CATALOGUE 4.2

2011|2012

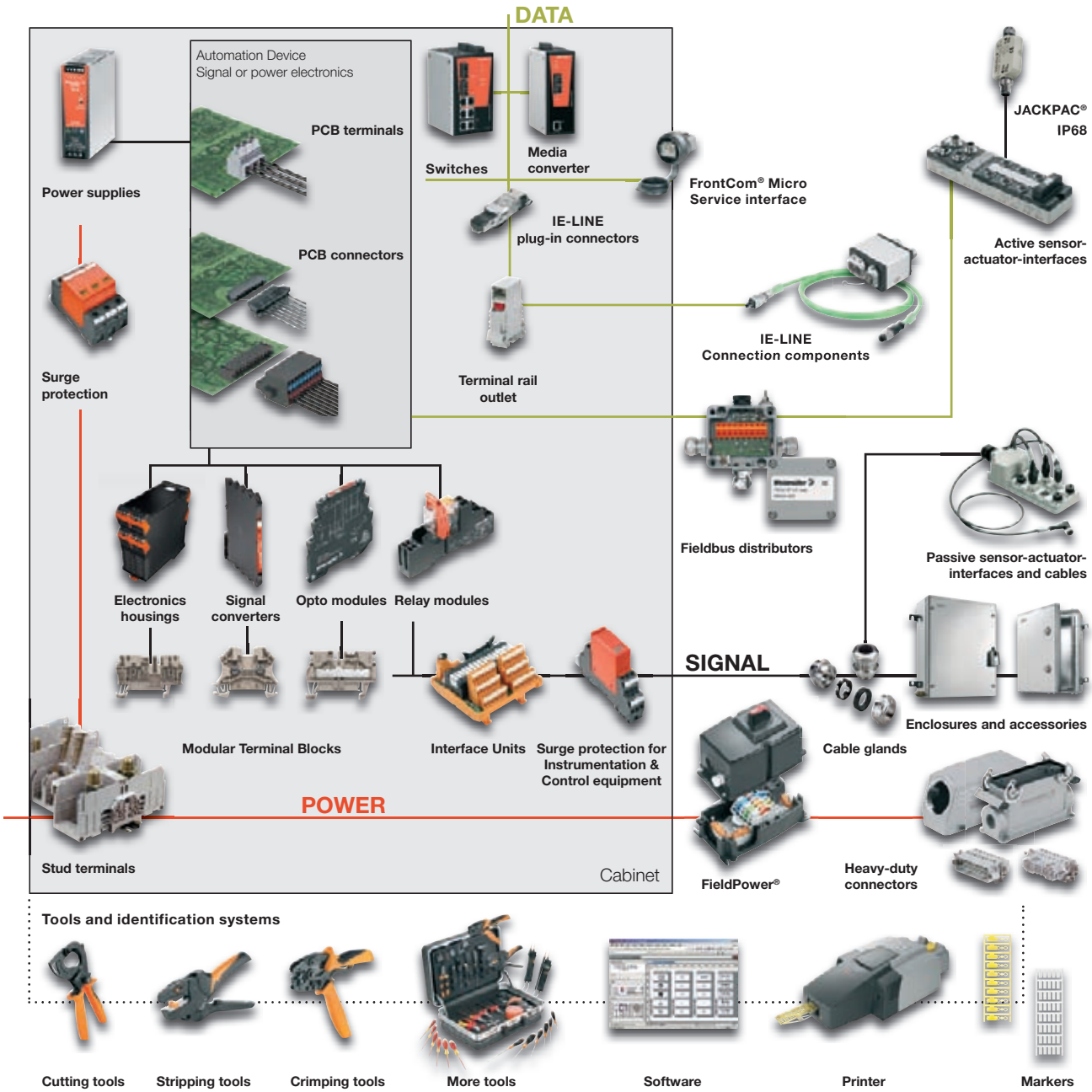
Electronics
Relays and Optos

Catalogue

Weidmüller

Product Portfolio

Weidmüller is a leading international provider of solutions for electrical connectivity, transmission and conditioning of power, signal and data in industrial environments. The company with headquarters in Detmold/Germany develops, produces and sells products in the field of electrical connectivity and electronics all over the world.
www.power-signal-data.com



All the catalogues at a glance

		Order No.
Catalog 1	Modular Terminal Blocks	**5661400000**
Catalog 2	PCB Terminals, PCB Connectors and Housings for Electronics	**1250030000**
Catalog 3	RockStar® – Heavy Duty Connectors	**5664240000**
Catalog 4.1	Electronics – Analogue Signal Conditioning	**1203510000**
Catalog 4.2	Electronics – Relays and Optos	**1282330000**
Catalog 4.3	Electronics – Power Supplies	**1158070000**
Catalog 4.4	Electronics – Surge protection	**1271290000**

		Order No.
Catalog 4.5	Electronics – Interface units and PLC solutions	**1252080000**
Catalog 5	Enclosures and Cable Glands	**5661920000**
Catalog 6	Tools	**1161520000**
Catalog 7	Identification systems	**1125590000**
Catalog 8	Sensor Actuator Interface	**1235620000**
Catalog 9	Industrial Ethernet	**1274570000**
Product information	FieldPower® – decentralised power distribution	**1229860000**

CATALOGUE **4.2**

Electronics – Relays and Optos

Electronics – Relay modules and opto modules

TERMOPTO

Page A.6

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

MICROOPTO

Page A.16

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

MICROSERIES relay module

Page A.26

- All-purpose, pluggable relay coupler
- Interface module for the system cabling between the controller and the machinery
- International approvals, with Cl.1 Div.2

MICROSERIES opto module

Page A.33

- All-purpose, pluggable optocoupler
- Interface module for the system cabling between the controller and the machinery
- International approvals

MCZ-SERIES relay module

Page A.42

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

MCZ-SERIES opto module

Page A.48

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

DK-SERIES relay modules and opto modules

Page A.53

- Mini-coupler with slim shape
- Wide range of uses in the automation and process industries

RIDERSERIES relay module

Page B.6

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

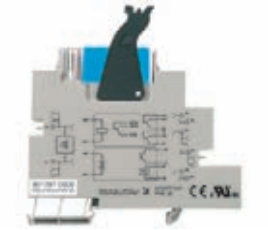
PLUGSERIES relay module

Page B.52

- Pluggable relay coupler
- Multi-purpose retaining clip for high-profile and low-profile relays
- Screw or tension clamp connection
- Base made from WEMID

PLUGSERIES opto modules

Page B.57



- Interchangeable solid-state relay
- Screw or tension clamp connection
- Base made from WEMID

RS-Series relay modules and opto modules

Page B.62

- Extra rugged version
- RSM multi-interfaces with up to 16 relays
- Wide range of uses in the automation industry

PSSR single-phase Power Solid-State Relays

Page C.4

- Load circuit: 12…275 V AC / 20 A at 55 °C
- No-voltage switch
- Ready to use

PSSR 3-phase Power Solid-State Relays

Page C.6

- Load circuit: 24…520 V AC / 20 A
- With integrated quick-action switch
- Ready to use

BT-SERIES timer

Page D.4

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

Timer with 6 mm width

Page D.8

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

JACKPAC®

Page E.3

- For use with decentralized wiring designs
- Integrates basic signal processing functionality
- IP67 protection

Functional components

Page E.9

- Switch and button components
- Fuse components
- Rectifier circuit

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 customized 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	AgSnO +5uAu	AgNi	AgNi + 5uAu	AgNi	AgNi	❸ Connection	❸ SERIES
❷ Voltage/Input/DC										
5VTTL	1167660000	1167760000							Screw	**RS 30**
5 V DC		8019610000							Screw	**DK**
			8556080000						Screw	**MICRO**
			8556150000						Tension clamp	
12 V DC		8171100000							Screw	**DK**
	1129521001	1129421001	1129660000						Screw	**RS 30**
			8556070000						Screw	**MICRO**
			8556140000						Tension clamp	
			8536471001		8536501001				Screw	**PLUG**
			8536571001		8536591001				Tension clamp	
24 V DC		8008170000	8181980000						Screw	**DK**
	1100911001	1101611001	1181511001						Screw	**RS 30**
			1128361001						Screw	**RS 31**
					9406121001				Screw	**RS 32**
			8365980000	8442960000					Tension clamp	**MCZ**
		8660920000	8533640000	8596060000					Screw	**MICRO**
		8660910000	8533660000	8596080000					Tension clamp	
			8530621001		8530631001	8561760000			Tension clamp	**PLUG**
			8530691001		8530701001	8552440000			Tension clamp	
			8881580000		8881610000				Screw	**RIDER - RCI KIT**
			8897190000		8897230000				PUSH IN	
					8920940000		8920980000	8921030000	Screw	**RIDER - RCM KIT**
					8921080000			8921120000	PUSH IN	
48 V DC		1101811001	1100410000						Screw	**RS 30**
60 V DC			8470380000						Tension clamp	**MCZ**
			8556060000						Screw	**MICRO**
			8556130000						Tension clamp	
110 V/			8467470000						Tension clamp	**MCZ**
115 V DC	1155221001	1155111001							Screw	**RS 30**
Input UC										
24 V UC		8016610000	9454910000						Screw	**DK**
		1101711001	1100360000						Screw	**RS 30**
					9406221001				Screw	**RS 32**
			8390590000						Tension clamp	**MCZ**
			8556050000						Screw	**MICRO**
			8556120000						Tension clamp	
48 V UC			8556040000						Screw	**MICRO**
			8556110000						Tension clamp	
60 V UC			8556060000						Screw	**MICRO**
			8556130000						Tension clamp	
115 V/					9406621001				Screw	**RS 32**
120 V UC			8556030000	8652030000					Screw	**MICRO**
			8556100000	8652040000					Tension clamp	
230 V UC					9406721001				Screw	**RS 32**
			8825990000						Screw	**MICRO**
			8825980000						Tension clamp	

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	AgSnO +5uAu	AgNi	AgNi + 5uAu	AgNi	AgNi	❸ Connection	❸ SERIES
❷ Voltage/Input										
24 V AC			8536530000		8536560000				Screw	**PLUG**
			8536651001		8536681001				Tension clamp	
			8881590000		8881620000				Screw	**RIDER - RCI KIT**
			8897200000		8897240000				PUSH IN	
					8920950000		8920990000	8921040000	Screw	**RIDER - RCM KIT**
					8921090000			8921130000	PUSH IN	
115 V/		1102111001	1100760000						Screw	**RS 30**
120 V AC			1150461001						Screw	**RS 31**
			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**
		8825970000							Screw	**MICRO**
		8825960000		8652040000					Tension clamp	
			8530641001		8530661001	8595960000			Screw	**PLUG**
			8530710000		8530720000	8575940000			Tension clamp	
230 V AC		1102211001	1100860000						Screw	**RS 30**
			1128461001						Screw	**RS 31**
			8237710000						Tension clamp	**MCZ**
			8556020000	8596050000					Screw	**MICRO**
			8556090000	8596070000					Tension clamp	
			8530671001		8530681001	8595990000			Screw	**PLUG**
			8530731001		8530741001	8575950000			Tension clamp	
			8881600000		8881630000				Screw	**RIDER - RCI KIT**
			8897220000		8897260000				PUSH IN	
					8920970000		8921020000	8921060000	Screw	**RIDER - RCM KIT**
					8921110000			8921150000	PUSH IN	

RSM multi-interface in a compact design (with screw connections)

❶ Output			
			
Contact	CO		
Poles	4*1	8*1	16*1
Contact material	AgNi	AgNi	AgNi
❷ Voltage/Input			
24 V DC	1113361001	1113561001	1113761001
24 V UC	1173461001	1173561001	1173661001
115 V UC	1114561001	1114661001	1114761001
230 V AC	1114861001	1114961001	1115061001

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	8582130000	8713900000	8790510000
48-110 V DC	8574070000	8713910000	8790500000

Selection table for opto modules

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				
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	❸ Connection	❸ SERIES
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	1180290000								Screw	**TERMOPTO**
	1188830000								PUSH IN	
230 V AC	8950850000	8951050000				8951250000			Screw	**TERMOPTO**
	8950890000	8951090000				8951290000			PUSH IN	
	8421380000								Tension clamp	**MCZ**
	8607710000		8607720000				8651990000		Screw	**MICRO**
	8607750000		8607760000				8651970000		Tension clamp	
230 V AC RC	1189270000								Screw	**TERMOPTO**
	1189260000								PUSH IN	
DC										
5VTTL	8398940000								Tension clamp	**MCZ**
	8937920000 100 kHz								Screw	**MICROOPTO**
5 V DC	8018630000								Screw	**DK**
	8950700000	8950900000				8951100000			Screw	**TERMOPTO**
	8950760000	8950960000				8951160000			PUSH IN	
	8633020000		8633000000						Screw	**MICRO**
	8633010000		8632990000						Tension clamp	
12 V DC	8184030000 10 kHz								Screw	**DK**
	8950710000	8950910000				8951110000			Screw	**TERMOPTO**
	8950770000	8950970000				8951170000			PUSH IN	
					8937930000 100 kHz				Screw	**MICROOPTO**
24 V DC	8028300000	8019590000	8181990000						Screw	**DK**
	8937990000 100 kHz				8937930000 100 kHz				Screw	**MICROOPTO**
	8950720000	8950920000		1275100000		8951120000			Screw	**TERMOPTO**
	8950780000	8950980000		1254880000		8951180000			PUSH IN	
					8324610000				Tension clamp	**MCZ**
	8607340000		8607350000				8652010000		Screw	**MICRO**
	8607360000		8607370000				8652020000		Tension clamp	
				8610900000				8610910000	Screw	**PLUG**
				8610970000				8610980000	Tension clamp	
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	
UC										
24 V UC	8008150000		8228630000						Screw	**DK**
	8365940000		8287730000						Tension clamp	**MCZ**
48 V UC	8025910000								Screw	**DKO**
115 V/ 120 V UC	8077860000								Screw	**DKO**
	8421060000								Tension clamp	**MCZ**
	8607690000		8607700000				8651930000		Screw	**MICRO**
	8607730000		8607740000				8651950000		Tension clamp	
230 V UC	8008160000								Screw	**DKO**

MICROOPTO components specially customized 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 or three-phase AC currents (with screw connections)

❶ Load side		
Voltage type	AC	
Switching voltage	Single-phase 12…275 V AC	Three-phase 24…275 V AC
Switching current	20 A	20 A
❷ Control side/Voltage		
3…32 V DC	8952110000	
8…30 V DC / 10…30 V AC		8952130000
110…240 V DC / 150…240 V AC	8952120000	
90…240 V AC/DC		8952140000

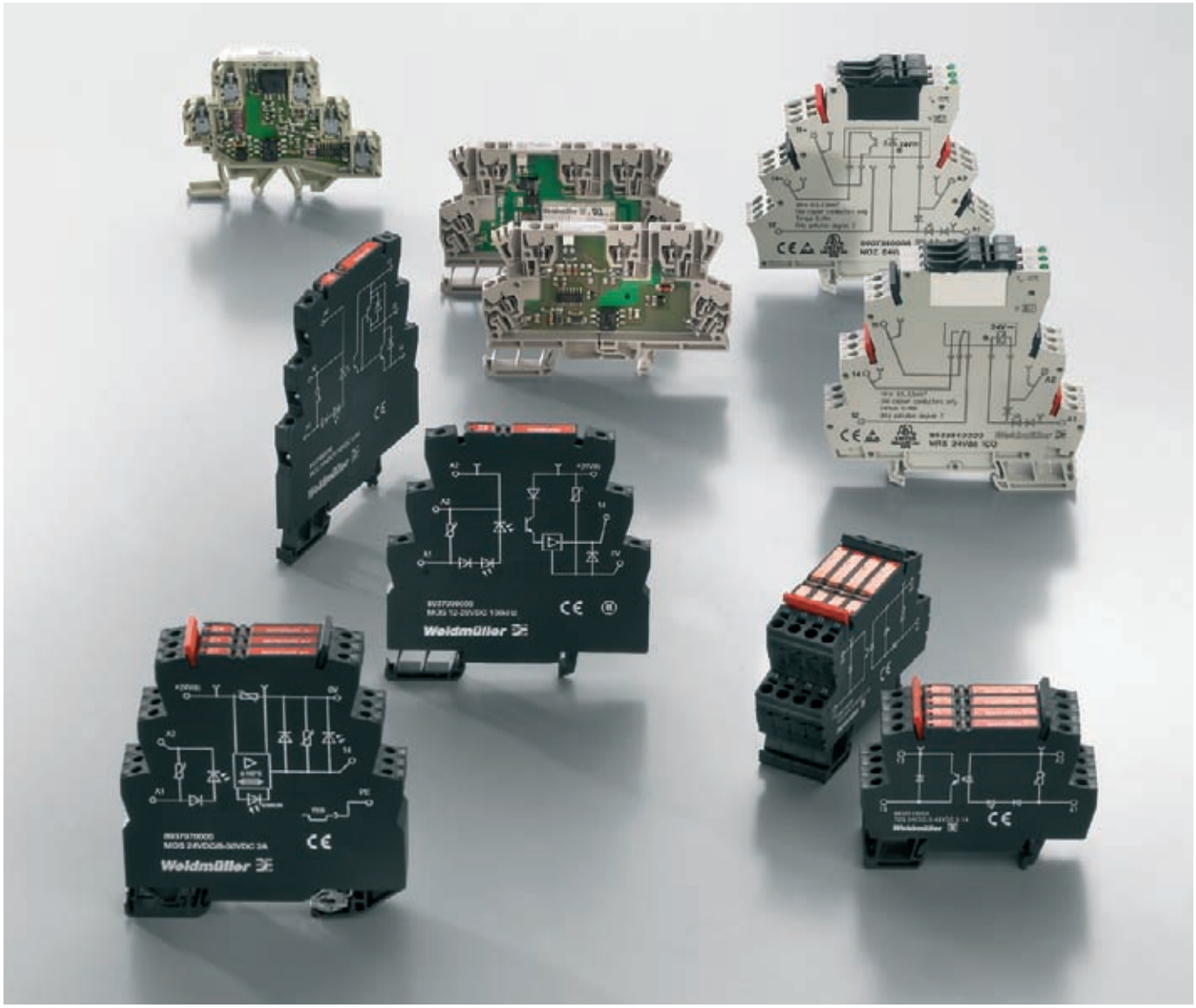
Relay modules and opto modules in 6 mm width

Relay modules and opto modules in 6 mm width

Relay modules and opto modules in 6 mm width

Coupling components in terminal format – naturally from Weidmüller

Weidmüller‘s relay modules and opto modules feature excellent electrical characteristics. They also take advantage of the same reliable connection technology that has proven itself countless times in Weidmüller‘s 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 been mastered by Weidmüller in the DK SERIES, which has been on the market and improved upon since 1989. Two compact but powerful innovations – TERMOPTO und MICROOPTO – also meet this challenge.



TERMOPTO

Isolation of potentials in terminal format

MICROOPTO

Powerful and compact
Solid state relay

MICROSERIES

Pluggable relay modules and
opto modules

MCZ-SERIES

Relay modules and opto modules –
also suitable for railway applications

DK-SERIES

Relay modules and opto modules

Isolation of potentials, in terminal format with PUSH IN connection

Wear-free technology, in a space-saving design.

The TERMOPTO opto modules are characterised by a particularly compact design, pluggable cross-connections and an optimal price-performance ratio. The TERMOPTO provides a compact, electronic alternative to electro-mechanical relays. It is suitable for isolation of potentials and signal conditioning. In contrast to traditional wear-prone, electro-mechanical solutions, the TERMOPTO compact terminal requires no maintenance and features the integrated isolation of potential voltages. That saves space, reduces service overhead, and increases the availability of your facility. In addition, it reduces your need for accessories, since the cross-connectors and markers needed are the same as for the standard terminal portfolio.

Compact

The small size brings an over 80% space savings in the electrical cabinet, compared with conventional relay solutions.

Saves time

PUSH IN

The no-screw PUSH IN connection method and the pluggable cross-connectors reduce wiring time by over 50%.

Enclosed design

The enclosed shape allows for space-saving alignment. No end plate is needed. The electronics are mechanically protected.

Durable

The no-wear semiconductor switch and comprehensive protective circuitry ensure a long product life and reliable switching cycles.

The TERMOPTO product line

TERMOPTO

Output variant
5…48 V DC 100 mA

TERMOPTO

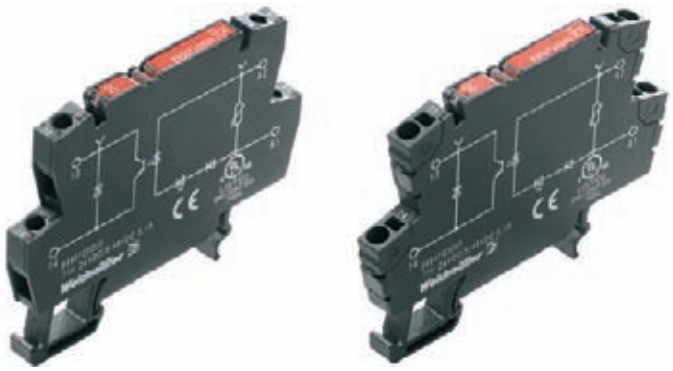
Output variant
5…48 V DC 500 mA

TERMOPTO

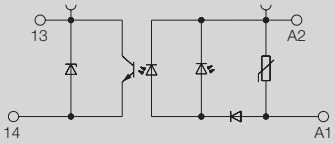
Output variant
24…230 V AC 100 mA

TERMOPTO - Opto modules

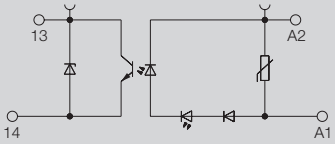
TERMOPTO output variants DC 100 mA



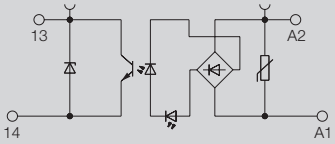
5 V DC



12...220 DC



24...230 V AC



Load side	
Solid-state type	Transistor
Nominal switching voltage / current	5...48 V DC / 100 mA
Voltage drop at max. load	< 1 V
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit	No / Diode
Switch-off delay / Switch-on delay	< 42 µs / < 13 ms
Continuous current	100 mA
Load category	DC1
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Flammability class UL 94	V-0
Humidity	5...95 % rel. humidity T_u = 40°C, no condensation
Approvals	cULus; CE
Standards	EN 50178, IEC 62314, UL508
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV
Clearance and creepage distances for control/load side	> 3 mm
Overvoltage 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
Length x width x height	mm	74.5 / 6.1 / 55	79.5 / 6.1 / 55
Note			

Applications

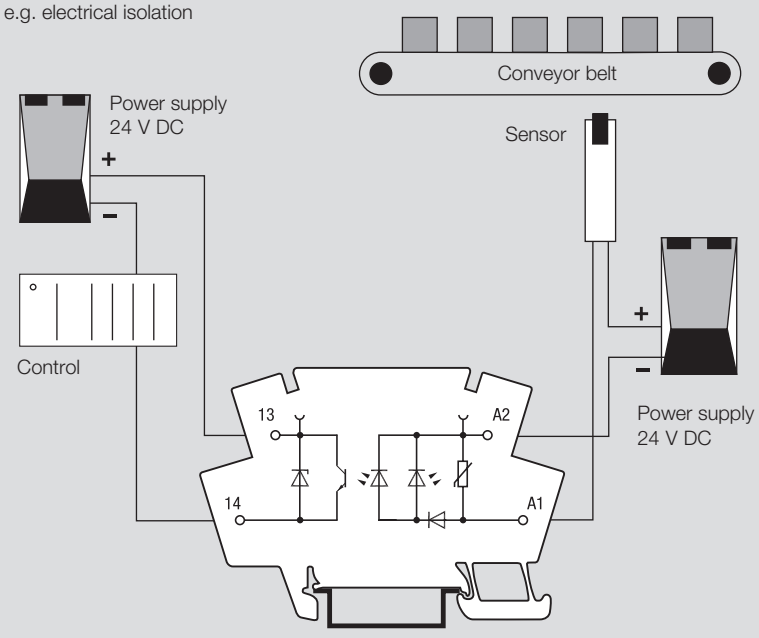
The **TERMOPTO** opto module is used in industrial applications in which electrical isolation and signal conditioning without switching amplification is sufficient.

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 appropriate or an additional safeguard is used.

e.g. electrical isolation



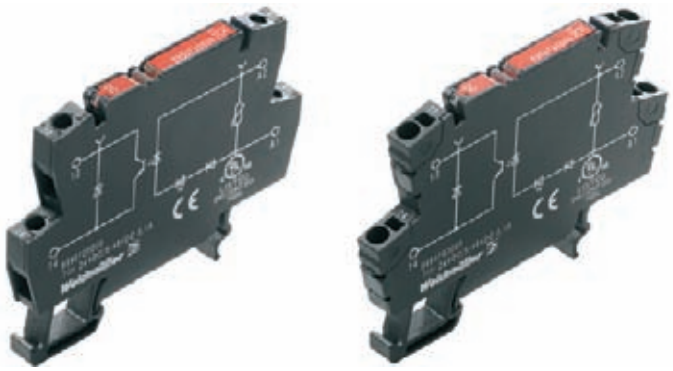
TERMOPTO output variants DC 100 mA

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	12 V DC	24 V DC	48...60 V DC	110 V DC
Power rating	< 40 mW	< 95 mW	≤ 170 mW	< 200 mW	< 280 mW
making 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, reverse polarity protection	Varistor, reverse polarity protection	Varistor, reverse polarity protection	Varistor, reverse polarity protection	Varistor, reverse polarity protection
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					

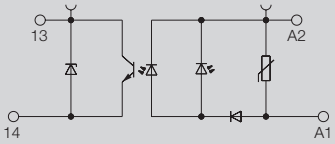
Ordering data	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
Control side					
Rated control voltage	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
Power rating	≤ 360 mW	< 0,18 VA	≤ 0,2 VA	≤ 0,3 VA	≤ 0,4 VA
making voltage	≥ 187 V DC	≥ 21.6 V AC	≥ 38.4 V AC	≥ 102 V AC	≥ 207 V AC
Dropout voltage	≤ 93.5 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, reverse polarity protection	Varistor	Varistor	Varistor	Varistor
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					

TERMOPTO - Opto modules

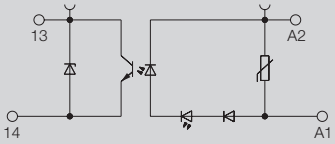
TERMOPTO output variants DC 500 mA



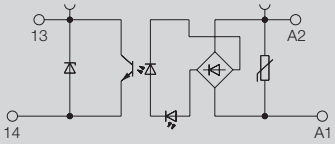
5 V DC



12...220 DC



24...230 V AC



Load side	
Solid-state type	Transistor
Nominal switching voltage / current	5...48 V DC / 500 mA
Voltage drop at max. load	< 1 V
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit	No / Diode
Switch-off delay / Switch-on delay	< 200 µs / < 20 µs
Continuous current	500 mA
Load category	DC1
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Flammability class UL 94	V-0
Humidity	5...95 % rel. humidity T_u = 40°C, no condensation
Approvals	cULus; CE
Standards	EN 50178, IEC 62314, UL508
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV
Clearance and creepage distances for control/load side	> 3 mm
Overvoltage 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
Length x width x height	mm	74.5 / 6.1 / 55	79.5 / 6.1 / 55
Note			

Applications

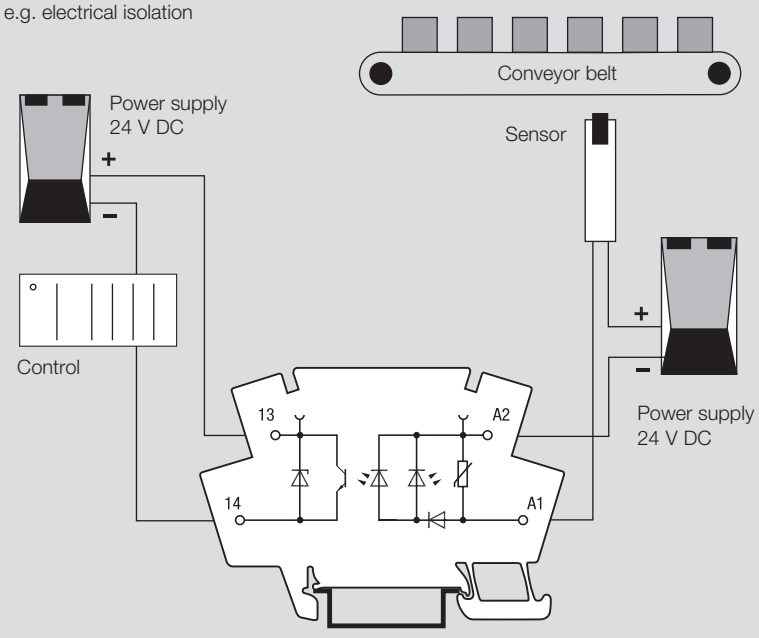
The **TERMOPTO** opto module is used in industrial applications in which electrical isolation and signal conditioning without switching amplification is sufficient.

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 appropriate or an additional safeguard is used.

e.g. electrical isolation



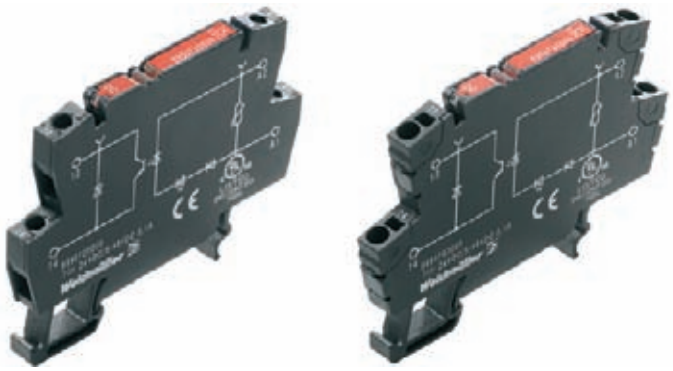
TERMOPTO output variants DC 500 mA

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	12 V DC	24 V DC	48...60 V DC	110 V DC
Power rating	< 40 mW	< 95 mW	≤ 170 mW	≤ 200 mW	≤ 280 mW
making 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, reverse polarity protection	Varistor, reverse polarity protection	Varistor, reverse polarity protection	Varistor, reverse polarity protection	Varistor, reverse polarity protection
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					

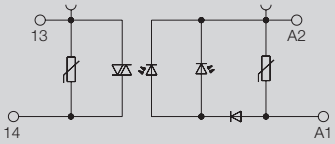
Ordering data	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
Control side					
Rated control voltage	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
Power rating	≤ 360 mW	< 0,18 VA	≤ 0,2 VA	≤ 0,3 VA	≤ 0,4 VA
making voltage	≥ 187 V DC	≥ 21.6 V AC	≥ 38.4 V AC	≥ 102 V AC	≥ 207 V AC
Dropout voltage	≤ 93.5 V DC	≤ 9.6 V AC	≤ 19.2 V AC	≤ 48 V AC	≤ 69 V AC
Input frequency	< 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, reverse polarity protection	Varistor	Varistor	Varistor	Varistor
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					

TERMOPTO - Opto modules

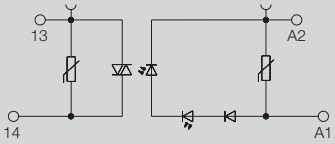
TERMOPTO output variants AC 100 mA



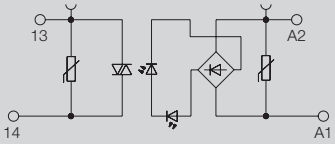
5 V DC



12...220 DC



24...230 V AC



Load side	
Solid-state type	Triac
Nominal switching voltage / current	24...230 V AC / 100 mA
Voltage drop at max. load	< 1.8 V
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit	No / Varistor
Switch-off delay / Switch-on delay	
Continuous current	100 mA
Load category	AC1
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Flammability class UL 94	V-0
Humidity	5...95 % rel. humidity T_u = 40°C, no condensation
Approvals	cULus; CE
Standards	EN 50178, IEC 62314, UL508
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV
Clearance and creepage distances for control/load side	> 3 mm
Overvoltage 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
Length x width x height	mm	74.5 / 6.1 / 55	79.5 / 6.1 / 55

Note

Applications

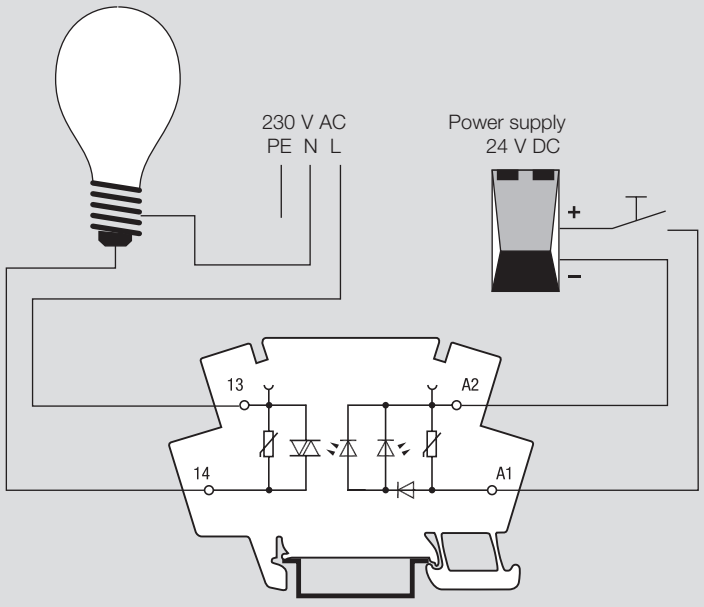
The **TERMOPTO** opto module is used in industrial applications in which electrical isolation and signal conditioning without switching amplification is sufficient.

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 appropriate or an additional safeguard is used.

E.g. signal conditioning



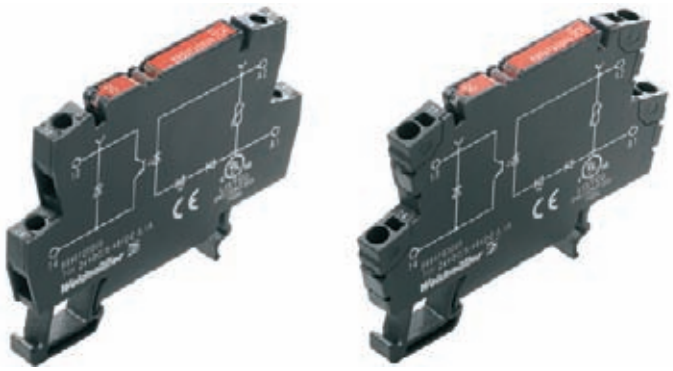
TERMOPTO output variants AC 100 mA

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	12 V DC	24 V DC	48...60 V DC	110 V DC
Power rating	< 40 mW	< 45 mW	≤ 80 mW	≤ 170 mW	≤ 360 mW
making 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, reverse polarity protection	Varistor, reverse polarity protection	Varistor, reverse polarity protection	Varistor, reverse polarity protection	Varistor, reverse polarity protection
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					

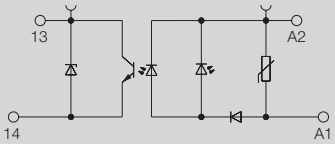
Ordering data	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
Control side					
Rated control voltage	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
Power rating	≤ 640 mW	≤ 0,2 VA	≤ 0,3 VA	≤ 0,8 VA	≤ 1,38 VA
making voltage	≥ 187 V DC	≥ 21.6 V AC	≥ 38.4 V AC	≥ 102 V AC	≥ 207 V AC
Dropout voltage	≤ 93.5 V DC	≤ 9.6 V AC	≤ 19.2 V AC	≤ 48 V AC	≤ 69 V AC
Input frequency	< 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, reverse polarity protection	Varistor	Varistor	Varistor	Varistor
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					

TERMOPTO - Opto modules

TERMOPTO output variants DC 4 A



5 V DC



Load side	
Solid-state type	Transistor
Nominal switching voltage / current	3...33 V DC / 4 A
Voltage drop at max. load	< 1 V
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit	No / Diode
Switch-off delay / Switch-on delay	< 200 µs / < 20 µs
Continuous current	4 A
Load category	DC1
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Flammability class UL 94	V-0
Humidity	5...95 % rel. humidity T_u = 40°C, no condensation
Approvals	CE; cULus
Standards	EN 50178, IEC 62314, UL508
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV
Clearance and creepage distances for control/load side	> 3 mm
Overvoltage 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
Length x width x height	mm	74.5 / 6.1 / 55	79.5 / 6.1 / 55
Note			

Ordering data

	24 V DC
Control side	
Rated control voltage	24 V DC
Power rating	≤ 170 mW
making voltage	≥ 16.8 V DC
Dropout voltage	≤ 9.6 V DC
Input frequency	10 Hz
Status indicator	Green LED
Protective circuit	Varistor, reverse polarity protection
Ausschaltverzögerung	200 µs
Einschaltverzögerung	20 µs

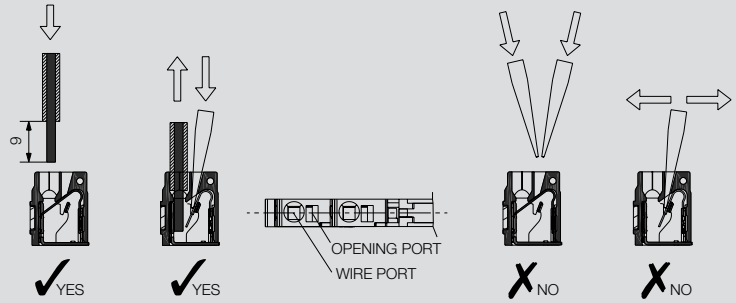
Ordering data		
Screw connection	Type	TOS 24VDC/24VDC 4A
	Order No.	**1275100000**
PUSH IN connection	Type	TOP 24VDC/24VDC 4A
	Order No.	**1254880000**

Note	

Accessories

General data – TERMOPTO

Handling the PUSH IN connection



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

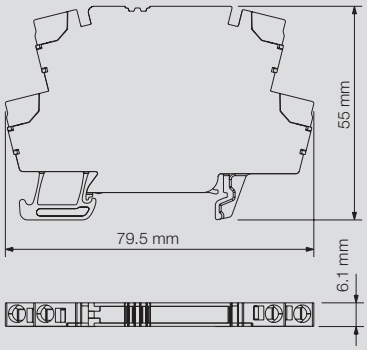
Conductor		PUSH IN connection	Screw connection
Solid H07V-U	mm²	0.5…1.5	0.5…2.5
Stranded H07V-K	mm²	0.5…1.5	0.5…2.5
"f" with wire end ferrules to DIN 46228-1	mm²	0.5…1.5	0.5…1.5
"f" with wire end ferrules with plastic collar	mm²	0.5…1.5	0.5…1.5
Max. clamping range	mm²	0.13...1.5	0.13…2.5
Plug gauge to 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
UL 94 flammability rating		V-0	V-0
Nominal current	A	6	6
Nominal voltage	V	250	250

Other accessories

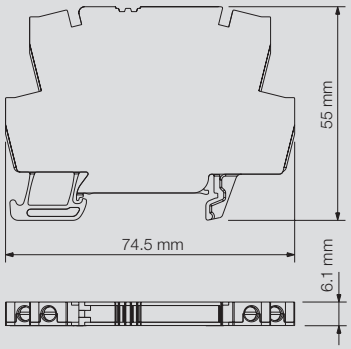
Type		Qty.	Order No.
Markers			
WS 12/6	12 x 6 mm	600	**1609900000**
Labels, Lasermark			
LM MT 300 15/6 ge	484 labels/sheet	10	**1686360000**
Screwdriver			
SD 0.6 x 3.5 x 100		10	**9008330000**

Dimensions

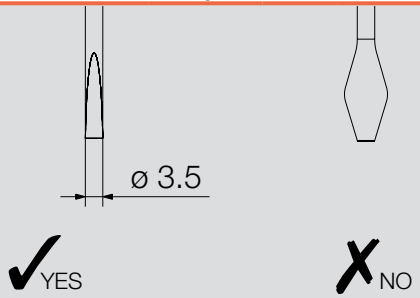
PUSH IN connection



Screw connection



Screwdriver – blade shape

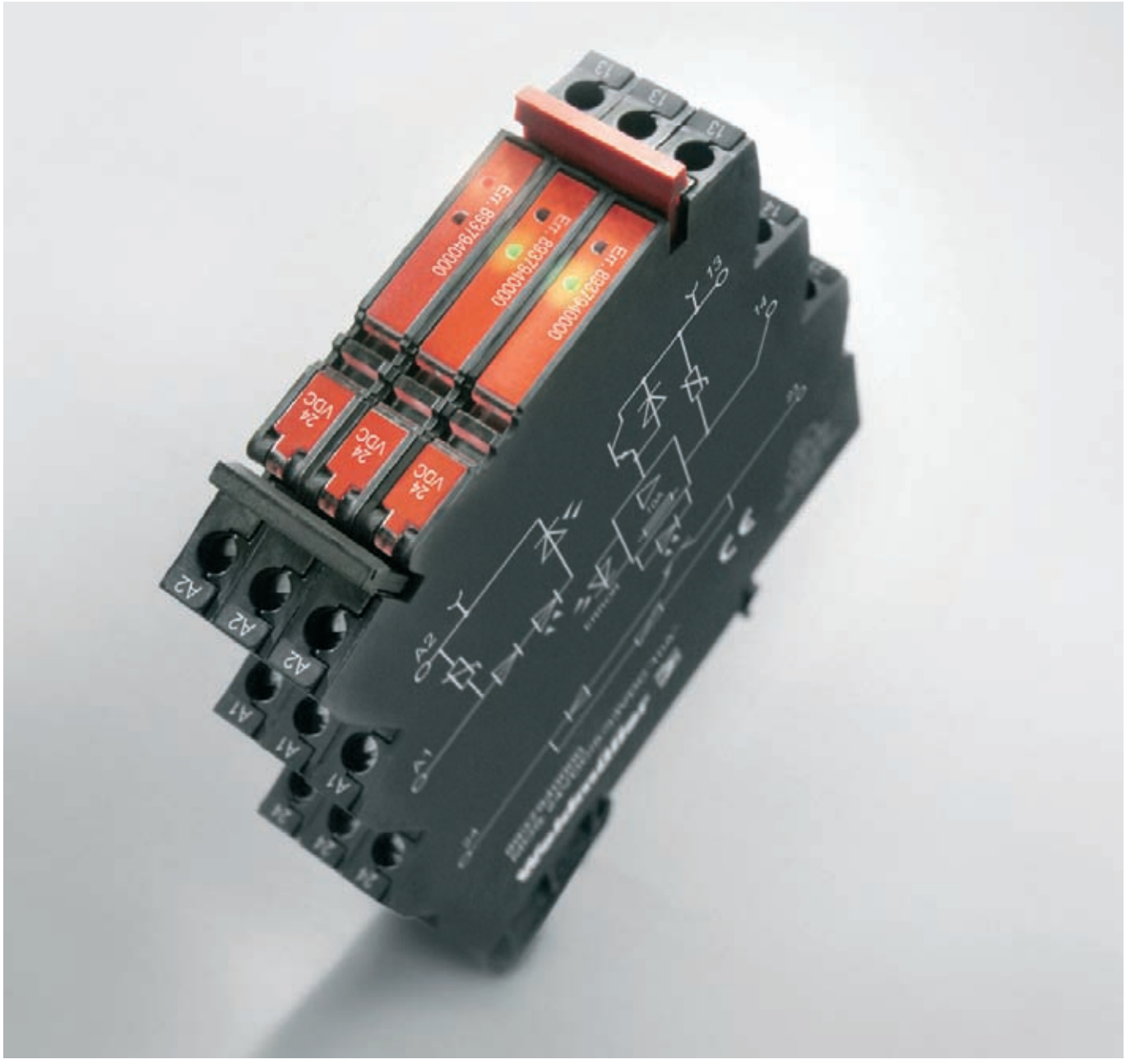


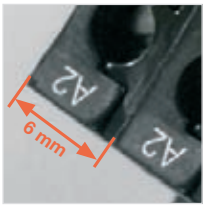
Compact semiconductor switch for demanding industrial applications

The MICROOPTO product line provides customers with application-oriented solutions with its high-quality optos and solid-state relays. All products are designed in the space-saving, 6 mm terminal size.

MICROOPTO – SOLENOID

Powerful and compact solid-state relays for loads up to 10 A. The new solid-state relay is wired into the output circuit of control and regulating systems. It is used to selectively control inductive loads (such as magnetic valves or contactors) of up to 24 V DC / 10 A. The output is monitored for short circuits or overloads and can be switched off. An acknowledgment signal can be sent by means of a no-voltage signalling contact so that the facility can be shut down for troubleshooting.





Space saver

The 6 mm modular width saves space.

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.

The MICROOPTO product line

MICROOPTO SOLENOID

Used to switch valves up to 24 V DC 10 A

MICROOPTO ACTOR

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

MICROOPTO 300 V DC

Used to switch DC loads of up to 300 V DC / 1 A

MICROOPTO 1 CO

For electronically switching or inverting signals

MICROOPTO 100 kHz

Used to isolate potentials in signals up to 100 kHz

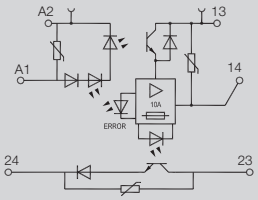
MICROOPTO TTL

Used to isolate potentials in 5 V TTL signals to 24 V DC

For switching valves up to 24 V DC 10 A

- Only 6 mm width
- Pluggable cross-connection
- Installation on TS35
- Status indicator and error message contact in case of failures on the output

24 V DC / 5-33 V DC 10 A

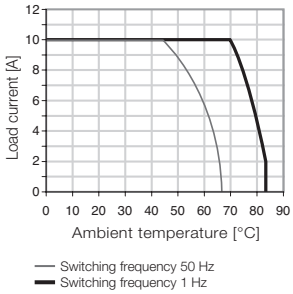


The **MICROOPTO SOLENOID** solid-state relay is used especially as switching amplifier for actuators up to 24 V DC and 10 A with inductive loads such as solenoid valves and contactors.

A potential-free signalling contact transmits errors, such as short circuit, 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.

MICROOPTO 10 A



Technical data

Control side	
Rated control voltage	24 V DC ±20 %
Power rating	400 mW
making voltage	> 18 V
Dropout voltage	< 13 V
Input frequency	50 Hz
Status indicator	Error LED red; Status LED green
Protective circuit	Varistor, reverse polarity protection
Load side	
Solid-state type	POWER-MOS-FET transistor
Rated switching voltage	5...33 V DC
Rated switching current	10 A
Voltage drop at max. load	approx. 100 mV
Leakage current	< 1 mA
Short-circuit-proof / Protective circuit	Yes (conditional 4h / current limiting < 200 A) / Varistor, Current sensor
Switch-on delay / Switch-off delay	typical. 250 µs / typical. 700 µs
Continuous current	10 A
Pulse loading, max. current	
Load category	LC A
General data	
Alarm contact	5...48 V DC / 0.1 A
Ambient temperature	-25 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GL; GOSTME25; UL; CE
Standards	EN 50178, GL 2003-VI-Abs. 9, IEC 62314, UL508
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV (1.2 / 50 µs)
Clearance and creepage distances for control/load side	> 3 mm
Overvoltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4
Length x width x height	mm	90 / 6.1 / 98
Note		Suppressor circuitry for inductive loads, 10-cm installation clearance to inductive switching devices

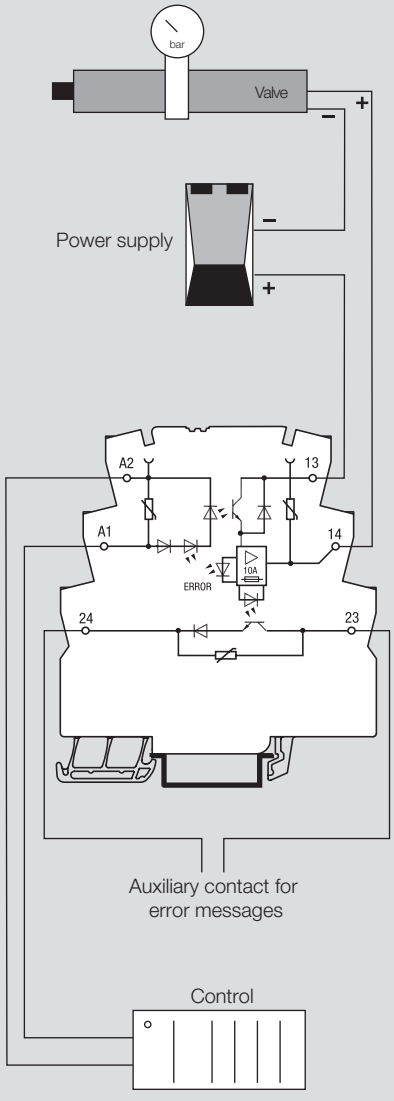
Ordering data

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

Note

Accessories

e.g. pneumatic valve



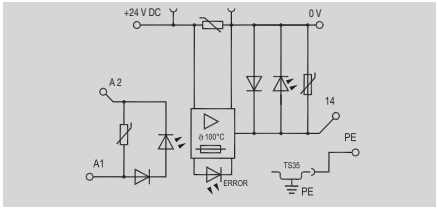
For direct connection of actuators up to 24 V DC, 2 A

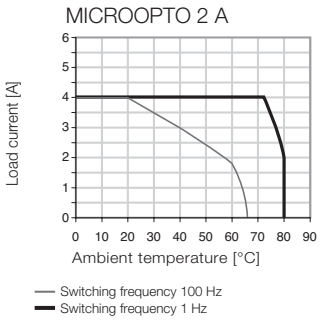
- Only 6 mm width
- Plug-in cross-connection
- PE connection direct to mounting rail
- Status display when error in output

8...30 V DC 2 A

The solid-state relay **MICROOPTO ACTOR** has been especially designed as a switching amplifier for actuators up to 24 V DC and 2A 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	0.1...2 W
making voltage	> 13.8 V
Dropout voltage	< 13.6 V
Input frequency	100 Hz
Protective circuit	Varistor, reverse polarity protection
Load side	
Solid-state type	Intelligent POWER MOS-FET
Rated switching voltage	8...30 V DC
Rated switching current	2 A @ 55 °C
Voltage drop at max. load	≤ 50 mV
Leakage current	< 50 µA
Short-circuit-proof / Protective circuit	Yes (12 h) / Varistor
Switch-on delay / Switch-off delay	0.1 ms / < 0.5 ms
Continuous current	2 A
Pulse loading, max. current	
Load category	LC A
Status indicator	Error indication LED red; status LED green
General data	
Ambient temperature	-20…s. Derating curve
Storage temperature	-40 °C...+80 °C
Flammability class UL 94	V-0
Humidity	5...95 % RH
	T_u = 55 °C, no condensation
Approvals	GL; UL; CE
Standards	EN 50178, GL 2003-VI-Abs. 9, IEC 62314, UL508
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV (1.2 / 50 µs)
Clearance and creepage distances for control/load side	> 3 mm
Overvoltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4
Length x width x height	mm	90 / 6.1 / 98
Note		

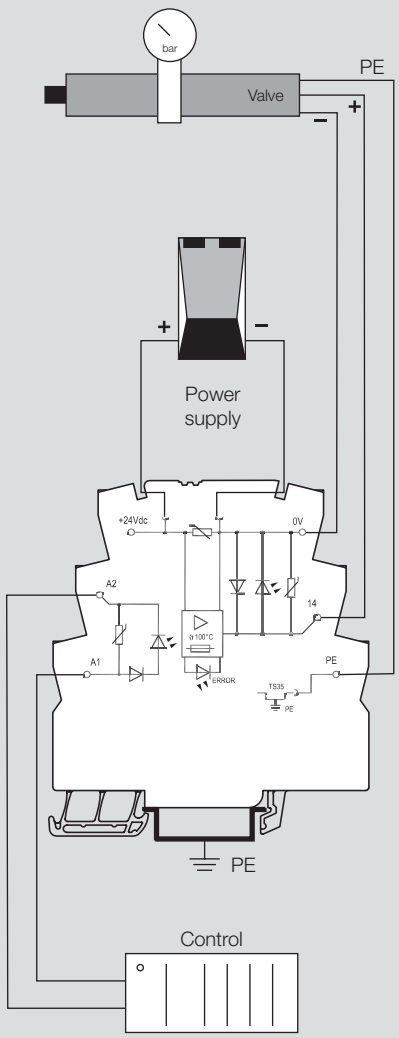
Ordering data

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

Note

Accessories

Example: pneumatic valve



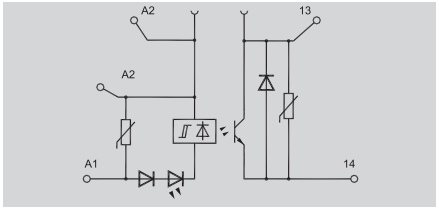
For DC loads up to 300 V DC and 1A

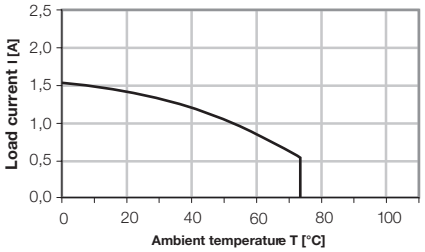
- Only 6 mm width
- Plug-in cross-connection
- Power Boost: 20 A / 20 ms, 5 A / 1 sec

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.



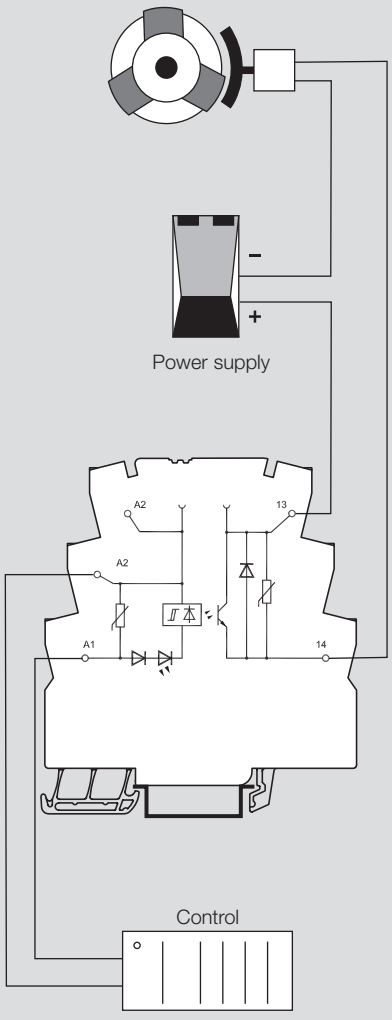


Technical data

Control side	
Rated control voltage	24 V DC ±20 %
Power rating	0.36 W
making voltage	> 18.8 V
Dropout voltage	< 14.7 V
Input frequency	50 Hz
Status indicator	Green LED
Protective circuit	Varistor, reverse polarity protection
Load side	
Solid-state type	MOS-FET
Rated switching voltage	12...300 V DC
Rated switching current	1 A @ 55 °C
Voltage drop at max. load	≤ 0.5 V
Leakage current	< 1 µA
Short-circuit-proof / Protective circuit	Powerboost 10 A / 20 ms, 5 A / 1 sec / Varistor
Switch-on delay / Switch-off delay	0.1 ms / < 0.1 ms
Continuous current	1 A
Pulse loading, max. current	27 A (10 ms)
Load category	LC A
General data	
Ambient temperature	-20…s. Derating curve
Storage temperature	-40 °C...+80 °C
Flammability class UL 94	V-0
Humidity	5...95 % RH
	T_u = 55 °C, no condensation
Approvals	cULus; GL; CE
Standards	EN 50178, GL 2003-VI-Abs. 9, IEC 62314, UL508
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV (1.2 / 50 µs)
Clearance and creepage distances for control/load side	> 3 mm
Overvoltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4
Length x width x height	mm	90 / 6.1 / 98
Note		

Example: motor brake



Ordering data

Connection system
Screw connection

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

Note

Accessories

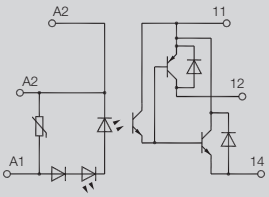
For electronically switching or inverting signals

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
making voltage	> 80 % U_{nenn}
Dropout voltage	< 50 % U_{nenn}
Input frequency	1 kHz
Status indicator	Green status LED
Protective circuit	Varistor, reverse polarity protection
Load side	
Solid-state type	Bipolar transistor
Rated switching voltage	5...48 V DC
Rated switching current	500 mA
Voltage drop at max. load	Max. 1 V
Leakage current	< 2 µA
Short-circuit-proof / Protective circuit	No / Integrated free-wheel diode
Switch-on delay / Switch-off delay	< 40 µs / < 50 µs
Continuous current	500 mA
Pulse loading, max. current	
Load category	LC A
General data	
Ambient temperature (operational)	-25 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GL; GOSTME25; UL; CE
Standards	EN 50178, GL 2003-VI-Abs. 9, IEC 62314, UL508
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV (1.2 / 50 µs)
Clearance and creepage distances for control/load side	> 3 mm
Overvoltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4
Length x width x height	mm	90 / 6.1 / 98
Note		

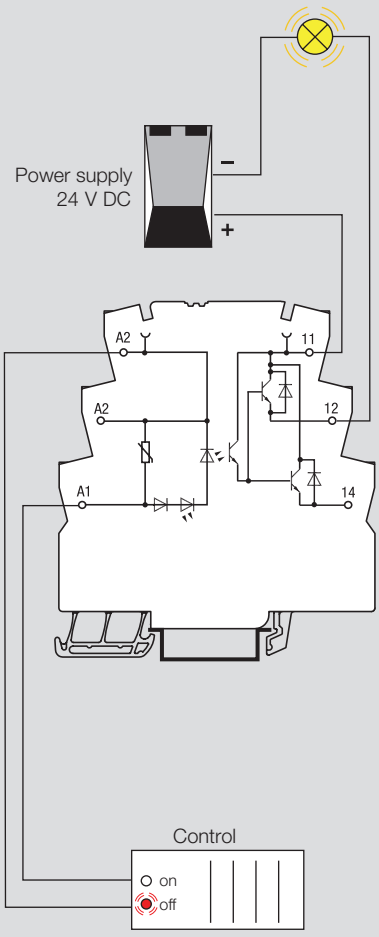
Ordering data

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

Note

Accessories

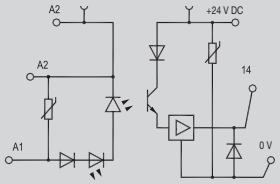
e.g. Inverter



For high switching frequencies up to 100 kHz

- Only 6 mm width
- Plug-in cross-connection
- For mounting on TS 35

12...28 V DC 100 kHz

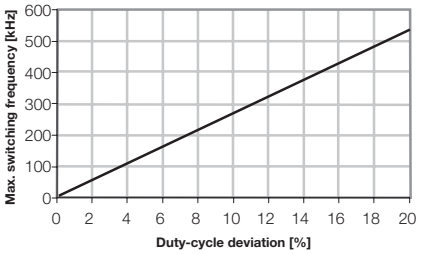


A special interior circuit in the opto module **MICROOPTO 100 kHz** ensures that rapidly transmitted signals are isolated from one another and that they can be transferred practically without delay. This allows switching frequencies up to 100 kHz to be achieved.

Comprehensive suppressor circuits safeguard the module against conducted transients and voltage spikes

Max. switching frequency is dependent on the duty cycle deviation

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

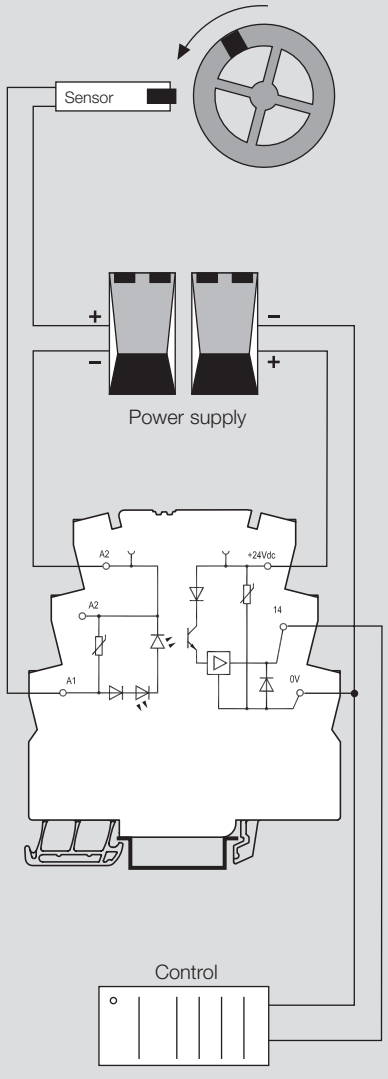


Technical data

Control side	
Rated control voltage	12 V DC...28 V DC
Power rating	0.08...0.3 W
making voltage	> 5.6 V
Dropout voltage	< 5.1 V
Input frequency	100 kHz
Status indicator	Green LED
Protective circuit	Varistor, reverse polarity protection
Load side	
Solid-state type	Bipolar transistor
Rated switching voltage	24 V DC ±20%
Rated switching current	50 mA
Voltage drop at max. load	≤ 2 V
Leakage current	< 20 µA
Short-circuit-proof / Protective circuit	No / Varistor, reverse polarity protection
Switch-on delay / Switch-off delay	< 200 ns / < 400 ns
Continuous current	max. 50 mA
Pulse loading, max. current	0.6 A (20 ms)
Load category	LC A
General data	
Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Flammability class UL 94	V-0
Humidity	5...95 % RH
	T_u = 55 °C, no condensation
Approvals	GL; UL; CE
Standards	EN 50178, GL 2003-VI-Abs. 9, IEC 62314, UL508
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV (1.2 / 50 µs)
Clearance and creepage distances for control/load side	> 3 mm
Overvoltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4
Length x width x height	mm	90 / 6.1 / 98
Note		

For example rotational speed measurement



Ordering data

Connection system
Screw connection

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

Note

Accessories

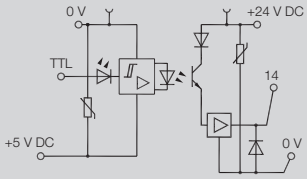
For adjusting TTL signals

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
making voltage	approx. 2 V
Dropout voltage	ca. 1 V
Input frequency	100 kHz
Status indicator	Green status LED
Protective circuit	Varistor, reverse polarity protection
Rated auxiliary voltage	5 V DC ±5 %
Load side	
Solid-state type	Bipolar transistor
Rated switching voltage	19.6...28.8 V
Rated switching current	100 mA
Voltage drop at max. load	< 1 V
Leakage current	< 20 µA
Short-circuit-proof / Protective circuit	No / Integrated free-wheel diode
Switch-on delay / Switch-off delay	< 300 µs / < 2 µs
Continuous current	100 mA
Pulse loading, max. current	
Load category	LC A
General data	
Ambient temperature (operational)	-25 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GL; GOSTME25; UL; CE
Standards	EN 50178, GL 2003-VI-Abs. 9, IEC 62314, UL508
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV (1.2 / 50 µs)
Clearance and creepage distances for control/load side	> 3 mm
Overvoltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4
Length x width x height	mm	90 / 6.1 / 98
Note		

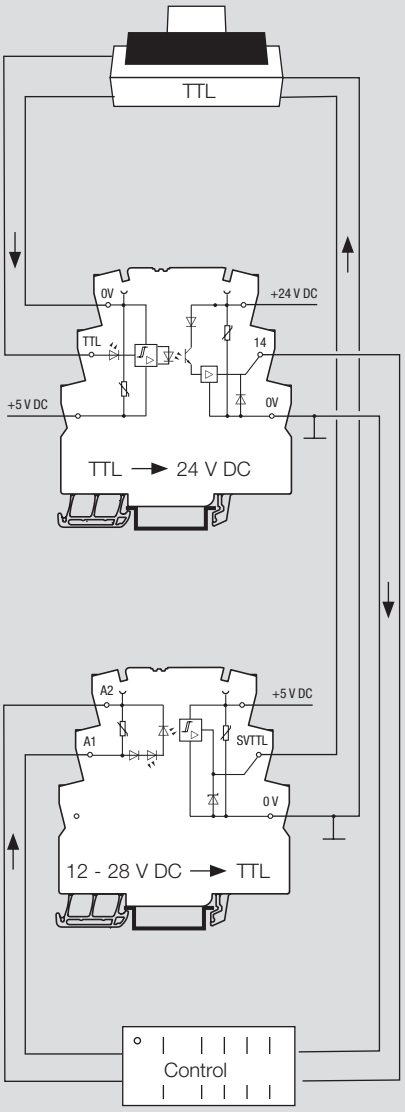
Ordering data

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

Note

Accessories

e.g. printer interface



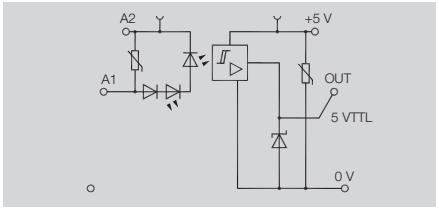
For adjusting TTL signals

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
making voltage	> 10.7 V
Dropout voltage	< 10.6 V
Input frequency	100 kHz
Status indicator	Green status LED
Protective circuit	Varistor, reverse polarity protection
Load side	
Solid-state type	TTL gate
Rated switching voltage	TTL level
Rated switching current	50 mA
Voltage drop at max. load	50 mV
Leakage current	
Short-circuit-proof / Protective circuit	No / Varistor
Switch-on delay / Switch-off delay	typical. < 1 µs / typical. < 4 µs
Continuous current	max. 50 mA
Pulse loading, max. current	
Load category	LC A
Rated auxiliary voltage	5 V DC ±5 %
General data	
Ambient temperature (operational)	-25 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GL; GOSTME25; UL; CE
Standards	EN 50178, GL 2003-VI-Abs. 9, IEC 62314, UL508
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV (1.2 / 50 µs)
Clearance and creepage distances for control/load side	> 3 mm
Overvoltage category	III
Pollution severity	2

Dimensions		**Screw connection**
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4
Length x width x height	mm	90 / 6.1 / 98
Note		

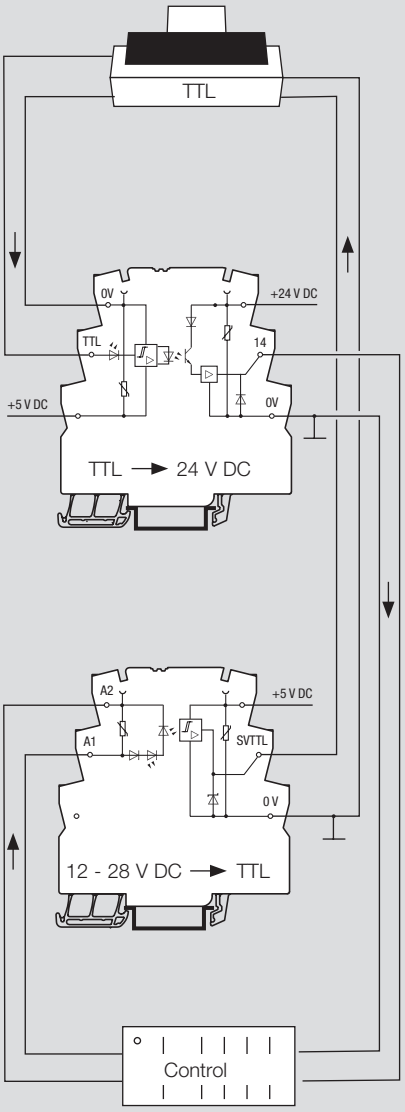
Ordering data

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

Note

Accessories

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

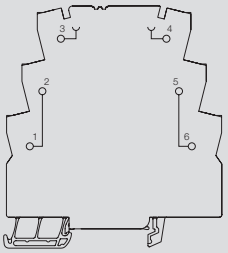
		Screw-connection
Conductor		
Solid H07V-U	mm²	0.5 … 4.0
Stranded H07V-K	mm²	0.5 … 2.5
"f" with wire end ferrules to DIN 46228-1	mm²	0.5 … 1.5
"f" with wire end ferrules with plastic collar	mm²	0.5 … 1.5
Max. clamping range	mm²	0.13 … 4.0
Plug gauge to IEC 60947-1	size	A 3
General technical data		
Nominal 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

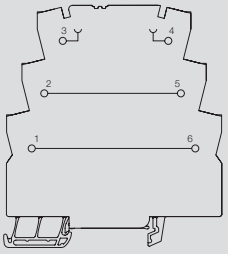
Type		Qty.	Order No.
Supply terminals			
MOS SUPPLY		1	**8973460000**
MOS FEED THROUGH		1	**8973450000**
Markers			
WS 12/6	12 x 6 mm	600	**1609900000**
Labels, Lasermark			
LM MT 300 15/6 ge	484 labels/sheet	10	**1686360000**
Screwdriver			
SD 0.6 x 3.5 x 100		10	**9008330000**
Cross-connector for plugging 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

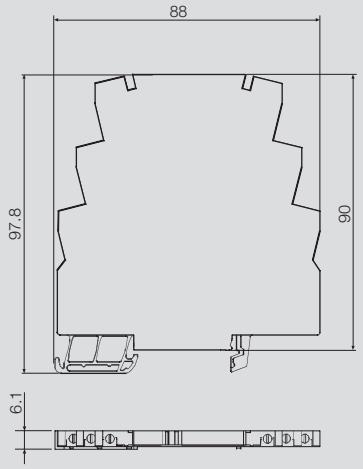


8973450000
MOS FEED THROUGH



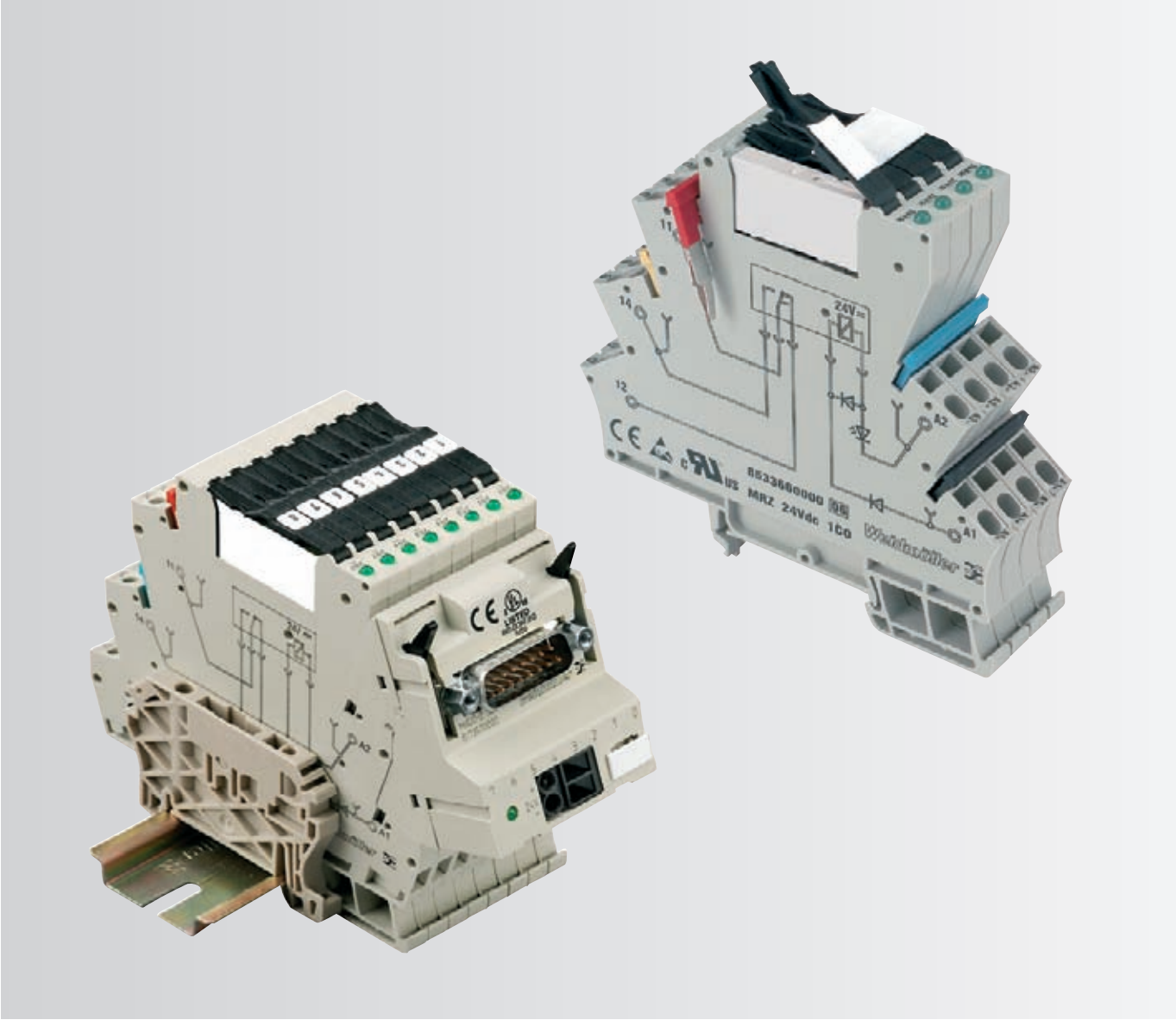
Dimensions

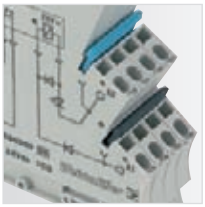
Screw connection



All-purpose, pluggable relay modules and opto modules

MICROSERIES is the perfect method for isolating potentials and for amplifying signals. Pluggable relays and optocouplers are available in a variety of power classes. Depending on the version, they can switch currents from 1 mA...6 A and voltages from 1 V to 250 V AC/DC. No complex re-wiring is required for adaptation; instead only the relay or opto module is adapted to fit the application. The ZQV 4N pluggable cross-connections can also be used in other terminals (for example, the WDU 4). This potential for multiple usages can help to reduce your inventory. They are arranged on the product so that they are easily visible even when plugged and so they cannot be covered by connected wiring. The relays can be labelled with WS12/6 MultiCard markers and the PrintJet PRO. Screw and tension clamp connections are both available. The SPS System interface (described in a separate catalogue) can be used for quick and simple wiring to the appropriate MICROINTERFACE adapter.





Time-saving

Pluggable cross-connections in input and output on four connection levels.

Practical

Pluggable relay modules and opto modules can be easily swapped because they are pin compatible.

Simple

The system cabling with the interface adapter makes it easier to connect to the controller.

Wemid

Proven

The Wemid material in the base contains no halogens and has a flammability class of V0 according to UL94.

The MICROSERIES product line

MICROSERIES

Relay module with 1 CO contact, with Cl.I div.2 approval

MICROSERIES

Relay module with 1 gold-plated CO contact

MICROSERIES

Opto module with 5…48 V DC / 0.1 A switching capacity

MICROSERIES

Opto module with 5…48 V DC / 2 A switching capacity

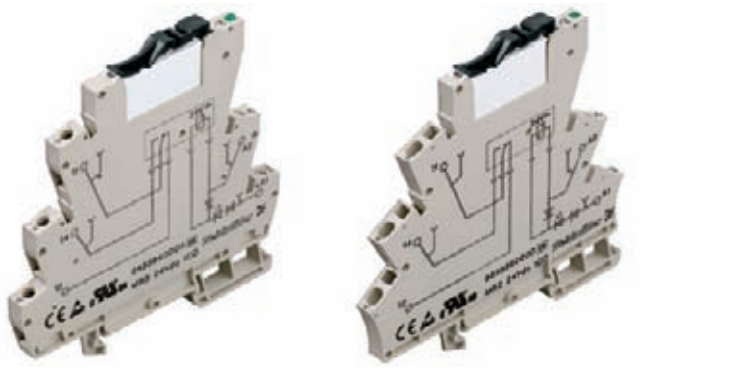
MICROSERIES

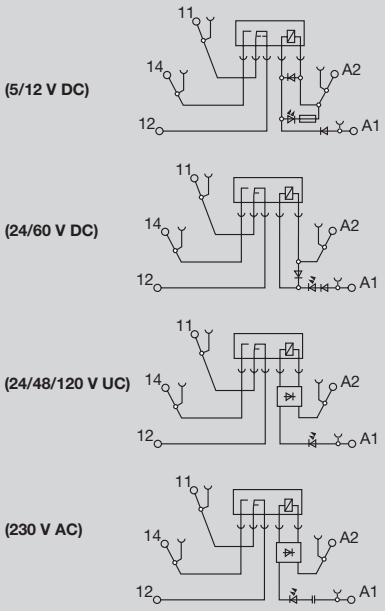
Opto module with 24…230 V DC / 1 A switching capacity

1 CO contact
AC/DC/UC coil

Module can be used as an universal interface between the controller and the actuator to switch small and medium-sized loads.

- Relay modul interchangeable, also for an opto modul
- 6.1 mm width
- Pluggable cross-connection at input and output minimizes the wiring workload.



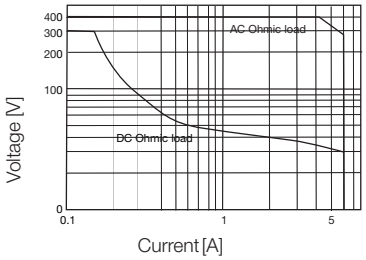


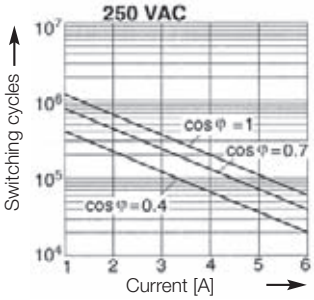
Output		
Switching voltage AC, max. / Continuous current		250 V / 6 A
min. switching capacity		12 V / 100 mA
Switch-on delay / Switch-off delay		9.3 ms / 7.5 ms
Contact material		AgSnO
Mechanical service life		$20*10^6$ switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Status indicator / Free-wheel diode		Green LED / Yes
Reverse polarity protection		Available
Ambient temperature (operational)		-25 °C...+50 °C
Storage temperature		-40 °C...+60 °C
Humidity		40°C / 93% rel. humidity, no condensation
Insulation coordination (EN 50 178)		
Standards		EN 50178
Rated voltage		300 V
Impulse withstand voltage		6 kV (1.2/50 µs)
Clearance and creepage distances for control/load side		≥ 5.5 mm
Overvoltage category		III
Pollution severity		2
Protective separation acc. to VDE 0106 part 101		Yes

Dimensions		Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Length x width x height	mm	93 / 6.1 / 92	94 / 6.1 / 91
Note		Cross-connectors and markers - refer to MICROSERIES accessories	

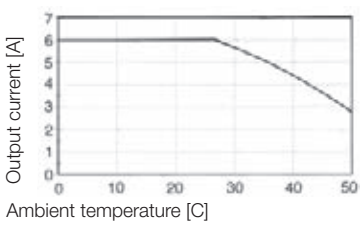
Applications

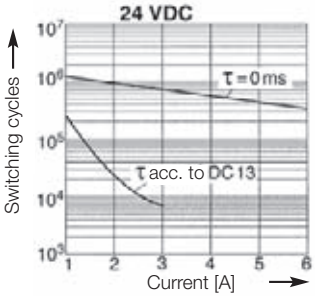
Limit curve





Current–Temperature rise curve





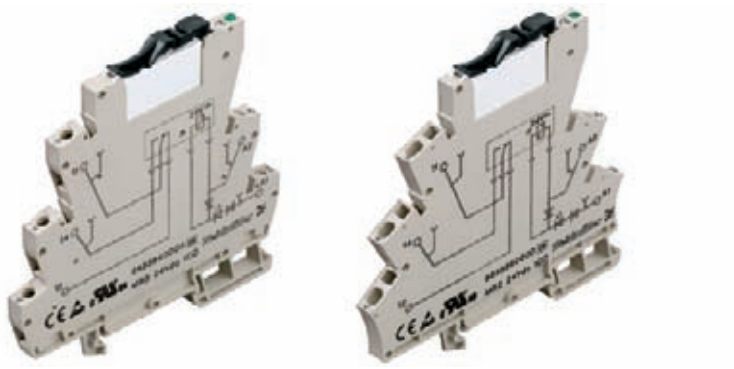
1 CO contact
AC/DC/UC coil

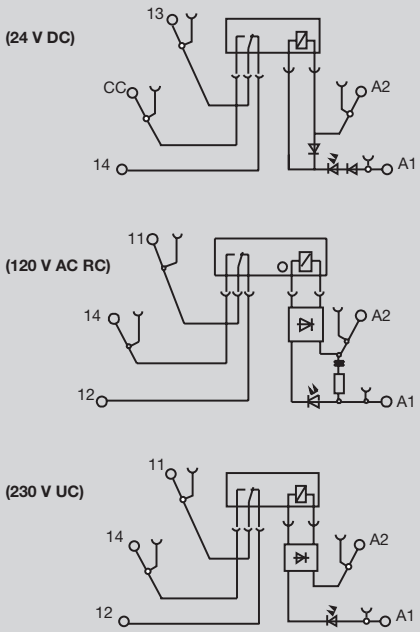
Ordering data	5 V DC 1CO	12 V DC 1CO	24 V DC 1CO	24 V UC 1CO
Input				
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %
Rated current AC				11 mA
Rated current DC	38.5 mA	17 mA	6.6 mA	6.4 mA
Power rating	193 mW	210 mW	160 mW	154 mW
AC Response/dropout Volt				15.8 V / 7 V
DC Response/dropout Volt	3.2 V / 1.6 V	6.4 V / 2.5 V	15.4 V / 6.5 V	15.8 V / 7 V
AC pickup/dropout current				3.6 mA / 1.3 mA
DC pickup/dropout current	21,6 mA / 8 mA	8.4mA/2.4mA	4mA/1.2mA	3.6mA/1.3mA
Approvals	CSA; cULus; cURus; GOSTME25; CE	CSA; cULus; cURus; GOSTME25; CE	CSA; cULus; cURus; GOSTME25; CE	CSA; cULus; cURus; GOSTME25; CE
Ordering data Relay module with socket				
Screw connection Type	MRS 5Vdc 1CO	MRS 12Vdc 1CO	MRS 24Vdc 1CO	MRS 24Vuc 1CO
Order No.	**8556080000**	**8556070000**	**8533640000**	**8556050000**
Tension clamp connection Type	MRZ 5Vdc 1CO	MRZ 12Vdc 1CO	MRZ 24VDC 1CO	MRZ 24Vuc 1CO
Order No.	**8556150000**	**8556140000**	**8533660000**	**8556120000**
Ordering data Spare relay module (pluggable)				
Type	RSS113005 05Vdc-Rel1U	RSS113012 12Vdc-Rel1U	RSS113024 24Vdc-Rel1U	RSS113024 24Vdc-Rel1U
Order No.	**4061580000**	**4061610000**	**4060120000**	**4060120000**
Note				

Ordering data	48 V UC 1CO	60 V DC 1CO	120 V UC 1CO	230 V AC 1CO
Input				
Rated control voltage	48 V UC ±10 %	60 V DC ±20 %	120 V UC +10 % / -15 %	230 V AC ±10 %
Rated current AC	5 mA		3.5 mA	7.6 mA
Rated current DC	4 mA	3,3 mA	3.5 mA	
Power rating	190 mW	200 mW	0,42 VA	1.75 VA
AC Response/dropout Volt	29 V / 11 V		71 V / 22 V	103 V / 49 V
DC Response/dropout Volt	29 V / 11 V	35 V / 11 V	71 V / 22 V	
AC pickup/dropout current	2.2 mA /1.3 mA		1.8 mA / 0.5 mA	5 mA / 2.5mA
DC pickup/dropout current	2,2 mA / 1,3 mA	1,6 mA / 0,6 mA	1,8 mA / 0,5 mA	
Approvals	CSA; cULus; cURus; GOSTME25; CE	CSA; cULus; cURus; GOSTME25; CE	CSA; cULus; cURus; GOSTME25; CE	CSA; cULus; cURus; GOSTME25; CE
Ordering data Relay module with socket				
Screw connection Type	MRS 48Vuc 1CO	MRS 60Vdc 1CO	MRS 120Vuc 1CO	MRS 230Vac 1CO
Order No.	**8556040000**	**8556060000**	**8556030000**	**8556020000**
Tension clamp connection Type	MRZ 48Vuc 1CO	MRZ 60Vdc 1CO	MRZ 120Vuc 1CO	MRZ 230Vac 1CO
Order No.	**8556110000**	**8556130000**	**8556100000**	**8556090000**
Ordering data Spare relay module (pluggable)				
Type	RSS113048 48Vdc-Rel1U	RSS113060 60Vdc-Rel1U	RSS113060 60Vdc-Rel1U	RSS113024 24Vdc-Rel1U
Order No.	**4061620000**	**4061630000**	**4061630000**	**4060120000**
Note				

1 NO contact special versions

- 24 V DC actuator version:
  Bridgeable, potential-free connection for direct connection of actuators at the output
- 120 V AC RC version:
  RC circuit at the input guarantees safe switching thresholds, e.g. for leakage currents on the control side
- 230 V UC version:
  Can also be interconnected at input with DC signals





Output	
Switching voltage AC, max. / Continuous current	250 V / 6 A
min. switching capacity	12 V / 100 mA
Switch-on delay / Switch-off delay	9.3 ms / 7.5 ms
Contact material	AgSnO
Mechanical service life	$20*10^6$ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Status indicator / Free-wheel diode	Green LED / Yes
Reverse polarity protection	Available
Ambient temperature (operational)	-25 °C...+55 °C
Storage temperature	-40 °C...+60 °C
Humidity	40°C / 93% rel. humidity, no condensation
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Clearance and creepage distances for control/load side	≥ 5.5 mm
Overvoltage category	III
Pollution severity	2
Protective separation acc. to VDE 0106 part 101	Yes

Dimensions		Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Length x width x height	mm	93 / 6.1 / 92	94 / 6.1 / 91
Note		Cross-connectors and markers - refer to MICROSERIES accessories	

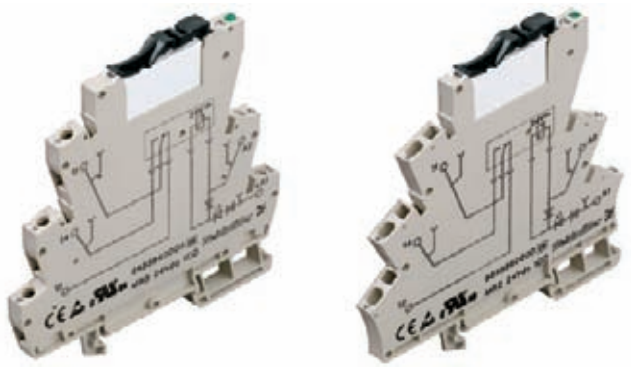
Ordering data

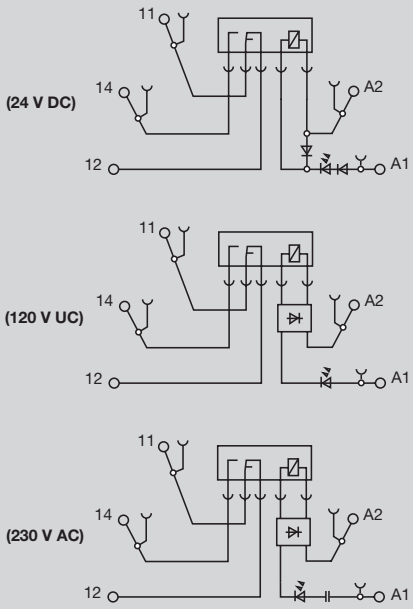
	24 V DC ACT	120 V AC 1CO RC	230 V UC 1CO
Input			
Rated control voltage	24 V DC ±20 %	120 V AC + 10 % / -15 %	230 V UC +10 % / -15 %
Rated current AC		7 mA	3.5 mA
Rated current DC	6.6 mA		2.9 mA
Power rating	160 mW	0.84 VA	0.8 VA / 660 mW
AC Response/dropout Volt		79 V / 65 V	146 V / 124 V
DC Response/dropout Volt	15.4 V / 6.5 V		155 V / 115 V
AC pickup/dropout current		4.5 mA / 3.7 mA	1.9 mA / 1.5 mA
DC pickup/dropout current	4 mA / 1.2 mA		1.9 mA / 1.0 mA
Approvals	cULus; CE	cULus; CE	CSA; cULus; cURus; GOSTME25; CE
Ordering data Relay module with socket			
Screw connection Type	MRS 24Vdc ACT	MRS 120VUC 1CO RC	MRS 230VUC 1CO
Order No.	**8660920000**	**8825970000**	**8825990000**
Tension clamp connection Type	MRZ 24VDC ACT	MRZ 120VUC 1CO RC	MRZ 230VUC 1CO
Order No.	**8660910000**	**8825960000**	**8825980000**
Ordering data Spare relay module (pluggable)			
Type	RSS113024 24Vdc-Rel1U	RSS113060 60Vdc-Rel1U	RSS113060 60Vdc-Rel1U
Order No.	**4060120000**	**4061630000**	**4061630000**
Note			

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

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

- Relay modul interchangeable, also for an opto modul
- 6.1 mm width
- Pluggable cross-connection at input and output minimizes the wiring workload.





Output	
Switching voltage AC, max. / Continuous current	250 V / 6 A
min. switching capacity	1 V / 1 mA
Switch-on delay / Switch-off delay	9.3 ms / 7.5 ms
Contact material	AgSnO 5µm Au
Mechanical service life	$20*10^6$ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Status indicator / Free-wheel diode	Green LED / Yes
Reverse polarity protection	Available
Ambient temperature (operational)	-25 °C...+50 °C
Storage temperature	-40 °C...+60 °C
Humidity	40°C / 93% rel. humidity, no condensation
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Clearance and creepage distances for control/load side	≥ 5.5 mm
Overvoltage category	III
Pollution severity	2
Protective separation acc. to VDE 0106 part 101	Yes

Dimensions		Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Length x width x height	mm	93 / 6.1 / 92	94 / 6.1 / 91
Note		Cross-connectors and markers - refer to MICROSERIES accessories	

Ordering data

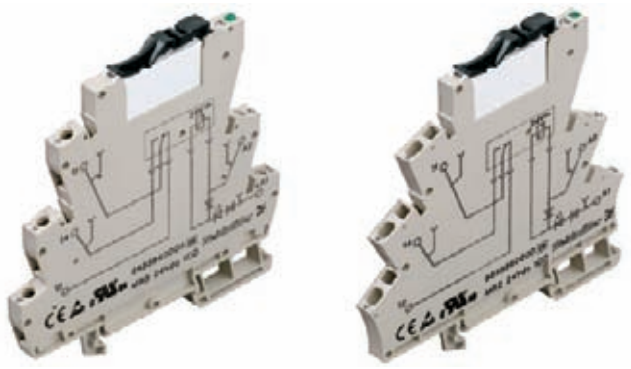
	24 V DC 1CO Au	120 V UC 1CO Au	230 V AC 1CO Au
Input			
Rated control voltage	24 V DC ±20 %	120 V UC +10 % / -15 %	230 V AC ±10 %
Rated current AC		3.5 mA ±15 %	7.6 mA
Rated current DC	6.6 mA	3.5 mA ±15 %	
Power rating	160 mW	0.42 VA ±15 %	1.75 VA
AC Response/dropout Volt		71 V / 22 V	103 V / 49 V
DC Response/dropout Volt	15.4 V / 6.5 V	71 V / 22 V	
AC pickup/dropout current		1.8 mA / 0.5 mA	5 mA / 2.5mA
DC pickup/dropout current	4 mA / 1.2 mA	1,8 mA / 0,5 mA	
Approvals	cULus; GOSTME25; CE	cULus; CE	cULus; GOSTME25; CE
Ordering data Relay module with socket			
Screw connection Type	MRS 24Vdc 1CO 5uAu	MRS 120Vuc 1CO 5uAu	MRS 230Vac 1CO 5uAu
Order No.	**8596060000**	**8652030000**	**8596050000**
Tension clamp connection Type	MRZ 24Vdc 1CO 5uAu	MRZ 120Vuc 1CO 5uAu	MRZ 230Vac 1CO 5uAu
Order No.	**8596080000**	**8652040000**	**8596070000**
Ordering data Spare relay module (pluggable)			
Type	RSS112024 24Vdc-Rel1U	RSS112060 60Vdc-Rel1U	RSS112024 24Vdc-Rel1U
Order No.	**4061590000**	**4061600000**	**4061590000**
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: 100 mV…60 V AC/DC, 1 mA…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.

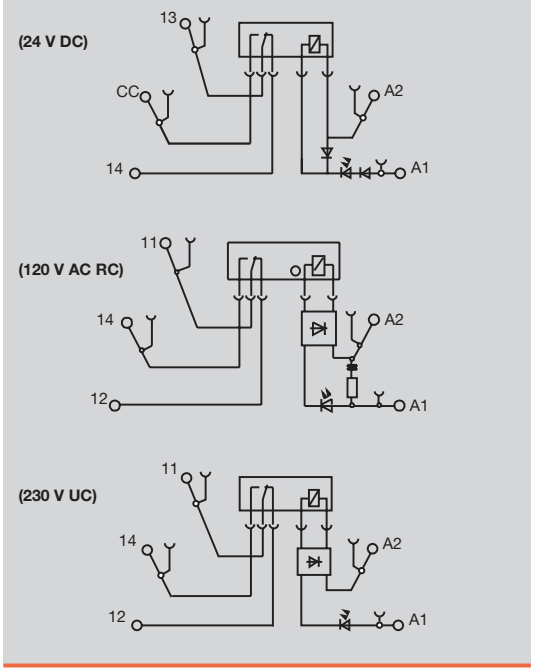
MICROSERIES relay module Cl.I Div. 2

1 CO contact
AC/DC/UC coil

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

- Relay modul interchangeable, also for an opto modul
- 6.1 mm width
- Pluggable cross-connection at input and output minimizes the wiring workload.





Output	
Switching voltage AC, max. / Continuous current	250 V / 6 A
min. switching capacity	12 V / 100 mA
Switch-on delay / Switch-off delay	9.3 ms / < 7 ms
Contact material	AgSnO
Mechanical service life	$20*10^6$ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Status indicator / Free-wheel diode	Green LED / Yes
Reverse polarity protection	Available
Ambient temperature (operational)	-25 °C...+50 °C
Storage temperature	-40 °C...+60 °C
Humidity	40°C / 93% rel. humidity, no condensation
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Clearance and creepage distances for control/load side	≥ 5.5 mm
Overvoltage category	III
Pollution severity	2
Protective separation acc. to VDE 0106 part 101	Yes

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4
Length x width x height	mm	93 / 6.1 / 92
Note		Cross-connectors and markers - refer to MICROSERIES accessories

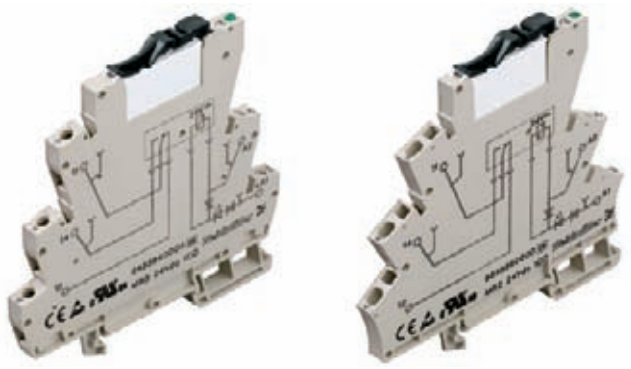
Ordering data

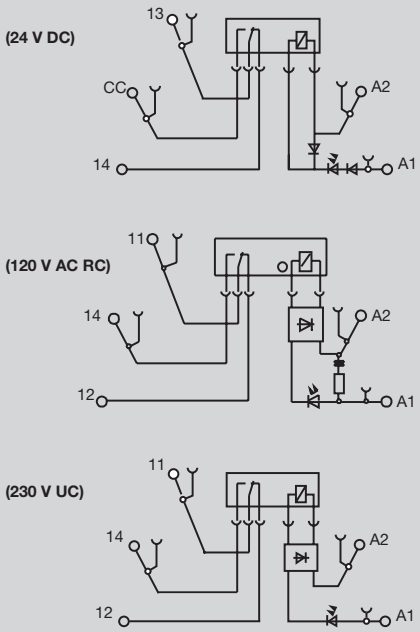
Input	12 V DC 1CO	24 V DC 1CO	24 V UC 1CO
Rated control voltage	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %
Rated current AC			11 mA
Rated current DC	17 mA	6.6 mA	6.4 mA
Power rating	210 mW	160 mW	154 mW
AC Response/dropout Volt			15.8 V / 7 V
DC Response/dropout Volt	6.4 V / 2.5 V	15.4 V / 6.5 V	15.8 V / 7 V
AC pickup/dropout current			3.6 mA / 1.3 mA
DC pickup/dropout current	8.4mA/2.4mA	4 mA / 1.2 mA	3.6mA/1.3mA
Approvals	Cl. I Div. 2; CE	Cl. I Div. 2; CE	Cl. I Div. 2; CE

Ordering data Relay module with socket				
Screw connection	Type	MRS 12Vdc 1CO C1D2	MRS 24Vdc 1CO C1D2	MRS 24Vuc 1CO C1D2
	Order No.	**8967340000**	**8967350000**	**8967360000**
	Type			
	Order No.			
Ordering data **Spare relay module (pluggable)**				
	Type	RSS113012 12Vdc-Rel1U	RSS113024 24Vdc-Rel1U	RSS113024 24Vdc-Rel1U
	Order No.	**4061610000**	**4060120000**	**4060120000**
Note				

1 CO contact
AC/DC/UC coil

- 24 V DC actuator version:
  Bridgeable, potential-free connection for direct connection of actuators at the output
- 120 V AC RC version:
  RC circuit at the input guarantees safe switching thresholds, e.g. for leakage currents on the control side
- 230 V UC version:
  Can also be interconnected at input with DC signals





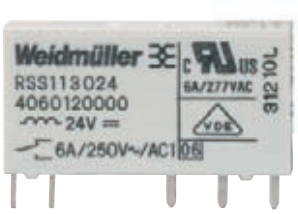
Output		
Switching voltage AC, max. / Continuous current		250 V / 6 A
min. switching capacity		12 V / 100 mA
Switch-on delay / Switch-off delay		9.3 ms / < 7 ms
Contact material		AgSnO
Mechanical service life		$20*10^6$ switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Status indicator / Free-wheel diode		Green LED / Yes
Reverse polarity protection		Available
Ambient temperature (operational)		-25 °C...+55 °C
Storage temperature		-40 °C...+60 °C
Humidity		40°C / 93% rel. humidity, no condensation
Insulation coordination (EN 50 178)		
Standards		EN 50178
Rated voltage		300 V
Impulse withstand voltage		6 kV (1.2/50 µs)
Clearance and creepage distances for control/load side		≥ 5.5 mm
Overvoltage category		III
Pollution severity		2
Protective separation acc. to VDE 0106 part 101		Yes

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4
Length x width x height	mm	93 / 6.1 / 92
Note		Cross-connectors and markers - refer to MICROSERIES accessories

Ordering data

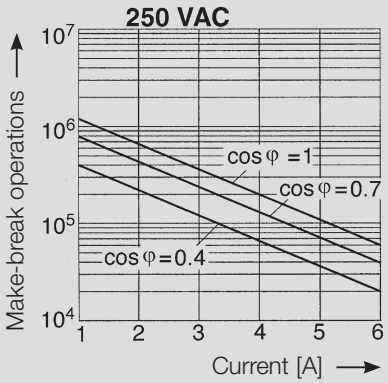
	120 V AC 1CO	230 V UC 1CO
Input		
Rated control voltage	120 V AC + 10 % / -15 %	230 V UC +10 % / -15 %
Rated current AC	7 mA	3.5 mA
Rated current DC		2.9 mA
Power rating	0.84 VA	0.8 VA / 660 mW
AC Response/dropout Volt	79 V / 65 V	146 V / 124 V
DC Response/dropout Volt		155 V / 115 V
AC pickup/dropout current	4.5 mA / 3.7 mA	1.9 mA / 1.5 mA
DC pickup/dropout current		1.9 mA / 1.0 mA
Approvals	Cl. I Div. 2; CE	Cl. I Div. 2; CE
Ordering data **Relay module with socket**		
Screw connection Type	MRS 120VUC 1CO RC C1D2	MRS 230VUC 1CO C1D2
Order No.	**8967370000**	**8967380000**
Type		
Order No.		
Ordering data **Spare relay module (pluggable)**		
Type	RSS113060 60Vdc-Rel1U	RSS113060 60Vdc-Rel1U
Order No.	**4061630000**	**4061630000**
Note		

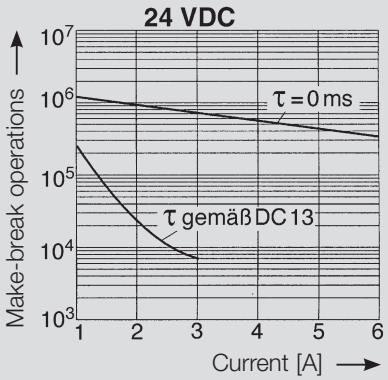
RSS Relay modules
1 change-over contact DC coil



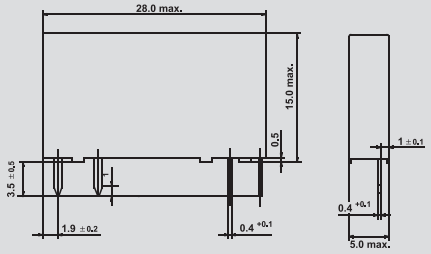
Plug-in cross-connection

Contact life expectancy,
material AgSnO2





Dimensions



Technical data

Number of contacts and type	1 change-over contact
Contact form	single
Switching current	6 A
Switching voltage / max. switching voltage	250 V AC / 400 V AC
Switching capacity	1500 VA
Contact material / recommended min. load	$AgSnO_2$ 12 V, 10 mA
	$AgSnO_2$ 5µ Au 1 V, 1 mA [1]
Typical bounce time, NOC	1 ms
Typical bounce time, NCC	5 ms

Other data	
UL 94 flammability rating	V-0
Ambient temperature	-40 ... +85 °C
Max. switching frequency at nom. load / without load	6/1200 make-break operations per minute
Pick-up / drop-out time	5 / 2.5 ms
Bounce time, NOC / NCC	1.5 / 5 ms
Ingress protection class housing	IP 67

[1]) Recommended switching capacity: µW up to 0.25 W (depends on load characteristics), at 2.5 W the silver coating remains effective for about 20 000 make-break operations.

Ordering data

	Type	Qty.	Order No.
Coil voltage 5 V, 1 change-over contact	RSS 113005	20	**4061580000**
Coil voltage 12 V, 1 change-over contact	RSS 113012	20	**4061610000**
Coil voltage 24 V, 1 change-over contact	RSS 113024	20	**4060120000**
Coil voltage 48 V, 1 change-over contact	RSS 113048	20	**4061620000**
Coil voltage 60 V, 1 change-over contact	RSS 113060	20	**4061630000**
Coil voltage 24 V, 1 change-over contact, **5µ Au**[1])	RSS 112024	20	**4061590000**
Coil voltage 60 V, 1 change-over contact, **5µ Au**[1])	RSS 112060	20	**4061600000**

Type code for RSS relay modules

Type code RSS

Type RIDER Signal Slim

Model
1 Printing, vertical, washable

Type of contact
1 1 Changeover contact

Contact material
2 AgSnO2 htv
3 AgSnO2

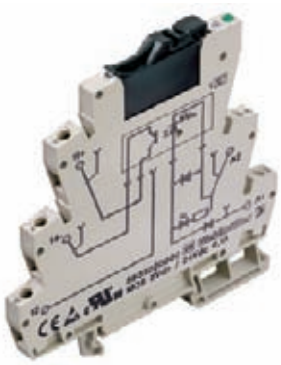
Coil

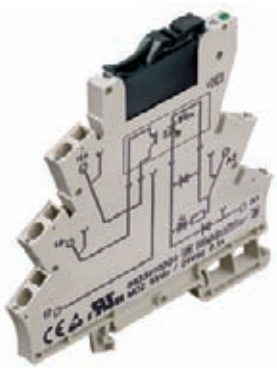
005	5 V DC
012	12 V DC
024	24 V DC
048	48 V DC
060	60 V DC

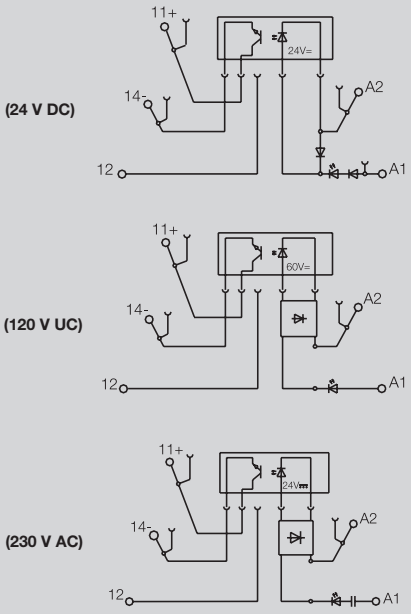
MOS / MOZ 3...48 V DC / 0,1 A

Universal interface between control and sensor/actuator

- Plug-in cross-connection ZQV 4N
- Interchangeable solid-state relay
- 6.1 mm width
- Screw or tension clamp connection
- For mounting on TS 35







Load side	
Rated switching voltage	3...48 V DC
Rated switching current	0.1 A
Voltage drop at max. load	≤ 1 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit	No / Integrated free-wheel diode
Rated data	
Ambient temperature (operational)	-25 °C...+50 °C
Storage temperature	-40 °C...+60 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	2.5 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm
Overvoltage category	III
Pollution severity	2

Dimensions		Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Length x width x height	mm	93 / 6.1 / 92	94 / 6.1 / 91
Note		Cross-connectors and markers - refer to MICROSERIES accessories	

Ordering data

Control side	5 V DC / 24 V DC 0,1 A	24 V DC / 24 V DC 0,1 A	120 V UC / 24 V DC 0,1 A	230 V AC / 24 V DC 0,1 A
Rated control voltage	5 V DC ±20 %	24 V DC ±20 %	120 V UC +10 % / -15 %	230 V AC ±10 %
Power rating	55 mW ±10 %	140 mW	340 mW / 0.4 VA	1.7 VA
Input frequency	max. 10 Hz	300 Hz	DC: 10 Hz / AC: 3 Hz	3 Hz
Switch-on delay	< 6.5 ms	35 µs	< 6.5 ms	< 6.5 ms
Switch-off delay	= 10 ms	355 µs	< 10 ms	< 10 ms
Approvals	cULus; GOSTME25; CE	cULus; GOSTME25; CE	cULus; GOSTME25; CE	cULus; GOSTME25; CE

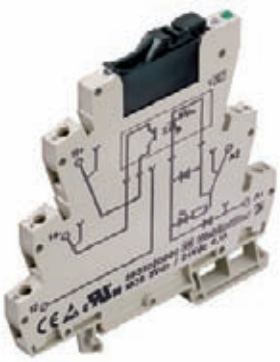
Ordering data Relay module with socket					
Screw connection	Type	MOS 5Vdc / 24Vdc 0,1A	MOS 24Vdc / 24Vdc 0,1A	MOS 120Vuc / 24Vdc 0,1A	MOS 230Vac / 24Vdc 0,1A
	Order No.	**8633020000**	**8607340000**	**8607690000**	**8607710000**
Tension clamp connection	Type	MOZ 5Vdc / 24Vdc 0,1A	MOZ 24Vdc / 24Vdc 0,1A	MOZ 120Vuc / 24Vdc 0,1A	MOZ 230Vac / 24Vdc 0,1A
	Order No.	**8633010000**	**8607360000**	**8607730000**	**8607750000**
Ordering data Spare relay module (pluggable)					
	Type	SSS Relais 5V/24V 0,1ADC	SSS Relais 24V/24V 0,1Adc	SSS Relais 60V/24V 0,1Adc	SSS Relais 24V/24V 0,1Adc
	Order No.	**4064320000**	**4061180000**	**4061230000**	**4061180000**
Note					

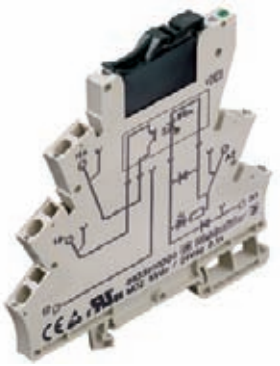
MICROSERIES - Opto modules

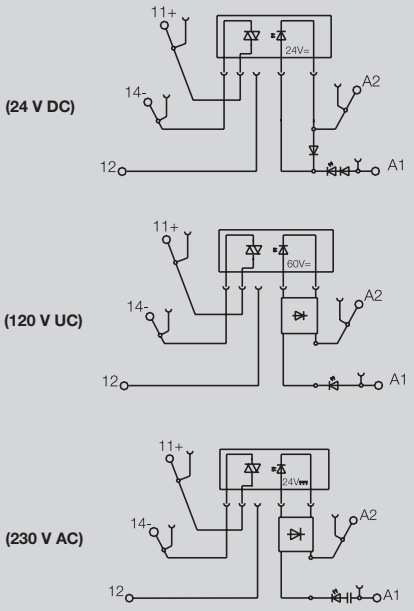
MOS / MOZ 24...240 V AC / 1 A

Universal interface between controller and sensor/actuator

- Plug-in cross-connection ZQV 4N
- Interchangeable solid-state relay
- 6.1 mm width
- Screw or tension clamp connection
- For mounting on TS 35







Load side	
Rated switching voltage	24...240 V AC
Rated switching current	1 A
Voltage drop at max. load	approx. 1.6 V
Leakage current	≤ 20 µA
Short-circuit-proof / Protective circuit	No / Integrated free-wheel diode
Rated data	
Ambient temperature (operational)	-25 °C...+50 °C
Storage temperature	-40 °C...+60 °C
Humidity	40°C / 93% rel. humidity, no condensation
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	2.5 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm
Overvoltage category	III
Pollution severity	2

Dimensions		Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Length x width x height	mm	93 / 6.1 / 92	94 / 6.1 / 91
Note		Cross-connectors and markers - refer to MICROSERIES accessories	

Ordering data

Control side	24 V DC / 230 V AC 1 A	120 V UC / 230 V AC 1 A	230 V AC / 230 V AC 1 A
Rated control voltage	24 V DC ±20 %	120 V UC +10 % / -15 %	230 V UC ±10 %
Power rating	250 mW ± 15 %	0.4 VA ±15 %	1.7 VA ± 20 %
Input frequency	3 Hz	3 Hz	3 Hz
Switch-on delay	< 11 ms	< 11 ms	< 20 ms
Switch-off delay	< 11 ms	< 11 ms	< 20 ms
Approvals	cULus; CE	cULus; CE	cULus; CE

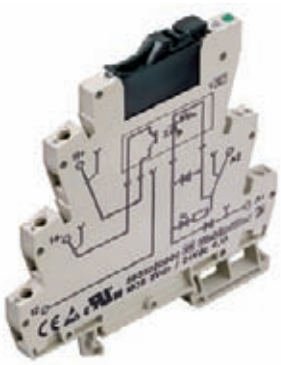
Ordering data Relay module with socket				
Screw connection	Type	MOS 24Vdc/ 230VAC 1A	MOS 120Vuc / 230VAC 1A	MOS 230Vuc/ 230Vac 1A
	Order No.	**8652010000**	**8651930000**	**8651990000**
Tension clamp connection	Type	MOZ 24Vdc/ 230VAC 1A	MOZ 120Vuc / 230VAC 1A	MOZ 230Vuc/ 230VAC 1A
	Order No.	**8652020000**	**8651950000**	**8651970000**

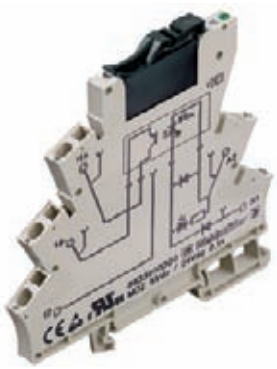
Ordering data Spare relay module (pluggable)				
	Type	SSS Relais 24V/230V 1Aac	SSS Relais 60V/230V 1Aac	SSS Relais 24V/230V 1Aac
	Order No.	**4061210000**	**4061220000**	**4061210000**
Note				

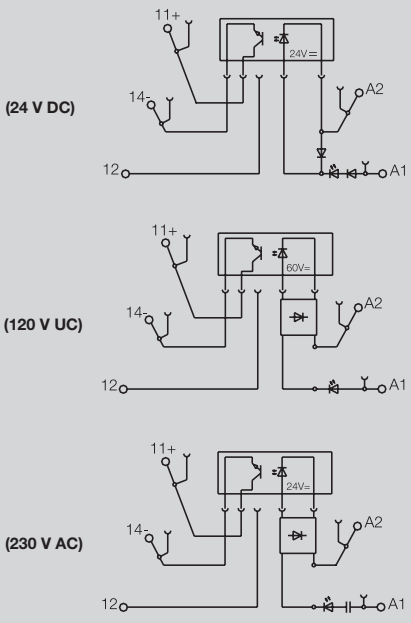
MOS / MOZ 3...33 V DC / 2 A

Universal interface between control and sensor/actuator

- Plug-in cross-connection ZQV 4N
- Interchangeable solid-state relay
- 6.1 mm width
- Screw or tension clamp connection
- For mounting on TS 35







Load side	
Rated switching voltage	3...33 V DC
Rated switching current	2 A
Voltage drop at max. load	≤ 120 mV
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit	No / Integrated free-wheel diode
Rated data	
Ambient temperature (operational)	-25 °C...+50 °C
Storage temperature	-40 °C...+60 °C
Humidity	40°C / 93% rel. humidity, no condensation
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	2.5 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm
Overvoltage category	III
Pollution severity	2

Dimensions		Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Length x width x height	mm	93 / 6.1 / 92	94 / 6.1 / 91
Note		Cross-connectors and markers - refer to MICROSERIES accessories	

Ordering data

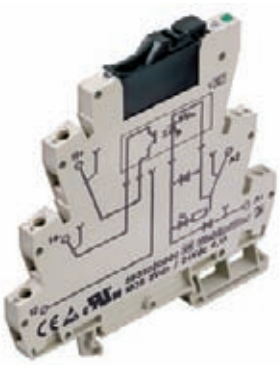
Control side	5 V DC / 24 V DC 2 A	24 V DC / 24 V DC 2 A	120 V UC / 24 V DC 2 A	230 V AC / 24 V DC 2 A
Rated control voltage	5 V DC ±20 %	24 V DC ±20 %	120 V UC +10 % / -15 %	230 V AC ±10 %
Power rating	55 mW ±10 %	140 mW	340 mW / 0.4 VA	1.7 VA
Input frequency	300 Hz	300 Hz	DC: 10 Hz / AC: 3 Hz	3 Hz
Switch-on delay	< 55 µs	< 55 µs	< 6.5 ms	< 6.5 ms
Switch-off delay	< 1 ms	< 1,2 ms	< 10 ms	< 10 ms
Approvals	cULus; CE	cULus; GOSTME25; CE	cULus; GOSTME25; CE	cULus; GOSTME25; CE

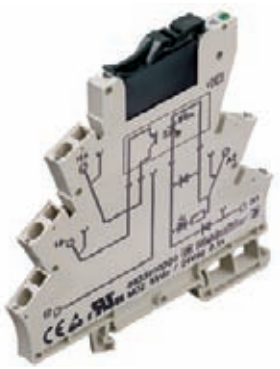
Ordering data Relay module with socket					
Screw connection	Type	MOS 5Vdc / 24Vdc 2A	MOS 24Vdc / 24Vdc 2A	MOS 120Vuc / 24Vdc 2A	MOS 230Vac / 24Vdc 2A
	Order No.	**8633000000**	**8607350000**	**8607700000**	**8607720000**
Tension clamp connection	Type	MOZ 5Vdc / 24Vdc 2A	MOZ 24Vdc / 24Vdc 2A	MOZ 120Vuc / 24Vdc 2A	MOZ 230Vac / 24Vdc 2A
	Order No.	**8632990000**	**8607370000**	**8607740000**	**8607760000**
Ordering data Spare relay module (pluggable)					
	Type	SSS Relais 5V/24V 2Adc	SSS Relais 24V/24V 2Adc	SSS Relais 60V/24V 2Adc	SSS Relais 24V/24V 2Adc
	Order No.	**4064310000**	**4061190000**	**4061200000**	**4061190000**
Note					

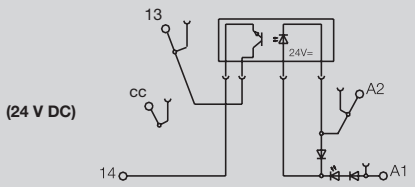
MOS / MOZ actuator variant 3...33 V DC / 2 A

Universal interface between controller and sensor/actuator

- Plug-in cross-connection ZQV 4N
- Interchangeable solid-state relay
- 6.1 mm width
- Screw or tension clamp connection
- For mounting on TS 35
- 24 V DC actuator version: bridgeable, potential-free connection for direct connection of actuators at the output







Load side		
Rated switching voltage		3...33 V DC
Rated switching current		2 A
Voltage drop at max. load		≤ 120 mV
Short-circuit-proof / Protective circuit		No / Integrated free-wheel diode
Rated data		
Ambient temperature (operational)		-25 °C...+50 °C
Storage temperature		-40 °C...+60 °C
Humidity		40°C / 93% rel. humidity, no condensation
Approvals		cULus; CE
Insulation coordination (EN 50 178)		
Standards		EN 50178
Rated voltage		300 V
Rated impulse withstand voltage		2.5 kV
Clearance and creepage distances for control/load side		≥ 5.5 mm
Overvoltage category		III
Pollution severity		2

Dimensions		Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Length x width x height	mm	93 / 6.1 / 92	94 / 6.1 / 91
Note		Cross-connectors and markers - refer to MICROSERIES accessories	

Ordering data

Control side	24 V DC ACT
Rated control voltage	24 V DC ±20 %
Power rating	140 mW ±10 %
Input frequency	
Switch-on delay	< 55 µs
Switch-off delay	< 12 ms

Ordering data Relay module with socket		
Screw connection	Type	MOS 24Vdc / 24Vdc ACT
	Order No.	**8676250000**
Tension clamp connection	Type	MOZ 24Vdc / 24Vdc ACT
	Order No.	**8676230000**

Ordering data Spare relay module (pluggable)		
	Type	SSS Relais 24V/24V 2Adc
	Order No.	**4061190000**

Note	

Plug-in solid-state relay

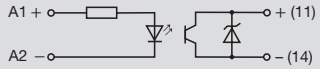
SSS Relay module
Switching current 100 mA

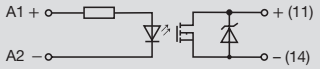
SSS Relay module
Switching current 2 A

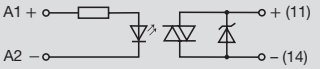
SSS Relay module
Switching current 1 A

Technical data

Input								
Nominal control voltage	**5 V DC**	**24 V DC**	**60 V DC**	**5 V DC**	**24 V DC**	**60 V DC**	**24 V DC**	**60 V DC**
Control voltage min / max	0.8 V DC/6 V DC	16 V DC/30 V DC	52 V DC/72 V DC	2.5 V DC/6 V DC	18 V DC / 30 V DC	35 V DC / 72 V DC	18 ... 30 V DC	35 ... 72 V DC
Control current at UIN = 24 V	4.1 mA	7 mA ± 10 %	2.8 mA ± 10 %	9 mA	7 mA ± 10 %	3.0 mA ± 10 %	3.1 mA ± 10 %	3.1 mA ± 10 %
Drop-out voltage	2.5 V DC	10 V DC	40 V DC	0.8 V DC	10 V DC	20 V DC	20 V DC	20 V DC
Control circuit resistance	-	approx. 4 kΩ	approx. 20 kΩ	approx. 5 kΩ	approx. 3.2 kΩ	approx. 16 kΩ	20 kΩ	20 kΩ
Output								
	Bipolar transistor			MOS-FET			TRIAC	
Switching voltage	3 ... 48 V DC			3 ... 33 V DC			24 ... 240 V AC	
Switching/continuous current at UA > 5 V DC	100 mA DC			2 A DC			1 A AC	
Conducting-state voltage	< 1 V DC			< 120 mV DC			< 1 V AC	
Insulation								
Test voltage between control/ switching circuit	2.5 kV			2.5 kV			2.5 kV	
Other data								
Operating temperature range	–20 °C ... +60 °C			–20 °C ... +60 °C			–20 °C ... +60 °C	
Storage temperature range	–40 °C ... +70 °C			–40 °C ... +70 °C			–40 °C ... +70 °C	
Weight	3.65 g			3.65 g			3.65 g	
Humidity	40 °C/93 % rel. humidity, no condensation			40 °C/93 % rel. humidity, no condensation			40 °C/93 % rel. humidity, no condensation	
Approvals	cULus			cULus			cULus	
*TU 20 °C								
Wiring diagram								







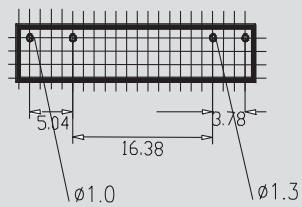
For further data, see also
www.vincotech.com

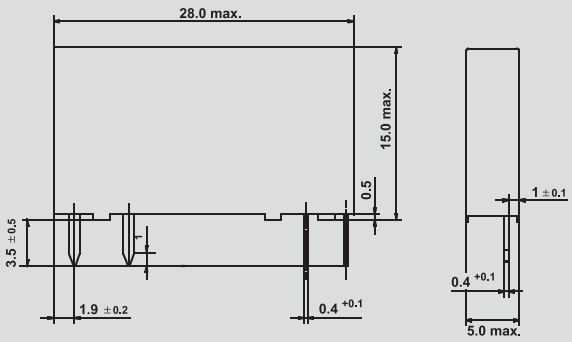
Ordering data

Nominal control voltage	Type	Order No.	Type	Order No.	Type	Order No.
5 V DC	SSS Relais 5 V/24 V 0.1 A DC	**4064320000**	SSS Relais 5 V / 24 V 2 A DC	**4064310000**		
24 V DC	SSS Relais 24 V/24 V 0.1 A DC	**4061180000**	SSS Relais 24 V/24 V 2 A DC	**4061190000**	SSS Relais 24 V/230 V 1 A AC	**4061210000**
60 V DC	SSS Relais 60 V/24 V 0.1 A DC	**4061230000**	SSS Relais 60 V/24 V 2 A DC	**4061200000**	SSS Relais 60 V/230 V 1 A AC	**4061220000**

Dimensions

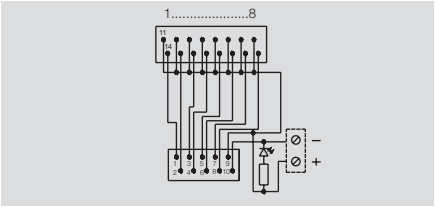
Printing details



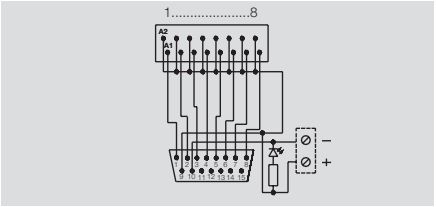


MICROINTERFACE digital

MI8DI-S/Z
Input module



MI8DO-S/Z
Output module



Technical data

Connection data			
Type		Input module	Output module
Type of terminal / Connection system		MICROSERIES;Screw or tension clamp connection; Available for ribbon cable or Sub-D connection	MICROSERIES;Screw or tension clamp connection; Available for ribbon cable or Sub-D connection
Rated data			
Operating voltage, max.		30 V AC/DC	30 V AC/DC
Current-carrying capacity		0.5 A per channel	0.5 A per channel
Total current feed, max.		2 A	2 A
Impulse withstand voltage (1.2/50 µs)		330 V	330 V
Rated insulation voltage		32 V	32 V
Storage temperature		-20 °C…+85 °C	-20 °C…+85 °C
Ambient temperature (operational)		0 °C…+55 °C	0 °C…+55 °C
Insulation coordination (EN 50 178)			
Surge category		I	I
Pollution severity		2	2
Clearances/Creepage distances to EN		0.1 mm	0.1 mm
Clamping range (rating- / min. / max.)	mm²	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
Length x width x height	mm	48 x 59 x 53	48 x 59 x 53
Note		Wiring diagram for ribbon cable	Wiring diagram for SUB-D

Ordering data

Connection system, pre-assembled cable	Type	Qty.	Order No.
Ribbon cable connector, 10-pole	MI8DI-S F10 S	1	**8773510000**
SUB-D plug, 15-pole	MI8DI-S SUB D15S	1	**8773460000**
Ribbon cable connector, 10-pole	MI8DI-Z F10 S	1	**8773530000**
SUB-D plug, 15-pole	MI8DI-Z SUB D15S	1	**8773490000**

MI8DI-S = Screw connection
MI8DI-Z = Tension clamp connection

Connection system, pre-assembled cable	Type	Qty.	Order No.
Ribbon cable connector, 10-pole	MI8DO-S F10 S	1	**8773600000**
SUB-D plug, 15-pole	MI8DO-S SUB D15S	1	**8773550000**
Ribbon cable connector, 10-pole	MI8DO-Z F10 S	1	**8773620000**
SUB-D plug, 15-pole	MI8DO-Z SUB D15S	1	**8773570000**

MI8DO-S = Screw connection
MI8DO-Z = Tension clamp connection

Accessories

Note

Accessories

General data – MICROSERIES

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

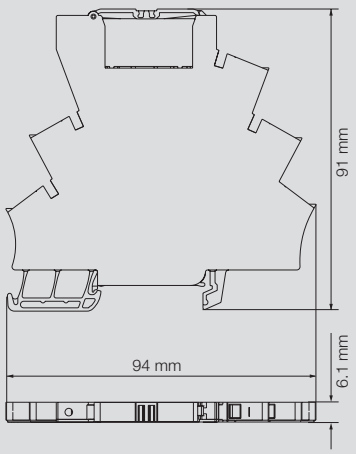
Conductor		Tension clamp connection	Screw-connection
Solid H07V-U	mm^2	0.5 … 2.5	0.5 … 4.0
Stranded H07V-K	mm^2	0.5 … 2.5	0.5 … 2.5
"f" with wire end ferrules to DIN 46228-1	mm^2	0.5 … 1.5	0.5 … 1.5
"f" with wire end ferrules with plastic collar	mm^2	0,5 … 1.5	0.5 … 1.5
Max. clamping range	mm^2	0.13 … 2.5	0.13 … 4.0
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	7
Ingress protection class		IP 20	IP 20
Housing material		Wemid	Wemid
UL 94 flammability rating		V-0	V-0
Nominal current	A	6	6
Nominal voltage	V	250	250

Other accessories

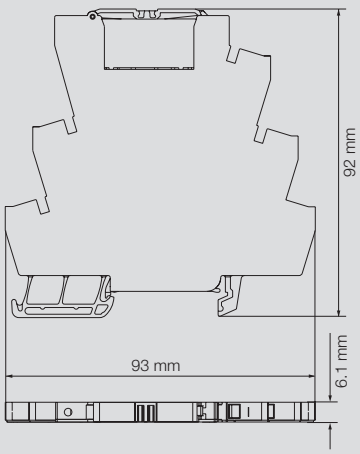
Type		Qty.	Order No.
Base only			
MXZ 24VDC 1CO BASIS		10	**8826000000**
MXS 24VDC 1CO BASIS		10	**8826010000**
MXZ 120VUC 1CO BASIS		10	**8826020000**
MXS 120VUC 1CO BASIS		10	**8826030000**
MXZ 230VAC 1CO BASIS		10	**8826040000**
MXS 230VAC 1CO BASIS		10	**8826050000**
Markers			
WS 12/6	12 x 6 mm	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**
End bracket			
WEW 32/2		100	**1061200000**

Dimensions

Tension clamp connection

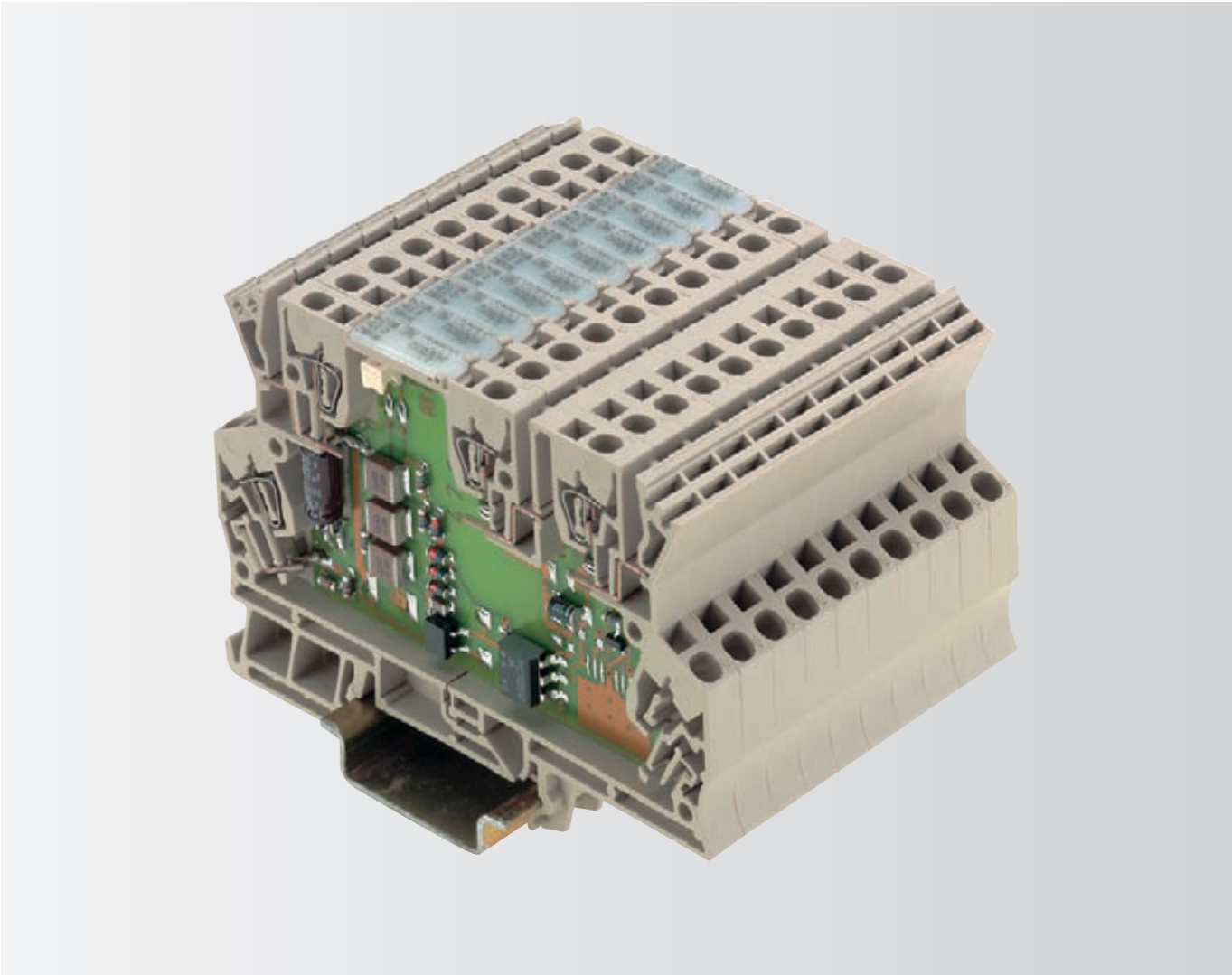


Screw connection



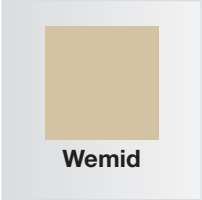
Low profile with tension clamp connection – perfect for decentralized applications like those in the rail industry

A special feature of the MCZ SERIES is its low profile shape. With a width of only 6 mm, it is particularly well suited for decentralized usage in sub-distribution boards and terminal boxes. You can reduce the installation time by 50 % compared to conventional methods when you use the tension clamp connection and the ZQV 4N pluggable cross-connection on three voltage potential points. The MCZ TRAK components, which have been developed for the rail industry to comply with the requirements of EN 50155 and EN 61373, are a special highlight. All components have been specially designed to function reliably in temperatures ranging from -40 to +70 °C (and +85 °C for ten minutes). The MCZ TRAK components feature a painted switching element that protects it from condensation which occurs from temperature fluctuations. The component input circuitry is designed to tolerate on-board voltage fluctuation of -30 to +25 % and ±40 % for 0.1 s (typical for rail applications) without malfunctioning.The MCZ TRAK components also withstand voltage interruptions of over 10 ms without triggering an outage (in compliance with Class S2). In addition, the vibration requirements according to EN 61373/ requirements category 1/class B are fulfilled without malfunction or contact interruption. With all of these properties combined, the MCZ TRAK components are a very sturdy and reliable solution for decentralized applications. And not only in the rail industry – they should be used in other industries where conditions are too extreme for conventional components.



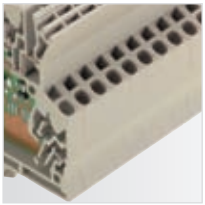
Time-saving

Pluggable cross-connections in input and output on three connection levels.



Proven

The Wemid material in the housing contains no halogens and has a flammability class of V0 according to UL94.



Reliable

The tension clamp connection can clamp up to 1.5 mm² and is the rail industry standard.

Sturdy

The MCZ TRAK are designed specifically for rail industry requirements.

The MCZ SERIES product line

MCZ R
with 1 CO contact

MCZ R TRAK
with 1 CO contact,
Rail components

MCZ O
with 1 opto output

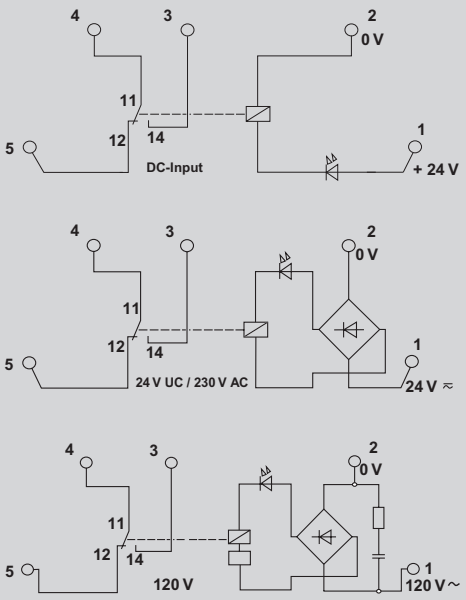
MCZ O TRAK
with 1 opto output,
Rail components

MCZ-SERIES - Relay modules

Mini-conditioner MCZ R
1 CO contact
AC/ DC/ UC coil

Module can be used as an 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 minimizes the wiring workload.
- 6 mm width
- For mounting on TS 35

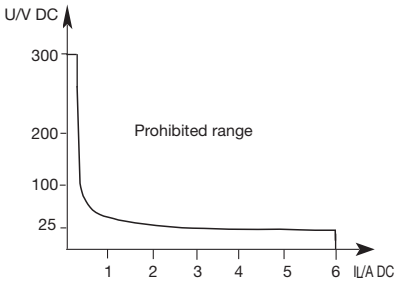


Output		
Switching voltage AC, max. / Continuous current		250 V / 6 A
min. switching capacity		12 V / 100 mA
Contact material		AgSnO2
Mechanical service life		$20*10^6$ switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Status indicator / Free-wheel diode		Green LED / Yes
Reverse polarity protection		Available
Ambient temperature (operational)		-25 °C...+55 °C
Storage temperature		-40 °C...+60 °C
Humidity		40°C / 93% rel. humidity, no condensation
Approvals		CSA; cURus; GL; GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards		EN 50178
Rated voltage		300 V
Impulse withstand voltage		6 kV
Clearance and creepage distances for control/load side		≥ 5.5 mm
Overvoltage category		III
Pollution severity		2
Protective separation acc. to VDE 0106 part 101		Yes

Dimensions		Tension clamp connection
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.5 / 2.5
Length x width x height	mm	91 / 6 / 63.2
Note		End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories

Applications

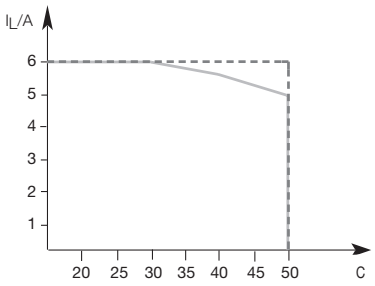
Limit curve



Derating curve

in a row without spacing on terminal rail

in a row with 20 mm spacing on terminal rail



Mini-conditioner MCZ R
1 CO contact
AC/ DC/ UC coil

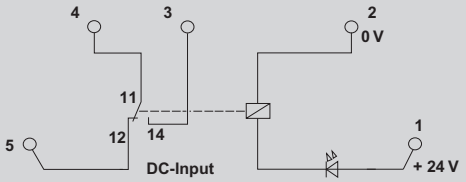
Ordering data	24 V DC 1 CO	24 V DC 1 CO Au	24 V UC 1 CO	60 V DC 1 CO
Input				
Rated control voltage	24 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	60 V DC ±20 %
Rated current AC			10.8 mA	
Rated current DC	6.3 mA	6.3 mA	6.1 mA	3 mA
Power rating	156 mW	156 mW	160 mVA / 150 mW	180 mW
AC Response/dropout Volt			approx. 17 V / approx. 7 V	
DC Response/dropout Volt	12 V...19 V/4 V...5.5 V	12 V...19 V/4 V...5.5 V	approx. 19 V / approx. 4 V	approx. 38 V / approx. 14 V
AC pickup/dropout current				
DC pickup/dropout current	5.7 mA	5.7 mA	9 mA / 5 mA	2.7 mA
Switch-on delay / Switch-off delay	< 5 ms / ≤11ms	< 5 ms / ≤ 10 ms	6 ms / ≤ 12 ms	4.5 ms / ≤ 10 ms
Ordering data Complete module				
CO contact Type	MCZ R 24VDC	MCZ R 24VDC 5uAu	MCZ R 24VUC	MCZ R 60VDC
Order No.	**8365980000**	**8442960000**	**8390590000**	**8470380000**
Type				
Order No.				
Ordering data				
Note		Can safe 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	110 V DC 1 CO	120 V AC 1 CO	230 V AC 1 CO
Input			
Rated control voltage	110 V DC ±10 %	120 V AC -15 % / +10 %	230 V AC ±10 %
Rated current AC		7 mA	9.5 mA
Rated current DC	2.85 mA		
Power rating	340 mW	0.85 VA	2.1 VA
AC Response/dropout Volt		approx. 70 V / approx. 22 V	approx. 115 V / approx. 60 V
DC Response/dropout Volt	approx. 68 V / approx. 19 V		
AC pickup/dropout current		4 mA // 1.3mA	5 mA / 2.5mA
DC pickup/dropout current	1,6 mA / 0,4 mA		
Switch-on delay / Switch-off delay	4.5 ms / ≤ 10 ms	15 ms / 43 ms	17 ms / 34 ms
Ordering data Complete module			
CO contact Type	MCZ R 110VDC	MCZ R 120VAC	MCZ R 230VAC
Order No.	**8467470000**	**8420880000**	**8237710000**
Type			
Order No.			
Ordering data			
Note			

MCZ-SERIES - Relay modules

MCZ R TRAK
1 CO contact or 1 NO contact
DC coil

- 1 CO contact
- Module 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

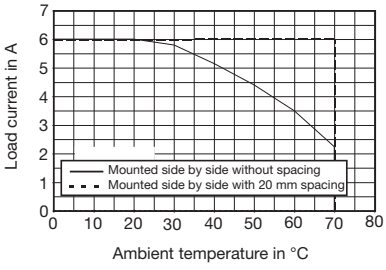


Output	
Switching voltage AC, max. / Continuous current	250 V / 6 A
min. switching capacity	12 V / 100 mA
Contact material	AgSnO
Mechanical service life	$20*10^6$ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Status indicator / Free-wheel diode	Green LED / Yes
Reverse polarity protection	Available
Ambient temperature (operational)	-40 °C...+70 °C / +85 °C for 10 minutes
Storage temperature	-40 °C...+85 °C
Humidity	95% for 30 days, minimal condensation to EN 50155
Approvals	CE
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control/load side	≥ 5.5 mm
Overvoltage category	III
Pollution severity	2
Protective separation acc. to VDE 0106 part 101	Yes

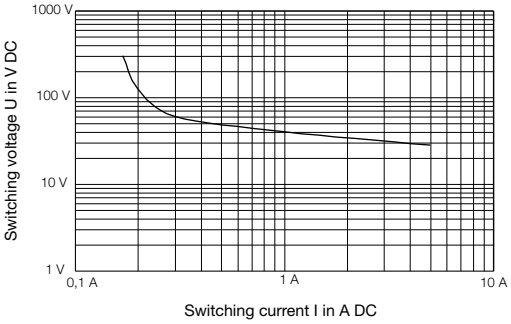
Dimensions		Tension clamp connection
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.5 / 2.5
Length x width x height	mm	91 / 6 / 63.2
Note		End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories

Applications

Current-induced temperature rise
MCZ R 24V DC 1CO TRAK
Terminal rail, horizontal



Limit curve



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	36 V DC	48...110 V DC
Rated current AC			
Rated current 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	7...14 V / 3...5 V	4.5...15 V	< 25 V / < 6 V
AC pickup/dropout current			
DC pickup/dropout current			
Switch-on delay / Switch-off delay	typically 6.5 ms / typical. 38 ms	typically 4.7 ms / typical. 44 ms	< 4 ms / 50 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 36Vdc 1NO TRAK	MCZ R 48...110Vdc 1NO TRAK
	Order No.	**8499550000**	**8582130000**	**8574070000**

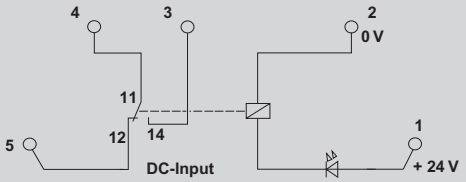
Ordering data			

Note			

MCZ-SERIES - Relay modules

MCZ R TRAK Au
1 CO contact or 1 NO contact
DC coil

- 1 CO with hard gold-plated contacts
- Module 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

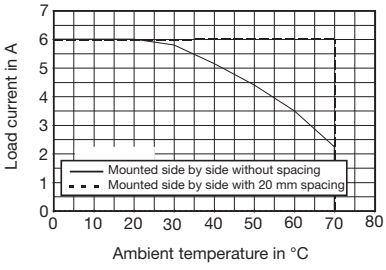


Output	
Switching voltage AC, max. / Continuous current	250 V / 6 A
min. switching capacity	1 V / 1 mA
Contact material	AgSnO 5µm Au
Mechanical service life	$20*10^6$ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Status indicator / Free-wheel diode	Green LED / Yes
Reverse polarity protection	Available
Ambient temperature (operational)	-40 °C...+70 °C / +85 °C for 10 minutes
Storage temperature	-40 °C...+85 °C
Humidity	95% for 30 days, minimal condensation to EN 50155
Approvals	CE
Insulation coordination (EN 50 178)	
Standards	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control/load side	≥ 5.5 mm
Overvoltage category	III
Pollution severity	2
Protective separation acc. to VDE 0106 part 101	Yes

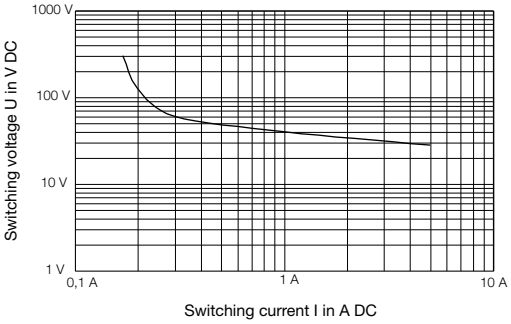
Dimensions		Tension clamp connection
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.5 / 2.5
Length x width x height	mm	91 / 6 / 63.2
Note		End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories

Applications

Current-induced temperature rise
MCZ R 24V DC 1CO TRAK
Terminal rail, horizontal



Limit curve



MCZ R TRAK Au
1 CO contact or 1 NO contact
DC coil

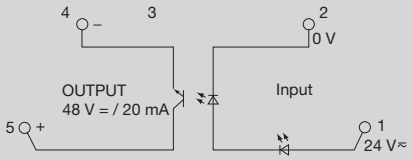
Ordering data		24 V DC TRAK Au	36 V DC TRAK Au	48...110 V DC TRAK Au
Input				
Rated control voltage		24 V DC	36 V DC	48...110 V DC
Rated current AC				
Rated current DC		11.5...16.5 mA	8...12 mA	< 3 mA
Power rating		195...500 mW	200...540 mW	< 300 mW
AC Response/dropout Volt				
DC Response/dropout Volt		3...5 V / 7...14 V	4.5...15 V	< 25 V / < 6 V
AC pickup/dropout current				
DC pickup/dropout current				
Switch-on delay / Switch-off delay		typically 6.5 ms / typical. 38 ms	typically 4.7 ms / typical. 44 ms	< 4 ms / 50 ms
Ordering data				
Complete module				
CO contact	Type	MCZ R 24VDC 1CO AU TRAK	MCZ R 36VDC 1CO AU TRAK	MCZ R 48...110VDC 1CO AU
	Order No.	**8790520000**	**8790510000**	**8790500000**
	Type			
	Order No.			
Ordering data				
Note		Can safe switch a load of: 1…60 V AC/DC, 1…300 mA. If higher loads are switched this can damage the gold plating.	Can safe switch a load of: 1…60 V AC/DC, 1…300 mA. If higher loads are switched this can damage the gold plating.	Can safe switch a load of: 1…60 V AC/DC, 1…300 mA. If higher loads are switched this can damage the gold plating.

MCZ-SERIES - Opto modules

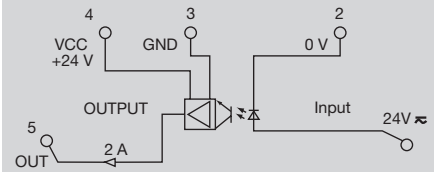
MiniConditioner MCZ O

- Universal interface between control and sensor/ actuator
- Tension-clamp connection system
- Plug-in cross-connection
- Width 6 mm

24 V UC



24 V UC / 24 V 2 A



Technical data

Control side		
Rated control voltage	24 V UC ±20 %	24 V UC ±20 %
Power rating	230 mW / 280 mVA	195 mW / 220 mVA
Input frequency	AC: 5 Hz / DC: 10 Hz	AC: 10 Hz / DC: 30 Hz
Rated auxiliary voltage	No	No
Status indicator	Green LED	LED
Load side		
Rated switching voltage	5...48 V DC	24 V DC ±20%
Rated switching current	20 mA	2 A
Voltage drop at max. load	≤ 1 V	
Switch-on delay / Switch-off delay	AC: 10 ms / DC: 20 ms / AC: 45 ms / DC: 40 ms	
Short-circuit-proof / Protective circuit	No / Integrated free-wheel diode	Yes / Varistor
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	CSA; cURus; GOSTME25; CE	CSA; cURus; GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	300 V	300 V
Rated impulse withstand voltage	6 kV	6 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm	≥ 5.5 mm
Overvoltage category	III	III
Pollution severity	2	2

Dimensions		**Tension clamp connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.5 / 1.5	1.5 / 0.5 / 1.5
Length x width x height	mm	91 / 6 / 64	91 / 6 / 64
Note			* Status indicator: green = OK, yellow = partial short circuit, blinking red = short circuit

Ordering data

Connection system						
Tension clamp connection		**Type**	**Qty.**	**Order No.**	**Type**	**Qty.**	**Order No.**
		MCZ O 24VUC	10	**8365940000**	MCZ O 24VUC	10	**8287730000**

Note

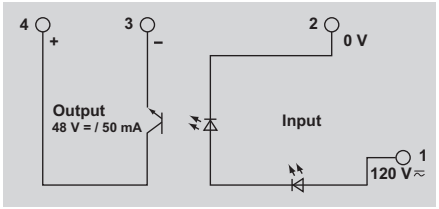
Accessories

	End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories	End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories

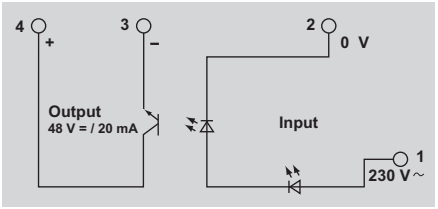
MiniConditioner MCZ O

- Universal interface between control and sensor/ actuator
- Tension-clamp connection system
- Plug-in cross-connection
- Width 6 mm

120 V UC



230 V AC



Technical data

Control side		
Rated control voltage	120 V UC +5 / -15 %	230 V AC +5 % / -15 %
Power rating	350 mW / 400 mVA	2.3 VA
Input frequency	AC: 5 Hz duty factor 1:2, DC: 20 Hz duty factor 1:2	AC: 5 Hz duty factor 1:2
Rated auxiliary voltage	No	No
Status indicator	Green LED	Green LED
Load side		
Rated switching voltage	5...48 V DC	5...48 V DC
Rated switching current	50 mA	20 mA
Voltage drop at max. load	1.6 V	1.6 V
Switch-on delay / Switch-off delay	≤ 30 ms / ≤ 40 ms	≤ 30 ms / ≤ 40 ms
Short-circuit-proof / Protective circuit	No / Integrated free-wheel diode	No / Integrated free-wheel diode
General data		
Ambient temperature (operational)	-25 °C...+40 °C	-25 °C...+40 °C
Storage temperature	-40 °C...+60 °C	-40 °C...+85 °C
Humidity	40°C / 93% rel. humidity, no condensation	40°C / 93% rel. humidity, no condensation
Approvals	CSA; cURus; GOSTME25; CE	CSA; cURus; GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	300 V	300 V
Rated impulse withstand voltage	6 kV	6 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm	≥ 5.5 mm
Overvoltage category	III	III
Pollution severity	2	2

Dimensions		**Tension clamp connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.5 / 1.5	1.5 / 0.5 / 1.5
Length x width x height	mm	91 / 6 / 64	91 / 6 / 64
Note			

Ordering data

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

Note		

Accessories

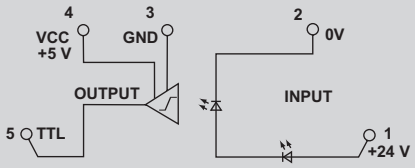
	End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories	End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories

MCZ-SERIES - Opto modules

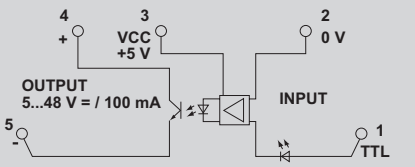
MiniConditioner MCZ O

- Universal interface between control and sensor/ actuator
- Tension-clamp connection system
- Plug-in cross-connection
- Width 6 mm

24 V DC / 5 V TTL



5 V TTL / 5...48 V DC



Technical data

Control side		
Rated control voltage	24 V DC ±16 %	5 V TTL
Power rating	112 mW	10 mW
Input frequency	100 kHz duty factor 1:2, 50 kHz duty factor 1:10	2.4 kHz
Rated auxiliary voltage	No	5 V
Status indicator	Green LED	Green LED
Load side		
Rated switching voltage	5 V TTL(4.75...5.25 V)	5...48 V DC
Rated switching current	8 mA, fan out = 20 LS-TTL	100 mA
Voltage drop at max. load		≤ 1.8 V
Switch-on delay / Switch-off delay	1 µs (at 20 V DC) / 2.5 µs (at 28 V DC)	
Short-circuit-proof / Protective circuit	No / Diode	No / Diode
General data		
Ambient temperature (operational)	-25 °C...+40 °C	-25 °C...+50 °C
Storage temperature	-40 °C...+60 °C	-40 °C...+85 °C
Humidity	40°C / 93% rel. humidity, no condensation	40°C / 93% rel. humidity, no condensation
Approvals	CSA; cURus; GOSTME25; CE	CSA; cURus; GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	300 V	300 V
Rated impulse withstand voltage	6 kV	6 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm	≥ 5.5 mm
Overvoltage 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
Length x width x height	mm	91 / 6 / 64	91 / 6 / 64
Note			

Ordering data

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

Note		

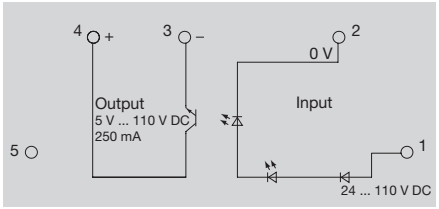
Accessories

	End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories	End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories

MCZ O TRAK

- Module 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



Technical data

Control side	
Rated control voltage	24...110 V DC -30 / +25 %
Power rating	
Input frequency	max. 10 Hz
Rated auxiliary voltage	No
Status indicator	Green LED
Load side	
Rated switching voltage	5...137.5 V DC
Rated switching current	180 mA @ 70 °C, 250 mA @ 50 °C
Voltage drop at max. load	≤ 1.7 V
Switch-on delay / Switch-off delay	≤ 10 ms / 50 ms
Short-circuit-proof / Protective circuit	no / Varistor, integrated free-wheel diode
General data	
Ambient temperature (operational)	-25 °C...+70 °C
Storage temperature	-40 °C...+85 °C
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	CE
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	6 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm
Overvoltage category	III
Pollution severity	2

Dimensions		**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.5 / 1.5
Length x width x height	mm	91 / 6 / 64
Note		

Ordering data

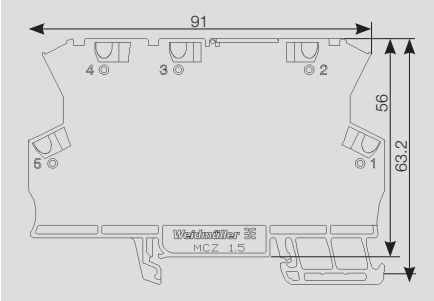
Connection system	**Type**	**Qty.**	**Order No.**
Tension clamp connection	MCZ O TRAK 24.110VDC	10	**8820710000**

Note	

Accessories

	End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories

MCZ accessories



Ordering data

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

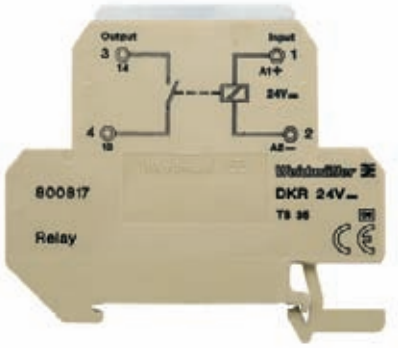
Ordering data

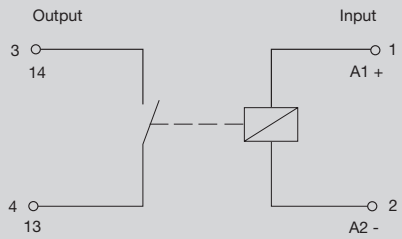
	No. of poles	Type	Qty.	Order No.
Plug-in cross-connection, yellow	2	ZQV 4N / 2 GE	60	**1758250000**
Plug-in cross-connection, yellow	3	ZQV 4N / 3 GE	60	**1762630000**
Plug-in cross-connection, yellow	4	ZQV 4N / 4 GE	60	**1762620000**
Plug-in cross-connection, yellow	10	ZQV 4N / 10 GE	20	**1758260000**
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.
Marker	WS10/6	200	**1060960000**
Screwdriver	SD 0.6x3.5x100	1	**9008330000**
End bracket	WEW 35/2	100	**1061200000**

1 NO contact
input bottom
DC/UC coil





Output	
Switching voltage AC, max. / Continuous current	100 V / 0.5 A
min. switching capacity	1 V / 1 mA
Sparkover time / Drop-out time	typ. 0.7...2.5 ms / 0.2...2 ms
Contact material	Rh/Ru
Mechanical service life	10^9 switching cycles
Max. switching frequency at rated load	200 Hz
Rated data	
Status indicator / Free-wheel diode	Green LED / Yes
Reverse polarity protection	Available
Ambient temperature (operational)	-25 °C...+40 °C
Storage temperature	-40 °C...+60 °C
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GOSTME25; CE
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	150 V
Impulse withstand voltage	1.5 kV
Clearance and creepage distances for control/load side	≥ 3 mm
Overvoltage category	III
Pollution severity	2
Protective separation acc. to VDE 0106 part 101	No

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm²	4 / 0.5 / 4
Length x width x height	mm	77 / 6 / 62
Note		End plate AP DKT4 PA 0687560000

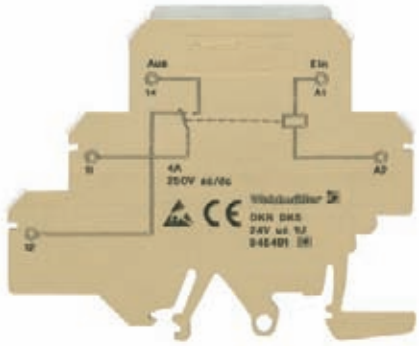
Ordering data

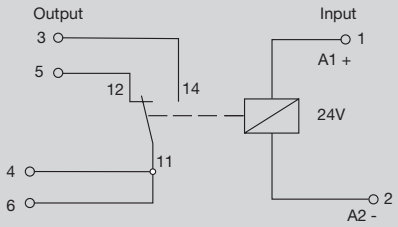
	5 V DC 1NO	12 V DC 1NO	24 V UC 1NO	24 V DC 1NO
Input				
Rated control voltage	5 V DC	12 V DC	24 V UC ±10 %	24 V DC +5 % / -10 %
Rated current AC			15 mA	
Rated current DC	5.5 mA	5.5 mA	9 mA	9.3 mA
Power rating	1.2 W	1.2 W	0.36 VA / 216 mW	225 mW
AC Response/dropout Volt			12 V / 8 V	
DC Response/dropout Volt	165 V / 22 V	165 V / 22 V	10 V / 11 V	11 V
AC pickup/dropout current			6.3 mA / 4.3 mA	
DC pickup/dropout current	11.8 mA	10 mA	3.8 mA // 3mA	7.5 mA

Ordering data					
For TS 32	Type			DKR 32 24VUC 1A	DKR 32 24VDC 1A
	Order No.			**8008110000**	**8016620000**
For TS 35	Type	DKR 35 5VDC 1A	DKR 35 12VDC 1A	DKR 35 24VUC 1A	DKR 35 24VDC 1A
	Order No.	**8019610000**	**8171100000**	**8016610000**	**8008170000**
Ordering data					
Note					

DK-SERIES - Relay modules

1 CO contact
input bottom
DC coil





Output	
Switching voltage AC, max. / Continuous current	250 V / 6 A
min. switching capacity	12 V / 10 mA
Sparkover time / Drop-out time	6 ms / 15 ms AC; 8 ms DC
Contact material	AgSnO2
Mechanical service life	$2*10^7$ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Status indicator / Free-wheel diode	Green LED / Yes
Reverse polarity protection	not available
Ambient temperature (operational)	-40 °C...+60 °C
Storage temperature	-40 °C...+60 °C
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GOSTME25; CE
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Impulse withstand voltage	4 kV
Clearance and creepage distances for control/load side	≥ 8 mm
Overvoltage category	III
Pollution severity	2
Protective separation acc. to VDE 0106 part 101	No

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm^2	4 / 0.5 / 4
Length x width x height	mm	77 / 6 / 62
Note		End plate AP DK5: 8268870000

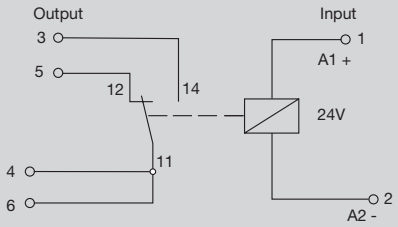
Ordering data

	24 V UC 1CO
Input	
Rated control voltage	24 V UC ±20 %
Rated current AC	9 mA
Rated current DC	7 mA
Power rating	220 mVA/ 180 mW
AC Response/dropout Volt	18 V
DC Response/dropout Volt	19 V
AC pickup/dropout current	7 mA
DC pickup/dropout current	-/5.5 mA

Ordering data		
For TS 32 / 35	Type	DKR DK5 24VUC 1U
	Order No.	**9454910000**
	Type	
	Order No.	

Ordering data	
Note	

1 CO contact
input bottom
DC coil



Output	
Switching voltage AC, max. / Continuous current	250 V / 6 A
min. switching capacity	10 V / 100 mA
Sparkover time / Drop-out time	typ. 0.7...2.5 ms / 0.2...2 ms
Contact material	AgNi 0.15 gold flashed
Mechanical service life	> 10^7 switching cycles
Max. switching frequency at rated load	10 Hz
Rated data	
Status indicator / Free-wheel diode	Green LED / Yes
Reverse polarity protection	Available
Ambient temperature (operational)	-25 °C...+40 °C
Storage temperature	-40 °C...+60 °C
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GOSTME25; CE
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Impulse withstand voltage	6 kV
Clearance and creepage distances for control/load side	≥ 8 mm
Overvoltage category	IV
Pollution severity	2
Protective separation acc. to VDE 0106 part 101	No

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm²	4 / 0.5 / 4
Length x width x height	mm	65 / 18 / 62
Note		End plate AP DKT4 PA 0687560000

Ordering data

	24 V DC 1CO
Input	
Rated control voltage	24 V DC ±20 %
Rated current AC	
Rated current DC	11.5 mA
Power rating	384 mW
AC Response/dropout Volt	
DC Response/dropout Volt	19 V
AC pickup/dropout current	
DC pickup/dropout current	9 mA

Ordering data		
For TS 35	Type	DKR 35 24VDC 1U
	Order No.	**8181980000**
	Type	
	Order No.	

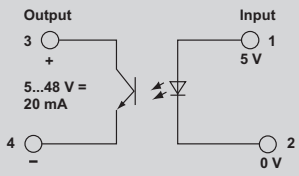
Ordering data	

Note	

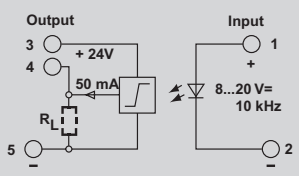
Mini-coupler DKO

- Coupling of digital sensor/actuator signals between PLC and process
- Inexpensive solution for adapting level and potential
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

5 V DC



12 V DC 10 kHz



Technical data

Control side		
Rated control voltage	5 V DC ±5 %	8...20 V DC
Power rating	50 mW	Max. 130 mW
Input frequency	300 Hz	Max. 10 kHz
Rated auxiliary voltage	No	No
Status indicator	Green LED	Green LED
Load side		
Rated switching voltage	5...48 V DC	24 V DC ± 10%
Rated switching current	20 mA	50 mA
Voltage drop at max. load	1.6 V	≤ 1 V
Switch-on delay / Switch-off delay	≤ 15 µs / ≤ 70 µs	1 µs / 2.5 µs
Short-circuit-proof / Protective circuit	No / Diode	No / Diode
General data		
Ambient temperature (operational)	-25 °C...+40 °C	-25 °C...+40 °C
Storage temperature	-40 °C...+85 °C	-40 °C...+85 °C
Approvals	GOSTME25; CE	GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	150 V	300 V
Rated impulse withstand voltage	4 kV	6 kV
Clearance and creepage distances for control/load side	≥ 4 mm	≥ 5.5 mm
Overvoltage category	III	III
Pollution severity	2	2

Dimensions			
Clamping range (nominal / min. / max.)	mm^2	4 / 0.5 / 4	4 / 0.5 / 4
Length x width x height	mm	65 / 6 / 57	65 / 12 / 57
Note			

Ordering data

Connection system						
	For TS 35	DKO 35 5VDC	10	**8018630000**	DKO 35 12VDC 10KHZ	5	**8184030000**
	For TS 32	DKO 32 5VDC	10	**8018620000**			
Note		Input at bottom			Input at bottom		

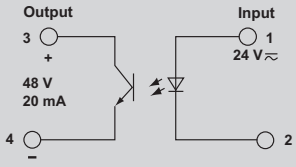
Accessories

End plate AP DKT 4: 0687560000	End plate AP DKT 4: 0687560000

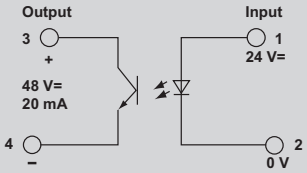
Mini-coupler DKO

- Coupling of digital sensor/actuator signals between PLC and process
- Inexpensive solution for adapting level and potential
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

24 V UC



24 V DC 3 kHz



Technical data

Control side		
Rated control voltage	24 V UC ±10 %	24 V DC ±10 %
Power rating	280 mVA / 230 mW	Max. 360 mW
Input frequency	10 Hz at DC	3 kHz
Rated auxiliary voltage	No	No
Status indicator	Green LED	Green LED
Load side		
Rated switching voltage	5...48 V DC	5...48 V DC
Rated switching current	20 mA	20 mA
Voltage drop at max. load	≤ 1 V	≤ 900 mV
Switch-on delay / Switch-off delay	≤ 15 ms at DC / ≤ 25 ms at DC	Approx. 50 µs / Approx. 80 µs
Short-circuit-proof / Protective circuit	No / Diode	No / Diode
General data		
Ambient temperature (operational)	-25 °C...+40 °C	-25 °C...+40 °C
Storage temperature	-40 °C...+85 °C	-40 °C...+85 °C
Approvals	GOSTME25; CE	GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	300 V	300 V
Rated impulse withstand voltage	4 kV	4 kV
Clearance and creepage distances for control/load side	≥ 4 mm	≥ 4 mm
Overvoltage category	III	III
Pollution severity	2	2

Dimensions		Screw connection	Screw connection
Clamping range (nominal / min. / max.)	mm²	4 / 0.5 / 4	4 / 0.5 / 4
Length x width x height	mm	65 / 6 / 57	65 / 6 / 57
Note			

Ordering data

Connection system		Type	Qty.	Order No.	Type	Qty.	Order No.
	For TS 35	DKO 35 24VUC	10	**8008150000**	DKO 35 24VDC 3KHZ E:U	10	**8028300000**
	For TS 32	DKO 32 24VUC	10	**8008090000**			
Note		Input at bottom			Input at bottom		

Accessories

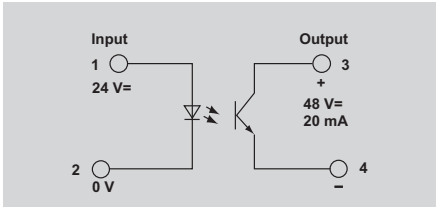
	End plate AP DKT 4: 0687560000	End plate AP DKT 4: 0687560000

DK-SERIES - Opto modules

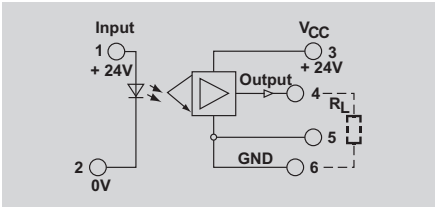
Mini-coupler DKO

- Coupling of digital sensor/actuator signals between PLC and process
- Inexpensive solution for adapting level and potential
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

24 V DC 3 kHz



24 V DC 100 Hz



Technical data

Control side		
Rated control voltage	24 V DC ±10 %	24 V DC ±10 %
Power rating	Max. 360 mW	Max. 290 mW
Input frequency	3 kHz	100 Hz
Rated auxiliary voltage	No	No
Status indicator	Green LED	Green LED
Load side		
Rated switching voltage	5...48 V DC	24 V DC ± 10%
Rated switching current	20 mA	2 A
Voltage drop at max. load	≤ 900 mV	
Switch-on delay / Switch-off delay	Approx. 50 µs / Approx. 80 µs	2 ms / < 7 ms
Short-circuit-proof / Protective circuit	No / Diode	Yes / Varistor
General data		
Ambient temperature (operational)	-25 °C...+40 °C	-25 °C...+40 °C
Storage temperature	-40 °C...+85 °C	-40 °C...+85 °C
Approvals	GOSTME25; CE	GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	300 V	300 V
Rated impulse withstand voltage	4 kV	4 kV
Clearance and creepage distances for control/load side	≥ 4 mm	≥ 3 mm
Overvoltage category	III	III
Pollution severity	2	2

Dimensions			
Clamping range (nominal / min. / max.)	mm²	4 / 0.5 / 4	4 / 0.5 / 4
Length x width x height	mm	65 / 6 / 57	65 / 12 / 57
Note			

Ordering data

Connection system			
		For TS 35	
Type	**Qty.**	**Order No.**	
DKO 35 24VDC 3KHZ E:O	10	**8215640000**	
DKO 35 24VDC E:U	5	**8181990000**	
Note		Input at top	Input at bottom

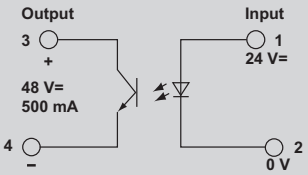
Accessories

	End plate AP DKT 4: 0687560000	End plate AP DKT 4: 0687560000

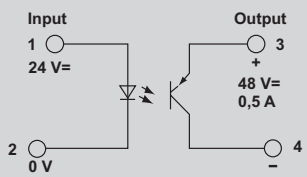
Mini-coupler DKO

- Coupling of digital sensor/actuator signals between PLC and process
- Inexpensive solution for adapting level and potential
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

24 V DC 200 Hz



24 V DC 200 Hz



Technical data

Control side		
Rated control voltage	24 V DC ±10 %	24 V DC ±10 %
Power rating	145 mW	Max. 145 mW
Input frequency	200 Hz	200 Hz
Rated auxiliary voltage	No	No
Status indicator	Green LED	Green LED
Load side		
Rated switching voltage	5...48 V DC	5...48 V DC
Rated switching current	500 mA	500 mA
Voltage drop at max. load	≤ 800 mV	≤ 800 mV
Switch-on delay / Switch-off delay	Approx. 40 µs / Approx. 65 µs	Approx. 40 µs / Approx. 65 µs
Short-circuit-proof / Protective circuit	No / Diode	No / Diode
General data		
Ambient temperature (operational)	-25 °C...+40 °C	-25 °C...+40 °C
Storage temperature	-40 °C...+85 °C	-40 °C...+85 °C
Approvals	GOSTME25; CE	GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	300 V	300 V
Rated impulse withstand voltage	4 kV	4 kV
Clearance and creepage distances for control/load side	≥ 4 mm	≥ 4 mm
Overvoltage category	III	III
Pollution severity	2	2

Dimensions			
Clamping range (nominal / min. / max.)	mm²	4 / 0.5 / 4	4 / 0.5 / 4
Length x width x height	mm	65 / 6 / 57	65 / 6 / 57
Note			

Ordering data

Connection system		**Type**	**Qty.**	**Order No.**	**Type**	**Qty.**	**Order No.**
	For TS 35	DKO 35 24VDC E:U	10	**8019590000**	DKO 35 24VDC E:O	10	**8215630000**
Note		Input at bottom			Input at top		

Accessories

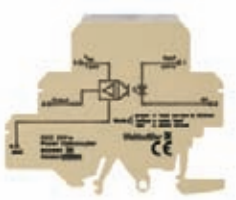
	End plate AP DKT 4: 0687560000	End plate AP DKT 4: 0687560000

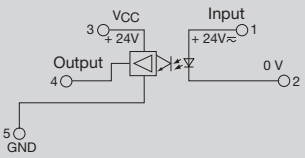
DK-SERIES - Opto modules

Mini-coupler DKO

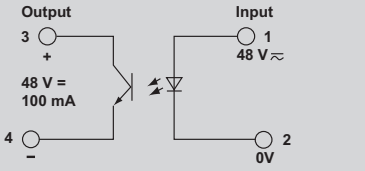
- Coupling of digital sensor/actuator signals between PLC and process
- Inexpensive solution for adapting level and potential
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

24 V UC





48 V UC



Technical data

Control side		
Rated control voltage	24 V UC ±20 %	48 V UC ±20 %
Power rating	Max.: 220 mVA / 195 mW	Max.: 155 mVA / 135 mV
Input frequency	≤ 10 Hz	3 kHz
Rated auxiliary voltage	No	No
Status indicator	LED	Green LED
Load side		
Rated switching voltage	24 V DC ±20%	5...48 V DC
Rated switching current	2 A	100 mA
Voltage drop at max. load		≤ 1.5 V
Switch-on delay / Switch-off delay	2 ms / < 7 ms	< 5 ms / < 15 ms
Short-circuit-proof / Protective circuit	Yes /	No / Diode
General data		
Ambient temperature (operational)	-25 °C...+50 °C	-25 °C...+50 °C
Storage temperature	-40 °C...+85 °C	-40 °C...+85 °C
Approvals	GOSTME25; CE	GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	300 V	300 V
Rated impulse withstand voltage	6 kV	4 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm	≥ 4 mm
Overvoltage category	III	III
Pollution severity	2	2

Dimensions			
Clamping range (nominal / min. / max.)	mm²	4 / 0.5 / 4	4 / 0.5 / 4
Length x width x height	mm	77 / 6 / 62	65 / 6 / 57
Note		* Status indicator: green = OK, yellow = partial short circuit, blinking red = short circuit	

Ordering data

Connection system			
		For TS 35	
Type	**Qty.**	**Order No.**	
DKO DK5 24VUC	10	**8228630000**	
DKO 35 48VUC	10	**8025910000**	
Note		Input at bottom	Input at bottom

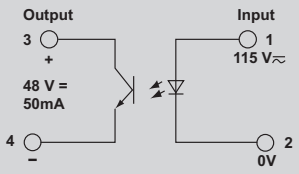
Accessories

End plate AP DK 5 PA BE: 4036780000	End plate AP DK4 0687560000

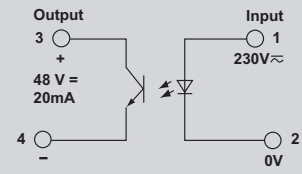
Mini-coupler DKO

- Coupling of digital sensor/actuator signals between PLC and process
- Inexpensive solution for adapting level and potential
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

115 V UC



230 V UC



Technical data

Control side		
Rated control voltage	115 V UC +5 % / -15 %	230 V UC +5 % / -15 %
Power rating	390 mVA / 350 mW	395 mVA / 370 mW
Input frequency	AC: 5 Hz / DC: 20 Hz	AC: 5 Hz / DC: 20 Hz
Rated auxiliary voltage	No	No
Status indicator	Green LED	Green LED
Load side		
Rated switching voltage	5...48 V DC	5...48 V DC
Rated switching current	50 mA	20 mA
Voltage drop at max. load	1.6 V	1.6 V
Switch-on delay / Switch-off delay	17.4 ms / 27.4 ms	20 ms / 20 ms
Short-circuit-proof / Protective circuit	Yes / Diode	No / Diode
General data		
Ambient temperature (operational)	-25 °C...+40 °C	-25 °C...+50 °C
Storage temperature	-40 °C...+85 °C	-40 °C...+85 °C
Approvals	GOSTME25; CE	GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	300 V	300 V
Rated impulse withstand voltage	6 kV	6 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm	≥ 5.5 mm
Overvoltage category	III	III
Pollution severity	2	2

Dimensions		**Screw connection**	**Screw connection**
Clamping range (nominal / min. / max.)	mm²	4 / 0.5 / 4	4 / 0.5 / 4
Length x width x height	mm	65 / 6 / 57	65 / 6 / 57
Note			

Ordering data

Connection system		**Type**	**Qty.**	**Order No.**	**Type**	**Qty.**	**Order No.**
	For TS 35	DKO 35 115VUC	10	**8077860000**	DKO 35 230VUC	10	**8008160000**
					DKO 32 230VUC	10	**8008100000**
Note		Input at bottom			Input at bottom		

Accessories

	End plate AP DKT 4: 0687560000	End plate AP DKT 4: 0687560000

Industrial relay modules and opto modules

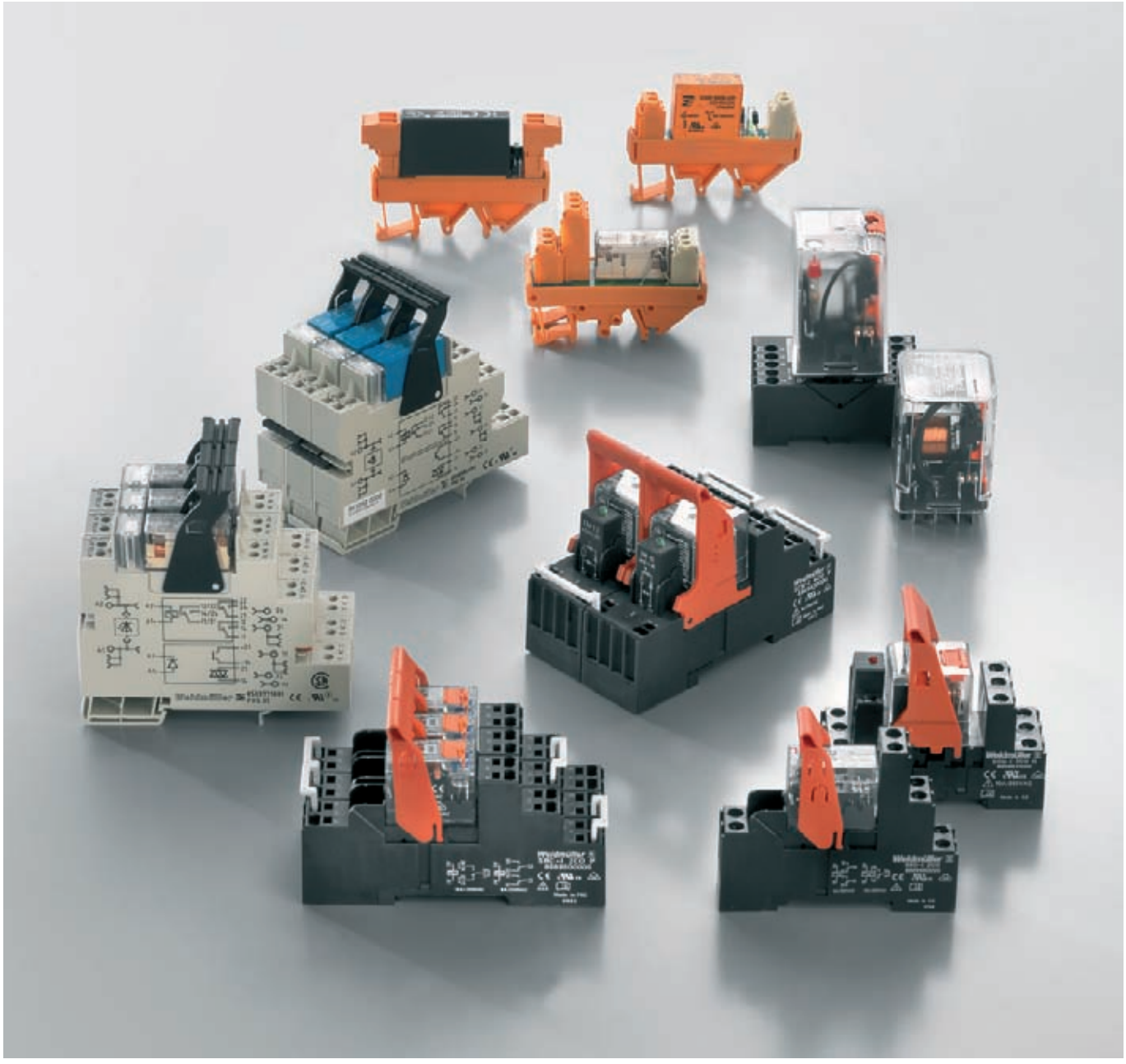
Industrial relay modules and opto modules

Industrial relay modules and opto modules

Coupling components with established connection systems are easy to use and safe to connect.

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,

Weidmüller's industrial relay modules and opto modules provide users with excellent reliability and service convenience. Whether electro-mechanical or electronic – our wide line of relay modules and opto modules provides the proper solution for all of your industrial application needs.



RIDERSERIES

The standard

PLUGSERIES

Established technology

RS-SERIES

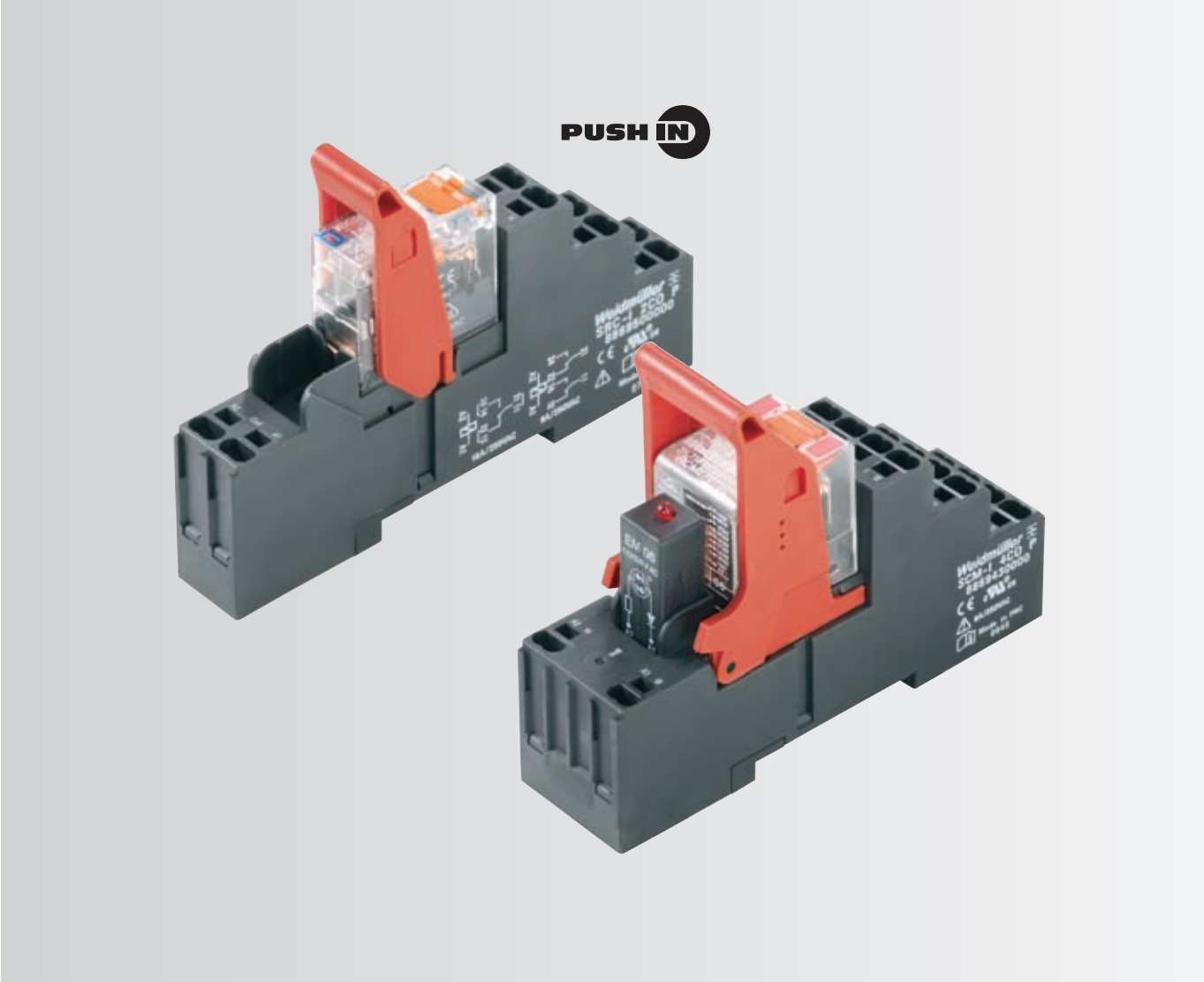
Relay modules and opto modules

The standard

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.

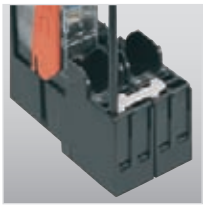
Our innovative relay bases with PUSH IN connection systems are available for both the RCI/RCL and RCM product lines. PUSH IN technology is safe and easy to use and it allows you to reduce costs with less wiring time. The relay modules are designed for industrial applications and feature sturdy relay 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 our particularly convenient to use. They include the relay module with status display and the base with ejection lever. The kits are delivered fully assembled and with completely tested functionality. This saves time during assembly and reduces the number of products required.



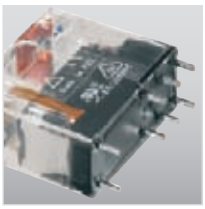
Simple

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



Saves time

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



Safe

The heavy-duty industrial pins ensure a reliable connection.

Customized

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

The RIDERSERIES product line

RCI

Relay modules, kits and accessories

RCM

Relay modules, kits and accessories

RRD

Relay modules and accessories

RPW

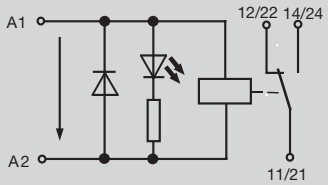
Relay modules and accessories

RIDERSERIES - Relay modules

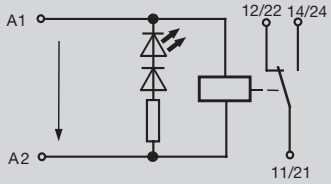
RCI KIT with screw connection
1 CO

- 4.000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay module
- 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



Output	
Switching voltage AC, max.	250 V
Continuous current	16 A
Contact material	AgNi 90/10
Mechanical service life	AC coil 5*10^5 switching operations, DC coil 10*10^5 switching operations
Sparkover time / Drop-out time	7 ms / 3 ms
Rated data	
Status indicator / Free-wheel diode	Green LED = DC coil; red LED = AC coil / Yes
Ambient temperature (operational)	-40 °C...+70 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GL*; CE; cURus
Insulation coordination (EN 50 178)	
Rated voltage	250 V
Clearance and creepage distances for control/load side	> 8 mm
Overvoltage category	III
Pollution severity	3
Protective separation acc. to VDE 0106 part 101	Yes

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 2.5
Length x width x height	mm	70 / 15.5 / 77
Note		* Valid only for RCI kits with test button

Ordering data

Input	24 V DC 1CO	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC		31.6 mA	6.6 mA	3.2 mA
Rated current DC	16.7 mA			
Power rating	400 mW	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	16.8 V / 2.4 V			
Coil resistance	1440 Ω ±10%	350 Ω ±10%	8100 Ω ±15%	32500 Ω ±15%

Ordering data Relay module with socket					
with 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**
without 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**

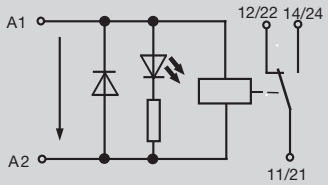
Ordering data		w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button
	Type	RCI374AC4	RCI314AC4	RCI374R24	RCI314R24	RCI374S15	RCI314S15	RCI374T30	RCI314T30
	Order No.	**8870250000**	**8870100000**	**8870280000**	**8870130000**	**8870290000**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

Note

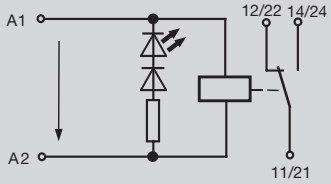
RCI-KITP with PUSH IN connection
1 CO

- 4.000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay module
- 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



Output	
Switching voltage AC, max.	250 V
Continuous current	16 A
Contact material	AgNi 90/10
Mechanical service life	AC coil 5*10^5 switching operations, DC coil 10*10^5 switching operations
Sparkover time / Drop-out time	7 ms / 3 ms
Rated data	
Status indicator / Free-wheel diode	Green LED = DC coil; red LED = AC coil / Yes
Ambient temperature (operational)	-40 °C...+70 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GL*; CE; cURus
Insulation coordination (EN 50 178)	
Rated voltage	250 V
Clearance and creepage distances for control/load side	> 8 mm
Overvoltage category	III
Pollution severity	3
Protective separation acc. to VDE 0106 part 101	Yes

Dimensions		PUSH IN spring connection
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.5 / 1.5
Length x width x height	mm	70 / 15.5 / 98
Note		* Valid only for RCI kits with test button

Ordering data

Input	24 V DC 1CO	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC		31.6 mA	6.6 mA	3.2 mA
Rated current DC	16.7 mA			
Power rating	400 mW	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	16.8 V / 2.4 V			
Coil resistance	1440 Ω ±10%	350 Ω ±10%	8100 Ω ±15%	32500 Ω ±15%

Ordering data Relay module with socket					
with test button	Type	RCIKITP 24VDC 1CO LD/PB	RCIKITP 24VAC 1CO LD/PB	RCIKITP115VAC 1CO LD/PB	RCIKITP230VAC 1CO LD/PB
	Order No.	**8897190000**	**8897200000**	**8897210000**	**8897220000**
without test button	Type	RCIKITP 24VDC 1CO LD	RCIKITP 24VAC 1CO LD	RCIKITP 115VAC 1CO LD	RCIKITP 230VAC 1CO LD
	Order No.	**8897110000**	**8897120000**	**8897130000**	**8897140000**

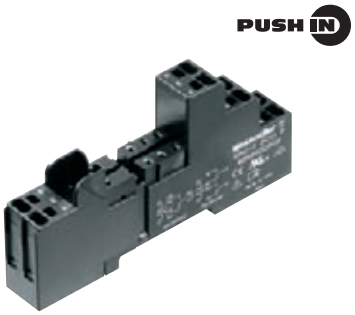
Ordering data		w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button
	Type	RCI374AC4	RCI314AC4	RCI374R24	RCI314R24	RCI374S15	RCI314S15	RCI374T30	RCI314T30
	Order No.	**8870250000**	**8870100000**	**8870280000**	**8870130000**	**8870290000**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

Note					

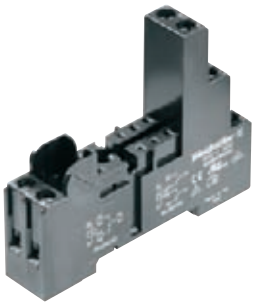
RIDERSERIES – RCI KIT 1 CO accessories

Accessories for RCI KIT relay modules, 1 CO

Plug-in module with PUSH IN connection



Plug-in module with screw connection



Technical data

Rated current	2 x 12 A*)	2 x 12 A*)
Rated voltage	240 V AC	240 V AC
Dielectric strength of coil contacts	4000 V_{eff}	> 3000 V_{eff}
Ambient temperature (operational)	-25 °C…+85 °C	-25 °C…+85 °C
Protection class (IEC 61810)	IP20	IP20
Connection cross-section		
- Solid-core wire	2 x 1.5 mm^2	2 x 2.5 mm^2
- Stranded wire	2 x 1.5 mm^2	2 x 2.5 mm^2
- with ferrule	2 x 1.0 mm^2	2 x 1.5 mm^2
Rated torque acc. to IEC 61984 for screw connection		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

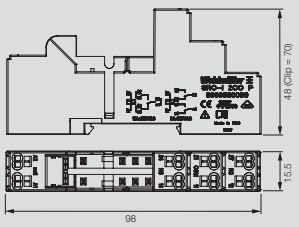
Description	Type	Qty.	Order No.
Plug-in module, snaps onto TS35 DIN mounting rail, 2-pole	SRC-I 2CO P	10	**8869500000**
	SRC-I 2CO	10	**8869490000**

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 CLIP HP	10	**8869510000**
	SRC-I CLIP HM RCI	20	**1132090000**
	SRC-I MARK	10	**8869530000**
	ESG 6/15 K MC NEUTR. WS	200	**1880100000**
	SRC-I QV	10	**8870840000**
 Cross-connector for screw base, 8-pole	SRC-I QV S		**1132070000**

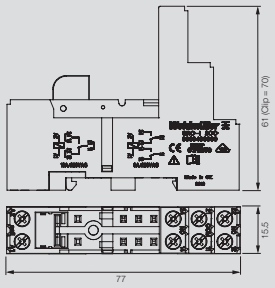
Dimensions

SRC-I 2 CO P



Dimensions

SRC-I 2 CO



Dimensions in mm

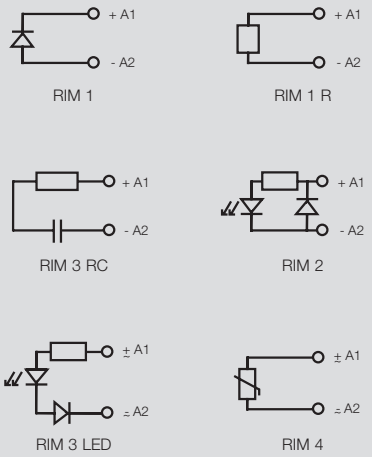
LED and protective modules for the SRC-I plug-in frame

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**



Plug-in socket with PCB connections

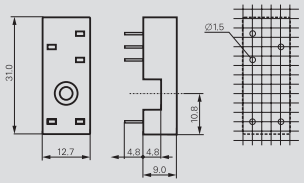
for RCL relay modules

Technical data

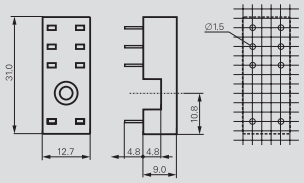
Nominal current	1-pole
Nominal current	2-pole
Nominal voltage	
Ambient temperature (operational)	
Approvals	

12 A
2 x 12 A
300 V AC
–40 °C ... +80 °C
cULus

SRC 1CO PCB



SRC 2CO PCB



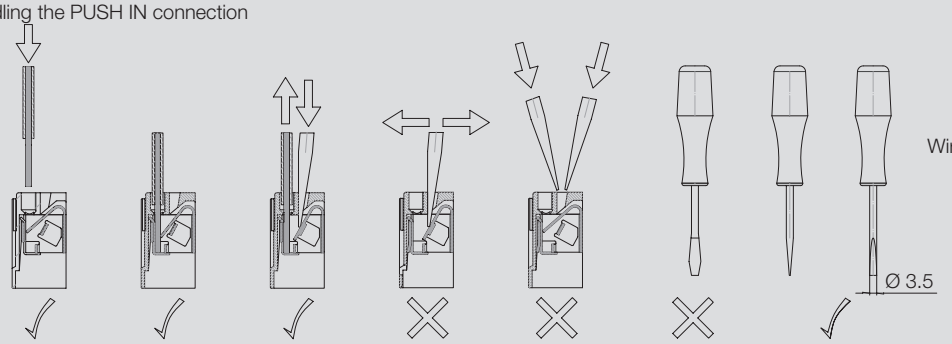
Ordering data

Description
Plug-in socket with PCB connections, pinning 3.5 mm
Plug-in socket with PCB connections, pinning 5 mm
Accessory: metal retaining clip, 15.7 mm high
Accessory: metal retaining clip, 25.5 mm high

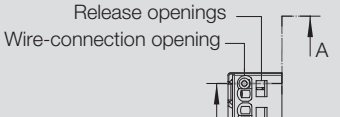
Type	Qty.	Order No.
SRC 1CO PCB	100	**8690860000**
SRC 2CO PCB	100	**8690850000**
SRC CLIP LM	100	**8693810000**
SRC CLIP HM	100	**8692620000**

Warnings and notes on usage

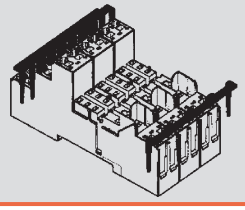
Handling the PUSH IN connection



Screwdriver
SD 0.6 x 3.5 x 100
9008330000

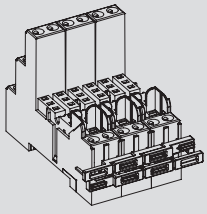


Cross-connector mounting for PUSH IN base



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

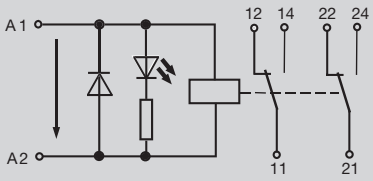


RIDERSERIES - Relay modules

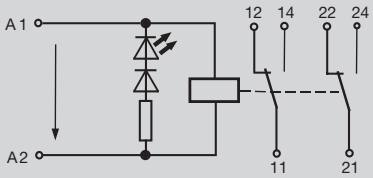
RCI KIT with screw connection
2 CO

- 4.000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay module
- 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



Output	
Switching voltage AC, max.	250 V
Continuous current	8 A / 1 contact
Contact material	AgNi 90/10
Mechanical service life	AC coil 5*10^5 switching operations, DC coil 10*10^5 switching operations
Sparkover time / Drop-out time	7 ms / 2 ms
Rated data	
Status indicator / Free-wheel diode	Green LED = DC coil; red LED = AC coil / Yes
Ambient temperature (operational)	-40 °C...+70 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GL*; CE; cURus
Insulation coordination (EN 50 178)	
Rated voltage	250 V
Clearance and creepage distances for control/load side	> 8 mm
Overvoltage category	III
Pollution severity	3
Protective separation acc. to VDE 0106 part 101	Yes

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 2.5
Length x width x height	mm	70 / 15.5 / 77
Note		* Valid only for RCI kits with test button

Ordering data

Input	24 V DC 2CO	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC		31.6 mA	6.6 mA	3.2 mA
Rated current DC	16.7 mA			
Power rating	400 mW	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	16.8 V / 2.4 V			
Coil resistance	1440 Ω ±10%	350 Ω ±10%	8100 Ω ±15%	32500 Ω ±15%

Ordering data Relay module with socket					
with test button	Type	RCIKIT 24VDC 2CO LD/PB	RCIKIT 24VAC 2CO LD/PB	RCIKIT 115VAC 2CO LD/PB	RCIKIT 230VAC 2CO LD/PB
	Order No.	**8881610000**	**8881620000**	**8897080000**	**8881630000**
without test button	Type	RCIKIT 24VDC 2CO LED	RCIKIT 24VAC 2CO LED	RCIKIT 115VAC 2CO LD	RCIKIT 230VAC 2CO LED
	Order No.	**8871030000**	**8871040000**	**8897100000**	**8871050000**

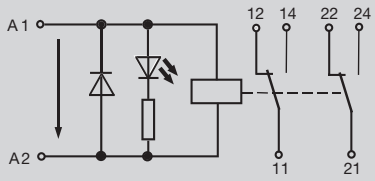
Ordering data		w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button	w. test button	w.o. test button
	Type	RCI484AC4	RCI424AC4	RCI484R24	RCI424R24	RCI484S15	RCI424S15	RCI484T30	RCI424T30
	Order No.	**8870320000**	**8870180000**	**8870350000**	**8870210000**	**8870360000**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

Note

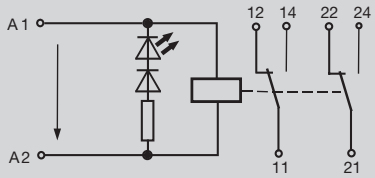
RCI-KITP with PUSH IN connection
2 CO

- 4.000 VA switching capacity
- Stable plug-in connections
- LED (AC red / DC green) integrated in relay module
- 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



Output	
Switching voltage AC, max.	250 V
Continuous current	8 A / 1 contact
Contact material	AgNi 90/10
Mechanical service life	AC coil 5*10^5 switching operations, DC coil 10*10^5 switching operations
Sparkover time / Drop-out time	7 ms / 2 ms
Rated data	
Status indicator / Free-wheel diode	Green LED = DC coil; red LED = AC coil / Yes
Ambient temperature (operational)	-40 °C...+70 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GL*; CE; cURus
Insulation coordination (EN 50 178)	
Rated voltage	250 V
Clearance and creepage distances for control/load side	> 8 mm
Overvoltage category	III
Pollution severity	3
Protective separation acc. to VDE 0106 part 101	Yes

Dimensions		PUSH IN spring connection
Clamping range (nominal / min. / max.)	mm²	1.5 / 0.5 / 1.5
Length x width x height	mm	70 / 15.5 / 98
Note		* Valid only for RCI kits with test button

Ordering data

Input	24 V DC 2CO	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC		31.6 mA	6.6 mA	3.2 mA
Rated current DC	16.7 mA			
Power rating	400 mW	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	16.8 V / 2.4 V			
Coil resistance	1440 Ω ±10%	350 Ω ±10%	8100 Ω ±15%	32500 Ω ±15%

Ordering data Relay module with socket					
with test button	Type	RCIKITP 24VDC 2CO LD/PB	RCIKITP 24VAC 2CO LD/PB	RCIKITP115VAC 2CO LD/PB	RCIKITP230VAC 2CO LD/PB
	Order No.	**8897230000**	**8897240000**	**8897250000**	**8897260000**
without test button	Type	RCIKITP 24VDC 2CO LD	RCIKITP 24VAC 2CO LD	RCIKITP 115VAC 2CO LD	RCIKITP 230VAC 2CO LD
	Order No.	**8897150000**	**8897160000**	**8897170000**	**8897180000**

Ordering data		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					

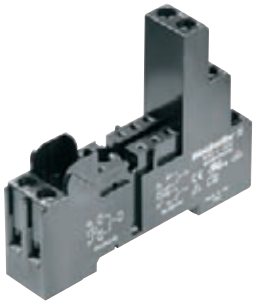
RIDERSERIES – RCI KIT 2 CO accessories

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)	IP20	IP20	IP20
Stripping length	12 mm	8 mm	8 mm
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

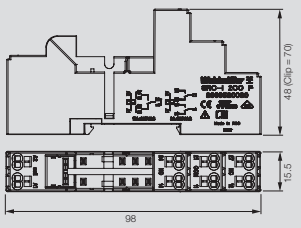
Description	Type	Qty.	Order No.
Plug-in module, snaps onto TS35 DIN mounting rail, 2-pole	SRC-I 2CO P		**8869500000**
	SRC-I 2CO		**8869490000**
	SRC-I 2CO N		**8869480000**

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**

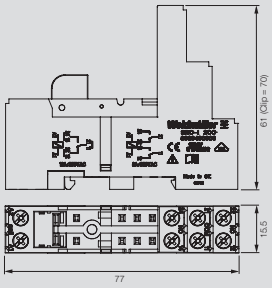
Dimensions

SRC-I 2 CO P



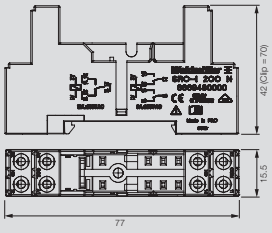
Dimensions

SRC-I 2 CO



Dimensions

SRC-I 2 CO N



Dimensions in mm

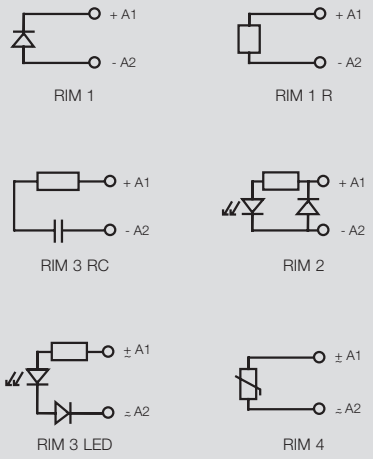
LED and protective modules for the SRC-I plug-in frame

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**



Plug-in socket with PCB connections

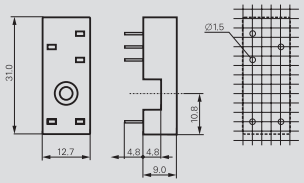
for RCL relay modules

Technical data

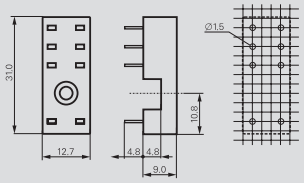
Nominal current	1-pole
Nominal current	2-pole
Nominal voltage	
Ambient temperature (operational)	
Approvals	

12 A
2 x 12 A
300 V AC
–40 °C ... +80 °C
cULus

SRC 1CO PCB



SRC 2CO PCB



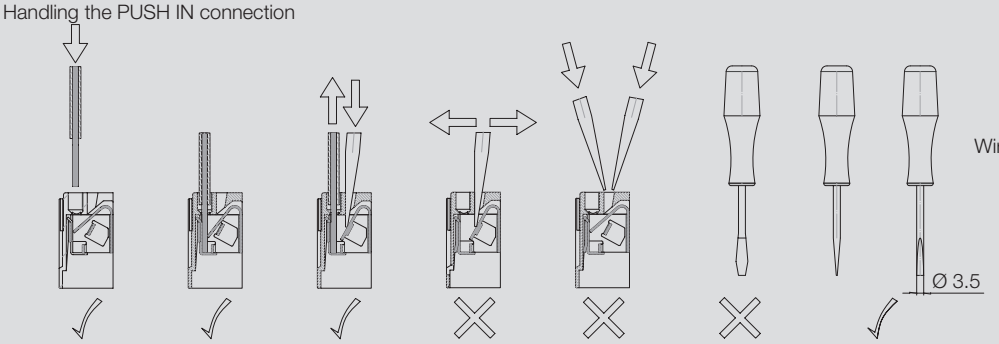
Ordering data

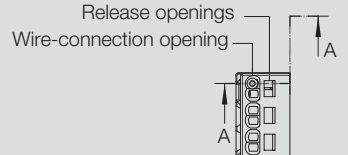
Description
Plug-in socket with PCB connections, pinning 3.5 mm
Plug-in socket with PCB connections, pinning 5 mm
Accessory: metal retaining clip, 15.7 mm high
Accessory: metal retaining clip, 25.5 mm high

Type	Qty.	Order No.
SRC 1CO PCB	100	**8690860000**
SRC 2CO PCB	100	**8690850000**
SRC CLIP LM	100	**8693810000**
SRC CLIP HM	100	**8692620000**

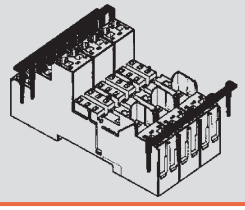
Anwendungs- und Warnhinweise

Handling the PUSH IN connection



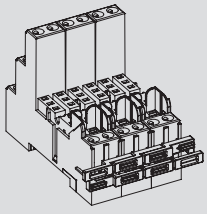


Cross-connector mounting for PUSH IN base



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



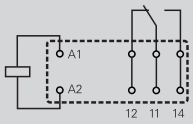
RIDERSERIES - Relay modules

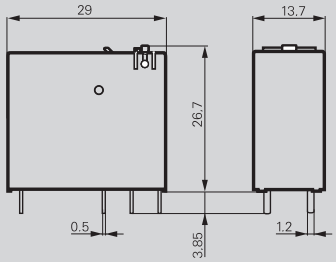
RCI relay module
1 CO AC/DC coil

- 4.000 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



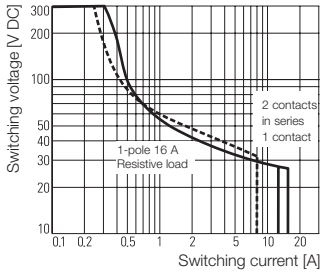


Output	
Switching voltage AC, max.	250 V
Continuous current	16 A
Contact material	AgNi 90/10
Mechanical service life	AC coil $5*10^5$ switching operations, DC coil $10*10^5$ switching operations
Sparkover time / Drop-out time	7 ms / 3 ms
Rated data	
Ambient temperature (operational)	-40 °C...+70 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	cURus; VDE
Insulation coordination (EN 50 178)	
Rated voltage	250 V
Clearance and creepage distances for control/load side	> 8 mm
Overvoltage category	III
Pollution severity	3
Protective separation acc. to VDE 0106 part 101	Yes

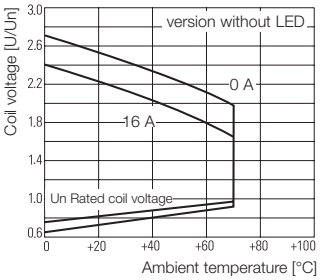
Dimensions		Plug-in connection
Length x width x height	mm	29 / 13.7 / x
Note		x = 25.5 without test button / 26.7 with test button

Applications

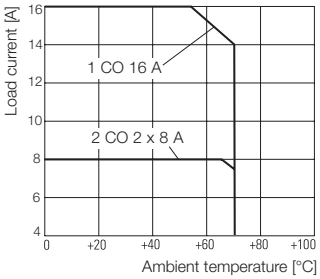
DC load breaking capacity



Operating voltage range DC

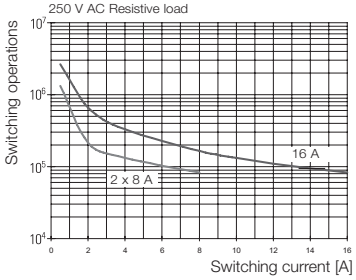


Derating curve

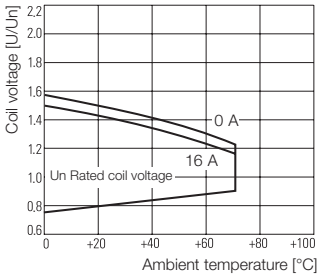


Electrical endurance

250 V AC Resistive load



Operating voltage range AC



RCI relay module
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
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
Power rating	400 mW	400 mW	400 mW	400 mW
Rated current DC	33.3 mA	16.7 mA	8.7 mA	4.1 mA
Coil resistance	360 Ω ±10%	1440 Ω ±10%	5520 Ω ±10%	26600 Ω ±12%

Ordering data **Relay module**					
Standard	Type	RCI314012	RCI314024	RCI314048	RCI314110
	Order No.	**8869800000**	**8869810000**	**8869820000**	**8869830000**
with 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
+ freewheel 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
AC Response/dropout Volt	18 V / 3.6 V	86.3 V / 17.3 V	172.5 V / 34.5 V
Power rating	0.75 VA	0.75 VA	0.75 VA
Rated current AC	31.6 mA	6.6 mA	3.2 mA
Coil resistance	350 Ω ±10%	8100 Ω ±15%	32500 Ω ±15%

Ordering data **Relay module**				
Standard	Type	RCI314524	RCI314615	RCI314730
	Order No.	**8869840000**	**8869850000**	**8869860000**
with 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

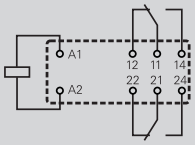
RIDERSERIES - Relay modules

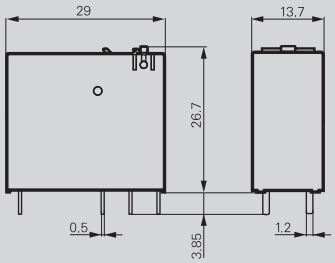
RCI relay module
2 CO AC/DC coil

- 2.000 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



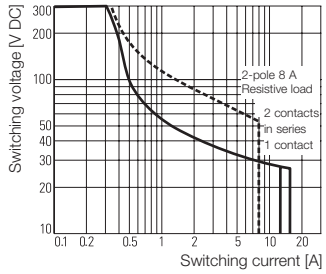


Output	
Switching voltage AC, max.	250 V
Continuous current	8 A / 1 contact
Contact material	AgNi 90/10
Mechanical service life	AC coil $5*10^5$ switching operations, DC coil $10*10^5$ switching operations
Sparkover time / Drop-out time	7 ms / 2 ms
Rated data	
Ambient temperature (operational)	-40 °C...+70 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	cURus; VDE
Insulation coordination (EN 50 178)	
Rated voltage	250 V
Clearance and creepage distances for control/load side	> 8 mm
Overvoltage category	III
Pollution severity	3
Protective separation acc. to VDE 0106 part 101	Yes

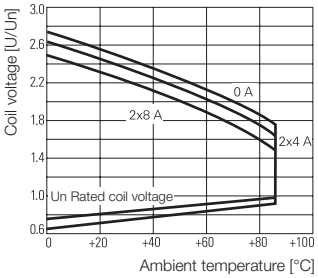
Dimensions		Plug-in connection
Length x width x height	mm	29 / 13.7 / x
Note		x = 25.5 without test button / 26.7 with test button

Applications

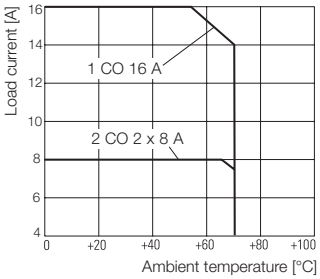
DC load breaking capacity



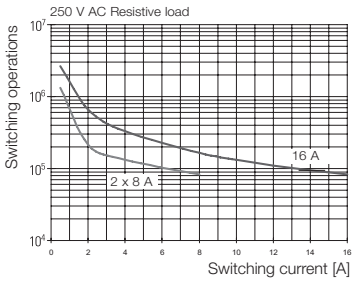
Operating voltage range DC



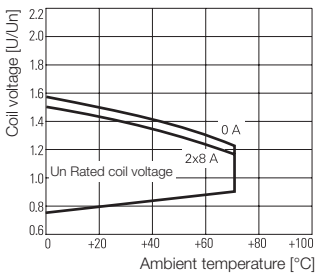
Derating curve



Electrical endurance



Operating voltage range AC



RCI relay module
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
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
Power rating	400 mW	400 mW	400 mW	400 mW
Rated current DC	33.3 mA	16.7 mA	8.7 mA	4.1 mA
Coil resistance	360 Ω ±10%	1440 Ω ±10%	5520 Ω ±10%	26600 Ω ±12%

Ordering data **Relay module**					
Standard	Type	RCI424012	RCI424024	RCI424048	RCI424110
	Order No.	**8869870000**	**8869890000**	**8869900000**	**8869910000**
with test button	Type	RCI484012	RCI484024	RCI484048	RCI484110
	Order No.	**8870020000**	**8870030000**	**8870040000**	**8870050000**
with LED + freewheel diode	Type	RCI424AB2	RCI424AC4	RCI424AE8	RCI424BB0
	Order No.	**8870170000**	**8870180000**	**8870190000**	**8870200000**
with test button + LED	Type	RCI484AB2	RCI484AC4	RCI484AE8	RCI484BB0
+ freewheel 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
AC Response/dropout Volt	18 V / 3.6 V	86.3 V / 17.3 V	172.5 V / 34.5 V
Power rating	0.75 VA	0.75 VA	0.75 VA
Rated current AC	31.6 mA	6.6 mA	3.2 mA
Coil resistance	350 Ω ±10%	8100 Ω ±15%	32500 Ω ±15%

Ordering data **Relay module**				
Standard	Type	RCI424524	RCI424615	RCI424730
	Order No.	**8869920000**	**8869930000**	**8869940000**
with test button	Type	RCI484524	RCI484615	RCI484730
	Order No.	**8870060000**	**8870070000**	**8870080000**
with LED	Type	RCI424R24	RCI424S15	RCI424T30
	Order No.	**8870210000**	**8870220000**	**8870230000**
with test button + LED	Type	RCI484R24	RCI484S15	RCI484T30
	Order No.	**8870350000**	**8870360000**	**8870370000**

Note

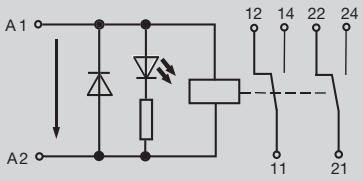
RIDERSERIES - Relay modules

RCM KIT
2 CO AC/DC coil

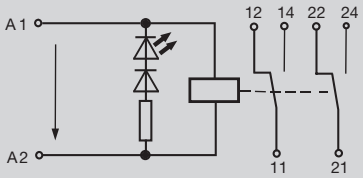
Modular system comprised of:
- relay socket for rail mounting
- LED display unit (AC red / DC green)
- retaining clip
- Pluggable relay modules coil identification (AC red / DC blue)
- Markers

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

DC-Version



AC-Version



Output	
Switching voltage AC, max.	250 V
Continuous current	12 A
Contact material	AgNi 90/10
Mechanical service life	AC coil $20*10^6$ switching operations / DC coil $30*10^6$ switching operations
Sparkover time / Drop-out time	15 ms / 10 ms
Rated data	
Status indicator / Free-wheel diode	Green LED = DC coil; red LED = AC coil / Yes
Ambient temperature (operational)	-40 °C...+70 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GL; CE; cURus
Insulation coordination (EN 50 178)	
Rated voltage	240 V
Clearance and creepage distances for control/load side	≤ 4mm
Overvoltage 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 / 0.5 / 1.5
Length x width x height	mm	75 / 28 / 82	96 / 28 / 98
Note			

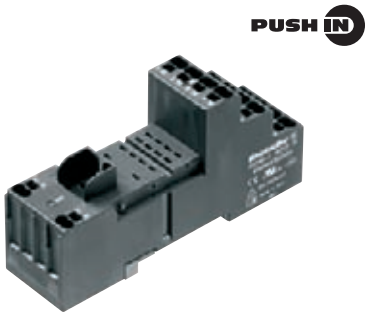
Ordering data

	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		41.6 mA	8.8 mA	4.3 mA
Rated current DC	31.3 mA			
Power rating	750 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			

Ordering data **Relay module 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 module (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…+70°C	-45…+70°C
Insulation group (VDE 0110b)	C / 250 V AC	C / 250 V AC
Protection class (IEC 61810)	IP20	IP20
Stripping length	12 mm	8 mm
Connection cross-section		
- Solid-core wire	1 x 0.75/1/1.5 mm² / 2 x 0.75/1 mm²	2 x 2.5 mm²
- Stranded wire	1 x 0.75/1/1.5 mm² / 2 x 0.75/1 mm²	2 x 2.5 mm²
- with ferrule	1 x 0.75/1 mm² / 2 x 0.75 mm²	2 x 1.5 mm²
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**

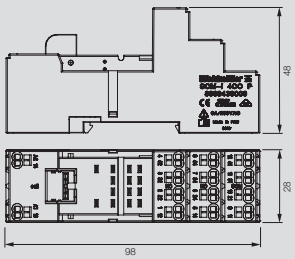
Accessories

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		**1132080000**

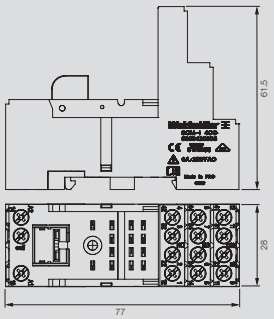
Dimensions

SCM-I 2CO P



Dimensions

SCM-I 2CO



Dimensions in mm

RIDERSERIES – RCM KIT 2 CO accessories

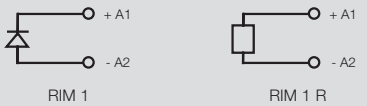
LED and protective modules for the SCM-I plug-in frame

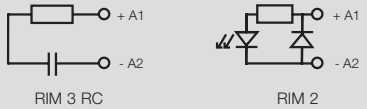
Plug simply into the base module; reverse-connect protection. Connect parallel to coil.

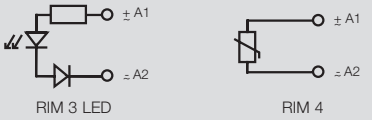
Ordering data

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**







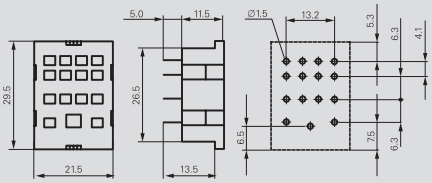
Plug-in socket with PCB connections

for RCM relay modules

Technical data

Nominal current	10 A
Nominal voltage	250 V AC
Ambient temperature (operational)	-40 °C ... +80 °C
Humidity	40 °C/93 rel. humidity, no condensation
Approvals	

SCM with PCB connections



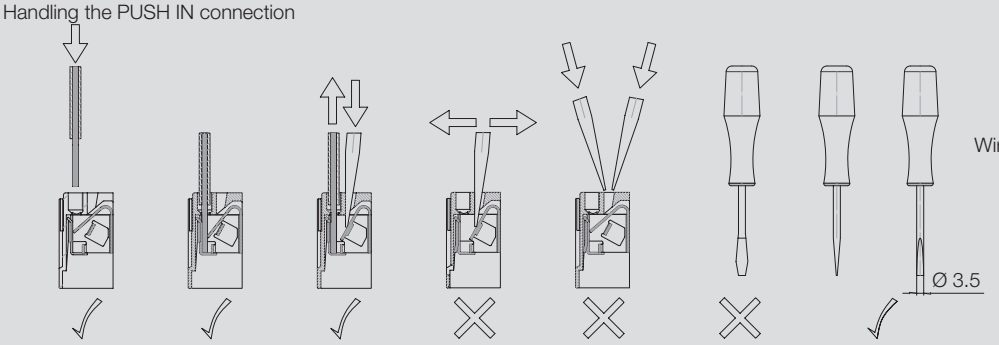
Ordering data

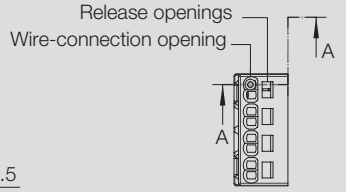
Description
Plug-in socket with PCB connections, 2-pole
Accessory: metal retaining clip, 29 mm high

Type	Qty.	Order No.
SCM 2CO PCB	25	**8697620000**
SRM CLIP LM	25	**8694400000**

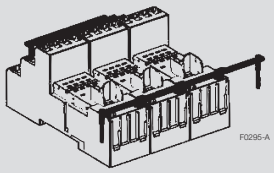
Warnings and notes on usage

Handling the PUSH IN connection



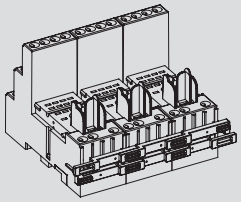


Cross-connector mounting for PUSH IN base



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

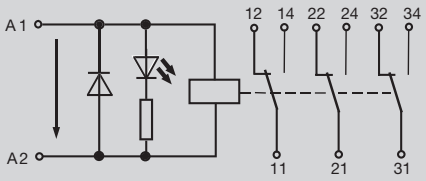


RCM KIT
3 CO AC/DC coil

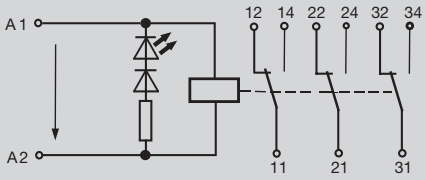
Modular system comprised of:

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

DC-Version



AC-Version



Output	
Switching voltage AC, max.	250 V
Continuous current	10 A
Contact material	AgNi 90/10
Mechanical service life	AC coil 20*10⁶ switching operations / DC coil 30*10⁶ switching operations
Sparkover time / Drop-out time	15 ms / 10 ms
Rated data	
Status indicator / Free-wheel diode	Green LED = DC coil; red LED = AC coil / Yes
Ambient temperature (operational)	-40 °C...+70 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GL; CE; cURus
Insulation coordination (EN 50 178)	
Rated voltage	240 V
Clearance and creepage distances for control/load side	≤ 4mm
Overvoltage category	III
Pollution severity	2

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 2.5
Length x width x height	mm	75 / 28 / 82
Note		

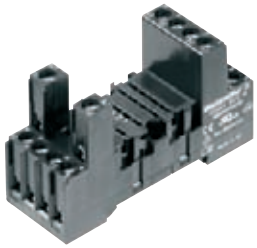
Ordering data

	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		41.6 mA	8.8 mA	4.3 mA
Rated current DC	31.3 mA			
Power rating	750 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			
Ordering data Relay module 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 module (pluggable)				
Type	RCM370024	RCM370524	RCM370615	RCM370730
Order No.	**8690040000**	**8690030000**	**8689980000**	**8690000000**
Note				

RIDERSERIES – RCM KIT 3 CO accessories

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…+70°C
Insulation group (VDE 0110b)	C / 250 V AC
Protection class (IEC 61810)	IP20
Connection cross-section	
- Solid-core wire	2 x 2.5 mm²
- Stranded wire	2 x 2.5 mm²
- with ferrule	2 x 1.5 mm²
Rated torque acc. to IEC 61984 for screw connection	0.5 Nm / max. 0.7 Nm
Plug-in cycles	A (10)

Ordering data

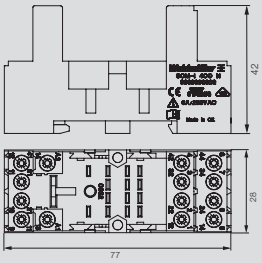
Description	Type	Qty.	Order No.
Plug-in module, snaps onto TS35 DIN mounting rail, 3-pole	SCM-I 3CO N		**8869410000**

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

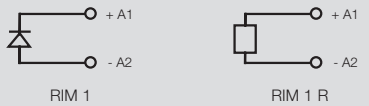
LED and protective modules for the SCM-I plug-in frame

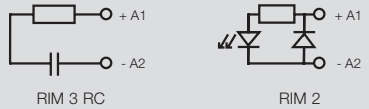
Plug simply into the base module; reverse-connect protection. Connect parallel to coil.

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**





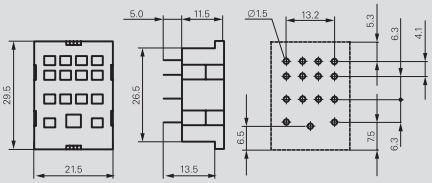
Plug-in socket with PCB connections

for RCM relay modules

Technical data

Nominal current	10 A
Nominal voltage	250 V AC
Ambient temperature (operational)	-40 °C ... +80 °C
Humidity	40 °C/93 rel. humidity, no condensation
Approvals	

SCM with PCB connections



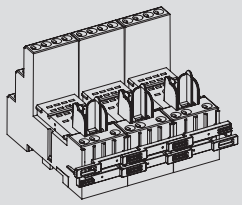
Ordering data

Description
Plug-in socket with PCB connections, 3-pole
Accessory: metal retaining clip, 29 mm high

Type	Qty.	Order No.
SCM 3CO PCB	25	**8697640000**
SRM CLIP LM	25	**8694400000**

Warnings and notes on usage

Cross-connector mounting for screw base



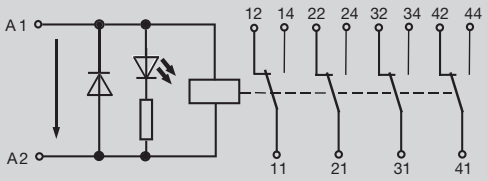
RIDERSERIES - Relay modules

RCM KIT
4 CO AC/DC coil

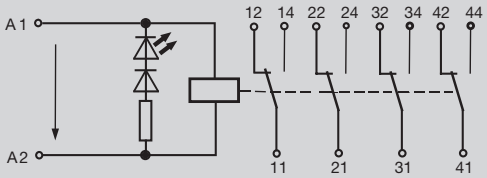
Modular system comprised of:
- relay socket for rail mounting
- LED display unit (AC red / DC green)
- retaining clip
- Pluggable relay modules coil identification (AC red / DC blue)
- Markers

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

DC-Version



AC-Version



Output	
Switching voltage AC, max.	250 V
Continuous current	6 A
Contact material	AgNi 90/10
Mechanical service life	AC coil $20*10^6$ switching operations / DC coil $30*10^6$ switching operations
Sparkover time / Drop-out time	15 ms / 10 ms
Rated data	
Status indicator / Free-wheel diode	Green LED = DC coil; red LED = AC coil / Yes
Ambient temperature (operational)	-40 °C...+70 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GL; CE; cURus
Insulation coordination (EN 50 178)	
Rated voltage	240 V
Clearance and creepage distances for control/load side	≤ 3mm
Overvoltage 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 / 0.5 / 1.5
Length x width x height	mm	75 / 28 / 82	96 / 28 / 98
Note			

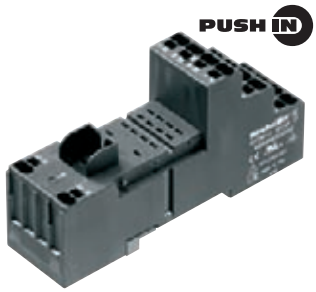
Ordering data

	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		41.6 mA	8.8 mA	4.3 mA
Rated current DC	31.3 mA			
Power rating	750 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			

Ordering data **Relay module 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					
	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

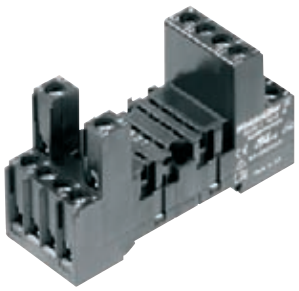


Plug-in module with screw connection

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…+70°C	-45…+70 °C	-45…+70 °C
Insulation group (VDE 0110b)	C / 250 V AC	C / 250 V AC	C / 250 V AC
Protection class (IEC 61810)	IP20	IP20	IP20
Stripping length	12 mm	8 mm	8 mm
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**

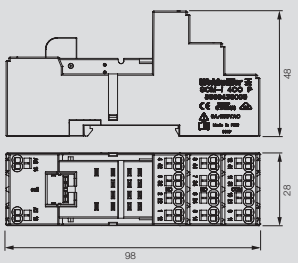
Accessories

Description	Type	Qty.	Order No.
Plastic retaining clip	SCM-I CLIP P	10	**8869440000**
Plastic retaining clip	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	SCM-I QV P		**8870850000**
Cross-connector for screw base, 6-pole	SCM-I QV S		**1132080000**

Description	Typ	VPE	Best.-Nr.
Plastic retaining clip	SCM-I CLIP P	10	**8869440000**
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**

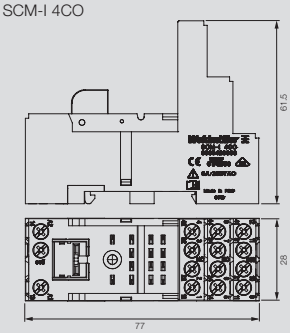
Dimensions

SCM-I 4CO P



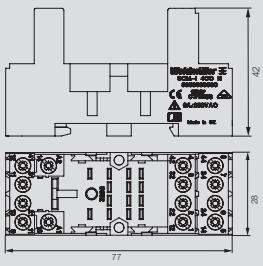
Dimensions

SCM-I 4CO



Dimensions

SCM-I 4CO N



Dimensions in mm

RIDERSERIES – RCM KIT 4 CO accessories

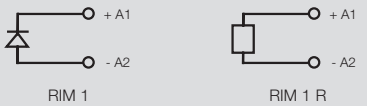
LED and protective modules for the SCM-I plug-in frame

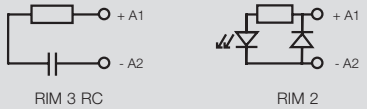
Plug simply into the base module; reverse-connect protection. Connect parallel to coil.

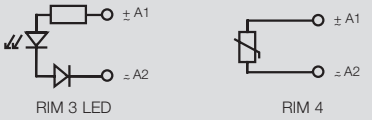
Ordering data

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**







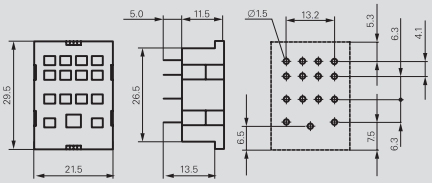
Plug-in socket with PCB connections

for RCM relay modules

Technical data

Nominal current	10 A
Nominal voltage	250 V AC
Ambient temperature (operational)	-40 °C ... +80 °C
Humidity	40 °C/93 rel. humidity, no condensation
Approvals	

SCM with PCB connections



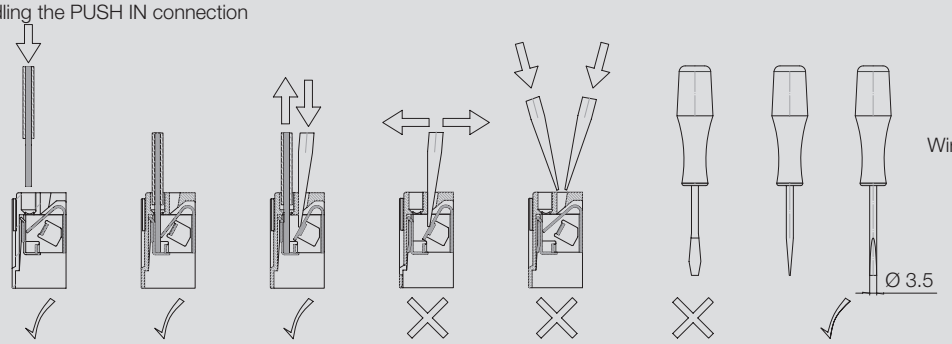
Ordering data

Description
Plug-in socket with PCB connections, 4-pole
Accessory: metal retaining clip, 29 mm high

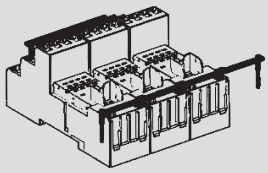
Type	Qty.	Order No.
SCM 4CO PCB	25	**8697660000**
SRM CLIP LM	25	**8694400000**

Warnings and notes on usage

Handling the PUSH IN connection

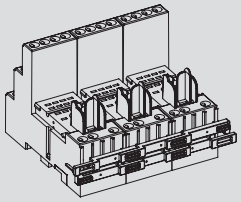


Cross-connector mounting for PUSH IN base



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

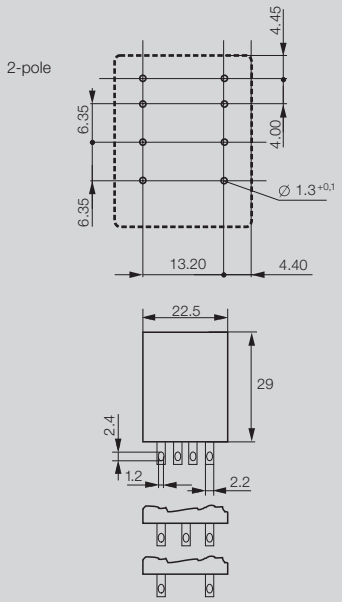


RIDERSERIES - Relay modules

RCM relay module
2 CO
AC/DC coil

- 3.000 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

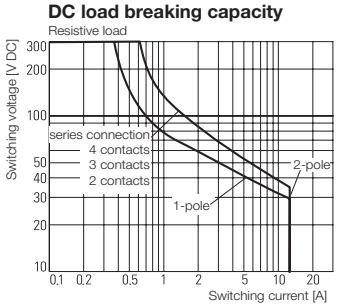


Output		
Switching voltage AC, max.		250 V
Continuous current		12 A
Contact material		AgNi 90/10
Mechanical service life		AC coil 20*10⁶ switching operations / DC coil 30*10⁶ switching operations
Sparkover time / Drop-out time		15 ms / 10 ms
Rated data		
Ambient temperature (operational)		-40 °C...+70 °C
Flammability class UL 94		V-0
Humidity		40°C / 93% rel. humidity, no condensation
Approvals		cURus; GOSTME25; VDE
Insulation coordination (EN 50 178)		
Rated voltage		240 V
Clearance and creepage distances for control/load side		≤ 4mm
Overvoltage category		III
Pollution severity		3

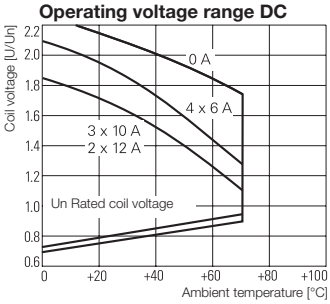
Dimensions		Plug-in connection
Length x width x height	mm	28 / 22.5 / 29
Note		

Applications

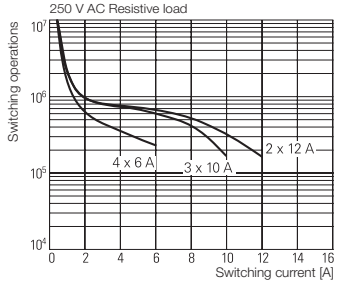
DC load breaking capacity



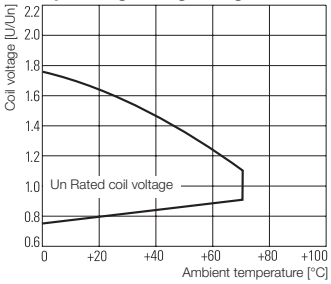
Operating voltage range DC



Electrical endurance



Operating voltage range AC



RCM relay module
2 CO
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
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
Power rating	750 mW	750 mW	750 mW	750 mW
Rated current DC	62.5 mA	31.3 mA	15.6 mA	6.8 mA
Coil resistance	192 Ω ±10%	777 Ω ±10%	3072 Ω ±10%	16133 Ω ±15%
Ordering data				
Relay module				
Without LED Type	RCM270012	RCM270024	RCM270048	RCM270110
AgNi 90/10 Order No.	**8689840000**	**8689860000**	**8689880000**	**8689900000**
with LED Type	RCM270L12	RCM270L24	RCM270L48	RCM270M10
AgNi 90/10 Order No.	**8689850000**	**8689870000**	**8689890000**	**8689910000**
with LED + freewheel diode Type	RCM270AB2	RCM270AC4	RCM270AE8	RCM270BB0
AgNi 90/10 Order No.	**8957020000**	**8957030000**	**8957040000**	**8957050000**
Type				
Order No.				
Note				

Ordering data

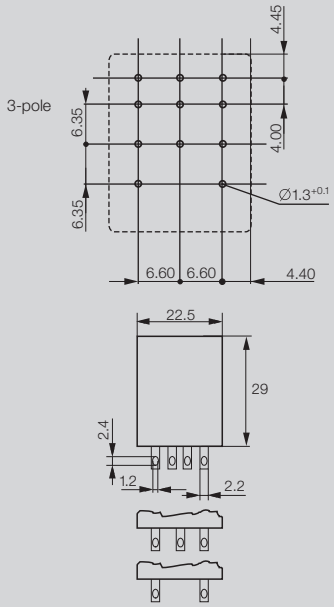
	24 V AC 2CO	48 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Input				
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
AC Response/dropout Volt	38.4 V / 14.4 V	48.0 V / 18.0 V	92.0 V / 34.5 V	184.0 V / 69.0 V
Power rating	1.0 VA	1.0 VA	1.0 VA	1.0 VA
Rated current AC	41.6 mA	21.3 mA	8.8 mA	4.3 mA
Coil resistance	192 Ω ±10%	777 Ω ±10%	4845 Ω ±12%	19465 Ω ±15%
Ordering data				
Relay module				
Without LED Type	RCM270524	RCM270548	RCM270615	RCM270730
AgNi 90/10 Order No.	**8689760000**	**8689780000**	**8689800000**	**8689820000**
with LED Type	RCM270R24	RCM270R48	RCM270S15	RCM270T30
AgNi 90/10 Order No.	**8689770000**	**8689790000**	**8689810000**	**8689830000**
Type				
Order No.				
Type				
Order No.				
Note				

RIDERSERIES - Relay modules

RCM relay module
3 CO
AC/DC coil

- 2.500 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

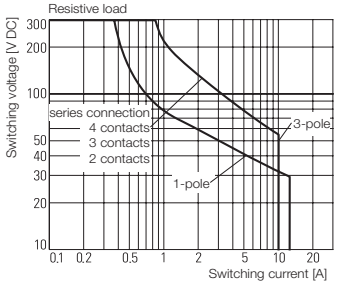


Output	
Switching voltage AC, max.	250 V
Continuous current	10 A
Contact material	AgNi 90/10
Mechanical service life	AC coil 20*10⁶ switching operations / DC coil 30*10⁶ switching operations
Sparkover time / Drop-out time	15 ms / 10 ms
Rated data	
Ambient temperature (operational)	-40 °C...+70 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	cURus; GOSTME25; VDE
Insulation coordination (EN 50 178)	
Rated voltage	240 V
Clearance and creepage distances for control/load side	≤ 4mm
Overvoltage category	III
Pollution severity	3

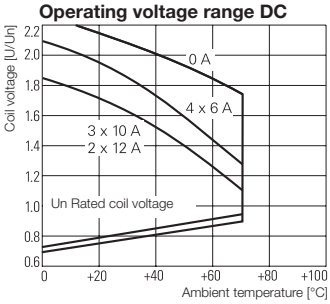
Dimensions		Plug-in connection
Length x width x height	mm	28 / 22.5 / 29
Note		

Applications

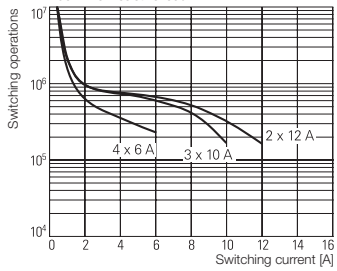
DC load breaking capacity
Resistive load



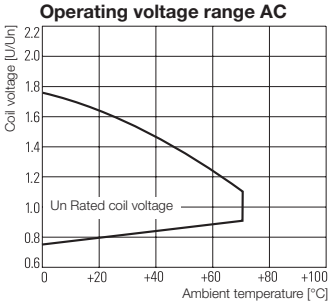
Operating voltage range DC



Electrical endurance
250 V AC Resistive load



Operating voltage range AC



RCM relay module
3 CO
AC/DC coil

Type code RCM ☐ ☐ ☐ ☐

Type RIDER Control Multiple

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

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

Type of construction
- 0 Standard, 2.8 mm Faston

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

Ordering data

Input	12 V DC 3CO	24 V DC 3CO	48 V DC 3CO	110 V DC 3CO
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC
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
Power rating	750 mW	750 mW	750 mW	750 mW
Rated current DC	62.5 mA	31.3 mA	15.6 mA	6.8 mA
Coil resistance	192 Ω ±10%	777 Ω ±10%	3072 Ω ±10%	16133 Ω ±15%

Ordering data Relay module					
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

Input	24 V AC 3CO	48 V AC 3CO	115 V AC 3CO	230 V AC 3CO
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
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
Power rating	1.0 VA	1.0 VA	1.0 VA	1.0 VA
Rated current AC	41.6 mA	21.3 mA	8.8 mA	4.3 mA
Coil resistance	192 Ω ±10%	777 Ω ±10%	4845 Ω ±12%	19465 Ω ±15%

Ordering data Relay module					
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.				

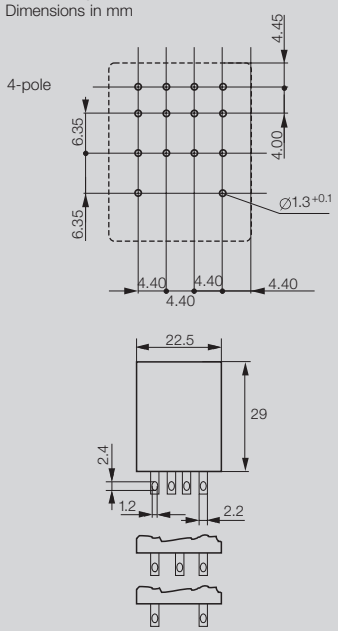
Note

RIDERSERIES - Relay modules

RCM relay module
4 CO
AC/DC coil

- 1.500 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

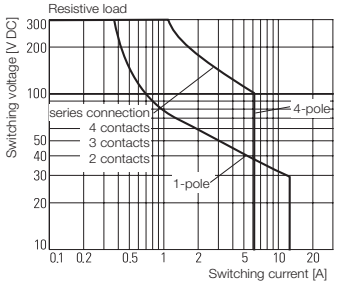


Output		
Switching voltage AC, max.		250 V
Continuous current		6 A
Contact material		AgNi 90/10 or AgNi 5µm Au
Mechanical service life		AC coil 20*10⁶ switching operations / DC coil 30*10⁶ switching operations
Sparkover time / Drop-out time		15 ms / 10 ms
Rated data		
Ambient temperature (operational)		-40 °C...+70 °C
Flammability class UL 94		V-0
Approvals		cURus; GOSTME25; VDE
Insulation coordination (EN 50 178)		
Rated voltage		240 V
Clearance and creepage distances for control/load side		≤ 3mm
Overvoltage category		III
Pollution severity		2

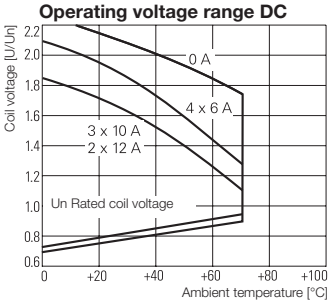
Dimensions		Plug-in connection
Length x width x height	mm	28 / 22.5 / 29
Note		

Applications

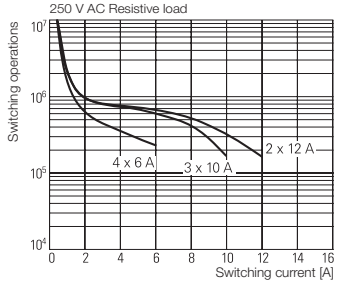
DC load breaking capacity
Resistive load



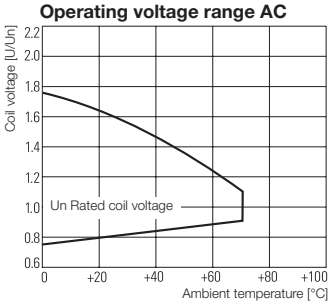
Operating voltage range DC



Electrical endurance
250 V AC Resistive load



Operating voltage range AC



RCM relay module
4 CO
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

Input	12 V DC 4CO	24 V DC 4CO	48 V DC 4CO	110 V DC 4CO
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC
DC Response/dropout Volt	9 V / 1.2 V	18 V / 2.4 V	36 V / 4.8 V	82.5 V / 11 V
Power rating	750 mW	750 mW	750 mW	750 mW
Rated current DC	62.5 mA	31.3 mA	15.6 mA	6.8 mA
Coil resistance	192 Ω ±10%	777 Ω ±10%	3072 Ω ±10%	16133 Ω ±15%

Ordering data					
Without LED	Type	RCM570012	RCM570024	RCM570048	RCM570110
AgNi 90/10	Order No.	**8054360000**	**8690200000**	**8074670000**	**8074700000**
with LED	Type	RCM570L12	RCM570L24	RCM570L48	RCM570M10
AgNi 90/10	Order No.	**8690180000**	**8690220000**	**8690230000**	**8690240000**
Without LED	Type	RCM580012	RCM580024	RCM580048	RCM580110
AgNi 5µm Au	Order No.	**on request**	**8694460000**	**on request**	**8829000000**
with LED + freewheel diode	Type	RCM570AB2	RCM570AC4	RCM570AE8	RCM570BB0
AgNi 90/10	Order No.	**8957160000**	**8957170000**	**8957180000**	**8957190000**

Note

Ordering data

Input	24 V AC 4CO	48 V AC 4CO	115 V AC 4CO	230 V AC 4CO
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
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
Power rating	1.0 VA	1.0 VA	1.0 VA	1.0 VA
Rated current AC	41.6 mA	21.3 mA	8.8 mA	4.3 mA
Coil resistance	192 Ω ±10%	777 Ω ±10%	4845 Ω ±12%	19465 Ω ±15%

Ordering data Relay module					
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.				

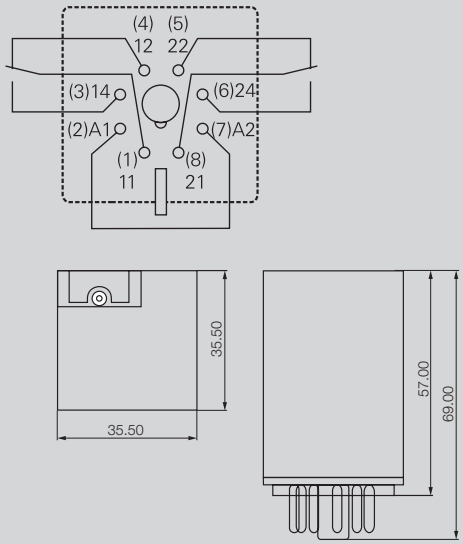
Note

RIDERSERIES - Relay modules

RRD relay module
2 CO
AC/DC coil

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

Circuit diagram
View of connections

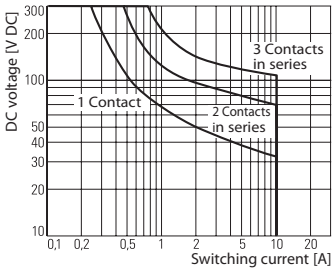


Output	
Switching voltage AC, max.	250 V
Continuous current	10 A
Contact material	AgNi 90/10
Mechanical service life	$20*10^6$ switching cycles
Sparkover time / Drop-out time	12 ms / 5 ms
Rated data	
Status indicator / Free-wheel diode	Mechanical / No
Ambient temperature (operational)	-45 °C...+60 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	cURus; GOSTME25; VDE
Insulation coordination (EN 50 178)	
Rated voltage	250 V
Clearance and creepage distances for control/load side	≤ 4mm
Overvoltage category	III
Pollution severity	3

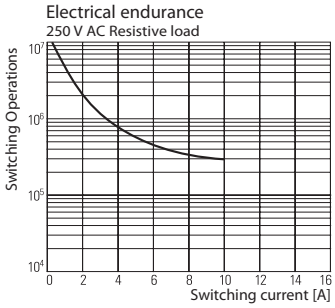
Dimensions		Plug-in connection
Length x width x height	mm	35.5 / 35.5 / 57
Note		

Applications

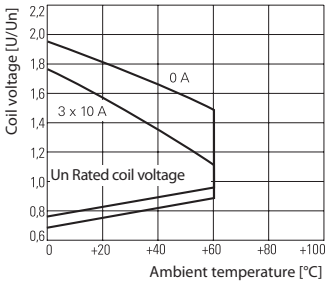
DC load breaking capacity
Resistive load



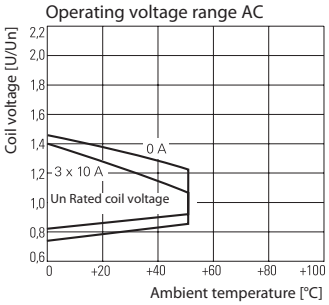
Electrical endurance
250 V AC Resistive load



Operating voltage range DC



Operating voltage range AC



RRD relay module
2 CO
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 DC 2CO	48 V DC 2CO	110 V DC 2CO	220 V DC 2CO
Input				
Rated control voltage	24 V DC	48 V DC	110 V DC	220 V DC
DC Response/dropout Volt	18.0 V / 2.4 V	36.0 V / 4.8 V	82.5 V / 11.5 V	165 V / 22 V
Power rating	1.2 W	1.2 W	1.2 W	1.2 W
Rated current DC	50.5 mA	24.0 mA	11.0 mA	5.5 mA
Coil resistance	475 Ω ±10%	2000 Ω ±10%	10000 Ω ±12%	40000 Ω ±15%

Ordering data **Relay module**					
with test button	Type	RRD221024	RRD221048	RRD221110	
AgNi 90/10	Order No.	**8690370000**	**8690390000**	**8690410000**	
with test button + LED	Type	RRD223024	RRD223048	RRD223110	RRD223220
AgNi 90/10	Order No.	**8690380000**	**8690400000**	**8690420000**	**8798600000**
	Type				
	Order No.				
	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
AC Response/dropout Volt	19.2 V / 9.6 V	38.4 V / 19.2 V	92.0 V / 46.0 V	184.0 V / 92.0 V
Power rating	2.3 VA	2.3 VA	2.3 VA	2.3 VA
Rated current AC	94.2 mA	47.5 mA	20.6 mA	10.1 mA
Coil resistance	86 Ω ±10%	345 Ω ±10%	2000 Ω ±10%	8300 Ω ±12%

Ordering data **Relay module**					
with test button	Type	RRD226024	RRD226048	RRD226115	RRD226230
AgNi 90/10	Order No.	**8690270000**	**8690290000**	**8690310000**	**8690330000**
with test button + LED	Type	RRD228024	RRD228048	RRD228115	RRD228230
AgNi 90/10	Order No.	**8690280000**	**8690300000**	**8690320000**	**8690340000**
	Type				
	Order No.				
	Type				
	Order No.				

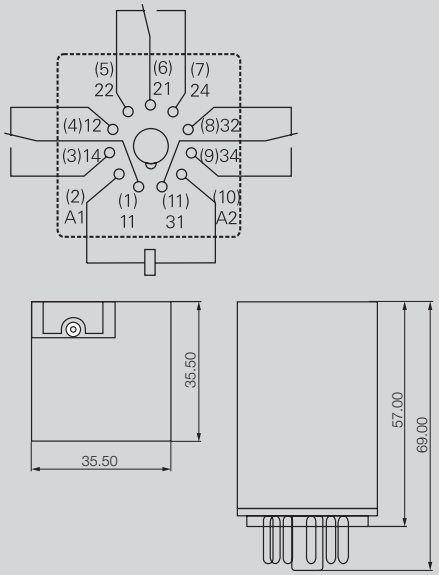
Note

RIDERSERIES - Relay modules

RRD relay module
3 CO
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

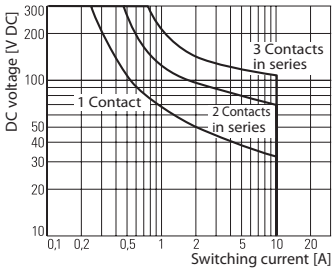


Output	
Switching voltage AC, max.	250 V
Continuous current	10 A
Contact material	AgNi 90/10
Mechanical service life	$20*10^6$ switching cycles
Sparkover time / Drop-out time	12 ms / 5 ms
Rated data	
Status indicator / Free-wheel diode	Mechanical / No
Ambient temperature (operational)	DC coil: -45 °C...+60 °C / AC coil: -45 °C...+50 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	cURus; GOSTME25; VDE
Insulation coordination (EN 50 178)	
Rated voltage	250 V
Clearance and creepage distances for control/load side	≤ 4mm
Overvoltage category	III
Pollution severity	3

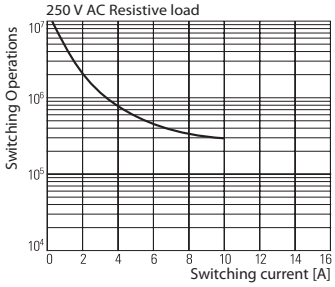
Dimensions	Plug-in connection
Length x width x height	35.5 / 35.5 / 57
Note	

Applications

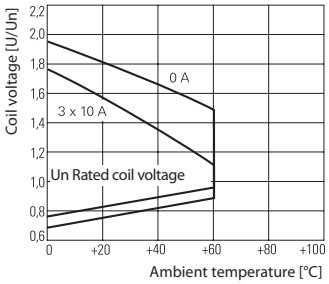
DC load breaking capacity
Resistive load



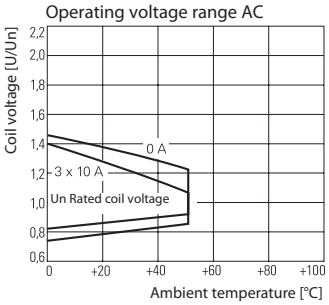
Electrical endurance
250 V AC Resistive load



Operating voltage range DC



Operating voltage range AC



RRD relay module
3 CO
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
DC Response/dropout Volt	9 V / 1.2 V	18 V / 2.4 V	82.5 V / 11.5 V	165 V / 22 V
Power rating	1.2 W	1.2 W	1.2 W	1.2 W
Rated current DC	109.1 mA	50.5 mA	11 mA	5.5 mA
Coil resistance	110 Ω ±10%	475 Ω ±10%	10000 Ω ±12%	40000 Ω ±15%

Ordering data					
with 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**
with test button	Type		RRD3210C4	RRD3211B0	RRD3212C0
+ freewheel diode	Order No.		**8797650000**	**8797640000**	**8797610000**
with test button + LED	Type		RRD3230C4		RRD3232C0
+ freewheel 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
AC Response/dropout Volt	19.2 V / 9.6 V	38.4 V / 19.2 V	92 V / 46 V	184 V / 92 V
Power rating	2.3 VA	2.3 VA	2.3 VA	2.3 VA
Rated current AC	94.2 mA	47.5 mA	20.6 mA	10.1 mA
Coil resistance	86 Ω ±10%	345 Ω ±10%	2000 Ω ±10%	8300 Ω ±12%

Ordering data **Relay module**					
with 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

RIDERSERIES – RRD accessories

Accessories for RRD relay modules

Plug-in module with screw connection

Technical data

Contact data	
Nominal current	10 A
Nominal voltage	400 V AC
Dielectric strength, coil/contacts	>2500 Veff
Ambient temperature	–20 °C … + 80 °C
Ingress protection class (IEC 61810)	IP 20
Connection cross-section / with ferrule	2 x 2.5 mm² / 2 x 1.5 mm²
Terminal torque	0.5 / 0.7 Nm
Humidity	40 °C/93 rel. humidity, no condensation

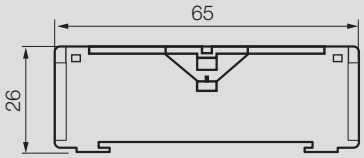
Ordering data

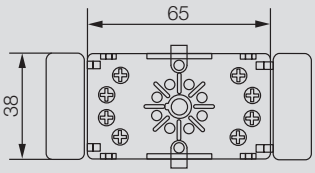
Description	Type	Qty.	Order No.
Plug-in module with screw connections, 8-pole	SRD-I 2CO	10	8869360000
Plug-in module with screw connections, 11-pole	SRD-I 3CO	10	8869350000

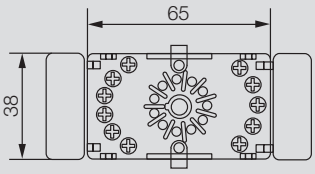
Accessories

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

Dimensions in mm







Plug-in socket with PCB connections

for RRD relay modules

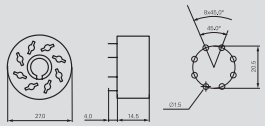
Technical data

Nominal current	10 A
Nominal voltage	250 V A›C
Ambient temperature (operational)	–40 °C ... +70 °C
Humidity	40 °C/93 rel. humidity, no condensation

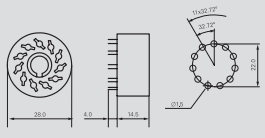
Ordering data

Description	Type		Order No.
Plug-in module with solder and PCB connections, 8-pole	SRD 2CO PCB	25	8697750000
Plug-in module with solder and PCB connections, 11-pole	SRD 3CO PCB	25	8697730000

SRD 8-pole



SRD 11-polie



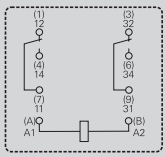
RIDERSERIES - Relay modules

RPW relay module
2 CO AC/DC coil
3 CO AC/DC coil

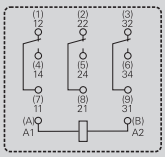
- 6.000 VA switching capacity
- Mechanical operating display
- With and without test button

Circuit diagram
View of connections

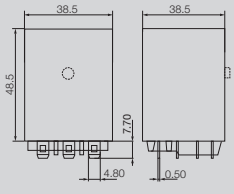
2 changeover contacts



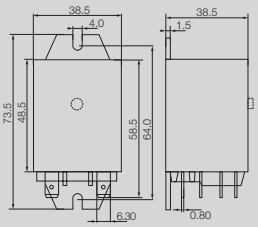
3 changeover contacts



Cap without lug, plug-in connections



Cap with fixing lug, 6.3 mm Faston (4.8 mm possible)

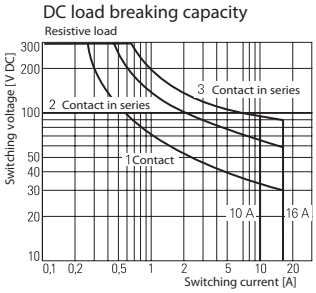


Output		
Switching voltage AC, max.		400 V
Continuous current		16 A
Contact material		AgCdO
Mechanical service life		$20*10^6$ switching cycles
Sparkover time / Drop-out time		15 ms / 10 ms
Rated data		
Status indicator / Free-wheel diode		Mechanical / No
Ambient temperature (operational)		-45 °C...+70 °C
Flammability class UL 94		V-0
Humidity		40°C / 93% rel. humidity, no condensation
Approvals		cURus; GOSTME25; VDE
Insulation coordination (EN 50 178)		
Rated voltage		400 V
Clearance and creepage distances for control/load side		≤ 6mm
Overvoltage category		III
Pollution severity		3

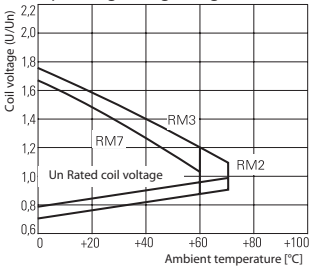
Dimensions		Plug-in connection
Length x width x height	mm	38.5 / 38.5 / 48.5
Note		

Applications

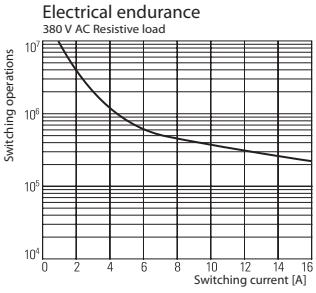
DC load breaking capacity



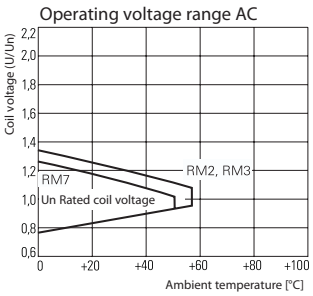
Operating voltage range DC



Electrical endurance



Operating voltage range AC



RPW relay module
2 CO AC/DC coil
3 CO 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
DC Response/dropout Volt	18 V / 2.4 V		
AC Response/dropout Volt		19.2 V / 9.6 V	184 V / 92 V
Power rating	1.2 W	2.3 VA	2.3 VA
Rated current DC	50.5 mA		
Rated current AC		94.2 mA	10.1 mA
Coil resistance	475 Ω ±10%	86 Ω ±10%	8300 Ω ±12%

Ordering data **Relay module**				
without 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

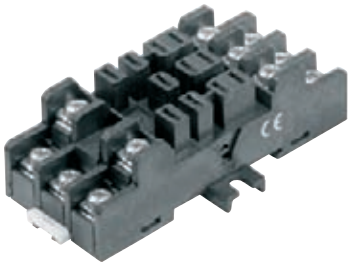
	24 V DC 3CO	24 V AC 3CO	230 V AC 3CO
Input			
Rated control voltage	24 V DC	24 V AC	230 V AC
DC Response/dropout Volt	18 V / 2.4 V		
AC Response/dropout Volt		19.2 V / 9.6 V	184 V / 92 V
Power rating	1.6 W	2.8 VA	2.8 VA
Rated current DC	69.6 mA		
Rated current AC		109.2 mA	11.7 mA
Coil resistance	345 Ω ±10%	80 Ω ±10%	7500 Ω ±10%

Ordering data **Relay module**				
without test button	Type	RPW702024	RPW702524	RPW702730
AgCdO	Order No.	**8690760000**	**8690740000**	**8690750000**
	Type			
	Order No.			
	Type			
	Order No.			
	Type			
	Order No.			
Note				

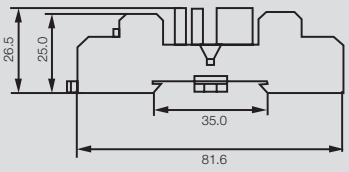
RIDERSERIES – RPW accessories

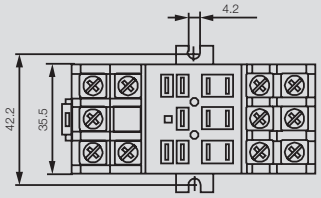
Accessories for RPW

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 3CO	25	**8697680000**

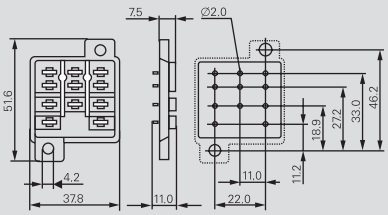
Accessories

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

Plug-in socket with PCB connections

for RPW relay modules

SPW 3CO PCB



Technical data

Humidity	40 °C/93 rel. humidity, no condensation
Approvals	

Ordering data

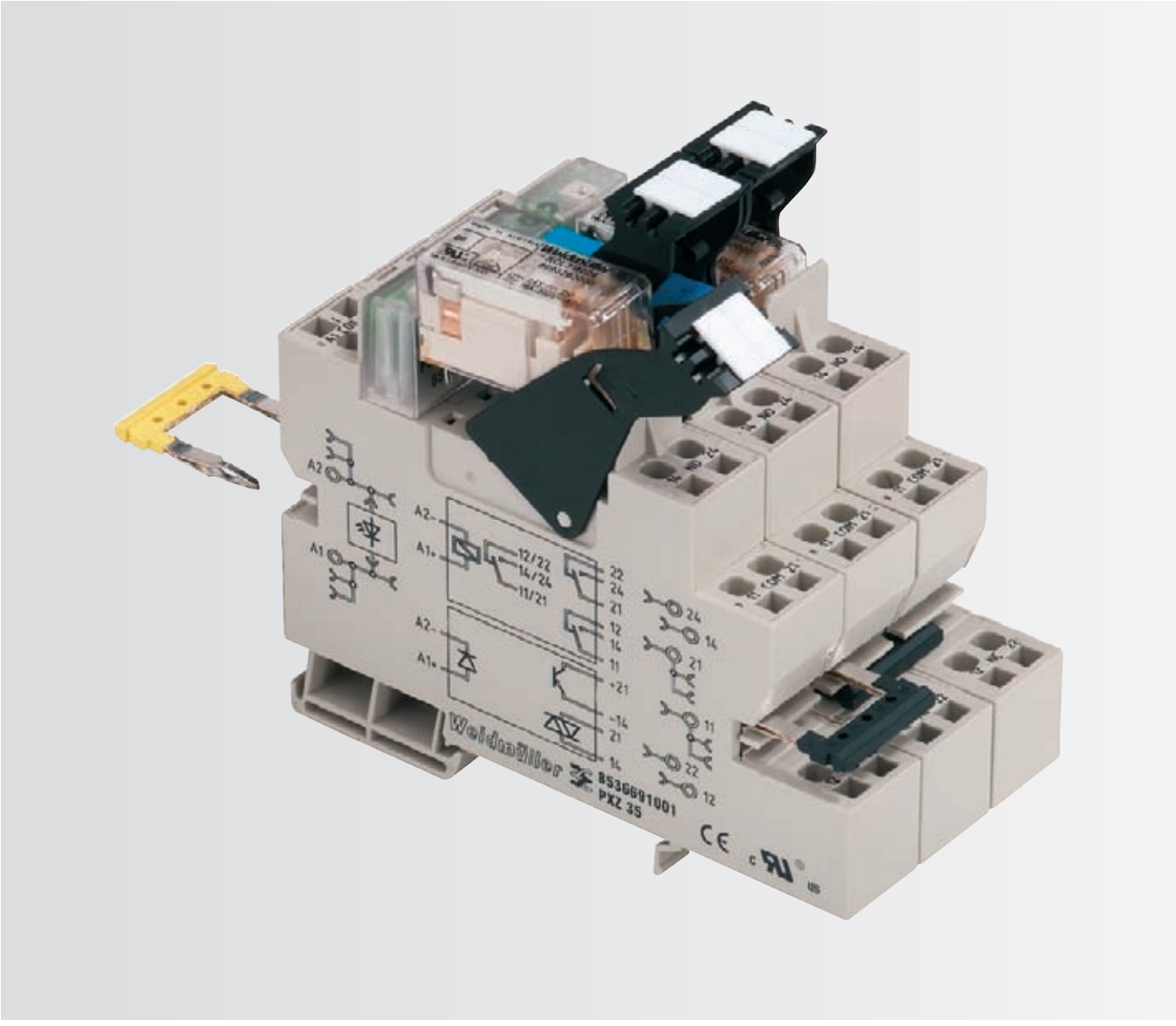
Description	Type	Qty.	Order No.
Plug-in socket with PCB connections	SPW 3CO PCB	100	**8697710000**
Accessory: metal retaining clip, RPW	SPW CLIP M	100	**8697780000**

Established technology

The PLUGSERIES is an effective combination of established connection technology joined with the high performance of Weidmüller's RCL power relays. The ZQV pluggable cross-connections allow input and output potentials to be bridged quickly and easily. The multi-purpose lever can be used to quickly attach and release the opto modules and relay modules, for both high- and low-profile components. In addition, device markers can be attached in the labelling channel. Such markers are in MultiCard format and can be printed with the PrintJet PRO.

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

The unique PLUGSERIES features housings made from WEMID and your choice of connection system.



Time-saving

Pluggable jumper cross-connections in input and output.

Practical

Pluggable relay modules and optos can be easily swapped because they are pin compatible.

Clever

The multi-purpose clamp attaches to both high-profile and low-profile relay modules.

Wemid

Proven

The Wemid material in the base contains no halogens and has a flammability class of V0 according to UL94.

The PLUGSERIES product line

PRS / PRZ

Relay modules with 1 CO contact

PRS / PRZ

Relay modules with 2 CO contact

PRS / PRZ

Relay modules with 2 CO contacts and hard gold-plated contacts

POS / POZ

Opto modules

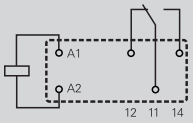
PLUGSERIES - Relay modules

RCL relay module
1 CO AC/DC coil

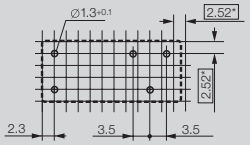
- 3.000 or 4.000 VA switching capacity
- Low height of 15.7 mm
- Hard gold-plated contacts available
- For boiler controls, timing relays, garage door controls, interface modules

PCB layout / terminal assignment
View on solder pins,
dimensions in mm

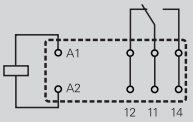
1 C/O changeover contacts



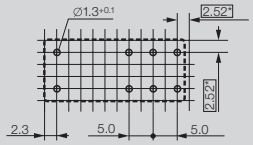
12 A, Pinning 3.5 mm

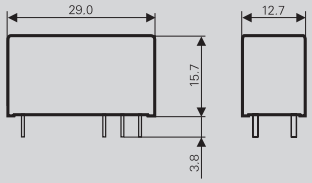


1 C/O changeover contacts



16 A, Pinning 5 mm



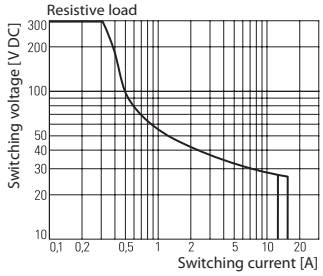


Output	
Switching voltage AC, max.	250 V
Continuous current	12 A for 3,5 mm / 16 A for 5 mm pinning
Mechanical service life	AC coil $10*10^6$ / DC coil $30*10^6$ switching operations, DC coil $30*10^6$ switching cycles
Sparkover time / Drop-out time	7 ms / 3 ms
Contact material	AgNi 90/10
Rated data	
Status indicator / Free-wheel diode	No / No
Ambient temperature (operational)	-40 °C...+70 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	cURus; VDE
Insulation coordination (EN 50 178)	
Rated voltage	250 V
Clearance and creepage distances for control/load side	≥ 10 mm
Overvoltage category	III
Pollution severity	3
Protective separation acc. to VDE 0106 part 101	Yes

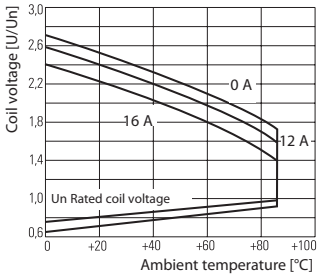
Dimensions		Plug-in connection
Length x width x height	mm	29 / 12.7 / 15.7
Note		

Applications

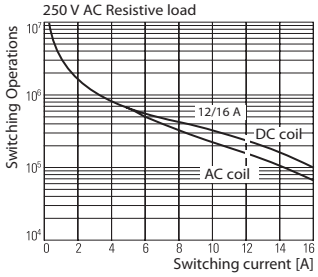
DC load breaking capacity
Resistive load



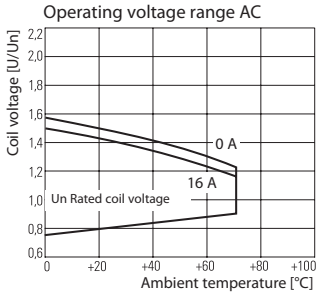
Operating voltage range DC



Electrical endurance
250 V AC Resistive load



Operating voltage range AC



RCL relay module
1 CO AC/DC coil

Type code

RCL				

Type RIDER Control Low

Type of construction
1 12 A, Pitch 3.5 mm, flux proof
3 16 A, Pitch 5 mm, flux proof

Type of contact
1 1 CO contacts
3 1 NO contacts

Contact material
4 AgNi 90/10
5 AgNi 90/10 hgp

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
512 12 V AC
524 24 V AC
548 48 V AC
615 115 V AC
730 230 V AC

Ordering data

	6 V DC 1CO	12 V DC 1CO	24 V DC 1CO	48 V DC 1CO
Input				
Rated control voltage	6 V DC	12 V DC	24 V DC	48 V DC
DC Response/dropout Volt	4.2 V / 0.6 V	8.4 V / 1.2 V	16.8 V / 2.4 V	33.6 V / 4.8 V
Power rating	500 mW	500 mW	500 mW	500 mW
Rated current DC	66.7 mA	33.3 mA	16.7 mA	8.7 mA
Coil resistance	90 Ω ±10%	360 Ω ±10%	1440 Ω ±10%	5520 Ω ±10%

Ordering data **Relay module**					
12 A / 3.5 mm	Type	RCL114006	RCL114012	RCL114024	RCL314048
AgNi 90/10	Order No.	**8693400000**	**8693190000**	**8693180000**	**8693380000**
16 A / 5 mm	Type	RCL314006	RCL314012	RCL314024	
AgNi 90/10	Order No.	**8693800000**	**8693240000**	**8693260000**	
	Type				
	Order No.				
	Type				
	Order No.				

Note

Ordering data

	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Input			
Rated control voltage	24 V AC	115 V AC	230 V AC
AC Response/dropout Volt	18.0 V / 3.6 V	86.3 V / 17.3 V	172.5 V / 34.5 V
Power rating	0.75 VA	0.75 VA	0.75 VA
Rated current AC	31.6 mA	6.6 mA	3.2 mA
Coil resistance	1440 Ω ±10%	8100 Ω ±15%	32500 Ω ±15%

Ordering data **Relay module**				
12 A / 3.5 mm	Type	RCL114524	RCL114615	RCL114730
AgNi 90/10	Order No.	**8693220000**	**8693390000**	**8693230000**
16 A / 5 mm	Type	RCL314524	RCL314615	RCL314730
AgNi 90/10	Order No.	**8693500000**	**8693890000**	**8693320000**
	Type			
	Order No.			
	Type			
	Order No.			

Note

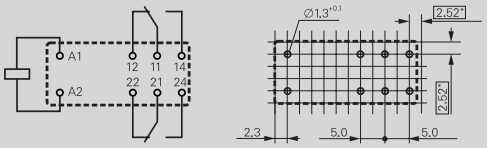
PLUGSERIES - Relay modules

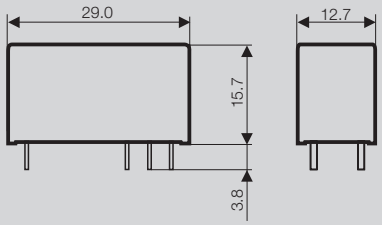
RCL relay module
2 CO AC/DC coil

- 2.000 VA switching capacity
- Low height of 15.7 mm
- Hard gold-plated contacts available
- For domestic appliances, heating controllers, emergency lighting systems, modems

Circuit diagram
View of connections
Dimensions in mm

2 C/O changeover contacts



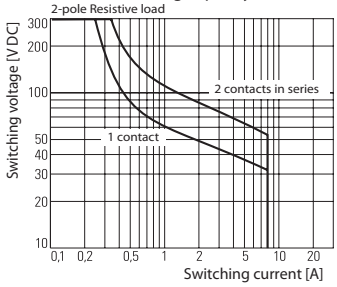


Output	
Switching voltage AC, max.	250 V
Continuous current	8 A / 1 contact
Mechanical service life	AC coil 5*10⁶ / DC coil 30*10⁶ switching operations, DC coil 30*10⁶ switching cycles
Sparkover time / Drop-out time	7 ms / 2 ms
Contact material	AgNi 90/10 or AgNi 5µm Au
Rated data	
Status indicator / Free-wheel diode	No / No
Ambient temperature (operational)	-40 °C...+70 °C
Flammability class UL 94	V-0
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	cURus; GOSTME25; VDE
Insulation coordination (EN 50 178)	
Rated voltage	250 V
Clearance and creepage distances for control/load side	≥ 10 mm
Overvoltage category	III
Pollution severity	3
Protective separation acc. to VDE 0106 part 101	Yes

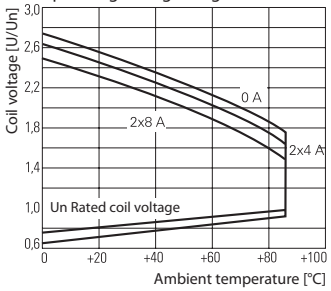
Dimensions		Plug-in connection
Length x width x height	mm	29 / 12.7 / 15.7
Note		

Applications

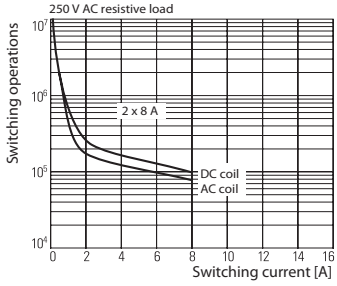
DC load breaking capacity
2-pole Resistive load



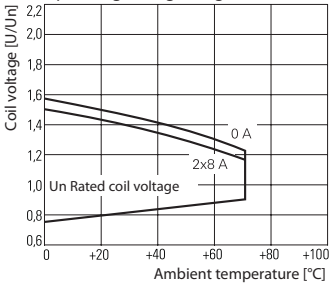
Operating voltage range DC



Electrical endurance
250 V AC resistive load



Operating voltage range AC



RCL relay module
2 CO AC/DC coil

Type code

RCL				

Type RIDER Control Low

Type of construction
4 8 A, pitch 5 mm, flux proof

Type of contact
2 2 CO contacts
4 2 NO contacts

Contact material
4 AgNi 90/10
5 AgNi 90/10 hgp

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
512 12 V AC
524 24 V AC
548 48 V AC
615 115 V AC
730 230 V AC

Ordering data

	12 V DC 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
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
Power rating	500 mW	500 mW	500 mW	500 mW
Rated current DC	33.3 mA	16.7 mA	8.7 mA	4.1 mA
Coil resistance	360 Ω ±10%	1440 Ω ±10%	5520 Ω ±10%	26600 Ω ±12%

Ordering data					
8 A / 5 mm	Type	RCL424012	RCL424024	RCL424048	RCL424110
AgNi 90/10	Order No.	**4058560000**	**4058570000**	**4058750000**	**4058590000**
8 A / 5 mm	Type	RCL425012	RCL425024	RCL425048	RCL425110
AgNi 5µm Au	Order No.	**on request**	**4058580000**	**on request**	**on request**
	Type				
	Order No.				
	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
AC Response/dropout Volt	18 V / 3.6 V	64 V / 7.2 V	86.3 V / 17.3 V	86.3 V / 17.3 V
Power rating	0.75 VA	0.75 VA	0.75 VA	0.75 VA
Rated current AC	31.6 mA	15.6 mA	6.6 mA	6.6 mA
Coil resistance	350 Ω ±10%	1420 Ω ±10%	8100 Ω ±15%	8100 Ω ±15%

Ordering data					
8 A / 5 mm	Type	RCL424524	RCL424548	RCL424615	RCL424730
AgNi 90/10	Order No.	**4058600000**	**8693340000**	**4058610000**	**4058630000**
8 A / 5 mm	Type	RCL425524	RCL425548	RCL425615	RCL425730
AgNi 5µm Au	Order No.	**on request**	**on request**	**4058620000**	**4058640000**
	Type				
	Order No.				
	Type				
	Order No.				

Note

PLUGSERIES – Relay modules

RCLS – Inrush Power

- 1 NO
- High making currents possible
- RCLS3L 120 A for max. 20 ms
- RCLS3T 165 A for max. 20 ms / 800 A for 200 µs
- New contact principle

RCL S 3 L 012

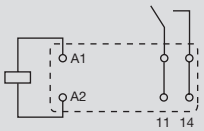
Coil
012 = 12 V DC
024 = 24 V DC
Contact material
L = AgSnO2
T = W-pre-make contact + AgSnO2
Type of contact
3 = 1 NO
Version
S = Inrush Power
Type = RCL

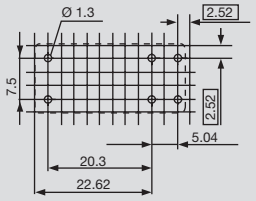
Switching contact for AgSnO2

Switching contact for AgSnO2+W

Circuit diagram
View of connections
Dimensions in mm

1 NO contact





Output		
Max. switching voltage AC		240 V
Rated current		16 A
Max. switching current		120 A @ 20 ms (RCLS3L) 165 A @ 20 ms / 800 A @ 200 µs (RCLS3T)
Contact base material		AgSnO2 (RCLS3L) / AgSnO2 + W (RCLS3T)
Mechanical endurance		10 x 10^6 (RCLS3L) / 5 x 106 (RCLS3T)
Response time / Release time		10 ms / 4 ms
Rated data		
Ambient temp., fitted w/o distance		–25 °C … +70 °C
Flammability rating UL 94		V-0
Approvals		40 °C/93 rel. humidity, no condensation
Insulation coordinates (IEC 60664)		cURus / VDE
Rated voltage		
Creepage and clearance path input – output		250 V
Surge category		10 mm
Pollution severity		III
Verschmutzungsgrad		2

Dimensions		
Length x width x height	mm	29 / 12.7 / 15.7
Note		

Ordering data

Input	12 V DC 1NO	24 V DC 1NO	12 V DC 1NO	24 V DC 1NO
Rated voltage	12 V DC	24 V DC	12 V DC	24 V DC
Rated current DC	33.3 mA	16.7 mA	33.3 mA	16.7 mA
Power rating	400 mW	400 mW	400 mW	400 mW
Oper.-/drop-out volt. DC-coil	8.4 V / 1.2 V	16.8 V / 2.4 V	8.4 V / 1.2 V	16.8 V / 2.4 V

Ordering data					
NO	Type	RCLS 3L012	RCLS 3L024	RCLS 3T012	RCLS 3T024
	Order No.	**8866890000**	**8866900000**	**8866910000**	**8866920000**
Note		Contact material AgSnO2	Contact material AgSnO2	Contact material AgSnO2 + W	Contact material AgSnO2 + W

PLUGSERIES - Relay modules

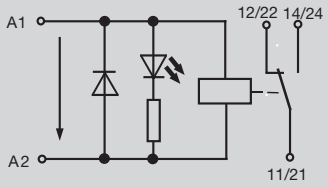
1 CO contact
AC/DC coil

Modular system comprised of:

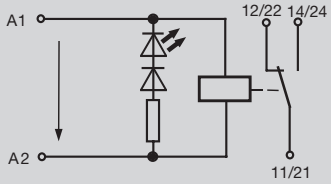
- relay socket for rail mounting
- LED indicator unit
- retaining clip
- plug-in relay

Cross-connection of coil connections and relay CO contacts by means of plug-in cross-connection ZQV 2.5N Bridgeable

DC-Version



AC-Version



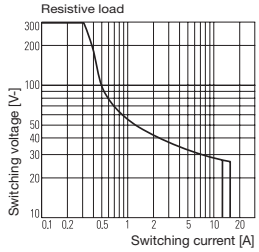
Output	
Switching voltage AC, max. / Continuous current	250 / 16 A
min. switching capacity	10 V / 100 mA
Contact material	AgNi 90/10
Mechanical service life	$30*10^6$ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Status indicator / Free-wheel diode	Green LED / Yes
Reverse polarity protection	No
Ambient temperature (operational)	-40 °C...+50 °C
Storage temperature	-40 °C...+85 °C
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	cURus
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V AC_{eff}
Impulse withstand voltage	6 kV
Clearance and creepage distances for control/load side	> 8 mm
Overvoltage category	III
Pollution severity	2
Protective separation acc. to VDE 0106 part 101	Yes

Dimensions		Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
Length x width x height	mm	92 / 15.3 / 95	92 / 15.3 / 87
Note		Cross-connectors and markers - refer to PLUGSERIES accessories	

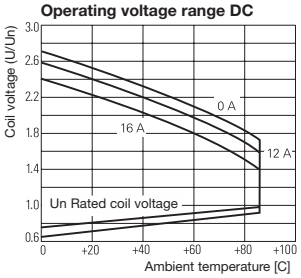
Applications

DC load breaking capacity

Resistive load

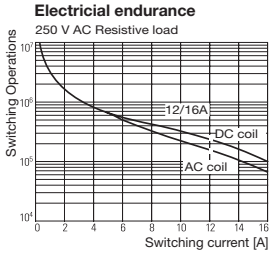


Operating voltage range DC

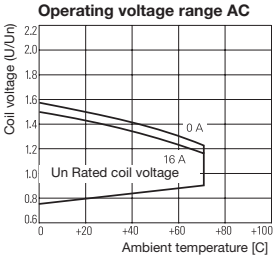


Electricial endurance

250 V AC Resistive load



Operating voltage range AC



1 CO contact
AC/DC coil

Ordering data	12 V DC 1CO	24 V DC 1CO	115 V DC 1CO	24 V AC 1CO
Input				
Rated control voltage	12 V DC ±20 %	24 V DC ±10 %	115 V DC ±10 %	24 V AC ±10 %
Rated current AC				30.5 mA
Rated current DC	33 mA	21 mA	6.4 mA	
Power rating	400 mW	500 mW	740 mW	0.73 VA
AC Response/dropout Volt				14.3 V / 9.5 V
DC Response/dropout Volt	7.1 V / 2.5 V	12.8 V / 4.5 V	60 V / 21 V	
Sparkover time / Drop-out time	9.8 ms / 9.7 ms	7.6 ms / 12.5 ms	7.7 ms / 13.1 ms	8.9 ms / 23.8 ms
Ordering data Relay module with socket				
Screw connection Type	PRS 12Vdc LD 1CO	PRS 24Vdc LD 1CO	PRS 115Vdc LD 1CO	PRS 24Vac LD 1CO
Order No.	**8536471001**	**8530621001**	**8536510000**	**8536530000**
Tension clamp connection Type	PRZ 12Vdc LD 1CO	PRZ 24Vdc LD 1CO	PRZ 115Vdc LD 1CO	PRZ 24Vac LD 1CO
Order No.	**8536571001**	**8530691001**	**8536610000**	**8536651001**
Ordering data Spare relay module (pluggable)				
Type	RCL314012	RCL314024	RCL314110	RCL314524
Order No.	**8693240000**	**8693260000**	**8821910000**	**8693500000**
Note				

Ordering data	120 V AC 1CO	230 V AC 1CO
Input		
Rated control voltage	120 V AC ±10 %	230 V AC ±10 %
Rated current AC	9.1 mA	4.2 mA
Rated current DC		
Power rating	1.1 VA	0.97 VA
AC Response/dropout Volt	53 V / 49 V	116 V / 86 V
DC Response/dropout Volt		
Sparkover time / Drop-out time	7.8 ms / 41.5 ms	8.7 ms / 44.6 ms
Ordering data Relay module with socket		
Screw connection Type	PRS 120Vac LD 1CO	PRS 230Vac LD 1CO
Order No.	**8530641001**	**8530671001**
Tension clamp connection Type	PRZ 120Vac LD 1CO	PRZ 230Vac LD 1CO
Order No.	**8530710000**	**8530731001**
Ordering data Spare relay module (pluggable)		
Type	RCL314615	RCL314730
Order No.	**8693890000**	**8693320000**
Note		

PLUGSERIES - Relay modules

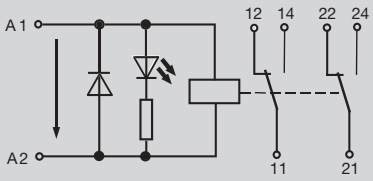
2 CO contacts
AC/DC coil

Modular system comprised of:

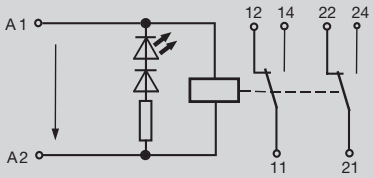
- relay socket for rail mounting
- LED indicator unit
- retaining clip
- plug-in relay

Cross-connection of coil connections and relay CO contacts by means of plug-in cross-connection ZQV 2.5N
Bridgeable

DC-Version



AC-Version

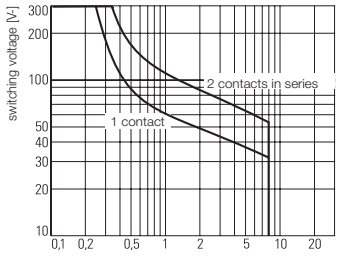


Output		
Switching voltage AC, max. / Continuous current		250 / 2 x 8 A
min. switching capacity		10 V / 100 mA
Contact material		AgNi 90/10
Mechanical service life		$5*10^6$ switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Status indicator / Free-wheel diode		Green LED / Yes
Reverse polarity protection		No
Ambient temperature (operational)		-40 °C...+50 °C
Storage temperature		-40 °C...+85 °C
Humidity		40°C / 93% rel. humidity, no condensation
Approvals		cURus
Insulation coordination (EN 50 178)		
Standards		EN 50178
Rated voltage		300 V AC_{eff}
Impulse withstand voltage		6 kV
Clearance and creepage distances for control/load side		> 8 mm
Overvoltage category		III
Pollution severity		2
Protective separation acc. to VDE 0106 part 101		Yes

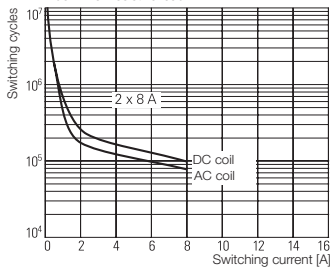
Dimensions		Screw connection	Tension clamp connection
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
Length x width x height	mm	92 / 15.3 / 95	92 / 15.3 / 87
Note		Cross-connectors and markers - refer to PLUGSERIES accessories	

Applications

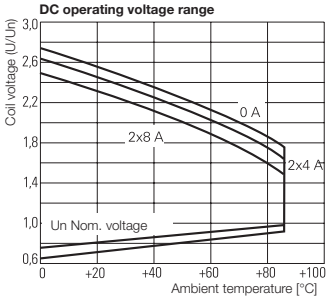
DC limit curve
2-pole Resistive load



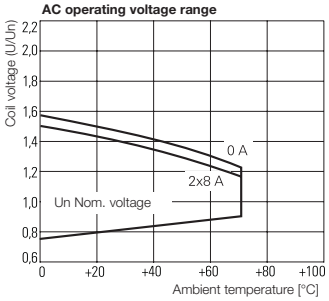
Electrical endurance
250 V AC Resistive load



DC operating voltage range



AC operating voltage range



2 CO contacts
AC/DC coil

Ordering data	12 V DC 2CO	24 V DC 2CO	115 V DC 2CO	24 V AC 2CO
Input				
Rated control voltage	12 V DC ±20 %	24 V DC ±10 %	115 V DC ±10 %	24 V AC ±10 %
Rated current AC				30.5 mA
Rated current DC	33 mA	21 mA	6.4 mA	
Power rating	400 mW	500 mW	740 mW	0.73 VA
AC Response/dropout Volt				14.3 V / 9.5 V
DC Response/dropout Volt	7.1 V / 2.5 V	12.8 V / 4.5 V	60 V / 21 V	
Sparkover time / Drop-out time	9.8 ms / 9.7 ms	7.6 ms / 12.5 ms	7.7 ms / 13.1 ms	8.9 ms / 23.8 ms
Ordering data Relay module with socket				
Screw connection Type	PRS 12Vdc LD 2CO	PRS 24Vdc LD 2CO	PRS 115Vdc LD 2CO	PRS 24Vac LD 2CO
Order No.	**8536501001**	**8530631001**	**8536520000**	**8536560000**
Tension clamp connection Type	PRZ 12Vdc LD 2CO	PRZ 24Vdc LD 2CO	PRZ 115Vdc LD 2CO	PRZ 24Vac LD 2CO
Order No.	**8536591001**	**8530701001**	**8536630000**	**8536681001**
Ordering data Spare relay module (pluggable)				
Type	RCL424012	RCL424024	RCL424110	RCL424524
Order No.	**4058560000**	**4058570000**	**4058590000**	**4058600000**
Note				

Ordering data	120 V AC 2CO	230 V AC 2CO
Input		
Rated control voltage	120 V AC ±10 %	230 V AC ±10 %
Rated current AC	9.1 mA	4.2 mA
Rated current DC		
Power rating	1.1 VA	0.97 VA
AC Response/dropout Volt	53 V / 49 V	116 V / 86 V
DC Response/dropout Volt		
Sparkover time / Drop-out time	7.8 ms / 41.5 ms	8.7 ms / 44.6 ms
Ordering data Relay module with socket		
Screw connection Type	PRS 120Vac LD 2CO	PRS 230Vac LD 2CO
Order No.	**8530661001**	**8530681001**
Tension clamp connection Type	PRZ 120Vac LD 2CO	PRZ 230Vac LD 2CO
Order No.	**8530720000**	**8530741001**
Ordering data Spare relay module (pluggable)		
Type	RCL424615	RCL424730
Order No.	**4058610000**	**4058630000**
Note		

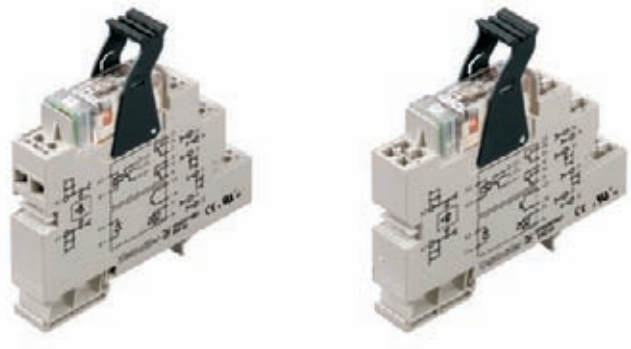
PLUGSERIES - Relay modules

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

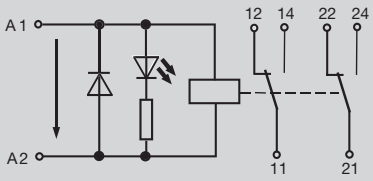
Modular system comprised of:

- relay socket for rail mounting
- LED indicator unit
- retaining clip
- plug-in relay

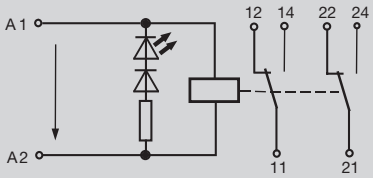
Cross-connection of coil connections and relay CO contacts by means of plug-in cross-connection ZQV 2.5N Bridgeable



DC-Version



AC-Version



Output	
Switching voltage AC, max. / Continuous current	250 / 2 x 8 A
min. switching capacity	1 V / 1 mA
Contact material	AgNi 5µm Au
Mechanical service life	$5*10^6$ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Status indicator / Free-wheel diode	Green LED / No
Reverse polarity protection	No
Ambient temperature (operational)	-40 °C...+50 °C
Storage temperature	-40 °C...+85 °C
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	CSA; cURus; GOSTME25; CE
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V AC_{eff}
Impulse withstand voltage	6 kV
Clearance and creepage distances for control/load side	> 8 mm
Overvoltage category	III
Pollution severity	2
Protective separation acc. to VDE 0106 part 101	Yes

Dimensions		**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
Length x width x height	mm	92 / 15.3 / 95	92 / 15.3 / 87
Note		Cross-connectors and markers - refer to PLUGSERIES accessories	

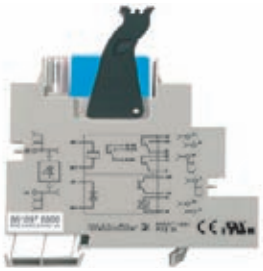
Ordering data

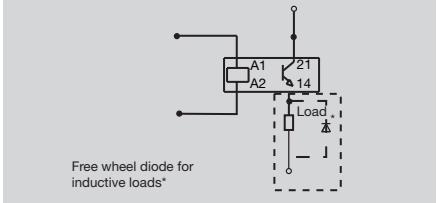
	24 V DC 2CO Au	**120 V AC 2CO Au**	**230 V AC 2CO Au**
Input			
Rated control voltage	24 V DC ±10 %	120 V AC ±10 %	230 V AC ±10 %
Rated current AC		9.1 mA	4.2 mA
Rated current DC	21 mA		
Power rating	500 mW	1.1 VA	0.97 VA
AC Response/dropout Volt		53 V / 49 V	116 V / 86 V
DC Response/dropout Volt	12.8 V / 4.5 V		
Sparkover time / Drop-out time	7.6 ms / 12.5 ms	7.8 ms / 41.5 ms	8.7 ms / 44.6 ms
Ordering data Relay module with socket			
Screw connection Type	PRS 24VDC LD 2COAU	PRS 120VAC LD 2CO AU	PRS 230VAC LD 2CO AU
Order No.	**8561760000**	**8595960000**	**8595990000**
Tension clamp connection Type	PRZ 24Vdc LD 2CO AU	PRZ 120VAC LD 2COAU	PRZ 230VAC LD 2COAU
Order No.	**8552440000**	**8575940000**	**8575950000**
Ordering data Spare relay module (pluggable)			
Type	RCL425024	RCL425615	RCL425730
Order No.	**4058580000**	**4058620000**	**4058640000**
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, damage can occur to 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.

POS / POZ

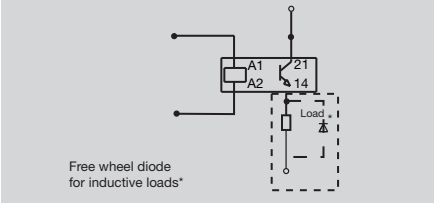
- Plug-in cross-connection ZQV 2.5N
- Interchangeable solid-state relay
- Screw or tension clamp connection
- For mounting on TS 35

24 V DC / 24 V DC 2.5 A





24 V DC / 24 V DC 5 A



Technical data

Control side		
Rated control voltage	15 V DC...30 V DC	15 V DC...30 V DC
Power rating	250 mW	250 mW
Rated auxiliary voltage	No	No
Status indicator	Green LED	Green LED
Load side		
Rated switching voltage	0...30 V DC	0...30 V DC
Rated switching current	2.5 A	5 A
Voltage drop at max. load	≤ 0.4 V	≤ 0.3 V
Switch-on delay / Switch-off delay	2 ms / 18 ms	2 ms / 18 ms
Short-circuit-proof / Protective circuit	No / Integrated free-wheel diode	No / Integrated free-wheel diode
General data		
Ambient temperature (operational)	-40 °C...+50 °C	-40 °C...+50 °C
Storage temperature	-40 °C...+50 °C	-40 °C...+50 °C
Humidity	40°C / 93% rel. humidity, no condensation	40°C / 93% rel. humidity, no condensation
Approvals	GOSTME25; CE; cURus	GOSTME25; CE; cURus
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	300 V	300 V
Rated impulse withstand voltage		2.5 kV_{eff}
Clearance and creepage distances for control/load side	> 8 mm	> 8 mm
Overvoltage category	III	III
Pollution severity	2	2

Dimensions		**Screw connection**	**Tension clamp connection**	**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
Length x width x height	mm	92 / 15.3 / 95	92 / 15.3 / 87	92 / 15.3 / 95	92 / 15.3 / 87
Note					

Ordering data

	Type	**Qty.**	**Order No.**	**Type**	**Qty.**	**Order No.**
Screw connection	POS 24VDC/24VDC 2A	10	**8610840000**	POS 24VDC/24VDC 5A	10	**8610900000**
Tension clamp connection	POZ 24VDC/24VDC 2A	10	**8610920000**	POZ 24VDC/24VDC 5A	10	**8610970000**

Note	Replacement SSR 8576340000, also refer to www.celduc-relais.com (type STD032051)	Replacement SSR 8576350000, also refer to www.celduc-relais.com (type STD03505)

Accessories

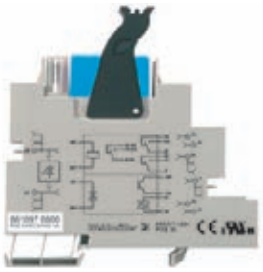
	Cross-connectors and markers - see PLUGSERIES accessories	Cross-connectors and markers - see PLUGSERIES accessories

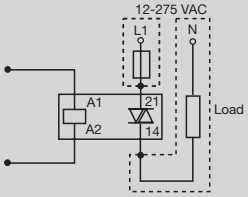
PLUGSERIES - Opto modules

POS / POZ

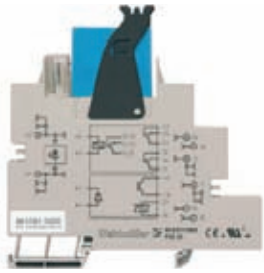
- Plug-in cross-connection ZQV 2.5N
- Interchangeable solid-state relay
- Screw or tension clamp connection
- For mounting on TS 35

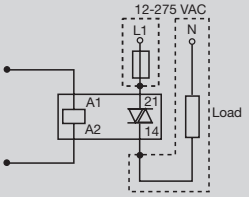
24 V DC / 230 V AC 2 A





24 V DC / 230 V AC 4 A





Technical data

Control side		
Rated control voltage	15 V DC...30 V DC	15 V DC...30 V DC
Power rating	250 mW	250 mW
Rated auxiliary voltage	No	No
Status indicator	Green LED	Green LED
Load side		
Rated switching voltage	12...275 V AC	12...275 V AC
Rated switching current	2 A	3 A (4 A at 20°C)
Voltage drop at max. load	≤ 1 V	≤ 1.1 V
Switch-on delay / Switch-off delay	≤ 12 ms / 20 ms	≤ 12 ms / 20 ms
Short-circuit-proof / Protective circuit	No / RC element	No / RC element
General data		
Ambient temperature (operational)	-40 °C...+50 °C	-40 °C...+50 °C
Storage temperature	-40 °C...+50 °C	-40 °C...+50 °C
Humidity	40°C / 93% rel. humidity, no condensation	40°C / 93% rel. humidity, no condensation
Approvals	GOSTME25; CE; cURus	GOSTME25; CE; cURus
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	300 V	300 V
Rated impulse withstand voltage	4 kV_{eff}	4 kV_{eff}
Clearance and creepage distances for control/load side	> 8 mm	> 8 mm
Overvoltage category	III	III
Pollution severity	2	2

Dimensions		**Screw connection**	**Tension clamp connection**	**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
Length x width x height	mm	92 / 15.3 / 95	92 / 15.3 / 87	92 / 15.3 / 95	92 / 15.3 / 87
Note					

Ordering data

	Type	**Qty.**	**Order No.**	**Type**	**Qty.**	**Order No.**
Screw connection	POS 24VDC/230VAC 2A	10	**8610860000**	POS 24VDC/230VAC 4A	10	**8610910000**
Tension clamp connection	POZ 24VDC/230VAC 2A	10	**8610930000**	POZ 24VDC/230VAC 4A	10	**8610980000**
Note	Replacement SSR 8576370000, also refer to www.celduc-relais.com (type STA07220)			Replacement SSR 8576360000, also refer to www.celduc-relais.com (type STA07420)		

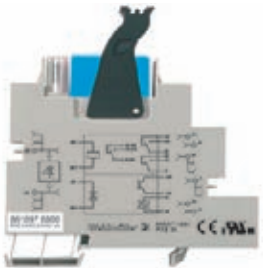
Accessories

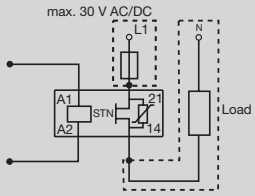
Cross-connectors and markers - see PLUGSERIES accessories	Cross-connectors and markers - see PLUGSERIES accessories

POS / POZ

- Plug-in cross-connection ZQV 2.5N
- Interchangeable solid-state relay
- Screw or tension clamp connection
- For mounting on TS 35

24 V DC / 24 V UC 1 A





Technical data

Control side	
Rated control voltage	15 V DC...30 V DC
Power rating	250 mW
Rated auxiliary voltage	No
Status indicator	Green LED
Load side	
Rated switching voltage	0...30 V UC
Rated switching current	1 A
Voltage drop at max. load	≤ 0.9 V
Switch-on delay / Switch-off delay	< 5 ms / < 12 ms
Short-circuit-proof / Protective circuit	No / Integrated free-wheel diode
General data	
Ambient temperature (operational)	-40 °C...+50 °C
Storage temperature	-40 °C...+50 °C
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	GOSTME25; CE; cURus
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	4 kV_{eff}
Clearance and creepage distances for control/load side	> 8 mm
Overvoltage category	III
Pollution severity	2

Dimensions		**Screw connection**	**Tension clamp connection**
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
Length x width x height	mm	92 / 15.3 / 95	92 / 15.3 / 87
Note			

Ordering data

	Type	**Qty.**	**Order No.**
Screw connection	POS 24VDC/24VUC 1A	10	**8610890000**
Tension clamp connection	POZ 24VDC/24VUC 1A	10	**8610960000**

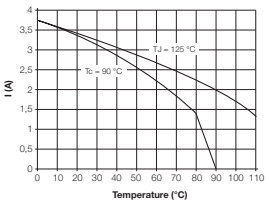
Note	Replacement SSR 8576380000, also refer to www.celduc-relais.com (type STN07105)

Accessories

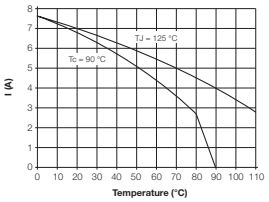
Cross-connectors and markers - see PLUGSERIES accessories

Derating curves

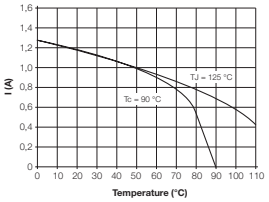
24 V DC / 24 V DC 2.5 A



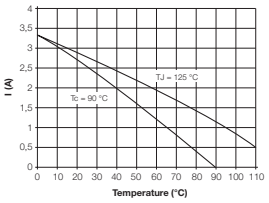
24 V DC / 24 V DC 5 A



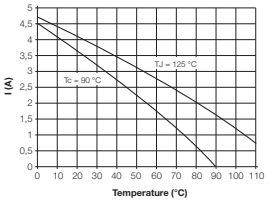
24 V DC / 24 V UC 1 A



24 V DC / 230 V AC 2 A

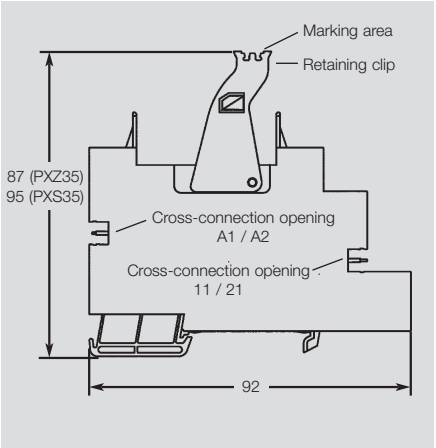


24 V DC / 230 V AC 4 A



Accessories

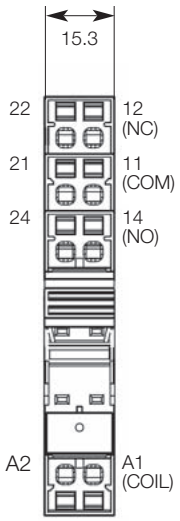
PLUGSERIES



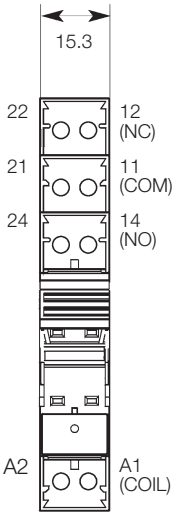
Technical data

Base without relay module		
Nominal current		16 A
Nominal voltage		250 V
Dielectric strength coil/contact		> 4 kV
Ingress protection class		IP 20
Nominal cross-section		2.5 mm²
Stripping length	screw connection	8 mm
	tension clamp connection	10 mm
Ambient temperature		–40 °C ... +60 °C
UL 94 flammability rating		V-0
Humidity		40 °C/93 rel. humidity, no condensation

Tension clamp connection



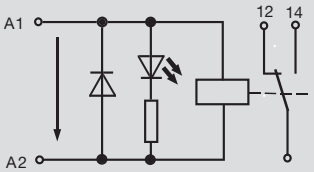
Screw connection



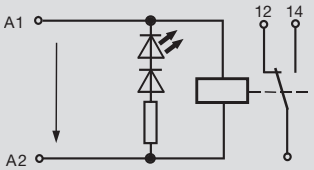
Ordering data

Base for mounting on TS 35 DIN Rail	Type	Qty.	Order No.
Screw connection	PXS35	10	**8533771001**
Tension clamp connection	PXZ35	10	**8536691001**
Retaining clip			
	PRC	100	**8536700000**
LED indicator with free wheel diode			
6 ... 24 V DC	PLED 24 V DC	20	**8536710000**
red LED, 6 ... 24 V DC	PLED 24 V DC rot	20	**8611010000**
48 ... 60 V DC	PLED 48 V DC	20	**8536720000**
115 V DC	PLED 115 V DC	20	**8536730000**
12 ... 24 V AC	PLED 24 V AC	20	**8536750000**
115 V AC	PLED 120 V AC	20	**8536760000**
230 V AC	PLED 230 V AC	20	**8536780000**
RC combination 120 ... 230 V AC/DC	PLRC 200 nF/200Ω	20	**8566530000**
Plug-in cross-connections			
2-pole black	ZQV 2.5N/4-2SW	60	**1784270000**
red	ZQV 2.5N/4-2RT	60	**1784280000**
blue	ZQV 2.5N/4-2BL	60	**1784290000**
Markers			
10 x 5 mm	WS 10/5	200	**1060860000**
15 x 5 mm	WS 15/5	96	**1609880000**
Accessories			
End bracket	WEW 35/2		**1061200000**
Screwdriver	SD 0.6x3.5x100		**9008330000**

DC-Version



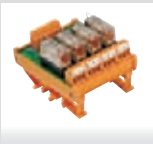
AC-Version



The RS-SERIES product line

RS 30

Relay modules with 1 NO or 1 CO contact



RSM

4-, 8-, 16-times multi-interfaces

RS 31

Relay modules with 1 power contact

RS 32

Relay modules with 2 CO contacts

RS32

Relay modules with 2 positively-driven CO contacts

RSO 30

Opto modules

1 NCC, 1 NOC
or 1 change-over contact

RS 30
Screw connection

1 NOC
1 NCC

1 change-over contact

RS 30
Isolating plug with screw connection

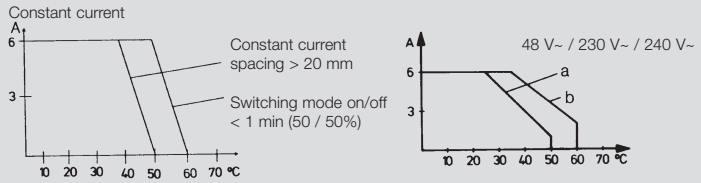
1 NOC
1 NCC

1 change-over contact

Technical data

Input voltage	**5 VTTL**	**12 V–**	**24 V–**	**24 V≈**	**48 V–**	**115 V~**	**230 V~**
5…60 V ± 10 %; 115 V/230 V + 5 % – 15 %							
Nominal consumption – (W)	0.45 W[1])	0.45 W	0.45 W	0.45 W	0.45 W	–	–
Nominal consumption ~ (VA)	–	–	–	0.7 VA	–	0.8 VA	0.8 VA
Drop-out current of relay module (at 20 °C)	–	3 mA	3 mA	2.5 mA–	2 mA	–	–
Drop-out current of relay module (at 20 °C)	–	–	–	3.5 mA~	–	1 mA~	1 mA~
Pick-up current	–	–	12 mA	–	10 mA	6 mA	–
Output voltage max.	250 V	250 V	250 V	250 V	250 V	250 V	250 V
Continuous current	5 A	6 A	6 A	6 A	6 A	5 A	3 A

Derating curve
a = fitted on mounting rail in horizontal row without spacing
b = fitted on mounting rail in horizontal row with 20 mm spacing



Making current	8 A
Making power under ohmic load	2000 VA / 100 W
Min. switching power/switching current	250 mW / 10 mA
Duration of bounce	≤ 3 ms
Typical switching times	
– Pick-up delay	≤ 8 ms / ≤ 8 ms / ≤ 8 ms / ≤ 8 ms / ≤ 12 ms / ≤ 9 ms / ≤ 10 ms
– Drop-out delay	≤ 7 ms / ≤ 7 ms / ≤ 7 ms / ≤ 16 ms / ≤ 11 ms / ≤ 8 ms / ≤ 9 ms
Max. switching frequency	70 Hz / 70 Hz / 70 Hz / 30 Hz / 70 Hz / 30 Hz / 30 Hz
Contact material	AgNi, gold-flashed
Service life, mechanical	$>10^7$ switching cycles
– 24 V-, 1A ohmic load	$> 5 \times 10^5$ switching cycles
– 230 V-. 3A, ohmic load	$>7 \times 10^5$ switching cycles
Storage temperature	–40 °C…+60 °C
Ambient temperature, fitted on mounting rail	
– in horizontal row without spacing	–25 °C…+40 °C
– in horizontal row without spacing ≥ 20 mm spacing	–25 °C…+50 °C
Humidity	40 °C/93 rel. humidity, no condensation
Insulation coordination to EN 50178	
Surge category	III
Pollution severity	2
Dimensions	
Mounting width	11.2 mm NOC / NCC, 25 mm change-over contact
Length (at 90° to mounting rail)	70 mm (74 mm BL/SL version)
Height (with TS 32 / TS 35 x 7.5)	56 mm / 51.5 mm

[1]) Rated consumption of auxiliary voltage 24 V–.

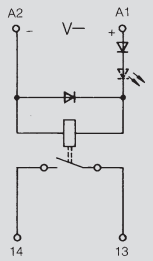
RS 30

Screw connection

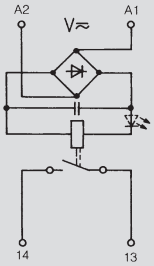
RS 30

Isolating plug with screw connection

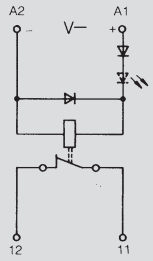
A - 1 NOC DC



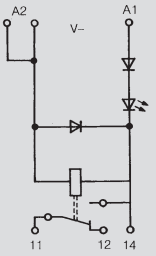
B - 1 NOC AC/DC



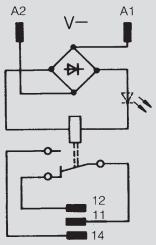
C - 1 NCC DC



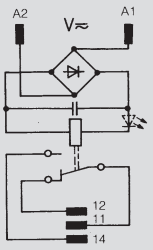
D - 1 change-over DC



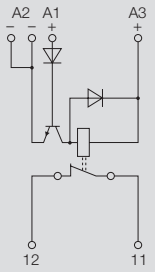
E - 1 change-over DC



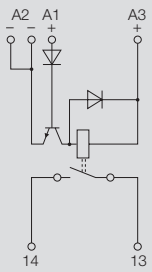
F - 1 change-over AC/DC



G - 1 NCC DC



H - 1 NOC DC



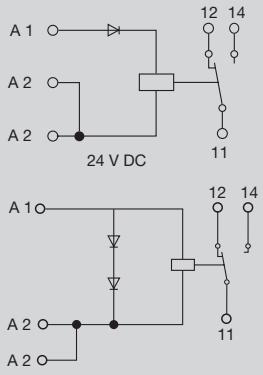
Ordering data

Wiring diagram		A	B	C	D	E	F	G	H
Input voltage	Function indicator	NOC	NOC	NCC	change-over	change-over	change-over	NCC	NOC
5 V–, TTL	without							1167660000	1167760000
12 V–	without						1129660000		
	LED red	1129421001		1129521001					
24 V–	without	1101661001		1100961001		1100260000			
	LED green	1101611001		1100911001	1181511001	1100210000			
	LED red	1101621001		1100921001	1181521001	1100220000			
24 V≂	without						1100360000		
	LED green		1101711001						
	LED red		1101721001						
48 V–	without								
	LED green	1101811001				1100410000			
	LED red	1101821001				1100420000			
115 V~	without						1100760000		
	LED green		1102111001						
	LED red		1102121001						
230 V~	without		1102261001				1100860000		
	LED green		1102211001						
	LED red		1102221001						

RS SERIES - RS 31 - Relay modules

1 CO contact
AC/DC coil

- For high switching capacities
- Suitable for switching inductive loads



Residual voltages

Output		
Switching voltage AC, max. / Continuous current		250 V / 16 A
min. switching capacity		1 W
Sparkover time / Drop-out time		9 ms / 10 ms
Contact material		AgCdO
Mechanical service life		$30*10^6$ switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Status indicator / Free-wheel diode		red LED / Yes
Reverse polarity protection		Available
Ambient temperature (operational)		-25 °C...+40 °C
Storage temperature		-40 °C...+60 °C
Humidity		40°C / 93% rel. humidity, no condensation
Approvals		GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards		EN 50178
Rated voltage		250 V
Impulse withstand voltage		6 kV
Clearance and creepage distances for control/load side		> 3 mm
Overvoltage category		III
Pollution severity		2
Protective separation acc. to VDE 0106 part 101		No

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4
Length x width x height	mm	70 / 25 / 53.5
Note		

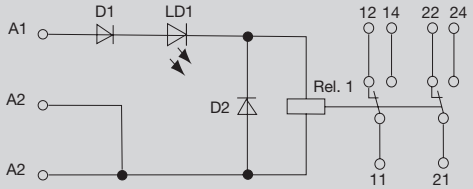
Ordering data

Input	24 V DC 1CO	115 V AC 1CO	230 V AC 1CO
Rated control voltage	24 V DC ±10 %	115 V AC +5 % / -15 %	230 V AC +5 % / -15 %
Rated current AC		8 mA	4.5 mA
Rated current DC	40 mA		
Power rating	1 W	1 VA	1 VA
AC Response/dropout Volt		98 V	195 V
DC Response/dropout Volt	21.5V		
AC pickup/dropout current		-/1.5mA	-/2.2mA
DC pickup/dropout current	-/11.5mA		

Ordering data			
Type	RS 31 24VDC LD LP 1U	RS 31 115VAC LD LP 1U	RS 31 230VAC LD LP 1U
Order No.	**1128361001**	**1150461001**	**1128461001**
Type			
Order No.			
Ordering data			
Note			

2 CO contacts
positively-driven contacts

- DC coil
- Relay coupler with 2 positively-driven CO contacts, acc. to EN 50205
- 2-pole safety relay modules with 2 CO contacts *)
- For mounting on TS 32/35



Output	
Switching voltage AC, max. / Continuous current	250 V / 4 A
min. switching capacity	5 V / 10 mA
Sparkover time / Drop-out time	13 ms / 10 ms
Contact material	AgNi 90/10
Mechanical service life	$20*10^6$ switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Status indicator / Free-wheel diode	red LED / No
Reverse polarity protection	Yes
Ambient temperature (operational)	-25 °C...+40 °C
Storage temperature	-40 °C...+85 °C
Humidity	40°C / 93% rel. humidity, no condensation
Approvals	CE
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Impulse withstand voltage	4 kV
Clearance and creepage distances for control/load side	≥ 4 mm
Overvoltage category	III
Pollution severity	2
Protective separation acc. to VDE 0106 part 101	No

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4
Length x width x height	mm	70 / 25 / 63.5
Note		*) According to EN50205, only 1 NO / 1 NC is permitted for safety circuits

Ordering data

Input	24 V DC 2CO
Rated control voltage	24 V DC ±10 %
Rated current AC	
Rated current DC	21 mA
Power rating	0.5 W
AC Response/dropout Volt	
DC Response/dropout Volt	16 V / 10 V
AC pickup/dropout current	
DC pickup/dropout current	12.5 mA / 7mA

Ordering data	
Type	RS32 24 VDC SAFETY
Order No.	**8872160000**
Type	
Order No.	

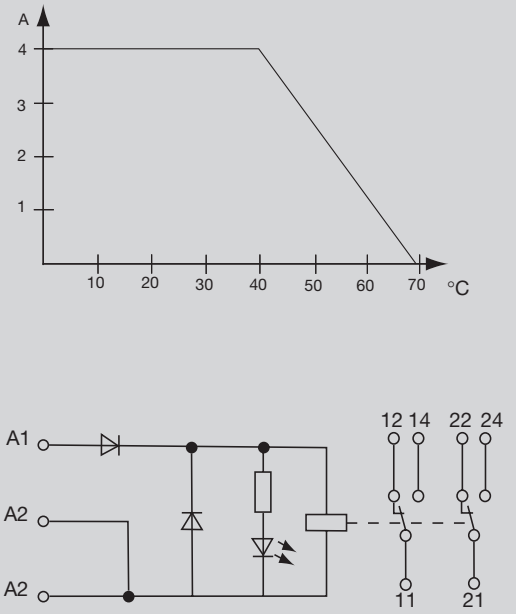
Ordering data	

Note	

RS SERIES - RS 32 - Relay modules

2 CO contacts
DC coil

- Relay coupler with two CO contacts
- Relay module soldered
- Optional multi-voltage input
- For mounting on TS 32/35



Output		
Switching voltage AC, max. / Continuous current		250 V / 4 A
min. switching capacity		10 V / 10 mA
Sparkover time / Drop-out time		13 ms / 10 ms
Contact material		AgNi 90/10
Mechanical service life		$30*10^6$ switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Status indicator / Free-wheel diode		red LED / No
Reverse polarity protection		Available
Ambient temperature (operational)		-25 °C...+40 °C
Storage temperature		-40 °C...+60 °C
Humidity		40°C / 93% rel. humidity, no condensation
Approvals		GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards		EN 50178
Rated voltage		250 V
Impulse withstand voltage		4 kV
Clearance and creepage distances for control/load side		> 3 mm
Overvoltage category		III
Pollution severity		2
Protective separation acc. to VDE 0106 part 101		No

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4
Length x width x height	mm	70 / 25 / 63.5
Note		

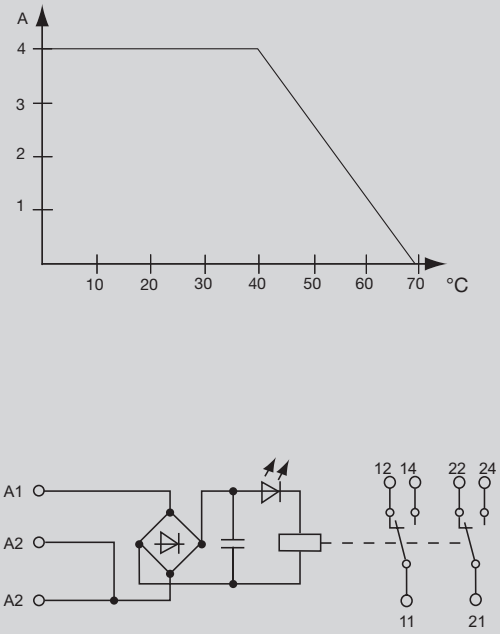
Ordering data

Input	24 V DC 2CO
Rated control voltage	24 V DC ±10 %
Rated current AC	
Rated current DC	25 mA
Power rating	0.6 W
AC Response/dropout Volt	
DC Response/dropout Volt	21.5V
AC pickup/dropout current	
DC pickup/dropout current	-/5 mA

Ordering data	
Type	RS 32 24VDC LD LP 2U
Order No.	**9406121001**
Type	
Order No.	

Ordering data	
Note	

2 CO contacts
UC coil



Output		
Switching voltage AC, max. / Continuous current		250 V / 4 A
min. switching capacity		12 V / 10 mA
Sparkover time / Drop-out time		13 ms / 10 ms
Contact material		AgNi 90/10
Mechanical service life		$30*10^6$ switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Status indicator / Free-wheel diode		red LED / No
Reverse polarity protection		Available
Ambient temperature (operational)		-25 °C...+40 °C
Storage temperature		-40 °C...+60 °C
Humidity		40°C / 93% rel. humidity, no condensation
Approvals		CSA; GOSTME25; MARITREG; CE
Insulation coordination (EN 50 178)		
Standards		EN 50178
Rated voltage		250 V
Impulse withstand voltage		4 kV
Clearance and creepage distances for control/load side		> 3 mm
Overvoltage category		III
Pollution severity		2
Protective separation acc. to VDE 0106 part 101		No

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4
Length x width x height	mm	70 / 25 / 63.5
Note		

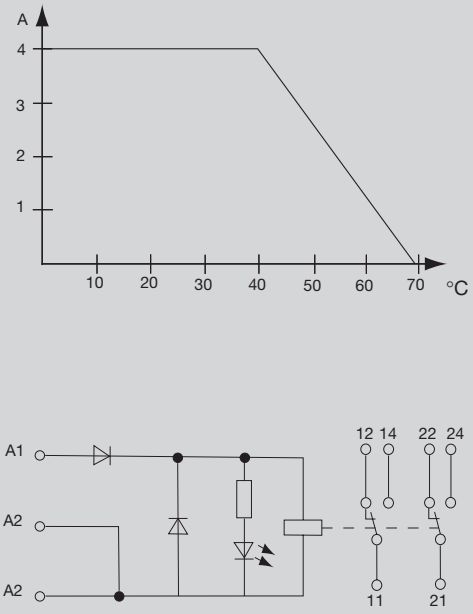
Ordering data

Input	24 V UC 2CO	115 V UC 2CO	230 V UC 2CO
Rated control voltage	24 V UC ±10 %	115 V UC +5 % / -15 %	230 V UC +5 % / -15 %
Rated current AC	28 mA	5 mA	4.3 mA
Rated current DC	18 mA	5 mA	4.3 mA
Power rating	0.6 W / 0.9 VA	0.5W / 0.6VA	1 W / 1 VA
AC Response/dropout Volt			
DC Response/dropout Volt	21.5V	98 V	195 V
AC pickup/dropout current	-/2.5mA	-/1.5mA	-/2 mA
DC pickup/dropout current	-/4.5mA	1mA	-/1.2mA

Ordering data			
Type	RS 32 24VUC LD LP 2U	RS 32 115VUC LD LP 2U	RS 32 230VUC LD LP 2U
Order No.	**9406221001**	**9406621001**	**9406721001**
Type			
Order No.			
Ordering data			
Note			

RS SERIES - RS 32 - Relay modules

2 CO contacts
multiple voltage input



Output		
Switching voltage AC, max. / Continuous current		250 V / 4 A
min. switching capacity		10 V / 10 mA
Sparkover time / Drop-out time		13 ms / 10 ms
Contact material		AgNi 90/10
Mechanical service life		$30*10^6$ switching cycles
Max. switching frequency at rated load		0.1 Hz
Rated data		
Status indicator / Free-wheel diode		red LED / No
Reverse polarity protection		Available
Ambient temperature (operational)		-25 °C...+40 °C
Storage temperature		-40 °C...+60 °C
Humidity		40°C / 93% rel. humidity, no condensation
Approvals		GOSTME25; CE
Insulation coordination (EN 50 178)		
Standards		EN 50178
Rated voltage		250 V
Impulse withstand voltage		4 kV
Clearance and creepage distances for control/load side		> 3 mm
Overvoltage category		III
Pollution severity		2
Protective separation acc. to VDE 0106 part 101		No

Dimensions		Screw connection
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 4
Length x width x height	mm	70 / 25 / 63.5
Note		

Ordering data

Input	24-48 V UC 2CO	115-230 V UC 2CO
Rated control voltage	24 V UC ±10 %, 48 V UC ±10 %	115 V UC +5 % / -15 %, 230 V UC +5 % / -15 %
Rated current AC	28 mA / 22 mA	5.6 mA / 5.3 mA
Rated current DC	18 mA / 20 mA	5.4 mA / 5 mA
Power rating	0.6 W / 0.9 VA	1W / 1VA
AC Response/dropout Volt		
DC Response/dropout Volt	21.5 V / 43 V	98 V / 195 V
AC pickup/dropout current	3 mA / 4.5 mA	1.5 mA / 2 mA
DC pickup/dropout current	5 mA / 2 mA	1 mA / 1.2 mA

Ordering data			
Screw connection	Type	RS 32 24-48VUC LD LP 2U	RS 32 115-230VUC LD 2U
	Order No.	**1122661001**	**1122761001**
	Type		
	Order No.		
Ordering data			
Note			

RS-SERIES – Relay modules

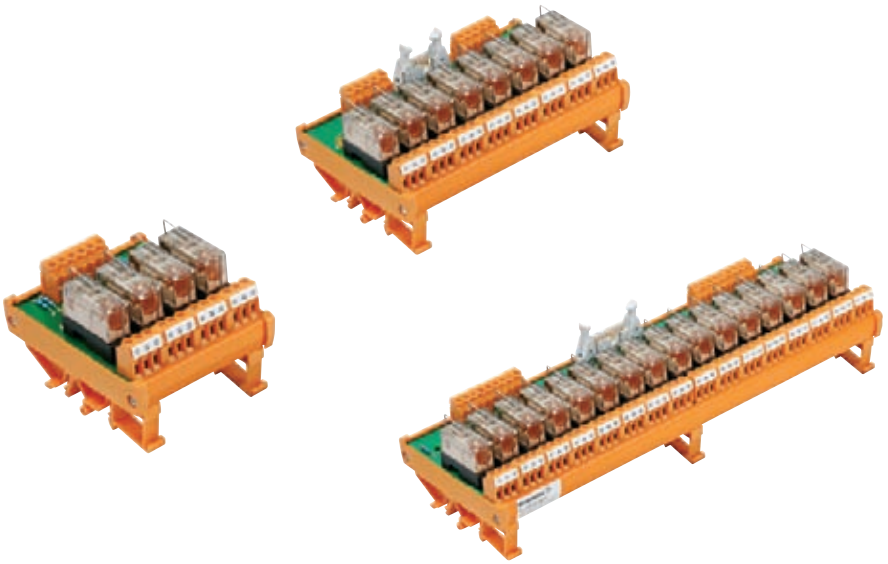
4-/8-/16-way, ea. with 1 COC

- Red LEDs, other colours on request
- Mounting feet can also be mounted turned through an angle of 180°

RSM 4 R / RSM 4 RS
4 relay modules soldered or plug-in

RSM 8 R / RSM 8 RS
8 relay modules soldered or plug-in

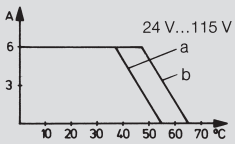
RSM 16 R / RSM 16 RS
16 relay modules soldered or plug-in

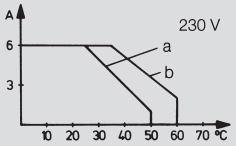


Technical data

Rated data					
Input voltage		**24 V DC**	**24 V AC/DC**	**115 V AC/DC**	**230 V AC**
Nominal consumption DC	soldered relay module	0.45 W	–	–	–
	plug-in relay module	0.75 W	0.45 W	–	–
Nominal consumption AC	soldered relay module	–	–	–	–
	plug-in relay module	–	0.7 VA	0.6 VA	1.2 VA
Pick-up current DC	soldered relay module	12 mA	–	–	–
	plug-in relay module	23 mA	12 mA	5 mA	–
Pick-up current AC	soldered relay module	–	–	–	–
	plug-in relay module	–	16.5 mA	6 mA	4 mA
Drop-out current of relay module (at 20 °C)		2 mA			1 mA
Output voltage max.		250 V	250 V	250 V	250 V
Continuous current		6 A	6 A	6 A	3 A

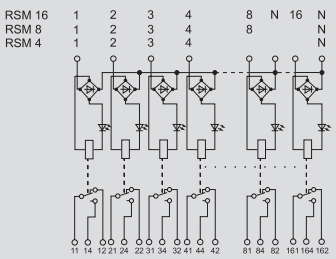
Derating curve
a = fitted on mounting rail in horizontal row without spacing
b = fitted on mounting rail in horizontal row with 20 mm spacing



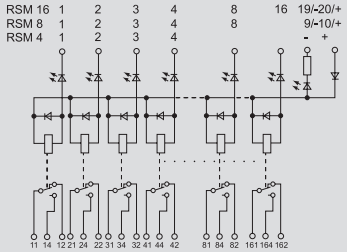


Typical making times					
	Pick-up delay (AC / DC)	≤ 8 ms	≤ 10 ms / 10 ms	≤ 8 ms / 10 ms	≤ 10 ms
	Drop-out delay (AC / DC)	≤ 7 ms	≤ 15 ms / 20 ms	≤ 5 ms / 8 ms	≤ 10 ms
Duration of bounce		≤ 3 ms			
Making current		8 A			
Making power under ohmic load		2000 VA			
Min. switching power / switching current		250 mW/10 mA			
Contact material		AgNi 90/10, AgNi0,15, gold-flashed			
Service life	mechanical	> 30 x 106 switching cycles			
	24 V DC, 1A, ohmic load	> 5 x 105 switching cycles			
	230 V AC, 3A, ohmic load	> 7 x 105 switching cycles			
Storage temperature		–40 °C...+60 °C			
Ambient temperature		–25 °C...+50 °C			
Humidity		40 °C/93 rel. humidity, no condensation			
Insulation coordination to EN 50178					
Surge category		III			
Pollution severity		2			
Dimensions					
Conductor cross-section (screw connection)		0.5...2.5 mm²			

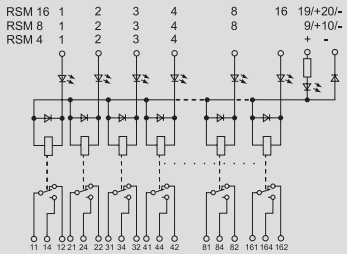
DC/AC/AC voltage



DC voltage, negative-switching
common plus potential,
minus connected



DC voltage, positive-switching
common minus potential,
plus connected



Ordering data

Connection system		Input voltage		4 relay modules RSM 4 R/RS (B = 75 mm)	8 relay modules RSM 8 R/RS (B = 145 mm)	16 relay modules RSM 16 R/RS (B = 285 mm)
Input **Screw connection**	• Plug-in relay module Screw connection and multiple plug to IEC 603-1/ DIN 41651	**24 V DC, switching plus**	Relay module pluggable	**1113361001**	**1113561001**	**1113761001**
	• Relay module soldered Multiple plug to IEC 603-1/DIN 41651		Relay module soldered	**1112361001**	**1107761001**	**1107861001**
Output **Screw connection**		**24 V DC, switching minus**	Relay module pluggable	**1113461001**	**1113661001**	**1113861001**
		24 V AC/DC	Relay module pluggable	**1173461001**	**1173561001**	**1173661001**
		115 V AC/DC	Relay module pluggable	**1114561001**	**1114661001**	**1114761001**
		230 V AC	Relay module pluggable	**1114861001**	**1114961001**	**1115061001**

Spare relay modules (pluggable)

	Input voltage	Contact material	Remarks	Order No.
For RSM ... R/RS, 24 V	**24 V DC**	AgNi 90/10	RT 314024 with clip	**8630780000**
		AgNi 90/10	RT 314024 without clip	**4058480000**
For RSM ... R/RS, 48 V	**48 V DC**	AgNi 90/10	RT 314048 without clip	**4058740000**
For RSM ... R/RS, 115 V and 230 V	**115 V DC**	AgNi 90/10	RT 314110 with clip	**8630770000**
		AgNi 90/10	RT 314110 without clip	**4058500000**

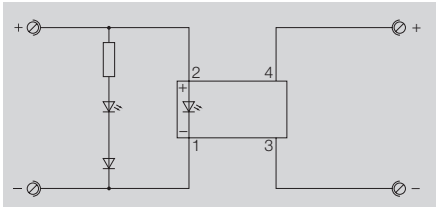
Note: can also be ordered with clamp for conversion to new RSM relay module.

RSO-SERIES - Opto modules

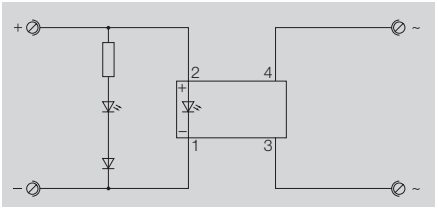
RSO 30

- Pluggable connections
- DC output up to 3 A @ 5...60 V DC
- AC output up to 3 A @ 24...240 V AC
- 11 mm width

RSO 30-DV/SC



RSO 30-DV/SA



Technical data

Control side			
Rated control voltage		5...24 V DC ±20 %	5...24 V DC ±20 %
Power rating			
Rated auxiliary voltage		No	No
Status indicator		Green LED	Green LED
Load side			
Rated switching voltage		2...60 V DC	24...250 V AC
Rated switching current		3 A	3 A
Voltage drop at max. load			1.6 V
Switch-on delay / Switch-off delay		0.1 ms / 0.75 ms	No-voltage switch /
Short-circuit-proof / Protective circuit		No /	No /
General data			
Ambient temperature (operational)		-25 °C...+40 °C	-25 °C...+40 °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	CE
Insulation coordination (EN 50 178)			
Standards		EN 50178	EN 50178
Rated voltage		300 V	300 V
Rated impulse withstand voltage		4 kV	4 kV
Clearance and creepage distances for control/load side		≥ 8 mm	≥ 8 mm
Overvoltage category		III	III
Pollution severity		2	2
Dimensions			
Clamping range (nominal / min. / max.)	mm^2	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
Length x width x height	mm	80 / 11 / 50	80 / 11 / 50
Note			

Ordering data

Connection system	Type	Qty.	Order No.
	RSO 30/DV 5-24V CC/SC	20	**9443100000**
	RSO 30/DV 5-24V CC/SA	20	**9443110000**

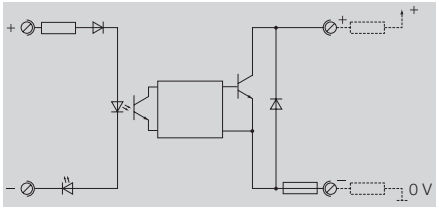
Note

Accessories

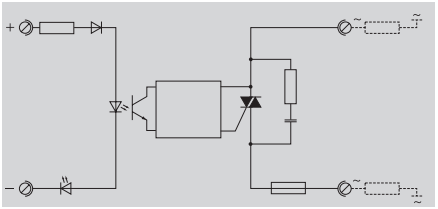
RSO 31

- Pluggable connections
- DC output up to 3 A @ 5...60 V DC
- AC output up to 3 A @ 24...240 V AC
- 12.5 mm width
- Pluggable fuse in output circuit

RSO 31 -ODC/F



RSO 31 -OAC/F



Technical data

Control side		
Rated control voltage	24 V DC ±10 %	24 V DC ±10 %
Power rating	0.29 W	0.29 W
Rated auxiliary voltage	No	No
Status indicator	red LED	red LED
Load side		
Rated switching voltage	5...50 V DC	24...250 V AC
Rated switching current	3 A	3 A
Voltage drop at max. load	1.6 V	1.6 V
Switch-on delay / Switch-off delay	0.1 ms / 0.75 ms	No-voltage switch /
Short-circuit-proof / Protective circuit	No /	No /
General data		
Ambient temperature (operational)	-25 °C...+40 °C	-25 °C...+40 °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	CE
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	300 V	300 V
Rated impulse withstand voltage	4 kV	4 kV
Clearance and creepage distances for control/load side	≥ 8 mm	≥ 8 mm
Overvoltage category	III	III
Pollution severity	2	2

Dimensions			
Clamping range (nominal / min. / max.)	mm²	2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
Length x width x height	mm	80 / 12.5 / 65.5	80 / 12.5 / 65.5
Note			

Ordering data

Connection system	Type	Qty.	Order No.
	RSO31-ODC24/F	20	**9430820000**
	RSO31-OAC24/F	20	**9430320000**

Note

Accessories

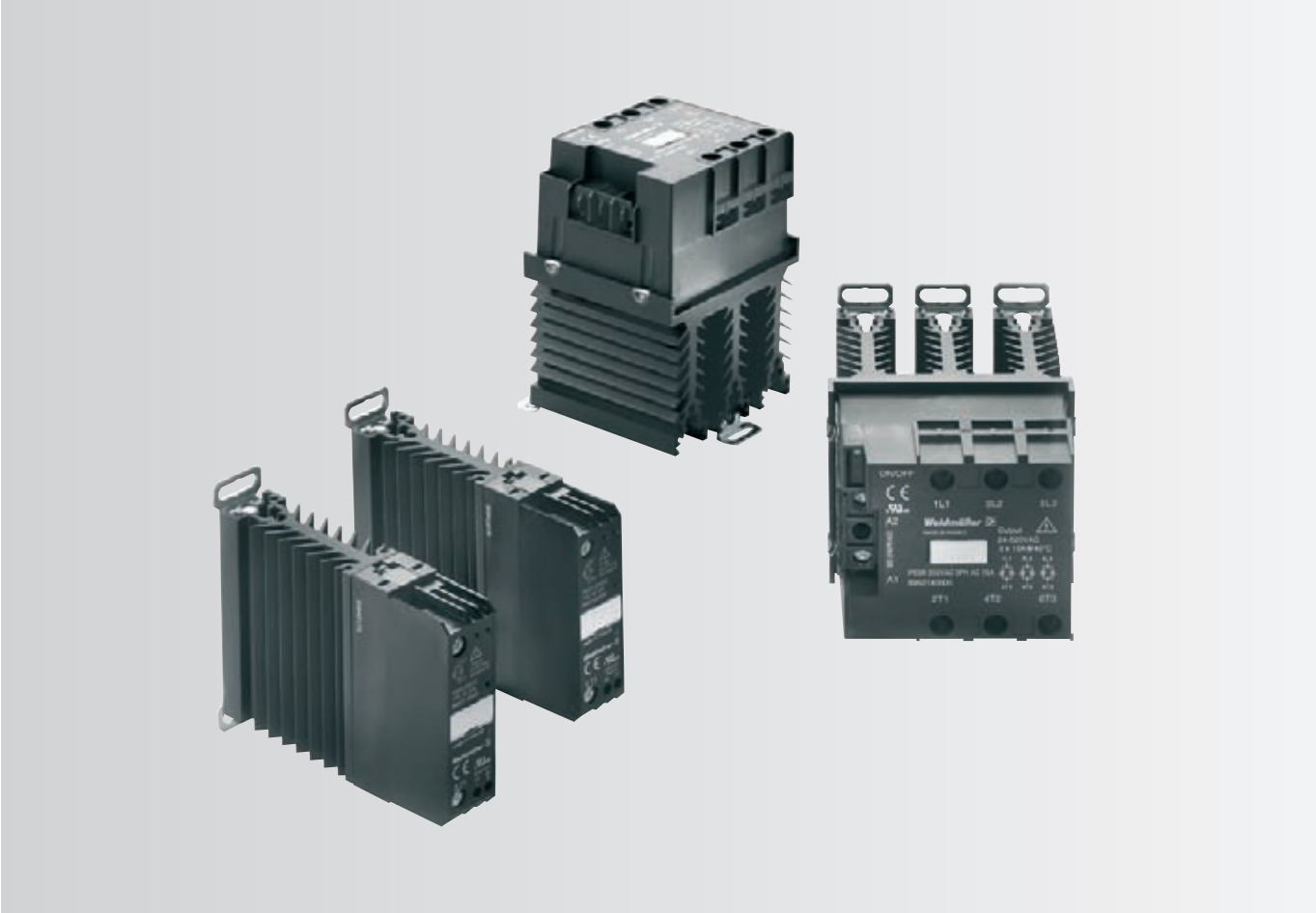
Power electronics

Power Solid-State Relays (PSSR) overview

Single- and three-phase PSSR modules for reliable and wear-free switching of AC loads up to 20 A in industrial environments at high temperatures.

PSSR switching is wear-free and completely silent in comparison to contactors and relay modules. The modules have a high capacity for handling surge currents and thus have sufficient reserves for triggering downstream fuses. This allows the PSSR modules to withstand both capacitive and inductive surge currents.

Single-phase PSSRs, with their zero-voltage switches, are best suited for switching ohmic loads up to 20 A at 55 °C. Applications include the synchronization of heating elements in plastic injection-moulding machines, or the switching of infrared heating elements in hardening machines or purification plants. Three-phase PSSRs come with an integrated quick-action switch. They can be used for motor control applications in the machine and facility construction industry and also for furnace applications. The modules have a particularly small zero-voltage switching range. Both the PSSR 1PH and the PSSR 3PH versions are built to be ready for use. In other words, they can just be snapped onto the rail and connected up. You don‘t need to go through the efforts of attaching them on a mounting plate or electrical cabinet wall.



Silent

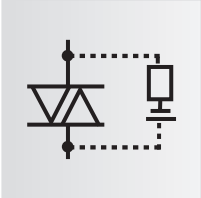
Switching makes no noise so they can be used in noise-sensitive applications.

Safe

Semiconductor-based wear-free switching reduces your service costs.

Less sensitive

Because of the semiconductor design, shock and vibrations cannot trigger unexpected switching operations.



Sturdy

High-quality semiconductor switch and comprehensive suppressor circuitry enable this product to be used safely in an industrial environment.

Ready-to-use

Snap-on – Connect – and ready.

The PSSR product line

PSSR

Single-phase components

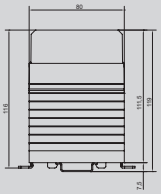
PSSR

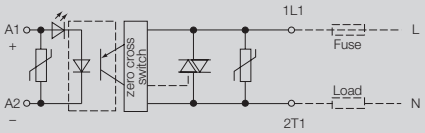
Three-phase components

PSSR

- Load circuit: single phase 12...275 V AC / 20 A
- Ready-to-use: simply clip on and connect
- Silent, wear-free switching
- High capacity for handling surge currents
  I^2t = 312 A^2s (10 ms)

PSSR 24 V DC / 1 PH AC 20 A

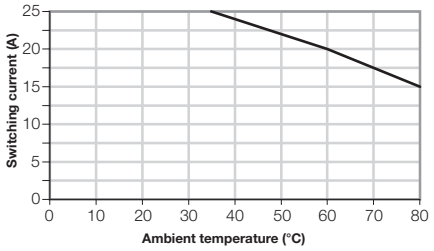




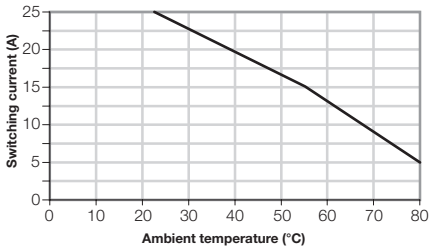
Technical data

Control side	
Rated control voltage	3...32 V DC
Power rating	0.03...0.3 W
making voltage	3 V
Dropout voltage	1 V
Input frequency	max. 10 Hz
Status indicator	Green LED
Protective circuit	Varistor
Load side	
Solid-state type	Triac
Rated switching voltage	12...275 V
Rated switching current	20 A @ 55 °C
Voltage drop at max. load	0.85 V
Leakage current	< 1 mA
Short-circuit-proof / Protective circuit	No / Varistor
Switch-on delay / Switch-off delay	≤ 10 ms / ≤ 10 ms
Continuous current	20 A
Pulse loading, max. current / Cartridge fuse	250 A (10 ms) / FERRAZ gRC 25 A 14x51 165 A^2s
Load category	AC 53: 5 A
General data	
Ambient temperature (operational)	-30 °C...+80 °C
Storage temperature	-30 °C...+100 °C
Humidity	40...95% (indoor) no condensation
Approvals	CE; cURus
Standards	EN 60950, IEC 60947-4-3
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV
Clearance and creepage distances for control/load side	≥ 6.4 mm
Overvoltage category	III
Pollution severity	2

Derating curve with moderate ventilation and 50% operational running time



Derating curve without ventilation and in continual operation



Dimensions		
Clamping range (nominal / min. / max.)	mm^2	16 / 1.5 / 16
Length x width x height	mm	98 / 22.5 / 116.1
Note		

Ordering data

Connection system	Type	Qty.	Order No.
	PSSR 24VDC/1PH AC 20A	1	**8952110000**

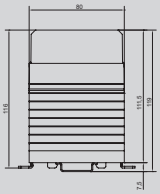
Note

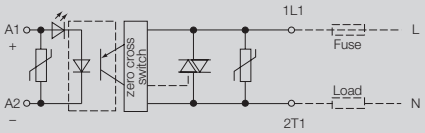
Accessories

PSSR

- Load circuit: single phase 12...275 V AC / 20 A
- Ready-to-use: simply clip on and connect
- Silent, wear-free switching
- High capacity for handling surge currents
  I^2t = 312 A^2s (10 ms)

PSSR 230 V AC / 1 PH AC 20 A

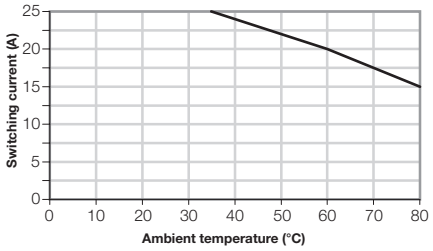




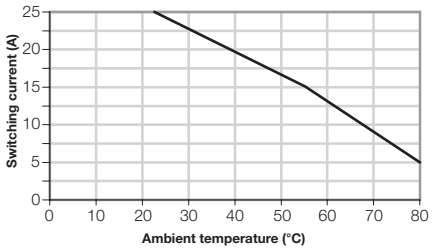
Technical data

Control side	
Rated control voltage	110...240 V DC / 150...240 V AC
Power rating	0.3...1.7 W
making voltage	10 V DC / 150 V AC
Dropout voltage	1 V
Input frequency	max. 10 Hz
Status indicator	Green LED
Protective circuit	RC element, Varistor
Load side	
Solid-state type	Triac
Rated switching voltage	12...275 V
Rated switching current	20 A @ 55 °C
Voltage drop at max. load	0.85 V
Leakage current	< 1 mA
Short-circuit-proof / Protective circuit	No / RC element, Varistor
Switch-on delay / Switch-off delay	30 ms / 30 ms
Continuous current	20 A
Pulse loading, max. current / Cartridge fuse	250 A (10 ms) / FERRAZ gRC 25 A 14x51 165 A^2s
Load category	AC 53: 5 A
General data	
Ambient temperature (operational)	-30 °C...+80 °C
Storage temperature	-30 °C...+100 °C
Humidity	40...95% (indoor) no condensation
Approvals	CE; cURus
Standards	EN 60950, IEC 60947-4-3
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV
Clearance and creepage distances for control/load side	≥ 6.4 mm
Overvoltage category	III
Pollution severity	2

Derating curve with moderate ventilation and 50% operational running time



Derating curve without ventilation and in continual operation



Dimensions		
Clamping range (nominal / min. / max.)	mm^2	16 / 1.5 / 16
Length x width x height	mm	98 / 22.5 / 116.1
Note		

Ordering data

Connection system	Type	Qty.	Order No.
	PSSR 230VAC/1PH AC 20A	1	**8952120000**

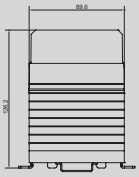
Note

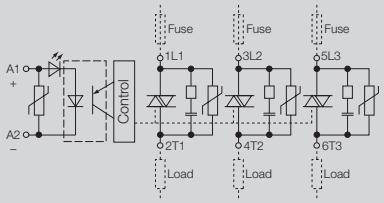
Accessories

PSSR

- Load circuit: single phase 12...275 V AC / 20 A
- Ready-to-use: simply clip on and connect
- Silent, wear-free switching
- High capacity for handling surge currents
  I^2t = 312 A^2s (10 ms)

PSSR 24 V DC / 3 PH AC 20 A



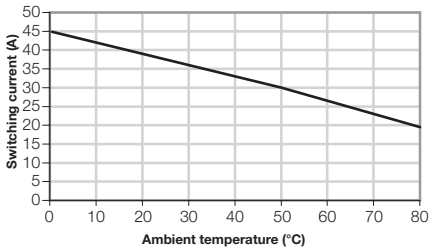


Technical data

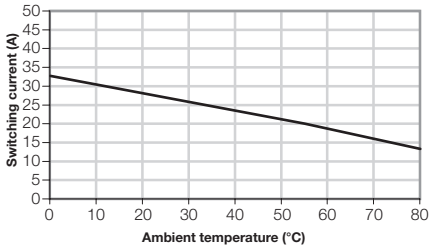
Control side	
Rated control voltage	8...30 V DC / 10...30 V AC
Power rating	0.1...2 W
making voltage	8 V DC / 10 V AC
Dropout voltage	4 V
Input frequency	max. 10 Hz
Status indicator	Green LED
Protective circuit	RC element, Varistor
Load side	
Solid-state type	Thyristor
Rated switching voltage	24...520 V
Rated switching current	20 A @ 55 °C
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
Continuous current	20 A
Pulse loading, max. current / Cartridge fuse	550 A (10 ms) / FERRAZ gRC 63 A 22x58 1353 A^2s
Load category	AC 53: 3 x 12 A
General data	
Ambient temperature (operational)	-40 °C...+80 °C
Storage temperature	-40 °C...+100 °C
Humidity	40...95% (indoor) no condensation
Approvals	CE; cURus
Standards	EN 60950, IEC 60947-4-3
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV
Clearance and creepage distances for control/load side	≥ 6.4 mm
Overvoltage category	III
Pollution severity	2

Dimensions		
Clamping range (nominal / min. / max.)	mm^2	10 / 1.5 / 10
Length x width x height	mm	98 / 89.6 / 126.2
Note		

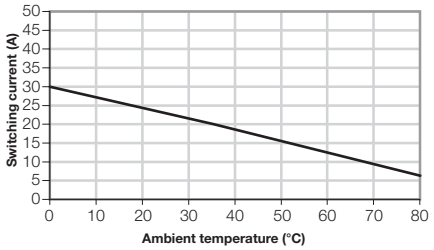
Derating curve with maximum ventilation



Derating curve with moderate ventilation and 50% operational running time



Derating curve without ventilation and in continual operation



Ordering data

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

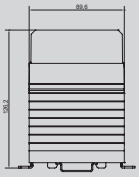
Note

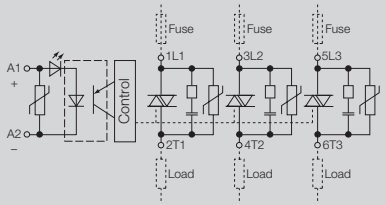
Accessories

PSSR

- Load circuit: single phase 12...275 V AC / 20 A
- Ready-to-use: simply clip on and connect
- Silent, wear-free switching
- High capacity for handling surge currents
  I^2t = 312 A^2s (10 ms)

PSSR 230 V AC / 3 PH AC 20 A



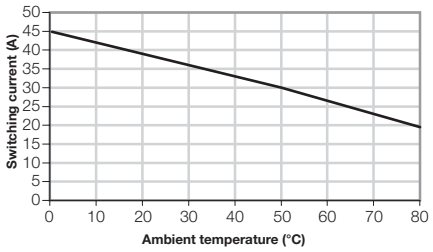


Technical data

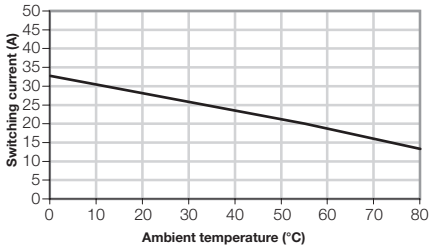
Control side	
Rated control voltage	90...240 V AC / DC
Power rating	0.4...2.6 W
making voltage	90 V AC/DC
Dropout voltage	15 V
Input frequency	max. 10 Hz
Status indicator	Green LED
Protective circuit	RC element, Varistor
Load side	
Solid-state type	Thyristor
Rated switching voltage	24...520 V
Rated switching current	20 A @ 55 °C
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
Continuous current	20 A
Pulse loading, max. current / Cartridge fuse	550 A (10 ms) / FERRAZ gRC 63 A 22x58 1353 A^2s
Load category	AC 53: 3 x 12 A
General data	
Ambient temperature (operational)	-40 °C...+80 °C
Storage temperature	-40 °C...+100 °C
Humidity	40...95% (indoor) no condensation
Approvals	CE; cURus
Standards	EN 60950, IEC 60947-4-3
Insulation coordination (EN 50 178)	
Rated voltage	300 V
Rated impulse withstand voltage	4 kV
Clearance and creepage distances for control/load side	≥ 6.4 mm
Overvoltage category	III
Pollution severity	2

Dimensions		
Clamping range (nominal / min. / max.)	mm^2	10 / 1.5 / 10
Length x width x height	mm	98 / 89.6 / 126.2
Note		

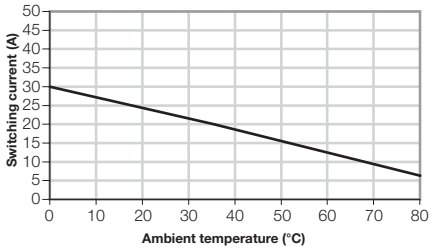
Derating curve with maximum ventilation



Derating curve with moderate ventilation and 50% operational running time



Derating curve without ventilation and in continual operation



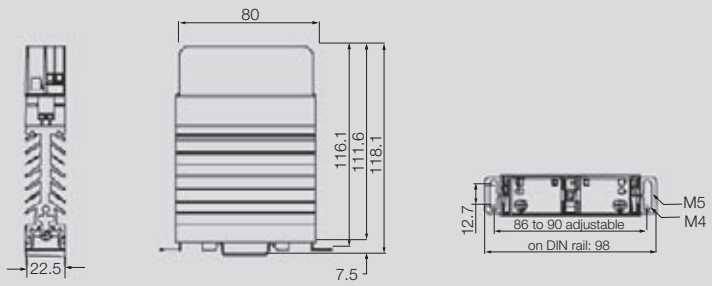
Ordering data

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

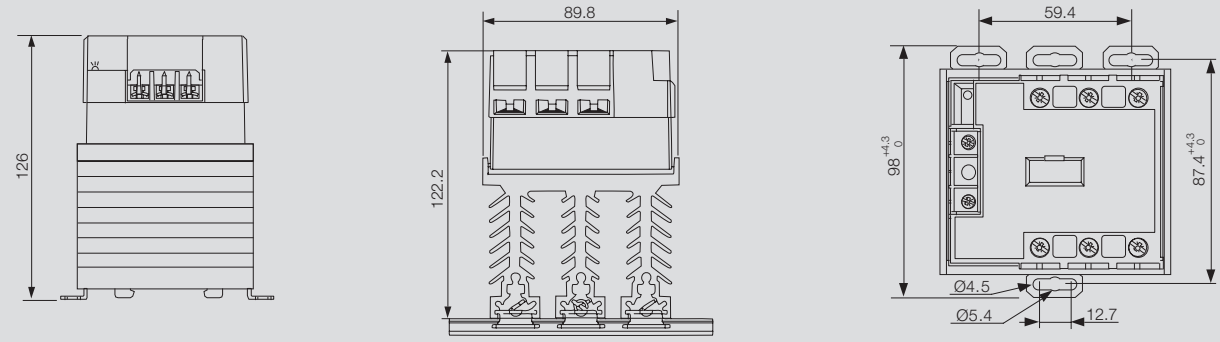
Note

Accessories

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**

Timer

Installation timer

Electronic timer from the BT product range offer ideal solutions for industrial applications.

The BT product range provides the following functions:

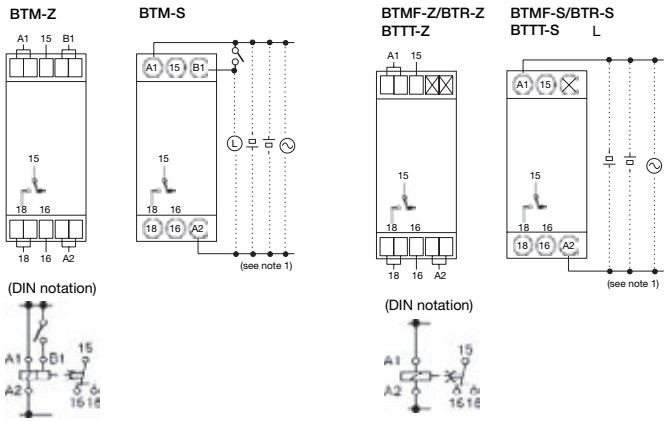
- Pick-up delay (BTR)
- Pulse emitter (BTTT)
- Multifunction with control input (BTM)
- Multifunction without control input (BTMF)
- Star-delta change-over

Time ranges and power supplies for timer

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

The multi-voltage supply voltage range offers a wide bandwidth for industrial use (see technical data).

Connection of the timer



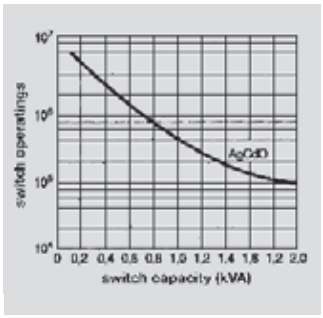
Note:

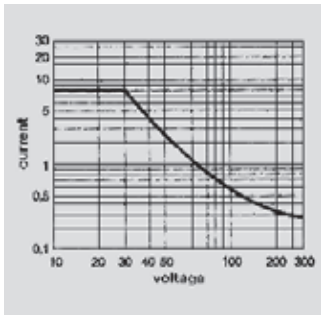
1. Pole numbers are not necessary for DC voltage supply.
2. The contact symbol of BTM is marked with as it provides serveral operating modes and differs from the delayed contacts of conventional timer.

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 knob 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 knob/switch is totally covered by the red cover. To unlock, simply turn the key in the opposite direction.

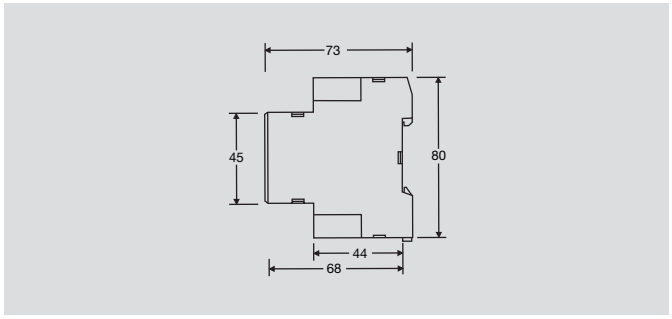
Connection system

The units offers the following connection technologies:

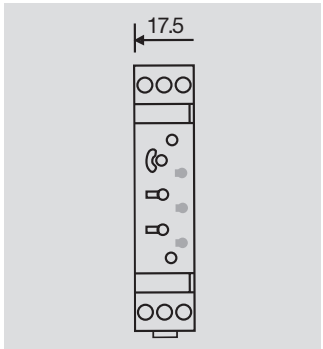
Screw connection
- 2 x 1.5 mm² with wire end ferrule
- 2 x 2.5 mm² without wire end ferrule

Tension clamp connection
- 2 x 1.5 mm² with wire end ferrule
- 2 x 2.5 mm² without wire end ferrule

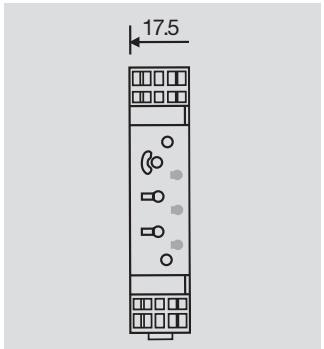
Dimensions



Screw connection



Tension clamp connection



Installation timer

- Screw or tension clamp connection
- LED status indicator Input: voltage present
  Output: output active
- Approvals
  UL 508 — CSA 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 UL 94		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	
Length x width x height	mm	80.0 x 17.5 x 73.0

Accessories

Designation
Locking and adjusting key

Type	**Qty.**	**Order No.**
BT Lock Pen	1	**8659840000**

Multifunction relay with control input (BTM)

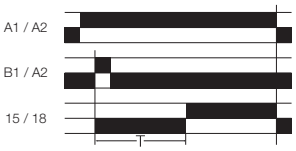
Ordering data

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

Functions

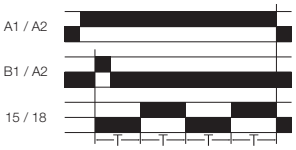
Function A – on-delay

Connect power supply (A1/A2). When the input signal (B1/A2) is applied, the 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.



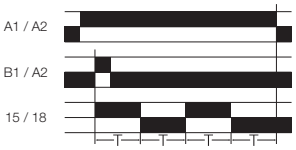
Function B – pulse emitter (starting at normal position)

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.



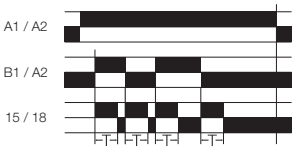
Function B2 – pulse emitter (starting at operated position)

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.



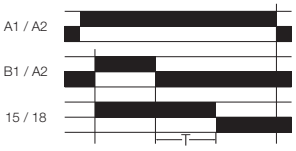
Function C – interval time-delay

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.



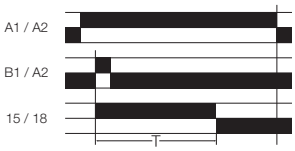
Function D – off-delay function

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.



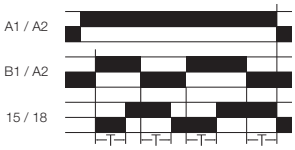
Function E – passing make function

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.



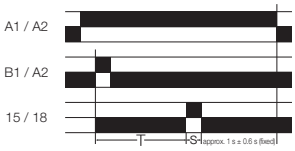
Function G – on and off-delay function

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)

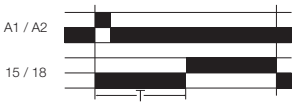
Ordering data

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)

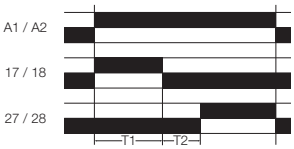
Ordering data

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

Functions

Star-delta changeover

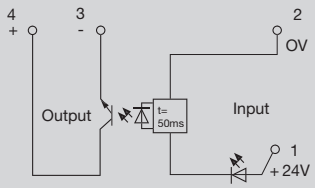
After connecting the power supply, output R1 (17/18) connects immediately. At the end of time T1, output R1 (17/18) switches off and time T2 starts. At the end of time T2, output R2 (27/28) connects. After switching off the power supply, output R2 (27/28) switches off.



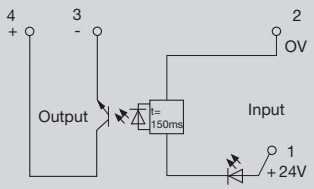
Miniconditioner MCZ TO

- Components for lengthening short pulses for the PLC
- Fixed switch-off delay
- Low input power
- Tension-clamp connection system
- Plug-in cross-connection
- 6 mm width
- 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 DC	6.7 mA ±10 %	6.7 mA ±10 %
Power rating	160 mW	160 mW
Switch-off delay	50 ms	150 ms
Min. pulse duration	2 ms	2.5 ms
Output		
Switching voltage DC, max.	48 V	48 V
Max. switching current	20 mA	20 mA
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	CSA; cURus; CE	CSA; cURus; CE
Insulation coordination (EN 50 178)		
Rated voltage	300 V	300 V
Impulse withstand voltage	6 kV	6 kV
Overvoltage category	III	III
Pollution severity	2	2
Clearance and creepage distances for control/load side	≥ 5.5 mm	≥ 5.5 mm
Dielectric strength for control side - load side	4 kV	4 kV

Dimensions			
Clamping range (nominal / min. / max.)	mm^2	1.5 / 0.5 / 2.5	1.5 / 0.5 / 2.5
Length x width x height	mm	91 / 6 / 63.2	91 / 6 / 63.2
Note		For mounting on TS 35	For mounting on TS 35

Ordering data

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

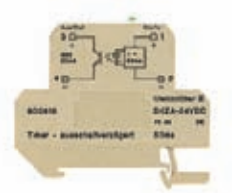
Accessories

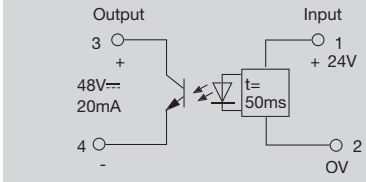
AP MCZ end plate 8389030000	AP MCZ end plate 8389030000

Mini-coupler DKZ

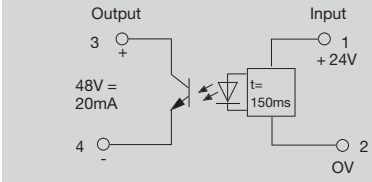
- Components for lengthening short pulses for the PLC
- Fixed switch-on/switch-off delay
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

24 V DC 50 ms





24 V DC 150 ms



Technical data

Input		
Rated control voltage	24 V DC ±18 %	24 V DC ±18 %
Rated current AC		
Rated current DC	6.7 mA	6.7 mA
Power rating	160 mW	160 mW
Switch-off delay	50 ms	150 ms
Min. pulse duration	2 ms	2.5 ms
Output		
Switching voltage DC, max.	48 V	48 V
Max. switching current	20 mA	20 mA
Max. switching frequency at rated load	20 Hz	20 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	CE
Insulation coordination (EN 50 178)		
Rated voltage	300 V	300 V
Impulse withstand voltage	4 kV	4 kV
Overvoltage category	III	III
Pollution severity	2	2
Clearance and creepage distances for control/load side	≥ 4 mm	≥ 4 mm
Dielectric strength for control side - load side	4 kV	4 kV

Dimensions			
Clamping range (nominal / min. / max.)	mm²	4 / 0.5 / 4	4 / 0.5 / 4
Length x width x height	mm	65 / 6 / 62	65 / 6 / 62
Note		For mounting on TS 35 rail	For mounting on TS 35 rail

Ordering data

Connection system	Type	Qty.	Order No.	Type	Qty.	Order No.
Screw connection	DKZA 35 24VDC 50MS	10	**8008180000**	DKZA 35 24VDC 150MS	10	**8022110000**

Note		

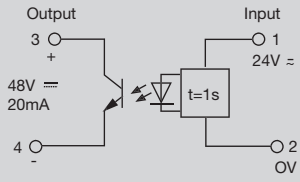
Accessories

	End plate AP DK4 0687560000	End plate AP DK4 0687560000

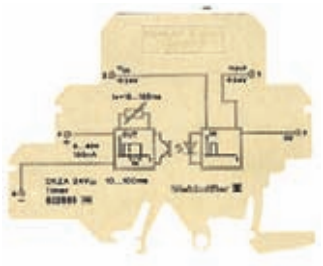
Mini-coupler DKZ

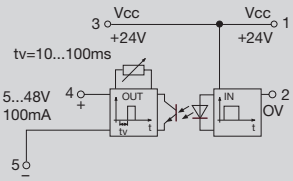
- Components for lengthening short pulses for the PLC
- Fixed switch-on/switch-off delay
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

24 V UC 1 s



24 V DC 10-100 ms





Technical data

Input		
Rated control voltage	24 V UC ±10 %	24 V DC ±20 %
Rated current DC	5.1 mA	Approx. 12 mA
Rated current AC	6.1 mA	
Switch-on delay	1 s	10...100 ms (adjustable)
Switch-off delay	max. 0.7 ms	
Power rating	130 mW / 150 mVA	290 mW
Output		
Switching voltage DC, max.	48 V	48 V
Max. switching current	20 mA	100 mA
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	CE
Insulation coordination (EN 50 178)		
Rated voltage	300 V	300 V
Impulse withstand voltage	4 kV	6 kV
Overvoltage category	III	IV
Pollution severity	2	2
Clearance and creepage distances for control/load side	≥ 4 mm	≥ 5.5 mm
Dielectric strength for control side - load side	4 kV	4 kV

Dimensions			
Clamping range (nominal / min. / max.)	mm^2	4 / 0.5 / 4	4 / 0.5 / 4
Length x width x height	mm	65 / 6 / 62	77 / 6 / 62
Note		For mounting on TS 35 rail	For mounting on TS 32/35 rails

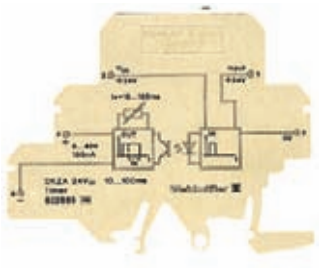
Ordering data

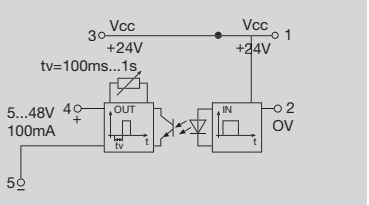
Connection system			
		Screw connection	Screw connection
Type	**Qty.**	**Order No.**	
DKZ 35 24VUC 1S	10	**8008190000**	
DKZ DK5 24VDC 10-100MS	10		**8228680000**
Note			

Accessories

	End plate AP DK4 0687560000	End plate AP DK5 8268870000

24 V DC 0.1-1 s





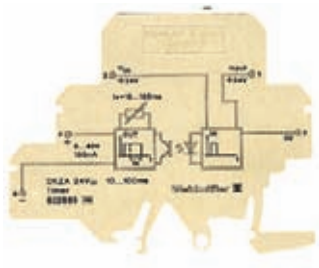
24 V DC ±20 %
Approx. 12 mA
100 ms ... 1 s (adjustable)
290 mW
48 V
100 mA
-25 °C...+50 °C
-40 °C...+85 °C
40°C / 93% rel. humidity, no condensation
CE
300 V
6 kV
IV
2
≥ 5.5 mm
4 kV

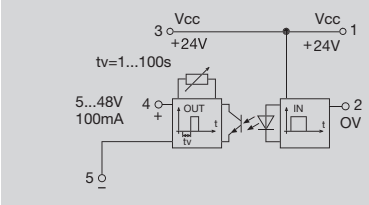
Screw connection
4 / 0.5 / 4
77 / 6 / 62
For mounting on TS 32/35 rails

Type	Qty.	Order No.
DKZ DK5 24VDC 0.1-1S	10	**8243780000**

End plate
AP DK5 8268870000

24 V DC 1-100 s





24 V DC ±20 %
Approx. 12 mA
1 ... 100 s (adjustable)
290 mW
48 V
100 mA
-25 °C...+50 °C
-40 °C...+85 °C
40°C / 93% rel. humidity, no condensation
CE
300 V
6 kV
IV
2
≥ 5.5 mm
4 kV

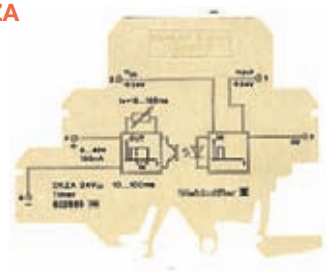
Screw connection
4 / 0.5 / 4
77 / 6 / 62
For mounting on TS 32/35 rails

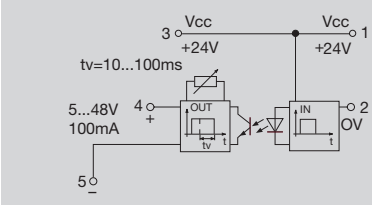
Type	Qty.	Order No.
DKZ DK5 24VDC 1-100S	10	**8019650000**

End plate
AP DK5 8268870000

24 V DC 10-100 ms

DKZA





24 V DC ±20 %
Approx. 11 mA
10 ... 100 ms (adjustable)
48 V
100 mA
-25 °C...+50 °C
-40 °C...+85 °C
40°C / 93% rel. humidity, no condensation
CE
300 V
6 kV
IV
2
≥ 5.5 mm
4 kV

Screw connection
4 / 0.5 / 4
77 / 6 / 62
For mounting on TS 32/35 rails

Type	Qty.	Order No.
DKZA DK5 24VDC 10-100MS	10	**8228690000**

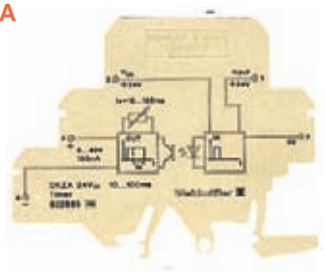
End plate
AP DK5 8268870000

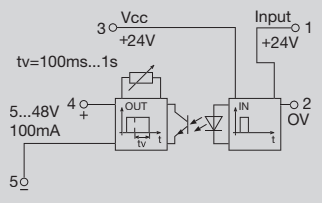
Mini-coupler DKZ

- Components for lengthening short pulses for the PLC
- Fixed switch-on/switch-off delay
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

24 V DC 0.1-1 s

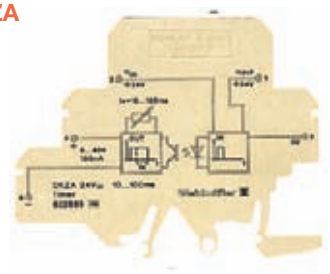
DKZA

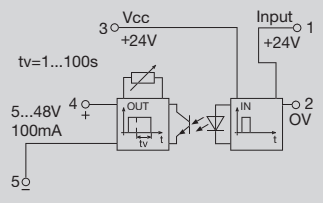




24 V DC 1-100 s

DKZA





Technical data

Input		
Rated control voltage	24 V DC ±20 %	24 V DC ±20 %
Rated current DC	Approx. 11 mA	Approx. 11 mA
Rated current AC		
Switch-off delay	100 ms ... 1 s (adjustable)	1 ... 100 s (adjustable)
Power rating	260 mW	
Output		
Switching voltage DC, max.	48 V	48 V
Max. switching current	100 mA	100 mA
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	CE
Insulation coordination (EN 50 178)		
Rated voltage	300 V	300 V
Impulse withstand voltage	6 kV	6 kV
Overvoltage category	IV	IV
Pollution severity	2	2
Clearance and creepage distances for control/load side	≥ 5.5 mm	≥ 5.5 mm
Dielectric strength for control side - load side	4 kV	4 kV

Dimensions			
Clamping range (nominal / min. / max.)	mm²	4 / 0.5 / 4	4 / 0.5 / 4
Length x width x height	mm	77 / 6 / 62	77 / 6 / 62
Note		For mounting on TS 32/35 rails	For mounting on TS 32/35 rails

Ordering data

Connection system	**Type**	**Qty.**	**Order No.**
Screw connection	DKZA DK5 24VDC 0,1-1S	10	**8243770000**
	DKZA DK5 24VDC 1-100S	10	**8019630000**

Note

Accessories

End plate AP DK5 8268870000	End plate AP DK5 8268870000

JACKPAC® (IP67) / Functional components

JACKPAC® (IP67) / Functional components

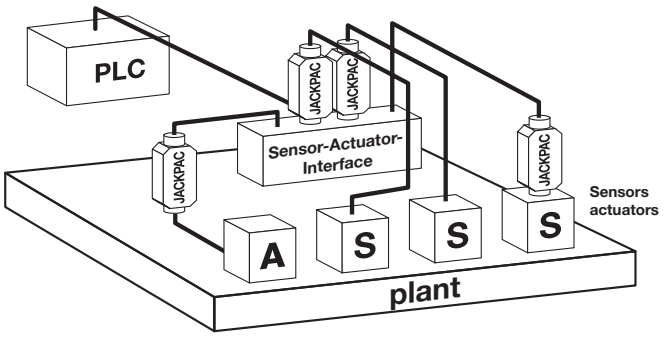
The Concept

The IP20 Solution

Until now, all signal conditioning tasks were carried out by modules designed to IP20. 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 IP20 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 IP67 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 enclosure, 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.

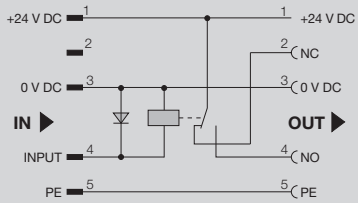


- Easy ‘Plug and Play’ installation
- Universal and versatile usage
- No additional enclosure required
- Saves time and costs
- Ideal for decentralised concepts and plant modernisation (retrofitting)

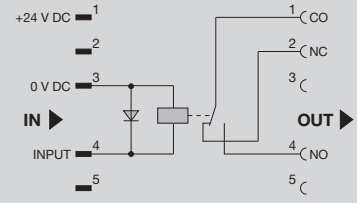
Switching amplifier

- The switching amplifiers are simply built into the actuator system controls.
- For example, switching outputs can be amplified from 24 V DC / 0.5 A to 24 V DC / 2 A.
- Optionally with galvanic isolation 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



JPR 24 V DC ISO 1CO M12



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	Yes	Yes
Output		
max. switching capacity	24 V / 2 A	24 V / 2 A
min. switching capacity	12 V / 10 mA	12 V / 10 mA
Contact material	AgSnO	AgSnO
Mechanical service life	$10*10^6$ switching cycles	$10*10^6$ switching cycles
Max. switching frequency at rated load	0.1 Hz	0.1 Hz
Sparkover time / Drop-out time	ca. 5 ms	ca. 5 ms
Insulation coordination (EN 50 178)		
Rated voltage	300	300
Overvoltage category	III	III
Pollution severity	2	2
Protective separation acc. to VDE 0106 part 101	No	Yes
General data		
operating temperature	-25 °C...+70 °C	-25 °C...+70 °C
Storage temperature	-25 °C...+70 °C	-25 °C...+70 °C
Conductor connection system	M12 plug / socket, A-coded	M12 plug / socket, A-coded
Approvals	cULus; CE	cULus; CE

Dimensions			
Clamping range (nominal / min. / max.)	mm^2		
Length x width x height	mm	83 / 36 / 14.4	83 / 36 / 14.4
Note		Details for TU = 20°C	Details for TU = 20°C

Ordering data

Connection system	Type	Qty.	Order No.
	JPR 24VDC 1CO M12	1	**8771420000**
	JPR 24VDC ISO 1CO M12	1	**8771430000**

Note		

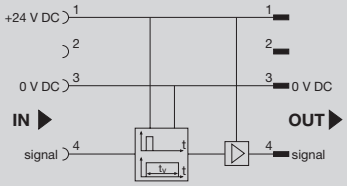
Accessories

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

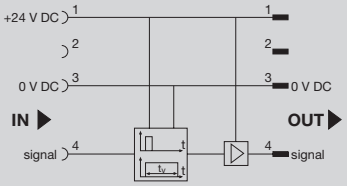
Timer relay

Signal extenders can be simply connected on the cable between the sensor and the input modules. They extend the pulse length from min. 1 ms. to 50 or 100 ms. Short sensor signals can also be reliably recognized and evaluated by the controller.

JPTA 50 MS 24 V DC PNP M12



JPTA 100 MS 24 V DC PNP M12



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		
Switching voltage DC, max.	30 V	30 V
Max. switching current	400 mA	400 mA
Insulation coordination (EN 50 178)		
Rated voltage	32 V	32 V
Impulse withstand voltage	330 V	330 V
Overvoltage category	I	I
Pollution severity	2	2
General data		
operating temperature	0 °C...+60 °C	0 °C...+60 °C
Storage temperature	-20 °C...+85 °C	-20 °C...+85 °C
Conductor connection system	M12 plug / socket, A-coded	M12 plug / socket, A-coded
Approvals	cULus; CE	cULus; CE

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

Ordering data

Connection system	Type	Qty.	Order No.
	JPTA 50MS 24VDC PNP M12	1	**8771440000**
	JPTA100MS 24VDC PNP M12	1	**8836630000**

Note		

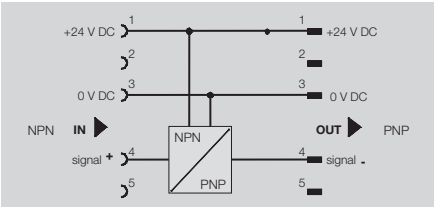
Accessories

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

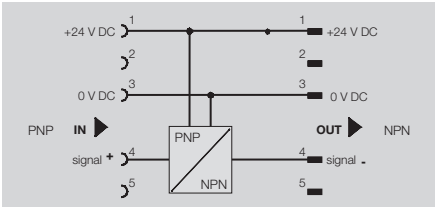
Signal inverter

Signal inverters convert PNP sensor signals to NPN signals and NPN signals back to PNP. Thus, existing circuits require no complex adaptation 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 50 178)		
Rated voltage	32 V	32 V
Impulse withstand voltage	330 V	330 V
Overvoltage category	I	I
Pollution severity	2	2
General data		
operating temperature	0 °C...+60 °C	0 °C...+60 °C
Storage temperature	-20 °C...+85 °C	-20 °C...+85 °C
Conductor connection system	M12 plug / socket, A-coded	M12 plug / socket, A-coded
Approvals	cULus; CE	cULus; CE

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

Ordering data

Connection system	Type	Qty.	Order No.
	JPP NPN PNP 24VDC	1	**8852350000**
	JPP PNP NPN 24VDC	1	**8857030000**

Note		

Accessories

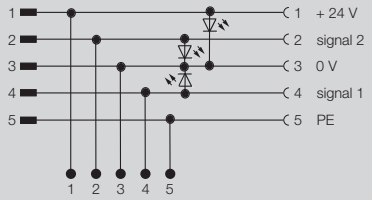
	Retaining clip JP CLIP M: 8778490000	Retaining clip JP CLIP M: 8778490000

JACKPAC® test

Test adapter

The new JACKPAC® test adapter now provides a simple way of intervening in an M12 network. It can be integrated at any point 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



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	
General data	
operating temperature	0 °C...+55 °C
Storage temperature	-25 °C...+70 °C
Conductor connection system	M12 plug / socket, A-coded

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

Ordering data

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

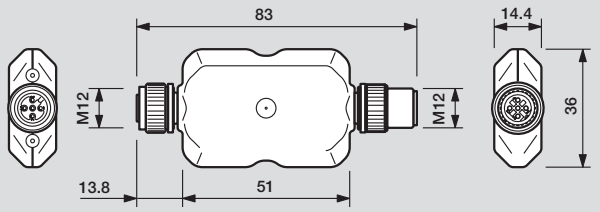
Note	

Accessories

	Retaining clip JP CLIP M: 8778490000

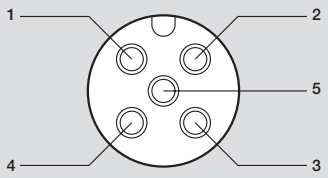
General data

Ingress protection class	IP67
Housing material	PBT, RAL 7032 (grey)
Flammability class	V0 to UL94
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.

Overview of function components

Switch and button modules

The dimensions of the switch and button modules are adapted to suit the electronic components in the integral housing.

The housings are equipped with a universal DIN rail mounting foot for TS 32 and TS 35 terminal rails.

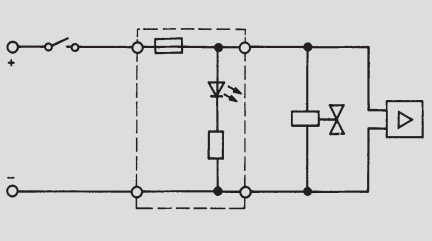
Buttons and switches simplify the commissioning, maintenance, monitoring and repair of systems. The contacts are rated for inductive or resistive load.

When switching inductive loads, a contact protection circuit has to be provided, such as Weidmüller terminals with diodes or RC combination.

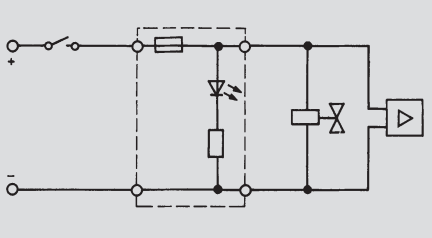
Fuse modules

Unlike fuse terminals with a failure indicator, here an LED indicates that the fuse is functional. The circuit carries no closed-circuit current when the fuse is defective.

Example of use:
Fuse for a solenoid valve



No residual current flow when there is a defective fuse. Thus incorrect information is not possible.

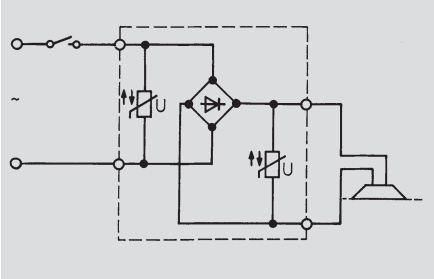


The electronic component receives – via the current of the LED – incorrect data about the switching state of the solenoid valve.

Rectifier circuit

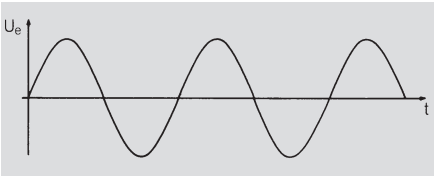
EGD rectifier components in enclosed EG2 electronics housings can be snapped onto mounting rail.

The bridge circuit consists of four individual diodes with a wide input voltage range of 5...240 V AC.

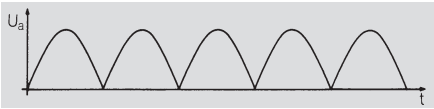


The DC output voltage, without buffer capacitor circuitry, is 90 % of the AC input voltage. The industry-standard rectifier switches are protected from overvoltages on both the input and output sides with varistors.

Input voltage



Output voltage

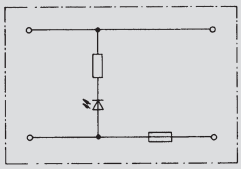


EGT 1

Switch and button module

EGS

Fuse module with indicator



Technical data

Nominal data			
Input voltage	max. 250 V~		230 V~ or 24 V– or 42 V~
Rated current		EGT 0	EGT 1 bis EGT 6	max. 6,3 A
	Resistive load	3 A/250 V~	6 A/250 V~	
	Inductive load	5 A/30 V–	4 A/250 V~	5 x 20 mm fuse
Storage temperature	–40 °C…+100 °C			–40 °C…+100 °C
Ambient temperature (operation)				
– fitted without spacing on rail	–25 °C…+85 °C			–25 °C…+55 °C
– fitted with 20 mm spacing on rail	–25 °C…+85 °C			–25 °C…+65 °C
Humidity	40 °C/93 rel. humidity, no condensation			40 °C/93 rel. humidity, no condensation
Insulation coordination as per EN 50 178				
Surge category				I
Pollution severity				2
				No fuse is integrated into the component!

Ordering data

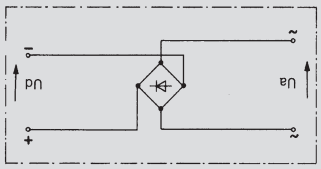
Type	Switching function	Qty.	Order No.
EGT 0	1 NCC 1 NOC	10	**8002290000**
EGT 1	Circuit-breaker	10	**0126360000**
EGT 2	Change-over contact, switching	10	**0104060000**
EGT 4	Change-over contact, off position in the middle, button to one side, switching to one side	10	**0104360000**
EGT 5	Change-over contact, off position in the middle, button to both sides	10	**0104260000**
EGT 6	Change-over contact, button	10	**0114660000**

Type	Qty.	Order No.
EGS 230 V~	10	**1115860000**
EGS 24 V–	10	**0193860000**

Functional components

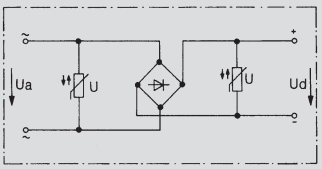
EGD 1

Rectifier circuit

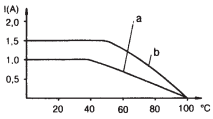
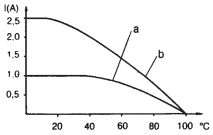


EGD 2

Rectifier circuit with varistor protection circuit



Technical data

Nominal data		
Input voltage	5 V~…240 V~, 50…60 Hz	5 V~…240 V~, 50…60 Hz
Rated current	1 A	1 A
Derating curve a = fitted without spacing on mounting rail b = fitted at 20 mm spacing on mounting rail Continuous current Ambient temperature		
Max. downstream load capacitor	200 µF	500 µF
Current load max.	1.5 A (see derating curve)	2.5 A (see derating curve)
Surge current limit value	40 A (10 ms)	10 A (10 ms)
Conducting-state voltage	≤ 2 V	≤ 2.2 V
Output voltage	$U_d = 0.9 \times U_a$	$U_d = 0.9 \times U_a$
Storage temperature	–45 °C…+100 °C	–45 °C…+100 °C
Ambient temperature (operation)		
– fitted without spacing on mounting rail	–30 °C…+40 °C	–30 °C…+40 °C
– fitted at 20 mm spacing on mounting rail	–30 °C…+70 °C	–30 °C…+70 °C
Humidity	40 °C/93 rel. humidity, no condensation	40 °C/93 rel. humidity, no condensation
Insulation coordination as per EN 50178		
Surge category	II	II
Pollution severity	2	2

Ordering data

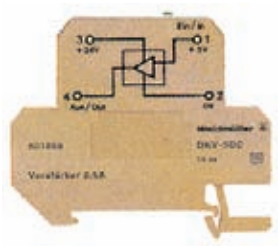
Type	Qty.	Order No.
EGD 1	10	**0546160000**

Type	Qty.	Order No.
EGD 2	10	**0546260000**

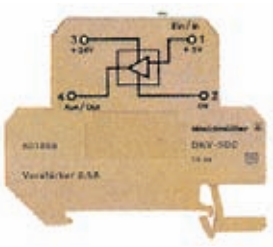
Inputs and outputs

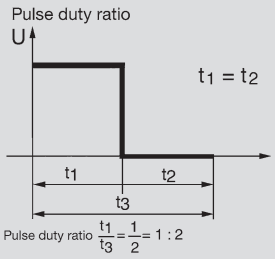
Switching amplifier without electrical isolation

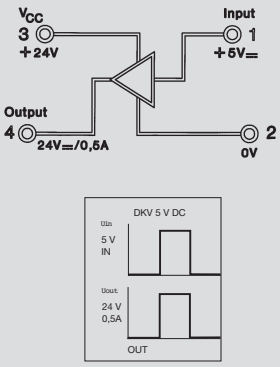
DKV 5 V DC

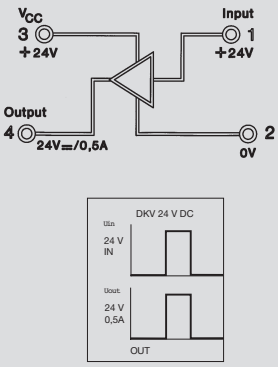


DKV 24 V DC









Technical data

Input voltage		5 V DC ± 10 % off: ≤ 1,5 V on: ≥ 4,5 V	24 V DC ±10 % off: ≤ 6 V on: ≥ 20,4 V
Switching threshold		approx. 3 V	approx. 13 V
Input current		100 µA	5 mA
Power loss, max.		500 µW	550 mW
Output voltage		24 V DC	24 V DC
Output current, max.		500 mA	500 mA
Output current, min.		50 µA	50 µA
Switching frequency, max.; duty factor 1:2		3 kHz	3 kHz
Voltage drop at max. load		≤ 450 mV	≤ 900 mV
Block-state current		≤ 20 µA	≥ 50 µA
Insulation coordination as per EN 50178			
		no galvanic isolation between input and output	no galvanic isolation between input and output
Operating temperature	without spacing	–25 °C…+40 °C	–25 °C…+40 °C
	with spacing	–25 °C…+50 °C	–25 °C…+50 °C
Storage temperature		–40 °C…+85 °C	–25 °C…+85 °C
Humidity		40 °C/93 rel. humidity, no condensation	40 °C/93 rel. humidity, no condensation
Conductor		AWG 22…12	AWG 22…12
Conductor cross-section		0.5…4 mm²	0.5…4 mm²
Width		6 mm	6 mm

Ordering data

	Type	Order No.
for TS 35	DKV 5 Vdc	**8018590000**
	DKV 24 Vdc	**8015790000**

Accessories

	Type	Order No.
End plate	AP DKT4	**0687560000**
	AP DKT4	**0687560000**

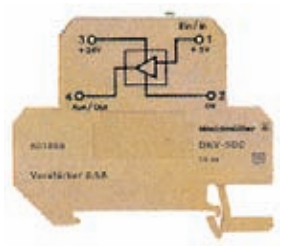
Functional components

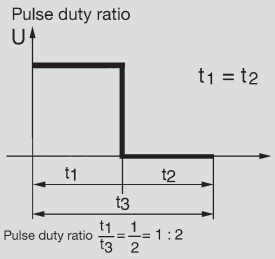
Inputs and outputs

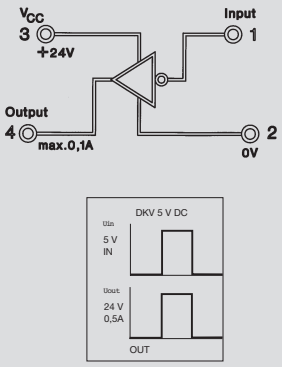
- Logic inverter: converts a logical 0 into a logical 1
- Level inverter: converts an NPN signal into a PNP signal

DKLI 24 V DC

Logic inverter

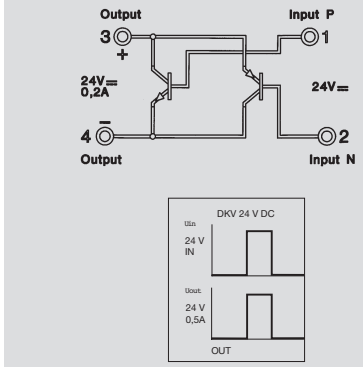






DKPI 24 V DC

Level inverter



Technical data

	DKLI 24 V DC	DKPI 24 V DC
Input voltage	24 V DC ± 10 % off: ≥ 20,4 V on: ≤ 4 V	P: 24 V DC ±10 % N: -2,4…+2,4 V DC
Switching threshold	approx. 8 V	P: approx. 18 V / N: approx. 8 V
Input current	7.5 mA	approx. 8 mA
Power loss, max.	230 mW	approx. 500 mW
Output voltage	24 V DC locked	24 V DC
Output current, max.	100 mA 0 mA	200 mA
Output current, min.	50 µA	50 µA
Switching frequency, max.; duty factor 1:2	3 kHz	3 kHz
Voltage drop at max. load	100 mV	≤1.5 V
Block-state current	≤ 50 µA	≤50 µA
Insulation coordination as per EN 50178		
	no galvanic isolation between input and output	no galvanic isolation between input and output
Operating temperature without spacing	–25 °C…+40 °C	–25 °C…+40 °C
with spacing	–25 °C…+50 °C	–25 °C…+50 °C
Storage temperature	–40 °C…+85 °C	–25 °C…+85 °C
Humidity	40 °C/93 rel. humidity, no condensation	40 °C/93 rel. humidity, no condensation
Conductor	AWG 22…12	AWG 22…12
Conductor cross-section	0.5…4 mm²	0.5…4 mm²
Width	6 mm	6 mm

Ordering data

	Type	Order No.
for TS 35	DKLI 24 V DC	**8010950000w**
	DKPI 24 V DC	**8019530000**

Accessories

	Type	Order No.
End plate	AP DKT4	**0687560000**
	AP DKT4	**0687560000**

Weidmüller Solutions & Service

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 the application in hazardous areas are further factors your product must be able to comply with. We offer you our competent and target-oriented support for the selection of ideal products for any application. Feel free to contact us!

Individual product development, customer-specific assembly or application-specific products that are ready for use – with an individual and perfect solution we want to help you to optimise working processes and to ensure your company's sustained efficiency today as well as for the future.

Individual product development
In co-operation with you we will develop individual and future-oriented products on the highest technological level – tailored to your application.

Customer-specific assembly
According to your specifications we use our great production expertise and our broad product portfolio to set up the solution meeting your requirements.

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





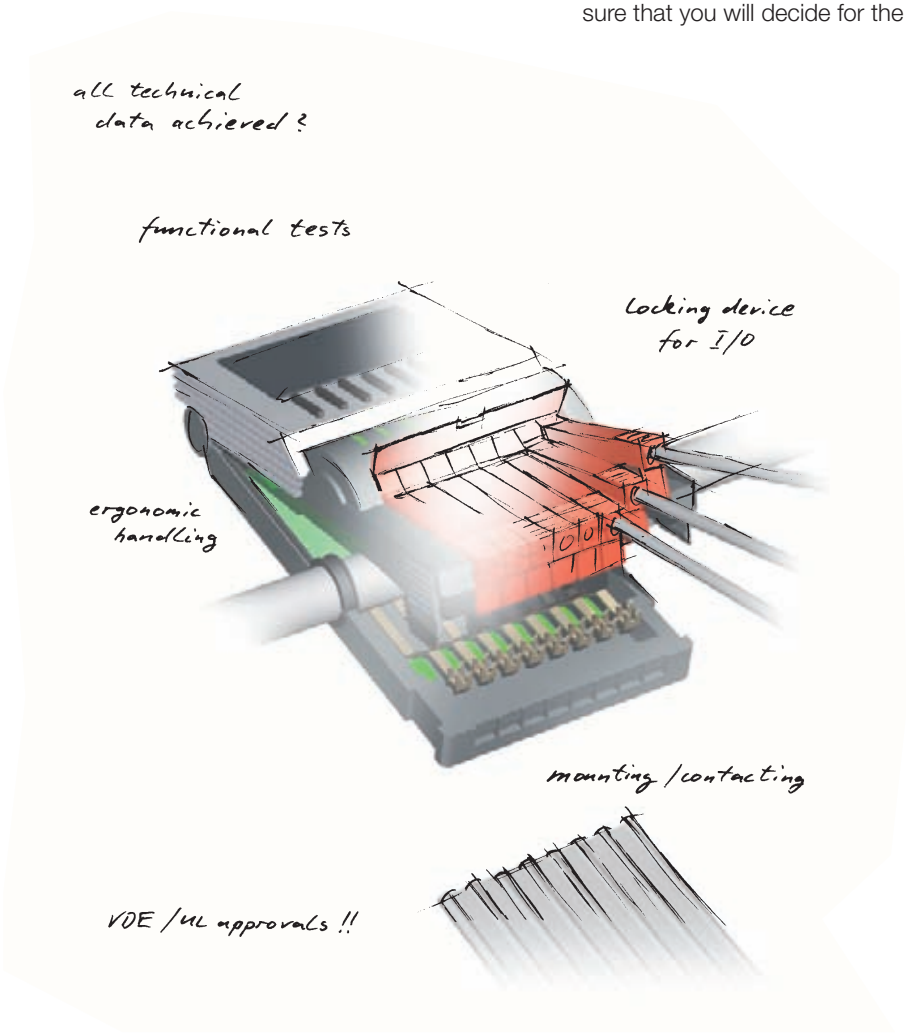

Individual product development for your success

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

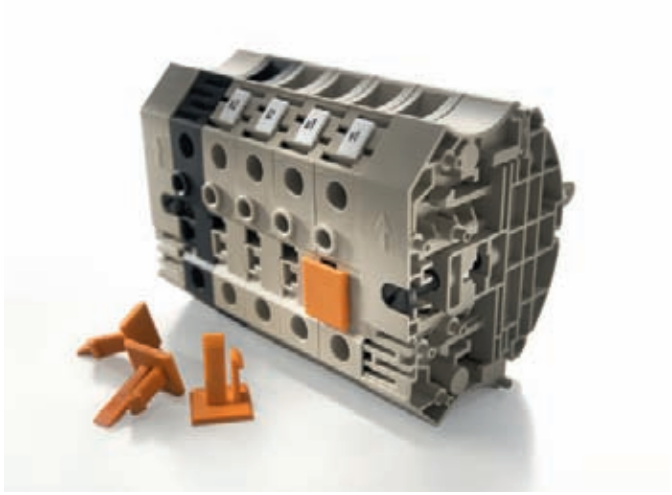
A connecting partnership
For the development of individual products both parties contribute their utmost experience and competence.
We consider any challenge with our professional project management giving it a quality approach – from the idea and design phase via the development phase to the implementation and production. We place our complete knowledge in the field of electrical connectivity, enclosure and sealing technology as well as signal conditioning at your disposal.

Benefit from a reliable partner:

- **Increasing the efficiency of your development and production processes**
  The particular outsourcing of development and production of your components will shorten the time-to-market phase. It will minimise your efforts thus allowing you to concentrate on your core competences.
- **Taking benefit from our application and production know-how**
  Take profit from the expertise of our application engineers and our specialists in the fields of connection technology, enclosure and surface technology as well as metal and plastic processing.
- **Increasing safety through professional project management**
  Through innovation workshops, feasability studies and profitability analyses we define a requirement profile forming the basis for the further development process. This makes sure that you will decide for the best possible product.



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 get a suitable and cost efficient solution within a minimum of time!

Cross industrial solutions as standard
It is our aim to develop real solutions for you that offer the additional advantage of a advantage of a truly flexible design. This means that an application specific product might have a supplementary input or a terminal you don't need. The adaptation for you, however, would in any case be much cheaper than the complete unrolling of an individual job. Thus you cannot only save time but also money!

Take multiple profit:

- **High availability**
  Application specific products are available from stock without delay. So you can rely on the delivery of your products in due time.
- **Advice from application engineers**
  Take profit from our application engineers' expertise. They develop real solutions with added value for your applications.
- **Supportive software**
  Project planning and evaluation made easy, with our software solutions such as NetCalc, RailDesigner® or Softclinic.
- **Worldwide application centres**
  We stay in constant dialogue with our application centres thus enhancing our application know how and being at your disposal anywhere you need us.

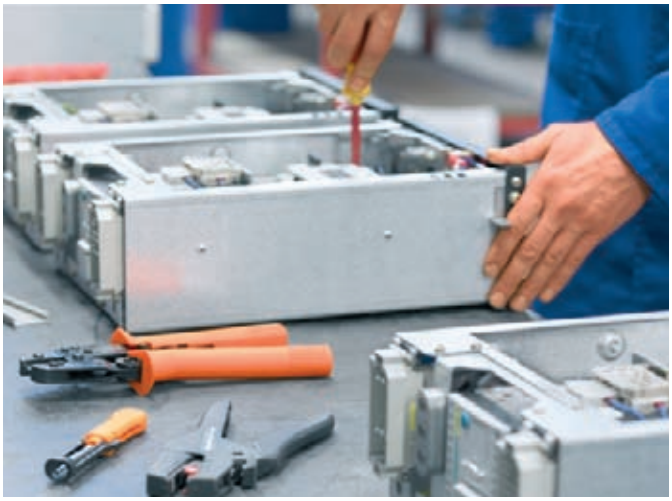
Customer specific assembly, tailored configuration

You want to bring costs down and increase your efficiency. You would like to fully concentrate on your core competences. You are looking for a partner who will set up intelligent solutions for you, suiting your special requirements. We dispose of the application know how and the capacities to set up tailored solutions for you, fast, flexible and economically advantageous.

We offer co-operative support and advice for all of your questions and together with you we define the job assignment. In the further process we select the ideal components from a broad product portfolio composing them to a tailored solution.

Highest level of professional production
Take profit from our professional project management and our high level of production know how, e.g. in the ATEX area. We 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 multiple profit:
- **Simplification of ordering and stockholding**
  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 thus reducing your assembly time. This will save your time and money.
- **Less costs for documentation**
  Our RailDesigner® software will facilitate the generation of parts lists or drawings.
- **Modern processing of enclosures**
  Our CNC processing centres adapt the enclosures to suit your tailored solution.

Customer specific assembly – consultation, product, development and production all come from one source

Our application and manufacturing expertise has a decisive effect on all sections of modern connection technology. Their use therefore forms an integral part of every solution.

Enclosures

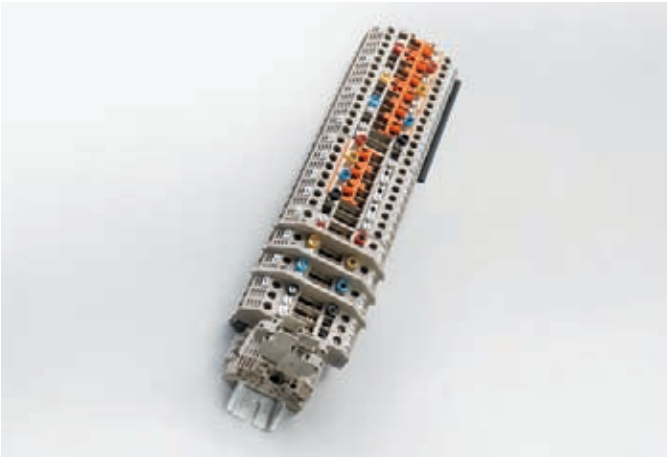
Perfect protection and safety

- 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 conductors
- Marking of terminals, devices, conductors and cables

Electronics

Individual solution from the beginning

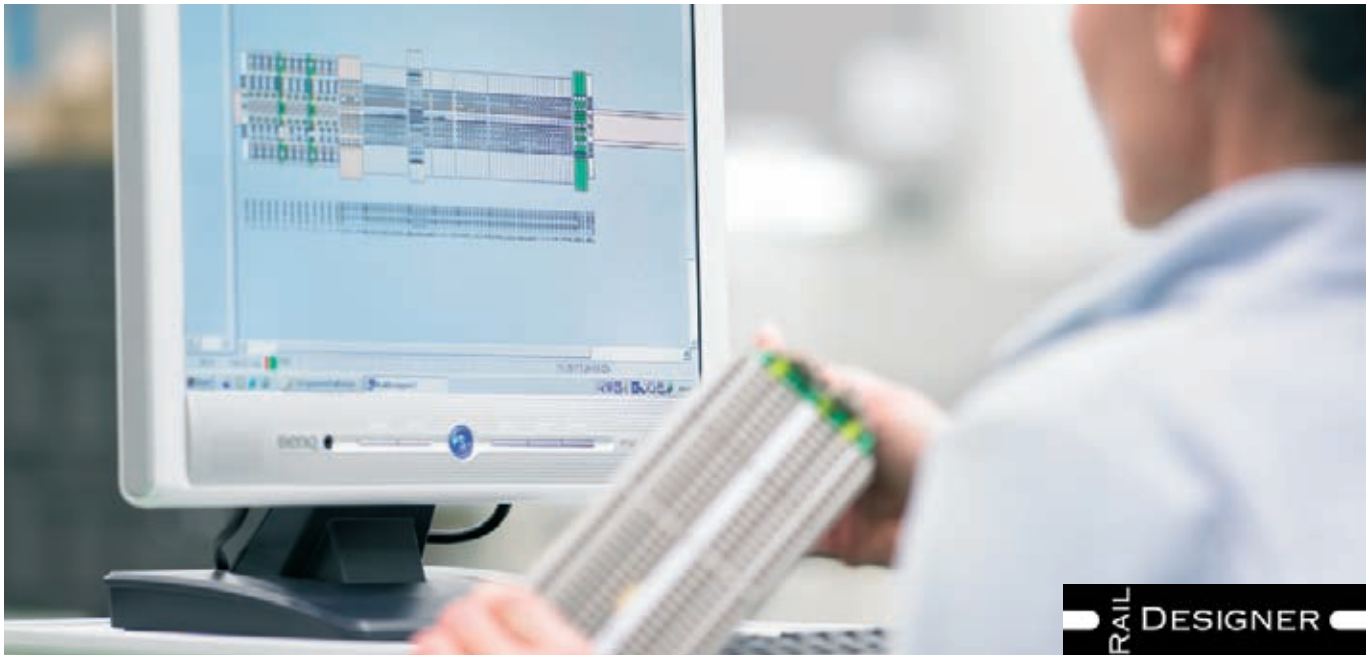
- Modular terminal blocks, component plugs, snap on bases, enclosures for electronics: integration of relevant electronic components
- Snap-on base: Component carrier design or simple wiring of the modules
- Interface units
- Modification of existing electronic products: Modification of the circuitry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

Cable assembly

Our special service

- Pre cutting of cables and conductors
- Installation of
  - Heavy duty connectors
  - PCB connectors or DIN connectors
- Conditioning of wire ends
- Mounting of wire end ferrules and cable lugs
- Connection of conductors 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. We then 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 distributor enclosures 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 distributor housing and assemblies. This means that you can quickly obtain your individual housing solution. Your solution may include the following components:

Empty distributor enclosures without holes
Empty distributor enclosures in different sizes from the Klippon® K and Klippon® POK series (aluminium and plastic), for which suitable mounting rails are available

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

Unassembled mounting rails
Mounting rails that are precisely tailored to the housing size available

Assembled mounting rails
Mounting rails that are also precisely tailored to the housing size available and are already assembled with rail-mounted terminals and, if required, with screw clamp, tension clamp, Push-In, or IDC terminals.

Distributor enclosures with explosion protection
Enclosures that are already assembled with a mounting rail and already equipped with metric threaded holes

Numerous possible combinations
Enclosures with explosion 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 housing will be integrated into the customer‘s application

The product assistant is available at
galaxy.weidmueller.com

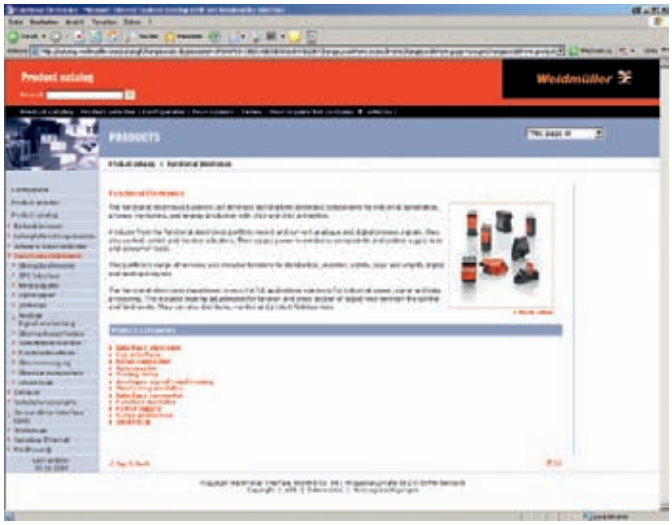
Online product catalogue

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
open 24 hours a day, 365 days a year, 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

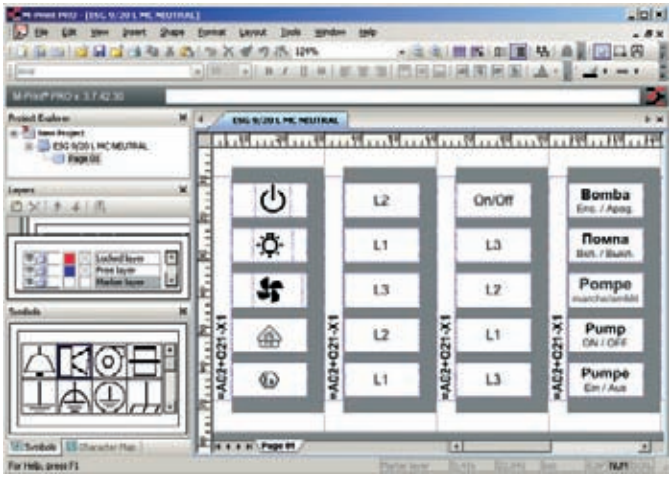


With one click selection for the product data sheet of your choice.

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

Relay modules – an overview

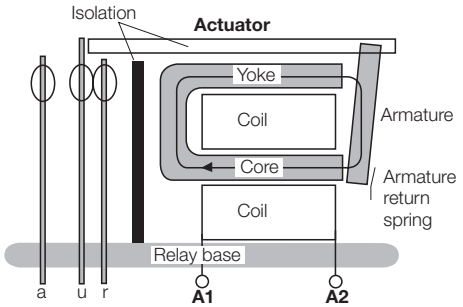
Historical background

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 signalised by a ringing bell 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. That was the birth of the electromagnetic relay.

How a relay functions

A relay is an electromagnetic switch comprising 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 MICROSERIES 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.

MICROSERIES products are supplied ex works with these protective circuits already integrated in the electronics; for the PLUGSERIES and 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.

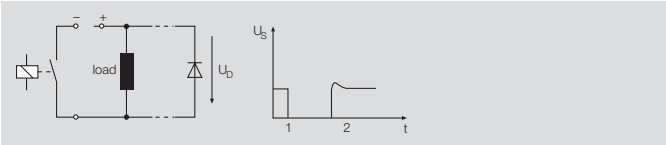
For applications that call for **improved contact reliability** or low currents/voltages, conventional relays with hard-plated gold contacts are preferable because they do not erode and therefore operate more reliably.

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 opto modules. Wear and abrasion caused by mechanical movements are non-existent in opto modules.

Protective circuits for the contacts

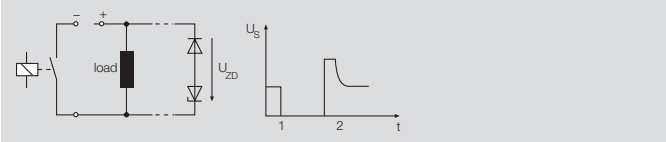
The switching of inductive or capacitive loads produces switching sparks which can influence the electrical service life of the relays. The following protective circuits for the contacts reduce contact wear:

Diode



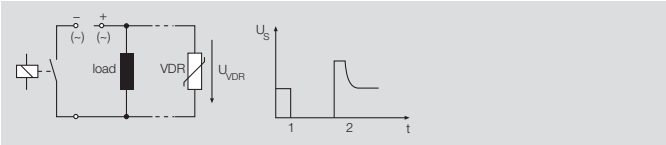
Advantage: Can be used for all capacities, low surge, minimum space required, low price
Disadvantage: Very long release delay

Diode and Z-diode



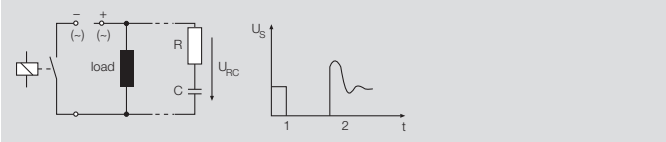
Advantage: Low surge (defined by Z-diode), short release delay
Disadvantage: Cannot be used for large capacities

Varistor



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



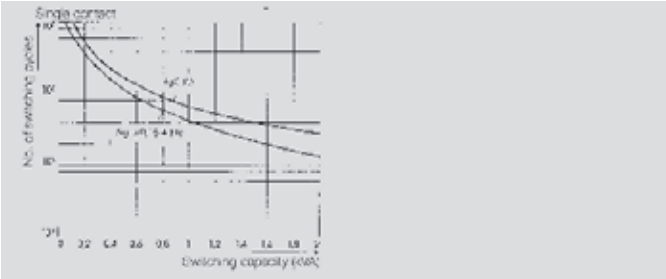
Advantage: Short release delay, low price
Disadvantage: Cannot be used for all operating voltages and capacities

US = Voltage progression 1 = Closing 2 = Opening

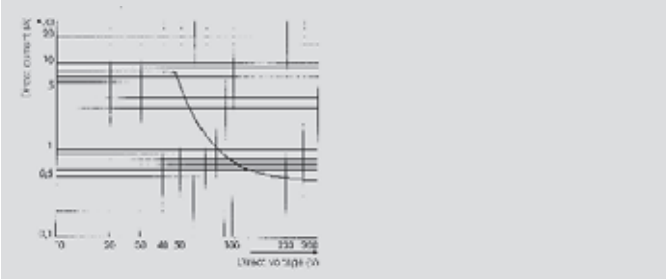
Principal characteristics of relay contacts

Although every relay contact has its own characteristics, the performance curves are very similar in terms of shape, but not in terms of the actual values. The examples below show curves for

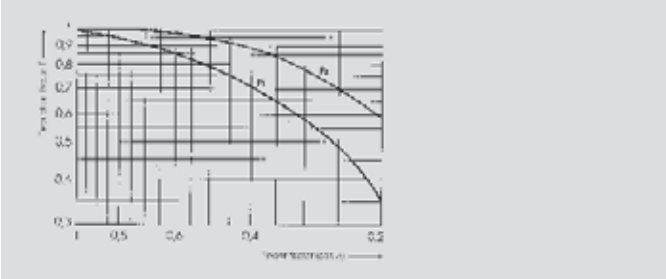
- contact lifetime (number of make-break operations plotted against make-break capacity)
- DC limit curve (direct current plotted against direct voltage)
- reduction factor for inductive load (reduction factor plotted against cos φ)



Contact lifetime for ohmic load



DC limit curve for ohmic load



Reduction factor for inductive load cos φ < 1
Eff. make-break op. = make-break operations for (cos φ = 1) x

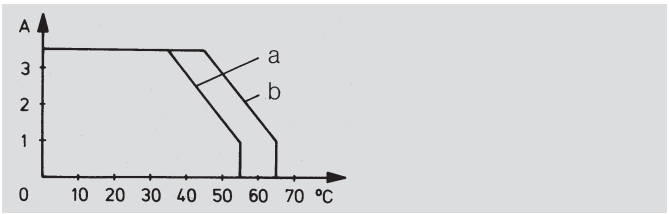
Derating curve

The transition resistance of the relay contacts is a key factor contributing to temperature increase inside the relay modules. This relationship is illustrated by a derating curve, defined as the function of the permissible current plotted against the ambient temperature.

The permissible current (curve a) is determined for the following operating conditions:

- Continuous operation
- Rated control voltage + 10 percent
- Several relay modules working under load, mounted horizontally in rows on mounting rail, without any spacing

If the modules are mounted with a spacing > 20 mm, this results in a higher current load (curve b). Curve b also shows the maximum values for switching or short-time operation when mounted horizontally.



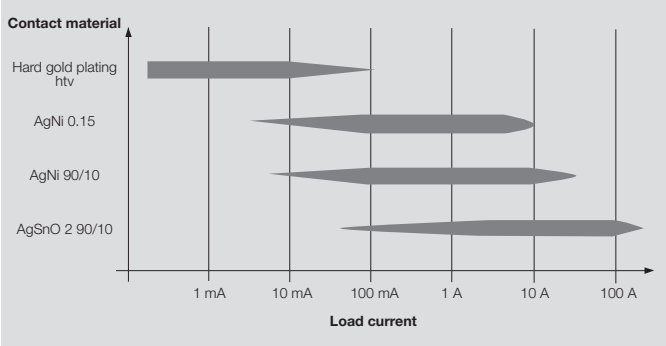
Relay modules – an overview

Contact materials

AgNi Au (silver-nickel hard gold plated)
For dry loads, measuring and switching circuits, control inputs (1 mV – 10 V, 0.1 mA – 100 mA).

AgNi 0.15 (fine-grain silver)
Suitable for low to medium loads, AC and DC loads, resistive and inductive (solenoid valves, fans, heaters); not suitable for high inrush currents.

AgNi 90/10 (silver-nickel)
Suitable for all loads, constantly low contact-circuit resistances in the low load range, AC and DC loads, resistive and inductive (solenoid valves, fans, heaters); not suitable for capacitive inrush currents.



AgSnO2 90/10 (silver-tin oxide)
Suitable for all loads. Well suited to higher loads. Particularly well suited to high inrush currents with short rise times (lamp loads, capacitive loads, fluorescent tubes, switch-mode power supplies,etc.). Well suited to resistive, inductive and capacitive DC applications due to low of material transport.

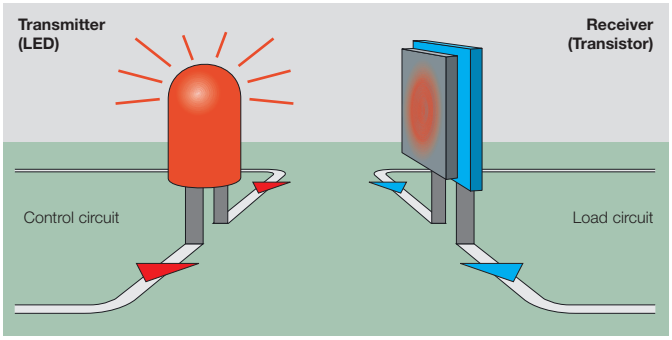
Definition of technical data

Input Circuit	
Rated control voltage [V]	Reference voltage at which the relays operates; typical input voltages => 5 V DC, 12, 24, 48, 60, 115, 230 V AC/DC
Nominal current [mA]	Input voltage and input resistance; input resistance = > coil resistance + resistance of triggering device (R, LED, GL …)
Nominal power [W/VA]	Input voltage x input current DC/AC with tolerance ±10 % or +5/–15 %, typical range for relays 250 mW … 1 W or 0.4 VA … 1.2 VA
Response voltage [V]	Smallest input voltage required for the relays to respond (Tu = 293 K)
Pick-up current [mA]	Smallest input current at which the relay switches from normal to operating position (Tu = 293 K)
Pick-up power [W/VA]	Product of response voltage and pick-up current
Drop-out voltage [V]	Voltage level at which the relay reliably drops out
Drop-out current [mA]	Input current at which the relay reliably drops out
Output Circuit	
Max. switching voltage [V]	Max. voltage that can be applied to the relay contact
Making current [A]	The current allowed to flow for max. 4 seconds after the relay contact closes
Continuous current [A]	Current allowed to flow continuously after the contact closes
Switching power [W/VA]	Product of output voltage and making current for resistive, inductive or capacitive load
Min. switching power [µW]	Smallest power that can be switched via the contact
Service life	Number of switching operations until the contact fails – mechanical => without electrical load – electrical => under resistive or inductive AC/DC load
Response time [ms]	Time until contact closes/opens after switching the excitation voltage
Drop-out time [ms]	Time until contact closes/opens after opening the excitation current circuit
Switching frequency [Hz]	Switching operations per second in pulse duty factor 1 : 2 (ton = toff)
Dielectric strength [kV]	Max. test voltage between input and output circuits that does not result in a discharge
Protective separation	Relays to EN 50178 and VDE 0106 part 101

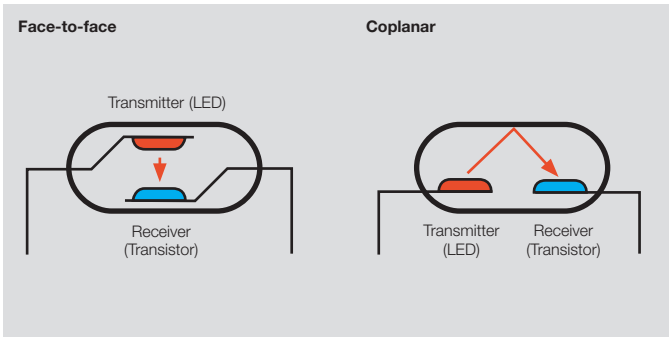
Definition / mode of operation

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.



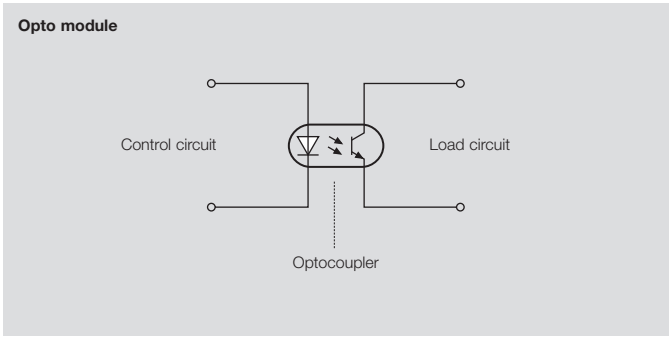
In contrast to electromechanical relay modules opto modules do not have any mechanical parts that are prone to wear. To enable the switching operation a light signal is triggered via an LED in the control circuit that causes a light-sensitive semiconductor receiver to complete a connected load circuit. 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.

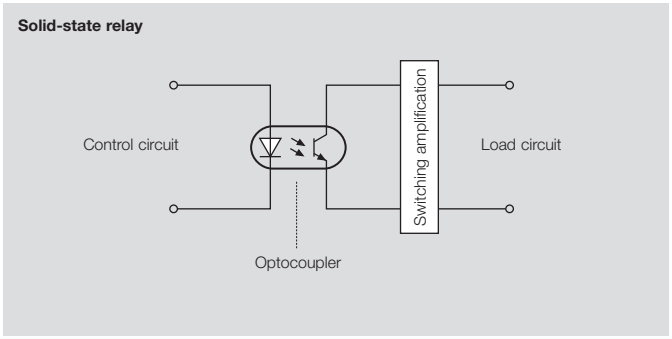
Opto module

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**.



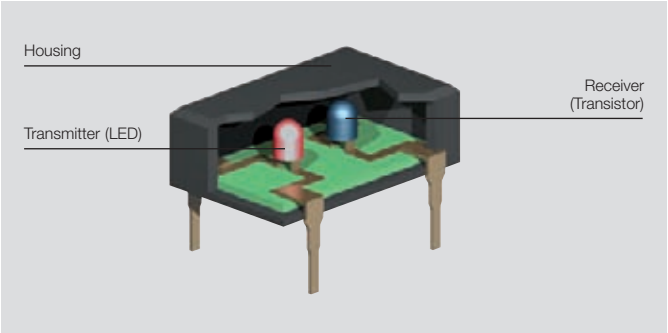
Solid-state relay

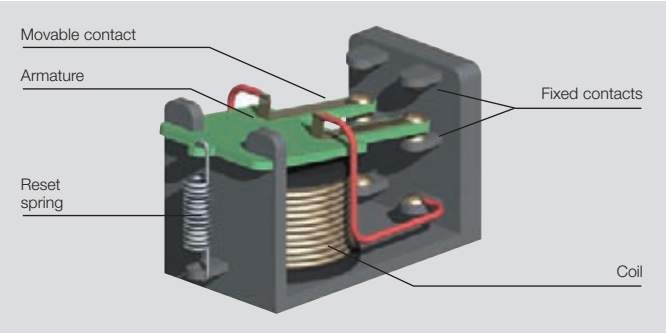
In order to switch higher currents it is necessary to make adaptations to accommodate the different performance levels of the phototransistor and the load circuit (switching amplification). Modules other than optos equipped with a switching amplifier are called **solid-state relays** (SSR).



** Refer to page W.18 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

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.18 in the Glossary for a detailed explanation of this term.*

Basic functions

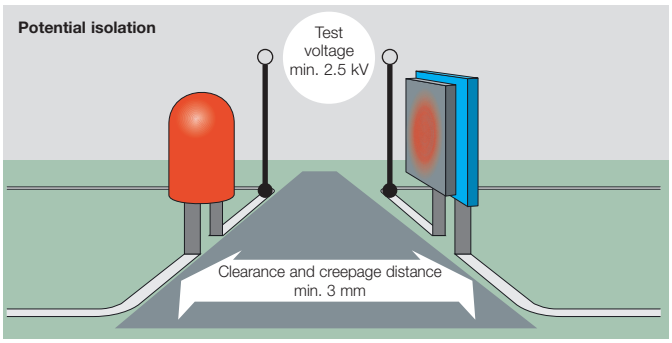
Opto modules and solid-state relays are generally used in the following fields of applications:

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:

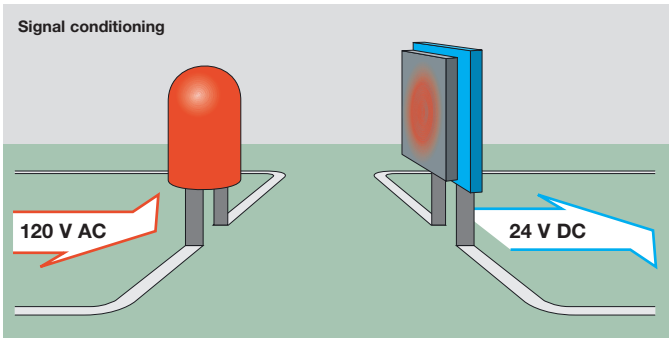
- Interference currents e.g. from *earth and ground loops *)*
- Interference pulses e.g. from inductive effects of *transients *)*

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 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.

W

** Refer to page W.18 in the Glossary for a detailed explanation of this term.*

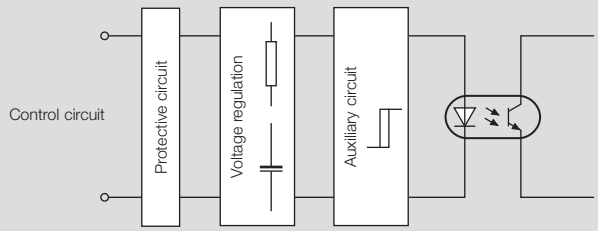
Control circuit

The input circuits (control circuit)

Most industrial application 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.

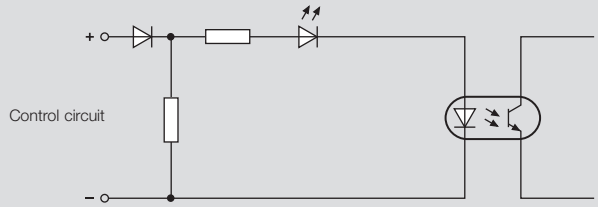
Depending on the design, all Weidmüller opto modules and solid-state relays are equipped with suitable protective devices (varistors, diodes) and filters to protect against interference pulses from the control circuit.

Input configuration



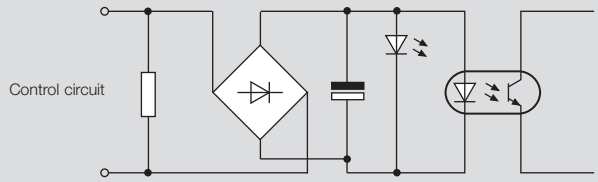
DC input:
An additional reverse-polarity protection diode guarantees protection against the opto module being destroyed if the control voltage is incorrectly wired. The switching status of the control circuit is signalised by a status indicator.

DC input



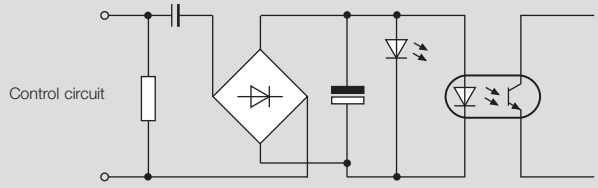
AC/DC input:
A rectifier with smoothing capacitor is connected in series for AC control voltages. Reverse polarity protection for DC current is not necessary. The following construction corresponds to a DC circuit.
Due to the smoothing capacitor the switching frequency of AC control signals is fundamentally 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.18 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 to 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.

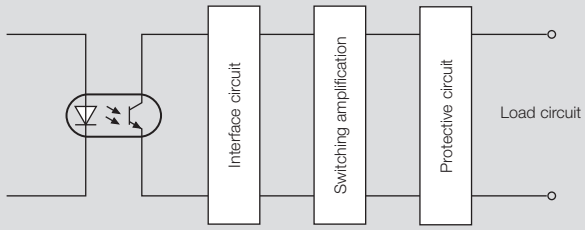
It is possible to connect AC or DC loads subject to the output circuit having corresponding amplifier semiconductors.

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.

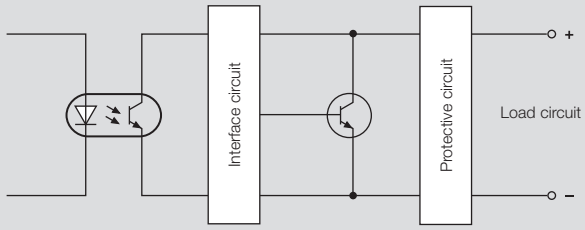
With a 3-pole DC connection an auxiliary voltage assists the output circuit to control the amplifying transistor more precisely. Several applications also require this auxiliary voltage for short-circuit protection in the interface or protective circuitry.

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).

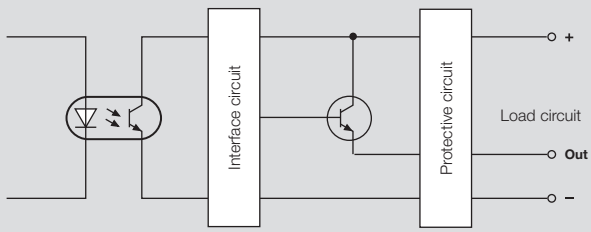
Output circuit



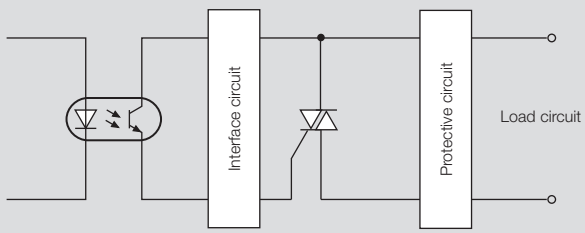
2-wire DC output



3-wire DC output



AC output

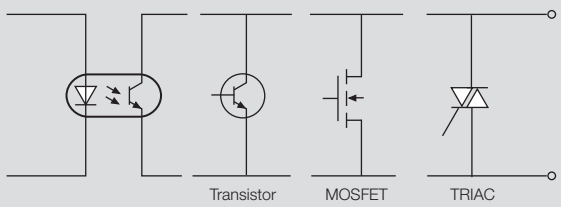


** Refer to page W.18 in the Glossary for a detailed explanation of this term.*

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.

** Refer to page W.18 in the Glossary for a detailed explanation of this term.*

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.

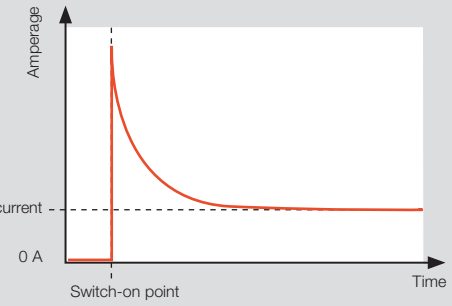
Switching resistive loads

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.

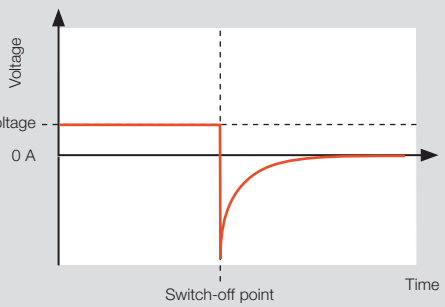
Switching on capacitive loads



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.

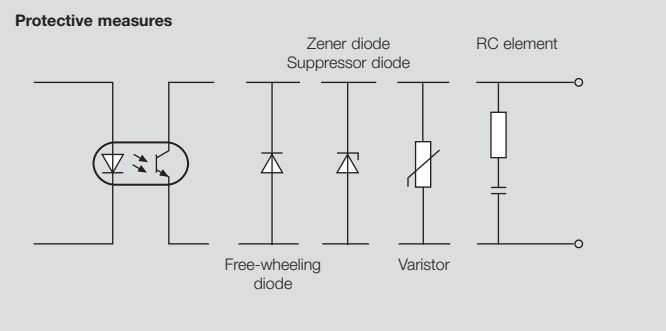
Turning off inductive loads



* Refer to page W.18 in the Glossary for a detailed explanation of this term.

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.

** Refer to page W.18 in the Glossary for a detailed explanation of this term.*

Technical data

Definition of the technical data listed on the following product selection pages:

Rated and limit values for load circuits

Rated voltages	
Rated switching voltage	Voltage value that defines the application of the load circuit and to which the relevant tests and load categories refer.
Voltage drop (at max. load)	Highest voltage value between the connections when switched through.
Rated voltage (insulation)	Voltage value to which the dielectric tests and creepage distances refer.
Rated impulse voltage	Peak value of the voltage pulse with prescribed form and polarity that the solid-state relay can withstand under specified test circumstances without failing, and to which the clearance distance values refer.
Rated currents	
Rated switching current	If not otherwise stated, operating current when switched through taking into consideration the rated voltage, the rated frequency, the load category and overcurrent characteristics at 40 °C ambient temperature.
Continuous current	Value of current that the module can carry continuously
Leakage current	rms value of the current that flows through the switching element when in the off state
Mains frequency	Mains frequency for which the module was developed and to which the other characteristic values correspond
Permissible short-circuit current	Value of the current that the module can carry when protected by short-circuit protection device specified by the manufacturer
Load category to DIN EN 62314	LC A: Resistive or low inductive loads LC B: Motor loads LC C: Gas discharge lamp LC D: Glow lamps LC E: Transformers LC F: Capacitive loads

Rated and limit values for control circuits

Rated power	Product of rated voltage and rated current; this is the minimum that must be made available to the assembly group being driven
Max. input frequency	Maximum signal frequency value with which it is permitted to apply the control voltage
Rated control voltage	Voltage value for which the control circuit is defined
Rated auxiliary voltage	Value of the auxiliary voltage that must be made available to the coupler
Making voltage	Voltage value at which the load circuit will reliably switch through
Breaking voltage	Voltage value at which the load circuit reliably disables
Switch-on delay	Time from applying the rated control voltage until the load circuit is fully enabled
Switch-off delay	Time from opening the rated control voltage until the load circuit is fully disabled
Ambient temperature	Temperature range of the surrounding air for which the module is rated
Storage temperature	Temperature range of the surrounding air at which the module can be stored

Glossary

A

AC	Alternating current.
Actuator	A sensor counterpart: the actuator converts electrical current into another form of energy.
Adhesion	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.
AgNi	Contact base material consisting of silver (Ag) and nickel (Ni).
Alarm contact	An output contact that activates when a disturbance occurs (for example, an overload or short circuit).
Au	Gold (as plating material for contacts). The thickness of the contact layer is specified in micrometers.

B

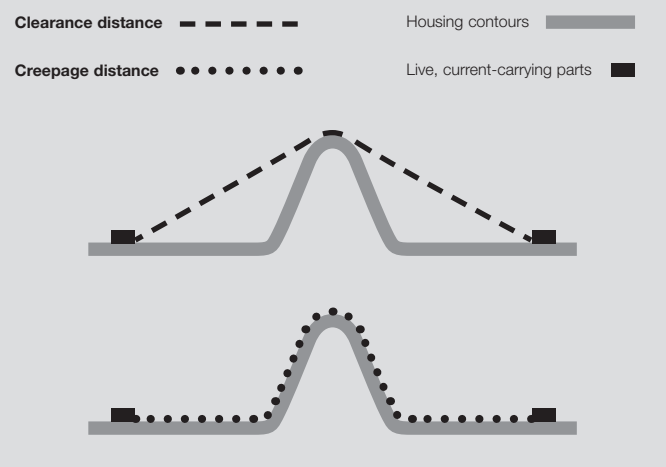
B10d	The number of switching cycles for a load where 10% of the relay modules fail. This value is used to determine the probability of system failure.
Bi-stable relay module	A flip-flop relay module where two distinct stable switching states are possible when current-free. The switching state is changed with a short current pulse.
Burn-off	Loss of contact material due to switching electrical arcs.

C

CE	the French abbreviation for **Communauté Européenne - European Conformity**. The manufacture can use the CE marking to confirm that the product complies with EU directives and their "essential requirements". The directive 2004/108/EC is applicable as of July 2009 and the low voltage directive 2006/95/EG.
Chatter	The unintentional contact and separation movement between parts of a contact during the open or close of a contact circuit.

Clearance and creepage distances

Clearance and creepage distances are decisive factors which influence the isolation capability of electrical components.
The creepage distance denotes the minimum clearance two live parts along a surface must have in order to prohibit a flow of current across the insulating material at the denoted operating voltage.
In addition to the operating voltage, the choice of insulating material (insulating material group) as well as protective measures to counteract pollution (pollution severity) 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 flow 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.



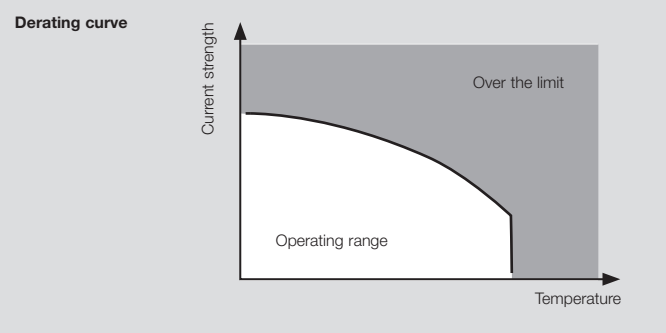
Contact type

A contact is called **normally open (NO)** if it is open when the armature is dropped out (no current in coil) and closed when the armature is picked up (current in coil).
A contact is called a break contact or **normally closed (NC)** contact if it interrupts the circuit when the armature is picked up. A combination of NC and NO is called a **changeover (CO)** contact. A relay module can consist of one or more of such contacts.
NC – Normally Closed = break contact
NO – Normally Open = closed-circuit contact
CO – Change Over = changeover contact

Changeover contact: the contact switches over, where the NC interrupts before the NO contacts.
NO (closed-circuit contact): contact is open in its idle position and closed in its working position.
NC (break contact): contact is closed in its idle position and open in its working position.

Continuous current	The current that can be continuously led over a contact without exceeding the overheating values under defined conditions.
Creepage and clearance distances	The safety gaps between two current-carrying (live) components. The creepage distance is the shortest path along an insulating surface between two live components. The clearance distance is the shortest path in the air between two points of reference.

D

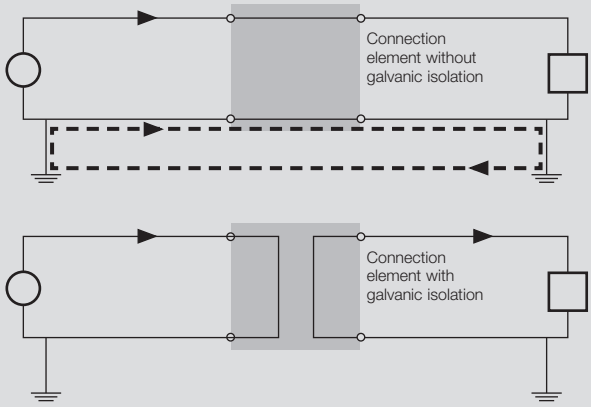
DC	Direct current.
Derating	The continuous current level reduction in relation to an ambient temperature increase, represented as a derating curve.
Derating curve (current-carrying capacity curve)	Current flow generates heat that also rises with increasing amperage. Electrical components have a defined upper limit temperature to which their functional performance is restricted. 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. 
Doubled insulation	Consisting of a base insulation and an additional sheathing.

E

Electrical lifespan	The number of maximum switching operations, in relation to the contact current and type of load.

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 sensor and controller) that are directly wired to one another causes current flow over the earth or the common housing. These interference currents can lead to problems such as when acquiring measurement signals or when activating 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.

Earth and ground loops



F

Flammability class	Flammability class specification according to the American UL94 standard. Duration of burning, annealing time and the burning drop formation are all taken into account. The highest category is V-0.

G

Galvanic isolation	The potential-free insulation between two electrical components.
Gold-flashed contacts	A temporary storage protective mechanism to prevent the discolouration of silver contacts. The gold flashing layer is 0.2 µm thick.
GOST-R	The Russian certification for products, materials and technical facilities.

H

Hard gold-plated contacts	5-µm layer of gold used to enhance contacts when switching small loads and signals. This takes advantage of the excellent conductivity and corrosion resistance of gold.
Humidity	The relationship between the actual moisture and the maximum possible quantity of water in the air. Expressed as a percentage.

I

Inductive loads	Motors, valves and contactors are inductive consumer loads. They have a start-up inrush current that is from four to eight times higher than normal. For valves, this inrush current can be up to twenty times higher than the continuous current level. Such inductive loads can also cause strong cut-off sparks. RC elements (AC) or freewheel diodes (DC) can be used as suppressor circuitry for relay modules.
Inrush current	The surge of current that takes place when switching on. This must be closely observed with capacitive loads, lamps and heating coils. The inrush current is a multiple of the rated current.
IP protection classes	Equipment is assigned an IP protection class to indicate which environmental conditions it can be used in.

L

Leakage current	The current on the load side of an optocoupler that flows towards the output stage while in a closed state.
Load category	Load classification for solid-state relays according to EN 62314 **LC A** – ohmic loads or minimal inductive loads **LC B** – motor loads **LC C** – electrical discharge lamps **LC D** – incandescent filament lamps **LC E** – transformers **LC F** – capacitive loads.

M

Mechanical lifespan	The number of switching operations for current-free relay contacts, under specific conditions, by which the relay module must remain functional.

N

Nominal control voltage	The nominal value of the sparkover voltage for the relay module.
Nominal power rating – control side	he nominal value of the coil power that is converted when the nominal control voltage is applied.
Nominal switching current – load side	The permitted load current when in continuous operations.
Nominal switching voltage – load side	The load voltage used to classify a relay contact or semiconductor contact for an application.

O

One-shot relay Monostable relay	After the input voltage is shut off, the switching contacts automatically go back to their idle state.
Overvoltage category	The surge voltage category determines which clearance distances are required for the insulation. Category III is the default specification (EN 50178).

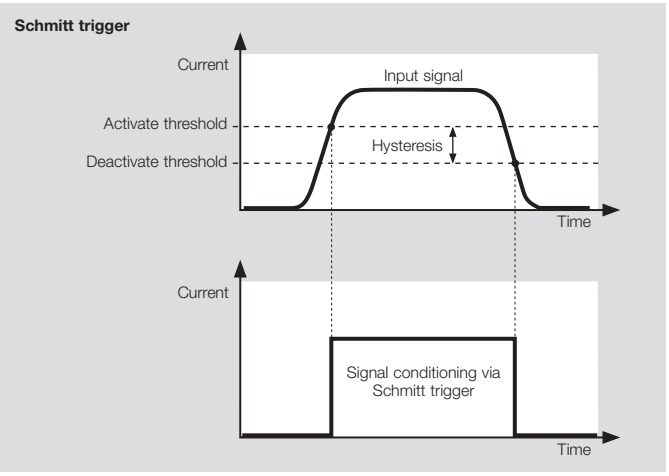
P

Pollution degree	The pollution degree should be used to determine the required creepage distance for the insulation. Pollution degree 2 is the default specification.
Positively-driven contacts	A mechanical contact connection on a relay combination so that the NC and NO contacts are not both closed at the same time.

R

Rated voltage	Insulation coordination specification. The voltage level under which the product can be safely operated, in relation to the corresponding pollution degree and surge voltage category.
RoHS	**Restriction of 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, cadmium, lead, hexavalent chrome, PBB and PBDE) in new electrical and electronic devices.

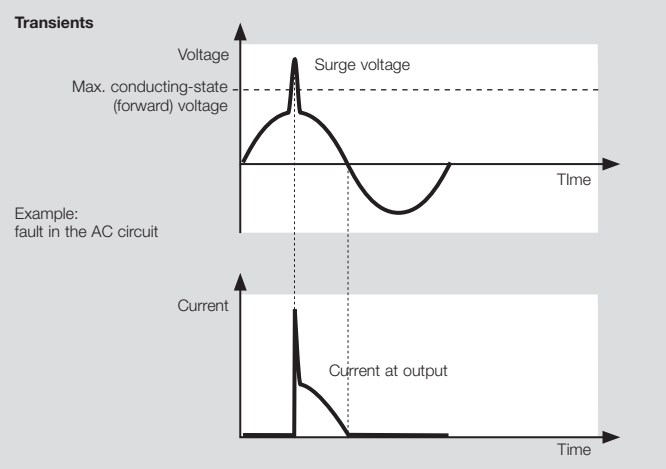
S

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); in the other case it assumes 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. **Schmitt trigger** 

Glossary

Self-heating	The heating up of an operational component based on the power loss from the relay coil and the switching contacts. For semiconductors (for example, a transistor output), the increase in heat is caused by power loss.
Short-circuit proof	Shuts off the output stage of an optocoupler when there is a short circuit, in order to prevent the output circuit from being damaged.
SIL	**Safety Integrity Level** In order to minimize risk, components must comply with the requirements found in IEC 61508. This standard provides general requirements for avoiding and minimizing device and equipment outages. It stipulates organization and technical requirements concerning device development 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. Risk-reduction measures must be more reliable when the classified risk level is higher.
Solid-State Relay	A semiconductor relay that has an electronic component (for example, a transistor, thyristor or triac) for its switching component. Semiconductor relays operate with no wear or tear and have a higher switching frequency compared to mechanical 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.
Standardized connection labelling	**A1, A2:** coil **13, 14:** NO contact (the contact closes when voltage is applied to the coil) **11, 12:** NC contact **11, 12, 14:** CO contact (11 is the shared contact, the tongue)
Start-up voltage	The threshold value need to energize the relay coil.
Storage temperature	Permitted ambient temperature, related to a specific relative humidity level, for which the product should be stored (in a current-free state).
Switching frequency	The number of switching operations that occur in a defined time interval. Due to their mechanical structure, relays have a very low switching frequency.
Switch-off delay	The time delay from the switch-off of the coil voltage to the contact switching.
Switch-on delay	The time delay from the switching on of the coil voltage to the contact switching.

T

Transients	Transients are current or voltage spikes of short duration that are caused by interferences in the supply circuit or by electromagnetic radiation. On the control side of the opto module 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. 

U

Utilization category	A usage category according to directive EN 60947-5-1. (for example, AC-15: AC voltage for controlling electro-magnetic loads > 72 VA; DC-13: DC voltage for controlling electro-magnetic loads)

V

Voltage drop	The reduction of voltage via the optocoupler, measured under full load.

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.

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8243770000	DKZA DK5 24VDC 0,1-1S	D.12
8243780000	DKZ DK5 24VDC 0.1-1S	D.11
8280000000		
8286410000	MCZ TO 24VDC/150MS	D.8
8287730000	MCZ O 24VUC	A.48
8320000000		
8324590000	MCZ TO 24VDC/50MS	D.8
8324610000	MCZ O 24VDC	A.50
8360000000		
8365940000	MCZ O 24VUC	A.48
8365980000	MCZ R 24VDC	A.43
8380000000		
8389030000	AP MCZ1.5	A.52
8390000000		
8390590000	MCZ R 24VUC	A.43
8398940000	MCZ O 5VTTL	A.50
8420000000		
8420880000	MCZ R 120VAC	A.43
8421060000	MCZ O 120VUC	A.49
8421380000	MCZ O 230VAC	A.49
8440000000		
8442960000	MCZ R 24VDC 5uAu	A.43
8460000000		
8467470000	MCZ R 110VDC	A.43
8470000000		
8470380000	MCZ R 60VDC	A.43
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8499550000	MCZ R 24Vdc 1NO TRAK	A.45
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8530621001	PRS 24Vdc LD 1CO	B.53
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8530641001	PRS 120Vac LD 1CO	B.53
8530661001	PRS 120Vac LD 2CO	B.55
8530671001	PRS 230Vac LD 1CO	B.53
8530681001	PRS 230Vac LD 2CO	B.55
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8530701001	PRZ 24Vdc LD 2CO	B.55
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8530720000	PRZ 120Vac LD 2CO	B.55
8530731001	PRZ 230Vac LD 1CO	B.53
8530741001	PRZ 230Vac LD 2CO	B.55
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8533771001	PXS 35 Sockel Schraube	B.60
8536471001	PRS 12Vdc LD 1CO	B.53
8536501001	PRS 12Vdc LD 2CO	B.55
8536510000	PRS 115Vdc LD 1CO	B.53
8536520000	PRS 115Vdc LD 2CO	B.55
8536530000	PRS 24Vac LD 1CO	B.53
8536560000	PRS 24Vac LD 2CO	B.55
8536571001	PRZ 12Vdc LD 1CO	B.53
8536591001	PRZ 12Vdc LD 2CO	B.55
8536610000	PRZ 115Vdc LD 1CO	B.53
8536630000	PRZ 115Vdc LD 2CO	B.55
8536651001	PRZ 24Vac LD 1CO	B.53
8536681001	PRZ 24Vac LD 2CO	B.55
8536691001	PXZ 35 Sockel Z-Feder	B.60
8536700000	PRC Haltebuegel	B.60
8536710000	PLED 24Vdc	B.60
8536720000	PLED 48Vdc	B.60
8536730000	PLED 115Vdc	B.60
8536750000	PLED 24Vac	B.60
8536760000	PLED 120Vac	B.60
8536780000	PLED 230Vac	B.60
8550000000		
8552440000	PRZ 24Vdc LD 2CO AU	B.56
8556020000	MRS 230Vac 1CO	A.27
8556030000	MRS 120Vuc 1CO	A.27
8556040000	MRS 48Vuc 1CO	A.27
8556050000	MRS 24Vuc 1CO	A.27
8556060000	MRS 60Vdc 1CO	A.27
8556070000	MRS 12Vdc 1CO	A.27
8556080000	MRS 5Vdc 1CO	A.27
8556090000	MRZ 230Vac 1CO	A.27
8556100000	MRZ 120Vuc 1CO	A.27
8556110000	MRZ 48Vuc 1CO	A.27
8556120000	MRZ 24Vuc 1CO	A.27
8556130000	MRZ 60Vdc 1CO	A.27
8556140000	MRZ 12Vdc 1CO	A.27
8556150000	MRZ 5Vdc 1CO	A.27
8560000000		
8561760000	PRS 24VDC LD 2COAU	B.56
8566530000	PLOC 200n /200R	B.60
8570000000		
8574070000	MCZ R 48...110Vdc 1NO TRAK	A.45
8575940000	PRZ 120VAC LD 2COAU	B.56
8575950000	PRZ 230VAC LD 2COAU	B.56
8580000000		
8582130000	MCZ R 36Vdc 1NO TRAK	A.45
8590000000		
8595960000	PRS 120VAC LD 2CO AU	B.56
8595990000	PRS 230VAC LD 2CO AU	B.56
8596050000	MRS 230Vac 1CO 5uAu	A.29
8596060000	MRS 24Vdc 1CO 5uAu	A.29
8596070000	MRZ 230Vac 1CO 5uAu	A.29
8596080000	MRZ 24Vdc 1CO 5uAu	A.29
8600000000		
8607340000	MOS 24Vdc / 24Vdc 0,1A	A.33
8607350000	MOS 24Vdc / 24Vdc 2A	A.35
8607360000	MOZ 24Vdc / 24Vdc 0,1A	A.33
8607370000	MOZ 24Vdc / 24Vdc 2A	A.35
8607690000	MOS 120Vuc / 24Vdc 0,1A	A.33
8607700000	MOS 120Vuc / 24Vdc 2A	A.35
8607710000	MOS 230Vac / 24Vdc 0,1A	A.33
8607720000	MOS 230Vac / 24Vdc 2A	A.35
8607730000	MOZ 120Vuc / 24Vdc 0,1A	A.33
8607740000	MOZ 120Vuc / 24Vdc 2A	A.35
8607750000	MOZ 230Vac / 24Vdc 0,1A	A.33
8607760000	MOZ 230Vac / 24Vdc 2A	A.35
8610000000		
8610840000	POS 24VDC/24VDC 2A	B.57
8610860000	POS 24VDC/230VAC 2A	B.58
8610890000	POS 24VDC/24VUC 1A	B.59
8610900000	POS 24VDC/24VDC 5A	B.57
8610910000	POS 24VDC/230VAC 4A	B.58
8610920000	POZ 24VDC/24VDC 2A	B.57
8610930000	POZ 24VDC/230VAC 2A	B.58
8610960000	POZ 24VDC/24VUC 1A	B.59
8610970000	POZ 24VDC/24VDC 5A	B.57
8610980000	POZ 24VDC/230VAC 4A	B.58
8611010000	PLED 24VDC rt	B.60
8630000000		
8630770000	RT314110 110VDC 1CO	B.71
8630780000	RT314024 24VDC 1CO	B.71
8632990000	MOZ 5Vdc / 24Vdc 2A	A.35
8633000000	MOS 5Vdc / 24Vdc 2A	A.35
8633010000	MOZ 5Vdc / 24Vdc 0,1A	A.33
8633020000	MOS 5Vdc / 24Vdc 0,1A	A.33
8640000000		
8647660000	TIMER BTDS-S	D.7
8647670000	TIMER BTDS-Z	D.7
8647680000	TIMER BTMF-S	D.6
8647690000	TIMER BTMF-Z	D.6
8647700000	TIMER BTM-S	D.5
8647710000	TIMER BTM-Z	D.5
8647720000	TIMER BTR-S	D.6
8647730000	TIMER BTR-Z	D.6
8647740000	TIMER BTTT-S	D.7
8650000000		
8651930000	MOS 120Vuc / 230VAC 1A	A.34
8651950000	MOZ 120Vuc / 230VAC 1A	A.34
8651970000	MOZ 230Vuc/ 230VAC 1A	A.34
8651990000	MOS 230Vuc/ 230Vac 1A	A.34
8652010000	MOS 24Vdc/ 230VAC 1A	A.34
8652020000	MOZ 24Vdc/ 230VAC 1A	A.34
8652030000	MRS 120Vuc 1CO 5uAu	A.29
8652040000	MRZ 120Vuc 1CO 5uAu	A.29
8659840000	BT LOCK PEN	D.4
8660000000		
8660910000	MRZ 24VDC ACT	A.28
8660920000	MRS 24Vdc ACT	A.28
8670000000		
8676230000	MOZ 24Vdc / 24Vdc ACT	A.36
8676250000	MOS 24Vdc / 24Vdc ACT	A.36
8680000000		
8689760000	RCM270524	B.18
8689760000	RCM270524	B.29
8689770000	RCM270R24	B.29
8689780000	RCM270548	B.29
8689790000	RCM270R48	B.29
8689800000	RCM270615	B.18
8689800000	RCM270615	B.29
8689810000	RCM270S15	B.29
8689820000	RCM270730	B.18
8689820000	RCM270730	B.29
8689830000	RCM270T30	B.29
8689840000	RCM270012	B.29
8689850000	RCM270L12	B.29
8689860000	RCM270024	B.18
8689860000	RCM270024	B.29
8689870000	RCM270L24	B.29
8689880000	RCM270048	B.29
8689890000	RCM270L48	B.29
8689900000	RCM270110	B.29
8689910000	RCM270M10	B.29
8689950000	RCM370R24	B.31
8689970000	RCM370R48	B.31
8689980000	RCM370615	B.21
8689980000	RCM370615	B.31
8689990000	RCM370S15	B.31
8690000000		
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8690000000	RCM370730	B.31
8690010000	RCM370T30	B.31
8690020000	RCM370012	B.31
8690030000	RCM370524	B.21
8690030000	RCM370524	B.31
8690040000	RCM370024	B.21
8690040000	RCM370024	B.31
8690060000	RCM370048	B.31
8690080000	RCM370110	B.31
8690110000	RCM570524	B.24
8690110000	RCM570524	B.33
8690120000	RCM570R24	B.33
8690130000	RCM570R48	B.33
8690150000	RCM570S15	B.33
8690160000	RCM570T30	B.33
8690180000	RCM570L12	B.33
8690200000	RCM570024	B.24
8690200000	RCM570024	B.33
8690220000	RCM570L24	B.33
8690230000	RCM570L48	B.33
8690240000	RCM570M10	B.33
8690270000	RRD226024	B.35
8690280000	RRD228024	B.35
8690290000	RRD226048	B.35
8690300000	RRD228048	B.35
8690310000	RRD226115	B.35
8690320000	RRD228115	B.35
8690330000	RRD226230	B.35
8690340000	RRD228230	B.35
8690370000	RRD221024	B.35
8690380000	RRD223024	B.35
8690390000	RRD221048	B.35
8690400000	RRD223048	B.35
8690410000	RRD221110	B.35
8690450000	RRD326024	B.37
8690460000	RRD328024	B.37
8690470000	RRD326048	B.37
8690480000	RRD328048	B.37
8690550000	RRD326115	B.37
8690560000	RRD328115	B.37
8690570000	RRD326230	B.37
8690580000	RRD328230	B.37
8690610000	RRD321024	B.37
8690620000	RRD323024	B.37
8690650000	RRD321110	B.37
8690660000	RRD323110	B.37
8690720000	RPW202730	B.41
8690730000	RPW202024	B.41
8690740000	RPW702524	B.41
8690750000	RPW702730	B.41
8690760000	RPW702024	B.41
8690850000	SRC 2CO PCB	B.13
8690850000	SRC 2CO PCB	B.9
8690860000	SRC 1CO PCB	B.13
8690860000	SRC 1CO PCB	B.9
8692620000	SRC CLIP HM	B.13
8692620000	SRC CLIP HM	B.9
8693180000	RCL114024	B.47
8693190000	RCL114012	B.47
8693220000	RCL114524	B.47
8693230000	RCL114730	B.47
8693240000	RCL314012	B.47
8693240000	RCL314012	B.53
8693260000	RCL314024	B.47
8693260000	RCL314024	B.53
8693320000	RCL314730	B.47
8693320000	RCL314730	B.53
8693340000	RCL424548	B.49
8693380000	RCL314048	B.47
8693390000	RCL114615	B.47
8693400000	RCL114006	B.47
8693500000	RCL314524	B.47
8693500000	RCL314524	B.53
8693800000	RCL314006	B.47
8693810000	SRC CLIP LM	B.13
8693810000	SRC CLIP LM	B.9
8693890000	RCL314615	B.47
8693890000	RCL314615	B.53
8694400000	SCM CLIP LM	B.20
8694400000	SCM CLIP LM	B.23
8694400000	SCM CLIP LM	B.26
8694460000	RCM580024	B.33
8697620000	SCM 2CO PCB	B.20
8697640000	SCM 3CO PCB	B.23
8697660000	SCM 4CO PCB	B.26
8697680000	SPW 3CO	B.42
8697710000	RM78702	B.42
8697730000	SRD 3CO PCB	B.38
8697750000	MT78602	B.38
8697780000	RM28802	B.42
8710000000		
8713890000	MCZ R 24Vdc 1CO TRAK	A.45
8713900000	MCZ R 36Vdc 1CO TRAK	A.45
8713910000	MCZ R 48...110Vdc 1CO TRAK	A.45
8770000000		
8771420000	JPR 24VDC 1CO M12	E.3
8771430000	JPR 24VDC ISO 1CO M12	E.3
8771440000	JPTA 50MS 24VDC PNP M12	E.4
8773460000	MI8DI-S SUB D15S	A.38
8773490000	MI8DI-Z SUB D15S	A.38
8773510000	MI8DI-S F10 S	A.38
8773530000	MI8DI-Z F10 S	A.38
8773550000	MI8DO-S SUB D15S	A.38
8773570000	MI8DO-Z SUB D15S	A.38
8773600000	MI8DO-S F10 S	A.38
8773620000	MI8DO-Z F10 S	A.38
8778490000	JP CLIP M	E.7
8790000000		
8790500000	MCZ R 48...110VDC 1CO AU	A.47
8790510000	MCZ R 36VDC 1CO AU TRAK	A.47
8790520000	MCZ R 24VDC 1CO AU TRAK	A.47
8794120000	JP TEST	E.6
8797610000	RRD3212CO	B.37
8797640000	RRD3211B0	B.37
8797650000	RRD3210C4	B.37
8798600000	RRD223220	B.35
8798610000	RRD323220	B.37
8799030000	RRD321012	B.37
8820000000		
8820710000	MCZ O TRAK 24.110VDC	A.51
8821910000	RCL314110	B.53
8824860000	RCM580615	B.33
8825960000	MRZ 120VUC 1CO RC	A.28
8825970000	MRS 120VUC 1CO RC	A.28
8825980000	MRZ 230VUC 1CO	A.28
8825990000	MRS 230VUC 1CO	A.28
8826000000	MXZ 24VDC 1CO BASIS	A.39
8826010000	MXS 24VDC 1CO BASIS	A.39
8826020000	MXZ 120VUC 1CO BASIS	A.39
8826030000	MXS 120VUC 1CO BASIS	A.39
8826040000	MXZ 230VAC 1CO BASIS	A.39
8826050000	MXS 230VAC 1CO BASIS	A.39
8829000000	RCM580110	B.33
8829400000	RRD3232C0	B.37
8830000000		
8836630000	JPTA100MS 24VDC PNP M12	E.4
8850000000		
8852350000	JPP NPN PNP 24VDC	E.5
8857030000	JPP PNP NPN 24VDC	E.5
8860000000		
8866890000	RCLS3L012	B.50
8866900000	RCLS3L024	B.50
8866910000	RCLS3T012	B.50
8866920000	RCLS3T024	B.50
8869350000	SRD-I 3CO	B.38

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