660000
Tension clamp	BTDS-Z	1	8647670000

Functions

Star-delta changeover

After connecting the power supply, output R1 (17/18) connects immediately. At the end of time T1, output R1 (17/18) switches off and time T2 starts. At the end of time T2, output R2 (27/28) connects. After switching off the power supply, output R2 (27/28) switches off.

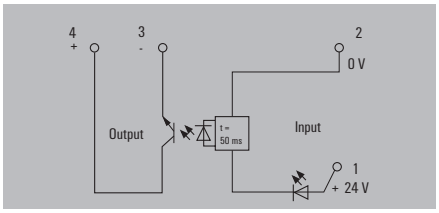


Miniconditioner MCZ TO

- 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

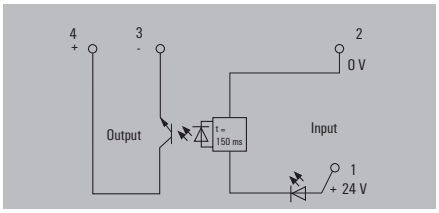
24 V DC 50 ms





24 V DC 150 ms





Technical data

Input		
Rated control voltage	24 V DC ±10 %	24 V DC ±10 %
Rated current AC / DC	/ 6.7 mA ±10 %	/ 6.7 mA ±10 %
Power rating	160 mW	160 mW
Min. pulse duration	2 ms	2.5 ms
Status indicator	Green LED	Green LED
Output		
Max. switching voltage, DC	48 V	48 V
Continuous current	0.1 A	0.1 A
Switch-off delay	50 ms	150 ms
Max. switching frequency at rated load	20 Hz	5 Hz
Rated data		
Ambient temperature (operational)	-25 °C...+50 °C	-25 °C...+50 °C
Storage temperature	-40 °C...+85 °C	-40 °C...+85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; GOSTME25	CE; CSA; cURus; GOSTME25
Insulation coordination (EN 50178)		
Rated voltage	300 V	300 V
Surge voltage category	III	III
Dielectric strength for control side - load side		
Dielectric strength input – output	1.2 kV_{eff} / 5 s	1.2 kV_{eff} / 5 s
Dielectric strength to mounting rail	4 kV_{eff} / 1 min.	4 kV_{eff} / 1 min.
Clearance and creepage distances for control side - load side		
Creepage and clearance distance input – output	≥ 5.5 mm	≥ 5.5 mm
Impulse withstand voltage	6 kV (1.2/50 µs)	6 kV (1.2/50 µs)
Pollution severity	2	2

Dimensions			
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
Depth x width x height	mm	63.2 / 6 / 91	63.2 / 6 / 91
Note		For mounting on TS 35 rail	For mounting on TS 35 rail

Ordering data

	Type	Qty.	Order No.
Tension-clamp connection	MCZ TO 24VDC/50MS	10	**8324590000**
Tension-clamp connection	MCZ TO 24VDC/150MS	10	**8286410000**

Note

Accessories

Note	
AP MCZ end plate 8389030000	AP MCZ end plate 8389030000

JACKPAC® (IP 67)

JACKPAC® (IP 67)	JACKPAC® – Overview	F.2
	JACKPAC® relay	F.3
	JACKPAC® timer	F.4
	JACKPAC® signal inverter	F.5
	JACKPAC® test	F.6
	JACKPAC® – General Data and Accessories	F.7

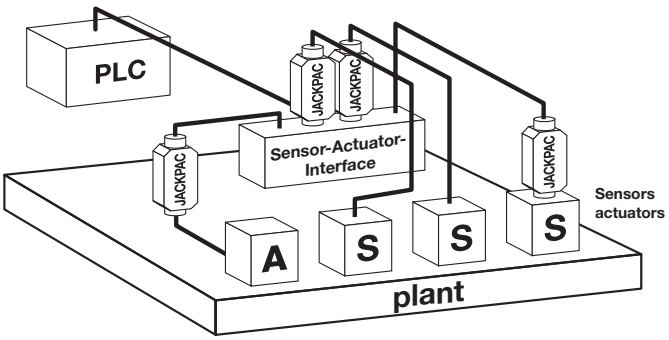
The Concept

The IP 20 Solution

Until now, all signal conditioning tasks were carried out by modules designed to IP 20. For their own protection, these need to be installed in central switchgear cabinets.
However, decentralised solutions that do not require large switchgear cabinets are increasingly being sought for use in modern-day industrial automation technology.
It is true that shielded signals can be fed to the machinery via powerful fieldbus systems; but in each case, however, there remains an interconnecting cable between the subdistribution boards and the sensors/actuators that is susceptible to interference from surrounding operations.
As has always been the case, signals are still influenced by overvoltages and earth loops; interference pulses are superimposed on sensor signals and malfunctions can be initiated.
The result is that signal conditioning modules sealed to IP 20 require terminal boxes, such as switchgear cabinets, or even cost-intensive special solutions (for example, sensor-actuator distributors with integrated signal-conditioning functions providing as many functionalities as possible, even when these are surplus to requirements).

The JACKPAC® Solution

By introducing **JACKPAC®**, the new M12 Signal Box with the high IP 67 ingress protection, Weidmüller can now provide a modular and versatile concept that makes it possible to condition signals in an industrial environment. Requiring no additional enclosures, these modules can be installed directly on the machine, in the production plant, conveyor system or within a process.
The M12 connector, which is standardised all over the world, makes it possible to integrate the **JACKPAC®** at any point in the sensor-actuator cabling. The fixed pin assignment means it is easy to install and is protected against polarity reversal. This versatility really comes into its own when an installation needs to be altered or modernised, simply because no additional enclosures or cabling are required.
By providing this high degree of protection and versatility, **JACKPAC®** renders possible innovative automation concepts based on decentralised applications – without large control cabinets or small distribution boards – for consistent, transparent, efficient and cost-efficient installations.



- Easy ‘Plug and Play’ installation
- Universal and versatile usage
- No additional enclosure required
- Saves time and costs
- Ideal for decentralised concepts and plant modernisation (retrofitting)

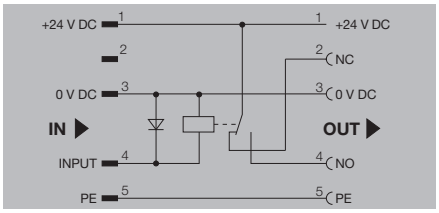
Switching amplifier

- Switching amplifiers are simply built into the actuator system controls.
- Switching outputs can be amplified from 24 V DC /0.5 A to 24 V DC / 2 A.
- Galvanic isolation is optional, for insulating between the input and output circuits, which prevents conducted interference on the switching output.
- Switched voltage feed at output via T-distributor

JPR 24 V DC 1CO M12

without isolation

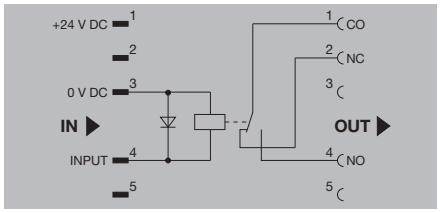




JPR 24 V DC ISO 1CO M12

with electrical isolation





Technical data

Input		
Rated control voltage	24 V DC ±20 %	24 V DC ±20 %
Rated current DC	8 mA	8 mA
Power rating	200 mW	200 mW
DC response/dropout Volt	16.8 V / 1.2 V	16.8 V / 1.2 V
DC pickup/dropout current	5 mA / 1 mA	5 mA / 1 mA
Free-wheel diode		
Output		
Max. switching power	24 V / 2 A	24 V / 2 A
Min. switching power	100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA	100 mA / 5 V, 10 V / 10 mA, 24 V / 1 mA
Contact material	AgSnO	AgSnO
Mechanical service life	10 x 10^6 switching cycles	10 x 10^6 switching cycles
Max. switching frequency at rated load	0.1 Hz	0.1 Hz
Response time	ca. 5 ms	ca. 5 ms
Insulation coordination (EN 50178)		
Rated voltage	300	300
Surge voltage category	III	III
Pollution severity	2	2
General data		
Ambient temperature (operational)	-25 °C...+70 °C	-25 °C...+70 °C
Storage temperature	-25 °C...+70 °C	-25 °C...+70 °C
Wire connection method	M12 plug/socket, A-coded	M12 plug/socket, A-coded
Approvals	cULus	cULus

Dimensions			
Clamping range (nominal / min. / max.)	mm²		
Length x width x height	mm	83 / 36 / 14.4	83 / 36 / 14.4
Note		Data for TU = 20 °C	Data for TU = 20 °C

Ordering data

Type	Qty.	Order No.
JPR 24VDC 1CO M12	1	**8771420000**

Type	Qty.	Order No.
JPR 24VDC ISO 1CO M12	1	**8771430000**

Note

Accessories

Note	
	Retaining clip JP CLIP M: 8778490000
	Retaining clip JP CLIP M: 8778490000

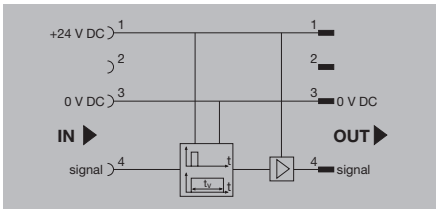
Timer relay

Signal extenders can be easily connected to the cable between the sensor and the input modules.
They extend the pulse length from a minimum 1 ms to 50 ms or 100 ms. This enables reliable recognition and evaluation of short sensor signals by the controller.

JPTA 50 MS 24VDC PNP M12

Pulse stretching, 50 ms

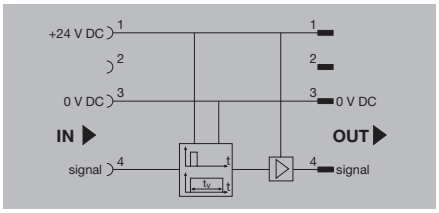




JPTA 100 MS 24VDC PNP M12

Pulse stretching, 100 ms





Technical data

Input		
Rated control voltage	18...24...30 V DC	18...24...30 V DC
Rated current DC	3,5...7,0...10,0 mA	3,5...7,0...10,0 mA
Switch-off delay	50 ms	100 ms
Output		
Max. switching voltage, DC	30 V	30 V
Max. switching current	400 mA	400 mA
Insulation coordination (EN 50178)		
Rated voltage	32 V	32 V
Impulse withstand voltage	330 V	330 V
Surge voltage category	I	I
Pollution severity	2	2
General data		
Ambient temperature (operational)	0 °C...+60 °C	0 °C...+60 °C
Storage temperature	-20 °C...+85 °C	-20 °C...+85 °C
Wire connection method	M12 plug/socket, A-coded	M12 plug/socket, A-coded
Approvals	CE; cULus	CE; cULus

Dimensions			
Clamping range (nominal / min. / max.)	mm²		
Length x width x height	mm	/ 36 / 14.4	/ 36 / 14.4
Note			

Ordering data

Type	Qty.	Order No.
JPTA 50MS 24VDC PNP M12	1	**8771440000**

Type	Qty.	Order No.
JPTA100MS 24VDC PNP M12	1	**8836630000**

Note

Accessories

Note	
	Retaining clip JP CLIP M: 8778490000

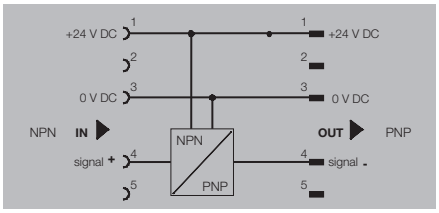
Note	
	Retaining clip JP CLIP M: 8778490000

Signal inverter

Signal inverters convert PNP sensor signals to NPN signals and NPN signals back to PNP. This means that existing circuits do not require complex aleration and the existing inputs on the I/O cards can be put to best use. This is particularly well suited for the Asian and North American markets.

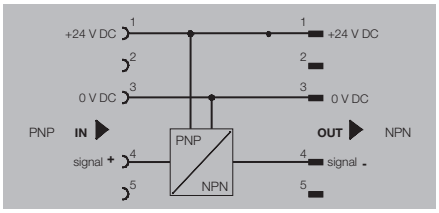
JPP NPN PNP 24 V DC





JPP PNP NPN 24 V DC





Technical data

Input		
Sensor	2-/ 3-Conductor Sensor NPN-type	2-/ 3-Conductor Sensor PNP-Type
Rated control voltage	18...24...30 V DC	18...24...30 V DC
Input current for sensor	< 200 mA	< 200 mA
Type of contact	NO contact	NO contact
Output		
Solid-state type	Solid state relay	Solid state relay
Rated switching voltage	18...30 V DC	18...30 V DC
Rated switching current	400 mA	400 mA
Voltage drop at max. load	≤ 1 V	
Insulation coordination (EN 50178)		
Rated voltage	32 V	32 V
Impulse withstand voltage		
Surge voltage category	I	I
Pollution severity	2	2
General data		
Ambient temperature (operational)	0 °C...+60 °C	0 °C...+60 °C
Storage temperature	-20 °C...+85 °C	-20 °C...+85 °C
Wire connection method	M12 plug/socket, A-coded	M12 plug/socket, A-coded
Approvals	cULus	CE; cULus

Dimensions			
Clamping range (nominal / min. / max.)	mm²		
Length x width x height	mm	83 / 36 / 14.4	83 / 36 / 14.4
Note			

Ordering data

Type	Qty.	Order No.
JPP NPN PNP 24VDC	1	**8852350000**

Type	Qty.	Order No.
JPP PNP NPN 24VDC	1	**8857030000**

Note

Accessories

Note	
	Retaining clip JP CLIP M: 8778490000

Note	
	Retaining clip JP CLIP M: 8778490000

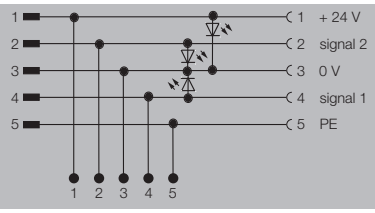
Test adapter

The new JACKPAC® test adapter can be easily integrated at any point on an M12 network and enables quick and easy connection of a testing device via the 5 PUSH IN connections. Status indicators show the status of the 2 signal channels as well as the 24 V DC auxiliary voltage.

JP TEST

with status indication





Technical data

Input	
Rated control voltage	18...24...30 V DC
Rated current DC	2.2 mA (LED)
Status indicator	Green LED
Output	
Continuous current	2 A
Power	2.2 mA at 24 V
General data	
Ambient temperature (operational)	0 °C...+55 °C
Storage temperature	-25 °C...+70 °C
Wire connection method	M12 plug/socket, A-coded
Approvals	CE

Dimensions		
Clamping range (nominal / min. / max.)	mm^2	
Length x width x height	mm	83 / 36 / 14.4
Note		

Ordering data

Type	Qty.	Order No.
JP TEST	1	**8794120000**

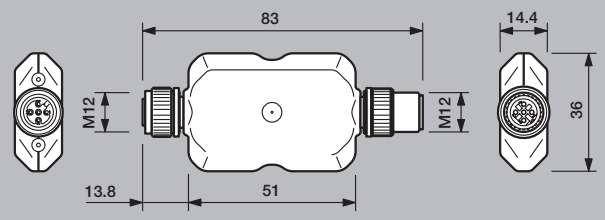
Note	

Accessories

Note	Retaining clip JP CLIP M: 8778490000

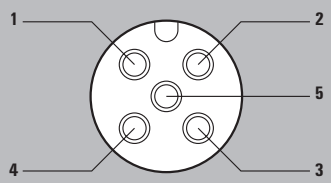
General data

Ingress protection class	IP 67
Housing material	PBT, RAL 7032 (grey)
Flammability class	V0 to UL 94
Screw socket	M12, CuZn, nickel plated, A-coded
Rated torque	0.8 ... 1 Nm



Contact assignment (socket)

Pole	Assignment
1	+24 V DC
2	Input / output 2
3	0 V DC
4	Input / output 1
5	PE / Earth



Accessories

Retaining clip



	Type	Qty.	Order No.
Stainless steel	JP CLIP M	1	8778490000

Twin plug



	Type	Qty.	Order No.
5-pole	SAI-Y-5S PARA M12/M12	1	1783430000

Screwty® M12



	Type	Qty.	Order No.
With torque	SCREWTY M12 DM	1	1900001000

Sensor cables



	Type	Qty.	Order No.
4-pole, length 0.3 m	SAIL-M12G-M12G-4-0.3U	1	9457150000
4-pole, length 0.6 m	SAIL-M12G-M12G-4-0.6U	1	9457160000
4-pole, length 1.5 m	SAIL-M12G-M12G-4-1.5U	1	9457190000
5-pole, length 0.3 m	SAIL-M12G-M12G-5-0.3U	1	9457340030
5-pole, length 0.6 m	SAIL-M12G-M12G-5-0.6U	1	9457340060
5-pole, length 1.5 m	SAIL-M12G-M12G-5-1.5U	1	9457340150

Additional accessories can be found in the Sensor Actuator Interface catalogue.

Weidmüller Solutions & Service

Weidmüller Solutions & Service	Customer specific solutions: best advice, best solutions	V.2
	Digital support: RailDesigner®, Product Assistant for Distribution Boxes, Online product catalogue, M-Print® PRO label designer	V.8

Application specific solutions – Your requirements are our motivation

Each industry has its own requirements calling for more and more individual solutions aside from standard products. Your new product might have to contend with severe conditions. Many applications are subjected to high mechanical strains – through vibration or directly applied forces. Extreme temperature conditions or an application in hazardous areas are further factors your product must be able to comply with. We can offer you highly competent expertise to support you in the selection of ideal products, whatever your application. Feel free to contact us!

From custom product development, customer-specific assembly or application-specific products that are ready for use - we can help you to optimise your working processes and ensure your company's sustained efficiency, today, as well as for the future.

Individual product development
Working closely with you, we can develop individual and future-proof products using the latest technologies and which are specifically tailored to your application.

Customer-specific assembly
Our highly-skilled production expertise and broad product portfolio means that we can deliver superior solutions to meet and exceed your specification requirements.

Application-specific products
Our cross-industrial solutions set standards: Set up for your application, instantly ready for use and available from stock.







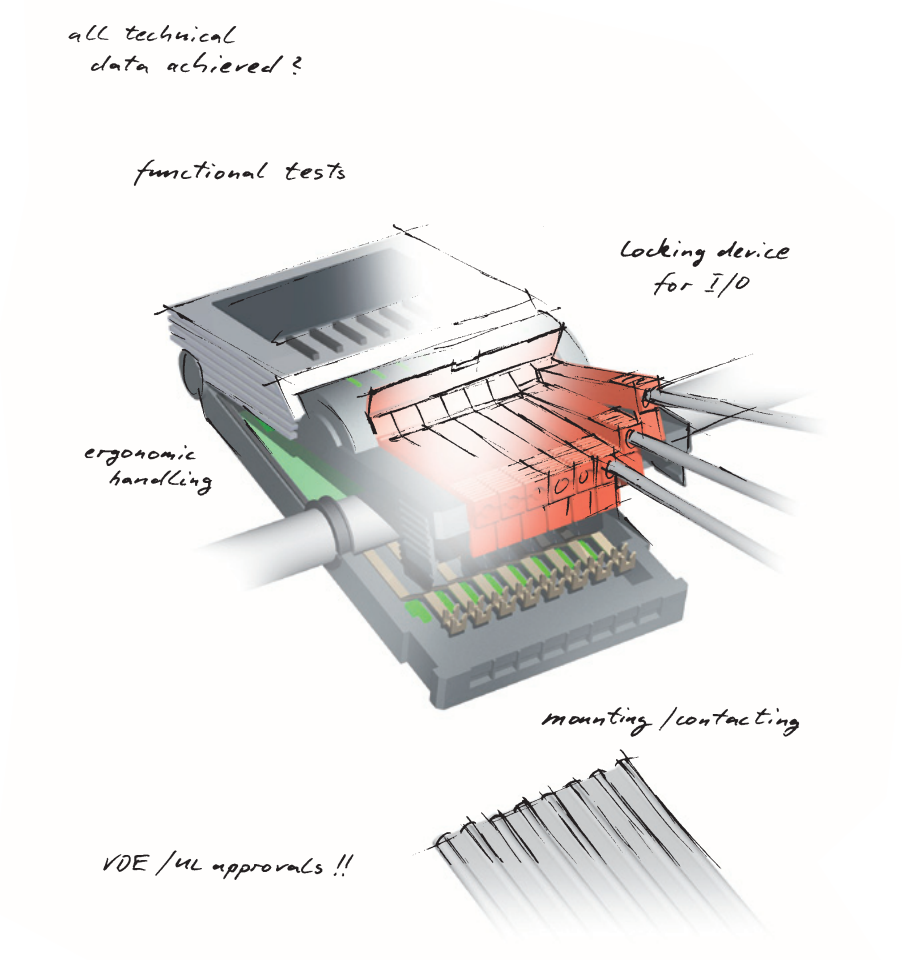

Individual product development for your success

We have a passion for simple, innovative solutions
Working with you, we can develop innovative and future-oriented products tailored to your application. Our philosophy is “one customer - one product”. It is not the product that is the starting point, but you, your technical specifications and your requirements.

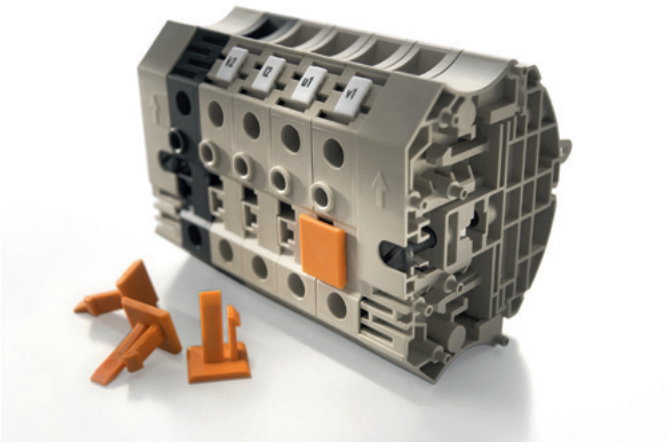
A connecting partnership
The development of individual products means making the most of the experience and competencies available in the partnership. Our project management provides a professional and quality approach - from concept and design through to development, implementation and production. Our extensive knowledge of electrical connectivity, enclosure and sealing technology, as well as signal conditioning are all at your disposal.

Benefit from a reliable partner:

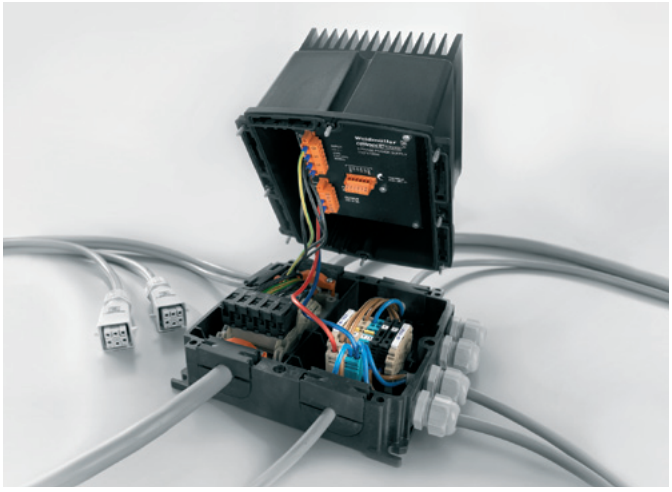
- **Increase the efficiency of your development and production processes**
  Outsourcing the development and production of your components will shorten your time-to-market. In addition, you have more time to concentrate on your core competencies.
- **Take advantage of our applications and production expeience and expertise**
  You can draw on the accumulated knowledge of our applications engineers and our specialists in the fields of connection technology, enclosure and surface technology, as well as metal and plastic processing, which is second to none.
- **Feel safe with the professional approach of our project management**
  Through innovation workshops, feasability studies and profitability analyses we define a requirement profile forming the basis for the further development process. In this way, you can be sure of the best possible products for your needs.



Application specific products – solutions for industries and markets







Industries and applications often have similar or even identical requirements for products or product assemblies. Application specific products that are based on earlier realised solutions are now directly available from stock.

Your advantage: You quickly get a suitable and cost-efficient solution.

Cross industrial solutions as standard
It is our aim to develop solutions that offer the additional advantage of a truly flexible design. Although this may mean an application-specific product may have an additional input or terminal you don't need, it can still be much cheaper than having a custom-made solution. Therefore, you not only save time, but money!

Reap multiple benefits:

- **High availability**
  Application specific products are available from stock without delay. So you can rely on the delivery of your products when you need them.
- **Advice from application engineers**
  Using the expertise of our applications engineers means that you can develop the solutions that are not only right, but which deliver added value to your applications.
- **Supportive software**
  Project planning and evaluation is made easy with our software solutions such as NetCalc, RailDesigner® or Softclinic.
- **Worldwide application centres**
  We stay in constant dialogue with our worldwide application centres, ensuring that our own application knowledge is shared, kept up to date and at your disposal anywhere you need us.

Customer specific assembly, tailored configuration

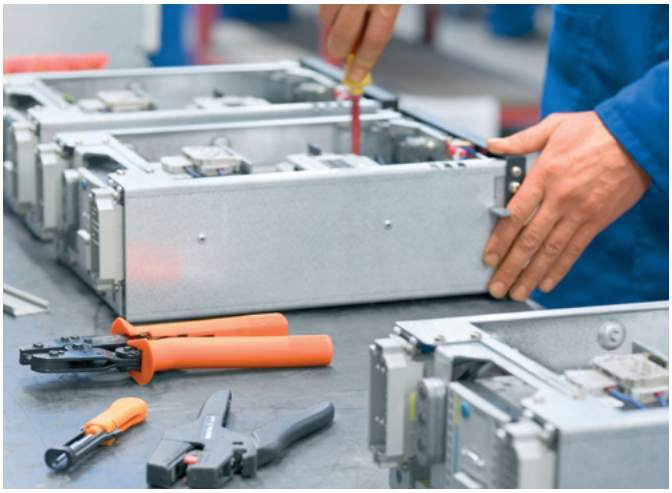
You may be looking to bring costs down and increase your efficiency. It may be that you would like more time to focus on your core competencies. You could be looking for a partner who will sent up intelligent solutions for you, that you can trust to deliver your specific requirements. Here at Weidmüller, we have a wealth of expertise, capability, and capacity to deliver custom solutions that are flexible, economically advantageous and on time.

We offer to work closely with you, providing support and advice, and in putting together the job specification. Furthermore, our broad product portfolio means that we can jointly work together on the selection of the best components to make up your custom solution.

Highest levels of professional production
You have complete access to our highly-skilled project management team and our production expertise, for example, in the ATEX area. We can offer you a comprehensive portfolio of customer-specific assemblies, from simple assembly to the modification of existing electronics products.

Our services include:
- Adaptation and assembly of enclosures for all IP protection classes
- ATEX solutions for hazardous areas
- Assembly of heavy duty connectors
- Assembly of terminal strips
- Customer specific electronics solutions
- Cable assembly

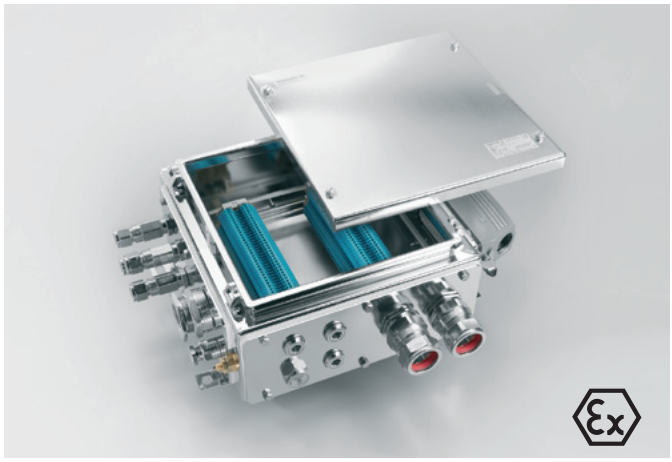




Take advantage of:
- **Simple ordering and stockholding information**
  One solution – one item number! It will no longer be necessary to order single components. Article variety and stockholding will be reduced.
- **Professional assembly**
  All individual components will be pre-assembled, reducing your own assembly time and costs.
- **Less costs for documentation**
  Our RailDesigner® software will facilitate the generation of parts lists or drawings.
- **Modern processing of enclosures**
  Our CNC processing centres can adapt the enclosures to suit your tailored solution.

Customer specific assembly – consultation, product, development and production – all from a single source

Our application and manufacturing expertise influences decisions on all areas of modern connection technology. They therefore play an integral part of every solution.



Enclosures
Perfect protection and safety
- Enclosures for all IP protection classes
- ATEX enclosures for hazardous areas
- Placement of inspection glasses, drill holes and threads
- Elaborate machining operations like the milling of contours
- Class C5 welding, according to DIN 6700, for stainless steel and sheet steel enclosures
- Surface coating as and when required
- Individual device and system markers



Heavy duty connectors
Perfect connection with system
- Placement of drill holes and cable glands
- Equipped with plug-and-play components
- Wiring of subassemblies
- Cable assembly
- All housings are available with individual laser marking



Terminal strips
Configuration made to measure
- Machining of mounting rails
- Snapping components onto terminal rails
- Placement of cross connections
- Mounting of standard wires
- Marking of terminals, devices, wires and cables



Electronics

Individual solution from the beginning

- Modular terminal blocks, component plugs, snap on bases, enclosures for electronics: integration of relevant electronic components
- Snap-on base: Component carrier design or simple wiring of the modules
- Interface units
- Modification of existing electronic products: Modification of the circuitry or specific calibration
- Combination of components: Relays or optocouplers in combination with other components



Cable assembly

Our special service

- Pre cutting of wires and cables
- Installation of
  - Heavy duty connectors
  - PCB connectors or DIN connectors
- Conditioning of wire ends
- Mounting of wire end ferrules and cable lugs
- Connection of wires to terminal rails

RailDesigner®
A faster way to configure and order terminal strips



These days, time and cost efficiency are of the essence when it comes to working in planning and production. RailDesigner®, our free configuration and purchasing software, uses its virtual assembly of mounting rails (assembled or unassembled) to help you with the design of your own completely personal solution.

RailDesigner® brings you substantial benefits:

Less time required
It speeds up the process of acquiring quotations and placing orders because, for example, all processes can be initiated directly from the software. You configure your projects and the rest virtually takes care of itself!

User friendly operation
Any potential errors are prevented by automatic installation tips and clear project processing and management. So that you can plan your project realistically, RailDesigner® offers both 2D and 3D displays.

Wide selection from the current product portfolio
You can easily download software updates for RailDesigner® from the internet.
This means that you will always have access to the latest version of our product database.

Project planning that is compatible with your software
Plan and design your projects easily using your usual CAE software. With the integrated interface, transferring data from your CAE system has never been so simple. You can export component lists and terminal strip designs in various formats. Marking data is automatically transferred to the M-Print® Pro labelling software.

Simple purchasing of terminal strips
Once you have completed the planning stages of your projects in RailDesigner®, you can choose to send all of your data to us by email. Then we take over the assembly and deliver the required configuration to you, along with anything else that you still require for your project.

Download the software for free and discover the advantages to using RailDesigner® at **www.raildesigner.de**

Product assistant for distribution boxes and assemblies – The perfect solution, in the shortest time



You can easily and quickly select, combine and purchase the required components, all with the help of the Weidmüller product assistant for distribution boxes and assemblies. This means that you can rapidly obtain your individual enclosure solutions which may include the following components:

Empty enclosures without holes
Empty enclosures in various sizes of the Klippon® K and Klippon® POK series (aluminium and plastic) with matching mounting rails.

Empty enclosures with pre-threaded holes
Empty enclosures in different sizes from the Klippon® K and Klippon® POK series (aluminium and plastic), that are already equipped with metric threaded holes.

Mounting rails
Exactly tailored mounting rails for the enclosure sizes on offer.

Terminal strips
Mounting rails, which also perfectly match the offered enclosure sizes and are pre-fitted with terminals, optionally with screw or tension clamp connection.

Distribution boxes with Ex-protection
Enclosures that are already assembled with a terminal strip and already equipped with metric threaded holes.

Numerous possible combinations
Enclosures with Ex-protection are supplied exclusively with terminal strips that are already fitted. The product assistant offers you various approaches for industry variants so that you can create the right enclosure variant.

You can start off with any of the listed components and then add further components to the combination. This means that, for example, you can select the required terminal strip and the product assistant will then offer the matching enclosure variants.
Or, you can start with the enclosure, and matching terminal strips or mounting rails will then be chosen. The selected products can then be directly included in the query list.

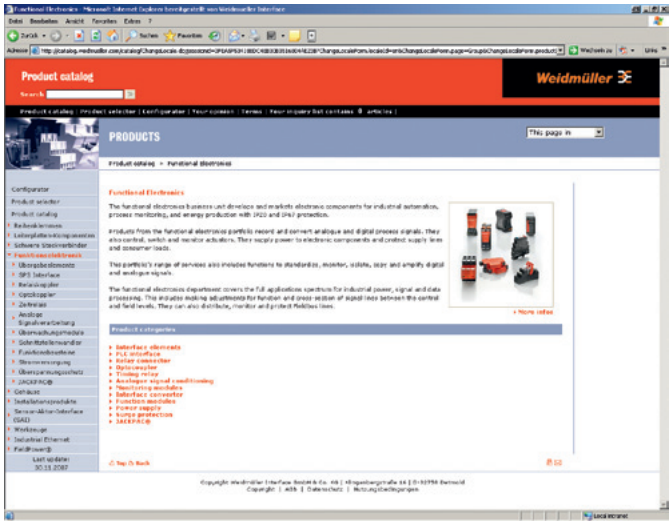
Provision of all relevant data
During the selection, you can choose filters for the terminal strips, such as length, connection technology or dimensional cross-section and, for the enclosure, you can choose material, size, holes etc. If a product is then selected and combined, the user can view all of the relevant data, including drawings and pictures. This means that you can extensively plan how the enclosure will be integrated into the customer's application.
The product assistant is available at
http://galaxy.weidmueller.com

Online product catalogue

If you have questions about the specifications and details of our products, perhaps even outside normal business hours, then our online catalogue at
http://catalog.weidmueller.com
is opened 24 hours a day, 365 days a year and is the perfect source for information. Besides product features and part numbers, it contains extensive additional information on all product groups.

For further information, offers and your personal contact, simply consult the Weidmüller website at

www.weidmueller.com

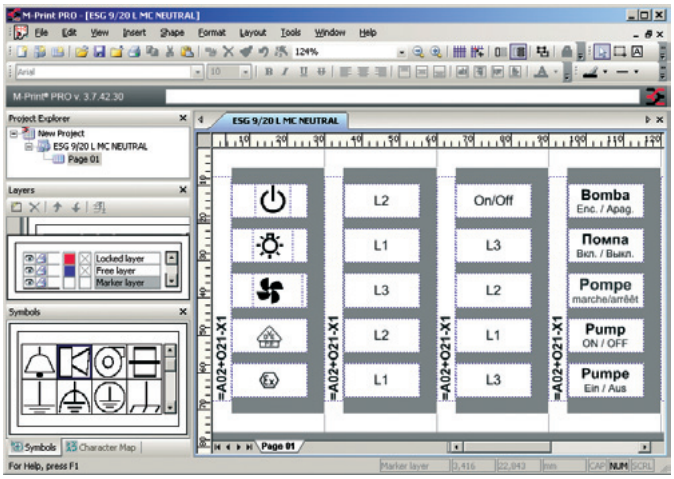


With one click selection for the product data sheet of your choice.

M-Print® PRO label designer

The comprehensive range of Weidmüller services includes the M-Print® PRO software. This is a professional standard, Windows®-based program for printing and ordering labels and markers that is coordinated with our current printing systems and marking materials.

M-Print® PRO enables you to design your labelling materials professionally and quickly. Texts, borders, lines, graphics, barcodes, serial numbers and photographs are all possible. The interface to RailDesigner® or your CAE system enables the transfer of all your configured data.



Technical appendix/Glossary

Technical appendix/Glossary	Relay modules and solid-state relays – Comparison	W.2
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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)

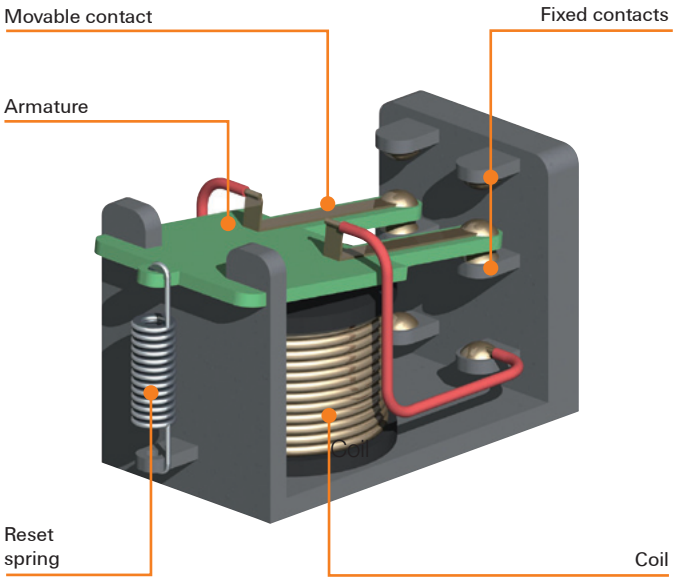
+ No leakage current in the load circuit
  A semi-conductor does not achieve 100 % isolation

+ 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

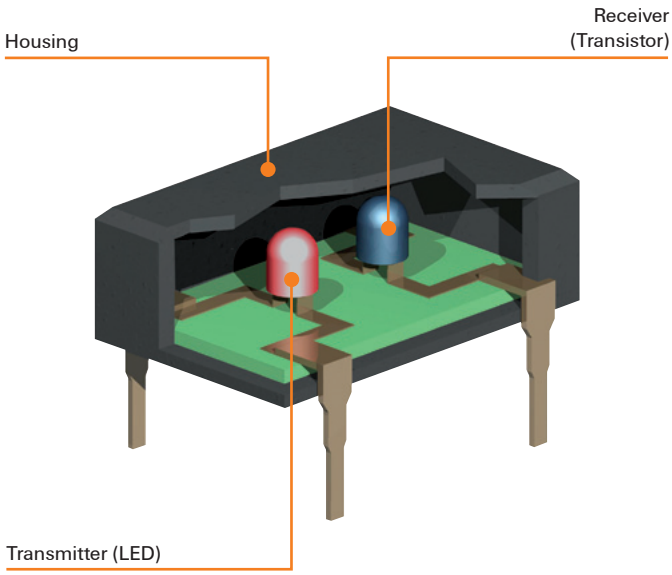
+ Fast response times
  Fast switching, which allows high frequencies to be achieved

+ 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

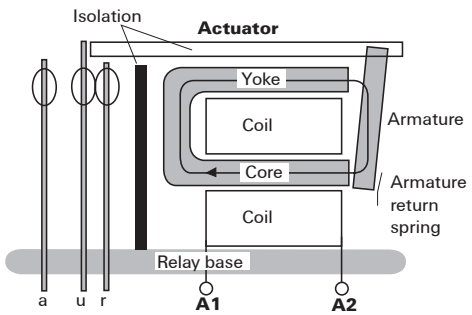
Historical background

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.

Standards

The following individual standards are applied in accordance with the corresponding requirements:

Relay modules
- DIN EN 50178:
  Electronic equipment for use in power installations

Relays
- DIN EN 61810-1:
  Electromechanical elementary relays (electromechanical elementary relays without specified time response characteristics)
  Part 1: General and safety requirements

Relay base
- DIN EN 61984
  Connectors - Safety requirements and tests

EMC – Electromagnetic compatibility

DIN EN 61000-6-1
Part 6-1: Generic standards; Immunity for residential, commercial and light-industrial environments

DIN EN 61000-6-2
Part 6-2: Generic standards - Immunity for industrial environments

DIN EN 61000-6-3
Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments

DIN EN 61000-6-4
Part 6-4: Generic standards - Emission standard for industrial environments

Coil suppression circuit

In DC circuits, the inductance of the relay coil generates a release voltage when de-energised that is capable of damaging or destroying the connected control electronics. A free wheel diode connected in parallel to the coil limits the release voltage, protects the control electronics and prevents induction of the cut-off voltage to other signal lines.

Large circuits or long cable runs are subjected to increased electrical and electromechanical interference and damage. Malfunctions or even total failure of the relay module can result. The radiated interference, and not to forget leakage currents emanating from trigger modules, can also mean that a triggered relay does not drop out. As standards specify that the drop-out voltage is limited to about 15 percent of the rated voltage, the interference voltage generated can be sufficient to prevent the relay from opening. One way of resolving this problem is to connect an RC combination line side to filter out disturbances and provide capacitive suppression of interference voltages.

TERMSERIES products are supplied ex works with these protective circuits already integrated in the electronics; for the RIDERSERIES these are available as modular series electronics.

The same principles apply as with contact protection circuits.

Relay modules – an overview

Switching large and small capacities

Basically, the reliability of the contacts in a relay reaches a maximum at a medium current load thanks to the continuous self-cleaning effect. As the contact load increases and hence leads to more severe erosion of the contacts, the switching reliability decreases with an increasing number of switching operations. This reduces the service life of the contacts. Although at very low loads the minimal erosion of the contacts does raise the service life more or less to the level of the mechanical service life, the lack of a self-cleaning effect contributes to a lower contact reliability.

Reliable contact at low currents, especially when only small voltages are involved as well, depends on the choice of contact material. Contacts of silver-nickel, which is standard for the majority of Weidmüller relays, are generally suitable for currents of approx. 10 mA and higher. Such large-surface contacts can switch both low and high currents. However, at low currents occasional failures can occur due to erosion and the lack of the self-cleaning effect. The higher the current, the more reliable is the contact – thanks to the self-cleaning. Silver-nickel is suitable as a contact material for low currents/voltages. It provides, however, only **moderate switching reliability**. If this is acceptable, then conventional standard relays represent an inexpensive solution.

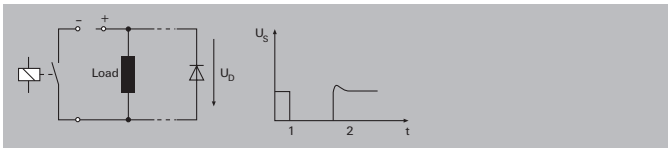
For applications that call for **improved contact reliability** or low currents/voltages, conventional relays with hard-plated gold contacts are preferable because they do not erode and therefore operate more reliably.

If **maximum switching reliability** is necessary, especially for low currents/voltages, a relay should not be your first choice. In these instances Weidmüller advises the use of solid-state relays. Wear and abrasion caused by mechanical movements are non-existent in solid-state relays.

Protective circuits for the contacts

The switching of inductive or capacitive loads produces switching sparks which can influence the electrical service life of the relays. The following protective circuits for the contacts reduce contact wear:

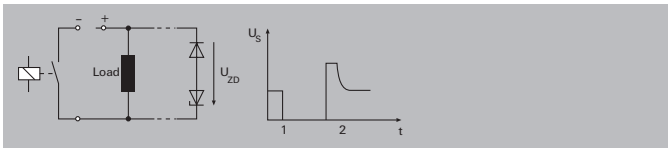
Diode



Free-wheeling diodes (DC)
Free-wheeling diodes are used primarily to protect against overvoltages, which occur through self-induction when switching off inductive DC loads (electric motors, relay coils). Voltage spikes are limited to the equivalent value of the diode forward voltage and excess voltage is discharged via the diode. However, this leads to a delay in the voltage drop and as such also delays the switching operation.

Advantage:	Can be used for all capacities, low surge, minimum space required, low price
Disadvantage:	Very long release delay

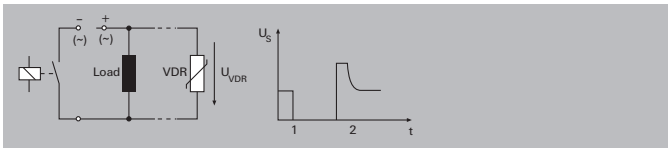
Diode and Z-diode



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

Advantage:	Low surge (defined by Z-diode), short release delay
Disadvantage:	Cannot be used for large capacities

Varistor

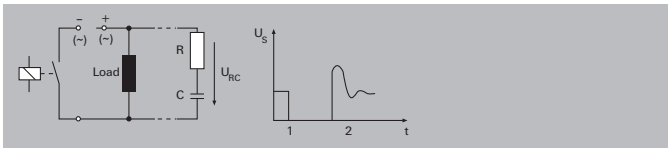


Varistor (AC/DC)

The functional principle of the varistor is also based on a breakdown voltage, but with faster reaction times. This allows higher levels of energy to be shunted, however, these lead to the component aging. This in turn reduces the breakdown voltage over time and increases the leakage current.

Advantage:	Low surge, short release delay
Disadvantage:	High current load on the contacts when switching on; more complicated and expensive at greater capacities

RC combination



RC-element (AC)

The RC element compensates voltage spikes by means of a capacitor. Due to the charging and discharging characteristics interference pulses are filtered out when the voltage is rising and not first when overload is reached. For this reason, RC elements are used to protect against interference pulses and exclude faulty switching operations.

Advantage:	Short release delay, low price
Disadvantage:	Cannot be used for all operating voltages and capacities

U_S = Voltage progression 1 = Closing 2 = Opening

Glossary: Relay modules

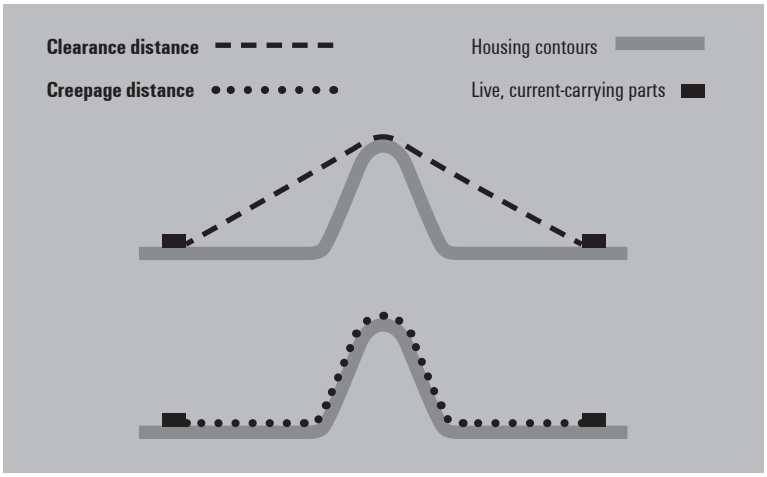
A

AC	Refers both to alternating values (such as voltage or current) as well as to those devices and variables which reference these devices. Specifications are valid for 50 Hz, unless otherwise indicated.
AC coil, alternating current coil	Relay; excitation with alternating current (AC). Specifications are valid for 50 Hz, unless otherwise indicated.
Adhesion (contacts)	This refers to when the relay armature does not return back to its starting position after the coil voltage has been turned off. The armature can get stuck if there is too much retentivity in the iron core or if the reset force is too small.
Approvals and testing marks	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. 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)

B

B10	The number of switching cycles for a load where 10 % of the relays fail. This value is used to determine the probability of system failure.
Bounce (chatter)	An unintended phenomenon that may arise during the closing or opening of a contact circuit when the contact elements touch and separate again before they have reached their final positions.
Bounce times	The time (average value) between the first and last closing (or first and last opening) of a relay contact. These times are valid when the rated voltage is used for excitation, without other components in series or in parallel to the coil, and at the reference temperature.
Breaking capacity	Maximum switching current that a relay contact can switch off under specified conditions, whereby the switching current must not be greater than the nominal current.
Burn-off	Loss of contact material due to switching electrical arcs.

C

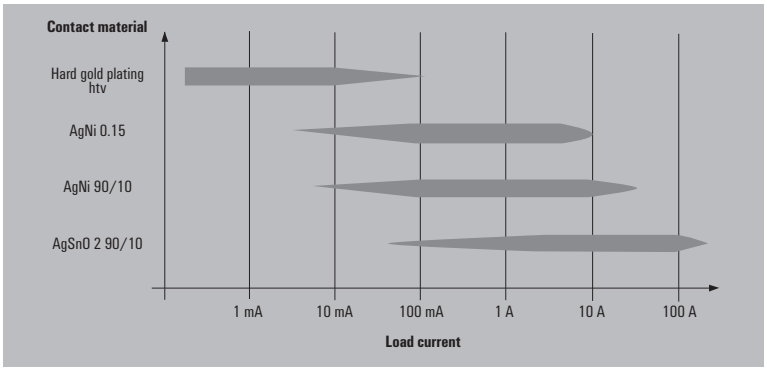
CE	Abbreviation for Communauté Européenne (the European Community). Manufacturers use the CE label to confirm that their products comply with the corresponding EC directives and the "essential requirements" therein. The EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC are currently binding.
Clearance and creepage distances	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. 
Coil resistance	DC resistance of a relay coil at the reference temperature (+20 °C); Higher coil temperatures increase the resistance value by 0.4 % / K. For actual operations, the excitation voltage should be adjusted accordingly (> sparkover value). For AC coils, the inductive resistance is much greater than the DC value. This is why the current consumption of the coil is also specified at nominal excitation.
Coil specifications	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.

Combination of relay and plug-in socket, Insulation requirements	The combination of relay and plug-in socket is described in the new relay standard IEC 61810-1. The relay sockets must meet the requirements of IEC 61984 and the insulation requirements of IEC 60664-1. Even if the socket itself already meets (or surpasses) the insulation requirements, there may still be reduced clearance and creepage distances (and thus reduced insulation rated voltage) for the combination of the relay and plug-in socket. Restrictions – such as a reduced voltage range or reduced pollution degree – should be expected for the relay/socket combination. This should be taken into consideration for miniature multi-pole relays with plug-in sockets which have minimal gaps between the contact circuits. In addition to the insulation properties, the thermal properties of the combined relay/socket are very important (refer to the derating curves). The plug-in frames from different manufacturers cannot be compared directly, which is why the technical specifications are only guaranteed for approved relay/socket combinations. Possible risks of fire or reduced dielectric strength may result when non-approved combinations are in use.

Contact material

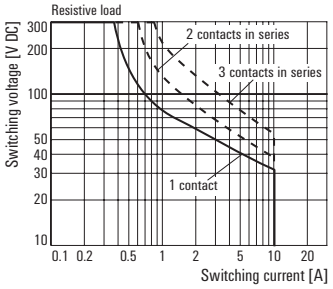
The list below provides an overview of the most important performance coatings and contact materials. The load capacity of the contacts and their life span can vary depending on the contact material and construction used. It is important to achieve the best combination of relay function and contact material. The specifications for individual relay types are only partially valid for other variants.

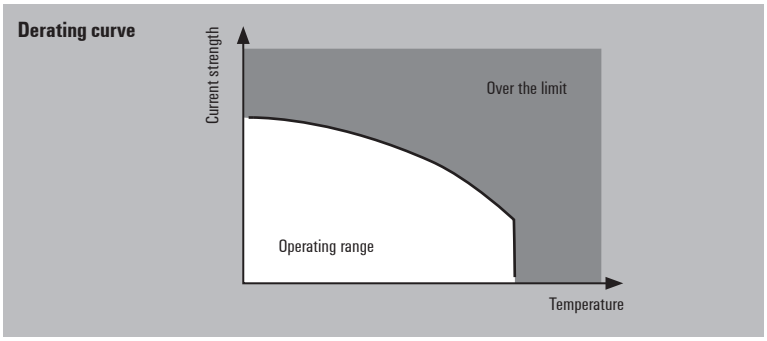
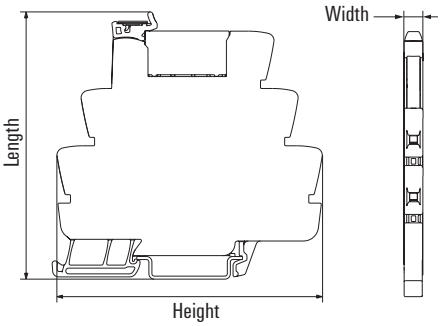
1) Performance coatings:
   Pure gold – the best corrosion resistance but too soft when used as solid metal; high tendency toward cold welding in layer thickness > 1 µm (gold-flashed); only functions as a gold gilding and does not protect against corrosive gases.
2) Contact material:
   Hard gold (hard gold-plated) - Very good corrosion resistance for dry loads; measuring and switching circuits; control inputs (1 mV – 10 V, 0.1 mA – 100 mA); low and constant contact resistance with the smallest switching power; low cold-welding tendency and low current/voltage switching; recommended operating range > 1 V, 1 mA, 50 mW. After switching higher loads (>10 V, 100 mA), small loads can no longer be switched.
   Silver Nickel AgNi90/10 - High resistance to burn-off; minimal tendency towards cold welding; higher contact resistance than AgNi0,15; circuits with medium to high loads; DC and AC circuits (solenoid valves, fans, heaters); not suitable for high capacitive in-rush currents; range of use > 12 V, 10 mA.
   Fine-grain silver AgNi0,15 - Relatively low contact resistance; low resistance to corrosive gases; all-purpose use for average loads and low loads; preferably in DC circuits (solenoid valves, fans, heaters); not suitable for hight currents; range of use > 12 V, 10 mA.
   Silver-tin-oxide AgSnO2 - Minimal tendency to weld; high resistance to burn-off at high switching capacity; low material migration; circuits with high input and output loads; DC and AC circuits (lamp loads, capacitive loads, fluorescent tubes, switching power supplies, etc.). Well suited for resistive, inductive and capacitive DC applications due to low occurrence of material migration, range of use > 12 V, 100 mA..
   Silver-cadmium oxide AgCdO – minimal tendency to weld; high resistance to burn-off; especially suitable for switching inductive loads; AC circuits, range of use > 12 V, 100 mA.
   Tungsten W – highest melting point; for high switching frequency at minimal duty cycle; as a lead contact in circuits with high in-rush and switch-off loads.



Continuous current limit	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 Ith. 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 61810-1 Appendix B.
Continuous current	The current that can be continuously conducted without exceeding the contact-overheating values under defined conditions.
Continuous operation	Operating mode in which a relay remains energised until it reaches thermal equilibrium.

D

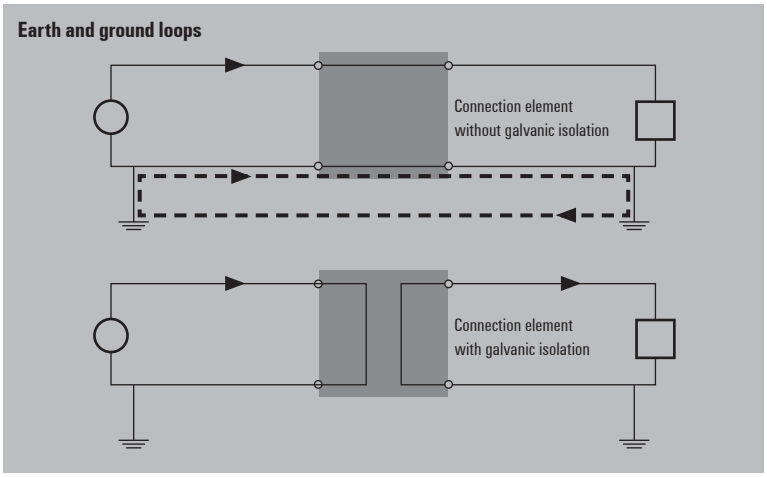
DC	Refers to the electrical variables such as voltage or current (DC, DC voltage) that are not dependent on time.
DC switch-off capacity, Direct-current switch-off capacity	Values below the DC switch-off capacity curve (for max. permitted switching voltage/current at resistive load) can be switched on 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! **DC load breaking capacity** Resistive load 

Derating / derating curve	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 the relationship between the prevailing temperature and the resulting maximum amperage with regards to the temperature limit. 
Dielectric strength, test voltage	Voltage (RMS value for AC voltage, 50 Hz, 1 min) which can be applied between mutually insulated relay components during the voltage test.
Dimensions	Dimensions in millimetres. 
DIN rail	Unless otherwise noted, Weidmüller's products are built and tested for mounting on DIN rail (rails according to TH35-7.5 / EN60175). Other installations (e.g. TH35-15)may function but have not been tested or approved.
Duty cycle, relative duty cycle	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.

E

Earth and ground loops

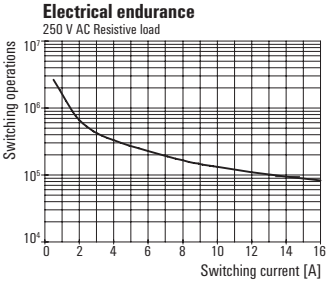
Denotes the connection of two potentials via their earth or ground connection. A potential difference between the earth or ground connection of two devices (for example, a sensor and controller) that are directly wired to one another causes current flow via the earth of the shared housing. These interference 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.



Electrical lifespan, lifespan of contact	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: • On NO contact, • AC mains frequency of 50 Hz, • 50 % relative duty cycle, • Nominal switching frequency, • Contact load, schedule A, • Resistive load, • Rated voltage (coil), • Ambient temperature 23 °C, • Protection degree RTII - flux-proof • Individual assembly • Vertically installed (the connections of a PCB relay point downwards). 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.
Error, relay failure	According to IEC 61810, a relay failure is defined as the occurrence of malfunctions that exceed a certain number: • Malfunction On contact closing • Malfunction on contact opening (contact bridging for CO contact, as special type of malfunction during contact opening) or as • Insufficient dielectric strength. 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.

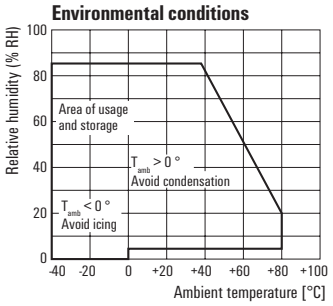
F

Flammability according to UL	Indicates the flammability class according to the specification from UL 94 (Underwriters Laboratories, Inc., USA). Flammability tests according to UL 94: for testing plastic materials and classifying the propagation/extinction characteristics when the material burns. The UL 94 flammability classes which are relevant to relays are V-0, V-1, V-2 and HB.

G

Galvanic isolation	Potential-free isolation between electrical components. Electrical (or galvanic) isolation means that no charge can flow from one circuit to another. There is no conductive electrical connection between the circuits. The circuits can nevertheless exchange electrical power or signals via magnetic fields, infrared radiation or by charge displacements.

H

Humidity / condensation	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. 

I

Impulse withstand voltage	The highest withstand voltage of a specified shape and polarity that does not lead to an insulation breakthrough or flash-over, under the specific conditions.
Inductive loads	Refer to usage categories.
Inrush current	Specified as the switching current by resistive loads that can turn on a relay under defined conditions. The data refers to the NO contact, nominal voltage, and a current value for a duration of max. 20 ms for at least 100 switching cycles, or 4 seconds with a relative duty cycle of 10 %, unless otherwise indicated.

Insulating material group	According to their CTI (comparative tracking index) values, the insulating materials are categorised in one of the following four groups: Group I 600 CTI Group II 400 CTI < 600 Group IIIa 175 CTI < 400 Group IIIb 100 CTI < 175 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.
Insulation according to EN 50178	Specifications for insulation coordination with: • Type of insulation • Nominal voltage of the supply system • Pollution severity level • Impulse withstand voltage • Surge voltage category

M

Max. switching current	The max. switching current indicates the maximum level of current that can be switched.
Max. switching frequency at rated load	The number of switching operations that occur in a specific unit of time. The maximum switching frequency for average loads may be higher than the value specified for the nominal load when the switching characteristics of the load (such as arcing) do not cause the contact temperature to increase. The maximum switching frequency for no-load switching can also be used for loads where no arcing will take place (purely resistive loads cause no significant arcs up to 12 V or 50 mA at 12 – 250 V, because the arc breaks off fairly quickly through the contact opening (insulation)).
Max. switching power	The switching capacity is calculated as the product of the switching voltage and the switching power (in VA for AC; in W for DC).
Mechanical service life	Number of switching cycles for de-energised relay contacts, where a relay must remain functional within specific conditions.
Micro-switch-off	Reasonable contact opening in at least one contact that ensures functional safety. Note: The contact opening has a requirement for the dielectric strength but not for the dimensions.
Minimum switching capacity	Calculated product of switching current and switching voltage – a measure of reliable switching. Low contact resistance values are realised only above a certain load. Greatly increased resistances may occur at lower switching loads which can prevent the load circuit from being safely switched. The minimum contact loads for different contact materials should also be taken into account.
Mono-stable relay, switching behaviour	A relay is referred to as mono-stable when its contacts return to the idle state automatically after the energising parameter (the input voltage) is switched off.
Mono-stable, non-polarized relay, neutral relay	The switch position change in a neutral, mono-stable relay does not depend on the polarity of its excitation.

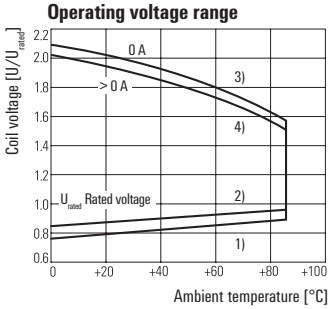
Mounting distance	Distance between two adjacent components when using parallel, uni-directional positioning; or the distance to other electrical components. Because of the insulation requirements, you may need to increase the minimum gap between the components or select a different positioning. These values refer to components in “single-file arrangement“, unless otherwise indicated. Also relevant for this definition: • Density of assembly: assembled with minimum mounting clearances; this minimum distance is determined by the insulation requirements at 230 V AC and/or mechanical requirements for the installation(e.g. use of sockets), • Individual installation: components are mounted with gaps so that there is NO thermal influences from adjacent components.
Mounting position	Mechanical and electronic relays can usually be installed in any position when there are no qualifying limitations. To ensure the proper current flow and heat dissipation, the connections must be properly contacted and the cross-sections must be adequate. Several factors must be taken into consideration when positioning: including the insulation requirements, heat dissipation and the possible mutual magnetic influence.

N

Nominal current (contact)	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: • Contact current, switching current • Continuous current limit 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.
Nominal switching voltage (contact)	Voltage between the switching contacts - before the contact closes or after it opens.
Nominal torque	The specified value for the torque of the screws (screw connection) must not be exceeded.
Number of contacts	Number of working contacts in a relay (normally-open, normally-closed or change-over)

O

Operating temperature	Permissible ambient temperature – relative to a specific relative humidity – at which a product should be operated at nominal load.

Operational voltage range	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. Curve 1: response time/minimum voltage U0 (without pre-excitation) Curve 2: response time/minimum voltage U1 (after pre-excitation) Curve 3: maximum voltage U2, contact current = 0 A Curve 4: maximum voltage at contact current I_{nom} 

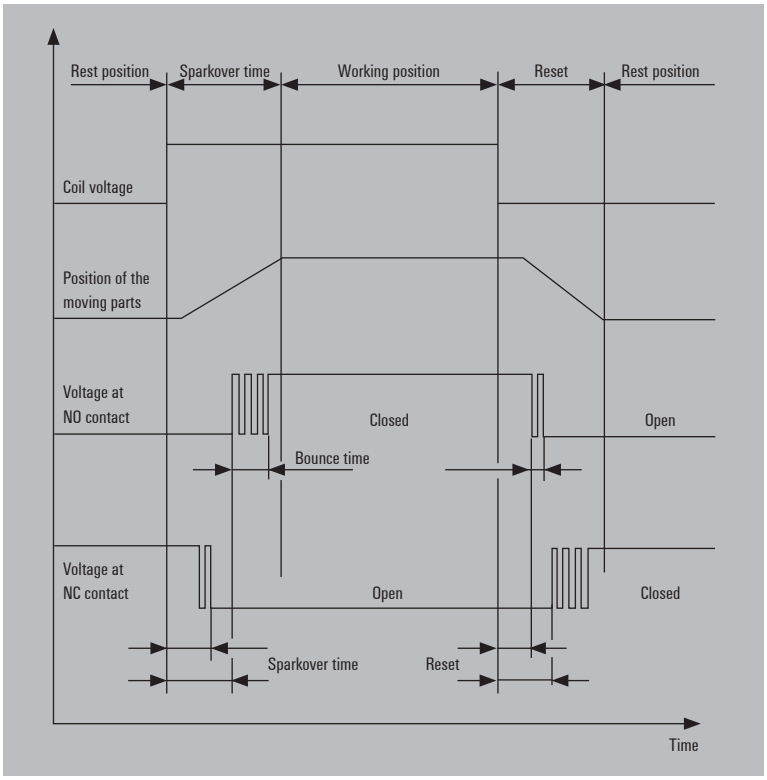
P

Packing unit	Indicates the smallest amount (a pack, for example) or the quantity per carton.
Plug-in cycles	Sockets and accessories are designed for 10 insertion cycles without electrical load – unless otherwise specified.
Pollution severity level	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. Pollution degree 1: • there is no contamination or only dry occurrences of non-conductive pollution. The pollution has no influence. Pollution degree 2: • there is only non-conductive pollution. Temporary occurrences of conductivity caused by condensation may also occur. Pollution degree 3: • conductive pollution or dry, non-conductive pollution that can become conductive due to condensation is likely to occur. Pollution degree 4: • the contamination leads to continual conductivity which can be caused by contaminants such as conductive dust, rain or snow. Note: Pollution degree 3 is typical for industrial environments and similar settings; pollution degree 2 is typical for households or similar.

Positively-driven contacts	Arrangement of contacts in accordance with EN 50205, with at least one NO and one NC contact; mechanically constructed so that the NO and NC contacts of the entire contact system can never (even in the event of a malfunction) be closed at the same time. Such relays are used in safety engineering controls in order to prevent injury and property damage.
Power rating	The nominal value of the power that is converted when the nominal control voltage is applied.
Protection degree - (IEC 60529), IP	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. For the purposes of "component" relays(such as PCB relays), refer to the RT protection degree. 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). 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. 0: no protection 1: protection for large body parts with a diameter > 50 mm 2: finger protection (diameter 12 mm) 3: tools and wires (diameter > 2.5 mm) 4: tools and wires (diameter > 1 mm) 5: full protection against touch contact 6: full protection against touch contact Degree of water protection (the second digit) The second digit indicates the degree of protection provided against the ingress of water into the housing: 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
Pull-in / drop-out current, AC/DC coil	Value of the coil current at which a relay responds (spark-over) or drops out.

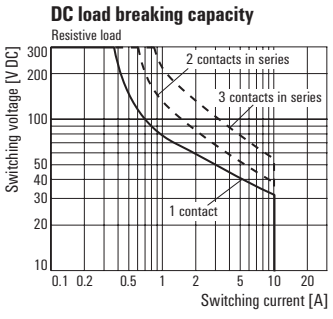
R

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

Relay times (time response)	Because of the self-inductance of the coil and the inertia of the moving parts, the steps involved in operating a relay do not occur instantaneously. The following chart illustrates several time-function terms for the main contact variants of non-delayed switching relays. These specified times are valid when the rated voltage is used for excitation, without other components in series or in parallel to the coil, and at the reference temperature. • Sparkover time • Drop-out/reset time • Bounce time • Min. excitation period 
Relays and sockets	The relays in this catalogue have been designed, specified and tested in accordance with the relay standard IEC 61810-1 “Electro-mechanical elementary relays - part 1: General considerations and safety-related requirements”. Where the appropriate approvals have been specified in the data sheet, the relays and sockets have been tested according to IEC 61810 or EN 61984 and UL 508.
Reliability	Electro-mechanical components such as relays are subject to wear (both mechanical and electrical). A typical “bathtub curve” depicts the reliability. This means that there may be isolated statistical exceptions which are below the typical levels of reliability.
Reset	Process in which a mono-stable relay resets from the working position to the rest position.

Reset time	Time interval (average) between when a mono-stable relay is in its working state with the coil voltage switched off and the time at which the final output circuit is closed or opened (not including the bounce time). These specified times are valid when the rated voltage is used for excitation, without other components in series or in parallel to the coil, and at the reference temperature.
Reset voltage	Value of the input voltage at which a mono-stable relay reliably returns to the rest position while at the reference temperature.
Response	The process in which the relay transitions from the normally-closed (break) contact position into the normally-open (make) contact position.
Response voltage / drop-out voltage AC/DC coil	Value of the coil voltage at which a relay responds (spark-over) or drops out.
Rest position	The switched position of a mono-stable relay in its unexcited state.
RoHS Directive 2002/95/EC	RoHS stands for “Restriction of (the use of certain) Hazardous Substances”. According to the EU Directive 2002/95/EC from 01.07.2006, all EU member nations must forbid the use of hazardous substances which damage human health and the environment (including mercury (Hg), cadmium (Cd), lead (Pb), hexavalent chrome (Cr6), polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)) in new electrical and electronic devices. The term “compliant” means that the entire product group meets the requirements of the RoHS Directive. The maximum weight percentage in homogeneous materials is below the limits specified in the directive: 0.1 % for lead, hexavalent chrome, mercury, PBB and PBDE; and below 0.01 % for cadmium, or qualifies for an exemption in accordance with the annex to the RoHS Directive .

S

Self-heating	The heating up of an operational component based on the power loss from the relay coil and the switching contacts.
Series-circuit relay contacts	When two or more NO contacts in a relay are connected in series, the contact opening is increased while switching off. Arcs which occur from DC loads are cleared more quickly which results in reduced burn-off on the contact. This increases the electrical lifespan and the breaking (switch-off) capacity. 

SIL	Safety Integrity Level. The components must meet the requirements of IEC 61508 is order to reduce risk. This standard provides general requirements for avoiding and minimising device and equipment outages. It stipulates organisation and technical requirements concerning device design and operation. Four safety levels are defined (from SIL1 for minimal risk to SIL4 for very high risk) for classifying facilities and risk-reduction measures. Measures taken to reduce risk must be more reliable when the classified risk level is higher.
Standardised labelling of connections	A1, A2: coil 13, 14: NO contact (contact closes when applying a voltage to the coil) 11, 12: NC contact 11, 12, 14: CO contact (11 is the common contact, i.e. the root)
Status indicator	The status LED display on the input control circuit can differ from the state of the contact circuit in the following cases: • when there are welded-together or broken switching elements, • when there is interference or residual voltages On the signal lines. A reduction in light intensity may result when the ambient temperatures are greater than 50 °C.
Storage temperature	The permitted ambient temperature, related to a specific relative humidity level, for which the product should be stored while in a current-free state.
Surge voltage category	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. Overvoltage category I • Devices that are intended to be connected to the permanent electrical building installation. 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. Overvoltage category II • Devices that are intended to be connected to the permanent electrical building installation (such as a household appliances or portable tools). Overvoltage category III • 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). Overvoltage category IV • Devices that are intended to be used on or near the power feed in a building's electrical installation – ranging from the main distribution to the mains power system. This includes electrical meters, surge protection switches and ripple control equipment.

Switch-off delay	Usual time interval from switching off the coil voltage of a switched relay until the first opening or closing of the last output circuit (not including the bounce time).
Switch-on delay	Usual time interval from switching on the coil voltage of an idle relay until the first opening or closing of the last output circuit (not including the bounce time). Coil voltage: pulse or square wave excitation, with rated voltage at the reference temperature of 20 °C.
Switching capacity	The calculated product of the switching current and switching voltage (in W for DC, in VA for AC).
Switching current	Current strength required to switch a relay on or off.
Switching cycle	A single occurrence of the sparkover and subsequent reset.
Switching voltage	The voltage between the switch contacts (contact elements) that is applied prior to the closing or after the opening of the contact (DC for DC voltage; AC for AC voltage).
Switching voltage, max.	The maximum allowable voltage between the contact elements prior to closing and after opening a relay contact.

T

Test button, manual operation	For operating the relay manually: the test button is used only for test purposes during the initial commissioning and testing of equipment. The test button is not appropriate for normal on/off switching and has not been designed for continuous electrical load while in the mechanical ON position. The button should also not be used as a switch. Before pressing the test button, make sure there is no danger posed by loads or other connected devices. Only trained personnel should operate the test button. This prevents the facility's safety mechanisms from being circumvented and the insulation requirements from being compromised.
Transients	Transients are short-term current or voltage spikes caused by interferences in the mains supply grid or by electromagnetic radiation. On the control side of the optocoupler these can trigger unintended switching operations or, in extreme cases, cause the destruction of the component. In an AC-driven load circuit, transients can lead to the maximum permissible forward voltage being exceeded, which in turn can activate the thyristor or Triac. As these operate at quite high switching speeds, even very short pulses can suffice to falsely trigger a switching operation.
Type code	The ordering scheme gives you the choice of many variations, but not all possible variations in the current product line are established as standard types (building codes, ordering designations). Special versions are available on request to meet customer specifications.

Type of contact	DIN 41020 describes various switching functions of the relay contacts and the specific contact configurations, constructions and descriptions based on these functions. • NO (normally open) contact: contact which is closed in the relay's operating position and open in its rest position. • NC (normally closed) contact: contact which is closed in the relay's rest position and open in its working position. • CO (change-over) contact: a CO consists of an NO and an NC contact with a common terminal (root) connection. When changing the switch position, first the previously closed contact opens and then the previously opened contact closes. Note: A temporary electrical connection may be established between the NC and NO contacts due to the switch-off arc.
Type of insulation	Quality of the insulation system, depending on the design and application conditions: • Functional insulation: insulation between live components – necessary so the relay functions properly. • Basic insulation: insulation of live parts to provide basic protection against electrical shock. • Doubled insulation: consisting of a base insulation and additional insulation. • Reinforced insulation: a single "enhanced" insulation of active components, which ensures the same protection against electric shock as doubled insulation. The doubled insulation is composed of a base insulation and an additional insulation; the extra insulation protects against electric shock if the basic insulation fails.

U

Usage category according to EN 60947 (mechanical relays)	AC1: non-inductive or slightly inductive load, such as heating elements AC14: small electro-magnetic loads (< 72 VA), such as mini-contactors AC15: small electro-magnetic loads (< 72 VA), such as power contactors DC1: non-inductive or slightly inductive load, such as heating elements DC13: electro-magnetic loads, such as solenoid valves

W

Wash resistant	Wash-resistant relays can withstand a washing process. During the wash process, none of the cleaning agent should be able to penetrate inside the relay.
Withstand test voltage	The voltage applied to a device under specific test conditions which causes no breakthrough or flash-over of the test piece.

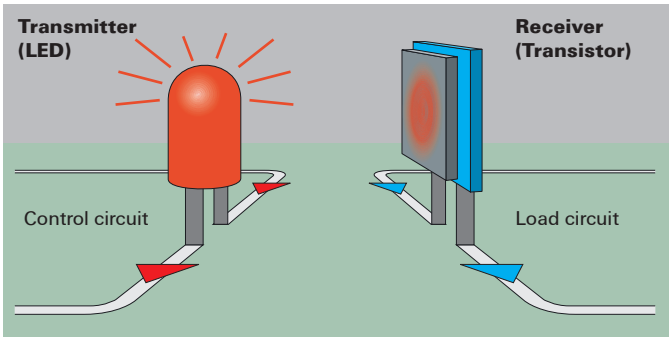
Definition / mode of operation

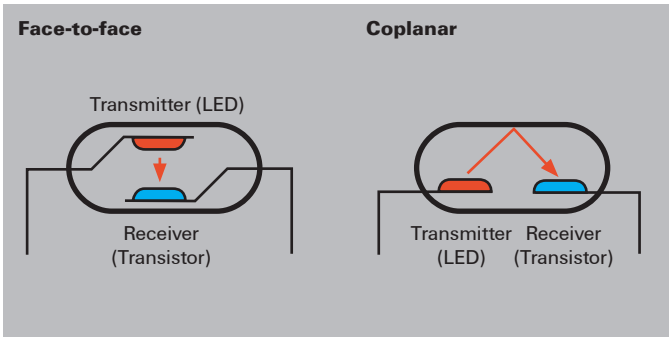
Opto modules – mode of operation

Opto modules are electronic components for switching load circuits by means of a control circuit. On the one hand this allows applications with different performance ratings to be operated by relatively low switching currents. And on the other *electrical isolation*)* between control and load circuits is provided to assure protection of components should a malfunction occur.

In contrast to electromechanical relay modules opto modules do not have any mechanical parts that are prone to wear. To enable the switching operation a light signal is triggered via an LED in the control circuit that causes a light-sensitive semiconductor receiver to complete a connected load circuit. Transmitter (LED) and receiver (for example a phototransistor) are embedded in a light conducting plastic material and encased in a light-proof casing that protects against outside influences.

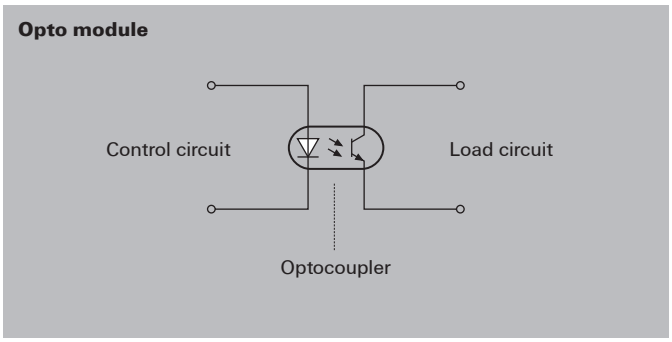
Two design types are differentiated:
Face-to-face design with LED and transistor mounted across from each other with direct light contact
Coplanar design with LED and transistor on the same level. In this case the beam of light is transferred by reflection according to the principle of fibre-optics.





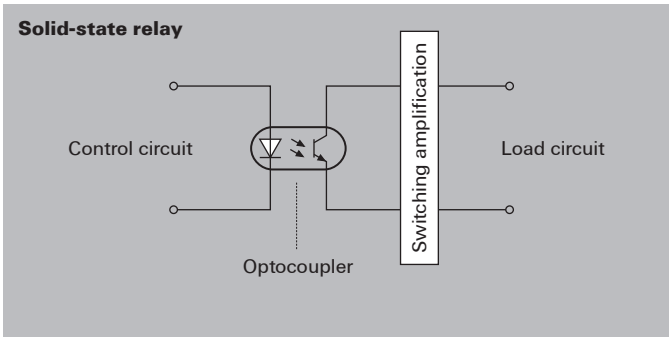
Opto module

The voltage, which can be applied to the opto output itself, is restricted by the sensitivity of the semiconductor receiver (phototransistor). In applications in which only low currents or voltages are required in the load circuit it is possible to use the component without an additional auxiliary circuit in an opto module.



Solid-State Relay

In order to switch higher currents it is necessary to make adaptations to accommodate the different performance levels of the phototransistor and the load circuit (switching amplification).
Modules other than optos equipped with a switching amplifier are called **solid-state relays** (SSR).



** Refer to page W.36 in the Glossary for a detailed explanation of this term.*

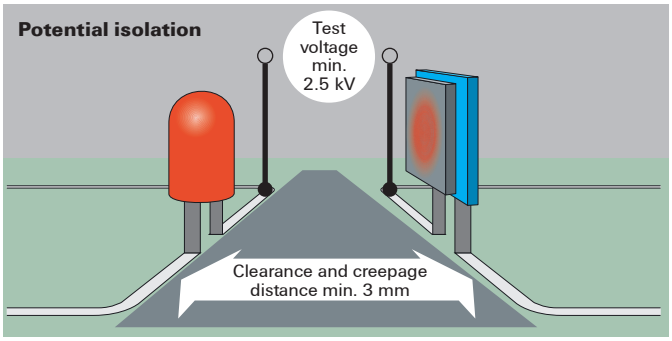
Basic functions

Opto modules and solid-state relays are generally used in the following fields of applications:

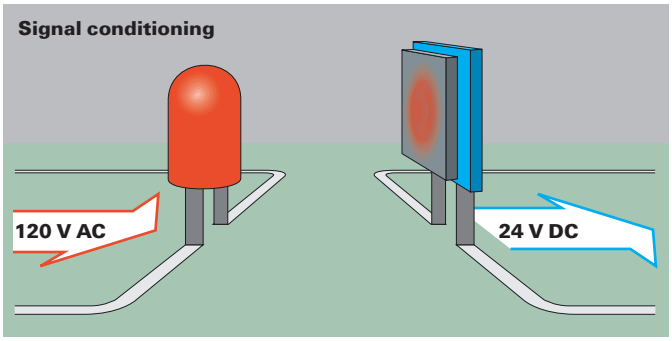
Potential isolation
Many applications require that the control circuit is electrically isolated from the load circuit. This primarily protects the control level from interference from the field, such as:

- Interference currents e.g. from *earth and ground loops*)*
- Interference pulses e.g. from inductive effects of *transients*)*

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



Signal conditioning
The separation of the load and control circuits, in conjunction with the variety of options this offers to configure both circuits separately, means that opto modules are often used for signal conditioning purposes.
This allows the different electrical potentials of signals from the control and load circuits (for example sensors and control) to be equalised.



Switching amplification
Applications with current and voltage values that exceed the capacity of the phototransistor require an auxiliary circuit on the output side of the opto module for switching amplification purposes. During the switching operation the opto module LED activates a base current in the phototransistor. This activates a second semiconductor (transistor, thyristor) selected to meet application requirements which then becomes conductive for the load current.

** Refer to page W.36 in the Glossary for a detailed explanation of this term.*

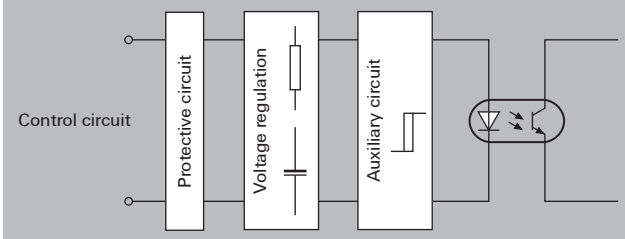
Control circuit

The input circuits (control circuit)

Most industrial applications cannot be connected directly to an opto module, generally requiring voltage regulation by means of series-connected resistances or capacitors.
To obtain exact-as-possible switching points a *Schmitt Trigger*)* can be used to assign the control signals an unambiguous status (0 - 1) when moving from high to low or low to high, which is then passed on to the opto module.

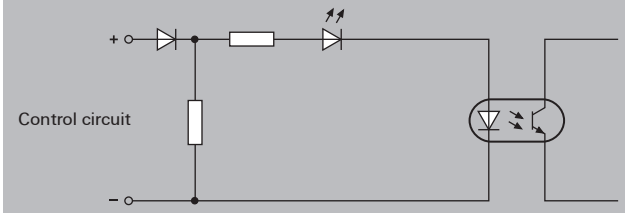
Depending on the design, all Weidmüller opto modules and solid-state relays are equipped with suitable protective devices (varistors, diodes) and filters to protect against interference pulses from the control circuit.

Input configuration



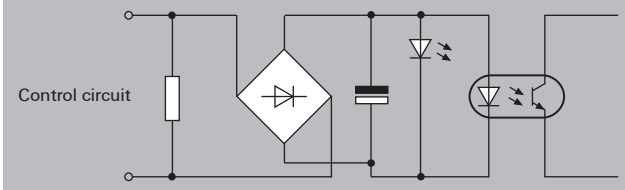
DC input:
An additional reverse-polarity protection diode guarantees protection against the opto module being destroyed if the control voltage is incorrectly wired. The switching status of the control circuit is signalised by a status indicator.

DC input



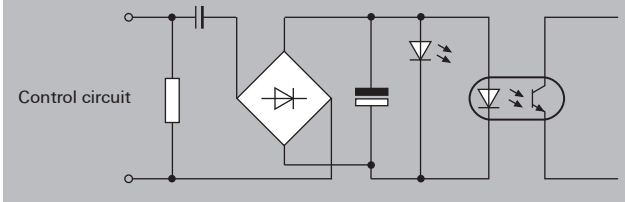
AC/DC input:
A rectifier with smoothing capacitor is connected in series for AC control voltages. Reverse polarity protection for DC current is not necessary. The following construction corresponds to a DC circuit.
Due to the smoothing capacitor the switching frequency of AC control signals is fundamentally 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/DC input



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.

AC input



** 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.

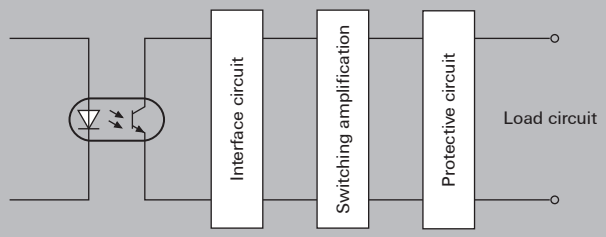
It is possible to connect AC or DC loads subject to the output circuit having corresponding amplifier semiconductors.

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.

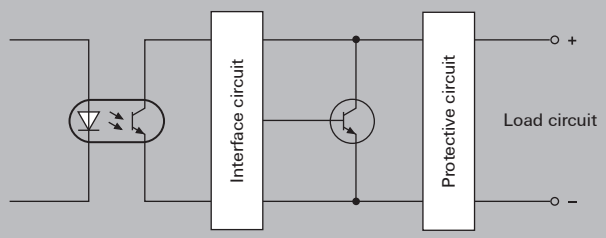
With a 3-pole DC connection an auxiliary voltage assists the output circuit to control the amplifying transistor more precisely. Several applications also require this auxiliary voltage for short-circuit protection in the interface or protective circuitry.

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).

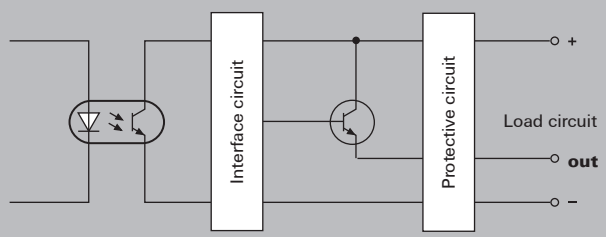
Output circuit



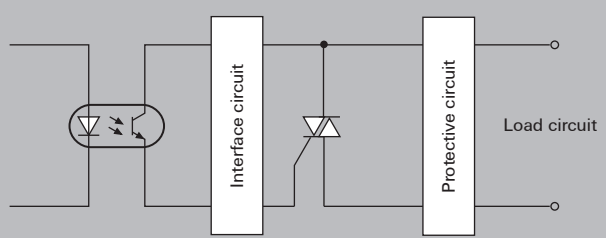
2-wire DC output



3-wire DC output



AC output

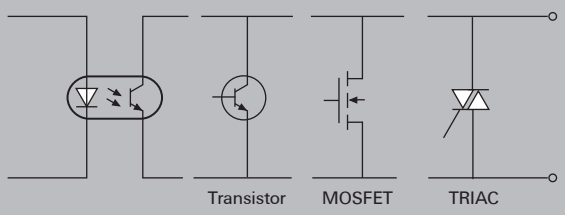


** Refer to page W.36 in the Glossary for a detailed explanation of this term.*

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.

Switching amplification



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 µA) with low power loss.

Triac (AC)
A Triac combines the functional principle of antiparallel connected thyristors in a single component.
The mode of function of a thyristor is comparable with that of a one-way diode. Therefore, an opposing parallel circuit configuration consisting of two thyristors is used for AC currents.

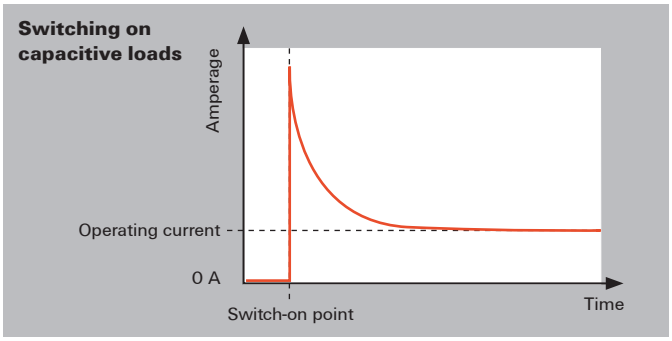
Switching diverse loads

The different types of loads resulting from the possible applications (resistive, inductive, capacitive loads) represent a particular challenge for the load circuit arrangements of opto modules and solid-state relays. With reference to the planned application, one should always be aware of what effects the loads will have on the modules and how the corresponding protective devices have to be designed.

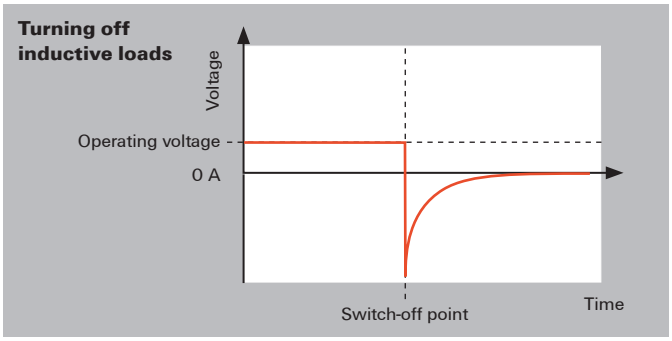
Generally speaking, it must be ensured that the power loss at the amplifier semiconductor does not exceed the permitted limit for any length of time. This would lead to overheating and finally to the destruction of the component.

Switching resistive loads
Due to the fact that in resistive loads the amperage in the load circuit and the voltage across the amplifier semiconductor are inversely proportional to one another these do not generally pose a problem. It is sufficient to adhere to the maximum current and voltage ratings of the modules.
Switching glow lamps represents a special case. It is possible that when being switched on that overcurrents 10 to 20 times the operating current can occur due to the low cold resistance.
Therefore, the components must be designed to cope with these possible overloads situations which correspond to the effect of capacitive loads.

Switching capacitive loads
Capacitive loads occur if there is a capacitor in the load circuit. The effect is similar to 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.



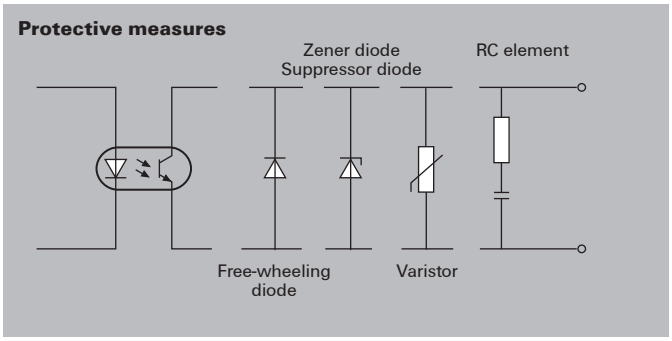
Switching inductive loads
Problems can arise with inductive loads when they are being switched off, in particular when coils are used in the load circuit. The flow of current in the coil builds up a magnetic field that suddenly collapses and creates a high induction voltage.
This voltage spike has to be short-circuited via a diode connected in parallel (free-wheeling diode). However, the time required leads to delayed release.



W

Protective measures

The construction of the opto module enables fast and sensitive switching, however, the component is also more prone to interference. For this reason, all Weidmüller opto modules and solid-state relays are equipped with a variety of measures to protect against overloading and interference pulses.



Free-wheeling diodes (DC)
Free-wheeling diodes are used primarily to protect against overvoltages, which occur through self-induction when switching off inductive DC loads (electric motors, relay coils). Voltage spikes are limited to the equivalent value of the diode forward voltage and excess voltage is discharged via the diode. However, this leads to a delay in the voltage drop and as such also delays the switching operation.

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

Varistor (AC/DC)
The functional principle of the varistor is also based on a breakdown voltage, but with faster reaction times. This allows higher levels of energy to be shunted, however, these lead to the component aging. This in turn reduces the breakdown voltage over time and increases the leakage current.

RC-element (AC)
The RC element compensates voltage spikes by means of a capacitor. Due to the charging and discharging characteristics interference pulses are filtered out when the voltage is rising and not first when overload is reached.
For this reason, RC elements are used to protect against interference pulses and exclude faulty switching operations.

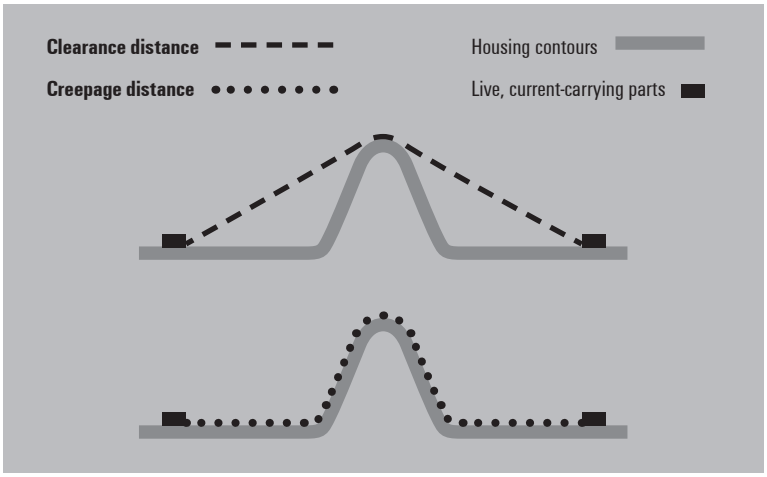
Glossary: Solid-state relays

A

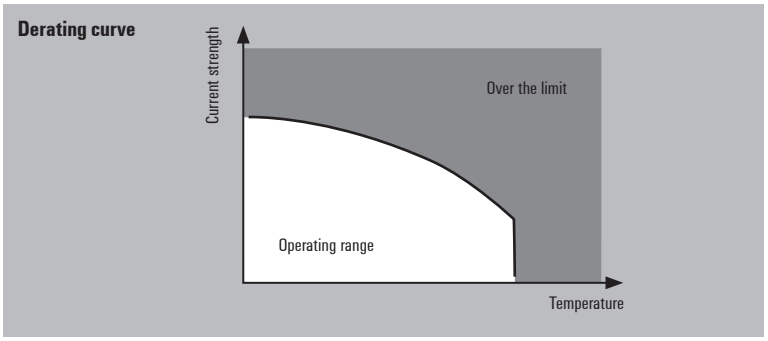
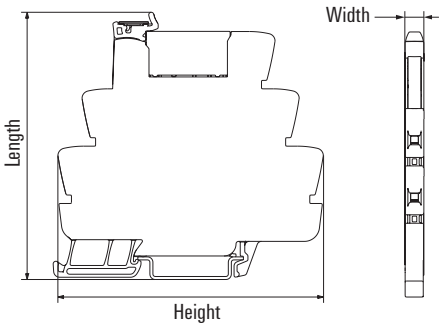
AC	Refers both to alternating values (such as voltage or current) as well as to those devices and variables which reference these devices. Specifications are valid for 50 Hz, unless otherwise indicated.
Approvals and testing marks	Testing approvals are independent confirmation from governmental or private 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. 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)

C

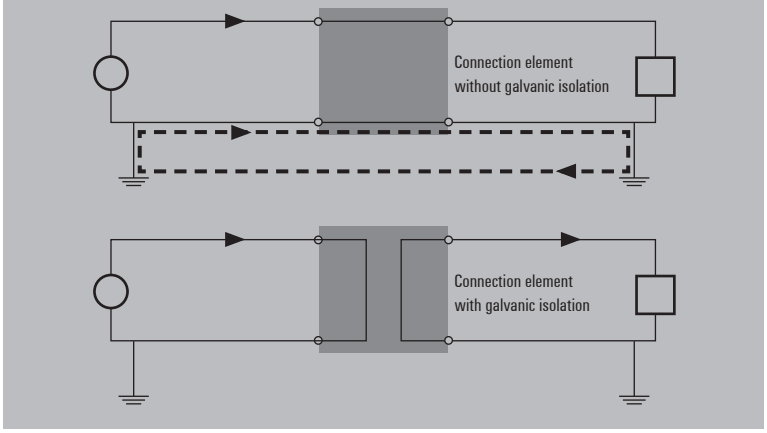
CE	Abbreviation for Communauté Européenne (the European Community). The CE marking is a way for the manufacturer to confirm that their product complies with the relevant EC directives and the “essential requirements” contained therein. The EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC are currently binding.

Clearance and creepage distances	Clearance and creepage distances are critical factors which influence the insulation capability of electrical components. The creepage distance denotes the minimum clearance that two live parts along a surface must have in order to prohibit a flow of current across the insulating material at the specified operating voltage. In addition to the operating voltage, the choice of insulating material (material group) and the protective measures to counteract pollution (pollution severity) affect the creepage distance. The clearance distance denotes the minimum direct clearance (through the air) that two live parts must have to one another in order to prohibit a charge passing through the air (an arc). The expected surge voltage (rated impulse voltage) forms the basis for calculating the distances. The surge protection category and pollution severity are further factors that influence dimensional design considerations. 
Continuous current	The current can be continuously conducted without exceeding the overheating values under defined conditions.
Cut-in (switch-on) voltage	The voltage level at which an opto module or solid-state relay is conductive.

D

DC	Refers to the electrical variables such as voltage or current (DC, DC voltage) that are not dependent on time.
Derating / derating curve	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. 
Dimensions	Dimensions in millimetres. 
DIN rail	Unless otherwise noted, Weidmüller's products are built and tested for mounting on DIN rail (rails according to TH35-7.5 / EN60175). Other installations (e.g. TH35-15)may function but have not been tested or approved.
Dropout voltage	The voltage level at which an opto module or solid-state relay blocks itself.

E

Earth and ground loops	Denote the connection of two potentials via their earth or ground connection. A potential difference between the earth or ground connection of two devices (for example, a sensor and controller) that are directly wired to one another causes current flow via the earth of the shared housing. These interference currents can lead to different problems, for example in the acquisition of measurement signals or when controlling actuators. When transmitting switching signals or measurement signals using a device with electrical isolation between the control and load circuits, it is important that a closed circuit via the earth or ground connection can never occur – so that no interference currents are generated. **Earth and ground loops** 

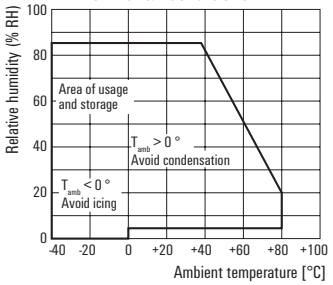
F

Flammability according to UL	Indicates the flammability class according to the specification from UL 94 (Underwriters Laboratories, Inc., USA). Flammability tests according to UL 94: for testing plastic materials and classifying the propagation/extinction characteristics when the material burns. The UL 94 flammability classes which are relevant to the relay are V-0, V-1, V-2 and HB.

G

Galvanic isolation	Potential-free isolation between electrical components. Electrical (or galvanic) isolation means that no charge can flow from one circuit to another. There is no conductive electrical connection between the circuits. The circuits can nevertheless exchange electrical power or signals via magnetic fields, infrared radiation or by charge displacements.

H

Humidity / condensation	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 takes steps to avoid temperature changes which could cause icing or condensation. Operating and storage should be within the limits specified in the graphic. **Environmental conditions** 

I

Impulse withstand voltage	The highest withstand voltage of a specified shape and polarity that does not lead to an insulation breakthrough or flash-over, under the specific conditions.
Inductive loads	Refer to load category
Input frequency	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.
Insulating material group	According to their CTI (comparative tracking index) values, the insulating materials are categorised into one of the following four groups: Group I 600 CTI Group II 400 CTI < 600 Group IIIa 175 CTI < 400 Group IIIb 100 CTI < 175 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.
Insulation according to EN 50178	Specifications for insulation coordination with: • Type of insulation • Nominal voltage of the supply system • Pollution severity level • Impulse withstand voltage • Surge voltage category

L

Leakage current	The current on the load side of an opto module or solid-state relay that flows towards the output stage while in a blocked state.
Load category (solid-state relay)	Classification of the load of a solid state relay, in accordance with EN 62314 LC A – resistive loads or minimally inductive loads LC B – motor loads LC C – electrical discharge lamps LC D – incandescent filament lamps LC E – transformers LC F – capacitive loads

M

Max. switching current	The max. switching current indicates the maximum level of current that can be switched.
Max. switching power	The switching capacity is calculated as the product of switching voltage and switching current (in VA for AC / in W for DC).
Mounting distance	Distance between two adjacent components in parallel, uni-directional positioning; or the proximity to other electrical components. Because of the insulation requirements, you may need to increase the minimum distance between the components or select a different positioning. These values refer to components in “single-file arrangement”, unless otherwise indicated. Also relevant for this definition: • density of assembly: assembled with minimum mounting clearances; this minimum distance is determined by the insulation requirements at 230 V AC and/or mechanical requirements for the installation(e.g. use of sockets), • individual installation: components are mounted with gaps so that there are no thermal influences from adjacent components.
Mounting position	Mechanical and electronic relays can usually be installed in any position when there are no qualifying limitations. To ensure the proper current flow and heat dissipation, the connections must be properly contacted and the cross-sections must be adequate. Several factors must be taken into consideration when positioning: including the insulation requirements, heat dissipation and the possible mutual magnetic influence.

N

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

O

Operating temperature	Permissible ambient temperature – relative to a specific relative humidity – at which a product should be operated at nominal load.

P

Packing unit	Indicates the smallest amount (a pack, for example) or the quantity per carton.
Plug-in cycles	Sockets and accessories are designed for 10 insertion cycles without electrical load – unless otherwise specified.
Pollution severity level	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. Pollution degree 1: • there is no contamination or only dry occurrences of non-conductive pollution. The pollution has no influence. Pollution degree 2: • there is only non-conductive pollution. Temporary occurrences of conductivity caused by condensation may also occur. Pollution degree 3: • conductive pollution or dry, non-conductive pollution that can become conductive due to condensation is likely to occur. Pollution degree 4: • the contamination leads to continual conductivity which can be caused by contaminants such as conductive dust, rain or snow. Note: Pollution degree 3 is typical for industrial environments and similar settings; pollution degree 2 is typical for households or similar.
Power rating	The nominal value of the power that is converted when the nominal control voltage is applied.

Protection degree - (IEC 60529), IP	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. For the purposes of "component" relays (such as PCB relays), refer to the RT protection degree. 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). 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. 0: no protection 1: protection for large body parts with a diameter > 50 mm 2: finger protection (diameter 12 mm) 3: tools and wires (diameter > 2.5 mm) 4: tools and wires (diameter > 1 mm) 5: full protection against touch contact 6: full protection against touch contact Degree of water protection (the second digit) The second digit indicates the degree of protection provided against the ingress of water into the housing: 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

R

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

Schmitt trigger	Strictly speaking, switching voltages for digital control follow an analogue pattern (no changeover from 0 to 1 between maximum and minimum voltages). This can lead to inaccuracies in switching results, above all when signals are being transmitted rapidly. In this case, the Schmitt trigger functions as a threshold switch. If the threshold voltage set in the Schmitt Trigger is exceeded, the output assumes the maximum possible output voltage (logic 1). Otherwise it is the minimum possible output voltage (logic 0). The Schmitt trigger is normally designed with a hysteresis. The threshold voltage set for activating is higher than that for deactivating. That prevents small irregularities from triggering a switching operation.
Self-heating	The heating up of an operational component based on the power loss from the relay coil and the switching contacts. For semiconductors (such as a transistor output), the increase in heat is caused by power loss.
Short-circuit-proof	Shuts off the output stage of a solid-state relay when there is a short circuit, in order to prevent the output circuit from being damaged.
Solid-state relay	Semiconductor relay that uses an electronic component as the switching mechanism, such as a transistor, thyristor or Triac. Semiconductor relays function with no wearing parts and have a high switching frequency compared with normal relays. But compared to normal relays they have a higher power loss in the load current circuit. An integrated optocoupler is used for galvanic isolation.
Status indicator	The status LED display on the input control circuit can differ from the state of the contact circuit in the following cases: • when there are welded-together or broken switching elements, • when there is interference or residual voltages on the signal lines. A reduction in light intensity may result when the ambient temperatures are greater than 50 °C.
Storage temperature	The permitted ambient temperature, related to a specific relative humidity level, for which the product should be stored while in a current-free state.

Surge voltage category	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. Overvoltage category I • Devices that are intended to be connected to the permanent electrical building installation. 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. Overvoltage category II • Devices that are intended to be connected to the permanent electrical building installation (such as household appliances or portable tools). Overvoltage category III • Devices that are a part of the permanent installation and other devices where a higher degree of availability is required. This includes the distributor panels, power switches, distribution systems (including cables, busbars, distributor boxes, switches and outlets) that are part of the permanent installation, devices intended for industrial use, and devices that are continually connected to the permanent installation (such as stationary motors).
Switch-off delay	The usual time interval from switching off the control voltage of a conducting solid-state relay to the time when the output circuit is blocked.
Switch-on delay	The usual time interval from switching on the control voltage of a closed solid-state relay to the time when the output circuit is conductive.

T

Transients	Transients are short-term current or voltage peaks caused by interferences in the mains supply grid or by electromagnetic radiation. On the control side of the optocoupler these can trigger unintended switching operations or, in extreme cases, cause the destruction of the component. In an AC-driven load circuit, transients can lead to the maximum permissible forward voltage being exceeded, which in turn can activate the thyristor or Triac. As these operate at quite high switching speeds, even very short pulses can suffice to falsely trigger a switching operation.
Type of insulation	Quality of the insulation system, depending on the design and application conditions: • Functional insulation: insulation between live components – necessary so the relay functions properly. • Basic insulation: insulation of live parts to provide basic protection against electrical shock. • Doubled insulation: consisting of a base insulation and additional insulation. • Reinforced insulation: a single “enhanced” insulation of active components, which ensures the same protection against electric shock as doubled insulation. The doubled insulation is composed of a base and an additional insulation; the extra insulation protects against electric shock if the basic insulation fails.

V

Voltage drop	The reduction of voltage via the opto module, when measured under full load

W

Withstand test voltage	The voltage applied to a device under specific test conditions which causes no breakthrough or flash-over of the test piece.

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SAIL-M12GM12G-5-1.5U	9457340150	F.7
SCM-I 2C0	8869400000	B.19
SCM-I 2C0 P	8876220000	B.19
SCM-I 3C0 N	8869410000	B.22
SCM-I 4C0	8869420000	B.25
SCM-I 4C0 N	8869390000	B.25
SCM-I 4C0 P	8869430000	B.25
SCM-I CLIP M	8869450000	B.19
SCM-I CLIP M	8869450000	B.19
SCM-I CLIP M	8869450000	B.22
SCM-I CLIP M	8869450000	B.25
SCM-I CLIP M	8869450000	B.25
SCM-I CLIP M	8869450000	B.25
SCM-I CLIP N	8875620000	B.22
SCM-I CLIP N	8875620000	B.25
SCM-I CLIP P	8869440000	B.19
SCM-I CLIP P	8869440000	B.19
SCM-I CLIP P	8869440000	B.25
SCM-I CLIP P	8869440000	B.25
SCM-I MARK	8869460000	B.19
SCM-I MARK	8869460000	B.19
SCM-I MARK	8869460000	B.22
SCM-I MARK	8869460000	B.25
SCM-I MARK	8869460000	B.25
SCM-I QV P	8870850000	B.19
SCM-I QV P	8870850000	B.25
SCM-I QV S	1132080000	B.19
SCM-I QV S	1132080000	B.22
SCM-I QV S	1132080000	B.25
SCM-I QV S	1132080000	B.25
Screwty-M12-DM	1900001000	F.7
SCS 24VDC P1SIL3DS	1303890000	D.6
SCS 24VDC P1SIL3DS M	1303760000	D.6
SCS 24VDC P1SIL3DS MG3	1304040000	D.6
SCS 24VDC P2SIL3DSES	1319270000	D.7
SCS 24VDC P2SIL3ES	1319280000	D.8
SD TO 0,6X3,0	1323880000	A.39
SDK PH0	9008470000	A.39
SDK PZ2	9008540000	C.14
SDS 0.5X3.0X80	9008320000	C.14
SDS 0.6X3.5X100	9008330000	A.39
SDS 0.6X3.5X100	9008330000	A.50
SDS 0.6X3.5X100	9008330000	A.62
SDS 0.6X3.5X100	9008330000	A.74
SDS 0.6X3.5X100	9008330000	B.38
SDS 0.6X3.5X100	9008330000	B.42
SPW 3C0	8697680000	B.42
SRC-I 2C0	8869490000	B.8
SRC-I 2C0	8869490000	B.12
SRC-I 2C0 N	8869480000	B.8
SRC-I 2C0 N	8869480000	B.12
SRC-I 2C0 P	8869500000	B.8
SRC-I 2C0 P	8869500000	B.12
SRC-I CLIP HM RCI	1132090000	B.8
SRC-I CLIP HM RCI	1132090000	B.8
SRC-I CLIP HM RCI	1132090000	B.8
SRC-I CLIP HM RCI	1132090000	B.12
SRC-I CLIP HM RCI	1132090000	B.12
SRC-I CLIP HM RCI	1132090000	B.12
SRC-I CLIP HP	8869510000	B.8
SRC-I CLIP HP	8869510000	B.8
SRC-I CLIP HP	8869510000	B.8
SRC-I CLIP HP	8869510000	B.12
SRC-I CLIP HP	8869510000	B.12
SRC-I CLIP HP	8869510000	B.12
SRC-I MARK	8869530000	B.8
SRC-I MARK	8869530000	B.8
SRC-I MARK	8869530000	B.8
SRC-I MARK	8869530000	B.12
SRC-I MARK	8869530000	B.12
SRC-I MARK	8869530000	B.12
SRC-I QV P	8870840000	B.8
SRC-I QV P	8870840000	B.12
SRC-I QV S	1132070000	B.8
SRC-I QV S	1132070000	B.8
SRC-I QV S	1132070000	B.12
SRC-I QV S	1132070000	B.12
SRD-I 2C0	8869360000	B.38
SRD-I 3C0	8869350000	B.38
SRD-I CLIP M	8869370000	B.38
SSR 24VDC/0-24VDC 3,5A	1132310000	A.37
SSR 24VDC/max.240VAC 1A	1132290000	A.37
SSS RELAIS 24V/230V 1AAC	4061210000	A.37
SSS RELAIS 24V/24V 0,1ADC	4061180000	A.37
SSS RELAIS 24V/24V 2ADC	4061190000	A.37
SSS RELAIS 5V/230V 1AAC	1132260000	A.37
SSS RELAIS 5V/24V 0,1ADC	4064320000	A.37
SSS RELAIS 5V/24V 2ADC	4064310000	A.37
SSS RELAIS 60V/230V 1AAC	4061220000	A.37
SSS RELAIS 60V/24V 0,1ADC	4061230000	A.37
SSS RELAIS 60V/24V 2ADC	4061200000	A.37

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TIMER BTDS-S	8647660000	E.7
TIMER BTDS-Z	8647670000	E.7
TIMER BTM-S	8647700000	E.5
TIMER BTM-Z	8647710000	E.5
TIMER BTMF-S	8647680000	E.6
TIMER BTMF-Z	8647690000	E.6
TIMER BTR-S	8647720000	E.6
TIMER BTR-Z	8647730000	E.6
TIMER BTTT-S	8647740000	E.7
TOP 110VDC/230VAC 0,1A	8951200000	A.47
TOP 110VDC/48VDC 0,1A	8950800000	A.43
TOP 110VDC/48VDC 0,5A	8951000000	A.45
TOP 120VAC/230VAC 0,1A	8951280000	A.47
TOP 120VAC/48VDC 0,1A	8950880000	A.43
TOP 120VAC/48VDC 0,5A	8951080000	A.45
TOP 120VAC/48VDC 0.5A RC	1188830000	A.48
TOP 12VDC/230VAC 0,1A	8951170000	A.47
TOP 12VDC/48VDC 0,1A	8950770000	A.43
TOP 12VDC/48VDC 0,5A	8950970000	A.45
TOP 220VDC/230VAC 0,1A	8951210000	A.47
TOP 220VDC/48VDC 0,1A	8950810000	A.43
TOP 220VDC/48VDC 0,5A	8951010000	A.45
TOP 230VAC/230VAC 0,1A	8951290000	A.47
TOP 230VAC/48VDC 0,1A	8950890000	A.43
TOP 230VAC/48VDC 0,5A	8951090000	A.45
TOP 230VAC/48VDC 0.5A RC	1189260000	A.48
TOP 24VAC/230VAC 0,1A	8951260000	A.47
TOP 24VAC/48VDC 0,1A	8950860000	A.43
TOP 24VAC/48VDC 0,5A	8951060000	A.45
TOP 24VDC/230VAC 0,1A	8951180000	A.47
TOP 24VDC/24VDC 4A	1254880000	A.49
TOP 24VDC/48VDC 0,1A	8950780000	A.43
TOP 24VDC/48VDC 0,5A	8950980000	A.45
TOP 48-60VAC/230VAC 0,1A	8951270000	A.47
TOP 48-60VAC/48VDC 0,1A	8950870000	A.43
TOP 48-60VAC/48VDC 0,5A	8951070000	A.45
TOP 48-60VDC/230VAC 0,1A	8951190000	A.47
TOP 48-60VDC/48VDC 0,1A	8950790000	A.43
TOP 48-60VDC/48VDC 0,5A	8950990000	A.45
TOP 5VDC/230VAC 0,1A	8951160000	A.47
TOP 5VDC/48VDC 0,1A	8950760000	A.43
TOP 5VDC/48VDC 0,5A	8950960000	A.45
TOS 110VDC/230VAC 0,1A	8951140000	A.47
TOS 110VDC/48VDC 0,1A	8950740000	A.43
TOS 110VDC/48VDC 0,5A	8950940000	A.45
TOS 120VAC RC 230VAC1A	1127480000	A.31
TOS 120VAC RC 24VDC2A	1127230000	A.27
TOS 120VAC RC 48VDC0,1A	1127000000	A.23
TOS 120VAC/230VAC 0,1A	8951240000	A.47
TOS 120VAC/48VDC 0,1A	8950840000	A.43
TOS 120VAC/48VDC 0,5A	8951040000	A.45
TOS 120VAC/48VDC 0.5A RC	1180290000	A.48
TOS 120VUC 230VAC1A	1127450000	A.31
TOS 120VUC 24VDC2A	1127210000	A.27
TOS 120VUC 48VDC0,1A	1126980000	A.23
TOS 12VDC 230VAC1A	1127400000	A.31
TOS 12VDC 24VDC2A	1127150000	A.27
TOS 12VDC 48VDC0,1A	1126930000	A.23
TOS 12VDC/230VAC 0,1A	8951110000	A.47
TOS 12VDC/48VDC 0,1A	8950710000	A.43
TOS 12VDC/48VDC 0,5A	8950910000	A.45
TOS 220VDC/230VAC 0,1A	8951150000	A.47
TOS 220VDC/48VDC 0,1A	8950750000	A.43
TOS 220VDC/48VDC 0,5A	8950950000	A.45
TOS 230VAC RC 230VAC1A	1127490000	A.31
TOS 230VAC RC 24VDC2A	1127240000	A.27
TOS 230VAC RC 48VDC0,1A	1127010000	A.23
TOS 230VAC/230VAC 0,1A	8951250000	A.47
TOS 230VAC/48VDC 0,1A	8950850000	A.43
TOS 230VAC/48VDC 0,5A	8951050000	A.45
TOS 230VAC/48VDC 0.5A RC	1189270000	A.48
TOS 230VUC 230VAC1A	1127470000	A.31
TOS 230VUC 24VDC2A	1127220000	A.27
TOS 230VUC 48VDC0,1A	1126990000	A.23
TOS 24-230VUC 230VAC1A	1127500000	A.32
TOS 24-230VUC 230VAC1A	1127690000	A.35
TOS 24-230VUC 24VDC2A	1127250000	A.28
TOS 24-230VUC 24VDC3,5A	1127640000	A.34
TOS 24-230VUC 48VDC0,1A	1127020000	A.24
TOS 24-230VUC EMPTY	1127730000	A.38
TOS 24VAC/230VAC 0,1A	8951220000	A.47
TOS 24VAC/48VDC 0,1A	8950820000	A.43
TOS 24VAC/48VDC 0,5A	8951020000	A.45
TOS 24VDC 230VAC1A	1127410000	A.31
TOS 24VDC 230VAC1A	1127680000	A.35
TOS 24VDC 24VDC2A	1127170000	A.27
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TOS 24VDC 48VDC0,1A	1126940000	A.23
TOS 24VDC ACT	1391680000	A.29
TOS 24VDC EMPTY	1127720000	A.38
TOS 24VDC/230VAC 0,1A	8951120000	A.47
TOS 24VDC/24VDC 4A	1275100000	A.49
TOS 24VDC/48VDC 0,1A	8950720000	A.43
TOS 24VDC/48VDC 0,5A	8950920000	A.45
TOS 24VUC 230VAC1A	1127420000	A.31
TOS 24VUC 24VDC2A	1127180000	A.27
TOS 24VUC 48VDC0,1A	1126950000	A.23
TOS 48-60VAC/230VAC 0,1A	8951230000	A.47
TOS 48-60VAC/48VDC 0,1A	8950830000	A.43
TOS 48-60VAC/48VDC 0,5A	8951030000	A.45
TOS 48-60VDC/230VAC 0,1A	8951130000	A.47
TOS 48-60VDC/48VDC 0,1A	8950730000	A.43
TOS 48-60VDC/48VDC 0,5A	8950930000	A.45
TOS 48VUC 230VAC1A	1127430000	A.31
TOS 48VUC 24VDC2A	1127190000	A.27
TOS 48VUC 48VDC0,1A	1126960000	A.23
TOS 5VDC 230VAC1A	1127390000	A.31
TOS 5VDC 24VDC2A	1127140000	A.27
TOS 5VDC 48VDC0,1A	1126920000	A.23
TOS 5VDC/230VAC 0,1A	8951100000	A.47
TOS 5VDC/48VDC 0,1A	8950700000	A.43
TOS 5VDC/48VDC 0,5A	8950900000	A.45
TOS 60VUC 230VAC1A	1127440000	A.31
TOS 60VUC 24VDC2A	1127200000	A.27
TOS 60VUC 48VDC0,1A	1126970000	A.23
TOZ 120VAC RC 230VAC1A	1127600000	A.31
TOZ 120VAC RC 24VDC2A	1127350000	A.27
TOZ 120VAC RC 48VDC0,1A	1127110000	A.23
TOZ 120VUC 230VAC1A	1127580000	A.31
TOZ 120VUC 24VDC2A	1127330000	A.27
TOZ 120VUC 48VDC0,1A	1127090000	A.23
TOZ 12VDC 230VAC1A	1127520000	A.31
TOZ 12VDC 24VDC2A	1127280000	A.27
TOZ 12VDC 48VDC0,1A	1127040000	A.23
TOZ 230VAC RC 230VAC1A	1127610000	A.31
TOZ 230VAC RC 24VDC2A	1127370000	A.27
TOZ 230VAC RC 48VDC0,1A	1127120000	A.23
TOZ 230VUC 230VAC1A	1127590000	A.31
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TOZ 230VUC 48VDC0,1A	1127100000	A.23
TOZ 24-230VUC 230VAC1A	1127620000	A.32
TOZ 24-230VUC 230VAC1A	1127710000	A.35
TOZ 24-230VUC 24VDC2A	1127380000	A.28
TOZ 24-230VUC 24VDC3,5A	1127670000	A.34
TOZ 24-230VUC 48VDC0,1A	1127130000	A.24
TOZ 24-230VUC EMPTY	1127750000	A.38
TOZ 24VDC 230VAC1A	1127530000	A.31
TOZ 24VDC 230VAC1A	1127700000	A.35
TOZ 24VDC 24VDC2A	1127290000	A.27
TOZ 24VDC 24VDC3,5A	1127650000	A.34
TOZ 24VDC 48VDC0,1A	1127050000	A.23
TOZ 24VDC ACT	1391690000	A.29
TOZ 24VDC EMPTY	1127740000	A.38
TOZ 24VUC 230VAC1A	1127540000	A.31
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TOZ 24VUC 48VDC0,1A	1127060000	A.23
TOZ 48VUC 230VAC1A	1127550000	A.31
TOZ 48VUC 24VDC2A	1127310000	A.27
TOZ 48VUC 48VDC0,1A	1127070000	A.23
TOZ 5VDC 230VAC1A	1127510000	A.31
TOZ 5VDC 24VDC2A	1127270000	A.27
TOZ 5VDC 48VDC0,1A	1127030000	A.23
TOZ 60VUC 230VAC1A	1127570000	A.31
TOZ 60VUC 24VDC2A	1127320000	A.27
TOZ 60VUC 48VDC0,1A	1127080000	A.23
TRS 120VAC RC 1C0	1122830000	A.9
TRS 120VAC RC 1C0 AU	1123070000	A.11
TRS 120VAC RC 1C0 EMPTY	1123310000	A.38
TRS 120VAC RC 2C0	1123550000	A.17
TRS 120VAC RC 2C0 AU	1123800000	A.19
TRS 120VAC RC 2C0 EMPTY	1124040000	A.38
TRS 120VUC 2C0	1123530000	A.17
TRS 120VUC 1C0	1122810000	A.9
TRS 120VUC 1C0 AU	1123040000	A.11
TRS 120VUC 1C0 EMPTY	1123290000	A.38
TRS 120VUC 2C0 AU	1123780000	A.19
TRS 120VUC 2C0 EMPTY	1124020000	A.38
TRS 12VDC 1C0	1122750000	A.9
TRS 12VDC 1C0 AU	1122990000	A.11
TRS 12VDC 1C0 EMPTY	1123230000	A.38
TRS 12VDC 2C0	1123480000	A.17
TRS 12VDC 2C0 AU	1123720000	A.19
TRS 12VDC 2C0 EMPTY	1123970000	A.38
TRS 230VAC RC 1C0	1122840000	A.9
TRS 230VAC RC 1C0 AU	1123080000	A.11
TRS 230VAC RC 1C0 EMPTY	1123320000	A.38
TRS 230VAC RC 2C0	1123570000	A.17
TRS 230VAC RC 2C0 AU	1123810000	A.19
TRS 230VAC RC 2C0 EMPTY	1124050000	A.38
TRS 230VUC 2C0	1123540000	A.17
TRS 230VUC 1C0	1122820000	A.9
TRS 230VUC 1C0 AU	1123050000	A.11
TRS 230VUC 1C0 EMPTY	1123300000	A.38
TRS 230VUC 2C0 AU	1123790000	A.19
TRS 230VUC 2C0 EMPTY	1124030000	A.38
TRS 24-230VUC 1C0	1122850000	A.12
TRS 24-230VUC 1C0 AU	1123090000	A.13
TRS 24-230VUC 1C0 EMPTY	1123330000	A.38
TRS 24-230VUC 2C0	1123580000	A.20
TRS 24-230VUC 2C0 AU	1123820000	A.21
TRS 24-230VUC 2C0 EMPTY	1124070000	A.38
TRS 24VDC 1C0	1122770000	A.9
TRS 24VDC 1C0 AU	1123000000	A.11
TRS 24VDC 1C0 EMPTY	1123240000	A.38
TRS 24VDC 2C0	1123490000	A.17
TRS 24VDC 2C0 AU	1123730000	A.19
TRS 24VDC 2C0 EMPTY	1123980000	A.38
TRS 24VDC ACT	1381900000	A.14
TRS 24VUC 1C0	1122780000	A.9
TRS 24VUC 1C0 AU	1123010000	A.11
TRS 24VUC 1C0 EMPTY	1123250000	A.38
TRS 24VUC 2C0	1123500000	A.17
TRS 24VUC 2C0 AU	1123740000	A.19
TRS 24VUC 2C0 EMPTY	1123990000	A.38
TRS 48VUC 1C0	1122790000	A.9
TRS 48VUC 1C0 AU	1123020000	A.11
TRS 48VUC 1C0 EMPTY	1123270000	A.38
TRS 48VUC 2C0	1123510000	A.17
TRS 48VUC 2C0 AU	1123750000	A.19
TRS 48VUC 2C0 EMPTY	1124000000	A.38
TRS 5VDC 1C0	1122740000	A.9
TRS 5VDC 1C0 AU	1122980000	A.11
TRS 5VDC 1C0 EMPTY	1123220000	A.38
TRS 5VDC 2C0	1123470000	A.17
TRS 5VDC 2C0 AU	1123710000	A.19
TRS 5VDC 2C0 EMPTY	1123950000	A.38
TRS 60VUC 1C0	1122800000	A.9
TRS 60VUC 1C0 AU	1123030000	A.11
TRS 60VUC 1C0 EMPTY	1123280000	A.38
TRS 60VUC 2C0	1123520000	A.17
TRS 60VUC 2C0 AU	1123770000	A.19
TRS 60VUC 2C0 EMPTY	1124010000	A.38
TRZ 120VAC RC 1C0	1122940000	A.9
TRZ 120VAC RC 1C0 AU	1123190000	A.11
TRZ 120VAC RC 1C0 EMPTY	1123430000	A.38
TRZ 120VAC RC 2C0	1123680000	A.17

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TRZ 120VAC RC 2CO AU	1123920000	A.19
TRZ 120VAC RC 2CO EMPTY	1124170000	A.38
TRZ 120VUC 1CO	1122920000	A.9
TRZ 120VUC 1CO AU	1123170000	A.11
TRZ 120VUC 1CO EMPTY	1123410000	A.38
TRZ 120VUC 2CO	1123650000	A.17
TRZ 120VUC 2CO AU	1123900000	A.19
TRZ 120VUC 2CO EMPTY	1124140000	A.38
TRZ 12VDC 1CO	1122870000	A.9
TRZ 12VDC 1CO AU	1123110000	A.11
TRZ 12VDC 1CO EMPTY	1123350000	A.38
TRZ 12VDC 2CO	1123600000	A.17
TRZ 12VDC 2CO AU	1123840000	A.19
TRZ 12VDC 2CO EMPTY	1124090000	A.38
TRZ 230VAC RC 1CO	1122950000	A.9
TRZ 230VAC RC 1CO AU	1123200000	A.11
TRZ 230VAC RC 1CO EMPTY	1123440000	A.38
TRZ 230VAC RC 2CO	1123690000	A.17
TRZ 230VAC RC 2CO AU	1123930000	A.19
TRZ 230VAC RC 2CO EMPTY	1124180000	A.38
TRZ 230VUC 1CO	1122930000	A.9
TRZ 230VUC 1CO AU	1123180000	A.11
TRZ 230VUC 1CO EMPTY	1123420000	A.38
TRZ 230VUC 2CO	1123670000	A.17
TRZ 230VUC 2CO AU	1123910000	A.19
TRZ 230VUC 2CO EMPTY	1124150000	A.38
TRZ 24-230VUC 1CO	1122970000	A.12
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TRZ 24-230VUC 1CO EMPTY	1123450000	A.38
TRZ 24-230VUC 2CO	1123700000	A.20
TRZ 24-230VUC 2CO AU	1123940000	A.21
TRZ 24-230VUC 2CO EMPTY	1124190000	A.38
TRZ 24VDC 1CO	1122880000	A.9
TRZ 24VDC 1CO AU	1123120000	A.11
TRZ 24VDC 1CO EMPTY	1123370000	A.38
TRZ 24VDC 2CO	1123610000	A.17
TRZ 24VDC 2CO AU	1123850000	A.19
TRZ 24VDC 2CO EMPTY	1124100000	A.38
TRZ 24VDC ACT	1391670000	A.14
TRZ 24VUC 1CO	1122890000	A.9
TRZ 24VUC 1CO AU	1123130000	A.11
TRZ 24VUC 1CO EMPTY	1123380000	A.38
TRZ 24VUC 2CO	1123620000	A.17
TRZ 24VUC 2CO AU	1123870000	A.19
TRZ 24VUC 2CO EMPTY	1124110000	A.38
TRZ 48VUC 1CO	1122900000	A.9
TRZ 48VUC 1CO AU	1123140000	A.11
TRZ 48VUC 1CO EMPTY	1123390000	A.38
TRZ 48VUC 2CO	1123630000	A.17
TRZ 48VUC 2CO AU	1123880000	A.19
TRZ 48VUC 2CO EMPTY	1124120000	A.38
TRZ 5VDC 1CO	1122860000	A.9
TRZ 5VDC 1CO AU	1123100000	A.11
TRZ 5VDC 1CO EMPTY	1123340000	A.38
TRZ 5VDC 2CO	1123590000	A.17
TRZ 5VDC 2CO AU	1123830000	A.19
TRZ 5VDC 2CO EMPTY	1124080000	A.38
TRZ 60VUC 1CO	1122910000	A.9
TRZ 60VUC 1CO AU	1123150000	A.11
TRZ 60VUC 1CO EMPTY	1123400000	A.38
TRZ 60VUC 2CO	1123640000	A.17
TRZ 60VUC 2CO AU	1123890000	A.19
TRZ 60VUC 2CO EMPTY	1124130000	A.38
TW TXS/TXZ R3.2	1240800000	A.39
TXS SUPPLY	1240780000	A.39
TXZ SUPPLY	1240790000	A.39

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WEW 35/2	1061200000	B.42
WEW 35/2 SW	1061210000	A.39
WEW 35/2 SW	1061210000	A.62
WS 10/6 MC M NE WS	1818400000	A.39
WS 10/6 MC NE WS	1828450000	A.74
WS 12/6 MC NE WS	1609900000	A.50
WS 12/6 MC NE WS	1609900000	A.62

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ZQV 1.5N/R12.8/10 GE	1193700000	A.39
ZQV 1.5N/R6.4/10 BL	1390350000	A.39
ZQV 1.5N/R6.4/10 GE	1193680000	A.39
ZQV 1.5N/R6.4/10 RT	1391640000	A.39
ZQV 1.5N/R6.4/10 SW	1391630000	A.39
ZQV 1.5N/R6.4/19 BL	1391620000	A.39
ZQV 1.5N/R6.4/19 GE	1193690000	A.39
ZQV 1.5N/R6.4/19 RT	1391610000	A.39
ZQV 1.5N/R6.4/19 SW	1391600000	A.39
ZQV 1.5N/R6.4/2 GE	1193670000	A.39
ZQV 4N/10 BL	1794050000	A.50
ZQV 4N/10 BL	1794050000	A.62
ZQV 4N/10 BL	1794050000	A.74
ZQV 4N/10 GE	1758260000	A.50
ZQV 4N/10 GE	1758260000	A.62
ZQV 4N/10 GE	1758260000	A.74
ZQV 4N/10 RT	1794040000	A.50
ZQV 4N/10 RT	1794040000	A.62
ZQV 4N/10 RT	1794040000	A.74
ZQV 4N/10 SW	1794060000	A.50
ZQV 4N/10 SW	1794060000	A.62
ZQV 4N/10 SW	1794060000	A.74
ZQV 4N/2 BL	1793960000	A.50
ZQV 4N/2 BL	1793960000	A.62
ZQV 4N/2 BL	1793960000	A.74
ZQV 4N/2 GE	1758250000	A.50
ZQV 4N/2 GE	1758250000	A.62
ZQV 4N/2 GE	1758250000	A.74
ZQV 4N/2 RT	1793950000	A.50
ZQV 4N/2 RT	1793950000	A.62
ZQV 4N/2 RT	1793950000	A.74
ZQV 4N/2 SW	1793970000	A.50
ZQV 4N/2 SW	1793970000	A.62
ZQV 4N/2 SW	1793970000	A.74
ZQV 4N/20 BL	1909100000	A.50
ZQV 4N/20 BL	1909100000	A.62
ZQV 4N/20 BL	1909100000	A.74
ZQV 4N/20 GE	1909020000	A.50
ZQV 4N/20 GE	1909020000	A.62
ZQV 4N/20 GE	1909020000	A.74
ZQV 4N/20 RT	1909150000	A.50
ZQV 4N/20 RT	1909150000	A.62
ZQV 4N/20 RT	1909150000	A.74
ZQV 4N/20 SW	1909120000	A.50
ZQV 4N/20 SW	1909120000	A.62
ZQV 4N/20 SW	1909120000	A.74
ZQV 4N/3 BL	1793990000	A.50
ZQV 4N/3 BL	1793990000	A.62
ZQV 4N/3 BL	1793990000	A.74
ZQV 4N/3 GE	1762630000	A.50
ZQV 4N/3 GE	1762630000	A.62
ZQV 4N/3 GE	1762630000	A.74
ZQV 4N/3 RT	1793980000	A.50
ZQV 4N/3 RT	1793980000	A.62
ZQV 4N/3 RT	1793980000	A.74
ZQV 4N/3 SW	1794000000	A.50
ZQV 4N/3 SW	1794000000	A.62
ZQV 4N/3 SW	1794000000	A.74
ZQV 4N/4 BL	1794020000	A.50
ZQV 4N/4 BL	1794020000	A.62
ZQV 4N/4 BL	1794020000	A.74
ZQV 4N/4 GE	1762620000	A.50
ZQV 4N/4 GE	1762620000	A.62
ZQV 4N/4 GE	1762620000	A.74
ZQV 4N/4 RT	1794010000	A.50
ZQV 4N/4 RT	1794010000	A.62
ZQV 4N/4 RT	1794010000	A.74
ZQV 4N/4 SW	1794030000	A.50
ZQV 4N/4 SW	1794030000	A.62
ZQV 4N/4 SW	1794030000	A.74

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0520000000		
0526700000	ISPF QB75 SW	A.62
0526760000	ISPF QB75 RT	A.62
0526780000	ISPF QB75 BL	A.62
0530000000		
0535200000	QB 75/6.2/15	A.62
1060000000		
1061200000	WEW 35/2	A.74
1061200000	WEW 35/2	B.38
1061200000	WEW 35/2	B.42
1061210000	WEW 35/2 SW	A.39
1061210000	WEW 35/2 SW	A.62
1120000000		
1122740000	TRS 5VDC 1CO	A.9
1122750000	TRS 12VDC 1CO	A.9
1122770000	TRS 24VDC 1CO	A.9
1122780000	TRS 24VUC 1CO	A.9
1122790000	TRS 48VUC 1CO	A.9
1122800000	TRS 60VUC 1CO	A.9
1122810000	TRS 120VUC 1CO	A.9
1122820000	TRS 230VUC 1CO	A.9
1122830000	TRS 120VAC RC 1CO	A.9
1122840000	TRS 230VAC RC 1CO	A.9
1122850000	TRS 24-230VUC 1CO	A.12
1122860000	TRZ 5VDC 1CO	A.9
1122870000	TRZ 12VDC 1CO	A.9
1122880000	TRZ 24VDC 1CO	A.9
1122890000	TRZ 24VUC 1CO	A.9
1122900000	TRZ 48VUC 1CO	A.9
1122910000	TRZ 60VUC 1CO	A.9
1122920000	TRZ 120VUC 1CO	A.9
1122930000	TRZ 230VUC 1CO	A.9
1122940000	TRZ 120VAC RC 1CO	A.9
1122950000	TRZ 230VAC RC 1CO	A.9
1122970000	TRZ 24-230VUC 1CO	A.12
1122980000	TRS 5VDC 1CO AU	A.11
1122990000	TRS 12VDC 1CO AU	A.11
1123000000	TRS 24VDC 1CO AU	A.11
1123010000	TRS 24VUC 1CO AU	A.11
1123020000	TRS 48VUC 1CO AU	A.11
1123030000	TRS 60VUC 1CO AU	A.11
1123040000	TRS 120VUC 1CO AU	A.11
1123050000	TRS 230VUC 1CO AU	A.11
1123070000	TRS 120VAC RC 1CO AU	A.11
1123080000	TRS 230VAC RC 1CO AU	A.11
1123090000	TRS 24-230VUC 1CO AU	A.13
1123100000	TRZ 5VDC 1CO AU	A.11
1123110000	TRZ 12VDC 1CO AU	A.11
1123120000	TRZ 24VDC 1CO AU	A.11
1123130000	TRZ 24VUC 1CO AU	A.11
1123140000	TRZ 48VUC 1CO AU	A.11
1123150000	TRZ 60VUC 1CO AU	A.11
1123170000	TRZ 120VUC 1CO AU	A.11
1123180000	TRZ 230VUC 1CO AU	A.11
1123190000	TRZ 120VAC RC 1CO AU	A.11
1123200000	TRZ 230VAC RC 1CO AU	A.11
1123210000	TRZ 24-230VUC 1CO AU	A.13
1123220000	TRS 5VDC 1CO EMPTY	A.38
1123230000	TRS 12VDC 1CO EMPTY	A.38
1123240000	TRS 24VDC 1CO EMPTY	A.38
1123250000	TRS 24VUC 1CO EMPTY	A.38
1123270000	TRS 48VUC 1CO EMPTY	A.38
1123280000	TRS 60VUC 1CO EMPTY	A.38
1123290000	TRS 120VUC 1CO EMPTY	A.38
1123300000	TRS 230VUC 1CO EMPTY	A.38
1123310000	TRS 120VAC RC 1CO EMPTY	A.38
1123320000	TRS 230VAC RC 1CO EMPTY	A.38
1123330000	TRS 24-230VUC 1CO EMPTY	A.38
1123340000	TRZ 5VDC 1CO EMPTY	A.38
1123350000	TRZ 12VDC 1CO EMPTY	A.38
1123370000	TRZ 24VDC 1CO EMPTY	A.38
1123380000	TRZ 24VUC 1CO EMPTY	A.38
1123390000	TRZ 48VUC 1CO EMPTY	A.38
1123400000	TRZ 60VUC 1CO EMPTY	A.38
1123410000	TRZ 120VUC 1CO EMPTY	A.38
1123420000	TRZ 230VUC 1CO EMPTY	A.38
1123430000	TRZ 120VAC RC 1CO EMPTY	A.38
1123440000	TRZ 230VAC RC 1CO EMPTY	A.38
1123450000	TRZ 24-230VUC 1CO EMPTY	A.38
1123470000	TRS 5VDC 2CO	A.17
1123480000	TRS 12VDC 2CO	A.17
1123490000	TRS 24VDC 2CO	A.17
1123500000	TRS 24VUC 2CO	A.17
1123510000	TRS 48VUC 2CO	A.17
1123520000	TRS 60VUC 2CO	A.17
1123530000	TRS 120VUC 2CO	A.17
1123540000	TRS 230VUC 2CO	A.17
1123550000	TRS 120VAC RC 2CO	A.17
1123570000	TRS 230VAC RC 2CO	A.17
1123580000	TRS 24-230VUC 2CO	A.20
1123590000	TRZ 5VDC 2CO	A.17
1123600000	TRZ 12VDC 2CO	A.17

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1123610000	TRZ 24VDC 2CO	A.17
1123620000	TRZ 24VUC 2CO	A.17
1123630000	TRZ 48VUC 2CO	A.17
1123640000	TRZ 60VUC 2CO	A.17
1123650000	TRZ 120VUC 2CO	A.17
1123670000	TRZ 230VUC 2CO	A.17
1123680000	TRZ 120VAC RC 2CO	A.17
1123690000	TRZ 230VAC RC 2CO	A.17
1123700000	TRZ 24-230VUC 2CO	A.20
1123710000	TRS 5VDC 2CO AU	A.19
1123720000	TRS 12VDC 2CO AU	A.19
1123730000	TRS 24VDC 2CO AU	A.19
1123740000	TRS 24VUC 2CO AU	A.19
1123750000	TRS 48VUC 2CO AU	A.19
1123770000	TRS 60VUC 2CO AU	A.19
1123780000	TRS 120VUC 2CO AU	A.19
1123790000	TRS 230VUC 2CO AU	A.19
1123800000	TRS 120VAC RC 2CO AU	A.19
1123810000	TRS 230VAC RC 2CO AU	A.19
1123820000	TRS 24-230VUC 2CO AU	A.21
1123830000	TRZ 5VDC 2CO AU	A.19
1123840000	TRZ 12VDC 2CO AU	A.19
1123850000	TRZ 24VDC 2CO AU	A.19
1123870000	TRZ 24VUC 2CO AU	A.19
1123880000	TRZ 48VUC 2CO AU	A.19
1123890000	TRZ 60VUC 2CO AU	A.19
1123900000	TRZ 120VUC 2CO AU	A.19
1123910000	TRZ 230VUC 2CO AU	A.19
1123920000	TRZ 120VAC RC 2CO AU	A.19
1123930000	TRZ 230VAC RC 2CO AU	A.19
1123940000	TRZ 24-230VUC 2CO AU	A.21
1123950000	TRS 5VDC 2CO EMPTY	A.38
1123970000	TRS 12VDC 2CO EMPTY	A.38
1123980000	TRS 24VDC 2CO EMPTY	A.38
1123990000	TRS 24VUC 2CO EMPTY	A.38
1124000000	TRS 48VUC 2CO EMPTY	A.38
1124010000	TRS 60VUC 2CO EMPTY	A.38
1124020000	TRS 120VUC 2CO EMPTY	A.38
1124030000	TRS 230VUC 2CO EMPTY	A.38
1124040000	TRS 120VAC RC 2CO EMPTY	A.38
1124050000	TRS 230VAC RC 2CO EMPTY	A.38
1124070000	TRS 24-230VUC 2CO EMPTY	A.38
1124080000	TRZ 5VDC 2CO EMPTY	A.38
1124090000	TRZ 12VDC 2CO EMPTY	A.38
1124100000	TRZ 24VDC 2CO EMPTY	A.38
1124110000	TRZ 24VUC 2CO EMPTY	A.38
1124120000	TRZ 48VUC 2CO EMPTY	A.38
1124130000	TRZ 60VUC 2CO EMPTY	A.38
1124140000	TRZ 120VUC 2CO EMPTY	A.38
1124150000	TRZ 230VUC 2CO EMPTY	A.38
1124170000	TRZ 120VAC RC 2CO EMPTY	A.38
1124180000	TRZ 230VAC RC 2CO EMPTY	A.38
1124190000	TRZ 24-230VUC 2CO EMPTY	A.38
1126920000	TOS 5VDC 48VDC0,1A	A.23
1126930000	TOS 12VDC 48VDC0,1A	A.23
1126940000	TOS 24VDC 48VDC0,1A	A.23
1126950000	TOS 24VUC 48VDC0,1A	A.23
1126960000	TOS 48VUC 48VDC0,1A	A.23
1126970000	TOS 60VUC 48VDC0,1A	A.23
1126980000	TOS 120VUC 48VDC0,1A	A.23
1126990000	TOS 230VUC 48VDC0,1A	A.23
1127000000	TOS 120VAC RC 48VDC0,1A	A.23
1127010000	TOS 230VAC RC 48VDC0,1A	A.23
1127020000	TOS 24-230VUC 48VDC0,1A	A.24
1127030000	TOZ 5VDC 48VDC0,1A	A.23
1127040000	TOZ 12VDC 48VDC0,1A	A.23
1127050000	TOZ 24VDC 48VDC0,1A	A.23
1127060000	TOZ 24VUC 48VDC0,1A	A.23
1127070000	TOZ 48VUC 48VDC0,1A	A.23
1127080000	TOZ 60VUC 48VDC0,1A	A.23
1127090000	TOZ 120VUC 48VDC0,1A	A.23
1127100000	TOZ 230VUC 48VDC0,1A	A.23
1127110000	TOZ 120VAC RC 48VDC0,1A	A.23
1127120000	TOZ 230VAC RC 48VDC0,1A	A.23
1127130000	TOZ 24-230VUC 48VDC0,1A	A.24
1127140000	TOS 5VDC 24VDC2A	A.27
1127150000	TOS 12VDC 24VDC2A	A.27
1127170000	TOS 24VDC 24VDC2A	A.27
1127180000	TOS 24VUC 24VDC2A	A.27
1127190000	TOS 48VUC 24VDC2A	A.27
1127200000	TOS 60VUC 24VDC2A	A.27
1127210000	TOS 120VUC 24VDC2A	A.27
1127220000	TOS 230VUC 24VDC2A	A.27
1127230000	TOS 120VAC RC 24VDC2A	A.27
1127240000	TOS 230VAC RC 24VDC2A	A.27
1127250000	TOS 24-230VUC 24VDC2A	A.28
1127270000	TOZ 5VDC 24VDC2A	A.27
1127280000	TOZ 12VDC 24VDC2A	A.27
1127290000	TOZ 24VDC 24VDC2A	A.27
1127300000	TOZ 24VUC 24VDC2A	A.27
1127310000	TOZ 48VUC 24VDC2A	A.27
1127320000	TOZ 60VUC 24VDC2A	A.27
1127330000	TOZ 120VUC 24VDC2A	A.27
1127340000	TOZ 230VUC 24VDC2A	A.27
1127350000	TOZ 120VAC RC 24VDC2A	A.27
1127370000	TOZ 230VAC RC 24VDC2A	A.27
1127380000	TOZ 24-230VUC 24VDC2A	A.28
1127390000	TOS 5VDC 230VAC1A	A.31
1127400000	TOS 12VDC 230VAC1A	A.31

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1127410000	TOS 24VDC 230VAC1A	A.31
1127420000	TOS 24VUC 230VAC1A	A.31
1127430000	TOS 48VUC 230VAC1A	A.31
1127440000	TOS 60VUC 230VAC1A	A.31
1127450000	TOS 120VUC 230VAC1A	A.31
1127470000	TOS 230VUC 230VAC1A	A.31
1127480000	TOS 120VAC RC 230VAC1A	A.31
1127490000	TOS 230VAC RC 230VAC1A	A.31
1127500000	TOS 24-230VUC 230VAC1A	A.32
1127510000	TOZ 5VDC 230VAC1A	A.31
1127520000	TOZ 12VDC 230VAC1A	A.31
1127530000	TOZ 24VDC 230VAC1A	A.31
1127540000	TOZ 24VUC 230VAC1A	A.31
1127550000	TOZ 48VUC 230VAC1A	A.31
1127570000	TOZ 60VUC 230VAC1A	A.31
1127580000	TOZ 120VUC 230VAC1A	A.31
1127590000	TOZ 230VUC 230VAC1A	A.31
1127600000	TOZ 120VAC RC 230VAC1A	A.31
1127610000	TOZ 230VAC RC 230VAC1A	A.31
1127620000	TOZ 24-230VUC 230VAC1A	A.32
1127630000	TOS 24VDC 24VDC3,5A	A.34
1127640000	TOS 24-230VUC 24VDC3,5A	A.34
1127650000	TOZ 24VDC 24VDC3,5A	A.34
1127670000	TOZ 24-230VUC 24VDC3,5A	A.34
1127680000	TOS 24VDC 230VAC1A	A.35
1127690000	TOS 24-230VUC 230VAC1A	A.35
1127700000	TOZ 24VDC 230VAC1A	A.35
1127710000	TOZ 24-230VUC 230VAC1A	A.35
1127720000	TOS 24VDC EMPTY	A.38
1127730000	TOS 24-230VUC EMPTY	A.38
1127740000	TOZ 24VDC EMPTY	A.38
1127750000	TOZ 24-230VUC EMPTY	A.38
1130000000		
1132070000	SRC-I QV S	B.8
1132070000	SRC-I QV S	B.8
1132070000	SRC-I QV S	B.12
1132070000	SRC-I QV S	B.12
1132080000	SCM-I QV S	B.19
1132080000	SCM-I QV S	B.22
1132080000	SCM-I QV S	B.25
1132080000	SCM-I QV S	B.25
1132090000	SRC-I CLIP HM RCI	B.8
1132090000	SRC-I CLIP HM RCI	B.8
1132090000	SRC-I CLIP HM RCI	B.8
1132090000	SRC-I CLIP HM RCI	B.12
1132090000	SRC-I CLIP HM RCI	B.12
1132090000	SRC-I CLIP HM RCI	B.12
1132260000	SSS RELAIS 5V/230V 1AAC	A.37
1132290000	SSR 24VDC/max.240VAC 1A	A.37
1132310000	SSR 24VDC/0-24VDC 3,5A	A.37
1170000000		
1174490000	RCL425005	A.36
1174540000	RSS112005 05VDC-REL1U	A.36
1180000000		
1180290000	TOS 120VAC/48VDC 0.5A RC	A.48
1180800000	RCM570615	B.24
1180800000	RCM570615	B.33
1180900000	RCM570548	B.33
1181100000	RCM570730	B.24
1181100000	RCM570730	B.33
1188830000	TOP 120VAC/48VDC 0.5A RC	A.48
1189260000	TOP 230VAC/48VDC 0.5A RC	A.48
1189270000	TOS 230VAC/48VDC 0.5A RC	A.48
1190000000		
1193670000	ZQV 1.5N/R6.4/2 GE	A.39
1193680000	ZQV 1.5N/R6.4/10 GE	A.39
1193690000	ZQV 1.5N/R6.4/19 GE	A.39
1193700000	ZQV 1.5N/R12.8/10 GE	A.39
1200000000		
1201230000	RCL425048	A.36
1201260000	RCL425060	A.36
1210000000		
1218380000	RCI42424FG	B.46
1218390000	RCIKITZ 24VDC 2CO LD/FG	B.46
1218410000	RCIKIT 24VDC 2CO LD/FG	B.46
1220000000		
1220670000	RSS112012 12VDC-REL1U	A.36
1240000000		
1240780000	TXS SUPPLY	A.39
1240790000	TXZ SUPPLY	A.39
1240800000	TW TXS/TXZ R3.2	A.39

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1250000000		
1254880000	TOP 24VDC/24VDC 4A	A.49
1270000000		
1275100000	TOS 24VDC/24VDC 4A	A.49
1280000000		
1283230000	MOS 24VDC/8-30VDC 2A E	A.57
1300000000		
1303760000	SCS 24VDC P1SIL3DS M	D.6
1303890000	SCS 24VDC P1SIL3DS	D.6
1304040000	SCS 24VDC P1SIL3DS MG3	D.6
1310000000		
1319270000	SCS 24VDC P2SIL3DSES	D.7
1319280000	SCS 24VDC P2SIL3ES	D.8
1320000000		
1323880000	SD TO 0,6X3,0	A.39
1380000000		
1381900000	TRS 24VDC ACT	A.14
1390000000		
1390350000	ZQV 1.5N/R6.4/10 BL	A.39
1391600000	ZQV 1.5N/R6.4/19 SW	A.39
1391610000	ZQV 1.5N/R6.4/19 RT	A.39
1391620000	ZQV 1.5N/R6.4/19 BL	A.39
1391630000	ZQV 1.5N/R6.4/10 SW	A.39
1391640000	ZQV 1.5N/R6.4/10 RT	A.39
1391670000	TRZ 24VDC ACT	A.14
1391680000	TOS 24VDC ACT	A.29
1391690000	TOZ 24VDC ACT	A.29
1400000000		
1406200000	PSSR 24VDC/1PH AC 25A	C.4
1406210000	PSSR 24VDC/1PH AC 35A	C.6
1406220000	PSSR 230VAC/1PH AC 25A	C.5
1406230000	PSSR 1PH CONTROL UNIT	C.7
1406240000	PSSR 24VDC/1PH AC50A HP	C.8
1406250000	PSSR 24VDC/1PH AC75A HP	C.9
1406270000	PSSR 20MA/1PH AC70A PC	C.10
1600000000		
1609900000	WS 12/6 MC NE WS	A.50
1609900000	WS 12/6 MC NE WS	A.62
1680000000		
1686360000	LM MT300 15X6 VARIANTEN	A.50
1686360000	LM MT300 15X6 VARIANTEN	A.62
1750000000		
1758250000	ZQV 4N/2 GE	A.50
1758250000	ZQV 4N/2 GE	A.62
1758250000	ZQV 4N/2 GE	A.74
1758260000	ZQV 4N/10 GE	A.50
1758260000	ZQV 4N/10 GE	A.62
1758260000	ZQV 4N/10 GE	A.74
1760000000		
1762620000	ZQV 4N/4 GE	A.50
1762620000	ZQV 4N/4 GE	A.62
1762620000	ZQV 4N/4 GE	A.74
1762630000	ZQV 4N/3 GE	A.50
1762630000	ZQV 4N/3 GE	A.62
1762630000	ZQV 4N/3 GE	A.74
1780000000		
1783430000	SAI-Y-5S PARA 2M12	F.7
1790000000		
1793950000	ZQV 4N/2 RT	A.50
1793950000	ZQV 4N/2 RT	A.62
1793950000	ZQV 4N/2 RT	A.74
1793960000	ZQV 4N/2 BL	A.50
1793960000	ZQV 4N/2 BL	A.62
1793960000	ZQV 4N/2 BL	A.74
1793970000	ZQV 4N/2 SW	A.50
1793970000	ZQV 4N/2 SW	A.62
1793970000	ZQV 4N/2 SW	A.74
1793980000	ZQV 4N/3 RT	A.50
1793980000	ZQV 4N/3 RT	A.62
1793980000	ZQV 4N/3 RT	A.74

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1793990000	ZQV 4N/3 BL	A.50
1793990000	ZQV 4N/3 BL	A.62
1793990000	ZQV 4N/3 BL	A.74
1794000000	ZQV 4N/3 SW	A.50
1794000000	ZQV 4N/3 SW	A.62
1794000000	ZQV 4N/3 SW	A.74
1794010000	ZQV 4N/4 RT	A.50
1794010000	ZQV 4N/4 RT	A.62
1794010000	ZQV 4N/4 RT	A.74
1794020000	ZQV 4N/4 BL	A.50
1794020000	ZQV 4N/4 BL	A.62
1794020000	ZQV 4N/4 BL	A.74
1794030000	ZQV 4N/4 SW	A.50
1794030000	ZQV 4N/4 SW	A.62
1794030000	ZQV 4N/4 SW	A.74
1794040000	ZQV 4N/10 RT	A.50
1794040000	ZQV 4N/10 RT	A.62
1794040000	ZQV 4N/10 RT	A.74
1794050000	ZQV 4N/10 BL	A.50
1794050000	ZQV 4N/10 BL	A.62
1794050000	ZQV 4N/10 BL	A.74
1794060000	ZQV 4N/10 SW	A.50
1794060000	ZQV 4N/10 SW	A.62
1794060000	ZQV 4N/10 SW	A.74

1810000000

1818400000	WS 10/6 MC M NE WS	A.39

1820000000

1828450000	WS 10/6 MC NE WS	A.74

1850000000

1857440000	ESG 9/11 K MC NE WS	B.19
1857440000	ESG 9/11 K MC NE WS	B.19
1857440000	ESG 9/11 K MC NE WS	B.22
1857440000	ESG 9/11 K MC NE WS	B.25
1857440000	ESG 9/11 K MC NE WS	B.25
1857440000	ESG 9/11 K MC NE WS	B.25

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1880100000	ESG 6/15 K MC NE WS	B.8
1880100000	ESG 6/15 K MC NE WS	B.8
1880100000	ESG 6/15 K MC NE WS	B.8
1880100000	ESG 6/15 K MC NE WS	B.12
1880100000	ESG 6/15 K MC NE WS	B.12
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1909020000	ZQV 4N/20 GE	A.62
1909020000	ZQV 4N/20 GE	A.74
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1909100000	ZQV 4N/20 BL	A.62
1909100000	ZQV 4N/20 BL	A.74
1909120000	ZQV 4N/20 SW	A.50
1909120000	ZQV 4N/20 SW	A.62
1909120000	ZQV 4N/20 SW	A.74
1909150000	ZQV 4N/20 RT	A.50
1909150000	ZQV 4N/20 RT	A.62
1909150000	ZQV 4N/20 RT	A.74

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4061630000	RSS113060 60VDC-REL1U	A.36
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8074670000	RCM570048	B.33
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8287730000	MCZ O 24VUC	A.70

8320000000

8324590000	MCZ TO 24VDC/50MS	E.8
8324610000	MCZ O 24VDC	A.72

8360000000

8365940000	MCZ O 24VUC	A.70
8365980000	MCZ R 24VDC	A.65

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8398940000	MCZ O 5VTTL	A.72

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8421060000	MCZ O 120VUC	A.71
8421380000	MCZ O 230VAC	A.71

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8499550000	MCZ R 24Vdc 1NO TRAK	A.67

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8647710000	TIMER BTM-Z	E.5
8647720000	TIMER BTR-S	E.6
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8921010000	RCMKIT-I 115VAC 3CO LD	B.21
8921020000	RCMKIT-I 230VAC 3CO LD	B.21
8921030000	RCMKIT-I 24VDC 4CO LD	B.24
8921040000	RCMKIT-I 24VAC 4CO LD	B.24
8921050000	RCMKIT-I 115VAC 4CO LD	B.24
8921060000	RCMKIT-I 230VAC 4CO LD	B.24
8921080000	RCMKITP-I 24VDC 2CO LD	B.18
8921090000	RCMKITP-I 24VAC 2CO LD	B.18
8921100000	RCMKITP-I 115VAC 2CO LD	B.18
8921110000	RCMKITP-I 230VAC 2CO LD	B.18
8921120000	RCMKITP-I 24VDC 4CO LD	B.24
8921130000	RCMKITP-I 24VAC 4CO LD	B.24
8921140000	RCMKITP-I 115VAC 4CO LD	B.24
8921150000	RCMKITP-I 230VAC 4CO LD	B.24

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8937830000	MOS 24VDC/12-300VDC 1A	A.55
8937920000	MOS 5VTTL/24VDC 0,1A	A.60
8937930000	MOS 12-28VDC/5VTTL	A.61
8937940000	MOS 24VDC/5-33VDC 10A	A.54
8937970000	MOS 24VDC/8-30VDC 2A	A.56
8937980000	MOS 24VDC/5-48VDC 0,5A	A.58
8937990000	MOS 12-28VDC 100kHz	A.59

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8950700000	TOS 5VDC/48VDC 0,1A	A.43
8950710000	TOS 12VDC/48VDC 0,1A	A.43
8950720000	TOS 24VDC/48VDC 0,1A	A.43
8950730000	TOS 48-60VDC/48VDC 0,1A	A.43
8950740000	TOS 110VDC/48VDC 0,1A	A.43
8950750000	TOS 220VDC/48VDC 0,1A	A.43
8950760000	TOP 5VDC/48VDC 0,1A	A.43
8950770000	TOP 12VDC/48VDC 0,1A	A.43
8950780000	TOP 24VDC/48VDC 0,1A	A.43
8950790000	TOP 48-60VDC/48VDC 0,1A	A.43
8950800000	TOP 110VDC/48VDC 0,1A	A.43
8950810000	TOP 220VDC/48VDC 0,1A	A.43
8950820000	TOS 24VAC/48VDC 0,1A	A.43
8950830000	TOS 48-60VAC/48VDC 0,1A	A.43
8950840000	TOS 120VAC/48VDC 0,1A	A.43
8950850000	TOS 230VAC/48VDC 0,1A	A.43
8950860000	TOP 24VAC/48VDC 0,1A	A.43
8950870000	TOP 48-60VAC/48VDC 0,1A	A.43
8950880000	TOP 120VAC/48VDC 0,1A	A.43
8950890000	TOP 230VAC/48VDC 0,1A	A.43
8950900000	TOS 5VDC/48VDC 0,5A	A.45
8950910000	TOS 12VDC/48VDC 0,5A	A.45
8950920000	TOS 24VDC/48VDC 0,5A	A.45
8950930000	TOS 48-60VDC/48VDC 0,5A	A.45
8950940000	TOS 110VDC/48VDC 0,5A	A.45
8950950000	TOS 220VDC/48VDC 0,5A	A.45
8950960000	TOP 5VDC/48VDC 0,5A	A.45
8950970000	TOP 12VDC/48VDC 0,5A	A.45
8950980000	TOP 24VDC/48VDC 0,5A	A.45
8950990000	TOP 48-60VDC/48VDC 0,5A	A.45
8951000000	TOP 110VDC/48VDC 0,5A	A.45
8951010000	TOP 220VDC/48VDC 0,5A	A.45
8951020000	TOS 24VAC/48VDC 0,5A	A.45
8951030000	TOS 48-60VAC/48VDC 0,5A	A.45
8951040000	TOS 120VAC/48VDC 0,5A	A.45
8951050000	TOS 230VAC/48VDC 0,5A	A.45
8951060000	TOP 24VAC/48VDC 0,5A	A.45
8951070000	TOP 48-60VAC/48VDC 0,5A	A.45
8951080000	TOP 120VAC/48VDC 0,5A	A.45
8951090000	TOP 230VAC/48VDC 0,5A	A.45
8951100000	TOS 5VDC/230VAC 0,1A	A.47
8951110000	TOS 12VDC/230VAC 0,1A	A.47
8951120000	TOS 24VDC/230VAC 0,1A	A.47
8951130000	TOS 48-60VDC/230VAC 0,1A	A.47
8951140000	TOS 110VDC/230VAC 0,1A	A.47
8951150000	TOS 220VDC/230VAC 0,1A	A.47
8951160000	TOP 5VDC/230VAC 0,1A	A.47
8951170000	TOP 12VDC/230VAC 0,1A	A.47
8951180000	TOP 24VDC/230VAC 0,1A	A.47
8951190000	TOP 48-60VDC/230VAC 0,1A	A.47
8951200000	TOP 110VDC/230VAC 0,1A	A.47
8951210000	TOP 220VDC/230VAC 0,1A	A.47
8951220000	TOS 24VAC/230VAC 0,1A	A.47
8951230000	TOS 48-60VAC/230VAC 0,1A	A.47
8951240000	TOS 120VAC/230VAC 0,1A	A.47
8951250000	TOS 230VAC/230VAC 0,1A	A.47
8951260000	TOP 24VAC/230VAC 0,1A	A.47
8951270000	TOP 48-60VAC/230VAC 0,1A	A.47
8951280000	TOP 120VAC/230VAC 0,1A	A.47
8951290000	TOP 230VAC/230VAC 0,1A	A.47
8952130000	PSSR 24VDC/3PH AC 20A	C.12
8952140000	PSSR 230VAC/3PH AC 20A	C.13
8957020000	RCM270AB2	B.29
8957030000	RCM270AC4	B.29
8957040000	RCM270AE8	B.29
8957050000	RCM270BB0	B.29
8957090000	RCM370AB2	B.31
8957100000	RCM370AC4	B.31
8957110000	RCM370AE8	B.31
8957120000	RCM370BB0	B.31
8957160000	RCM570AB2	B.33
8957170000	RCM570AC4	B.33
8957180000	RCM570AE8	B.33
8957190000	RCM570BB0	B.33

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8973450000	MOS FEED THROUGH	A.62
8973460000	MOS SUPPLY	A.62

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9008320000	SDS 0.5X3.0X80	C.14
9008330000	SDS 0.6X3.5X100	A.39
9008330000	SDS 0.6X3.5X100	A.50
9008330000	SDS 0.6X3.5X100	A.62
9008330000	SDS 0.6X3.5X100	A.74
9008330000	SDS 0.6X3.5X100	B.38
9008330000	SDS 0.6X3.5X100	B.42
9008470000	SDK PH0	A.39
9008540000	SDK PZ2	C.14

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9457150000	SAIL-M12GM12G-4-0.3U	F.7
9457160000	SAIL-M12GM12G-4-0.6U	F.7
9457190000	SAIL-M12GM12G-4-1.5U	F.7
9457340030	SAIL-M12GM12G-5-0.3U	F.7
9457340060	SAIL-M12GM12G-5-0.6U	F.7
9457340150	SAIL-M12GM12G-5-1.5U	F.7

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