

# Relay modules and solid-state relays in 6 mm width

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## Coupling modules in a terminal block design

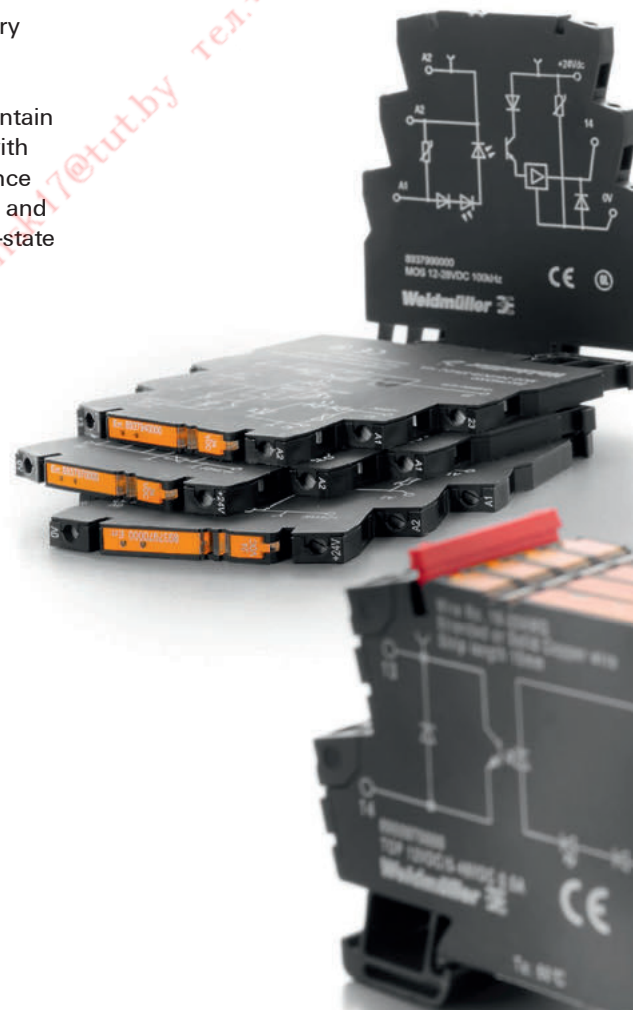
### Relay modules and solid-state relays in 6 mm width

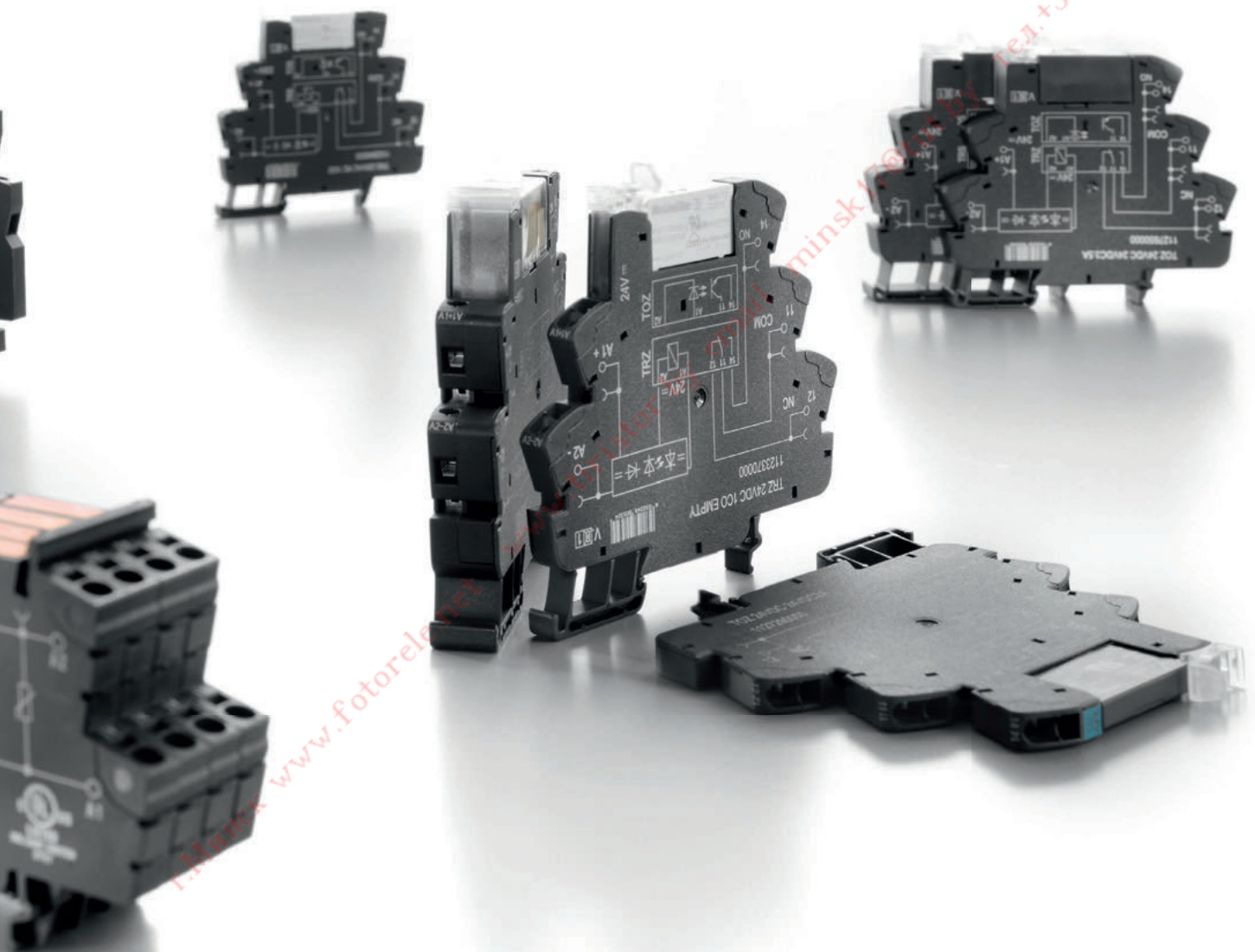
Weidmüller's relay modules and solid-state relays feature excellent electrical characteristics. They also take advantage of the same reliable connection technology that has proven itself countless times in terminal products. This product line is ideally complimented by a wide variety of system accessories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

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

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

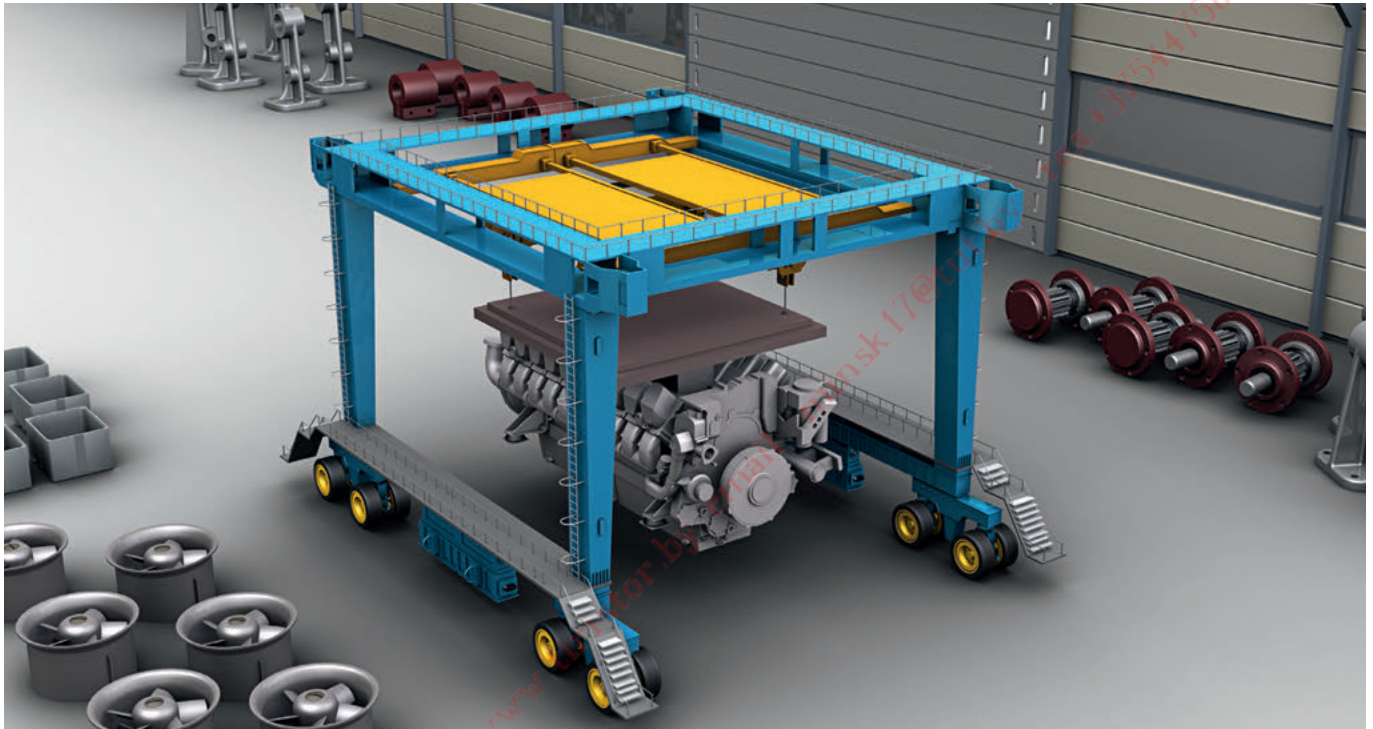
See for yourself, the quality of the Weidmüller's 6 mm products.





## Seamless integration is your wish

Enjoy the solutions in our TERMSERIES, MICROOPTO and SAI series

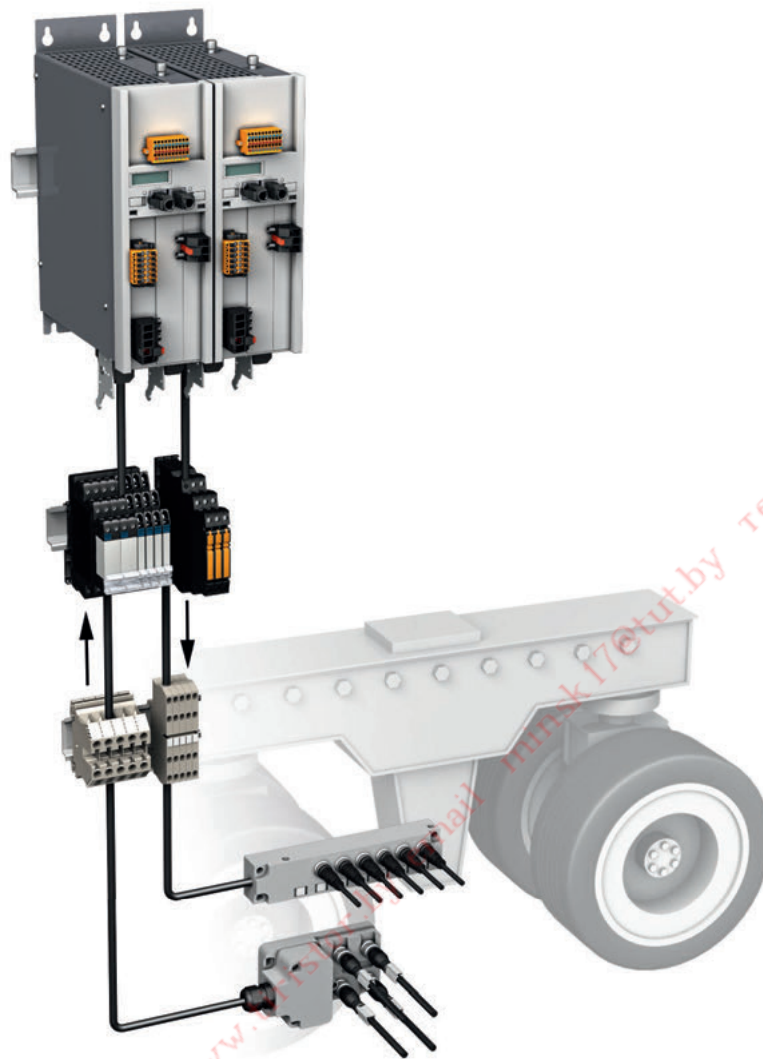


Materials and time savings in system and process automation are influenced by two critical factors. On the one hand, it is important to be able to work on complex systems with numerous sensor connections and a broad range of voltage inputs. On the other hand, the reliability of the actuator connections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

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

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

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



### TERMSERIES

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



### MICROOPTO Solenoid

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



### SAI distributors and lines

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

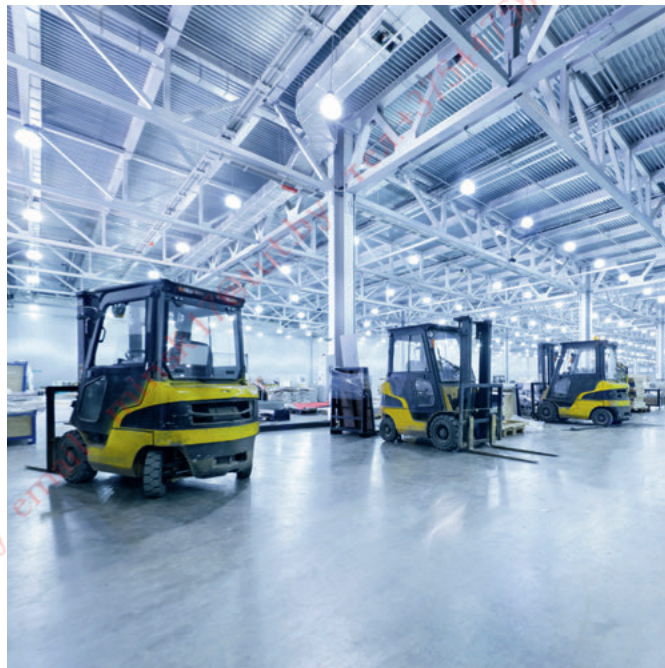
## Reliably switch industrial loads on a permanent basis

### TERMSERIES extension with increased power and longer service life

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

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

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

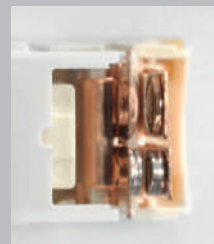


LED lamps feature an electronic ballast, with a switching regulator that guarantees a start-up peak more than 100 times higher thanks to its capacitive design. When plants are converted from conventional filament lamps to LED lighting, this quickly causes conventional relay contacts to overload. The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

## Your special advantages:

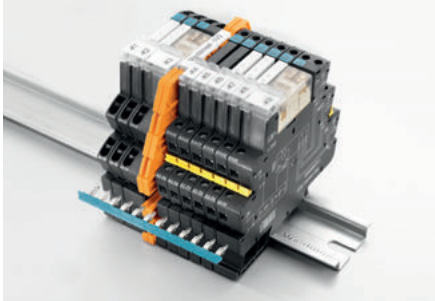
### Permanently reliable

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



**Customised system approach**

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



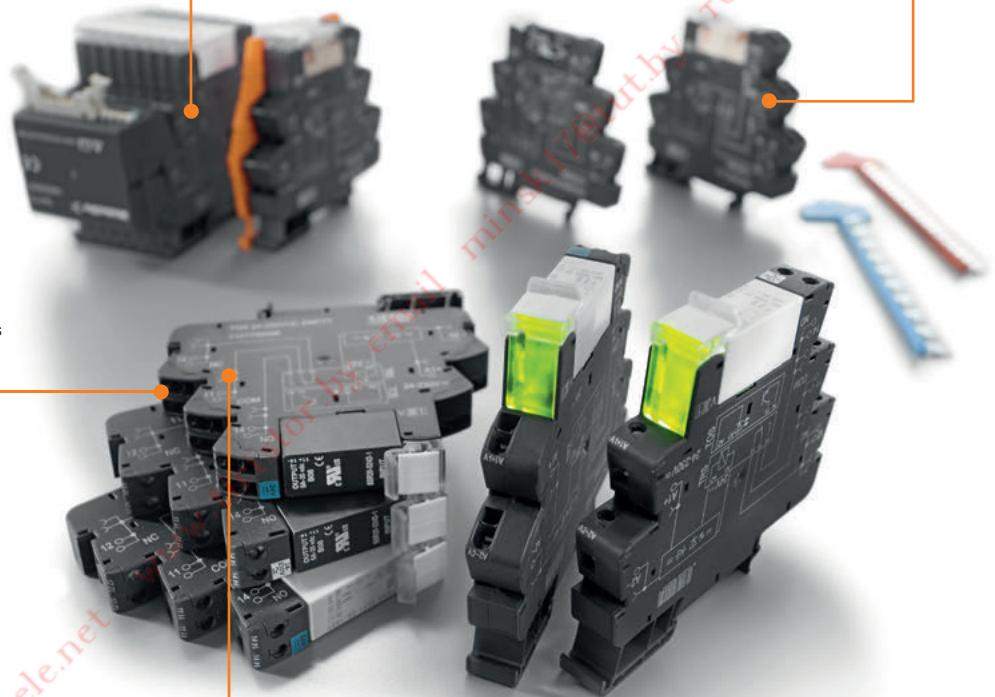
**All-purpose in use**

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



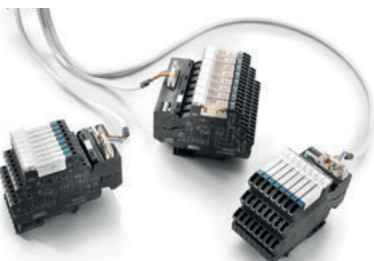
**Extremely compact**

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



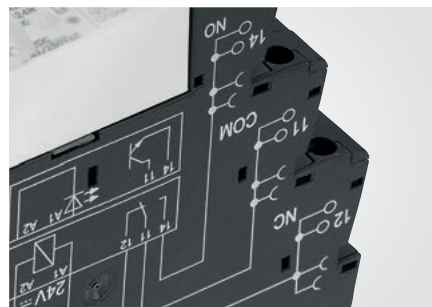
**Interface adapter for TERMSERIES relays**

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



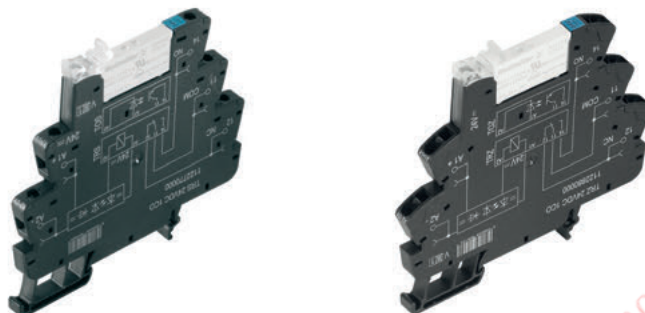
**Minimal intervention**

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



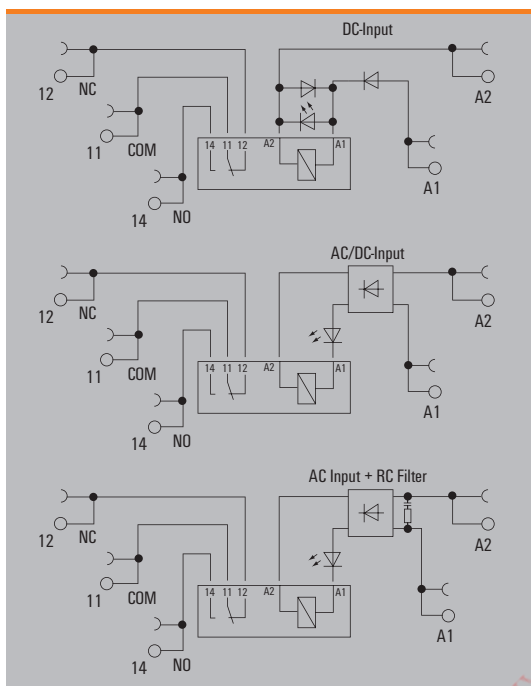
**1 CO contact**  
**AC/DC/UC coil**

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



Relay modules and solid-state relays in 6 mm width

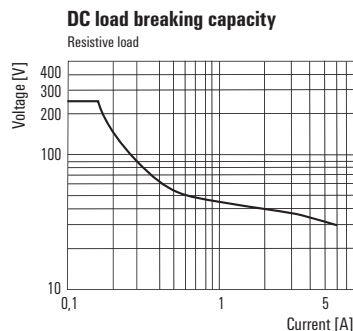
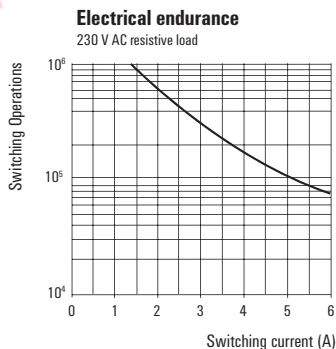
A



**Technical data**

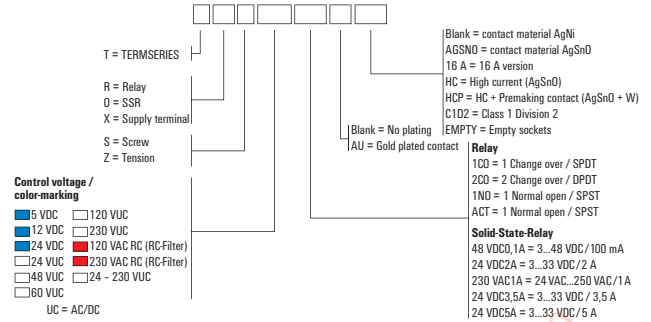
<b>Output</b>			
Rated switching voltage / Continuous current	250 V AC / 6 A		
Max. switching voltage, AC	250 V		
Inrush current	20 A / 20 ms		
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V		
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA		
Contact material	AgNi		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

**Applications**





**1 CO contact**  
**AC/DC/UC coil**

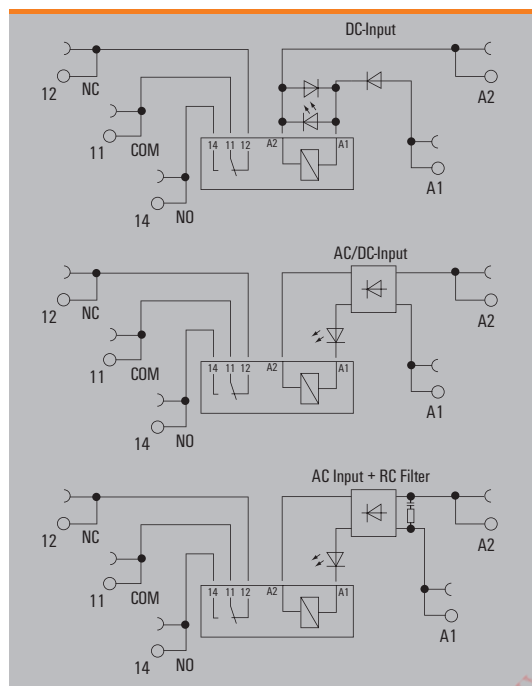
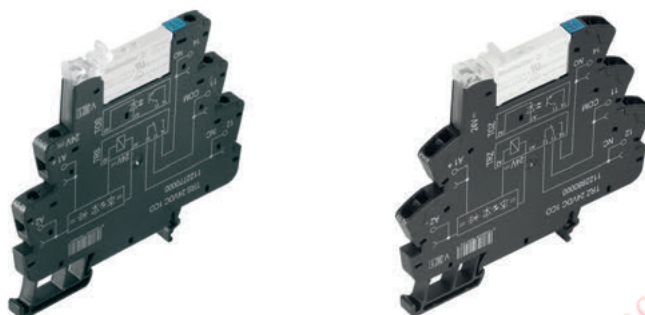


Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
<b>Input</b>					
Rated control voltage	5 V DC ± 20 %	12 V DC ± 20 %	24 V DC ± 20 %	24 V UC ± 10 %	48 V UC ± 10 %
Rated current AC / DC	/ 33 mA	/ 18 mA	/ 11.5 mA	11.7 mA / 6.4 mA	8 mA / 7 mA
Power rating	170 mW	210 mW	280 mW	270 mVA / 154 mW	240 mVA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

1 CO contact with hard gold-plated contacts

AC/DC/UC coil

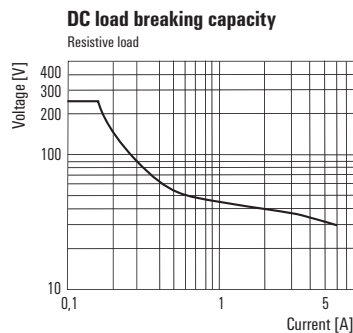
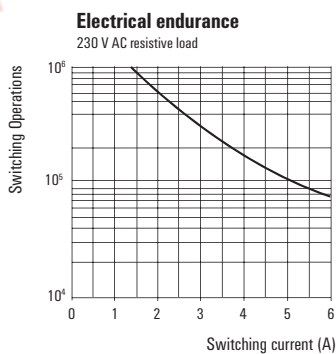
- Space saving, just 6.4 mm modular width
- AgNi contact with gold plating
- Screw and tension clamp connection



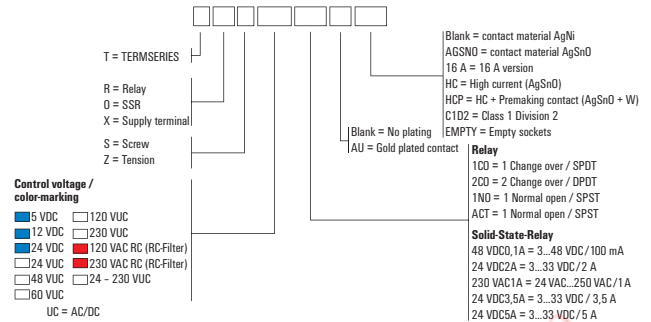
Technical data

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

Applications



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

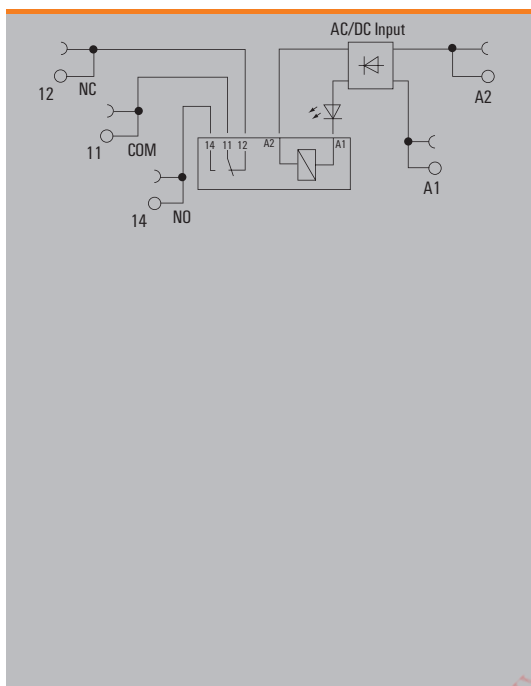
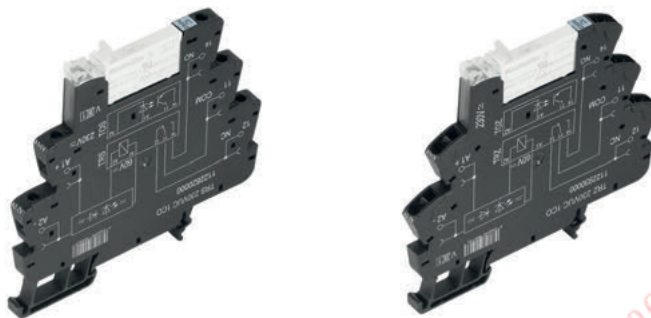


Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
<b>Input</b>					
Rated control voltage	5 V DC ± 20 %	12 V DC ± 20 %	24 V DC ± 20 %	24 V UC ± 10 %	48 V UC ± 10 %
Rated current AC / DC	/ 33 mA	/ 18 mA	/ 11.5 mA	11.7 mA / 6.4 mA	8 mA / 7 mA
Power rating	170 mW	210 mW	280 mW	270 mVA / 154 mW	240 mVA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

1 CO contact

multi-voltage input

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



Technical data

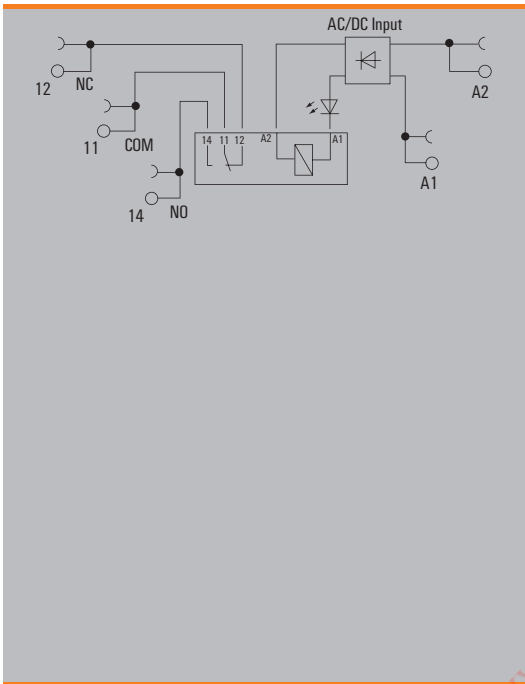
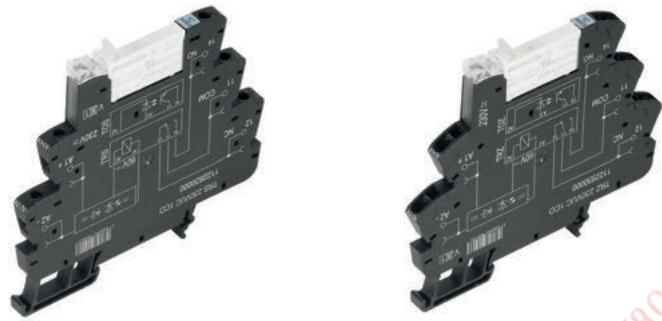
<b>Output</b>		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC	250 V	
Inrush current	20 A / 20 ms	
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V	
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA	
Contact material	AgNi	
Mechanical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

Ordering data

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

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

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



**Technical data**

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

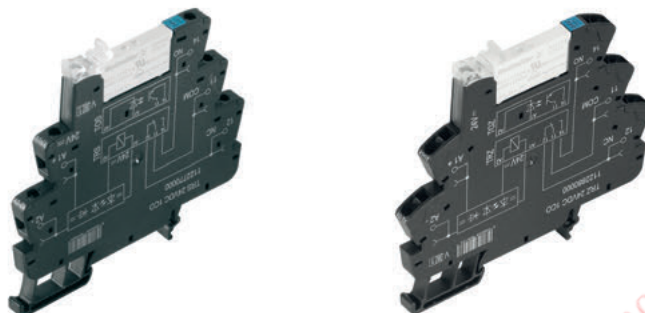
**Ordering data**

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

1 CO contact (AgSnO)

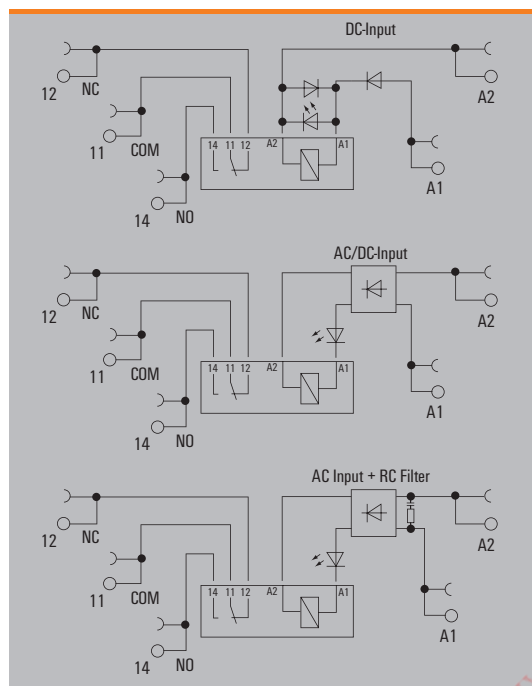
AC / DC / UC coil

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



Relay modules and solid-state relays in 6 mm width

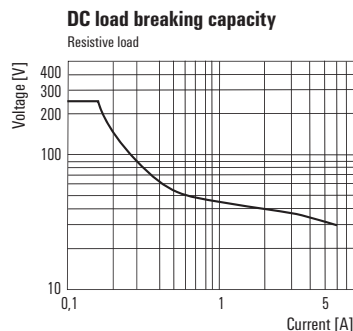
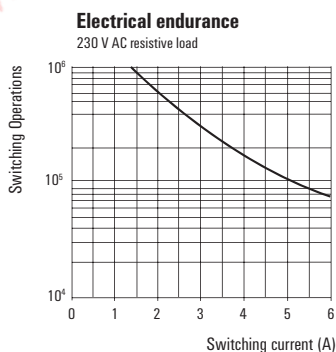
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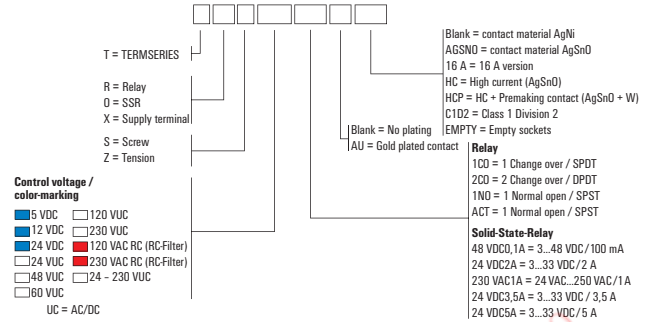
Technical data

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

Applications



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

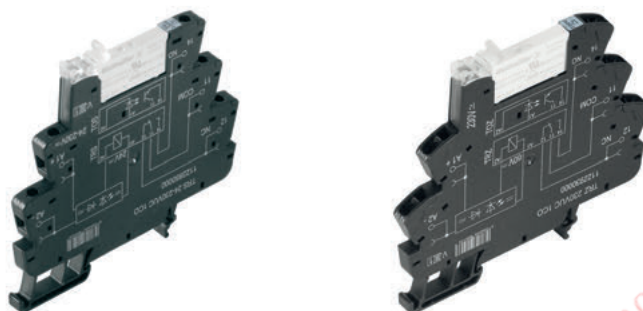


Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
<b>Input</b>					
Rated control voltage	5 V DC ± 20 %	12 V DC ± 20 %	24 V DC ± 20 %	24 V UC ± 10 %	48 V UC ± 10 %
Rated current AC / DC	/ 33 mA	/ 18 mA	/ 11.5 mA	11.7 mA / 6.4 mA	8 mA / 7 mA
Power rating	170 mW	210 mW	280 mW	270 mVA / 154 mW	240 mVA / 192 mW
Pull-in/drop-out voltage, typ.	4 V / 1 V DC	9 V / 2 V DC	16 V / 3 V DC	16 V / 5 V AC 20 V / 6 V DC	32 V / 9 V AC 33 V / 8.5 V DC
Pull-in/drop-out current, typ.	22.5 mA / 4.5 mA DC	11.5 mA / 2 mA DC	7.5 mA / 1 mA DC	8.5 mA / 2 mA AC 5 mA / 1 mA DC	5.3 mA / 1.2 mA AC 4.5 mA / 0.8 mA DC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
<b>Output</b>					
Switch-on delay	≤ 7 ms	≤ 6 ms	≤ 6 ms	≤ 6 ms	≤ 9 ms
Switch-off delay	≤ 6 ms	≤ 8 ms	≤ 15 ms	≤ 40 ms	≤ 23 ms
<b>Ordering data</b>					
Screw connexion Type Order No.	TRS 5VDC 1CO AGSNO <b>2152860000</b>	TRS 12VDC 1CO AGSNO <b>2152880000</b>	TRS 24VDC 1CO AGSNO <b>1984540000</b>	TRS 24VUC 1CO AGSNO <b>2152940000</b>	TRS 48VUC 1CO AGSNO <b>2153060000</b>
Tension-clamp conn. Type Order No.	TRZ 5VDC 1CO AGSNO <b>2152870000</b>	TRZ 12VDC 1CO AGSNO <b>2152890000</b>	TRZ 24VDC 1CO AGSNO <b>1984550000</b>	TRZ 24VUC 1CO AGSNO <b>2152970000</b>	TRZ 48VUC 1CO AGSNO <b>2153080000</b>
<b>Note</b>					
<b>Ordering data</b>					
<b>Input</b>					
Rated control voltage	60 V UC ± 10 %	120 V UC ± 10 %	230 V UC ± 10 %	120 V AC ± 10 %	230 V AC ± 10 %
Rated current AC / DC	4,8 mA / 2,85 mA	4 mA / 3,5 mA	3,5 mA / 2,9 mA	7 mA /	10,1 mA /
Power rating	170 mW	0,48 VA, 420 mW	0,8 VA, 700 mW	840 mVA	2,3 VA
Pull-in/drop-out voltage, typ.	33 V / 8 V AC 41,5 V / 9 V DC	89 V / 50 V AC 100 V / 57 V DC	164 V / 87 V AC 166 V / 89 V DC	88 V / 43 V AC	169 V / 85 V AC
Pull-in/drop-out current, typ.	2,8 mA / 0,6 mA AC 1,8 mA / 0,3 mA DC	2,7 mA / 1 mA AC 1,9 mA / 0,5 mA DC	2,4 mA / 0,9 mA AC 1,8 mA / 0,4 mA DC	4,8 mA / 2 mA AC	7 mA / 3,3 mA AC
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element
<b>Output</b>					
Switch-on delay	≤ 7 ms	≤ 11 ms	≤ 14,5 ms	≤ 15 ms	≤ 16 ms
Switch-off delay	≤ 43 ms	≤ 40 ms	≤ 45 ms	≤ 45 ms	≤ 41 ms
<b>Ordering data</b>					
Screw connexion Type Order No.	TRS 60VUC 1CO AGSNO <b>2153550000</b>	TRS 120VUC 1CO AGSNO <b>2153570000</b>	TRS 230VUC 1CO AGSNO <b>2153590000</b>	TRS 120VAC RC 1CO AGSNO <b>2152900000</b>	TRS 230VAC RC 1CO AGSNO <b>2152920000</b>
Tension-clamp conn. Type Order No.	TRZ 60VUC 1CO AGSNO <b>2153560000</b>	TRZ 120VUC 1CO AGSNO <b>2153580000</b>	TRZ 230VUC 1CO AGSNO <b>2153690000</b>	TRZ 120VAC RC 1CO AGSNO <b>2152910000</b>	TRZ 230VAC RC 1CO AGSNO <b>2152930000</b>
<b>Note</b>					

1 CO contact (AgSnO)

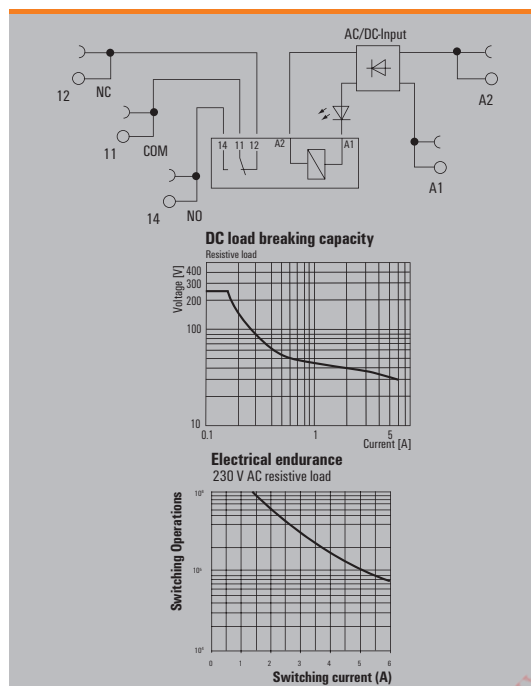
Multi-voltage input

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



Relay modules and solid-state relays in 6 mm width

A



Technical data

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

Ordering data

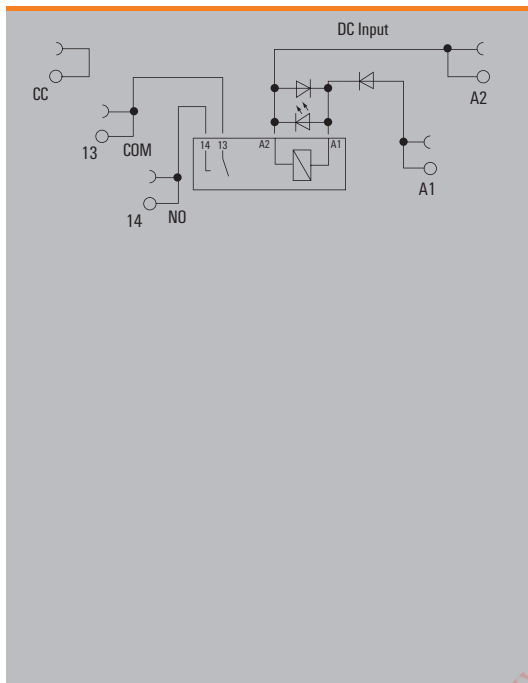
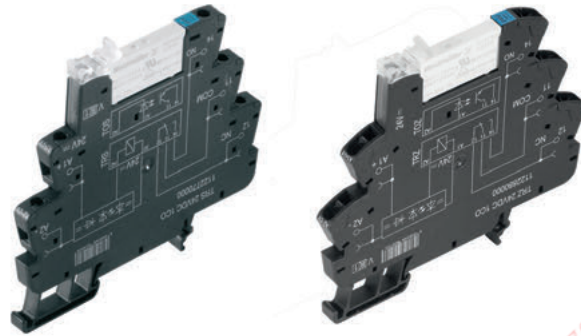
24 V - 230 V UC

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



**1 NO contact (actuator)**

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



**Technical data**

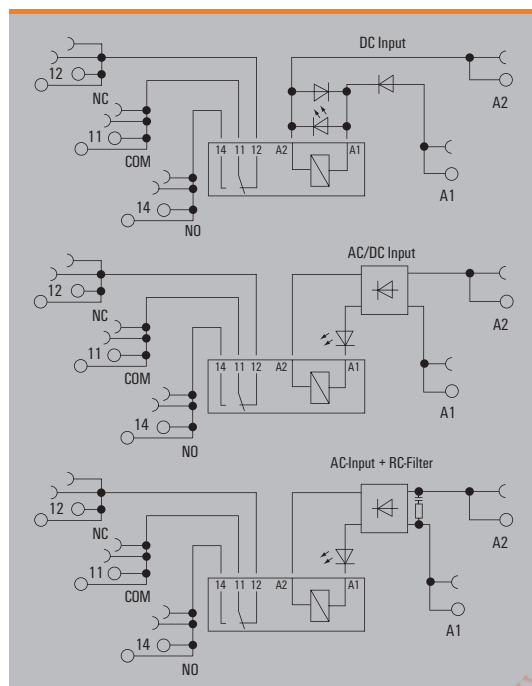
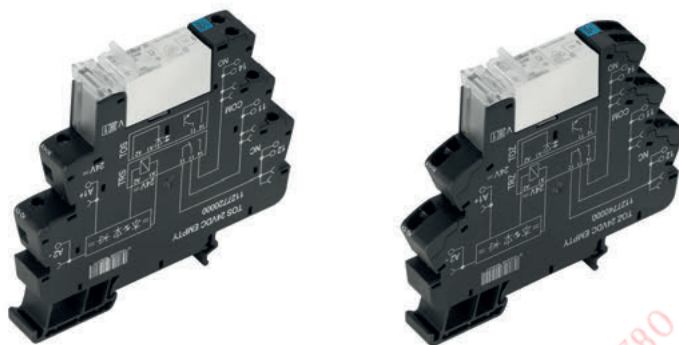
<b>Output</b>		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC	250 V	
Inrush current	20 A / 20 ms	
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V	
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA	
Contact material	AgNi	
Mechanical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

**Ordering data**

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

**1 CO contact**  
**AC / DC / UC coil**

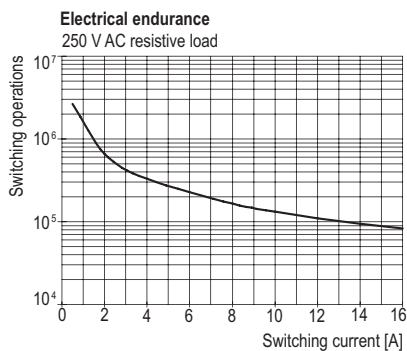
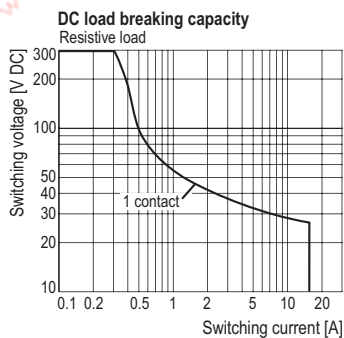
- Space-saving, 12.8 mm wide
- 16 A AgNi contact
- Internal cross-connection of the output terminals
- Screw and tension clamp connection



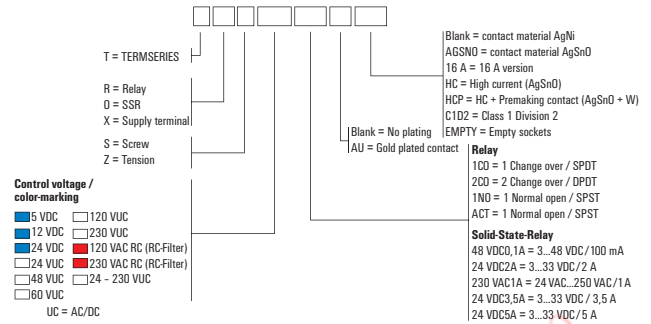
**Technical data**

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

**Applications**



1 CO contact  
AC / DC / UC coil

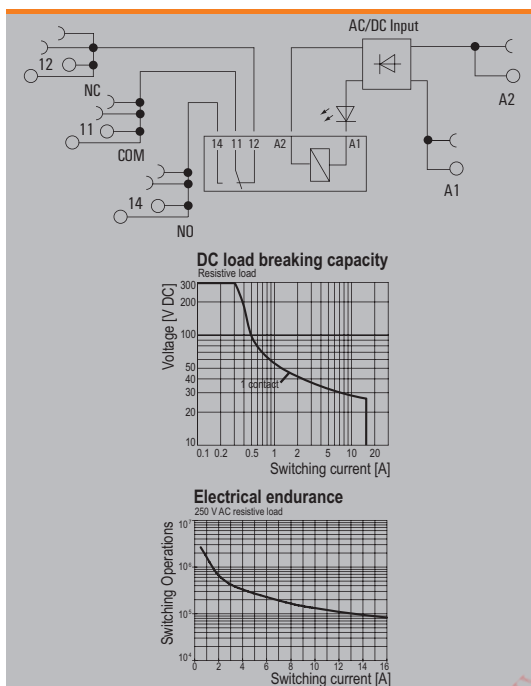
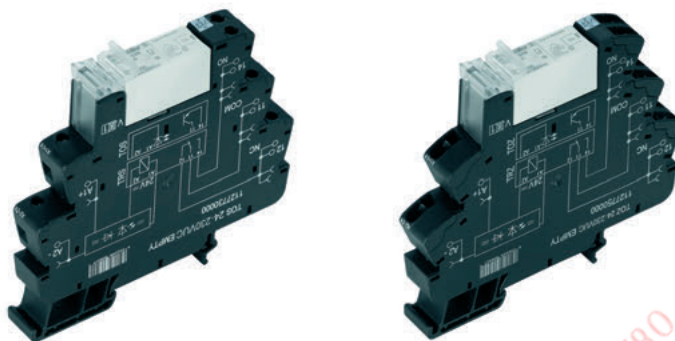


Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
<b>Input</b>					
Rated control voltage	5 V DC ± 20 %	12 V DC ± 20 %	24 V DC ± 20 %	24 V UC ± 10 %	48 V UC ± 10 %
Rated current AC / DC	/ 70 mA	/ 33.3 mA	/ 21 mA	16 mA / 14 mA	9 mA / 7 mA
Power rating	400 mW	420 mW	530 mW	390 mVA / 350 mW	340 mW /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

1 CO contact

Variable-voltage input

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



Technical data

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

Ordering data

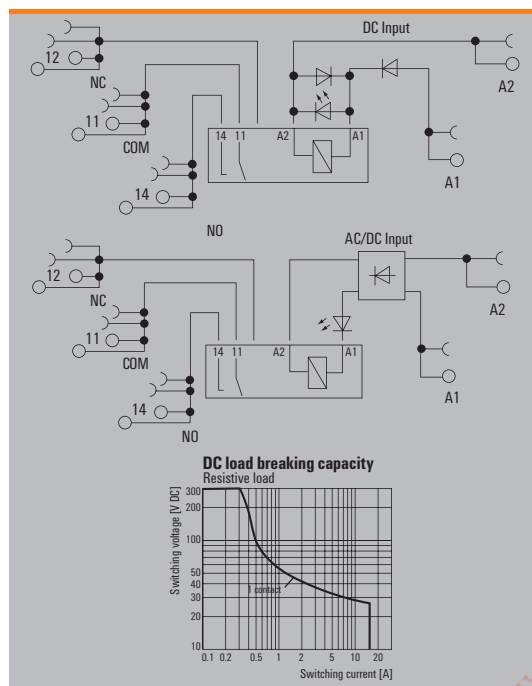
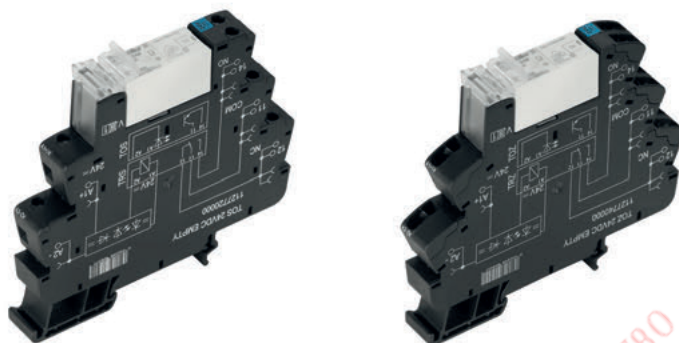
24 V - 230 V UC

Input	
Rated control voltage	24...230 V UC ± 10 %
Rated current AC / DC	6 mA @ 230 V UC / 45 mA @ 24 VUC
Power rating	1.08 W @ 24 V UC, 1.38 W @ 230 V UC
Pull-in/drop-out voltage, typ.	15 V / 7 V AC 15 V / 5 V DC
Pull-in/drop-out current, typ.	42 mA / 15.5 mA AC 34 mA / 10 mA DC
Status indicator	Green LED
Protective circuit	Rectifier
Output	
Switch-on delay	≤ 30 ms
Switch-off delay	≤ 75 ms
Ordering data	
Screw connection	Type TRS 24-230VUC 1CO 16A
Order No.	1479770000
Tension-clamp conn.	Type TRZ 24-230VUC 1CO 16A
Order No.	1479930000
Note	

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

1 NO contact, inrush power HC

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



Technical data

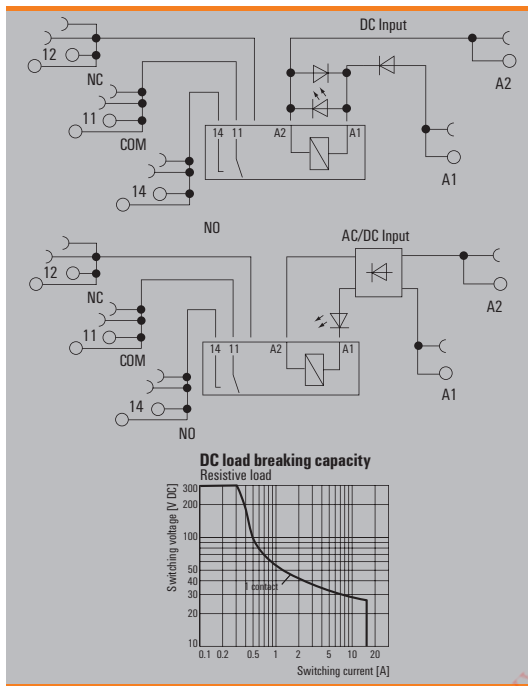
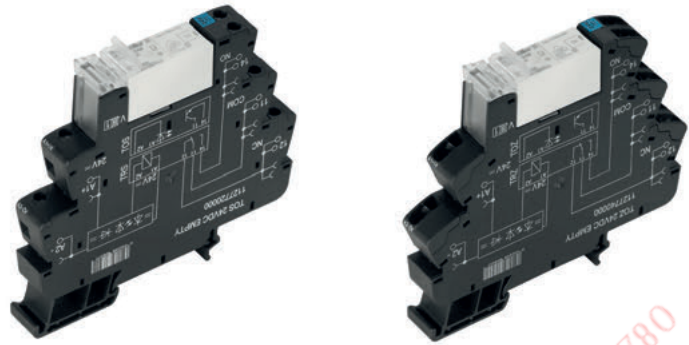
<b>Output</b>		
Rated switching voltage / Continuous current	250 V AC / 16 A	
Max. switching voltage, AC	250 V	
Inrush current	80 A / 20 ms	
Min. switching power	1 W	
DC / AC Switching capacity (resistive), max.	384 W @ 24 V / 4000 VA	
Contact material	AgSnO	
Mechanical service life	10 x 10 <sup>6</sup>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

Ordering data

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

**1 NO contact, inrush power HCP**

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



**Technical data**

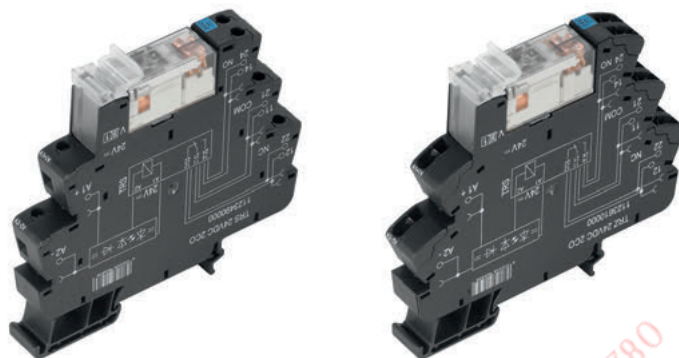
<b>Output</b>		
Rated switching voltage / Continuous current	250 V AC / 16 A	
Max. switching voltage, AC	250 V	
Inrush current	165 A / 20 ms, 800 A / 200 µs	
Min. switching power	1 W	
DC / AC Switching capacity (resistive), max.	384 W @ 24 V / 4000 VA	
Contact material	AgSnO <sub>2</sub> + W	
Mechanical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

**Ordering data**

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

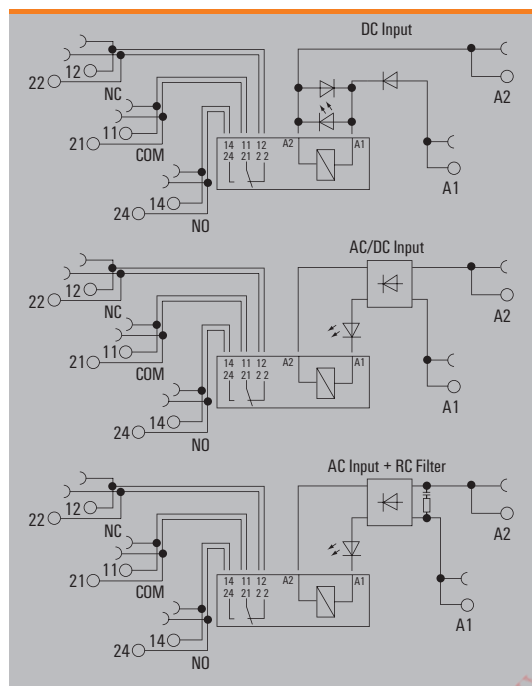
**2 CO contacts**  
**AC/DC/UC coil**

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



Relay modules and solid-state relays in 6 mm width

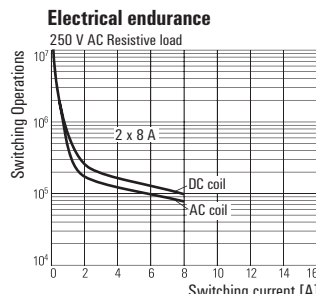
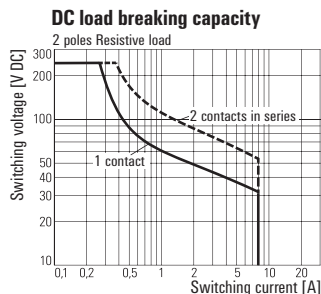
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**Technical data**

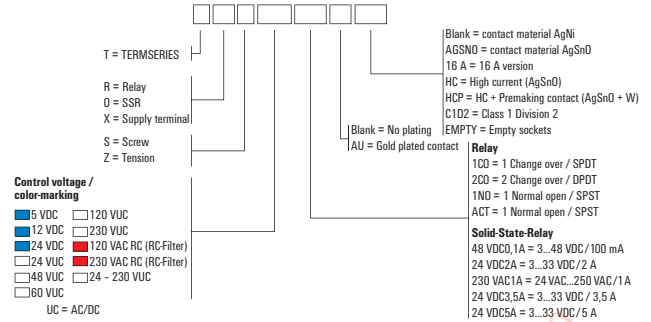
<b>Output</b>			
Rated switching voltage / Continuous current	250 V AC / 8 A		
Max. switching voltage, AC	250 V		
Inrush current	15 A / 4 s		
Min. switching power	10 mA @ 10 V, 100 mA @ 5 V		
DC / AC Switching capacity (resistive), max.	192 W @ 24 V / 2000 VA		
Contact material	AgNi		
Mechanical service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

**Applications**





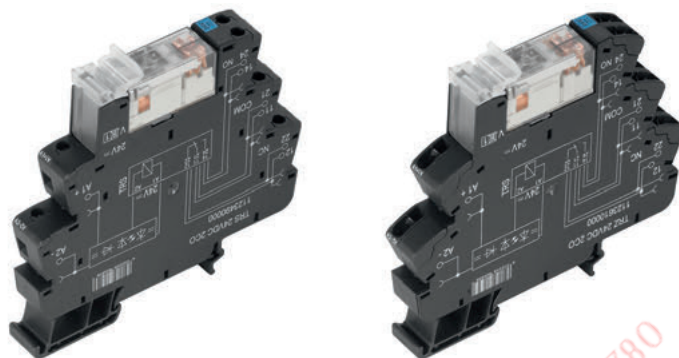
**2 CO contacts**  
**AC/DC/UC coil**



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

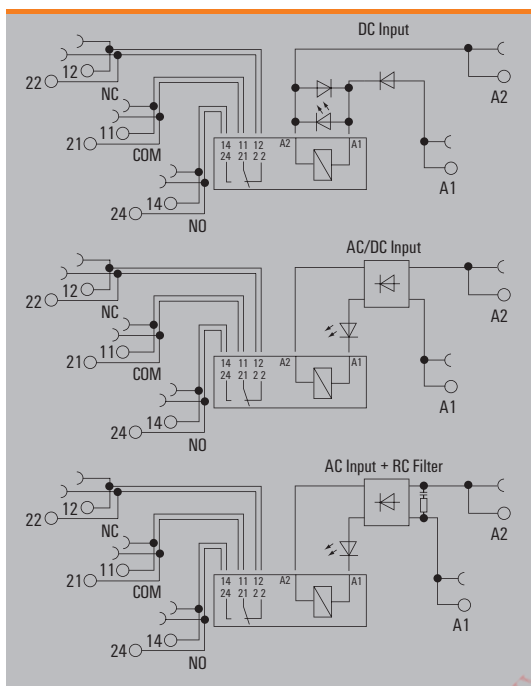
**2 CO contact with hard gold-plated contacts**  
**AC/DC/UC coil**

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



Relay modules and solid-state relays in 6 mm width

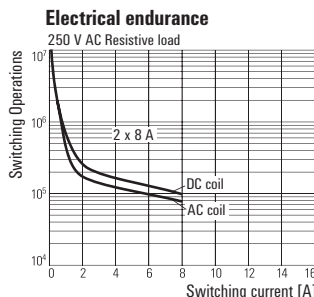
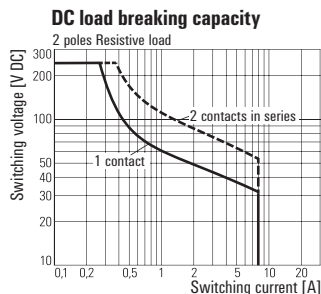
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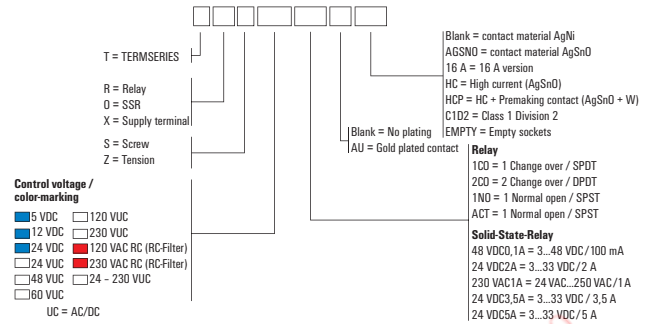
**Technical data**

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

**Applications**



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



Ordering data

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

Ordering data					
Screw connexion Type	TRS 5VDC 2CO AU	TRS 12VDC 2CO AU	TRS 24VDC 2CO AU	TRS 24VUC 2CO AU	TRS 48VUC 2CO AU
Order No.	<b>1123710000</b>	<b>1123720000</b>	<b>1123730000</b>	<b>1123740000</b>	<b>1123750000</b>
Tension-clamp conn. Type	TRZ 5VDC 2CO AU	TRZ 12VDC 2CO AU	TRZ 24VDC 2CO AU	TRZ 24VUC 2CO AU	TRZ 48VUC 2CO AU
Order No.	<b>1123830000</b>	<b>1123840000</b>	<b>1123850000</b>	<b>1123870000</b>	<b>1123880000</b>
<b>Note</b>	Spare relay Type: RCL425005 Orderno.: 1174490000	Spare relay Type: RCL425012 Orderno.: 4074580000	Spare relay Type: RCL425024 Orderno.: 4058580000	Spare relay Type: RCL425024 Orderno.: 4058580000	Spare relay Type: RCL425048 Orderno.: 1201230000

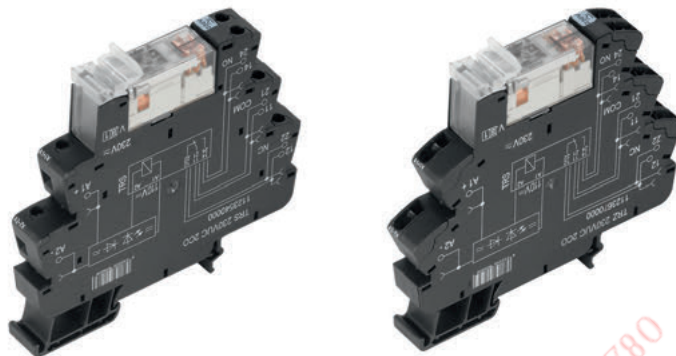
Ordering data

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

Ordering data					
Screw connexion Type	TRS 60VUC 2CO AU	TRS 120VUC 2CO AU	TRS 230VUC 2CO AU	TRS 120VAC RC 2CO AU	TRS 230VAC RC 2CO AU
Order No.	<b>1123770000</b>	<b>1123780000</b>	<b>1123790000</b>	<b>1123800000</b>	<b>1123810000</b>
Tension-clamp conn. Type	TRZ 60VUC 2CO AU	TRZ 120VUC 2CO AU	TRZ 230VUC 2CO AU	TRZ 120VAC RC 2CO AU	TRZ 230VAC RC 2CO AU
Order No.	<b>1123890000</b>	<b>1123900000</b>	<b>1123910000</b>	<b>1123920000</b>	<b>1123930000</b>
<b>Note</b>	Spare relay Type: RCL425060 Orderno.: 1201260000	Spare relay Type: RCL425110 Orderno.: 8828370000	Spare relay Type: RCL425110 Orderno.: 8828370000	Spare relay Type: RCL425110 Orderno.: 8828370000	Spare relay Type: RCL425110 Orderno.: 8828370000

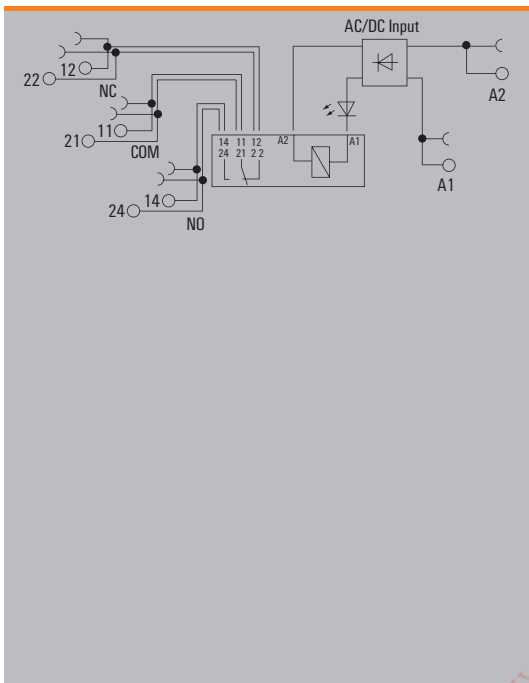
**2 CO contacts**  
**multi-voltage input**

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



Relay modules and solid-state relays in 6 mm width

**A**



**Technical data**

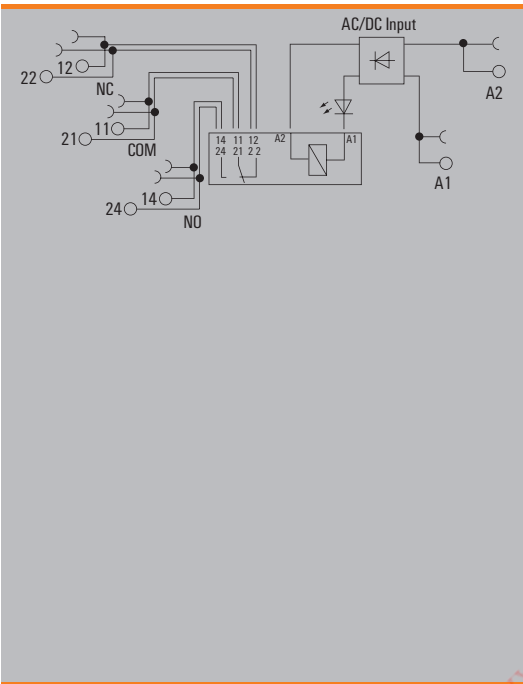
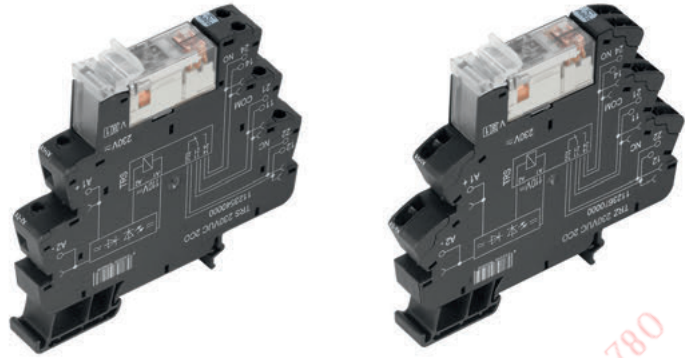
<b>Output</b>		
Rated switching voltage / Continuous current	250 V AC / 8 A	
Max. switching voltage, AC	250 V	
Inrush current	15 A / 4 s	
Min. switching power	10 mA @ 10 V, 100 mA @ 5 V	
DC / AC Switching capacity (resistive), max.	192 W @ 24 V / 2000 VA	
Contact material	AgNi	
Mechanical service life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

**Ordering data**

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

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

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



**Technical data**

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

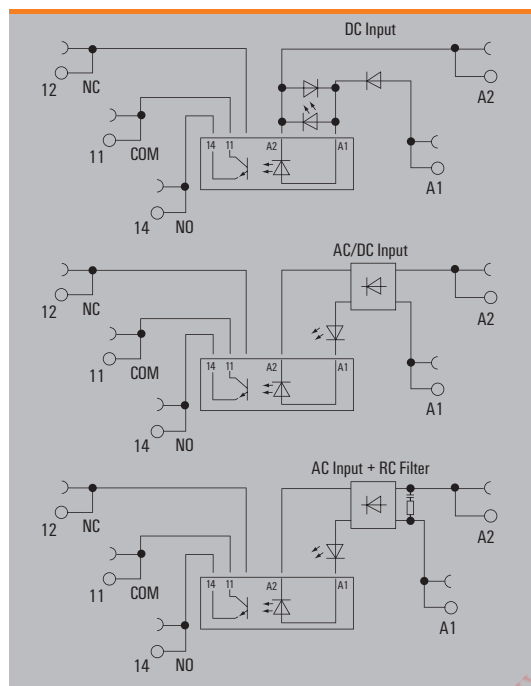
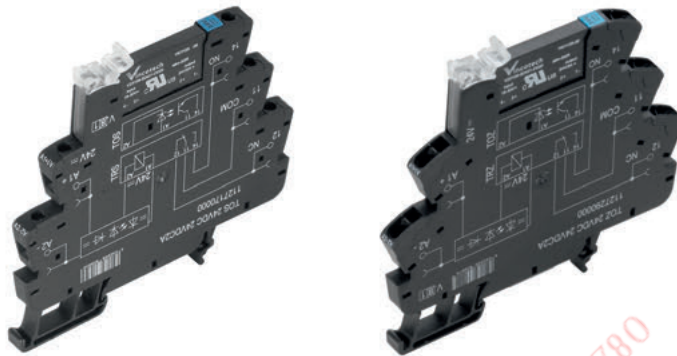
**Ordering data**

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

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

**Output versions**

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

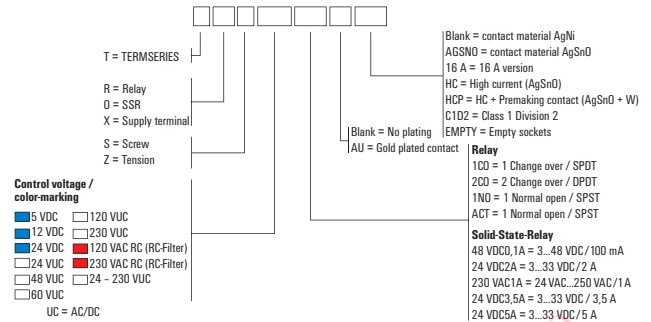


**Technical data**

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

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

Output versions



Ordering data

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

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

Ordering data

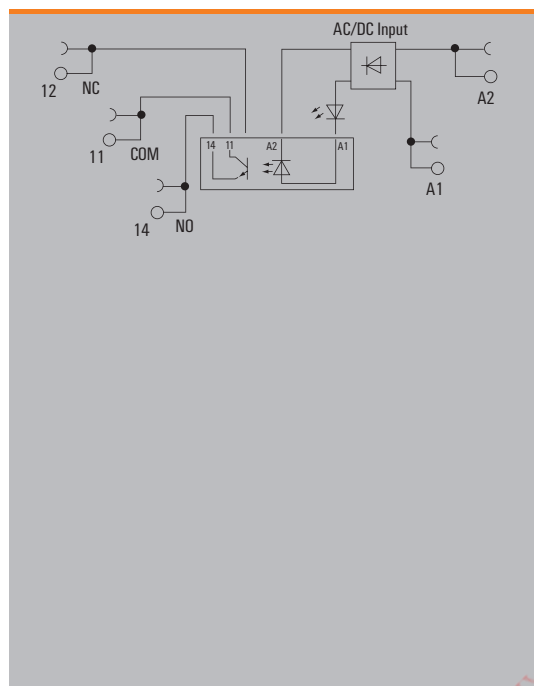
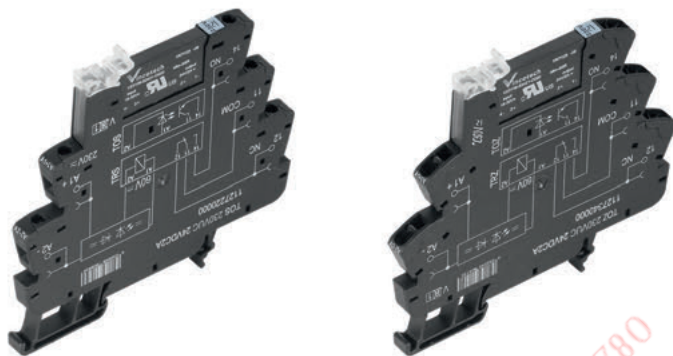
	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
<b>Control side</b>					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC ±10 %	120 V AC ±10 %	230 V AC ±10 %
Nominal control current	5 mA AC (±20 %), 3 mA DC (±20 %)	5 mA AC (±30 %), 3 mA DC (±30 %)	3.5 mA AC (±30 %), 3 mA DC (±30 %)	7 mA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

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

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

**Output versions, multi-voltage input**

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



**Technical data**

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

**Ordering data**

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

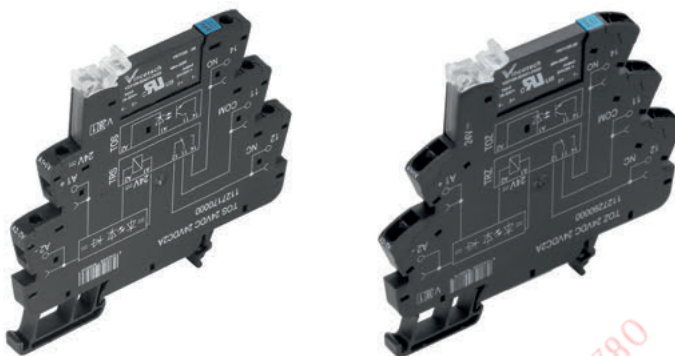


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**Solid-state relay, 3...33 V DC / 2 A**

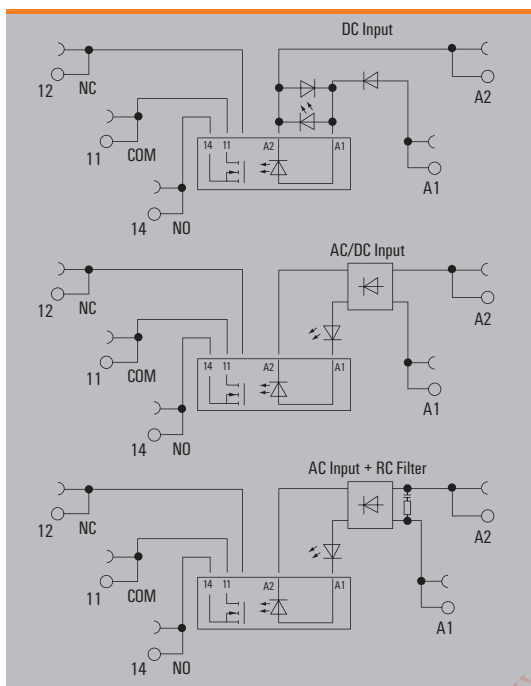
**Output versions**

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



Relay modules and solid-state relays in 6 mm width

**A**

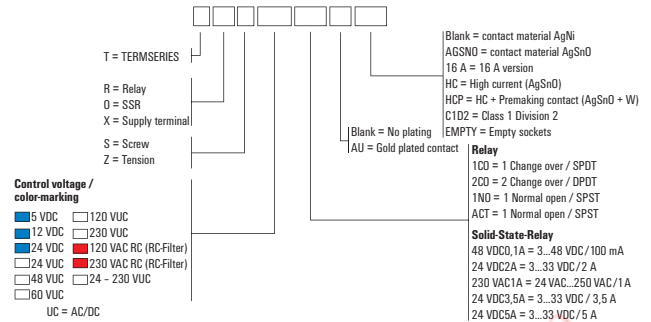


**Technical data**

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

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

Output versions



Ordering data

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

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

Ordering data

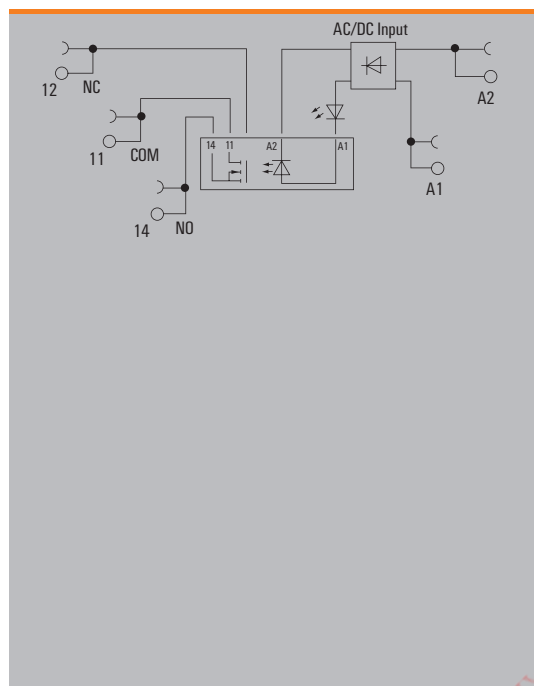
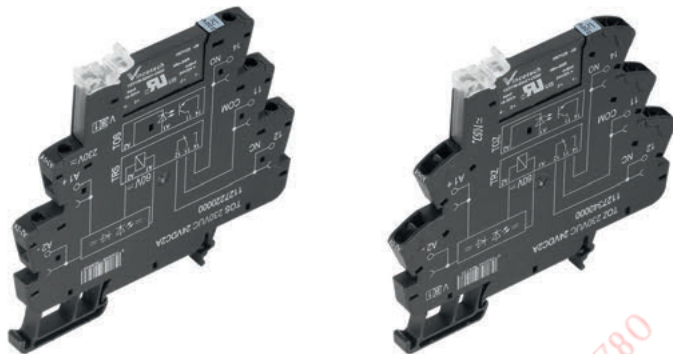
	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
<b>Control side</b>					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC ±10%	120 V AC ±10 %	230 V AC ±10 %
Nominal control current	5 mA AC (±20 %), 3 mA DC (±20 %)	4.1 mA AC (±10 %), 2.6 mA DC (±10%)	3.5 mA AC (±30 %), 3 mA DC (±30 %)	7 mA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

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

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

**Output versions, multi-voltage input**

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



**Technical data**

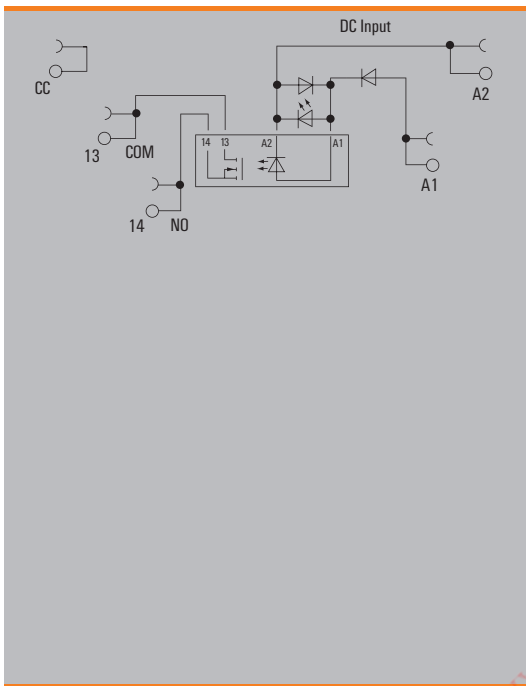
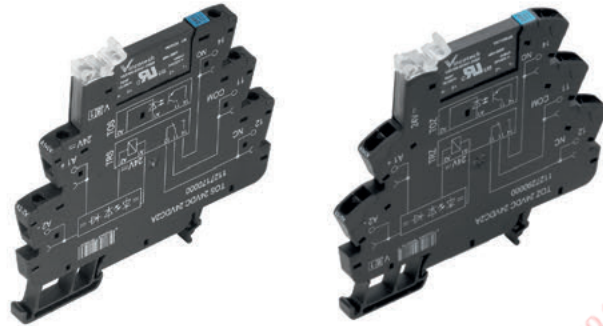
Load side	
Rated switching voltage	3...33 V DC
Continuous current	2 A
Inrush current	15 A / 10 ms
Solid-state type	MOS-FET
Voltage drop at max. load	≤ 120 mV
Leakage current	< 10 µA
Protective circuit, load side	Free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode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

**Ordering data**

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

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

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



**Technical data**

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

**Ordering data**

Control side	
Rated control voltage	24 V DC ±20 %
Nominal control current	11.5 mA DC (±20%)
Power rating	280 mW
Cut-in / dropout voltage	14 V / 12.5 V DC
max. switching frequency (DC control voltage)	300 Hz
max. switching frequency (AC control voltage)	
Status indicator	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection
Load side	
Switch-on delay	≤ 0,1 ms
Switch-off delay	< 1 ms

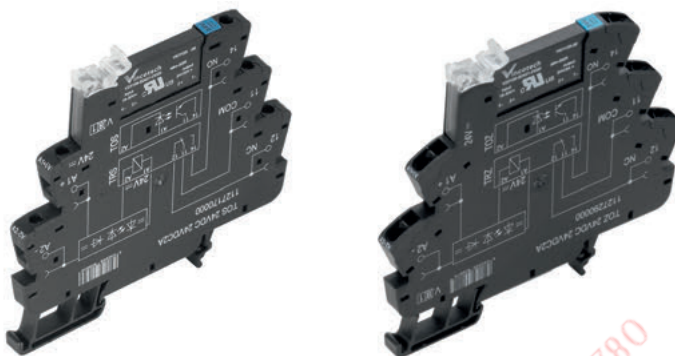
Ordering data	
Screw connection	Type TOS 24VDC ACT
Order No.	1391680000
Tension-clamp conn.	Type TOZ 24VDC ACT
Order No.	1391690000

Note	

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

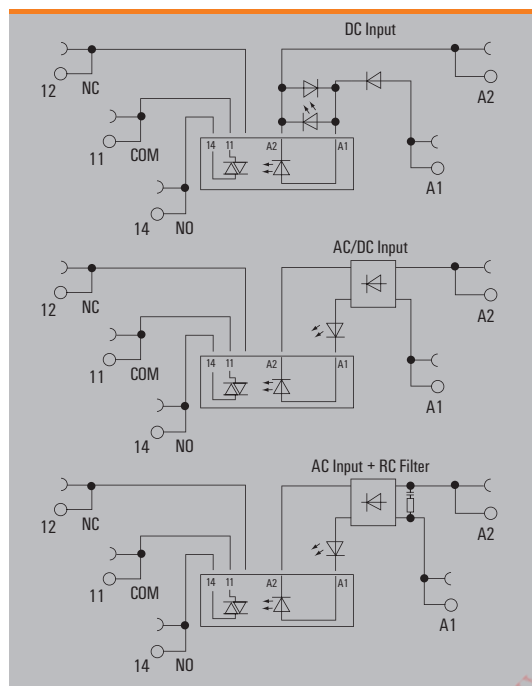
Output versions

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



Relay modules and solid-state relays in 6 mm width

A

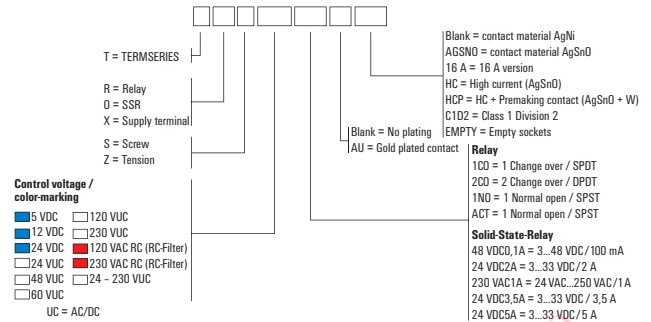


Technical data

Load side			
Rated switching voltage	24...240 V AC		
Continuous current	1 A		
Inrush current	15 A / 10 ms		
Solid-state type	Triac (zero-cross switch)		
Voltage drop at max. load	≤ 1.6 V		
Leakage current	< 1.5 mA		
Protective circuit, load side	RC element		
Short-circuit-proof / Protective circuit, load side	No / RC element		
General data			
Ambient temperature (operational)	-20 °C...60 °C		
Storage temperature	-40 °C...70 °C		
Humidity	5-95% rel. humidity, T <sub>v</sub> = 40°C, no condensation		
Approvals	CE, cULus, DNVGL, EAC		
Insulation coordinates			
Rated voltage	300 V		
Impulse withstand voltage	6 kV (1.2/50 μs)		
Dielectric strength for control side - load side	2.5 kV <sub>eff</sub>		
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 1 min.		
Clearance and creepage distances for control side - load side	≥ 5.5 mm		
Overvoltage category	III		
Pollution degree	2		
Dimensions		Screw connection	Tension clamp conn.
Clamping range (nominal / min. / max.)	mm <sup>2</sup>	1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm	87.8 / 6.4 / 89.6	87.8 / 6.4 / 90.5
<b>Note</b>		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.	

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

Output versions



Ordering data

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

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

Ordering data

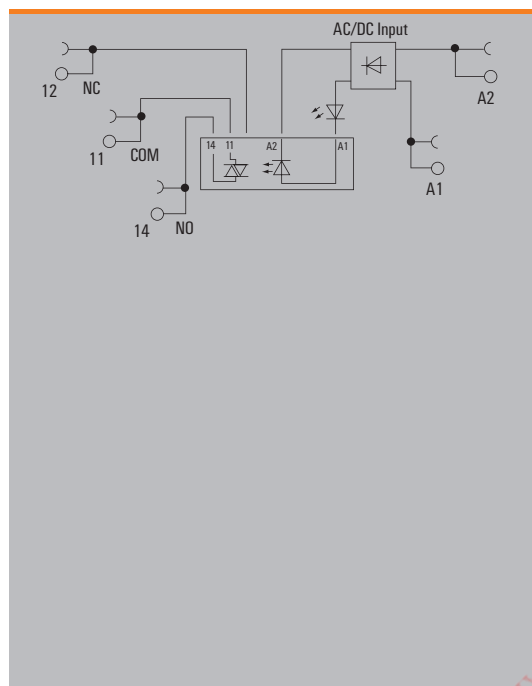
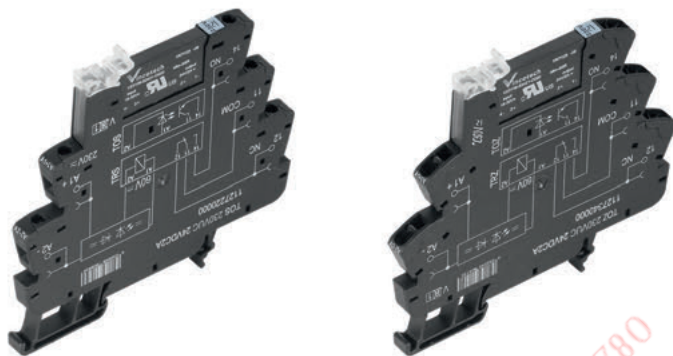
	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
<b>Control side</b>					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC +5 %/-10 %	120 V AC ±10 %	230 V AC +5 %/-10 %
Nominal control current	5 mA AC (±20 %), 3 mA DC (±20 %)	5 mA AC (±30 %), 3 mA DC (±30 %)	3.5 mA AC (±30 %), 3 mA DC (±30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

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

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

**Output versions, multi-voltage input**

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



**Technical data**

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

**Ordering data**

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

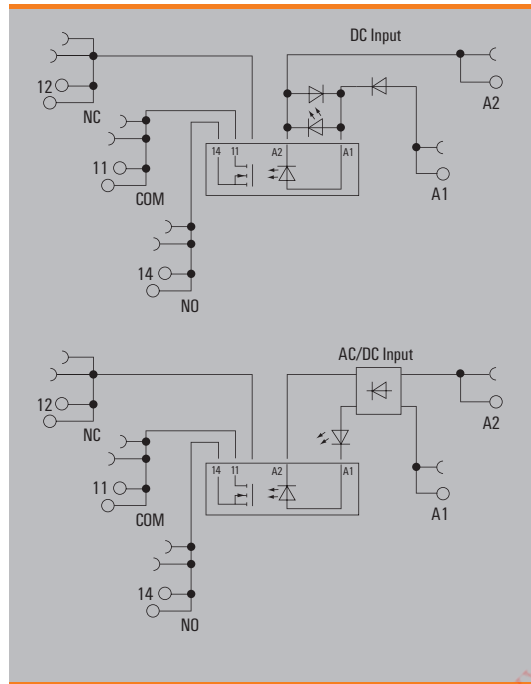
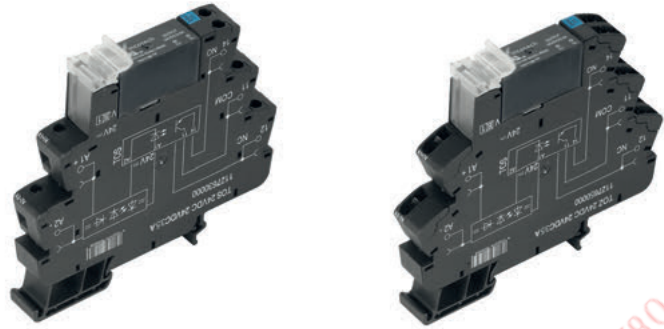


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**Solid-state relay, 0...33 V DC / 3.5 A**

**Output versions**

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



**Technical data**

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

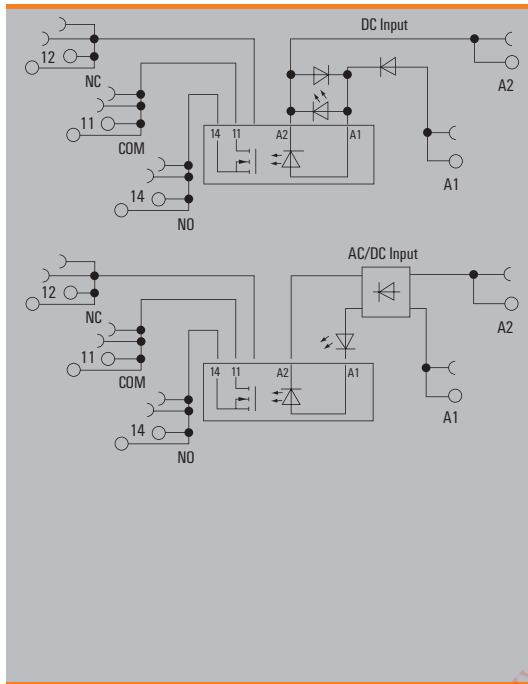
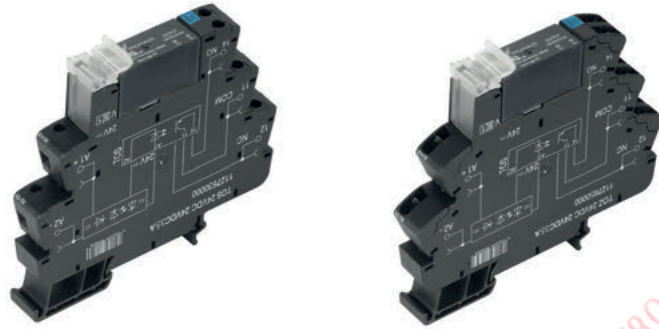
**Ordering data**

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

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

**Output versions**

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



**Technical data**

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

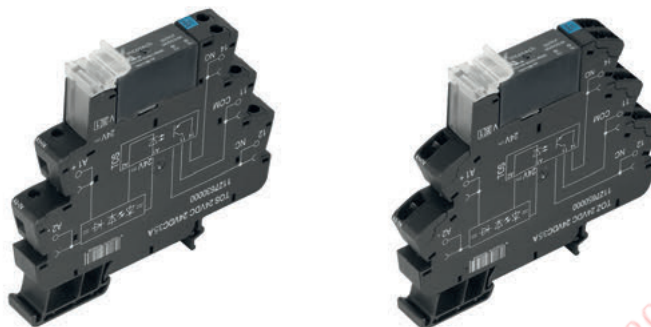
**Ordering data**

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

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

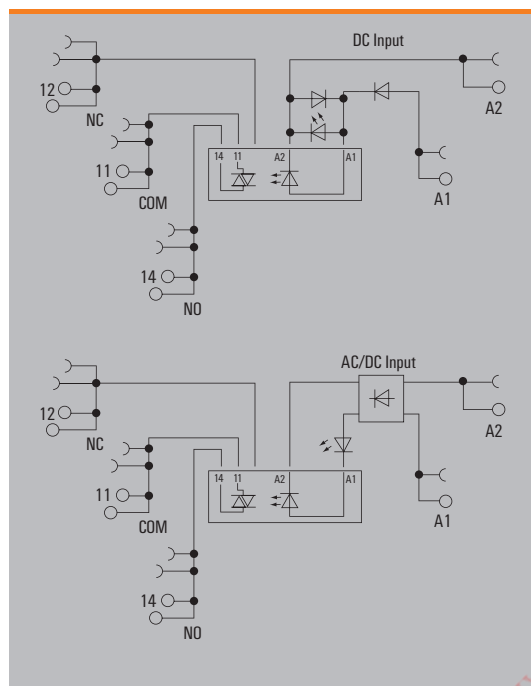
Output versions

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



Relay modules and solid-state relays in 6 mm width

A



Technical data

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

Ordering data

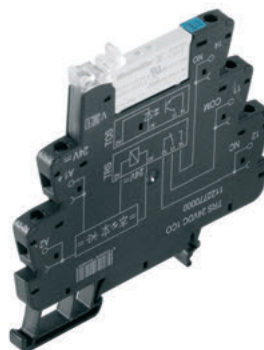
	24 V DC	24 V - 230 V UC
<b>Control side</b>		
Rated control voltage	24 V DC ±20 %	24...230 V UC ±10 %
Nominal control current	10 mA DC ±20 %	28 mA @ 24 V UC, 4 mA @ 230 V UC
Power rating	240 mW	672 mW @ 24 V UC, 920 mW @ 230 V UC
Cut-in / dropout voltage	15 V / 5 V DC	12 V / 6 V AC 12 V / 5 V DC
max.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

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

1 CO contact, cl. 1, div. 2

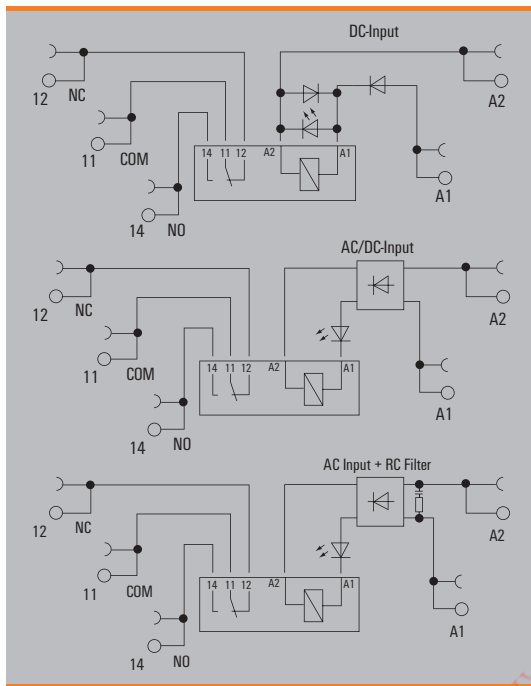
AC / DC / UC coil

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



Relay modules and solid-state relays in 6 mm width

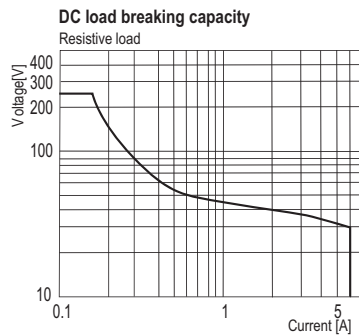
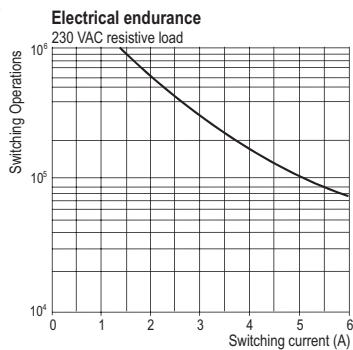
A



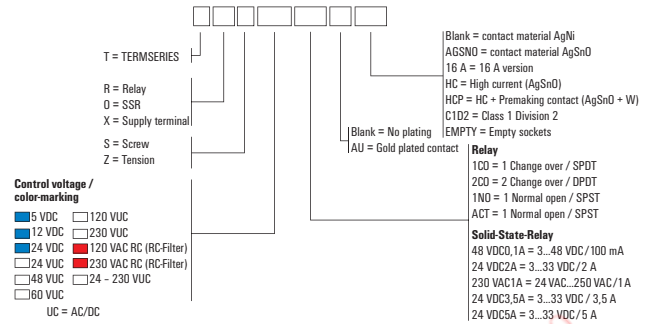
Technical data

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

Applications



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



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

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

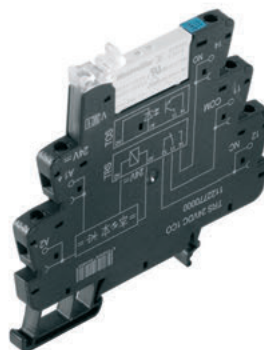
Relay modules and solid-state relays  
in 6 mm width  
**A**

1 CO contact, cl. 1, div. 2

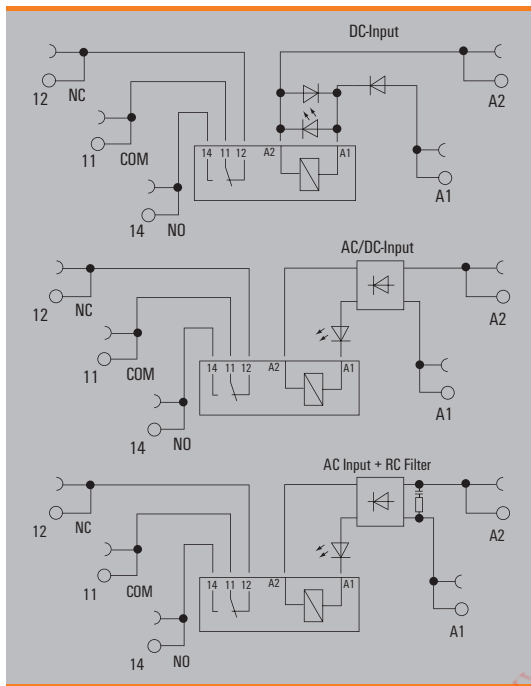
With hard gold-plated contacts

AC / DC / UC coil

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



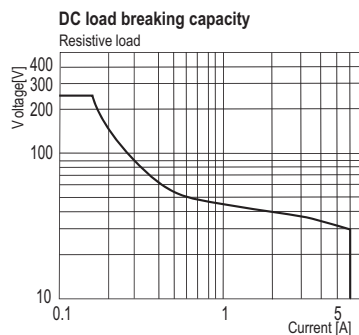
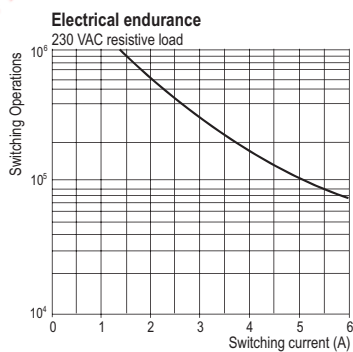
A



Technical data

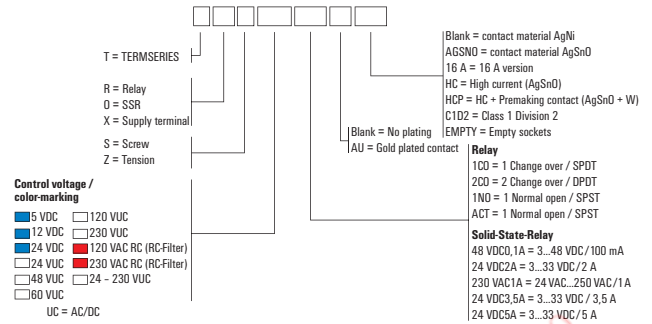
<b>Output</b>	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	250 V
Inrush current	20 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
DC / AC Switching capacity (resistive), max.	144 W @ 24 V / 1500 VA
Contact material	AgNi 5µm Au
Mechanical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

Applications





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



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

Relay modules and solid-state relays in 6 mm width

**A**

RSS Relais



Technical data	
Contact type	1 CO contact (AgNi)
Max. switching voltage, AC	250 V
Max. switching voltage, DC	250 V
Rated switching voltage	6 A
Min. switching power	100 mA @ 5 V 10 mA @ 10 V 1 mA @ 24 V
Mechanical service life	5 x 10 <sup>6</sup>
Switch-on delay	< 8 ms
Switch-off delay	< 4 ms
Operating temperature	-40 °C...85 °C
Storage temperature	-40 °C...85 °C
Pull-in/drop-out voltage, typ.	70 % / 5 % U <sub>NOM</sub>
<b>Note</b>	

RSS113...	
Contact type	1 CO contact (AgNi)
Max. switching voltage, AC	250 V
Max. switching voltage, DC	250 V
Rated switching voltage	6 A
Min. switching power	100 mA @ 5 V 10 mA @ 10 V 1 mA @ 24 V
Mechanical service life	5 x 10 <sup>6</sup>
Switch-on delay	< 8 ms
Switch-off delay	< 4 ms
Operating temperature	-40 °C...85 °C
Storage temperature	-40 °C...85 °C
Pull-in/drop-out voltage, typ.	70 % / 5 % U <sub>NOM</sub>
<b>Note</b>	

RSS112...	
Contact type	1 CO contact (AgNi 5uAu) <sup>1)</sup>
Max. switching voltage, AC	250 V
Max. switching voltage, DC	250 V
Rated switching voltage	6 A
Min. switching power	1 mA @ 1 V
Mechanical service life	5 x 10 <sup>6</sup>
Switch-on delay	< 8 ms
Switch-off delay	< 4 ms
Operating temperature	-40 °C...85 °C
Storage temperature	-40 °C...85 °C
Pull-in/drop-out voltage, typ.	70 % / 5 % U <sub>NOM</sub>
<b>Note</b>	

RSS111...	
Contact type	1 CO contact (AgSnO)
Max. switching voltage, AC	250 V
Max. switching voltage, DC	250 V
Rated switching voltage	6 A
Min. switching power	100 mA @ 12 V
Mechanical service life	5 x 10 <sup>6</sup>
Switch-on delay	< 8 ms
Switch-off delay	< 4 ms
Operating temperature	-40 °C...85 °C
Storage temperature	-40 °C...85 °C
Pull-in/drop-out voltage, typ.	70 % / 5 % U <sub>NOM</sub>
<b>Note</b>	

Similar to figure

Type	Rated control voltage	Rated current DC
RSS...005	5 V DC	34 mA
RSS...012	12 V DC	14 mA
RSS...024	24 V DC	7 mA
RSS...060	60 V DC	3 mA

Order No.
4061580000
4061610000
4060120000
4061630000

Order No.
1174540000
1220670000
4061590000
4061600000

Order No.
1984100000
1984110000
1984090000
1984120000

RCL relay module



Technical data	
Contact type	2 CO contact (AgNi)
Max. switching voltage, AC	250 V
Max. switching voltage, DC	250 V
Rated switching voltage	8 A
Min. switching power	100 mA @ 5 V 10 mA @ 10 V 1 mA @ 24 V
Mechanical service life	30 x 10 <sup>6</sup>
Switch-on delay	< 8 ms
Switch-off delay	< 6 ms
Operating temperature	-40 °C...85 °C
Storage temperature	-40 °C...85 °C
Pull-in/drop-out voltage, typ.	70 % / 10 % U <sub>NOM</sub>
<b>Note</b>	

RCL424...	
Contact type	2 CO contact (AgNi)
Max. switching voltage, AC	250 V
Max. switching voltage, DC	250 V
Rated switching voltage	8 A
Min. switching power	100 mA @ 5 V 10 mA @ 10 V 1 mA @ 24 V
Mechanical service life	30 x 10 <sup>6</sup>
Switch-on delay	< 8 ms
Switch-off delay	< 6 ms
Operating temperature	-40 °C...85 °C
Storage temperature	-40 °C...85 °C
Pull-in/drop-out voltage, typ.	70 % / 10 % U <sub>NOM</sub>
<b>Note</b>	

RCL425...	
Contact type	1 CO contact (AgNi 5uAu) <sup>1)</sup>
Max. switching voltage, AC	250 V
Max. switching voltage, DC	250 V
Rated switching voltage	8 A
Min. switching power	1 mA @ 1 V
Mechanical service life	30 x 10 <sup>6</sup>
Switch-on delay	< 8 ms
Switch-off delay	< 6 ms
Operating temperature	-40 °C...85 °C
Storage temperature	-40 °C...85 °C
Pull-in/drop-out voltage, typ.	70 % / 10 % U <sub>NOM</sub>
<b>Note</b>	

Similar to figure

Type	Rated control voltage	Rated current DC
RCL...005	5 V DC	80 mA
RCL...012	12 V DC	33 mA
RCL...024	24 V DC	16 mA
RCL...048	48 V DC	8 mA
RCL...060	60 V DC	6 mA
RCL...110	110 V DC	3 mA

Order No.
8693790000
4058560000
4058570000
4058750000
4058760000
4058590000

Order No.
1174490000
4074580000
4058580000
1201230000
1201260000
8828370000

**Small solid-state relay**



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

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

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

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

**Similar to figure**

Note	

Note	

Note	

Note	

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

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

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

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

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

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

**Solid-state relay**



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

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

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

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

**Similar to figure**

Note	

Note	

Note	

Note	

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

Rated control voltage
10...32 V DC

Nominal control current
3...13 mA

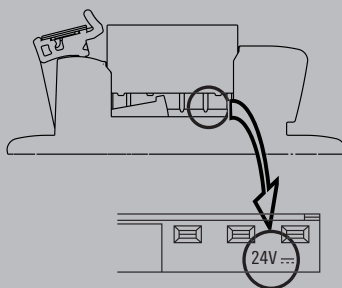
Order No.
1132310000

Order No.
1421450000

Order No.
1132290000

Accessories

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



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

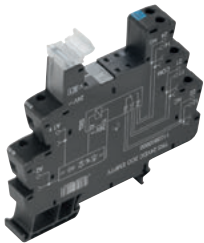
Empty socket 6,4 mm



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

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

Empty socket 12,8 mm



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

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

Connection data

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

Pluggable cross connection



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

Supply terminal



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

Other accessories



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

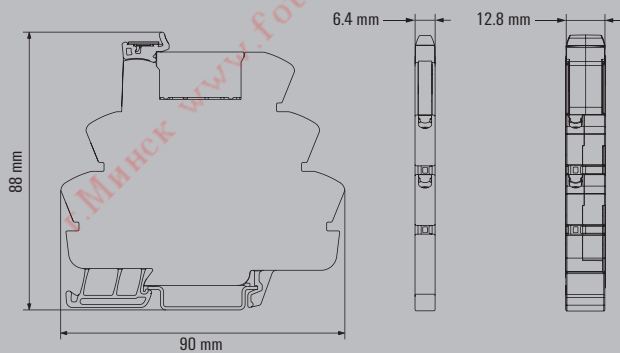


Markers	Note	Qty.	Order No.
WS 10/6 MC Middle	10 * 6 mm	600	1818400000
Screwdriver	Note		
SDK PH0	only screw connection	1	9008470000
SD 0.6 x 3.5 x 100		1	9008330000
SD TO 0.6 x 3.0	only tension clamp connection (angled)	1	1323880000

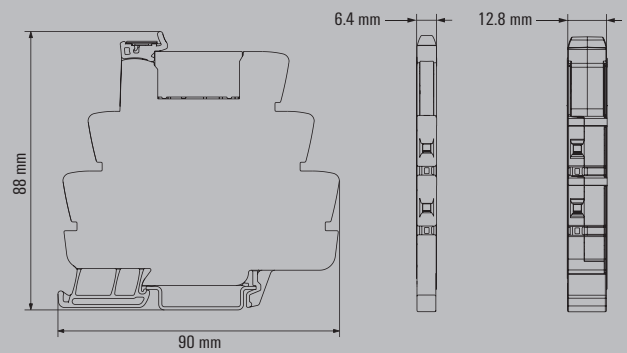
End bracket	Qty.	Order No.
WEW35/2 SW	100	1061210000

Dimensions

Tension clamp connection



Screw connection



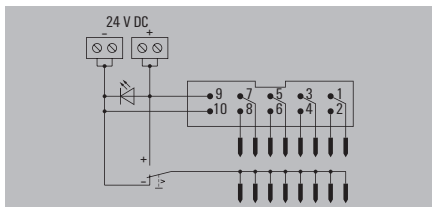
г. Минск [www.fotorele.net](http://www.fotorele.net) [www.tiristor.by](http://www.tiristor.by) email [minsk17@tut.by](mailto:minsk17@tut.by) тел. +375447584780

**TERMSERIES – adapters**

**TERMSERIES – adapters**

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

**TIA F10**



**Technical data**

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

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

**Ordering data**

<b>Type</b>		
TIA F10	Qty. 1	Order No. 1463520000
<b>Note</b>		
Suitable for 6.4 mm wide TERMSERIES base		

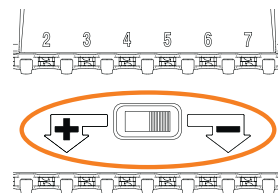
<b>Type</b>		
TIA F10	Qty. 1	Order No. 1463520000
<b>Note</b>		
Suitable for 6.4 mm wide TERMSERIES base		

**Accessories**

<b>Note</b>		
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<b>Note</b>		
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**Potential change-over switch**



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

**Installation input**

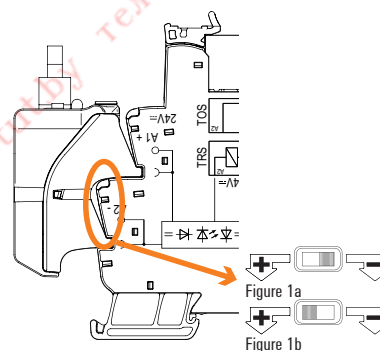


Figure 1a: **Positive-switching logic:** Potential change-over switch to "-", installation on **24 V DC input** (A1/A2).  
Figure 1b: **Negative-switching logic:** Potential change-over switch to "+", installation on **24 V UC input** (A1/A2).

**Installation output**

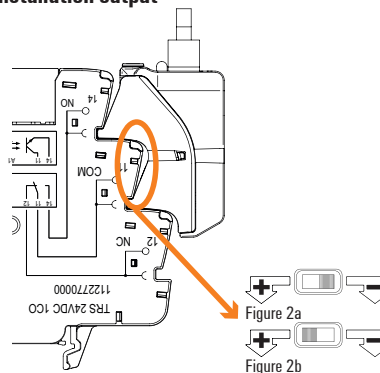


Figure 2a: **Positive-switching logic:** Potential change-over switch to "+", installation on output (11/14).  
Figure 2b: **Negative-switching logic:** Potential change-over switch to "-", installation on output (11/14).



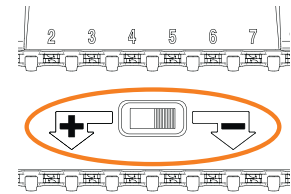
**TERMSERIES – adapters**

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

**TIA SUBD 15S**



**Potential change-over switch**



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

**Installation input**

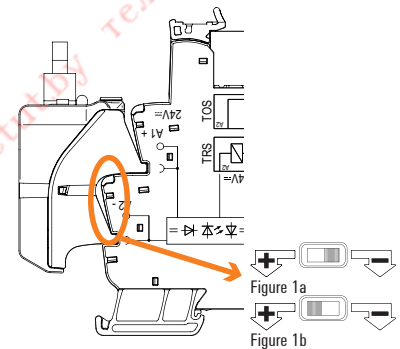


Figure 1a: **Positive-switching logic:** Potential change-over switch to “-”, installation on **24 V DC input** (A1/A2).  
Figure 1b: **Negative-switching logic:** Potential change-over switch to “+”, installation on **24 V UC input** (A1/A2).

**Installation output**

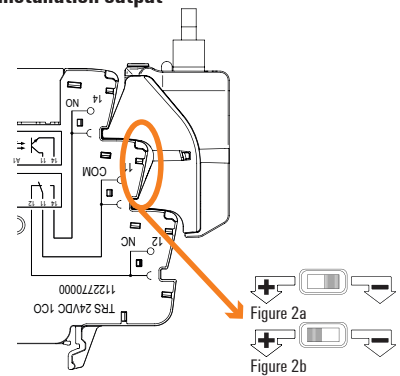
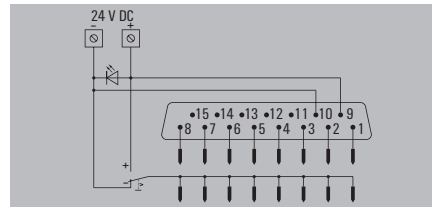


Figure 2a: **Positive-switching logic:** Potential change-over switch to “+”, installation on output (11/14).  
Figure 2b: **Negative-switching logic:** Potential change-over switch to “-”, installation on output (11/14).



**Technical data**

<b>Supply</b>	
Supply voltage	24 V DC ± 20 %
Status display	Green LED
<b>Signals</b>	
Rated voltage	24 V DC
Voltage, max.	30 V DC
Rated current (per signal path)	125 mA
Current (per signal path), max.	1 A
Total current of all signals, max.	1 A
Number of signal paths	8
<b>Connection data (supply)</b>	
Wire connection method	PUSH IN
Clamping range, rated connection, min.	0.13 mm <sup>2</sup>
Clamping range, rated connection, max.	1.5 mm <sup>2</sup>
Number of terminals	2 (+,-)
<b>Connection data (signal)</b>	
Plug type	Sub-D, 15-pole, DIN 41652 / IEC 60807
<b>General data</b>	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5...95% (indoor), T <sub>a</sub> = 40°C, no condensation
UL 94 flammability rating	V-0
Approvals	CE; cULus; DNVGL
<b>Insulation coordination</b>	
Pollution degree	2
Overvoltage category	III
Impulse withstand voltage	1.5 kV
Rated voltage	32 V
Protection degree	IP20 in installed state
<b>Dimensions</b>	
Depth x width x height	52 / 51 / 43 mm
<b>Note</b>	

<b>Supply</b>		
Supply voltage	24 V DC ± 20 %	
Status display	Green LED	
<b>Signals</b>		
Rated voltage	24 V DC	
Voltage, max.	30 V DC	
Rated current (per signal path)	125 mA	
Current (per signal path), max.	1 A	
Total current of all signals, max.	1 A	
Number of signal paths	8	
<b>Connection data (supply)</b>		
Wire connection method	PUSH IN	
Clamping range, rated connection, min.	0.13 mm <sup>2</sup>	
Clamping range, rated connection, max.	1.5 mm <sup>2</sup>	
Number of terminals	2 (+,-)	
<b>Connection data (signal)</b>		
Plug type	Sub-D, 15-pole, DIN 41652 / IEC 60807	
<b>General data</b>		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5...95% (indoor), T <sub>a</sub> = 40°C, no condensation	
UL 94 flammability rating	V-0	
Approvals	CE; cULus; DNVGL	
<b>Insulation coordination</b>		
Pollution degree	2	
Overvoltage category	III	
Impulse withstand voltage	1.5 kV	
Rated voltage	32 V	
Protection degree	IP20 in installed state	
<b>Dimensions</b>		
Depth x width x height	52 / 51 / 43 mm	
<b>Note</b>		

**Ordering data**

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

**Note**

Suitable for 6.4 mm wide TERMSERIES base

**Accessories**

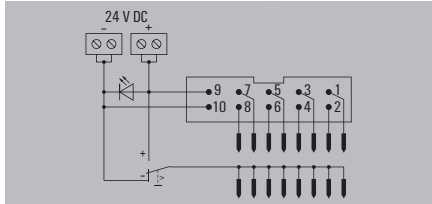
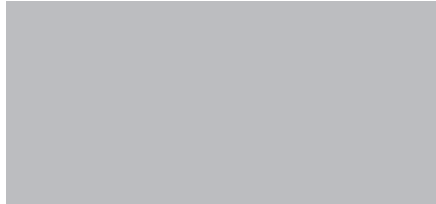
**Note**

**TERMSERIES – adapters**

**TERMSERIES – adapters**

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

**TIAL F10**



**Technical data**

**Supply**

Supply voltage  
Status display

**Signals**

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

**Connection data (supply)**

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

**Connection data (signal)**

Plug type

**General data**

Ambient temperature (operational)  
Storage temperature  
Humidity  
UL 94 flammability rating  
Approvals  
CE; cULus; DNVGL

**Insulation coordination**

Pollution degree  
Overvoltage category  
Impulse withstand voltage  
Rated voltage  
Protection degree

**Dimensions**

Depth x width x height mm

**Note**

**Ordering data**

**Note**

**Accessories**

**Note**

**24 V DC ± 20 %**

Green LED

24 V DC  
30 V DC

125 mA  
1 A

1 A  
8

**PUSH IN**

0.13 mm<sup>2</sup>  
1.5 mm<sup>2</sup>

4 (+,+,-,-)

10-pole plug according to DIN EN 60603-13, long locking lever

-40 °C...60 °C  
-40 °C...85 °C

5...95% (indoor), T<sub>a</sub> = 40°C, no condensation  
V-0

CE; cULus; DNVGL

2  
III

1.5 kV  
32 V

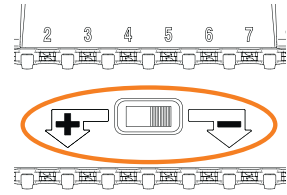
IP20 in installed state

62 / 102 / 43

Type	Qty.	Order No.
TIAL F10	1	1463540000

Suitable for 12.8 mm wide TERMSERIES base

**Potential change-over switch**



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

**Installation input**

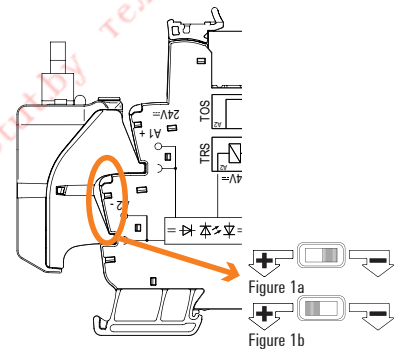


Figure 1a: **Positive-switching logic:** Potential change-over switch to "-", installation on **24 V DC input (A1/A2)**.  
Figure 1b: **Negative-switching logic:** Potential change-over switch to "+", installation on **24 V UC input (A1/A2)**.

**Installation output**

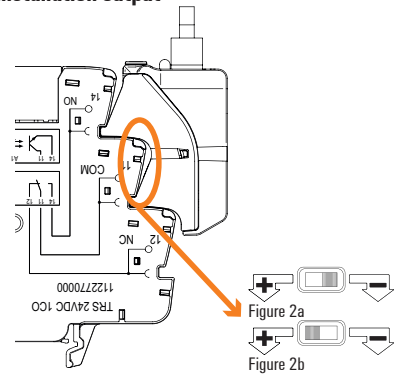
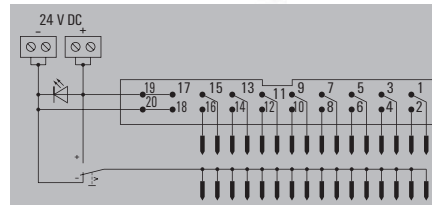


Figure 2a: **Positive-switching logic:** Potential change-over switch to "+", installation on output (11/14).  
Figure 2b: **Negative-switching logic:** Potential change-over switch to "-", installation on output (11/14).

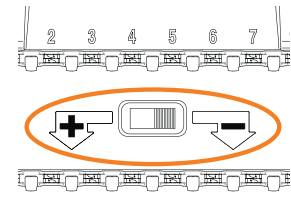
**TERMSERIES – adapters**

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

**TIAL F20**



**Potential change-over switch**



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

**Installation input**

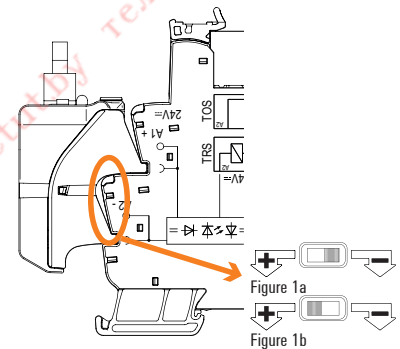


Figure 1a: **Positive-switching logic:** Potential change-over switch to “-”, installation on **24 V DC input** (A1/A2).  
Figure 1b: **Negative-switching logic:** Potential change-over switch to “+”, installation on **24 V UC input** (A1/A2).

**Installation output**

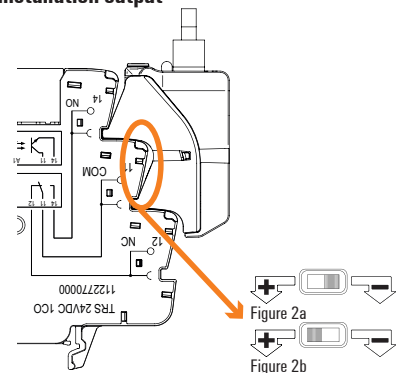


Figure 2a: **Positive-switching logic:** Potential change-over switch to “+”, installation on **output** (11/14).  
Figure 2b: **Negative-switching logic:** Potential change-over switch to “-”, installation on **output** (11/14).

**Technical data**

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

<b>Dimensions</b>	
Depth x width x height	62 / 102 / 43 mm

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

Type	Qty.	Order No.
TIAL F20	1	1463550000

<b>Note</b>	Suitable for 6.4 mm wide TERMSERIES base
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**Accessories**

<b>Note</b>	
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# No-wear isolation of potentials in terminal block design

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

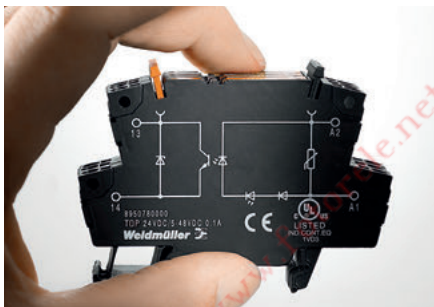


The TERMOPTO opto modules are characterised by a particularly compact design, pluggable cross-connections and an optimal price-performance ratio.

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

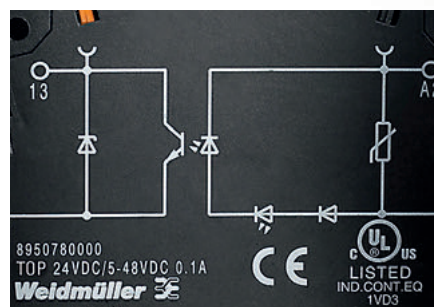
### Compact

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



### Long lifetime

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



**Status indicator**

LED status indicator provides information on the switching state.



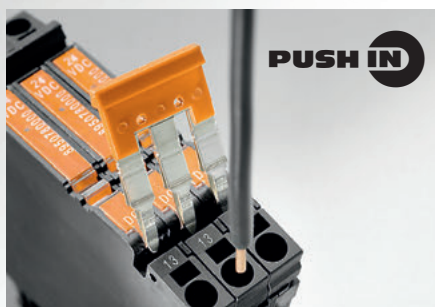
**Closed design**

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



**Time-saving**

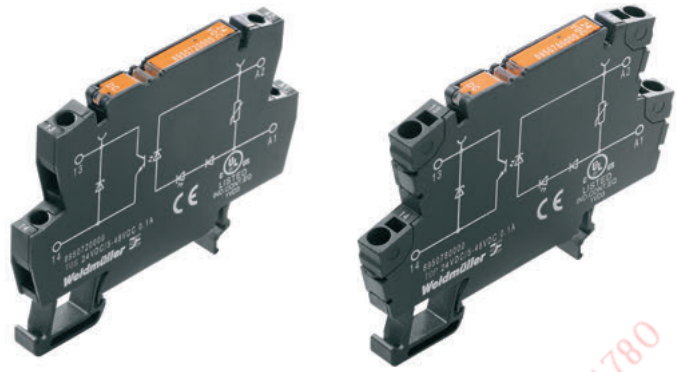
PUSH IN screwless connection system and the pluggable cross-connection reduce wiring time by > 50 %.



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

Output versions

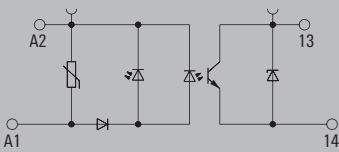
- Space-saving 6.1 mm width
- Plug-in cross-connections
- Screw and PUSH IN wire connection
- Enclosed design



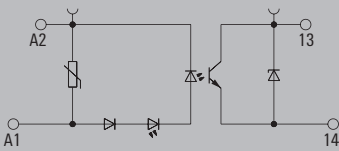
Relay modules and solid-state relays in 6 mm width

A

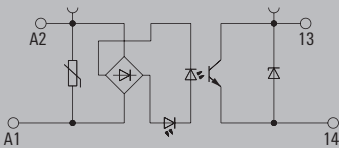
5 V DC



12...220 DC



24...230 V AC



Technical data

Load side	
Rated switching voltage	5...48 V DC
Continuous current	100 mA
Inrush current	
Solid-state type	Transistor
Voltage drop at max. load	< 1 V
Leakage current	< 10 µA
Protective circuit, load side	Free-wheel diode
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Humidity	5-95% rel. humidity, T <sub>v</sub> = 40°C, no condensation
Approvals	CE, cULus, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	1.2 kV <sub>eff</sub> / 1 min.
Dielectric strength to mounting rail	
Clearance and creepage distances for control side - load side	> 3 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 2.5 / 0.5 / 4
Depth x width x height	mm 55 / 6.1 / 74.4
	mm 55 / 6.1 / 79.4
Note	
Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

Applications

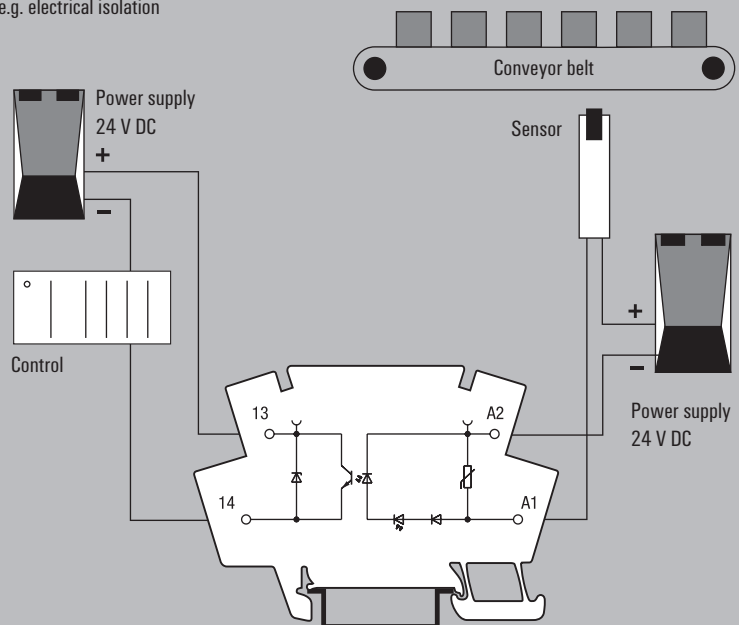
The TERMOPTO opto module is used in industrial applications in which electrical isolation and signal conditioning without switching amplification is sufficient.

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

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

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

e.g. electrical isolation



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

Output versions

Ordering data	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
<b>Control side</b>					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	48...60 V DC ±20 %	110 V DC ±20 %
Nominal control current	7.7 mA DC	7.8 mA DC	7 mA DC	4.3 mA DC	2.6 mA DC
Power rating	< 40 mW	< 95 mW	≤ 170 mW	< 200 mW	< 280 mW
Cut-in / dropout voltage	4 V / 1.25 V DC	9.6 V / 3 V DC	19.2 V / 6 V DC	38.4 V / 12 V DC	88 V / 27.5 V DC
max. switching frequency (DC control voltage)	3000 Hz	3000 Hz	3000 Hz	500 Hz	500 Hz
max. switching frequency (AC control voltage)					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection
<b>Load side</b>					
Switch-on delay	< 13 µs	< 13 µs	< 13 µs	< 170 µs	< 170 µs
Switch-off delay	< 42 µs	< 42 µs	< 42 µs	< 310 µs	< 310 µs

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

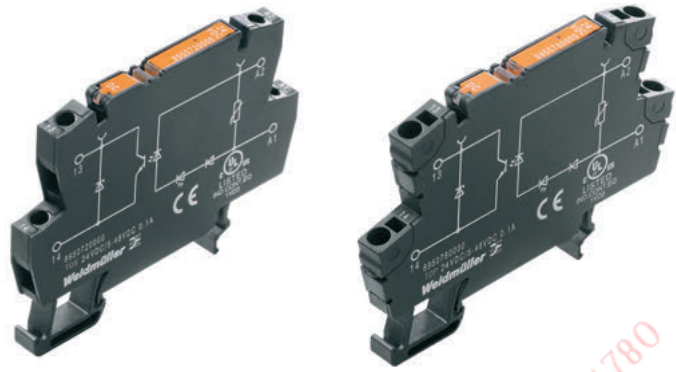
Ordering data	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
<b>Control side</b>					
Rated control voltage	220 V DC +10 % / -15 %	24 V AC ±20%	48...60 V AC ±20 %	120 V AC ±20 %	230 V AC +10 % / -20 %
Nominal control current	1.65 mA DC	7.4 mA AC	4.3 mA AC	2.9 mA AC	1.75 mA AC
Power rating	≤ 360 mW	< 0.18 VA	≤ 0.2 VA	≤ 0.3 VA	≤ 0.4 VA
Cut-in / dropout voltage	187 V / 55 V DC	21.6 V / 9.6 V AC	38.4 V / 19.2 V AC	102 V / 48 V AC	207 V / 92 V AC
max. switching frequency (DC control voltage)	500 Hz				
max. switching frequency (AC control voltage)		10 Hz	10 Hz	10 Hz	10 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, Reverse polarity protection	Varistor	Varistor	Varistor	Varistor
<b>Load side</b>					
Switch-on delay	< 170 µs	< 12 ms	< 12 ms	< 12 ms	< 12 ms
Switch-off delay	< 310 µs	< 14 ms	< 14 ms	< 14 ms	< 14 ms

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

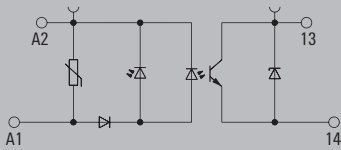
**Solid-state relays, 5...48 V DC / 500 mA**

**Output versions**

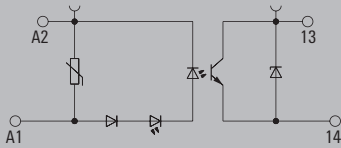
- Space-saving 6.1 mm width
- Plug-in cross-connections
- Screw and PUSH IN wire connection
- Enclosed design



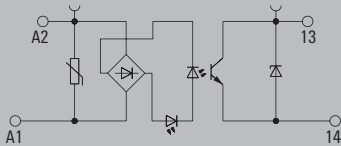
**5 V DC**



**12...220 DC**



**24...230 V AC**



**Technical data**

Load side		
Rated switching voltage	5...48 V DC	
Continuous current	500 mA	
Inrush current		
Solid-state type	Transistor	
Voltage drop at max. load	< 1 V	
Leakage current	< 10 µA	
Protective circuit, load side	Free-wheel diode	
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode	
General data		
Ambient temperature (operational)	-20 °C...60 °C	
Storage temperature	-40 °C...80 °C	
Humidity	5-95% rel. humidity, T <sub>v</sub> = 40°C, no condensation	
Approvals	CE, cULus, EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	4 kV (1.2/50 µs)	
Dielectric strength for control side - load side	1.2 kV <sub>eff</sub> / 1 min.	
Dielectric strength to mounting rail		
Clearance and creepage distances for control side - load side	> 3 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions		
	Screw connection	PUSH IN connection
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Depth x width x height	mm 55 / 6.1 / 74.4	55 / 6.1 / 79.4
<b>Note</b>	Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

**Applications**

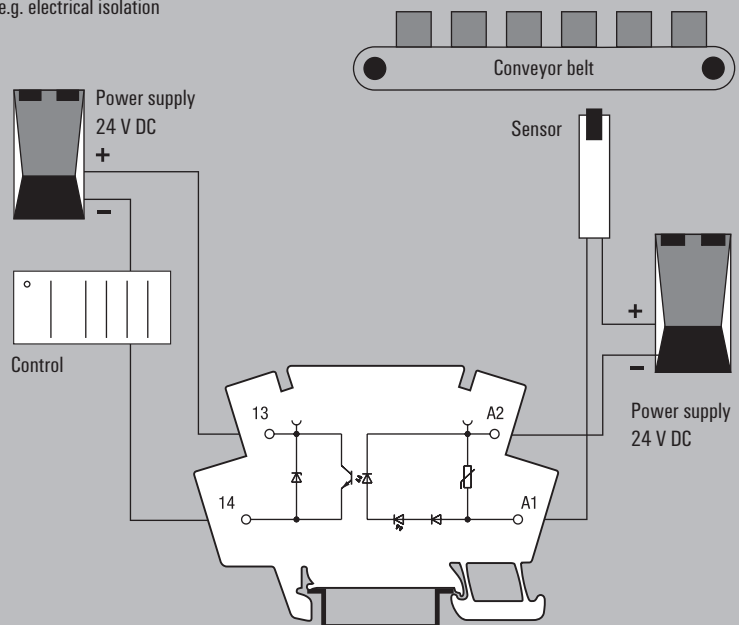
The TERMOPTO opto module is used in industrial applications in which electrical isolation and signal conditioning without switching amplification is sufficient.

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

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

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

e.g. electrical isolation





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

Output versions

Ordering data	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
<b>Control side</b>					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	48...60 V DC ±20 %	110 V DC ±20 %
Nominal control current	7.7 mA DC	7.8 mA DC	7 mA DC	4.3 mA DC	2.6 mA DC
Power rating	< 40 mW	< 95 mW	≤ 170 mW	≤ 200 mW	≤ 280 mW
Cut-in / dropout voltage	4 V / 1.25 V DC	9.6 V / 3 V DC	19.2 V / 6 V DC	38.4 V / 12 V DC	88 V / 27.5 V DC
max. switching frequency (DC control voltage)	200 Hz	200 Hz	200 Hz	200 Hz	200 Hz
max. switching frequency (AC control voltage)					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection
<b>Load side</b>					
Switch-on delay	< 20 µs	< 20 µs	< 20 µs	< 18 µs	< 18 µs
Switch-off delay	< 200 µs	< 200 µs	≤ 600 µs	< 340 µs	< 340 µs

Ordering data	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
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
<b>Note</b>					

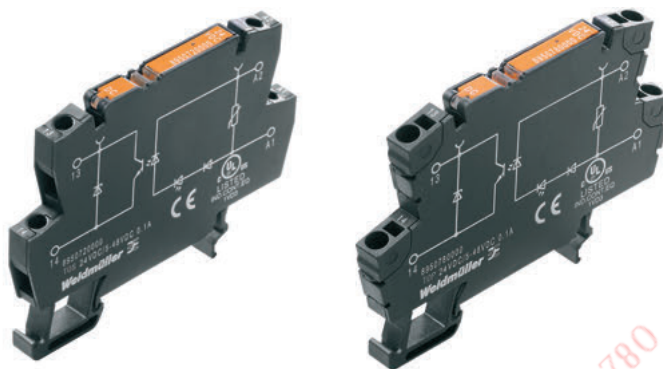
Ordering data	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
<b>Control side</b>					
Rated control voltage	220 V DC +10 % / -15 %	24 V AC ±20%	48...60 V AC ±20 %	120 V AC ±20 %	230 V AC +10 % / -20 %
Nominal control current	1.65 mA DC	7.4 mA AC	4.3 mA AC	2.9 mA AC	1.75 mA AC
Power rating	≤ 360 mW	< 0.18 VA	≤ 0.2 VA	≤ 0.3 VA	≤ 0.4 VA
Cut-in / dropout voltage	187 V / 55 V DC	21.6 V / 9.6 V AC	38.4 V / 19.2 V AC	102 V / 48 V AC	207 V / 92 V AC
max. switching frequency (DC control voltage)	200 Hz				
max. switching frequency (AC control voltage)		10 Hz	10 Hz	10 Hz	10 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, Reverse polarity protection	Varistor	Varistor	Varistor	Varistor
<b>Load side</b>					
Switch-on delay	< 18 µs	< 12 ms	< 12 ms	< 12 ms	< 12 ms
Switch-off delay	< 340 µs	< 14 ms	< 14 ms	< 14 ms	< 14 ms

Ordering data	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
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
<b>Note</b>					

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

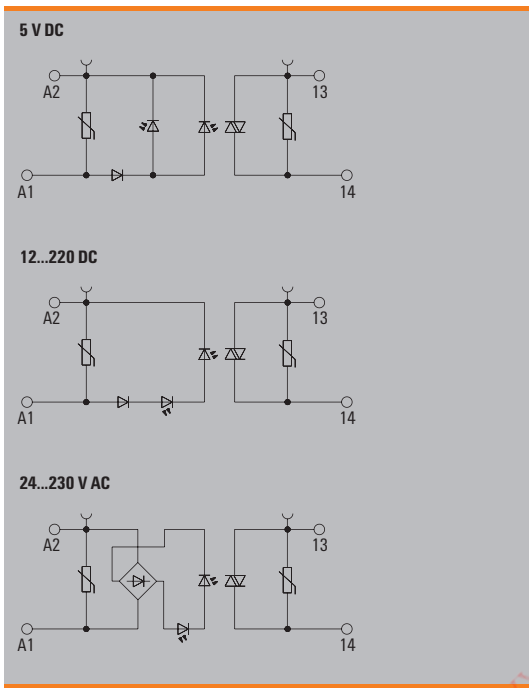
Output versions

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



Relay modules and solid-state relays in 6 mm width

A



Technical data

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

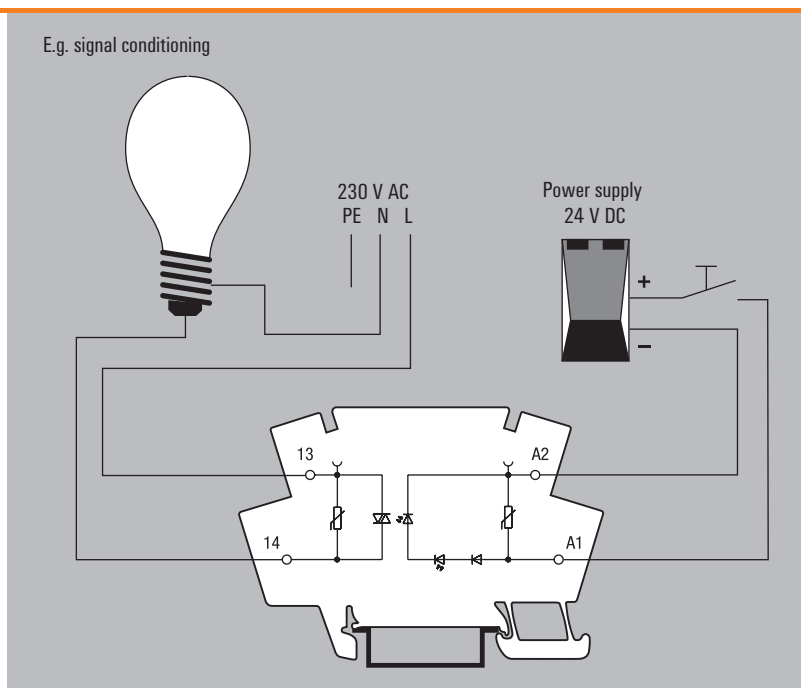
Applications

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

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

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

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



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

## Output versions

## Ordering data

	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
<b>Control side</b>					
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	48...60 V DC $\pm 20\%$	110 V DC $\pm 20\%$
Nominal control current	7.8 mA DC	3.6 mA DC	3.6 mA DC	3.7 mA DC	3.6 mA DC
Power rating	< 40 mW	< 45 mW	$\leq 80$ mW	$\leq 170$ mW	$\leq 360$ mW
Cut-in / dropout voltage	4 V / 1.25 V DC	9.6 V / 3 V DC	19.2 V / 6 V DC	38.4 V / 12 V DC	88 V / 27.5 V DC
max. switching frequency (DC control voltage)	10 Hz	10 Hz	10 Hz	10 Hz	10 Hz
max. switching frequency (AC control voltage)					
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection
<b>Load side</b>					
Switch-on delay	$\leq 10$ ms	$\leq 10$ ms	$\leq 10$ ms	$\leq 10$ ms	$\leq 10$ ms
Switch-off delay	< 12 ms	< 12 ms	< 12 ms	< 12 ms	< 12 ms

## Ordering data

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

## Ordering data

	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
<b>Control side</b>					
Rated control voltage	220 V DC $+10\%$ / $-15\%$	24 V AC $\pm 20\%$	48...60 V AC $\pm 20\%$	120 V AC $\pm 20\%$	230 V AC $+10\%$ / $-20\%$
Nominal control current	2.9 mA DC	8.8 mA AC	6.4 mA AC	8.5 mA AC	7.7 mA AC
Power rating	$\leq 640$ mW	$\leq 0.2$ VA	$\leq 0.3$ VA	$\leq 1$ VA	$\leq 1.7$ VA
Cut-in / dropout voltage	187 V / 55 V DC	19.2 V / 9.6 V AC	38.4 V / 19.2 V AC	96 V / 48 V AC	184 V / 92 V AC
max. switching frequency (DC control voltage)	10 Hz				
max. switching frequency (AC control voltage)		10 Hz	10 Hz	10 Hz	10 Hz
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Varistor, Reverse polarity protection	Varistor	Varistor	Varistor	Varistor
<b>Load side</b>					
Switch-on delay	$\leq 10$ ms	< 14 ms	< 14 ms	< 22 ms	< 22 ms
Switch-off delay	< 12 ms	< 16 ms	< 16 ms	< 18 ms	< 18 ms

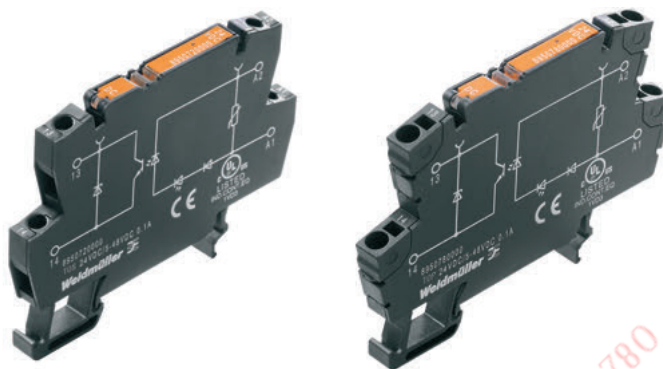
## Ordering data

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

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

**Output versions with RC element**

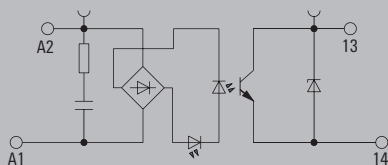
- Space-saving 6.1 mm width
- Plug-in cross-connections
- Screw and PUSH IN wire connection
- Enclosed design
- RC input circuitry for improved interference immunity



Relay modules and solid-state relays in 6 mm width

**A**

**120 V...230 V AC**



**Technical data**

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

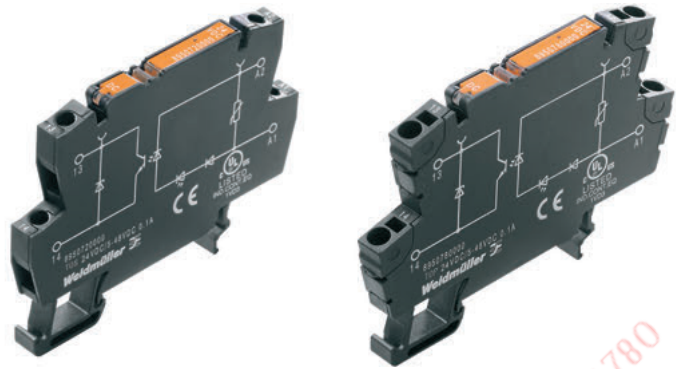
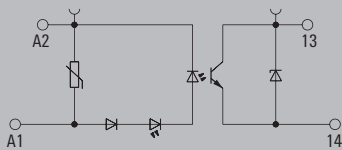
**Ordering data**

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

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

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

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

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

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

**Ordering data**

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

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

Note	

Accessories



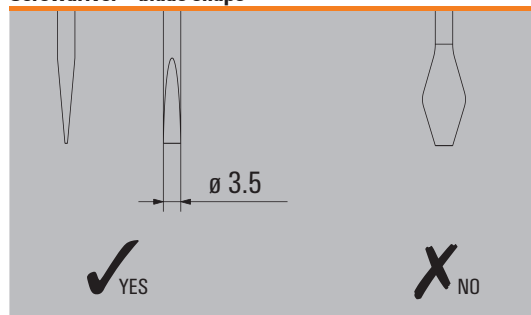
Plug-in cross-connection

Type	No. of poles	Qty.	Order No.
<b>yellow</b>			
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
<b>red</b>			
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
<b>blue</b>			
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
<b>black</b>			
ZQV 4N / 2 SW	2	60	1793970000
ZQV 4N / 3 SW	3	60	1794000000
ZQV 4N / 4 SW	4	60	1794030000
ZQV 4N / 10 SW	10	20	1794060000
ZQV 4N / 20 SW	20	20	1909120000

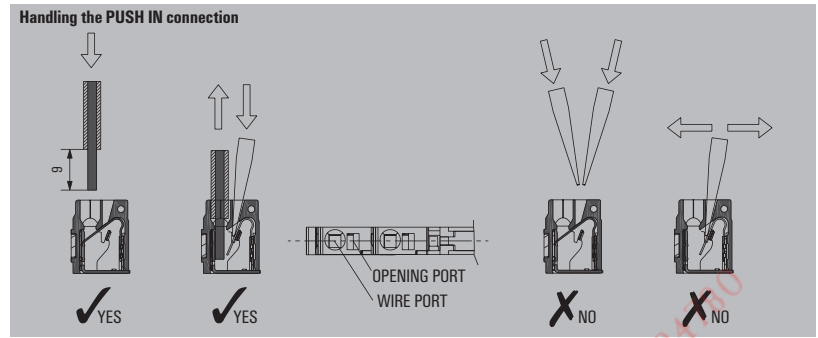
Other accessories

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

Screwdriver - blade shape



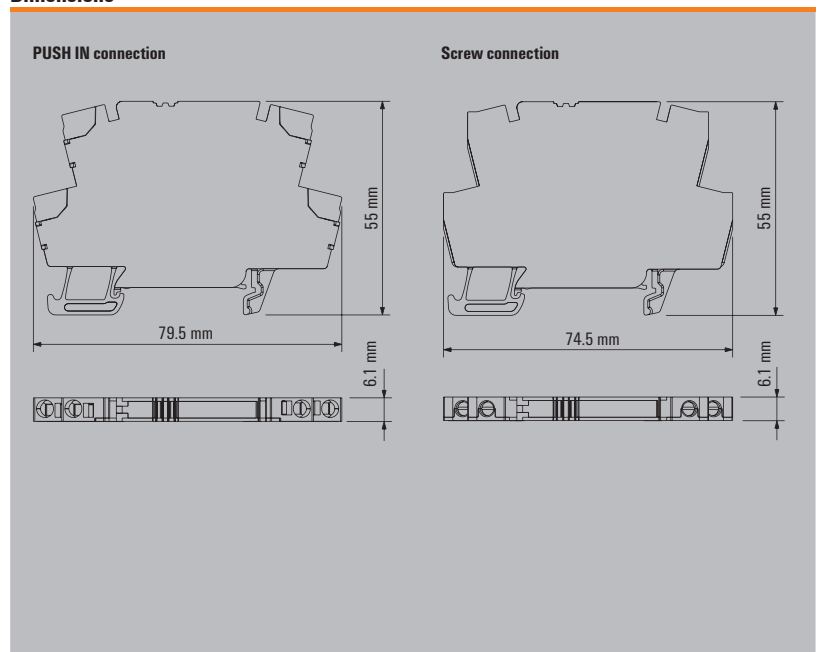
General data - TERMOPTO



Technical data

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

Dimensions



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

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

## Powerful, compact solid-state relay with error signalling contact

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

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

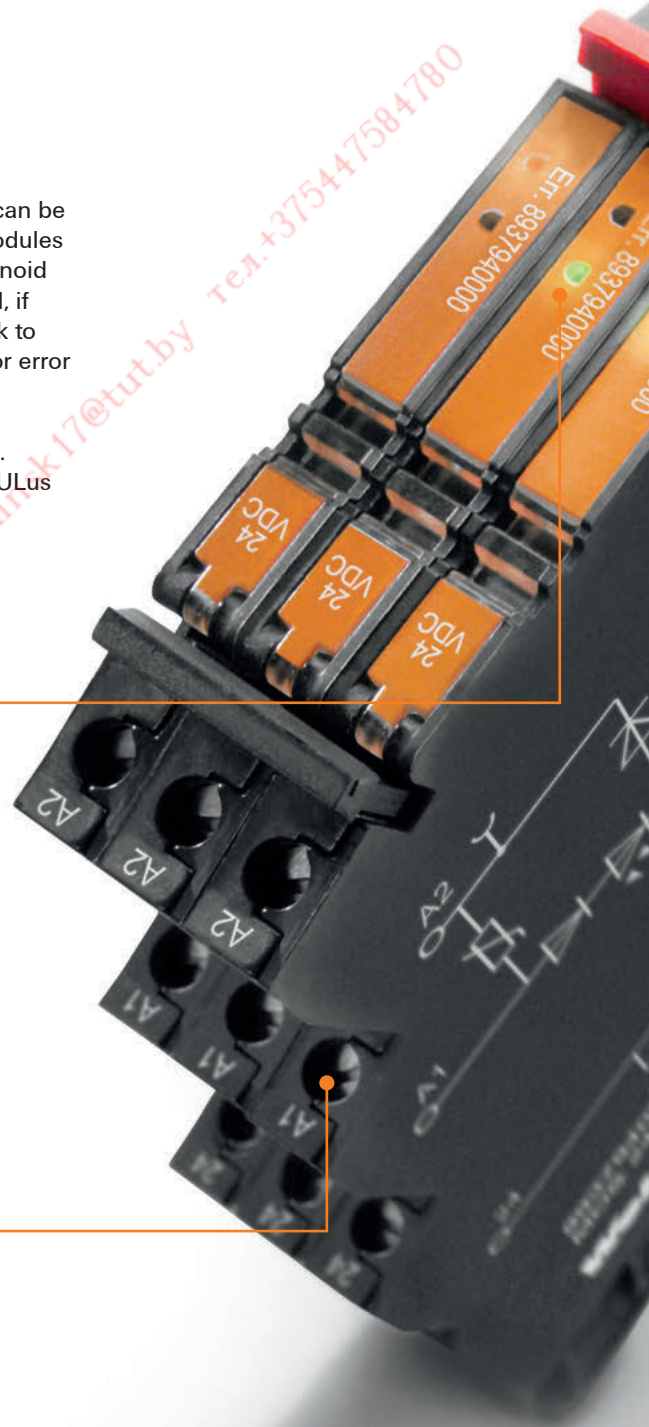
### Alarm function

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



### Space-saving

Space-saving 6 mm modular width.





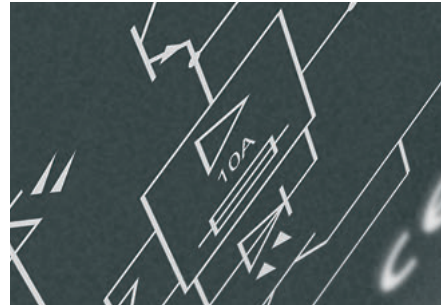
**Not sensitive**

Protected by suppressor circuit on input and output circuits.



**Tough and sturdy**

With a short-circuit-proof output.



**Auxiliary contact**

An auxiliary contact issues alerts in event of short circuits.

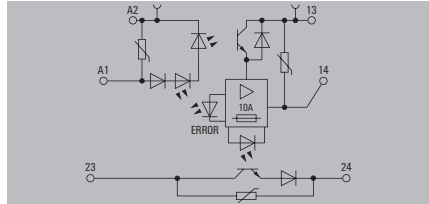


г. Минск www.fotorele.net www.tiristor.by email minsk17@tut.by тел. +375 29 447 584 780

**For switching valves up to  
24 VDC 10 A**

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

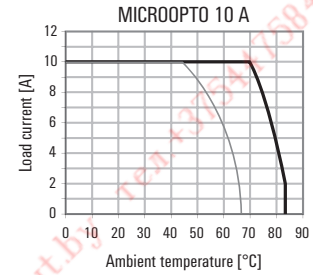
**24 V DC / 5-33 V DC 10 A**



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

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

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



**Technical data**

**Control side**

Rated control voltage  
Power rating  
Cut-in / dropout voltage

24 V DC ±20 %  
400 mW  
18 V / 13 V DC

Input frequency  
Status indicator  
Protective circuit

50 Hz  
Green LED  
Varistor, Reverse polarity protection

**Load side**

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

POWER MOS-FET  
5...33 V DC  
10 A  
approx. 100 mV  
< 1 mA  
Yes (limited for 4 h / current limitation external < 200 A) / Current sensor, Varistor, Free-wheel diode  
typical. 250 µs / typical. 700 µs  
≤ 11 A (≤ 200 µs)

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

LC A

**General data**

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

-25 °C...60 °C  
-40 °C...60 °C  
V-0  
5 - 93% rel. humidity, Tu = 40°C, no condensation  
CE; cULus; EAC; GL

**Insulation coordinates**

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

300 V  
4 kV (1.2/50 µs)  
3 kV<sub>eff</sub> / 1 min.  
4 kV<sub>eff</sub> / 1 min.  
> 3 mm  
III  
2

**Dimensions**

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

**Screw connection**

2.5 / 0.5 / 4  
97.8 / 6.1 / 88.1

**Note**

Suppressor circuitry for inductive loads, 10 cm installation clearance to inductive switching devices.

**Ordering data**

Screw connection

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

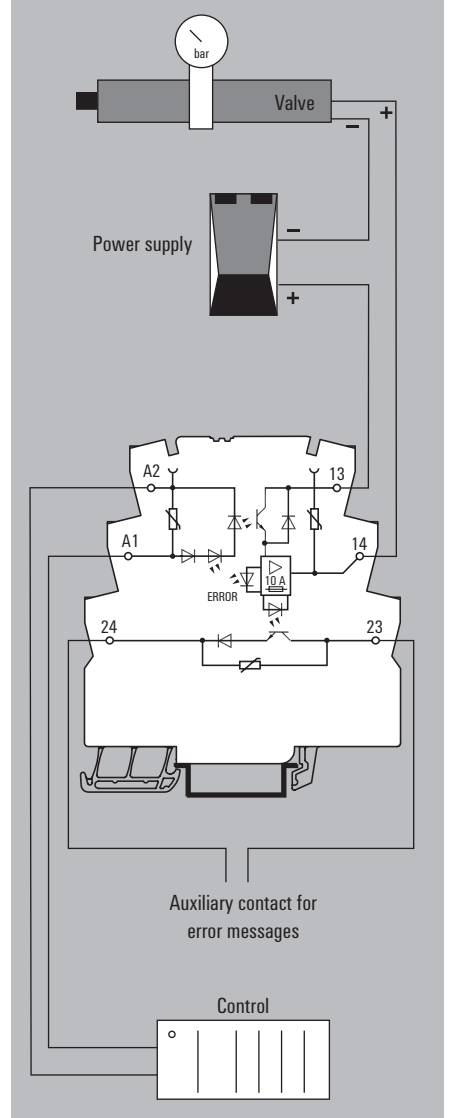
**Note**

**Accessories**

**Note**

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

e.g. pneumatic valve



**For DC loads up to 300 V DC and 1 A**

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

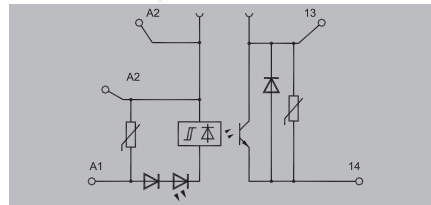
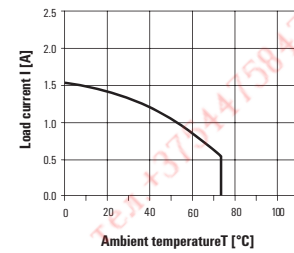
**12...300 V DC 1 A**



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

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

**derating curve**



**Technical data**

**Control side**

Rated control voltage  
Power rating  
Cut-in / dropout voltage

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

Input frequency  
Status indicator  
Protective circuit

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

**Load side**

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

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

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

< 18 µs / < 1 ms  
27 A (10 ms)  
LC A

**General data**

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

-25 °C...60 °C  
-40 °C...80 °C  
V-0  
5-95% rel. humidity, T<sub>b</sub> = 55°C, no condensation  
CE; cULus; EAC; GL

**Insulation coordinates**

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

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

**Dimensions**

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

**Screw connection**

2.5 / 0.5 / 4  
97.8 / 6.1 / 88.1

**Note**

**Ordering data**

Screw connection

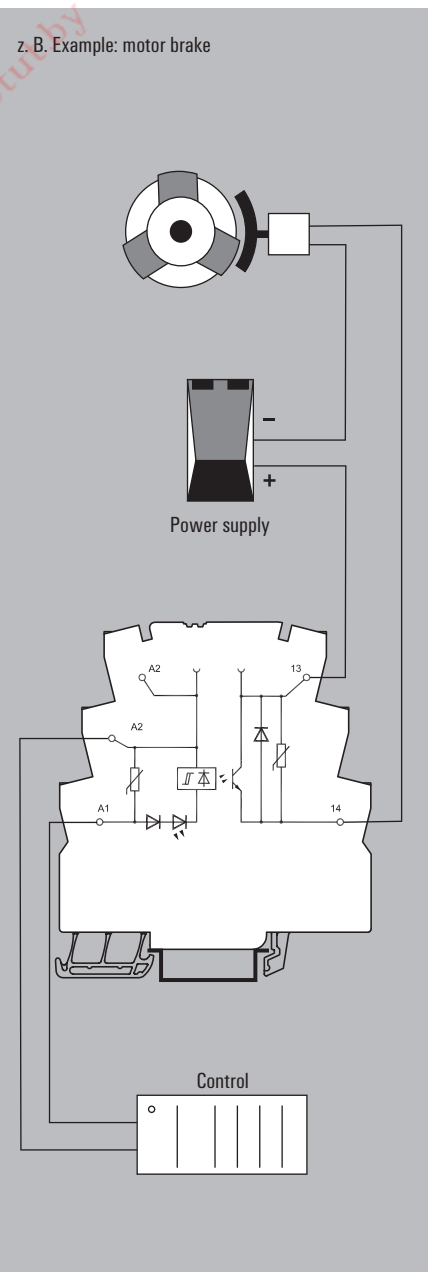
Type	Qty.	Order No.
MOS 24VDC/12-300VDC 1A	1	8937830000

**Note**

**Accessories**

**Note**

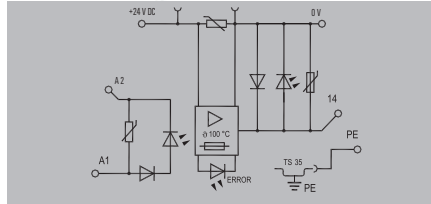
Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.



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

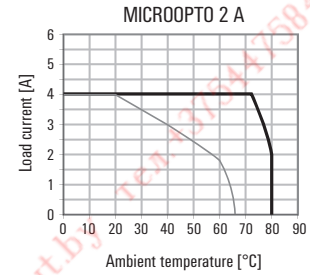
- Only 6 mm modular width
- Plug-in cross-connection
- PE connection direct to mounting rail
- Status display when error in output

**8...30 V DC 2 A**



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

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



**Technical data**

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

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

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

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

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

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

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

Note	

**Ordering data**

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

Note	

**Accessories**

Note	

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

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

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

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

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

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

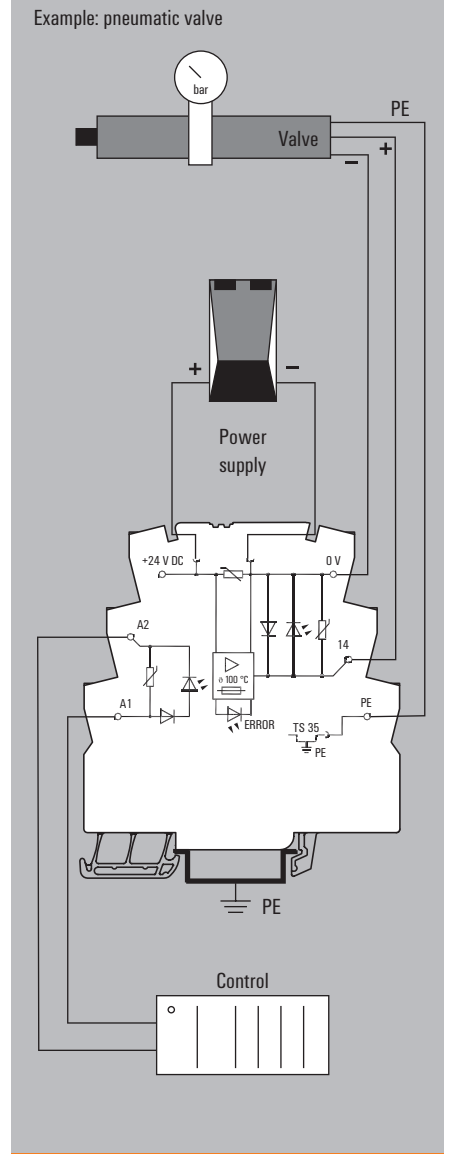
Screw connection	
Clamping range (nominal / min. / max.)	2.5 / 0.5 / 4
Depth x width x height	97 / 6.1 / 88.1

Note	

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

Note	

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



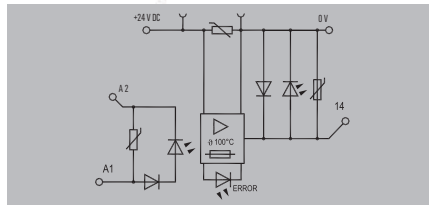
**For direct connection  
of actuators up to 24 VDC 2 A**

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

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



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



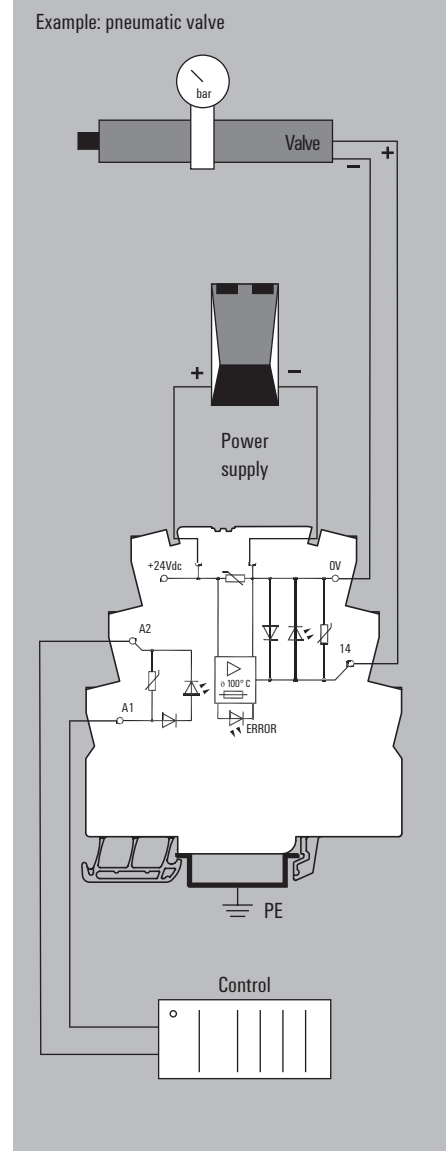
**Technical data**

<b>Control side</b>	
Rated control voltage	24 V DC ±20 %
Power rating	≤ 170 mW
Cut-in / dropout voltage	13.8 V / 13.6 V DC
Input frequency	10 Hz
Status indicator	
Protective circuit	Varistor, Reverse polarity protection
<b>Load side</b>	
Solid-state type	Intelligent POWER MOS-FET
Rated switching voltage	8...30 V DC
Continuous current	2 A
Voltage drop at max. load	≤ 50 mV
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	Yes (thermal cut-out) / Varistor, Free-wheel diode
Switch-on delay / Switch-off delay	0.1 ms / < 0.5 ms
Pulse load, max. current	
Load category	LC A
<b>General data</b>	
Ambient temperature (operational)	-25 °C...60 °C
Storage temperature	-40 °C...80 °C
UL 94 flammability rating	V-0
Humidity	5-95% rel. humidity, T <sub>b</sub> = 55°C, no condensation
Approvals	EAC; GL
<b>Insulation coordinates</b>	
Rated voltage	30 V
Impulse withstand voltage	500 V (1,2/50 µ)
Dielectric strength for control side - load side	350 V <sub>eff</sub> / 1 min.
Dielectric strength to mounting rail	350 V <sub>eff</sub> / 1 min.
Clearance and creepage distances for control side - load side	
Overvoltage category	III
Pollution degree	2
<b>Dimensions</b>	
Clamping range (nominal / min. / max.)	2.5 / 0.5 / 4 mm <sup>2</sup>
Depth x width x height	97.8 / 6.1 / 88.1
<b>Note</b>	
<b>Ordering data</b>	
	Screw connection
<b>Note</b>	
<b>Accessories</b>	
<b>Note</b>	

<b>Screw connection</b>		
	2.5 / 0.5 / 4	
	97.8 / 6.1 / 88.1	

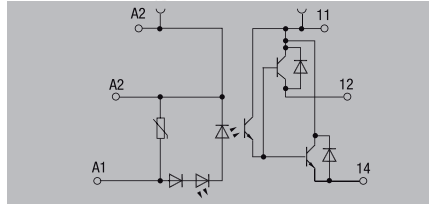
Type	Qty.	Order No.
MOS 24VDC/8-30VDC 2A E	10	1283230000

Accessories and dimensional drawings: refer to the MICROOPTO Accessories page



For electronically switching  
or inverting signals

24 V DC / 5-48 V DC 0.5 A



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

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

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

**Technical data**

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

<b>Technical data</b>		
Rated control voltage	24 V DC ±20 %	
Power rating	160 mW	
Cut-in / dropout voltage	19.5 V / 12 V DC	
Input frequency	1 kHz	
Status indicator	Green LED	
Protective circuit	Varistor, Reverse polarity protection	
<b>Load side</b>		
Solid-state type	Transistor	
Rated switching voltage	5...48 V DC	
Continuous current	500 mA	
Voltage drop at max. load	Max. 1 V	
Leakage current	< 1,5 mA	
Short-circuit-proof / Protective circuit, load side	No / Free-wheel diode	
Switch-on delay / Switch-off delay	< 30 µs / < 50 µs	
Pulse load, max. current		
Load category	LC A	
<b>General data</b>		
Ambient temperature (operational)	-25 °C...60 °C	
Storage temperature	-40 °C...60 °C	
UL 94 flammability rating	V-0	
Humidity	5 - 93% rel. humidity, Tu = 40°C, no condensation	
Approvals	CE; cULus; EAC; GL	
<b>Insulation coordinates</b>		
Rated voltage	300 V	
Impulse withstand voltage	4 kV (1.2/50 µs)	
Dielectric strength for control side - load side	3 kV <sub>eff</sub> / 1 min.	
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 1 min.	
Clearance and creepage distances for control side - load side	> 3 mm	
Overvoltage category	III	
Pollution degree	2	
<b>Dimensions</b>		
Clamping range (nominal / min. / max.)	mm <sup>2</sup>	
Depth x width x height	mm	
<b>Note</b>		
<b>Screw connection</b>		
	2.5 / 0.5 / 4	
	97.8 / 6.1 / 88.1	

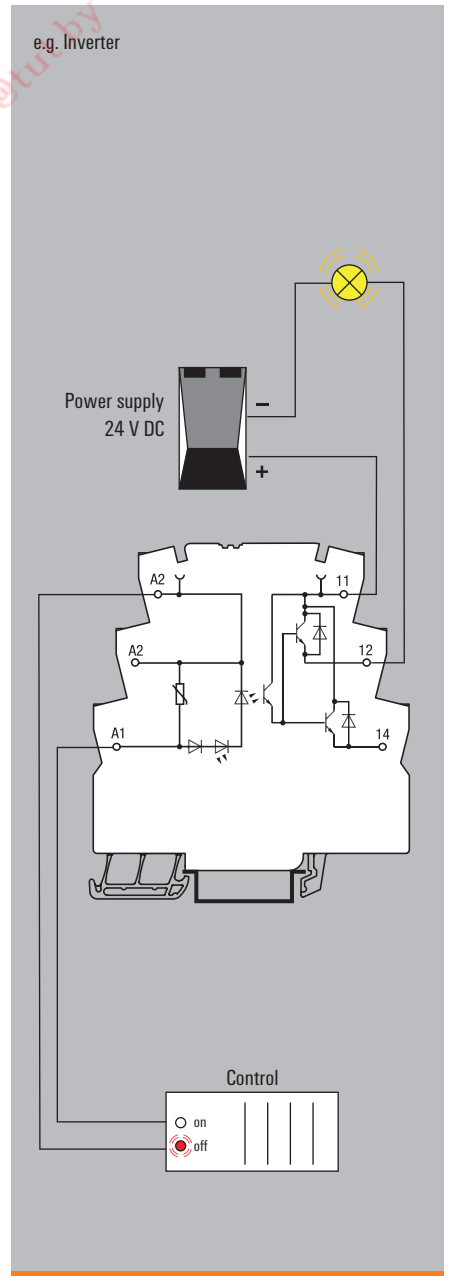
**Ordering data**

	Screw connection
<b>Note</b>	

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

**Accessories**

<b>Note</b>	Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.
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**For high switching frequency up to 100 kHz**

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

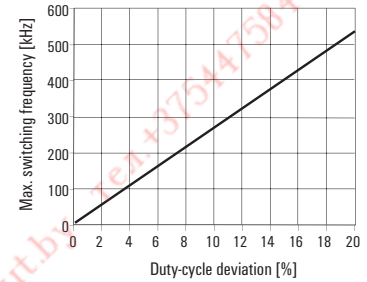
**12...28 V DC 100 kHz**



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

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

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



**Technical data**

**Control side**

Rated control voltage  
Power rating  
Cut-in / dropout voltage

Input frequency  
Status indicator  
Protective circuit

**Load side**

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

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

**General data**

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

**Insulation coordinates**

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

**Dimensions**

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

**Note**

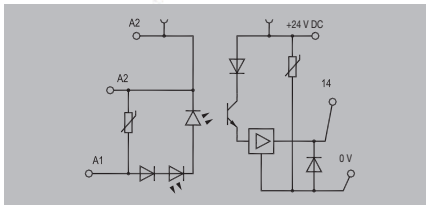
**Ordering data**

Screw connection

**Note**

**Accessories**

**Note**



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

100 kHz  
Green LED  
Varistor, Reverse polarity protection

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

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

-25 °C...60 °C  
-40 °C...80 °C  
V-0  
5-95% rel. humidity, T<sub>b</sub> = 55 °C, no condensation  
CE; cULus; EAC; GL

30 V  
500 V (1,2/50 μ)  
350 V<sub>eff</sub> / 1 min.  
350 V<sub>eff</sub> / 1 min.

II  
2

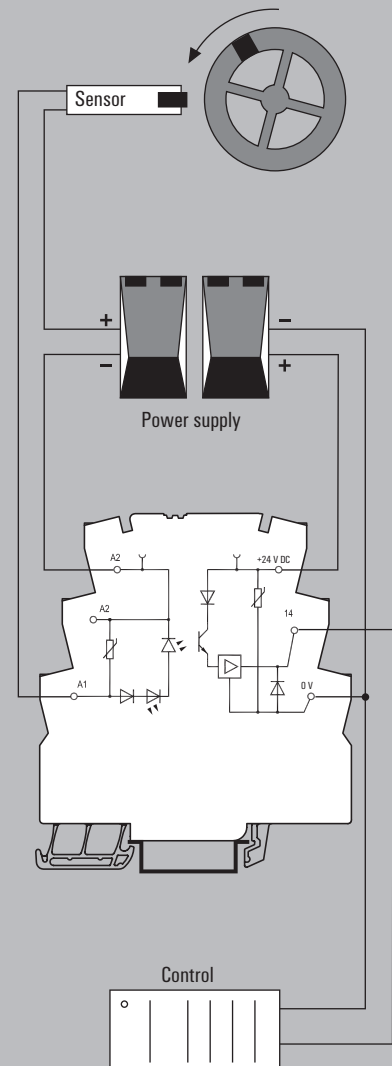
**Screw connection**

2.5 / 0.5 / 4  
97.8 / 6.1 / 88.1

Type	Qty.	Order No.
MOS 12-28VDC 100kHz	1	893799000

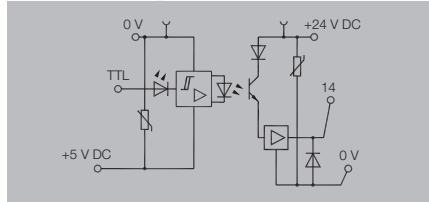
Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.

**For example rotational speed measurement**



For adjusting TTL signals

5 V TTL / 24 V DC 0.1 A



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

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

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

Technical data

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

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

Ordering data	
Screw connection	

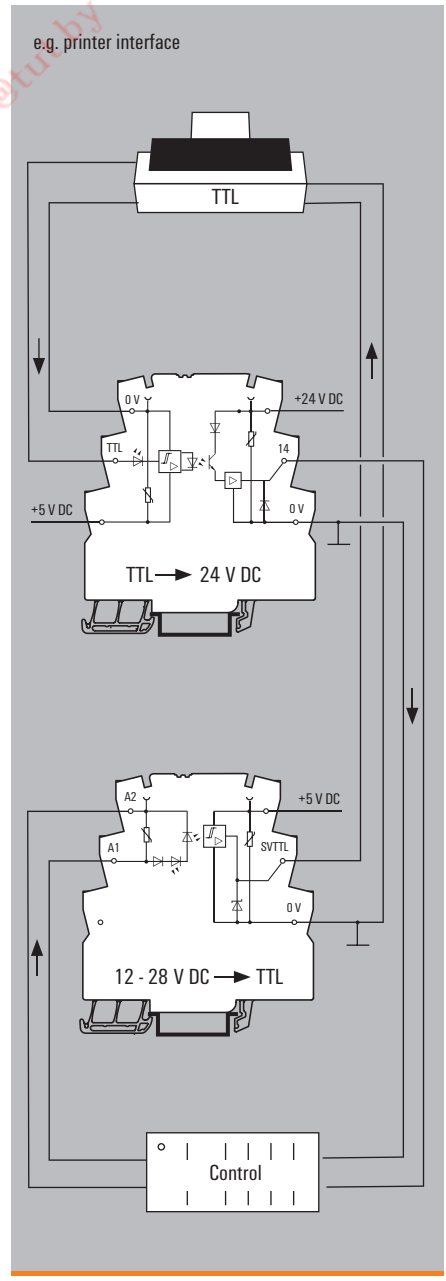
Note	
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Accessories	
Note	

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

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

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





For adjusting TTL signals

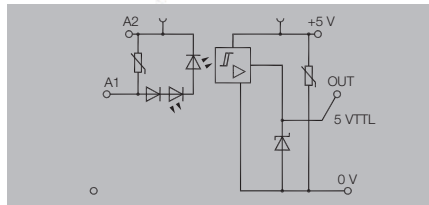
12-28 V DC / 5 V TTL



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

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

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



Technical data

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

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

Ordering data

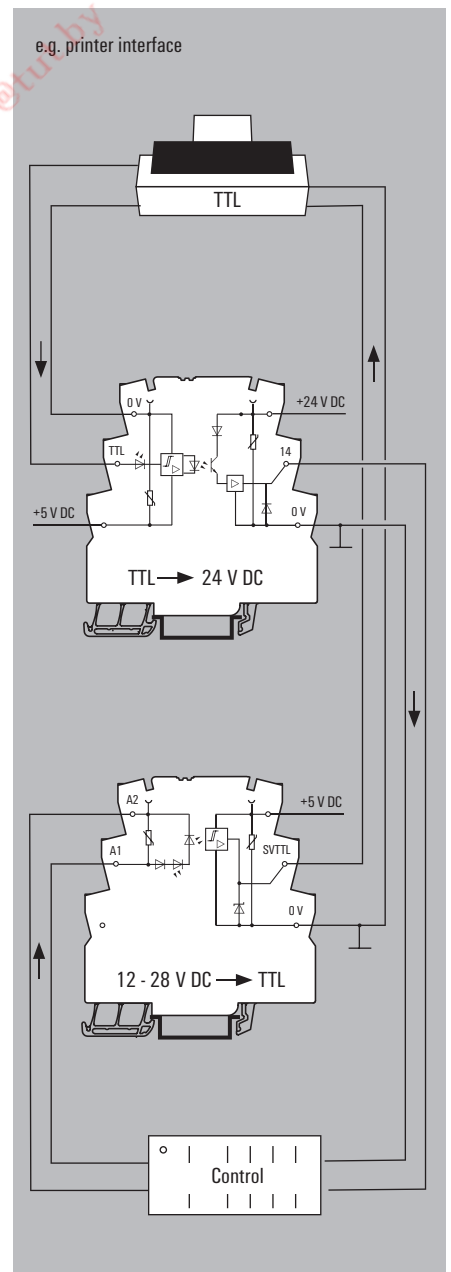
Screw connection
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Note	
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Accessories

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

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



Accessories

General data – MICROOPTO

Relay modules and solid-state relays in 6 mm width

A



Plug-in cross-connection

Type	No. of poles	Qty.	Order No.
<b>yellow</b>			
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
<b>red</b>			
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
<b>blue</b>			
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
<b>black</b>			
ZQV 4N / 2 SW	2	60	1793970000
ZQV 4N / 3 SW	3	60	1794000000
ZQV 4N / 4 SW	4	60	1794030000
ZQV 4N / 10 SW	10	20	1794060000
ZQV 4N / 20 SW	20	20	1909120000

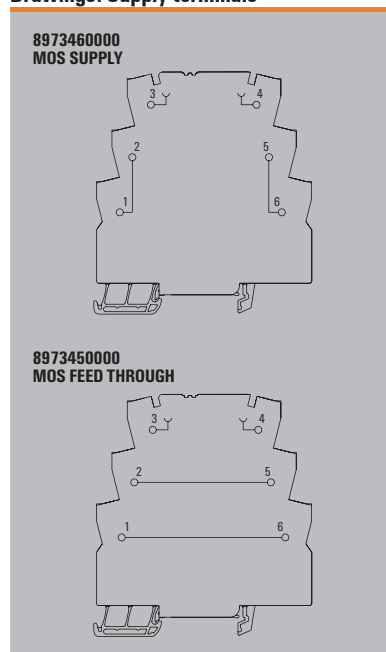
Technical data

Conductor		Screw-connection
Solid H07V-U	mm <sup>2</sup>	0.5 ... 4.0
Stranded H07V-K	mm <sup>2</sup>	0.5 ... 2.5
"f" with wire end ferrules to DIN 46228-1	mm <sup>2</sup>	0.5 ... 1.5
"f" with wire end ferrules with plastic collar	mm <sup>2</sup>	0.5 ... 1.5
Max. clamping range	mm <sup>2</sup>	0.13 ... 4.0
Plug gauge to IEC 60947-1	Size	A 3
<b>General technical data</b>		
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

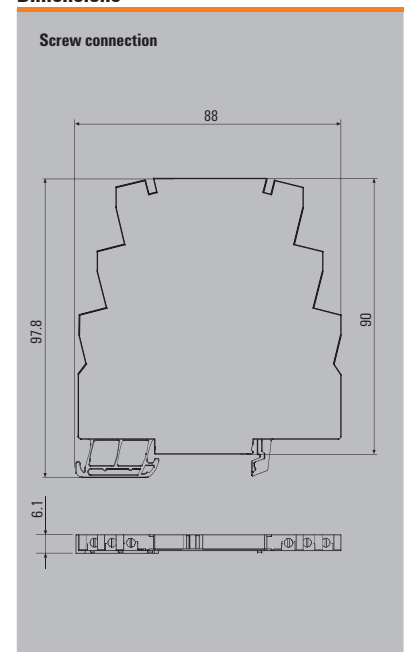
Other accessories

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

Drawings: Supply terminals



Dimensions



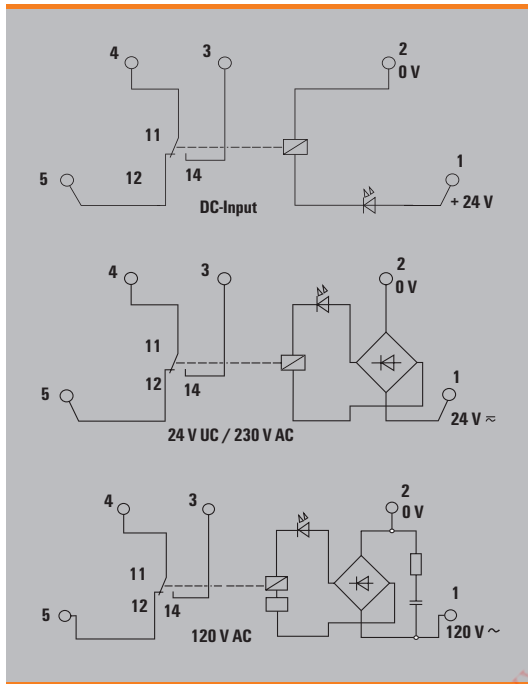
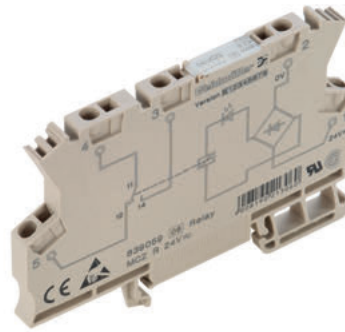
г. Минск [www.fotorele.net](http://www.fotorele.net) [www.tiristor.by](http://www.tiristor.by) email [minsk17@tut.by](mailto:minsk17@tut.by) тел. +375447584780

**MiniConditioner MCZ R**

**1 CO contact AC/DC/UC coil**

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

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

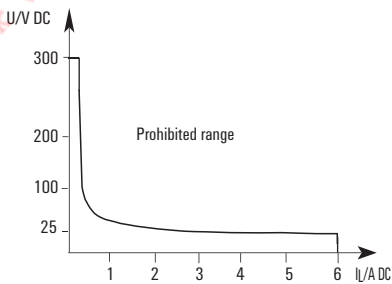


**Technical data**

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

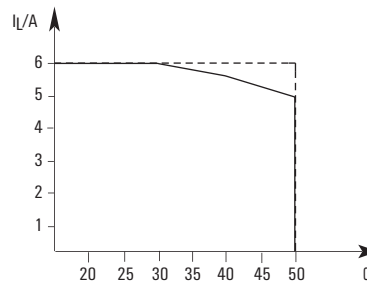
**Applications**

**Limit curve**



**Derating curve**

- in a row without spacing on terminal rail
- - - - in a row with 20 mm spacing on terminal rail



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

**Ordering data**

	24 V DC 1 CO	24 V DC 1 CO Au	24 V UC 1 CO	110 V DC 1 CO
<b>Input</b>				
Rated control voltage	24 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	110 V DC ±10 %
Rated current AC / DC	/ 6.3 mA	/ 6.3 mA	11 mA / 6.4 mA	/ 2.85 mA
Power rating	156 mW	156 mW	160 mVA / 150 mW	340 mW
Pull-in/drop-out voltage, typ.	19 V / 4 V DC	19 V / 4 V DC	19.5 V / 3 V AC 19.5 V / 3 V DC	68 V / 19 V DC
Pull-in/drop-out current, typ.				1.6 mA / 0.6 mA DC
Status indicator	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheel diode, Reverse polarity protection	Free-wheel diode, Reverse polarity protection	Rectifier	Rectifier
<b>Load side</b>				
Switch-on delay	< 5 ms	< 5 ms	< 6 ms	< 6 ms
Switch-off delay	< 15 ms	< 15 ms	< 35 ms	< 15 ms

**Ordering data**

<b>Complete module</b>					
CO contact	Type	MCZ R 24VDC	MCZ R 24VDC 5uAu	MCZ R 24VUC	MCZ R 110VDC
	Order No.	8365980000	8442960000	8390590000	8467470000
	Type				
	Order No.				

**Note**

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

**Ordering data**

	120 V AC 1 CO	230 V AC 1 CO
<b>Input</b>		
Rated control voltage	120 V AC -15 % / +10 %	230 V AC ±10 %
Rated current AC / DC	7 mA /	9.5 mA /
Power rating	0.85 VA	2.1 VA
Pull-in/drop-out voltage, typ.	85 V / 17 V AC	150 V / 60 V AC
Pull-in/drop-out current, typ.	4 mA / 1.3 mA AC	5 mA / 2.5 mA AC
Status indicator	Green LED	Green LED
Protective circuit	RC element, Rectifier	Rectifier
<b>Load side</b>		
Switch-on delay	< 17 ms	< 11 ms
Switch-off delay	< 35 ms	< 35 ms

**Ordering data**

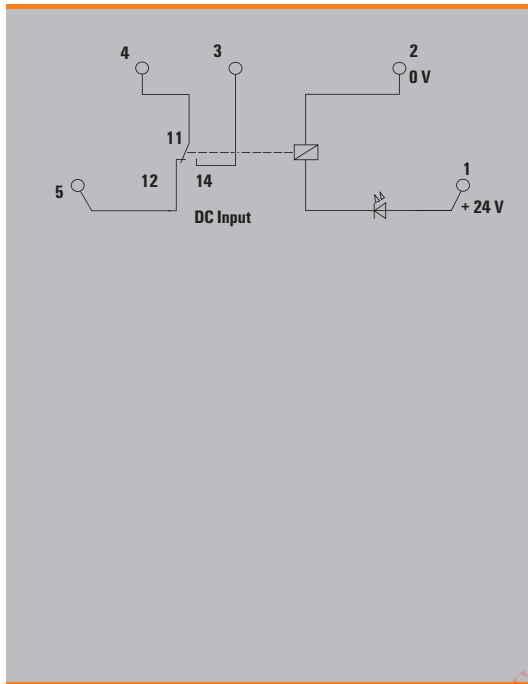
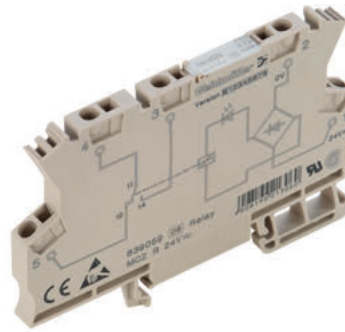
<b>Complete module</b>			
CO contact	Type	MCZ R 120VAC	MCZ R 230VAC
	Order No.	8420880000	8237710000
	Type		
	Order No.		

**Note**

**MCZ R TRAK**

**1 CO contact or 1 NO contact DC coil**

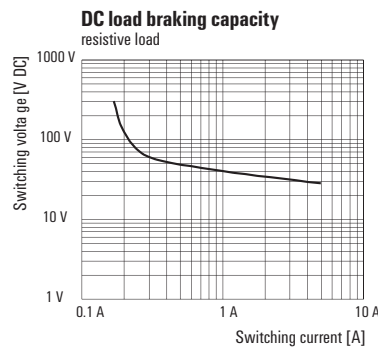
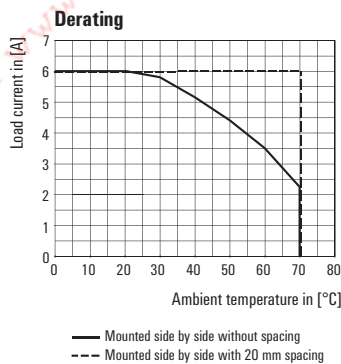
- 1 CO contact
- Component for rail industry applications
- Vibration requirements according to EN 61373, requirements category 1 class B
- Voltage fluctuations -30 %/+25 % and ±40 % for 0.1 sec
- Voltage interruptions at input up to 10 ms
- Condensation permissible



**Technical data**

Output	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	250 V
Inrush current	6 A
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	120 W @ 24 V / 1500 VA
Contact material	AgSnO
Mechanical service life	10 x 10 <sup>6</sup> switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	95 % for 30 days, minimal condensation to EN 50155
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength input - output	4 kV <sub>eff</sub> / 1 s
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 1 min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overtoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 1.5 / 0.5 / 1.5
Depth x width x height	mm 63.2 / 6.1 / 9.1
Note	
End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.	

**Applications**



**MCZ R TRAK**

1 CO contact or 1 NO contact DC coil

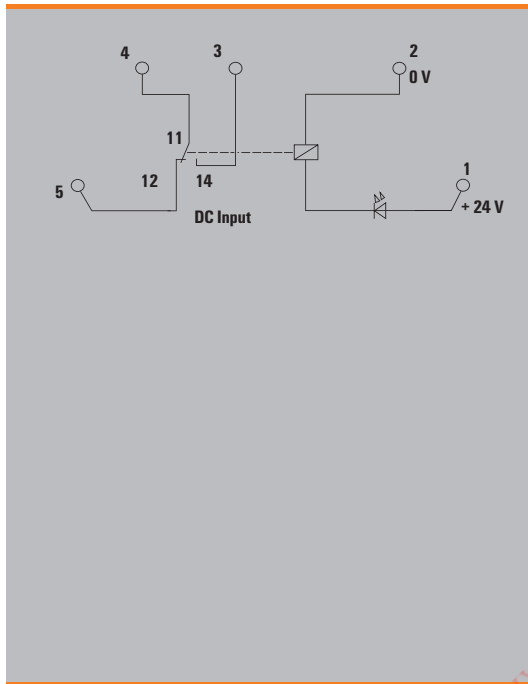
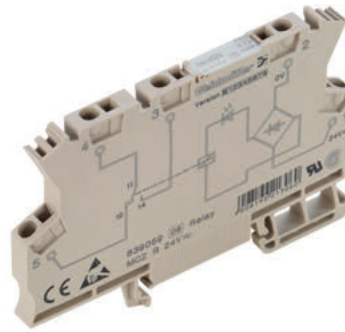
Ordering data		24 V DC TRAK	36 V DC TRAK	48...110 V DC TRAK
<b>Input</b>				
Rated control voltage		24 V DC +25 % / -30 %	36 V DC +25 % / -30 %	48 V...110 V DC +25 % / -30 %
Rated current AC / DC		/ 11.5...16.5 mA	/ 8...12 mA	/ < 3 mA
Power rating		195...500 mW	200...540 mW	< 300 mW
Pull-in/drop-out voltage, typ.		14 V / 3 V DC	18 V / 4.5 V DC	25 V / 6 V DC
Pull-in/drop-out current, typ.				
Status indicator		Green LED	Green LED	Green LED
Protective circuit		Free-wheel diode, Varistor, Reverse polarity protection	Free-wheel diode, Varistor, Reverse polarity protection	Free-wheel diode, Varistor, Reverse polarity protection
<b>Load side</b>				
Switch-on delay		< 11 ms	< 6 ms	< 4 ms
Switch-off delay		< 50 ms	< 70 ms	< 100 ms
<b>Ordering data Complete module</b>				
CO contact	Type	MCZ R 24Vdc 1CO TRAK	MCZ R 36Vdc 1CO TRAK	MCZ R 48...110Vdc 1CO TRAK
	Order No.	<b>8713890000</b>	<b>8713900000</b>	<b>8713910000</b>
NO contact	Type	MCZ R 24Vdc 1NO TRAK		MCZ R 48...110Vdc 1NO TRAK
	Order No.	<b>8499550000</b>		<b>8574070000</b>
<b>Note</b>				

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**MCZ R TRAK Au**

**1 CO contact DC coil**

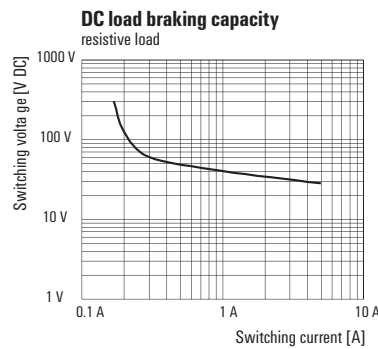
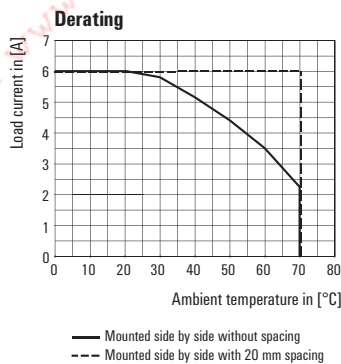
- 1 CO with hard gold-plated contacts
- Component for rail industry applications
- Vibration requirements according to EN 61373, requirements category 1 class B
- Voltage fluctuations -30 %/+25 % and ±40 % for 0.1 sec
- Voltage interruptions at input up to 10 ms
- Condensation permissible



**Technical data**

Output	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	250 V
Inrush current	6 A
Min. switching power	1 mA @ 1 V
DC / AC Switching capacity (resistive), max.	120 W @ 24 V / 1500 VA
Contact material	AgSn0 5µm Au
Mechanical service life	10 x 10 <sup>8</sup> switching cycles
Max. switching frequency at rated load	0.1 Hz
Rated data	
Ambient temperature (operational)	-25 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	95 % for 30 days, minimal condensation to EN 50155
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength input - output	4 kV <sub>eff</sub> / 1 s
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 1 min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overtoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 1.5 / 0.5 / 1.5
Depth x width x height	mm 63.2 / 6.1 / 9.1
Note	
End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.	

**Applications**





**MCZ R TRAK Au**  
**1 CO contact DC coil**

**Ordering data**

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

<b>Ordering data</b>				
CO contact	Type	MCZ R 24VDC 1CO AU TRAK	MCZ R 36VDC 1CO AU TRAK	MCZ R 48...110VDC 1CO AU TRAK
	Order No.	<b>8790520000</b>	<b>8790510000</b>	<b>8790500000</b>
	Type			
	Order No.			

<b>Note</b>			
	Can safely switch a load of: 1...60 V AC/DC, 1...300 mA. If higher loads are switched this can damage the gold plating.	Can safely switch a load of: 1...60 V AC/DC, 1...300 mA. If higher loads are switched this can damage the gold plating.	Can safely switch a load of: 1...60 V AC/DC, 1...300 mA. If higher loads are switched this can damage the gold plating.

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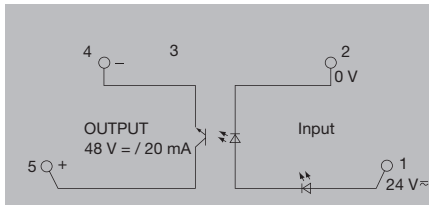
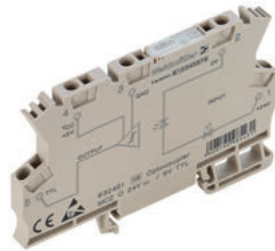
**MCZ-SERIES – solid-state relays**

**MiniConditioner MCZ 0**

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

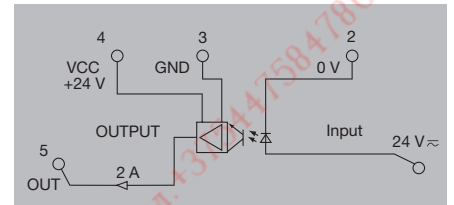
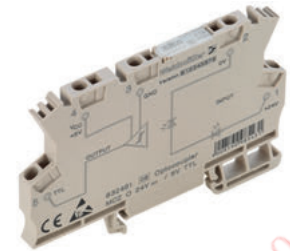
**24 V UC**

**Connection system**



**24 V UC / 24 V 2 A**

**Connection system**



**Technical data**

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

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

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

**Dimensions**

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

**Note**

**Tension clamp connection**

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

**Tension clamp connection**

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

\* Status indicator: green = OK, yellow = partial short circuit, blinking red = short circuit

**Ordering data**

Tension-clamp connection	
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Type	Qty.	Order No.
MCZ 0 24VUC	10	8365940000

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

**Note**

**Accessories**

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

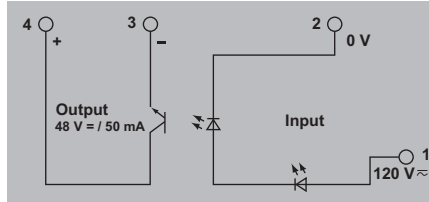
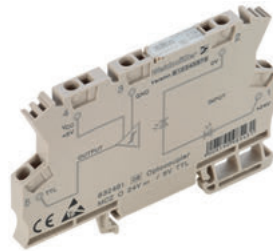
End plate AP MCZ 1.5: 8389030000  
Accessories and dimensional drawings: refer to the MCZ Accessories page.

**MiniConditioner MCZ O**

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

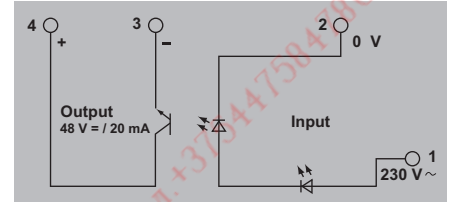
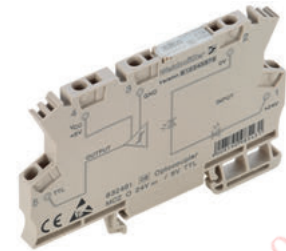
**120 V UC**

**Connection system**



**230 V AC**

**Connection system**



**Technical data**

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

Rated control voltage	120 V UC +5 / -15 %
Nominal control current	3 mA DC (±10 %), 3 mA AC (±10 %)
Cut-in / dropout voltage	65 V / 64 V AC 70 V / 64 V DC
Input frequency	AC: 5 Hz / DC: 20 Hz
Power rating	350 mW / 400 mVA
Status indicator	Green LED
Protective circuit	
Rated switching voltage	5...48 V DC
Continuous current	50 mA
Inrush current	
Solid-state type	Transistor
Voltage drop at max. load	1.6 V
Leakage current	≤ 1 mA
Protective circuit, load side	Free-wheel diode
Short-circuit-proof	No
Switch-on delay	≤ 30 ms
Switch-off delay	≤ 40 ms
Ambient temperature (operational)	-25 °C...40 °C
Storage temperature	-40 °C...60 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; EAC
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	1 kV <sub>eff</sub> / 1 s
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Rated control voltage	230 V AC +5 % / -15 %
Nominal control current	10 mA AC ±20 %
Cut-in / dropout voltage	175 V / 125 V AC
Input frequency	AC: 5 Hz duty factor 1:2
Power rating	2.3 VA
Status indicator	Green LED
Protective circuit	
Rated switching voltage	5...48 V DC
Continuous current	20 mA
Inrush current	
Solid-state type	Transistor
Voltage drop at max. load	1.6 V
Leakage current	≤ 1 mA
Protective circuit, load side	Free-wheel diode
Short-circuit-proof	No
Switch-on delay	≤ 30 ms
Switch-off delay	≤ 40 ms
Ambient temperature (operational)	-25 °C...40 °C
Storage temperature	-40 °C...60 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; EAC
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength for control side - load side	1 kV <sub>eff</sub> / 1 s
Dielectric strength to mounting rail	4 kV <sub>eff</sub> / 1 min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

**Dimensions**

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

**Note**

**Tension clamp connection**

1.5 / 0.5 / 1.5
63.2 / 6.1 / 91

**Tension clamp connection**

1.5 / 0.5 / 1.5
63.2 / 6.1 / 91

**Ordering data**

Tension-clamp connection
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Type	Qty.	Order No.
MCZ O 120VUC	10	8421060000

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

**Note**

**Accessories**

<b>Note</b>
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End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.
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End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.
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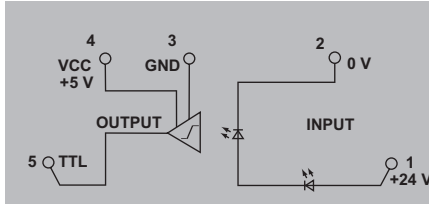
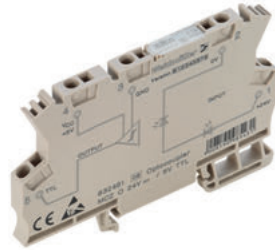
**MCZ-SERIES – solid-state relays**

**MiniConditioner MCZ 0**

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

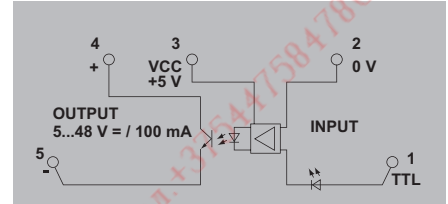
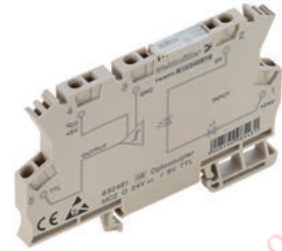
**24 V DC / 5 V TTL**

**Connection system**



**5 V TTL / 5...48 V DC**

**Connection system**



**Technical data**

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

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

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

**Dimensions**

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

**Tension clamp connection**

Clamping range (nominal / min. / max.)	1.5 / 0.5 / 1.5
Depth x width x height	63.2 / 6.1 / 91
<b>Note</b>	

**Tension clamp connection**

Clamping range (nominal / min. / max.)	1.5 / 0.5 / 1.5
Depth x width x height	63.2 / 6.1 / 91
<b>Note</b>	

**Ordering data**

Tension-clamp connection	
<b>Note</b>	

Type	Qty.	Order No.
MCZ 0 24VDC	10	8324610000

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

**Accessories**

<b>Note</b>	
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End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.
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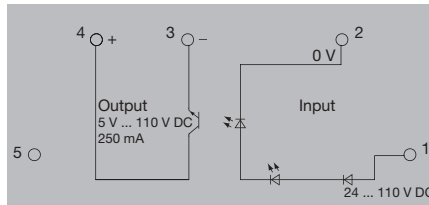
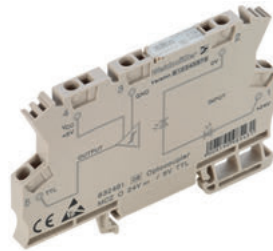
End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.
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## MCZ O TRAK

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

## 24 V DC TRAK

### Connection system



### Technical data

#### Control side

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

24...110 V DC -30 / +25 %  
2.8 mA DC  
14 V / 13.5 V DC

Input frequency  
Power rating  
Status indicator  
Protective circuit

10 Hz  
Green LED

#### Load side

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

5...137.5 V DC  
250 mA @ 50 °C  
Transistor  
≤ 1.7 V

Varistor, Free-wheel diode  
No  
≤ 10 ms  
≤ 50 ms

#### General data

Ambient temperature (operational)  
Storage temperature  
Humidity  
Approvals

-25 °C...70 °C  
-40 °C...85 °C  
95 % for 30 days, minimal condensation to EN 50155  
CE, EAC

#### Insulation coordinates

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

300 V  
6 kV (1.2/50 µs)  
1 kV<sub>eff</sub> / 1 s  
4 kV<sub>eff</sub> / 1 min.  
≥ 5.5 mm  
III  
2

#### Dimensions

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

#### Tension clamp connection

1.5 / 0.5 / 1.5  
63.2 / 6.1 / 91

#### Note

### Ordering data

Tension-clamp connection

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

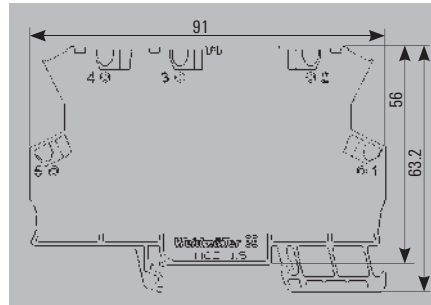
#### Note

### Accessories

#### Note

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

MCZ accessories



Ordering data

Type	Qty.	Order No.
End plate	50	8389030000

Type	Qty.	Order No.
AP MCZ 1.5	50	8389030000



Ordering data

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

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



Ordering data

Type	Qty.	Order No.
Terminal markers	600	1828450000
Screwdriver	1	9008330000
End bracket	100	1061200000

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