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Weidmüller 

Relays and solid-state relays

Klippon® Relay

Catalogue 4.2

Relays and solid-state relays Klippon® Relay	Selection guide
	Universal range
	Application range

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Switch to simple – with Klippon® Relay

High-quality relays with unique all-round service

Whether switching, separating, amplifying, or multiplying: relays perform a multitude of different tasks in industrial applications. They have very specific characteristics and are available in almost innumerable varieties on the market.

Klippon® Relay from Weidmüller makes your choice easy. Our worldwide unique all-round offer combines maximum relay variety with matching accessories and first-class service. We provide you with high-quality products that have been thought out down to the smallest detail, combined with comprehensive support from product selection to modern data services. Only with Klippon® Relay can you be sure to get the right relay for your specific needs – and save time and money. That's our promise!





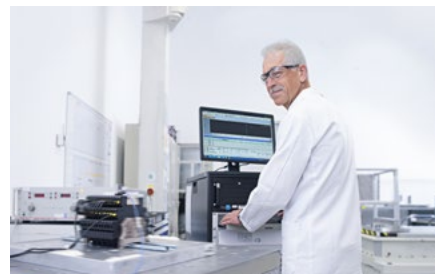
Simply selectable

We offer you comprehensive support in choosing the right product, support you in selecting accessories, and provide tips for installation and maintenance. This saves time and gives you the security of getting the perfect product for each specific application.



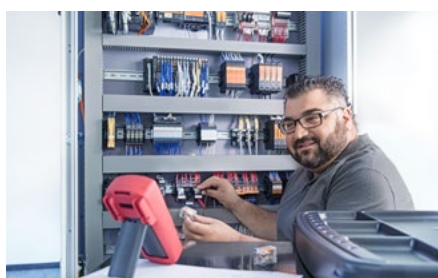
Simply reliable

Our support enables you to obtain optimally dimensioned relay products for your application within a very short time. This way you can reliably avoid unnecessary machine and system damage and reduce downtimes to a minimum.



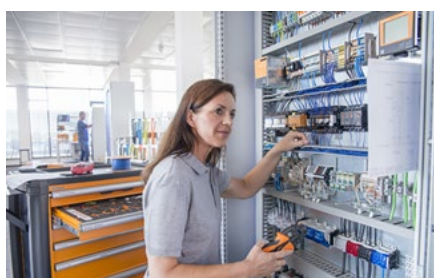
Simply safe

Klippon® Relay products ensure comprehensive operational safety. Whether large temperature ranges, strong vibrations, fast switching cycles, certain safety requirements, or specific standards and directives: You can get a suitable solution for every environment.



Simply maintainable

With Klippon® Relay you can significantly reduce your maintenance effort. Optimum marking options, clear status displays, consistent product labels, connection markings, and much more make your work easier, faster, cheaper, and safer.



Simply efficient

Klippon® Relay products are easy, fast, and convenient to install. The PUSH IN technology shortens wiring times. And our fully assembled and tested relay KITS save time during installation and commissioning.



Simply profitable

Many products in our Klippon® relay portfolio have multi-voltage inputs, which reduces the width of your stock. Our pre-assembled relay KITS save you even more logistics effort by speeding up material management, storage, and retrieval.



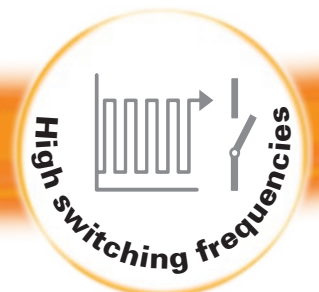
Solutions for more productivity

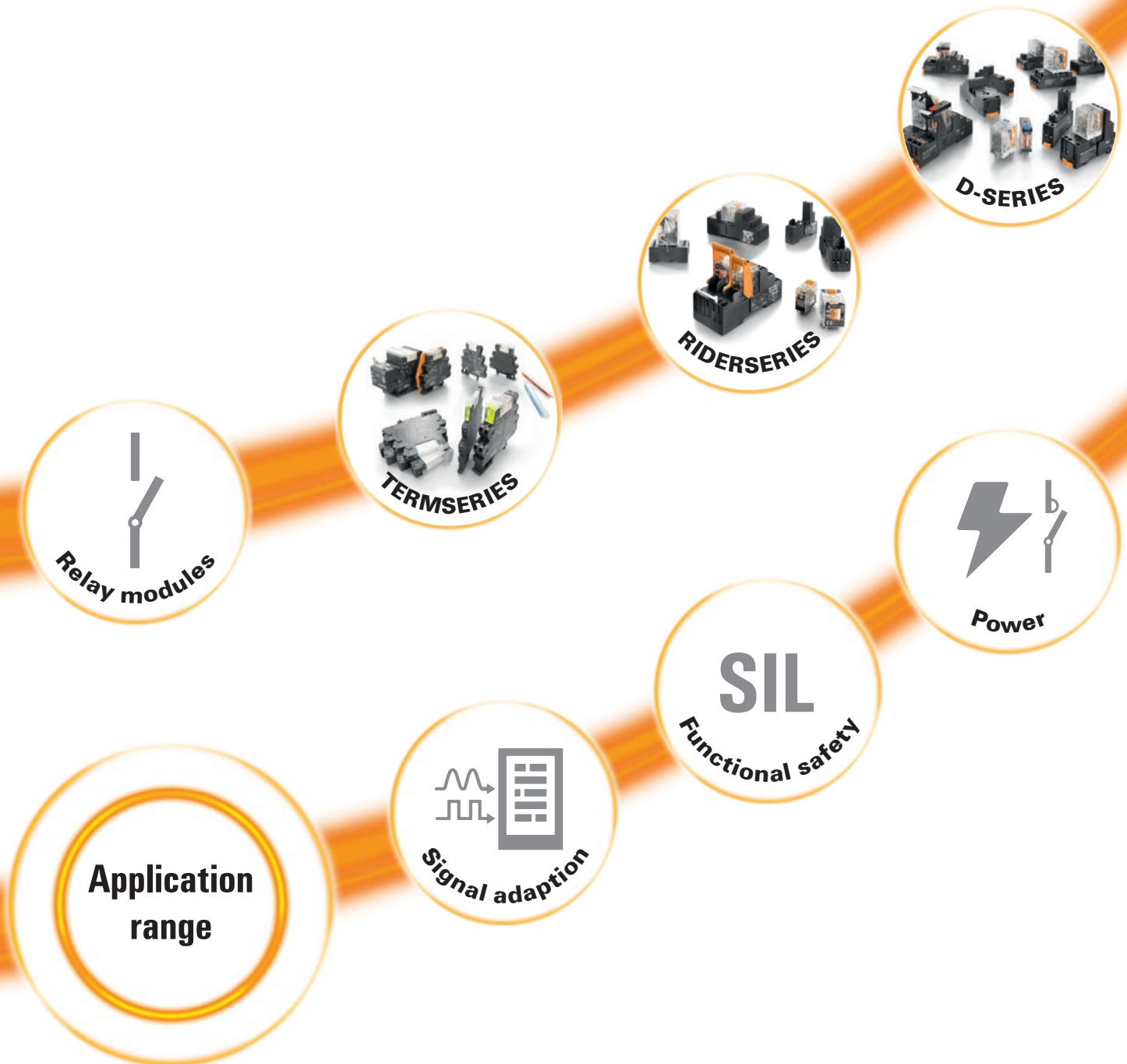
Highly flexible design processes – with Klippon® Relay

For more than 40 years, we have specialised in the optimisation of cabinet infrastructures. Our wide range of relay modules, solid-state relays and additional value-added services combine the highest standards with ultimate quality. Less wiring effort, housing optimisation through space saving, optimal marking and cost reductions – our customers challenges are our motivation.

Our assortment impresses through reliability, longevity and safety. Supplemented by our digital data support, switching load consulting and online selection guides, we support our customers throughout the entire work process – from the planning phase to installation and operation.

In our universal range, you will find an extensive portfolio of relay modules and solid-state relays in various designs.





In our application range, you will find a tailor-made portfolio of products to increase your productivity and safety for various fields of application.

Reliable switching of industrial loads and safe separation and multiplication of signals

With our high-performance relay modules and solid-state relays

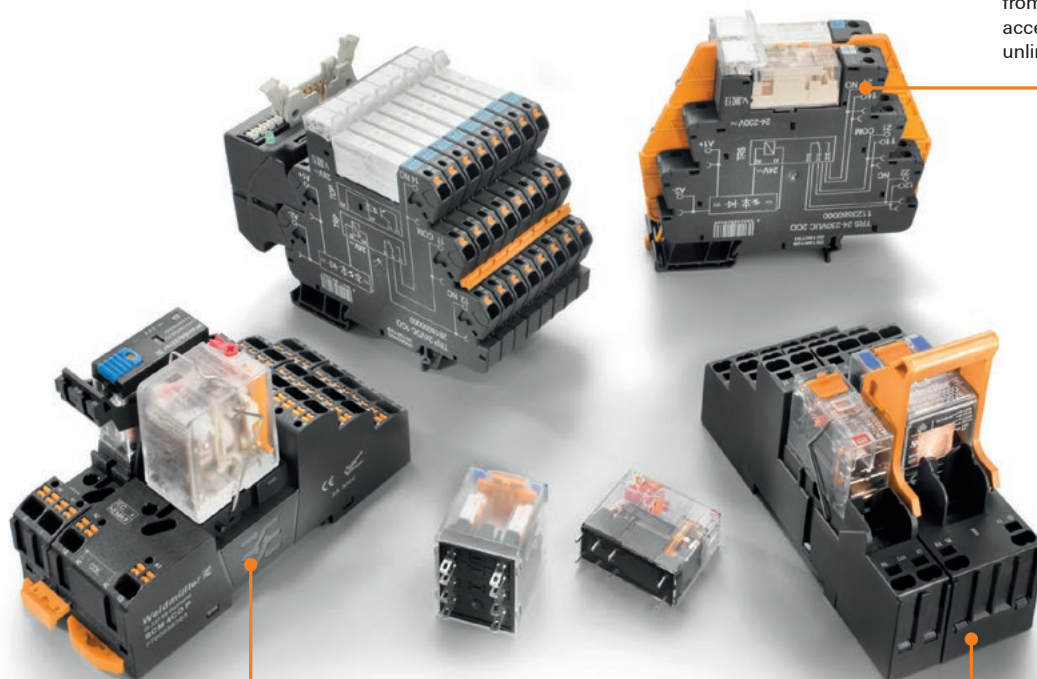
Universal range

Relay modules

For switching and amplifying digital signals in automation technology and for galvanic isolation.

TERMSERIES

The all-rounder. Modular relay modules from 6 mm width with extensive accessories, large selection of variants and unlimited cross-connection possibilities.

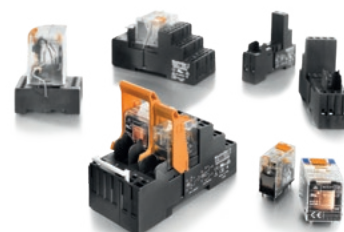


D-SERIES

The industrial relay modules with innovative features, an extensive range of variants and a wide assortment of designs for a variety of applications.

RIDERSERIES

High-quality universal relays with many sophisticated details and international approvals in different designs for industrial applications.



Solid-state relays

For wear-free switching and amplification of digital signals in automation engineering.



Reliable switching of industrial loads and safe separation and multiplication of signals

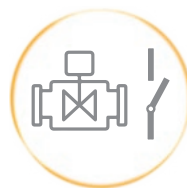
With our high-performance relay modules and solid-state relays

Application range



Timing functions

Timing relays are used in automation technology to compensate for errors due to short cycle times.



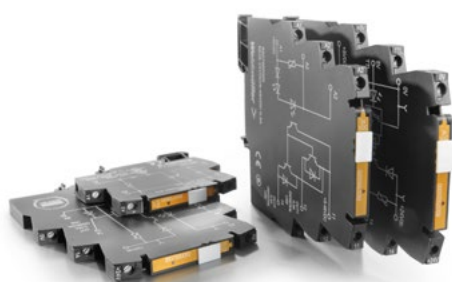
Special loads

Relays to switch and monitor special loads, such as inductors and high inrush currents, safely and reliably.



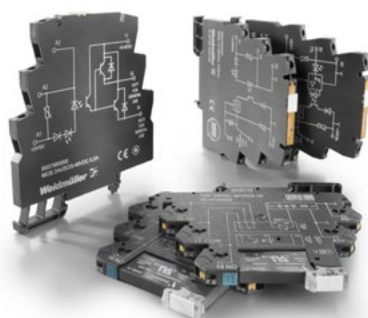
Sensor isolation

Space-saving and fast switching coupling elements to decouple sensors from the field.



High switching frequencies

Specially designed solid-state relays for reliable and fast decoupling of signals up to 550 kHz.



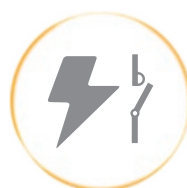
Signal adaption

Adaptation of signals and their transmission from other systems to the control cabinet level.



Functional safety

Specific safety relays required for signals in process safety-related systems.



Power

Power solid-state contactor up to 75 A and miniature contactors up to 30 A.

Digital configuration – direct requests

Efficient engineering with the Weidmüller Configurator

Whether product selection, project planning, automated production or installation: consistently available data models are a cornerstone of digitalised development and production processes. They require standardised product data and interfaces between the interlinked engineering tools as well as integration into the company's IT network.

With the Weidmüller Configurator (WMC) we offer you the ideal basis for efficient product development. Speed up your panel planning by up to 70% and increase your overall productivity. Benefit from extremely high levels of data transparency and availability throughout your entire engineering process.

Integrated digital planning – quick and easy

Provision of intelligent item data

The product data from the Weidmüller Configurator supports you during project planning and can be fully integrated into all common engineering tools. You achieve complete data transparency and availability in all process steps – the basic requirements for Industry 4.0 in panel building.

Always the right configuration

The automatic filter function makes it easier to put together suitable relay combinations. Selection errors are corrected automatically, so that only suitable accessories can be included in the configuration. This makes planning easier, saves time and enables complete documentation of the terminal rails.

Reliable and simple marking

The Weidmüller Configurator makes continuous marking easier. Thanks to direct interfaces to CAD programs and the M-Print® PRO marking software, you can plan and mark your components in a single step.

Quick and easy product requests

Once the components have been put together, you can request them directly from the Weidmüller Configurator – either as individual components or as a pre-assembled complete solution on a terminal rail that can be installed directly on the mounting plate.



Selection guide

Selection guide	Basics for relay module selection	A.2
	Selection table for signal relays	A.4
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	Selection criteria for protective circuits of inductive loads	A.10
	Relays for LED lamps and devices with high inrush currents	A.12
	Relay for forwarding control signals	A.14

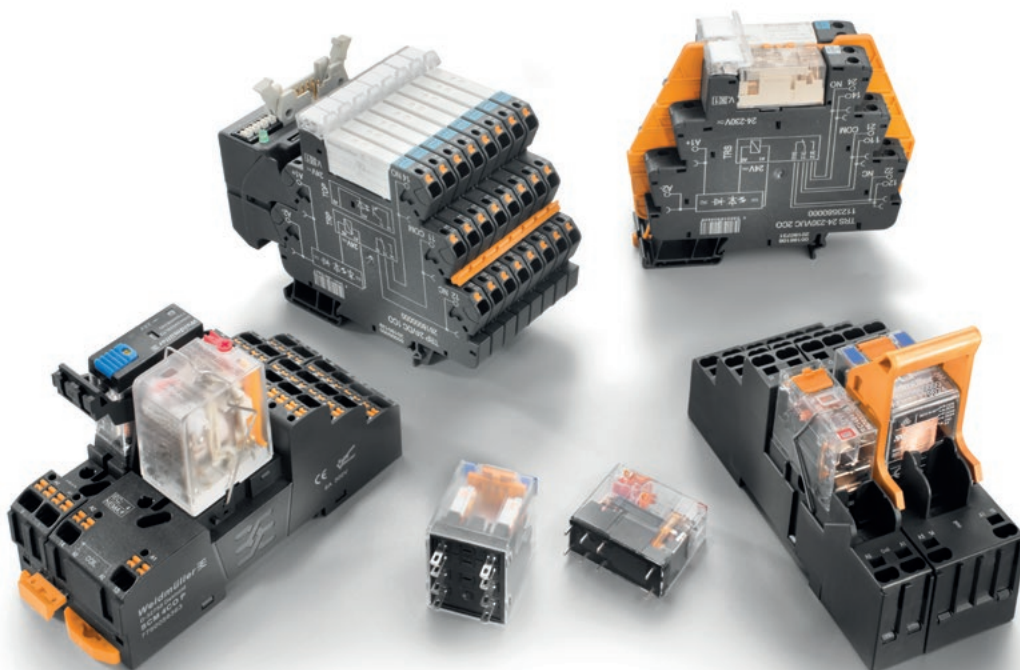
Find suitable relay modules for your application

Basics for relay module selection

Electromechanical relays are a varied and cost-effective solution for a wide range of switching processes. They can be used for level and power adaptation and form interfaces between control, signalling and regulating equipment and peripherals. In spite of rising raw material prices, they are still very inexpensive and can be easily integrated into a wide variety of circuit types.

Relay modules from Weidmüller are extremely reliable, durable, and available in many different designs. The diversity of their applications in the various industrial sectors makes it necessary to select a suitable relay for each specific application. The following applies: Due to their design, relay modules are subject to mechanical and electrical wear, which must be taken into account when relay circuits are set up.

EN 60947-4-1 and EN 60947-5-1 describe various industrial reference loads such as resistive, capacitive, and inductive loads that stress the switching contact of a relay modules more or less. Electrical loads are formed out of a mixed load with ohmic, capacitive, and inductive load shares, though in practice, loads with a large inductive load share are used mostly. These include contactors, solenoid valves, motors, etc. We will take a closer look at these areas of application in the following.





Switching of large AC loads

If large AC loads are switched, the relay can in principal be operated until the specified maximum value of switching voltage, current, or power is reached. However, when switching AC loads, the switching voltage has a much smaller influence on the service life of the relay contact than the switching current. The reason for this is that the arc that occurs when the relay is switched off usually extinguish automatically at the next zero crossing of the load current. In applications with inductive loads, an effective protective circuit should be provided, as otherwise a significantly reduced service life can be expected.



Switching of large DC loads

Relays can only switch off relatively small direct currents because the zero crossing for extinguishing the arc is missing here. The maximum direct current value is also dependent on the switching voltage as well as on design conditions such as contact gap and contact opening speed. Corresponding current and voltage values are documented in load limit curves.

With undamped inductive DC loads, these values are lower because the energy stored in the inductance can ignite an arc that carries the current through the open contacts. The resulting arc significantly reduces the service life compared to an resistive load.

An effective contact protection circuit can increase the service life of the contacts by 5 to 10 times compared to inductive loads that are not or unfavorably protected. Type 1N4007 freewheeling diodes are preferably suitable for this purpose.

AC3
AC1
AC15
DC1
DC13
EN 60947

Switching of utilization categories according to EN 60947

When selecting the relay, the maximum breaking capacity for AC loads and the DC breaking values taken from the load limit curves provide only rough reference values. In practice, however, this is not sufficient because real loads in industrial applications predominantly have inductive or capacitive load shares. Those variables can result in very different values for the service life. To avoid these disadvantages, the contactor standard EN 60947 divides the loads into different use categories, such as DC-13 or AC-15. The standard is also partly applied to relays. However, users must be aware that these values are only partially suitable for practical use since all DC-13 and AC-15 test loads are highly inductive and operated without a protective circuit.

More precise statements on switching capacity and service life can be given based on specific application data. The more extensive the data collection, the more accurately the service life can be estimated for the respective applications and, if necessary, optimisation suggestions made. For critical applications, the users should determine the service life values themselves.

Switching of small resistive and inductive loads

Selection table for signal relays

The table below helps you to select suitable relay modules for the specified loads. A service life of around 100,000 switching operations is assumed.

Suitable KITS are available for all series on this page.

TERMSERIES			RIDERSERIES			
						
	RSS 1 CO	RCL 1 CO	RCL 2 CO	RCI 1 CO	RCI 2 CO	
						
Example Part No. Single relay 24 V DC input	4060120000	1984040000	4058570000	8870250000	8870320000	
Example Part No. KIT 24 V DC input	2618000000	2618100000	2618400000	8897190000	8897230000	
Insulation between input and output	reinforced insulation	reinforced insulation	reinforced insulation	reinforced insulation	reinforced insulation	
Contact material	AgNi	AgNi	AgNi	AgNi	AgNi	
Resistive AC load	AC1 loads: Heaters 250 V AC	< 5 A	< 12 A	< 6 A	< 12 A	< 6 A
Inductive AC load	AC15 loads: Valves, contactors 250 V AC	< 1.5 A	< 3 A	< 1.5 A	< 3 A	< 1.5 A
	AC3 loads: 1-phase motors 250 V AC	< 0.5 A	< 1 A	< 0.7 A	< 1 A	< 0.7 A
Resistive DC load	DC1 loads: Heaters 24 V DC	< 3 A	< 8 A	< 4 A	< 8 A	< 4 A
Inductive DC load	DC13 loads: Valves, contactors 24 V DC	< 1 A	< 2 A	< 1 A	< 2 A	< 1 A
Recommended field of application	Miniature switching relay for decoupling control systems and for switching industrial small loads < 1.5 A in the smallest space.	Miniature industrial relay for decoupling controls and switching industrial minimum loads < 3 A.	Miniature industrial relay for decoupling controls, amplifying signals, and switching industrial minimum loads < 2 A.	Miniature industrial relay with optional mechanical test button for decoupling controls and switching industrial minimum loads < 3 A.	Miniature industrial relay with optional mechanical test button for decoupling controls, amplifying signals, and switching industrial loads. Minimum loads < 2 A.	

The indicated currents only apply to the normally open contact. The data of the normally closed contact are to be set at approx. one third of the specified values. The real service life can be both above and below the specified value because each load stresses the switching contact differently and other environmental factors influence the service life of the switching contact, e.g. ambient temperature, mounting position, switching frequency, and many more. Therefore, these values are without guarantee and serve as orientation for better dimensioning. The assessment of the maximum load capacity was carried out on the basis of many years of practical experience as well as life cycle tests under laboratory conditions.

D-SERIES



RCM 2 CO	RCM 3 CO	RCM 4 CO	DRI 1 CO	DRI 2 CO	DRM 2 CO	DRM 4 CO
8689860000	8690040000	8690200000	7760056315	7760056340	7760056069	7760056097
8921080000	8920980000	8921120000	2576210000	2576190000	2576120000	2576140000
basic insulation	basic insulation	basic insulation	basic insulation	basic insulation	basic insulation	basic insulation
AgNi	AgNi	AgNi	AgSnO	AgSnO	AgNi	AgNi
< 12 A	< 10 A	< 6 A	< 10 A	< 5 A	< 10 A	< 5 A
< 2.5 A	< 2.5 A	< 1.5 A	< 3 A	< 1.5 A	< 2.5 A	< 1.5 A
< 1 A	< 0.75 A	< 0.5 A	< 1 A	< 0.5 A	< 1 A	< 0.5 A
< 7 A	< 5 A	< 3.5 A	< 8 A	< 4 A	< 7 A	< 3.5 A
< 2 A	< 2 A	< 1 A	< 2 A	< 1 A	< 2 A	< 1 A
Miniature industrial relay with mechanical test button for decoupling controls, amplifying signals, and switching industrial micro loads < 2.5 A.	Miniature industrial relay with mechanical test button for decoupling controls, amplifying signals, and switching industrial micro loads < 2.5 A.	Miniature industrial relay with mechanical test button for decoupling controls, duplicating signals, and switching industrial micro loads < 1.5 A.	Miniature industrial relay with optional mechanical test button for decoupling controls and switching industrial minimum loads < 3.5 A.	Miniature industrial relay with optional mechanical test button for decoupling controls, amplifying signals, and switching industrial minimum loads < 2.5 A.	Miniature industrial relay with optional mechanical test button for decoupling controls, amplifying signals, and switching industrial loads. Minimum loads < 3 A.	Miniature industrial relay with optional mechanical test button for decoupling controls, duplicating signals, and switching industrial loads. Minimum loads < 2 A.

Switching of large resistive and inductive loads

Selection table for power relays

The table below helps you to select suitable relay modules for the specified loads. A service life of around 100,000 switching operations is assumed.

D-SERIES



		DRR 2 CO	DRR 3 CO	DRL 1 CO	DRL 2 CO	DRL 3 CO
						
Example Part no. Single relay		1133370000	1133420000	1133460000	1133520000	1133580000
Example Art. no. KIT 24 V DC input		-	-	-	-	-
Insulation between input and output		Basic insulation	Functional insulation	Basic insulation	Basic insulation	Basic insulation
Contact material		AgCdO	AgCdO	AgCdO	AgCdO	AgCdO
Resistive AC load	AC1 loads: Heaters 250 V AC	< 10 A	< 10 A	< 16 A	< 10 A	< 10 A
	AC15 loads: Valves, contactors 250 V	< 3.5 A	< 3.5 A	< 5.5 A	< 4.5 A	< 4.5 A
	AC3 loads: 1-phase motors 250 V AC	< 1.5 A	< 1.5 A	< 3.5 A	< 2 A	< 2 A
Resistive DC load		DC1 loads: Heaters	< 10 A	< 10 A	< 7 A	< 7 A
Inductive DC load		DC13 loads: Valves, contactors 24 V DC	< 2.5 A	< 2.5 A	< 3.5 A	< 3.5 A
Recommended field of application		Power relay (with octal relay) for switching several industrial loads < 3.5 A.	Power relay (with octal relay) for switching several industrial loads < 3.5 A.	Miniature power relay for switching industrial loads < 5.5 A.	Miniature power relay for switching several industrial loads < 4.5 A.	Miniature power relay for switching several industrial loads < 4.5 A.

The indicated currents only apply to the normally open contact. The data of the normally closed contact are to be set at approx. one third of the specified values. The real service life can be both above and below the specified value because each load stresses the switching contact differently and other environmental factors influence the service life of the switching contact, e.g. ambient temperature, mounting position, switching frequency, and many more. Therefore, these values are without guarantee and serve as orientation for better dimensioning. The assessment of the maximum load capacity was carried out on the basis of many years of practical experience as well as life cycle tests under laboratory conditions.

**DRL 4 CO**

1133630000

Basic insulation
AgCdO

< 10 A

< 4.5 A

< 2 A

< 7 A

< 3.5 A

Miniature power relay for switching several industrial loads < 4.5 A.

**DRW 2 CO**

1219740000

Basic insulation
AgCdO< 16 A @ 250 V
< 10 A @ 400 V

< 5.5 A

< 3.5 A

< 16 A

< 4 A

Power relay with mechanical test button for switching multiple industrial loads < 5.5 A.

DRW 3 CO

1219790000

Basic insulation
AgCdO< 16 A @ 250 V
< 10 A @ 400 V

< 5 A

< 3 A 1-phasing
< 3 A 3-phasing

< 16 A

< 3.5 A

Power relay with mechanical test button for switching industrial loads < 5 A or a 3-phase electric motor < 3 A.

DRH 1 NO

1219850000

Basic insulation
AgSnO

< 16 A @ 400 V

< 7 A

< 4 A

< 16 A @ 24 V DC
< 12 A @ 125 V DC
< 10 A @ 220 V DC< 12 A @ 24 V DC
< 5 A @ 125 V DC
< 3 A @ 220 V DC

Power relay with blow out magnet and mechanical test button specially designed for switching industrial loads with high DC voltage up to 220 V DC 3 A.

DRH 2 NO

1220150000

Basic insulation
AgSnO

< 16 A @ 250 V

< 6 A

< 3.5 A

< 16 A @ 24 V DC
< 7 A @ 125 V DC
< 3 A @ 220 V DC< 9 A @ 24 V DC
< 2 A @ 125 V DC
< 1 A @ 220 V DC

Power relay with blow out magnet and mechanical test button especially for switching industrial loads with high DC voltage up to 220 V DC 1 A.

POWER**PWR 1 NO**

1219480000

Basic insulation
AgSnO

< 30 A

< 12 A

< 8 A

< 25 A

< 7 A

Power relay (miniature contactor) with double contact opening for switching industrial loads < 12 A.

PWR 2 NO

1219550000

Basic insulation
AgSnO

< 25 A

< 8.5 A

< 6 A

< 20 A

< 6 A

Power relay (miniature contactor) with double contact opening for switching industrial loads < 8.5 A.

Additional information on the selection tables

Simple formulas for calculating individual values

Calculating the service life of the relay contacts for different switching currents

In the previous tables we gave you the maximum recommended currents at various loads for a service life of approx. 100,000 switching cycles. If you switch lower currents, the service life of the relay contacts will be extended. With the following formulas you can approximately calculate how the service life of the relay contacts will change.

Example: A 24 V DC solenoid valve with 200 mA current consumption should be switched with a 6.4 mm wide TERM SERIES RSS 1 CO relay. A solenoid valve corresponds to a DC13 load. According to the table, a switching current of max. 1 A is specified for the relay at this load. To calculate the expected service life, proceed as follows:

$$x = \frac{I_{\text{Table}}}{I_{\text{App}}} = \frac{1 \text{ A}}{200 \text{ mA}} = 5$$

$$n_{\text{new}} = 100.000 \cdot x = 100.000 \cdot 5 = 500.000 \text{ switching cycles}$$

The expected service life when switching a 200 mA solenoid valve should be approx. 500,000 switching cycles.

I_{App}	= Switching current in the application
I_{DC}	= DC Switching current at the DC switching voltage in the application
$I_{\text{Load curve}}$	= DC Switching current from the load limit curve of the data sheet
I_{Nom}	= Continuous current from relay data sheet
I_{Table}	= Switching current from the selection table for the respective load
n_{new}	= Service life at switching current in the application
x	= Reduction factor of the switching current

Calculating the switching currents for voltages that deviate from the values in the table

AC switching voltage:

With AC loads, the switching current has the greatest influence on the service life. Therefore, the switching currents from the table can also be used for switching voltages up to 100 V AC. For values below 100 V AC, the service life increases at the same switching current:

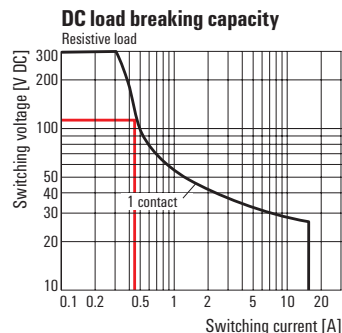
- at 24 V AC four times the service life
- at 60 V AC twice the service life

Example: If the table shows a switching current of 2 A for a 250 V AC AC15 load, then these 2 A are also applicable for 120 V AC. At 24 V AC switching voltage, the expected service life increases four times to 400,000 switching cycles.

DC switching voltage:

When switching DC loads, the switched voltage has a large influence on the maximum switching current of the relay contact. This can also be seen from the DC load breaking curve given in the data sheet. The following formulas can be used to roughly determine the maximal switching current for other DC switching voltages:

Example: A TERM SERIES RCL 1 CO relay with a DC13 load and a switching voltage of 110 V DC. According to the table a maximum of 2 A at 24 V DC applies to a DC-13 load for a service life of 100,000 switching cycles.



The curve shows a maximum switching current of approx. 0.45 A with resistive load. This must now be set in relation to the rated current of the relay (16 A) from the data sheet and the value for a DC13 load from the table.

$$x = \frac{I_{\text{Table}}}{I_{\text{Nom}}} = \frac{2 \text{ A}}{16 \text{ A}} = 0.125$$

$$I_{\text{DC}} = I_{\text{Load curve}} \cdot x = 0.45 \text{ A} \cdot 0.125 = 0.056 \text{ A} = 56 \text{ mA}$$

To achieve 100,000 switching cycles, a DC13 load of 56 mA can be switched with a switching voltage of 110 V DC.

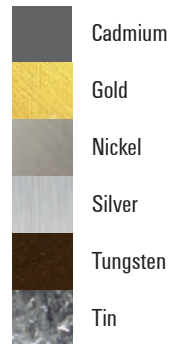
Select contact materials suitable for the application

Information of various contact materials

Relay modules are used in a wide variety of industrial areas and environments. The relays must therefore be adapted to the various tasks by selecting suitable contact materials. The following applies: the load capacity of the contacts for voltage, current, and power depends essentially on the material used. To make the selection easier for you, we have compared the most important characteristics of the contact materials

Criteria for the selection of the contact material:

- Welding tendency
- Burn-off resistance
- Contact resistance
- Material migration
- Resistance to harmful gas atmospheres



Please obtain information when selecting a relay in this table:

Material	Characteristics	Recommended applications
AgNi Silver-nickel	• Higher welding tendency than AgSnO and AgCdO • High burn-off resistance • Lower contact resistance than AgSnO and AgCdO • Mean material migration • Low resistance to harmful gas atmospheres	• Suitable for low to high resistive and low inductive loads (solenoid valves, fans, heaters) • Standard contact material for a variety of relays • Limited suitable for high inrush currents • Suitable for loads > 12 V/10 mA or 5 V/100 mA
AgNi 0,15 Au Silver-nickel flash gold plated	• Higher welding tendency than AgSnO and AgCdO • High burn-off resistance (gold just storage protection) • Lower contact resistance than AgSnO and AgCdO • Mean material migration • Low resistance to harmful gas atmospheres	• Suitable for low to high resistive and low inductive loads (solenoid valves, fans, heaters) • The flash gold plating is a storage protection, but offers no functional improvement to AgNi • Limited suitable for high inrush currents • Suitable for loads > 12 V/10 mA or 5 V/100 mA
AgNi Au Silver-nickel hard gold plated	• Very low resistance to burn-off • Lowest contact resistance • High resistance to harmful gas atmospheres	• Suitable for decoupling control inputs and other small resistive loads • Suitable for loads > 1 V/1 mA and < 30 V/10 mA • After switching loads > 30 V/100 mA, small powers can no longer be switched reliably because the hard gold plating has been burned-off. Only the characteristics of the base contact material AgNi still apply.
AgSnO Silver-Tin-Oxide	• Lower welding tendency than AgNi and AgCdO • High resistance to burn-off • Average contact resistance • Lower material migration than AgNi and AgCdO • Very low resistance to harmful gas atmospheres	• Suitable for medium to high resistive DC-loads and low up to medium inductive DC loads due to low material migration. Thanks to the low tendency to weld, it is also well suited for loads with higher inrush currents such as lamp loads, light capacitive loads, fluorescent tubes, etc. • Suitable for loads > 12 V/100 mA
AgCdO Silver-Cadmium-Oxide	• Lower welding tendency than AgNi • High resistance to burn-off • Average contact resistance • Lower material migration than AgNi • Very low resistance to harmful gas atmospheres	• Suitable for medium to high resistive and inductive AC loads, due to high burn-off resistance • Suitable for loads > 12 V/100 mA
W Tungsten	• Lowest welding tendency • Very high resistance to burn-off • Highest contact resistance • Low material migration	• Suitable for loads with very high inrush currents of up to 165 A/20 ms or 800 A/200 µs (e.g. lamp loads, capacitive loads, fluorescent tubes, switched-mode power supplies etc.) • Often used as a pre-making contact in parallel to AgSnO contacts

Protect relay contacts effectively

Selection criteria for protective circuits of inductive loads

In our selection tables we specified the maximum recommended switching currents for inductive loads without protective circuits. If you want to increase the service life of the contacts, you must equip the relay contacts with an effective protective circuit.

The protective circuit on the coil side of a relay module can, for example, be implemented with an integrated or additionally pluggable freewheeling diode. However, this only protects the controlling periphery from the voltage peaks that occur in the coil of the relay module. The relay contact is usually not sufficiently protected against the voltage peaks of the inductive load to be switched, although with optimum dimensioning almost the same values for switching capacity or switching cycles can be achieved as with resistive load.

The largest reduction factor for the service life of a relay contact is the arc generated during switching off inductive loads. It is caused during the switching process by the energy stored in the coil and can destroy the contact through material evaporation and material migration.

With DC voltage and standing arc, the relay can even fail during the first switching cycle. Voltage peaks caused by electric arcs can reach values up to several 1,000 volts.

A protective circuits must be used to suppress the formation of electric arcs.

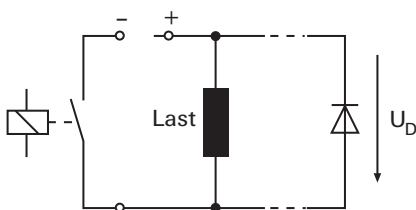
In the following, we will explain the correct installation of the protective circuit and the effectiveness of the most common types of protective circuit. There are various ways to install an effective protective circuits. For example, the protective circuit can be mounted either parallel to the relay contact or parallel to the load.

However, the protective measure should always apply directly to the source of the fault. Therefore, the protective circuit of the load is preferable to the circuit of the contact.

Advantages of a protective circuit at the load:

- When the contact is open, the load is still galvanically isolated from the operating voltage
- The switch-off peaks of the load cannot be coupled into the control lines running in parallel



Free-wheeling diodes

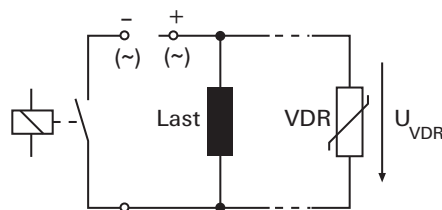
Free-wheeling diodes are used to protect against overvoltages caused by self-induction when an inductive DC voltage load is switched off (e.g. solenoid valves or electric motors). They ensure that the voltage peaks that occur are reduced to the value of the diode forward voltage (U_D). However, this leads to a delay in the voltage drop and thus in the switch-off process of the load.

Advantage:

- Uncritical dimensioning
- Very positive effect on the service life of the contacts

Disadvantage:

- Significantly extended switch off process
- Only suitable for DC voltage

Varistors

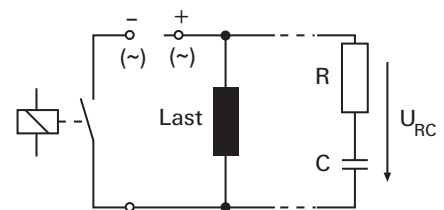
The functional principle of varistors is also based on breakdown voltages (U_{VDR}). High energies can be dissipated, but this causes the component to aging. Therefore, the breakdown voltage is reduced over time and the leakage current is increased.

Advantage:

- Uncritical dimensioning
- Suitable for DC and AC voltage
- Slightly extended switch off process

Disadvantage:

- Complex and expensive with increasing power
- Low effect on the service life of the contact

RC modules

With RC modules, voltage peaks are compensated via a capacitor. Thanks to its special characteristics during charging and discharging the interference pulses are already filtered out during the voltage rise and not only when the breakdown voltage (U_{RC}) is reached.

Advantage:

- Suitable for DC and AC voltage
- Slightly extended switch off process

Disadvantage:

- Exact dimensioning required
- High inrush current
- Low effect on the service life of the contact



In order to implement a protective circuit tailored to the load, suitably dimensioned protective circuits are available as accessories from many manufacturers of inductive loads such as contactors or solenoid valves. This enables simple integration of the protective circuit on the load.

Switching of capacitive loads

Relays for LED lamps and devices with high inrush currents

Loads with capacitive load shares, especially LED lamps, place extreme demands on the switching contacts, regardless of the voltage type. They produce extremely high-energy current peaks at the moment of switching on. These can reach over 100 A and weld the contact.

Today, many loads with capacitive load shares are hidden in pre-circuits, which previously were typical inductive loads in the past, e.g. solenoid valves and contactors. Due to these pre-circuits, the operation is often possible over a wide range of input voltage.

One example are solenoid valves that can be operated with a voltage of 110 V to 230 V AC/DC. The pre-circuits can also conceal capacitors that are switched on not damped and thus generate very high inrush current peaks of up to 150 A. These current peaks also lead to welding of the contacts.

For loads with wide-range input, the inductive load share is usually unproblematic, as it is eliminated by a suitable protective circuit in the wide-range input.



The electromechanical relays listed below are ideally suited for very high inrush currents of up to 800 A for 200 μ s.

In addition to the robust AgSnO contact, some of them have a particularly welding resistant tungsten contact.

It closes ahead of the AgSnO contact and takes over the inrush current. The AgSnO contact then closes to bridge the tungsten contact. This is necessary to reduce the power dissipation, because tungsten has a much worse conductance than AgSnO.

TERMSERIES

**Special relay modules with tungsten contact
for very high inrush currents of up to 800 A for 200 μ s**

Single relay, 12.8 mm wide	Order No.
RCLS3T024W	8866920000
Complete module/KIT, 12.8 mm wide	
TRP 24VDC 1NO HCP	2617930000
TRS 24VDC 1NO HCP	1479810000

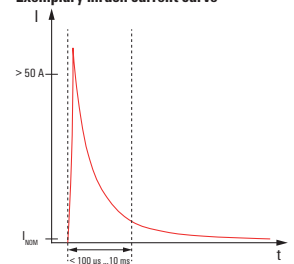
**Special relay modules without tungsten contact
for high inrush currents of up to 80 A for 20 ms**

Single relay, 12.8 mm wide	Order No.
RCLS3L024W	1984080000
Complete module/KIT, 12.8 mm wide	
TRS 24-230VUC 1NO HC	1479790000
TRS 24VDC 1NO HC	1479780000
TRZ 24-230VUC 1NO HC	1479950000
TRZ 24VDC 1NO HC	1479940000

The semiconductor relays listed below are particularly suitable for short and high inrush current peaks of less than 10 ms. As they do not contain mechanical components due to their design, their outputs cannot be welded.

At the same time, they are insensitive to short-term high inrush currents, which makes them ideal for switching loads with short-term high inrush current peaks, e.g. LED lamps or devices with wide-range input.

Exemplary inrush current curve



TERMSERIES

**Solid state relays for short and high inrush currents (<10 ms)
e.g. of LED lamps or devices with wide range inputs**

Pluggable solid-state module DC output, 12 mm wide	Order No.
SSR 10-32VDC/0-35VDC 5A	1421450000
SSR 24VDC/0-24VDC 3,5A	1132310000
Pluggable solid-state module DC output, 5 mm wide	
SSS Relais 24V/24V 2Adc	4061190000
Complete module/KIT, 12.8 mm wide	
TOP 24VDC 24VDC5A	2618840000
TOS 24VDC 24VDC5A	1990960000
TOP 24VDC 24VDC3.5A	2618700000
TOS 24VDC 24VDC3.5A	1127630000
Complete module/KIT, 6.4 mm wide	
TOP 24VDC 24VDC2A	2618720000
TOS 24VDC 24VDC2A	1127170000
Pluggable solid-state module, AC output, 5 mm wide	
SSS Relais 24V/230V 1Aac	4061210000
Complete module/KIT, 6.4 mm wide	
TOP 24VDC 230VAC1A	2618420000
TOS 24VDC 230VAC1A	1127410000

MICROOPTO

**Solid state relays for short and high inrush currents (<10 ms)
e.g. of LED lamps or devices with wide range inputs**

Complete module, 6.1 mm wide	Order No.
MOS 24VDC/8-30VDC 2A	8937970000
MOS 24VDC/8-30VDC 2A E	1283230000

Switching of very low power circuits

Relay for forwarding control signals

Low power circuits with values below 30 V/10 mA are mainly used in applications where signals have to be transmitted to control inputs, e.g. to a PLC. Such low loads do not produce a sufficient arc at the contacts.

However, this arc has two important functions:

On the one hand, it ensures continuous cleaning of the contacts; on the other hand, it can penetrate non-conductive foreign layers at the contacts. Such foreign layers are usually created by oxidation or sulfidation of common contact materials such as silver (Ag), silver-nickel (AgNi), or silver-tin oxide (AgSnO). The foreign layers can increase the contact resistance after a short time to such an extent that reliable switching of low loads is no longer possible.

For these reasons, gold (Au) is used as the contact material for relays switching small loads. It has proven itself due to its low and constant contact resistance and its resistance to ambient air containing sulphur.



TERMSERIES

The all-rounder. Modular relay modules from 6 mm width with extensive accessories, large selection of variants, and unlimited cross-connection possibilities.

Single relay, 5 mm wide	Order No.
RSS112024	4061590000
Complete module/KIT, 6.4 mm wide	
TRP 24VDC 1CO AU	2618110000
TRS 24VDC 1CO AU	1123000000

Single relay, 12.8 mm wide	Order No.
RCL425024	4058580000
Complete module/KIT, 12.8 mm wide	
TRP 24VDC 2CO AU	2618530000
TRS 24VDC 2CO AU	1123730000

RIDERSERIES

High-quality universal relays with sophisticated details and international approvals in various designs for a wide range of industrial applications.

Single relay, 22.5 mm wide	Order No.
RCM580024	8694460000

D-SERIES

Industrial relay modules with innovative features and a large selection of variants for various applications.

Single relay, 21 mm wide	Order No.
DRM270024LT Au	7760056185
DRM570024LT Au	7760056189

Universal range

Universal range	Overview	B.2
	TERMSERIES – relay modules	B.4
	TERMSERIES TIMER	B.28
	TERMSERIES FG	B.30
	TERMSERIES – solid-state relays	B.32
	TERMSERIES – CI.1 Div.2	B.46
	TERMSERIES – Interface adapters	B.54
	RIDERSERIES – relay modules	B.64
	D-SERIES – relay modules	B.108
	MCZ SERIES – relay modules	B.168
	MCZ-SERIES – solid-state relays	B.176

Universal range

Relay modules and solid-state relays for every application

B

Machinery and plant engineering is full of challenges. One of these challenges is the selection of suitable relay products. A wide range of highly flexible modules are needed here that can satisfy a variety of different requirements.

As a full-range supplier in the field of relay modules, we provide you with a broad, varied and high-quality relay portfolio with products from the TERMSERIES, RIDERSERIES and D-SERIES. In addition, we offer KITS for signal isolation, amplification and multiplication. They are distinguished by particularly high reliability and durability and are available in various designs. In addition to our products, we offer you a wide range of comprehensive services and guidelines. This also includes our services for data support as well as for the digital availability of product data, with which we make your entire planning cycle easier.

Our relay modules are used in automation technology as well as in many other areas and industries for galvanic isolation. They are available with different types of contact such as NO contact, NC contact and CO contact and, due to their functional excellence, they provide measurable cost reductions for storage, installation and operation.

Solid-state relays

Our high-quality solid-state relays combine the highest standards with absolute quality. The extremely flexible portfolio includes a wide range of compact, durable, wear-free, silent and vibration-resistant products. For you this means: no mechanical wear, no error conditions and no noise pollution.

Electromechanical relays

Electromechanical relays are a versatile and cost-effective solution for a wide range of switching processes. They can be used for level and power adjustment and form interfaces between control, signalling or regulating equipment and the peripheral devices. However, due to the diversity of their industrial applications, the right relay must be selected for each specific application. In addition, electromechanical relays are subject to a certain amount of wear due to their design, which must also be taken into account when designing relay circuits.

Convenient for planning and documentation

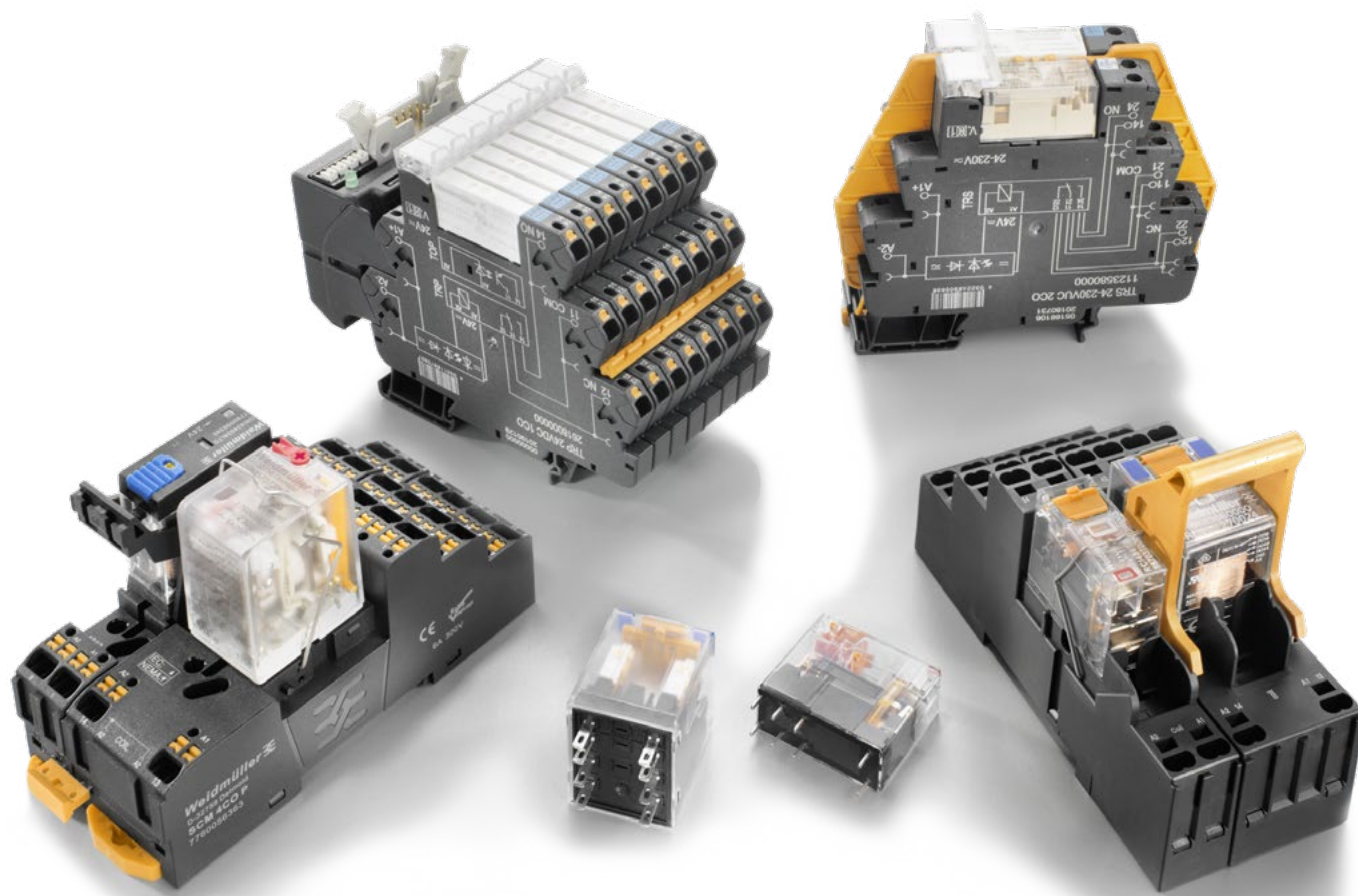
Thanks to the electronic catalogue, product data can be imported and exported to all common engineering tools such as EPLAN. It therefore also supports the use of digital twins and guarantees fast access to all item data at all times.

Compact and time-saving

The compact design of our relay modules saves a lot of space in the panel. The reduced wiring effort as well as optimal marking enable time-saving installation and maintenance.

Functional and economical

The high functional demands of our relay modules ensure measurable cost savings – through simplified storage, time-saving wiring and reliable operation, for example.



High quality and versatile

Our solid-state relays combine the latest standards with the highest quality. You benefit from a wide and flexible product range with maximum safety

Robust and reliable

Fail-safe, wear-free, low-noise and vibration-proof components ensure interference-free work processes and safeguard the availability of the plant.



TERMSERIES

The all-rounders in a terminal block format

B

TERMSERIES relay modules and solid-state relays are real all-rounders in the extensive Klippon® Relay portfolio. The pluggable modules are available in many variants and can be exchanged quickly and easily – they are ideal for use in modular systems. Their large illuminated ejection lever also serves as a status LED with integrated holder for markers, making maintenance easier. TERMSERIES products are particularly space-saving and are available in widths from 6.4 mm. Besides their versatility, they convince through their extensive accessories and unlimited cross-connection possibilities.

TERMSERIES products are available for special loads, for C1D2 applications, with timer functions or with positively-driven contacts. Special variants for connecting actuators – e.g. solenoid valves or contactors – are also available. The range of applications is extended by various connection systems such as PUSH IN and screw connection. And with the unique multi-voltage input, you can optimise your wiring and simplify your retrofitting processes. All products are of course approved according to the current international standards such as cULus, DNV GL and EAC.

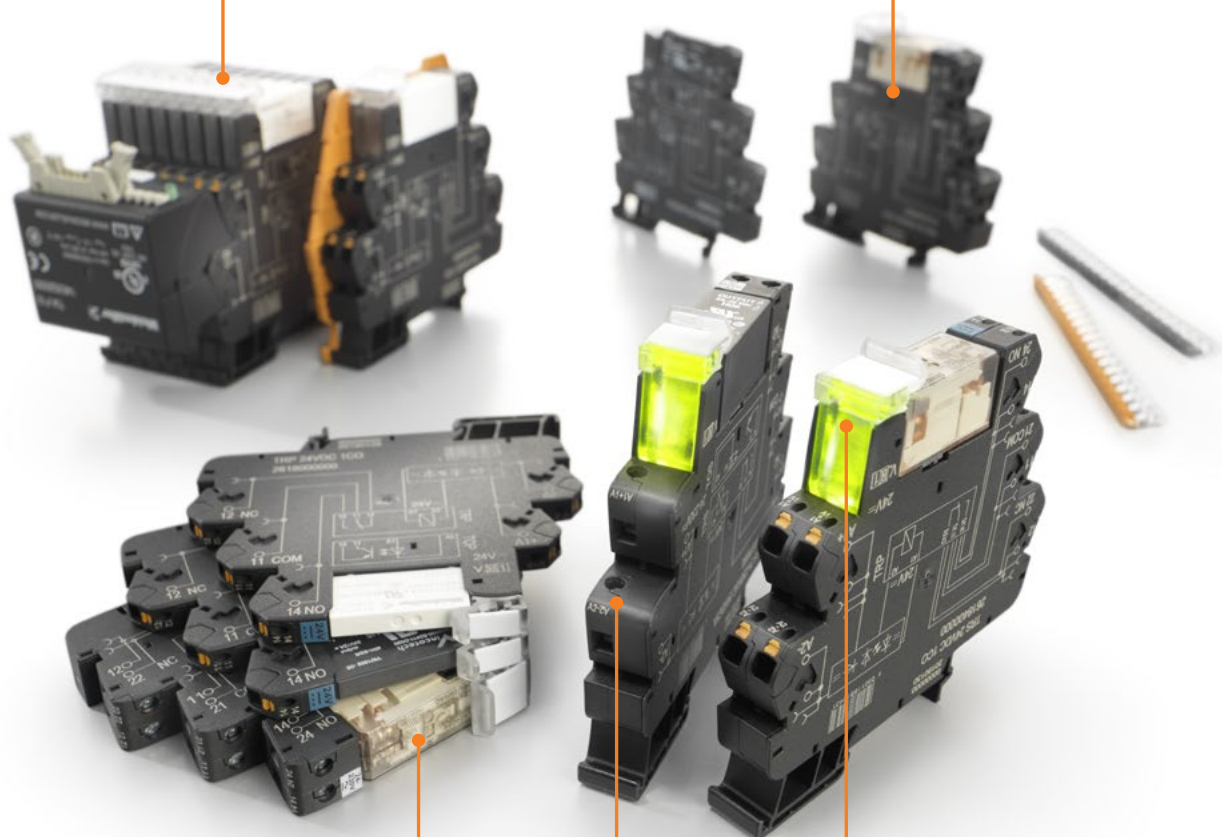
Our TERMSERIES variants for special loads are assembled with optimised contacts. Their arrangement and material selection were adapted to suit the high loads in the industrial sector. Whether in machinery and plant engineering, robotics, wind energy or shipbuilding: With TERMSERIES products you can reliably and permanently switch industrial loads and reduce your operating costs.

Space-saving design

The slim design with compact widths from 6.4 mm provides noticeable space savings in the panel.

Unique multi-voltage input

The input allows controlling with voltages from 24 to 230 V AC/DC in one device. This reduces the number of required part numbers and makes retrofitting easier.

**Ergonomic design**

The high-quality design without sharp edges reduces the risk of injury. All markings are readable, no matter which position the components are installed in, which makes work easier.

Multi-functional ejection lever

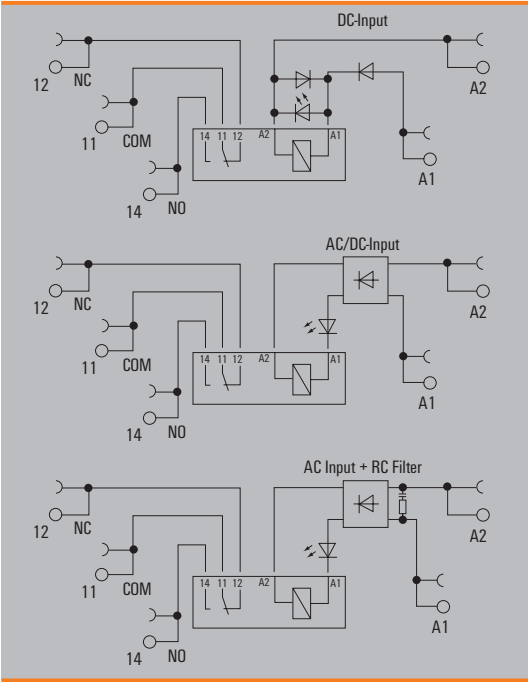
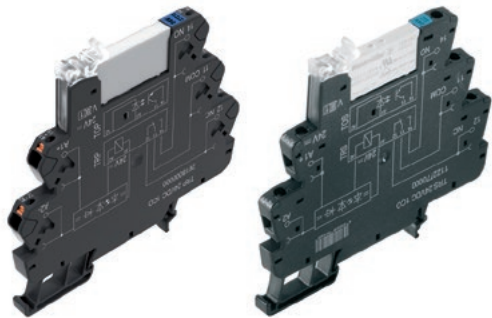
The ejection lever allows the plugged-in relays to be replaced easily. It is also used to hold markers and has a status LED that illuminates the entire ejector.

Continuous cross-connectors

The continuous cross-connection channels increase flexibility and save wiring time at every level.

1 CO contact
AC/DC/UC coil

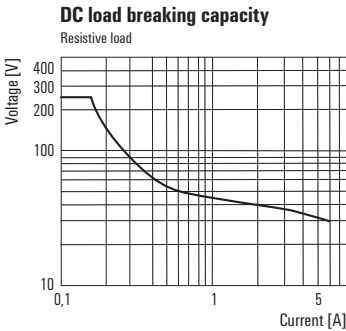
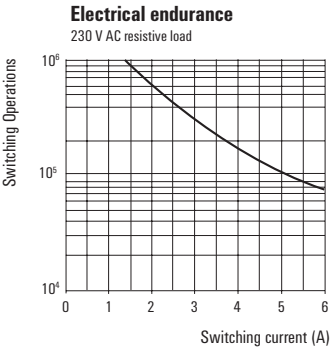
- Space-saving, only 6.4 mm wide
- AgNi contact
- PUSH IN and screw connection



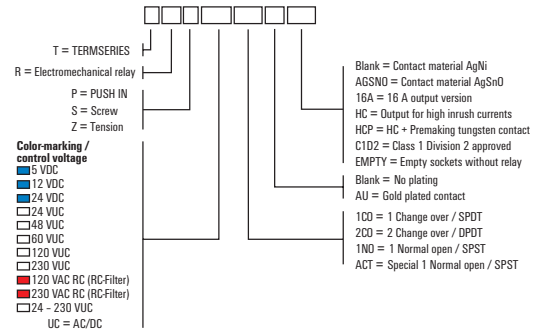
Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC		
Inrush current	20 A / 20 ms	
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V	
Contact type	1 CO contact (AgNi)	
Mechanical service life	5 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% relative humidity, T ₉₀ = 40°C, without condensation	
Approvals	CE; cULus; DNVGL; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

Applications



1 CO contact AC/DC/UC coil



Ordering data

Control side	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V UC $\pm 10\%$	48 V UC $\pm 10\%$
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	340 mW / 0.4 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data

PUSH IN connection	Type	TRP 5VDC 1CO	TRP 12VDC 1CO	TRP 24VDC 1CO	TRP 24VUC 1CO	TRP 48VUC 1CO
Order No.		2614830000	2618180000	2618000000	2618220000	2618240000
Screw connection	Type	TRS 5VDC 1CO	TRS 12VDC 1CO	TRS 24VDC 1CO	TRS 24VUC 1CO	TRS 48VUC 1CO
Order No.		1122740000	1122750000	1122770000	1122780000	1122790000
Note						

Ordering data

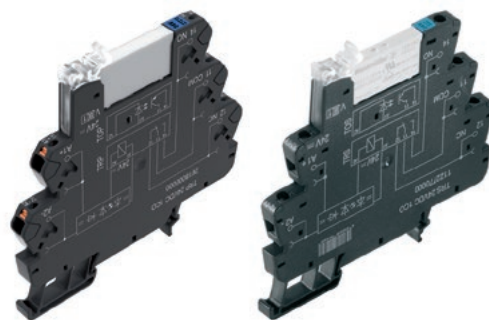
Control side	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Rated control voltage	60 V UC $\pm 10\%$	120 V UC $\pm 10\%$	230 V UC $\pm 10\%$	120 V AC $\pm 10\%$	230 V AC $\pm 10\%$
Rated current AC / DC	4.8 mA / 2.8 mA	4 mA / 3.5 mA	3.5 mA / 2.9 mA	7 mA /	8.5 mA /
Power rating	170 mW, 290 mVA	0.48 VA, 420 mW	670 mW, 805 mVA	840 mVA	2 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element

Ordering data

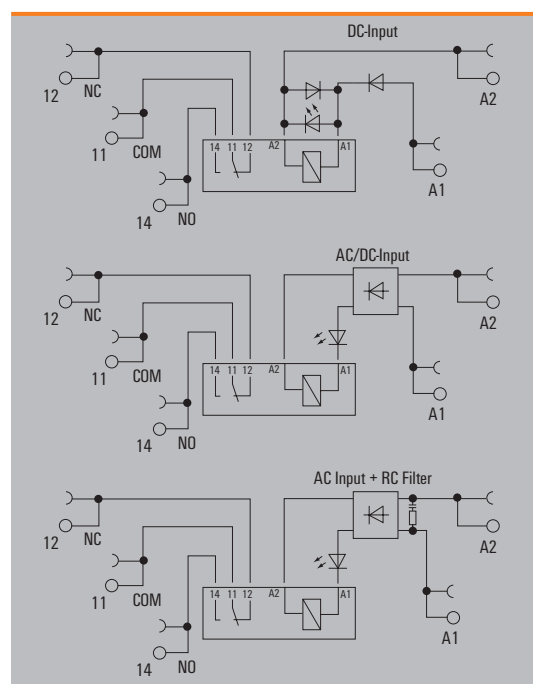
PUSH IN connection	Type	TRP 60VUC 1CO	TRP 120VUC 1CO	TRP 230VUC 1CO	TRP 120VAC RC 1CO	TRP 230VAC RC 1CO
Order No.		2618140000	2618010000	2618050000	2618150000	2618200000
Screw connection	Type	TRS 60VUC 1CO	TRS 120VUC 1CO	TRS 230VUC 1CO	TRS 120VAC RC 1CO	TRS 230VAC RC 1CO
Order No.		1122800000	1122810000	1122820000	1122830000	1122840000
Note						

AC/DC/UC coil

- Space saving, just 6.4 mm modular width
- AgNi contact with gold plating
- PUSH IN and screw connection



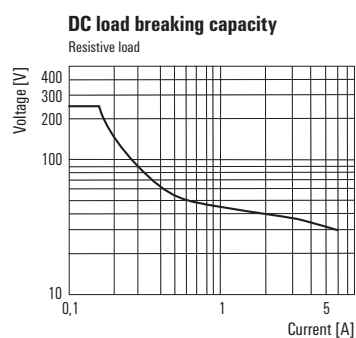
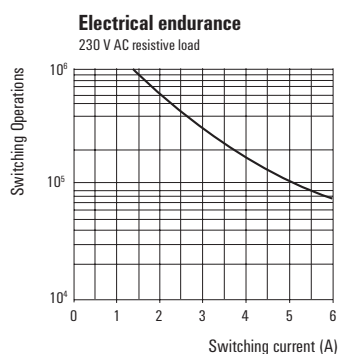
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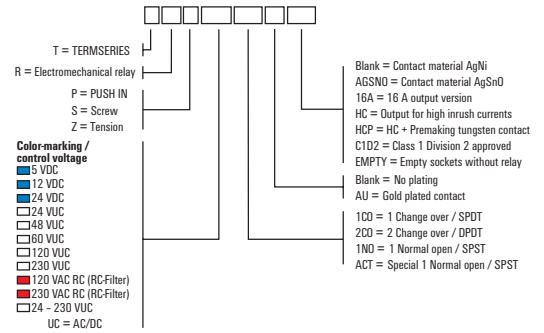
Load side	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	
Inrush current	20 A / 20 ms
Min. switching power	1 mA @ 1 V
Contact type	1 CO contact (AgNi 5µm Au)
Mechanical service life	5 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% relative humidity, T ₉₀ = 40°C, without condensation
Approvals	CE; cULus; DNVGL; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog	

Applications



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



Ordering data

Control side	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V UC $\pm 10\%$	48 V UC $\pm 10\%$
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	340 mW / 0.4 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data

PUSH IN connection	Type	TRP 5VDC 1CO AU	TRP 12VDC 1CO AU	TRP 24VDC 1CO AU	TRP 24VUC 1CO AU	TRP 48VUC 1CO AU
Order No.		2618060000	2618120000	2618110000	2618160000	2618170000
Screw connection	Type	TRS 5VDC 1CO AU	TRS 12VDC 1CO AU	TRS 24VDC 1CO AU	TRS 24VUC 1CO AU	TRS 48VUC 1CO AU
Order No.		1122980000	1122990000	1123000000	1123010000	1123020000
Note						

Ordering data

Control side	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Rated control voltage	60 V UC $\pm 10\%$	120 V UC $\pm 10\%$	230 V UC $\pm 10\%$	120 V AC $\pm 10\%$	230 V AC $\pm 10\%$
Rated current AC / DC	4,8 mA / 2,8 mA	4 mA / 3,5 mA	3,5 mA / 2,9 mA	7 mA /	8,5 mA /
Power rating	170 mW, 290 mVA	0,48 VA, 420 mW	670 mW, 805 mVA	840 mVA	2 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element

Ordering data

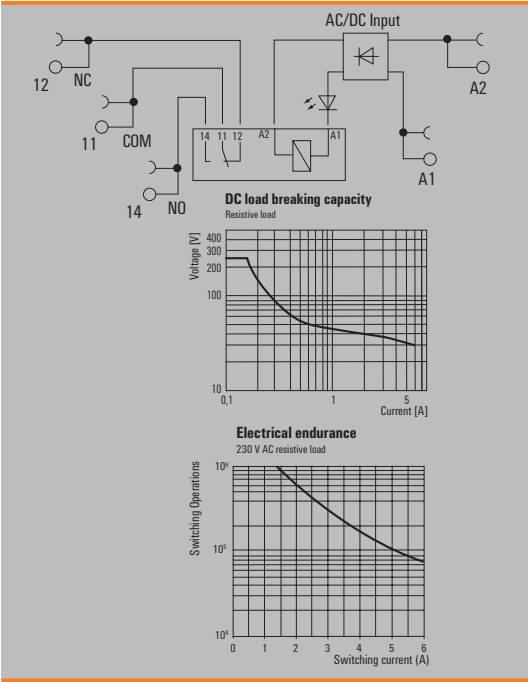
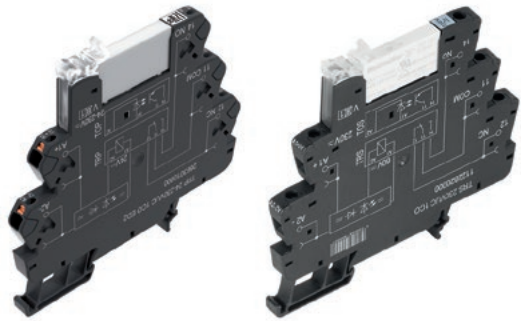
PUSH IN connection	Type	TRP 60VUC 1CO AU	TRP 120VUC 1CO AU	TRP 230VUC 1CO AU	TRP 120VAC RC 1CO AU	TRP 230VAC RC 1CO AU
Order No.		2618070000	2618080000	2618210000	2618030000	2617950000
Screw connection	Type	TRS 60VUC 1CO AU	TRS 120VUC 1CO AU	TRS 230VUC 1CO AU	TRS 120VAC RC 1CO AU	TRS 230VAC RC 1CO AU
Order No.		1123030000	1123040000	1123050000	1123070000	1123080000
Note						

TERMSERIES – relay modules

1 C0 contact

multi-voltage input

- Space-saving: width only 6.4 mm
- AgNi contact
- PUSH IN and screw connection
- Multi-voltage input: 24...230 V UC in one module



Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC		
Inrush current	20 A / 20 ms	
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V	
Contact type	1 C0 contact (AgNi)	
Mechanical service life	5 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% relative humidity, T _u = 40°C, without condensation	
Approvals	CE; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. You can find further approvals and technical data at catalog XXXXXXXXXX	

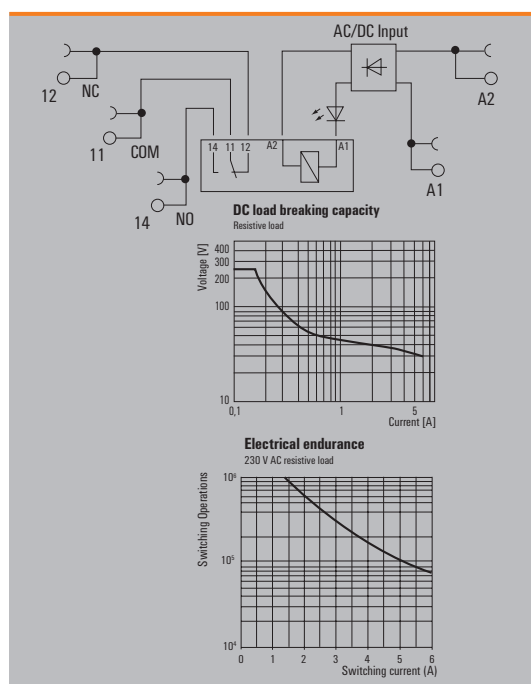
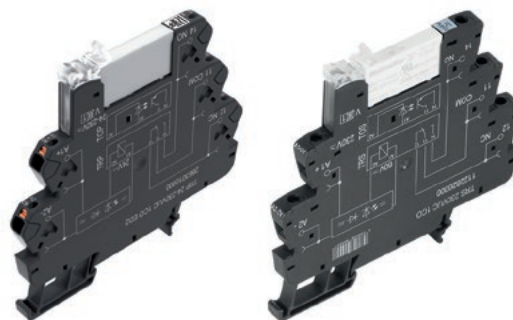
Ordering data

Control side	
Rated control voltage	24...230 V UC ± 10 %
Rated current AC / DC	19.0 mA @ 24 V AC, 3.0 mA @ 230 V AC / 11.0 mA @ 24 V DC, 1.1 mA @ 230 V DC
Power rating	265 mW @ 24 V DC, 255 mW @ 230 V DC, 455 mVA @ 24 V AC, 690 mVA @ 230 V AC
Status indicator	Green LED
Protective circuit	Rectifier
Approvals	CE; EAC

Ordering data	
PUSH IN connection	Type TRP 24-230VUC 1C0 ED2
Order No.	2663010000
Screw connection	Type TRS 24-230VUC 1C0 ED2
Order No.	2662850000
Note	

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

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



Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC		
Inrush current	20 A / 20 ms	
Min. switching power	1 mA @ 1 V	
Contact type	1 CO contact (AgNi 5µm Au)	
Mechanical service life	5 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% relative humidity, T _g = 40°C, without condensation	
Approvals	CE; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions		
	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog.	

Ordering data

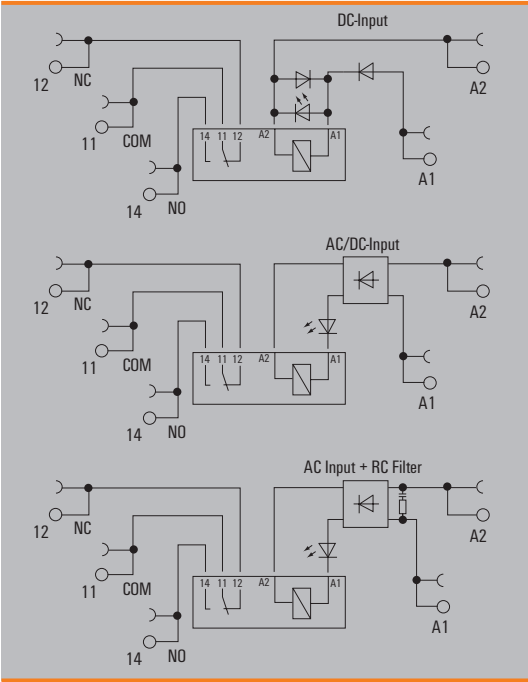
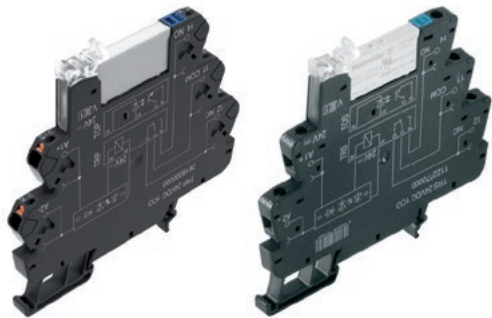
Control side	
Rated control voltage	24...230 V UC ± 10 %
Rated current AC / DC	19.0 mA @ 24 V AC, 3.0 mA @ 230 V AC / 11.0 mA @ 24 V DC, 1.1 mA @ 230 V DC
Power rating	265 mW @ 24 V DC, 255 mW @ 230 V DC, 455 mVA @ 24 V AC, 690 mVA @ 230 V AC
Status indicator	Green LED
Protective circuit	Rectifier
Approvals	CE, EAC

Ordering data	
PUSH IN connection	Type TRP 24-230VUC 1CO AU ED2
Order No.	2663020000
Screw connection	Type TRS 24-230VUC 1CO AU ED2
Order No.	2662860000
Note	

1 CO contact (AgSnO)

AC / DC / UC coil

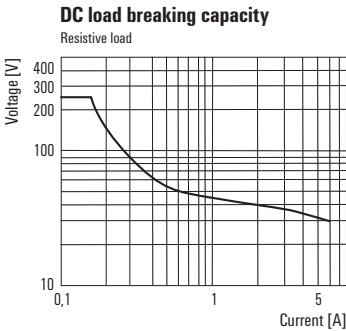
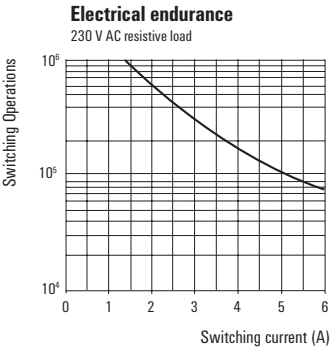
- Space-saving, only 6.4 mm wide
- AgSnO contact
- For capacitive and inductive loads
- PUSH IN and screw connection



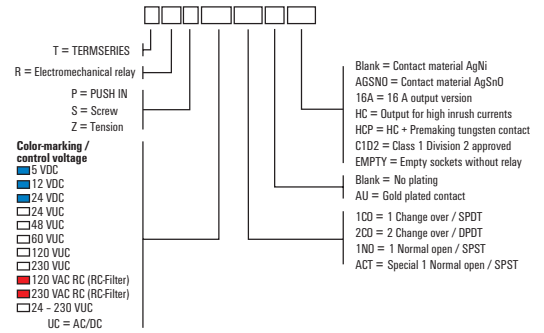
Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC		
Inrush current	30 A / 20 ms	
Min. switching power	100 mA @ 12 V	
Contact type	1 CO contact (AgSnO)	
Mechanical service life	5 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% relative humidity, T ₉₀ = 40°C, without condensation	
Approvals	CE; cULus; DNVGL; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

Applications



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



Ordering data

Control side	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V UC $\pm 10\%$	48 V UC $\pm 10\%$
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	340 mW / 0.4 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data

PUSH IN connection	Type	TRP 5VDC 1CO AGSNO	TRP 12VDC 1CO AGSNO	TRP 24VDC 1CO AGSNO	TRP 24VUC 1CO AGSNO	TRP 48VUC 1CO AGSNO
Order No.		2614820000	2617860000	2618020000	2617880000	2617890000
Screw connection	Type	TRS 5VDC 1CO AGSNO	TRS 12VDC 1CO AGSNO	TRS 24VDC 1CO AGSNO	TRS 24VUC 1CO AGSNO	TRS 48VUC 1CO AGSNO
Order No.		2152860000	2152880000	1984540000	2152940000	2153060000
Note						

Ordering data

Control side	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Rated control voltage	60 V UC $\pm 10\%$	120 V UC $\pm 10\%$	230 V UC $\pm 10\%$	120 V AC $\pm 10\%$	230 V AC $\pm 10\%$
Rated current AC / DC	4.8 mA / 2.8 mA	4 mA / 3.5 mA	3.5 mA / 2.9 mA	7 mA /	8.8 mA /
Power rating	170 mW, 290 mVA	0.48 VA, 420 mW	670 mW, 805 mVA	840 mVA	2 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element

Ordering data

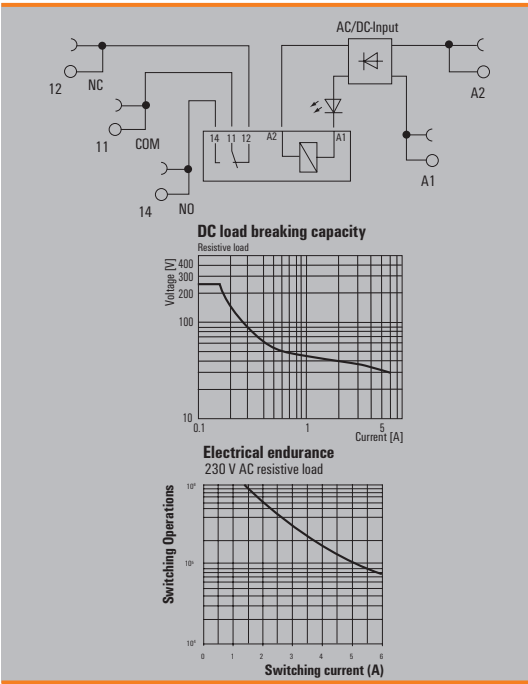
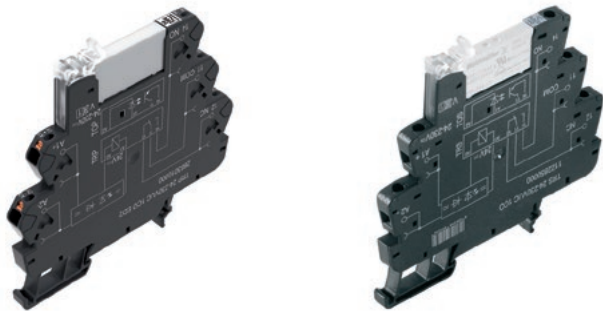
PUSH IN connection	Type	TRP 60VUC 1CO AGSNO	TRP 120VUC 1CO AGSNO	TRP 230VUC 1CO AGSNO	TRP 120VAC RC 1CO AGSNO	TRP 230VAC RC 1CO AGSNO
Order No.		2617870000	2617900000	2617830000	2617840000	2617850000
Screw connection	Type	TRS 60VUC 1CO AGSNO	TRS 120VUC 1CO AGSNO	TRS 230VUC 1CO AGSNO	TRS 120VAC RC 1CO AGSNO	TRS 230VAC RC 1CO AGSNO
Order No.		2153550000	2153570000	2153590000	2152900000	2152920000
Note						

TERMSERIES – relay modules

1 CO contact (AgSnO)

Multi-voltage input

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



Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	
Inrush current	30 A / 20 ms
Min. switching power	100 mA @ 12 V
Contact type	1 CO contact (AgSnO)
Mechanical service life	5 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% relative humidity, T _u = 40°C, without condensation
Approvals	CE; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

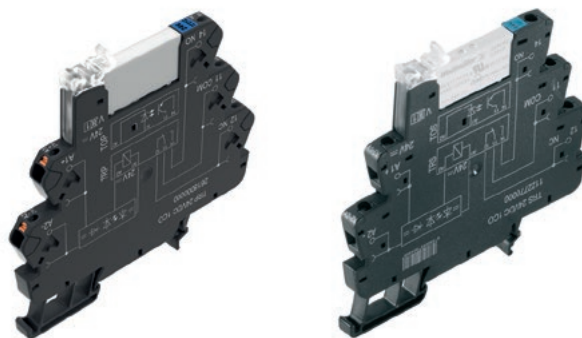
Ordering data

Control side	
Rated control voltage	24...230 V UC ± 10 %
Rated current AC / DC	19.0 mA @ 24 V AC, 3.0 mA @ 230 V AC / 11.0 mA @ 24 V DC, 1.1 mA @ 230 V DC
Power rating	265 mW @ 24 V DC, 255 mW @ 230 V DC, 455 mVA @ 24 V AC, 690 mVA @ 230 V AC
Status indicator	Green LED
Protective circuit	Rectifier
Approvals	CE; EAC

Ordering data	
PUSH IN connection	Type TRP 24-230VUC 1CO AGSNO ED2
Order No.	2663160000
Screw connection	Type TRS 24-230VUC 1CO AGSNO ED2
Order No.	2663000000
Note	

1 NO contact (actuator)

- Space-saving, only 6.4 mm wide
 - AgNi contact
 - PUSH IN and screw connection
 - 24 V DC actuator version:
- Bridgeable, potential-free connection in the output (DC)

**Technical data**

Load side	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	
Inrush current	20 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	1 NO contact (AgNi)
Mechanical service life	5 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% relative humidity, T _a = 40°C, without condensation
Approvals	CE; cULus; DNVGL; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog.		

Ordering data

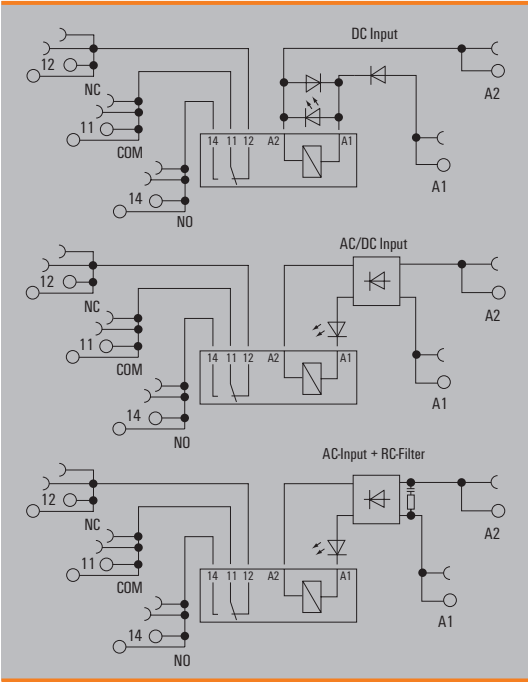
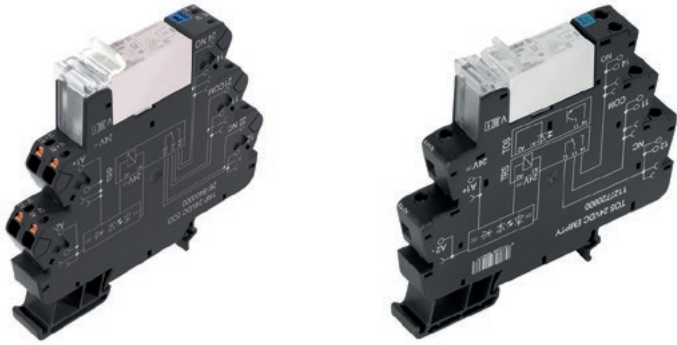
Control side	
Rated control voltage	24 V DC ± 20 %
Rated current AC / DC	/ 11.5 mA
Power rating	280 mW
Status indicator	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection

24 V DC ACT

Ordering data	
PUSH IN connection	Type TRP 24VDC ACT
Order No.	2618230000
Screw connection	Type TRS 24VDC ACT
Order No.	1381900000
Note	

1 CO contact
AC / DC / UC coil

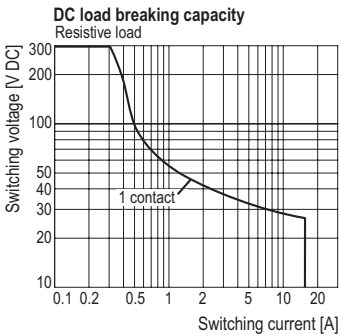
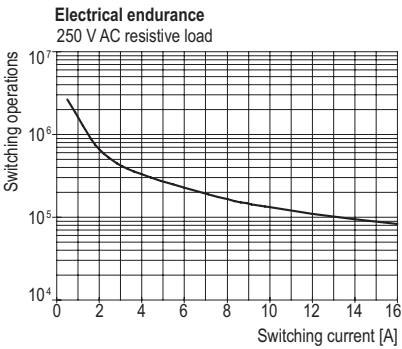
- Space-saving, 12.8 mm wide
- 16 A AgNi contact
- Internal cross-connection of the output terminals
- PUSH IN and screw connection



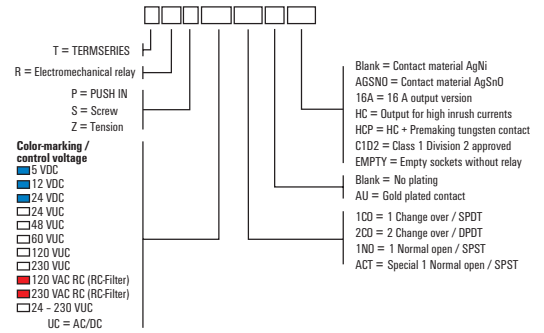
Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 16 A	
Max. switching voltage, AC		
Inrush current	30 A / 4 s	
Min. switching power	10 mA @ 10 V, 100 mA @ 5 V	
Contact type	1 CO contact (AgNi)	
Mechanical service life	30 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% relative humidity, T ₉₀ = 40°C, without condensation	
Approvals	CE; cULus; DNVGL; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength, Input/Output	1.2 kV _{eff} / 5 s	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.4	87.8 / 12.8 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. 	

Applications



1 CO contact AC / DC / UC coil



Ordering data

Control side	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V UC $\pm 10\%$	48 V UC $\pm 10\%$
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
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data

PUSH IN connection	Type	TRP 5VDC 1CO 16A	TRP 12VDC 1CO 16A	TRP 24VDC 1CO 16A	TRP 24VUC 1CO 16A	TRP 48VUC 1CO 16A
	Order No.	2618130000	2618040000	2618100000	2617910000	2617960000
Screw connection	Type	TRS 5VDC 1CO 16A	TRS 12VDC 1CO 16A	TRS 24VDC 1CO 16A	TRS 24VUC 1CO 16A	TRS 48VUC 1CO 16A
	Order No.	1479650000	1479670000	1479680000	1479690000	1479700000

Note

Ordering data

Control side	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Rated control voltage	60 V UC $\pm 10\%$	120 V UC $\pm 10\%$	230 V UC $\pm 5\%$	120 V AC $\pm 10\%$	230 V AC $\pm 5\%$
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	0.6 VA	2.3 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element

Ordering data

PUSH IN connection	Type	TRP 60VUC 1CO 16A	TRP 120VUC 1CO 16A	TRP 230VUC 1CO 16A	TRP 120VAC RC 1CO 16A	TRP 230VAC RC 1CO 16A
	Order No.	2617970000	2618280000	2618260000	2618270000	2618190000
Screw connection	Type	TRS 60VUC 1CO 16A	TRS 120VUC 1CO 16A	TRS 230VUC 1CO 16A	TRS 120VAC RC 1CO 16A	TRS 230VAC RC 1CO 16A
	Order No.	1479710000	1479730000	1479740000	1479750000	1479760000

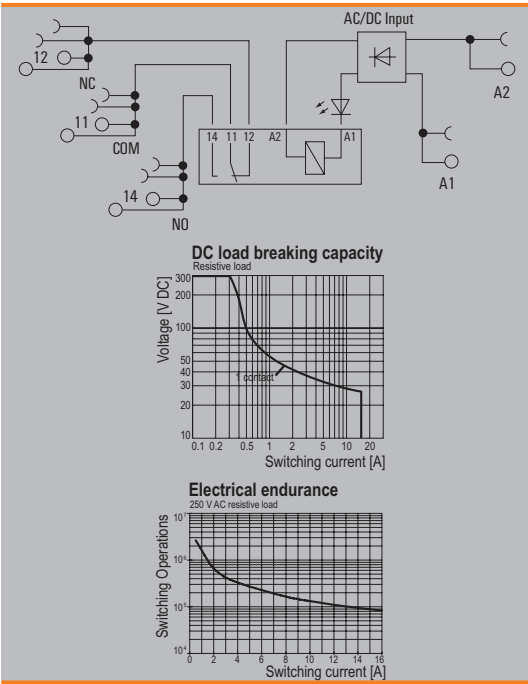
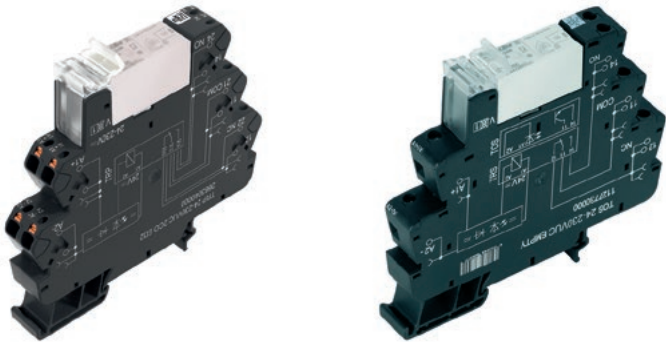
Note

TERMSERIES – relay modules

1 CO contact

Variable-voltage input

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



Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 16 A
Max. switching voltage, AC	
Inrush current	30 A / 4 s
Min. switching power	10 mA @ 10 V, 100 mA @ 5 V
Contact type	1 CO contact (AgNi)
Mechanical service life	30 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% relative humidity, T _{st} = 40°C, without condensation
Approvals	CE; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	1.2 kV _{eff} / 5 s
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.4	87.8 / 12.8 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

Ordering data

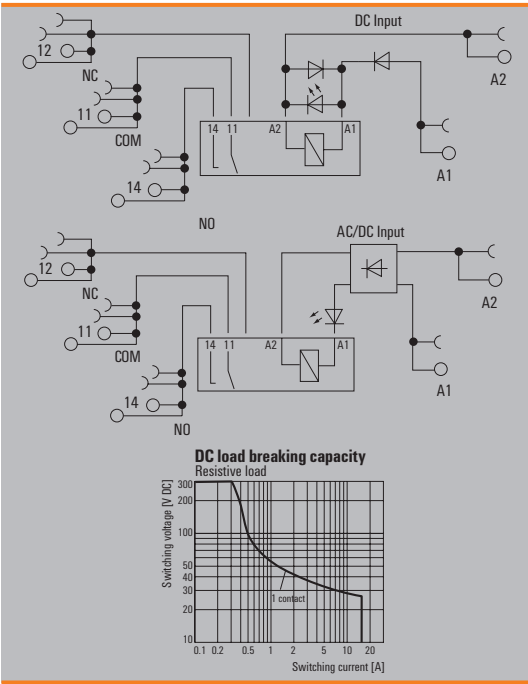
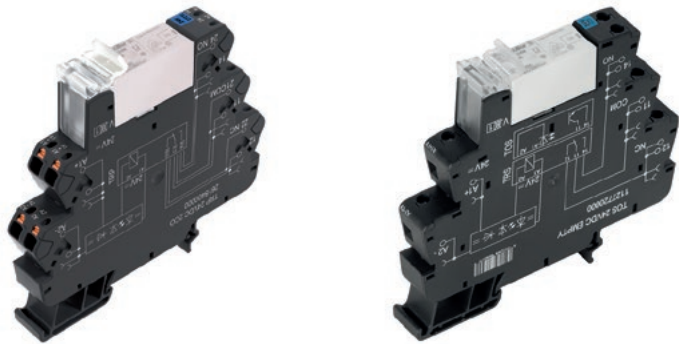
Control side	
Rated control voltage	24...230 V UC ± 10 %
Rated current AC / DC	23.5 mA @ 24 V AC, 4.5 mA @ 230 V AC / 22.5 mA @ 24 V DC, 2.0 mA @ 230 V DC
Power rating	540 mW @ 24 V DC, 460 mW @ 230 V DC, 565 mVA @ 24 V AC, 1.0 VA @ 230 V AC
Status indicator	Green LED
Protective circuit	Rectifier
Approvals	CE; EAC

Ordering data	
PUSH IN connection	Type TRP 24-230VUC 1CO 16A ED2
Order No.	2663120000
Screw connection	Type TRS 24-230VUC 1CO 16A ED2
Order No.	2662960000
Note	

TERMSERIES – relay modules

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
- PUSH IN and screw connection
- Multi-voltage input: 24...230 V UC in one module



Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 16 A	
Max. switching voltage, AC		
Inrush current	80 A / 20 ms	
Min. switching power	1 W	
Contact type	1 NO contact (AgSnO)	
Mechanical service life	10 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% relative humidity, T _a = 40°C, without condensation	
Approvals	CE; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength, Input/Output	1.2 kV _{eff} / 5 s	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.4	87.8 / 12.8 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

Ordering data

Control side

	24 V DC	24 - 230 V UC
Rated control voltage	24 V DC ± 20 %	24...230 V UC ± 10 %
Rated current AC / DC	/ 22.0 mA	23.5 mA @ 24 V AC, 4.5 mA @ 230 V AC / 22.5 mA @ 24 V DC, 2.0 mA @ 230 V DC
Power rating	530 mW	540 mW @ 24 V DC, 460 mW @ 230 V DC, 565 mVA @ 24 V AC, 1.0 VA @ 230 V AC
Status indicator	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Rectifier
Approvals	CE; cULus; DNVGL; EAC	CE; EAC

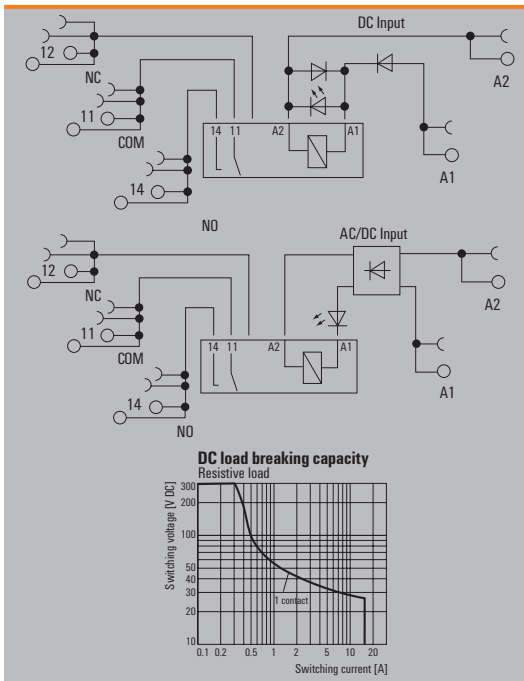
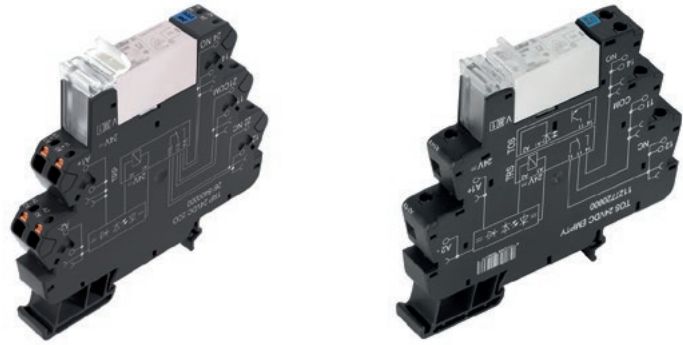
Ordering data

PUSH IN connection	Type	TRP 24VDC 1NO HC	TRP 24-230VUC 1NO HC ED2
Order No.		2618090000	2663130000
Screw connection	Type	TRS 24VDC 1NO HC	TRS 24-230VUC 1NO HC ED2
Order No.		1479780000	2662970000

Note

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
- PUSH IN and screw connection
- Multi-voltage input: 24...230 V UC in one module

**Technical data**

Load side	
Rated switching voltage / Continuous current	250 V AC / 16 A
Max. switching voltage, AC	
Inrush current	165 A / 20 ms, 800 A / 200 µs
Min. switching power	1 W
Contact type	1 NO contact (AgSnO ₂ + W)
Mechanical service life	5 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% relative humidity, T _a = 40 °C, without condensation
Approvals	CE; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	1.2 kV _{eff} / 5 s
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.4	87.8 / 12.8 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

Ordering data

	24 V DC	24 V - 230 V UC
Control side		
Rated control voltage	24 V DC ± 20 %	24...230 V UC ± 10 %
Rated current AC / DC	/ 22.0 mA	23.5 mA @ 24 V AC, 4.5 mA @ 230 V AC / 22.5 mA @ 24 V DC, 2.0 mA @ 230 V DC
Power rating	530 mW	540 mW @ 24 V DC, 460 mW @ 230 V DC, 565 mVA @ 24 V AC, 1.0 VA @ 230 V AC
Status indicator	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Rectifier
Approvals	CE; cULus; DNVGL; EAC	CE; EAC

Ordering data

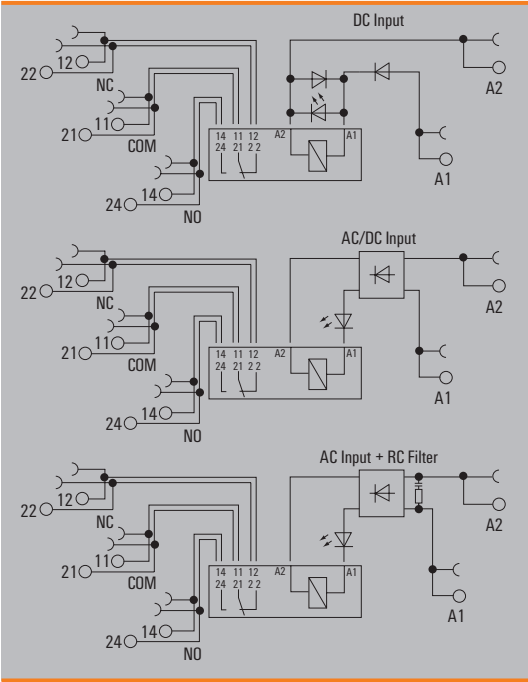
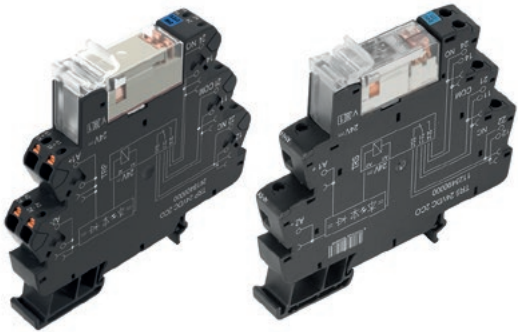
PUSH IN connection	Type	TRP 24VDC 1NO HCP	TRP 24-230VUC 1NO HCP ED2
Order No.		2617930000	2663140000
Screw connection	Type	TRS 24VDC 1NO HCP	TRS 24-230VUC 1NO HCP ED2
Order No.		1479810000	2662980000

Note

TERMSERIES – relay modules

2 C0 contacts
AC/DC/UC coil

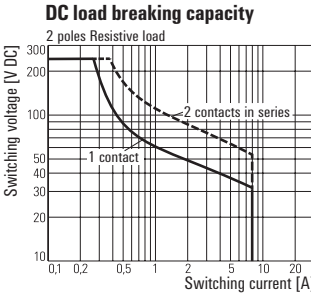
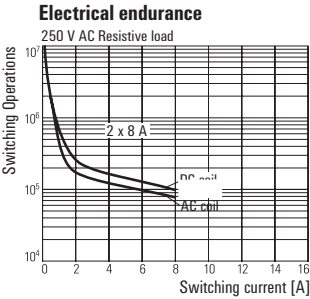
- Space saving, just 12.8 mm modular width
- AgNi contact
- PUSH IN and screw connection



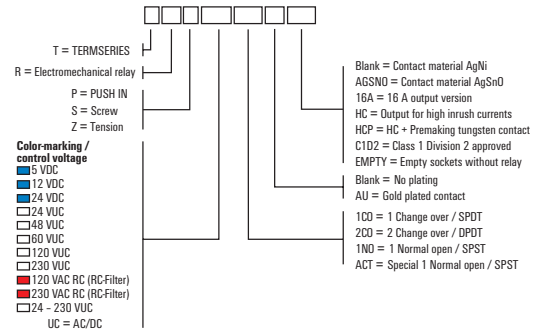
Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 8 A	
Max. switching voltage, AC		
Inrush current	15 A / 4 s	
Min. switching power	1 mA @ 24 V, 10 mA @ 10 V, 100 mA @ 5 V	
Contact type	2 C0 contact (AgNi)	
Mechanical service life	30 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% relative humidity, T _a = 40°C, without condensation	
Approvals	CE; cULus; DNVGL; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength, Input/Output	3.51 kV _{eff} / 1 min.	
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Creepage and clearance distance input - output	≥ 6 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.4	87.8 / 12.8 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. 	

Applications



2 CO contacts AC/DC/UC coil



Ordering data

Control side	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Rated control voltage	5 V DC $\pm$ 20 %	12 V DC $\pm$ 20 %	24 V DC $\pm$ 20 %	24 V UC $\pm$ 10 %	48 V UC $\pm$ 10 %
Rated current AC / DC	/ 70 mA	/ 33 mA	/ 20.5 mA	16 mA / 14 mA	9 mA / 7 mA
Power rating	400 mW	400 mW	495 mW	390 mVA / 350 mW	340 mW / 0.4 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data

PUSH IN connection	Type	TRP 5VDC 2CO	TRP 12VDC 2CO	TRP 24VDC 2CO	TRP 24VUC 2CO	TRP 48VUC 2CO
	Order No.	2614840000	2618550000	2618400000	2618320000	2618520000
Screw connection	Type	TRS 5VDC 2CO	TRS 12VDC 2CO	TRS 24VDC 2CO	TRS 24VUC 2CO	TRS 48VUC 2CO
	Order No.	1123470000	1123480000	1123490000	1123500000	1123510000
Note						

Ordering data

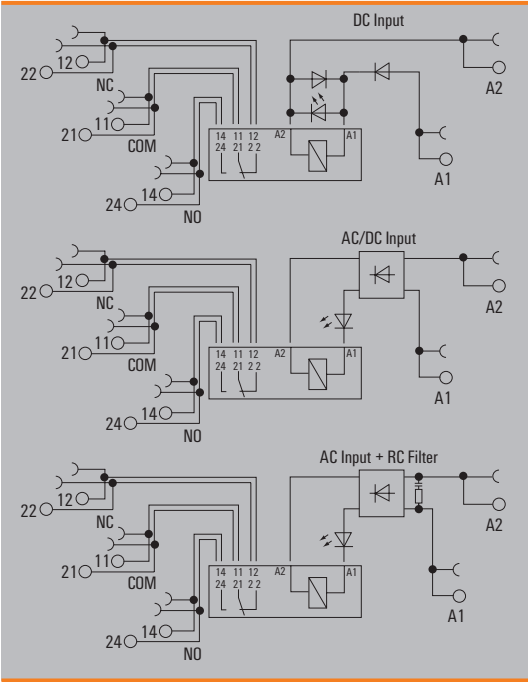
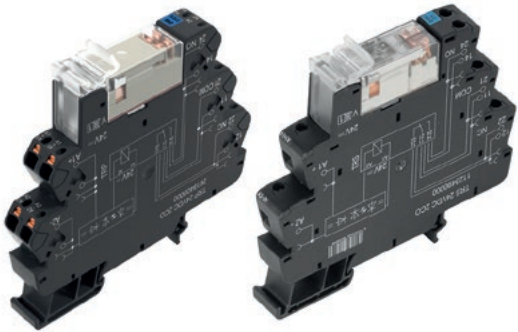
Control side	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Rated control voltage	60 V UC $\pm$ 10 %	120 V UC $\pm$ 10 %	230 V UC $\pm$ 5 %	120 V AC $\pm$ 10 %	230 V AC $\pm$ 5 %
Rated current AC / DC	8.3 mA / 6.0 mA	3.5 mA / 3.5 mA	5.5 mA / 4.4 mA	5.5 mA /	8.8 mA /
Power rating	360 mW, 500 mVA	420 mVA / 420 mW	1 W, 1.2 VA	0.6 VA	2.1 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element

Ordering data

PUSH IN connection	Type	TRP 60VUC 2CO	TRP 120VUC 2CO	TRP 230VUC 2CO	TRP 120VAC RC 2CO	TRP 230VAC RC 2CO
	Order No.	2618290000	2618570000	2618440000	2618470000	2618330000
Screw connection	Type	TRS 60VUC 2CO	TRS 120VUC 2CO	TRS 230VUC 2CO	TRS 120VAC RC 2CO	TRS 230VAC RC 2CO
	Order No.	1123520000	1123530000	1123540000	1123550000	1123570000
Note						

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

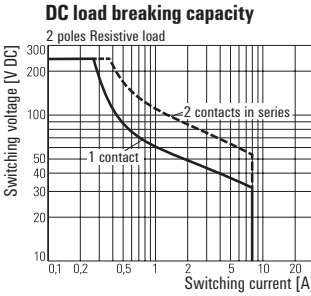
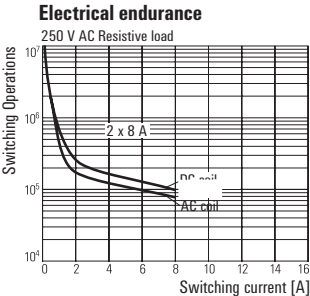
- Space saving, just 12.8 mm modular width
- AgNi contact with gold plating
- PUSH IN and screw connection



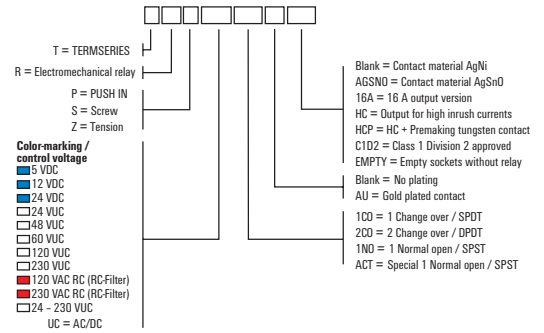
Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 8 A	
Max. switching voltage, AC		
Inrush current	15 A / 4 s	
Min. switching power	1 mA @ 1 V	
Contact type	2 CO contact (AgNi 5µm Au)	
Mechanical service life	30 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% relative humidity, T _a = 40°C, without condensation	
Approvals	CE; cULus; DNVGL; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength, Input/Output	3.51 kV _{eff} / 1 min.	
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Creepage and clearance distance input - output	≥ 6 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.4	87.8 / 12.8 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog .	

Applications



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



Ordering data

Control side	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V UC $\pm 10\%$	48 V UC $\pm 10\%$
Rated current AC / DC	/ 70 mA	/ 33 mA	/ 20.5 mA	16 mA / 14 mA	9 mA / 7 mA
Power rating	400 mW	400 mW	495 mW	390 mVA / 350 mW	340 mW / 0.4 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data

PUSH IN connection	Type	TRP 5VDC 2CO AU	TRP 12VDC 2CO AU	TRP 24VDC 2CO AU	TRP 24VUC 2CO AU	TRP 48VUC 2CO AU
Order No.		2618580000	2618310000	2618530000	2618540000	2618560000
Screw connection	Type	TRS 5VDC 2CO AU	TRS 12VDC 2CO AU	TRS 24VDC 2CO AU	TRS 24VUC 2CO AU	TRS 48VUC 2CO AU
Order No.		1123710000	1123720000	1123730000	1123740000	1123750000
Note						

Ordering data

Control side	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Rated control voltage	60 V UC $\pm 10\%$	120 V UC $\pm 10\%$	230 V UC $\pm 5\%$	120 V AC $\pm 10\%$	230 V AC $\pm 5\%$
Rated current AC / DC	8.3 mA / 6.0 mA	3.5 mA / 3.5 mA	5.5 mA / 4.4 mA	5.5 mA /	8.8 mA /
Power rating	360 mW, 500 mVA	420 mVA / 420 mW	1 W, 1.2 VA	0.6 VA	2.1 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element

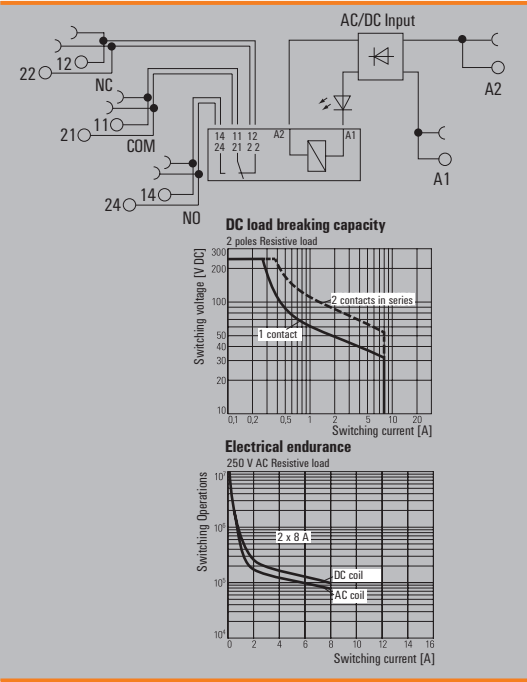
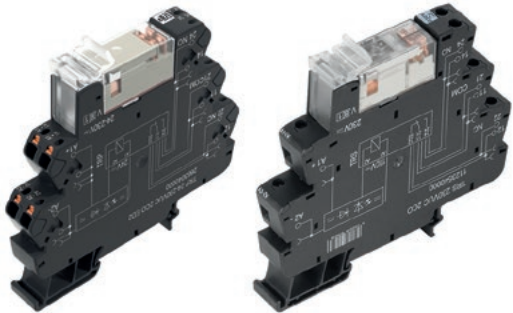
Ordering data

PUSH IN connection	Type	TRP 60VUC 2CO AU	TRP 120VUC 2CO AU	TRP 230VUC 2CO AU	TRP 120VAC RC 2CO AU	TRP 230VAC RC 2CO AU
Order No.		2618360000	2618590000	2618300000	2618490000	2618500000
Screw connection	Type	TRS 60VUC 2CO AU	TRS 120VUC 2CO AU	TRS 230VUC 2CO AU	TRS 120VAC RC 2CO AU	TRS 230VAC RC 2CO AU
Order No.		1123770000	1123780000	1123790000	1123800000	1123810000
Note						

TERMSERIES – relay modules

2 C0 contacts
multi-voltage input

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



Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 8 A	
Max. switching voltage, AC		
Inrush current	15 A / 4 s	
Min. switching power	1 mA @ 24 V, 10 mA @ 10 V, 100 mA @ 5 V	
Contact type	2 C0 contact (AgNi)	
Mechanical service life	30 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% relative humidity, T _u = 40°C, without condensation	
Approvals	CE; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength, Input/Output	3.51 kV _{eff} / 1 min.	
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Creepage and clearance distance input - output	≥ 6 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.4	87.8 / 12.8 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

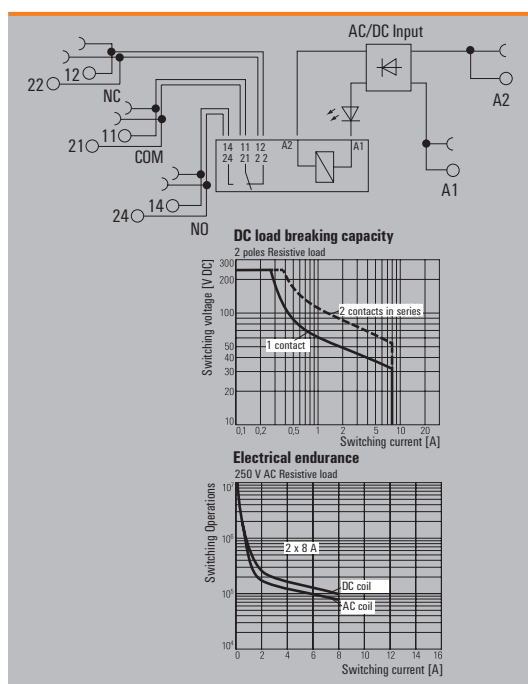
Ordering data

Control side		24 V - 230 V UC
Rated control voltage		24...230 V UC ± 10 %
Rated current AC / DC		23.5 mA @ 24 V AC, 4.5 mA @ 230 V AC / 22.5 mA @ 24 V DC, 2.0 mA @ 230 V DC
Power rating		540 mW @ 24 V DC, 460 mW @ 230 V DC, 565 mVA @ 24 V AC, 1.0 VA @ 230 V AC
Status indicator		Green LED
Protective circuit		Rectifier
Approvals		CE; EAC

Ordering data		
PUSH IN connection	Type	TRP 24-230VUC 2C0 ED2
	Order No.	2663040000
Screw connection	Type	TRS 24-230VUC 2C0 ED2
	Order No.	2662880000
Note		

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

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



Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 8 A
Max. switching voltage, AC	
Inrush current	15 A / 4 s
Min. switching power	1 mA @ 1 V
Contact type	2 CO contact (AgNi 5µm Au)
Mechanical service life	30 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% relative humidity, T _g = 40°C, without condensation
Approvals	CE; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	3.51 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 6 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.4	87.8 / 12.8 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

Ordering data

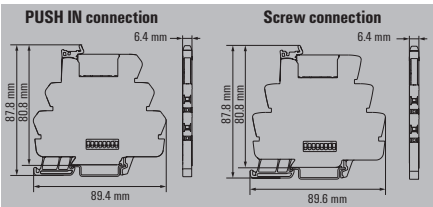
Control side	
Rated control voltage	24...230 V UC ± 10 %
Rated current AC / DC	23.5 mA @ 24 V AC, 4.5 mA @ 230 V AC / 22.5 mA @ 24 V DC, 2.0 mA @ 230 V DC
Power rating	540 mW @ 24 V DC, 460 mW @ 230 V DC, 565 mVA @ 24 V AC, 1.0 VA @ 230 V AC
Status indicator	Green LED
Protective circuit	Rectifier
Approvals	CE; EAC

Ordering data	
PUSH IN connection	Type TRP 24-230VUC 2CO AU ED2
Order No.	2663050000
Screw connection	Type TRS 24-230VUC 2CO AU ED2
Order No.	2662890000
Note	

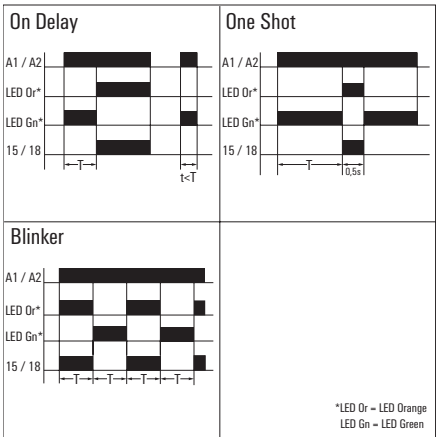
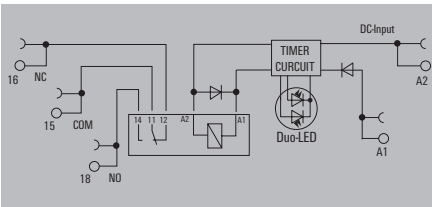
TERMSERIES TIMER

Complete modules

- Space-saving, 6.4 mm wide
- 3 time functions
- Complete module with 1 CO relay (AgSnO)
- PUSH IN and screw connection



TR T 24 V DC 1CO M3



Technical data

Control side	
Rated control voltage	24 V DC $\pm$ 20 %
Power rating	280 mW
Status indicator	Duo-LED orange: relay output on, Green duo-LED lit: supply voltage on, Green duo-LED flashes: incorrect configuration, no function
Repeat accuracy	$\pm$ 1 %
Basic accuracy	$\leq$ 5 % (of scale-end value)
Setting tolerance	5 %
Min. pulse duration	50 ms
Time ranges	0.01 s - 0.1 s, 0.1 s - 1 s, 1 s - 10 s, 10 s - 100 s
Max. reset time after voltage interruption	50
Load side	
Rated switching voltage	250 V AC
Max. switching voltage, AC	250
Max. switching voltage, DC	250 V
Continuous current	6 A
AC switching capacity (resistive), max.	1500 VA
DC switching capacity (resistive), max.	144 W @ 24 V
Max. switching frequency at rated load	0.1 Hz
Contact type	1 CO contact (AgSnO)
Mechanical service life	5 x 10 ⁶ switching cycles
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% relative humidity, T _a = 40 °C, without condensation
Version	
Resistance to vibration EN 61812-1	
Approvals	CE; cULus; EAC
Insulation coordinates	
Rated voltage	250 V
Creepage and clearance distance input - output	$\geq$ 6 mm
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.
Impulse withstand voltage	6 kV (1.2/50 μ s)
Protection degree	IP20
Dimensions	
Clamping range (nominal / min. / max.)	1.5 / 0.14 / 2.5 mm ²
Depth x width x height	88 / 6.4 / 90 mm
Note	

Ordering data

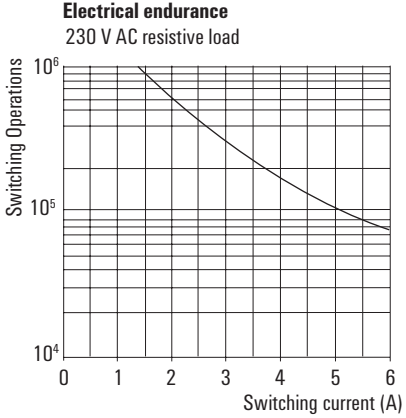
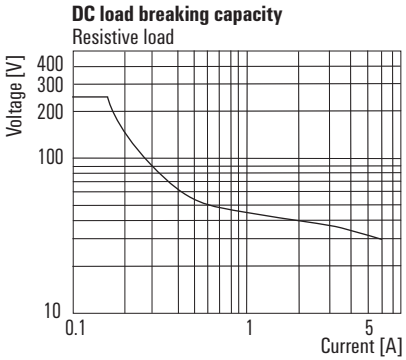
Type	Qty.	Order No.
TRP T 24VDC 1CO M3	10	2639730000
TRS T 24VDC 1CO M3	10	2639560000

Accessories

Note

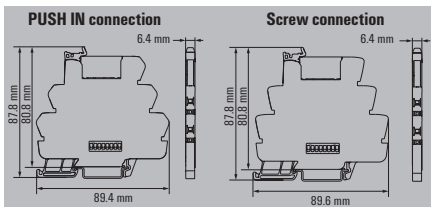
Further approvals and technical data can be found at catalog
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Accessories: refer to the TERMSERIES Accessories page.
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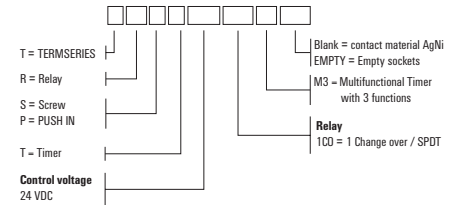
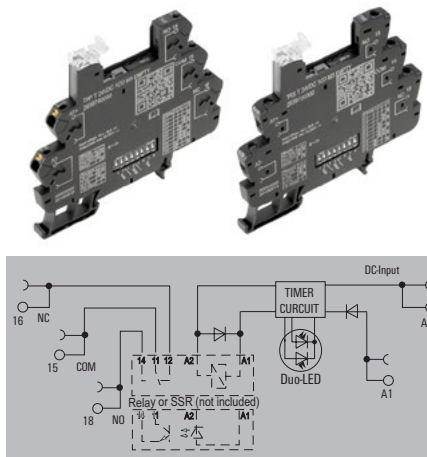


Empty socket

- Space-saving, 6.4 mm wide
- 3 time functions
- Empty sockets for electromechanical relays and solid-state relays
- PUSH IN and screw connection



TR T 24 V DC 1C0 M3 EMPTY



Technical data

Control side

Rated control voltage
Power rating
Status indicator

Repeat accuracy
Basic accuracy
Setting tolerance
Min. pulse duration
Time ranges
Max. reset time after voltage interruption

Load side

Rated switching voltage
Max. switching voltage, AC
Max. switching voltage, DC
Continuous current

General data

Ambient temperature (operational)
Storage temperature
Humidity
Version
Resistance to vibration EN 61812-1
Approvals

Insulation coordinates

Rated voltage
Creepage and clearance distance input - output
Dielectric strength, Input/Output
Impulse withstand voltage
Protection degree

24 V DC $\pm 20\%$

Duo-LED orange: relay output on, Green duo-LED lit: supply voltage on,
Green duo-LED flashes: incorrect configuration, no function

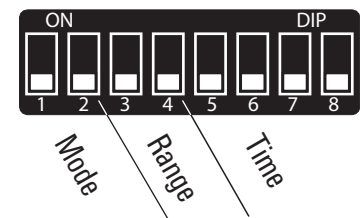
$\pm 1\%$
 $\leq 5\%$ (of scale-end value)
5 %
50 ms
0.01 s - 0.1 s, 0.1 s - 1 s, 1 s - 10 s, 10 s - 100 s
50

250 V AC
250
250 V
10 A

-20 °C...60 °C
-40 °C...85 °C
5-95% relative humidity, $T_a = 40^\circ\text{C}$, without condensation
Empty socket

CE; cURus; EAC

250 V
 ≥ 6 mm
4 kV_{eff} / 1 Min.
6 kV (1.2/50 μs)
IP20



■ = On (DIP-switch turned to ON-position)

Mode	1	2
On Delay	■	■
One Shot	■	
Blinker		■
Range	3	4
10-100s	■	■
1-10s	■	
0.1-1s		■
10-100ms		

Time	5	6	7	8
0.1				
0.2				■
0.3			■	
0.4			■	■
0.5		■		
0.6		■	■	■
0.7		■	■	
0.8		■	■	■
0.9	■			
1.0	■			■

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Note

Ordering data

PUSH IN connection
Screw connection

Note

PUSH IN connection Screw connection

1.5 / 0.14 / 2.5 1.5 / 0.14 / 2.5
88 / 6.4 / 90 88 / 6.4 / 90

Type	Qty.	Order No.
TRP T 24VDC 1C0 M3 EMPTY	10	2639740000
TRS T 24VDC 1C0 M3 EMPTY	10	2639720000

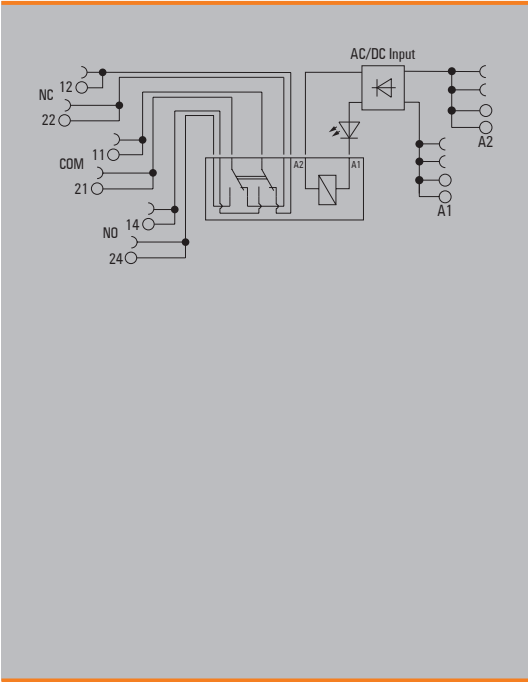
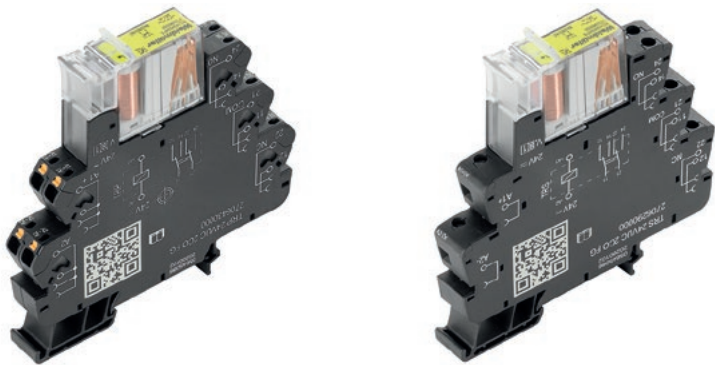
Further approvals and technical data can be found at catalog.

Accessories: refer to the TERMSERIES Accessories page.

TERMSERIES FG

TERMSERIES FG

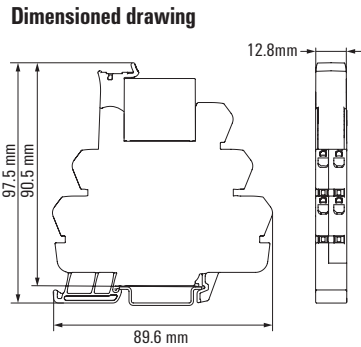
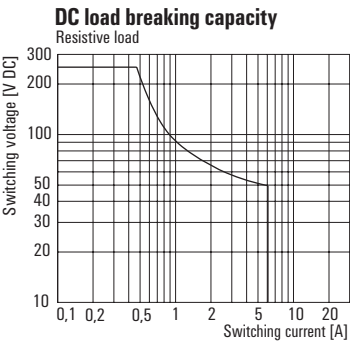
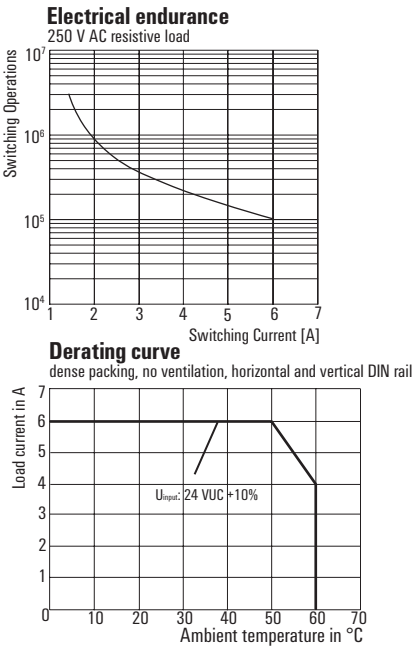
- Complete module with relay
- Space-saving 12.8 mm width
 - AgNi contact
 - Bright shining status LED
 - With protective circuitry
 - PUSH IN and screw connection



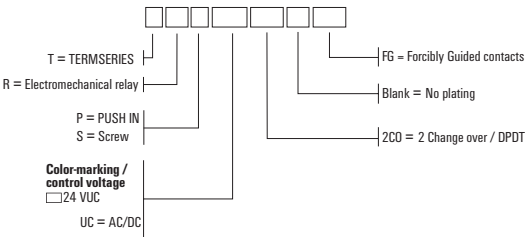
Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC	250 V	
Inrush current		
Min. switching power	10 mA @ 5 V	
Contact type	2 CO contact positively-driven (EN 61810-3 type B) (AgNi)	
Mechanical service life	10 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-25 °C...60 °C	
Storage temperature	-25 °C...70 °C	
Humidity	5...85 %, no condensation	
Approvals	CE; cULus; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage		
Dielectric strength, Input/Output	3.51 kV _{eff} / 1 min.	
Dielectric strength of neighbouring contacts	2.21 kV _{eff} / 1 min.	
Dielectric strength to mounting rail	3.51 kV _{eff} / 1 min.	
Creepage and clearance distance input - output	≥ 6 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 97.5	87.8 / 12.8 / 97.5
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

Applications



TERMSERIES FG



Ordering data

Control side		24 V UC
Rated control voltage		24 V UC ±10 %
Rated current AC / DC		24.4 mA / 23.5 mA
Power rating		585 mVA, 565 mW
Status indicator		Green LED
Protective circuit		Rectifier

Ordering data		
PUSH IN connection	Type	TRP 24VUC 2CO FG
	Order No.	2706430000
Screw connection	Type	TRS 24VUC 2CO FG
	Order No.	2706290000

Ordering data		
Spare relay		
	Type	RCH424024FG
	Order No.	2723360000

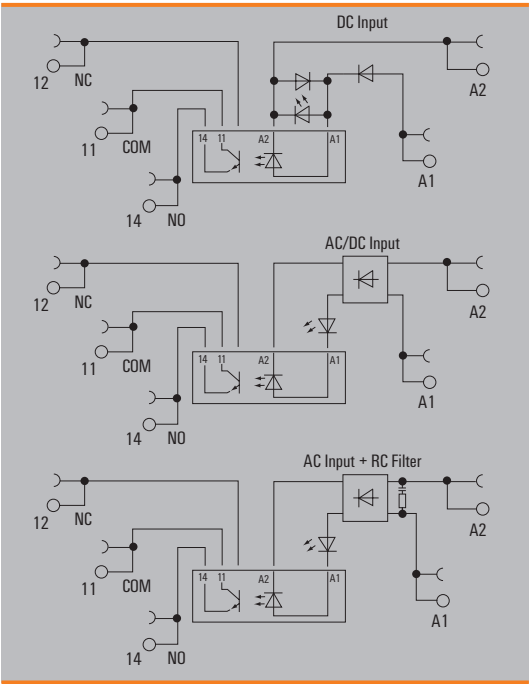
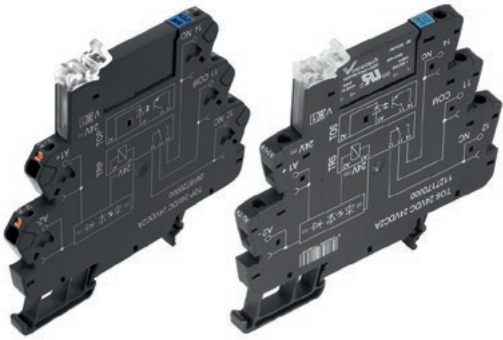
Note		

TERMSERIES – solid-state relays

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

Output versions

- Space saving, just 6.4 mm modular width
- 100 mA DC Output current
- PUSH IN and screw connection

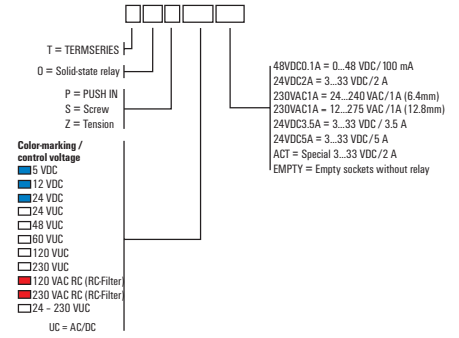


Technical data

Load side		
Rated switching voltage	0...48 V DC	
Continuous current	100 mA	
Inrush current		
Contact type	1 NO contact (Bipolar transistor)	
Voltage drop at max. load	≤ 1 V	
Leakage current	< 10 µA	
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode	
General data		
Ambient temperature (operational)	-20 °C...60 °C	
Storage temperature	-40 °C...70 °C	
Humidity	5-95% relative humidity, T _a = 40°C, without 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 _{eff}	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Clearance and creepage distances for control side - load side	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

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

Output versions



Ordering data

Control side	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V UC $\pm 10\%$	48 V UC $\pm 10\%$
Nominal control current	7 mA DC ($\pm 20\%$)	5 mA DC ($\pm 20\%$)	10 mA DC $\pm 20\%$	10 mA AC $\pm 20\%$, 6 mA DC ($\pm 20\%$)	8 mA AC ($\pm 20\%$), 7 mA DC ($\pm 20\%$)
Power rating	35 mW	112 mW	280 mW	154 mW	290 mVA / 192 mW
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-wheeling diode, Reverse polarity protection	Rectifier	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data

PUSH IN connection	Type	TOP 5VDC 48VDC0.1A	TOP 12VDC 48VDC0.1A	TOP 24VDC 48VDC0.1A	TOP 24VUC 48VDC0.1A	TOP 48VUC 48VDC0.1A
Order No.		2614860000	2618600000	2618790000	2618640000	2618710000
Screw connection	Type	TOS 5VDC 48VDC0.1A	TOS 12VDC 48VDC0.1A	TOS 24VDC 48VDC0.1A	TOS 24VUC 48VDC0.1A	TOS 48VUC 48VDC0.1A
Order No.		1126920000	1126930000	1126940000	1126950000	1126960000
Note						

Ordering data

Control side	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Rated control voltage	60 V UC $\pm 10\%$	120 V UC $\pm 10\%$	230 V UC $\pm 10\%$	120 V AC $\pm 10\%$	230 V AC $\pm 10\%$
Nominal control current	4.8 mA AC ($\pm 10\%$), 2.5 mA DC ($\pm 10\%$)	5 mA AC ($\pm 30\%$), 3 mA DC ($\pm 30\%$)	3.5 mA AC ($\pm 5\%$), 2.9 mA DC ($\pm 5\%$)	7 mA AC ($\pm 20\%$)	9 mA AC
Power rating	150 mW, 290 mVA	0.48 VA	670 mW, 805 mVA	0.84 VA	1.9 VA
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	Rectifier, RC element	Rectifier, RC element

Ordering data

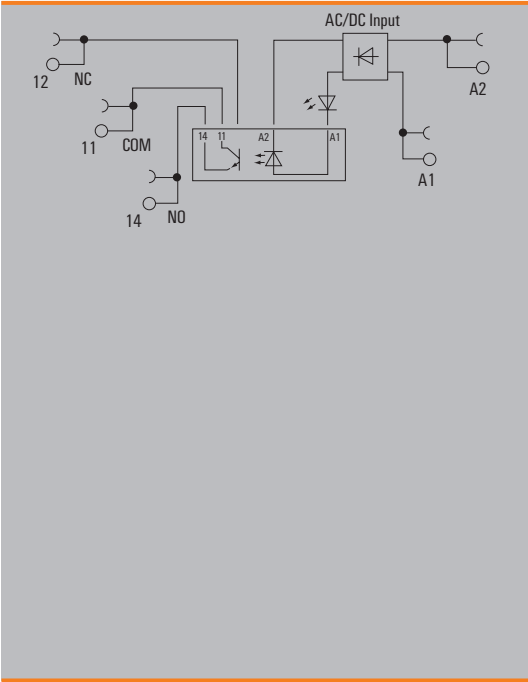
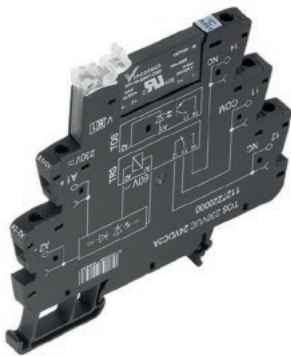
PUSH IN connection	Type	TOP 60VUC 48VDC0.1A	TOP 120VUC 48VDC0.1A	TOP 230VUC 48VDC0.1A	TOP 120VAC RC 48VDC0.1A	TOP 230VAC RC 48VDC0.1A
Order No.		2614880000	2618680000	2618690000	2618650000	2618620000
Screw connection	Type	TOS 60VUC 48VDC0.1A	TOS 120VUC 48VDC0.1A	TOS 230VUC 48VDC0.1A	TOS 120VAC RC 48VDC0.1A	TOS 230VAC RC 48VDC0.1A
Order No.		1126970000	1126980000	1126990000	1127000000	1127010000
Note						

TERMSERIES – solid-state relays

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

Output versions, multi-voltage input

- Space saving, just 6.4 mm modular width
- 100 mA DC Output current
- PUSH IN and screw 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	
Contact type	1 NO contact (Bipolar transistor)
Voltage drop at max. load	≤ 1 V
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% relative humidity, T ₉₀ = 40°C, without condensation
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 _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERM SERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

Ordering data

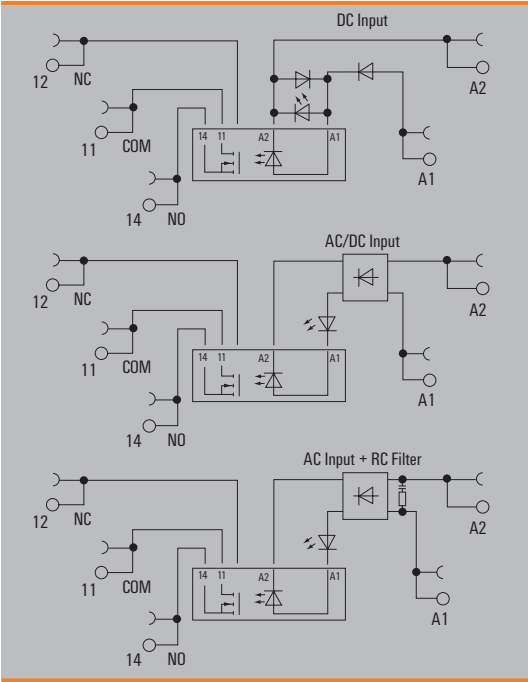
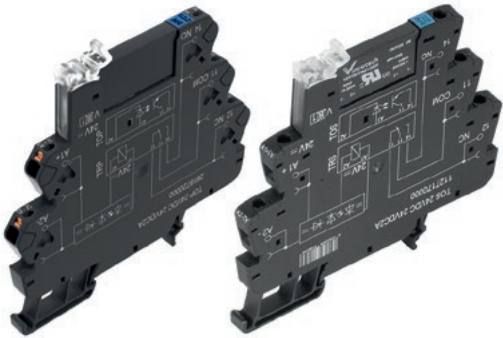
Control side	
Rated control voltage	24...230 V UC ±10 %
Nominal control current	11.0 mA at 24 V DC, 1.1 mA at 230 V DC, 19.0 mA at 24 V AC, 2.8 mA at 230 V AC
Power rating	265 mW @ 24 V DC, 255 mW @ 230 V DC, 455 mVA @ 24 V AC, 645 mVA @ 230 V AC
max. switching frequency (DC control voltage)	3 Hz
max. switching frequency (AC control voltage)	3 Hz
Status indicator	Green LED
Protective circuit	Rectifier
Approvals	CE; EAC

Ordering data	
PUSH IN connection	Type TOP 24-230VUC 48VDC0,1A ED2
Order No.	2663070000
Screw connection	Type TOS 24-230VUC 48VDC0,1A ED2
Order No.	2662910000
Note	

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

Output versions

- Space saving, just 6.4 mm modular width
- 2 A DC Output current
- PUSH IN and screw connection

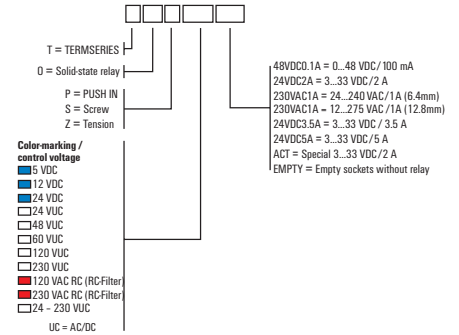


Technical data

Load side		
Rated switching voltage	3...33 V DC	
Continuous current	2 A	
Inrush current	15 A / 10 ms	
Contact type	1 NO contact (MOS-FET)	
Voltage drop at max. load	≤ 120 mV	
Leakage current	< 10 µA	
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode, Reverse polarity protection	
General data		
Ambient temperature (operational)	-20 °C...60 °C	
Storage temperature	-40 °C...70 °C	
Humidity	5-95% relative humidity, T ₉ = 40°C, without 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 _{eff}	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Clearance and creepage distances for control side - load side	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

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

Output versions



Ordering data

Control side	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V UC $\pm 10\%$	48 V UC $\pm 10\%$
Nominal control current	11.5 mA DC ($\pm 20\%$)	9.6 mA DC ($\pm 20\%$)	11.5 mA DC ($\pm 10\%$)	10 mA AC $\pm 20\%$, 6 mA DC ($\pm 20\%$)	8 mA AC ($\pm 20\%$), 7 mA DC ($\pm 20\%$)
Power rating	50 mW	112 mW	280 mW	154 mW	290 mVA / 192 mW
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-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data

PUSH IN connection	Type	TOP 5VDC 24VDC2A	TOP 12VDC 24VDC2A	TOP 24VDC 24VDC2A	TOP 24VUC 24VDC2A	TOP 48VUC 24VDC2A
Order No.		2618810000	2618820000	2618720000	2618730000	2618760000
Screw connection	Type	TOS 5VDC 24VDC2A	TOS 12VDC 24VDC2A	TOS 24VDC 24VDC2A	TOS 24VUC 24VDC2A	TOS 48VUC 24VDC2A
Order No.		1127140000	1127150000	1127170000	1127180000	1127190000
Note						

Ordering data

Control side	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Rated control voltage	60 V UC $\pm 10\%$	120 V UC $\pm 10\%$	230 V UC $\pm 10\%$	120 V AC $\pm 10\%$	230 V AC $\pm 10\%$
Nominal control current	4.8 mA AC ($\pm 10\%$), 2.5 mA DC ($\pm 10\%$)	4.1 mA AC ($\pm 10\%$), 2.6 mA DC ($\pm 10\%$)	3.5 mA AC ($\pm 5\%$), 2.9 mA DC ($\pm 5\%$)	7 mA AC ($\pm 20\%$)	9 mA AC
Power rating	150 mW, 290 mVA	0.49 VA, 0.31 W	670 mW, 805 mVA	0.84 VA	1.9 VA
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

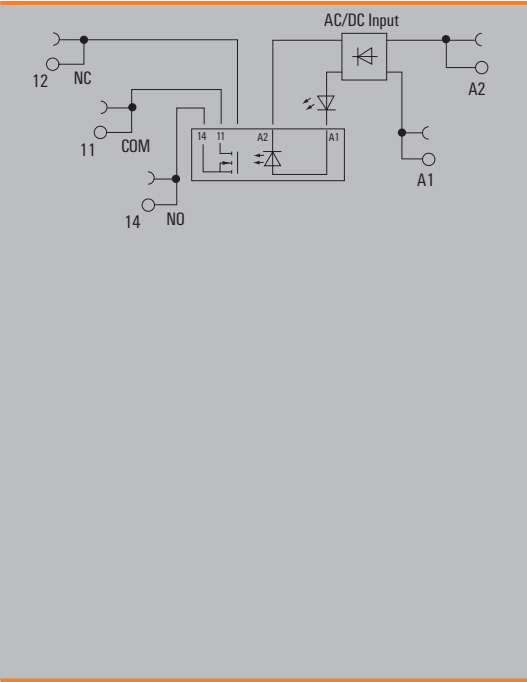
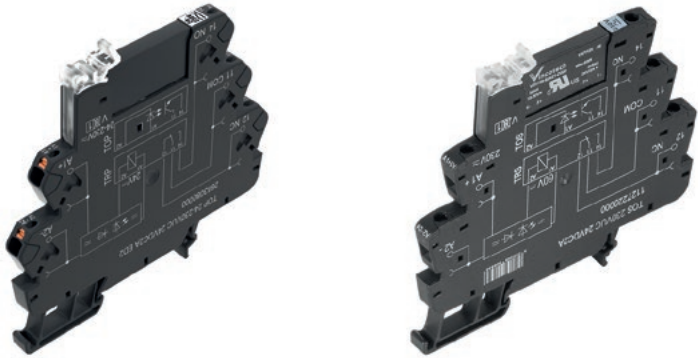
Ordering data

PUSH IN connection	Type	TOP 60VUC 24VDC2A	TOP 120VUC 24VDC2A	TOP 230VUC 24VDC2A	TOP 120VAC RC 24VDC2A	TOP 230VAC RC 24VDC2A
Order No.		2618970000	2618770000	2618800000	2618660000	2618670000
Screw connection	Type	TOS 60VUC 24VDC2A	TOS 120VUC 24VDC2A	TOS 230VUC 24VDC2A	TOS 120VAC RC 24VDC2A	TOS 230VAC RC 24VDC2A
Order No.		1127200000	1127210000	1127220000	1127230000	1127240000
Note						

TERMSERIES – solid-state relays

Solid-state relay, 3...33 V DC / 2 A
Output versions, multi-voltage input

- Space saving, just 6.4 mm modular width
- 2 A DC Output current
- PUSH IN and screw 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
Contact type	1 NO contact (MOS-FET)
Voltage drop at max. load	≤ 120 mV
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% relative humidity, T ₉₀ = 40°C, without condensation
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 _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

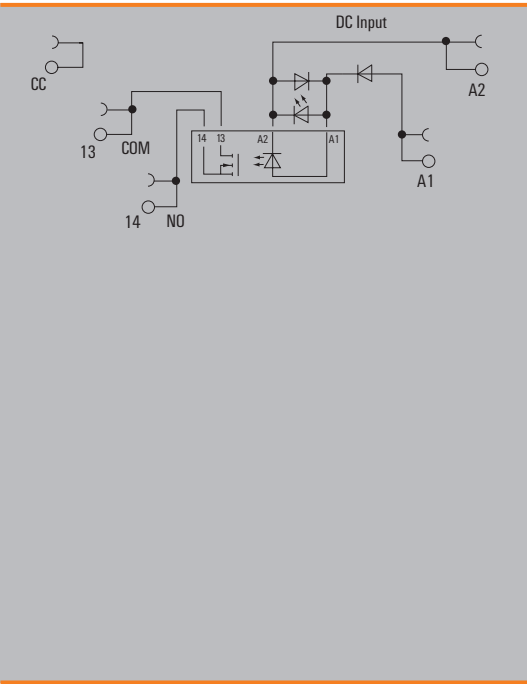
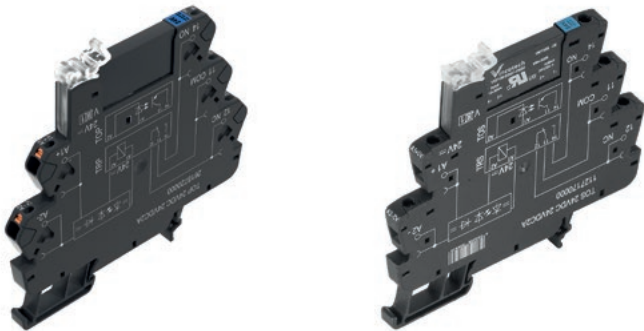
Ordering data

Control side	
Rated control voltage	24...230 V UC ±10 %
Nominal control current	11.0 mA at 24 V DC, 1.1 mA at 230 V DC, 19.0 mA at 24 V AC, 2.8 mA at 230 V AC
Power rating	265 mW @ 24 V DC, 255 mW @ 230 V DC, 455 mVA @ 24 V AC, 645 mVA @ 230 V AC
max. switching frequency (DC control voltage)	3 Hz
max. switching frequency (AC control voltage)	3 Hz
Status indicator	Green LED
Protective circuit	Rectifier
Approvals	CE; EAC

Ordering data	
PUSH IN connection	Type TOP 24-230VUC 24VDC2A ED2
Order No.	2663080000
Screw connection	Type TOS 24-230VUC 24VDC2A ED2
Order No.	2662920000
Note	

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

- Space-saving, only 6.4 mm wide
- AgNi contact
- PUSH IN and screw 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
Contact type	1 NO contact (MOS-FET)
Voltage drop at max. load	≤ 120 mV
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% relative humidity, T ₉₀ = 40°C, without 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 _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog.	

Ordering data

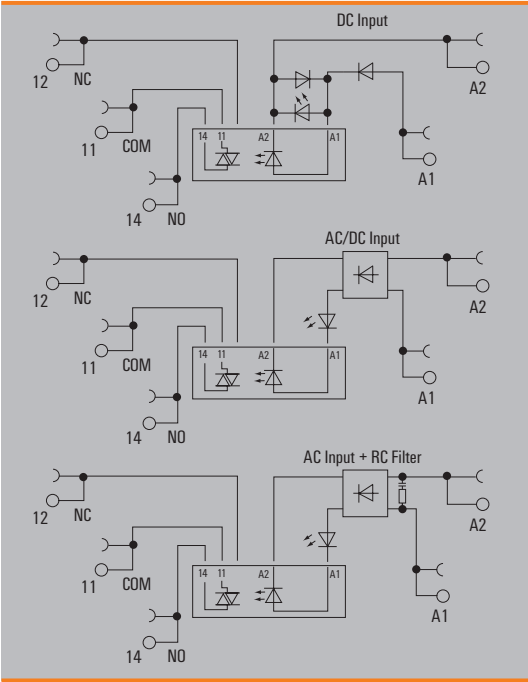
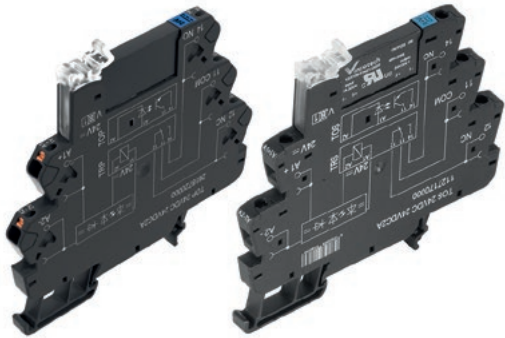
Control side	
Rated control voltage	24 V DC ±20 %
Nominal control current	11.5 mA DC (±10 %)
Power rating	280 mW
max. switching frequency (DC control voltage)	300 Hz
max. switching frequency (AC control voltage)	
Status indicator	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection

Ordering data	
PUSH IN connection	Type TOP 24VDC ACT
Order No.	2618750000
Screw connection	Type TOS 24VDC ACT
Order No.	1391680000
Note	

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

Output versions

- Space saving, just 6.4 mm modular width
- 1 A AC Output current
- PUSH IN and screw connection

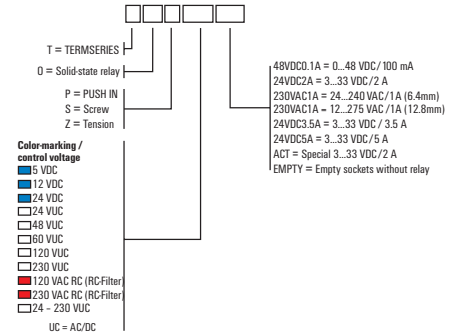


Technical data

Load side		
Rated switching voltage	24...240 V AC	
Continuous current	1 A	
Inrush current	15 A / 10 ms	
Contact type	1 NO contact (Triac (zero-cross switch))	
Voltage drop at max. load	≤ 1.6 V	
Leakage current	< 1.5 mA	
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% relative humidity, T _g = 40°C, without 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 _{eff}	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Clearance and creepage distances for control side - load side	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

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

Output versions



Ordering data

Control side	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V UC $\pm 10\%$	48 V UC $\pm 10\%$
Nominal control current	15 mA DC ($\pm 20\%$)	9.6 mA DC ($\pm 20\%$)	11.5 mA DC ($\pm 10\%$)	10 mA AC $\pm 20\%$, 6 mA DC ($\pm 20\%$)	6 mA AC ($\pm 20\%$), 4 mA DC ($\pm 20\%$)
Power rating	75 mW	112 mW	280 mW	154 mW	290 mVA / 192 mW
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-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data

PUSH IN connection	Type	TOP 5VDC 230VAC1A	TOP 12VDC 230VAC1A	TOP 24VDC 230VAC1A	TOP 24VUC 230VAC1A	TOP 48VUC 230VAC1A
	Order No.	2614850000	2618380000	2618420000	2618350000	2618460000
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
Note						

Ordering data

Control side	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Rated control voltage	60 V UC $\pm 10\%$	120 V UC $\pm 10\%$	230 V UC $+5\%$ / -10%	120 V AC $\pm 10\%$	230 V AC $+5\%$ / -10%
Nominal control current	4.8 mA AC ($\pm 10\%$), 2.5 mA DC ($\pm 10\%$)	5 mA AC ($\pm 30\%$), 3 mA DC ($\pm 30\%$)	3.5 mA AC ($\pm 5\%$), 2.9 mA DC ($\pm 5\%$)	7 mA AC ($\pm 20\%$)	8.3 mA AC ($\pm 5\%$)
Power rating	< 300 mW	0.48 VA	0.8 VA / 660 mW	0.84 VA	2.1 VA
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	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

Ordering data

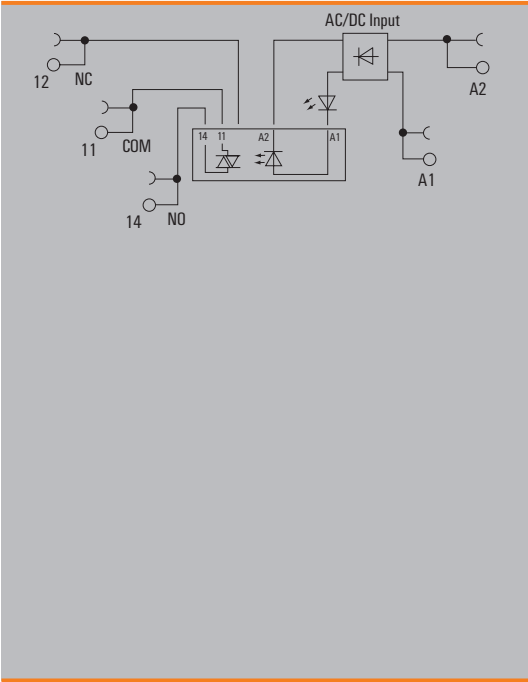
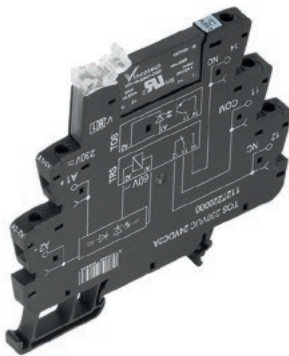
PUSH IN connection	Type	TOP 60VUC 230VAC1A	TOP 120VUC 230VAC1A	TOP 230VUC 230VAC1A	TOP 120VAC RC 230VAC1A	TOP 230VAC RC 230VAC1A
	Order No.	2618370000	2618480000	2618450000	2618390000	2618430000
Screw connection	Type	TOS 60VUC 230VAC1A	TOS 120VUC 230VAC1A	TOS 230VUC 230VAC1A	TOS 120VAC RC 230VAC1A	TOS 230VAC RC 230VAC1A
	Order No.	1127440000	1127450000	1127470000	1127480000	1127490000
Note						

TERMSERIES – solid-state relays

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

Output versions, multi-voltage input

- Space saving, just 6.4 mm modular width
- 1 A AC Output current
- PUSH IN and screw 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
Contact type	1 NO contact (Triac (zero-cross switch))
Voltage drop at max. load	≤ 1 V
Leakage current	< 1.5 mA
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% relative humidity, T ₉₀ = 40 °C, without condensation
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 _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX		

Ordering data

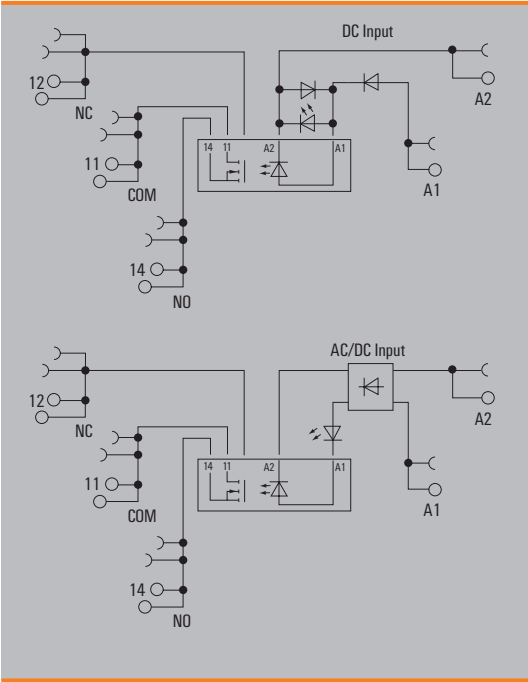
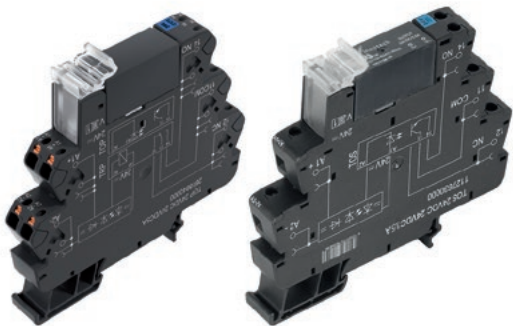
Control side	
Rated control voltage	24...230 V UC ±10 %
Nominal control current	11.0 mA at 24 V DC, 1.1 mA at 230 V DC, 19.0 mA at 24 V AC, 2.8 mA at 230 V AC
Power rating	265 mW @ 24 V DC, 255 mW @ 230 V DC, 455 mVA @ 24 V AC, 645 mVA @ 230 V AC
max. switching frequency (DC control voltage)	3 Hz
max. switching frequency (AC control voltage)	3 Hz
Status indicator	Green LED
Protective circuit	Rectifier
Approvals	CE; EAC

Ordering data	
PUSH IN connection	Type TOP 24-230VUC 230VAC1A ED2
Order No.	2663090000
Screw connection	Type TOS 24-230VUC 230VAC1A ED2
Order No.	2662930000
Note	

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

Output versions

- Space saving, just 12.8 mm modular width
- 3.5 A DC Output current
- Internal cross connection of the output terminals
- PUSH IN and screw 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	
Contact type	1 NO contact (MOS-FET)
Voltage drop at max. load	≤ 0.3 V
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% relative humidity, T ₉₀ = 40°C, without condensation
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 _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.4	87.8 / 12.8 / 89.6

Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	
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Ordering data

Control side

Rated control voltage	24 V DC ±20 %
Nominal control current	10 mA DC ±20 %
Power rating	240 mW
max. switching frequency (DC control voltage)	300 Hz
max. switching frequency (AC control voltage)	
Status indicator	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection
Approvals	CE; cULus; DNVGL; EAC

24 V DC
24 V DC $\pm 20\%$
10 mA DC $\pm 20\%$
240 mW
300 Hz
Green LED
Free-wheeling diode, Reverse polarity protection
CE; cULus; DNVGL; EAC

24 V - 230 V UC	
24...230 V UC ±10 %	
12.0 mA at 24 V DC, 1.1 mA at 230 V DC, 20.0 mA at 24 V AC, 3.0 mA at 230 V AC	
290 mW @ 24 V DC, 255 mW @ 230 V DC, 480 mVA @ 24 V AC, 690 mVA @ 230 V AC	
3 Hz	
3 Hz	
Green LED	
Rectifier	
CE; EAC	

Ordering data

PUSH IN connection	Type	TOP 24VDC 24VDC3.5A
Order No.		2618700000
Screw connection	Type	TOS 24VDC 24VDC3.5A
Order No.		1127630000

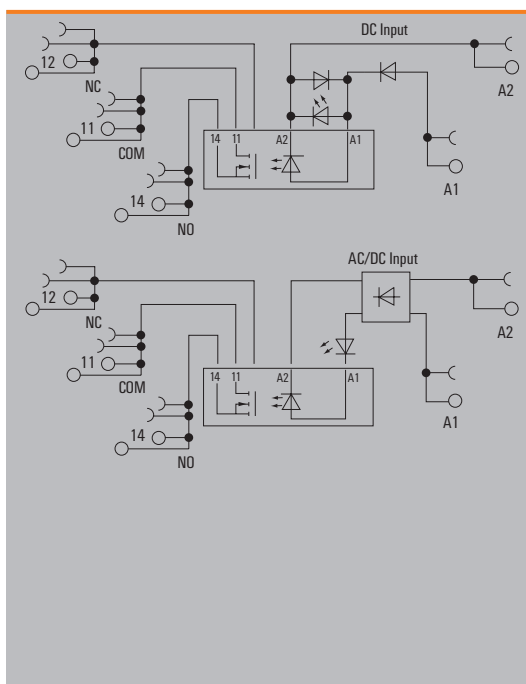
Note	
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TOP 24VDC 24VDC3.5A	
	2618700000
TOS 24VDC 24VDC3.5A	
	1127630000

TOP 24-230VUC 24VDC3,5A ED2		
	2663100000	
TOS 24-230VUC 24VDC3,5A ED2		
	2662940000	

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
- PUSH IN and screw 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	
Contact type	1 NO contact (MOS-FET)
Voltage drop at max. load	≤ 0.3 V
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% relative humidity, T ₉ = 40 °C, without condensation
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 _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.4	87.8 / 12.8 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

Ordering data

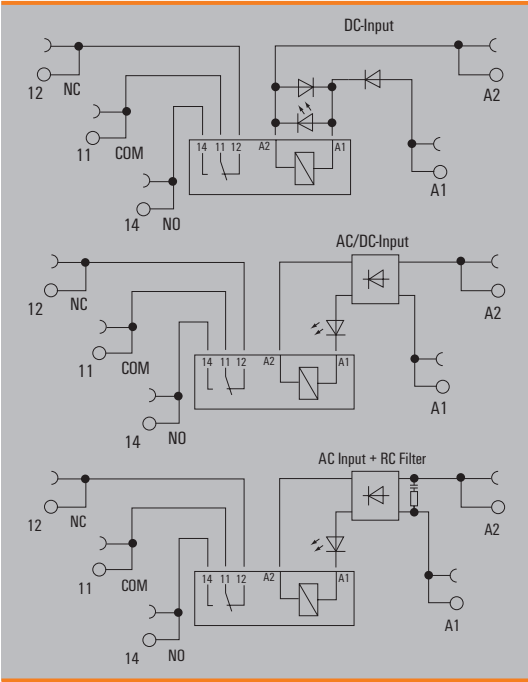
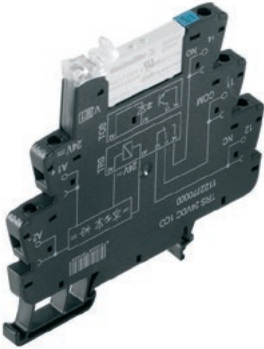
Control side		24 V DC	24 V - 230 V UC
Rated control voltage		24 V DC ±20 %	24...230 V UC ±10 %
Nominal control current		10.8 mA DC (±10 %)	9.5 mA at 24 V DC, 1.1 mA at 230 V DC, 18 mA at 24 V AC, 3.0 mA at 230 V AC
Power rating		260 mW	230 mW @ 24 V DC, 255 mW @ 230 V DC, 430 mVA @ 24 V AC, 690 mVA @ 230 V AC
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-wheeling diode, Reverse polarity protection	Rectifier
Approvals		CE; cULus; DNVGL; EAC	CE; EAC

Ordering data		24 V DC	24 V - 230 V UC
PUSH IN connection	Type	TOP 24VDC 24VDC5A	TOP 24-230VUC 24VDC5A ED2
	Order No.	2618840000	2663150000
Screw connection	Type	TOS 24VDC 24VDC5A	TOS 24-230VUC 24VDC5A ED2
	Order No.	1990960000	2662990000
Note			

1 CO contact, cl. 1, div. 2

AC / DC / UC coil

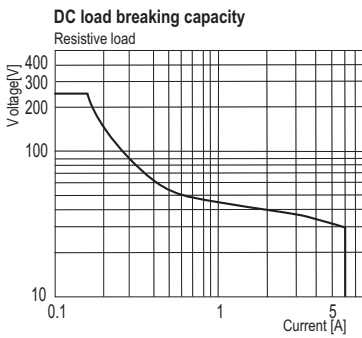
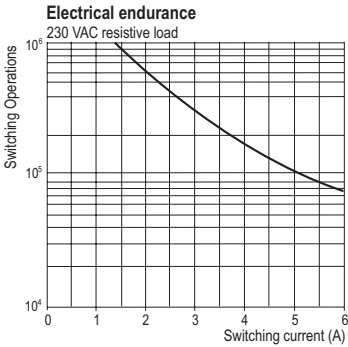
- Space-saving, only 6.4 mm wide
- AgNi contact
- Multi-voltage input: 24...230 V UC in one module
- Screw connection



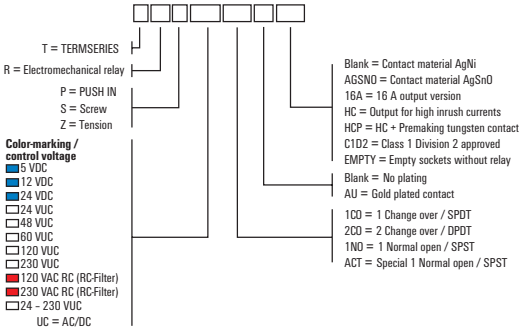
Technical data

Load side	
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
Contact type	1 CO contact (AgNi)
Mechanical service life	5 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% relative humidity, T _a = 40 °C, without condensation
Approvals	CE; cULusEX; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 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. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

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
Control side					
Rated control voltage	12 V DC $\pm$ 20 %	24 V DC $\pm$ 20 %	24 V UC $\pm$ 10 %	120 V AC $\pm$ 10 %	230 V AC $\pm$ 10 %
Rated current AC / DC	/ 18 mA	/ 11.5 mA	11.7 mA / 6.4 mA	7 mA /	8.5 mA /
Power rating	210 mW	280 mW	270 mVA / 154 mW	840 mVA	2 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier, RC element	Rectifier, RC element

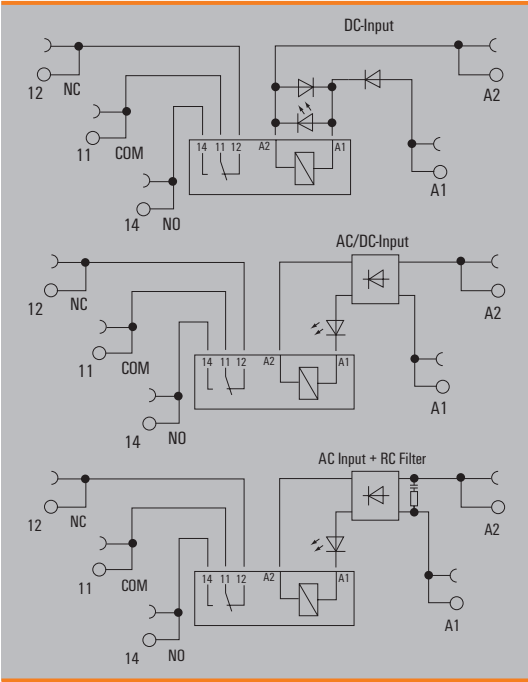
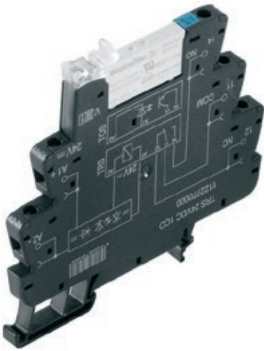
Ordering data						
Screw connection	Type	TRS 12VDC 1CO C1D2	TRS 24VDC 1CO C1D2	TRS 24VUC 1CO C1D2	TRS 120VACRC 1CO C1D2	TRS 230VACRC 1CO C1D2
	Order No.	1984560000	1984570000	1984580000	1984590000	1984600000
	Type					
	Order No.					
Note						

Ordering data	24...230 V UC
Control side	
Rated control voltage	24...230 V UC $\pm$ 10 %
Rated current AC / DC	27.1 mA AC @ 24 V AC, 4.8 mA AC @ 230 V AC / 25.6 mA DC @ 24 V DC, 2.5 mA DC @ 230 V DC
Power rating	610 mW @ 24 V DC, 650 mVA @ 24 V AC, 575 mW @ 230 V DC, 1.1 VA @ 230 V AC
Status indicator	Green LED
Protective circuit	Rectifier

Ordering data		
Screw connection	Type	TRS 24-230VUC 1CO C1D2
	Order No.	1984610000
	Type	
	Order No.	
Note		

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

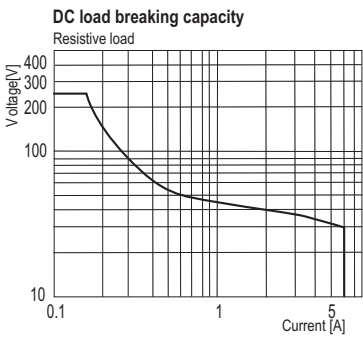
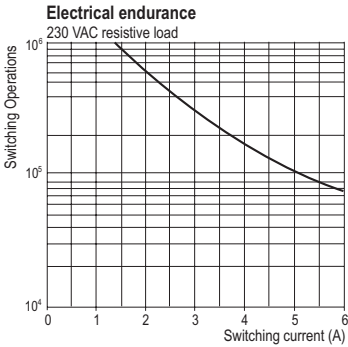
- Space-saving, only 6.4 mm wide
- AgNi contact with hard gold plating
- Multi-voltage input: 24...230 V UC in one module
- Screw connection



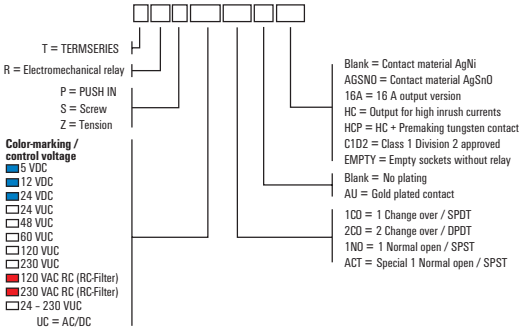
Technical data

Load side	
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
Contact type	1 CO contact (AgNi 5µm Au)
Mechanical service life	5 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% relative humidity, T _a = 40°C, without condensation
Approvals	CE; cULusEX; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.6
Screw connection	
Note	
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

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
Control side				
Rated control voltage	12 V DC $\pm$ 20 %	24 V DC $\pm$ 20 %	120 V AC $\pm$ 10 %	24...230 V UC $\pm$ 10 %
Rated current AC / DC	/ 18 mA	/ 11.5 mA	7 mA /	27.1 mA AC @ 24 V AC, 4.8 mA AC @ 230 V AC / 25.6 mA DC @ 24 V DC, 2.5 mA DC @ 230 V DC
Power rating	210 mW	280 mW	840 mVA	610 mW @ 24 V DC, 650 mVA @ 24 V AC, 575 mW @ 230 V DC, 1.1 VA @ 230 V AC
Status indicator	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier, RC element	Rectifier

Ordering data				
Screw connection	TRS 12VDC 1COAU C1D2	TRS 24VDC 1COAU C1D2	TRS 120VACRC 1COAU C1D2	TRS 24-230VUC 1COAUC1D2
Type	1984620000	1984630000	1984640000	1984650000
Order No.				
Type				
Order No.				
Note				

RSS Relais



Similar to figure

Technical data
Contact type
Max. switching voltage, AC
Max. switching voltage, DC
Rated switching voltage
Min. switching power
Mechanical service life
Note

RSS113...
1 CO contact (AgNi)
250 V
250 V
6 A
100 mA @ 5 V
10 mA @ 10 V
1 mA @ 24 V
5 x 10 ⁶
Note

RSS112...
1 CO contact (AgNi 5uAu) ¹⁾
250 V
250 V
6 A
1 mA @ 1 V
5 x 10 ⁶
1) AU- plate operate up to 0.25 W

RSS110
1 CO contact (AgSnO)
250 V
250 V
6 A
100 mA @ 12 V
5 x 10 ⁶
Note

Type
RSS...005
RSS...012
RSS...024
RSS...060
RSS...024F

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

Rated current DC
34 mA
14 mA
7 mA
3 mA
7 mA

Order No.
4061580000
4061610000
4060120000
4061630000
1454430000

Order No.
1174540000
1220670000
4061590000
4061600000

Order No.
1984100000
1984110000
1984090000
1984120000

RCL relay module



Similar to figure

Technical data
Contact type
Max. switching voltage, AC
Max. switching voltage, DC
Rated switching voltage
Min. switching power
Mechanical service life
Note

RCL424...
2 CO contact (AgNi)
250 V
250 V
8 A
100 mA @ 5 V
10 mA @ 12 V
1 mA @ 24 V
30 x 10 ⁶
Note

RCL425...
2 CO contact (AgNi 5uAu) ¹⁾
250 V
250 V
8 A
1 mA @ 1 V
30 x 10 ⁶
1) AU- plate operate up to 0.25 W

Type
RCL...005
RCL...012
RCL...024
RCL...048
RCL...060
RCL...110

Rated control voltage
5 V DC
12 V DC
24 V DC
48 V DC
60 V DC
110 V DC

Rated current DC
80 mA
33 mA
16 mA
8 mA
6 mA
3 mA

Order No.
8693790000
4058560000
4058570000
4058750000
4058760000
4058590000

Order No.
1174490000
4074580000
4058580000
1201230000
1201260000
8828370000

Small solid-state relay



Technical data	SSS...24 V 0,1 A DC	SSS...24 V 2 A DC	SSS...230 V 1 A AC
Contact type	1 NO contact (Bipolar transistor)	1 NO contact (MOS-FET)	Contact type 1 NO contact (Triac (zero-cross switch))
Rated switching voltage	0...48 V DC	0...24 V DC	24...240 V AC
Continuous current	100 mA DC	2 A	1 A
Min. switching current	500 µA	5 mA	20 mA
Voltage drop at max. load	≤ 1 V	≤ 120 mV	≤ 1 V
Leakage current	< 10 µA	< 10 µA	< 1.5 mA
Dielectric strength for control side - load side	2.5 kV _{eff}	2.5 kV _{eff}	2.5 kV _{eff}
Operating temperature	-20 °C...60 °C	-20 °C...60 °C	-20 °C...60 °C
Storage temperature	-40 °C...70 °C	-40 °C...70 °C	-40 °C...70 °C

Similar to figure

Note			
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Type	Rated control voltage	Nominal control current	Order No.	Order No.	Order No.
SSS 5 V...	5 V DC	4 mA DC	4064320000	-	-
SSS 24 V...	24 V DC	7 mA DC	4061180000	-	-
SSS 60 V...	60 V DC	3 mA DC	4061230000	-	-
SSS 5 V...	5 V DC	9 mA DC	-	4064310000	-
SSS 24 V...	24 V DC	7 mA DC	-	4061190000	-
SSS 60 V...	60 V DC	3 mA DC	-	4061200000	-
SSS 5 V...	5 V DC	15 mA DC	-	-	1132260000
SSS 24 V...	24 V DC	7 mA DC	-	-	4061210000
SSS 60 V...	60 V DC	3 mA DC	-	-	4061220000

Solid-state relay



Technical data	SSR.../0-35 V DC 3,5 A	SSR.../0-35VDC 5A	SSR.../12-275 V AC 1 A
Contact type	1 NO contact (MOS-FET)	1 NO contact (MOS-FET)	Contact type 1 NO contact (Triac (zero-cross switch))
Rated switching voltage	0...33 V DC	0...35 V DC	12...275 V AC
Continuous current	3.5 A	5 A	1 A
Min. switching current	10 mA	1 mA	50 mA
Voltage drop at max. load	≤ 0.3 V	≤ 0.3 V	≤ 1 V
Leakage current	< 10 µA	< 20 µA	< 1.5 mA
Dielectric strength for control side - load side	2.5 kV _{eff}	2.5 kV _{eff}	2.5 kV _{eff}
Operating temperature	-20 °C...60 °C	-20 °C...80 °C	-20 °C...60 °C
Storage temperature	-40 °C...70 °C	-40 °C...100 °C	-40 °C...70 °C

Similar to figure

Note			
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Type	Rated control voltage	Nominal control current	Order No.	Order No.	Order No.
SSR10...32 V DC/...	10...32 V DC	3...13 mA DC	1132310000	1421450000	1132290000

Accessories

The TERMSERIES relay sockets 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 socket 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).

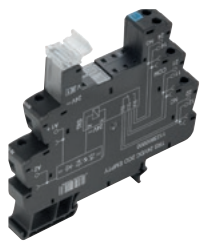
E.g.:
A 24 V DC relay is plugged into the TERMSERIES 24 V DC socket (item no. 1123240000). The control voltage is transferred almost unchanged to the relay coil for this relay socket.
Conversely, a 60V DC relay is plugged into the TERMSERIES 230 V AC relay socket (item no. 1123320000). The internal circuitry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

Empty socket 6,4 mm

	Rated control voltage	Plugable relay version	Qty.	Type / 1 CO PUSH IN	Order No.	Type / 1 CO Screw connection	Order No.
	5 V DC	1	10	TRP 5VDC 1CO EMPTY	2614870000	TRS 5VDC 1CO EMPTY	1123220000
	12 V DC	2	10	TRP 12VDC 1CO EMPTY	2618930000	TRS 12VDC 1CO EMPTY	1123230000
	24 V DC	3	10	TRP 24VDC 1CO EMPTY	2618870000	TRS 24VDC 1CO EMPTY	1123240000
	24 V UC	3	10	TRP 24VUC 1CO EMPTY	2618910000	TRS 24VUC 1CO EMPTY	1123250000
	48 V UC	3	10	TRP 48VUC 1CO EMPTY	2618920000	TRS 48VUC 1CO EMPTY	1123270000
	60 V UC	4	10	TRP 60VUC 1CO EMPTY	2618900000	TRS 60VUC 1CO EMPTY	1123280000
	120 V UC	4	10	TRP 120VUC 1CO EMPTY	2618950000	TRS 120VUC 1CO EMPTY	1123290000
	230 V UC	4	10	TRP 230VUC 1CO EMPTY	2618960000	TRS 230VUC 1CO EMPTY	1123300000
	120 V AC	4	10	TRP 120VAC RC 1CO EMPTY	2618880000	TRS 120VAC RC 1CO EMPTY	1123310000
	230 V AC	4	10	TRP 230VAC RC 1CO EMPTY	2618890000	TRS 230VAC RC 1CO EMPTY	1123320000
	24...230 V AC / DC	3	10	TRP 24-230VUC 1CO EMPTY ED2	2663030000	TRS 24-230VUC 1CO EMPTY ED2	2662870000

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

Empty socket 12,8 mm



Rated control voltage	Plugable relay version	Qty.	Type / 1 CO PUSH IN	Order No.	Type / 1 CO Screw connection	Order No.
24 V DC	1	10	TOP 24VDC EMPTY	2618740000	TOS 24VDC EMPTY	1127720000
24...230 V UC	1	10	TOP 24-230VUC EMPTY ED2	2663110000	TOS 24-230VUC EMPTY ED2	2662950000
Rated control voltage		Qty.	2 CO PUSH IN	Order No.	2 CO Screw connection	Order No.
5 V DC	2	10	TRP 5VDC 2CO EMPTY	2680850000	TRS 5VDC 2CO EMPTY	1123950000
12 V DC	3	10	TRP 12VDC 2CO EMPTY	2680960000	TRS 12VDC 2CO EMPTY	1123970000
24 V DC	4	10	TRP 24VDC 2CO EMPTY	2680970000	TRS 24VDC 2CO EMPTY	1123980000
24 V UC	4	10	TRP 24VUC 2CO EMPTY	2680980000	TRS 24VUC 2CO EMPTY	1123990000
48 V UC	5	10	TRP 48VUC 2CO EMPTY	2680990000	TRS 48VUC 2CO EMPTY	1124000000
60 V UC	6	10	TRP 60VUC 2CO EMPTY	2681000000	TRS 60VUC 2CO EMPTY	1124010000
120 V UC	7	10	TRP 120VUC 2CO EMPTY	2681010000	TRS 120VUC 2CO EMPTY	1124020000
230 V UC	7	10	TRP 230VUC 2CO EMPTY	2681020000	TRS 230VUC 2CO EMPTY	1124030000
120 V AC	7	10	TRP 120VAC RC 2CO EMPTY	2681030000	TRS 120VAC RC 2CO EMPTY	1124040000
230 V AC	7	10	TRP 230VAC RC 2CO EMPTY	2681190000	TRS 230VAC RC 2CO EMPTY	1124050000
24...230 V AC / DC	7	10	TRP 24-230VUC 2CO EMPTY ED2	2663060000	TRS 24-230VUC 2CO EMPTY ED2	2662900000

Plugable 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		PUSH IN		Screw connection	
1 conductor				A1 / B1		A1 / B1	
Solid H07V-U		mm ²		0.14...2.5		0.14...2.5	
Finely stranded H07V-K		mm ²		0.14...2.5		0.14...2.5	
... with ferrule without collar		mm ²		0.14...1.5		0.25...2.5	
... with ferrule with collar		mm ²		0.14...1.5		0.25...2.5	
American Wire Gauge AWG.../1		AWG		26...14		26...14	
American Wire Gauge AWG.../7		AWG		26...14		26...16	
American Wire Gauge AWG.../19		AWG		26...14		26...16	
2 conductor with same size							
Solid H07V-U		mm ²				0.5...1.0	
Finely stranded H07V-K		mm ²				0.5...1.0	
... with twin ferrule		mm ²		0.5...1.0		0.5...1.0	
Tightening torque, max.		Nm				0.4	
Stripping length		mm		9		8	

TERMSERIES interface adapter

Faster signal wiring with less space

B

Our adapter for TERMSERIES Relays reduces wiring times per plug-and-play

To reduce wiring times, pre-assembled cables are used between the control system and the interface level and are simply connected to the TERMSERIES adapter. This enables throughput times in electrical cabinet building to be significantly reduced. The adapter has a universal fit and offers a genuine space advantage in interaction with the TERMSERIES products with identical contours.



Connection to a variety of controllers

The standardized flat cable plug-in connections enables connection of all interface systems pre-assembled cable types.

Fast supply and bridging of the auxiliary voltage

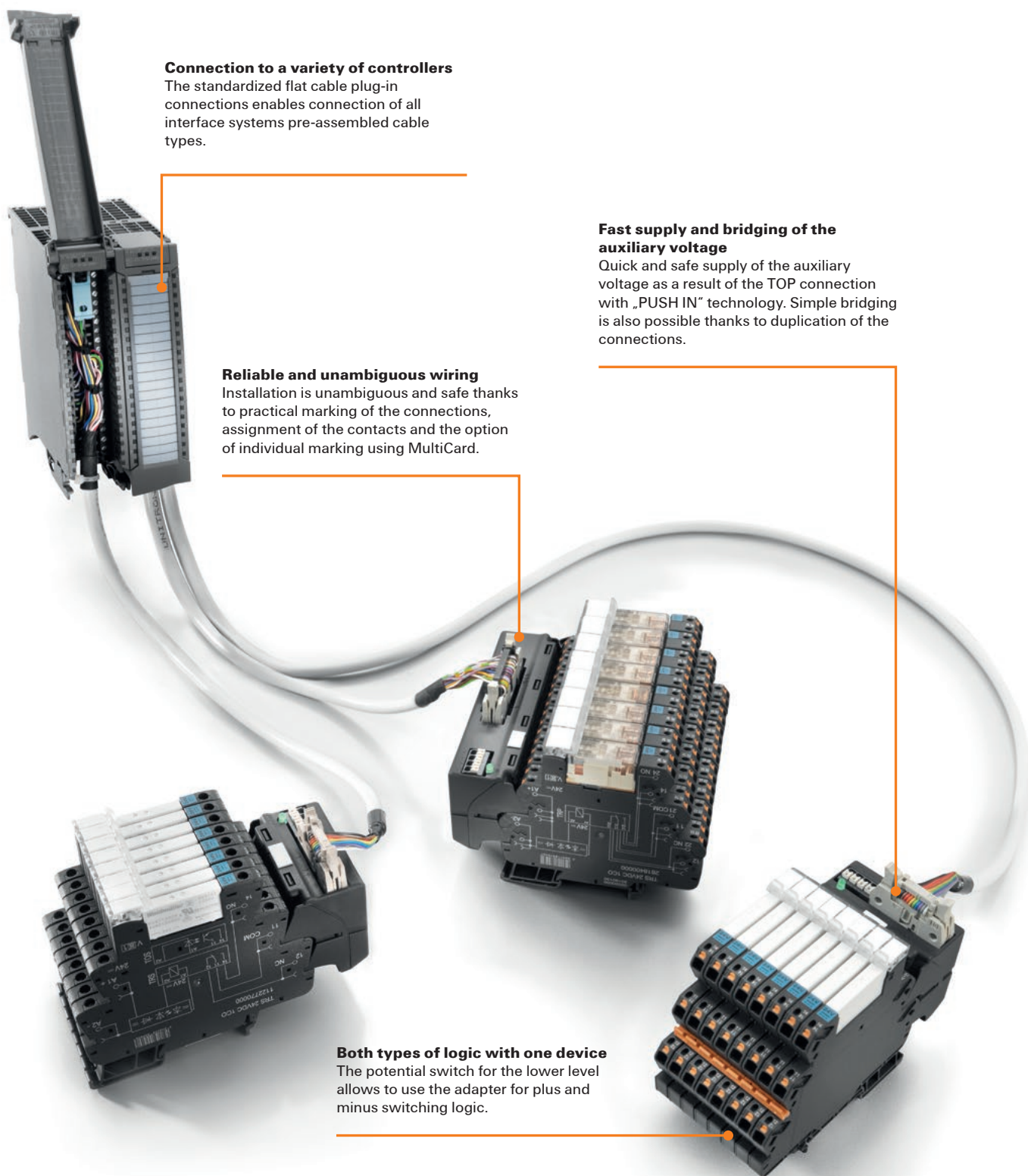
Quick and safe supply of the auxiliary voltage as a result of the TOP connection with „PUSH IN“ technology. Simple bridging is also possible thanks to duplication of the connections.

Reliable and unambiguous wiring

Installation is unambiguous and safe thanks to practical marking of the connections, assignment of the contacts and the option of individual marking using MultiCard.

Both types of logic with one device

The potential switch for the lower level allows to use the adapter for plus and minus switching logic.

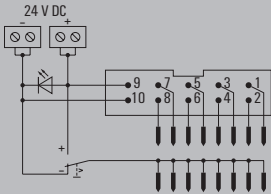


TERMSERIES – Interface adapters

TERMSERIES Interface adapters

- Suitable for input and output logic
- Version for 6.4 mm TERMSERIES socket
- 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

Supply	
Voltage supply	24 V DC ± 20 %
Status display	Green LED
Signals	
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
Connection data (supply)	
Wire connection method	PUSH IN
Clamping range, rated connection, min.	0.13 mm²
Clamping range, rated connection, max.	1.5 mm²
Number of terminals	4 (+, +, -, -)
Connection data (signal)	
Plug type	10-pole plug according to DIN EN 60603-13, long locking lever
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5...95% (indoor), T _a = 40°C, without condensation
UL 94 flammability rating	V-0
Approvals	CE; cULus; DNVGL; RS
Insulation coordinates	
Pollution degree	2
Overvoltage category	III
Impulse withstand voltage	1.5 kV
Rated voltage	32 V
Protection degree	IP20 in installed state

Dimensions	
Depth x width x height	62 / 51 / 43 mm

Note	

Ordering data

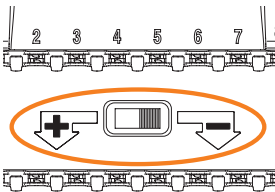
Type	Qty.	Order No.
TIA F10	1	1463520000

Note	Suitable for 6.4 mm wide TERMSERIES socket
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Accessories

Note	
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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

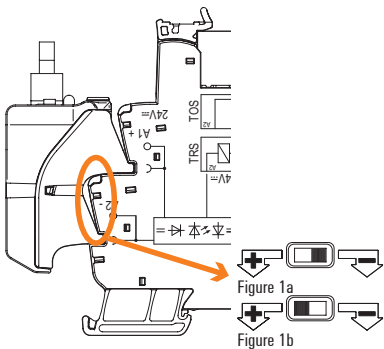


Figure 1a: **Positive-switching logic:** Potential change-over switch to "-", installation on **24 V DC input** (A1/A2).
 Figure 1b: **Negative-switching logic:** Potential change-over switch to "+", installation on **24 V UC input** (A1/A2).

Installation output

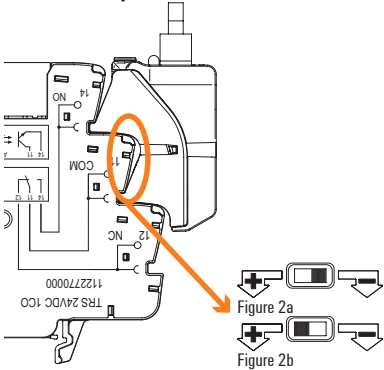
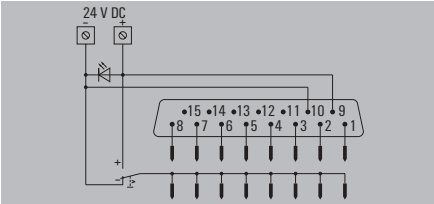


Figure 2a: **Positive-switching logic:** Potential change-over switch to "+", installation on **output** (11/14).
 Figure 2b: **Negative-switching logic:** Potential change-over switch to "-", installation on **output** (11/14).

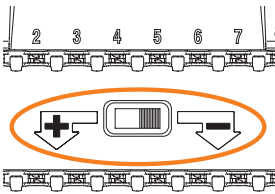
TERMSERIES Interface adapters

- Suitable for input and output logic
- Version for 6.4 mm TERMSERIES socket
- 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 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

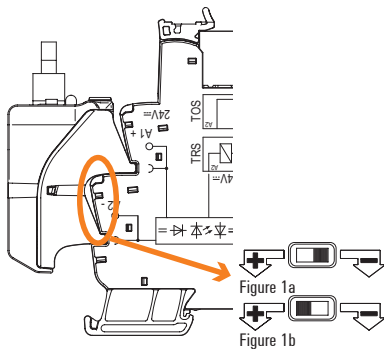


Figure 1a: **Positive-switching logic:** Potential change-over switch to "+", installation on **24 V DC input** (A1/A2).
Figure 1b: **Negative-switching logic:** Potential change-over switch to "-", installation on **24 V UC input** (A1/A2).

Installation output

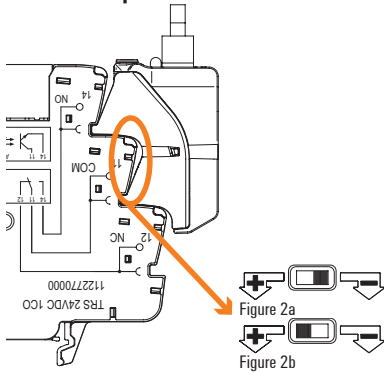


Figure 2a: **Positive-switching logic:** Potential change-over switch to "+", installation on output (11/14).
Figure 2b: **Negative-switching logic:** Potential change-over switch to "-", installation on output (11/14).

Technical data

Supply	
Voltage supply	24 V DC ± 20 %
Status display	Green LED
Signals	
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
Connection data (supply)	
Wire connection method	PUSH IN
Clamping range, rated connection, min.	0.13 mm ²
Clamping range, rated connection, max.	1.5 mm ²
Number of terminals	2 (+, -)
Connection data (signal)	
Plug type	Sub-D, 15-pole, DIN 41652 / IEC 60807
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5...95% (indoor), T _a = 40°C, without condensation
UL 94 flammability rating	V-0
Approvals	CE; cULus; DNVGL; RS
Insulation coordinates	
Pollution degree	2
Overvoltage category	III
Impulse withstand voltage	1.5 kV
Rated voltage	32 V
Protection degree	IP20 in installed state

Dimensions	
Depth x width x height	52 / 51 / 43 mm

Note	
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Ordering data

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

Note	Suitable for 6.4 mm wide TERMSERIES socket
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Accessories

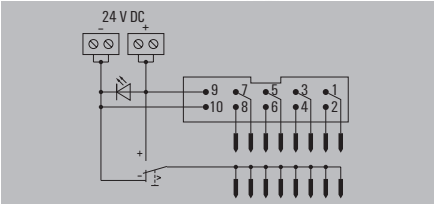
Note

TERMSERIES – Interface adapters

TERMSERIES Interface adapters

- Suitable for input and output logic
- Version for 12.8 mm TERMSERIES socket
- 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	
Voltage supply	24 V DC ± 20 %
Status display	Green LED
Signals	
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
Connection data (supply)	
Wire connection method	PUSH IN
Clamping range, rated connection, min.	0.13 mm²
Clamping range, rated connection, max.	1.5 mm²
Number of terminals	4 (+, +, -, -)
Connection data (signal)	
Plug type	10-pole plug according to DIN EN 60603-13, long locking lever
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5...95% (indoor), T _a = 40°C, without condensation
UL 94 flammability rating	V-0
Approvals	CE; cULus; DNVGL; RS
Insulation coordinates	
Pollution degree	2
Overvoltage category	III
Impulse withstand voltage	1.5 kV
Rated voltage	32 V
Protection degree	IP20 in installed state

Dimensions	
Depth x width x height	62 / 102 / 43 mm

Note	

Ordering data

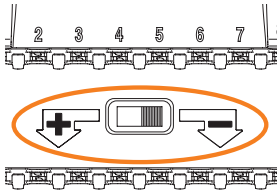
Type	Qty.	Order No.
TIAL F10	1	1463540000

Note	
Suitable for 12.8 mm wide TERMSERIES socket	

Accessories

Note	

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

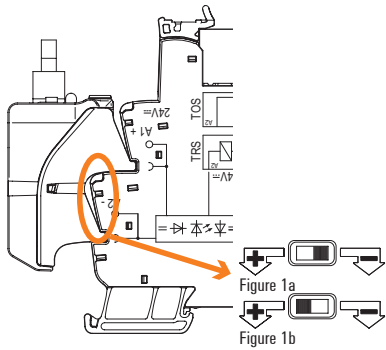


Figure 1a: **Positive-switching logic:** Potential change-over switch to "-", installation on **24 V DC input** (A1/A2).
 Figure 1b: **Negative-switching logic:** Potential change-over switch to "+", installation on **24 V UC input** (A1/A2).

Installation output

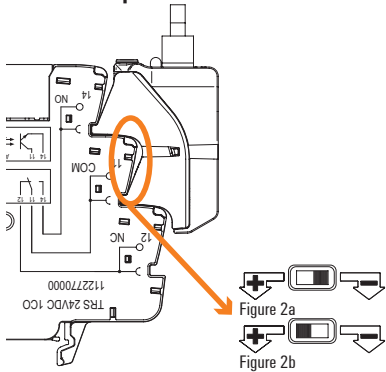
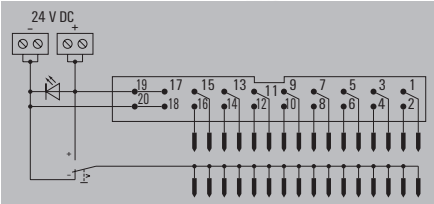


Figure 2a: **Positive-switching logic:** Potential change-over switch to "+", installation on **output** (11/14).
 Figure 2b: **Negative-switching logic:** Potential change-over switch to "-", installation on **output** (11/14).

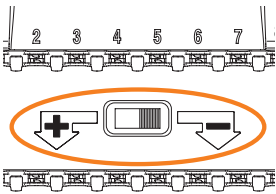
TERMSERIES Interface adapters

- Suitable for input and output logic
- Version for 6.4 mm TERMSERIES socket
- 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 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

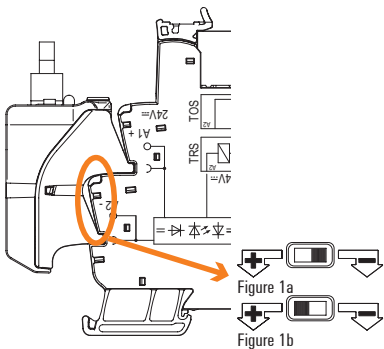


Figure 1a: **Positive-switching logic:** Potential change-over switch to "+", installation on **24 V DC input** (A1/A2).
Figure 1b: **Negative-switching logic:** Potential change-over switch to "+", installation on **24 V UC input** (A1/A2).

Installation output

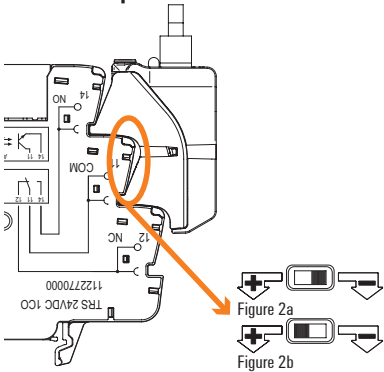


Figure 2a: **Positive-switching logic:** Potential change-over switch to "+", installation on output (11/14).
Figure 2b: **Negative-switching logic:** Potential change-over switch to "-", installation on output (11/14).

Technical data

Supply	
Voltage supply	24 V DC ± 20 %
Status display	Green LED
Signals	
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
Connection data (supply)	
Wire connection method	PUSH IN
Clamping range, rated connection, min.	0.13 mm ²
Clamping range, rated connection, max.	1.5 mm ²
Number of terminals	4 (+, +, -, -)
Connection data (signal)	
Plug type	20-pole plug according to DIN EN 60603-13, long locking lever
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5...95% (indoor), T _a = 40°C, without condensation
UL 94 flammability rating	V-0
Approvals	CE; cULus; DNVGL; RS
Insulation coordinates	
Pollution degree	2
Overvoltage category	III
Impulse withstand voltage	1.5 kV
Rated voltage	32 V
Protection degree	IP20 in installed state

Dimensions	
Depth x width x height	62 / 102 / 43 mm

Note	
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Ordering data

Type	Qty.	Order No.
TIAL F20	1	1463550000

Note	Suitable for 6.4 mm wide TERMSERIES socket
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Accessories

Note	
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TERMSERIES accessories

Perfect additions for individual added value

B

Growing plant complexity and more individual production processes require higher flexibility and efficiency. Solid-state relays and relay modules from the TERMSERIES can be added individually according to the application. In addition to many relay modules and solid-state relay variants, we offer you suitable supply terminals, partition plates, cross-connections and markers. This provides you with a flexible modular system for signal separation and amplification, enabling you to work better, faster and more reliably.

Adjustable cross-connections

Increase the flexibility of your cross-connections. The TERMSERIES CROSS-CONNECTION (TCC) enables individually adjustable cross-connections with up to 51 poles. The maximum number of pluggable poles has been increased to 32 poles. The strip material can be shortened to the required length very easily. The cross-connectors convince thanks to their easy handling and visibility as well as their universal connection possibilities. An additional bar prevents the spring from deforming during assembly.

Versatile partition plates

Partition plates can be used to group together signals visually, to electrically isolate modules and to insert markings for a better overview. This makes them a particularly versatile accessory. Partition plates increase the clearance and creepage distances between two modules, thus increasing the rated insulation voltage between two modules to up to 600 V. Double partition plates can be marked with WAD5 or WS10/5 markers and enable continuous cross-connections. Installation is made easier with the perforations to individually break out the cross-connection channels.

Comprehensive marking system

Marking in accordance with DIN EN 60204-1 is essential for the operation and maintenance of industrial plant. With our marking system we offer you a complete, perfectly coordinated product range of markers and printers. TERMSERIES products can be combined, for example, with the proven MultiCard format, which can be printed using various Weidmüller printers. On top of this are the innovative MultiMark terminal markers, which are particularly easy and precise to install thanks to their stretchable material. All markers guarantee excellent print results as well as long-lasting, resistant marking.

Space-saving supply modules

Our supply terminals enable potentials to be fed at the input – e.g. neutral or minus potentials – or switched potentials to be fed at the output. In conjunction with precisely fitting cross-connections from the TERMSERIES, the connections for the cables on the relay module remain free for actuators or sensors. No additional feed-through terminal blocks are required, resulting in huge space savings in the panel. At the same time, the wiring is simplified as no double wire-end ferrules are required for the potential feed.



Pluggable cross connection

	Type	No. of poles / Pitch	Colour	Qty.	Order No.
	TCC 6.4/2 OR	2 / 6.4 mm	orange	10	2556350000
	TCC 6.4/10 OR	10 / 6.4 mm	orange	10	2556360000
	TCC 6.4/51 OR	51 / 6.4 mm	orange	10	2556370000
	TCC 12.8/26 OR	26 / 12.8 mm	orange	10	2556380000
	TCC 6.4/2 BL	2 / 6.4 mm	blue	10	2556430000
	TCC 6.4/10 BL	10 / 6.4 mm	blue	10	2556440000
	TCC 6.4/51 BL	51 / 6.4 mm	blue	10	2556450000
	TCC 12.8/26 BL	26 / 12.8 mm	blue	10	2556460000
	TCC 6.4/2 RD	2 / 6.4 mm	red	10	2556390000
	TCC 6.4/10 RD	10 / 6.4 mm	red	10	2556400000
	TCC 6.4/51 RD	51 / 6.4 mm	red	10	2556410000
	TCC 12.8/26 RD	26 / 12.8 mm	red	10	2556420000
	TCC 6.4/2 BK	2 / 6.4 mm	black	10	2556470000
	TCC 6.4/10 BK	10 / 6.4 mm	black	10	2556480000
	TCC 6.4/51 BK	51 / 6.4 mm	black	10	2556490000
	TCC 12.8/26 BK	26 / 12.8 mm	black	10	2556500000

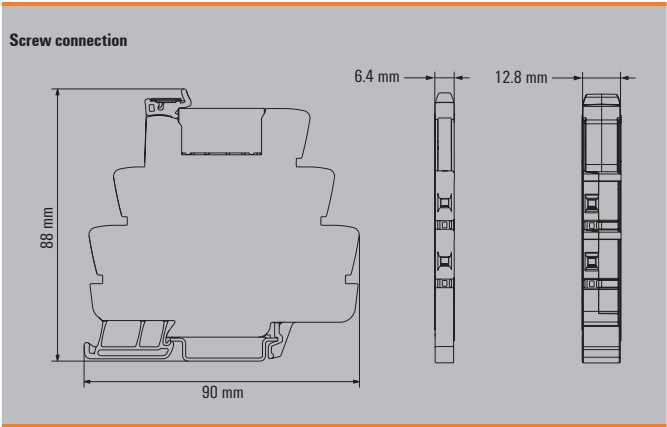
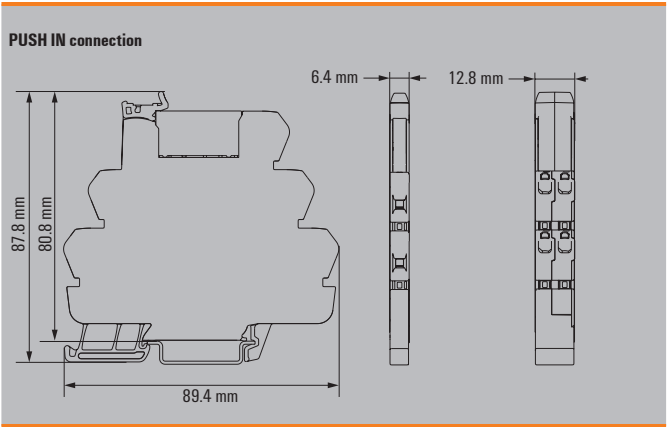
Supply module

	Type	Connection technology	Qty.	Order No.
	TXS SUPPLY	Screw connection	10	1240780000
	TXP SUPPLY	PUSH IN connection	10	2618940000

Other accessories

	Partition plate	Note	Qty.	Order No.
	TW TXS/TXZ R3.2	Partition plate 3.2 mm pitch	10	1240800000
	Markers	Note		
	WS 10/6 MC NE WS	Markers for TERMSERIES variants with width of 6.4 mm or 12.8 mm	600	1818400000
	WS 10/12 MC NE WS	Markers for TERMSERIES variants with width of 12.8 mm	600	1905970000
	Screwdriver	Note		
	SDS 0.6X3.5X100	Screw connection	1	9008330000
	SDS 0.4x2.0x60	only PUSH IN connection	1	9037160000

Dimensions



RIDERSERIES

Universal industrial relays with international approval

B

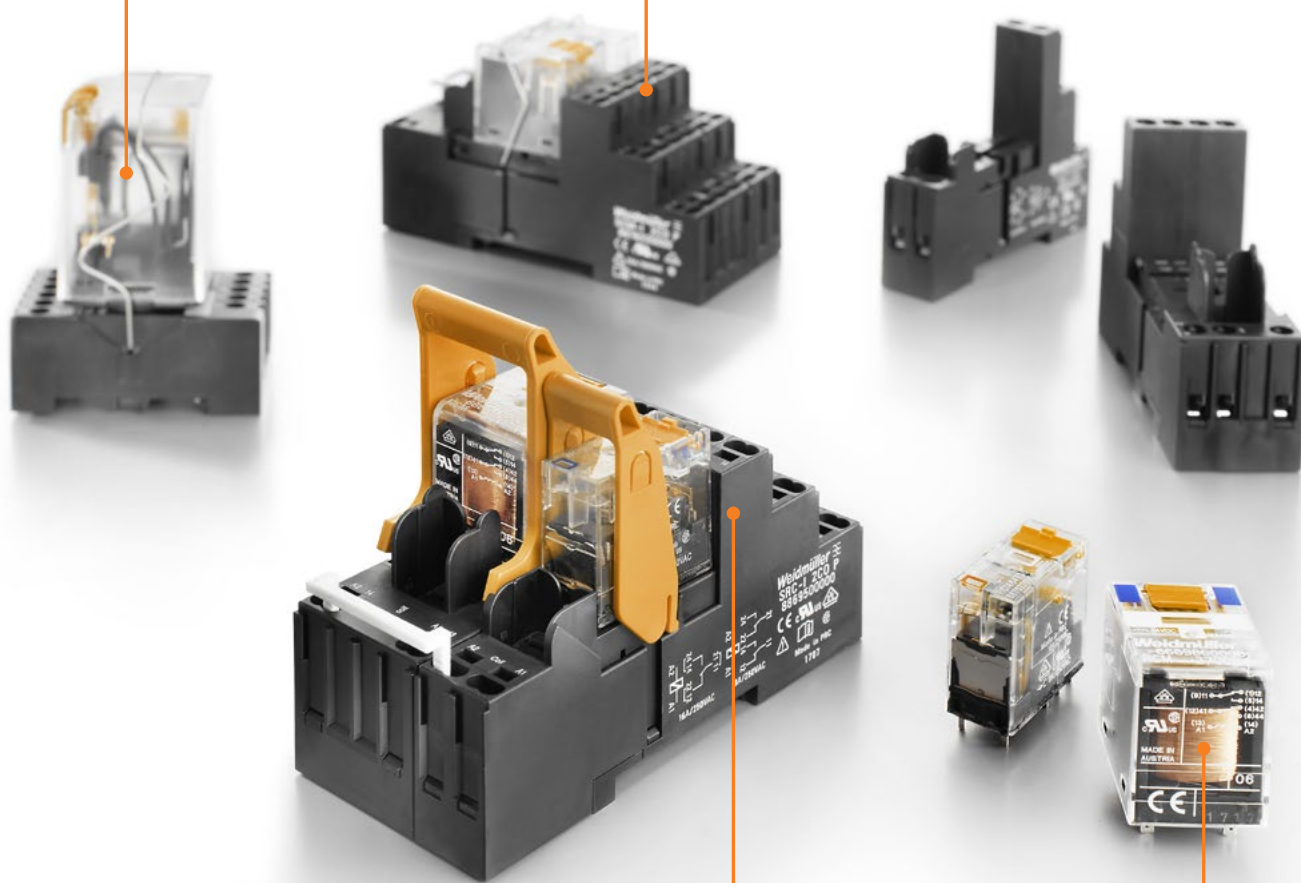
Relay modules from the RIDERSERIES are the right choice for the reliable separation of input and output signals in industrial automation. The high-quality and universally usable relays have been specially developed for industrial applications and offer many well-considered details. Conventional relays, for example, can be simply plugged in, with retaining clips ensuring secure mounting. The optional status LED plus test button make servicing easier. RIDERSERIES relay modules are divided into two product families. Both can be used in a wide range of industrial applications and have all the standard international approvals such as cURus, CSA, DNV GL and EAC.

Wide performance range

Suitable for control voltages from 12 V to 230 V, as well as for switching currents from 6 A to 16 A, and therefore suitable for a wide range of applications.

Wide range of variants

Available in versions with 1 to 4 CO contacts and with a PUSH IN connection system or screw connection. In addition, there are versions with built-in LED or test button as well as precisely fitting accessories from cross-connections to markers.

**Optional relay KITS**

Relay KITS consisting of relays with status indicator and sockets with retaining clip provide greater convenience. The KITS are delivered completely assembled as well as function and insulation-tested. This saves time and reduces the number of material numbers.

High quality

Tailored to industrial applications – the stable relay pins are compatible with industrial standard pinning.

RCI-KITP with PUSH IN connection

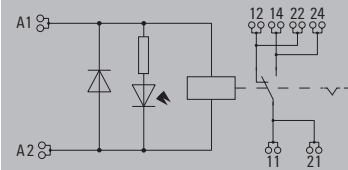
1 CO contact AC/DC coil

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional test button with mechanical status indicator
- Bright status LED (AC coil: red / DC coil: green)
- Identification of coils (AC red / DC blue)

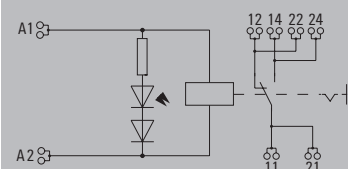


Circuit diagram

DC-Version



AC-Version



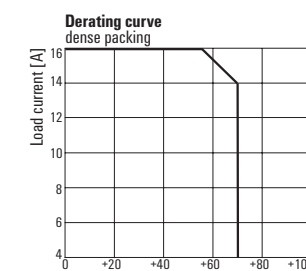
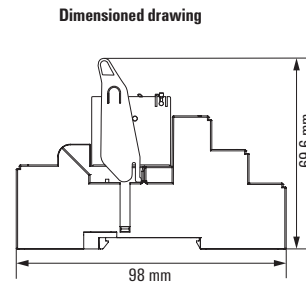
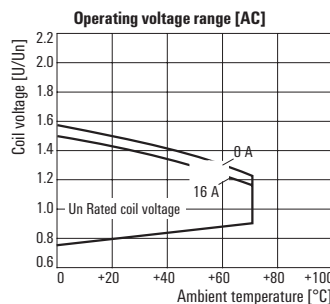
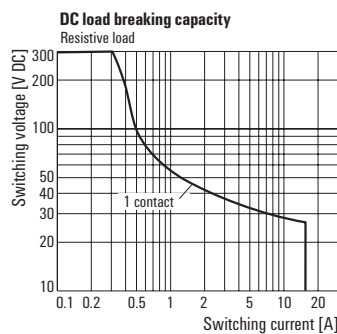
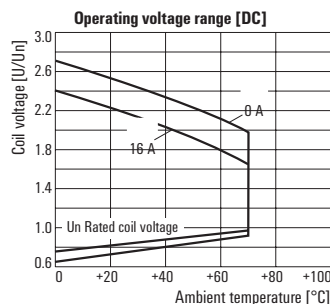
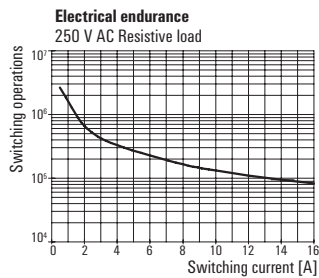
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 16 A ¹⁾
Max. switching voltage, AC	400 V
Inrush current	30 A / 4 s
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	1 CO contact with test button (AgNi 90/10)
Mechanical service life	AC coil 5 x 10 ⁶ switch. cycles, DC coil 10 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.75 / 1.5
Depth x width x height	mm 69.6 / 15.8 / 98

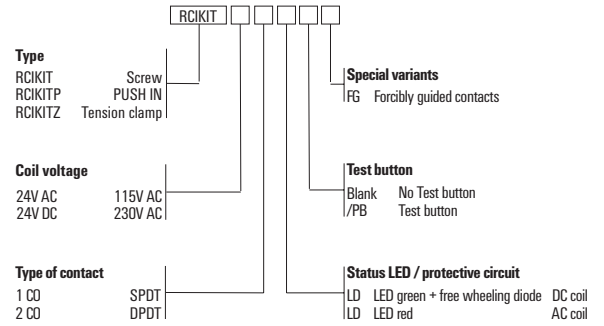
Note 1) For full continuous current (16 A), relay connections 11 - 21, 12 - 22 and 14 - 24 must be bridged. Further technical data can be found at catalog.

Applications



* For full continuous current (16 A), socket connections 11 - 21, 12 - 22 and 14 - 24 must be bridged.

RCI-KITP with PUSH IN connection 1 CO contact AC/DC coil



Ordering data

Control side	24 V DC 1CO	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 16.7 mA	31.6 mA /	7 mA /	3.5 mA /
Power rating	420 mW	0.75 VA	0.8 VA	0.8 VA
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

Ordering data

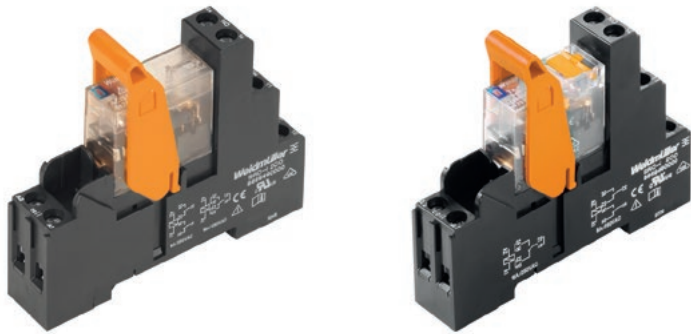
Relay with socket					
with test button	Type	RCIKITP 24VDC 1CO LD/PB	RCIKITP 24VAC 1CO LD/PB	RCIKITP115VAC 1CO LD/PB	RCIKITP230VAC 1CO LD/PB
	Order No.	8897190000	8897200000	8897210000	8897220000
without test button	Type	RCIKITP 24VDC 1CO LD	RCIKITP 24VAC 1CO LD	RCIKITP 115VAC 1CO LD	RCIKITP 230VAC 1CO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

Note				

RCI KIT with screw connection

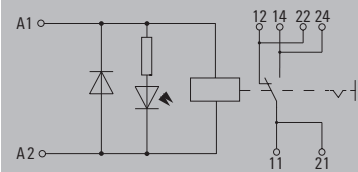
1 CO contact AC/DC coil

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional test button with mechanical status indicator
- Bright status LED (AC coil: red / DC coil: green)
- Identification of coils (AC red / DC blue)

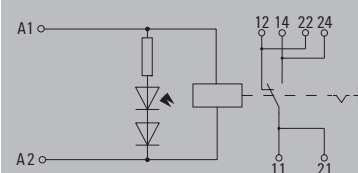


Circuit diagram

DC-Version



AC-Version



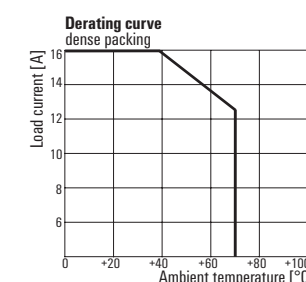
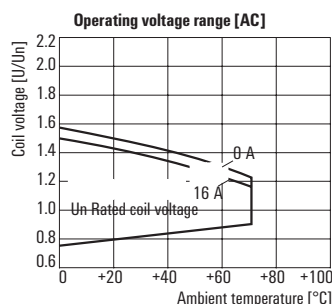
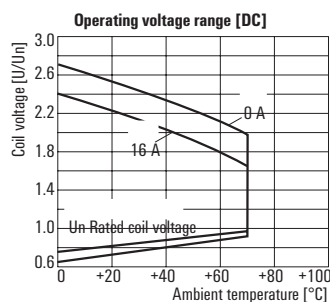
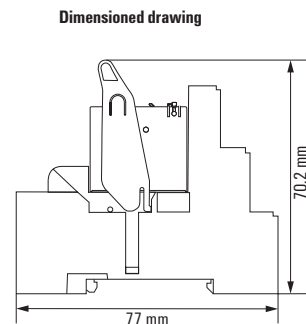
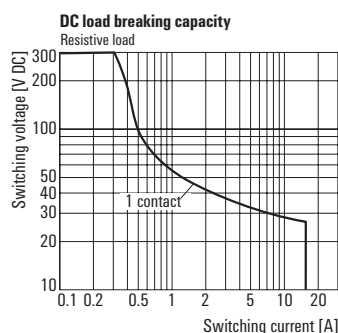
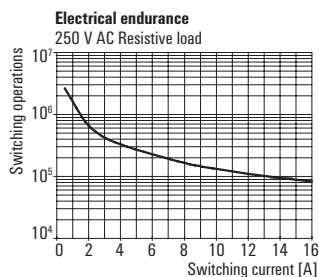
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 16 A ¹⁾
Max. switching voltage, AC	400 V
Inrush current	30 A / 4 s
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	1 CO contact with test button (AgNi 90/10)
Mechanical service life	AC coil 5 x 10 ⁶ switch. cycles, DC coil 10 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; DNVGL; EAC; POLSKIREJ
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	2

Dimensions	Screw connection
Clamping range (nominal / min. / max.)	mm ² 2.5 / 1 / 2.5
Depth x width x height	mm 70.2 / 15.8 / 77

Note 1) For full continuous current (16 A), relay connections 11 - 21, 12 - 22 and 14 - 24 must be bridged. Further technical data can be found at catalog.

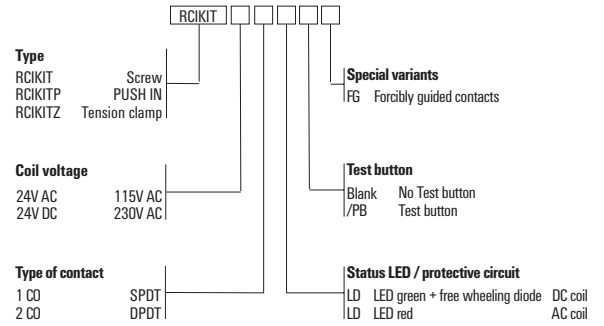
Applications



For full continuous current (16 A), socket connections 11-21, 12-22 and 14-24 must be bridged.

RCI KIT with screw connection

1 CO contact AC/DC coil



Ordering data

Control side	24 V DC 1CO	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 16.7 mA	31.6 mA /	7 mA /	3.5 mA /
Power rating	420 mW	0.75 VA	0.8 VA	0.8 VA
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

Ordering data

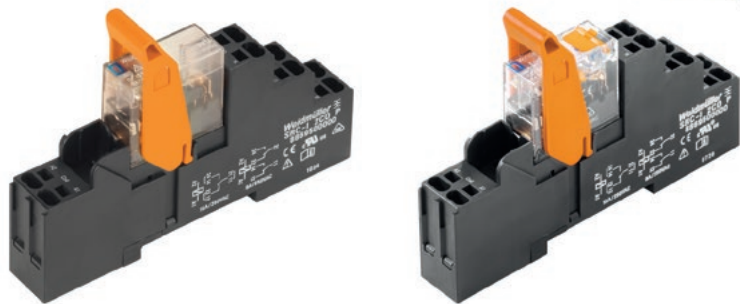
Relay with socket

with test button	Type	RCIKIT 24VDC 1CO LD/PB	RCIKIT 24VAC 1CO LD	RCIKIT 115VAC 1CO LD/PB	RCIKIT 230VAC 1CO LD/PB
	Order No.	8881580000	8871010000	8897060000	8881600000
without test button	Type	RCIKIT 24VDC 1CO LD	RCIKIT 24VAC 1CO LD/PB	RCIKIT 115VAC 1CO LD	RCIKIT 230VAC 1CO LD
	Order No.	8871000000	8881590000	8897090000	8871020000

Note				

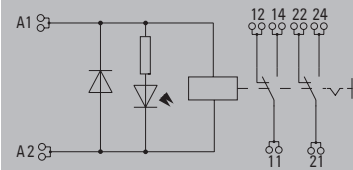
RCI-KITP with PUSH IN connection
2 CO contacts AC/DC coil

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional test button with mechanical status indicator
- Bright status LED (AC coil: red / DC coil: green)
- Identification of coils (AC red / DC blue)

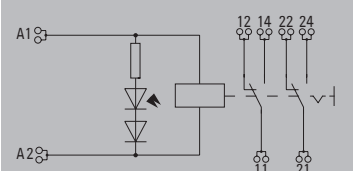


Circuit diagram

DC-Version



AC-Version

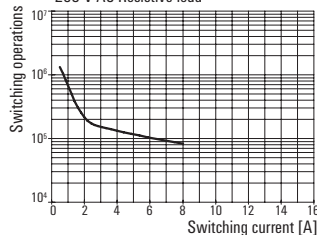


Technical data

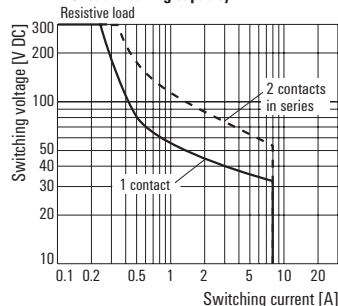
Load side	
Rated switching voltage / Continuous current	250 V AC / 8 A
Max. switching voltage, AC	400 V
Inrush current	15 A / 4 s
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	2 CO contact with test button (AgNi 90/10)
Mechanical service life	AC coil 5 x 10 ⁶ switch. cycles, DC coil 10 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	5 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.75 / 1.5
Depth x width x height	mm 69.6 / 15.8 / 98
Note	
Further technical data can be found at catalog B.70	

Applications

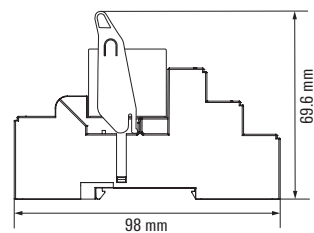
Electrical endurance
250 V AC Resistive load



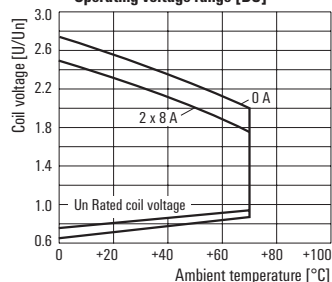
DC load breaking capacity



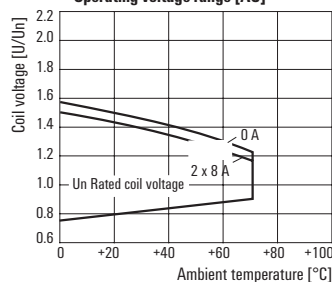
Dimensioned drawing



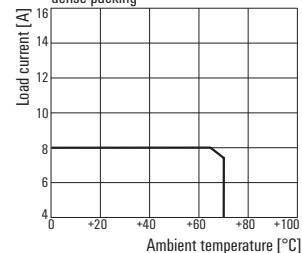
Operating voltage range [DC]



Operating voltage range [AC]

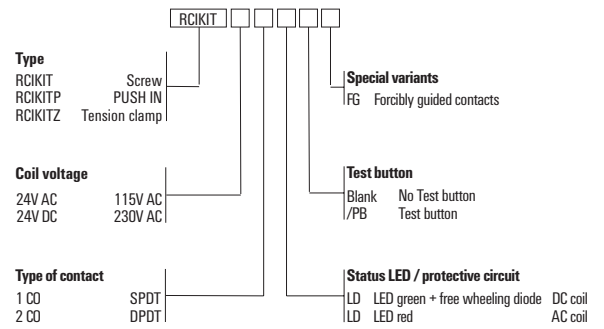


Derating curve
dense packing



RCI-KITP with PUSH IN connection

2 CO contacts AC/DC coil



Ordering data

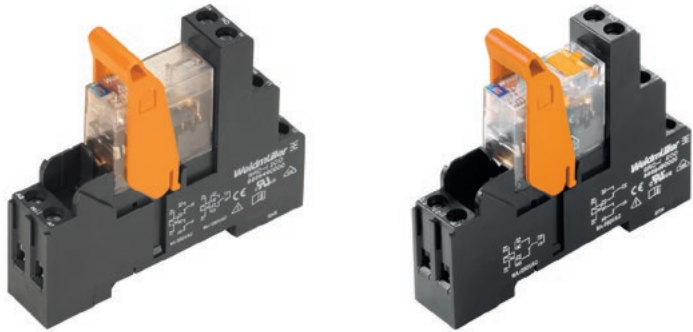
Control side	24 V DC 2CO	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 16.7 mA	31.6 mA /	7 mA /	3.5 mA /
Power rating	420 mW	0.75 VA	0.8 VA	0.8 VA
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

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

Note				
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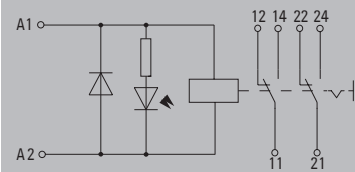
RCI KIT with screw connection
2 CO contacts AC/DC coil

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional test button with mechanical status indicator
- Bright status LED (AC coil: red / DC coil: green)
- Identification of coils (AC red / DC blue)

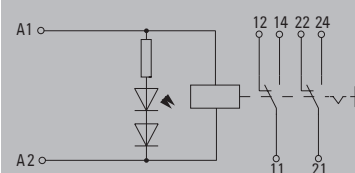


Circuit diagram

DC-Version



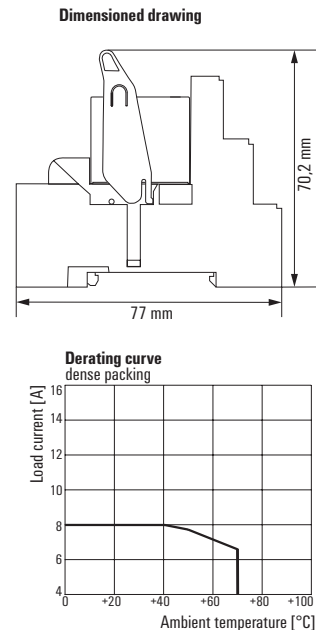
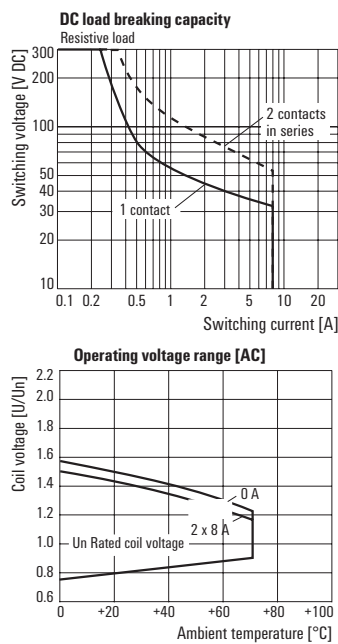
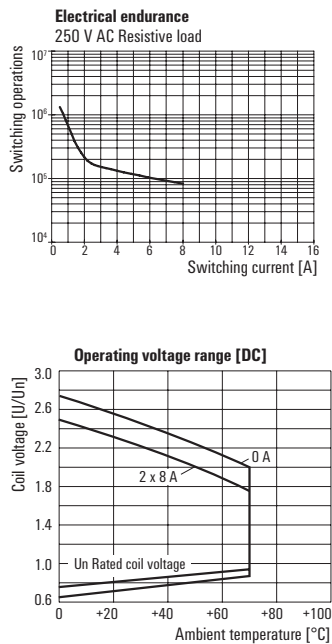
AC-Version



Technical data

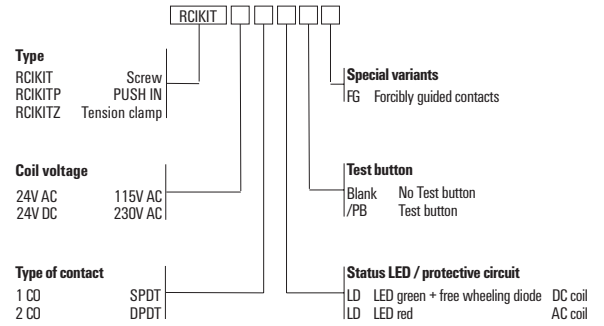
Load side	
Rated switching voltage / Continuous current	250 V AC / 8 A
Max. switching voltage, AC	400 V
Inrush current	15 A / 4 s
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	2 CO contact with test button (AgNi 90/10)
Mechanical service life	AC coil 5 x 10 ⁶ switch. cycles, DC coil 10 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 1 / 2.5
Depth x width x height	mm 70.2 / 15.8 / 77
Note	
Further technical data can be found at catalog B.72	

Applications



RCI KIT with screw connection

2 CO contacts AC/DC coil



Ordering data

Control side	24 V DC 2CO	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 16.7 mA	31.6 mA /	7 mA /	3.5 mA /
Power rating	420 mW	0.75 VA	0.8 VA	0.8 VA
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

Ordering data

Relay with socket				
with test button	Type	RCIKIT 24VDC 2CO LD/PB	RCIKIT 24VAC 2CO LD/PB	RCIKIT 115VAC 2CO LD/PB
	Order No.	8881610000	8881620000	8897080000
without test button	Type	RCIKIT 24VDC 2CO LD	RCIKIT 24VAC 2CO LD	RCIKIT 115VAC 2CO LD
	Order No.	8871030000	8871040000	8897100000

Note				
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RIDERSERIES – relay modules

RCI relay

1 CO contact AC/DC coil

- Solid plug-in connections
- Optional: latching / spring return operable test button and mechanical status indicator (for version with test button)
- Optional: Bright status LED (AC coil: red / DC coil: green)
- Optional: free-wheeling diode
- Identification of coils (AC red / DC blue)



Technical data

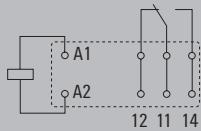
Load side	
Rated switching voltage / Continuous current	240 V AC / 16 A
Max. switching voltage, AC	400 V
Inrush current	30 A / 4 s
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	1 CO contact (AgNi 90/10)
Mechanical service life	AC coil 5 x 10 ⁶ switch. cycles, DC coil 10 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; EAC; VDE
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	2

Dimensions	Plug-in connection
Clamping range (nominal / min. / max.)	/ /
Depth x width x height	mm 25.6 / 13 / 29
Note	Depth = 25.6 mm without test button / 26.7 mm with test button Further technical data can be found at catalog [redacted]

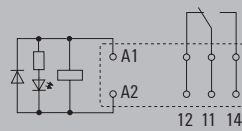
Circuit diagram

View on pins from below

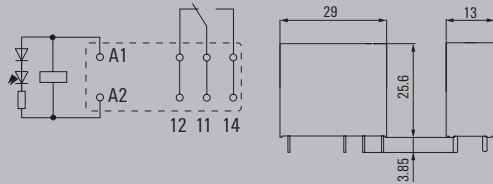
AC- and DC coil



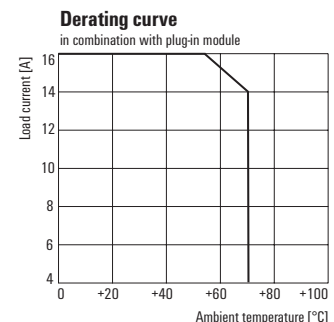
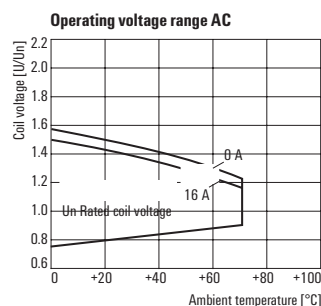
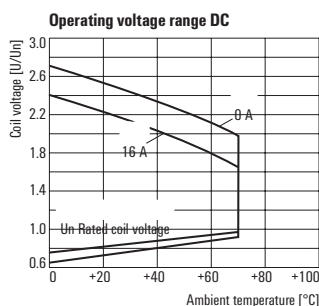
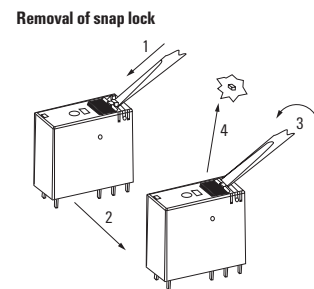
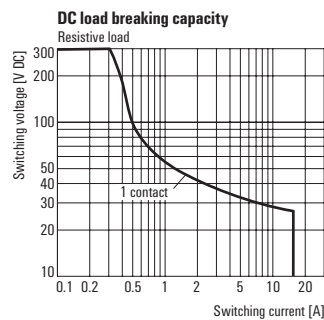
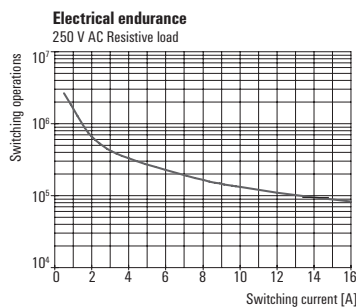
DC coil LED + Diode



AC coil LED



Applications



RCI relay

1 CO contact AC/DC coil

Type code		RCI				
Type	RIDER Control Industrial					
Type of construction						
3 1-pole, 16 A						
4 2-pole, 8 A						
Type of contact						
1 1 CO contact without test button						
2 2 CO contacts without test button						
7 1 CO contact with test button						
8 2 CO contacts with test button						
Contact material						
4 AgNi 90/10						
						Coil
						012 12 V DC
						024 24 V DC
						048 48 V DC
						110 110 V DC
						524 24 V AC
						615 115 V AC
						730 230 V AC
						AB2 12 V DC+LED+diode
						AC4 24 V DC+LED+diode
						AE8 48 V DC+LED+diode
						BB0 110 V DC+LED+diode
						R24 24 V AC+LED
						S15 115 V AC+LED
						T30 230 V AC+LED

Ordering data

Control side		12 V DC 1CO	24 V DC 1CO	48 V DC 1CO	110 V DC 1CO
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 33.3 mA	/ 16.7 mA	/ 8.7 mA	/ 4.1 mA
Power rating		400 mW	400 mW	400 mW	400 mW
Ordering data					
Standard	Type	RCI314012	RCI314024	RCI314048	RCI314110
	Order No.	8869800000	8869810000	8869820000	8869830000
with test button	Type	RCI374012	RCI374024		
	Order No.	8869950000	8869960000		
with LED + free-wheeling diode	Type	RCI314AB2	RCI314AC4	RCI314AE8	RCI314BB0
	Order No.	8870090000	8870100000	8870110000	8870120000
with test button + LED	Type	RCI374AB2	RCI374AC4	RCI374AE8	RCI374BB0
+ Free-wheel diode	Order No.	8870240000	8870250000	8870260000	8870270000

Note				

Ordering data

Control side		24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Rated control voltage		24 V AC	115 V AC	230 V AC
Rated current AC / DC		31.6 mA /	6.6 mA /	3.2 mA /
Power rating		0.75 VA	0.75 VA	0.75 VA
Ordering data				
Standard	Type	RCI314524	RCI314615	RCI314730
	Order No.	8869840000	8869850000	8869860000
with test button	Type	RCI374524		RCI374730
	Order No.	8869990000		8870010000
with LED	Type	RCI314R24	RCI314S15	RCI314T30
	Order No.	8870130000	8870140000	8870150000
with test button + LED	Type	RCI374R24	RCI374S15	RCI374T30
	Order No.	8870280000	8870290000	8870300000

Note			

RIDERSERIES – relay modules

RCI relay

2 CO contact AC / DC coil

- Solid plug-in connections
- Optional: latching / spring return operable test button and mechanical status indicator (for version with test button)
- Optional: Bright status LED (AC coil: red / DC coil: green)
- Optional: free-wheeling diode
- Identification of coils (AC red / DC blue)



Technical data

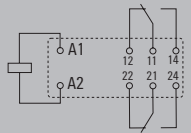
Load side	
Rated switching voltage / Continuous current	240 V AC / 8 A
Max. switching voltage, AC	400 V
Inrush current	15 A / 4 s
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	2 CO contact (AgNi 90/10)
Mechanical service life	AC coil 5 x 10 ⁶ switch. cycles, DC coil 10 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; EAC; VDE
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	2

Dimensions	Plug-in connection
Clamping range (nominal / min. / max.)	/ /
Depth x width x height	mm 25.6 / 13 / 29
Note	
Depth = 25.6 mm without test button / 26.7 mm with test button Further technical data can be found at catalog [redacted]	

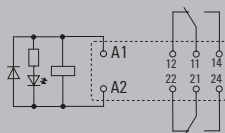
Circuit diagram

View on pins from below

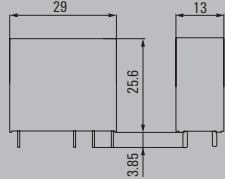
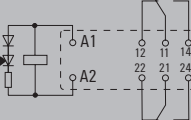
AC- and DC coil



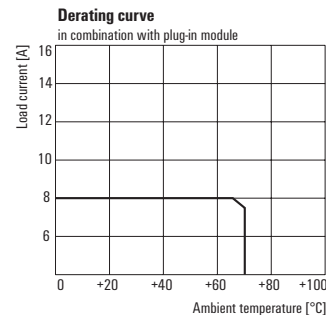
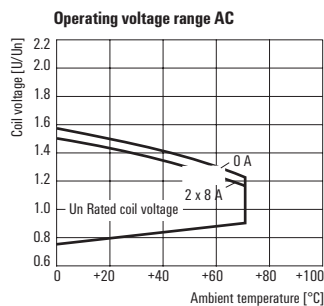
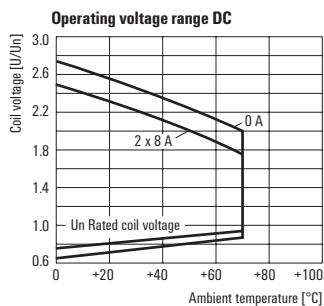
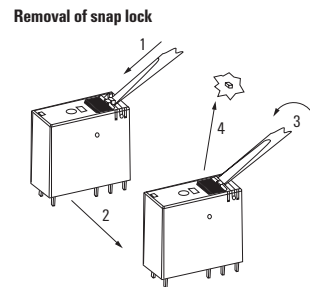
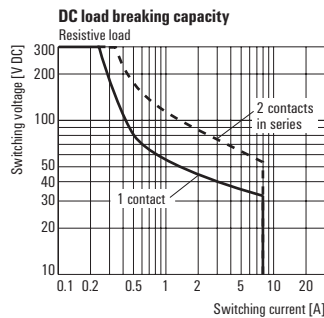
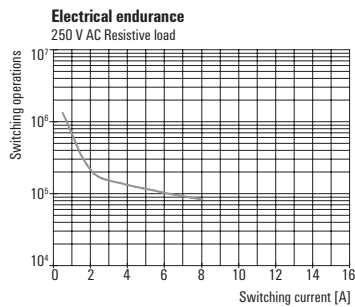
DC coil LED + Diode



AC coil LED



Applications



RCI relay

2 CO contact AC / DC coil

Type code	RCI				
Type	RIDER Control Industrial				
Type of construction	3 1-pole, 16 A				
	4 2-pole, 8 A				
Type of contact	1 1 CO contact without test button				
	2 2 CO contacts without test button				
	7 1 CO contact with test button				
	8 2 CO contacts with test button				
Contact material	4 AgNi 90/10				
Coil	012 12 V DC				
	024 24 V DC				
	048 48 V DC				
	110 110 V DC				
	524 24 V AC				
	615 115 V AC				
	730 230 V AC				
	AB2 12 V DC+LED+diode				
	AC4 24 V DC+LED+diode				
	AE8 48 V DC+LED+diode				
	BB0 110 V DC+LED+diode				
	R24 24 V AC+LED				
	S15 115 V AC+LED				
	T30 230 V AC+LED				

Ordering data

Control side		12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 33.3 mA	/ 16.7 mA	/ 8.7 mA	/ 4.1 mA
Power rating		400 mW	400 mW	400 mW	400 mW
Ordering data					
Standard	Type	RCI424012	RCI424024	RCI424048	RCI424110
	Order No.	8869870000	8869890000	8869900000	8869910000
with test button	Type	RCI484012	RCI484024	RCI484048	RCI484110
	Order No.	8870020000	8870030000	8870040000	8870050000
with LED + free-wheeling diode	Type	RCI424AB2	RCI424AC4	RCI424AE8	RCI424BB0
	Order No.	8870170000	8870180000	8870190000	8870200000
with test button + LED	Type	RCI484AB2	RCI484AC4	RCI484AE8	RCI484BB0
+ Free-wheel diode	Order No.	8870310000	8870320000	8870330000	8870340000

Note				

Ordering data

Control side		24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Rated control voltage		24 V AC	115 V AC	230 V AC
Rated current AC / DC		31.6 mA /	6.6 mA /	3.2 mA /
Power rating		0.75 VA	0.75 VA	0.75 VA
Ordering data				
Standard	Type	RCI424524	RCI424615	RCI424730
	Order No.	8869920000	8869930000	8869940000
with test button	Type	RCI484524	RCI484615	RCI484730
	Order No.	8870060000	8870070000	8870080000
with LED	Type	RCI424R24	RCI424S15	RCI424T30
	Order No.	8870210000	8870220000	8870230000
with test button + LED	Type	RCI484R24	RCI484S15	RCI484T30
	Order No.	8870350000	8870360000	8870370000

Note			

RIDERSERIES – relay modules

Accessories for RCI relays

1 CO contact and 2 CO contacts

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

Technical data

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

Ordering data

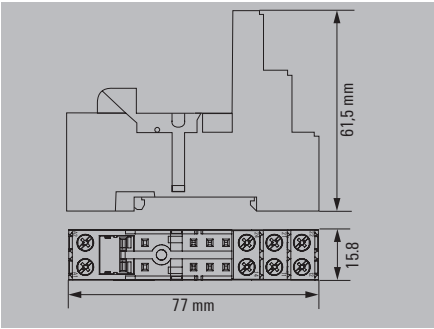
	Base, rail-mountable
Note	

Accessories

Cross-connector
Retaining clip
Plastic retaining clip
Metal retaining clip
Marking tags
Label, not PrintJet compatible, no MultiCard
white
LED module / protection modules
Free-wheeling diode 6 - 230 V DC
Load resistance 110 - 230 V UC
LED 6 - 24 V DC green and freewheeling diode
LED 24 - 60 V DC green and free-wheeling diode
LED 110 - 230 V DC green and free-wheeling diode
LED 6 - 24 V UC green
LED 24 - 60 V UC green
LED 110 - 230 V UC green
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF
RC element 230 V UC; 1.1 kΩ / 200 nF
Protective varistor; S07K30
Protective varistor; S07K130
Protective varistor; S07K275
Screwdriver

Note

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



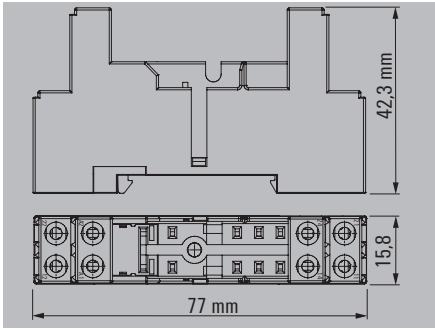
250 V AC
400 V
12 A, 16 A ¹⁾
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus
IP20
≥ 10 mm
5 kV _{eff} / 1 min
2.5 kV _{eff} / 1 Min.
2.5 / 1 / 2.5 mm ²
0.5...0.7 Nm
8 mm
1) For full continuous current (16 A), relay connections 11 - 21, 12 - 22 and 14 - 24 must be bridged. Further technical data can be found at catalog XXXXXX

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

Type	Qty.	Order No.
SRC-I QV S	10	1132070000
SRC-I CLIP HP	10	8869510000
SRC-I CLIP HM RCI	20	1132090000
SRC-I MARK	10	8869530000
ESG 6/15 SRC-I MC NE WS	200	2558350000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

Article numbers for LED modules with red LED are to be found at catalog XXXXXX
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Low-height socket module with clamping yoke connection, 2 CO contacts



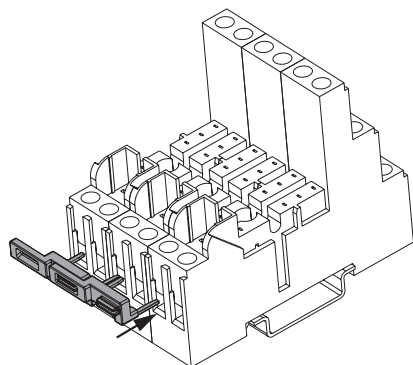
250 V AC
400 V
12 A, 16 A ¹⁾
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus
IP20
≥ 4 mm
4 kV _{eff} / 1 min
2.5 kV _{eff} / 1 Min.
2.5 / 1 / 2.5 mm ²
0.5...0.7 Nm
8 mm
1) For full continuous current (16 A), relay connections 11 - 21, 12 - 22 and 14 - 24 must be bridged. Further technical data can be found at catalog XXXXXX

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

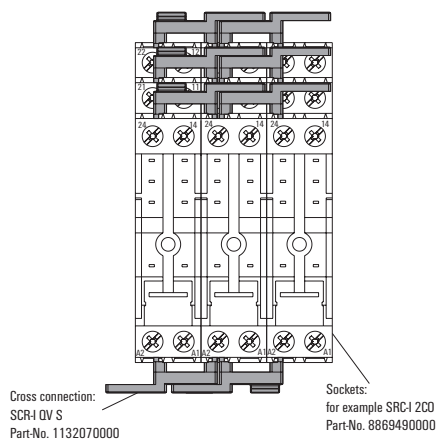
Type	Qty.	Order No.
SRC-I QV S	10	1132070000
SRC-I CLIP HP	10	8869510000
SRC-I CLIP HM RCI	20	1132090000
SRC-I MARK	10	8869530000
ESG 6/15 SRC-I MC NE WS	200	2558350000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

Article numbers for LED modules with red LED are to be found at catalog XXXXXX
--

Installation of the cross-connection on the relay socket



Plug the cross connection into wire-connection opening and fix it with tighten the screw



RIDERSERIES – relay modules

Accessories for RCI relays
1 CO contact and 2 CO contacts

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

Technical data

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

Ordering data

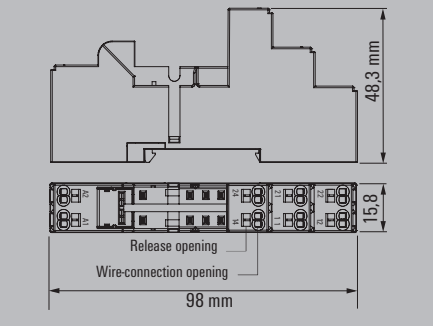
	Base, rail-mountable
Note	

Accessories

Plug-in cross-connection	2-pole
Retaining clip	Plastic retaining clip Metal retaining clip
Marking tags	Label, not PrintJet compatible, no MultiCard white
LED module / protection modules	Free-wheeling diode 6 - 230 V DC Load resistance 110 - 230 V UC LED 6 - 24 V DC green and freewheeling diode LED 24 - 60 V DC green and free-wheeling diode LED 110 - 230 V DC green and free-wheeling diode LED 6 - 24 V UC green LED 24 - 60 V UC green LED 110 - 230 V UC green RC element 6 - 60 V UC; 470 Ω / 220 nF RC element 110 - 230 V AC; 4.7 kΩ / 10 nF RC element 230 V UC; 1.1 kΩ / 200 nF Protective varistor; S07K30 Protective varistor; S07K130 Protective varistor; S07K275
Screwdriver	Standard

Note

Socket module with
PUSH IN connection, 2 CO contacts

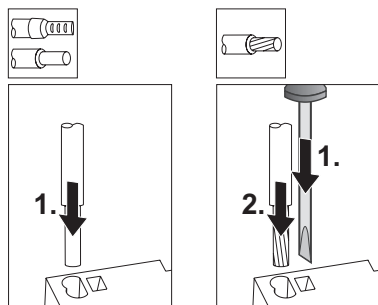
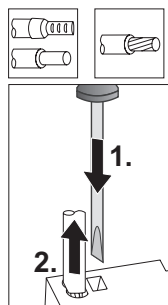
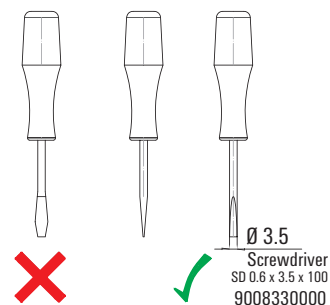
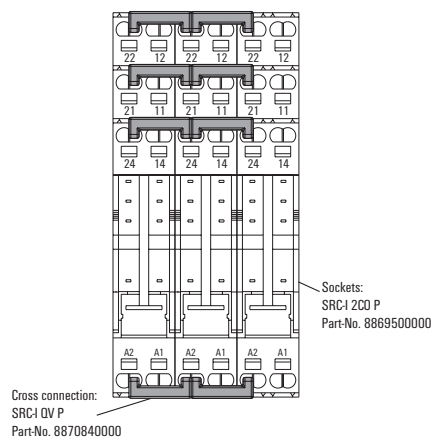
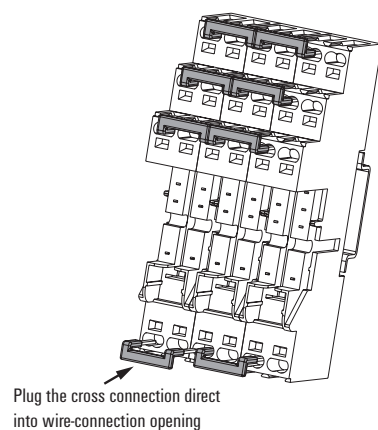


250 V AC
400 V
12 A, 16 A ¹⁾
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus
IP20
≥ 10 mm
5 kV _{eff} / 1 min
2.5 kV _{eff} / 1 Min.
1.5 / 0.75 / 1.5 mm ²
...
12 mm
1) For full continuous current (16 A), relay connections 11 - 21, 12 - 22 and 14 - 24 must be bridged. Further technical data can be found at catalog

Type	Qty.	Order No.
SRC-I 2CO P	10	8869500000

Type	Qty.	Order No.
SRC-I QV P	10	8870840000
SRC-I CLIP HP	10	8869510000
SRC-I CLIP HM RCI	20	1132090000
SRC-I MARK	10	8869530000
ESG 6/15 SRC-I MC NE WS	200	2558350000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 6/60VAC RC	10	8869770000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIS SL 0.6X3.5X100	1	1274660000

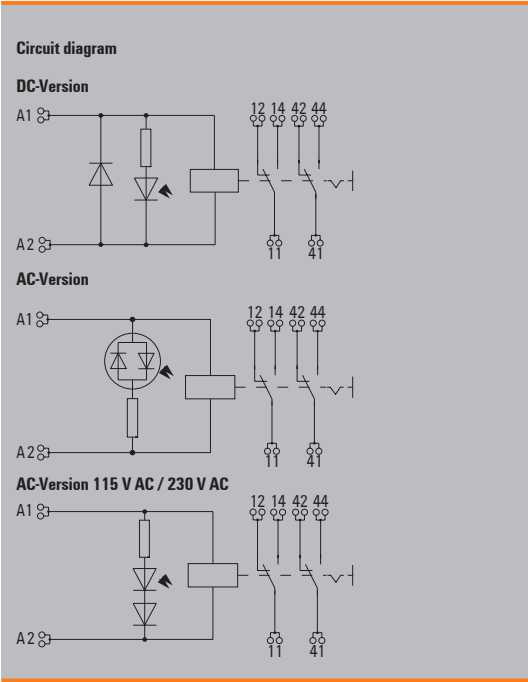
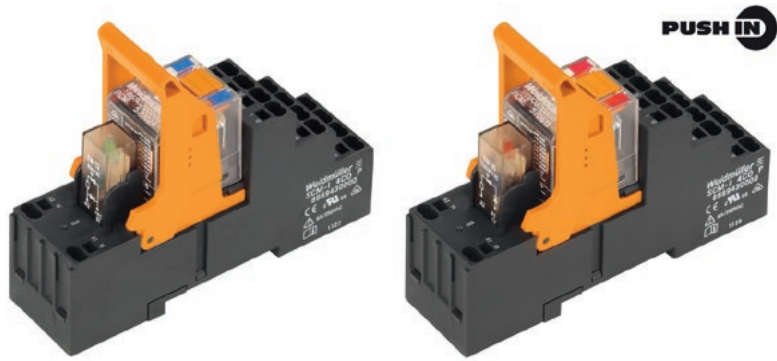
Article numbers for LED modules with red LED are to be found at catalog

PUSH IN connection operation**Insert connector****Remove connector****Recommended screwdriver****Installation of the cross-connection on the relay socket**

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

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

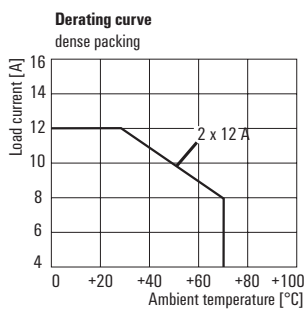
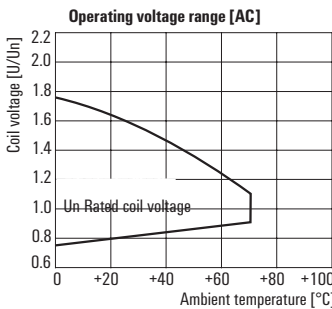
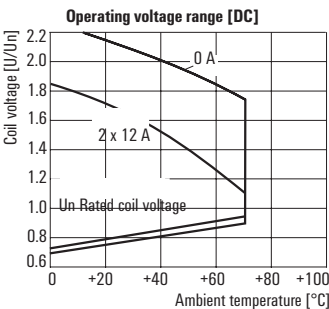
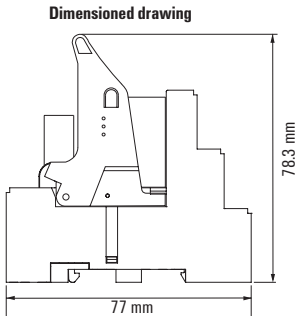
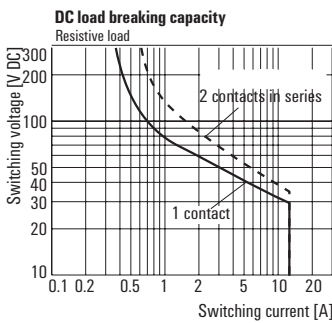
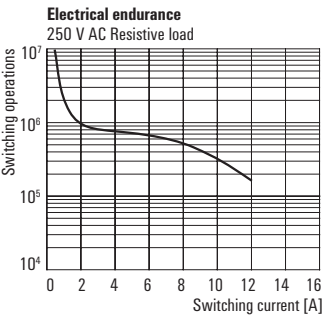
- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional test button with mechanical status indicator
- Bright status LED (AC coil: red / DC coil: green)
- Identification of coils (AC red / DC blue)



Technical data

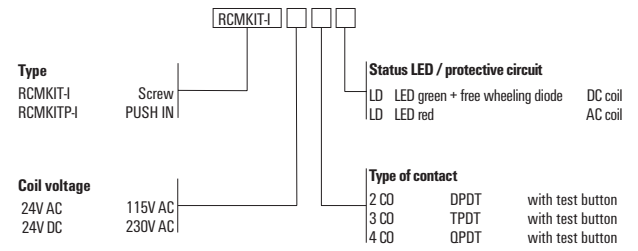
Load side	
Rated switching voltage / Continuous current	240 V AC / 12 A
Max. switching voltage, AC	400 V
Inrush current	24 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	2 CO contact with test button (AgNi 90/10)
Mechanical service life	AC coil 20 x 10 ⁶ switch. cycles, DC coil 30 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE, DNVGL, EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.75 / 1.5
Depth x width x height	mm 78.3 / 28 / 98
Note	
Further technical data can be found at catalog [redacted]	

Applications



RCM KIT with PUSH IN connection

2 CO contacts AC/DC coil



Ordering data

Control side	24 V DC 2CO LED	24 V AC 2CO LED	115 V AC 2CO LED	230 V AC 2CO LED
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 31.3 mA	41.6 mA /	8.8 mA /	4.3 mA /
Power rating	740 mW	1.0 VA	1.0 VA	1.0 VA
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

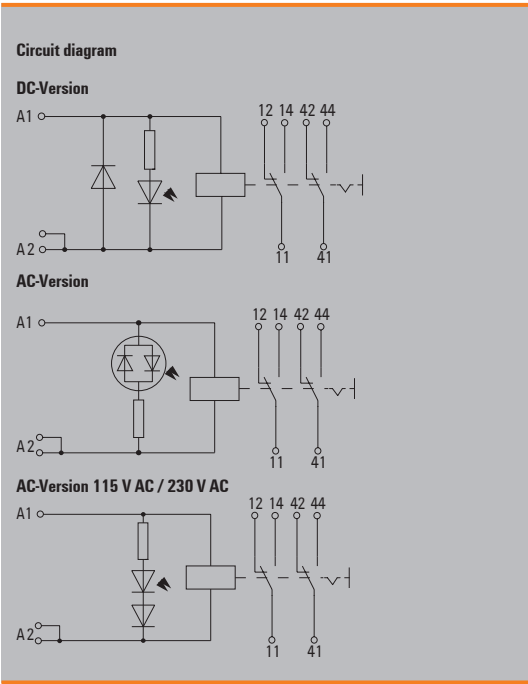
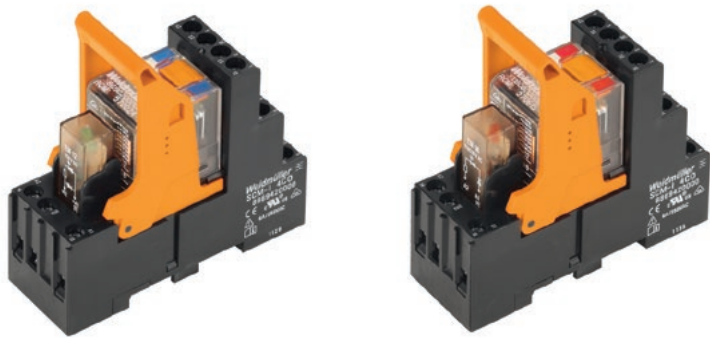
Ordering data

Relay with socket				
PUSH IN connection	Type	RCMKITP-I 24VDC 2CO LD	RCMKITP-I 24VAC 2CO LD	RCMKITP-I 115VAC 2CO LD
	Order No.	8921080000	8921090000	8921100000
	Type			
	Order No.			

Note				
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RCM KIT with screw connection
2 CO contacts, AC/ DC coil

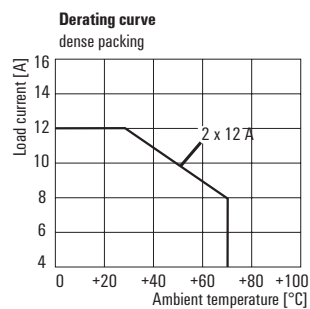
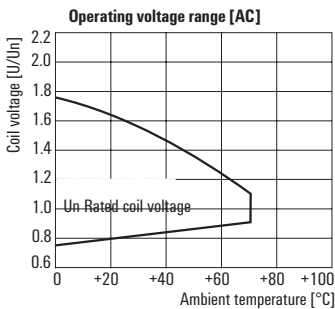
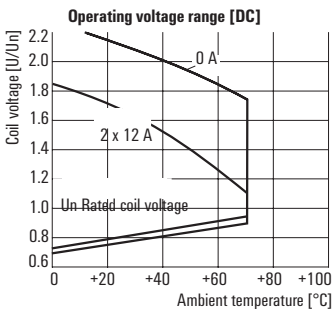
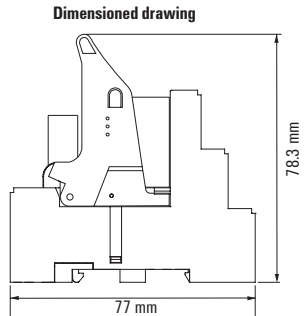
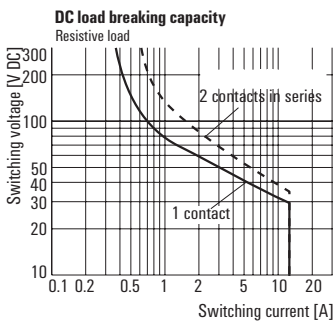
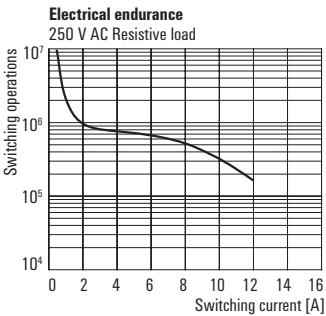
- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional test button with mechanical status indicator
- Bright status LED (AC coil: red / DC coil: green)
- Identification of coils (AC red / DC blue)



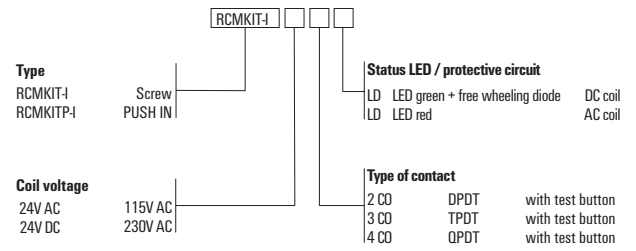
Technical data

Load side	
Rated switching voltage / Continuous current	240 V AC / 12 A
Max. switching voltage, AC	400 V
Inrush current	24 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	2 CO contact with test button (AgNi 90/10)
Mechanical service life	AC coil 20 x 10 ⁶ switch. cycles, DC coil 30 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 1 / 2.5
Depth x width x height	mm 78.3 / 27.2 / 77
Note	
Further technical data can be found at catalog [redacted]	

Applications



RCM KIT with screw connection 2 CO contacts, AC/ DC coil



Ordering data

Control side	24 V DC 2CO LED	24 V AC 2CO LED	115 V AC 2CO LED	230 V AC 2CO LED
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 31.3 mA	41.6 mA /	8.8 mA /	4.3 mA /
Power rating	740 mW	1.0 VA	1.0 VA	1.0 VA
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

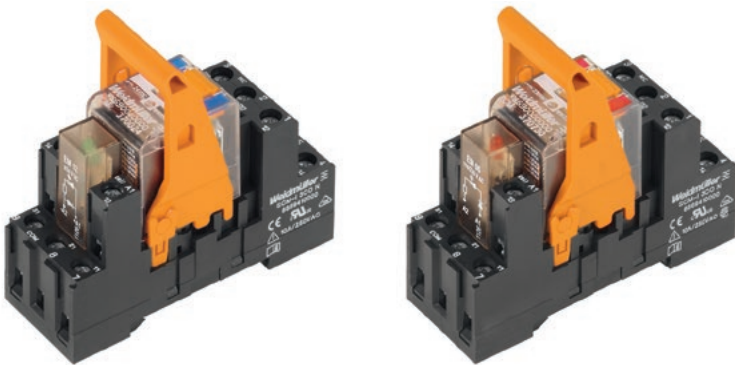
Ordering data

Relay with socket	RCMKIT-I 24VDC 2CO LD	RCMKIT-I 24VAC 2CO LD	RCMKIT-I 115VAC 2CO LD	RCMKIT-I 230VAC 2CO LD
Screw connection	Type	Type	Type	Type
	Order No.	Order No.	Order No.	Order No.
	Type	Type	Type	Type
	Order No.	Order No.	Order No.	Order No.

Note				
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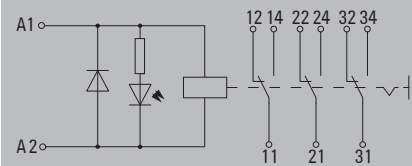
RCM KIT with screw connection
3 CO contacts, AC/ DC coil

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional test button with mechanical status indicator
- Bright status LED (AC coil: red / DC coil: green)
- Identification of coils (AC red / DC blue)

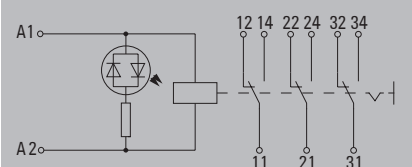


Circuit diagram

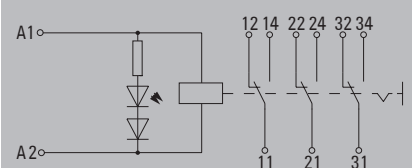
DC-Version



AC-Version



AC-Version 115 V AC / 230 V AC



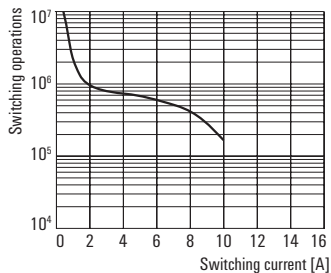
Technical data

Load side	
Rated switching voltage / Continuous current	240 V AC / 10 A
Max. switching voltage, AC	400 V
Inrush current	20 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	3 CO contact with test button (AgNi 90/10)
Mechanical service life	AC coil 20 x 10 ⁶ switch. cycles, DC coil 30 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2

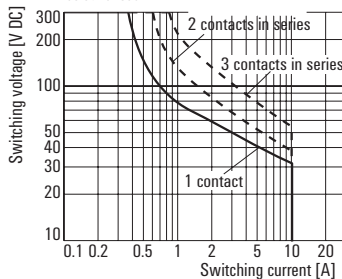
Dimensions	Screw connection
Clamping range (nominal / min. / max.)	mm ² 2.5 / 1 / 2.5
Depth x width x height	mm 71.6 / 27.2 / 73.5
Note	Further technical data can be found at catalog [redacted]

Applications

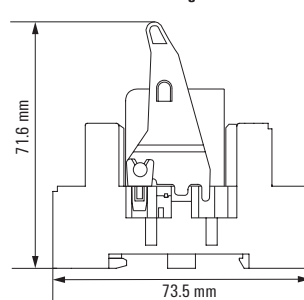
Electrical endurance
250 V AC Resistive load



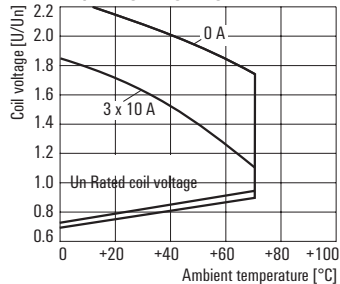
DC load breaking capacity
Resistive load



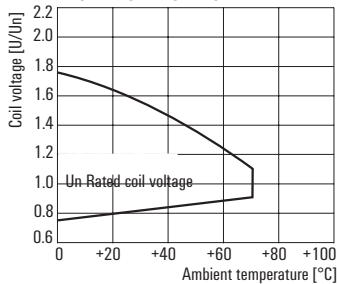
Dimensioned drawing



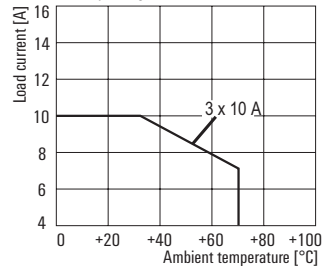
Operating voltage range [DC]



Operating voltage range [AC]

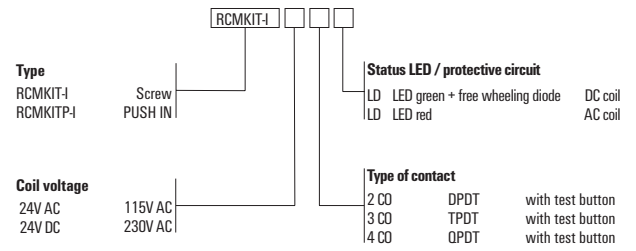


Derating curve
dense packing



RCM KIT with screw connection

3 CO contacts, AC/ DC coil



Ordering data

Control side	24 V DC 3CO LED	24 V AC 3CO LED	115 V AC 3CO LED	230 V AC 3CO LED
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 31.3 mA	41.6 mA /	8.8 mA /	4.3 mA /
Power rating	740 mW	1.0 VA	1.0 VA	1.0 VA
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

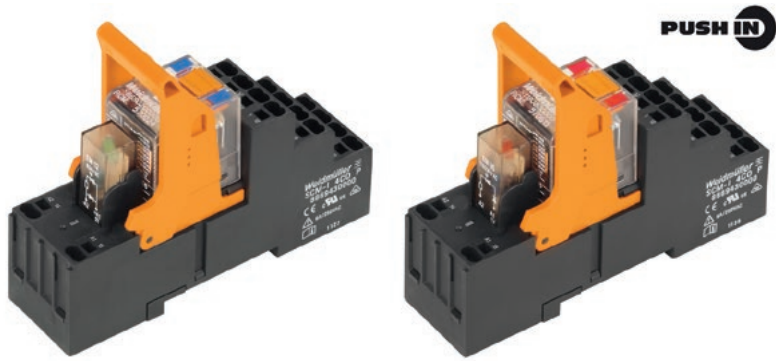
Ordering data	Relay with socket	Type	Order No.	Type	Order No.
Screw connection	RCMKIT-I 24VDC 3CO LD	RCMKIT-I 24VAC 3CO LD	RCMKIT-I 115VAC 3CO LD	RCMKIT-I 230VAC 3CO LD	
	8920980000	8920990000	8921010000	8921020000	

Note				
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RCM KIT with PUSH IN connection

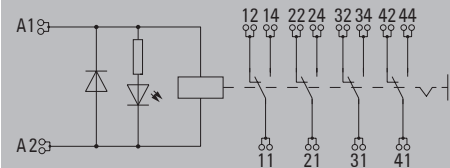
4 CO contacts AC/DC coil

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional test button with mechanical status indicator
- Bright status LED (AC coil: red / DC coil: green)
- Identification of coils (AC red / DC blue)

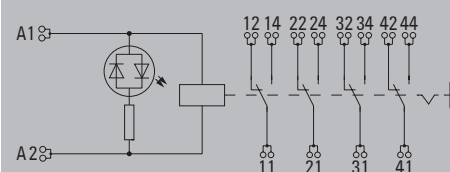


Circuit diagram

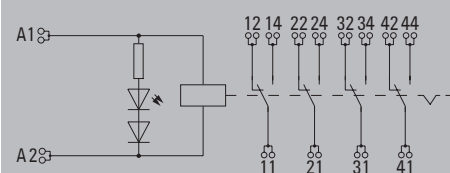
DC-Version



AC-Version



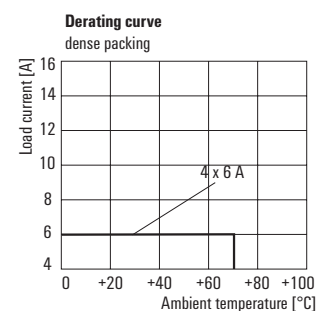
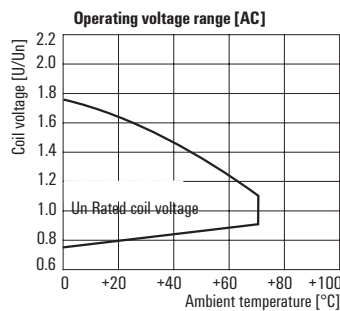
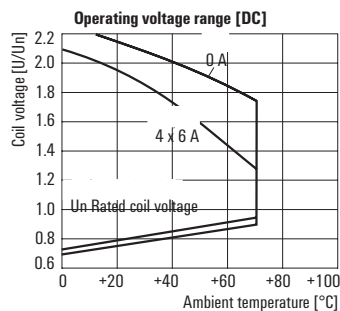
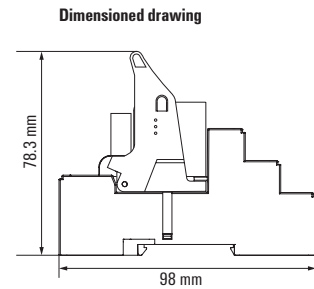
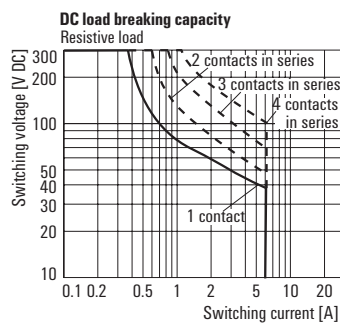
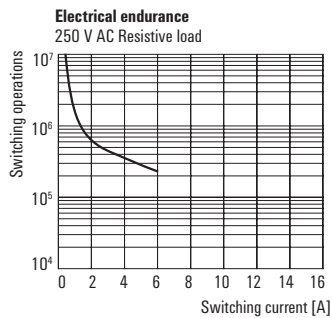
AC-Version 115 V AC / 230 V AC



Technical data

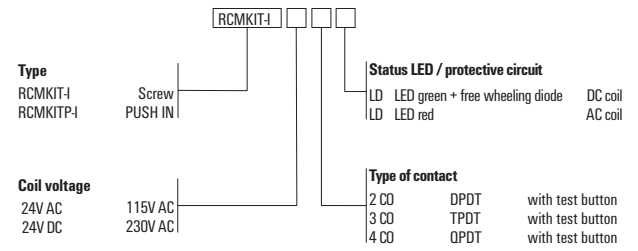
Load side	
Rated switching voltage / Continuous current	240 V AC / 6 A
Max. switching voltage, AC	240 V
Inrush current	12 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	4 CO contact with test button (AgNi 90/10)
Mechanical service life	AC coil 20 x 10 ⁶ switch. cycles, DC coil 30 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; DNVGL; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.75 / 1.5
Depth x width x height	mm 78.3 / 28 / 98
Note	
Further technical data can be found at catalog B.88	

Applications



RCM KIT with PUSH IN connection

4 CO contacts AC/DC coil



Ordering data

Control side	24 V DC 4CO LED	24 V AC 4CO LED	115 V AC 4CO LED	230 V AC 4CO LED
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 31.3 mA	41.6 mA /	8.8 mA /	4.3 mA /
Power rating	740 mW	1.0 VA	1.0 VA	1.0 VA
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

Ordering data

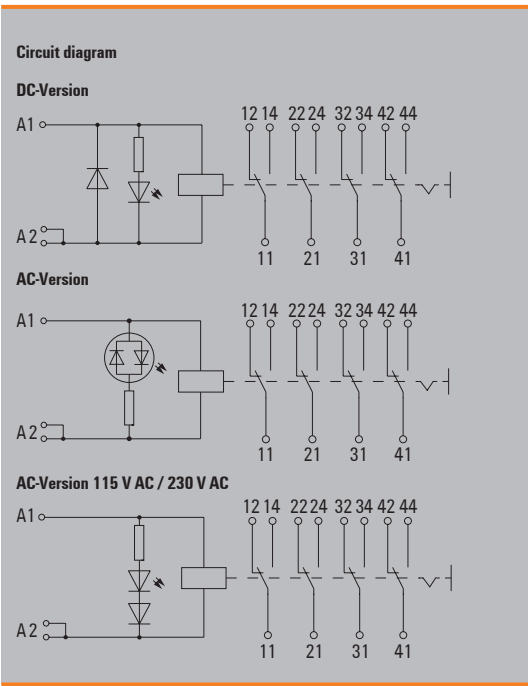
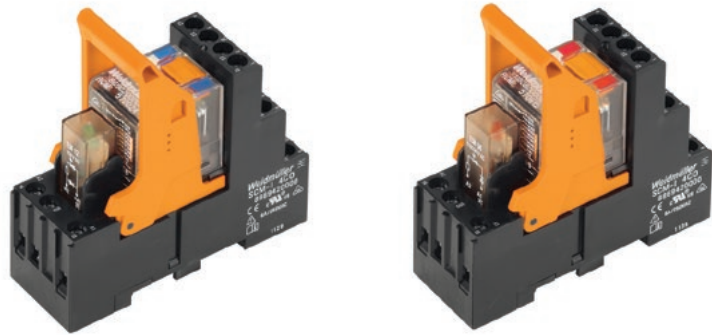
Relay with socket				
PUSH IN connection	Type	RCMKITP-I 24VDC 4CO LD	RCMKITP-I 24VAC 4CO LD	RCMKITP-I 115VAC 4CO LD
	Order No.	8921120000	8921130000	8921140000
	Type			
	Order No.			

Note				

RCM KIT with screw connection

4 CO contacts, AC/ DC coil

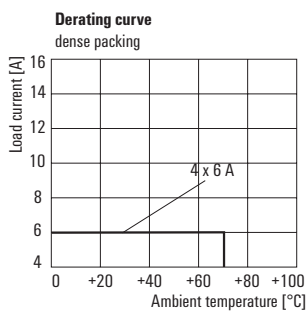
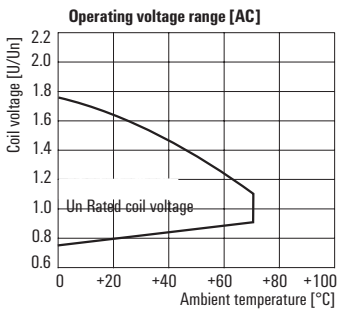
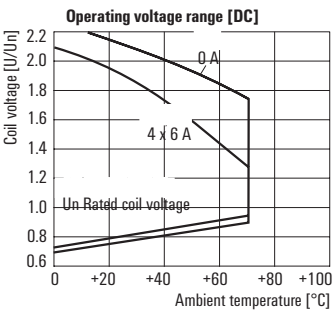
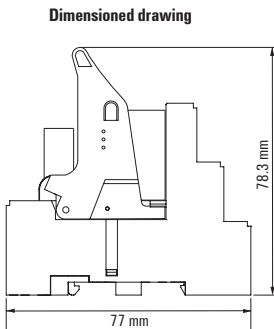
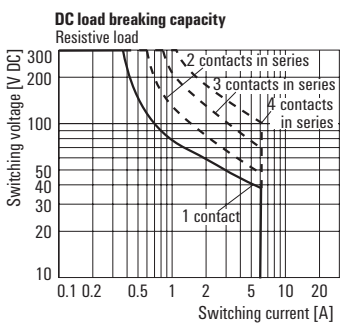
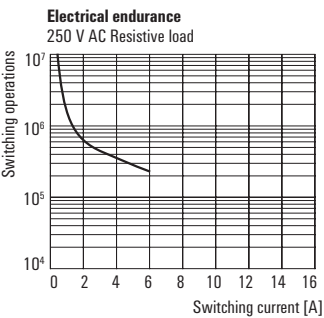
- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional test button with mechanical status indicator
- Bright status LED (AC coil: red / DC coil: green)
- Identification of coils (AC red / DC blue)



Technical data

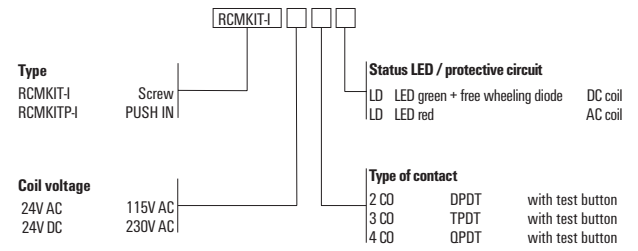
Load side	
Rated switching voltage / Continuous current	240 V AC / 6 A
Max. switching voltage, AC	240 V
Inrush current	12 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	4 CO contact with test button (AgNi 90/10)
Mechanical service life	AC coil 20 x 10 ⁶ switch. cycles, DC coil 30 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; DNVGL; EAC; POLSKIREJ
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 1 / 2.5
Depth x width x height	mm 78.3 / 27.2 / 77
Note	
Further technical data can be found at catalog [redacted]	

Applications



RCM KIT with screw connection

4 CO contacts, AC/ DC coil



Ordering data

Control side	24 V DC 4CO LED	24 V AC 4CO LED	115 V AC 4CO LED	230 V AC 4CO LED
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 31.3 mA	41.6 mA /	8.8 mA /	4.3 mA /
Power rating	740 mW	1.0 VA	1.0 VA	1.0 VA
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

Ordering data

Relay with socket				
Screw connection	Type	RCMKIT-I 24VDC 4CO LD	RCMKIT-I 24VAC 4CO LD	RCMKIT-I 115VAC 4CO LD
	Order No.	8921030000	8921040000	8921050000
	Type			
	Order No.			

Note				

RCM relay

2 CO contacts, AC/DC coil

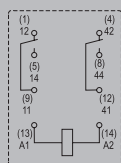
- Solid plug-in connections
- Latching / spring return operable test button and mechanical status indicator (for version with test button)
- Optional: Bright status LED (AC coil: red / DC coil: green)
- Optional: free-wheeling diode
- Identification of coils (AC red / DC blue)



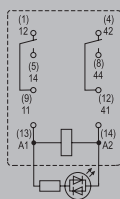
Circuit diagram

View on pins from below

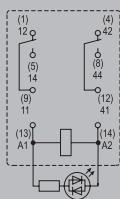
AC- and DC coil



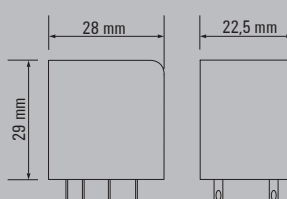
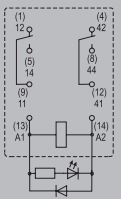
DC coil LED



AC coil LED



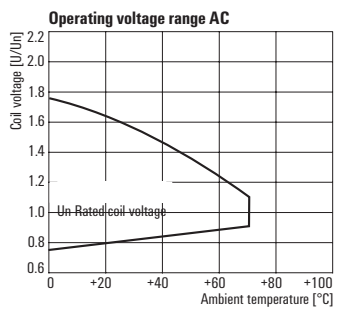
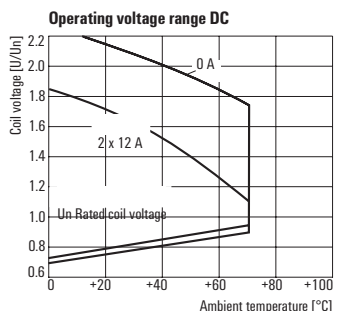
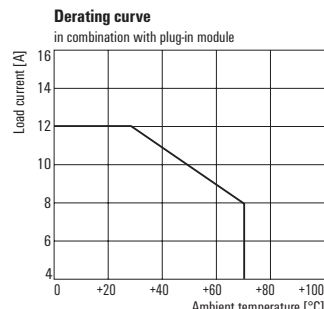
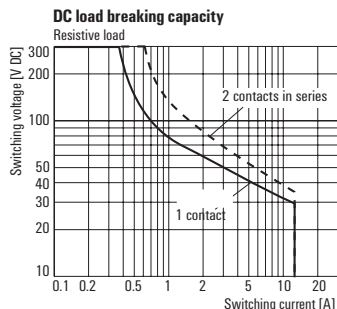
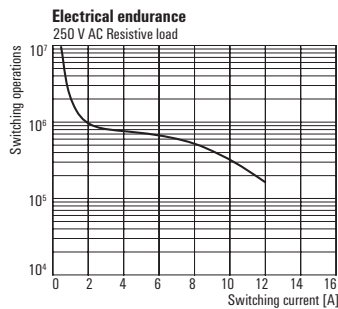
DC coil LED + diode



Technical data

Load side	
Rated switching voltage / Continuous current	240 V AC / 12 A
Max. switching voltage, AC	400 V
Inrush current	24 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	2 CO contact with test button (AgNi 90/10)
Mechanical service life	AC coil 20 x 10 ⁶ switch. cycles, DC coil 30 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; EAC; VDE
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	/ /
Depth x width x height	mm 29 / 22.5 / 28
Note	
Further technical data can be found at catalog [redacted]	

Applications



[illegible]

Control side					
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 62.5 mA	/ 31.3 mA	/ 15.6 mA	/ 6.8 mA
Power rating		750 mW	750 mW	750 mW	750 mW
Ordering data					
Without LED	Type	RCM270012	RCM270024	RCM270048	RCM270110
AgNi 90/10	Order No.	8689840000	8689860000	8689880000	8689900000
with LED	Type	RCM270L12	RCM270L24	RCM270L48	
AgNi 90/10	Order No.	8689850000	8689870000	8689890000	
with LED + free-wheeling diode	Type	RCM270AB2	RCM270AC4		
AgNi 90/10	Order No.	8957020000	8957030000		
	Type				
	Order No.				

Ordering data		24 V AC 2C0	48 V AC 2C0	115 V AC 2C0	230 V AC 2C0
Control side					
Rated control voltage		24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC		41.6 mA /	21.3 mA /	8.8 mA /	4.3 mA /
Power rating		1.0 VA	1.0 VA	1.0 VA	1.0 VA
Ordering data					
Without LED	Type	RCM270524	RCM270548	RCM270615	RCM270730
AgNi 90/10	Order No.	8689760000	8689780000	8689800000	8689820000
with LED	Type	RCM270R24		RCM270S15	RCM270T30
AgNi 90/10	Order No.	8689770000		8689810000	8689830000
	Type				
	Order No.				
	Type				
	Order No.				

Note					
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RIDERSERIES – relay modules

Accessories for RCM relays, 2 CO contacts

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

Technical data

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

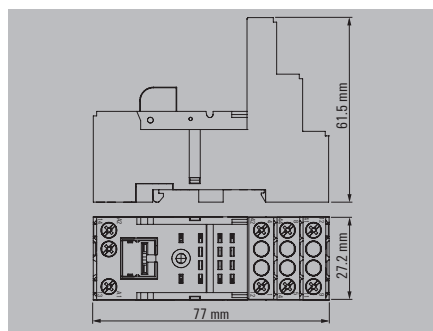
Ordering data

	Base, rail-mountable
Note	

Accessories

Cross-connector
Retaining clip
Plastic retaining clip
Metal retaining clip
Marking tags
Label, not PrintJet compatible, no MultiCard
white
LED module / protection modules
Free-wheeling diode 6 - 230 V DC
Load resistance 110 - 230 V UC
LED 6 - 24 V DC green and freewheeling diode
LED 24 - 60 V DC green and free-wheeling diode
LED 110 - 230 V DC green and free-wheeling diode
LED 6 - 24 V UC green
LED 24 - 60 V UC green
LED 110 - 230 V UC green
RC element 6 - 60 V UC; 470 Ω / 220 nF
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF
RC element 230 V UC; 1.1 kΩ / 200 nF
Protective varistor; S07K30
Protective varistor; S07K130
Protective varistor; S07K275
Screwdriver
Note

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



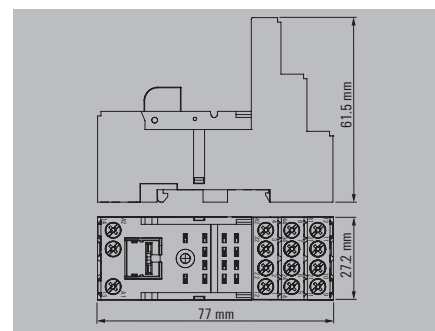
250 V AC
400 V
12 A
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus; VDE
IP20
≥ 4 mm
2.5 kV _{eff} / 1 Min.
2.5 kV _{eff} / 1 Min.
2.5 / 1 / 2.5 mm ²
0.5...0.7 Nm
8 mm
Further technical data can be found at catalog. [redacted]

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

Type	Qty.	Order No.
SCM-I QV S	10	1132080000
SCM-I CLIP P	10	8869440000
SCM-I CLIP M	10	8869450000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 6/60VAC RC	10	8869770000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

Article numbers for LED modules with red LED are to be found at catalog. [\[redacted\]](#)

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



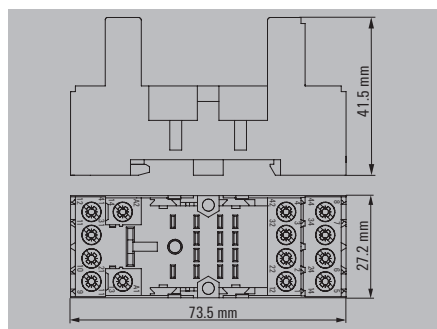
250 V AC
250 V
6 A
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus; VDE
IP20
≥ 4 mm
2.5 kV _{eff} / 1 Min.
2 kV _{eff} / 1 min
2.5 / 1 / 2.5 mm ²
0.5...0.7 Nm
8 mm
Further technical data can be found at catalog. [redacted]

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

Type	Qty.	Order No.
SCM-I QV S	10	1132080000
SCM-I CLIP P	10	8869440000
SCM-I CLIP M	10	8869450000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 6/60VAC RC	10	8869770000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

Article numbers for LED modules with red LED are to be found at catalog. [\[redacted\]](#)

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



250 V AC

250 V

6 A

-40 °C...70 °C

-40 °C...70 °C

CE; CSA; cURus; VDE

IP20

≥ 4 mm

2.5 kV_{off} / 1 Min.2 kV_{off} / 1 min2.5 / 1 / 2.5 mm²

0.5...0.7 Nm

8 mm

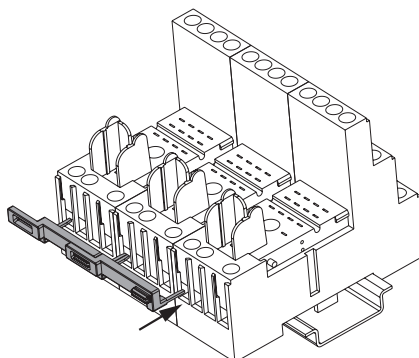
Further technical data can be found at catalog.

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

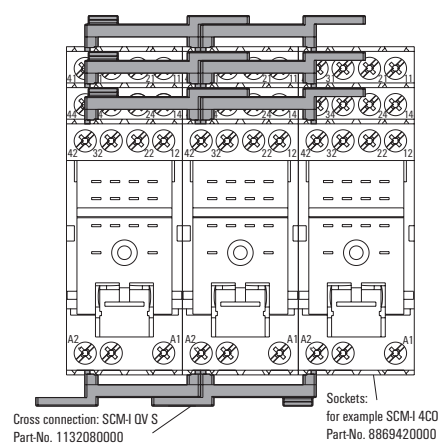
Type	Qty.	Order No.
SCM-I QV S	10	1132080000
SCM-I CLIP N	10	8875620000
SCM-I CLIP M	10	8869450000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 6/60VAC RC	10	8869770000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

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

Cross-connection 1132080000 installed in the same way as the plug-in module 8869420000:



Plug the cross connection into wire-connection opening and fix it with tighten the screw



RIDERSERIES – relay modules

Accessories for RCM relays, 2 CO contacts

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

Technical data

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

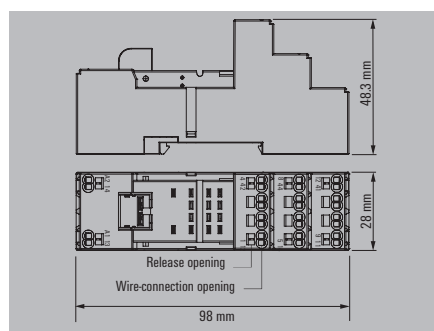
Ordering data

	Base, rail-mountable
Note	

Accessories

Retaining clip
Metal retaining clip
Plastic retaining clip
Cross-connector
2-pole
Marking tags
Label, not PrintJet compatible, no MultiCard
white
LED module / protection modules
Free-wheeling diode 6 - 230 V DC
Load resistance 110 - 230 V UC
LED 6 - 24 V DC green and freewheeling diode
LED 24 - 60 V DC green and free-wheeling diode
LED 110 - 230 V DC green and free-wheeling diode
LED 6 - 24 V UC green
LED 24 - 60 V UC green
LED 110 - 230 V UC green
RC element 6 - 60 V UC; 470 Ω / 220 nF
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF
RC element 230 V UC; 1.1 kΩ / 200 nF
Protective varistor; S07K130
Protective varistor; S07K275
Protective varistor; S07K30
Screwdriver
Standard

Note

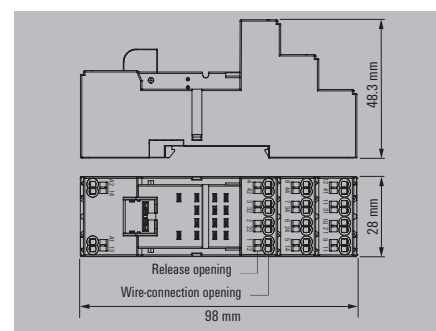
Socket module with
PUSH IN connection, 2 CO contacts

250 V AC
400 V
12 A
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus; VDE
IP20
≥ 4 mm
2.5 kV _{eff} / 1 Min.
2.5 kV _{eff} / 1 Min.
1.5 / 0.75 / 1.5 mm ²
...
12 mm
Further technical data can be found at catalog.

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

Type	Qty.	Order No.
SCM-H CLIP M	10	8869450000
SCM-H CLIP P	10	8869440000
SCM-H QV P	10	8870850000
SCM-H MARK	10	8869460000
ESG 9/26 SCM-H MC NE WS	80	2558330000
RIM-H 1 6/230V	10	8869580000
RIM-H 1 R 110/230V	10	8870830000
RIM-H 2 6/24VDC GN	10	8869600000
RIM-H 2 24/60VDC GN	10	8869680000
RIM-H 2 110/230VDC GN	10	8869700000
RIM-H 3 6/24VUC GN	10	8869640000
RIM-H 3 24/60VUC GN	10	8869620000
RIM-H 3 110/230VUC GN	10	8869660000
RIM-H 3 6/60VAC RC	10	8869770000
RIM-H 3 110/230VAC RC	10	8869790000
RIM-H 3 230VAC RC	10	1172210000
RIM-H 4 110VUC VAR	10	8869730000
RIM-H 4 230VUC VAR	10	8869750000
RIM-H 4 24VUC VAR	10	8869710000
SDIS SL 0.6X3.5X100	1	1274660000

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

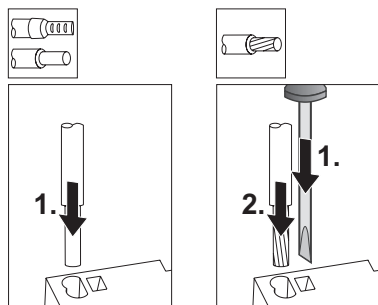
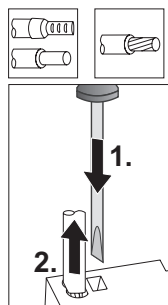
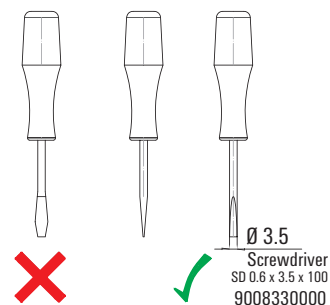
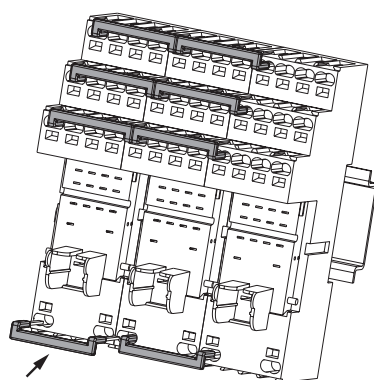
Socket module with
PUSH IN connection, 4 CO contacts

250 V AC
250 V
6 A
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus; VDE
IP20
≥ 4 mm
2.5 kV _{eff} / 1 Min.
2 kV _{eff} / 1 min
1.5 / 0.75 / 1.5 mm ²
...
12 mm
Further technical data can be found at catalog.

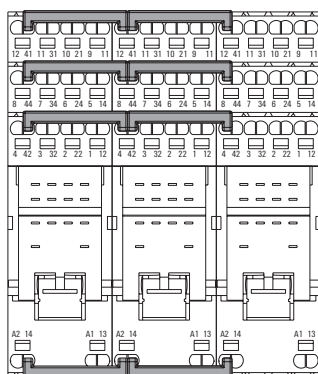
Type	Qty.	Order No.
SCM-H 4CO P	10	8869430000

Type	Qty.	Order No.
SCM-H CLIP M	10	8869450000
SCM-H CLIP P	10	8869440000
SCM-H QV P	10	8870850000
SCM-H MARK	10	8869460000
ESG 9/26 SCM-H MC NE WS	80	2558330000
RIM-H 1 6/230V	10	8869580000
RIM-H 1 R 110/230V	10	8870830000
RIM-H 2 6/24VDC GN	10	8869600000
RIM-H 2 24/60VDC GN	10	8869680000
RIM-H 2 110/230VDC GN	10	8869700000
RIM-H 3 6/24VUC GN	10	8869640000
RIM-H 3 24/60VUC GN	10	8869620000
RIM-H 3 110/230VUC GN	10	8869660000
RIM-H 3 6/60VAC RC	10	8869770000
RIM-H 3 110/230VAC RC	10	8869790000
RIM-H 3 230VAC RC	10	1172210000
RIM-H 4 110VUC VAR	10	8869730000
RIM-H 4 230VUC VAR	10	8869750000
RIM-H 4 24VUC VAR	10	8869710000
SDIS SL 0.6X3.5X100	1	1274660000

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

PUSH IN connection operation**Insert connector****Remove connector****Recommended screwdriver****Installation of the cross-connection**

Plug cross connection direct
into wire-connection opening



Cross connection:
SCM-I DV P
Part-No. 8870850000

Sockets:
SCM-I xCO P

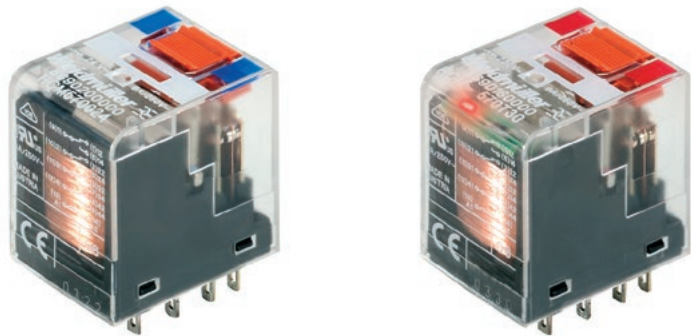
If more than 2 poles are connected with stacked cross-connection ridges, then the bottom ridges must be stripped to the appropriate length and shortened for correct fitting.

RIDERSERIES – relay modules

RCM relay

3 CO contacts, AC/DC coil

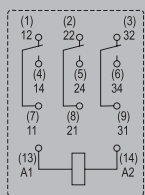
- Solid plug-in connections
- Latching / spring return operable test button and mechanical status indicator (for version with test button)
- Optional: Bright status LED (AC coil: red / DC coil: green)
- Optional: free-wheeling diode
- Identification of coils (AC red / DC blue)



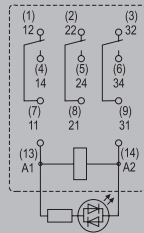
Circuit diagram

View on pins from below

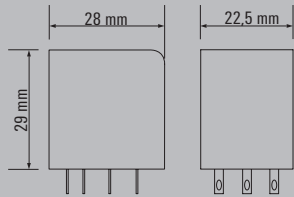
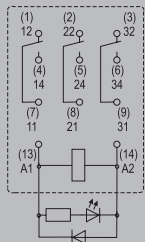
AC and DC coil



AC coil LED



DC coil LED + diode

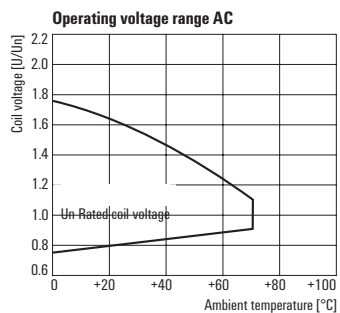
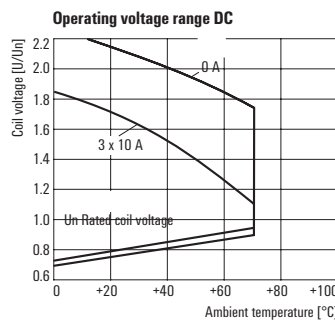
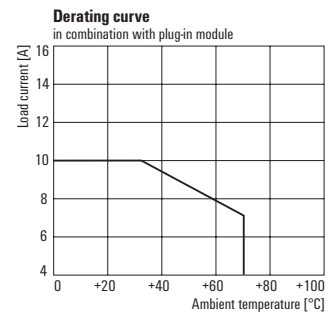
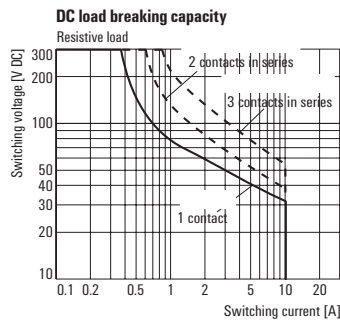
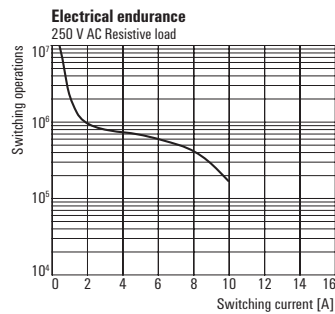


Technical data

Load side	
Rated switching voltage / Continuous current	240 V AC / 10 A
Max. switching voltage, AC	400 V
Inrush current	20 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	3 CO contact with test button (AgNi 90/10)
Mechanical service life	AC coil 20 x 10 ⁶ switch. cycles, DC coil 30 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; EAC; VDE
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2

Dimensions	Plug-in connection
Clamping range (nominal / min. / max.)	/ /
Depth x width x height	mm 29 / 22.5 / 28
Note	Further technical data can be found at catalog [redacted]

Applications

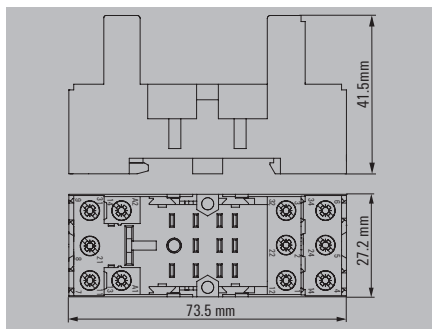


RIDERSERIES – relay modules

Accessories for RCM relays, 3 CO contacts

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

Low-height socket module with clamping yoke connection, 3 CO contacts



Technical data

Load side	
Rated switching voltage	250 V AC
Max. switching voltage, AC	400 V
Continuous current	10 A
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...70 °C
Approvals	CE, CSA, cURus, VDE
Insulation coordinates	
Protection degree	IP20
Creepage and clearance distance input - output	≥ 4 mm
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.
Impulse withstand voltage	
Connection data	
Clamping range (nominal / min. / max.)	2.5 / 1 / 2.5 mm ²
Tightening torque	0.5...0.7 Nm
Stripping length, rated connection	8 mm
Note	
Further technical data can be found at catalog	

Ordering data

	Base, rail-mountable
Note	

Accessories

Cross-connector	
Retaining clip	
	Metal retaining clip
	Plastic retaining clip
Marking tags	
	Label, not PrintJet compatible, no MultiCard white
LED module / protection modules	
	Free-wheeling diode 6 - 230 V DC
	Load resistance 110 - 230 V UC
	LED 6 - 24 V DC green and freewheeling diode
	LED 24 - 60 V DC green and free-wheeling diode
	LED 110 - 230 V DC green and free-wheeling diode
	LED 6 - 24 V UC green
	LED 24 - 60 V UC green
	LED 110 - 230 V UC green
	RC element 6 - 60 V UC; 470 Ω / 220 nF
	RC element 110 - 230 V AC; 4.7 kΩ / 10 nF
	RC element 230 V UC; 1.1 kΩ / 200 nF
	Protective varistor; S07K30
	Protective varistor; S07K130
	Protective varistor; S07K275
Screwdriver	

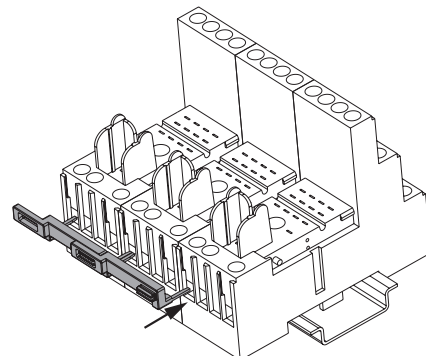
Note	
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Type	Qty.	Order No.
SCM-I 3CO N	10	8869410000

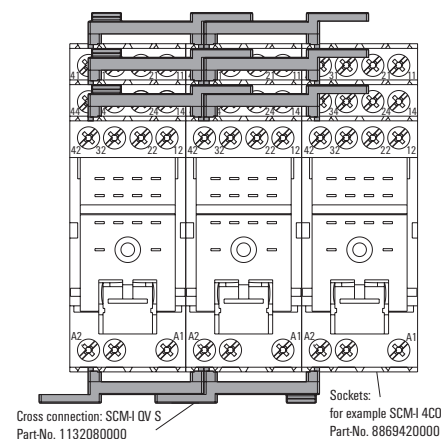
Type	Qty.	Order No.
SCM-I QV S	10	1132080000
SCM-I CLIP M	10	8869450000
SCM-I CLIP N	10	8875620000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 6/60VAC RC	10	8869770000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

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

Cross-connection 1132080000 installed in the same way as the plug-in module 8869420000:



Plug the cross connection into wire-connection opening and fix it with tighten the screw



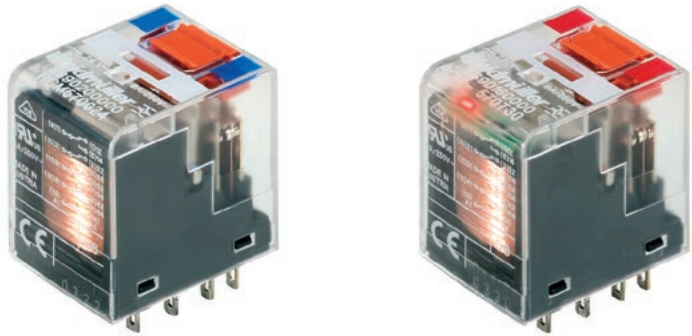
Cross connection: SCM-I QV S
Part-No. 1132080000

Sockets:
for example SCM-I 4CO
Part-No. 8869420000

RCM relay

4 CO contacts, AC/DC coil

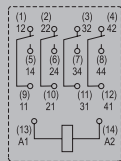
- Solid plug-in connections
- Latching / spring return operable test button and mechanical status indicator (for version with test button)
- Optional: Bright status LED (AC coil: red / DC coil: green)
- Optional: free-wheeling diode
- Identification of coils (AC red / DC blue)



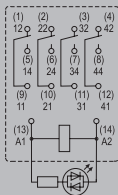
Circuit diagram

View on pins from below

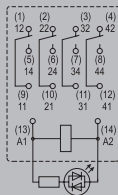
AC and DC coil



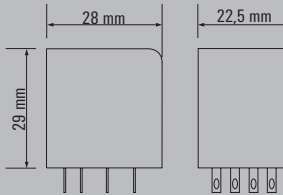
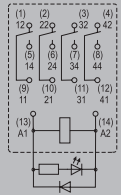
DC coil LED



AC coil LED



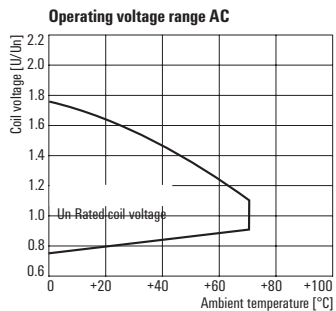
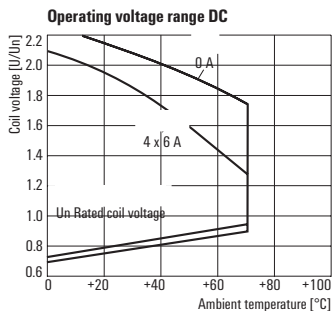
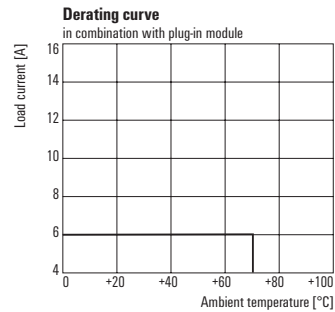
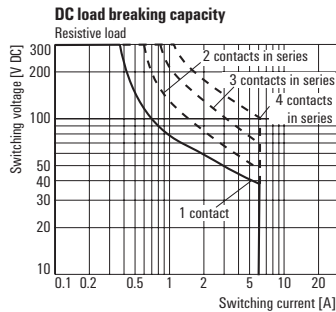
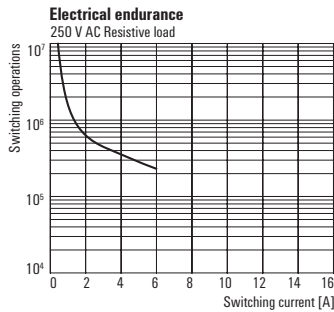
DC coil LED + diode



Technical data

Load side	
Rated switching voltage / Continuous current	240 V AC / 6 A
Max. switching voltage, AC	240 V
Inrush current	12 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	4 CO contact with test button (AgNi 90/10)
Mechanical service life	AC coil 20 x 10 ⁶ switch. cycles, DC coil 30 x 10 ⁶ switch. cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 93 % rel. humidity, no condensation
Approvals	CE; CSA; cURus; EAC; VDE
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	/ /
Depth x width x height	mm 29 / 22.5 / 28
Note	
Further technical data can be found at catalog [redacted]	

Applications



4 CO contacts, AC/DC coil

[illegible]

Ordering data

Control side				
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC	/ 62.5 mA	/ 31.3 mA	/ 15.6 mA	/ 6.8 mA
Power rating	750 mW	750 mW	750 mW	750 mW

Ordering data

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

Note

Ordering data

Control side				
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC	41.6 mA /	21.3 mA /	8.8 mA /	4.3 mA /
Power rating	1.0 VA	1.0 VA	1.0 VA	1.0 VA

Ordering data

Without LED	Type	RCM570524	RCM570548	RCM570615	RCM570730
AgNi 90/10	Order No.	8690110000	1180900000	1180800000	1181100000
with LED	Type	RCM570R24	RCM570R48	RCM570S15	RCM570T30
AgNi 90/10	Order No.	8690120000	8690130000	8690150000	8690160000
	Type			RCM580615	RCM580730
	Order No.			8824860000	7940007637
	Type				
	Order No.				

Note

RIDERSERIES – relay modules

Accessories for RCM relays, 4 CO contacts

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

Technical data

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

Ordering data

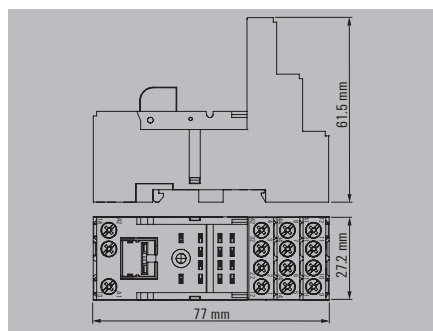
	Base, rail-mountable
Note	

Accessories

Cross-connector
Retaining clip
Plastic retaining clip
Metal retaining clip
Marking tags
Label, not PrintJet compatible, no MultiCard
white
LED module / protection modules
Free-wheeling diode 6 - 230 V DC
Load resistance 110 - 230 V UC
LED 6 - 24 V DC green and freewheeling diode
LED 24 - 60 V DC green and free-wheeling diode
LED 110 - 230 V DC green and free-wheeling diode
LED 6 - 24 V UC green
LED 24 - 60 V UC green
LED 110 - 230 V UC green
RC element 6 - 60 V UC; 470 Ω / 220 nF
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF
RC element 230 V UC; 1.1 kΩ / 200 nF
Protective varistor; S07K30
Protective varistor; S07K130
Protective varistor; S07K275
Screwdriver

Note

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



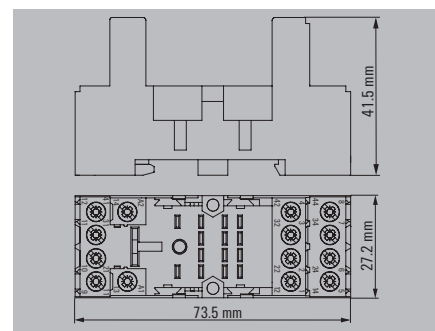
250 V AC
250 V
6 A
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus; VDE
IP20
≥ 4 mm
2.5 kV _{eff} / 1 Min.
2 kV _{eff} / 1 min
2.5 / 1 / 2.5 mm ²
0.5...0.7 Nm
8 mm
Further technical data can be found at catalog.

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

Type	Qty.	Order No.
SCM-I QV S	10	1132080000
SCM-I CLIP P	10	8869440000
SCM-I CLIP M	10	8869450000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 6/60VAC RC	10	8869770000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

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

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



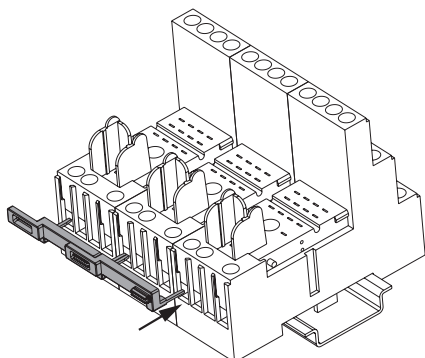
250 V AC
250 V
6 A
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus; VDE
IP20
≥ 4 mm
2.5 kV _{eff} / 1 Min.
2 kV _{eff} / 1 min
2.5 / 1 / 2.5 mm ²
0.5...0.7 Nm
8 mm
Further technical data can be found at catalog.

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

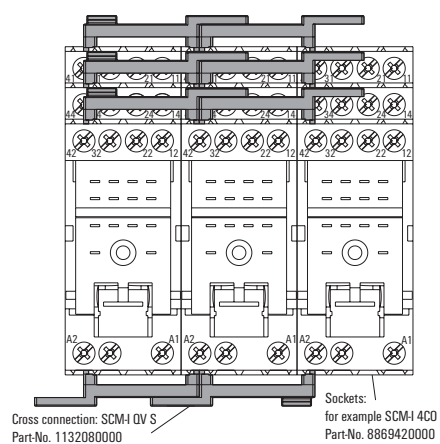
Type	Qty.	Order No.
SCM-I QV S	10	1132080000
SCM-I CLIP N	10	8875620000
SCM-I CLIP M	10	8869450000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 6/60VAC RC	10	8869770000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 24VUC VAR	10	8869710000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
SDIK PZ1 SL	1	1274730000
SDIK PZ1	1	9008900000
SDK PZ1	1	9008530000

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

Cross-connection 1132080000 installed in the same way as the plug-in module 8869420000:



Plug the cross connection into wire-connection opening and fix it with tighten the screw



RIDERSERIES – relay modules

Accessories for RCM relays, 4 CO contacts

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

Technical data

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

Ordering data

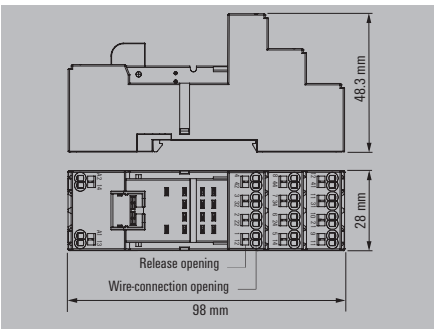
Base, rail-mountable
Note

Accessories

Retaining clip
Plastic retaining clip
Metal retaining clip
Cross-connector
2-pole
Marking tags
Label, not PrintJet compatible, no MultiCard
white
LED module / protection modules
Free-wheeling diode 6 - 230 V DC
Load resistance 110 - 230 V UC
LED 6 - 24 V DC green and freewheeling diode
LED 24 - 60 V DC green and free-wheeling diode
LED 110 - 230 V DC green and free-wheeling diode
LED 6 - 24 V UC green
LED 24 - 60 V UC green
LED 110 - 230 V UC green
RC element 6 - 60 V UC; 470 Ω / 220 nF
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF
RC element 230 V UC; 1.1 kΩ / 200 nF
Protective varistor; S07K130
Protective varistor; S07K275
Protective varistor; S07K30
Screwdriver
Standard

Note

Socket module with
PUSH IN connection, 4 CO contacts

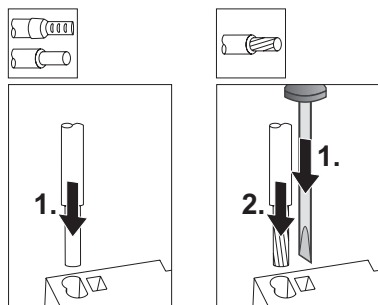
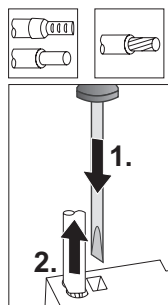
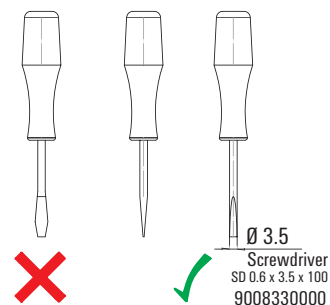
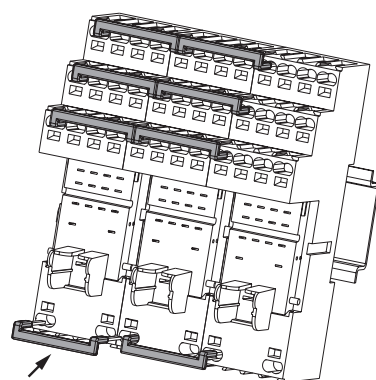


250 V AC
250 V
6 A
-40 °C...70 °C
-40 °C...70 °C
CE; CSA; cURus; VDE
IP20
≥ 4 mm
2.5 kV _{eff} / 1 Min.
2 kV _{eff} / 1 min
1.5 / 0.75 / 1.5 mm ²
...
12 mm
Further technical data can be found at catalog.

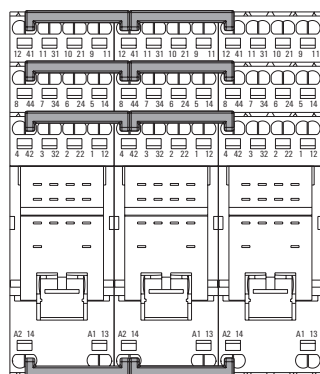
Type	Qty.	Order No.
SCM-I 4CO P	10	8869430000

Type	Qty.	Order No.
SCM-I CLIP P	10	8869440000
SCM-I CLIP M	10	8869450000
SCM-I QV P	10	8870850000
SCM-I MARK	10	8869460000
ESG 9/26 SCM-I MC NE WS	80	2558330000
RIM-I 1 6/230V	10	8869580000
RIM-I 1 R 110/230V	10	8870830000
RIM-I 2 6/24VDC GN	10	8869600000
RIM-I 2 24/60VDC GN	10	8869680000
RIM-I 2 110/230VDC GN	10	8869700000
RIM-I 3 6/24VUC GN	10	8869640000
RIM-I 3 24/60VUC GN	10	8869620000
RIM-I 3 110/230VUC GN	10	8869660000
RIM-I 3 6/60VAC RC	10	8869770000
RIM-I 3 110/230VAC RC	10	8869790000
RIM-I 3 230VAC RC	10	1172210000
RIM-I 4 110VUC VAR	10	8869730000
RIM-I 4 230VUC VAR	10	8869750000
RIM-I 4 24VUC VAR	10	8869710000
SDIS SL 0.6X3.5X100	1	1274660000

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

PUSH IN connection operation**Insert connector****Remove connector****Recommended screwdriver****Installation of the cross-connection**

Plug cross connection direct
into wire-connection opening



Cross connection:
SCM-I DV P
Part-No. 8870850000

Sockets:
SCM-I xCO P

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

D-SERIES

Universal industrial relays with high efficiency

B

D-SERIES relays have been developed for universal use in industrial automation applications where high efficiency is required. They have many innovative functions and are available in a particularly large number of variants and in a wide range of designs for the most diverse applications. Thanks to various contact materials (AgNi and AgSnO etc.), D-SERIES products are suitable for low, medium and high loads. Variants with coil voltages from 5 V DC to 380 V AC enable use with every conceivable control voltage.

With relays from the D-SERIES, you can separate input and output signals reliably and benefit from many well-considered details. For example, conventional relays can simply be plugged in and fixed with a retaining clip. The clever contact series connection and a built-in blowout magnet reduce contact erosion for loads up to 220 V DC/10 A, thus extending the service life. The optional status LED plus test button ensures convenient service operations. D-SERIES relays are available in DRI and DRM versions with either sockets for PUSH IN technology or screw connection and can be supplemented with a wide range of accessories. These include markers and pluggable protective circuits with LEDs or free-wheeling diodes.

Wide range of variants

Thanks to the different series and designs, D-SERIES products are suitable for a wide range of industrial applications. With the DRI, DRM and DRR series in the universal range as well as the DRL, DRW and DRH series in the application range, a suitable solution is available for almost all applications.

Solutions for special applications

Relay modules for switching high DC loads up to 220 V DC complete the range and make the D-SERIES an all-rounder.

**Convenient relay KITS**

Our fully assembled and functionally tested relay KITS save time during installation and simplify logistics. They can each be ordered under a single item number and they reduce the number of storage locations.

Long-lasting quality

D-SERIES relays are extremely robust. They can be ordered with a wide range of suitable contact types for various industrial applications, which significantly extends the service life.

D-SERIES – relay modules

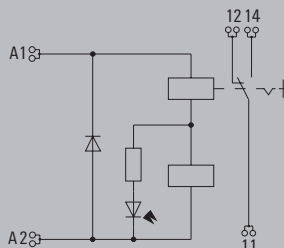
DRI KIT with PUSH IN connection
1 CO contact, AC/DC coil

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional: test button with coloured control voltage marking (AC coil: red / DC coil: blue)
- Bright status LED (AC coil: red / DC coil: green)

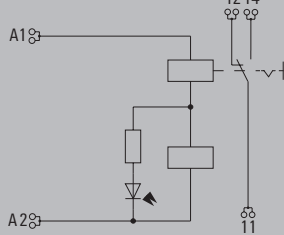


Circuit diagram

DC coil LED+diode



AC coil LED:



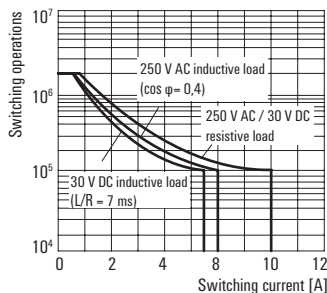
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	1 CO contact with test button (AgSnO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...85 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	5 kV _{eff} / 1min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 3 mm
Overvoltage category	III
Pollution degree	2

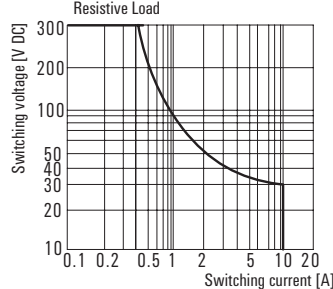
Dimensions	PUSH IN
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 1.5
Depth x width x height	see dimensioned drawing
Note	Further technical data can be found at catalog B.110

Applications

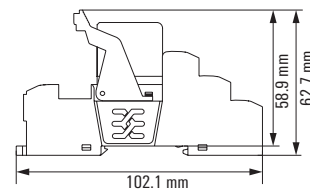
Electrical endurance



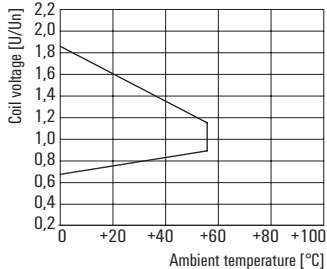
DC load braking capacity



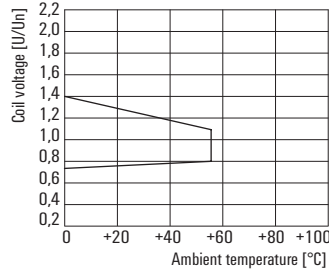
Dimensioned drawing without test button



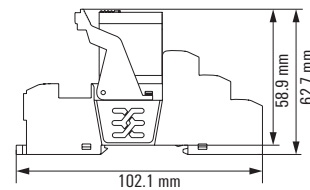
Operating voltage range [DC]

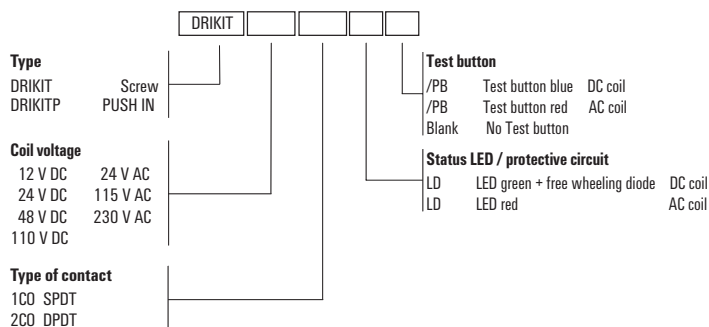


Operating voltage range [AC]



Dimensioned drawing with test button



DRI KIT with PUSH IN connection
1 CO contact, AC/DC coil

Ordering data

Control side	24 V DC 1CO	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 21,8 mA	50 mA /	9.3 mA /	4.9 mA /
Power rating	530 mW	1.2 VA	1.1 VA	1.1 VA
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

Ordering data				
with test button	Type	DRIKITP 24VDC 1CO LD/PB	DRIKITP 24VAC 1CO LD/PB	DRIKITP115VAC 1CO LD/PB
	Order No.	2576210000	2576250000	2576180000
without test button	Type	DRIKITP 24VDC 1CO LD	DRIKITP 24VAC 1CO LD	DRIKITP 115VAC 1CO LD
	Order No.	2576220000	2576260000	2575980000
	Type			
	Order No.			
	Type			
	Order No.			

Note				

D-SERIES – relay modules

DRI KIT with screw connection

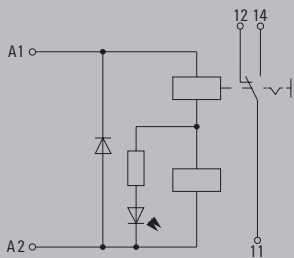
1 CO contact, AC/DC coil

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional: test button with coloured control voltage marking (AC coil: red / DC coil: blue)
- Bright status LED (AC coil: red / DC coil: green)

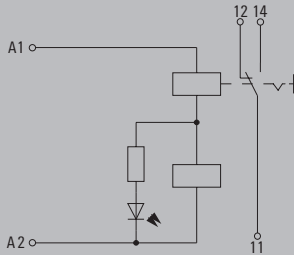


Circuit diagram

DC coil LED+diode



AC coil LED:



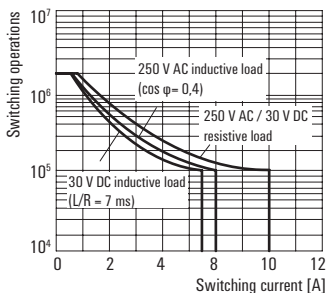
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	1 CO contact with test button (AgSnO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...85 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 3 mm
Overvoltage category	III
Pollution degree	2

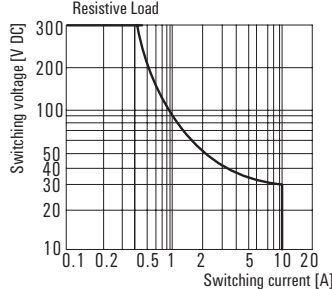
Dimensions	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.25 / 4
Depth x width x height	see dimensioned drawing
Note	Further technical data can be found at catalog

Applications

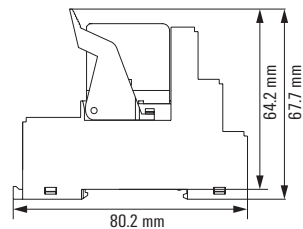
Electrical endurance



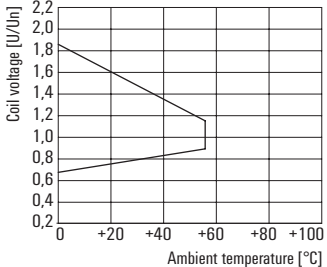
DC load braking capacity



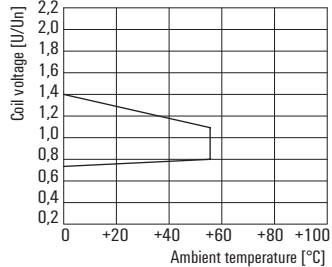
Dimensioned drawing without test button



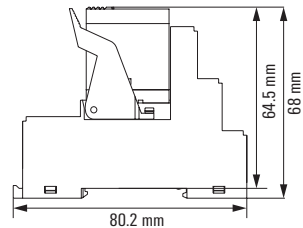
Operating voltage range [DC]



Operating voltage range [AC]

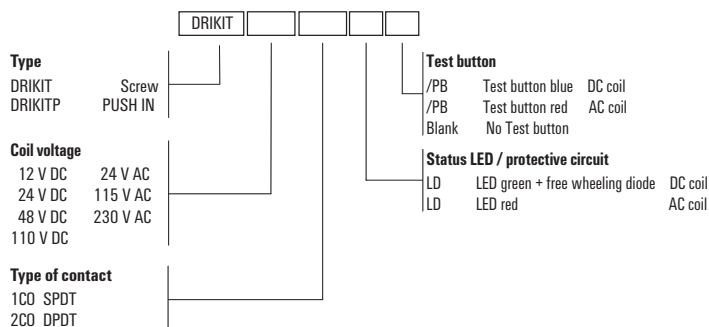


Dimensioned drawing with test button



DRI KIT with screw connection

1 CO contact, AC/DC coil



Ordering data

Control side	12 V DC 1CO	24 V DC 1CO	48 V DC 1CO	110 V DC 1CO
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC	/ 44,4 mA	/ 21,8 mA	/ 11,2 mA	/ 4,8 mA
Power rating	530 mW	530 mW	530 mW	530 mW
Status indicator	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode	Free-wheeling diode	Free-wheeling diode	Free-wheeling diode

Ordering data				
with test button	Type Order No.	DRIKIT 12VDC 1CO LD/PB 2476740000	DRIKIT 24VDC 1CO LD/PB 2476750000	DRIKIT 48VDC 1CO LD/PB 2476760000
without test button	Type Order No.	DRIKIT 12VDC 1CO LD 2476340000	DRIKIT 24VDC 1CO LD 2476680000	DRIKIT 48VDC 1CO LD 2476690000
	Type Order No.			
	Type Order No.			

Note				

Ordering data

Control side	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	50 mA /	9.3 mA /	4.9 mA /
Power rating	1.2 VA	1.1 VA	1.1 VA
Status indicator	red LED	red LED	red LED
Protective circuit			

Ordering data			
with test button	Type Order No.	DRIKIT 24VAC 1CO LD/PB 2476780000	DRIKIT 115VAC 1CO LD/PB 2476790000
without test button	Type Order No.	DRIKIT 24VAC 1CO LD 2476710000	DRIKIT 115VAC 1CO LD 2476720000
	Type Order No.		
	Type Order No.		

Note			

D-SERIES – relay modules

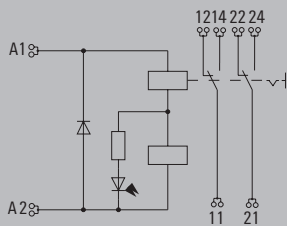
DRI KIT with PUSH IN connection
2 CO contact, AC/DC coil

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional: test button with coloured control voltage marking (AC coil: red / DC coil: blue)
- Bright status LED (AC coil: red / DC coil: green)

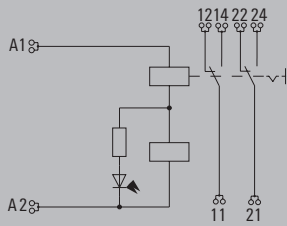


Circuit diagram

DC coil LED+diode



AC coil LED:



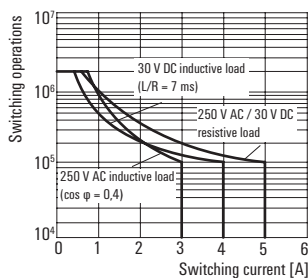
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 5 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	2 CO contact with test button (AgSnO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...85 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	5 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.5 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 3 mm
Overvoltage category	III
Pollution degree	2

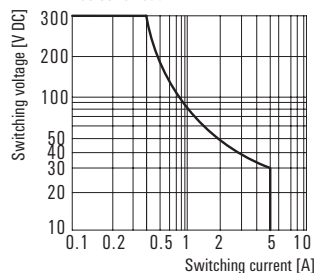
Dimensions	PUSH IN
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 1.5
Depth x width x height	see dimensioned drawing
Note	Further technical data can be found at catalog [redacted]

Applications

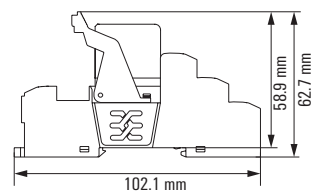
Electrical endurance



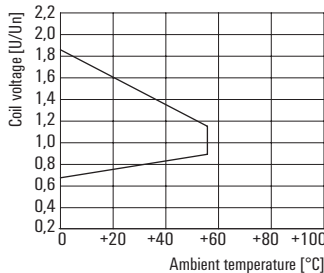
DC load braking capacity
Resistive Load



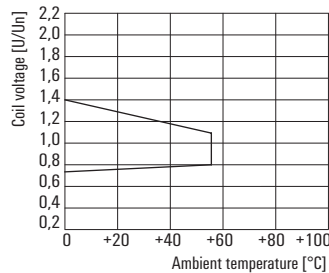
Dimensioned drawing without test button



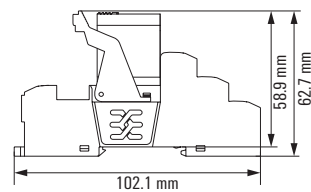
Operating voltage range [DC]



Operating voltage range [AC]

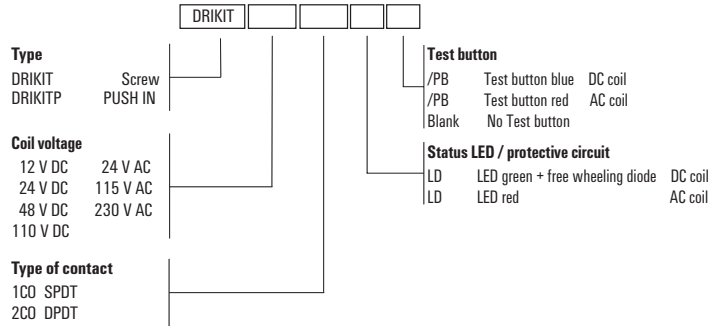


Dimensioned drawing with test button



DRI KIT with PUSH IN connection

2 CO contact, AC/DC coil



Ordering data

Control side	24 V DC 1CO	24 V AC 1CO	115 V AC 1CO	230 V AC 1CO
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 21,8 mA	50 mA /	9.3 mA /	4.9 mA /
Power rating	530 mW	1.2 VA	1.1 VA	1.1 VA
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

Ordering data					
with test button	Type	DRIKITP 24VDC 2CO LD/PB	DRIKITP 24VAC 2CO LD/PB	DRIKITP115VAC 2CO LD/PB	DRIKITP230VAC 2CO LD/PB
	Order No.	2576190000	2576230000	2576170000	2576150000
without test button	Type	DRIKITP 24VDC 2CO LD	DRIKITP 24VAC 2CO LD	DRIKITP 115VAC 2CO LD	DRIKITP 230VAC 2CO LD
	Order No.	2576200000	2576240000	2576290000	2576270000
	Type				
	Order No.				
	Type				
	Order No.				

Note				

D-SERIES – relay modules

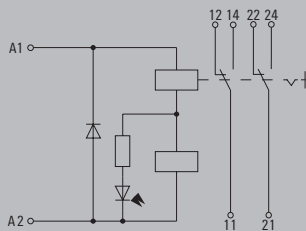
DRI KIT with screw connection 2 CO contact, AC/DC coil

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Optional: test button with coloured control voltage marking (AC coil: red / DC coil: blue)
- Bright status LED (AC coil: red / DC coil: green)

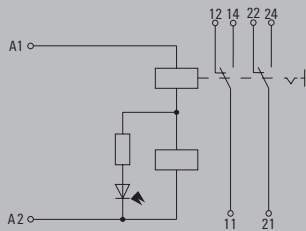


Circuit diagram

DC coil LED+diode



AC coil LED:



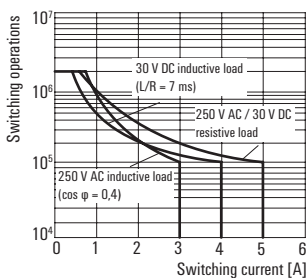
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 5 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	2 CO contact with test button (AgSnO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...85 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.5 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 3 mm
Overvoltage category	III
Pollution degree	2

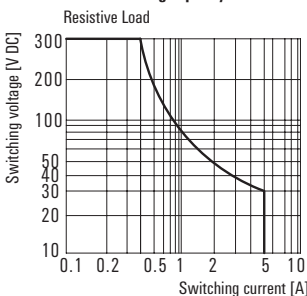
Dimensions	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.25 / 4
Depth x width x height	see dimensioned drawing
Note	Further technical data can be found at catalog 7740036851

Applications

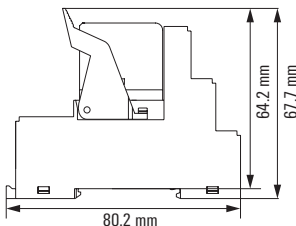
Electrical endurance



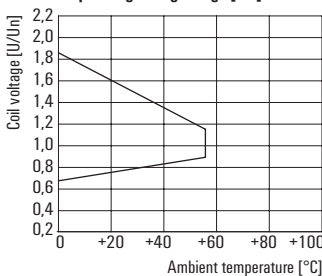
DC load braking capacity



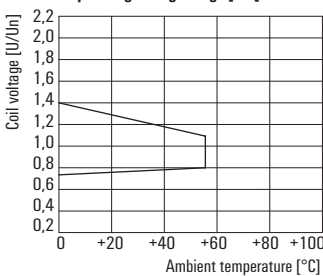
Dimensioned drawing without test button



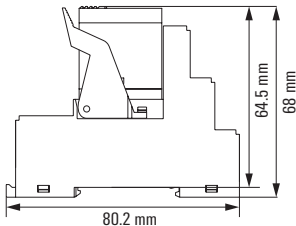
Operating voltage range [DC]



Operating voltage range [AC]

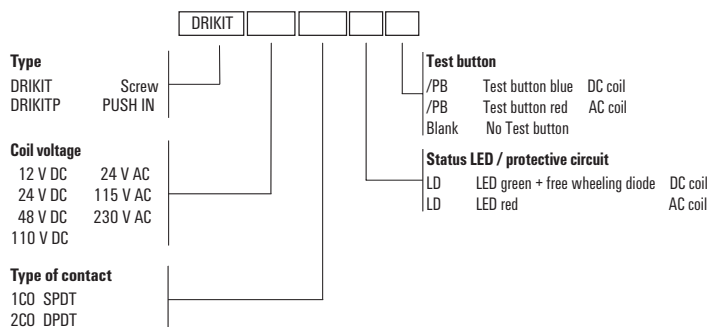


Dimensioned drawing with test button



DRI KIT with screw connection

2 CO contact, AC/DC coil



Ordering data

Control side	12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC	/ 44,4 mA	/ 21,8 mA	/ 11,2 mA	/ 4,8 mA
Power rating	530 mW	530 mW	530 mW	530 mW
Status indicator	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode	Free-wheeling diode	Free-wheeling diode	Free-wheeling diode

Ordering data				
with test button	Type Order No.	DRIKIT 12VDC 2CO LD/PB 2476880000	DRIKIT 24VDC 2CO LD/PB 2476890000	DRIKIT 48VDC 2CO LD/PB 2476900000
without test button	Type Order No.	DRIKIT 12VDC 2CO LD 2476810000	DRIKIT 24VDC 2CO LD 2476820000	DRIKIT 48VDC 2CO LD 2476830000
	Type Order No.			
	Type Order No.			

Note				

Ordering data

Control side	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	50 mA /	9.3 mA /	4,9 mA /
Power rating	1.2 VA	1.1 VA	1.1 VA
Status indicator	red LED	red LED	red LED
Protective circuit			

Ordering data			
with test button	Type Order No.	DRIKIT 24VAC 2CO LD/PB 2476920000	DRIKIT 115VAC 2CO LD/PB 2476930000
without test button	Type Order No.	DRIKIT 24VAC 2CO LD 2476850000	DRIKIT 115VAC 2CO LD 2476860000
	Type Order No.		
	Type Order No.		

Note			

DRI relay
1 CO contact, AC/DC coil

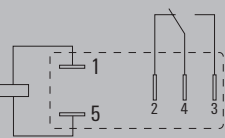
- Robust industrial plug-in connections
- Optional: latching / spring return operable test button with coloured control voltage identification (AC coil: red / DC coil: blue)
- Optional: Bright status LED (AC coil: red / DC coil: green)
- Optional: free-wheeling diode



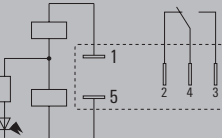
Circuit diagram

View on Pins from below

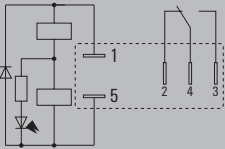
AC- and DC coil



AC- and DC coil LED:



DC coil LED+diode



Technical data

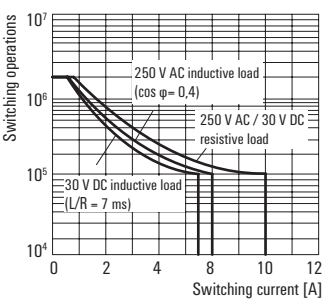
Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...85 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	5 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2

Dimensions	Flat blade connections (4.7 mm x 0.5 mm)
Depth x width x height	see dimensioned drawing

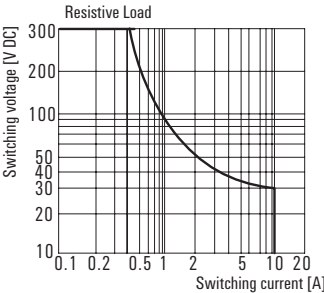
Note	Further technical data can be found at catalog B.118
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Applications

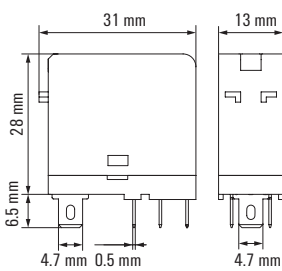
Electrical endurance



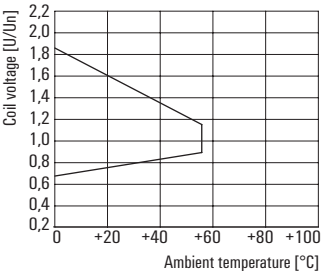
DC load braking capacity



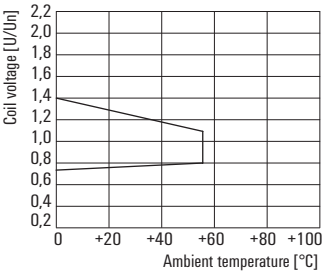
Dimensioned drawing without test button



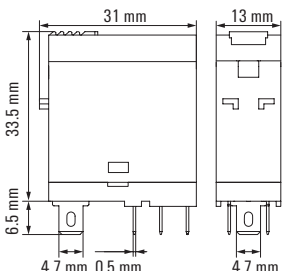
Operating voltage range [DC]



Operating voltage range [AC]

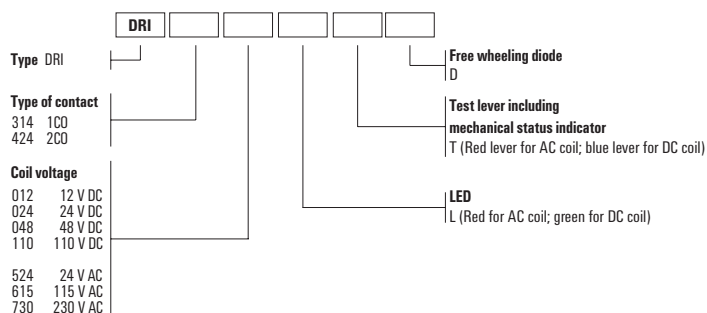


Dimensioned drawing with test button



DRI relay

1 CO contact, AC/DC coil



Ordering data

Control side		12 V DC 1CO	24 V DC 1CO	48 V DC 1CO	110 V DC 1CO
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 44,4 mA	/ 21,8 mA	/ 11,2 mA	/ 4,8 mA
Power rating		530 mW	530 mW	530 mW	530 mW
Ordering data					
Standard	Type	DRI314012	DRI314024	DRI314048	DRI314110
	Order No.	7760056296	7760056297	7760056298	7760056299
with LED	Type	DRI314012L	DRI314024L	DRI314048L	DRI314110L
	Order No.	7760056303	7760056304	7760056305	7760056306
with LED + free-wheeling diode	Type	DRI314012LD	DRI314024LD	DRI314048LD	DRI314110LD
	Order No.	7760056310	7760056311	7760056312	7760056313
with test button + LED	Type	DRI314012LTD	DRI314024LTD	DRI314048LTD	DRI314110LTD
+ Free-wheel diode	Order No.	7760056314	7760056315	7760056316	7760056317

Note				

Ordering data

Control side		24 V AC 1CO	115 V AC 1CO	230 V AC 1 CO
Rated control voltage		24 V AC	115 V AC	230 V AC
Rated current AC / DC		50 mA /	9.3 mA /	4,9 mA /
Power rating		1.2 VA	1.1 VA	1.1 VA
Ordering data				
Standard	Type	DRI314524	DRI314615	DRI314730
	Order No.	7760056300	7760056301	7760056302
with LED	Type	DRI314524L	DRI314615L	DRI314730L
	Order No.	7760056307	7760056308	7760056309
with test button + LED	Type	DRI314524LT	DRI314615LT	DRI314730LT
	Order No.	7760056318	7760056319	7760056320
	Type			
	Order No.			

Note			

D-SERIES – relay modules

Accessories for DRI relays

- Flat design
- DIN rail unlocked using screwdriver

Technical data

Load side	
Rated switching voltage	250 V AC
Max. switching voltage, AC	250 V
Continuous current	12 A
General data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...85 °C
Approvals	CE; cURus
Insulation coordinates	
Protection degree	IP20
Creepage and clearance distance input – output	≥ 3 mm
Dielectric strength, Input/Output	5 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	
Impulse withstand voltage	
Connection data	
Clamping range (nominal / min. / max.)	1.5 / 0.14 / 1.5 mm ²
Tightening torque	...
Stripping length, rated connection	10 mm
Note	

Ordering data

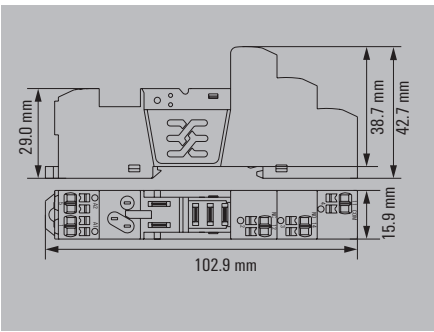
Type	Qty.	Order No.
SDI 1CO P	20	7760056364
Note		
Plug-in module on TS35 terminal rail		

Accessories

LED module / protection modules	
Free-wheeling diode 6 - 230 V DC	
LED 6 - 24 V DC green and freewheeling diode	
LED 24 - 60 V DC green and free-wheeling diode	
LED 110 - 230 V DC green and free-wheeling diode	
LED 6 - 24 V UC green	
LED 24 - 60 V UC green	
LED 110 - 230 V UC green	
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF	
RC element 110 - 230 V AC; 100 Ω / 220 nF and LED green	
Cross-connector	
Retaining clip	
Plastic retaining clip	
Plastic retaining bracket with marker holder	
Metal retaining clip for relay with test button	
Metal bracket for relay without test button	
Marking tags	
white	
Screwdriver	
Standard, uninsulated	
Standard, insulated	

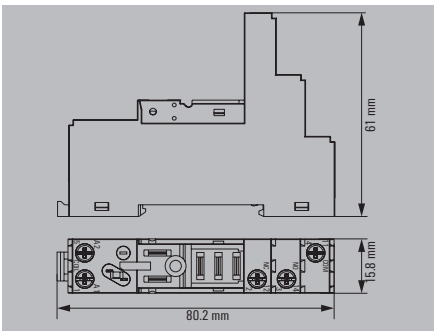
Note

Socket with PUSH IN connection, 1 CO contact



Type	Qty.	Order No.
SDI 1CO P	20	7760056364
Note		
Further accessories can be found on the article at catalog		

Socket with clamping yoke connection, 1 CO contact



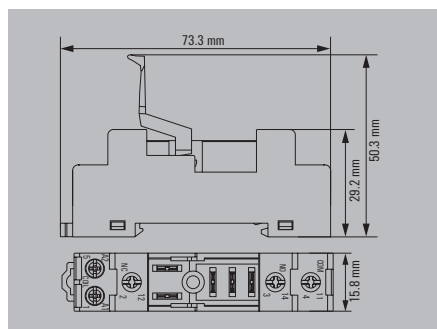
Type	Qty.	Order No.
SDI 1CO	10	7760056350
Note		
Further accessories can be found on the article at catalog		

Type	Qty.	Order No.
RIM 1 6/230VDC	10	7760056169
RIM 2 6/24VDC	10	7760056015
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 3 110/230VAC	10	7760056014
SCM/SDI P CC		
SCM/SDI P CC	10	7760056366
SDI CLIP		
SDI CLIP	10	7760056352
SDI CLIP P	10	7760056389
SDI CLIP HM	10	7760056390
SDI CLIP LM	10	7760056368
ESG 6/15 SDI MC NE WS		
ESG 6/15 SDI MC NE WS	200	2558340000
SDS 0.4X2.5X75		
SDS 0.4X2.5X75	1	9009030000
SDS 0.4X2.5X75	1	9008370000

Type	Qty.	Order No.
RIM 1 6/230VDC	10	7760056169
RIM 2 6/24VDC	10	7760056015
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 3 110/230VAC	10	7760056014
RIM 3 110/230VAC LED	10	7760056045
SRC-I QV S		
SRC-I QV S	10	1132070000
SDI CLIP		
SDI CLIP	10	7760056352
SDI CLIP P	10	7760056389
SDI CLIP HM	10	7760056390
SDI CLIP LM	10	7760056368
ESG 6/15 SDI MC NE WS		
ESG 6/15 SDI MC NE WS	200	2558340000
SDIK PH1		
SDIK PH1	1	9008570000
SDK PH1	1	9008480000

Note

**Socket with
pressure clamping plate, 1 CO contact**



250 V AC
250 V
12 A
-40 °C...70 °C
-40 °C...85 °C
CE; EAC
IP20
≥ 3 mm
4 kV _{eff} / 1 Min.
4.8 kV (1.2/50 µs)
1.5 / 0.5 / 2.5 mm ²
0.5...0.8 Nm
8 mm

Type	Qty.	Order No.
SDI 1CO F ECO	10	7760056348

[illegible]

LED and protective modules are not compatible with this base. Further accessories can be found on the article at catalog.

D-SERIES – relay modules

DRI relay

2 CO contacts, AC/DC coil

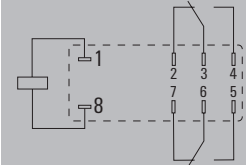
- Robust industrial plug-in connections
- Optional: latching / spring return operable test button with coloured control voltage identification (AC coil: red / DC coil: blue)
- Optional: Bright status LED (AC coil: red / DC coil: green)
- Optional: free-wheeling diode



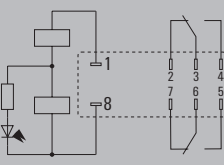
Circuit diagram

View on Pins from below

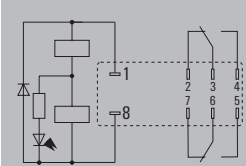
AC- and DC coil



AC- and DC coil LED:



DC coil LED+diode

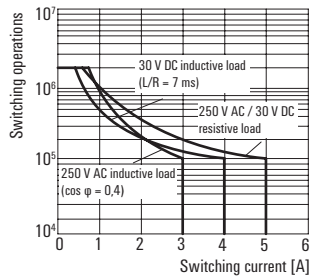


Technical data

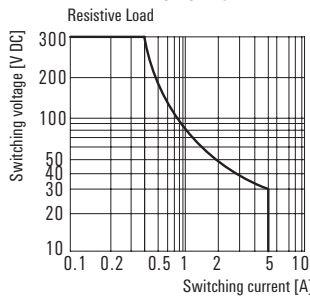
Load side	
Rated switching voltage / Continuous current	250 V AC / 5 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...85 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	5 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.5 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Depth x width x height	Flat blade connections (2.5 mm x 0.5 mm) see dimensioned drawing
Note	
Further technical data can be found at catalog [redacted]	

Applications

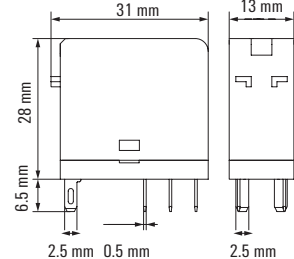
Electrical endurance



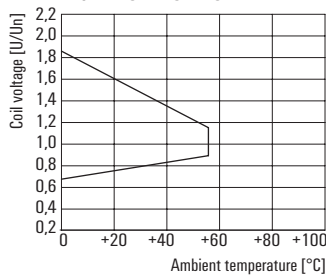
DC load braking capacity



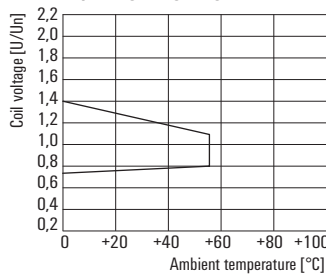
Dimensioned drawing without test button



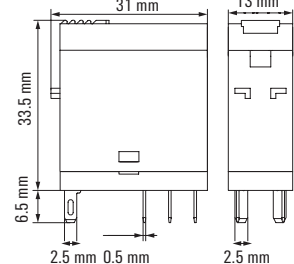
Operating voltage range [DC]



Operating voltage range [AC]

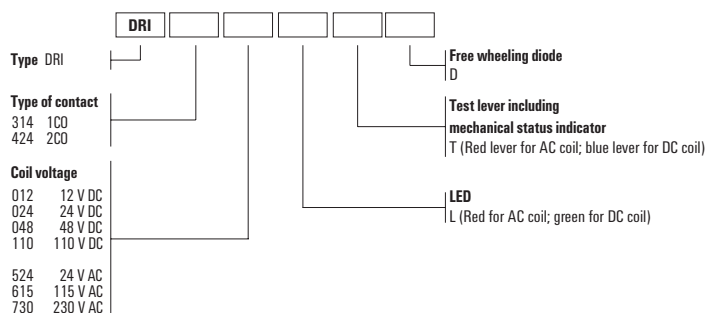


Dimensioned drawing with test button



DRI relay

2 CO contacts, AC/DC coil



Ordering data

Control side		12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC
Rated current AC / DC		/ 44,4 mA	/ 21,8 mA	/ 11,2 mA	/ 4,8 mA
Power rating		530 mW	530 mW	530 mW	530 mW
Ordering data					
Standard	Type	DRI424012	DRI424024	DRI424048	DRI424110
	Order No.	7760056321	7760056322	7760056323	7760056324
with LED	Type	DRI424012L	DRI424024L	DRI424048L	DRI424110L
	Order No.	7760056328	7760056329	7760056330	7760056331
with LED + free-wheeling diode	Type	DRI424012LD	DRI424024LD	DRI424048LD	DRI424110LD
	Order No.	7760056335	7760056336	7760056337	7760056338
with test button + LED	Type	DRI424012LTD	DRI424024LTD	DRI424048LTD	DRI424110LTD
+ Free-wheel diode	Order No.	7760056339	7760056340	7760056341	7760056342

Note

Ordering data

Control side		24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Rated control voltage		24 V AC	115 V AC	230 V AC
Rated current AC / DC		50 mA /	9.3 mA /	4,9 mA /
Power rating		1.2 VA	1.1 VA	1.1 VA
Ordering data				
Standard	Type	DRI424524	DRI424615	DRI424730
	Order No.	7760056325	7760056326	7760056327
with LED	Type	DRI424524L	DRI424615L	DRI424730L
	Order No.	7760056332	7760056333	7760056334
with test button + LED	Type	DRI424524LT	DRI424615LT	DRI424730LT
	Order No.	7760056343	7760056344	7760056345
	Type			
	Order No.			

Note

- Flat design
- DIN rail unlocked using screwdriver

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

	Plug-in module on TS35 terminal rail
Note	

LED module / protection modules	Free-wheeling diode 6 - 230 V DC LED 6 - 24 V DC green and freewheeling diode LED 24 - 60 V DC green and free-wheeling diode LED 110 - 230 V DC green and free-wheeling diode LED 6 - 24 V UC green LED 24 - 60 V UC green LED 110 - 230 V UC green RC element 110 - 230 V AC; 4,7 kΩ / 10 nF RC element 110 - 230 V AC; 100 Ω / 220 nF and LED green
Cross-connector	
Retaining clip	Plastic retaining clip Plastic retaining bracket with marker holder Metal retaining clip for relay with test button Metal bracket for relay without test button
Marking tags	
Screwdriver	white Standard, uninsulated Standard, insulated

Note

[illegible]

250 V AC
250 V
8 A
-40 °C...55 °C
-40 °C...85 °C
CE; cURus
IP20
≥ 3 mm
5 kV _{eff} / 1 min
2.5 kV _{eff} / 1 Min.
1.5 / 0.14 / 1.5 mm ²
...
10 mm

Type	Qty.	Order No.
SDI 2CO P	20	7760056365

Type	Qty.	Order No.
RIM 1 6/230VDC	10	7760056169
RIM 2 6/24VDC	10	7760056015
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 3 110/230VAC	10	7760056014
SCM/SDI P CC	10	7760056366
SDI CLIP	10	7760056352
SDI CLIP P	10	7760056389
SDI CLIP HM	10	7760056390
SDI CLIP LM	10	7760056368
ESG 6/15 SDI MC NE WS	200	2558340000
SDS 0.4X2.5X75	1	9009030000
SDIS 0.4X2.5X75	1	9008370000

Further accessories can be found on the article at catalog.

[illegible]

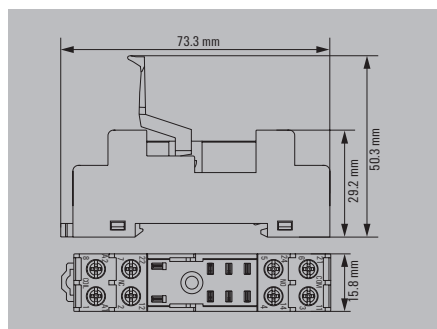
250 V AC
250 V
8 A
-40 °C...70 °C
-40 °C...85 °C
CE; cURus; EAC
IP20
≥ 3 mm
4 kV _{eff} / 1 Min.
2.5 kV _{eff} / 1 Min.
4.8 kV (1.2/50 µs)
1.5 / 0.25 / 4 mm ²
0.5...0.8 Nm
8 mm

Type	Qty.	Order No.
SDI 2CO	10	7760056351

Type	Qty.	Order No.
RIM 1 6/230VDC	10	7760056169
RIM 2 6/24VDC	10	7760056015
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 3 110/230VAC	10	7760056014
RIM 3 110/230VAC LED	10	7760056045
SRC-I QV S	10	1132070000
SDI CLIP	10	7760056352
SDI CLIP P	10	7760056389
SDI CLIP HM	10	7760056390
SDI CLIP LM	10	7760056368
ESG 6/15 SDI MC NE WS	200	2558340000
SDIK PH1	1	9008570000
SDK PH1	1	9008480000

Further accessories can be found on the article at catalog.

**Socket with
pressure clamping plate, 2 CO contacts**



250 V AC
250 V
8 A
-40 °C...70 °C
-40 °C...85 °C
CE; EAC
IP20
≥ 3 mm
4 kV _{eff} / 1 Min.
2.5 kV _{eff} / 1 Min.
4.8 kV (1.2/50 µs)
1.5 / 0.5 / 2.5 mm ²
0.5...0.8 Nm
8 mm

Type	Qty.	Order No.
SDI 2CO F ECO	10	7760056349

[illegible]

LED and protective modules are not compatible with this base. Further accessories can be found on the article at catalog.

D-SERIES – relay modules

DRM KIT with PUSH IN connection

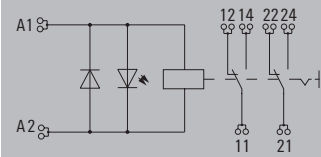
2 CO contact

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Mechanical status indicator
- Bright status LED (AC coil: red, DC coil: green)
- Optional: test button with coloured control voltage marking (AC coil: red, DC coil: blue)

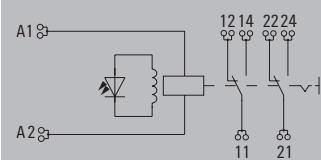


Circuit diagram

DC-Version



AC-Version



Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
Mechanical service life	20 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	
Dielectric strength, Input/Output	1.8 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions

Depth x width x height

PUSH IN

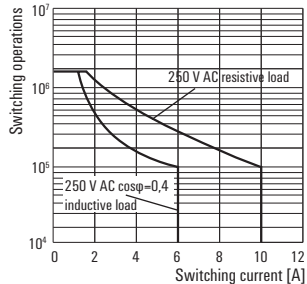
see dimensioned drawing

Note

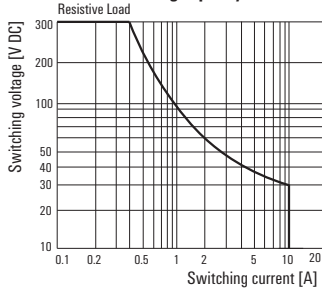
Further technical data can be found at catalog [B.126](#)

Applications

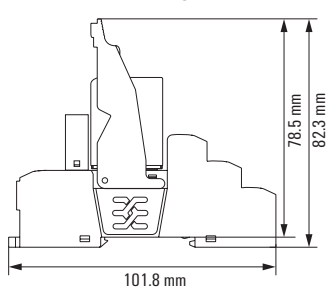
Electrical endurance



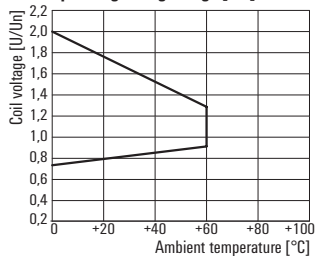
DC load breaking capacity



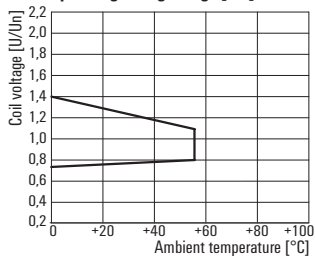
Dimensioned drawing



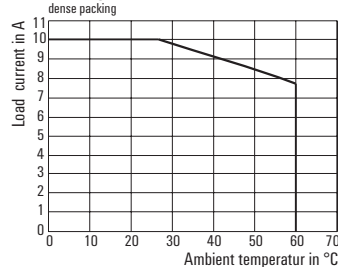
Operating voltage range [DC]



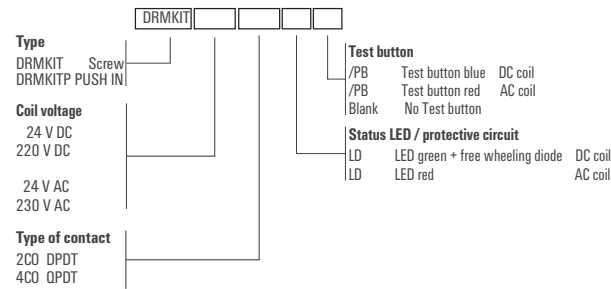
Operating voltage range [AC]



Derating curve



DRM KIT with PUSH IN connection
2 CO contact



Ordering data

Control side	24 V DC	24 V AC	115 V AC	230 V AC
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 36.9 mA	62.4 mA (50 Hz) /	12.6 mA (50 Hz), 10.8 mA (60 Hz) /	6.1 mA (50 Hz), 5.2 mA (60 Hz) /
Power rating	0.9 W	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

Ordering data

with test button	Type	DRMKITP 24VDC 2CO LD/PB	DRMKITP 24VAC 2CO LD/PB	DRMKITP 115VAC 2CO LD/PB	DRMKITP 230VAC 2CO LD/PB
	Order No.	2576120000	2576080000	2576000000	2576040000
without test button	Type	DRMKITP 24VDC 2CO LD	DRMKITP 24VAC 2CO LD	DRMKITP 115VAC 2CO LD	DRMKITP 230VAC 2CO LD
	Order No.	2576110000	2576070000	2575990000	2576030000

Note

D-SERIES – relay modules

DRM KIT with screw connection

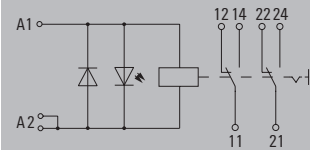
2 CO contacts

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Mechanical status indicator
- Bright status LED (AC coil: red, DC coil: green)
- Optional: test button with coloured control voltage marking (AC coil: red, DC coil: blue)

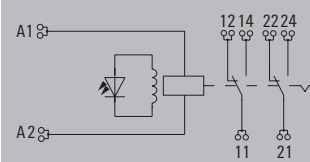


Circuit diagram

DC-Version



AC-Version



Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
Mechanical service life	20 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Dielectric strength, Input/Output	1.8 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions

Depth x width x height

Screw connection

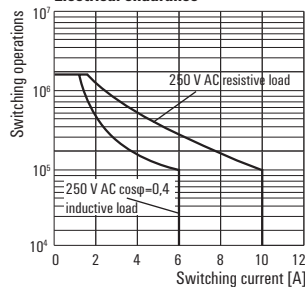
see dimensioned drawing

Note

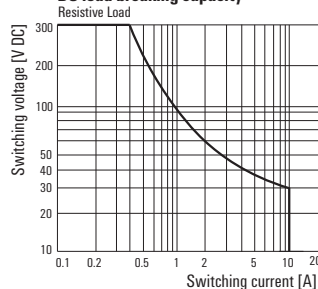
Further technical data can be found at catalog [\[redacted\]](#)

Applications

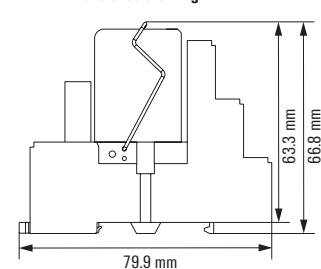
Electrical endurance



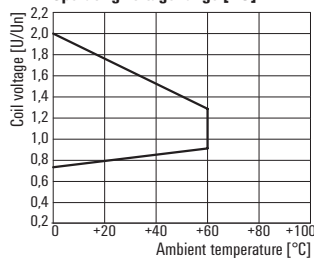
DC load breaking capacity



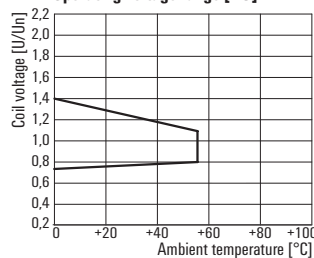
Dimensioned drawing



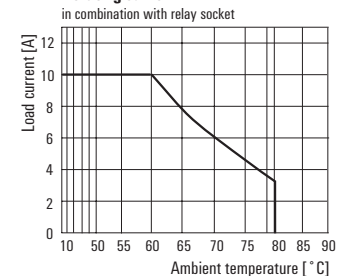
Operating voltage range [DC]



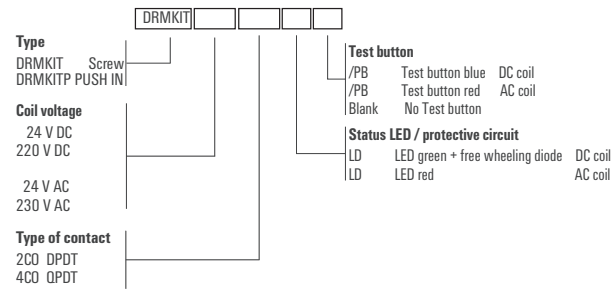
Operating voltage range [AC]



Derating curve



DRM KIT with screw connection
2 CO contacts



Ordering data

Control side	24 V DC 2CO	220 V DC 2CO	24 V AC 2CO	230 V AC 2CO
Rated control voltage	24 V DC	220 V DC	24 V AC	230 V AC
Rated current AC / DC	/ 36.9 mA	/ 5.2 mA	62.4 mA (50 Hz), 52.2 mA (60 Hz) /	6.1 mA (50 Hz), 5.2 mA (60 Hz) /
Power rating	0.9 W	1.2 W	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)
Status indicator	Green LED	Green LED	red LED	red LED
Protective circuit	Free-wheeling diode	Free-wheeling diode		

Ordering data

with test button	Type	DRMKIT 24VDC 2CO LD/PB	DRMKIT 220VDC 2CO LD/PB	DRMKIT 24VAC 2CO LD/PB	DRMKIT 230VAC 2CO LD/PB
	Order No.	1542460000	1542470000	1542480000	1542490000
without test button	Type	DRMKIT 24VDC 2CO LD	DRMKIT 220VDC 2CO LD	DRMKIT 24VAC 2CO LD	DRMKIT 230VAC 2CO LD
	Order No.	1542360000	1542370000	1542380000	1542390000

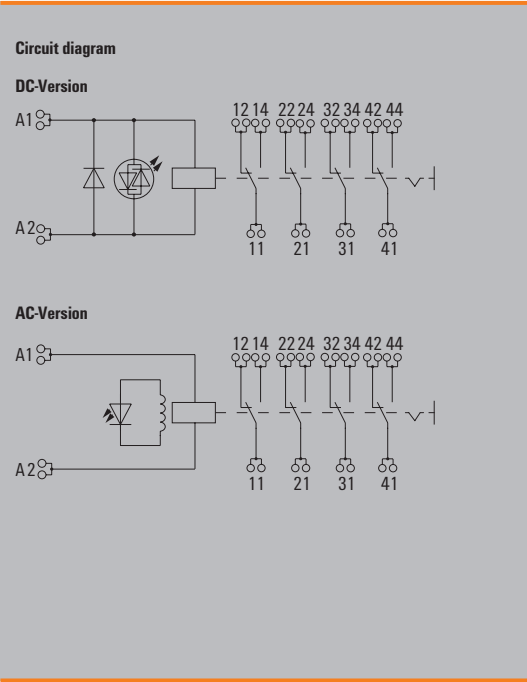
Note

D-SERIES – relay modules

DRM KIT with PUSH IN connection

4 CO contact

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Mechanical status indicator
- Bright status LED (AC coil: red, DC coil: green)
- Optional: test button with coloured control voltage marking (AC coil: red, DC coil: blue)

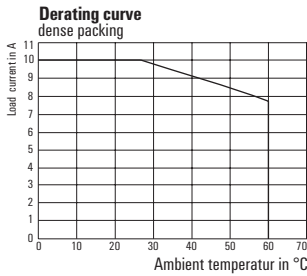
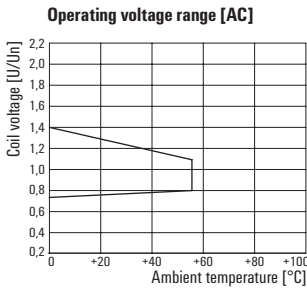
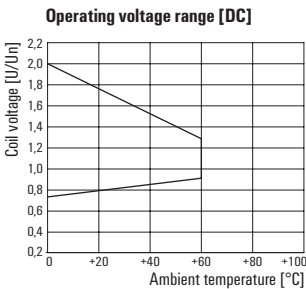
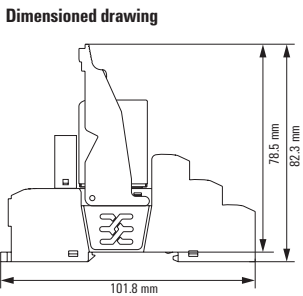
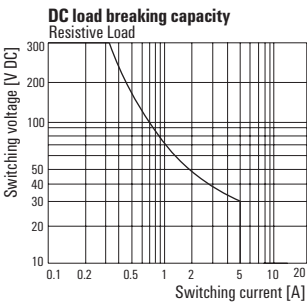
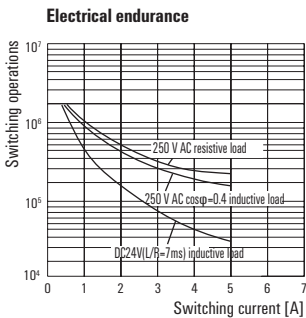


Technical data

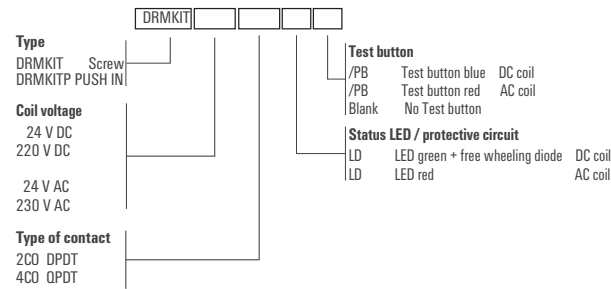
Load side	
Rated switching voltage / Continuous current	250 V AC / 5 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
Mechanical service life	20 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...70 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	
Dielectric strength, Input/Output	1.8 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 3 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN
Depth x width x height	see dimensioned drawing
Note	Further technical data can be found at catalog B.130

Applications



DRM KIT with PUSH IN connection
4 CO contact



Ordering data

Control side	24 V DC	24 V AC	115 V AC	230 V AC
Rated control voltage	24 V DC	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 36.9 mA	62.4 mA (50 Hz) /	12.6 mA (50 Hz), 10.8 mA (60 Hz) /	6.1 mA (50 Hz), 5.2 mA (60 Hz) /
Power rating	0.9 W	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)
Status indicator	Green LED	red LED	red LED	red LED
Protective circuit	Free-wheeling diode			

Ordering data

with test button	Type	DRMKITP 24VDC 4CO LD/PB	DRMKITP 24VAC 4CO LD/PB	DRMKITP 115VAC 4CO LD/PB	DRMKITP 230VAC 4CO LD/PB
	Order No.	2576140000	2576100000	2576020000	2576060000
without test button	Type	DRMKITP 24VDC 4CO LD	DRMKITP 24VAC 4CO LD	DRMKITP 115VAC 4CO LD	DRMKITP 230VAC 4CO LD
	Order No.	2576130000	2576090000	2576010000	2576050000

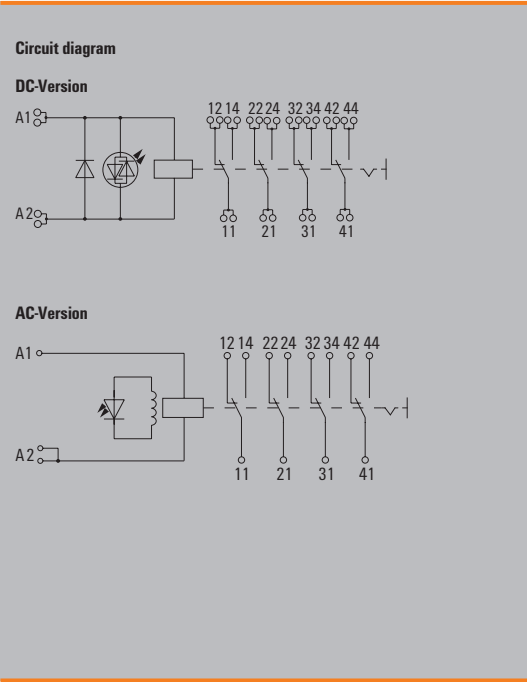
Note

D-SERIES – relay modules

DRM KIT with screw connection

4 CO contacts

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Mechanical status indicator
- Bright status LED (AC coil: red, DC coil: green)
- Optional: test button with coloured control voltage marking (AC coil: red, DC coil: blue)

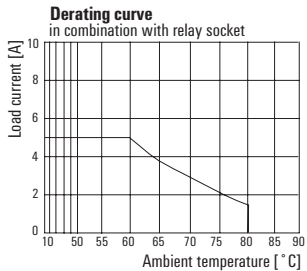
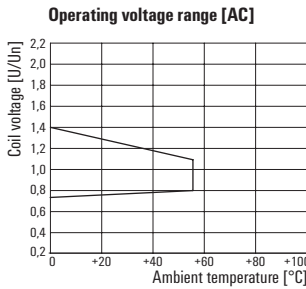
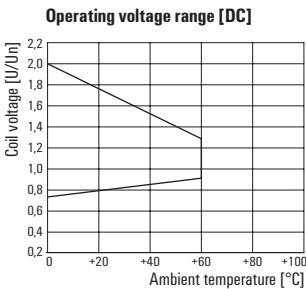
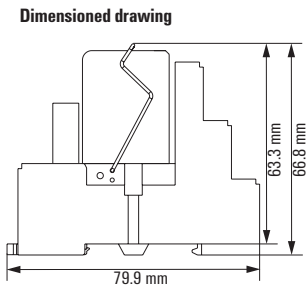
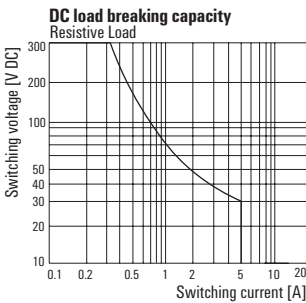
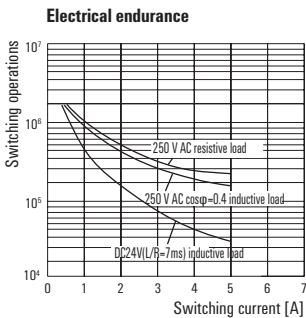


Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 5 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
Mechanical service life	20 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	
Approvals	CE, EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	4.8 kV (1.2/50 µs)
Dielectric strength, Input/Output	1.8 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	Screw connection
Depth x width x height	see dimensioned drawing
Note	
Further technical data can be found at catalog [redacted]	

Applications



DRM KIT with screw connection
4 CO contacts

Ordering data		24 V DC 4CO	220 V DC 4CO	24 V AC 4CO	230 V AC 4CO
Control side					
Rated control voltage		24 V DC	220 V DC	24 V AC	230 V AC
Rated current AC / DC		/ 36.9 mA	/ 5.2 mA	62.4 mA (50 Hz), 52.2 mA (60 Hz) /	6.1 mA (50 Hz), 5.2 mA (60 Hz) /
Power rating		0.9 W	1.2 W	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)
Status indicator		Green LED	Green LED	red LED	red LED
Protective circuit		Free-wheeling diode	Free-wheeling diode		
Ordering data					
with test button	Type	DRMKIT 24VDC 4CO LD/PB	DRMKIT 220VDC 4CO LD/PB	DRMKIT 24VAC 4CO LD/PB	DRMKIT 230VAC 4CO LD/PB
	Order No.	1542510000	1542520000	1542530000	1542540000
without test button	Type	DRMKIT 24VDC 4CO LD	DRMKIT 220VDC 4CO LD	DRMKIT 24VAC 4CO LD	DRMKIT 230VAC 4CO LD
	Order No.	1542410000	1542420000	1542430000	1542450000
Note					

D-SERIES – relay modules

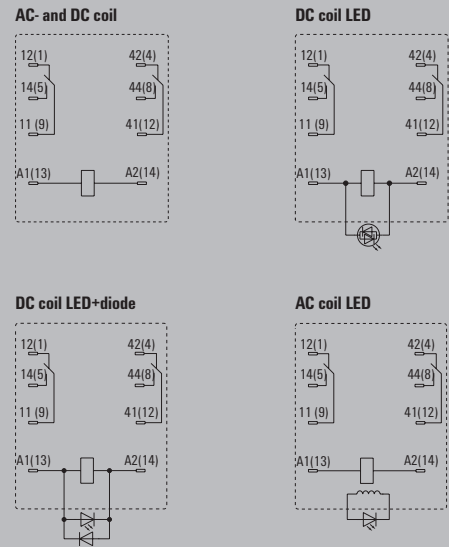
DRM relay

2 CO contact, AC/DC coil

- Compact design combined with high switching capacity
- Wide range of coil voltages
- Optional test button (AC red, DC blue)
- Optional status LED (AC red, DC green)
- Optional free-wheeling diode



Circuit diagram
View on pins from below



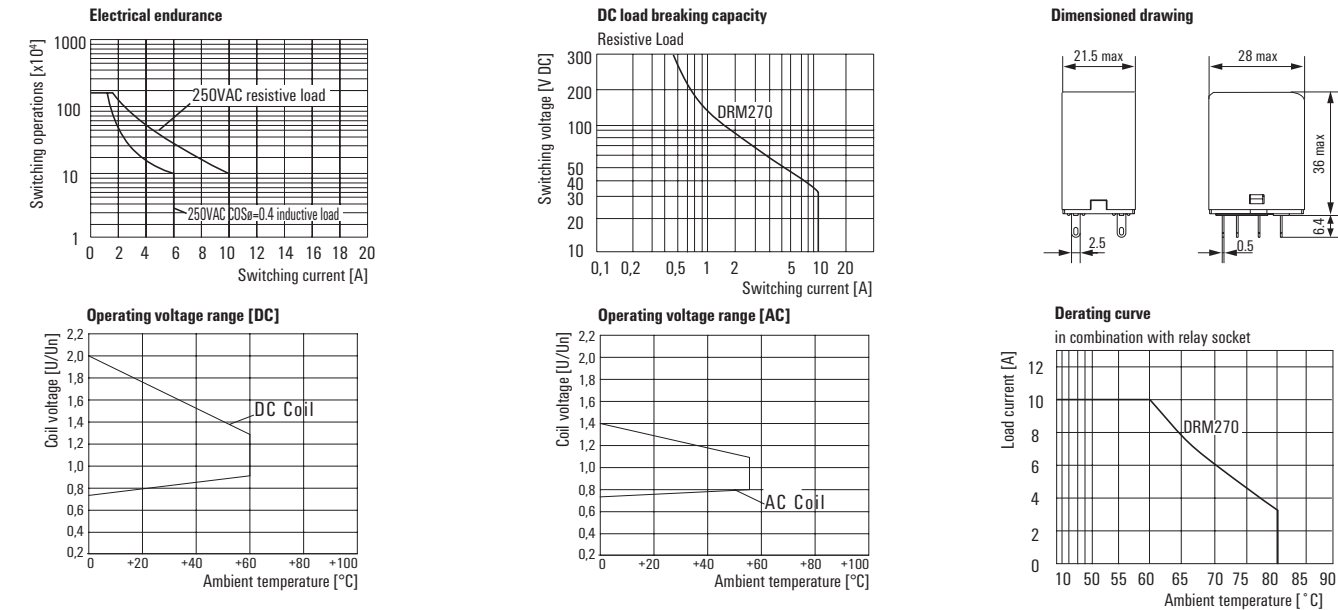
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
Contact type	2 CO contact (AgNi 0,15 µm Au)
Mechanical service life	20 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	1.8 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	Plug-in connection
Depth x width x height	see dimensioned drawing

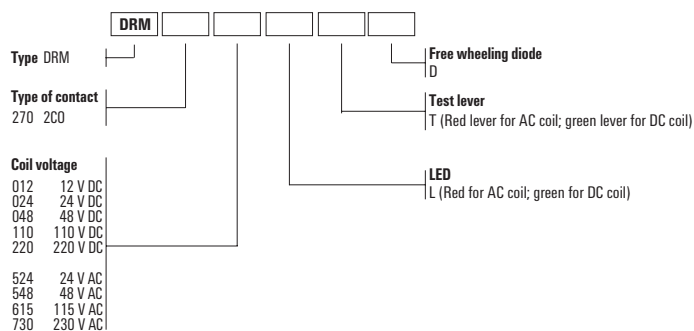
Note Further technical data can be found at catalog [\[redacted\]](#)

Applications



DRM relay

2 CO contact, AC/DC coil



Ordering data

Control side	12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO	220 V DC 2CO
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 75 mA	/ 37.8 mA	/ 18.5 mA	/ 10 mA	/ 5.2 mA
Power rating	0.9 W	0.9 W	0.9 W	1.2 W	1.2 W
Pull-in/drop-out current, typ.					

Ordering data						
Standard	Type	DRM270012	DRM270024	DRM270048	DRM270110	DRM270220
	Order No.	7760056050	7760056051	7760056052	7760056053	7760056054
with LED	Type	DRM270012L	DRM270024L	DRM270048L	DRM270110L	DRM270220L
	Order No.	7760056059	7760056060	7760056061	7760056062	7760056063
with test button + LED	Type	DRM270012LT	DRM270024LT	DRM270048LT	DRM270110LT	DRM270220LT
	Order No.	7760056068	7760056069	7760056070	7760056071	7760056072
with LED	Type		DRM270024LD			
+ Free-wheel diode	Order No.		7760056077			

Note					

Ordering data

Control side	24 V AC 2CO	48 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC	62.4 mA (50 Hz), 52.2 mA (60 Hz) /	33.3 mA (50 Hz), 27.8 mA (60 Hz) /	12.6 mA (50 Hz), 10.8 mA (60 Hz) /	6.1 mA (50 Hz), 5.2 mA (60 Hz) /
Power rating	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)
Pull-in/drop-out current, typ.				

Ordering data					
Standard	Type	DRM270524	DRM270548	DRM270615	DRM270730
	Order No.	7760056055	7760056056	7760056057	7760056058
with LED	Type	DRM270524L	DRM270548L	DRM270615L	DRM270730L
	Order No.	7760056064	7760056065	7760056066	7760056067
with test button + LED	Type	DRM270524LT	DRM270548LT	DRM270615LT	DRM270730LT
	Order No.	7760056073	7760056074	7760056075	7760056076
	Type				
	Order No.				

Note				

D-SERIES – relay modules

Accessories for DRM relays

- Isolated input and output
- Terminal rail can be unlocked with a screwdriver
- Wide assortment of functional modules

Technical data

Load side	
Rated switching voltage	250 V AC
Max. switching voltage, AC	250 V
Continuous current	12 A
General data	
Ambient temperature (operational)	-40 °C...55 °C
Storage temperature	-40 °C...85 °C
Approvals	CE; cURus
Insulation coordinates	
Protection degree	IP20
Creepage and clearance distance input – output	≥ 3 mm
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.
Impulse withstand voltage	
Connection data	
Clamping range (nominal / min. / max.)	1.5 / 0.14 / 1.5 mm ²
Tightening torque	...
Stripping length, rated connection	10 mm
Note	

Ordering data

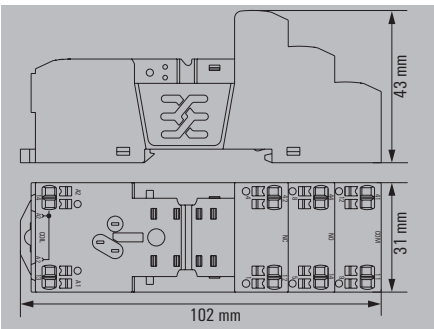
Type	Qty.	Order No.
SCM 2CO P	10	7760056362
Note		

Accessories

LED module / protection modules	
Free-wheeling diode 6 - 230 V DC	
LED 6 - 24 V DC green and freewheeling diode	
LED 24 - 60 V DC green and free-wheeling diode	
LED 110 - 230 V DC green and free-wheeling diode	
LED 6 - 24 V UC green	
LED 24 - 60 V UC green	
LED 110 - 230 V UC green	
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF	
RC element 110 - 230 V AC; 100 Ω / 220 nF and LED green	
Retaining clip	
Metal retaining clip	
Plastic retaining bracket with marker holder	
Marking tags	
white	
Cross-connector	
Screwdriver	
Standard, insulated	
Standard, uninsulated	

Note

Socket with PUSH IN connection, 2 CO contact



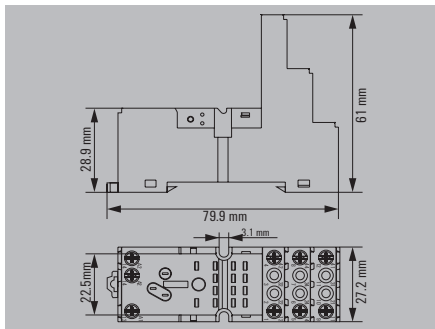
Type	Qty.	Order No.
SCM 2CO P	10	7760056362
Note		

Type	Qty.	Order No.
SCM 2CO P	10	7760056362
Note		

Type	Qty.	Order No.
RIM 1 6/230VDC	10	7760056169
RIM 2 6/24VDC	10	7760056015
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 3 110/230VAC	10	7760056014
RIM 3 110/230VAC LED	10	7760056045
Note		
DRM/DRL CLIP M	10	7760056108
SCM CLIP P	5	7760056367
Note		
ESG 9/26 SCM ECO MC NE WS	80	1520980000
Note		
SCM/SDI P CC	10	7760056366
Note		
SDIS 0.4X2.5X75	1	9008370000
SDS 0.4X2.5X75	1	9009030000

Note

Socket module with clamping yoke connection, 2 CO contacts



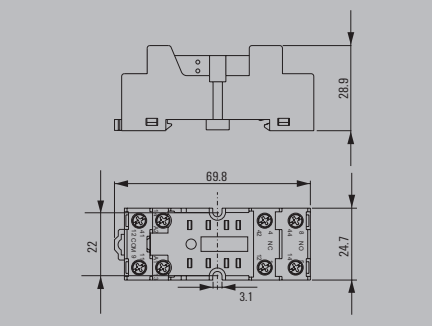
Type	Qty.	Order No.
SCM 2CO ECO	10	7760056263
Note		

Type	Qty.	Order No.
SCM 2CO ECO	10	7760056263
Note		

Type	Qty.	Order No.
RIM 1 6/230VDC	10	7760056169
RIM 2 6/24VDC	10	7760056015
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 3 110/230VAC	10	7760056014
RIM 3 110/230VAC LED	10	7760056045
Note		
DRM/DRL CLIP M	10	7760056108
SCM CLIP P	5	7760056367
Note		
ESG 9/26 SCM ECO MC NE WS	80	1520980000
Note		
SCM-I QV S	10	1132080000
Note		
SDIK PH1	1	9008570000

Note

Socket module with
leaf spring connection, 2 CO contacts



250 V AC
300 V
12 A
-40 °C...70 °C
-40 °C...70 °C
CE; cURus
IP10
≥ 4 mm
2 kV _{eff} / 1 min
2 kV _{eff} / 1 min
4 kV (1.2/50 µs)
/ 0.5 / 2.5 mm ²
0.5...0.8 Nm
7 mm

Type	Qty.	Order No.
FS 2CO	10	7760056106

Type	Qty.	Order No.
DRM/DRL CLIP M	10	7760056108
SDIK PH1	1	9008570000

LED and protective modules are not compatible with this base. Further accessories can be found on the article at catalog.

D-SERIES – relay modules

DRM relay

4 CO contact, AC/DC coil

- Compact design combined with high switching capacity
- Wide range of coil voltages
- Optional test button (AC red, DC blue)
- Optional status LED (AC red, DC green)
- Optional free-wheeling diode



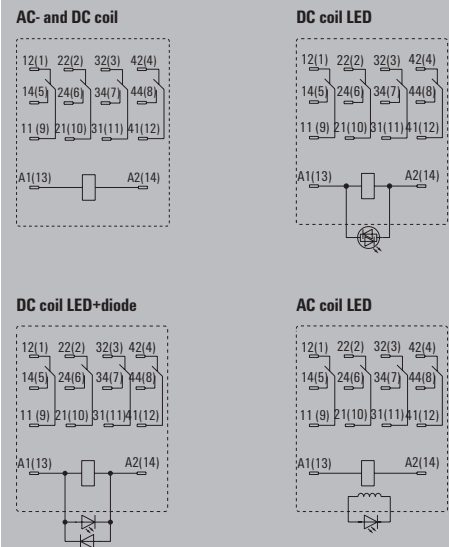
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 5 A
Max. switching voltage, AC	250 V
Inrush current	10 A / 50 ms
Min. switching power	10 mA @ 12 V, 100 mA @ 5 V
Contact type	4 CO contact (AgNi 0,15 µm Au)
Mechanical service life	20 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	1.8 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	1 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

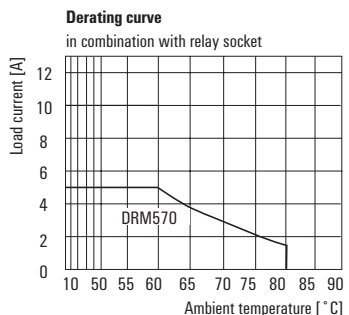
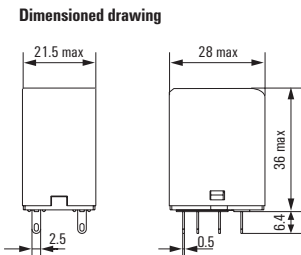
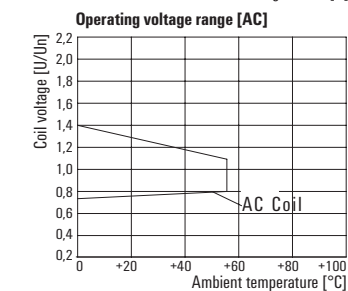
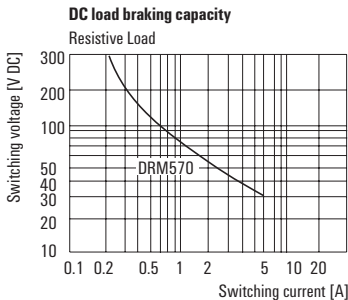
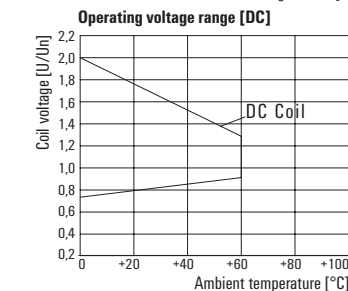
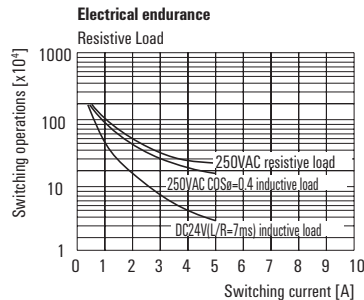
Dimensions	Plug-in connection
Depth x width x height	mm 35.7 / 21 / 27.4

Note Further technical data can be found at catalog [\[redacted\]](#)

Circuit diagram
View on pins from below

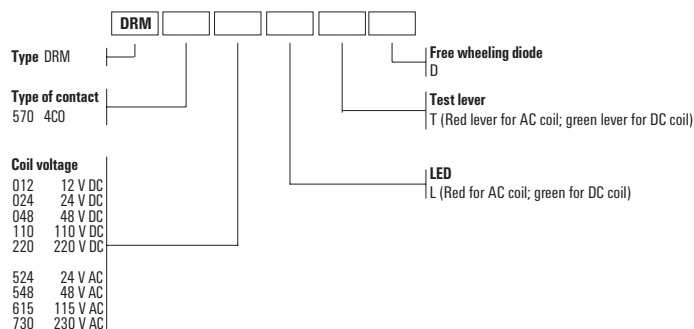


Applications



DRM relay

4 CO contact, AC/DC coil



Ordering data

Control side		12 V DC 4CO	24 V DC 4CO	48 V DC 4CO	110 V DC 4CO	220 V DC 4CO
Rated control voltage		12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC		/ 75 mA	/ 37.8 mA	/ 18.5 mA	/ 10 mA	/ 5.2 mA
Power rating		0.9 W	0.9 W	0.9 W	1.2 W	1.2 W
Ordering data						
Standard	Type	DRM570012	DRM570024	DRM570048	DRM570110	DRM570220
	Order No.	7760056078	7760056079	7760056080	7760056081	7760056082
with LED	Type	DRM570012L	DRM570024L	DRM570048L	DRM570110L	DRM570220L
	Order No.	7760056087	7760056088	7760056089	7760056090	7760056091
with test button + LED	Type	DRM570012LT	DRM570024LT	DRM570048LT	DRM570110LT	DRM570220LT
	Order No.	7760056096	7760056097	7760056098	7760056099	7760056100
with LED	Type		DRM570024LD			
+ Free-wheel diode	Order No.		7760056105			

Note					

Ordering data

Control side		24 V AC 4CO	48 V AC 4CO	115 V AC 4CO	230 V AC 4CO
Rated control voltage		24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC		62.4 mA (50 Hz), 52.2 mA (60 Hz) /	33.3 mA (50 Hz), 27.8 mA (60 Hz) /	12.6 mA (50 Hz), 10.8 mA (60 Hz) /	6.1 mA (50 Hz), 5.2 mA (60 Hz) /
Power rating		1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)	1.0...1.2VA (60HZ)
Ordering data					
Standard	Type	DRM570524	DRM570548	DRM570615	DRM570730
	Order No.	7760056083	7760056084	7760056085	7760056086
with LED	Type	DRM570524L	DRM570548L	DRM570615L	DRM570730L
	Order No.	7760056092	7760056093	7760056094	7760056095
with test button + LED	Type	DRM570524LT	DRM570548LT	DRM570615LT	DRM570730LT
	Order No.	7760056101	7760056102	7760056103	7760056104
	Type				
	Order No.				

Note				

D-SERIES – relay modules

Accessories for DRM relays

- Isolated input and output
- Terminal rail can be unlocked with a screwdriver
- Wide assortment of functional modules

Technical data

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

Ordering data

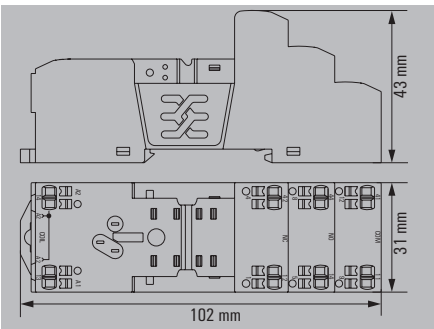
Base, rail-mountable
Note

Accessories

LED module / protection modules
Free-wheeling diode 6 - 230 V DC
LED 6 - 24 V DC green and freewheeling diode
LED 24 - 60 V DC green and free-wheeling diode
LED 110 - 230 V DC green and free-wheeling diode
LED 6 - 24 V UC green
LED 24 - 60 V UC green
LED 110 - 230 V UC green
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF
RC element 110 - 230 V AC; 100 Ω / 220 nF and LED green
Retaining clip
Metal retaining clip
Plastic retaining bracket with marker holder
Marking tags
white
Cross-connector
Screwdriver
Standard, insulated
Standard, uninsulated
Screwdriver, insulated PH1 SlimLine

Note

Socket with PUSH IN connection, 4 CO contact



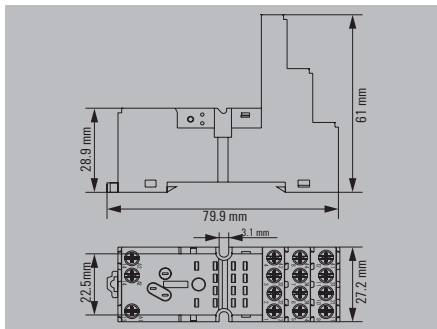
250 V AC
250 V
6 A
-40 °C...55 °C
-40 °C...85 °C
CE; cURus
IP20
≥ 3 mm
4 kV _{eff} / 1 min
2.5 kV _{eff} / 1 Min.
1.5 / 0.14 / 1.5 mm ²
...
10 mm

Type	Qty.	Order No.
SCM 4CO P	10	7760056363

Type	Qty.	Order No.
RIM 1 6/230VDC	10	7760056169
RIM 2 6/24VDC	10	7760056015
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 3 110/230VAC	10	7760056014
RIM 3 110/230VAC LED	10	7760056045
DRM/DRL CLIP M	10	7760056108
SCM CLIP P	5	7760056367
ESG 9/26 SCM ECO MC NE WS	80	1520980000
SCM/SDI P CC	10	7760056366
SDIS 0.4X2.5X75	1	9008370000
SDS 0.4X2.5X75	1	9009030000

Note

Socket module with clamping yoke connection, 4 CO contacts



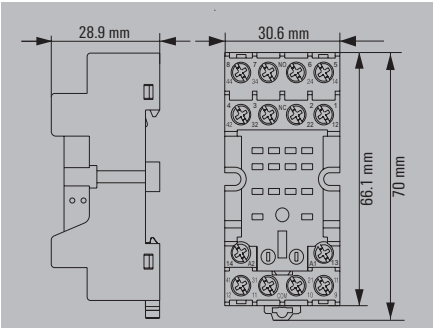
250 V AC
300 V
6 A
-40 °C...70 °C
-40 °C...70 °C
CE; cURus
IP20
≥ 5.5 mm
4 kV _{eff} / 1 min
4 kV _{eff} / 1 min
4.8 kV (1.2/50 μs)
/ 0.5 / 2.5 mm ²
0.5...0.8 Nm
7 mm

Type	Qty.	Order No.
SCM 4CO ECO	10	7760056264

Type	Qty.	Order No.
RIM 1 6/230VDC	10	7760056169
RIM 2 6/24VDC	10	7760056015
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 3 110/230VAC	10	7760056014
RIM 3 110/230VAC LED	10	7760056045
DRM/DRL CLIP M	10	7760056108
SCM CLIP P	5	7760056367
ESG 9/26 SCM ECO MC NE WS	80	1520980000
SCM-I QV S	10	1132080000
SDIK PH1	1	9008570000

Further accessories can be found on the article at catalog
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Socket module with
leaf spring connection, 4 CO contacts



250 V AC
300 V
10 A
-40 °C...70 °C
-40 °C...70 °C
CE; cURus
IP10
≥ 4 mm
2 kV _{eff} / 1 min
2 kV _{eff} / 1 min
4 kV (1.2/50 µs)
/ 0.5 / 2.5 mm ²
0.5...0.8 Nm
7 mm

Type	Qty.	Order No.
FS 4CO	10	7760056107

Type	Qty.	Order No.
RIM 1 6/230VDC	10	7760056169
RIM 2 6/24VDC	10	7760056015
RIM 2 24/60VDC	10	7760056016
RIM 2 110/230VDC	10	7760056017
RIM 3 6/24VUC	20	7940018457
RIM 3 24/60VUC	10	7760056018
RIM 3 110/230VUC	20	7940018455
RIM 3 110/230VAC	10	7760056014
DRM/DRL CLIP M	10	7760056108
SDK PH1	1	9008480000
SDIK PH1	1	9008570000
SDIK PH1 SL	1	1274710000

Further accessories can be found on the article at catalog [REDACTED]

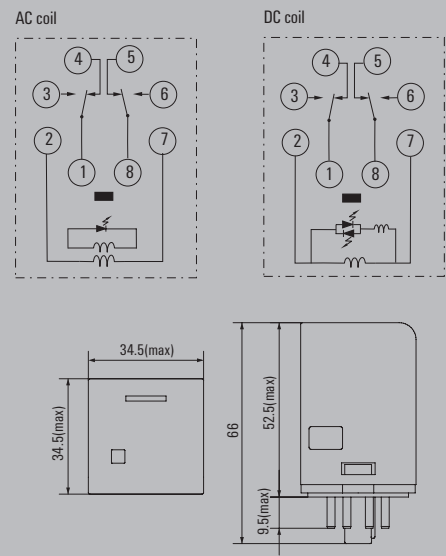
D-SERIES – relay modules

DRR power relay
2 CO contact, AC/DC coil

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



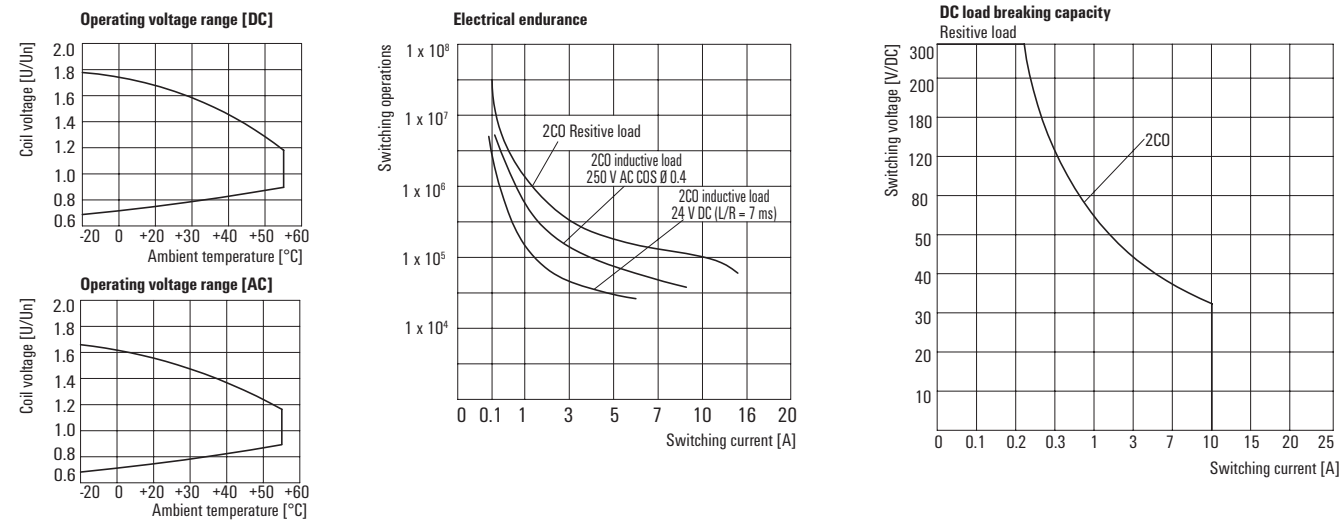
Circuit diagram
View on pins from below



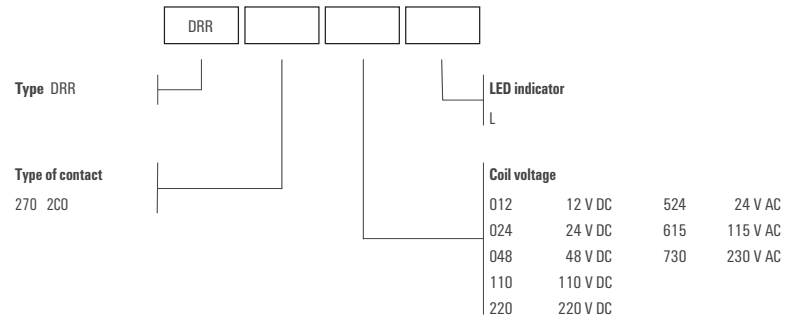
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	2 CO contact (AgCdO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	5...85 % rel. humidity, no condensation
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 3 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Depth x width x height	mm 66 / 34.5 / 34.5
Plug-in connection	
Note	
Further technical data can be found at catalog B.142	

Applications



DRR power relay 2 CO contact, AC/DC coil



Ordering data

Control side	12 V DC 2CO	24 V DC 2CO	48 V DC 2CO	110 V DC 2CO	220 V DC 2CO
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 125 mA	/ 55.8 mA	/ 29.2 mA	/ 15 mA	/ 7.6 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data					
Type	DRR270012L	DRR270024L	DRR270048L	DRR270110L	DRR270220L
Order No.	1133360000	1133370000	1133380000	1133390000	1133400000
Type					
Order No.					
Note					

Ordering data

Control side	24 V AC 2CO	115 V AC 2CO	230 V AC 2CO
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	130 mA (50 Hz), 116 mA (60 Hz) /	29.8 mA (50 Hz), 25.4 mA (60 Hz) /	14.9 mA (50 Hz), 12.7 mA (60 Hz) /
Power rating	2.7 VA	2.7 VA	2.7 VA
Status indicator	red LED	red LED	red LED

Ordering data			
Type	DRR270524L	DRR270615L	DRR270730L
Order No.	1133760000	1133780000	1133800000
Type			
Order No.			
Note			

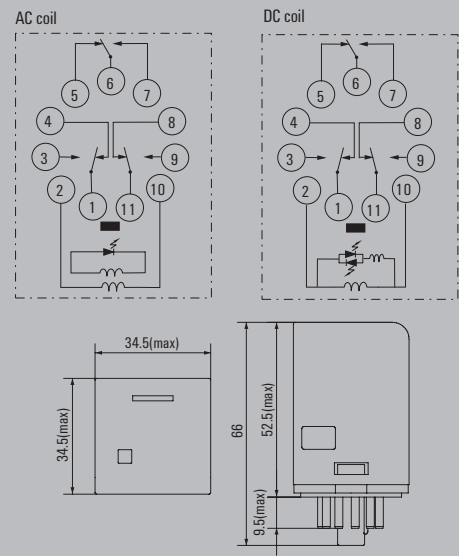
D-SERIES – relay modules

DRR power relay
3 CO contact, AC/DC coil

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



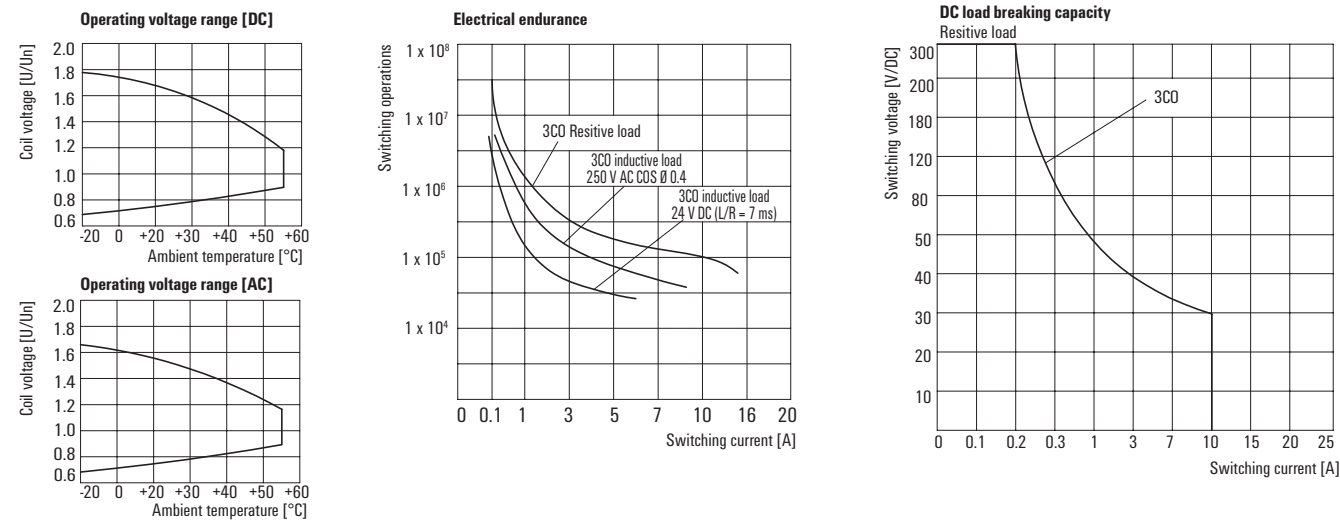
Circuit diagram
View on pins from below



Technical data

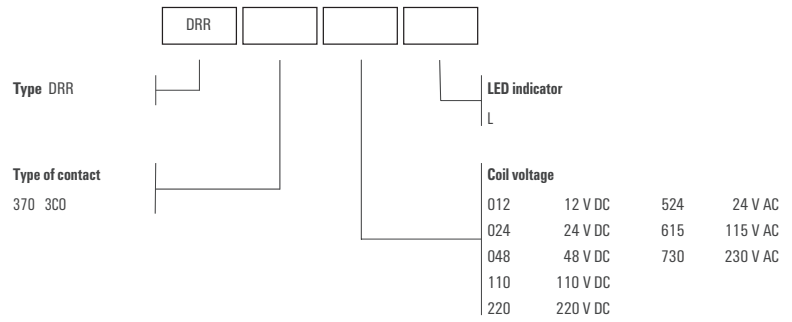
Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	3 CO contact (AgCdO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	5...85 % rel. humidity, no condensation
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 3 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Depth x width x height	mm 66 / 34.5 / 34.5
Plug-in connection	
Note	
Further technical data can be found at catalog B.144	

Applications



DRR power relay

3 CO contact, AC/DC coil



Ordering data

Control side	12 V DC 3CO	24 V DC 3CO	48 V DC 3CO	110 V DC 3CO	220 V DC 3CO
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 125 mA	/ 55.8 mA	/ 29.2 mA	/ 15 mA	/ 7.6 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data					
Type	DRR370012L	DRR370024L	DRR370048L	DRR370110L	DRR370220L
Order No.	1133410000	1133420000	1133430000	1133440000	1133560000
Type					
Order No.					
Note					

Ordering data

Control side	24 V AC 3CO	115 V AC 3CO	230 V AC 3CO
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	130 mA (50 Hz), 116 mA (60 Hz) /	29.8 mA (50 Hz), 25.4 mA (60 Hz) /	14.9 mA (50 Hz), 12.7 mA (60 Hz) /
Power rating	2.7 VA	2.7 VA	2.7 VA
Status indicator	red LED	red LED	red LED

Ordering data			
Type	DRR370524L	DRR370615L	DRR370730L
Order No.	1133810000	1133820000	1133830000
Type			
Order No.			
Note			

D-SERIES – relay modules

Accessories for DRR relays

Technical data

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

Ordering data

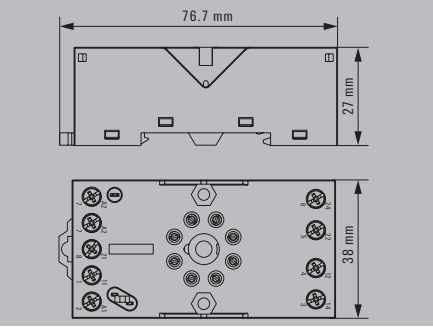
	Base, rail-mountable
Note	

Accessories

LED module / protection modules	
	RC element 6 - 230 V AC
	Free-wheeling diode 6 - 230 V DC
Retaining clip	
	Metal retaining clip
Screwdriver	
	Screwdriver, insulated PH1 SlimLine
	Standard, uninsulated
	Standard, insulated

Note

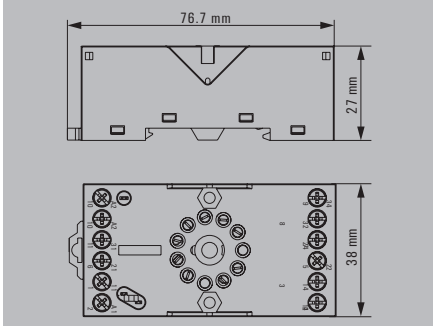
Socket module with
leaf spring connection, 2 CO contacts



Type	Qty.	Order No.
SRD ECO 2CO	10	1132810000
Type	Qty.	Order No.
RIM 5 6/230VAC	10	1174670000
RIM 5 6/230VDC	10	1174650000
Type	Qty.	Order No.
DRR CLIP M	10	1134160000
Type	Qty.	Order No.
SDIK PH1 SL	1	1274710000
SDIK PH1	1	9008570000
SDK PH1	1	9008480000

Further accessories can be found on the article at catalog
--

Socket module with
leaf spring connection, 3 CO contacts



Type	Qty.	Order No.
SRD ECO 3CO	10	1132820000
Type	Qty.	Order No.
RIM 5 6/230VAC	10	1174670000
RIM 5 6/230VDC	10	1174650000
Type	Qty.	Order No.
DRR CLIP M	10	1134160000
Type	Qty.	Order No.
SDIK PH1 SL	1	1274710000
SDIK PH1	1	9008570000
SDK PH1	1	9008480000

Further accessories can be found on the article at catalog
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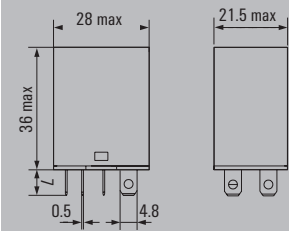
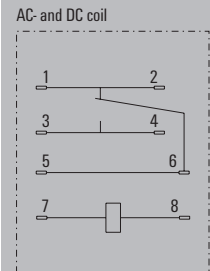
D-SERIES – relay modules

DRL power relay
1 CO contact, AC/DC coil

- High wear resistance in case of AC loads
- High dielectric strength: 2,000 V



Circuit diagram
View on pins from below



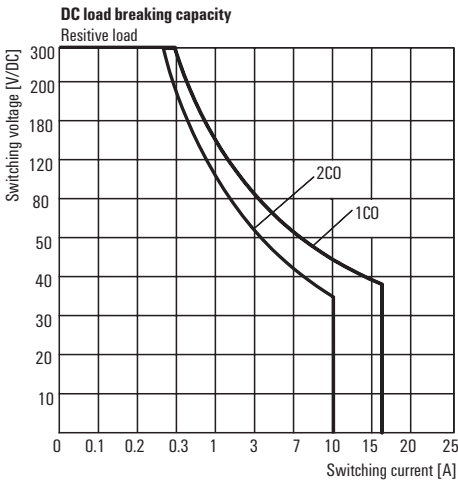
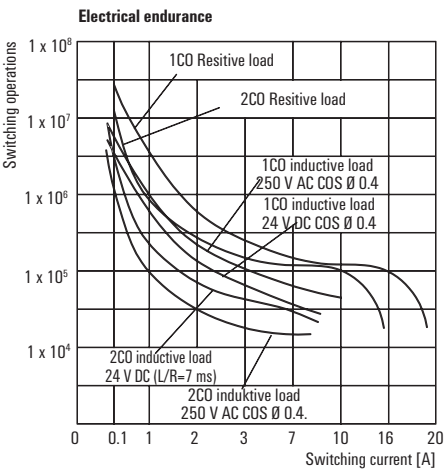
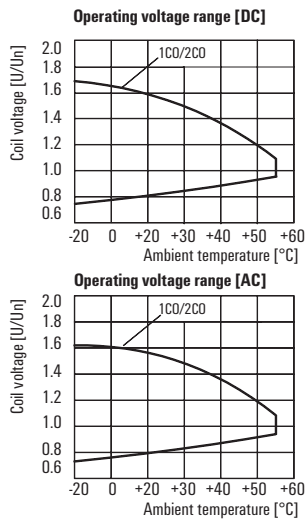
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 16 A
Max. switching voltage, AC	250 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	1 CO contact (AgCdO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	3

Dimensions	Flat blade connections (4.8 mm x 0.5 mm)
Depth x width x height	mm 36 / 21.5 / 28

Note Further technical data can be found at catalog [B.148](#)

Applications



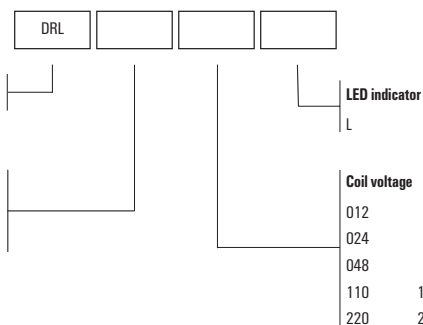
DRL power relay **1 CO contact, AC/DC coil**

Type DRL

Type of contact

170 1CO

270 2CO



Coil voltage

012 12 V DC

024 24 V DC

048 48 V DC

110 110 V DC

220 220 V DC

524 24 V AC

615 115 V AC

730 230 V AC

Ordering data

Control side

Rated control voltage
Rated current AC / DCPower rating
Status indicator

12 V DC

12 V DC
/ 75 mA0.9 W
Green LED

24 V DC

24 V DC
/ 36.9 mA0.9 W
Green LED

48 V DC

48 V DC
/ 18.5 mA0.9 W
Green LED

110 V DC

110 V DC
/ 10 mA0.9 W
Green LED

220 V DC

220 V DC
/ 5.2 mA0.9 W
Green LED

Ordering data

1 CO contact
Type
Order No.
Type
Order No.

DRL170012L

1133450000

DRL170024L

1133460000

DRL170048L

1133470000

DRL170110L

1133480000

DRL170220L

1133490000

Note

Ordering data

Control side

Rated control voltage
Rated current AC / DCPower rating
Status indicator

24 V AC

24 V AC
54 mA /1.2 VA
red LED

115 V AC

115 V AC
12.9 mA /1.2 VA
red LED

230 V AC

230 V AC
6.8 mA /1.2 VA
red LED

Ordering data

1 CO contact
Type
Order No.
Type
Order No.

DRL170524L

1133840000

DRL170615L

1133850000

DRL170730L

1133860000

Note

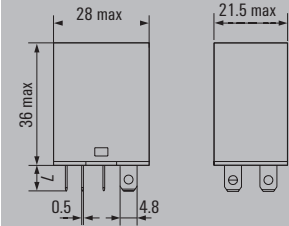
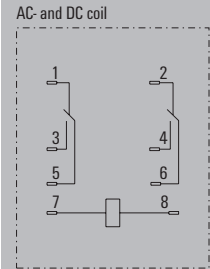
D-SERIES – relay modules

DRL power relay
2 CO contact, AC/DC coil

- High wear resistance in case of AC loads
- High dielectric strength: 2,000 V



Circuit diagram
View on pins from below



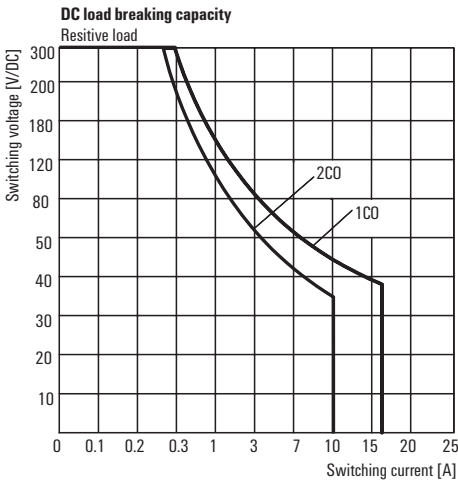
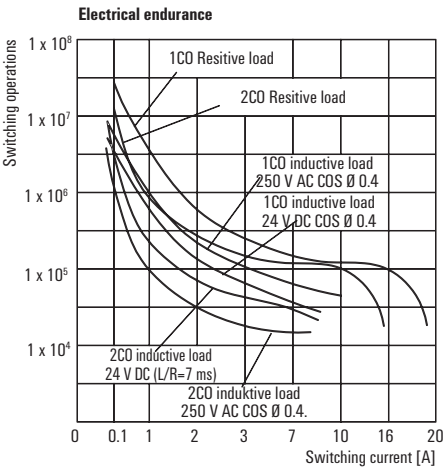
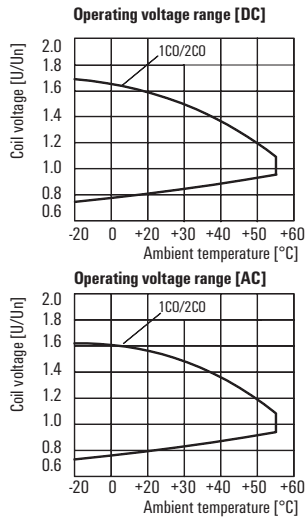
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	2 CO contact (AgCdO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	3

Dimensions	Flat blade connections (4.8 mm x 0.5 mm)
Depth x width x height	mm 36 / 21.5 / 28

Note Further technical data can be found at catalog [B.150](#)

Applications



DRL power relay

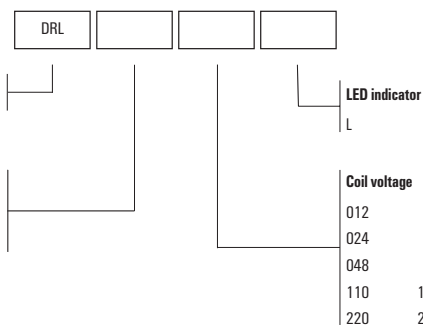
2 CO contact, AC/DC coil

Type DRL

Type of contact

170 1CO

270 2CO



Ordering data

Control side	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 75 mA	/ 36.9 mA	/ 18.5 mA	/ 10 mA	/ 5.2 mA
Power rating	0.9 W	0.9 W	0.9 W	0.9 W	0.9 W
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data						
2 CO contacts	Type	DRL270012L	DRL270024L	DRL270048L	DRL270110L	DRL270220L
	Order No.	1133510000	1133520000	1133530000	1133540000	1133550000
	Type					
	Order No.					
Note						

Ordering data

Control side	24 V AC	115 V AC	230 V AC
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	54 mA /	12,9 mA /	6.8 mA /
Power rating	1.2 VA	1.2 VA	1.2 VA
Status indicator	red LED	red LED	red LED

Ordering data				
2 CO contacts	Type	DRL270524L	DRL270615L	DRL270730L
	Order No.	1133870000	1133880000	1133890000
	Type			
	Order No.			
Note				

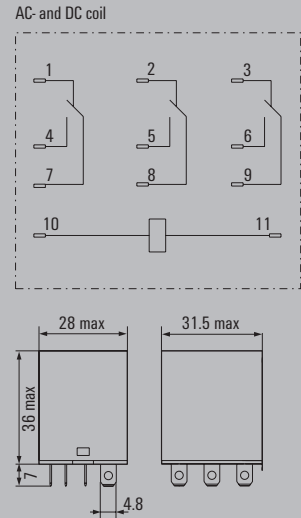
D-SERIES – relay modules

DRL power relay
3 CO contact, AC/DC coil

- High wear resistance in case of AC loads
- High dielectric strength: 2,000 V



Circuit diagram
View on pins from below



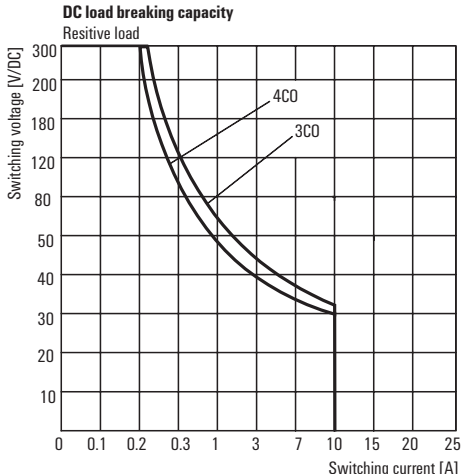
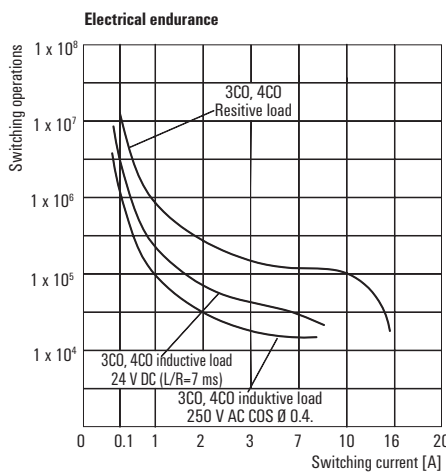
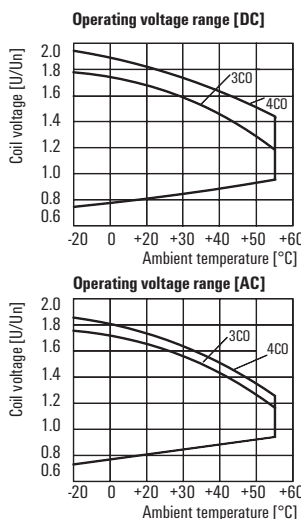
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	3 CO contact (AgCdO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	3

Dimensions	Flat blade connections (4.8 mm x 0.5 mm)
Depth x width x height	mm 36 / 31.5 / 28

Note Further technical data can be found at catalog [\[redacted\]](#)

Applications



DRL power relay

3 CO contact, AC/DC coil

Type DRL

Type of contact

370 3CO

570 4CO



LED indicator

L

Coil voltage

012

12 V DC

024

24 V DC

048

48 V DC

110

110 V DC

220

220 V DC

524

24 V AC

615

115 V AC

730

230 V AC

Ordering data

Control side

Rated control voltage

Rated current AC / DC

Power rating

Status indicator

12 V DC

12 V DC

/ 120 mA

1.4 W

Green LED

24 V DC

24 V DC

/ 60 mA

1.4 W

Green LED

48 V DC

48 V DC

/ 30 mA

1.4 W

Green LED

110 V DC

110 V DC

/ 13.1 mA

1.4 W

Green LED

220 V DC

220 V DC

/ 6.7 mA

1.4 W

Green LED

Ordering data

3 CO contacts

Type

Order No.

Type

Order No.

Note

DRL370012L

1133570000

DRL370024L

1133580000

DRL370048L

1133590000

DRL370110L

1133600000

DRL370220L

1133610000

Ordering data

Control side

Rated control voltage

Rated current AC / DC

Power rating

Status indicator

24 V AC

24 V AC

80 mA /

2 VA

red LED

115 V AC

115 V AC

16 mA /

2 VA

red LED

230 V AC

230 V AC

10 mA /

2 VA

red LED

Ordering data

3 CO contacts

Type

Order No.

Type

Order No.

Note

DRL370524L

1133910000

DRL370615L

1133920000

DRL370730L

1133930000

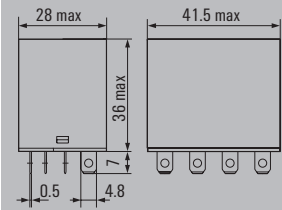
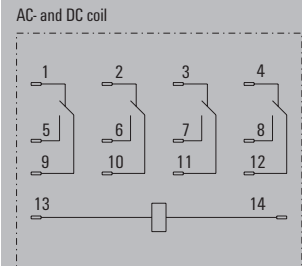
D-SERIES – relay modules

DRL power relay
4 CO contact, AC/DC coil

- High wear resistance in case of AC loads
- High dielectric strength: 2,000 V



Circuit diagram
View on pins from below



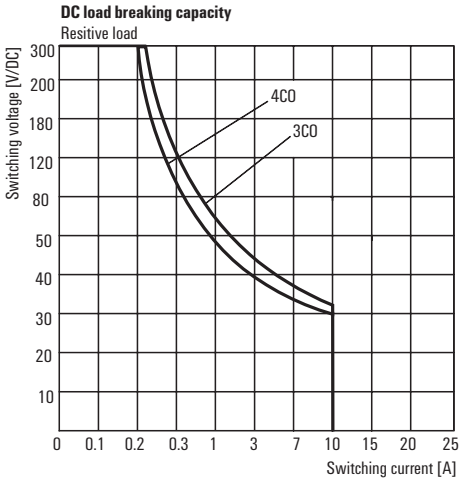
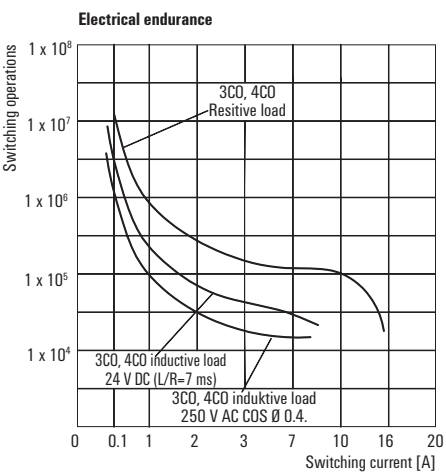
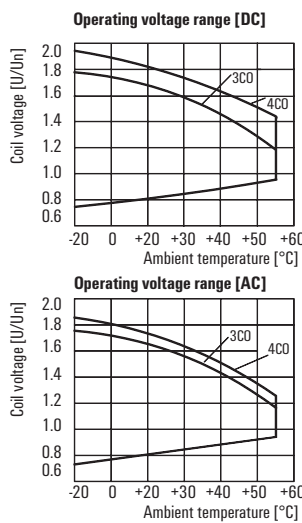
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	4 CO contact (AgCdO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	3

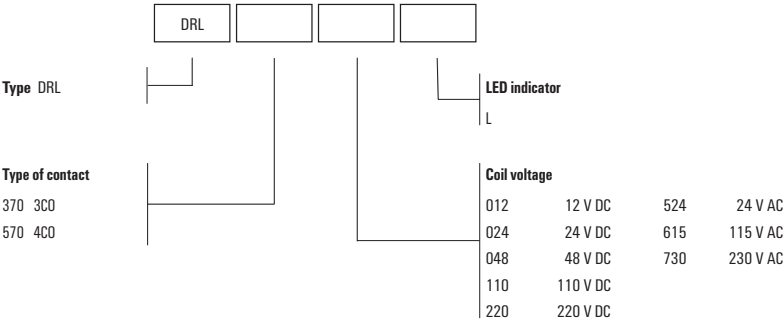
Dimensions	Flat blade connections (4.8 mm x 0.5 mm)
Depth x width x height	mm 36 / 41.5 / 28

Note Further technical data can be found at catalog [B.154](#)

Applications



DRL power relay
4 CO contact, AC/DC coil



Ordering data	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Control side					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 125 mA	/ 66.7 mA	/ 31.2 mA	/ 16.2 mA	/ 7.6 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data						
4 CO contacts	Type	DRL570012L	DRL570024L	DRL570048L	DRL570110L	DRL570220L
	Order No.	1133620000	1133630000	1133640000	1133650000	1133660000
	Type					
	Order No.					
Note						

Ordering data	24 V AC	115 V AC	230 V AC
Control side			
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 93.5 mA	/ 25.5 mA	/ 13.1 mA
Power rating	2.5 VA	2.5 VA	2.5 VA
Status indicator	red LED	red LED	red LED

Ordering data				
4 CO contacts	Type	DRL570524L	DRL570615L	DRL570730L
	Order No.	1133940000	1133950000	1133960000
	Type			
	Order No.			
Note				

D-SERIES – relay modules

Accessories for DRL relays

Technical data

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

Ordering data

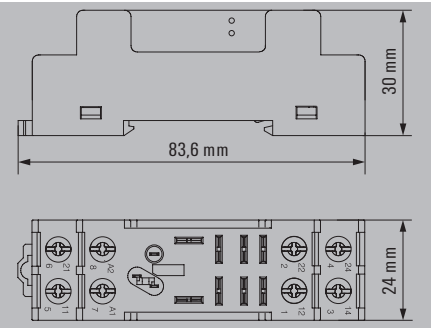
	Base, rail-mountable
Note	

Accessories

Retaining clip
Metal retaining clip
LED module / protection modules
LED 110 - 230 V UC green
LED 24 - 60 V UC green
LED 6 - 24 V UC green
LED 110 - 230 V DC green and free-wheeling diode
LED 24 - 60 V DC green and free-wheeling diode
LED 6 - 24 V DC green and freewheeling diode
Free-wheeling diode 6 - 230 V DC
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF
RC element 110 - 230 V AC; 100 Ω/ 220 nF and LED green
RC element 6 - 230 V AC
Screwdriver
Screwdriver, insulated PH2 SlimLine
Screwdriver, insulated PH2
Screwdriver PH2

Note

Socket module with
leaf spring connection, 2 CO contacts



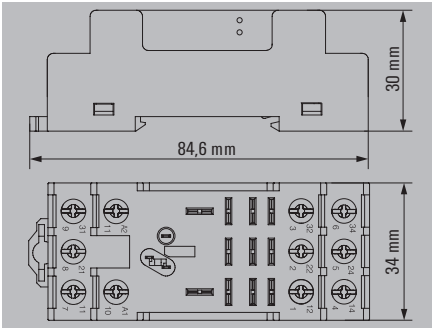
250 V AC
250 V
10 A
-40 °C...65 °C
-40 °C...85 °C
CE; cURus
IP10
≥ 6 mm
2 kV _{eff} / 1 min
2 kV _{eff} / 1 min
4 kV (1.2/50 μs)
/ 0.5 / 2.5 mm ²
0.8...1 Nm
8 mm

Type	Qty.	Order No.
SLD F 2CO	10	7760056225

Type	Qty.	Order No.
DRM/DRL CLIP M	10	7760056108
RIM 3 110/230VUC	20	7940018455
RIM 3 24/60VUC	10	7760056018
RIM 3 6/24VUC	20	7940018457
RIM 2 110/230VDC	10	7760056017
RIM 2 24/60VDC	10	7760056016
RIM 2 6/24VDC	10	7760056015
RIM 1 6/230VDC	10	7760056169
RIM 3 110/230VAC	10	7760056014
RIM 3 110/230VAC LED	10	7760056045
SDIK PH2 SL	1	1274720000
SDIK PH2	1	9008580000
SDK PH2	1	9008490000

Further accessories can be found on the article at catalog
--

Socket module with
leaf spring connection, 3 CO contacts



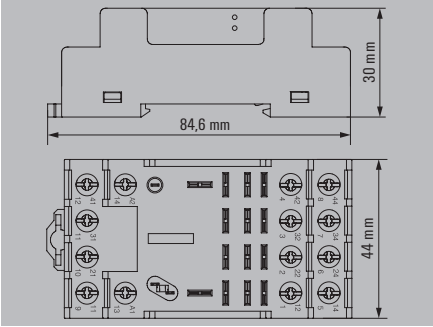
250 V AC
250 V
10 A
-40 °C...65 °C
-40 °C...85 °C
CE; cURus
IP10
≥ 6 mm
2 kV _{eff} / 1 min
2 kV _{eff} / 1 min
4 kV (1.2/50 μs)
/ 0.5 / 2.5 mm ²
0.8...1 Nm
8 mm

Type	Qty.	Order No.
SLD F 3CO	10	7760056226

Type	Qty.	Order No.
SLD CLIP 3CO M	10	7760056234
RIM 3 110/230VUC	20	7940018455
RIM 3 24/60VUC	10	7760056018
RIM 3 6/24VUC	20	7940018457
RIM 2 110/230VDC	10	7760056017
RIM 2 24/60VDC	10	7760056016
RIM 2 6/24VDC	10	7760056015
RIM 1 6/230VDC	10	7760056169
RIM 3 110/230VAC	10	7760056014
RIM 3 110/230VAC LED	10	7760056045
SDIK PH2 SL	1	1274720000
SDIK PH2	1	9008580000
SDK PH2	1	9008490000

Further accessories can be found on the article at catalog
--

Socket module with
leaf spring connection, 4 CO contacts



250 V AC
250 V
10 A
-40 °C...65 °C
-40 °C...85 °C
CE; cURus
IP10
≥ 6 mm
2 kV _{eff} / 1 min
2 kV _{eff} / 1 min
4 kV (1.2/50 µs)
/ 0.5 / 2.5 mm ²
0.8...1 Nm
8 mm

Type	Qty.	Order No.
SLD F 4CO	10	7760056227

Type	Qty.	Order No.
SLD CLIP 4CO M	10	7760056235
RIM 5 6/230VDC	10	1174650000
RIM 5 6/230VAC	10	1174670000
SDIK PH2 SL	1	1274720000
SDIK PH2	1	9008580000
SDK PH2	1	9008490000

Further accessories can be found on the article at catalog [REDACTED]

D-SERIES – relay modules

DRW power relay

2 CO contact, AC/DC coil

3 CO contact, AC/DC coil

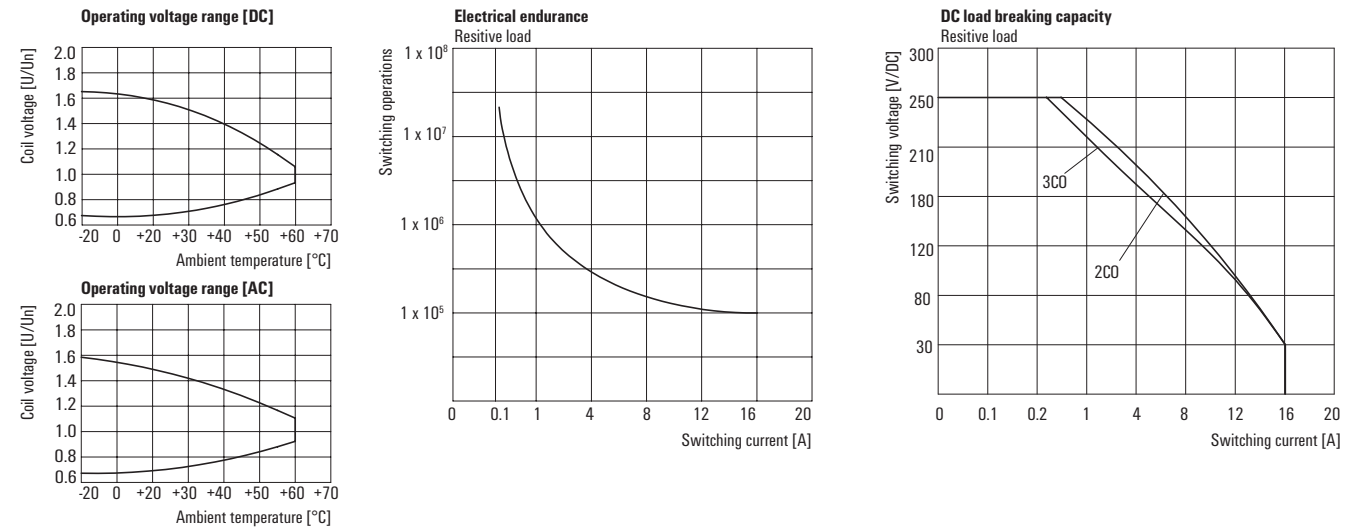
- Suitable for switching high load voltages
- With LED and test button



Technical data

Load side	
Rated switching voltage / Continuous current	400 VAC / 16 A
Max. switching voltage, AC	400 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	2 CO contact with test button (AgCdO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	400 V
Impulse withstand voltage	
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	1.5 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 6,3 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Flat blade connections (4.8 mm x 0.5 mm)	
Depth x width x height	mm 48 / 36 / 36
Note	
Further technical data can be found at catalog [redacted]	

Applications



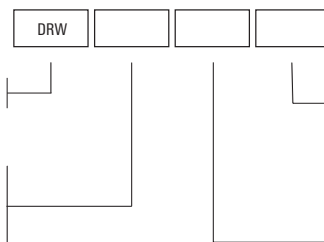
DRW power relay**2 CO contact, AC/DC coil****3 CO contact, AC/DC coil**

Type DRW

Type of contact

270 2CO

370 3CO



With LED and test lever

LT

Coil voltage

012	12 V DC	524	24 V AC
024	24 V DC	548	48 VAC
048	48 V DC	615	115 V AC
110	110 V DC	730	230 V AC
220	220 V DC	900	400 V AC

Ordering data**Control side**Rated control voltage
Rated current AC / DCPower rating
Status indicator**12 V DC**12 V DC
/ 120 mA

1.5 W

Green LED

24 V DC24 V DC
/ 60 mA

1.5 W

Green LED

48 V DC48 V DC
/ 30 mA

1.5 W

Green LED

110 V DC110 V DC
/ 13 mA

1.5 W

Green LED

220 V DC220 V DC
/ 6.7 mA

1.5 W

Green LED

Ordering data2 CO contacts Type
Order No.
3 CO contacts Type
Order No.

DRW270012LT

1219730000

DRW370012LT

1219780000

DRW270024LT

1219740000

DRW370024LT

1219790000

DRW270048LT

1219750000

DRW370048LT

1219810000

DRW270110LT

1219760000

DRW370110LT

1219820000

DRW270220LT

1219770000

DRW370220LT

1219830000**Note****Ordering data****Control side**Rated control voltage
Rated current AC / DCPower rating
Status indicator**24 V AC**24 V AC
101.7 mA /

2.5 VA

red LED

48 V AC48 V AC
50.5 mA /

2.5 VA

red LED

115 V AC115 V AC
21 mA /

2.5 VA

red LED

230 V AC230 V AC
10.6 mA /

2.5 VA

red LED

400 V AC400 V AC
6.1 mA /

2.5 VA

red LED

Ordering data2 CO contacts Type
Order No.
3 CO contacts Type
Order No.

DRW270524LT

1219350000

DRW370524LT

1219410000

DRW270548LT

1219360000

DRW370548LT

1219420000

DRW270615LT

1219370000

DRW370615LT

1219430000

DRW270730LT

1219380000

DRW370730LT

1219440000

DRW270900LT

1219390000

DRW370900LT

1219450000**Note**

D-SERIES – relay modules

DRH DC relay

1 NO contact AC/DC coil

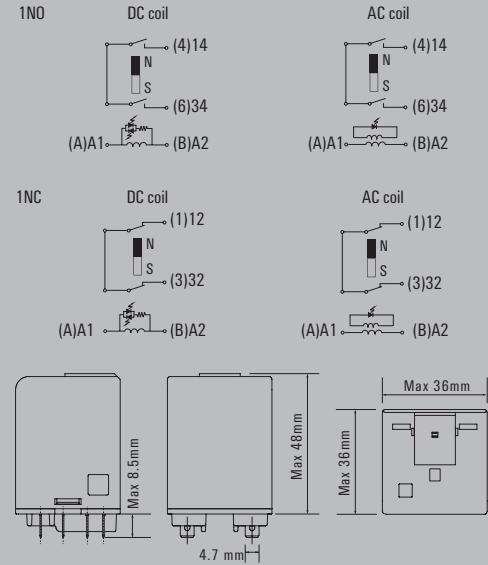
1 NC contact AC/DC coil

- Suitable for switching high DC loads
- With blowout magnet
- With LED and test button
- For switching high DC loads up to 10 A at 220 V DC



Circuit diagram

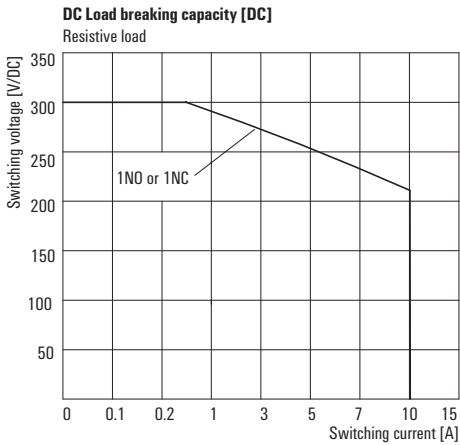
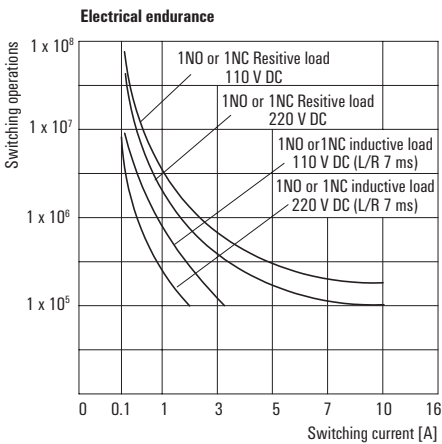
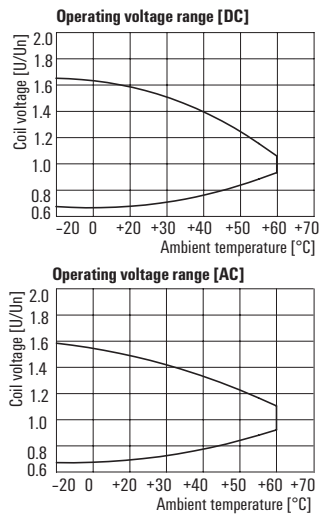
View on pins from below



Technical data

Load side	
Rated switching voltage / Continuous current	500 V AC / 16 A
Max. switching voltage, AC	500 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	2200 W @ 220 V / 8000 VA
Contact material	AgSnO2
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	500 V
Impulse withstand voltage	
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Flat blade connections (4.8 mm x 0.5 mm)	
Depth x width x height	mm 48 / 36 / 36
Note	
Further technical data can be found at catalog [redacted]	

Applications



DRH DC relay

1 NO contact AC/DC coil

1 NC contact AC/DC coil

Type

DRH

Type of contact

173 1NO

174 1NC



With LED and test lever

LT

Coil voltage

012	12 V DC	524	24 V AC
024	24 V DC	548	48 V AC
048	48 V DC	615	115 V AC
110	110 V DC	730	230 V AC
220	220 V DC		

Ordering data

Control side	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 120 mA	/ 60 mA	/ 30 mA	/ 13 mA	/ 6.7 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Status indicator	Green LED	Green LED	Green LED	Green LED	red LED

Ordering data

1 NO contact	Type	DRH173012LT	DRH173024LT	DRH173048LT	DRH173110LT	DRH173220LT
	Order No.	1219840000	1219850000	1219860000	1219870000	1219880000
1 NC contact	Type	DRH174012LT	DRH174024LT	DRH174048LT	DRH174110LT	DRH174220LT
	Order No.	1219940000	1219950000	1219960000	1219970000	1219980000

Ordering data
Test-button lock

Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249	7760056249

Note

Ordering data

Control side	24 V AC	48 V AC	115 V AC	230 V AC
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC	101.7 mA /	50.5 mA /	21 mA /	10.6 mA /
Power rating	2.5 VA	2.5 VA	2.5 VA	2.5 VA
Status indicator	red LED	red LED	red LED	red LED

Ordering data

1 NO contact	Type	DRH173524LT	DRH173548LT	DRH173615LT	DRH173730LT
	Order No.	1219890000	1219910000	1219920000	1219930000
1 NC contact	Type	DRH174524LT	DRH174548LT	DRH174615LT	DRH174730LT
	Order No.	1219990000	1220010000	1220020000	1220030000

Ordering data
Test-button lock

Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249

Note

D-SERIES – relay modules

DRH DC relay
1 NO contact / 1 NC contact AC/DC coil

- Suitable for switching high DC loads
- With blowout magnet
- With LED and test button
- For switching high DC loads up to 3 A at 220 V DC



Circuit diagram
View on pins from below

1NO/1NC

DC coil

AC coil

Max 8.5mm

Max 48mm

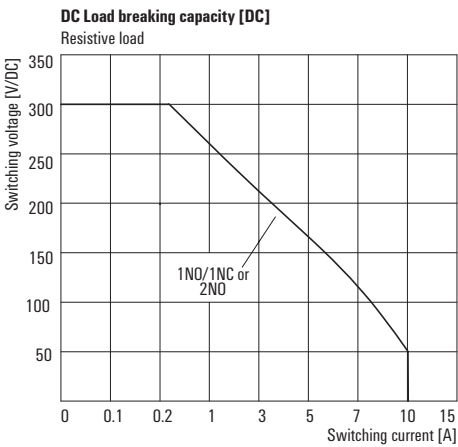
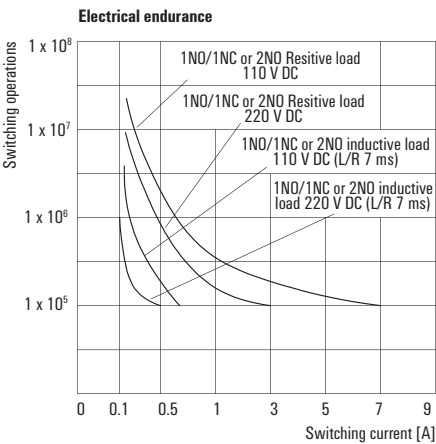
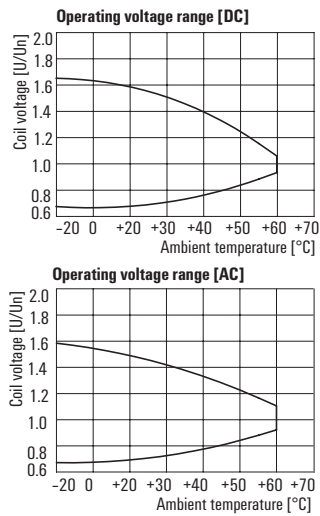
Max 36mm

4.7 mm

Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 16 A
Max. switching voltage, AC	250 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	660 W @ 220 V / 4000 VA
Contact material	AgSnO2
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	400 V
Impulse withstand voltage	
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	4 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 6,3 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Flat blade connections (4.8 mm x 0.5 mm)	
Depth x width x height	mm 48 / 36 / 36
Note	
Further technical data can be found at catalog B.162	

Applications



DRH DC relay

1 NO contact / 1 NC contact AC/DC coil

Type

DRH

Type of contact

173 1NO

174 1NC



With LED and test lever

LT

Coil voltage

012	12 V DC	524	24 V AC
024	24 V DC	548	48 V AC
048	48 V DC	615	115 V AC
110	110 V DC	730	230 V AC
220	220 V DC		

Ordering data

Control side	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 120 mA	/ 60 mA	/ 30 mA	/ 13 mA	/ 6.7 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data

1 NO / 1 NC contact	Type	DRH275012LT	DRH275024LT	DRH275048LT	DRH275110LT	DRH275220LT
Order No.		1220040000	1220050000	1220060000	1220070000	1220080000
Type						
Order No.						

Ordering data
Test-button lock

Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249	7760056249

Note

Ordering data

Control side	24 V AC	48 V AC	115 V AC	230 V AC
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC	101.7 mA /	50.5 mA /	21 mA /	10.6 mA /
Power rating	2.5 VA	2.5 VA	2.5 VA	2.5 VA
Status indicator	red LED	red LED	red LED	red LED

Ordering data

1 NO / 1 NC contact	Type	DRH275524LT	DRH275548LT	DRH275615LT	DRH275730LT
Order No.		1220090000	1220110000	1220120000	1220130000
Type					
Order No.					

Ordering data
Test-button lock

Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249

Note

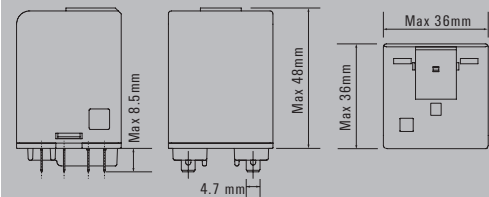
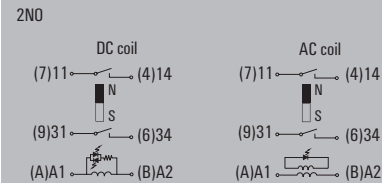
D-SERIES – relay modules

DRH DC relay
2 NO contact AC/DC coil

- Suitable for switching high DC loads
- With blowout magnet
- With LED and test button
- For switching high DC loads up to 3 A at 220 V DC



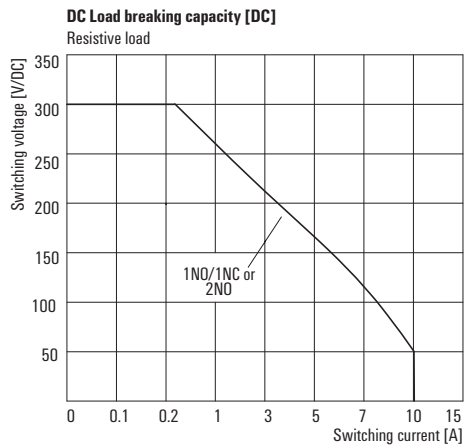
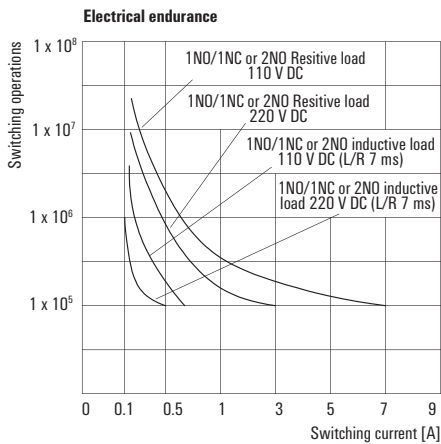
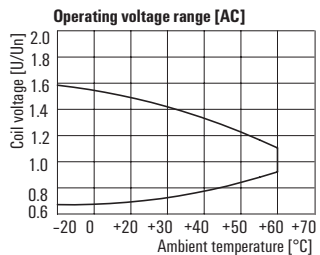
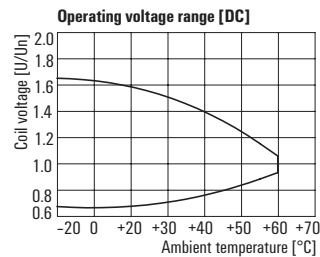
Circuit diagram
View on pins from below



Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 16 A
Max. switching voltage, AC	250 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	660 W @ 220 V / 4000 VA
Contact material	AgSnO2
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus, EAC
Insulation coordinates	
Rated voltage	400 V
Impulse withstand voltage	
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	4 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 6,3 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Flat blade connections (4.8 mm x 0.5 mm)	
Depth x width x height	mm 48 / 36 / 36
Note	
Further technical data can be found at catalog [redacted]	

Applications



DRH DC relay

2 NO contact AC/DC coil

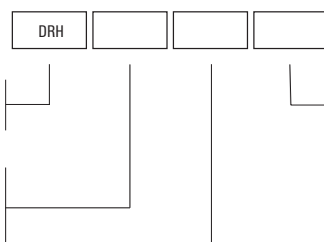
Type

DRH

Type of contact

275 1NO/1NC

276 2NO

**With LED and test lever**

LT

Coil voltage

012	12 V DC	524	24 V AC
024	24 V DC	548	48 V AC
048	48 V DC	615	115 V AC
110	110 V DC	730	230 V AC
220	220 V DC		

Ordering data

	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Control side					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 120 mA	/ 60 mA	/ 30 mA	/ 13 mA	/ 6.7 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data

2 NO contacts	Type	DRH276012LT	DRH276024LT	DRH276048LT	DRH276110LT	DRH276220LT
	Order No.	1220140000	1220150000	1220170000	1220180000	1220190000
	Type					
	Order No.					

Ordering data
Test-button lock

Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249	7760056249

Note**Ordering data**

	24 V AC	48 V AC	115 V AC	230 V AC
Control side				
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC	101.7 mA /	50.5 mA /	21 mA /	10.6 mA /
Power rating	2.5 VA	2.5 VA	2.5 VA	2.5 VA
Status indicator	red LED	red LED	red LED	red LED

Ordering data

2 NO contacts	Type	DRH276524LT	DRH276548LT	DRH276615LT	DRH276730LT
	Order No.	1220200000	1220210000	1220220000	1220230000
	Type				
	Order No.				

Ordering data
Test-button lock

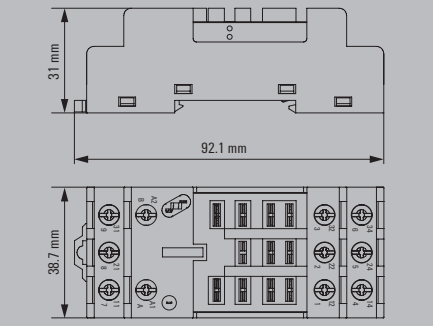
Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
Order No.	7760056249	7760056249	7760056249	7760056249

Note

D-SERIES – relay modules

Accessories for DRH and DRW relays

Socket module with
leaf spring connection, 3 CO contacts



Technical data

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

500 V AC
500 V
16 A
-40 °C...60 °C
-40 °C...60 °C
CE; cURus
IP10
4 kV _{eff} / 1 min
4 kV _{eff} / 1 min
7.3 kV (1.2/50 µs)
/ 0.5 / 4 mm ²
0.5...1.2 Nm
8 mm

Ordering data

Base, rail-mountable
Note

Type	Qty.	Order No.
SPW ECO 3CO	10	1220250000

Accessories

LED module / protection modules
RC element 6 - 230 V AC
Free-wheeling diode 6 - 230 V DC
Retaining clip
Metal retaining clip
Screwdriver
Screwdriver, insulated PH2 SlimLine
Screwdriver, insulated PH2
Screwdriver PH2

Type	Qty.	Order No.
RIM 5 6/230VAC	10	1174670000
RIM 5 6/230VDC	10	1174650000
DRW/DRH CLIP M	10	1220260000
SDIK PH2 SL	1	1274720000
SDIK PH2	1	9008580000
SDK PH2	1	9008490000

Note

Further accessories can be found on the article at catalog
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MCZ-SERIES

High reliability in a terminal block format

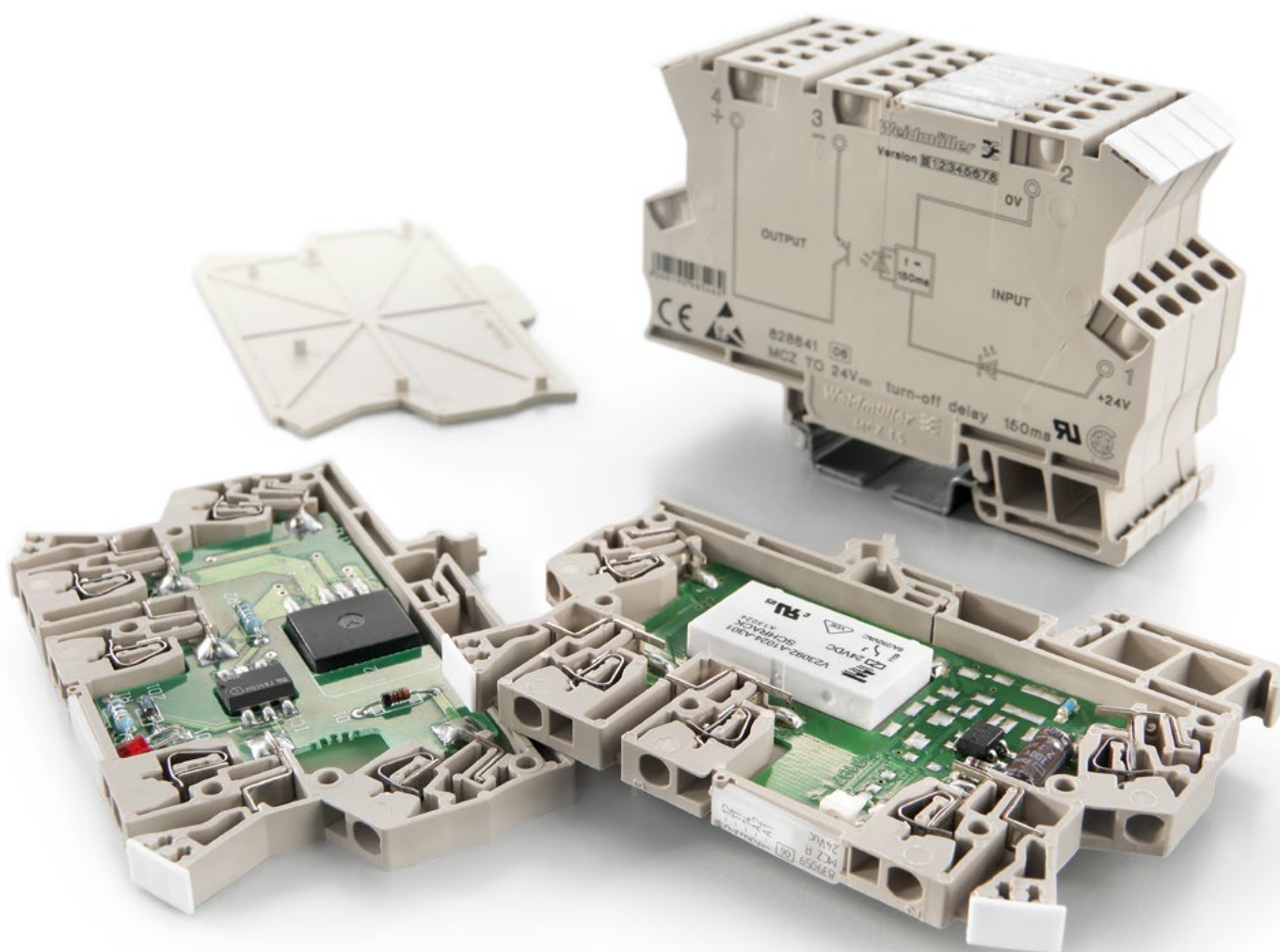
B

MCZ SERIES relay modules are among the smallest on the market. Thanks to the small width of just 6.1 mm, a lot of space can be saved in the panel. All products in the series have three cross-connection terminals and are distinguished by simple wiring with plug-in cross-connections. The tension clamp connection system, proven a million times over, and the integrated reverse polarity protection ensure a high level of safety during installation and operation. Precisely fitting accessories from cross-connectors to markers and end plates make the MCZ SERIES versatile and convenient to use.

MCZ TRAK – tested according to DIN EN 50155

- Variants of the MCZ TRAK type are particularly suitable for the transport sector
- Tested according to DIN EN 50155, they meet the special requirements for operating voltage, temperature range, shock and vibration resistance as required for use in the railway industry.



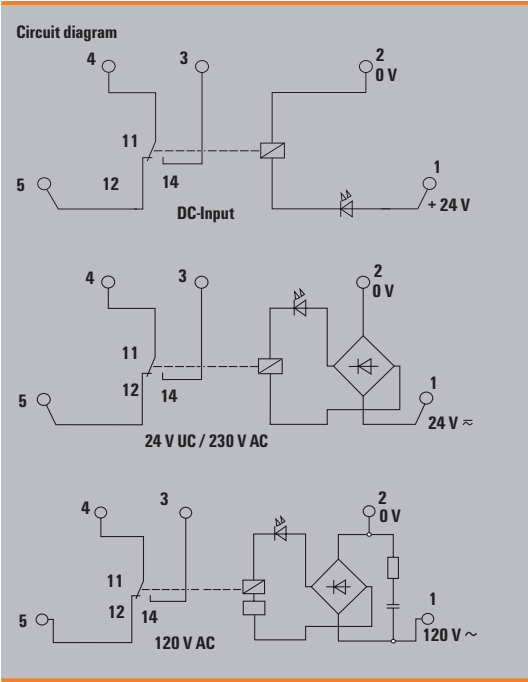
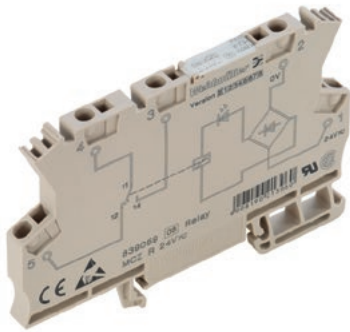


MCZ SERIES – relay modules

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



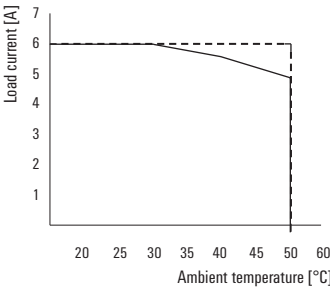
Technical data

Load side	
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
Contact type	1 CO contact (AgSnO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General 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; DNVGL; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 s
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 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.	

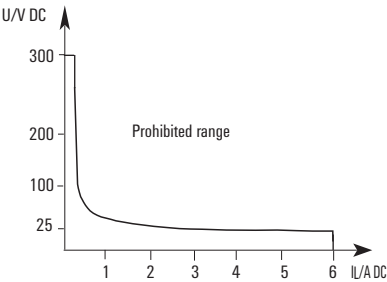
Applications

Derating curve

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



Limit curve



MCZ R
1 CO contact AC/DC/UC coil

Ordering data

Control side	24 V DC 1 CO	24 V DC 1 CO Au	24 V UC 1 CO	110 V DC 1 CO
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
Status indicator	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data
Complete module

CO contact	Type	MCZ R 24VDC	MCZ R 24VDC 5UAU	MCZ R 24VUC	MCZ R 110VDC
Order No.		8365980000	8442960000	8390590000	8467470000
Type					
Order No.					

Note				
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Ordering data

Control side	120 V AC 1 CO	230 V AC 1 CO
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
Status indicator	Green LED	Green LED
Protective circuit	RC element, Rectifier	Rectifier

Ordering data
Complete module

CO contact	Type	MCZ R 120VAC	MCZ R 230VAC
Order No.		8420880000	8237710000
Type			
Order No.			

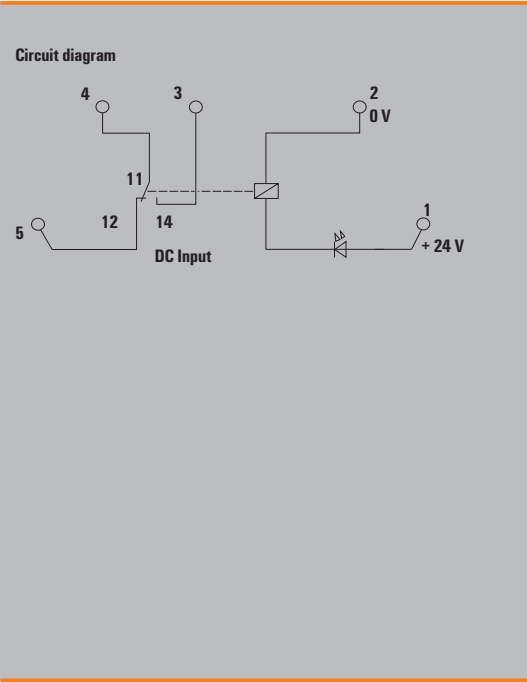
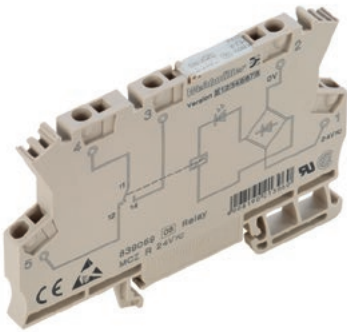
Note		
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B

MCZ SERIES – relay modules

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

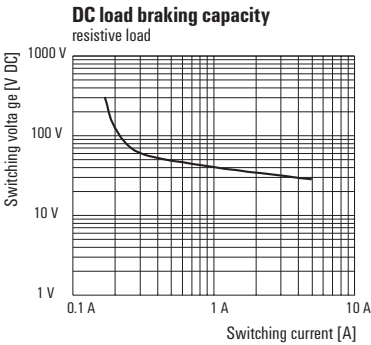
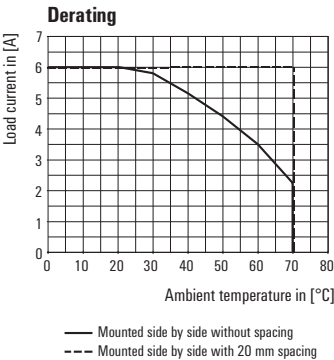
- 1 CO contact
- Component for rail industry applications
- Vibration requirements according to EN 61373, requirements category 1 class B
- Voltage fluctuations -30 %/+25 % and ±40 % for 0.1 sec
- Voltage interruptions at input up to 10 ms
- Condensation permissible



Technical data

Load side	
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
Contact type	1 CO contact (AgSnO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-25 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	95 % for 30 days, minimal condensation to EN 50155
Approvals	CE; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 s
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 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



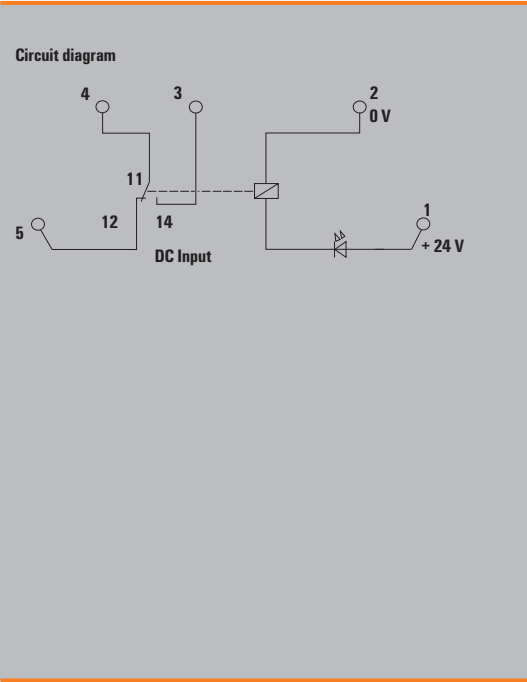
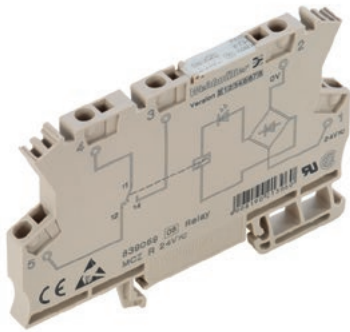
MCZ R TRAK
1 CO contact or 1 NO contact DC coil

Ordering data		24 V DC TRAK	36 V DC TRAK	48...110 V DC TRAK
Control side				
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
Status indicator		Green LED	Green LED	Green LED
Protective circuit		Free-wheeling diode, Varistor, Reverse polarity protection	Free-wheeling diode, Varistor, Reverse polarity protection	Free-wheeling diode, Varistor, Reverse polarity protection
Ordering data				
Complete module				
CO contact	Type	MCZ R 24Vdc 1CO TRAK	MCZ R 36Vdc 1CO TRAK	MCZ R 48...110Vdc 1CO TRAK
	Order No.	8713890000	8713900000	8713910000
NO contact	Type	MCZ R 24Vdc 1NO TRAK		MCZ R 48...110Vdc 1NO TRAK
	Order No.	8499550000		8574070000
Note				

MCZ SERIES – relay modules

MCZ R TRAK Au
1 CO contact DC coil

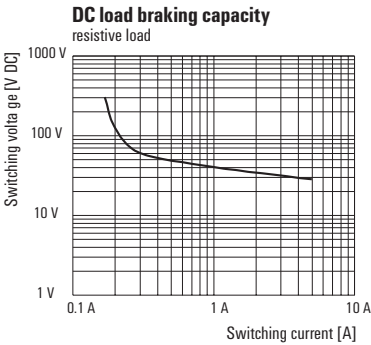
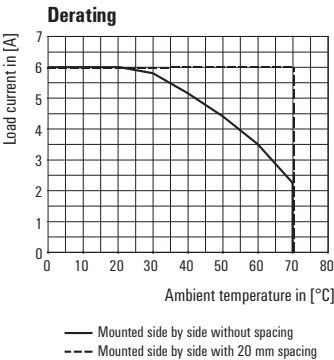
- 1 CO with hard gold-plated contacts
- Component for rail industry applications
- Vibration requirements according to EN 61373, requirements category 1 class B
- Voltage fluctuations -30 %/+25 % and ±40 % for 0.1 sec
- Voltage interruptions at input up to 10 ms
- Condensation permissible



Technical data

Load side	
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
Contact type	1 CO contact (AgSnO 5µm Au)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-25 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	95 % for 30 days, minimal condensation to EN 50155
Approvals	CE; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 s
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 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



MCZ R TRAK Au
1 CO contact DC coil

Ordering data

Control side	24 V DC TRAK Au	36 V DC TRAK Au	48...110 V DC TRAK Au
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
Status indicator	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode, Varistor, Reverse polarity protection	Free-wheeling diode, Varistor, Reverse polarity protection	Free-wheeling diode, Varistor, Reverse polarity protection

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

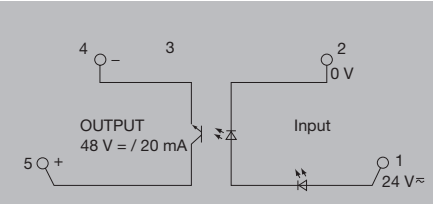
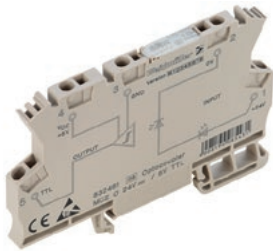
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MCZ-SERIES – solid-state relays

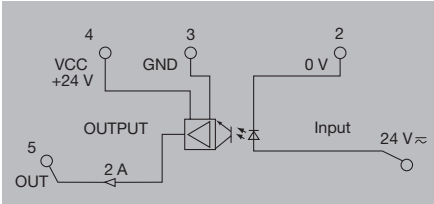
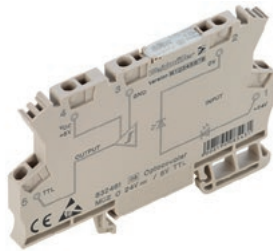
MCZ 0

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

24 V UC



24 V UC / 24 V 2 A



Technical data

Control side	
Rated control voltage	24 V UC ±20 %
Nominal control current	10 mA DC ±20 %, 10 mA AC ±20 %
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	
Contact type	1 NO contact (Transistor)
Voltage drop at max. load	≤ 1 V
Leakage current	
Protective circuit, load side	Free-wheeling diode
Short-circuit-proof	No
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 _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Control side	
Rated control voltage	24 V UC ±20 %
Nominal control current	10 mA DC ±20 %, 10 mA AC ±20 %
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	
Contact type	1 NO contact (Transistor)
Voltage drop at max. load	≤ 1 V
Leakage current	
Protective circuit, load side	Free-wheeling diode
Short-circuit-proof	No
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 _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Control side	
Rated control voltage	24 V UC ±20 %
Nominal control current	10 mA DC ±20 %, 10 mA AC ±20 %
Input frequency	AC: 10 Hz / DC: 30 Hz
Power rating	195 mW / 220 mVA
Status indicator	LED
Protective circuit	
Load side	
Rated switching voltage	24 VDC ±20%
Continuous current	2 A
Inrush current	
Contact type	1 NO contact (Transistor)
Voltage drop at max. load	≤ 1.8 V
Leakage current	
Protective circuit, load side	Varistor
Short-circuit-proof	Yes
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 _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 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 ²
Depth x width x height	mm
Note	

Tension-clamp connection	
1.5 / 0.5 / 1.5	
63.2 / 6.1 / 91	
Further technical data can be found at catalog. XXXXXXXXXX	

Tension-clamp connection	
1.5 / 0.5 / 1.5	
63.2 / 6.1 / 91	
Further technical data can be found at catalog. XXXXXXXXXX	

Ordering data

Type	Qty.	Order No.
MCZ 0 24VUC	10	8365940000

Type	Qty.	Order No.
MCZ 0 24VUC	10	8365940000

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

Note

Note

Note

Accessories

Note

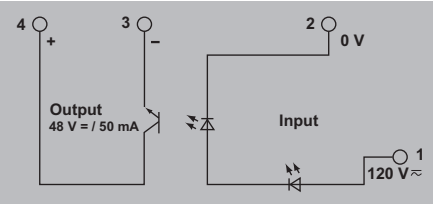
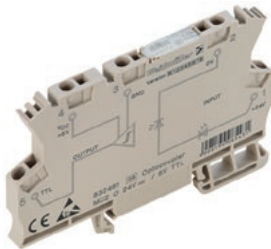
End plate AP MCZ 1.5: 8389030000
Accessories and dimensional drawings: refer to the MCZ Accessories page.

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

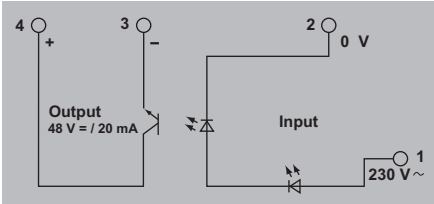
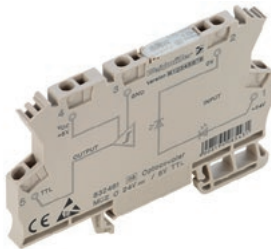
MCZ O

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

120 V UC



230 V AC



Technical data

Control side	
Rated control voltage	120 V UC +5 / -15 %
Nominal control current	3 mA DC (±10 %), 3 mA AC (±10 %)
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	
Contact type	1 NO contact (Transistor)
Voltage drop at max. load	1.6 V
Leakage current	≤ 1 mA
Protective circuit, load side	Free-wheeling diode
Short-circuit-proof	No
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 _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 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 %)
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	
Contact type	1 NO contact (Transistor)
Voltage drop at max. load	1.6 V
Leakage current	≤ 1 mA
Protective circuit, load side	Free-wheeling diode
Short-circuit-proof	No
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 _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 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 %
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	
Contact type	1 NO contact (Transistor)
Voltage drop at max. load	1.6 V
Leakage current	≤ 1 mA
Protective circuit, load side	Free-wheeling diode
Short-circuit-proof	No
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 _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 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 ²
Depth x width x height	mm
Note	

Tension-clamp connection	
1.5 / 0.5 / 1.5	
63.2 / 6.1 / 91	
Further technical data can be found at catalog. XXXXXXXXXX	

Tension-clamp connection	
1.5 / 0.5 / 1.5	
63.2 / 6.1 / 91	
Further technical data can be found at catalog. XXXXXXXXXX	

Ordering data

Type	Qty.	Order No.
MCZ O 120VUC	10	8421060000

Type	Qty.	Order No.
MCZ O 120VUC	10	8421060000

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

Note

Note

Note

Accessories

Note

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

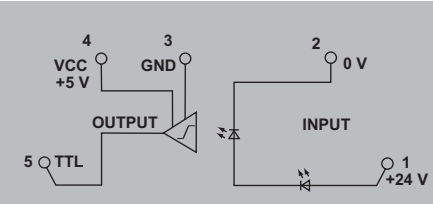
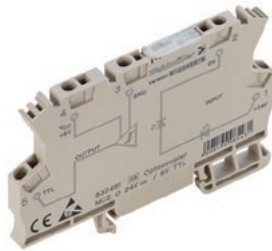
End plate AP MCZ 1.5: 8389030000
Accessories and dimensional drawings: refer to the MCZ Accessories page.

MCZ-SERIES – solid-state relays

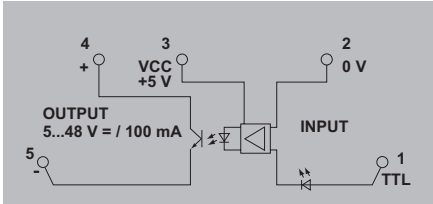
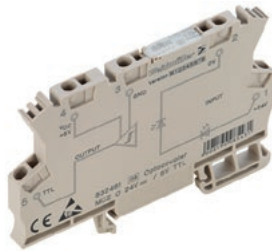
MCZ 0

- 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



5 V TTL / 5...48 V DC



Technical data

Control side	
Rated control voltage	24 V DC $\pm 16\%$
Nominal control current	5 mA DC ($\pm 20\%$)
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	
Contact type	1 NO contact (TTL)
Voltage drop at max. load	
Leakage current	
Protective circuit, load side	
Short-circuit-proof	
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 μ s)
Dielectric strength for control side - load side	1 kV _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Control side	
Rated control voltage	24 V DC $\pm 16\%$
Nominal control current	5 mA DC ($\pm 20\%$)
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	
Contact type	1 NO contact (TTL)
Voltage drop at max. load	
Leakage current	
Protective circuit, load side	
Short-circuit-proof	
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 μ s)
Dielectric strength for control side - load side	1 kV _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Control side	
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	
Load side	
Rated switching voltage	5...48 V DC
Continuous current	100 mA
Inrush current	
Contact type	1 NO contact (TTL)
Voltage drop at max. load	≤ 1.8 V
Leakage current	
Protective circuit, load side	
Short-circuit-proof	
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 μ s)
Dielectric strength for control side - load side	1 kV _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 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 ²
Depth x width x height	mm
Note	

Tension-clamp connection	
1.5 / 0.5 / 1.5	
63.2 / 6.1 / 91	
Further technical data can be found at catalog. XXXXXXXXXX	

Tension-clamp connection	
1.5 / 0.5 / 1.5	
63.2 / 6.1 / 91	
Further technical data can be found at catalog. XXXXXXXXXX	

Ordering data

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

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

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

Note

Accessories

Note

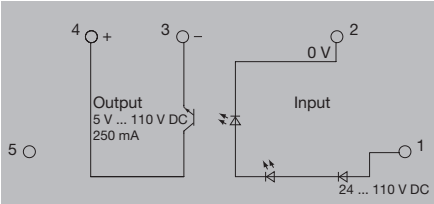
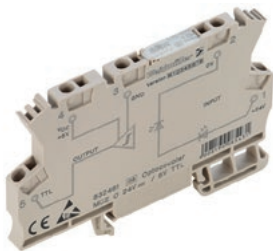
End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.
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End plate AP MCZ 1.5: 8389030000 Accessories and dimensional drawings: refer to the MCZ Accessories page.
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MCZ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



Technical data

Control side	
Rated control voltage	24...110 V DC -30 / +25 %
Nominal control current	2.8 mA DC
Input frequency	10 Hz
Power rating	
Status indicator	Green LED
Protective circuit	
Load side	
Rated switching voltage	5...137.5 V DC
Continuous current	250 mA @ 50 °C
Inrush current	
Contact type	1 NO contact (Transistor)
Voltage drop at max. load	≤ 1.7 V
Leakage current	
Protective circuit, load side	Varistor, Free-wheeling diode
Short-circuit-proof	No
General data	
Ambient temperature (operational)	-25 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	95 % for 30 days, minimal condensation to EN 50155
Approvals	CE; 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 _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Control side	
Rated control voltage	24...110 V DC -30 / +25 %
Nominal control current	2.8 mA DC
Input frequency	10 Hz
Power rating	
Status indicator	Green LED
Protective circuit	
Load side	
Rated switching voltage	5...137.5 V DC
Continuous current	250 mA @ 50 °C
Inrush current	
Contact type	1 NO contact (Transistor)
Voltage drop at max. load	≤ 1.7 V
Leakage current	
Protective circuit, load side	Varistor, Free-wheeling diode
Short-circuit-proof	No
General data	
Ambient temperature (operational)	-25 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	95 % for 30 days, minimal condensation to EN 50155
Approvals	CE; 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 _{eff} / 1 s
Dielectric strength to mounting rail	4 kV _{eff} / 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 ²
Depth x width x height	mm
Note	

Tension-clamp connection	
1.5 / 0.5 / 1.5	
63.2 / 6.1 / 91	
Further technical data can be found at catalog.	

Ordering data

Tension clamp connection

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

Note

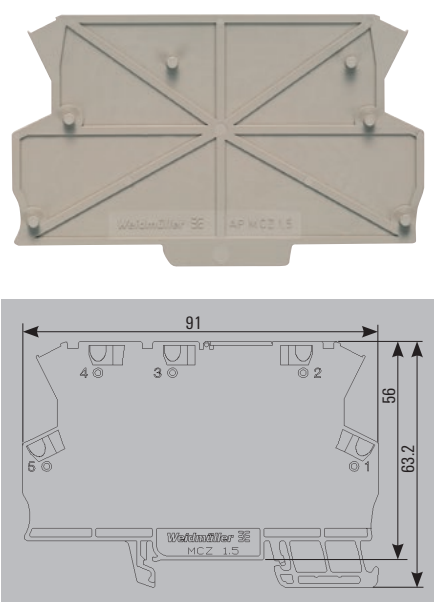
Note

Accessories

Note

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

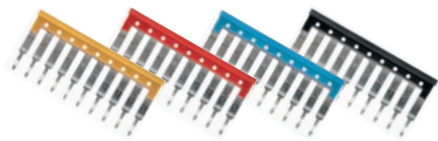
MCZ accessories



Ordering data

Type	Qty.	Order No.
End plate		

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
red		
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
blue		
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
black		
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

Application range

Application range	Overview	C.2
	TERMOPTO – Overview	C.4
	MICROOPTO – Overview	C.6
	Special loads	C.8
	Sensor isolation	C.40
	High switching frequencies	C.60
	Signal adaption	C.68
	Timing functions	C.80
	Functional safety	C.102
	Power	C.124
	Accessories	C.144

Application range

Relay modules and solid-state relays for specific applications

C

In many industrial applications today, individual, customised solutions and components are used to increase system efficiency and system productivity. These include, for example, protective circuits for greater fail-safe performance, timing relays for adjusting signals, relays for functional safety and space-saving components for use in limited installation spaces.

With our application range we provide you with a customised portfolio to increase your productivity, efficiency and safety in the most diverse fields of application. What's more, we work with you to develop customised solutions, combining the advantages and features of our portfolio with our expertise and consulting services.

We have a wide range of products that combine application-specific designs, the latest technologies and well-proven components to meet all your requirements.



Special loads

Relays to switch and monitor special loads, such as inductors and high inrush currents, safely and reliably.



Timing functions

Timing relays are used in automation technology to compensate for errors due to short cycle times.



Sensor isolation

Space-saving and fast switching coupling elements to decouple sensors from the field.



Functional safety

Specific safety relays required for signals in process safety-related systems.



High switching frequencies

Specially designed solid-state relays for reliable and fast decoupling of signals up to 550 kHz.



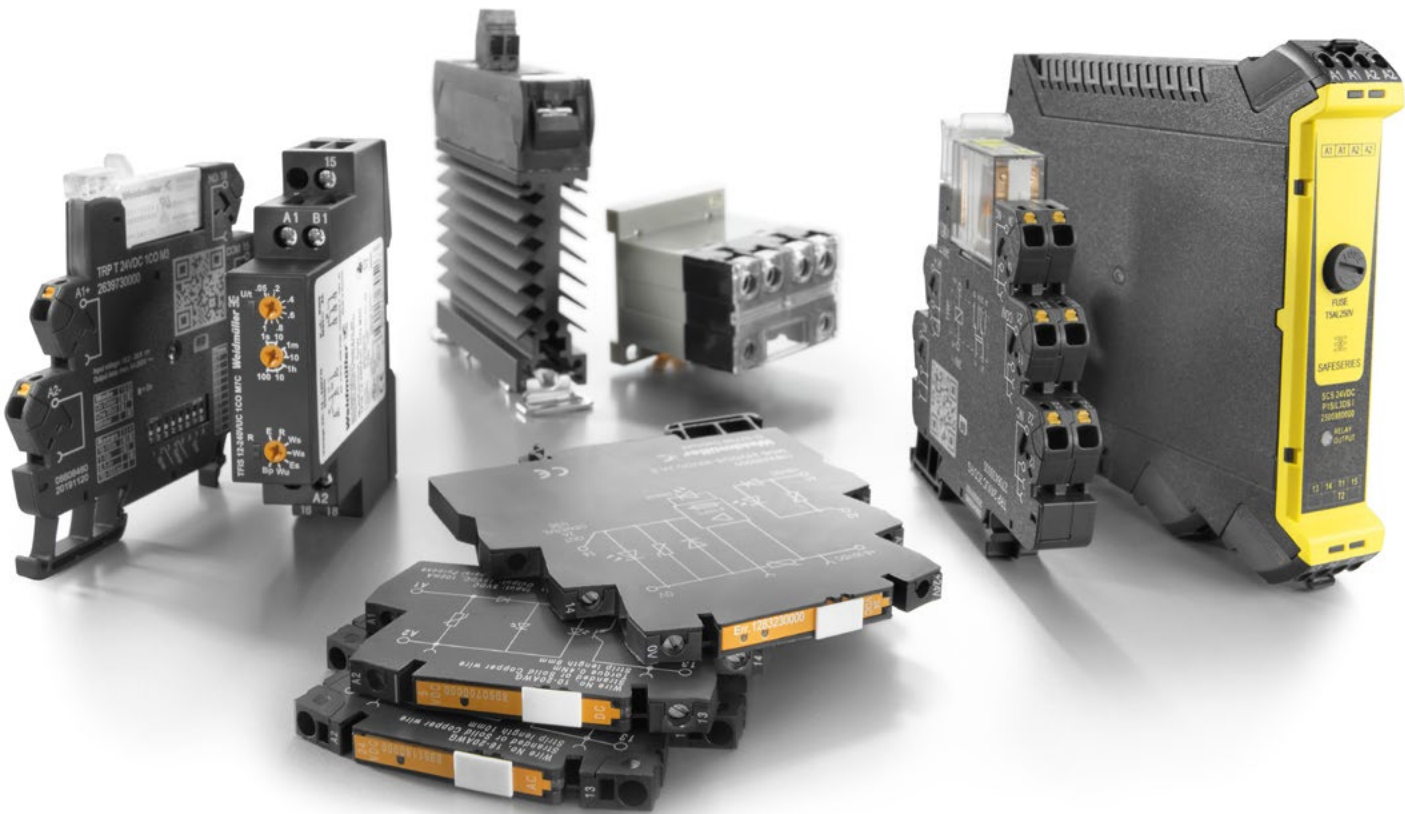
Power

Power solid-state contactor up to 75 A and miniature contactors up to 30 A.



Signal adaption

Adaptation of signals and their transmission from other systems to the control cabinet level.



TERMOPTO

Wear-free potential isolation in terminal block design

C

In many applications, it is essential that relays for potential isolation and signal adjustment perform their tasks reliably and permanently. Instead of wear-prone electromechanical solutions, maintenance-free relays with integrated potential isolation are increasingly being used.

TERMOPTO solid-state relays in terminal block design are the perfect solution for the simple and reliable decoupling of digital signals. Besides their particularly compact design, they are distinguished by their PUSH IN connection system, plug-in cross-connections and an optimal price/performance ratio.

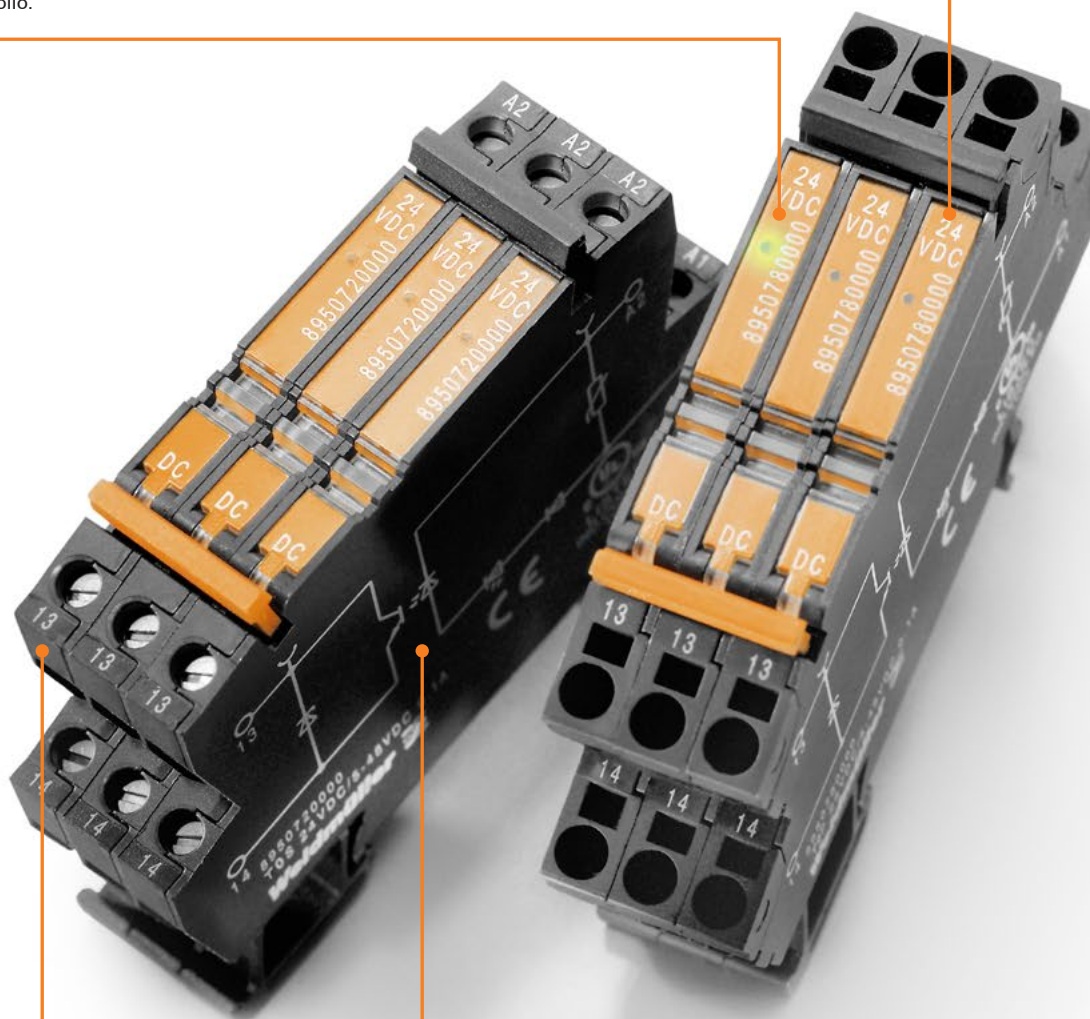
With TERMOPTO solid-state relays, you save space in the panel, reduce your service costs and sustainably increase plant availability. You also reduce the complexity of the required accessories as you can use components from the Weidmüller portfolio, from cross-connectors to markers.

Well-designed all round

The LED status indicator provides information about the switching status. Suitable accessories from cross-connectors to continuous marking solutions can be procured from the Weidmüller portfolio.

Wide voltage range

Ten input voltages from 5 V DC to 230 V AC, a particularly compact multi-voltage input for 48 to 60 V DC and a variant for input voltages from 48 to 60 V AC ensure a high level of flexibility.

**Permanently reliable**

The wear-free solid-state technology with comprehensive protective suppressor circuit for inputs and outputs makes TERMOPTO particularly long-lasting and reliable.

Extremely compact

The compact design with a width of just 6.1 mm reduces the space required in the panel by more than 80% compared to conventional solid-state relays.

MICROOPTO

Compact and powerful solid-state relays in terminal block design

C

Saving space in the panel is becoming more and more important, and requires increasingly compact components. With the compact and powerful MICROOPTO solid-state relays, you benefit from our decades of experience in manufacturing products in terminal block design.

The MICROOPTO family comprises high-quality solid-state relays for application-specific problem solving and delivers high performance in a width of just 6.1 mm. The wide range of accessories from plug-in cross-connections to end-to-end marking solutions makes it particularly versatile. Thanks to international approvals, they can be used worldwide. Reliable function is ensured by the integrated protective suppressor circuit for inputs and outputs.

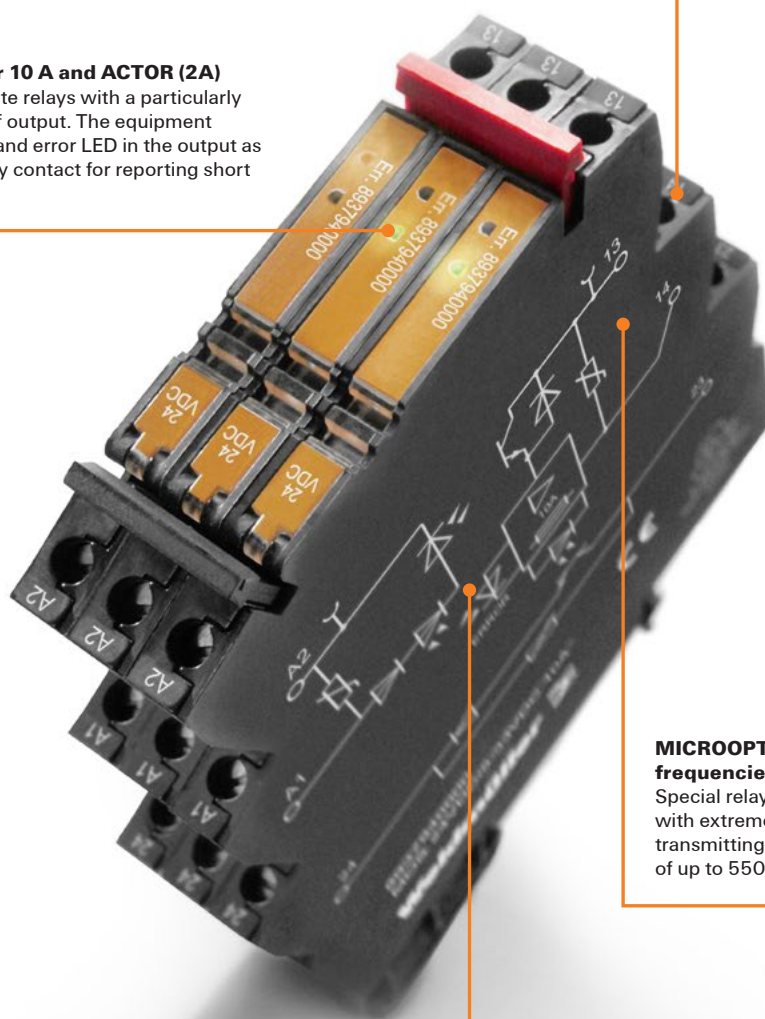
The wide MICROOPTO portfolio includes a range of solutions for special loads. For example, for inductive loads up to 10 A at 24 V DC or for DC loads up to 300 V. In addition, there are solutions for decoupling 5 V TTL inputs and outputs, for frequencies up to 550 kHz, as well as the 1 CO contact version for inverting signals.

MICROOPTO for signal adjustment

Available in special versions for the transmission of 5 V TTL signals to PLC systems and industrial computers – or equipped with 1 CO contact output for inverting signals.

MICROOPTO for 10 A and ACTOR (2A)

Powerful solid-state relays with a particularly short-circuit-proof output. The equipment includes a status and error LED in the output as well as an auxiliary contact for reporting short circuits.

**MICROOPTO for high switching frequencies**

Special relays for reliable signal decoupling with extremely fast switching operations or for transmitting signals with switching frequencies of up to 550 kHz.

MICROOPTO for 300 V DC

Special solid-state relays for DC voltages up to 300 VDC, 1 A. The integrated protective suppressor circuit also enables the switching of inductive loads with high DC voltages.

Special loads

Reliably switch or monitor inductive, capacitive and high loads

C

If special loads such as inductivities or high inrush currents are to be switched or monitored safely and reliably, you need individually tailored relay modules and solid-state relays. These customised solutions extend the service life of the switching element and, what's more, they can be installed in the panel in a space-saving manner thanks to optimised connection options.

Capacitive loads

Many loads with capacitive load components are now concealed in upstream pre-circuits, e.g. in solenoid valves, contactors or power supplies for LED lighting. These pre-circuits can contain capacitors that generate high inrush current peaks of up to 150 A. Such current peaks can lead to welding of the output contacts or destroy the output. To avoid this, special relay modules and solid-state relays from our portfolio are used.

Inductive loads

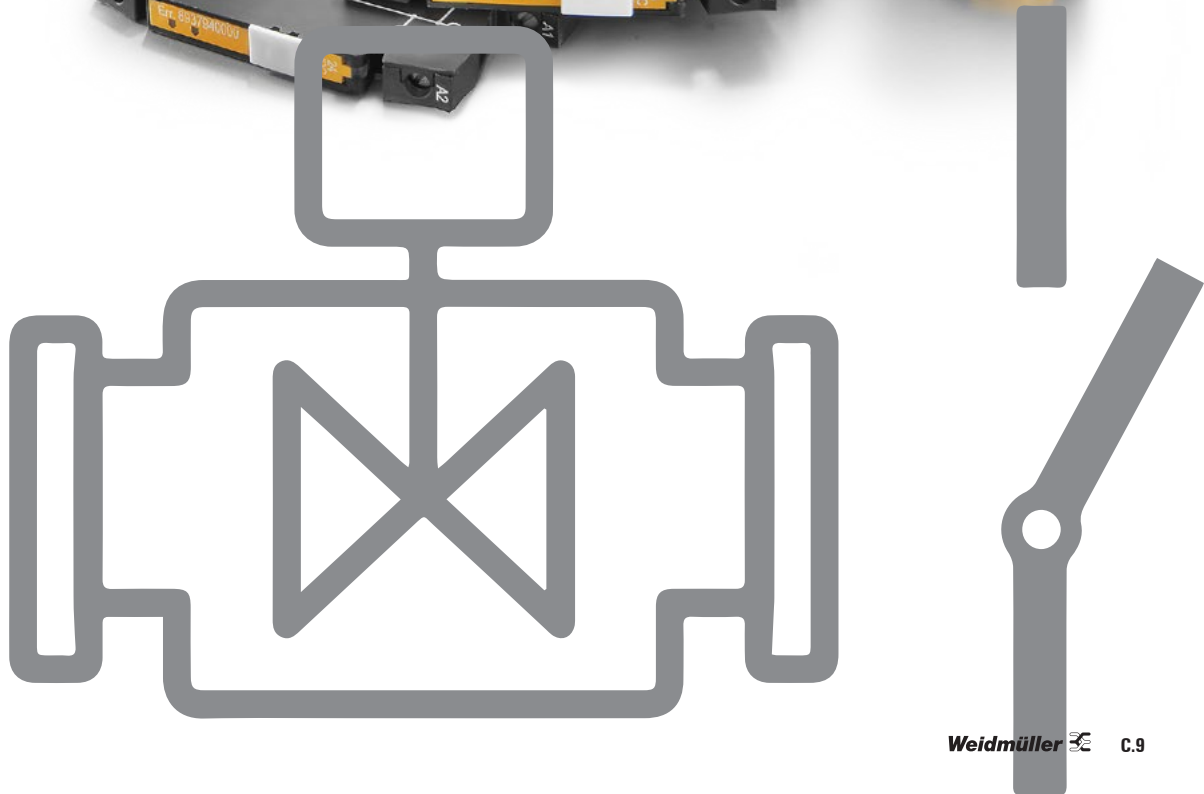
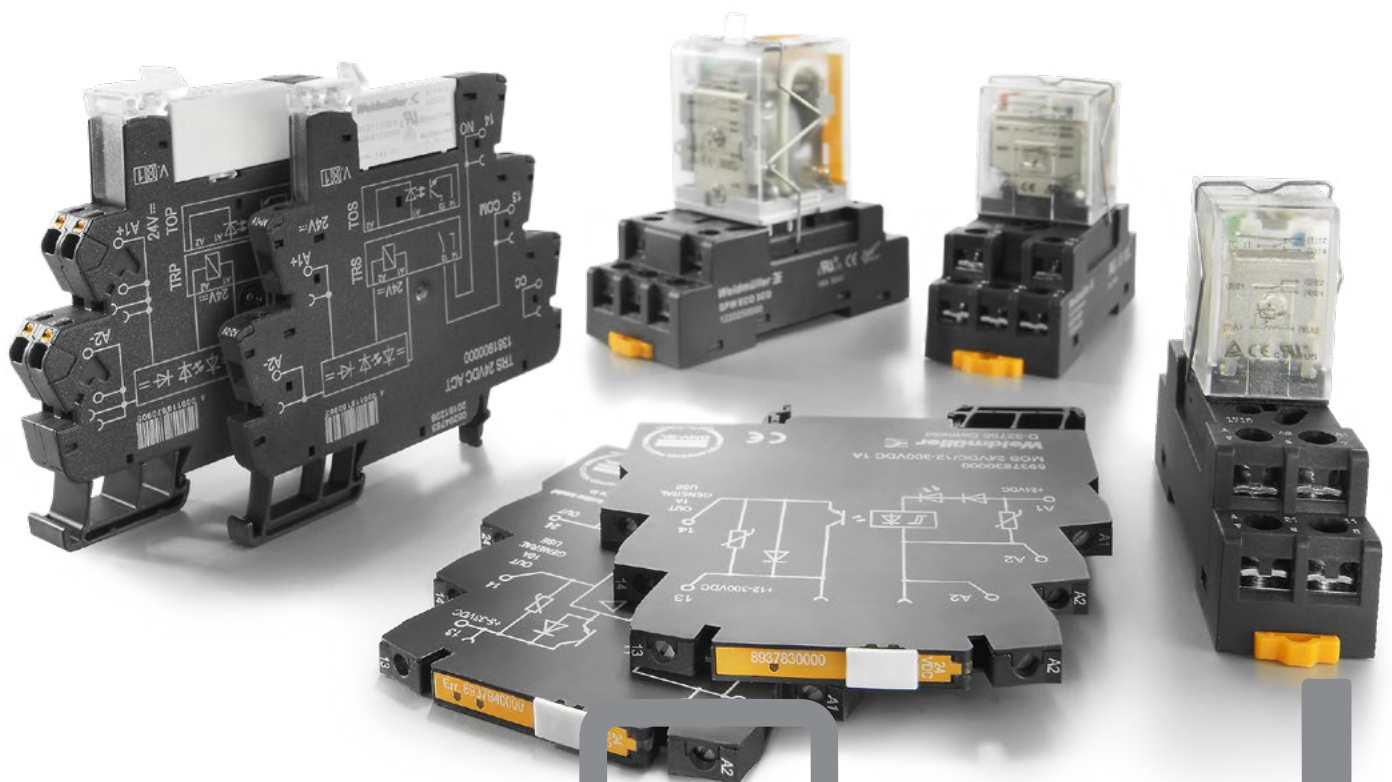
Switching inductive loads, e.g. solenoid valves, can cause electric arcs with voltage peaks of up to several thousand volts. They are caused during the switching process by the energy stored in the coil and can destroy the contact through material evaporation and material migration. With high DC voltage and a continuous light arc, the relay can even fail during the first switching cycle. In order to suppress the formation of electric arcs, you need to use an external protective suppressor circuit. We offer special products for switching inductive loads, which have a special overload or protective suppressor circuit for the output, for example.

High DC voltages

Standard relay modules can only switch relatively low DC currents because they lack the zero crossing to extinguish the light arc. Their maximum DC current value also depends on the switching voltage as well as the design conditions such as contact gap and contact opening speed. Our power relays for switching high DC loads have a built-in blowout magnet and a large contact gap to significantly minimise contact wear.

Wiring-optimised variants

The optimisation of wiring time and space requirements is becoming increasingly important. Our versions with snap-on PE foot allow for fast wiring of actuators where a PE contact is required. This means that no additional PE terminal is required in the panel. Our 1 NO contact variants allow the use of a connection on the relay socket for wiring the negative or neutral conductor potential. Therefore, the negative potential is bridged to the designated connection with the aid of a power-feed terminal in order to wire the actuators directly – without an additional terminal for the negative potential.

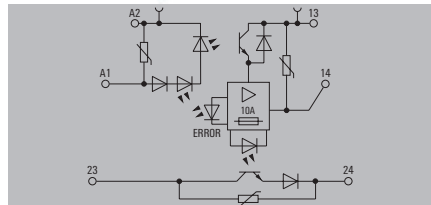


Special loads – MICROOPTO

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



Technical data

Control side

Rated control voltage
Power rating
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

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

24 V DC $\pm 20\%$
400 mW
50 Hz
Green LED
Varistor, Reverse polarity protection

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-wheeling diode
typ. 250 μ s / typical. 700 μ s
 ≤ 11 A (≤ 200 μ s)

-25 °C...60 °C
-40 °C...60 °C
V-0
5 - 93% rel. humidity, $T_u = 40^\circ\text{C}$, no condensation
CE; cULus; DNVGL; EAC

300 V
4 kV (1.2/50 μ s)
3 kV_{eff} / 1 Min.
4 kV_{eff} / 1 Min.
> 3 mm
III
2

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Note

Screw connection

2.5 / 0.5 / 4
97.8 / 6.1 / 88.1

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

Ordering data

Screw connection

Note

Accessories

Note

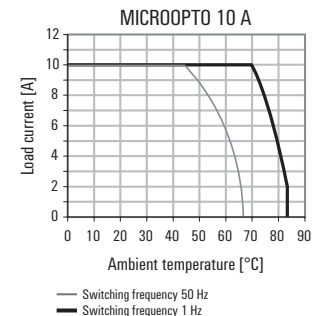
Type	Qty.	Order No.
MOS 24VDC/5-33VDC 10A	1	8937940000

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

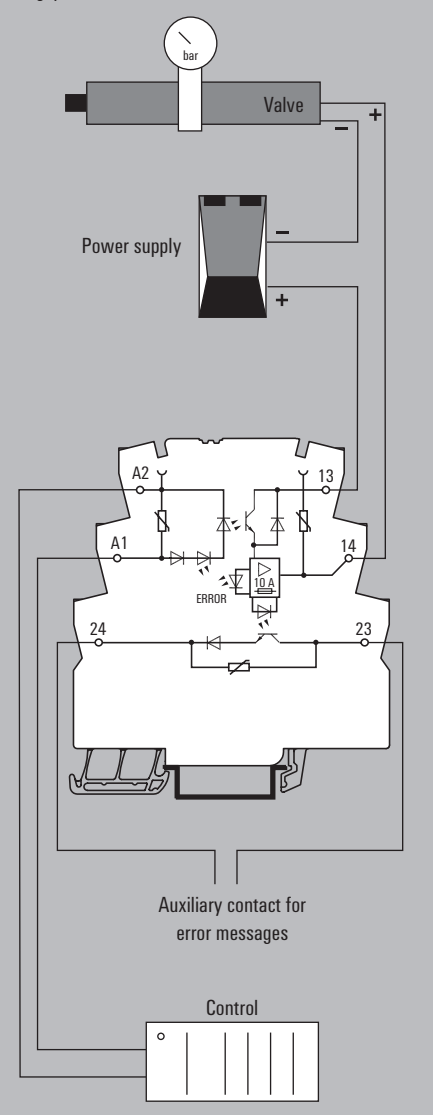
The **MICROOPTO SOLENOID** solid-state relay is used specifically as a switching amplifier for actuators up to 24 V DC and 10 A with inductive loads such as solenoid valves and contactors.

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.

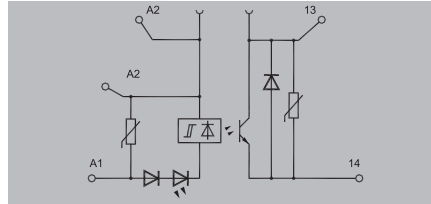


e.g. pneumatic valve



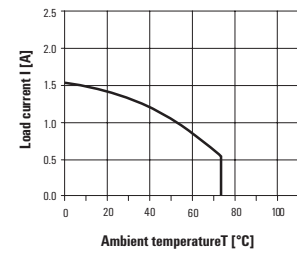
For DC loads up to 300 V DC and 1 A

- 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
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

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

24 V DC $\pm 20\%$
0.36 W
50...60 Hz
Green LED
Varistor, Reverse polarity protection

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

< 18 μ s / < 1 ms
27 A (10 ms)

-25 °C...60 °C
-40 °C...80 °C
V-0
5-95% relative humidity, $T_a = 55^\circ\text{C}$, without condensation
CE; cULus; DNVGL; EAC

300 V
2.5 kV (1.2/50 μ s)
3 kV_{eff} / 1 Min.
4 kV_{eff} / 1 Min.
> 3 mm
III
2

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Note**Screw connection**

2.5 / 0.5 / 4
97.8 / 6.1 / 88.1

Ordering data

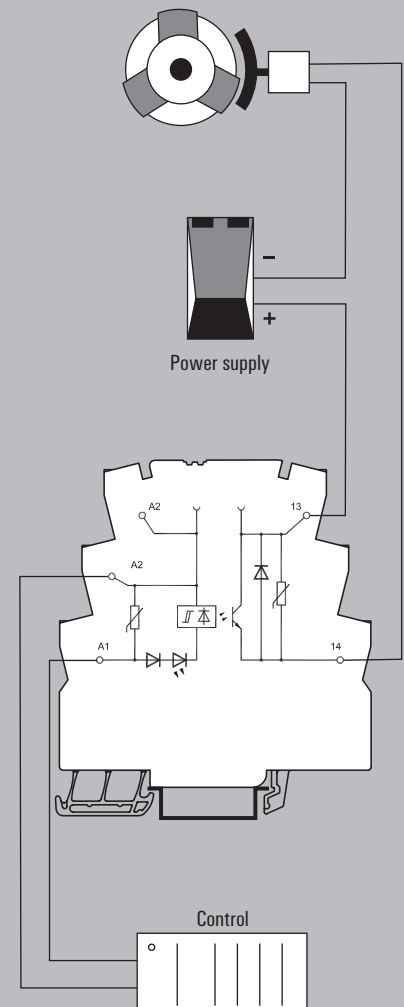
Screw connection

Note**Accessories****Note**

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

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

z. B. Example: motor brake

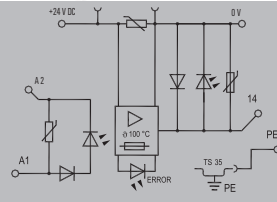


Special loads – MICROOPTO

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



Technical data

Control side

Rated control voltage
Power rating
Input frequency
Status indicator
Protective circuit

Load side

Solid-state type
Rated switching voltage
Continuous current
Voltage drop at max. load
Leakage current
Load side status indicator

Short-circuit-proof / Protective circuit, load side
Switch-on delay / Switch-off delay
Pulse load, max. current

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

24 V DC $\pm 20\%$

≤ 170 mW

125 Hz

Varistor, Reverse polarity protection

Intelligent POWER MOS-FET

8...30 V DC

2 A

≤ 50 mV

< 10 μ A

LED green, output switched, LED red, short-circuit / overload at the output

Yes (thermal cut-out) / Varistor, Free-wheeling diode

0.1 ms / < 0.5 ms

-25 °C...60 °C

-40 °C...80 °C

V-0

5-95% relative humidity, $T_a = 55^\circ\text{C}$, without condensation

CE; cULus; DNVGL; EAC

30 V

500 V (1,2/50 μ)

350 V_{eff} / 1 min.

350 V_{eff} / 1 min.

III

2

Screw connection

2.5 / 0.5 / 4

97 / 6.1 / 88.1

Dimensions

Clamping range (nominal / min. / max.)

mm²

Depth x width x height

mm

Note

Ordering data

Screw connection

Note

Accessories

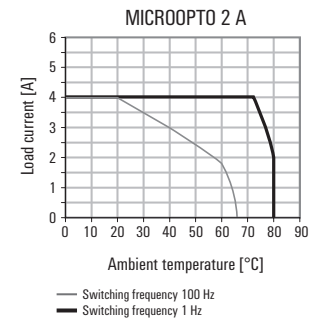
Note

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

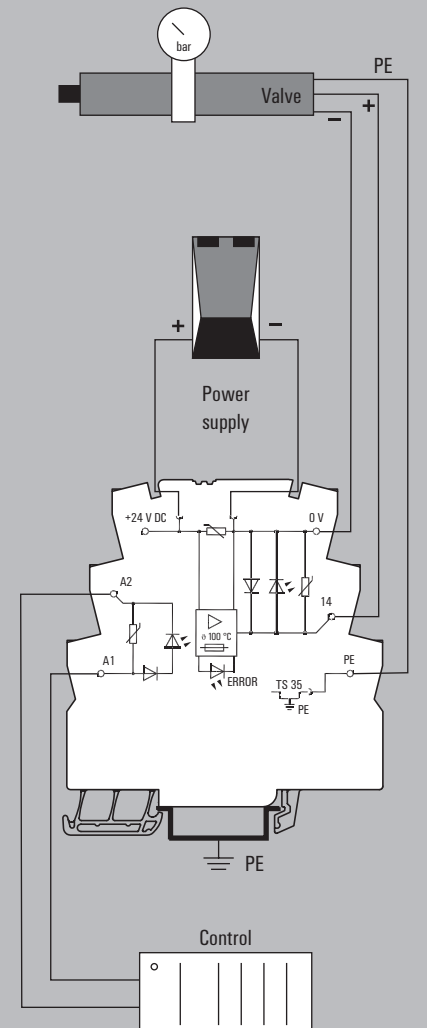
Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.

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.



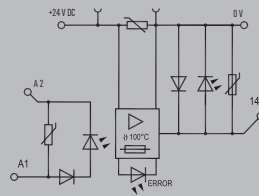
Example: pneumatic valve



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

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

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



The solid-state relay **MICROOPTO ACTOR** has been specifically designed as a switching amplifier for actuators up to 24 V DC and 2 A with inductive loads such as solenoid valves and contactors. 2-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
Power rating
Input frequency
Status indicator
Protective circuit

Load side

Solid-state type
Rated switching voltage
Continuous current
Voltage drop at max. load
Leakage current
Load side status indicator

Short-circuit-proof / Protective circuit, load side
Switch-on delay / Switch-off delay
Pulse load, max. current

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

24 V DC $\pm 20\%$

≤ 170 mW

10 Hz

Varistor, Reverse polarity protection

Intelligent POWER MOS-FET

8...30 V DC

2 A

≤ 50 mV

< 10 μ A

LED green, output switched, LED red, short-circuit / overload at the output

Yes (thermal cut-out) / Varistor, Free-wheeling diode

0.1 ms / < 0.5 ms

-25 °C...60 °C

-40 °C...80 °C

V-0

5-95% relative humidity, $T_a = 55^\circ\text{C}$, without condensation

CE; EAC

30 V

500 V (1,2/50 μ)

350 V_{eff} / 1 min.

350 V_{eff} / 1 min.

III

2

Screw connection

2.5 / 0.5 / 4

97.8 / 6.1 / 88.1

Dimensions

Clamping range (nominal / min. / max.) mm²

Depth x width x height mm

Note

Ordering data

Screw connection

Note

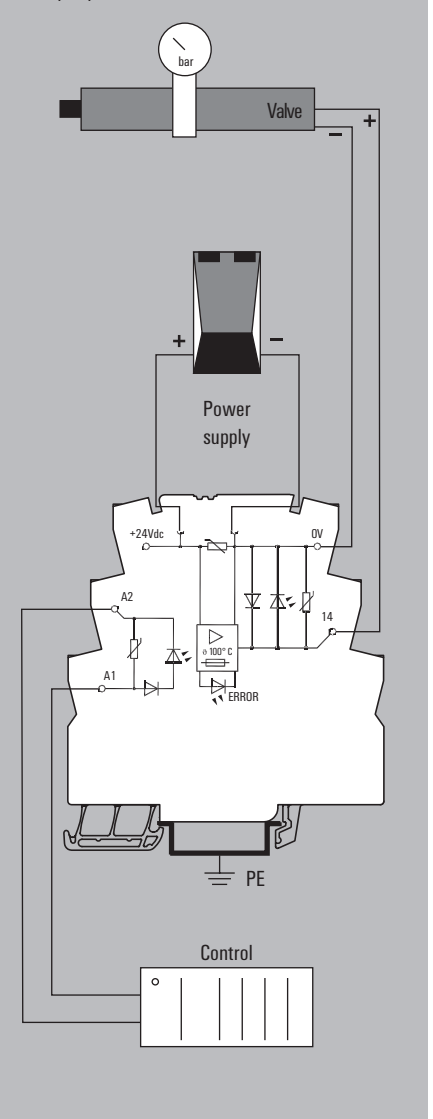
Accessories

Note

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

Accessories and dimensional drawings: refer to the MICROOPTO Accessories page

Example: pneumatic valve

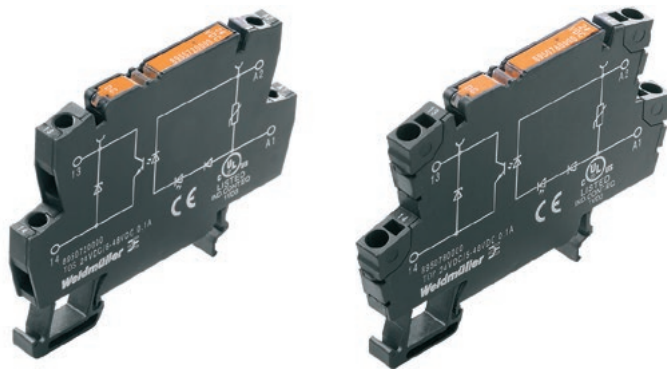


Special loads – TERMOPTO

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

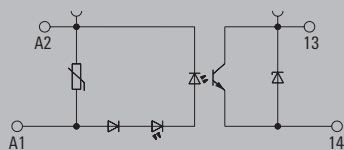


Technical data

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% relative humidity, T ₀ = 40°C, without 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 _{eff} / 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 ² 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
Note	Accessories and dimensioned drawings: see accessories page from TERMOPTO	

24 V DC



Ordering data

Control side	
Rated control voltage	24 V DC ±20 %
Nominal control current	7 mA DC
Power rating	≤ 170 mW
max. switching frequency (DC control voltage)	10 Hz
max. switching frequency (AC control voltage)	
Status indicator	Green LED
Protective circuit	Varistor, Reverse polarity protection

24 V DC

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

C

-

The top diagram illustrates a DC input circuit. It features a DC input terminal connected to a diode and a relay coil. The relay coil is connected to terminals 14, 11, and COM. The output terminals are labeled A1 and A2. The bottom diagram illustrates an AC/DC input circuit, similar to the top one but with a different internal diode configuration. The graph below shows the DC load breaking capacity, plotting switching voltage (V DC) on the y-axis (logarithmic scale from 10 to 300) against switching current (A) on the x-axis (logarithmic scale from 0.1 to 20). The curve indicates that the switching voltage decreases as the switching current increases, with a sharp drop around 0.5 A. A label '1A contact' points to the curve.

Switching current [A]	Switching voltage [V DC]
0.1	300
0.2	200
0.5	100
1.0	60
2.0	40
5.0	30
10.0	25
20.0	20

Rated switching voltage / Continuous current	250 V AC / 16 A
Max. switching voltage, AC	
Inrush current	80 A / 20 ms
Min. switching power	1 W
Contact type	1 NO contact (AgSnO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz

Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% relative humidity, T _a = 40 °C, without condensation
Approvals	CE; EAC

Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	1.2 kV _{eff} / 5 s
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input – output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

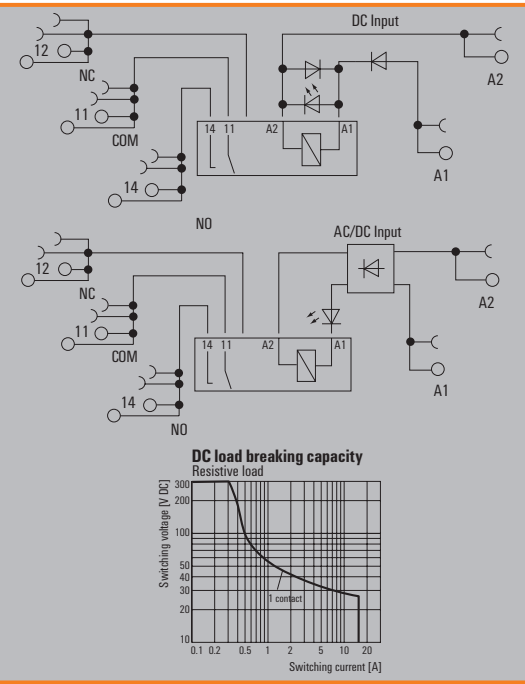
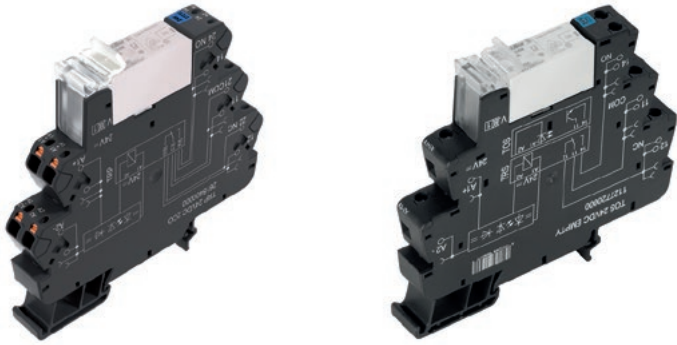
Note Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.
Further approvals and technical data can be found at catalog. 

Control side		
Rated control voltage	24 V DC $\pm$ 20 %	24...230 V UC $\pm$ 10 %
Rated current AC / DC	/ 22.0 mA	23.5 mA @ 24 V AC, 4.5 mA @ 230 V AC / 22.5 mA @ 24 V DC, 2.0 mA @ 230 V DC
Power rating	530 mW	540 mW @ 24 V DC, 460 mW @ 230 V DC, 565 mA @ 24 V AC, 1.0 VA @ 230 V AC
Status indicator	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Rectifier
Approvals	CE; cULus; DNVGL; EAC	CE; EAC

Ordering data			
PUSH IN connection	Type	TRP 24VDC 1NO HC	TRP 24-230VUC 1NO HC ED2
	Order No.	2618090000	2663130000
Screw connection	Type	TRS 24VDC 1NO HC	TRS 24-230VUC 1NO HC ED2
	Order No.	1479780000	2662970000
Note			

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
- PUSH IN and screw connection
- Multi-voltage input: 24...230 V UC in one module



Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 16 A	
Max. switching voltage, AC		
Inrush current	165 A / 20 ms, 800 A / 200 µs	
Min. switching power	1 W	
Contact type	1 NO contact (AgSnO2 + W)	
Mechanical service life	5 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% relative humidity, T ₀ = 40°C, without condensation	
Approvals	CE; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength, Input/Output	1.2 kV _{eff} / 5 s	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions		
	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.4	87.8 / 12.8 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog.	

Ordering data

Control side

	24 V DC	24 V - 230 V UC
Rated control voltage	24 V DC ± 20 %	24...230 V UC ± 10 %
Rated current AC / DC	/ 22.0 mA	23.5 mA @ 24 V AC, 4.5 mA @ 230 V AC / 22.5 mA @ 24 V DC, 2.0 mA @ 230 V DC
Power rating	530 mW	540 mW @ 24 V DC, 460 mW @ 230 V DC, 565 mVA @ 24 V AC, 1.0 VA @ 230 V AC
Status indicator	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Rectifier
Approvals	CE; cULus; DNVGL; EAC	CE; EAC

Ordering data

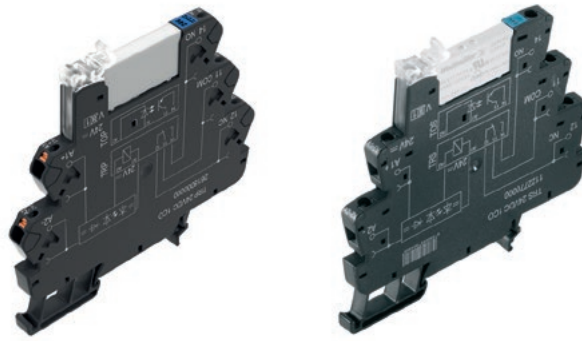
PUSH IN connection	Type TRP 24VDC 1NO HCP	TRP 24-230VUC 1NO HCP ED2
Order No.	2617930000	2663140000
Screw connection	Type TRS 24VDC 1NO HCP	TRS 24-230VUC 1NO HCP ED2
Order No.	1479810000	2662980000

Note

Special loads – TERMSERIES

1 NO contact (actuator)

- Space-saving, only 6.4 mm wide
 - AgNi contact
 - PUSH IN and screw connection
 - 24 V DC actuator version:
- Bridgeable, potential-free connection in the output (DC)



Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	
Inrush current	20 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 12 V, 100 mA @ 5 V
Contact type	1 NO contact (AgNi)
Mechanical service life	5 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% relative humidity, T _u = 40°C, without condensation
Approvals	CE; cULus; DNVGL; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

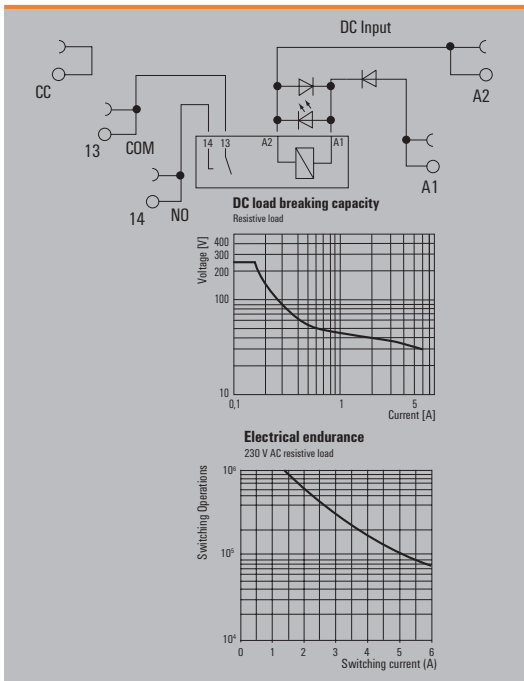
Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog.		

Ordering data

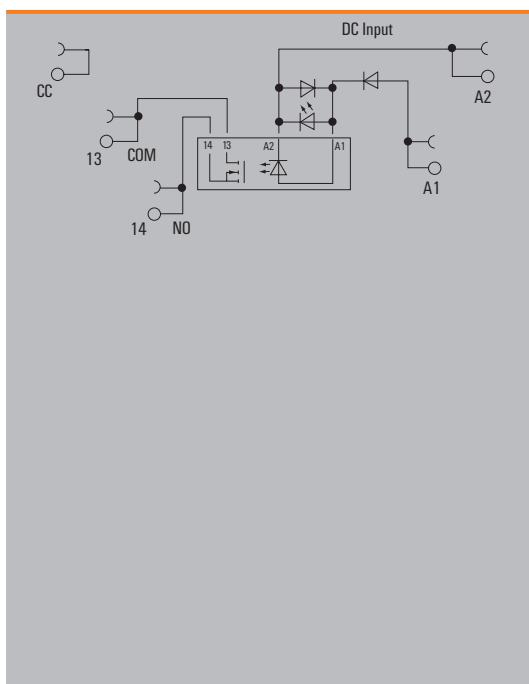
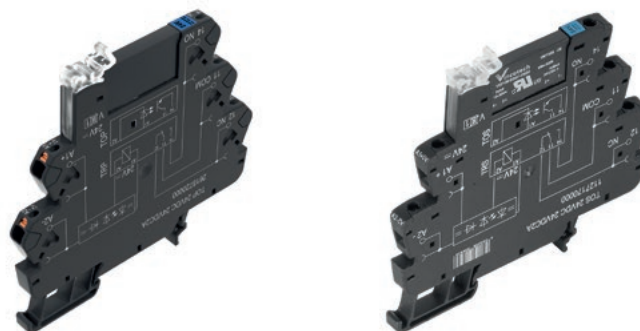
Control side	
Rated control voltage	24 V DC ± 20 %
Rated current AC / DC	/ 11.5 mA
Power rating	280 mW
Status indicator	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection

24 V DC ACT

Ordering data	
PUSH IN connection	Type TRP 24VDC ACT
Order No.	2618230000
Screw connection	Type TRS 24VDC ACT
Order No.	1381900000
Note	



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



Load side	
Rated switching voltage	3...33 V DC
Continuous current	2 A
Inrush current	15 A / 10 ms
Contact type	1 NO contact (MOS-FET)
Voltage drop at max. load	≤ 120 mV
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% relative humidity, T _a = 40°C, without 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 _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog.	

Control side	
Rated control voltage	24 V DC $\pm 20\%$
Nominal control current	11.5 mA DC ($\pm 10\%$)
Power rating	280 mW
max. switching frequency (DC control voltage)	300 Hz
max. switching frequency (AC control voltage)	
Status indicator	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection

Ordering data		
PUSH IN connection	Type	TOP 24VDC ACT
	Order No.	2618750000
Screw connection	Type	TDS 24VDC ACT
	Order No.	1391680000
Note		

Special loads – D-SERIES

DRL power relay

1 CO contact, AC/DC coil

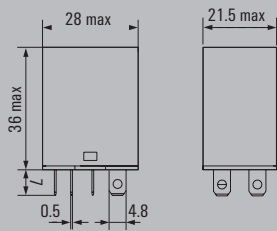
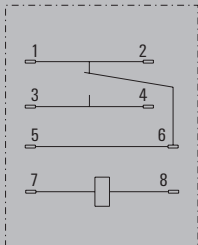
- High wear resistance in case of AC loads
- High dielectric strength: 2,000 V



Circuit diagram

View on pins from below

AC- and DC coil



Technical data

Load side

Rated switching voltage / Continuous current	250 V AC / 16 A
Max. switching voltage, AC	250 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	1 CO contact (AgCdO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz

General data

Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE; cURus; EAC

Insulation coordinates

Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	3

Dimensions

Flat blade connections (4.8 mm x 0.5 mm)

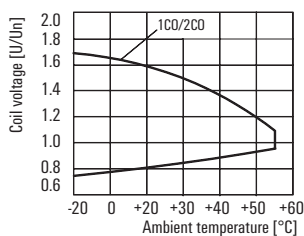
Depth x width x height mm 36 / 21.5 / 28

Note

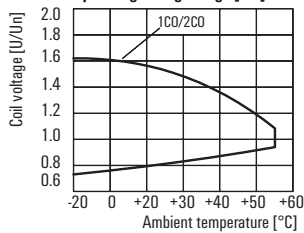
Further technical data can be found at catalog [1133000000](#)

Applications

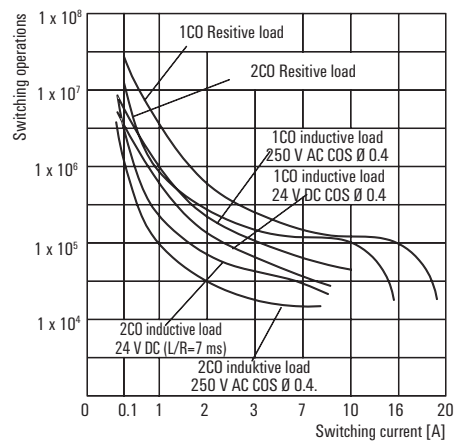
Operating voltage range [DC]



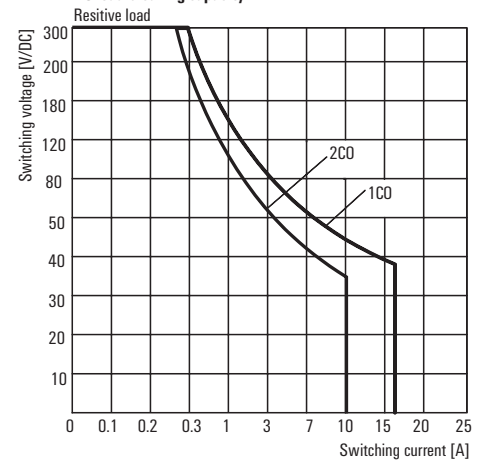
Operating voltage range [AC]



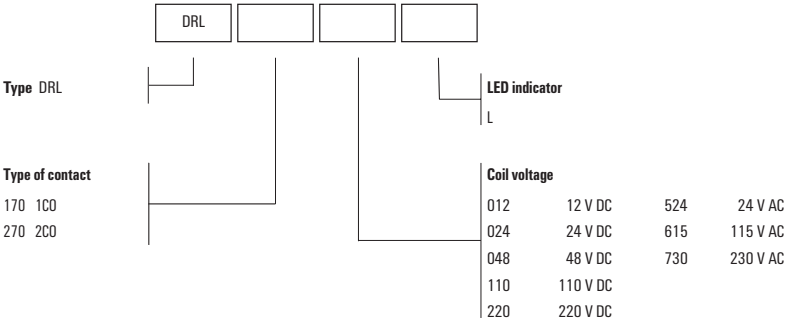
Electrical endurance



DC load breaking capacity



DRL power relay
1 CO contact, AC/DC coil



Ordering data	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Control side					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 75 mA	/ 36.9 mA	/ 18.5 mA	/ 10 mA	/ 5.2 mA
Power rating	0.9 W	0.9 W	0.9 W	0.9 W	0.9 W
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data						
1 CO contact	Type	DRL170012L	DRL170024L	DRL170048L	DRL170110L	DRL170220L
	Order No.	1133450000	1133460000	1133470000	1133480000	1133490000
	Type					
	Order No.					
Note						

Ordering data	24 V AC	115 V AC	230 V AC
Control side			
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	54 mA /	12,9 mA /	6.8 mA /
Power rating	1.2 VA	1.2 VA	1.2 VA
Status indicator	red LED	red LED	red LED

Ordering data				
1 CO contact	Type	DRL170524L	DRL170615L	DRL170730L
	Order No.	1133840000	1133850000	1133860000
	Type			
	Order No.			
Note				

Special loads – D-SERIES

DRL power relay

2 CO contact, AC/DC coil

- High wear resistance in case of AC loads
- High dielectric strength: 2,000 V



Technical data

Load side

Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	2 CO contact (AgCdO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz

General data

Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE; cURus; EAC

Insulation coordinates

Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	3

Dimensions

Depth x width x height	mm	36 / 21.5 / 28
------------------------	----	----------------

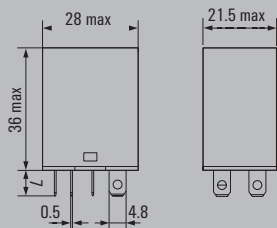
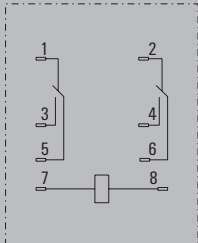
Note

Further technical data can be found at catalog [1133000000](#)

Circuit diagram

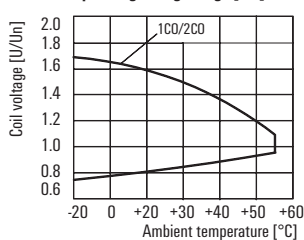
View on pins from below

AC- and DC coil

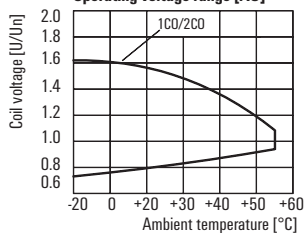


Applications

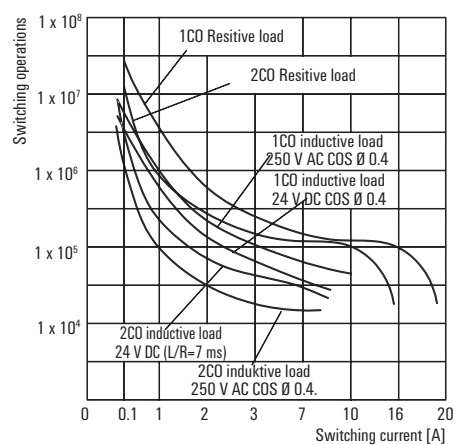
Operating voltage range [DC]



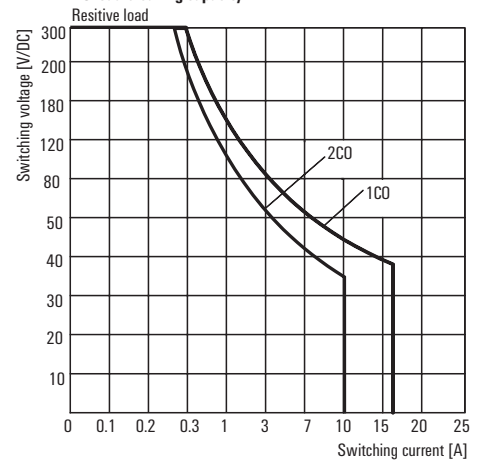
Operating voltage range [AC]



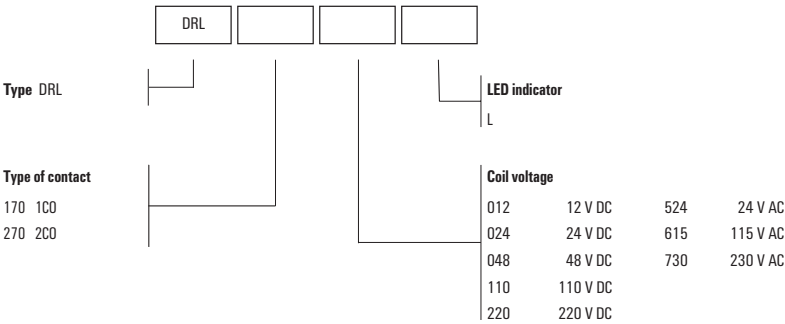
Electrical endurance



DC load breaking capacity



DRL power relay
2 CO contact, AC/DC coil



Ordering data

Control side

Rated control voltage
Rated current AC / DC

Power rating
Status indicator

12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
12 V DC / 75 mA	24 V DC / 36.9 mA	48 V DC / 18.5 mA	110 V DC / 10 mA	220 V DC / 5.2 mA
0.9 W Green LED	0.9 W Green LED	0.9 W Green LED	0.9 W Green LED	0.9 W Green LED

Ordering data

2 CO contacts
Type
Order No.
Type
Order No.

Note

DRL270012L 1133510000	DRL270024L 1133520000	DRL270048L 1133530000	DRL270110L 1133540000	DRL270220L 1133550000

Ordering data

Control side

Rated control voltage
Rated current AC / DC

Power rating
Status indicator

24 V AC	115 V AC	230 V AC
24 V AC 54 mA /	115 V AC 12,9 mA /	230 V AC 6.8 mA /
1.2 VA red LED	1.2 VA red LED	1.2 VA red LED

Ordering data

2 CO contacts
Type
Order No.
Type
Order No.

Note

DRL270524L 1133870000	DRL270615L 1133880000	DRL270730L 1133890000

Special loads – D-SERIES

DRL power relay

3 CO contact, AC/DC coil

- High wear resistance in case of AC loads
- High dielectric strength: 2,000 V



Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	3 CO contact (AgCdO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	3

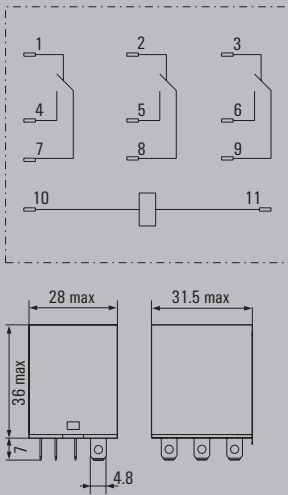
Dimensions	Flat blade connections (4.8 mm x 0.5 mm)
Depth x width x height	mm 36 / 31.5 / 28

Note	Further technical data can be found at catalog [redacted]
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Circuit diagram

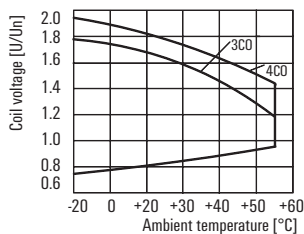
View on pins from below

AC- and DC coil

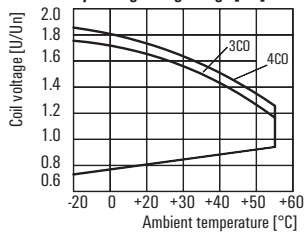


Applications

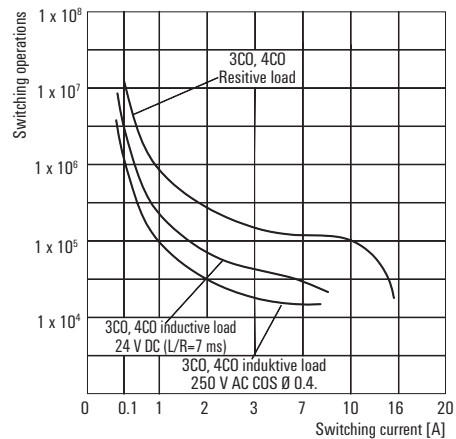
Operating voltage range [DC]



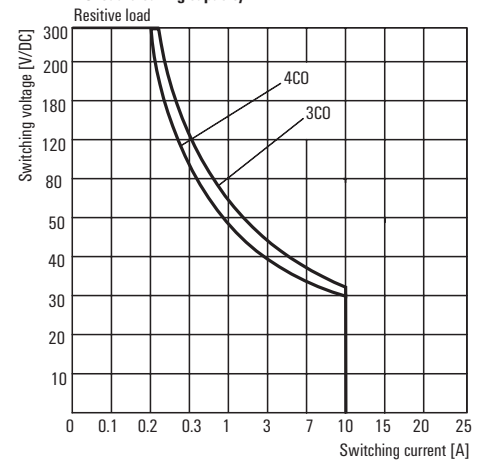
Operating voltage range [AC]



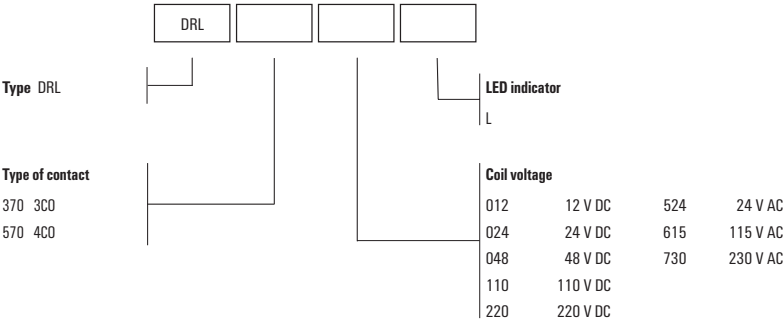
Electrical endurance



DC load breaking capacity



DRL power relay
3 CO contact, AC/DC coil



Ordering data

Control side	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 120 mA	/ 60 mA	/ 30 mA	/ 13.1 mA	/ 6.7 mA
Power rating	1.4 W	1.4 W	1.4 W	1.4 W	1.4 W
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data						
3 CO contacts	Type	DRL370012L	DRL370024L	DRL370048L	DRL370110L	DRL370220L
	Order No.	1133570000	1133580000	1133590000	1133600000	1133610000
	Type					
	Order No.					
Note						

Ordering data

Control side	24 V AC	115 V AC	230 V AC
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	80 mA /	16 mA /	10 mA /
Power rating	2 VA	2 VA	2 VA
Status indicator	red LED	red LED	red LED

Ordering data				
3 CO contacts	Type	DRL370524L	DRL370615L	DRL370730L
	Order No.	1133910000	1133920000	1133930000
	Type			
	Order No.			
Note				

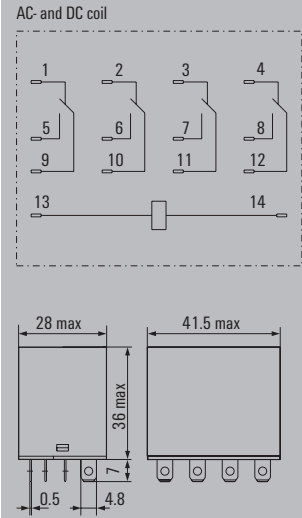
Special loads – D-SERIES

DRL power relay
4 CO contact, AC/DC coil

- High wear resistance in case of AC loads
- High dielectric strength: 2,000 V



Circuit diagram
View on pins from below



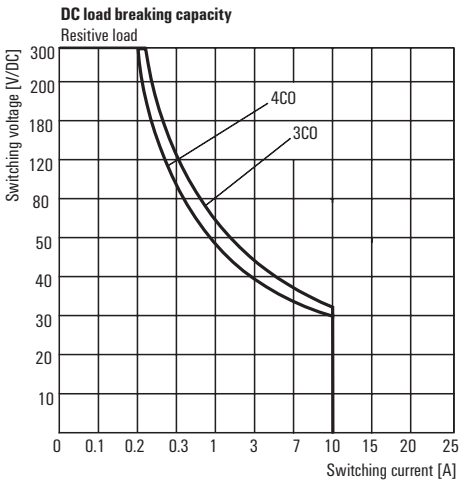
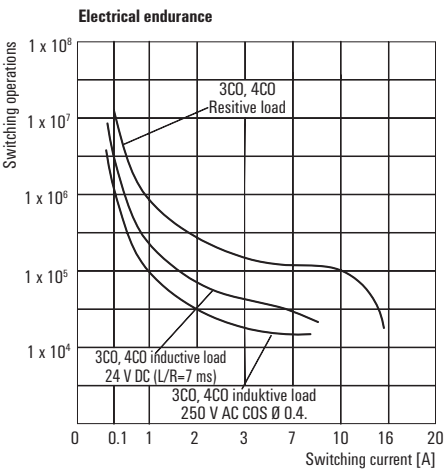
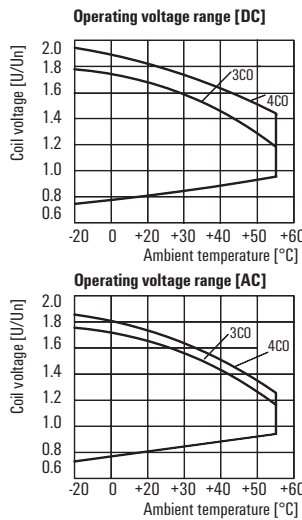
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 10 A
Max. switching voltage, AC	250 V
Inrush current	50 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	4 CO contact (AgCdO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	5 kV (1.2/50 µs)
Dielectric strength, Input/Output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	1.2 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 4 mm
Overvoltage category	III
Pollution degree	3

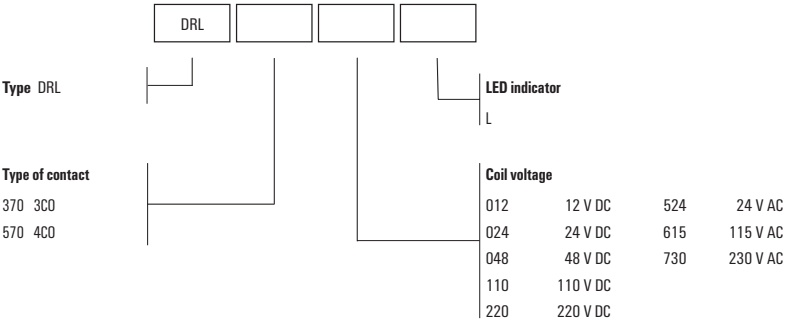
Dimensions	Flat blade connections (4.8 mm x 0.5 mm)
Depth x width x height	mm 36 / 41.5 / 28

Note Further technical data can be found at catalog [1250000](#)

Applications



DRL power relay
4 CO contact, AC/DC coil



Ordering data

Control side	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 125 mA	/ 66.7 mA	/ 31.2 mA	/ 16.2 mA	/ 7.6 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data						
4 CO contacts	Type	DRL570012L	DRL570024L	DRL570048L	DRL570110L	DRL570220L
	Order No.	1133620000	1133630000	1133640000	1133650000	1133660000
	Type					
	Order No.					
Note						

Ordering data

Control side	24 V AC	115 V AC	230 V AC
Rated control voltage	24 V AC	115 V AC	230 V AC
Rated current AC / DC	/ 93.5 mA	/ 25.5 mA	/ 13.1 mA
Power rating	2.5 VA	2.5 VA	2.5 VA
Status indicator	red LED	red LED	red LED

Ordering data				
4 CO contacts	Type	DRL570524L	DRL570615L	DRL570730L
	Order No.	1133940000	1133950000	1133960000
	Type			
	Order No.			
Note				

Special loads – D-SERIES

Accessories for DRL relays

Technical data

Load side	
Rated switching voltage	250 V AC
Max. switching voltage, AC	250 V
Continuous current	10 A
General data	
Ambient temperature (operational)	-40 °C...65 °C
Storage temperature	-40 °C...85 °C
Approvals	CE; cURus
Insulation coordinates	
Protection degree	IP10
Creepage and clearance distance input – output	≥ 6 mm
Dielectric strength, Input/Output	2 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Impulse withstand voltage	4 kV (1.2/50 µs)
Connection data	
Clamping range (nominal / min. / max.)	/ 0.5 / 2.5 mm ²
Tightening torque	0.8...1 Nm
Stripping length, rated connection	8 mm
Note	

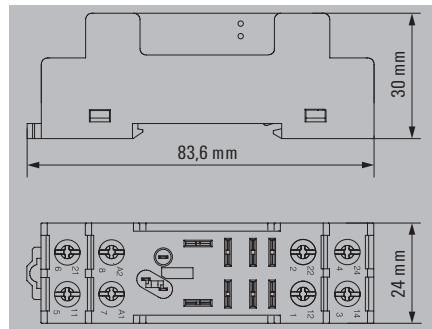
Ordering data

Type	Qty.	Order No.
SLD F 2CO	10	7760056225
Note		

Accessories

Retaining clip	
	Metal retaining clip
LED module / protection modules	
LED 110 - 230 V UC green	
LED 24 - 60 V UC green	
LED 6 - 24 V UC green	
LED 110 - 230 V DC green and free-wheeling diode	
LED 24 - 60 V DC green and free-wheeling diode	
LED 6 - 24 V DC green and free-wheeling diode	
Free-wheeling diode 6 - 230 V DC	
RC element 110 - 230 V AC; 4.7 kΩ / 10 nF	
RC element 110 - 230 V AC; 100 Ω / 220 nF and LED green	
RC element 6 - 230 V AC	
Screwdriver	
Screwdriver, insulated PH2 SlimLine	
Screwdriver, insulated PH2	
Screwdriver PH2	

Note

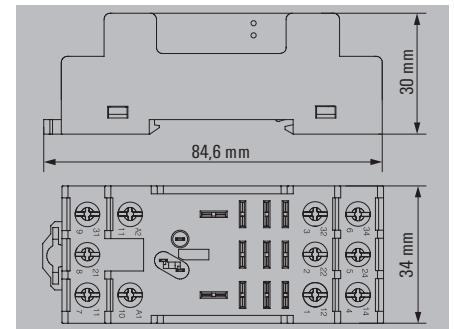
Socket module with
leaf spring connection, 2 CO contacts

Type		
SLD F 2CO	10	7760056225
Note		

Type	Qty.	Order No.
SLD F 2CO	10	7760056225
Note		

Type	Qty.	Order No.
DRM/DRL CLIP M	10	7760056108
LED module / protection modules		
RIM 3 110/230VUC	20	7940018455
RIM 3 24/60VUC	10	7760056018
RIM 3 6/24VUC	20	7940018457
RIM 2 110/230VDC	10	7760056017
RIM 2 24/60VDC	10	7760056016
RIM 2 6/24VDC	10	7760056015
RIM 1 6/230VDC	10	7760056169
RIM 3 110/230VAC	10	7760056014
RIM 3 110/230VAC LED	10	7760056045
Screwdriver		
SDIK PH2 SL	1	1274720000
SDIK PH2	1	9008580000
SDK PH2	1	9008490000

Note

Socket module with
leaf spring connection, 3 CO contacts

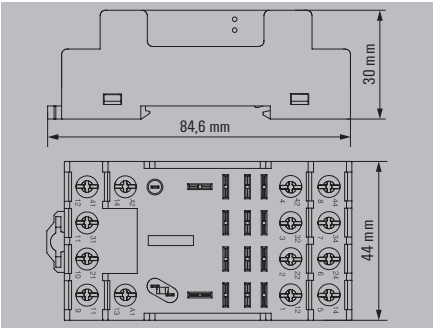
Type		
SLD F 3CO	10	7760056226
Note		

Type	Qty.	Order No.
SLD F 3CO	10	7760056226
Note		

Type	Qty.	Order No.
SLD CLIP 3CO M	10	7760056234
LED module / protection modules		
RIM 3 110/230VUC	20	7940018455
RIM 3 24/60VUC	10	7760056018
RIM 3 6/24VUC	20	7940018457
RIM 2 110/230VDC	10	7760056017
RIM 2 24/60VDC	10	7760056016
RIM 2 6/24VDC	10	7760056015
RIM 1 6/230VDC	10	7760056169
RIM 3 110/230VAC	10	7760056014
RIM 3 110/230VAC LED	10	7760056045
Screwdriver		
SDIK PH2 SL	1	1274720000
SDIK PH2	1	9008580000
SDK PH2	1	9008490000

Note

Socket module with
leaf spring connection, 4 CO contacts



250 V AC
250 V
10 A
-40 °C...65 °C
-40 °C...85 °C
CE; cURus
IP10
≥ 6 mm
2 kV _{eff} / 1 min
2 kV _{eff} / 1 min
4 kV (1.2/50 µs)
/ 0.5 / 2.5 mm ²
0.8...1 Nm
8 mm

Type	Qty.	Order No.
SLD F 4CO	10	7760056227

Type	Qty.	Order No.
SLD CLIP 4CO M	10	7760056235
RIM 5 6/230VDC	10	1174650000
RIM 5 6/230VAC	10	1174670000
SDIK PH2 SL	1	1274720000
SDIK PH2	1	9008580000
SDK PH2	1	9008490000

Further accessories can be found on the article at catalog XXXXXX

Special loads – D-SERIES

DRW power relay

2 CO contact, AC/DC coil

3 CO contact, AC/DC coil

- Suitable for switching high load voltages
- With LED and test button



Technical data

Load side

Rated switching voltage / Continuous current	400 VAC / 16 A
Max. switching voltage, AC	400 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	2 CO contact with test button (AgCdO)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz

General data

Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE; cURus; EAC

Insulation coordinates

Rated voltage	400 V
Impulse withstand voltage	
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	1.5 kV _{eff} / 1 min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 6,3 mm
Overvoltage category	III
Pollution degree	3

Dimensions

Dimensions	Flat blade connections (4.8 mm x 0.5 mm)
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Depth x width x height	mm	48 / 36 / 36
------------------------	----	--------------

Note

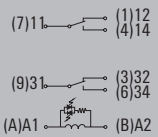
Further technical data can be found at catalog

Circuit diagram

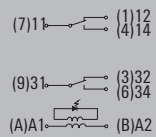
View on pins from below

2CO

DC coil

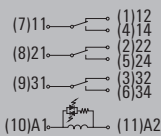


AC coil

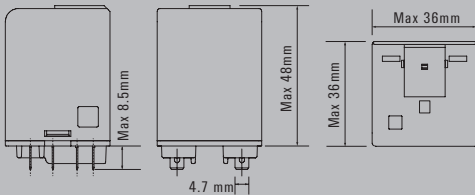
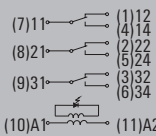


3CO

DC coil

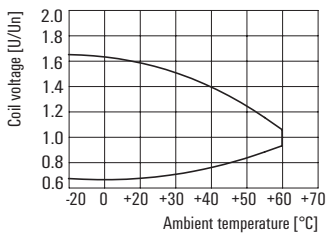


AC coil

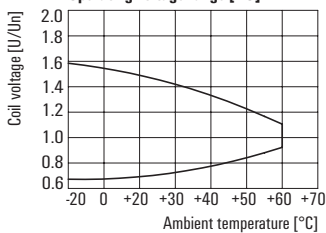


Applications

Operating voltage range [DC]

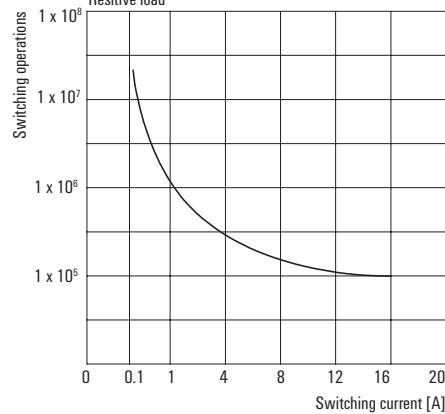


Operating voltage range [AC]



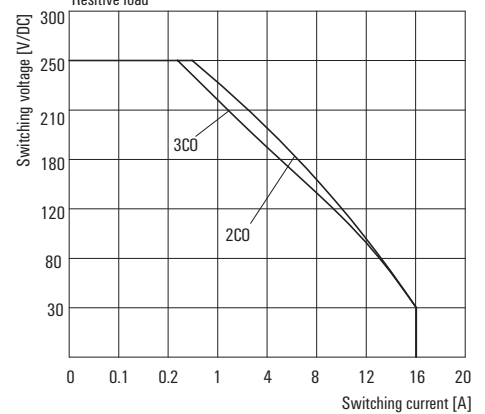
Electrical endurance

Resistive load



DC load breaking capacity

Resistive load



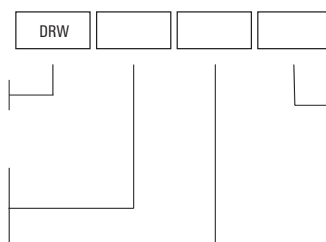
DRW power relay
2 CO contact, AC/DC coil
3 CO contact, AC/DC coil

Type DRW

Type of contact

270 2CO

370 3CO



With LED and test lever

LT

Coil voltage

012	12 V DC	524	24 V AC
024	24 V DC	548	48 V AC
048	48 V DC	615	115 V AC
110	110 V DC	730	230 V AC
220	220 V DC	900	400 V AC

Ordering data

Control side

Rated control voltage
 Rated current AC / DC

Power rating
 Status indicator

12 V DC

12 V DC
 / 120 mA

1.5 W
 Green LED

24 V DC

24 V DC
 / 60 mA

1.5 W
 Green LED

48 V DC

48 V DC
 / 30 mA

1.5 W
 Green LED

110 V DC

110 V DC
 / 13 mA

1.5 W
 Green LED

220 V DC

220 V DC
 / 6.7 mA

1.5 W
 Green LED

Ordering data

2 CO contacts Type
 Order No.
 3 CO contacts Type
 Order No.

DRW270012LT

1219730000

DRW370012LT

1219780000

DRW270024LT

1219740000

DRW370024LT

1219790000

DRW270048LT

1219750000

DRW370048LT

1219810000

DRW270110LT

1219760000

DRW370110LT

1219820000

DRW270220LT

1219770000

DRW370220LT

1219830000

Note

Ordering data

Control side

Rated control voltage
 Rated current AC / DC

Power rating
 Status indicator

24 V AC

24 V AC
 101.7 mA /

2.5 VA
 red LED

48 V AC

48 V AC
 50.5 mA /

2.5 VA
 red LED

115 V AC

115 V AC
 21 mA /

2.5 VA
 red LED

230 V AC

230 V AC
 10.6 mA /

2.5 VA
 red LED

400 V AC

400 V AC
 6.1 mA /

2.5 VA
 red LED

Ordering data

2 CO contacts Type
 Order No.
 3 CO contacts Type
 Order No.

DRW270524LT

1219350000

DRW370524LT

1219410000

DRW270548LT

1219360000

DRW370548LT

1219420000

DRW270615LT

1219370000

DRW370615LT

1219430000

DRW270730LT

1219380000

DRW370730LT

1219440000

DRW270900LT

1219390000

DRW370900LT

1219450000

Note

Special loads – D-SERIES

DRH DC relay

1 NO contact AC/DC coil

1 NC contact AC/DC coil

- Suitable for switching high DC loads
- With blowout magnet
- With LED and test button
- For switching high DC loads up to 10 A at 220 V DC

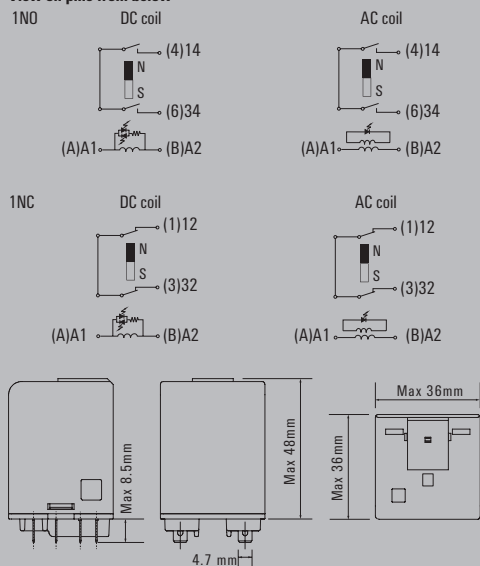


Technical data

Load side	
Rated switching voltage / Continuous current	500 V AC / 16 A
Max. switching voltage, AC	500 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	2200 W @ 220 V / 8000 VA
Contact material	AgSnO2
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	500 V
Impulse withstand voltage	
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 8 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Flat blade connections (4.8 mm x 0.5 mm)	
Depth x width x height	mm 48 / 36 / 36
Note	
Further technical data can be found at catalog [redacted]	

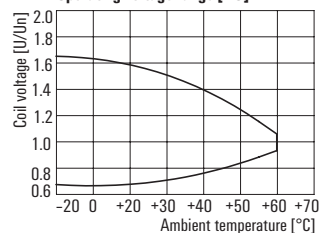
Circuit diagram

View on pins from below

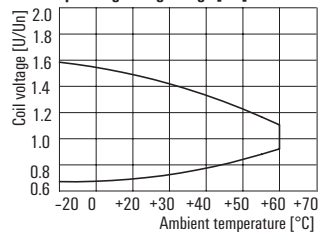


Applications

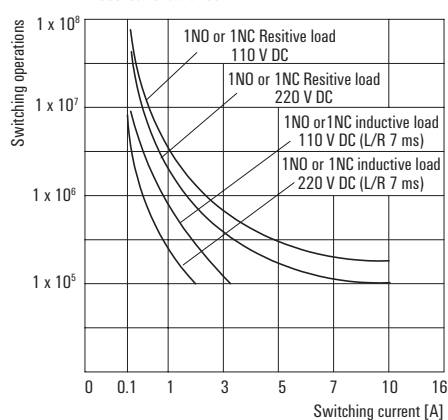
Operating voltage range [DC]



Operating voltage range [AC]

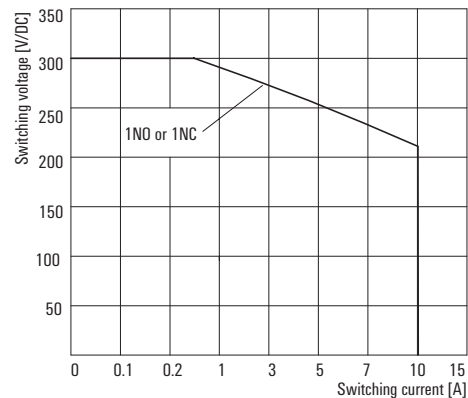


Electrical endurance



DC Load breaking capacity [DC]

Resistive load



DRH DC relay

1 NO contact AC/DC coil

1 NC contact AC/DC coil

Type

DRH

Type of contact

173 1NO

174 1NC



With LED and test lever

LT

Coil voltage

012	12 V DC	524	24 V AC
024	24 V DC	548	48 V AC
048	48 V DC	615	115 V AC
110	110 V DC	730	230 V AC
220	220 V DC		

Ordering data

Control side

Rated control voltage
Rated current AC / DCPower rating
Status indicator

12 V DC

12 V DC
/ 120 mA1.5 W
Green LED

24 V DC

24 V DC
/ 60 mA1.5 W
Green LED

48 V DC

48 V DC
/ 30 mA1.5 W
Green LED

110 V DC

110 V DC
/ 13 mA1.5 W
Green LED

220 V DC

220 V DC
/ 6.7 mA1.5 W
red LED

Ordering data

1 NO contact Type
Order No.
1 NC contact Type
Order No.

DRH173012LT

1219840000

DRH174012LT

1219940000

DRH173024LT

1219850000

DRH174024LT

1219950000

DRH173048LT

1219860000

DRH174048LT

1219960000

DRH173110LT

1219870000

DRH174110LT

1219970000

DRH173220LT

1219880000

DRH174220LT

1219980000

Ordering data
Test-button lockType
Order No.

Test Lever Block DRH/DRW

7760056249

Test Lever Block DRH/DRW

7760056249

Test Lever Block DRH/DRW

7760056249

Test Lever Block DRH/DRW

7760056249

Test Lever Block DRH/DRW

7760056249

Note

Ordering data

Control side

Rated control voltage
Rated current AC / DCPower rating
Status indicator

24 V AC

24 V AC
101.7 mA /2.5 VA
red LED

48 V AC

48 V AC
50.5 mA /2.5 VA
red LED

115 V AC

115 V AC
21 mA /2.5 VA
red LED

230 V AC

230 V AC
10.6 mA /2.5 VA
red LED

Ordering data

1 NO contact Type
Order No.
1 NC contact Type
Order No.

DRH173524LT

1219890000

DRH174524LT

1219990000

DRH173548LT

1219910000

DRH174548LT

1220010000

DRH173615LT

1219920000

DRH174615LT

1220020000

DRH173730LT

1219930000

DRH174730LT

1220030000

Ordering data
Test-button lockType
Order No.

Test Lever Block DRH/DRW

7760056249

Test Lever Block DRH/DRW

7760056249

Test Lever Block DRH/DRW

7760056249

Test Lever Block DRH/DRW

7760056249

Note

Special loads – D-SERIES

DRH DC relay

1 NO contact / 1 NC contact AC/DC coil

- Suitable for switching high DC loads
- With blowout magnet
- With LED and test button
- For switching high DC loads up to 3 A at 220 V DC



Technical data

Load side

Rated switching voltage / Continuous current	250 V AC / 16 A
Max. switching voltage, AC	250 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	660 W @ 220 V / 4000 VA
Contact material	AgSnO2
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz

General data

Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus, EAC

Insulation coordinates

Rated voltage	400 V
Impulse withstand voltage	
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	4 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 6,3 mm
Overvoltage category	III
Pollution degree	3

Dimensions

		Flat blade connections (4.8 mm x 0.5 mm)
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Depth x width x height	mm	48 / 36 / 36
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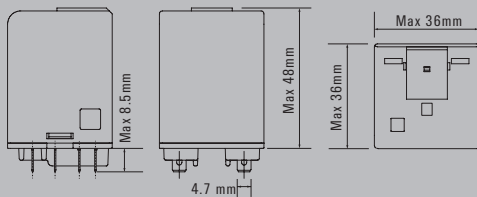
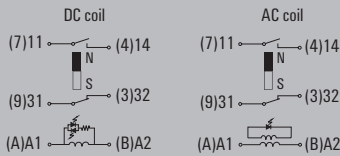
Note

Further technical data can be found at catalog [\[redacted\]](#)

Circuit diagram

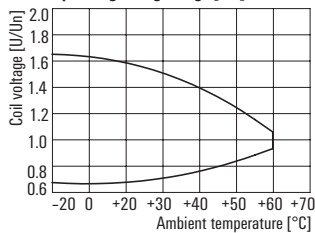
View on pins from below

1NO/1NC

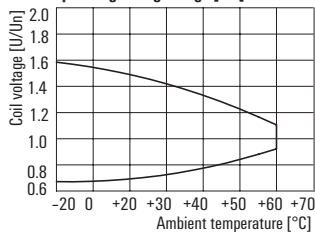


Applications

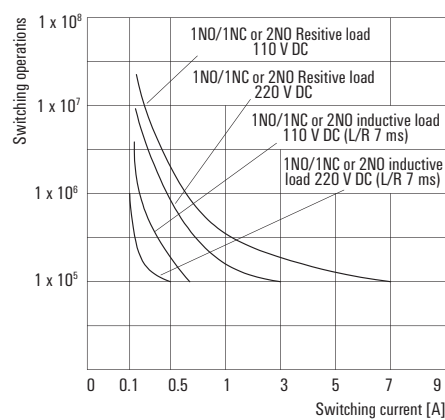
Operating voltage range [DC]



Operating voltage range [AC]

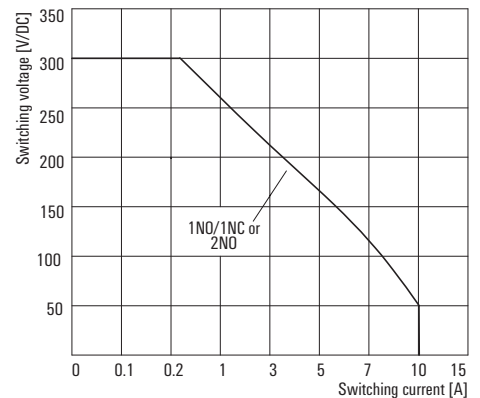


Electrical endurance



DC Load breaking capacity [DC]

Resistive load



DRH DC relay

1 NO contact / 1 NC contact AC/DC coil

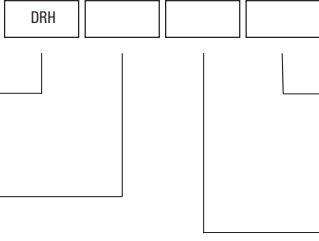
Type

DRH

Type of contact

173 1NO

174 1NC



With LED and test lever

LT

Coil voltage

012	12 V DC	524	24 V AC
024	24 V DC	548	48 V AC
048	48 V DC	615	115 V AC
110	110 V DC	730	230 V AC
220	220 V DC		

Ordering data

Control side

Rated control voltage
Rated current AC / DC

Power rating
Status indicator

12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
12 V DC / 120 mA	24 V DC / 60 mA	48 V DC / 30 mA	110 V DC / 13 mA	220 V DC / 6.7 mA
1.5 W Green LED	1.5 W Green LED	1.5 W Green LED	1.5 W Green LED	1.5 W Green LED

Ordering data

1 NO / 1 NC contact Type
Order No.
Type
Order No.

DRH275012LT	DRH275024LT	DRH275048LT	DRH275110LT	DRH275220LT
1220040000	1220050000	1220060000	1220070000	1220080000

Ordering data

Test-button lock

Type
Order No.

Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
7760056249	7760056249	7760056249	7760056249	7760056249

Note

Ordering data

Control side

Rated control voltage
Rated current AC / DC

Power rating
Status indicator

24 V AC	48 V AC	115 V AC	230 V AC
24 V AC 101.7 mA /	48 V AC 50.5 mA /	115 V AC 21 mA /	230 V AC 10.6 mA /
2.5 VA red LED	2.5 VA red LED	2.5 VA red LED	2.5 VA red LED

Ordering data

1 NO / 1 NC contact Type
Order No.
Type
Order No.

DRH275524LT	DRH275548LT	DRH275615LT	DRH275730LT
1220090000	1220110000	1220120000	1220130000

Ordering data

Test-button lock

Type
Order No.

Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
7760056249	7760056249	7760056249	7760056249

Note

Special loads – D-SERIES

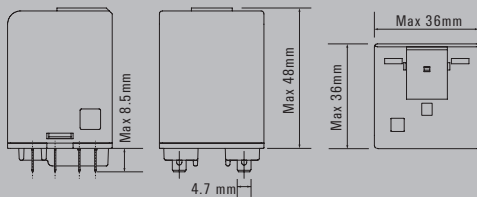
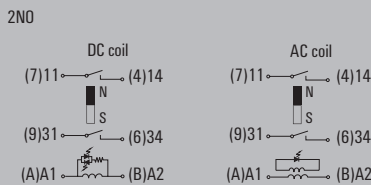
DRH DC relay

2 NO contact AC/DC coil

- Suitable for switching high DC loads
- With blowout magnet
- With LED and test button
- For switching high DC loads up to 3 A at 220 V DC



Circuit diagram View on pins from below



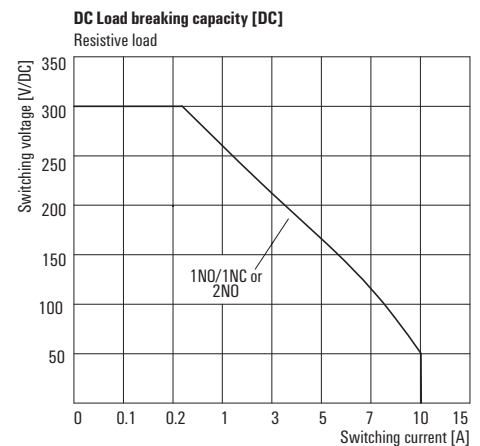
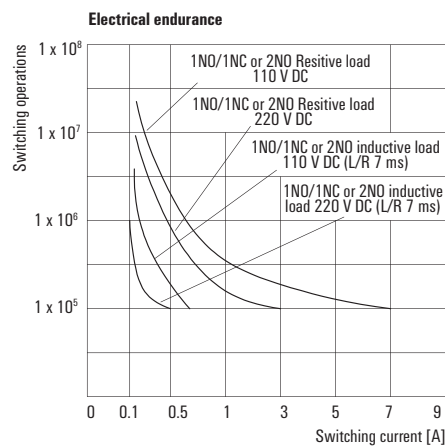
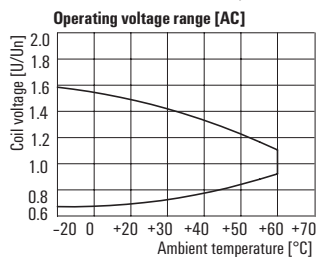
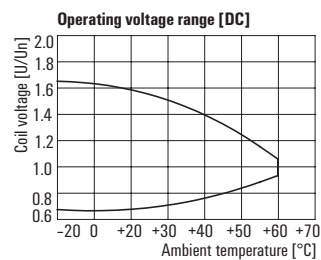
Technical data

Load side	
Rated switching voltage / Continuous current	250 V AC / 16 A
Max. switching voltage, AC	250 V
Inrush current	80 A / 50 ms
Min. switching power	100 mA @ 12 V
DC / AC Switching capacity (resistive), max.	660 W @ 220 V / 4000 VA
Contact material	AgSnO2
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...60 °C
Humidity	35 % to 85 % relative humidity level
Approvals	CE, cURus; EAC
Insulation coordinates	
Rated voltage	400 V
Impulse withstand voltage	
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	4 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 6,3 mm
Overvoltage category	III
Pollution degree	3

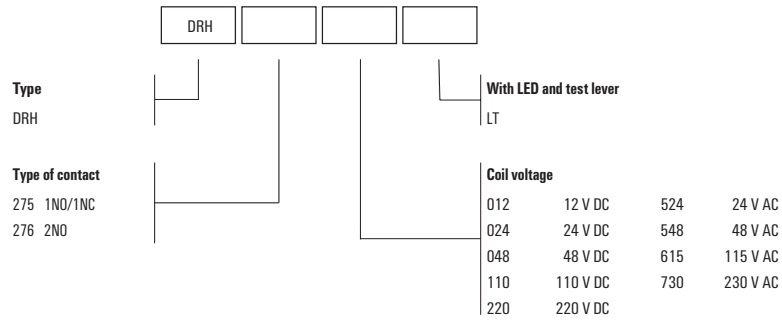
Dimensions	Flat blade connections (4.8 mm x 0.5 mm)
Depth x width x height	mm 48 / 36 / 36

Note Further technical data can be found at catalog [\[redacted\]](#)

Applications



DRH DC relay
2 NO contact AC/DC coil



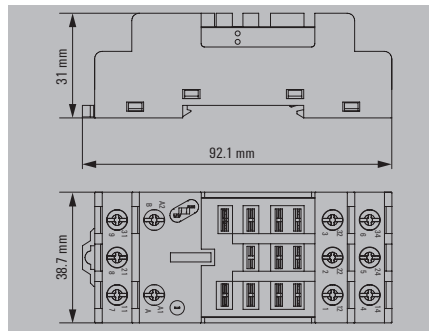
Ordering data	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Control side					
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 120 mA	/ 60 mA	/ 30 mA	/ 13 mA	/ 6.7 mA
Power rating	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data					
2 NO contacts	Type	DRH276012LT	DRH276024LT	DRH276048LT	DRH276110LT
	Order No.	1220140000	1220150000	1220170000	1220180000
	Type				
	Order No.				
Ordering data					
Test-button lock					
	Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
	Order No.	7760056249	7760056249	7760056249	7760056249
Note					

Ordering data	24 V AC	48 V AC	115 V AC	230 V AC
Control side				
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC
Rated current AC / DC	101.7 mA /	50.5 mA /	21 mA /	10.6 mA /
Power rating	2.5 VA	2.5 VA	2.5 VA	2.5 VA
Status indicator	red LED	red LED	red LED	red LED

Ordering data				
2 NO contacts	Type	DRH276524LT	DRH276548LT	DRH276615LT
	Order No.	1220200000	1220210000	1220220000
	Type			
	Order No.			
Ordering data				
Test-button lock				
	Type	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW	Test Lever Block DRH/DRW
	Order No.	7760056249	7760056249	7760056249
Note				

Accessories for DRH and DRW relays

Socket module with
leaf spring connection, 3 CO contacts

Technical data

Load side

Rated switching voltage
Max. switching voltage, AC
Continuous current

General data

Ambient temperature (operational)
Storage temperature
Approvals

Insulation coordinates

Protection degree
Creepage and clearance distance input – output
Dielectric strength, Input/Output
Dielectric strength of neighbouring contacts
Impulse withstand voltage

Connection data

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

Note

500 V AC
500 V
16 A

-40 °C...60 °C
-40 °C...60 °C
CE; cURus

IP10

4 kV_{eff} / 1 min
4 kV_{eff} / 1 min
7.3 kV (1.2/50 µs)

/ 0.5 / 4 mm²
0.5...1.2 Nm
8 mm

Ordering data

Base, rail-mountable

Note

Type	Qty.	Order No.
SPW ECO 3CO	10	1220250000

Accessories

LED module / protection modules

RC element 6 - 230 V AC
Free-wheeling diode 6 - 230 V DC

Retaining clip

Metal retaining clip

Screwdriver

Screwdriver, insulated PH2 SlimLine
Screwdriver, insulated PH2
Screwdriver PH2

Type	Qty.	Order No.
RIM 5 6/230VAC	10	1174670000
RIM 5 6/230VDC	10	1174650000
DRW/DRH CLIP M	10	1220260000
SDIK PH2 SL	1	1274720000
SDIK PH2	1	9008580000
SDK PH2	1	9008490000

Note

Further accessories can be found on the article at catalog

Sensor isolation

Compact and powerful solid-state relays for isolation sensor signals

C

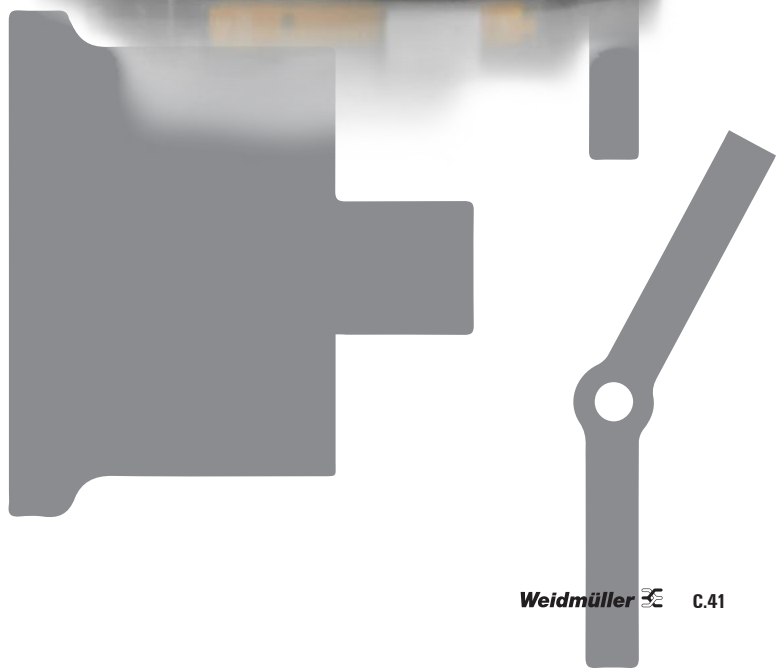
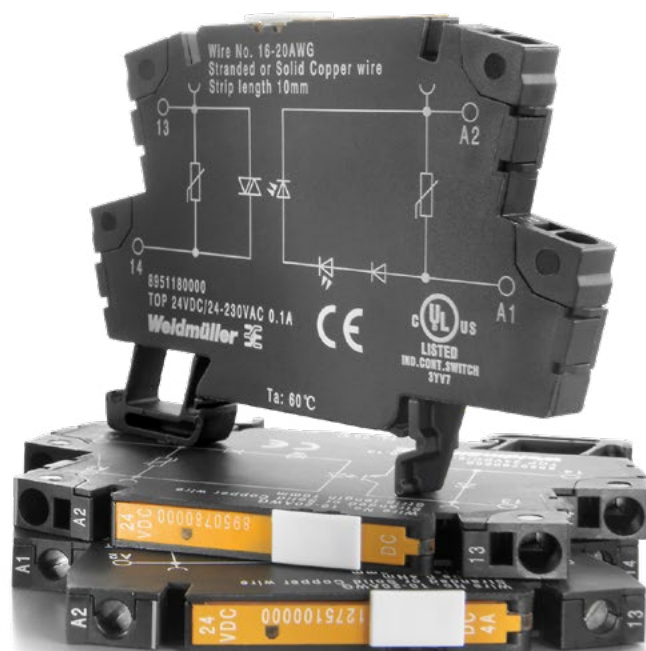
In order to reliably decouple sensor signals from the field, space-saving and fast-switching coupling elements are required. We offer special solid-state relays for sensor isolation, as well as relay modules with gold-plated contacts for reliable switching of small currents and voltages, as they typically occur when switching sensor signals.

Solid-state relay for sensor isolation

As there is often a high number of switching cycles in sensor isolation, it makes sense to use solid-state relays. They have no mechanical wear and therefore work reliably in the long term. Our solid-state relays are extremely compact and, thanks to suitable accessories, enable quick installation. By using TERMSERIES interface adapters in conjunction with pre-assembled cables, the wiring time can be reduced further.

Electromechanical relays with gold contacts

In applications where sensor isolation is only carried out at longer intervals and with low power (< 30 V/10 mA), oxide layers can form on the contacts. This usually occurs in applications where signals are forwarded to control inputs or PLC systems. Due to the low loads, there is not enough light arcing at the contacts to remove the oxide layer during switching. Therefore, relay modules with oxidation-resistant gold contacts are used.

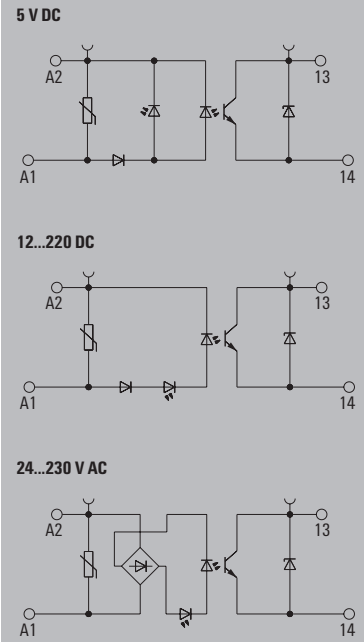
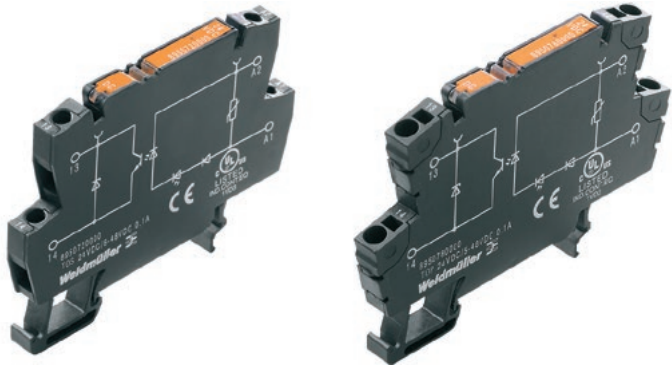


Sensor isolation – TERMOPTO

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



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-wheeling diode
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Humidity	5-95% relative humidity, T _o = 40°C, without 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 _{eff} / 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 ² 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
Note	Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

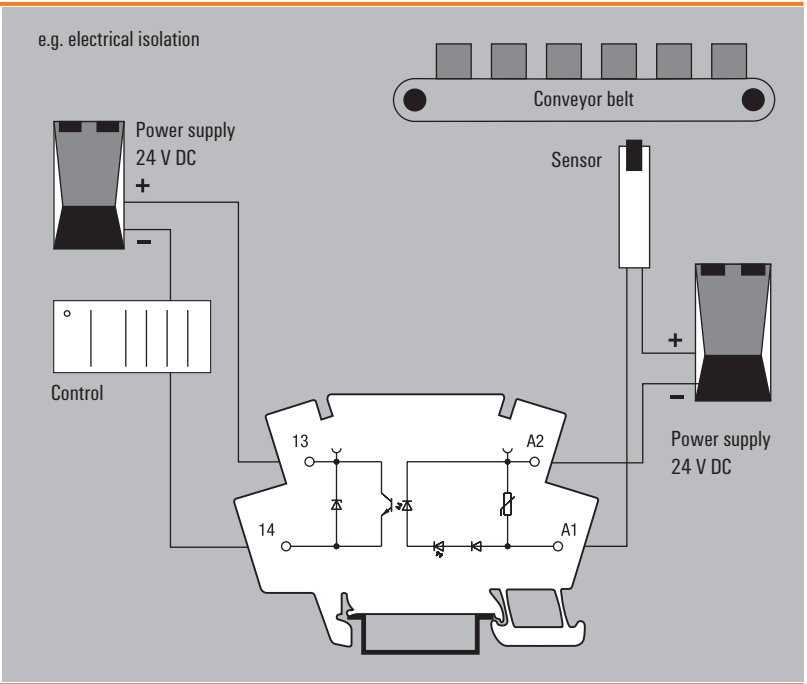
Applications

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.



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

Output versions

Ordering data

Control side	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
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	7.7 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
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

Ordering data

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

Ordering data

Control side	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
Rated control voltage	220 V DC $\pm 10\%$ / -15%	24 V AC $\pm 20\%$	48...60 V AC $\pm 20\%$	120 V AC $\pm 20\%$	230 V AC $\pm 10\%$ / -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
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

Ordering data

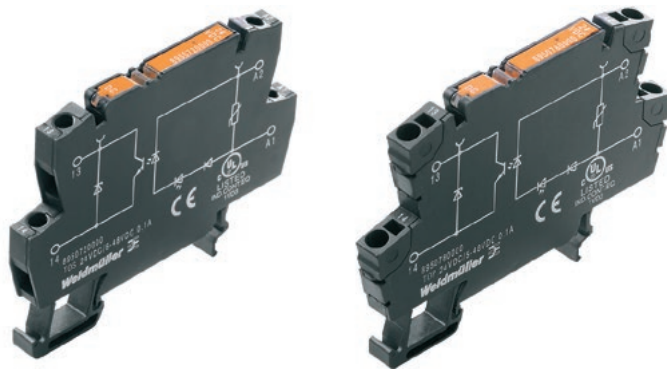
Screw connection	Type	TOS 220VDC/48VDC 0,1A	TOS 24VAC/48VDC 0,1A	TOS 48-60VAC/48VDC 0,1A	TOS 120VAC/48VDC 0,1A	TOS 230VAC/48VDC 0,1A
Order No.		8950750000	8950820000	8950830000	8950840000	8950850000
PUSH IN connection	Type	TOP 220VDC/48VDC 0,1A	TOP 24VAC/48VDC 0,1A	TOP 48-60VAC/48VDC 0,1A	TOP 120VAC/48VDC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

Sensor isolation – TERMOPTO

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



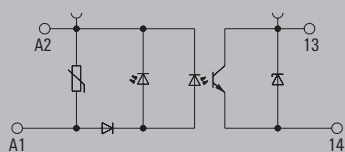
Technical data

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-wheeling diode
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Humidity	5-95% relative humidity, T _o = 40°C, without 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 _{eff} / 1 min.
Dielectric strength to mounting rail	
Clearance and creepage distances for control side - load side	> 3 mm
Overvoltage category	III
Pollution degree	2

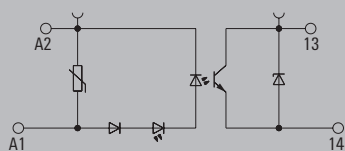
Dimensions	Screw connection	PUSH IN connection
Clamping range (nominal / min. / max.)	mm ² 2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Depth x width x height	mm 55 / 6.1 / 74.4	55 / 6.1 / 79.4

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

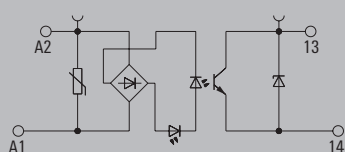
5 V DC



12...220 DC



24...230 V AC



Applications

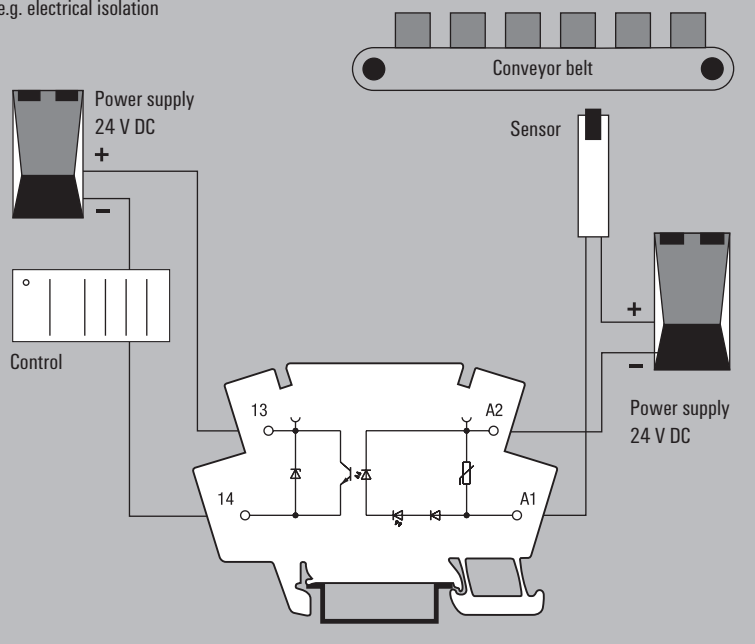
The **TERMOPTO** opto module is used in industrial applications in which electrical isolation and signal conditioning without switching amplification is sufficient.

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

Control side	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
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	7.7 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
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

Ordering data

Screw connection	Type	TOS 5VDC/48VDC 0,5A	TOS 12VDC/48VDC 0,5A	TOS 24VDC/48VDC 0,5A	TOS 48-60VDC/48VDC 0,5A	TOS 110VDC/48VDC 0,5A
	Order No.	8950900000	8950910000	8950920000	8950930000	8950940000
PUSH IN connection	Type	TOP 5VDC/48VDC 0,5A	TOP 12VDC/48VDC 0,5A	TOP 24VDC/48VDC 0,5A	TOP 48-60VDC/48VDC 0,5A	TOP 110VDC/48VDC 0,5A
	Order No.	8950960000	8950970000	8950980000	8950990000	8951000000
Note						

Ordering data

Control side	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
Rated control voltage	220 V DC $\pm 10\%$ / -15%	24 V AC $\pm 20\%$	48...60 V AC $\pm 20\%$	120 V AC $\pm 20\%$	230 V AC $\pm 10\%$ / -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
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

Ordering data

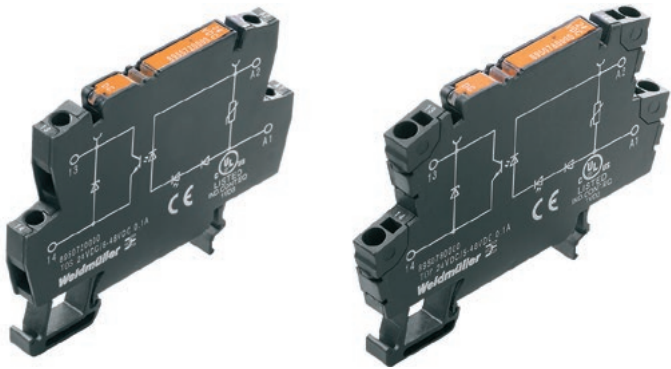
Screw connection	Type	TOS 220VDC/48VDC 0,5A	TOS 24VAC/48VDC 0,5A	TOS 48-60VAC/48VDC 0,5A	TOS 120VAC/48VDC 0,5A	TOS 230VAC/48VDC 0,5A
	Order No.	8950950000	8951020000	8951030000	8951040000	8951050000
PUSH IN connection	Type	TOP 220VDC/48VDC 0,5A	TOP 24VAC/48VDC 0,5A	TOP 48-60VAC/48VDC 0,5A	TOP 120VAC/48VDC 0,5A	TOP 230VAC/48VDC 0,5A
	Order No.	8951010000	8951060000	8951070000	8951080000	8951090000
Note						

Sensor isolation – TERMOPTO

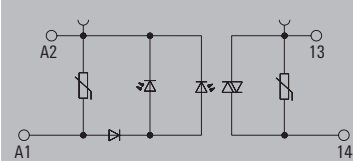
Solid-state relays 24...230 V AC / 100 mA

Output versions

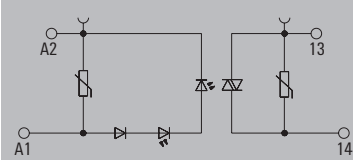
- Space-saving 6.1 mm width
- Plug-in cross-connections
- Screw and PUSH IN wire connection
- Enclosed design



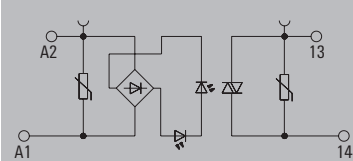
5 V DC



12...220 DC



24...230 V AC



Technical data

Load side	
Rated switching voltage	24...230 V AC
Continuous current	100 mA
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% relative humidity, T ₀ = 40°C, without 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 _{eff} / 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
Clamping range (nominal / min. / max.)	mm ² 2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Depth x width x height	mm 55 / 6.1 / 74.4	55 / 6.1 / 79.4
Note	Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

Applications

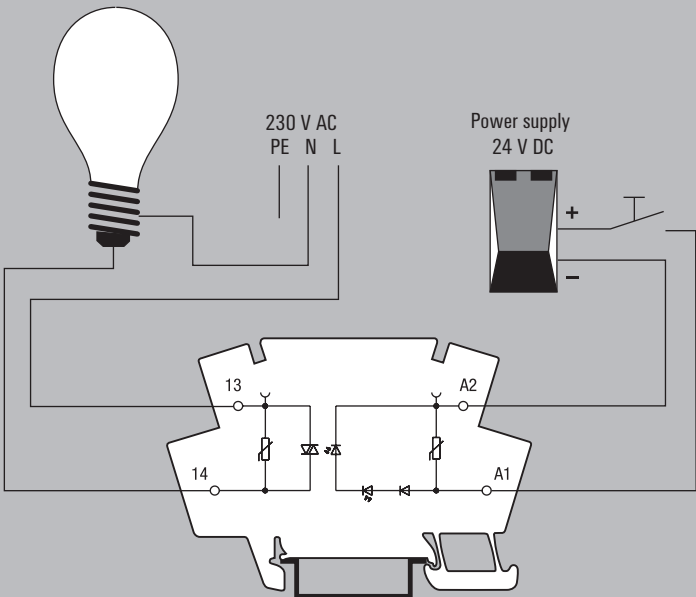
The **TERMOPTO** opto module is used in industrial applications in which electrical isolation and signal conditioning without switching amplification is sufficient.

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.

E.g. signal conditioning



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

Output versions

Ordering data

Control side	5 V DC	12 V DC	24 V DC	48...60 V DC	110 V DC
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	≤ 80 mW	≤ 170 mW	≤ 360 mW
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

Ordering data

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

Ordering data

Control side	220 V DC	24 V AC	48...60 V AC	120 V AC	230 V AC
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	≤ 640 mW	≤ 0.2 VA	≤ 0.3 VA	≤ 1 VA	≤ 1.7 VA
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

Ordering data

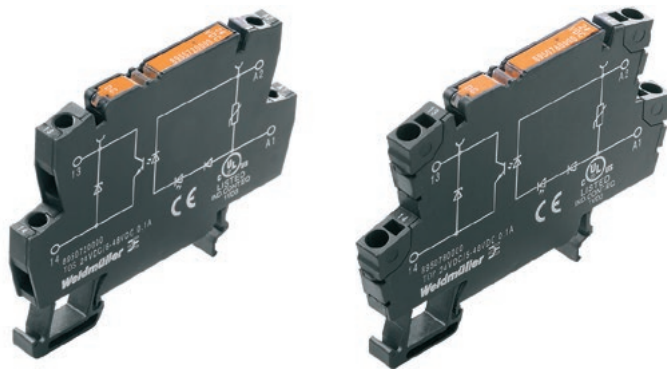
Screw connection	Type	TOS 220VDC/230VAC 0,1A	TOS 24VAC/230VAC 0,1A	TOS 48-60VAC/230VAC 0,1A	TOS 120VAC/230VAC 0,1A	TOS 230VAC/230VAC 0,1A
	Order No.	8951150000	8951220000	8951230000	8951240000	8951250000
PUSH IN connection	Type	TOP 220VDC/230VAC 0,1A	TOP 24VAC/230VAC 0,1A	TOP 48-60VAC/230VAC 0,1A	TOP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

Sensor isolation – TERMOPTO

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

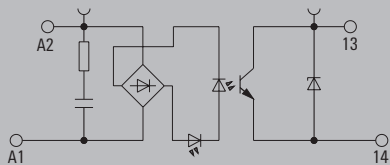


Technical data

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 circuit
Short-circuit-proof / Protective circuit, load side	No / Diode circuit
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Humidity	5-95% relative humidity, T ₀ = 40°C, without 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 _{eff} / 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 ² 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
Note	Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

120 V...230 V AC



Ordering data

Control side

Rated control voltage
Nominal control current
Power rating

max. switching frequency (DC control voltage)
max. switching frequency (AC control voltage)
Status indicator
Protective circuit

120 V AC

120 V AC ±20 %
6.4 mA AC
≤ 0.61 VA

10 Hz

Green LED
RC element

230 V AC

230 V AC +10 %/-15 %
6.4 mA AC
≤ 1.5 VA

10 Hz

Green LED
RC element

Ordering data

Screw connection Type
Order No.
PUSH IN connection Type
Order No.

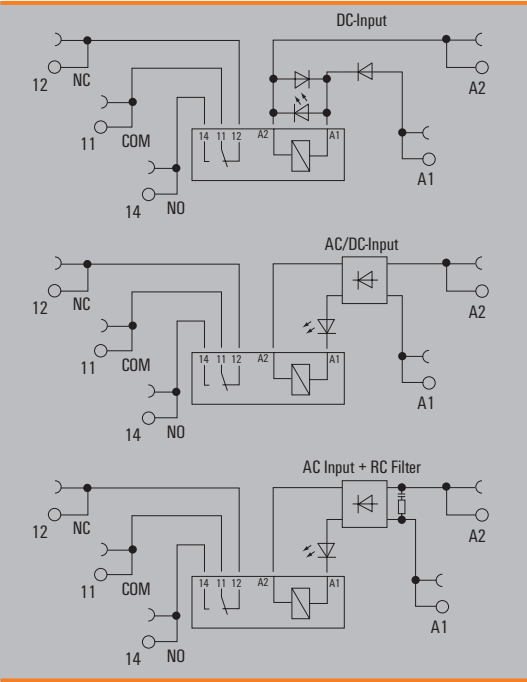
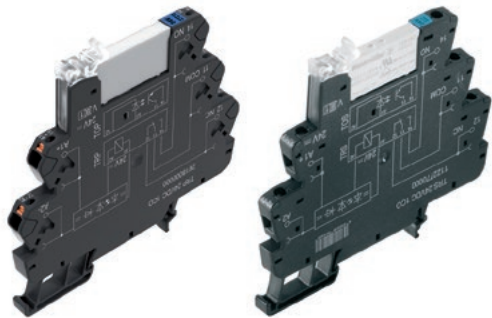
TOS 120VAC/48VDC 0.5A RC
1180290000
TOP 120VAC/48VDC 0.5A RC
1188830000

TOS 230VAC/48VDC 0.5A RC
1189270000
TOP 230VAC/48VDC 0.5A RC
1189260000

Note

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

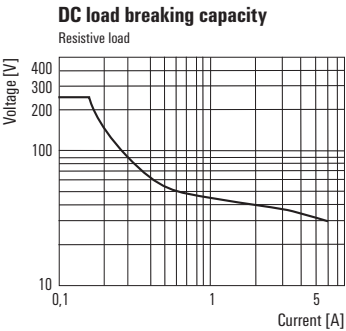
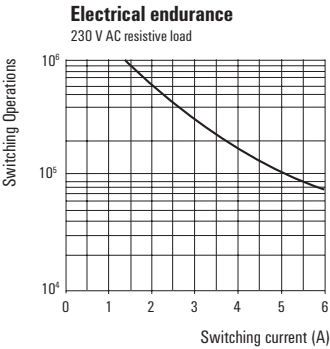
- Space saving, just 6.4 mm modular width
- AgNi contact with gold plating
- PUSH IN and screw connection



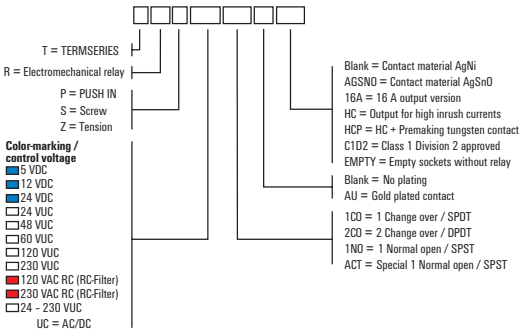
Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 6 A	
Max. switching voltage, AC		
Inrush current	20 A / 20 ms	
Min. switching power	1 mA @ 1 V	
Contact type	1 CO contact (AgNi 5µm Au)	
Mechanical service life	5 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% relative humidity, T ₉₀ = 40°C, without condensation	
Approvals	CE; cULus; DNVGL; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.	
Dielectric strength of neighbouring contacts		
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Creepage and clearance distance input - output	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

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
Control side					
Rated control voltage	5 V DC ± 20 %	12 V DC ± 20 %	24 V DC ± 20 %	24 V UC ± 10 %	48 V UC ± 10 %
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	340 mW / 0.4 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data						
PUSH IN connection	Type	TRP 5VDC 1CO AU	TRP 12VDC 1CO AU	TRP 24VDC 1CO AU	TRP 24VUC 1CO AU	TRP 48VUC 1CO AU
	Order No.	2618060000	2618120000	2618110000	2618160000	2618170000
Screw connection	Type	TRS 5VDC 1CO AU	TRS 12VDC 1CO AU	TRS 24VDC 1CO AU	TRS 24VUC 1CO AU	TRS 48VUC 1CO AU
	Order No.	1122980000	1122990000	1123000000	1123010000	1123020000
Note						

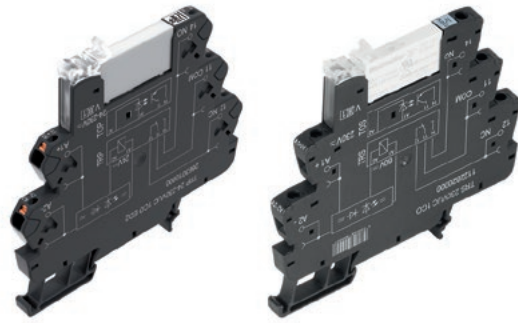
Ordering data	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Control side					
Rated control voltage	60 V UC ± 10 %	120 V UC ± 10 %	230 V UC ± 10 %	120 V AC ± 10 %	230 V AC ± 10 %
Rated current AC / DC	4,8 mA / 2,8 mA	4 mA / 3,5 mA	3,5 mA / 2,9 mA	7 mA /	8,5 mA /
Power rating	170 mW, 290 mVA	0,48 VA, 420 mW	670 mW, 805 mVA	840 mVA	2 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element

Ordering data						
PUSH IN connection	Type	TRP 60VUC 1CO AU	TRP 120VUC 1CO AU	TRP 230VUC 1CO AU	TRP 120VAC RC 1CO AU	TRP 230VAC RC 1CO AU
	Order No.	2618070000	2618080000	2618210000	2618030000	2617950000
Screw connection	Type	TRS 60VUC 1CO AU	TRS 120VUC 1CO AU	TRS 230VUC 1CO AU	TRS 120VAC RC 1CO AU	TRS 230VAC RC 1CO AU
	Order No.	1123030000	1123040000	1123050000	1123070000	1123080000
Note						

Sensor isolation – TERMSERIES

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

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


Technical data
Load side

Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	
Inrush current	20 A / 20 ms
Min. switching power	1 mA @ 1 V
Contact type	1 CO contact (AgNi 5µm Au)
Mechanical service life	5 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz

General data

Ambient temperature (operational)	-40 °C...60 °C
Storage temperature	-40 °C...85 °C
Humidity	5-95% relative humidity, T ₉ = 40°C, without condensation
Approvals	CE, EAC

Insulation coordinates

Rated voltage	300 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions

	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6

Note

Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.
Further approvals and technical data can be found at catalog. XXXXXXXXXX

Ordering data
Control side

Rated control voltage	24...230 V UC ± 10 %
Rated current AC / DC	19.0 mA @ 24 V AC, 3.0 mA @ 230 V AC / 11.0 mA @ 24 V DC, 1.1 mA @ 230 V DC
Power rating	265 mW @ 24 V DC, 255 mW @ 230 V DC, 455 mVA @ 24 V AC, 690 mVA @ 230 V AC
Status indicator	Green LED
Protective circuit	Rectifier
Approvals	CE, EAC

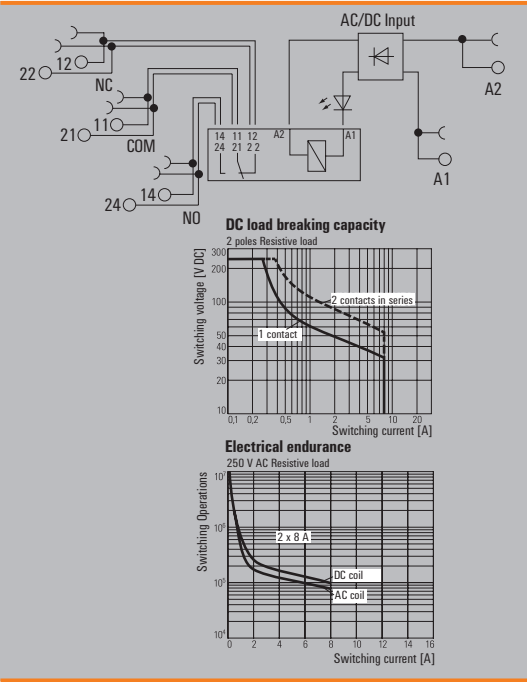
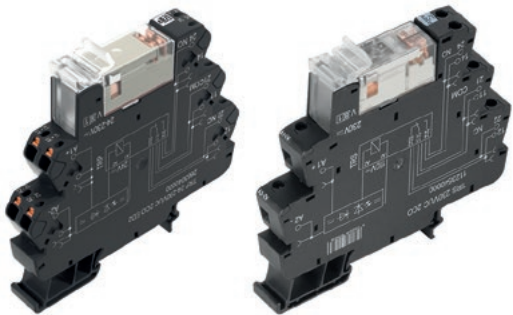
24 V - 230 V UC
Ordering data

PUSH IN connection	Type	TRP 24-230VUC 1CO AU ED2
	Order No.	2663020000
Screw connection	Type	TRS 24-230VUC 1CO AU ED2
	Order No.	2662860000

Note

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

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



Technical data

Load side		
Rated switching voltage / Continuous current	250 V AC / 8 A	
Max. switching voltage, AC		
Inrush current	15 A / 4 s	
Min. switching power	1 mA @ 1 V	
Contact type	2 CO contact (AgNi 5µm Au)	
Mechanical service life	30 x 10 ⁶ switching cycles	
Max. switching frequency at rated load	0.1 Hz	
General data		
Ambient temperature (operational)	-40 °C...60 °C	
Storage temperature	-40 °C...85 °C	
Humidity	5-95% relative humidity, T _g = 40°C, without condensation	
Approvals	CE; EAC	
Insulation coordinates		
Rated voltage	300 V	
Impulse withstand voltage	6 kV (1.2/50 µs)	
Dielectric strength, Input/Output	3.51 kV _{eff} / 1 min.	
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Creepage and clearance distance input - output	≥ 6 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 89.4	87.8 / 12.8 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

Ordering data

Control side

Rated control voltage	24...230 V UC ± 10 %
Rated current AC / DC	23.5 mA @ 24 V AC, 4.5 mA @ 230 V AC / 22.5 mA @ 24 V DC, 2.0 mA @ 230 V DC
Power rating	540 mW @ 24 V DC, 460 mW @ 230 V DC, 565 mVA @ 24 V AC, 1.0 VA @ 230 V AC
Status indicator	Green LED
Protective circuit	Rectifier
Approvals	CE; EAC

24 V - 230 V UC

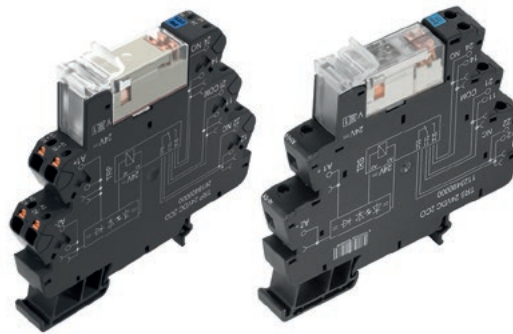
Ordering data

PUSH IN connection	Type	TRP 24-230VUC 2CO AU ED2
	Order No.	2663050000
Screw connection	Type	TRS 24-230VUC 2CO AU ED2
	Order No.	2662890000

Note

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
- PUSH IN and screw connection

**Technical data****Load side**

Rated switching voltage / Continuous current 250 V AC / 8 A

Max. switching voltage, AC

Inrush current 15 A / 4 s

Min. switching power 1 mA @ 1 V

Contact type 2 CO contact (AgNi 5µm Au)

Mechanical service life 30 x 10⁶ switching cycles

Max. switching frequency at rated load 0.1 Hz

General data

Ambient temperature (operational)

-40 °C...60 °C

Storage temperature

-40 °C...85 °C

Humidity

5-95% relative humidity, T_g = 40°C, without condensation

Approvals

CE; cULus; DNVGL; EAC

Insulation coordinates

Rated voltage

300 V

Impulse withstand voltage

6 kV (1.2/50 µs)

Dielectric strength, Input/Output

3.51 kV_{eff} / 1 min.

Dielectric strength of neighbouring contacts

2.5 kV_{eff} / 1 Min.

Dielectric strength to mounting rail

4 kV_{eff} / 1 Min.

Creepage and clearance distance input - output

≥ 6 mm

Overvoltage category

III

Pollution degree

2

Dimensions

Clamping range (nominal / min. / max.)

mm² 1.5 / 0.14 / 2.5

Depth x width x height

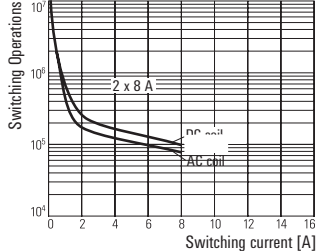
mm 87.8 / 12.8 / 89.4

Note

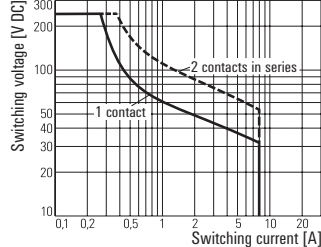
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.

Further approvals and technical data can be found at catalog. XXXXXXXXXX**Applications****Electrical endurance**

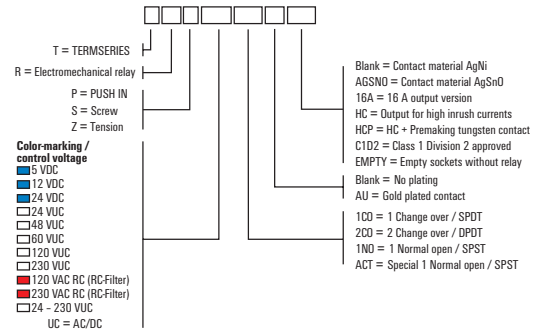
250 V AC Resistive load

**DC load breaking capacity**

2 poles Resistive load



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



Ordering data

Control side	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V UC $\pm 10\%$	48 V UC $\pm 10\%$
Rated current AC / DC	/ 70 mA	/ 33 mA	/ 20.5 mA	16 mA / 14 mA	9 mA / 7 mA
Power rating	400 mW	400 mW	495 mW	390 mVA / 350 mW	340 mW / 0.4 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data					
PUSH IN connection Type	TRP 5VDC 2CO AU	TRP 12VDC 2CO AU	TRP 24VDC 2CO AU	TRP 24VUC 2CO AU	TRP 48VUC 2CO AU
Order No.	2618580000	2618310000	2618530000	2618540000	2618560000
Screw connection Type	TRS 5VDC 2CO AU	TRS 12VDC 2CO AU	TRS 24VDC 2CO AU	TRS 24VUC 2CO AU	TRS 48VUC 2CO AU
Order No.	1123710000	1123720000	1123730000	1123740000	1123750000
Note					

Ordering data

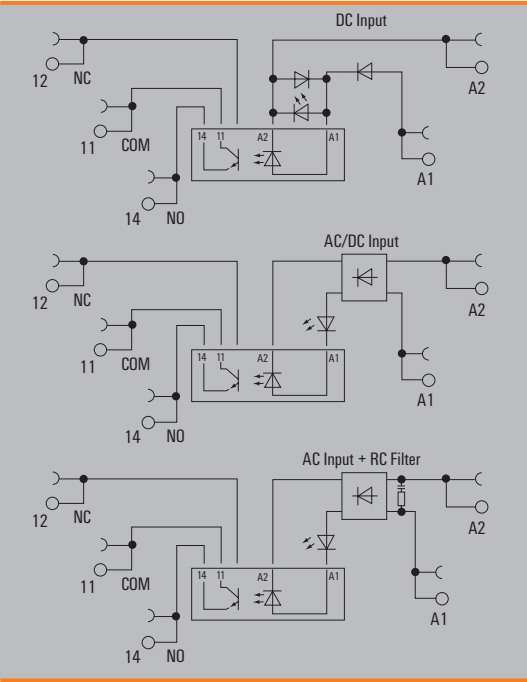
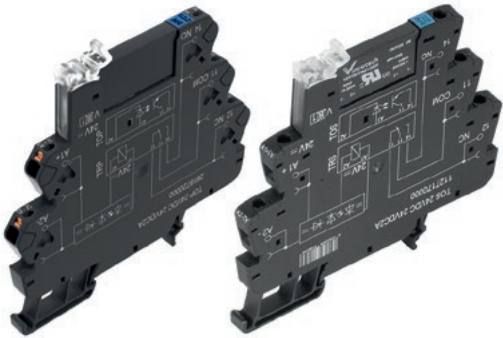
Control side	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Rated control voltage	60 V UC $\pm 10\%$	120 V UC $\pm 10\%$	230 V UC $\pm 5\%$	120 V AC $\pm 10\%$	230 V AC $\pm 5\%$
Rated current AC / DC	8.3 mA / 6.0 mA	3.5 mA / 3.5 mA	5.5 mA / 4.4 mA	5.5 mA /	8.8 mA /
Power rating	360 mW, 500 mVA	420 mVA / 420 mW	1 W, 1.2 VA	0.6 VA	2.1 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED
Protective circuit	Rectifier	Rectifier	Rectifier	Rectifier, RC element	Rectifier, RC element

Ordering data					
PUSH IN connection Type	TRP 60VUC 2CO AU	TRP 120VUC 2CO AU	TRP 230VUC 2CO AU	TRP 120VAC RC 2CO AU	TRP 230VAC RC 2CO AU
Order No.	2618360000	2618590000	2618300000	2618490000	2618500000
Screw connection Type	TRS 60VUC 2CO AU	TRS 120VUC 2CO AU	TRS 230VUC 2CO AU	TRS 120VAC RC 2CO AU	TRS 230VAC RC 2CO AU
Order No.	1123770000	1123780000	1123790000	1123800000	1123810000
Note					

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

Output versions

- Space saving, just 6.4 mm modular width
- 100 mA DC Output current
- PUSH IN and screw connection

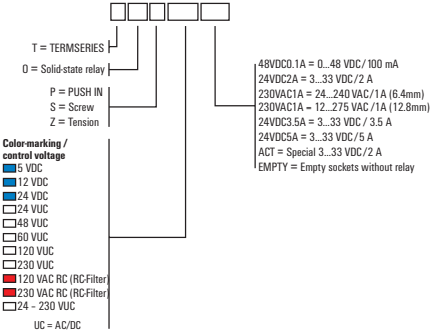


Technical data

Load side		
Rated switching voltage	0...48 V DC	
Continuous current	100 mA	
Inrush current		
Contact type	1 NO contact (Bipolar transistor)	
Voltage drop at max. load	≤ 1 V	
Leakage current	< 10 µA	
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode	
General data		
Ambient temperature (operational)	-20 °C...60 °C	
Storage temperature	-40 °C...70 °C	
Humidity	5-95% relative humidity, T _a = 40°C, without 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 _{eff}	
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.	
Clearance and creepage distances for control side - load side	≥ 5.5 mm	
Overvoltage category	III	
Pollution degree	2	
Dimensions	PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note	Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	

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

Output versions



Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Control side					
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V UC $\pm 10\%$	48 V UC $\pm 10\%$
Nominal control current	7 mA DC ($\pm 20\%$)	5 mA DC ($\pm 20\%$)	10 mA DC $\pm 20\%$	10 mA AC $\pm 20\%$, 6 mA DC ($\pm 20\%$)	8 mA AC ($\pm 20\%$), 7 mA DC ($\pm 20\%$)
Power rating	35 mW	112 mW	280 mW	154 mW	290 mVA / 192 mW
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-wheeling diode, Reverse polarity protection	Rectifier	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data					
PUSH IN connection	Type	TOP 5VDC 48VDC0.1A	TOP 12VDC 48VDC0.1A	TOP 24VDC 48VDC0.1A	TOP 24VUC 48VDC0.1A
	Order No.	2614860000	2618600000	2618790000	2618640000
Screw connection	Type	TOS 5VDC 48VDC0.1A	TOS 12VDC 48VDC0.1A	TOS 24VDC 48VDC0.1A	TOS 24VUC 48VDC0.1A
	Order No.	1126920000	1126930000	1126940000	1126950000
Note					

Ordering data	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Control side					
Rated control voltage	60 V UC $\pm 10\%$	120 V UC $\pm 10\%$	230 V UC $\pm 10\%$	120 V AC $\pm 10\%$	230 V AC $\pm 10\%$
Nominal control current	4.8 mA AC ($\pm 10\%$), 2.5 mA DC ($\pm 10\%$)	5 mA AC ($\pm 30\%$), 3 mA DC ($\pm 30\%$)	3.5 mA AC ($\pm 5\%$), 2.9 mA DC ($\pm 5\%$)	7 mA AC ($\pm 20\%$)	9 mA AC
Power rating	150 mW, 290 mVA	0.48 VA	670 mW, 805 mVA	0.84 VA	1.9 VA
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	Rectifier, RC element	Rectifier, RC element

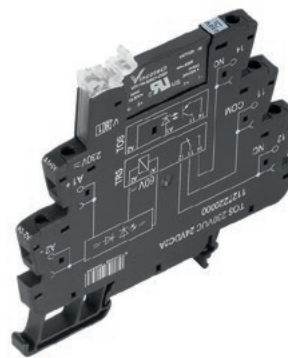
Ordering data					
PUSH IN connection	Type	TOP 60VUC 48VDC0.1A	TOP 120VUC 48VDC0.1A	TOP 230VUC 48VDC0.1A	TOP 120VAC RC 48VDC0.1A
	Order No.	2614880000	2618680000	2618690000	2618650000
Screw connection	Type	TOS 60VUC 48VDC0.1A	TOS 120VUC 48VDC0.1A	TOS 230VUC 48VDC0.1A	TOS 120VAC RC 48VDC0.1A
	Order No.	1126970000	1126980000	1126990000	1127000000
Note					

Sensor isolation – TERMSERIES

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

Output versions, multi-voltage input

- Space saving, just 6.4 mm modular width
- 100 mA DC Output current
- PUSH IN and screw 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	
Contact type	1 NO contact (Bipolar transistor)
Voltage drop at max. load	≤ 1 V
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% relative humidity, T ₉₀ = 40 °C, without condensation
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 _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog.		

Ordering data

Control side

Rated control voltage	24...230 V UC ±10 %
Nominal control current	11.0 mA at 24 V DC, 1.1 mA at 230 V DC, 19.0 mA at 24 V AC, 2.8 mA at 230 V AC
Power rating	265 mW @ 24 V DC, 255 mW @ 230 V DC, 455 mVA @ 24 V AC, 645 mVA @ 230 V AC
max. switching frequency (DC control voltage)	3 Hz
max. switching frequency (AC control voltage)	3 Hz
Status indicator	Green LED
Protective circuit	Rectifier
Approvals	CE; EAC

24 V - 230 V UC

Ordering data

PUSH IN connection	Type	TOP 24-230VUC 48VDC0,1A ED2
	Order No.	2663070000
Screw connection	Type	TOS 24-230VUC 48VDC0,1A ED2
	Order No.	2662910000

Note

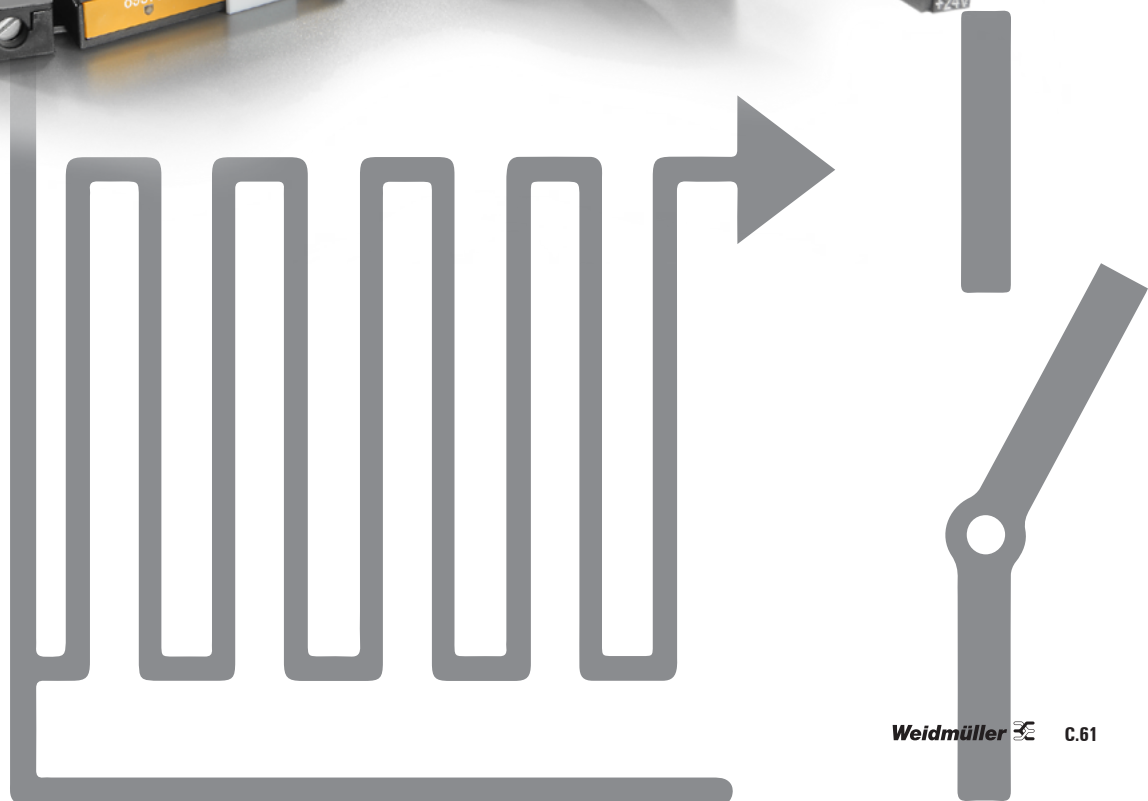
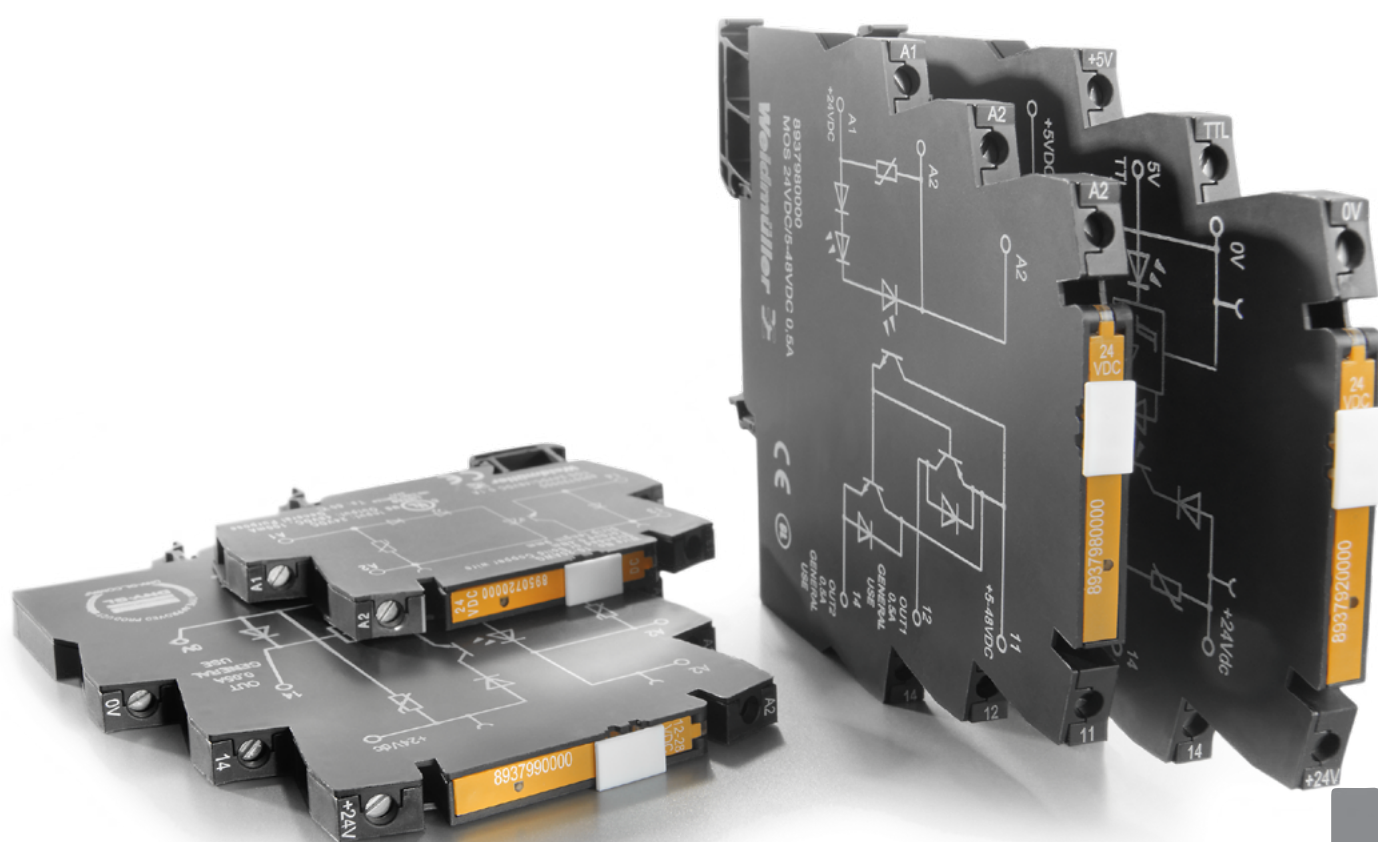
High switching frequencies

Special solid-state relays for reliable and fast decoupling of signals up to 550 kHz

C

Due to their design, solid-state relays can already switch significantly faster than electromechanical relays. However, there are applications in which signals have to be switched even faster or at an even higher frequency. For particularly fast switching processes, or the transmission of signals with high switching frequencies between 1 and 550 kHz, we have developed special solid-state relays that are precisely tailored to these specific applications.

Our solid-state relays for high switching frequencies guarantee the reliable and fast decoupling of signals. They can be used to implement extremely fast switching processes or to transmit signals with switching frequencies of up to 550 kHz.

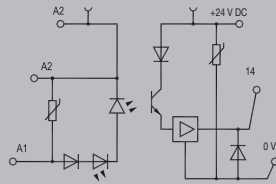


High switching frequencies – MICROOPTO

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



Technical data

Control side

Rated control voltage
Power rating
Pull-in/drop-out voltage, typ.

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.) mm²
Depth x width x height mm

Note

Ordering data

Screw connection

Note

Accessories

Note

12 V DC...28 V DC
≤ 360 mW
5.6 V / 5 V DC

100 kHz
Green LED
Varistor, Reverse polarity protection

Transistor
19.6...28.8 V DC
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% relative humidity, T_a = 55 °C, without condensation
CE; cULus; DNVGL; EAC

30 V
500 V (1,2/50 μ)
350 V_{eff} / 1 min.
350 V_{eff} / 1 min.

II
2

Screw connection

2.5 / 0.5 / 4
97.8 / 6.1 / 88.1

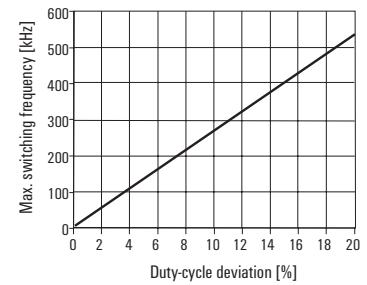
Type	Qty.	Order No.
MOS 12-28VDC 100KHZ	1	8937990000

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

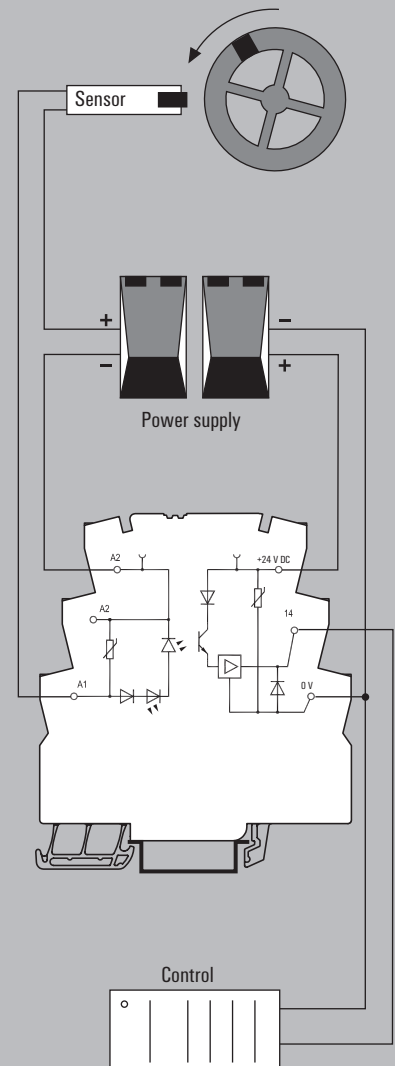
A special interior circuit in the opto module **MICROOPTO 100 kHz** ensures that rapidly transmitted signals are isolated from one another and that they can be transferred practically without delay. This allows switching frequencies up to 100 kHz to be achieved. Comprehensive suppressor circuits safeguard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

Max. switching frequency is dependent
on the duty cycle deviation

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

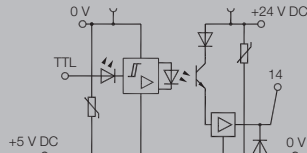


For example rotational speed measurement



For adjusting TTL signals

5 V TTL / 24 V DC 0.1 A



Technical data

Control side

Rated control voltage
Power rating
Pull-in/drop-out voltage, typ.

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.) mm²
Depth x width x height mm

Note

Ordering data

Screw connection

Note

Accessories

Note

5 V TTL
< 0.5 mW
2 V / 1 V DC

100 kHz
Green LED
Varistor, Reverse polarity protection

Bipolar transistor
24 VDC ±20%
100 mA
< 1 V
< 20 µA
No / Free-wheeling diode

< 1.3 µs / < 1 µs

LC A

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

300 V
4 kV (1.2/50 µs)
3 kV_{eff} / 1 Min.
4 kV_{eff} / 1 Min.
> 3 mm
III
2

Screw connection

2.5 / 0.5 / 4
97.8 / 6.1 / 88.1

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

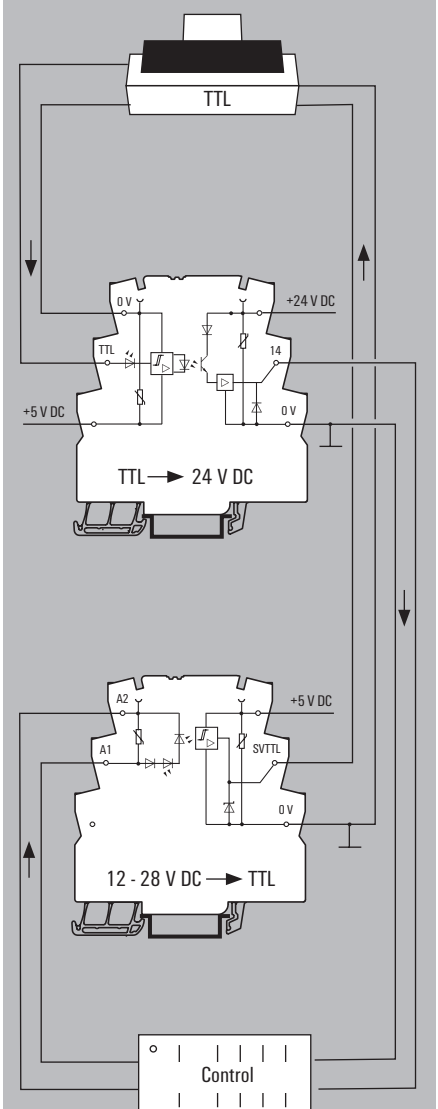
Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.

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.

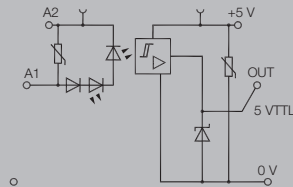
e.g. printer interface



High switching frequencies – MICROOPTO

For adjusting TTL signals

12-28 V DC / 5 V TTL



Technical data

Control side

Rated control voltage
Power rating
Pull-in/drop-out voltage, typ.

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.) mm²
Depth x width x height mm

Note

Ordering data

Screw connection

Note

Accessories

Note

12 V DC...28 V DC
150 mW
10.7 V / 10.6 V DC

100 kHz
Green LED
Varistor, Reverse polarity protection

TTL
5 V TTL
50 mA
90 mV
< 1 µA
No / Varistor

typ. < 1 µs / typical. < 4 µs

LC A

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

300 V
4 kV (1.2/50 µs)
3 kV_{eff} / 1 Min.
4 kV_{eff} / 1 Min.
> 3 mm
III
2

Screw connection

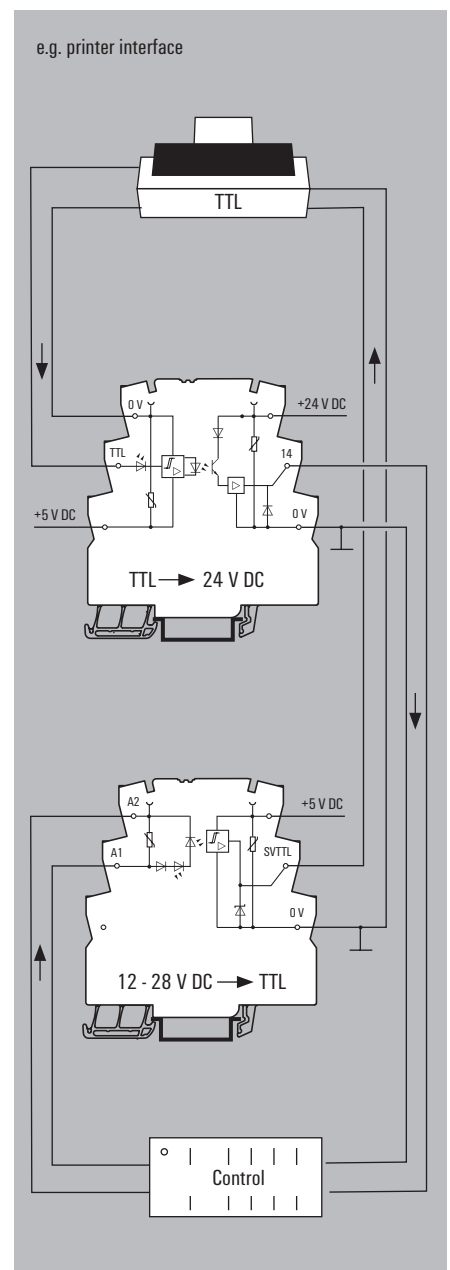
2.5 / 0.5 / 4
97.8 / 6.1 / 88.1

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

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.

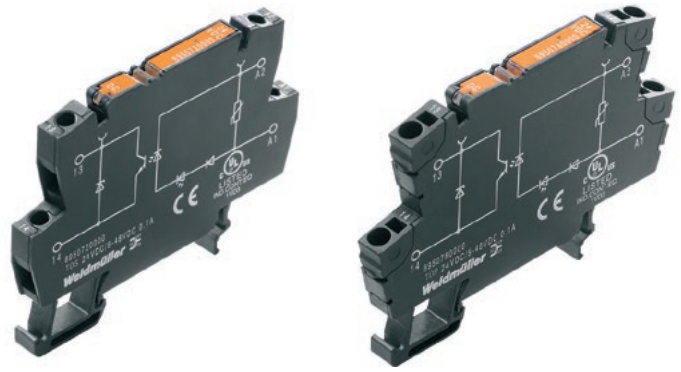
To control the optical coupler circuit via the 5 V TTL signal, an additional auxiliary voltage is fed in.



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

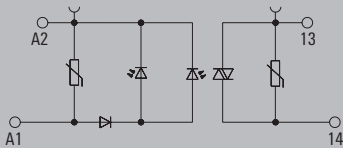


Technical data

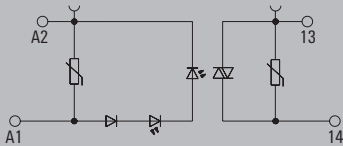
Load side	
Rated switching voltage	24...230 V AC
Continuous current	100 mA
Inrush current	
Solid-state type	Triac (zero-cross switch)
Voltage drop at max. load	< 1.8 V
Leakage current	< 1 mA
Protective circuit, load side	Varistor, RC element
Short-circuit-proof / Protective circuit, load side	No / Varistor, RC element
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Humidity	5-95% relative humidity, T _a = 40°C, without 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 _{eff} / 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 ² 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
Note	Accessories and dimensioned drawings: refer to the TERMOPTO Accessories page.	

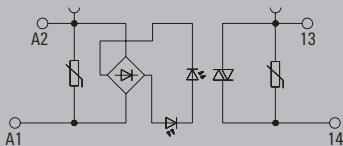
5 V DC



12...220 DC



24...230 V AC



Applications

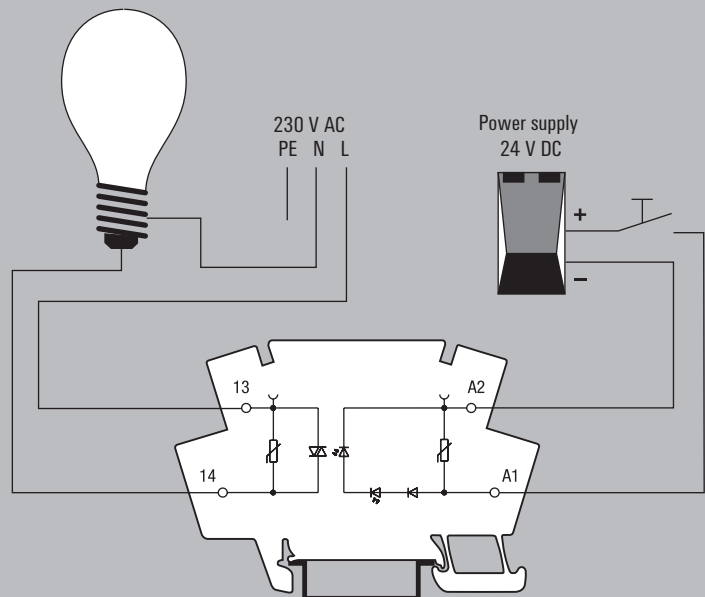
The **TERMOPTO** opto module is used in industrial applications in which electrical isolation and signal conditioning without switching amplification is sufficient.

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

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

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

E.g. signal conditioning



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

Ordering data		5 V DC	12 V DC	24 V DC
Control side				
Rated control voltage		5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %
Nominal control current		7.8 mA DC	3.6 mA DC	3.6 mA DC
Power rating		< 40 mW	< 45 mW	≤ 80 mW
max. switching frequency (DC control voltage)		10 Hz	10 Hz	10 Hz
max. switching frequency (AC control voltage)				
Status indicator		Green LED	Green LED	Green LED
Protective circuit		Varistor, Reverse polarity protection	Varistor, Reverse polarity protection	Varistor, Reverse polarity protection
Ordering data				
Screw connection	Type	TOS 5VDC/230VAC 0,1A	TOS 12VDC/230VAC 0,1A	TOS 24VDC/230VAC 0,1A
	Order No.	8951100000	8951110000	8951120000
PUSH IN connection	Type	TOP 5VDC/230VAC 0,1A	TOP 12VDC/230VAC 0,1A	TOP 24VDC/230VAC 0,1A
	Order No.	8951160000	8951170000	8951180000
Note				

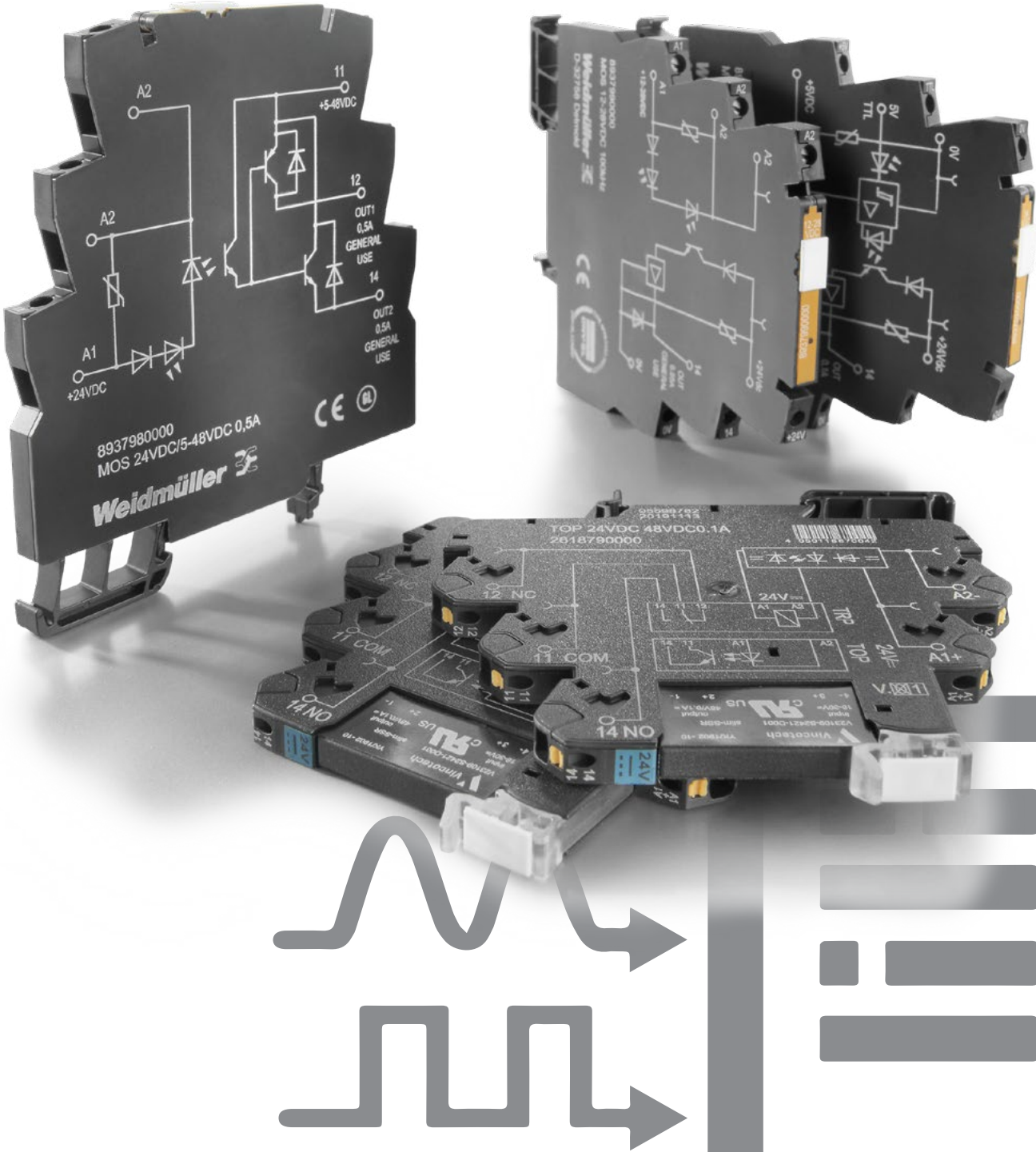
Signal adaption

Custom-fit relays for signal adaption and transmission

C

To adapt signals and transmit them from other systems at the panel level, relays and solid-state relays are required that are precisely tailored to the application. We offer you a range of high-quality and particularly space-saving relay products for these special applications.

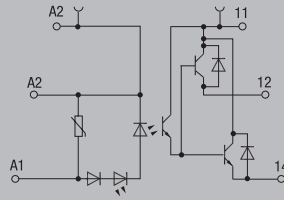
In our portfolio you will find, for example, special variants for transmitting 5 V TTL signals to the inputs and outputs of PLC systems or industrial computers. What's more, we offer variants which, in contrast to conventional 1 NO contact solid-state relays, have a 1 CO contact output. These products are particularly suitable for inverting signals.



Signal adaption – MICROOPTO

For electronically switching
or inverting signals

24 V DC / 5-48 V DC 0.5 A



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

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

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

Technical data

Control side

Rated control voltage
Power rating
Pull-in/drop-out voltage, typ.

24 V DC $\pm 20\%$
160 mW
19.5 V / 12 V DC

Input frequency
Status indicator
Protective circuit

1 kHz
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

Transistor
5...48 V DC
500 mA
Max. 1 V
< 1.5 mA
No / Free-wheeling diode

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

< 30 μ s / < 50 μ s

General data

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

LC A
-25 °C...60 °C
-40 °C...60 °C
V-0
5 - 93% rel. humidity, $T_u = 40^\circ\text{C}$, no condensation
CE; cULus; DNVGL; 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
4 kV (1.2/50 μ s)
3 kV_{eff} / 1 Min.
4 kV_{eff} / 1 Min.
> 3 mm
III
2

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Screw connection

2.5 / 0.5 / 4
97.8 / 6.1 / 88.1

Note

Ordering data

Screw connection

Note

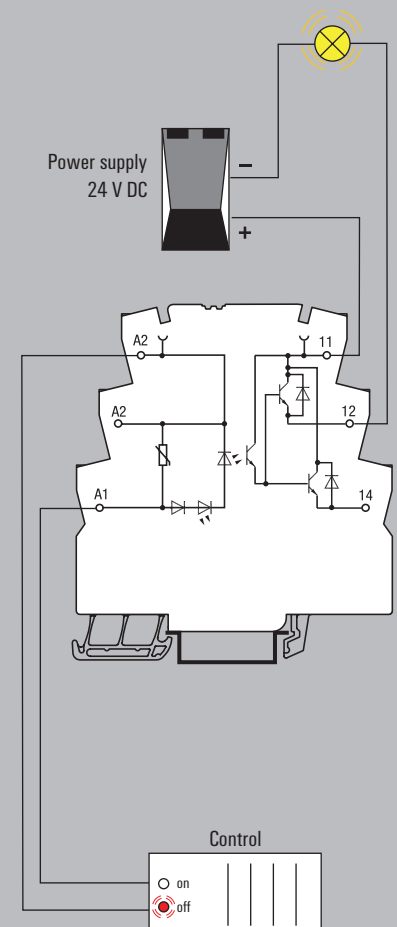
Accessories

Note

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

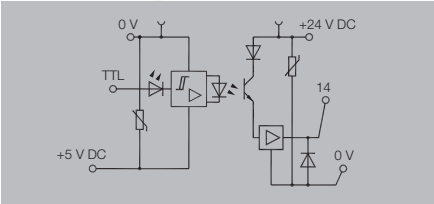
Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.

e.g. Inverter



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
Pull-in/drop-out voltage, typ.	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-wheeling 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; DNVGL; EAC
Insulation coordinates	
Rated voltage	300 V
Impulse withstand voltage	4 kV (1.2/50 µs)
Dielectric strength for control side - load side	3 kV _{eff} / 1 Min.
Dielectric strength to mounting rail	4 kV _{eff} / 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 ²
Depth x width x height	mm
Note	

Ordering data

Screw connection

Note

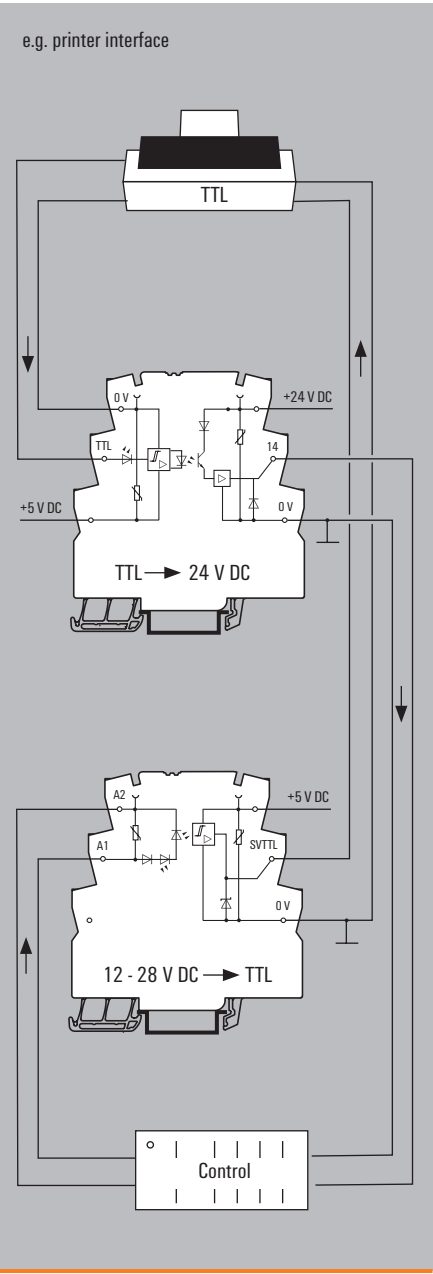
Accessories

Note

5 V TTL
< 0.5 mW
2 V / 1 V DC
100 kHz
Green LED
Varistor, Reverse polarity protection
Bipolar transistor
24 VDC ±20%
100 mA
< 1 V
< 20 µA
No / Free-wheeling diode
< 1.3 µ / < 1 µs
LC A
-25 °C...60 °C
-40 °C...60 °C
V-0
5 - 93% rel. humidity, Tu = 40°C, no condensation
CE; cULus; DNVGL; EAC
300 V
4 kV (1.2/50 µs)
3 kV _{eff} / 1 Min.
4 kV _{eff} / 1 Min.
> 3 mm
III
2

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

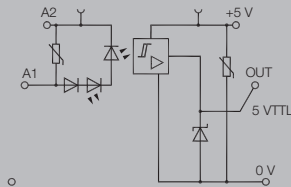
Accessories and dimensioned drawings: refer to the MICROOPTO Accessories page.
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Signal adaption – MICROOPTO

For adjusting TTL signals

12-28 V DC / 5 V TTL



Technical data

Control side

Rated control voltage
Power rating
Pull-in/drop-out voltage, typ.

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.) mm²
Depth x width x height mm

Note

Ordering data

Screw connection

Note

Accessories

Note

12 V DC...28 V DC
150 mW
10.7 V / 10.6 V DC

100 kHz
Green LED
Varistor, Reverse polarity protection

TTL
5 V TTL
50 mA
90 mV
< 1 µA
No / Varistor

typ. < 1 µs / typical. < 4 µs

LC A

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

300 V
4 kV (1.2/50 µs)
3 kV_{eff} / 1 Min.
4 kV_{eff} / 1 Min.
> 3 mm
III
2

Screw connection

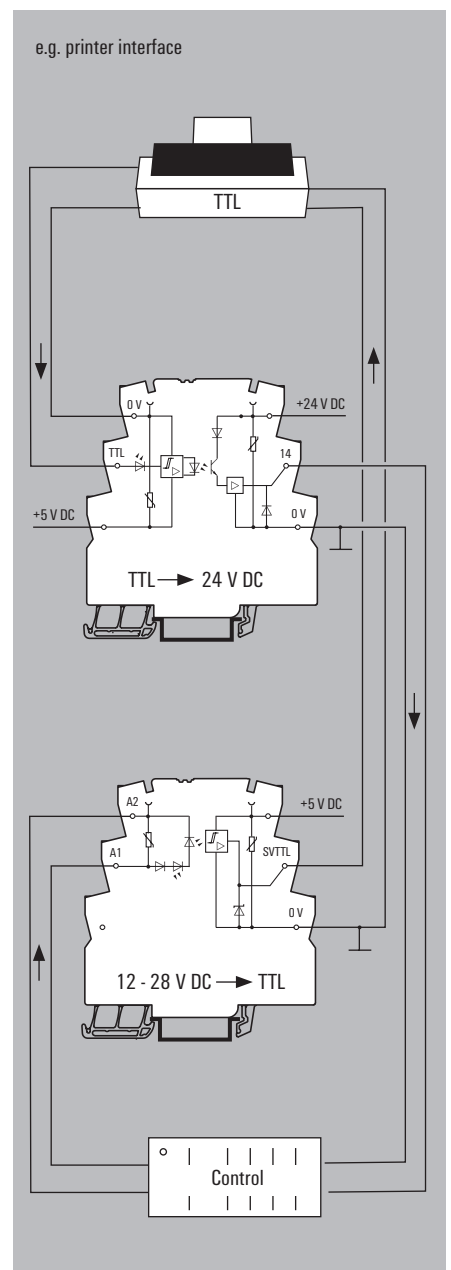
2.5 / 0.5 / 4
97.8 / 6.1 / 88.1

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

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.

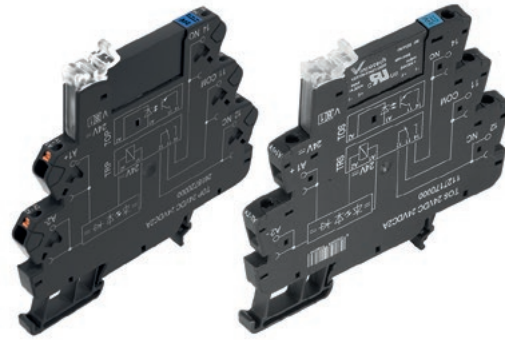
For the protection of the electronics, the sensitive TTL signals require electrical isolation from the 24 V world.

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



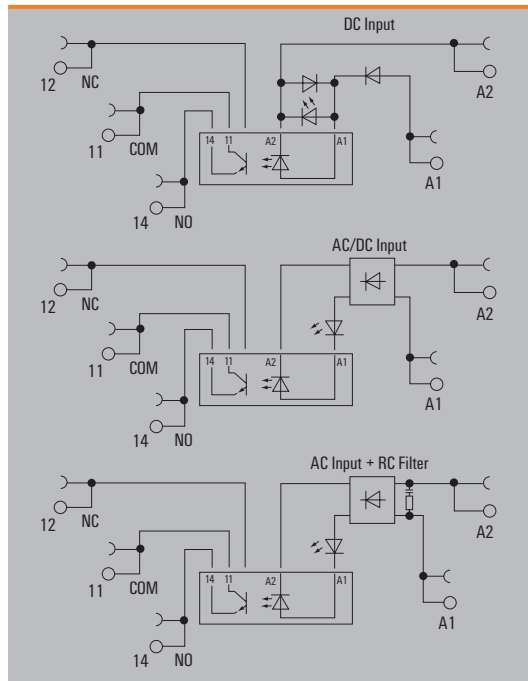
Solid-state relay, 3...48 V DC / 100 mA**Output versions**

- Space saving, just 6.4 mm modular width
- 100 mA DC Output current
- PUSH IN and screw connection

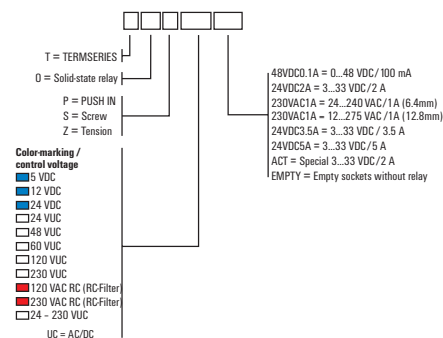
**Technical data**

Load side	
Rated switching voltage	0...48 V DC
Continuous current	100 mA
Inrush current	
Contact type	1 NO contact (Bipolar transistor)
Voltage drop at max. load	≤ 1 V
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% relative humidity, T _a = 40 °C, without 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 _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions		PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ²	1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm	87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	



Output versions



Ordering data	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Control side					
Rated control voltage	5 V DC ±20 %	12 V DC ±20 %	24 V DC ±20 %	24 V UC ±10 %	48 V UC ±10 %
Nominal control current	7 mA DC (±20 %)	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
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-wheeling diode, Reverse polarity protection	Rectifier	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

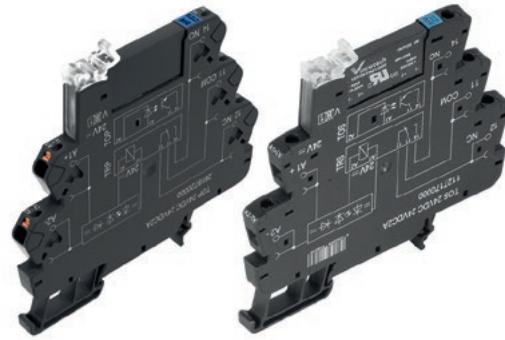
Ordering data						
PUSH IN connection	Type	TOP 5VDC 48VDC0,1A	TOP 12VDC 48VDC0,1A	TOP 24VDC 48VDC0,1A	TOP 24VUC 48VDC0,1A	TOP 48VUC 48VDC0,1A
	Order No.	2614860000	2618600000	2618790000	2618640000	2618710000
Screw connection	Type	TOS 5VDC 48VDC0,1A	TOS 12VDC 48VDC0,1A	TOS 24VDC 48VDC0,1A	TOS 24VUC 48VDC0,1A	TOS 48VUC 48VDC0,1A
	Order No.	1126920000	1126930000	1126940000	1126950000	1126960000
Note						

Ordering data	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Control side					
Rated control voltage	60 V UC ±10 %	120 V UC ±10 %	230 V UC ±10%	120 V AC ±10 %	230 V AC ±10 %
Nominal control current	4.8 mA AC (±10 %), 2.5 mA DC (±10 %)	5 mA AC (±30 %), 3 mA DC (±30 %)	3.5 mA AC (±5 %), 2.9 mA DC (±5 %)	7 mA AC (±20 %)	9 mA AC
Power rating	150 mW, 290 mVA	0.48 VA	670 mW, 805 mVA	0.84 VA	1.9 VA
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	Rectifier, RC element	Rectifier, RC element

Ordering data						
PUSH IN connection	Type	TOP 60VUC 48VDC0,1A	TOP 120VUC 48VDC0,1A	TOP 230VUC 48VDC0,1A	TOP 120VAC RC 48VDC0,1A	TOP 230VAC RC 48VDC0,1A
	Order No.	2614880000	2618680000	2618690000	2618650000	2618620000
Screw connection	Type	TOS 60VUC 48VDC0,1A	TOS 120VUC 48VDC0,1A	TOS 230VUC 48VDC0,1A	TOS 120VAC RC 48VDC0,1A	TOS 230VAC RC 48VDC0,1A
	Order No.	1126970000	1126980000	1126990000	1127000000	1127010000
Note						

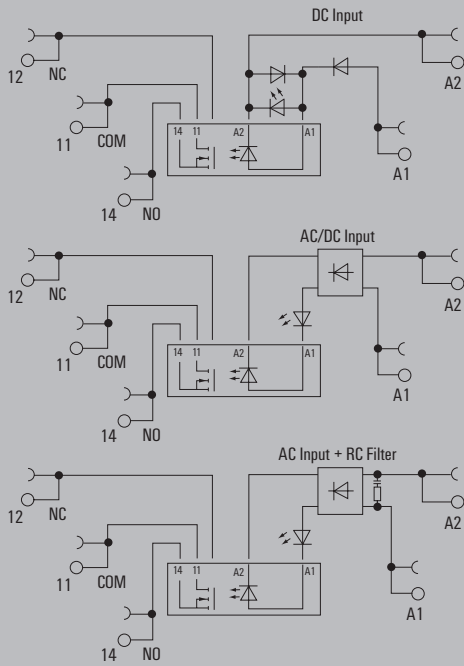
Solid-state relay, 3...33 V DC / 2 A**Output versions**

- Space saving, just 6.4 mm modular width
- 2 A DC Output current
- PUSH IN and screw connection

**Technical data**

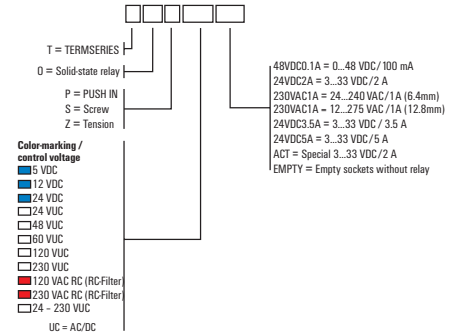
Load side	
Rated switching voltage	3...33 V DC
Continuous current	2 A
Inrush current	15 A / 10 ms
Contact type	1 NO contact (MOS-FET)
Voltage drop at max. load	≤ 120 mV
Leakage current	< 10 µA
Short-circuit-proof / Protective circuit, load side	No / Free-wheeling diode, Reverse polarity protection
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% relative humidity, T ₉ = 40 °C, without 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 _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions		PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ²	1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm	87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	



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

Output versions



Ordering data

Control side	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V UC $\pm 10\%$	48 V UC $\pm 10\%$
Nominal control current	11.5 mA DC ($\pm 20\%$)	9.6 mA DC ($\pm 20\%$)	11.5 mA DC ($\pm 10\%$)	10 mA AC $\pm 20\%$, 6 mA DC ($\pm 20\%$)	8 mA AC ($\pm 20\%$), 7 mA DC ($\pm 20\%$)
Power rating	50 mW	112 mW	280 mW	154 mW	290 mVA / 192 mW
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-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data

PUSH IN connection	Type	TOP 5VDC 24VDC2A	TOP 12VDC 24VDC2A	TOP 24VDC 24VDC2A	TOP 24VUC 24VDC2A	TOP 48VUC 24VDC2A
Order No.		2618810000	2618820000	2618720000	2618730000	2618760000
Screw connection	Type	TOS 5VDC 24VDC2A	TOS 12VDC 24VDC2A	TOS 24VDC 24VDC2A	TOS 24VUC 24VDC2A	TOS 48VUC 24VDC2A
Order No.		1127140000	1127150000	1127170000	1127180000	1127190000
Note						

Ordering data

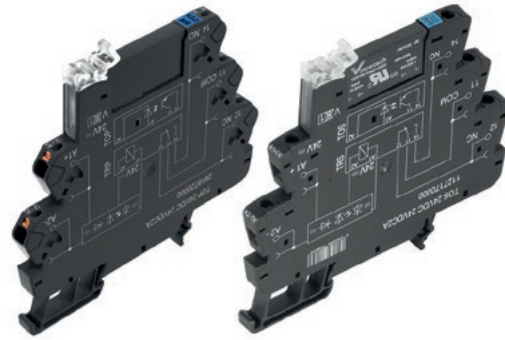
Control side	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Rated control voltage	60 V UC $\pm 10\%$	120 V UC $\pm 10\%$	230 V UC $\pm 10\%$	120 V AC $\pm 10\%$	230 V AC $\pm 10\%$
Nominal control current	4.8 mA AC ($\pm 10\%$), 2.5 mA DC ($\pm 10\%$)	4.1 mA AC ($\pm 10\%$), 2.6 mA DC ($\pm 10\%$)	3.5 mA AC ($\pm 5\%$), 2.9 mA DC ($\pm 5\%$)	7 mA AC ($\pm 20\%$)	9 mA AC
Power rating	150 mW, 290 mVA	0.49 VA, 0.31 W	670 mW, 805 mVA	0.84 VA	1.9 VA
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

Ordering data

PUSH IN connection	Type	TOP 60VUC 24VDC2A	TOP 120VUC 24VDC2A	TOP 230VUC 24VDC2A	TOP 120VAC RC 24VDC2A	TOP 230VAC RC 24VDC2A
Order No.		2618970000	2618770000	2618800000	2618660000	2618670000
Screw connection	Type	TOS 60VUC 24VDC2A	TOS 120VUC 24VDC2A	TOS 230VUC 24VDC2A	TOS 120VAC RC 24VDC2A	TOS 230VAC RC 24VDC2A
Order No.		1127200000	1127210000	1127220000	1127230000	1127240000
Note						

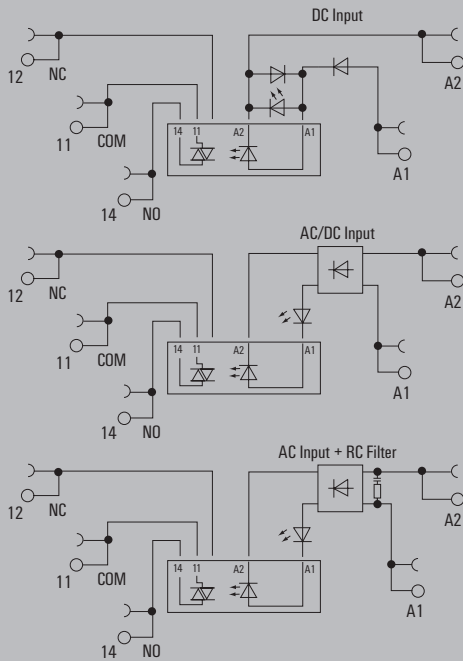
Solid-state relay, 24...230 V AC / 1 A**Output versions**

- Space saving, just 6.4 mm modular width
- 1 A AC Output current
- PUSH IN and screw connection

**Technical data**

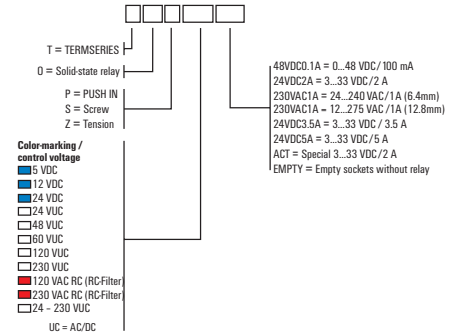
Load side	
Rated switching voltage	24...240 V AC
Continuous current	1 A
Inrush current	15 A / 10 ms
Contact type	1 NO contact (Triac (zero-cross switch))
Voltage drop at max. load	≤ 1.6 V
Leakage current	< 1.5 mA
Short-circuit-proof / Protective circuit, load side	No / RC element
General data	
Ambient temperature (operational)	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Humidity	5-95% relative humidity, T ₉ = 40 °C, without 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 _{eff}
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Overvoltage category	III
Pollution degree	2

Dimensions		PUSH IN connection	Screw connection
Clamping range (nominal / min. / max.)	mm ²	1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm	87.8 / 6.4 / 89.4	87.8 / 6.4 / 89.6
Note		Accessories and dimensional drawings: refer to the TERMSERIES Accessories page. Further approvals and technical data can be found at catalog. XXXXXXXXXX	



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

Output versions



Ordering data

Control side	5 V DC	12 V DC	24 V DC	24 V UC	48 V UC
Rated control voltage	5 V DC $\pm 20\%$	12 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V UC $\pm 10\%$	48 V UC $\pm 10\%$
Nominal control current	15 mA DC ($\pm 20\%$)	9.6 mA DC ($\pm 20\%$)	11.5 mA DC ($\pm 10\%$)	10 mA AC $\pm 20\%$, 6 mA DC ($\pm 20\%$)	6 mA AC ($\pm 20\%$), 4 mA DC ($\pm 20\%$)
Power rating	75 mW	112 mW	280 mW	154 mW	290 mVA / 192 mW
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-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Free-wheeling diode, Reverse polarity protection	Rectifier	Rectifier

Ordering data

PUSH IN connection	Type	TOP 5VDC 230VAC1A	TOP 12VDC 230VAC1A	TOP 24VDC 230VAC1A	TOP 24VUC 230VAC1A	TOP 48VUC 230VAC1A
	Order No.	2614850000	2618380000	2618420000	2618350000	2618460000
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

Note

Ordering data

Control side	60 V UC	120 V UC	230 V UC	120 V AC RC	230 V AC RC
Rated control voltage	60 V UC $\pm 10\%$	120 V UC $\pm 10\%$	230 V UC $+5\%$ / -10%	120 V AC $\pm 10\%$	230 V AC $+5\%$ / -10%
Nominal control current	4.8 mA AC ($\pm 10\%$), 2.5 mA DC ($\pm 10\%$)	5 mA AC ($\pm 30\%$), 3 mA DC ($\pm 30\%$)	3.5 mA AC ($\pm 5\%$), 2.9 mA DC ($\pm 5\%$)	7 mA AC ($\pm 20\%$)	8.3 mA AC ($\pm 5\%$)
Power rating	< 300 mW	0.48 VA	0.8 VA / 660 mW	0.84 VA	2.1 VA
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

Ordering data

PUSH IN connection	Type	TOP 60VUC 230VAC1A	TOP 120VUC 230VAC1A	TOP 230VUC 230VAC1A	TOP 120VAC RC 230VAC1A	TOP 230VAC RC 230VAC1A
	Order No.	2618370000	2618480000	2618450000	2618390000	2618430000
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

Note

Timing functions

Reliable timing relays for plant and building automation

C

Timing relays play an important role in many areas of plant and building automation. They are always used when switch-on or switch-off processes are to be delayed or when short pulses are to be extended. They are used, for example, to avoid errors during short switching cycles that cannot be reliably detected by downstream control components. Timing relays are also a simple way of integrating timer functions into a system without PLC, or implementing them without programming effort.

The Klippon® Relay portfolio provides you with relays for various timing functions such as on-delay, off-delay, clock generator and star-delta relays. We also offer timing relays for universal applications in factory and building automation as well as multifunction timing relays with several timer functions. Our timing relays are available as a classic building automation design, a compact 6.4 mm version and with wide-range multi-voltage input. Our timing relays have the current approvals according to DNVGL, EAC, and cULus and can therefore be used internationally.



TERMSERIES TIMER

Timing relay for control signal adaptation with additional functions

C

Timing relays are used to coordinate fast switching processes in control systems, among other things. TERMSERIES TIMER timing relays have a on-delay, which allows for the delayed switch-on of machines, the cascaded start-up of system components or the delayed activation of consumers such as pumps or valves. They also have the One Shot and blinker functions.

TERMSERIES TIMER timing relays in compact 6.4 mm terminal block format are available with either a screw connection or a PUSH IN wire connection. The timing functions and time ranges can be conveniently adjusted via the DIP switches on the side. The power supply and the respective switching status can be checked at a glance by means of the clearly visible duo LED on the ejection lever. International approvals in accordance with EN 61812 mean that they can be used anywhere in the world. TERMSERIES TIMER is compatible with the wide range of TERMSERIES accessories, thereby ensuring high levels of flexibility and simple integration into existing systems.

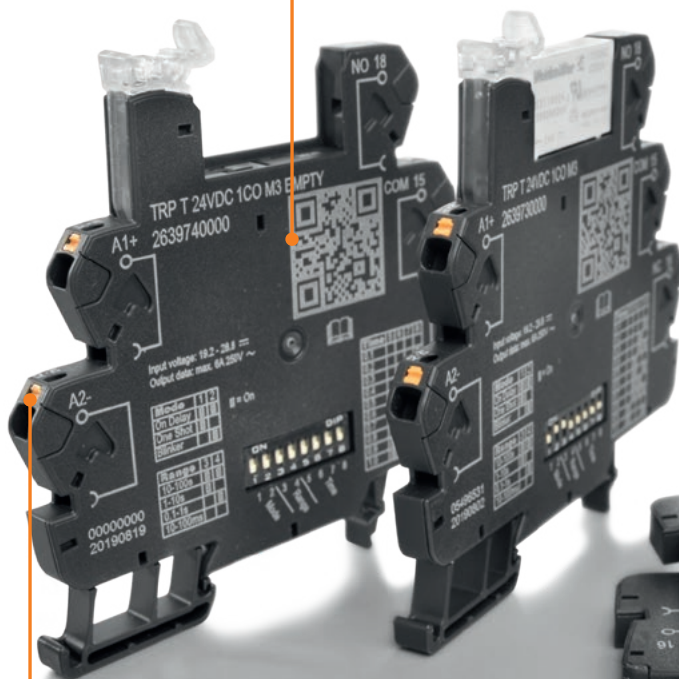
Your special advantages:

- Control voltage 24 V DC
- Empty socket for solid-state relays and electromechanical relays
- Simple adjustment of timing functions and time ranges
- Multifunctional design with three time functions: on-delay, One Shot and blinker



International approval

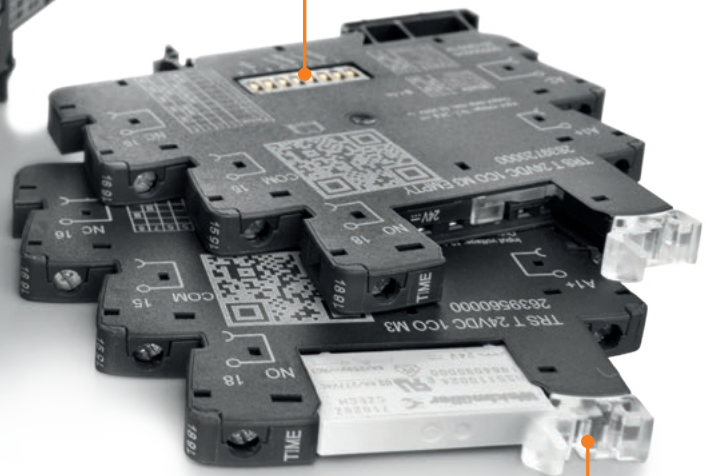
TERMSERIES timing relays comply with the requirements of EN 61812 and can be used anywhere in the world.



Available with screw connection and PUSH IN connection technology

Comfortable adjustment

Timing function and time ranges are easy to adjust via the DIP switches on the side.

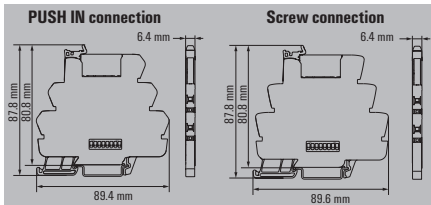
**Clear display**

Due to the integrated Duo-LED on the ejection lever, power supply and switching status can be checked at a glance.

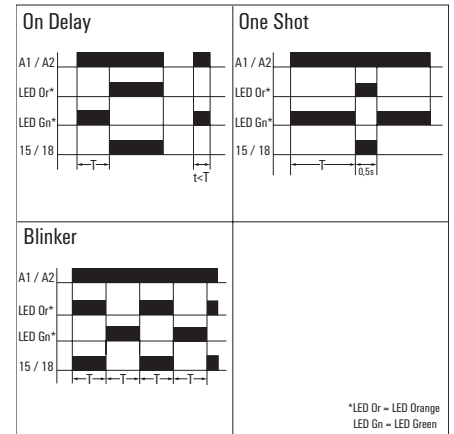
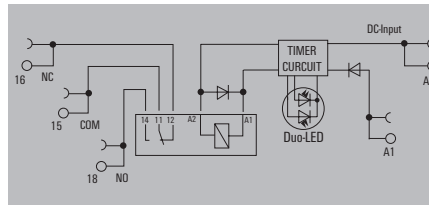
Timing functions – TERMSERIES TIMER

Complete modules

- Space-saving, 6.4 mm wide
- 3 time functions
- Complete module with 1 CO relay (AgSnO)
- PUSH IN and screw connection



TR T 24 V DC 1CO M3



Technical data

Control side

Rated control voltage
Power rating
Status indicator

Repeat accuracy
Basic accuracy
Setting tolerance
Min. pulse duration
Time ranges
Max. reset time after voltage interruption

Load side

Rated switching voltage
Max. switching voltage, AC
Max. switching voltage, DC
Continuous current
AC switching capacity (resistive), max.
DC switching capacity (resistive), max.
Max. switching frequency at rated load
Contact type
Mechanical service life

General data

Ambient temperature (operational)
Storage temperature
Humidity
Version
Resistance to vibration EN 61812-1
Approvals

Insulation coordinates

Rated voltage
Creepage and clearance distance input - output
Dielectric strength, Input/Output
Impulse withstand voltage
Protection degree

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Note

24 V DC $\pm 20\%$

280 mW

Duo-LED orange: relay output on, Green duo-LED lit: supply voltage on,
Green duo-LED flashes: incorrect configuration, no function

$\pm 1\%$

$\leq 5\%$ (of scale-end value)

5 %

50 ms

0.01 s - 0.1 s, 0.1 s - 1 s, 1 s - 10 s, 10 s - 100 s

50

250 V AC

250

250 V

6 A

1500 VA

144 W @ 24 V

0.1 Hz

1 CO contact (AgSnO)

5×10^6 switching cycles

-20 °C...60 °C

-40 °C...85 °C

5-95% relative humidity, $T_a = 40^\circ\text{C}$, without condensation

CE; cULus; EAC

250 V

≥ 6 mm

4 kV_{eff} / 1 Min.

6 kV (1.2/50 μs)

IP20

PUSH IN connection

1.5 / 0.14 / 2.5

88 / 6.4 / 90

Screw connection

1.5 / 0.14 / 2.5

88 / 6.4 / 90

Ordering data

PUSH IN connection
Screw connection

Note

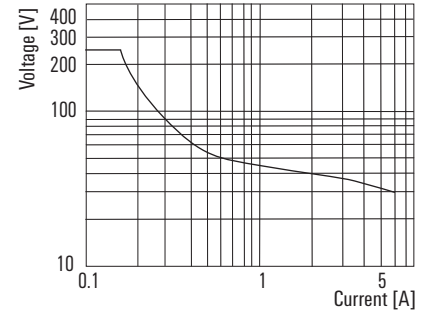
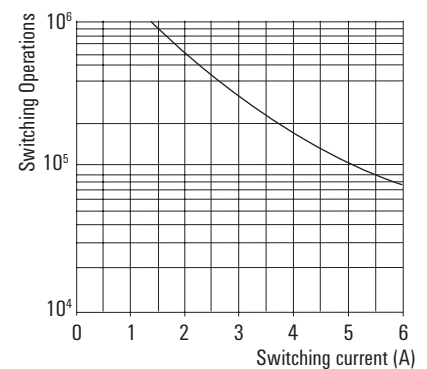
Type	Qty.	Order No.
TRP T 24VDC 1CO M3	10	2639730000
TRS T 24VDC 1CO M3	10	2639560000

Further approvals and technical data can be found at catalog.

Accessories

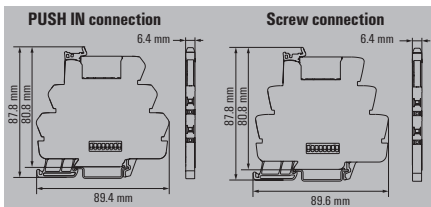
Note

Accessories: refer to the TERMSERIES Accessories page.

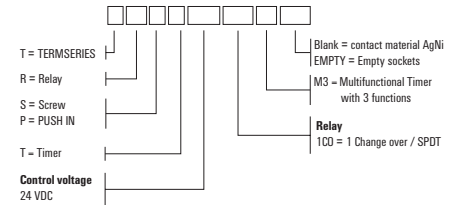
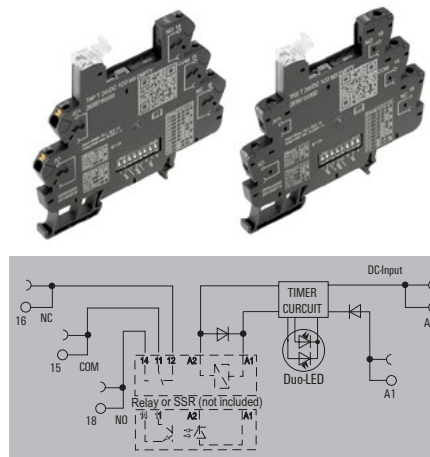
DC load breaking capacity
Resistive loadElectrical endurance
230 V AC resistive load

Empty socket

- Space-saving, 6.4 mm wide
- 3 time functions
- Empty sockets for electromechanical relays and solid-state relays
- PUSH IN and screw connection



TR T 24 V DC 1C0 M3 EMPTY



Technical data

Control side

Rated control voltage
Power rating
Status indicator

Repeat accuracy
Basic accuracy
Setting tolerance
Min. pulse duration
Time ranges
Max. reset time after voltage interruption

Load side

Rated switching voltage
Max. switching voltage, AC
Max. switching voltage, DC
Continuous current

General data

Ambient temperature (operational)
Storage temperature
Humidity
Version
Resistance to vibration EN 61812-1
Approvals

Insulation coordinates

Rated voltage
Creepage and clearance distance input - output
Dielectric strength, Input/Output
Impulse withstand voltage
Protection degree

24 V DC $\pm 20\%$

Duo-LED orange: relay output on, Green duo-LED lit: supply voltage on,
Green duo-LED flashes: incorrect configuration, no function

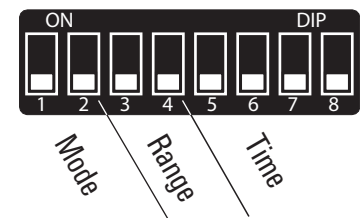
$\pm 1\%$
 $\leq 5\%$ (of scale-end value)
5 %
50 ms
0.01 s - 0.1 s, 0.1 s - 1 s, 1 s - 10 s, 10 s - 100 s
50

250 V AC
250
250 V
10 A

-20 °C...60 °C
-40 °C...85 °C
5-95% relative humidity, $T_a = 40^\circ\text{C}$, without condensation
Empty socket

CE; cURus; EAC

250 V
 ≥ 6 mm
4 kV_{eff} / 1 Min.
6 kV (1.2/50 μs)
IP20



■ = On (DIP-switch turned to ON-position)

Mode	1	2
On Delay	■	■
One Shot	■	
Blinker		■
Range	3	4
10-100s	■	■
1-10s	■	
0.1-1s		■
10-100ms		

Time	5	6	7	8
0.1				
0.2				■
0.3			■	
0.4			■	■
0.5		■		
0.6		■	■	■
0.7		■	■	
0.8		■	■	■
0.9	■			
1.0	■			■

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Note

Ordering data

PUSH IN connection
Screw connection

Note

PUSH IN connection Screw connection

1.5 / 0.14 / 2.5 1.5 / 0.14 / 2.5
88 / 6.4 / 90 88 / 6.4 / 90

Type	Qty.	Order No.
TRP T 24VDC 1C0 M3 EMPTY	10	2639740000
TRS T 24VDC 1C0 M3 EMPTY	10	2639720000

Further approvals and technical data can be found at catalog.

Accessories: refer to the TERMSERIES Accessories page.

TFI-SERIES

Compact timing relays for building and factory automation

C

Timing relays fulfil many functions in industrial environments. In automation technology, they are used to compensate for errors caused by excessive cycle rates. Among other things, short pulses are extended so that they can be reliably detected by downstream control components.

Our TFI-SERIES consists of five different devices covering the most important applications in building and factory automation. Four of these carry out individual functions: clock generator (pause and pulse start), star-delta switch, on-delay and off-delay with control input. There is also a multifunctional version with seven different timing functions. The timing functions and time ranges can be easily configured using a rotary switch fitted on the front. All of the devices meet the international standards according to EN 61812 and have UL approval for the North American market.

Your special advantages:

- Recessed setting potentiometers and status indication via LED
- Suitable for control voltages from 12/24 - 240 V UC and ambient temperatures from -25 °C to +60 °C
- Available in installation design and compact industrial design
- CE-compliant and UL-certified for international use



**Installation
design**



Compliance with international standards according to EN 61812

The design and function of the devices comply with the international standard for timing relays according to EN 61812.

**Compact
industrial
design**



UL approval for the North American market

All timing relays have a cULus listing and can therefore be used on the North American market without any problems.

Simple configuration via rotary switch

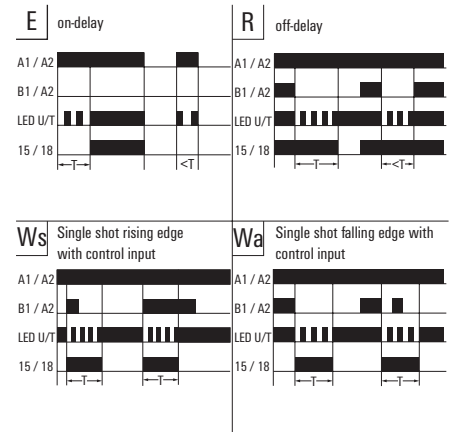
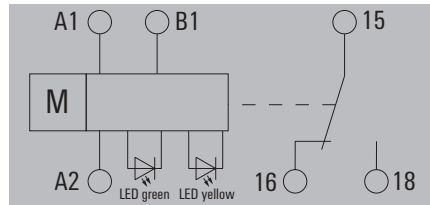
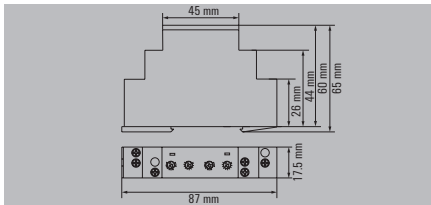
Timing functions and time ranges are configured by means of a rotary switch on the front of the devices.

Timing functions – TFI-SERIES

TFI-SERIES

- Multi-voltage input: 12...240 V AC/DC
- Space-saving design
- 7 time functions with separate control input
- cULus approval

TFIS 12-240VUC 1C0 M7C



Technical data

Control side

Rated control voltage
Power rating
Status indicator

Repeat accuracy
Basic accuracy
Setting tolerance
Min. pulse duration
Time ranges

Max. reset time after voltage interruption

Load side

Rated switching voltage
Max. switching voltage, AC
Max. switching voltage, DC
Continuous current
AC switching capacity (resistive), max.
DC switching capacity (resistive), max.
Max. switching frequency at rated load
Contact material
Mechanical service life

General data

Ambient temperature (operational)
Storage temperature
Humidity
Version
Resistance to vibration EN 61812-1
Approvals

Insulation coordinates

Rated voltage
Creepage and clearance distance input – output
Dielectric strength, Input/Output
Impulse withstand voltage
Protection degree

Dimensions

Clamping range (nominal / min. / max.)
Depth x width x height

Note

12...240 V UC - 10 % / + 10 %

4 VA, 1.5 W

LED green (U/T): flashes when time runs, lights permanently with supply voltage applied, LED yellow (R): relay closed

< 0.5 % or ± 5 ms

± 1 % (of scale-end value)

5 %

100 ms

0.05 s - 1 s, 0.5 s - 10 s, 3 s - 60 s, 30 s - 10 min, 3 min - 1 h, 30 min - 10 h, 5 h - 100 h

100

250 V AC

250

30 V

8 A

2000 VA

240 W

AgNi

20 x 10⁶ switching cycles

-25 °C...55 °C

-25 °C...70 °C

15...85 % rel. humidity, no condensation

with separate control input

10 Hz...60 Hz: 0.15 mm, 60 Hz...150 Hz: 2 g

CE; cULus

300 V

≥ 3 mm

1.6 kV

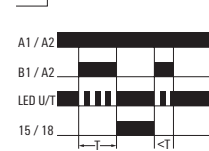
4 kV

IP20

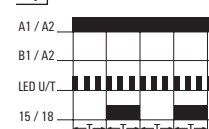
2.5 / 0.5 / 4

60 / 17.5 / 87

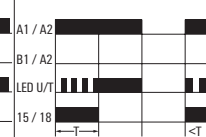
Es on-delay with control input



Bp clock generator pause first

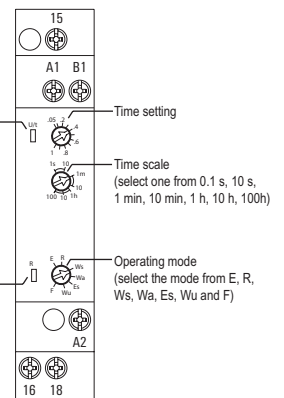


Wu Single shot rising edge supply voltage controlled



Status indicator (green): supply voltage

Status indicator (yellow): relay closed



Ordering data

Screw connection

Type	Qty.	Order No.
TFIS 12-240VUC 1C0 M7C	1	2697250000

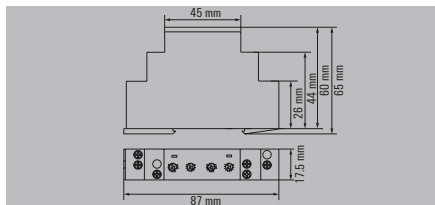
Note

Accessories

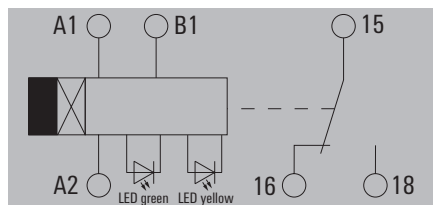
Note

TFI-SERIES

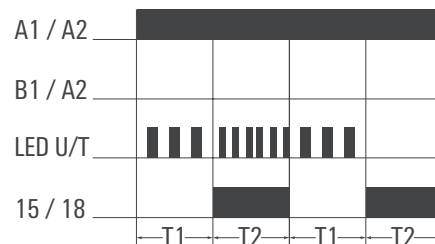
- Multi-voltage input: 12...240 V AC/DC
- Space-saving design
- Clock generator with separate control input
- cULus approval



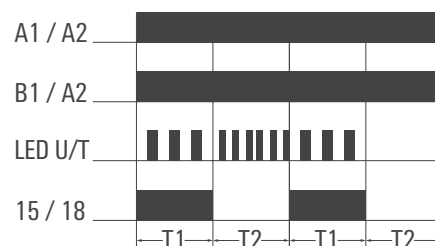
TFIS 12-240VUC 1C0 CG



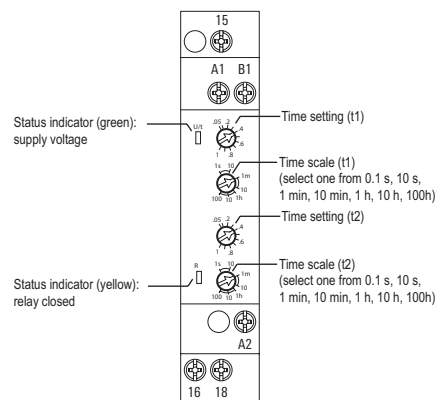
Ip clock generator pause first



li clock generator pulse first



Function **li** with fixed jumper **A1-B1**



Technical data

Control side

Rated control voltage
Power rating
Status indicator

Repeat accuracy
Basic accuracy
Setting tolerance
Min. pulse duration
Time ranges

Max. reset time after voltage interruption

Load side

Rated switching voltage
Max. switching voltage, AC
Max. switching voltage, DC
Continuous current
AC switching capacity (resistive), max.
DC switching capacity (resistive), max.
Max. switching frequency at rated load
Contact material
Mechanical service life

General data

Ambient temperature (operational)
Storage temperature
Humidity
Version
Resistance to vibration EN 61812-1
Approvals

Insulation coordinates

Rated voltage
Creepage and clearance distance input - output
Dielectric strength, Input/Output
Impulse withstand voltage

Dimensions

Clamping range (nominal / min. / max.)
Depth x width x height

Note

12...240 V UC - 10 % / + 10 %

4 VA, 1.5 W

LED green (U/T): flashes slowly when time t1 runs, flashes quickly when time t2 runs, lights permanently when supply voltage is applied, LED yellow (R): relay closed

< 0.5 % or ± 5 ms

± 1 % (of scale-end value)

5 %

100 ms

0.05 s - 1 s, 0.5 s - 10 s, 3 s - 60 s, 30 s - 10 min, 3 min - 1 h, 30 min - 10 h, 5 h - 100 h

100

250 V AC

250

30 V

8 A

2000 VA

240 W

AgNi

20 x 10⁶ switching cycles

-25 °C...55 °C

-25 °C...70 °C

15...85 % rel. humidity, no condensation

10 Hz...60 Hz: 0.15 mm, 60 Hz...150 Hz: 2 g

CE; cULus

300 V

≥ 3 mm

1.6 kV

4 kV

2.5 / 0.5 / 4

60 / 17.5 / 87

Ordering data

Screw connection

Type	Qty.	Order No.
TFIS 12-240VUC 1C0 CG	1	2697260000

Note

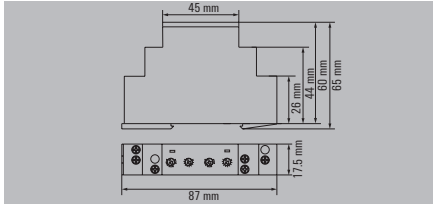
Accessories

Note

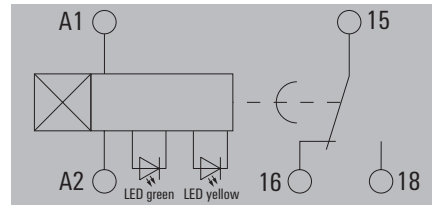
Timing functions – TFI-SERIES

TFI-SERIES

- Multi-voltage input: 24...240 V AC/DC
- Space-saving design
- Switch-on delayed
- cULus approval



TFIS 24-240VUC 1CO ON



Technical data

Control side

Rated control voltage
Power rating
Status indicator

Repeat accuracy
Basic accuracy
Setting tolerance
Min. pulse duration
Time ranges

Max. reset time after voltage interruption

Load side

Rated switching voltage
Max. switching voltage, AC
Max. switching voltage, DC
Continuous current
AC switching capacity (resistive), max.
DC switching capacity (resistive), max.
Max. switching frequency at rated load
Contact material
Mechanical service life

General data

Ambient temperature (operational)
Storage temperature
Humidity
Version
Resistance to vibration EN 61812-1
Approvals

Insulation coordinates

Rated voltage
Creepage and clearance distance input - output
Dielectric strength, Input/Output
Impulse withstand voltage

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Note

24...240 V UC - 15 % / + 10 %

4 VA, 1.5 W

LED green (U/t): flashes when time runs, lights permanently with supply voltage applied, LED yellow (R): relay closed

< 0.5 % or ±5 ms

± 1 % (of scale-end value)

5 %

100 ms

0.05 s - 1 s, 0.5 s - 10 s, 3 s - 60 s, 30 s - 10 min, 3 min - 1 h, 30 min - 10 h, 5 h - 100 h

100

250 V AC

250

30 V

8 A

2000 VA

240 W

AgNi

20 x 10⁶ switching cycles

-25 °C...55 °C

-25 °C...70 °C

15...85 % rel. humidity, no condensation

10 Hz...60 Hz: 0.15 mm, 60 Hz...150 Hz: 2 g

CE; cULus

300 V

≥ 3 mm

1.6 kV

4 kV

2.5 / 0.5 / 4

60 / 17.5 / 87

Ordering data

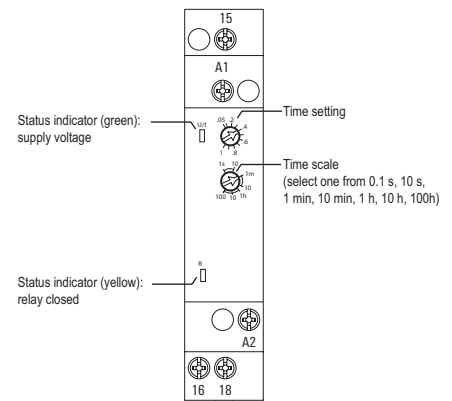
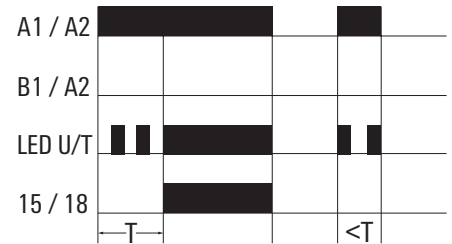
Screw connection

Note

Accessories

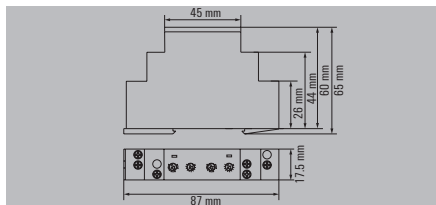
Note

E on-delay

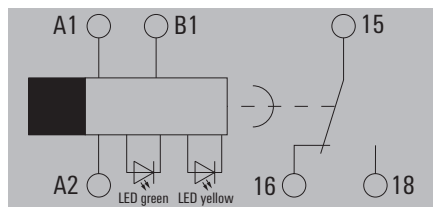


TFI-SERIES

- Multi-voltage input: 24...240 V AC/DC
- Space-saving design
- Delayed-back with separate control input
- cULus approval



TFIS 24-240VUC 1CO OFFC



R off-delay with control input



Technical data

Control side

Rated control voltage
Power rating
Status indicator

Repeat accuracy
Basic accuracy
Setting tolerance
Min. pulse duration
Time ranges

Max. reset time after voltage interruption

Load side

Rated switching voltage
Max. switching voltage, AC
Max. switching voltage, DC
Continuous current
AC switching capacity (resistive), max.
DC switching capacity (resistive), max.
Max. switching frequency at rated load
Contact material
Mechanical service life

General data

Ambient temperature (operational)
Storage temperature
Humidity
Version
Resistance to vibration EN 61812-1
Approvals

Insulation coordinates

Rated voltage
Creepage and clearance distance input - output
Dielectric strength, Input/Output
Impulse withstand voltage

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Note

24...240 V UC - 15 % / + 10 %

4 VA, 1.5 W

LED green (U/t): flashes when time runs, lights permanently with supply voltage applied, LED yellow (R): relay closed

< 0.5 % or ± 5 ms

± 1 % (of scale-end value)

5 %

100 ms

0.05 s - 1 s, 0.5 s - 10 s, 3 s - 60 s, 30 s - 10 min, 3 min - 1 h, 30 min - 10 h, 5 h - 100 h

100

250 V AC

250

30 V

8 A

2000 VA

240 W

AgNi

20 x 10⁶ switching cycles

-25 °C...55 °C

-25 °C...70 °C

15...85 % rel. humidity, no condensation
with separate control input

10 Hz...60 Hz: 0.15 mm, 60 Hz...150 Hz: 2 g

CE; cULus

300 V

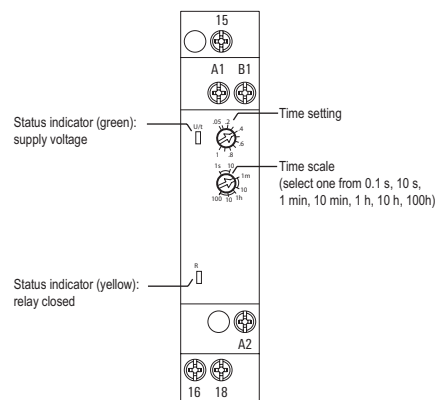
≥ 3 mm

1.6 kV

4 kV

2.5 / 0.5 / 4

60 / 17.5 / 87



Ordering data

Screw connection

Type	Qty.	Order No.
TFIS 24-240VUC 1CO OFFC	1	2697290000

Note

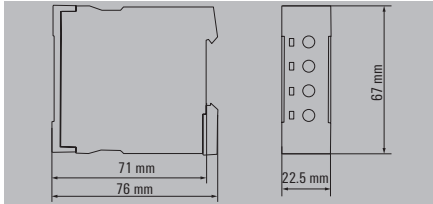
Accessories

Note

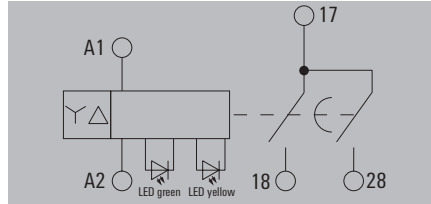
Timing functions – TFI-SERIES

TFI-SERIES

- Multi-voltage input: 12...240 V AC/DC
- Space-saving design
- Star-delta-startup
- cULus approval



TFIS 12-240VUC 2NO SD



Technical data

Control side

Rated control voltage
Power rating
Status indicator

Repeat accuracy
Basic accuracy
Setting tolerance
Min. pulse duration
Time ranges
Max. reset time after voltage interruption

Load side

Rated switching voltage
Max. switching voltage, AC
Max. switching voltage, DC
Continuous current
AC switching capacity (resistive), max.
DC switching capacity (resistive), max.
Max. switching frequency at rated load
Contact material
Mechanical service life

General data

Ambient temperature (operational)
Storage temperature
Humidity
Version
Resistance to vibration EN 61812-1
Approvals

Insulation coordinates

Rated voltage
Creepage and clearance distance input – output
Dielectric strength, Input/Output
Impulse withstand voltage
Protection degree

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Note

12...240 V UC - 10 % / + 10 %
500 mVA, 180 mW
LED green (U/t) flashes: star-relay closed, time runs, LED green (U/t) lights permanently: delta-relay closed, time runs, LED yellow (R): star-relay closed

< 0.5 % or ±5 ms
< 1 % (of scale-end value)
5 %
100 ms
0.5 s - 10 s, 1.5 s - 30 s, 3 s - 60 s, 9 s - 180 s
200

250 V AC
250
30 V
3 A
750 VA
90 W

AgNi
20 x 10⁶ switching cycles

-25 °C...60 °C
-40 °C...70 °C
5...95 % rel. humidity, no condensation

10 Hz...60 Hz: 0.15 mm, 60 Hz...150 Hz: 2 g
CE, cULus

300 V
≥ 3 mm
1.6 kV
4 kV
IP20

2.5 / 0.5 / 4
75 / 225 / 67

Ordering data

Screw connection

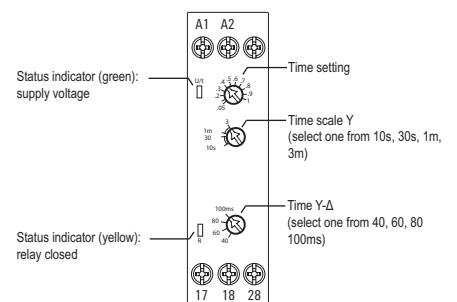
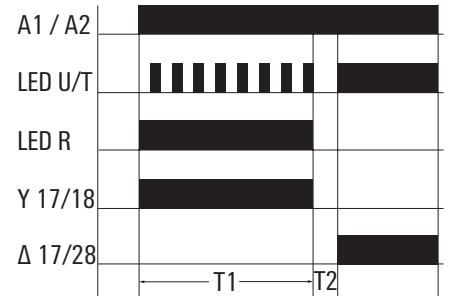
Type	Qty.	Order No.
TFIS 12-240VUC 2NO SD	1	2697270000

Note

Accessories

Note

S star-delta



IT-TIMER

Compact multi-functional timing relay for easy control signal adjustment

C

In automation technology, timing relays are used to prevent malfunctions due to high pulse times. Among other things, short pulses are extended in order to be reliably detected by subsequent control modules. Various timing functions, such as on-delay, off-delay and clock generator, are available.

With IT-TIMER, Weidmüller's range includes a highly efficient timing relay with multi-voltage input that combines a range of functions with a compact size. It is particularly easy to configure the timing functions thanks to the flat front cover, the easy-to-read LED status indicator and operation with standard tools. IT-TIMER meets the requirements of IEC 618121. It is designed for an operating range from 24 V DC to 48 V DC or 24 V AC to 240 V AC and can therefore be used in a wide variety of applications.

Your special advantages:

- High level of functionality in a compact size
- Timing functions that are easy to configure using standard tools
- Can be used internationally thanks to compliance with EN 618121
- Seven timing functions for a wide range of applications make the IT-TIMER a smart solution for your application



Multi-voltage input

The timing relay operates from 24 V DC up to 48 V DC and from 24 V AC up to 240 V AC. It can therefore be used in a wide range of applications.

Global standard

International usage is guaranteed in accordance with the standard IEC 61812-1.

IEC
61812-1

C**Seven timing functions**

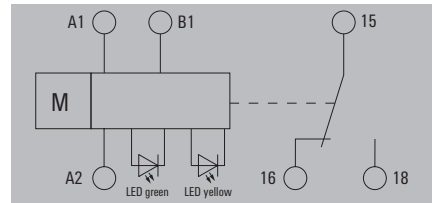
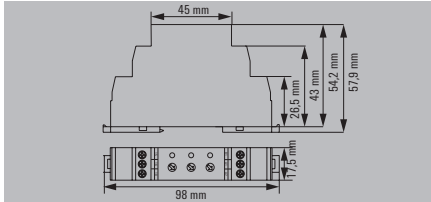
Due to its multi-functional concept, the IT-TIMER covers a broad range of typically needed timing functions.

Timing functions – IT-TIMER

Timing relay

- Multi-voltage input:
24 - 48 V DC
24 - 240 V AC
- Space-saving construction
- 7 time functions with separate control input

ITS 24-240 V UC 1 CO M7C



Technical data

Control side

Rated control voltage
Power rating
Status indicator

Repeat accuracy
Basic accuracy
Setting tolerance
Min. pulse duration
Time ranges

Max. reset time after voltage interruption

Load side

Rated switching voltage
Max. switching voltage, AC
Max. switching voltage, DC
Continuous current
AC switching capacity (resistive), max.
DC switching capacity (resistive), max.
Max. switching frequency at rated load
Contact material
Mechanical service life

General data

Ambient temperature (operational)
Storage temperature
Humidity
Version
Resistance to vibration EN 61812-1
Approvals

Insulation coordinates

Rated voltage
Creepage and clearance distance input - output
Dielectric strength, Input/Output
Impulse withstand voltage
Protection degree

Dimensions

Clamping range (nominal / min. / max.)
Depth x width x height

Note

24...48 V DC - 15 % / + 10 % / 24...240 V AC - 15 % / + 10 %
8 VA @ 230 V AC, 0.4 W at 24 V DC
LED green (U/t): flashes when time runs, lights permanently with supply voltage applied, LED yellow (R): relay closed
< 0.5 % or ± 5 ms
< 1.5 % (of scale-end value)
5 %
50 ms
0.05 s - 1 s, 0.5 s - 10 s, 3 s - 60 s, 0.5 min - 10 min, 3 min - 1 h, 0.5 h - 10 h
100

250 V AC

250

30 V

5 A

1250 VA

90 W

AgNi

1 x 10⁶ switching cycles

-25 °C...50 °C

-40 °C...70 °C

25 - 75%, no condensation

with separate control input

10 Hz...60 Hz: 0.15 mm, 60 Hz...150 Hz: 2 g

CE, EAC

300 V

≥ 3 mm

1.6 kV

2.5 kV

IP20

2.5 / 0.25 / 2.5

57.9 / 17.5 / 98

Ordering data

Screw connection
Screw connection

Note

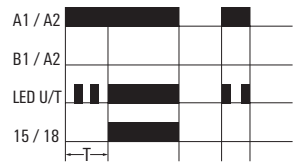
Accessories

Note

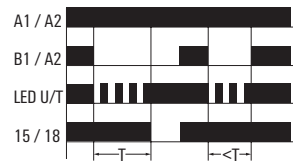
Type	Qty.	Order No.
ITS 24-240VUC 1CO M7C	1	2496190000
ITS 24-240VUC M7C PU10	10	2545120000

Time functions

A on-delay



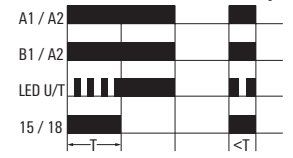
D off delay



E passing make rising edge with control input

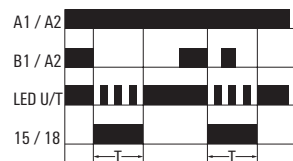


E2 passing make rising edge supply voltage controlled

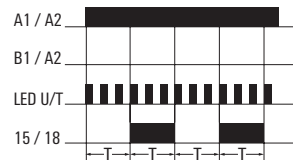


Function E with fixed jumper A1-B1

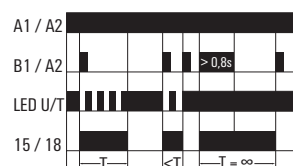
C passing make falling edge



B pulse emitter



F Flip-flop



MCZ TO

The narrow pulse stretcher measuring just 6.1 mm wide

C

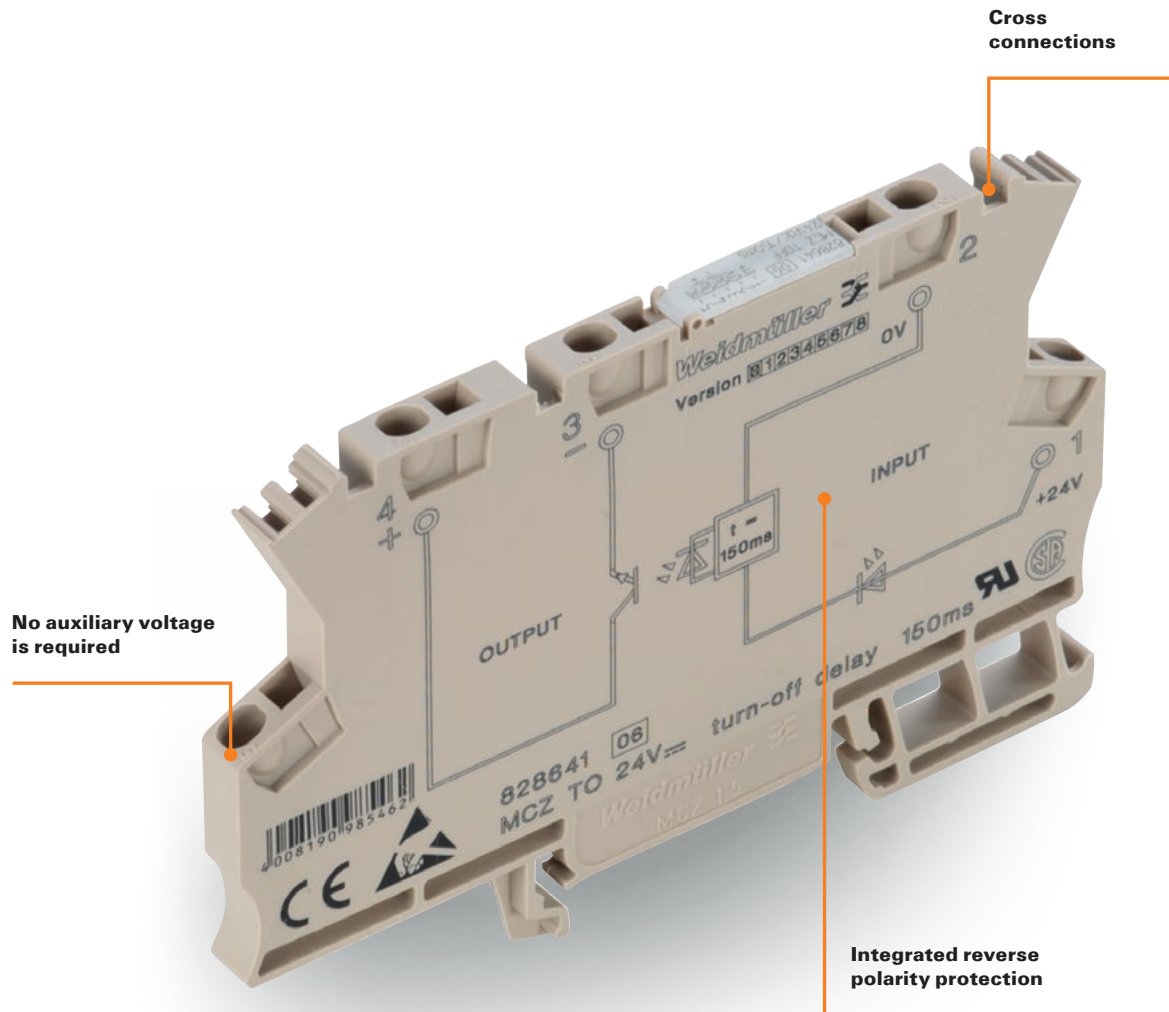
Pulse stretchers are used in automation technology to extend very short input pulses of less than 10 ms. Such short pulses are generated by light barriers, for example, and cannot be processed by conventional timing relays. The extended pulses, on the other hand, can be forwarded directly to the PLC.

MCZ TO is one of the narrowest pulse stretchers on the market. It extends even very short pulses ≥ 3.5 ms and has a fixed switch-off delay (50 ms or 150 ms). MCZ TO operates with low input power, and auxiliary voltages in the input and output are not required. It also includes a watchdog function with restarting of the off-delay. Precisely fitting accessories such as cross-connectors, markers and end plates make it flexible to use.

Your special advantages:

- Detection of very short input pulses (≥ 3.5 ms)
- Versatile to use thanks to three cross-connector connections
- Proven and reliable tension clamp connection system
- High level of safety thanks to integrated reverse polarity protection



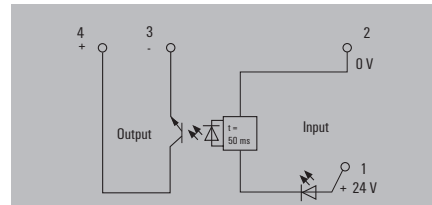
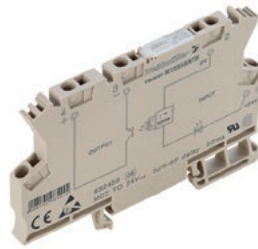


Timing functions – MCZ SERIES

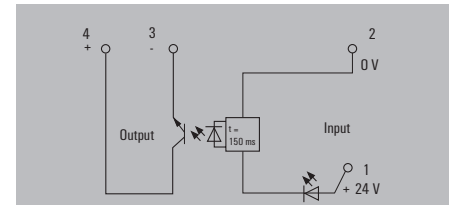
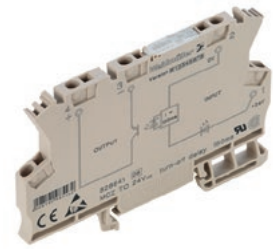
MCZ TO

- Components for lengthening short pulses for the PLC
- Fixed switch-off delay
- Low input power
- Screwless
- Tension clamp connection
- Width 6 mm
- For mounting on TS 35

24 V DC 50 ms



24 V DC 150 ms



Technical data

Control side

Rated control voltage
Rated current AC / DC
Power rating
Min. pulse duration
Status indicator

Load side

Rated switching voltage
Continuous current
Switch-off delay
Max. switching frequency at rated load

Rated data

Ambient temperature (operational)
Storage temperature
Humidity
Approvals

Insulation coordinates

Rated voltage
Overvoltage category
Dielectric strength, Input/Output
Dielectric strength to mounting rail
Creepage and clearance distance input - output
Impulse withstand voltage
Pollution degree

24 V DC $\pm 10\%$
/ 6.7 mA $\pm 10\%$
160 mW
2 ms
Green LED

5...48 V DC
20 mA
50 ms
5 Hz

-25 °C...50 °C
-40 °C...85 °C
40 °C / 93 % rel. humidity, no condensation
CE; CSA; cURus; EAC

300 V
IV
1 kV_{eff} / 1 s
4 kV_{eff} / 1 Min.
 ≥ 5.5 mm
6 kV (1.2/50 μ s)
2

24 V DC $\pm 10\%$
/ 6.7 mA $\pm 10\%$
160 mW
3.5 ms
Green LED

5...48 V DC
20 mA
150 ms
3 Hz

-25 °C...50 °C
-40 °C...85 °C
40 °C / 93 % rel. humidity, no condensation
CE; CSA; cURus; EAC

300 V
IV
1 kV_{eff} / 1 s
4 kV_{eff} / 1 Min.
 ≥ 5.5 mm
6 kV (1.2/50 μ s)
2

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Note

1.5 / 0.5 / 1.5
63.2 / 6.1 / 91

For mounting on TS 35 rail

1.5 / 0.5 / 1.5
63.2 / 6.1 / 91

For mounting on TS 35 rail

Ordering data

Tension clamp connection

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

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

Note

Accessories

Note

AP MCZ end plate 8389030000

AP MCZ end plate 8389030000

Functional safety

Relays for processing safety-related signals

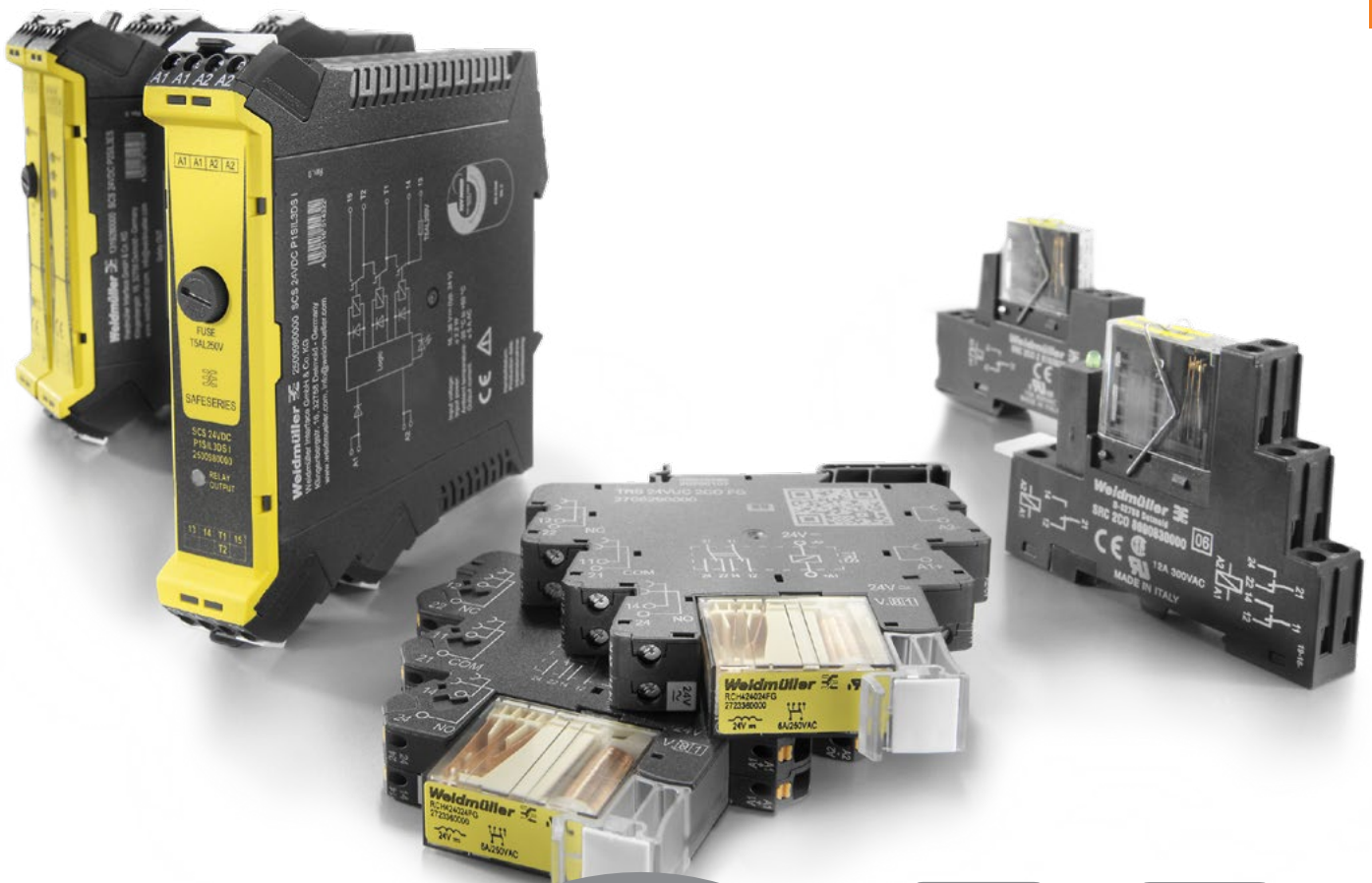
C

Industrial safety has become an important focus topic. There is an increasing demand for safety systems. At the same time, the demands placed on such systems are increasing. In order to provide optimum protection for plant, users, goods and the environment, dangers and incidents of all kinds should be avoided. This is also evident from the increasingly strict international standards and directives.

We have specially-developed safety relays for processing safety-related signals in our product range. They achieve a safety integrity level of up to SIL3 in accordance with EN 61508 and can therefore be used flexibly in the process industry.

Relay modules with positively-driven contacts

Relay modules with positively-driven contacts are used in safety-related applications to provide reliable feedback on the switching state of the operating contact to the control system. They enable safe diagnosis via a positively-driven NC contact and ensure the reliable exchange of signals between two systems with feedback function. In elementary relays with positively-driven contacts, NO and NC contacts are mechanically connected to each other. This means that NO and NC contacts can never be closed at the same time, so that a diagnostic coverage of 99 % is achieved.



SIL

SAFESERIES SIL relays

Functional safety for process applications

C

Whether for a burner control system, secure emergency shut down or, for example, for pump controllers – our safety relay guarantees safe conditions and convince with superior and significant features.

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

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

Safe control of back-up systems

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

Safe activation and deactivation

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

**Safe monitoring of furnace firing systems**

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

You have strict requirements for the functional reliability of your systems

We connect your safety-related applications reliably

C



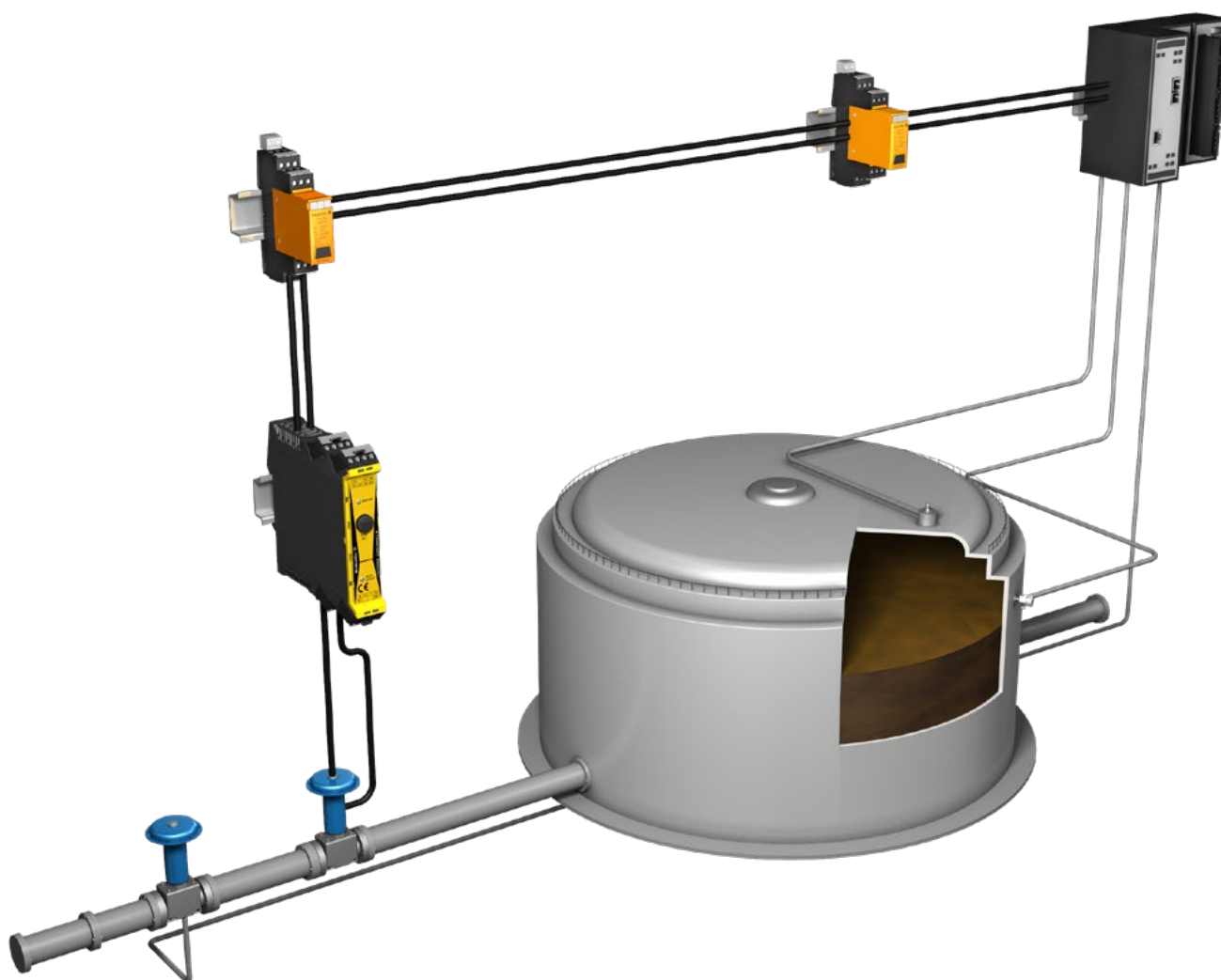
Safe process and power technology is a top priority for you. For example, a reliable emergency shutdown, which initiates appropriate countermeasures in hazardous situations, is indispensable. These might extend to the automatic shutdown of the system or subsystems within it.

As a specialist in industrial connectivity, we offer a comprehensive solution for safety-sensitive areas, from the control room through to the field.

The SAFESERIES SIL relay is ideally suited for use in safety-related applications. It is designed for low and high demand modes.

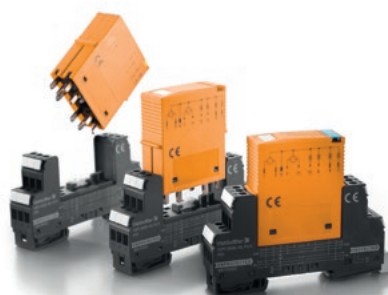
With the wide voltage range input in the monitoring circuit of 24 V UC to 230 V UC, for example, you can control back-up systems with high DC voltage. You get additional flexibility for your applications with the optional "G3" coating for use in harsh environments.

The safe and reliable coupling of measuring instruments, actuators and sub-assemblies to the safety-relevant signal circuit is handled by our VARITECTOR SPC, the lightning and surge protection for signal circuits. Certified for safety requirement level SIL 3 according to EN 61508, and accredited by TÜV NORD, it can easily be incorporated into your safety calculations.



SAFESERIES

- Certified to EN 61508 for SIL3
- Wide voltage input from 24 to 230 V AC/DC for the monitoring of field signals
- Variant with G3 protection for extreme conditions
- Other variants for burner management or on/off switching



VARITECTOR SPC

- 2 analogue or 4 digital signals on a width of just 17.8 mm
- Monitoring with status indicator and message function
- Testable with V-TEST according to IEC62305
- Variants with SIL certification or EX approval

SIL-Relays of the SAFESERIES

in combination with distributed control systems

C

A distributed control system is characterised by a high availability of hardware and software components. Weidmüller offers for the customer the advantage that his safety relays are working reliably with different distributed control systems, proven by extensive integration tests.



Available for

Order No.	1303890000	1303760000	1304040000	1319270000	2500980000
Type	SCS 24VDC P1SIL3DS	SCS 24VDC P1SIL3DS M	SCS 24VDC P1SIL3DS MG3	SCS 24VDC P2SIL3DSES	SCS 24VDC P1SIL3DS I
YOKOGAWA ProSafe RS digital output card SDV 541	●	●	●	●	
SCHNEIDER ELECTRIC Compatibility with Tricon™, Trident™ and Tri-GP™ systems					●
HONEYWELL Can be connected to classic digital output: • Safety Manager IO-Module type FC-SD0-824 und FC-SD0L-0424 • Universal Safety IO-Module type FC-RUSIO-3224	●	●	●	●	
HIMA HIMax System, output module X-DO 2401	●	●	●		
EMERSON Tested according Delta V SIS test protocols with: • Simplex CHARM LSDO 24VDC DTA (KL3302X1-BA1) • Redundant CHARM LSDO 24VDC DTA (R) (KL3302X1-BB1) • Simplex CHARM LSDO 24VDC ETA (KL3302X1-BC1)	●	●	●		
Tested according Delta V SIS test protocols with: • Simplex CHARM LSDO 24VDC DTA (KL3302X1-BA1) • Redundant CHARM LSDO 24VDC DTA (R) (KL3302X1-BB1)					●
Tested according Delta V SIS test protocols with: • Simplex CHARM LSDO 24VDC DTA (KL3302X1-BA1) • Redundant CHARM LSDO 24VDC DTA (R) (KL3302X1-BB1) • Simplex CHARM LSDO 24VDC ETA (KL3302X1-BC1)				●	

SIL3 relays

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

Technical data

Temperatures	
Ambient temperature (operational)	-25...50 °C
Storage temperature	-40...85 °C
General data	
Noxious gas resistance to EN 60068-2-60	Yes (art. No.: 1304040000 only)
Input (safety circuit) (A1, A2)	
Rated control voltage	24 V DC $\pm 20\%$
Guaranteed current consumption of 24 VDC -10%	35 mA
Power consumption	42 mA
Status indicator	LED yellow
Input (monitor circuit) (M1, M2)	
Rated control voltage	24 V UC...230 V UC $\pm 10\%$
Current consumption	23 mA @ 24 V DC, 4,4 mA @ 230 V AC
Status indicator	LED yellow
Output (safety circuit) (13, 14, 15)	
Contact design	1 x de-energised to safe (NO contact)
max. switching current, internal fuse	5 A (refer to derating curve)
max. switching current, external fuse	5 A (refer to derating curve)
max. permitted switching voltage	250 V AC / 30 V DC
max. permitted switching current	5 A
min. switching power	10 mA @ 12 V
max. switching power	1250 VA
Switch-on time	typ. 7 ms
Base material of the contact	AgNi 0.15 gold flashed
Internal fuse	5 A time-lag
External back-up fuse	5 A time lag
Short-circuit-proof	No
Output (monitor circuit) (21, 22, 24)	
Contact design	CO contact
max. permitted switching voltage	24 V DC
max. permitted switching current	30 mA
min. switching power	1 mA @ 1 V
Base material of the contact	AgNi 5 μ m Au
Switch-on time	typ. 17 ms
Short-circuit-proof	No
Insulation coordinates	
Rated voltage	300 V
Creepage and clearance distance input – output	≥ 5.5 mm
Creepage and clearance distance output – output	≥ 5.5 mm
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength output – output	4 kV _{eff} / 1 min
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Impulse withstand voltage	6 kV (1.2/50 μ s)
Overvoltage category	III
Pollution degree	2
Further details of approvals / standards	
Standards	EN 50178, EN 61000, EN 61326-3-2
Approvals	CE; cULus; EAC; FUSAFETY
Dimensions	
Clamping range (nominal / min. / max.)	1.5 / 0.13 / 2.5 mm ²
Depth x width x height	114.1 / 22.5 / 117.3 mm
Note	

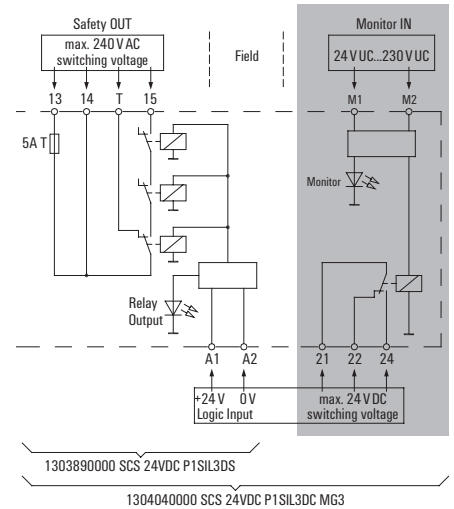
Ordering data

	with monitoring
	without monitoring
	with monitoring and G3 gas-corrosion resistant
Note	

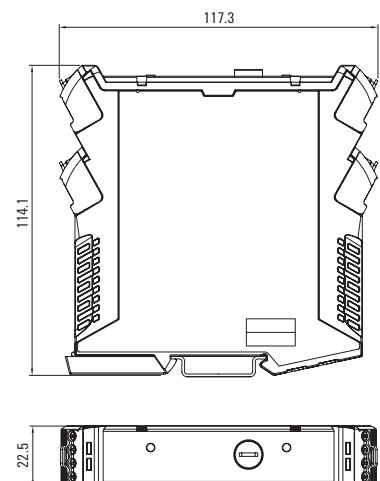
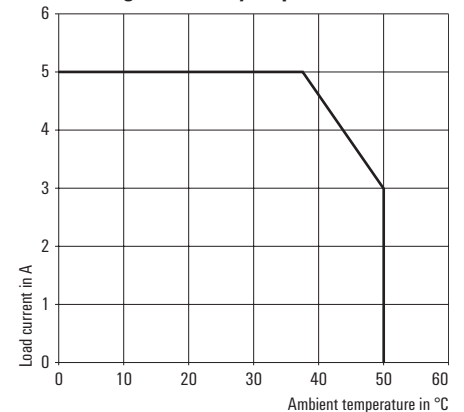
SCS 24 V DC P1SIL3DS



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



Derating curve safety output



Functional safety – SAFESERIES SIL relays

SIL3 relay

- Unresponsive to test pulses from the Triconex® output modules
- Proof of compatibility is available for use with the Tricon™, Trident™ and Tri-GP™ systems.
- Externally accessible fuse
- TÜV-certified “Approved Safety Function”

Technical data

Temperatures	
Ambient temperature (operational)	-25...50 °C
Storage temperature	-40...85 °C
Input (safety circuit) (A1, A2)	
Rated control voltage	24 V DC (16...36 V DC)
Power consumption	50 mA
Status indicator	LED yellow
Output (safety circuit) (13, 14, 15)	
Contact design	1 x de-energised to safe (NO contact)
max. switching current, internal fuse	5 A
max. switching current, external fuse	5 A
max. permitted switching voltage	250 V AC / 30 V DC
max. permitted switching current	5 A
min. switching power	10 mA @ 12 V
max. switching power	1250 VA
Switch-on time	≤ 25 ms
Base material of the contact	AgNi
Internal fuse	5 A time-lag
External back-up fuse	5 A time lag
Short-circuit-proof	No
Insulation coordinates	
Rated voltage	300 V
Creepage and clearance distance input – output	≥ 6 mm
Dielectric strength, Input/Output	3.51 kV _{eff} /5 s
Dielectric strength to mounting rail	
Impulse withstand voltage	6 kV (1.2/50 µs)
Overvoltage category	III
Pollution degree	2
Further details of approvals / standards	
Standards	EN 61010-2-201:2013 + AC:2013, EN 61326-1:2013, EN 61326-3-1:2008, EN 61326-3-2:2008
Approvals	CE; cULus; EAC; FUSAFETY

Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.13 / 2.5
Depth x width x height	mm 114.1 / 22.5 / 117.3
Note	

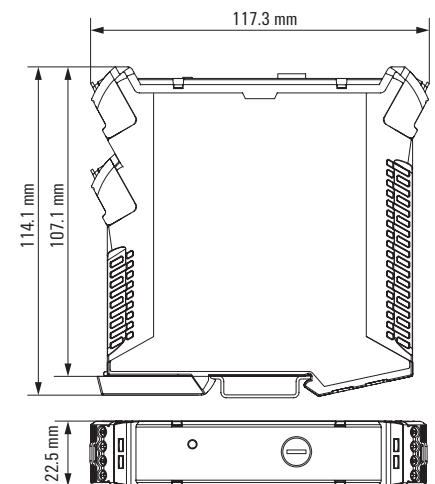
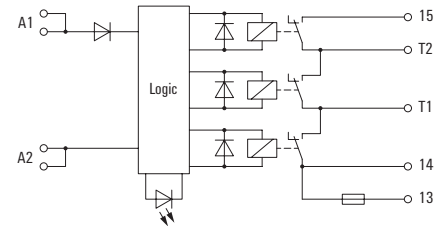
Ordering data

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

SCS 24 V DC P1SIL3DS I



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



SIL3 relays

- Energized/de-energized to safe
- All-pole disconnection possible
- Test inputs for testing the relay contacts
- Externally accessible fuse
- TÜV-certified “Approved Safety Function”

Technical data

Temperatures	
Ambient temperature (operational)	-25 °C...50 °C
Storage temperature	-40 °C...85 °C
Input (safety circuit) (A1, A2)	
Rated control voltage	24 V DC -15 / +20%
Guaranteed current consumption of 24 VDC -10%	35 mA
Power consumption	45 mA
Status indicator	LED yellow
Test inputs (X1, X2, X3)	
Rated control voltage	24 V DC
Status indicator	LED red flashing: test input is triggered
Number of test inputs	2
Output (safety circuit) (13, 14, 23, 24)	
Contact design	1 x de-energised to safe (NO contact), 1 x energised to safe (NO contact)
max. switching current, internal fuse	5 A (refer to derating curve)
max. switching current, external fuse	5 A (refer to derating curve)
max. permitted switching voltage	250 V AC
max. permitted switching current	5 A
min. switching power	10 mA @ 12 V
max. switching power	1250 VA
Switch-on time	< 5,5 ms (DTS), < 5 ms (ETS)
Base material of the contact	AgNi 0.15 gold flashed
Internal fuse	5 A time-lag
External back-up fuse	5 A time lag
Short-circuit-proof	No
Insulation coordinates	
Rated voltage	300 V
Creepage and clearance distance input - output	≥ 5,5 mm
Creepage and clearance distance output - output	≥ 5,5 mm
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength output - output	4 kV _{eff} / 1 min
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Impulse withstand voltage	6 kV (1.2/50 µs)
Overvoltage category	III
Pollution degree	2
Further details of approvals / standards	
Standards	EN 50178, EN 61000, EN 61326-3-2
Approvals	CE; EAC; FUSAFETY

Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.13 / 2.5
Depth x width x height	mm 114.1 / 22.5 / 117.3
Note	

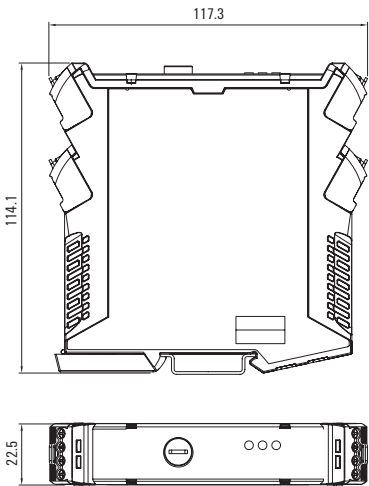
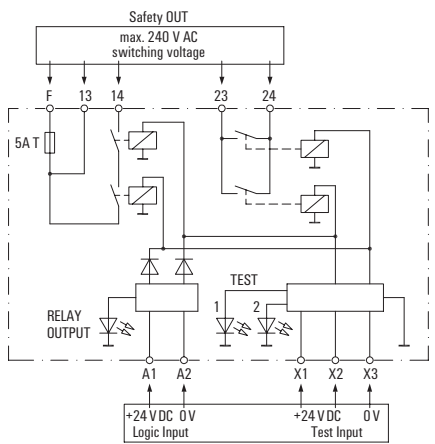
Ordering data

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

SCS 24 V DC P2SIL3DSES



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



SIL3 relays

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

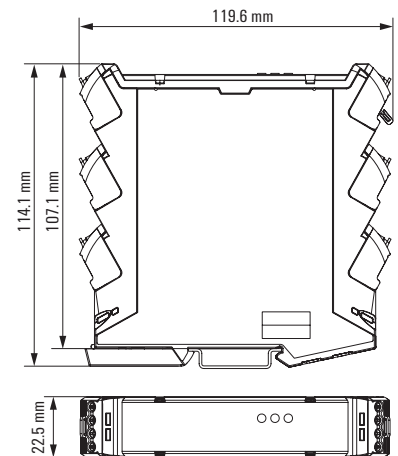
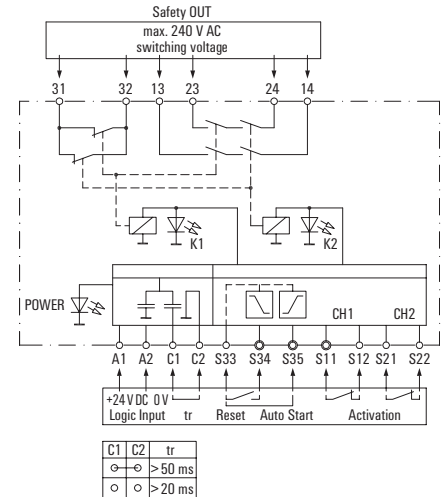
Technical data

Temperatures	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-40 °C...85 °C
Start circuit (S33, S34, S35)	
Operating voltage	22 V DC, from internal power supply
Function	falling edge (button via S33/S34), rising edge (permanent bridge via S33/S35)
Input (supply) (A1, A2, C1, C2)	
Rated control voltage	24 V DC $\pm 15\%$, 24 VDC $+15\% / -10\%$ during auto-start
Current consumption	55 mA (release circuit enabled), 6 mA (release circuit not enabled)
Guaranteed current consumption at 24 V DC -10%	35 mA
Response time	with bridge via C1/C2: typ. 50 ms, without bridge via C1/C2: typ. 20 ms
Status display	LED green: supply, Yellow LED: signal
Short-circuit detection	Yes, max. 4 s up to disconnection (thermistor)
Monitoring circuit (S11, S12, S21, S22)	
Operating voltage	22 V DC, from internal power supply
Input	2, each externally bridgeable
Output (release circuit) (13, 14, 23, 24)	
Contact version	2 NO positively-driven (EN 50205 type B)
Switching voltage AC, max.	250.000000 V
max. permitted switching current	5 A
min. switching power	10 mA @ 12 V
max. switching power	1250 VA
Switch-on time	55 ms (C1/C2 bridged, switched via A1/A2), 30 ms (opening/closing of monitoring circuit)
Switch-off time	55 ms (C1/C2 bridged, switched via A1/A2), 15 ms (opening/closing of monitoring circuit)
Contact base material	AgSnO
max. switching current, external fuse	5 A
external back-up fuse	5 A time lag
Feedback output (31, 32)	
Contact version	1 NC positively-driven (EN 50205 type B)
Switching voltage AC, max.	250 V
Max. switching current	1 A
Insulation coordinates	
Rated voltage	300 V
Creepage and clearance distance input – output	≥ 5.5 mm
Creepage and clearance distance output – output	≥ 5.5 mm
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength output – output	4 kV _{eff} / 1 min
Dielectric strength to mounting rail	4 kV _{eff} / 1 Min.
Impulse withstand voltage	6 kV (1.2/50 μ s)
Overvoltage category	III
Pollution degree	2
Further details of approvals / standards	
Standards	EN 50178, EN 61000, EN 61326-3-2, EN ISO 13849-1 (PL _e)
Approvals	CE; EAC; FUSAFETY
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.13 / 2.5
Depth x width x height	mm 114.1 / 22.5 / 119.6
Note	

SCS 24 V DC P2SIL3ES



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



Ordering data

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

Functional safety – SAFESERIES SIL relays

SIL3 relays

- Wire break detection and load monitoring in load circuit
- Energized to safe
- Approvals for Ex-areas
- 17,5 mm width
- TÜV-certified “Approved Safety Function”
- Ambient temperature (operational): max 50 °C

Technical data

Temperatures	
Ambient temperature (operational)	-40 °C...50 °C
Storage temperature	-40 °C...85 °C
Input (supply) (0V, 24V)	
Rated control voltage	24 V DC $\pm 20\%$
Current consumption	< 40 mA + M14
Input (safety circuit) (A1, A2)	
Rated control voltage	24 V DC $\pm 20\%$
Power consumption	56 mA
Status indicator	LED yellow (RLY): lights up when input circuit (A1,A2) of the device is actuated
Test inputs (T1, T2, T3)	
Rated control voltage	24 V DC $\pm 20\%$
Output (safety circuit) (L, N, 13, 14)	
Contact design	1 x energised to safe (NO contact)
max. switching current, external fuse	2,5 A
max. permitted switching voltage	250 V AC
max. switching power	625 VA
min. switching power	30 mA @ 15 V
Switch-on time	50 ms
Alarm output (M13, M14)	
Contact design	1 DO (MOS-FET high-active)
Output current, max.	100 mA
Status indicator	LED red (ERR): flashes when device detects a fault, supply voltage applied and input circuit (A1, A2) not actuated
Short-circuit-proof	Yes, without time limit
Diagnosis output (D21, D22)	
Contact design	1 NC contact
Switching voltage, max.	30 VDC
Switching, current, max.	100 mA DC
Switching capacity, min.	1 mA @ 1 V
Status indicator	LED green (DIAG): lights up when supply voltage applied and input circuit (A1, A2) not actuated
Insulation coordinates	
Rated voltage	300 V
Creepage and clearance distance input – output	≥ 6 mm
Creepage and clearance distance output – output	≥ 6 mm
Dielectric strength, Input/Output	3.51 kV _{eff} /1 min.
Dielectric strength output – output	3.51 kV _{eff} /1 min.
Overvoltage category	III
Pollution degree	2
Further details of approvals / standards	
Approvals	EN 61010-1, EN 61010-2-201, EN 61326-3-2, EN 61326-1, EN 61508, EN 61326-3-1
Standards	
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.13 / 2.5
Depth x width x height	mm 119.2 / 17.5 / 113.6
Note	

Ordering data

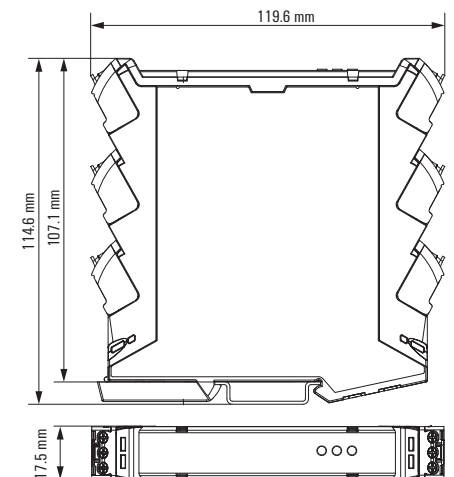
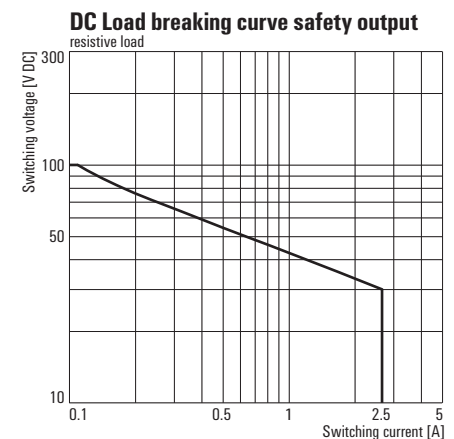
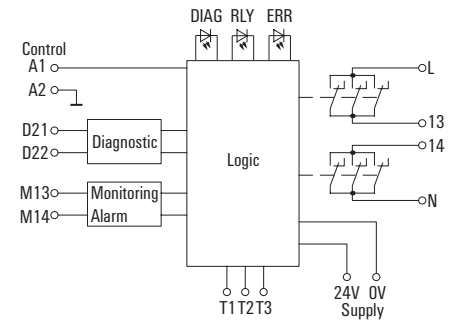
Type	Qty.	Order No.
SCS 24VDC P1SIL3ES LL	1	2633940000
Note		

SCS 24VDC P1SIL3ES LL



The safety relay SCS 24VDC P1SIL3ES LL is used in areas that require functionally safe activation. The integrated diagnostic function enables monitoring of wire breakage and load errors on the load side.

The requirements according to EN 61508, SIL3 can be met with this component. The safety relay can be operated at ambient temperatures of up to 50 °C without switching current derating.



SIL3 relays

- Wire break detection and load monitoring in load circuit
- Energized to safe
- Approvals for Ex-areas
- 22,5 mm width
- TÜV-certified "Approved Safety Function"
- Ambient temperature (operational): max 70 °C

SCS 24VDC P1SIL3ES LL-T



The safety relay SCS 24VDC P1SIL3ES LL-T is used in areas that require functionally safe activation. The integrated diagnostic function enables monitoring of wire breakage and load errors on the load side.

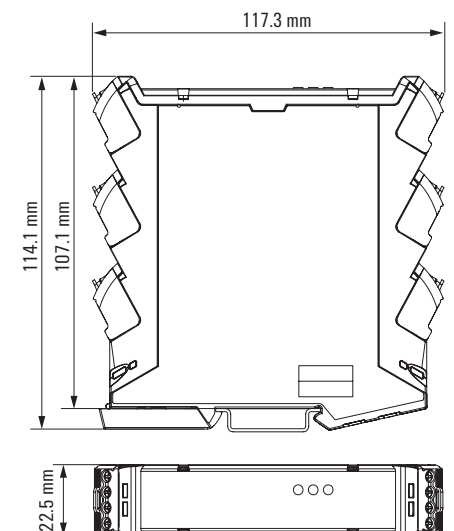
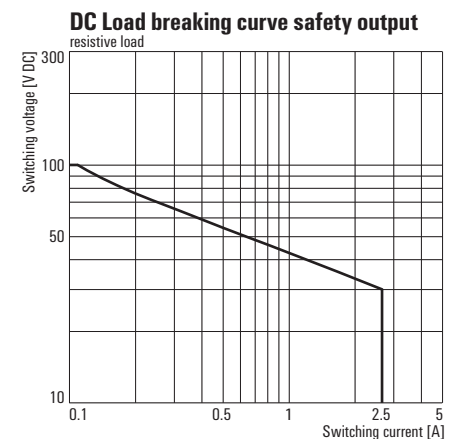
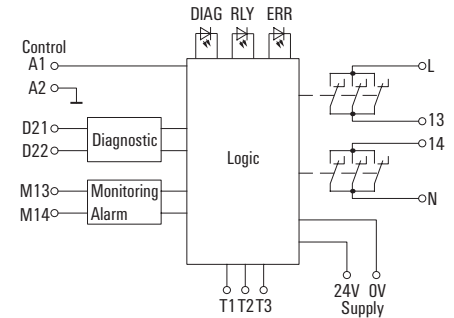
The requirements according to EN 61508, SIL3 can be met with this component. The safety relay can be operated at ambient temperatures of up to 70 °C without switching current derating.

Technical data

Temperatures	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...85 °C
Input (supply) (0V, 24V)	
Rated control voltage	24 V DC $\pm 20\%$
Current consumption	< 40 mA + M14
Input (safety circuit) (A1, A2)	
Rated control voltage	24 V DC $\pm 20\%$
Power consumption	71 mA
Status indicator	LED yellow (RLY): lights up when input circuit (A1,A2) of the device is actuated
Test inputs (T1, T2, T3)	
Rated control voltage	24 V DC $\pm 20\%$
Output (safety circuit) (L, N, 13, 14)	
Contact design	1 x energised to safe (NO contact)
max. switching current, external fuse	2,5 A
max. permitted switching voltage	250 V AC
max. switching power	625 VA
min. switching power	30 mA @ 15 V
Switch-on time	50 ms
Alarm output (M13, M14)	
Contact design	1 DO (MOS-FET high-active)
Output current, max.	100 mA
Status indicator	LED red (ERR): flashes when device detects a fault, supply voltage applied and input circuit (A1, A2) not actuated
Short-circuit-proof	Yes, without time limit
Diagnosis output (D21, D22)	
Contact design	1 NC contact
Switching voltage, max.	30 VDC
Switching, current, max.	100 mA DC
Switching capacity, min.	1 mA @ 1 V
Status indicator	LED green (DIAG): lights up when supply voltage applied and input circuit (A1, A2) not actuated
Insulation coordinates	
Rated voltage	300 V
Creepage and clearance distance input - output	≥ 6 mm
Creepage and clearance distance output - output	≥ 6 mm
Dielectric strength, Input/Output	3.51 kV _{eff} /1 min.
Dielectric strength output - output	3.51 kV _{eff} /1 min.
Overvoltage category	III
Pollution degree	2
Further details of approvals / standards	
Approvals	EN 61010-1, EN 61010-2-201, EN 61326-3-2, EN 61326-1, EN 61508, EN 61326-3-1
Standards	
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.13 / 2.5
Depth x width x height	mm 119.2 / 22.5 / 113.6
Note	

Ordering data

Type	Qty.	Order No.
SCS 24VDC P1SIL3ES LL-T	1	2634010000
Note		



Signal monitoring in safety-critical circuits

Relay modules with forcibly guided contacts

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Weidmüller has expanded the RIDERSERIES to include a relay variant with forcibly guided contacts. Relays with forcibly guided contacts have a 99% diagnostics coverage and an excellent reputation for use in safety systems.

The contacts interlock mechanically with each other in order to ensure a synchronous switching status of both contacts. This guarantees that the alert contact will maintain the same switching status in the event of an error (for example, if the working contact welds from an overload). The controller (or safety controller) detects the alert contact and then compares the set values and actual values. If a difference occurs, measures can then be taken to protect equipment and human life.

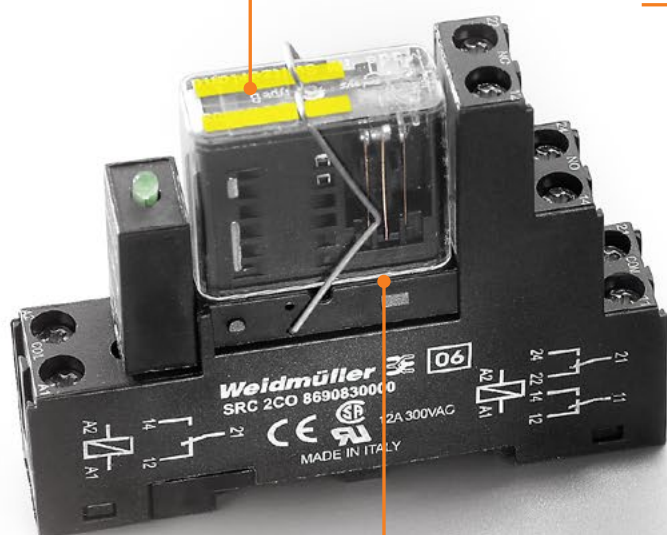


Convenient

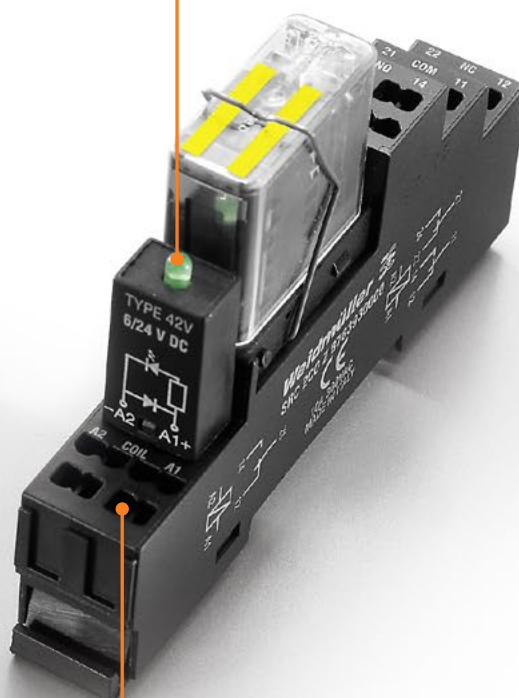
Relay modules can be replaced quickly in the event of a fault without removing the connecting cable.

On site diagnostics

An easy to view Status LED with an integrated free wheeling diode is used to protect the series connected electronics.

**Resistant to vibration**

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

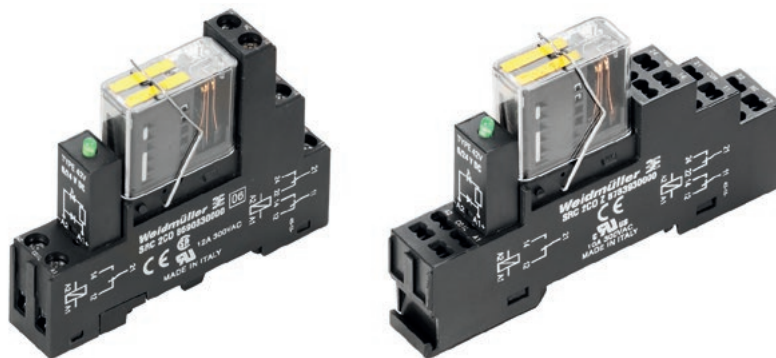
**A variety of connection options**

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

RCI KIT with forcibly guided contacts

2 CO DC coil

- Mounted kit consisting relay, socket and retaining clip
- 100 % function tested
- 100 % check of the dielectric strenght between input - output
- Bright status LED
- With protection circuit

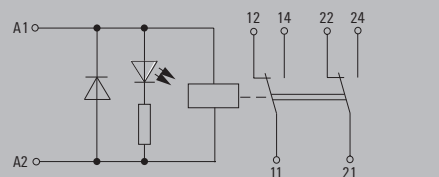


Technical data

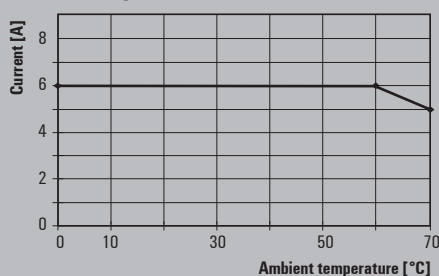
Load side	
Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	
Inrush current	15 A / 20 ms
Min. switching power	1 mA @ 24 V, 10 mA @ 10 V, 100 mA @ 5 V
Contact type	2 CO contact positively-driven (EN 61810-3 type B) (AgCuNi)
Mechanical service life	> 50 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-40 °C...70 °C
Storage temperature	-40 °C...85 °C
Humidity	40 °C / 95 % rel. humidity, no condensation
Approvals	CE
Insulation coordinates	
Rated voltage	250
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	2.5 kV _{eff} / 1 Min.
Dielectric strength of neighbouring contacts	2.5 kV _{eff} / 1 Min.
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 10 mm
Overvoltage category	III
Pollution degree	2

Dimensions	Screw connection	Tension-clamp connection
Clamping range (nominal / min. / max.)	mm ² 2.5 / 0.5 / 2.5	1.5 / 0.5 / 1.5
Depth x width x height	mm 61.6 / 15.6 / 77.6	63.8 / 16 / 98.1

Note



Derating curve



Ordering data

Control side		24 V DC
Rated control voltage		24 V DC ±10 %
Rated current AC / DC		/ 31.6 mA
Power rating		700 mW
Status indicator		Green LED
Protective circuit		Free-wheeling diode

Ordering data		
Screw connection	Type	RCIKIT 24VDC 2CO LD/FG
	Order No.	1218410000
Tension-clamp connection	Type	RCIKITZ 24VDC 2CO LD/FG
	Order No.	1218390000

Note

TERMSERIES FG

Proven switching condition monitoring of signals

C

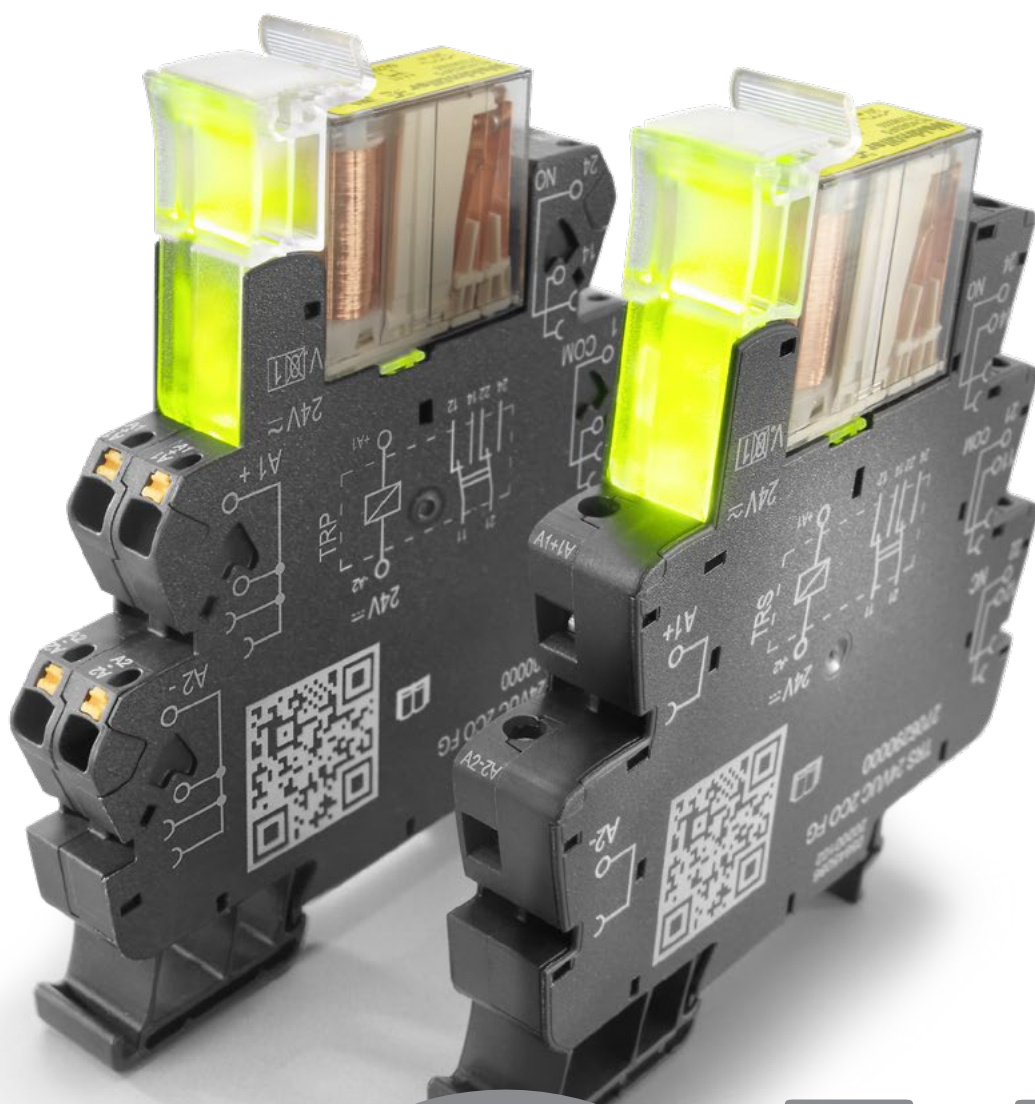
In safety-related applications, relays with positively-driven contacts have proven themselves many times over. The positively-driven operation ensures a synchronous switching status at both contacts, so that the signal contact maintains the same switching status in the event of an error. Thus, diagnostic coverage of 99% is achieved.

Our TERMSERIES relay modules are predestined for secure signal monitoring in a wide range of applications. Their switching function is clearly indicated by an illuminated ejection lever, which also has an integrated marker holder. Compatibility with all accessories from the TERMSERIES allows high flexibility and easy integration into existing systems. TERMSERIES relay modules have the cULus certification required for use in the North American market.

Your special advantages:

- Relay modules for monitoring signals for opening failure
- Two positively-driven CO contacts in accordance with EN 61810-3 type B
- Optional with screw and PUSH IN connection
- "cULus Listed" certification for use in the North American market



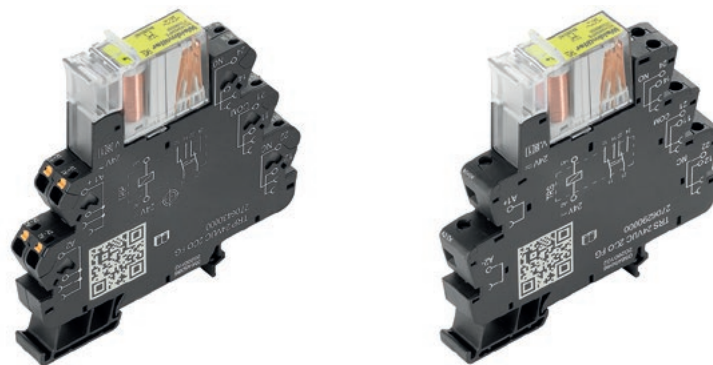


SIL

TERMSERIES FG

Complete module with relay

- Space-saving 12.8 mm width
- AgNi contact
- Bright shining status LED
- With protective circuitry
- PUSH IN and screw connection



Technical data

Load side

Rated switching voltage / Continuous current	250 V AC / 6 A
Max. switching voltage, AC	250 V
Inrush current	
Min. switching power	10 mW @ 5 V
Contact type	2 CO contact positively-driven (EN 61810-3 type B) (AgNi)
Mechanical service life	10 x 10 ⁶ switching cycles
Max. switching frequency at rated load	0.1 Hz

General data

Ambient temperature (operational)	-25 °C...60 °C
Storage temperature	-25 °C...70 °C
Humidity	5...85 %, no condensation
Approvals	CE; cULus; EAC

Insulation coordinates

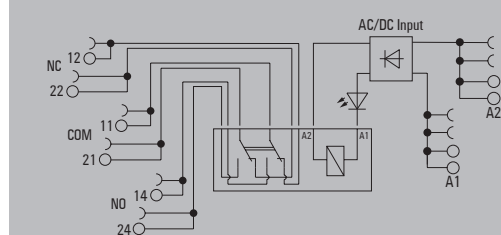
Rated voltage	300 V
Impulse withstand voltage	
Dielectric strength, Input/Output	3.51 kV _{eff} / 1 min.
Dielectric strength of neighbouring contacts	2.21 kV _{eff} / 1 min.
Dielectric strength to mounting rail	3.51 kV _{eff} / 1 min.
Creepage and clearance distance input - output	≥ 6 mm
Overvoltage category	III
Pollution degree	2

Dimensions

	PUSH IN	Screw connection
Clamping range (nominal / min. / max.)	mm ² 1.5 / 0.14 / 2.5	1.5 / 0.14 / 2.5
Depth x width x height	mm 87.8 / 12.8 / 97.5	87.8 / 12.8 / 97.5

Note

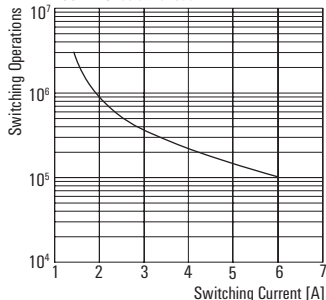
Accessories and dimensional drawings: refer to the TERMSERIES Accessories page.
Further approvals and technical data can be found at catalog. XXXXXXXXXX



Applications

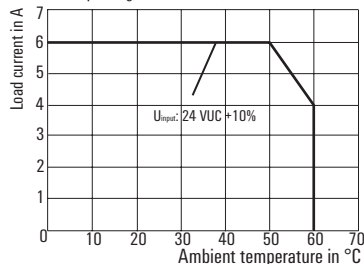
Electrical endurance

250 V AC resistive load



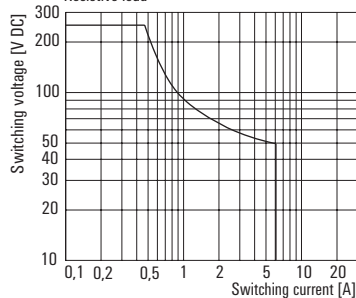
Derating curve

dense packing, no ventilation, horizontal and vertical DIN rail

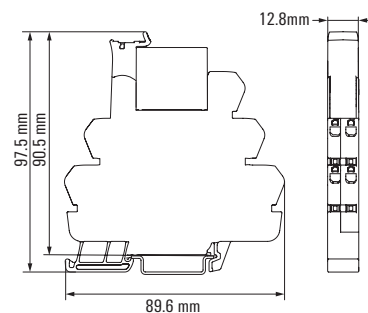


DC load breaking capacity

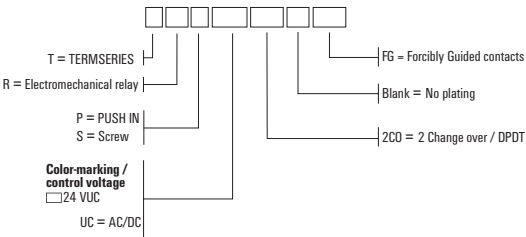
Resistive load



Dimensioned drawing



TERMSERIES FG



Ordering data

Control side		24 V UC
Rated control voltage		24 V UC ±10 %
Rated current AC / DC		24.4 mA / 23.5 mA
Power rating		585 mVA, 565 mW
Status indicator		Green LED
Protective circuit		Rectifier

Ordering data		
PUSH IN connection	Type	TRP 24VUC 2CO FG
	Order No.	2706430000
Screw connection	Type	TRS 24VUC 2CO FG
	Order No.	2706290000

Ordering data		
Spare relay		
	Type	RCH424024FG
	Order No.	2723360000

Note	

Power

Special relays for high industrial loads

C

If currents above 10 A have to be switched, standard relays are subject to high wear and quickly reach the limits of their service life. Our power switches have been specially developed to control high AC loads. They are ideally suited for motors or heating elements up to 75 A and can be used in many other power applications.

Power solid-state relays (PSSR) up to 75 A

Our solid-state contactors are far superior to mechanical contactors. They achieve higher switching speeds and are more robust and durable. They switch ohmic and inductive loads silently, wear-free and reliably – even in dusty or chemically aggressive atmospheres. Our solid-state contactors are available for 1- and 3-phase mains.

Miniature contactors (PWR) up to 30 A

Conventional contactors are oversized for some power applications in which industrial relays wear quickly and only achieve a short service life. This is where our PWR miniature contactors are used. Thanks to switching currents of up to 30 A, a double-break contact and a significantly larger contact gap, they are able to switch industrial loads reliably.



Power solid-state relays

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

C

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

The compact modules need just a low control power at the input, have fast response times and operate noiseless. The optional 1PH-Control-Unit allows the current monitoring of up to five parallel connected loads.

Our new power solid state relays are ideally suited for a multitude of diverse tasks: switching of pipe heaters and infrared heaters, or permanent current monitoring.

Simple current monitoring

The optional, plug-on monitoring module warns when current drops by 16 % or more. Short-circuit, line-break and defective loads are detected.

**High current load integral**

The high current load integral I^2t of 6,000 A²s allows affordable device protection using standard circuit breakers for variants with 35 A load current.

High output current

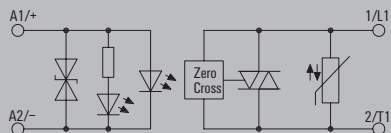
Ideal for controlling pipe heaters due to the high output current of 50 or 75 A. The compact design allows directing mounting at application site.

Power – Power solid-state relays

PSSR - 1-phase

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

PSSR 24 V DC / 1 PH AC 25 A



Technical data

Control side

Rated control voltage
Power rating
Pull-in/drop-out voltage, typ.
Input frequency
Status indicator
Protective circuit

Load side

Solid-state type
Rated switching voltage
Continuous current
Min. switching current
Max. switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side
Switch-on delay / Switch-off delay
Output voltage frequency range
Pulse load, max. current
Load category
Load limit integral (I^2t) <10 ms

General data

Ambient temperature (operational)
Storage temperature
Humidity
Approvals
Standards

Insulation coordinates

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

3.5...32 V DC

< 500 mW

3 V / 2 V DC

10 Hz

LED yellow

Suppressor diode

Triac (zero-cross switch)

12...275 V AC

17 A (AC51) at 40 °C, 3.5 A (AC 53)

5 mA

25 A

≤1.25 V

≤1 mA

No / Varistor

≤10 ms / ≤10 ms

50...60 Hz

250 A (10 ms), non-recurrent

AC 51, AC 53

340 A²s

-55 °C...100 °C

-55 °C...125 °C

40...85 % (indoor) no condensation

CE; cURus; EAC

EN 60947-4-3, EN 60950, IEC 60335-1

4 kV (1.2/50 μs)

≥ 6,5 mm

III

2

Dimensions

Clamping range (rated / min. / max.) control side

mm²

Clamping range (rated / min. / max.) load side

mm²

Depth x width x height

mm

Note

1.5 / 0.13 / 3.3

6 / 1.5 / 6

115.9 / 22.5 / 98

Ordering data

Screw connection

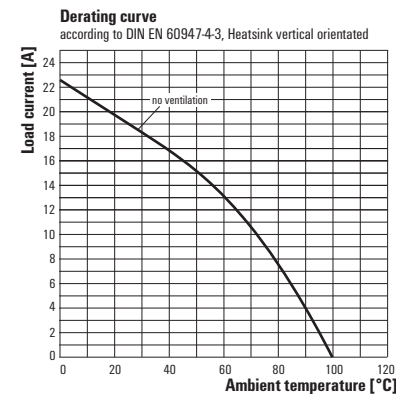
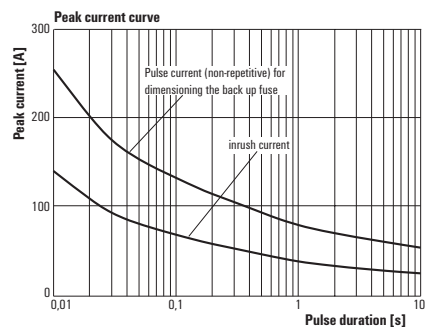
Type	Qty.	Order No.
PSSR 24VDC/1PH AC 25A	1	1406200000

Note

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

Accessories

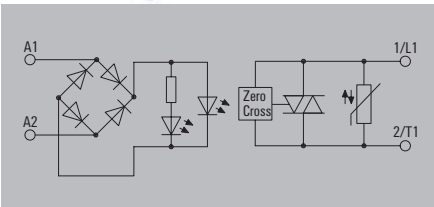
Note



PSSR - 1-phase

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

PSSR 230 V AC / 1 PH AC 25 A



Technical data

Control side	
Rated control voltage	160...240 V AC/DC
Power rating	≤ 1.38 VA
Pull-in/drop-out voltage, typ.	160 V / 5 V AC 160 V / 5 V DC
Input frequency	10 Hz
Status indicator	LED yellow
Protective circuit	Rectifier
Load side	
Solid-state type	Triac (zero-cross switch)
Rated switching voltage	12...275 V AC
Continuous current	17 A (AC51) at 40 °C, 3.5 A (AC 53)
Min. switching current	5 mA
Max. switching current	25 A
Voltage drop at max. load	≤ 1.25 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤ 30 ms / ≤ 30 ms
Output voltage frequency range	50...60 Hz
Pulse load, max. current	250 A (10 ms), non-recurrent
Load category	AC 51, AC 53
Load limit integral (I²t) <10 ms	340 A²s
General data	
Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE; cURus; EAC
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
Insulation coordinates	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 6,5 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (rated / min. / max.) control side	1.5 / 0.13 / 3.3 mm²
Clamping range (rated / min. / max.) load side	6 / 1.5 / 6 mm²
Depth x width x height	115.9 / 22.5 / 98 mm
Note	

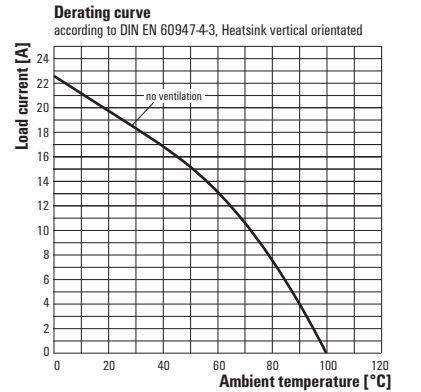
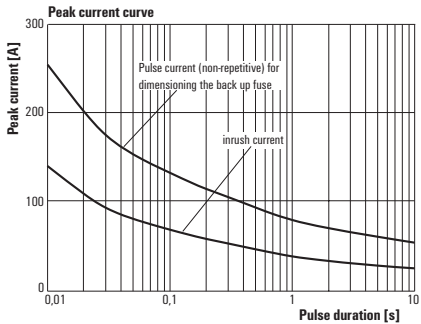
Type		
PSSR 230VAC/1PH AC 25A	Qty.	Order No.
	1	1406220000

Ordering data

Screw connection
Note

Accessories

Note



Power – Power solid-state relays

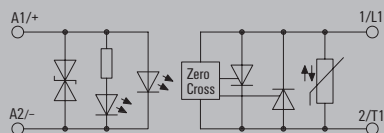
PSSR - 1-phase

- Single-phase load circuit: 24–510 V AC / 35 A
- Ready-to-use: snap on - connect - ready
- Zero-cross switch
- Noiseless, wear-free switching
- Attachable monitoring module
- High capacity for handling surge currents

 $I^2t = 6000 \text{ A}^2\text{s} (10 \text{ ms})$

- Fusing with B circuit breaker possible

PSSR 24 V DC / 1 PH AC 35 A



Technical data

Control side	
Rated control voltage	3.5...32 V DC
Power rating	≤ 280 mW
Pull-in/drop-out voltage, typ.	3 V / 2 V DC
Input frequency	10 Hz
Status indicator	LED yellow
Protective circuit	Suppressor diode
Load side	
Solid-state type	Thyristor (zero-cross switch)
Rated switching voltage	24...510 V AC
Continuous current	23 A (AC51) at 40 °C, 12 A (AC 53)
Min. switching current	5 mA
Max. switching current	50 A
Voltage drop at max. load	≤ 1.35 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤ 10 ms / ≤ 10 ms
Output voltage frequency range	50...60 Hz
Pulse load, max. current	1100 A (10 ms), non-recurrent
Load category	AC 51, AC 53
Load limit integral (I^2t) < 10 ms	6000 A ² s
General data	
Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE; cURus; EAC
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
Insulation coordinates	
Impulse withstand voltage	4 kV (1.2/50 μs)
Clearance and creepage distances for control side - load side	≥ 6,5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	
Clamping range (rated / min. / max.) control side	mm ² 1.5 / 0.13 / 3.3
Clamping range (rated / min. / max.) load side	mm ² 6 / 1.5 / 6
Depth x width x height	mm 115.9 / 22.5 / 98
Note	

Ordering data

Screw connection

Note

Accessories

Note

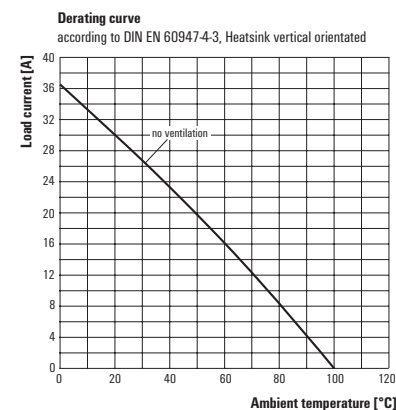
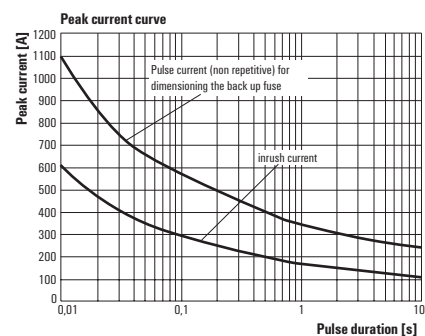
Control side	
Rated control voltage	3.5...32 V DC
Power rating	≤ 280 mW
Pull-in/drop-out voltage, typ.	3 V / 2 V DC
Input frequency	10 Hz
Status indicator	LED yellow
Protective circuit	Suppressor diode
Load side	
Solid-state type	Thyristor (zero-cross switch)
Rated switching voltage	24...510 V AC
Continuous current	23 A (AC51) at 40 °C, 12 A (AC 53)
Min. switching current	5 mA
Max. switching current	50 A
Voltage drop at max. load	≤ 1.35 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤ 10 ms / ≤ 10 ms
Output voltage frequency range	50...60 Hz
Pulse load, max. current	1100 A (10 ms), non-recurrent
Load category	AC 51, AC 53
Load limit integral (I^2t) < 10 ms	6000 A ² s
General data	
Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE; cURus; EAC
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
Insulation coordinates	
Impulse withstand voltage	4 kV (1.2/50 μs)
Clearance and creepage distances for control side - load side	≥ 6,5 mm
Overvoltage category	III
Pollution degree	2

Dimensions	
Clamping range (rated / min. / max.) control side	mm ² 1.5 / 0.13 / 3.3
Clamping range (rated / min. / max.) load side	mm ² 6 / 1.5 / 6
Depth x width x height	mm 115.9 / 22.5 / 98
Note	

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

Note

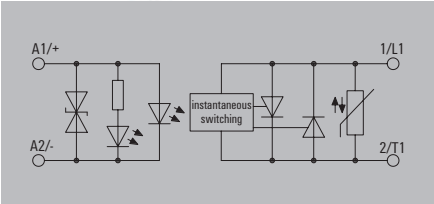
Note



PSSR - 1-phase

- Load circuit 1-phase 24...510 V AC, 22 A at 40°C ambient temperature
- Ready-to-use: snap on-connect-ready
- Instantaneous-switching output
- Wear-free & silent switching
- Plug-in monitoring module

PSSR 24 V DC / 1 PH AC 22 A I



Technical data

Control side	
Rated control voltage	3.5...32 V DC
Power rating	< 500 mW
Pull-in/drop-out voltage, typ.	3 V / 2 V DC
Input frequency	10 Hz
Status indicator	LED yellow
Protective circuit	Suppressor diode
Load side	
Solid-state type	Thyristor (instantaneous-switching)
Rated switching voltage	24...510 V AC
Continuous current	22 A (AC51) at 40 °C, 7 A (AC 53)
Min. switching current	5 mA
Max. switching current	50 A
Voltage drop at max. load	≤1.25 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤0,1 ms / ≤ 10 ms
Output voltage frequency range	50...60 Hz
Pulse load, max. current	530 A (10 ms), non-recurrent
Load category	AC 51, AC 53
Load limit integral (I²t) <10 ms	1400 A²s
General data	
Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE, EAC
Standards	
Insulation coordinates	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 3.2 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (rated / min. / max.) control side	mm² 1.5 / 0.13 / 3.3
Clamping range (rated / min. / max.) load side	mm² 6 / 1.5 / 6
Depth x width x height	mm 115.4 / 22.5 / 98
Note	

Rated control voltage	3.5...32 V DC
Power rating	< 500 mW
Pull-in/drop-out voltage, typ.	3 V / 2 V DC
Input frequency	10 Hz
Status indicator	LED yellow
Protective circuit	Suppressor diode
Load side	
Solid-state type	Thyristor (instantaneous-switching)
Rated switching voltage	24...510 V AC
Continuous current	22 A (AC51) at 40 °C, 7 A (AC 53)
Min. switching current	5 mA
Max. switching current	50 A
Voltage drop at max. load	≤1.25 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤0,1 ms / ≤ 10 ms
Output voltage frequency range	50...60 Hz
Pulse load, max. current	530 A (10 ms), non-recurrent
Load category	AC 51, AC 53
Load limit integral (I²t) <10 ms	1400 A²s
General data	
Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE, EAC
Standards	
Insulation coordinates	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 3.2 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (rated / min. / max.) control side	mm² 1.5 / 0.13 / 3.3
Clamping range (rated / min. / max.) load side	mm² 6 / 1.5 / 6
Depth x width x height	mm 115.4 / 22.5 / 98
Note	

Ordering data

Screw connection

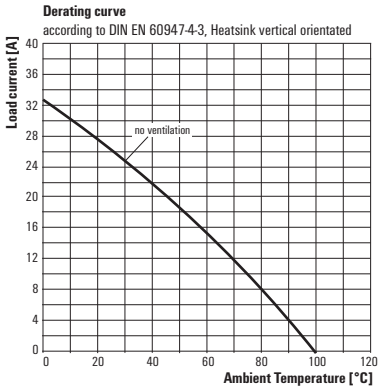
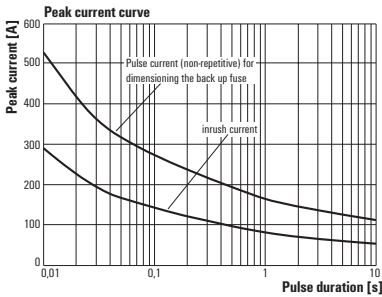
Type	Qty.	Order No.
PSSR 24VDC/1PH AC 22A I	1	2531050000

Note

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

Accessories

Note

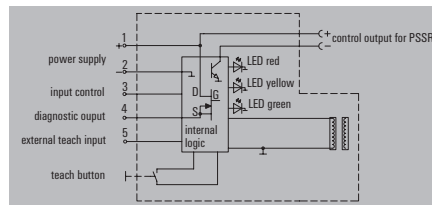


Power – Power solid-state relays

PSSR control unit

- Monitoring of up to 5 consumers connected in parallel
- Can be attached to the single-phase PSSRs
- Error message feedback output
- Undercurrent switching threshold: $0.84 \times I_{\text{setting}}$
- Teach button on the module and external teach input

PSSR 1 PH CONTROL UNIT



Technical data

Control side

Rated control voltage
Rated control current
Pull-in/drop-out voltage, typ.
Rated control voltage (external teach input)
Nominal control current (external teach input)

Supply

Voltage supply
Current consumption

Feedback output

Solid-state type
Nominal switching voltage
Continuous current
Undercurrent switching threshold
Current measurement range AC, min.
Current measurement range AC, max.
Switch-on delay
Switch-off delay

Control output to the PSSR

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

General data

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

Insulation coordinates

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

Dimensions

Clamping range (nominal / min. / max.) mm²
Depth x width x height mm

Note

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

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

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

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

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

III

Screw connection

1.5 / 0.15 / 2.5
65 / 25 / 112.3

Ordering data

Screw connection

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

Note

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

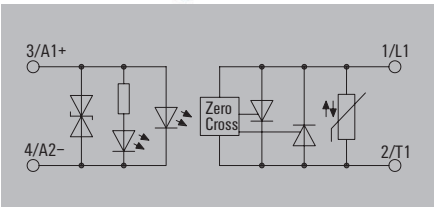
Accessories

Note

PSSR - 1-phase

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

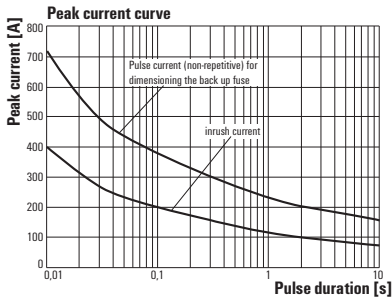
PSSR 24 V DC / 1 PH AC 50 A HP



Technical data

Control side	
Rated control voltage	3.5...32 V DC
Power rating	≤ 280 mW
Pull-in/drop-out voltage, typ.	3 V / 2 V DC
Input frequency	10 Hz
Status indicator	Green LED
Protective circuit	Suppressor diode
Load side	
Solid-state type	Thyristor (zero-cross switch)
Rated switching voltage	24...600 V AC
Continuous current	52 A (AC51) at 40 °C, mounted on heatsink with 0.75 K/W
Min. switching current	5 mA
Max. switching current	60 A
Voltage drop at max. load	≤ 1.35 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤ 10 ms / ≤ 10 ms
Output voltage frequency range	50 / 60 Hz
Pulse load, max. current	700 A (10 ms), non-recurrent
Load category	AC 51
Load limit integral (I²t) <10 ms	2450 A²s
General data	
Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE; cURus; EAC
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
Insulation coordinates	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 8 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (rated / min. / max.) control side	1.5 / 0.75 / 2.5 mm²
Clamping range (rated / min. / max.) load side	10 / 1.5 / 10 mm²
Depth x width x height	29 / 45 / 58.5 mm
Note	

Rated control voltage	3.5...32 V DC
Power rating	≤ 280 mW
Pull-in/drop-out voltage, typ.	3 V / 2 V DC
Input frequency	10 Hz
Status indicator	Green LED
Protective circuit	Suppressor diode
Solid-state type	Thyristor (zero-cross switch)
Rated switching voltage	24...600 V AC
Continuous current	52 A (AC51) at 40 °C, mounted on heatsink with 0.75 K/W
Min. switching current	5 mA
Max. switching current	60 A
Voltage drop at max. load	≤ 1.35 V
Leakage current	≤ 1 mA
Short-circuit-proof / Protective circuit, load side	No / Varistor
Switch-on delay / Switch-off delay	≤ 10 ms / ≤ 10 ms
Output voltage frequency range	50 / 60 Hz
Pulse load, max. current	700 A (10 ms), non-recurrent
Load category	AC 51
Load limit integral (I²t) <10 ms	2450 A²s
Ambient temperature (operational)	-55 °C...100 °C
Storage temperature	-55 °C...125 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE; cURus; EAC
Standards	EN 60947-4-3, EN 60950, IEC 60335-1
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 8 mm
Overvoltage category	III
Pollution degree	2
Clamping range (rated / min. / max.) control side	1.5 / 0.75 / 2.5 mm²
Clamping range (rated / min. / max.) load side	10 / 1.5 / 10 mm²
Depth x width x height	29 / 45 / 58.5 mm



Ordering data

Screw connection

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

Note

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

Accessories

Note

Power – Power solid-state relays

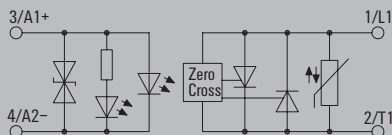
PSSR - 1-phase

- Single-phase load circuit: 24–600 V AC / 75 A
- Compact design
- Zero-cross switch
- Noiseless, wear-free switching
- High capacity for handling surge currents

$I^2t = 6000 \text{ A}^2\text{s}$ (10 ms)

- Fusing with B circuit breaker possible

PSSR 24 V DC / 1 PH AC 75 A HP



Technical data

Control side

Rated control voltage
Power rating
Pull-in/drop-out voltage, typ.
Input frequency
Status indicator
Protective circuit

Load side

Solid-state type
Rated switching voltage
Continuous current
Min. switching current
Max. switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof / Protective circuit, load side
Switch-on delay / Switch-off delay
Output voltage frequency range
Pulse load, max. current
Load category
Load limit integral (I^2t) <10 ms

General data

Ambient temperature (operational)
Storage temperature
Humidity
Approvals
Standards

Insulation coordinates

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

3.5...32 V DC

≤ 280 mW

3 V / 2 V DC

10 Hz

Green LED

Suppressor diode

Thyristor (zero-cross switch)

24...600 V AC

62 A (AC51) at 40 °C, mounted on heatsink with 0.75 K/W

5 mA

90 A

≤ 1.4 V

≤ 1 mA

No / Varistor

≤ 10 ms / ≤ 10 ms

50 / 60 Hz

1100 A (10 ms), non-recurrent

AC 51

6000 A²s

-55 °C...100 °C

-55 °C...125 °C

40...85 % (indoor) no condensation

CE; cURus; EAC

EN 60947-4-3, EN 60950, IEC 60335-1

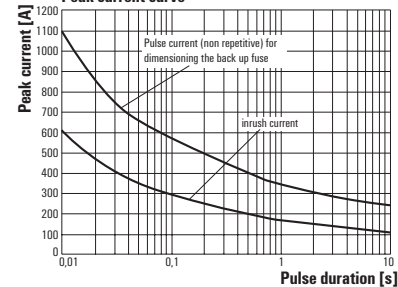
4 kV (1.2/50 μs)

≥ 8 mm

III

2

Peak current curve



Dimensions

Clamping range (rated / min. / max.) control side mm²
Clamping range (rated / min. / max.) load side mm²
Depth x width x height mm

Note

1.5 / 0.75 / 2.5

10 / 1.5 / 10

29 / 45 / 58.5

Ordering data

Screw connection

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

Note

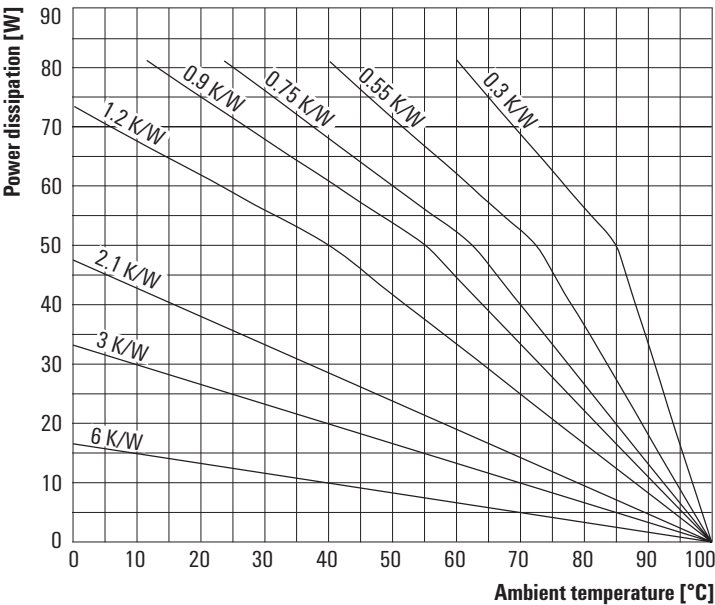
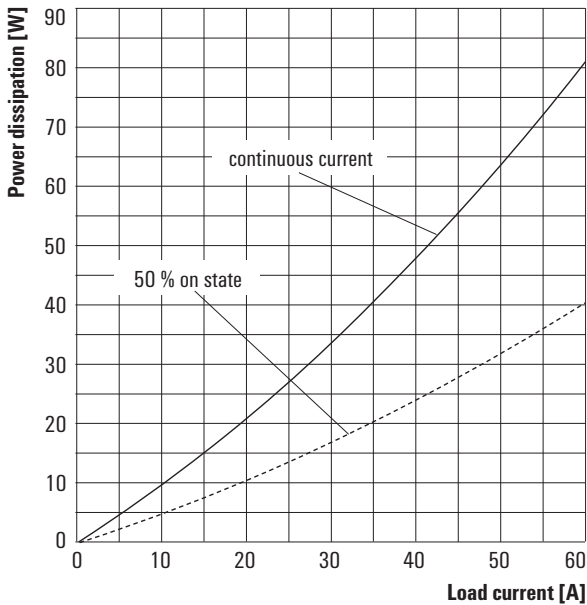
Accessories and dimensioned drawings: refer to the Power Solid-state Relay Accessories page.

Accessories

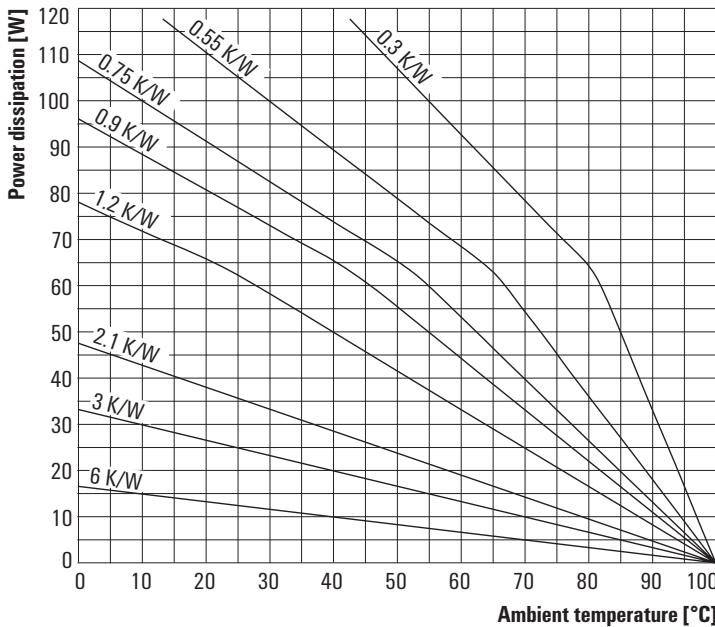
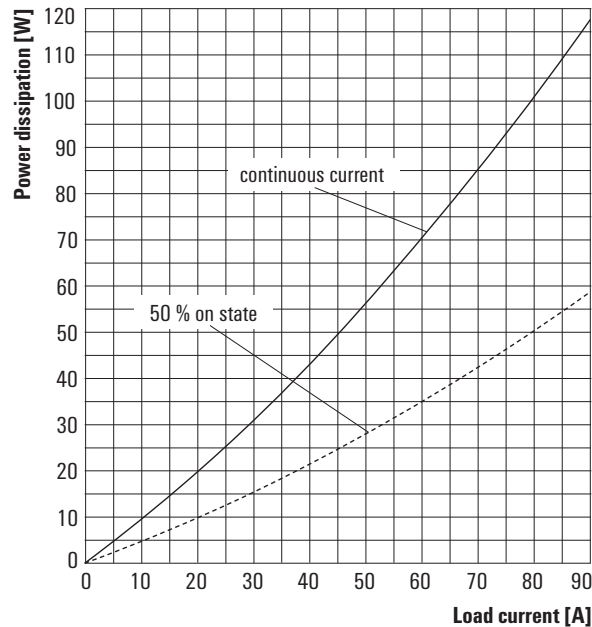
Note

Power dissipation and heat sink selection

Order No. 1406240000



Order No. 1406250000

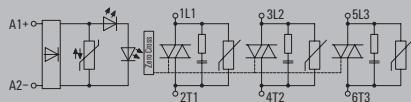


Power – Power solid-state relays

PSSR - 3-phase

- Three-phase charging circuit: 24...520 V AC / 20 A at 55 °C
- Ready-to-use: snap on - connect - ready
- Zero-cross switch
- Wear-free and noiseless switching

PSSR 24 V DC / 3 PH AC 20 A



Technical data

Control side	
Rated control voltage	8...30 V DC / 10...30 V AC
Power rating	0.1...2 W
Pull-in/drop-out voltage, typ.	10 V / 4 V AC 8 V / 4 V DC
Input frequency	10 Hz
Status indicator	Green LED
Protective circuit	RC element, Varistor
Load side	
Solid-state type	Triac (zero-cross switch)
Rated switching voltage	24...520 V AC
Continuous current	20 A @ 55 °C, 12 A (AC 53)
Min. switching current	5 mA
Max. switching current	
Voltage drop at max. load	1.4 V
Leakage current	< 1 mA
Short-circuit-proof / Protective circuit	No / RC element, Varistor
Switch-on delay / Switch-off delay	30 ms / 30 ms
Output voltage frequency range	50 / 60 Hz
Pulse load, max. current / Cartridge fuse	300 A (10 ms), non-recurrent /
Load category	AC 53: 3 x 12 A
Load limit integral (I ² t) <10 ms	1500 A ² s
General data	
Ambient temperature (operational)	-40 °C...80 °C
Storage temperature	-40 °C...100 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE; cURus; EAC
Standards	DIN EN 60950, IEC 60947-4-3
Insulation coordination	
Rated voltage	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 6.4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (rated / min. / max.) control side	mm ² 1.5 / 0.75 / 2.5
Clamping range (rated / min. / max.) load side	mm ² 10 / 10 / 1.5
Depth x width x height	mm 126.2 / 89.6 / 98
Note	

Ordering data

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

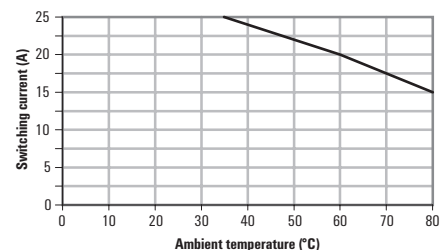
Note

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

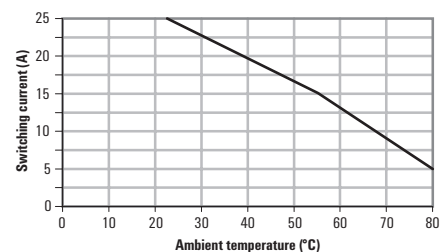
Accessories

Note

Derating curve with moderate ventilation and 50 % operational running time



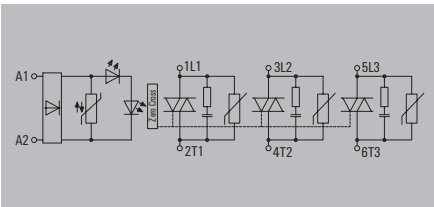
Derating curve without ventilation and in continual operation



PSSR - 3-phase

- Three-phase charging circuit: 24...520 V AC / 20 A at 55 °C
- Ready-to-use: snap on - connect - ready
- Zero-cross switch
- Wear-free and noiseless switching

PSSR 230 V AC / 3 PH AC 20 A



Technical data

Control side	
Rated control voltage	90...240 V AC / DC
Power rating	0.4...2.6 W
Pull-in/drop-out voltage, typ.	90 V / 15 V AC 90 V / 15 V DC
Input frequency	10 Hz
Status indicator	Green LED
Protective circuit	RC element, Varistor
Load side	
Solid-state type	Triac (zero-cross switch)
Rated switching voltage	24...520 V AC
Continuous current	20 A @ 55 °C, 12 A (AC 53)
Min. switching current	5 mA
Max. switching current	
Voltage drop at max. load	1.4 V
Leakage current	< 1 mA
Short-circuit-proof / Protective circuit	No / RC element, Varistor
Switch-on delay / Switch-off delay	30 ms / 30 ms
Output voltage frequency range	50 / 60 Hz
Pulse load, max. current / Cartridge fuse	300 A (10 ms), non-recurrent /
Load category	AC 53: 3 x 12 A
Load limit integral (I²t) <10 ms	1500 A²s
General data	
Ambient temperature (operational)	-40 °C...80 °C
Storage temperature	-40 °C...100 °C
Humidity	40...85 % (indoor) no condensation
Approvals	CE; cURus; EAC
Standards	DIN EN 60950, IEC 60947-4-3
Insulation coordination	
Rated voltage	
Impulse withstand voltage	4 kV (1.2/50 µs)
Clearance and creepage distances for control side - load side	≥ 6.4 mm
Overvoltage category	III
Pollution degree	2
Dimensions	
Clamping range (rated / min. / max.) control side	mm² 1.5 / 0.75 / 2.5
Clamping range (rated / min. / max.) load side	mm² 10 / 1.5 / 10
Depth x width x height	mm 126.2 / 89.6 / 98
Note	

Derating curve with maximum ventilation		
Switching current (A)	Ambient temperature (°C)	
50		
45		
40		
35		
30		
25		
20		
15		
10		
5		
0		
	0	80
	10	
	20	
	30	
	40	
	50	
	60	
	70	
	80	
Derating curve with moderate ventilation and 50% operational running time		
Switching current (A)	Ambient temperature (°C)	
50		
45		
40		
35		
30		
25		
20		
15		
10		
5		
0		
	0	80
	10	
	20	
	30	
	40	
	50	
	60	
	70	
	80	
Derating curve without ventilation and in continual operation		
Switching current (A)	Ambient temperature (°C)	
50		
45		
40		
35		
30		
25		
20		
15		
10		
5		
0		
	0	80
	10	
	20	
	30	
	40	
	50	
	60	
	70	
	80	

Ordering data

Screw connection

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

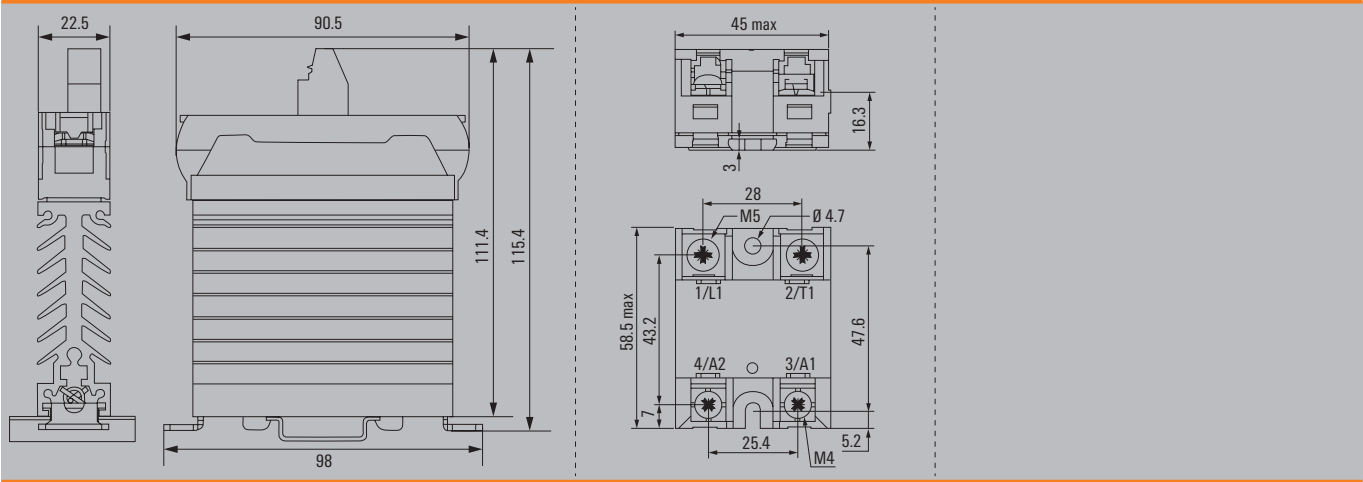
Note

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

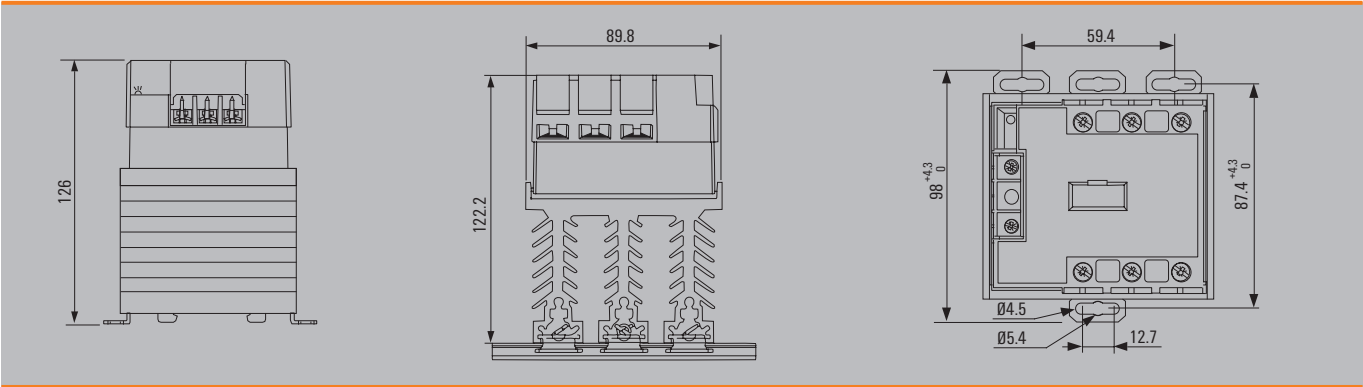
Accessories

Note

Dimensioned drawing for PSSR, single-phase

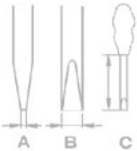


Dimensioned drawing for PSSR, three-phase



Uninsulated screwdriver

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



Screwdriver for the connections on the input side

SD S

Slotted screwdriver with rounded blade SD DIN 5265, ISO 2380/2,
output to DIN 5264, ISO 2380/1. ChromTop tip, SoftFinish® grip

Type	Size / AF	A	B	C	Order No.
SDS 0.6x3.5x100		0.6	3.5	100	9008330000



Screwdriver for the connections on the output side

SDK PZ

Crosshead screwdriver, Pozidriv, SDK PZ DIN 5262, ISO 8764/2-PZ,
output to ISO 8764/1-PZ, ChromTop tip, SoftFinish® grip

SDK PZ2	2			100	9008540000
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Power – PWR high-power relay

PWR high-power relay

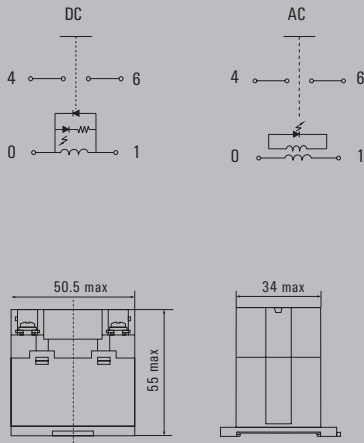
1 NO AC/DC coil

- Max. load current: 30 A



Circuit diagram

1NO



Technical data

Load side

Rated switching voltage / Continuous current	277 V AC / 30 A
Max. switching voltage, AC	277 V
Inrush current	150 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	1 NO contact (AgSnO2)
Mechanical service life	
Max. switching frequency at rated load	0.1 Hz

General data

Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE; cURus; EAC

Insulation coordinates

Rated voltage	250 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	3

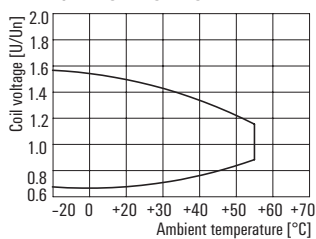
Dimensions

Depth x width x height	mm	55 / 50.5 / 34
------------------------	----	----------------

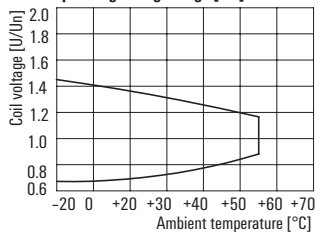
Note

Applications

Operating voltage range [DC]

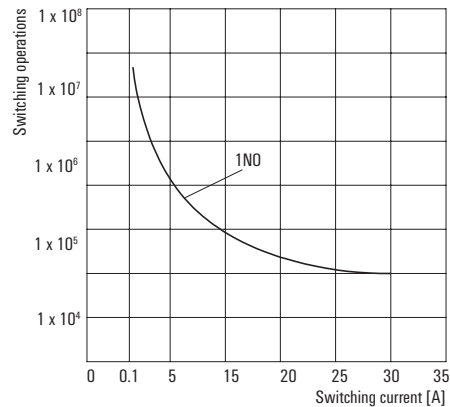


Operating voltage range [AC]



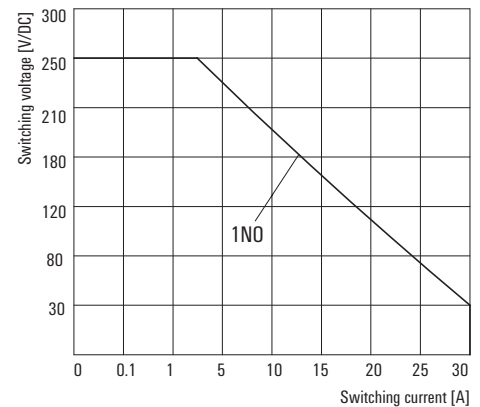
Electrical endurance

Resistive load



DC Load breaking capacity [DC]

Resistive load



PWR high-power relay
1 NO AC/DC coil

Type code	PWR			
Type	PWR			
Type of construction and mounting	173 1N.O. contact, DIN-rail mounting			
Coil voltage	006	6 V DC / 012	12 V DC	
	024	24 V DC / 048	48 V DC	
	110	110 V DC / 220	220 V DC	
	524	24 V AC / 548	48 V AC	
	615	115 V AC / 730	230 V AC	
	880	380 V AC		
LED indicator	L	with LED		

Ordering data

Control side
Rated control voltage
Rated current AC / DC
Power rating
Status indicator

12 V DC 1 NO	24 V DC 1 NO	48 V DC 1 NO	110 V DC 1 NO	220 V DC 1 NO
12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
/ 160 mA	/ 79.2 mA	/ 39.3 mA	/ 17.3 mA	/ 8.7 mA
1.9 W	1.9 W	1.9 W	1.9 W	1.9 W
Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data
Terminal rail mounting
Type
Order No.
Type
Order No.
Note

PWR173012L	PWR173024L	PWR173048L	PWR173110L	PWR173220L
1219470000	1219480000	1219490000	1219510000	1219520000

Ordering data

Control side
Rated control voltage
Rated current AC / DC
Power rating
Status indicator

24 V AC 1 NO	48 V AC 1 NO	115 V AC 1 NO	230 V AC 1 NO	380 V AC 1 NO
24 V AC	48 V AC	115 V AC	230 V AC	380 V AC
87.3 mA /	43.6 mA /	22.1 mA /	11 mA /	6.1 mA /
2.5 VA	2.5 VA	2.5 VA	2.5 VA	2.5 VA
Green LED	Green LED	Green LED	Green LED	Green LED

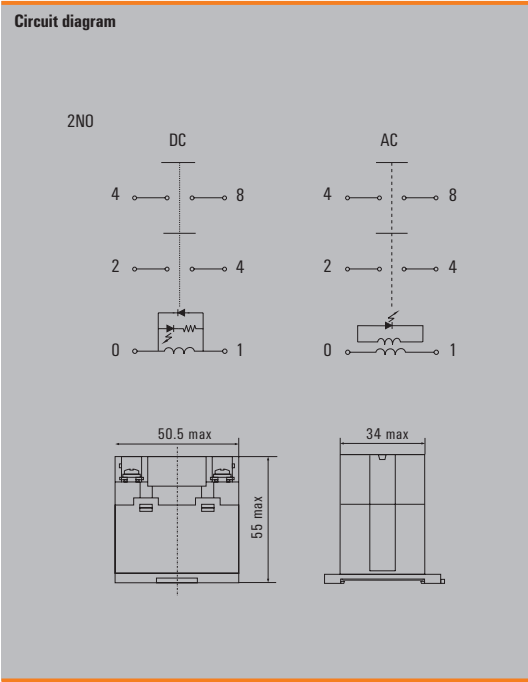
Ordering data
Terminal rail mounting
Type
Order No.
Type
Order No.
Note

PWR173524L	PWR173548L	PWR173615L	PWR173730L	PWR173880L
1219090000	1219120000	1219130000	1219140000	1219150000

Power – PWR high-power relay

PWR high-power relay
2 NO AC/DC coil

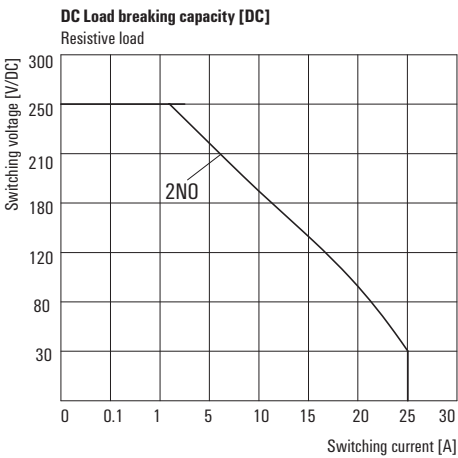
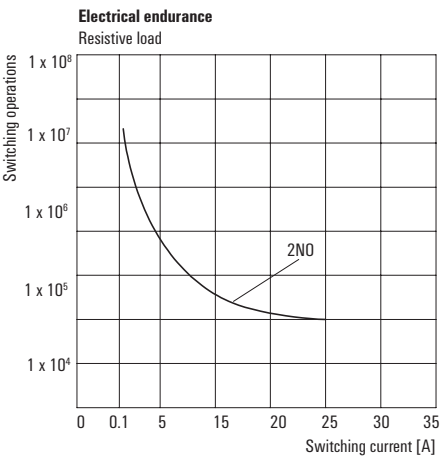
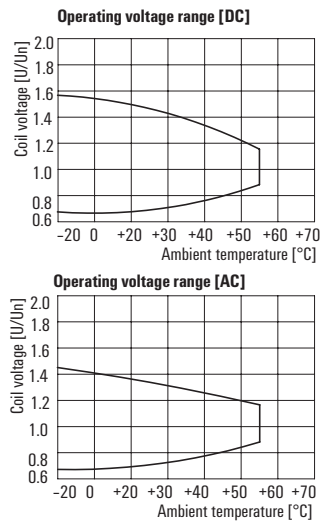
- Max. load current: 25 A



Technical data

Load side	
Rated switching voltage / Continuous current	277 V AC / 25 A
Max. switching voltage, AC	277 V
Inrush current	120 A / 50 ms
Min. switching power	100 mA @ 12 V
Contact type	2 NO contact (AgSnO2)
Mechanical service life	
Max. switching frequency at rated load	0.1 Hz
General data	
Ambient temperature (operational)	-25 °C...55 °C
Storage temperature	-25 °C...55 °C
Humidity	35...85 % rel. humidity, no condensation
Approvals	CE; cURus; EAC
Insulation coordinates	
Rated voltage	250 V
Impulse withstand voltage	6 kV (1.2/50 µs)
Dielectric strength, Input/Output	4 kV _{eff} / 1 min
Dielectric strength of neighbouring contacts	2 kV _{eff} / 1 min
Dielectric strength to mounting rail	
Creepage and clearance distance input - output	≥ 5.5 mm
Overvoltage category	III
Pollution degree	3
Dimensions	
Depth x width x height	mm 55 / 50.5 / 34
Note	

Applications



PWR high-power relay
2 NO AC/DC coil

Type code		PWR			
Type	PWR				
Type of construction and mounting	276 2N.O. contact, DIN-rail mounting				
Coil voltage	006	6 V DC / 012	12 V DC		
	024	24 V DC / 048	48 V DC		
	110	110 V DC / 220	220 V DC		
	524	24 V AC / 548	48 V AC		
	615	115 V AC / 730	230 V AC		
	880	380 V AC			
LED indicator	L with LED				

Ordering data

Control side	12 V DC 2 NO	24 V DC 2 NO	48 V DC 2 NO	110 V DC 2 NO	220 V DC 2 NO
Rated control voltage	12 V DC	24 V DC	48 V DC	110 V DC	220 V DC
Rated current AC / DC	/ 160 mA	/ 79.2 mA	/ 39.3 mA	/ 17.3 mA	/ 8.7 mA
Power rating	1.9 W	1.9 W	1.9 W	1.9 W	1.9 W
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data						
Terminal rail mounting	Type	PWR276012L	PWR276024L	PWR276048L	PWR276110L	PWR276220L
Order No.		1219540000	1219550000	1219560000	1219570000	1219580000
	Type					
Order No.						
Note						

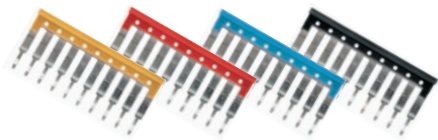
Ordering data

Control side	24 V AC 2 NO	48 V AC 2 NO	115 V AC 2 NO	230 V AC 2 NO	380 V AC 2 NO
Rated control voltage	24 V AC	48 V AC	115 V AC	230 V AC	380 V AC
Rated current AC / DC	87.3 mA /	43.6 mA /	22.1 mA /	11 mA /	6.1 mA /
Power rating	2.5 VA	2.5 VA	2.5 VA	2.5 VA	2.5 VA
Status indicator	Green LED	Green LED	Green LED	Green LED	Green LED

Ordering data						
Terminal rail mounting	Type	PWR276524L	PWR276548L	PWR276615L	PWR276730L	PWR276880L
	Order No.	1219160000	1219170000	1219180000	1219190000	1219220000
	Type					
	Order No.					
Note						

Accessories

TERMOPTO – Accessories



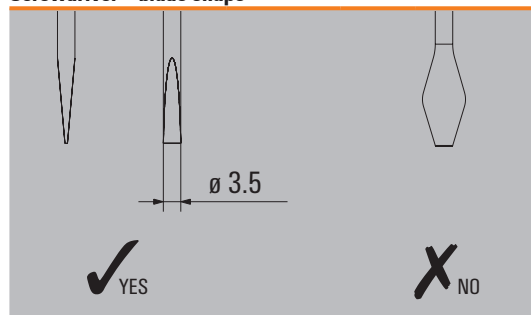
Plug-in cross-connection

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

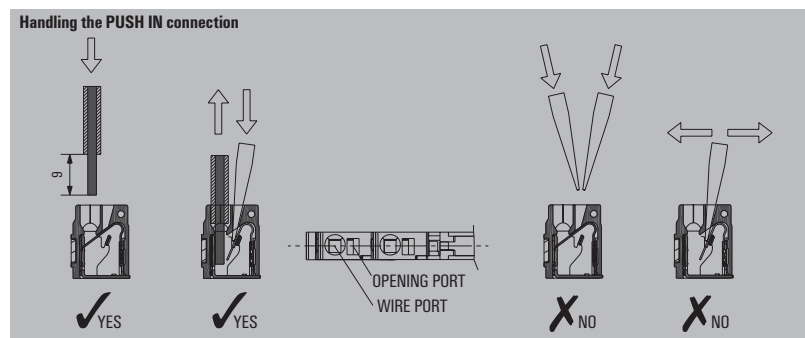
Other accessories

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

Screwdriver – blade shape



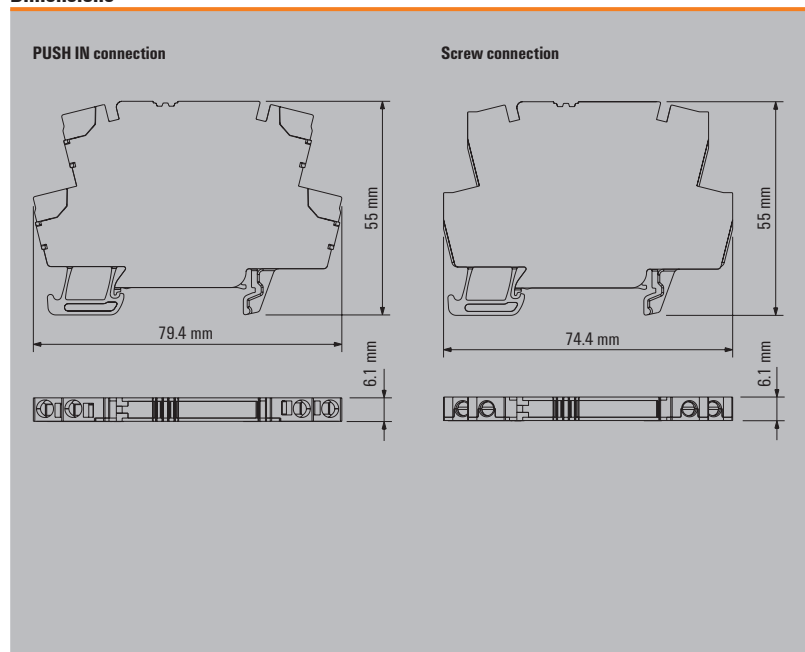
General data – TERMOPTO



Technical data

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

Dimensions



MICROOPTO – Accessories



Plug-in cross-connection

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

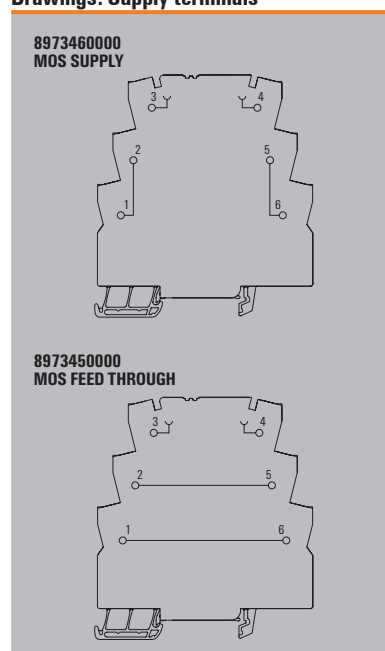
Technical data

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

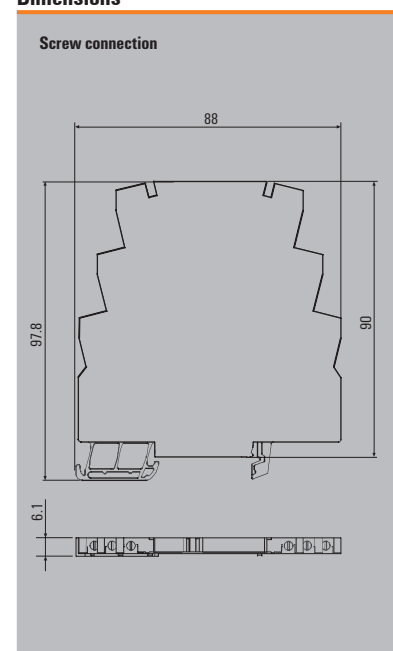
Other accessories

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

Drawings: Supply terminals



Dimensions



Service and support

Service and support	Our expertise for your requirements	V.2
	Engineering support and customised assembly	V.3
	Personal Support	V.4

Our expertise for your requirements

Service connects – worldwide



Automation technology functions are becoming more complex in a globally-oriented world facing ambitious targets in terms of energy efficiency and smart production. We are your equal partners for the best connections in Industrial Connectivity.

Our personal support can answer any questions reliably and expertly. Our online services are available 365 day a year around the clock to provide answers to your questions on our products – from user documentation through software to planning tools.

V

In short: Weidmüller's global service combines our expertise with your requirements.

Engineering support and customised assembly

Automation engineering and connectivity consulting belongs to our services as well as assembly of engineered products. We also support the process from the idea to the product with our Weidmüller Configurator and the Configure-to-Order process.



Consulting and engineering

The challenge for you is reducing costs and increasing efficiency. This requires intelligent, individual solutions. Whether it is modified products, pre-fitted mounting rails or complete small cabinets – our application centres provide a highly qualified custom-made engineering and production service.



Connectivity Consulting

Alongside our product offering, we support you with our range of services through all the phases of machine construction. The result of this collaboration is a reduction of up to 30% in cycle times, up to 20% more space in the control cabinet and significant fault reduction. Our experienced Connectivity Consulting team delivers a practical impetus rather than just abstract theories.



Fitted mounting rails

Your processes in panel building have to be fast, flexible and productive. This is the only way you can cut your costs and increase efficiency. Depending on the application in question, you will have different requirements with respect to the engineering service, delivery speed and flexibility to be provided.



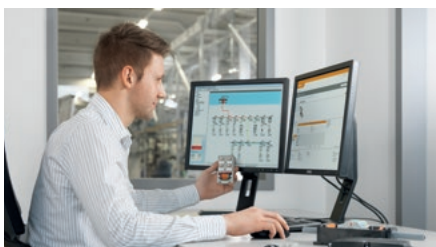
Processed and assembled enclosures

To compete internationally, your plants need to satisfy high standards of safety, quality and performance. The smart combination of consultation, application expertise and industry know-how is our key to finding a custom-fit solution for your application. Reduce costs and increase efficiency



Technical downloads

All information, such as technical data, manuals, certificates and much more for the appropriate use of our products and solutions in your application



Engineering data

For the quick integration of our products into your design, there are a lot of digital product data for engineering systems like EPLAN, Zuken E3.series, WSCAD and many others available for download.



Product software

Our software makes using and configuration of our products easier for you when it comes to operation, configuration and monitoring



Approvals, certificates & declaration of conformity

We supply product- or company-related approvals and certificates for your documentation



Security advisory board

Our Product Security Incident Response Team (PSIRT) continuously informs you about possible security-related vulnerabilities of our products

Technical appendix/Glossary

Technical appendix/Glossary	Relay modules and solid-state relays – Introduction	W.2
	Relay modules and solid-state relays – Comparison	W.4
	Relay modules – Overview	W.6
	Relay modules – Switching loads	W.7
	Solid-state relays – Overview	W.8
	Solid-state relays – Switching loads	W.10
	Protective circuits for outputs	W.12
	Glossary: Relay modules and Solid-state relays	W.14

Relay modules and solid-state relays – Introduction

Our relay modules, solid-state relays and additional value added services are hugely beneficial for our customers: space-saving installation, control cabinet optimisation, reduced wiring effort, optimal markability and cost reductions. Supplemented by our complete portfolio, Weidmüller offers everything from a single source. Over the following pages, we would like to explain the world of relay modules and solid-state relays and provide technical explanations of the features in the data sheet.

There are three main applications for relay modules and solid-state relays, which we will explain briefly below:

Potential isolation

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

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

Switching amplification/signal adaptation

The separation of the load and control circuits, in conjunction with the associated options for configuring both circuits separately, means that relay modules and solid-state relays are often used for switching amplification and signal conditioning purposes.

This allows the different voltage potentials of signals from the control and load circuits to be aligned.

They are also used to amplify current values that exceed the load capacity of the control unit, e.g. a PLC output.

Contact multiplication

With applications, it is often necessary to control several load circuits simultaneously with one control signal.

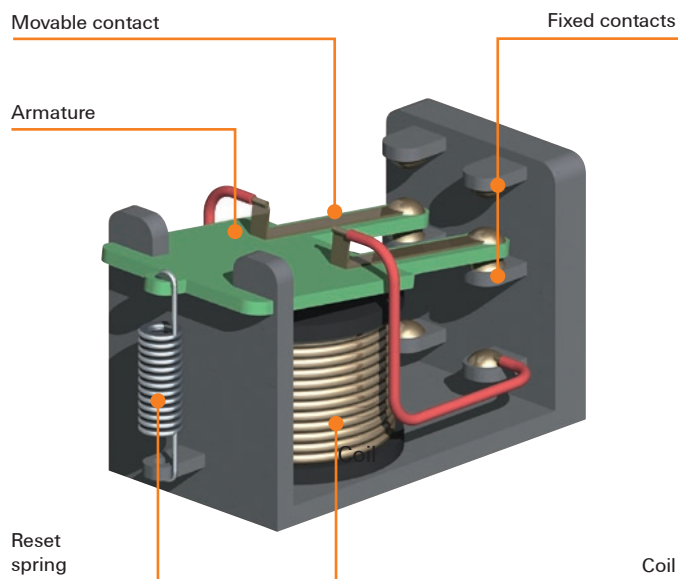
With electromechanical relays, this can be achieved with multi-channel variants, whereby up to four load circuits can be switched simultaneously with one control signal, e.g. using a 4 changeover output.

In addition, multi-channel relays can be used, whereby one of the channels is used to switch the load and another channel is used to return a feedback signal on the switching status of the output to the upstream control unit.

Relay modules and solid-state relays – Comparison

Advantages of electromechanical relay modules (EMR)

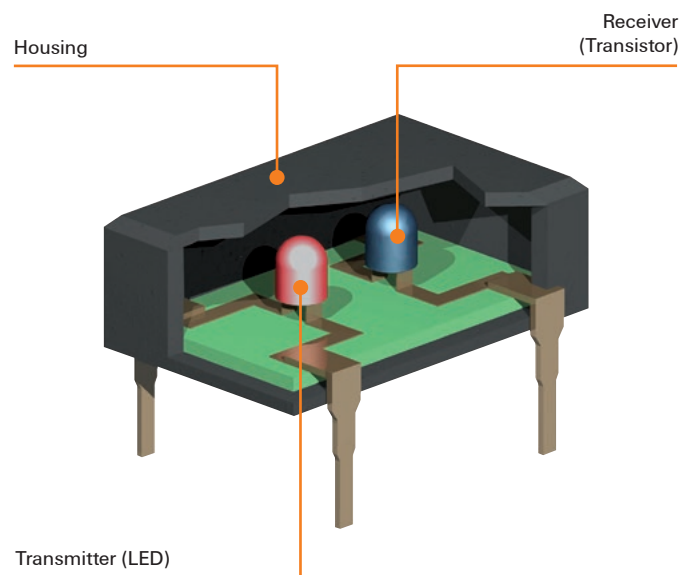
- AC and DC operation in load circuit possible
Versatile (advantage as interface between different plant equipment)
- No leakage current in the load circuit
A semi-conductor does not achieve 100 % isolation
- Low residual voltage in the load circuit
Low voltage drop
- Significantly lower power loss in the load circuit
In contrast to the semiconductor in the opto module, there is very little electrical resistance in the contacts of the electromechanical relay, which can lead to a rise in temperature when under load. Therefore, heat sinks are not required.
- Contact multiplication possible
A single control signal can switch several load circuits
- Control circuit insensitive to voltage peaks
The switch-on power of the magnetic coil prevents unintentional switch-on due to voltage couplings.



Depending on the requirements, the choice between electromechanical and solid-state relays is made based on the different advantages that the different versions offer:

Advantages of solid-state relays (SSR)

- Longer service life and increased reliability
No moving parts or wear on the contacts
- Small dimensions
Saves space on the PCB and mounting rail
- Low control power
An LED is activated - no mechanical parts are moved
- Fast response times
Fast switching, which allows high frequencies to be achieved
- No contact bounce
Reduces switching delays
- No switching noise
Suitable for use in noise-sensitive environments
- Not susceptible to shock and vibration
Prevents unwanted switching statuses
- No electromagnetic radiation due to switching sparks or coils
No interference of adjacent assemblies or electronics components



Relay modules – Overview

Historical background

The term 'relay' was originally used for a station where stagecoaches were able to change their tired horses for fresh ones. The term 'relay' was given a totally different meaning by the English physicist Charles Wheatstone (1802–1875). In Wheatstone's times, departing trains were advised of by a bell ringing at the next railway station up the line.

This was achieved by connecting a battery in the first station to a bell in the second. However, as the railway stations were generally several kilometres apart the power arriving at the second station was often insufficient to ring the bell. Wheatstone invented a switchgear apparatus that was installed at the second railway station. This continued to function even with low power supply levels. The switchgear apparatus switched a second electrical circuit that actuated the bell. This was the birth of the electromagnetic relay.

How a relay functions

A relay is an electromagnetic switch comprising of two galvanically isolated circuits. Firstly the control circuit and secondly the open circuit with the normally open contact. As soon as the control circuit is energised, the coil creates a magnetic field in the core/yoke and attracts the armature. The actuator now actuates the switch at the output, the normally open contact (make contact) closes and the normally closed contact (break contact) opens. When the control circuit is turned off, the magnetic field diminishes and the return spring returns the armature to its initial position. The actuator moves the normally open (make contact) back to its normal position, the normally open contact opens, the normally closed contact (break contact) closes.

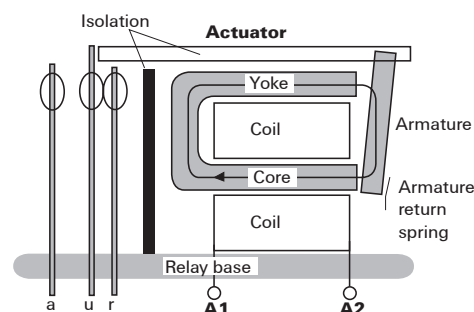
A relay therefore offers the option of switching high loads with low power, such as battery voltages, and acting as a switching amplifier. Thanks to the galvanic isolation between input and output, a relay is also suitable for providing isolation in the event of potential differences between the control and operating circuits. If a relay also has several working contacts, it can also be used as a contact multiplier.

From relay to relay module

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

Generally, the design and rating data determine if a relay module is or is not suitable for a particular application.

For example, relay modules with plugged on relays are only partly suitable for use in applications subjected to heavy vibrations. In this case, relay modules with soldered relays should be preferred. Low, compact designs such as those provided by the RIDERSERIES are utilised in small consumer units where the overall available height is limited. Conversely, the compact design of the TERMSERIES helps to save space in electrical cabinets.



Relay modules – Switching loads

Electromechanical relays are a varied and cost-effective solution for a wide range of switching processes. They can be used for level and power adaptation and form interfaces between control, signalling and regulating equipment and peripherals. In spite of rising raw material prices, they are still very inexpensive and can be easily integrated into a wide variety of circuit types.

Relay modules from Weidmüller are extremely reliable, durable, and available in many different designs. The diversity of their applications in the various industrial sectors makes it necessary to select a suitable relay for each specific application. The following applies: Due to their design, relay modules are subject to mechanical and electrical wear, which must be taken into account when relay circuits are set up. Electrical consumers always form a mixed load with resistive, capacitive and inductive components, although consumers with a large inductive component are predominantly used in practice. These include contactors, solenoid valves, motors etc. We will take a closer look at these areas of application over the following pages.

Switching of large AC loads

If large AC loads are switched, the relay can in principle be operated until the specified maximum value of switching voltage, current, or power is reached. However, when switching AC loads, the switching voltage has a much smaller influence on the service life of the relay contact than the switching current. The reason for this is that the arc that occurs when the relay is switched off usually extinguish automatically at the next zero crossing of the load current. In applications with inductive loads, an effective protective circuit should be provided, as otherwise a significantly reduced service life can be expected.

Switching of large DC loads

Relays can only switch off relatively small direct currents because the zero crossing for extinguishing the arc is missing here. The maximum direct current value is also dependent on the switching voltage as well as on design conditions such as contact gap and contact opening speed. Corresponding current and voltage values are documented in load limit curves.

With undamped inductive DC loads, these values are lower because the energy stored in the inductance can ignite an arc that carries the current through the open contacts. The resulting arc significantly reduces the service life compared to an resistive load.

An effective contact protection circuit can increase the service life of the contacts by 5 to 10 times compared to inductive loads that are not or unfavorably protected. Type 1N4007 freewheeling diodes are preferably suitable for this purpose.

Switching of very low power circuits

Low power circuits with values below 30 V/10 mA are mainly used in applications where signals has to be transmitted to control inputs, e.g. to a PLC. Such low loads do not produce a sufficient arc at the contacts.

However, this arc has two important functions: On the one hand, it ensures continuous cleaning of the contacts; on the other hand, it can penetrate non-conductive foreign layers at the contacts. Such foreign layers are usually created by oxidation or sulfidation of common contact materials such as silver (Ag), silver-nickel (AgNi), or silver-tin oxide (AgSnO). The foreign layers can increase the contact resistance after a short time to such an extent that reliable switching of low loads is no longer possible.

For these reasons, gold (Au) is used as the contact material for relays switching small loads. It has proven itself due to its low and constant contact resistance and its resistance to ambient air containing sulphur.

Solid-state relays – Overview

Solid-state relays - functionality

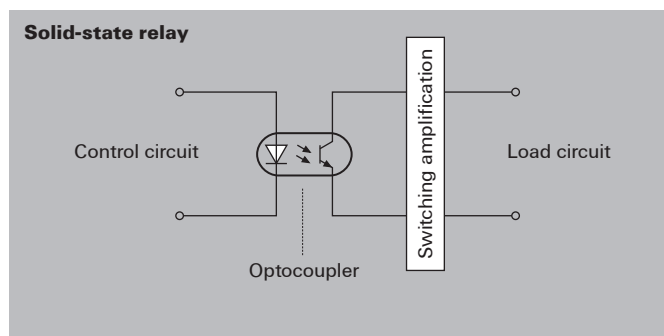
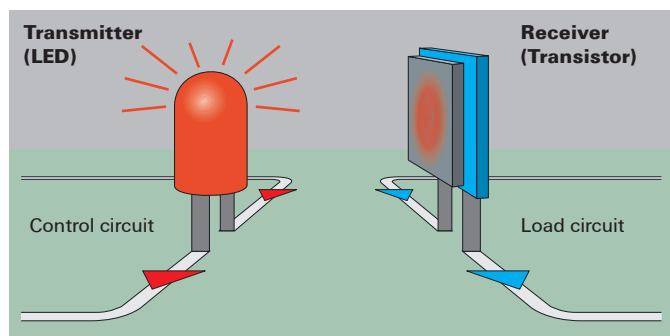
Solid-state relays are electronic components (switching elements) that are used to switch a load circuit via a control circuit. First of all, they allow applications with varying power ratings to be switched with relatively minimal switching currents. Secondly, they provide galvanic isolation for the switching and load levels in order to protect components in the event of malfunctions.

In contrast to electromechanical relays, solid-state relays do not have any mechanical parts prone to wear. The core element of a solid-state relay is an optocoupler. In an optocoupler, a light signal is triggered in the control circuit for the switching process via an LED, which causes a light-sensitive semiconductor receiver to close a connected load circuit to switch on the downstream switching amplifier. The transmitter (LED) and receiver (e.g. a phototransistor) of the optocoupler are embedded in a light-conducting plastic material and surrounded by a light-proof casing that protects against outside influences.

Switching amplification is required because optocoupler can only switch comparatively small voltages and currents. The combination of an optocoupler with the switching amplification at the output means that this is now called a solid-state relay.

The output of a solid-state relay

A voltage range is usually specified for the nominal switching voltage of solid-state relays (e.g. 5 ...48 V DC), which must neither be exceeded nor fall short of. The same applies to the continuous current. Frequently exceeding this value can lead to premature wear and to destruction of the semiconductor. Short surge voltages (voltage peaks) are eliminated by appropriate protective components such as diodes or varistors. Depending on the output circuit with the appropriate amplifier semiconductor, either AC or DC loads can be connected



DC output:

For the control of DC voltage switching and control devices, a switching amplifier for switching the DC voltage is connected downstream of the optocoupler (bipolar transistor or MOSFET). For DC outputs, the specified polarity must be observed.

2-pole DC outputs can be used as both positive and negative switching outputs unless otherwise specified. The abbreviations NPN (negative switching output) or PNP (positive switching output) are often used for these terms.

With the 3-pole DC connection, the output circuit is provided with an auxiliary voltage which is used for more precise control of the amplifier transistor.

Some applications also require this auxiliary voltage for very fast switching, e.g. of very high frequencies. These outputs are often only positive switching (PNP) or negative switching (NPN) outputs and cannot do both. This is then specified in the instruction sheet or in the data sheet for the respective product.

**Bipolar transistor (for DC outputs)**

For use at low currents (≤ 0.5 A) due to having a higher power loss than MOSFETs. However, cheaper than MOSFETs.

**MOSFET (for DC outputs)**

For use with load currents.

The low contact resistance of the MOSFET generates only very low power loss. Furthermore, a MOSFET output has only very small leakage currents ($< 10 \mu\text{A}$).

AC output:

For the control of AC switching and control devices, a switching amplifier for switching the AC voltage is connected downstream of the optocoupler (TRIAC or thyristor).

Switch-on behaviour of an AC output:

Most solid state relays with triac or thyristor outputs are zero-voltage switching outputs. This means that once a control signal has been applied at the input, they switch on at the next zero crossing of the AC voltage at the output. However, this behaviour makes these outputs relatively slow in their switch-on behaviour (up to 10 ms delay time at 50 Hz mains frequency of the switched voltage).

To improve this, some AC outputs have an instantaneous switching output. These outputs switch on as soon as possible after a control signal is applied to the input (< 0.1 ms). However, depending on the phase position, this can cause high current peaks when switching on, and can cause the electromagnetic interference emissions in the system to increase.

Switch-off behaviour of an AC output:

Semiconductor outputs for AC voltages with triac or thyristor all switch off at the next zero crossing of the output current once the control signal has been removed at the input. As a result, they cannot be used for switching DC voltages.

**Thyristor (for AC outputs)**

For use with load currents.

The function of a thyristor is comparable to that of a one-way diode. For alternating currents, an anti-parallel connection of two thyristors is therefore used.

**Triac (for AC outputs)**

For use with load currents.

A TRIAC combines the functional principle of anti-parallel connected thyristors in a single component.

Solid-state relays – Switching loads

One particular challenge for the circuits in the load circuit of optocouplers and solid-state relays is posed by the different load types of the possible applications (resistive, inductive, capacitive load). Depending on the application, it is important to be aware of the effects that these loads have on the module being used, and how an appropriate protective device needs to be designed.

In general, it must be ensured that the power loss at the amplifier semiconductor does not exceed a permissible limit value over a long period of time. This would lead to overheating and finally to the destruction of the component.

Switching resistive loads

Because the current strength in the load circuit and the voltage across the amplifier semiconductor are inversely proportional to each other with resistive loads, these types of loads do not usually pose a problem. In this case, it is sufficient to observe the maximum current and voltage strengths of the modules.

One particular case is the switching of incandescent bulbs. Due to the low cold resistance, overcurrents of 10 to 20 times the operating current can occur when switching on. The components must be designed for these possible overloads, which correspond to the effect with a capacitive load.

Switching capacitive loads

Capacitive loads occur when there is a capacitor in the load circuit. This acts as a short circuit at the moment of switch-on, causing a high inrush current.

Compared to many other electromechanical relay modules, an amplifier semiconductor is more robust against very short current peaks (< 10 ms) when switching on capacitive loads, because it does not contain any mechanical parts that can weld together. Inrush current peaks that are too high, too steep or too long can still lead to the destruction of the amplifier semiconductor.

Switching inductive loads

With inductive loads, which are mainly present when coils are used in the load circuit, the problem arises when switching off. Due to the current flow in the coil, a magnetic field builds up which then suddenly collapses and generates a high induction voltage. An amplifier semiconductor needs to be protected from these voltage peaks, otherwise it will be destroyed. Many solid-state relays are equipped with protective suppressor circuits at the output, but these often only provide protection against very small inductive loads. Therefore, when switching inductive loads with solid-state relays, it is highly recommended to have an additional external protective suppressor circuit parallel to the load. This is especially important if inductive loads are to be switched with a frequency faster than 0.5 Hz. When switching inductive loads faster than 5 Hz, specially designed solid-state relays should be used.

Effective protection of outputs of relay modules and solid-state relays

Selection criteria for the protective suppressor circuit of inductive loads

In our selection tables we specified the maximum recommended switching currents for inductive loads without protective circuits. If you want to increase the service life of the contacts, you must equip the relay contacts with an effective protective circuit.

The protective circuit on the coil side of a relay module can, for example, be implemented with an integrated or additionally pluggable freewheeling diode. However, this only protects the controlling periphery from the voltage peaks that occur in the coil of the relay module. The relay contact is usually not sufficiently protected against the voltage peaks of the inductive load to be switched, although with optimum dimensioning almost the same values for switching capacity or switching cycles can be achieved as with resistive load.

The largest reduction factor for the service life of a relay contact is the arc generated during switching off inductive loads. It is caused during the switching process by the energy stored in the coil and can destroy the contact through material evaporation and material migration.

With DC voltage and standing arc, the relay can even fail during the first switching cycle. Voltage peaks caused by electric arcs can reach values up to several 1,000 volts.

Protective circuits must be used to suppress the formation of electric arcs.

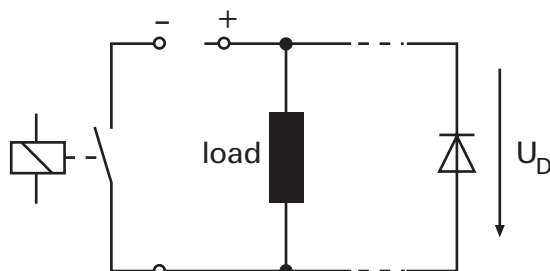
In the following, we will explain the correct installation of the protective circuit and the effectiveness of the most common types of protective circuit. There are various ways to install an effective protective circuit. For example, the protective circuit can be mounted either parallel to the relay contact or parallel to the load.

However, the protective measure should always apply directly to the source of the fault. Therefore, the protective circuit of the load is preferable to the circuit of the contact.

Advantages of a protective circuit at the load:

- When the contact is open, the load is still galvanically isolated from the operating voltage
- The switch-off peaks of the load cannot be coupled into the control lines running in parallel

Free-wheeling diodes



Free-wheeling diodes are used to protect against overvoltages caused by self-induction when an inductive DC voltage load is switched off (e.g. solenoid valves or electric motors). They ensure that the voltage peaks that occur are reduced to the value of the diode forward voltage (U_D). However, this leads to a delay in the voltage drop and thus in the switch-off process of the load.

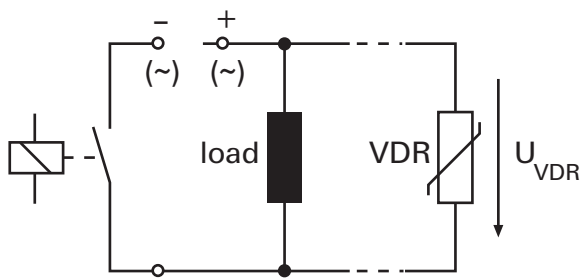
Advantage:

- Uncritical dimensioning
- Very positive effect on the service life of the contacts

Disadvantage:

- Significantly extended switch off process
- Only suitable for DC voltage

Varistors



The functional principle of varistors is also based on breakdown voltages (U_{VDR}). High energies can be dissipated, but this causes the component to aging. Therefore, the breakdown voltage is reduced over time and the leakage current is increased.

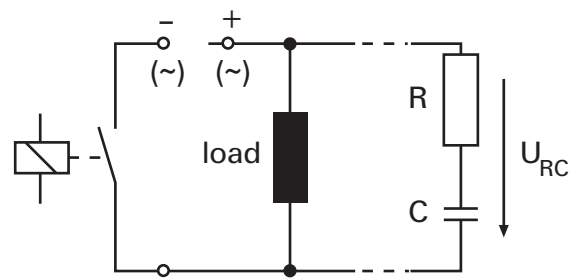
Advantage:

- Uncritical dimensioning
- Suitable for DC and AC voltage
- Slightly extended switch off process

Disadvantage:

- Complex and expensive with increasing power
- Low effect on the service life of the contact

RC modules



With RC modules, voltage peaks are compensated via a capacitor. Thanks to its special characteristics during charging and discharging the interference pulses are already filtered out during the voltage rise and not only when the breakdown voltage (U_{RC}) is reached.

Advantage:

- Suitable for DC and AC voltage
- Slightly extended switch off process

Disadvantage:

- Exact dimensioning required
- High inrush current
- Low effect on the service life of the contact

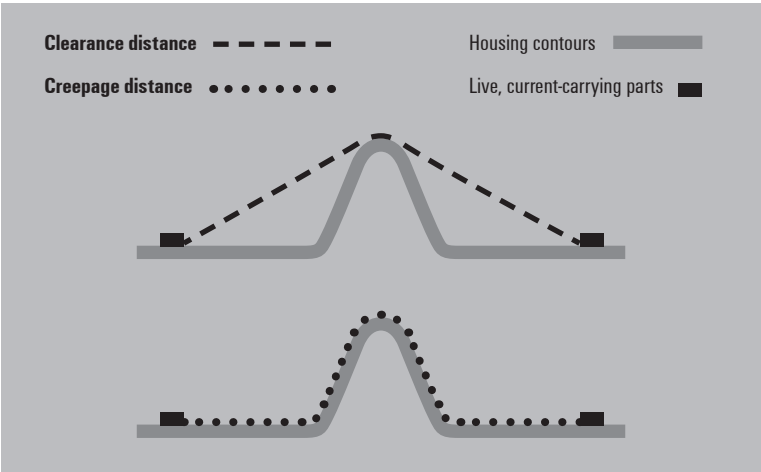
Glossary: Relay modules and Solid-state relays

		for EMR	for SSR
A			
AC switching capacity (resistive), max.	Calculated product for resistive loads from switching current and switching voltage in VA. When switching inductive loads, it is recommended to reduce the switching capacity in order to achieve the longest possible service life. The reduction results from the arc, which is significantly stronger when switching inductive loads than when switching resistive loads.	x	
Approvals and testing marks	The test marks are a way for independent (official or private) approval bodies and testing institutions to confirm compliance with the respective regulations and/or compliance with specified product properties. Note: If any approval-relative technical data is missing from the data sheet, it is available on request. Approvals that we offer for Weidmüller relay modules and solid-state relays, depending on the variant: CSA Canadian Standards Association, Canada DNV-GL Classification society made up of testing bodies Det Norske Veritas and Germanischer Lloyd, Norway EAC Eurasian Conformity for the Eurasian Economic Union, Russia TÜV Technischer Überwachungs-Verein [German Technical Inspectorate], Germany cURus Component Recognition Mark from UL (Underwriters Laboratories, Inc.) for the USA and Canada cULus Component Listing Mark from UL (Underwriters Laboratories, Inc.) for the USA and Canada VDE VDE Testing and Certification Institute, Germany (expert reports with production monitoring)	x	x
B			
B10 and B10d	The B10 value indicates the nominal service life at which 90% of the tested relays are still working. This is therefore the average number of switching cycles after which 10% of the relays fail. This value is a statistically expected value, which has been determined on the basis of endurance tests. In real applications, the service life values differ from the B10 value, because every load is different and the service life is affected by environmental parameters such as temperature, mounting position and also the switching frequency. This value is only suitable for purely theoretical failure probability calculations (see item entitled "MTTF") and is not a guaranteed service life. As the values are heavily dependent on the load and the environmental parameters, we do not specify these values in the data sheet for standard relays, and only provide them on request.	x	

EMR = Electromechanical relay
SSR = Solid-state relay

		for EMR	for SSR
Bistable relay, impulse relay, remanence relay	A relay is called bistable if its contacts can assume two different stable switching states when de-energised. This means that once the contact has changed its switching position due to the energising parameter (input voltage), it remains in its switching position after the energising parameter is switched off. A further energising process is required in order to change the switching position. Impulse relay: A bistable relay that remains in an energised state due to mechanical interlock is called an impulse relay. Impulse relays switch over to the other switching state during an energising pulse and maintain this state until the next pulse. Remanence relay: A bistable relay that remains in an energised state due to remanence after the energising variable is switched off is called a remanence relay. To switch over to the other switching state: • Apply a voltage to a second coil • Apply a voltage with opposite polarity for relays with only one coil	x	
Bounce (chatter)	An unintended phenomenon that may occur in electromechanical relays, during the closing or opening of a contact circuit when the contact elements touch and separate again before they have reached their final positions. Solid-state relays do not exhibit this behaviour because they switch electronically, meaning that no mechanical bouncing can occur.	x	
Bounce times	The time (average value) between the first and last closing (or first and last opening) of a relay contact. These times are valid when the rated voltage is used for excitation without any other components connected in series or in parallel to the coil, and at the reference room temperature (approx. 23°C).	x	
C			
CE	Abbreviation for Communauté Européenne (the European Community). Manufacturers use the CE label to confirm that their products comply with the corresponding EC directives and the "essential requirements" therein.	x	x

EMR = Electromechanical relay
SSR = Solid-state relay

		for EMR	for SSR
Clearance and creepage distances	Clearance and creepage distances are critical factors which influence the insulation capability of electrical components. The creepage distance denotes the minimum clearance that two live parts along a surface must have in order to prohibit a flow of current across the insulating material at the specified operating voltage. In addition to the operating voltage, the choice of insulating material (material group) and the protective measures to counteract pollution (pollution severity) affect the creepage distance. The clearance distance denotes the minimum direct clearance (through the air) that two live parts must have to one another in order to prohibit a charge passing through the air (an arc). The expected surge voltage (rated impulse voltage) forms the basis for calculating the distances. The surge protection category and pollution severity are further factors that influence dimensional design considerations. 	x	x
Coil resistance	Ohmic resistance (direct current resistance) of a relay coil measured at room temperature (approx. 23 °C) and coil temperature equal to room temperature. For AC coils, only the ohmic resistance is specified in the data sheet. The impedance, which can be calculated from the inductive resistance (reactance) and the ohmic resistance, only occurs during operation of AC coils and is considerably greater than the specified ohmic resistance. Therefore, the information in the data sheets for AC coils is not suitable for calculating the rated current of the coil. The coil resistance is heavily dependent on the coil temperature, which is influenced by parameters such as the ambient temperature, the rated control voltage and the duty cycle. Therefore, the values in the application may differ from the data sheet specifications. The coil resistance is only specified for relays and relay modules that have no other electronic components upstream from the coil. These types of inputs with upstream circuitry do not allow for reliable resistance data in the data sheet. For this reason, no resistance is specified in the data sheet for these inputs or for solid-state relays.	x	

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		for EMR	for SSR
Combination of relay and relay socket, insulation requirements and thermal characteristics	Even if the socket or relay itself already meets (or surpasses) the insulation requirements, there may still be reduced clearance and creepage distances (and thus reduced insulation rated voltage) for the combination of the relay and socket. Restrictions – such as a reduced voltage range or reduced pollution degree – should be expected for the relay/socket combination. This is especially important for miniature multi-pole relays in combination with sockets, which have minimal gaps between the contact circuits. In addition to the insulation properties, the thermal properties of the combination are highly significant (see item entitled "Derating curve"). The relay sockets from different manufacturers cannot be compared directly, which is why the technical specifications are only guaranteed for approved combinations. Possible risks of fire or reduced dielectric strength may result when non-approved combinations are in use. Note: We only confirm the properties for the approved combinations of Weidmüller relays and Weidmüller sockets as specified in the catalogue and data sheets.	x	x

EMR = Electromechanical relay
SSR = Solid-state relay

		for EMR	for SSR
Contact material, Contact materials	Relay modules are used in a wide variety of industrial areas and environments. The relays must therefore be adapted to the various tasks by selecting suitable contact materials. The following applies: the load capacity of the contacts for voltage, current, and power depends essentially on the material used. To make the selection easier for you, we have compared the most important characteristics of the contact materials. Criteria for the selection of the contact material: • Welding tendency • Burn-off resistance • Contact resistance • Material migration • Resistance to harmful gas atmospheres Material: Silver-nickel (AgNi) Characteristics: • Higher welding tendency than AgSnO and AgCdO • High burn-off resistance • Lower contact resistance than AgSnO and AgCdO • Mean material migration • Low resistance to harmful gas atmospheres Recommended applications: • Suitable for low to high resistive and low inductive loads (solenoid valves, fans, heaters) • Standard contact material for a variety of relays • Limited suitable for high inrush currents • Suitable for loads > 12 V/10 mA or 5 V/100 mA Material: Silver-nickel flash gold plated (AgNi + 0,15 Au) Characteristics: • Higher welding tendency than AgSnO and AgCdO • High burn-off resistance (gold just storage protection) • Lower contact resistance than AgSnO and AgCdO • Mean material migration • Low resistance to harmful gas atmospheres Recommended applications: • Suitable for low to high resistive and low inductive loads (solenoid valves, fans, heaters) • The flash gold plating is a storage protection, but offers no functional improvement to AgNi • Limited suitable for high inrush currents • Suitable for loads > 12 V/10 mA or 5 V/100 mA	x	

EMR = Electromechanical relay
SSR = Solid-state relay

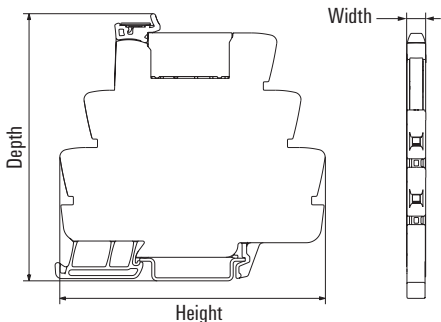
		for EMR	for SSR
Contact material, Contact materials (Continuation)	Material: Silver-nickel hard gold plated (AgNi + Au) Characteristics: • Very low resistance to burn-off • Lowest contact resistance • High resistance to harmful gas atmospheres Recommended applications: • Suitable for decoupling control inputs and other small resistive loads • Suitable for loads > 1 V/1 mA and < 30 V/10 mA • After switching loads > 30 V/100 mA, small powers can no longer be switched reliably because the hard gold plating has been burned-off. Only the characteristics of the base contact material AgNi still apply. Material: Silver-Tin-Oxide (AgSnO) Characteristics: • Lower welding tendency than AgNi und AgCdO • High resistance to burn-off • Average contact resistance • Lower material migration than AgNi and AgCdO • Very low resistance to harmful gas atmospheres Recommended applications: • Suitable for medium to high resistive DC-loads and low up to medium inductive DC loads due to low material migration. Thanks to the low tendency to weld, it is also well suited for loads with higher inrush currents such as lamp loads, light capacitive loads, fluorescent tubes, etc. • Suitable for loads > 12 V/100 mA Material: Silver-Cadmium-Oxide (AgCdO) Characteristics: • Lower welding tendency than AgNi • High resistance to burn-off • Average contact resistance • Lower material migration than AgNi • Very low resistance to harmful gas atmospheres Recommended applications: • Suitable for medium to high resistive and inductive AC loads, due to high burn-off resistance • Suitable for loads > 12 V/100 mA Material: Tungsten (W) Characteristics: • Lowest welding tendency • Very high resistance to burn-off • Highest contact resistance • Low material migration Recommended applications: • Suitable for loads with very high inrush currents of up to 165 A/20 ms or 800 A/200 µs (e.g. lamp loads, capacitive loads, fluorescent tubes, switched-mode power supplies etc.) • Often used as a pre-making contact in parallel to AgSnO contacts	x	

EMR = Electromechanical relay
SSR = Solid-state relay

W

		for EMR	for SSR
Contact resistance	Electrical resistance between the closed relay contacts. In most applications, the contact resistance does not play a significant role in the reliability of a relay. However, a low contact resistance can only be reliably achieved above a certain load (see item entitled "Contact material" or "Minimum switching capacity"). With very small loads, significantly higher contact resistances can occur, especially with switching voltages below 30 V and switching currents below 10 mA. In such cases, it is recommended to use hard gold-plated contacts. After the relay has been operated in a permanently off or on state for several days (e.g. due to adverse environmental conditions such as harmful gas atmospheres) or after it has been stored, it is recommended that a certain number of cycles be performed before measuring the contact resistance. This is achieved by means of electrical cleaning, which can be performed by switching a sufficient load and by self-cleaning caused by contact friction during the switching process.	x	
Contact welding, Adhesive bonding (contacts) Capacitive loads	Often occurs due to excessive inrush currents, e.g. when switching capacitive loads. See also the item entitled "Inrush currents". However, this can also occur when switching loads without high inrush currents, although this will often be at the end of the contact's service life. This happens due to material peaks on the contour surfaces which are caused by material migration and/or combustion. These material peaks then merge during the switch-on process, since the current of the load is conducted via this small contact point, which then leads to a brief but strong temperature increase that can weld the contacts.	x	
Continuous current	Current that can be carried continuously without exceeding the limit values for contact heating under certain conditions. Consider the derating curve. This current can also be switched on and off in the case of AC voltages. With DC voltages, this is only possible to a limited extent. See diagram: DC load limit curve.	x	x
Continuous operation	Operating mode in which a relay remains energised until it reaches thermal equilibrium. Unless otherwise specified, all Weidmüller relays are suitable for continuous operation.	x	x
D			
DC load switching capacity, DC load limit curve, DC breaking capacity	Values below the DC load switching capacity curve (for max. permitted switching voltage/current at resistive load) can be switched on and off reliably; e.g. an arc is extinguished (max. arc duration is 10 ms at resistive load). The position and shape of the load-limit curve is influenced by the contact material and relay construction (contact gap, opening speed of the contacts, etc.) The DC breaking capacity can be increased by connecting relay contacts in series. This is shown with dashed lines in the DC Load Limit Curves diagrams, if specified. For further information, please refer to the item entitled "Series connection of relay contacts". Information about the electrical lifespan should not be derived from these curves!	x	
DC switching capacity (resistive), max.	Calculated product for resistive loads from continuous current and switching voltage in W. When switching inductive loads, it is recommended to reduce the switching capacity in order to achieve the longest possible service life. The reduction results from the arc, which is significantly stronger when switching inductive loads than when switching resistive loads. The specified switching capacity refers to 24 V DC switching voltage. For other DC switching voltages, refer to the DC load limit curve provided in the data sheet.	x	

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SSR = Solid-state relay

		for EMR	for SSR
Derating / derating curve	Flowing current causes heat, which increases with increasing current intensity. Electric components have an upper limit temperature which limits their functionality. Because the temperature influence on the components is made up of the ambient temperature and the heat generated by the current, the current must be reduced as the ambient temperature increases so as not to exceed the upper limit temperature. The relationship between the prevailing ambient temperature and the resulting maximum current is shown in the derating curve. Unless otherwise specified, the derating curves are given for the following conditions: • Max. rated control voltage • 100% duty cycle • Resistive load • Closely packed with several identical products • Horizontally and vertically oriented terminal rail (in an upright cabinet) • No ventilation in the cabinet • No shading by cable conduits The heating of the product can be increased by the following parameters, which can lead to heating above the limit temperature and therefore to damage or even destruction of the product: • Shading, e.g. by cable conduits fitted too narrowly, which can lead to heat accumulation • High switching frequencies, especially when switching high currents or inductive loads (arcing) • Warmth from other devices mounted nearby The heating of the product can be reduced by the following parameters: • Reduction of shading by increasing the distances to cable conduits, for example • Increasing the ventilation in the control cabinet • Increasing the distance to adjacent products • Avoiding the effects of heat from other devices mounted nearby	x	x
Dielectric strength	Voltage (RMS value for AC voltage, 50 Hz, 1 min) which can be applied between mutually insulated relay components during the voltage test.	x	x
Dimensions	Dimensions in millimetres.  The drawing shows a top view of a relay module with dimensions labeled: 'Depth' (vertical), 'Height' (horizontal), and 'Width' (horizontal, shown in a side view).	x	x

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W

		for EMR	for SSR
Drop-out current, typ	Typical current at which previously switched on monostable electromechanical relays and solid-state relays switch off. This means that this is the maximum input current value that must not be exceeded for switch-off in order to switch off the relays. They can also switch off at currents that are significantly higher than the specified value, since the specified value is a typical value at which they should be switched off. For AC, specifications are valid for 50 Hz unless otherwise indicated. Measured at room temperature (approx. 23 °C) and an only briefly energised input (coil temperature below thermal stability). The switching thresholds of electromechanical relays are strongly dependent on environmental parameters such as ambient temperature, mounting position, manufacturing tolerances (e.g. coil resistance) and the shape of the control signal. Therefore, the values in the application may differ from the data sheet specifications. The switching thresholds of solid-state relays fluctuate less, since the electronic components are less temperature-dependent than a relay coil.	x	x
Drop-out voltage, typ	Typical voltage at which previously switched on monostable electromechanical relays and solid-state relays switch off. This means that this is the maximum input voltage value that must not be exceeded for switch-off in order to switch off the relays. They can also switch off at voltages that are significantly higher than the specified value, since the specified value is a typical value at which they should be switched off. For AC, specifications are valid for 50 Hz unless otherwise indicated. Measured at room temperature (approx. 23 °C) and an only briefly energised input (coil temperature below thermal stability). The switching thresholds of electromechanical relays are strongly dependent on environmental parameters such as ambient temperature, mounting position, manufacturing tolerances (e.g. coil resistance) and the shape of the control signal. Therefore, the values in the application may differ from the data sheet specifications. The switching thresholds of solid-state relays fluctuate less, since the electronic components are less temperature-dependent than a relay coil.	x	x
Duty cycle, relative duty cycle	Describes the ratio of the switched-on state of a relay or solid-state relay to the total duration in intermittent, continuous or short-time operation. The duty cycle is expressed as a percentage of the total cycle duration. The heating of the relay can be influenced positively or negatively by the duty cycle. A high duty cycle leads to increased heating of the relay due to the power loss of the coil and the switching contacts. Unless otherwise specified, Weidmüller relay modules and solid-state relays are suitable for 100% duty cycle (continuous operation). With very fast switching solid-state relays, the duty cycle also affects the maximum switching frequency. This is then indicated in the corresponding diagrams in the data sheet.	x	x

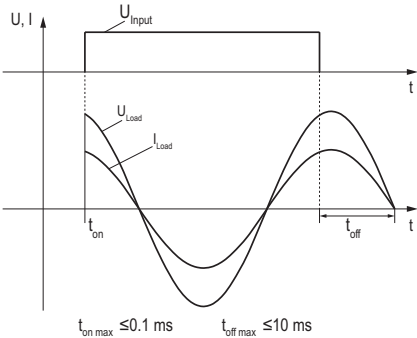
EMR = Electromechanical relay
SSR = Solid-state relay

		for EMR	for SSR
E			
Electrical endurance, Electrical endurance curve, contact endurance	Number of switching cycles of a relay with electrical contact load under full operational capability. Unless otherwise stated, the contact data and electrical lifespan curves are valid under the following conditions: • Measured at the NO contact • Resistive AC load • AC mains frequency 50 Hz • Duty cycle 50% • Switching frequency 0.1 Hz • Rated control voltage (coil) • Ambient temperature 23°C • Individual assembly The electrical lifespan is specified according to the criteria for 'useful life', severity level B according to IEC 61810-2. The data does not cover any use beyond the specified electrical lifespan; it is the responsibility of the user to avoid such situations. Experience has shown that the electrical lifespan remains relatively constant with an AC load up to a power factor ($\cos \phi$) of 0.8. However, each load places different demands on the switching contact and other environmental factors also influence the service life of the switching contact, e.g. the type of load, the switching voltage at the contact, the switching current of the load, any inrush currents, the ambient temperature, the mounting position, the switching frequency and many more. Therefore, the real service life could be either above or below the specified value. For loads other than those specified in the service life data, it is recommended that user advice be followed; alternatively, recommendations can be found in the selection table in Chapter For critical applications it is recommended that the service life values be determined independently by the user. Please note: The curve for the electrical lifespan specifies the typical service life as the "Mean Cycles to Failure" (MCTF) and is based on the Weibull distribution. No guaranteed minimum values can be interpreted from this statistical data. The electrical lifespan must not be compared with the mechanical lifespan when switching larger or inductive loads, as the mechanical lifespan is measured without contact load and the failure criteria are different. The difference between the mechanical and electrical lifespans becomes greater as the switching current increases. For more information on the mechanical lifespan, see item entitled "Mechanical lifespan".	x	

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SSR = Solid-state relay

		for EMR	for SSR
Error, relay failure	According to IEC 61810, a relay failure is defined as the occurrence of malfunctions that exceed a certain number: • Malfunction when closing contacts • Malfunction when opening contacts (contact bridging in CO contact as a special form of malfunction when opening contacts) • Insufficient dielectric strength. Such malfunctions must be considered in the scope of the application – they should not create any risks. Depending on the specific load and the power in the contact set, malfunctions can result in various risks such as malfunctioning of the device and its controls, electric shock and excessive heating or even fire. The user is responsible for taking the necessary precautions in accordance with the relevant regulations.	x	
F			
Flammability according to UL	Indicates the flammability class according to the specification from UL 94 (Underwriters Laboratories, Inc., USA). Flammability tests according to UL 94: for testing plastic materials and classifying the propagation/extinction characteristics when the material burns. The UL 94 flammability classes which are relevant to relays are V-0, V-1, V-2 and HB.	x	x
G			
Galvanic isolation	Potential-free isolation between electrical components. Electrical (or galvanic) isolation means that no charge can flow from one circuit to another. There is no conductive electrical connection between the circuits. The circuits can nevertheless exchange electrical power or signals via magnetic fields, infrared radiation or by charge displacements.	x	x
H			
Humidity, relative humidity, condensation	Ratio between the actual and the maximum possible mass (quantity) of water vapour in the air - Unit: % When storing or operating under other conditions, steps must be taken to avoid temperature changes/shocks which could cause icing or condensation. The plastic used in the products can expand due to high humidity and contract due to low humidity, which can lead to increased insertion and pulling forces of cross-connections and other accessories.	x	x
I			
Impulse withstand voltage	Amplitude of a voltage pulse of short duration with a specific pulse shape (e.g. 1.2/50 µs) and polarity, which is used to test insulation paths in a product.	x	x

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SSR = Solid-state relay

		for EMR	for SSR
Inrush current (output)	The highest value of current that can be switched on by an output of a relay module or solid-state relay. This current is specified along with a time for which it can be carried. The inrush current for some loads can be considerably higher than the specified rated current. Loads with a capacitive load component, especially LED lamps, place extreme demands on the switching contacts regardless of the type of voltage. They have extremely high-energy current peaks at the moment of switch-on. These can reach over 100 A and can weld the contact right from the first switch-on. Therefore, when selecting the relay, consideration must be given as to whether high inrush currents will be generated by the load being switched. Potential loads with high inrush currents are: • Lamp loads, especially LED lamps • Power supplies • Loads with wide-range inputs (e.g. with control voltages of 110-230 V AC/DC) such as solenoid valves and contactors • Loads with other special input circuits such as energy-saving circuits • Motor loads with high starting torques, e.g. gears • Servomotors For these types of loads, it is recommended that special relay couplers (e.g. relay modules with tungsten pre-run contact) be avoided. Furthermore, solid-state relays are also very well-suited to high but short inrush current peaks, as they do not contain any mechanical components and therefore cannot fail.	x	x
Instantaneous switching	Solid-state relays with AC outputs such as triacs or thyristors which switch on immediately on switch-on and switch off at the zero crossing of the switching current. For this reason, switching off may be delayed depending on the phase position at the time of switching and on the mains frequency of the switching current. Signal characteristics of instantaneous switching PSSR shown at an example with resistive load 		x

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SSR = Solid-state relay

		for EMR	for SSR
Insulating material group	According to their CTI (comparative tracking index) values, the insulating materials are categorised in one of the following four groups: Group I 600 CTI Group II 400 CTI < 600 Group IIIa 175 CTI < 400 Group IIIb 100 CTI < 175 The figures for the comparative tracking index, according to IEC 60112 (DIN IEC 60112 / DIN VDE 0303-1) are determined using special samples prepared for this purpose with test solution A.	x	x
L			
Leakage current	The current on the load side of a solid-state relay that flows when the output stage is in the locked state. It flows because a solid-state relay does not provide galvanic isolation of the output, as is the case when there is an air gap when the contact of an electromechanical relay is open. The output of a solid-state relay only becomes high-impedance when it is locked, meaning that only a very small amount of current is flowing. Solid-state relays with AC output often have an RC protective suppressor circuit in parallel to the output, which is why leakage currents of up to 2 mA can flow in the locked state.		x
Load limit integral (I²t)	The load limit integral (I²t), specified in A²s, is the pulse-shaped (< 10ms) short-term overload capacity of the semiconductor switch in solid-state relays or semiconductor contactors. It is used to select a fuse as device protection for the output of a semiconductor switch. If this value is exceeded, the semiconductor switch may be destroyed; when selecting the fuse size, it is therefore recommended that the I²t of the fuse is half the size of the semiconductor switch.		x
M			
Max. reset time in the case of a voltage interruption, recovery time	Time that needs to elapse after the excitation variable has been switched off in order for the timing relay to fulfil a function again as specified.	x	x
Max. switching frequency (DC and AC control voltage)	Number of switching cycles per time unit of a solid-state relay with continuous current and resistive load. When switching inductive loads with switching frequencies faster than 0.5 Hz, an external protective suppressor circuit must be connected in parallel with the load. If this is not possible, solid-state relays specially designed for switching inductive loads must be selected. Due to the input wiring of the solid-state relay (e.g. bridge rectifier and smoothing capacitor), different switching frequencies can often be implemented for solid-state relays with AC/DC (UC) input. These specifications are therefore listed separately in the data sheet.		x
Max. switching frequency at rated load	Number of switching cycles per time unit of an electromechanical relay at max. switching capacity and resistive load. The switching frequency for small and medium loads can be higher than the value specified in the data sheet if the switching characteristics of the load (such as arcing) do not overload the contact to an impermissible extent.	x	

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SSR = Solid-state relay

		for EMR	for SSR
Mechanical service life	The number of switching cycles for current-free relay contacts for which the relay must remain functional under specific conditions. Although the mechanical lifespan is determined without a contact load, it can give an indication of the electrical lifespan with contact loads less than 100 mA (resistive load). The mechanical lifespan must not be compared with the electrical lifespan when switching larger or inductive loads, as the mechanical lifespan is measured without contact load and the failure criteria are different. The difference between the mechanical and electrical lifespans becomes greater as the switching current increases. For more information on the electrical lifespan, see item entitled "Electrical lifespan".	x	
Mechanical switch position indicator	Plastic lever inside some electromechanical relays, which is mechanically connected to the armature. The switching position of the relay armature can therefore be seen through an inspection window in the relay cover.	x	
Min. pulse duration	Shortest required period for the start impulse to start the time function of a timing relay.	x	x
Min. switching current	Specifies the minimum switching current of the output of a semiconductor switch. A semiconductor output, in particular triacs and thyristors, requires a minimum load current to open and close reliably.		x
Minimum switching capacity	The calculated product of the switching current and switching voltage – a measure of reliable switching. Low contact resistance values are only achieved above a certain power, because when switching loads above this power, a sufficient arc is generated that burns away or breaks through oxidation layers and dirt (electrical cleaning). Greatly increased resistances may occur at lower switching loads, which can prevent the load circuit from being reliably switched. The switching voltage has a greater effect than the switched current when switching small powers, because the formation of an arc is more dependent on the switched voltage than on the switched current. The minimum contact loads for different contact materials should also be taken into account. (see item entitled "Contact materials") By switching regularly (at least several times a day), it is also possible to switch powers below the minimum contact loads of the various contact materials (except for hard gold-plated contacts). This is achieved by the self-cleaning effect caused by contact friction during the switching process. The minimum switching capacity can be negatively affected by harmful gas atmospheres in the ambient air.	x	
Mono-stable relay	A relay is referred to as mono-stable when its contacts return to the state of rest automatically after the energising parameter (the input voltage) is switched off.	x	x

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Mounting distance	Distance between two adjacent components when using parallel, same orientated positioning; or the distance to other electrical components, e.g. on a terminal rail. Because of the insulation requirements or the self-heating (derating) it may be necessary to increase the minimum gap between the components or select a different positioning. Self-heating can be improved by increasing the mounting distance. This can help to reduce the derating of the switching current. In addition to this definition, the following applies: • Densely packed installation: Designed with minimum mounting distance to products from the same Weidmüller product series. Unless otherwise stated, from the point of view of self-heating, Weidmüller relay modules and solid-state relays are suitable for densely packed installation with other products from the same Weidmüller product series. It is recommended that there should be a mounting distance between these and other components from other Weidmüller product series or components from other manufacturers, as this can lead to a reduction in the insulation properties or to an unacceptable increase in self-heating. • Individual installation: components are mounted with gaps so that there are no thermal influences from adjacent components.	x	x
Mounting position	Electromechanical relay modules and solid-state relays (SSR) from Weidmüller can be installed in almost any position unless otherwise specified in the data sheet. The mounting positions used in the industrial environment are: mounted on a terminal rail in a horizontal or vertical installation position in an upright control cabinet. These positions are also checked when determining the derating curves. However, the most common method of installation is on a horizontally aligned terminal rail. It is not recommended to install the relays upside down (relay pointing downwards) as this is not taken into account when determining the derating curves. This would also lead to heat accumulation and the risk of a pluggable relay slipping out of the socket due to vibrations. To ensure the proper current flow and heat dissipation, the connections must have adequate cross-sections. Several factors must be taken into consideration when positioning: including the insulation requirements, heat dissipation and the possible mutual magnetic and thermal influence.	x	x
MTTF	MTTF is the abbreviation for Mean Time To Failure and is also designated as the mean operating service life. For relay modules and solid-state relays, the MTTF value is equal to the MTBF because no repair is performed on the products. They are replaced after a defect, which means that there is no repair time. The MTTF value of relay modules is calculated on the basis of the B10 value (see item entitled "B10 value") and the switching cycles occurring in the application. It can be calculated using the following formula for electromechanical relays: $MTTF = B10 \div (0.1 \times n)$ The value "n" is the number of annual switching cycles in the application. The user must enter this value together with the appropriate B10 value in the formula in order to calculate the possibility of failure of the relays used in the application. The MTTF value of solid-state relays is calculated using the parts counting method, based on the basic failure rates from SN29500. This is possible because a solid-state relay is not subject to mechanical wear, meaning that the statistical failure values of the individual components within the solid-state relay can be added together. Electrical connections and plug-in connections were not taken into account when calculating the values specified in the data sheet. The failure rates of electronic components increase considerably after approx. 8 to 12 years, causing the MTTF values to decrease (see EN 61508-2: 2011-02, 7.4.9.5, Note 3).	x	x

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N			
Nominal torque	The specified value for the torque of the screws (screw connection) must not be exceeded.	x	x
O			
Operating temperature	Permissible ambient temperature – relative to a specific relative humidity – at which a product should be operated at nominal load.	x	x
Operational voltage range	Permissible range of the input voltage depending on the ambient temperature. Operating voltage range curve in the data sheet: The top part of the range is specified by the maximum voltage; the lower part of the range is specified by the response/minimum voltage Curve 1: Response/minimum voltage U₀ (without pre-excitation) Curve 2: Response/minimum voltage U₁ (after pre-excitation) Curve 3: Maximum voltage U₂, contact current = 0 A Curve 4: Maximum voltage with contact current I_{enn} Operating voltage range The graph plots Coil voltage [U/U_{rated}] on the y-axis (0.6 to 2.2) against Ambient temperature [°C] on the x-axis (0 to +100). Curve 1 (bottom) rises from ~0.8 to ~0.9. Curve 2 (just above 1) rises from ~0.9 to ~1.0. Curve 3 (top) falls from ~2.1 to ~1.6. Curve 4 (just below 3) falls from ~1.9 to ~1.5. Labels include '0 A' for curves 3 and 4, and '> 0 A' for curves 1 and 2. A horizontal line at 1.0 is labeled 'U_{rated} Rated voltage'. The diagrams are valid for the single mounting of relays without thermal interference and connection wiring according to IEC 61810-1; unless otherwise indicated, the data is displayed without contact load and without taking into account the temperature rise due to the contact current. If no operating voltage range curve is specified in the data sheet, the tolerances in per cent (%) can be found in the rated control voltage characteristic. The use of a relay with an excitation voltage other than the rated coil voltage can lead to a reduced electrical lifespan (mechanical and dynamic effects).	x	x
P			
Packing unit	Indicates the smallest amount (a pack, for example) or the quantity per carton.	x	x
Plug-in cycles	Sockets and accessories are designed for 10 insertion cycles without electrical load – unless otherwise specified.	x	x

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Pollution severity level	Pollution (contamination) includes any foreign material – whether it is solid, liquid or gaseous (ionised gas) – which is capable of influencing the surface resistance of the insulating material. The standard defines four degrees of pollution. Their numbering and classification is based on the quantity of the contaminant or the frequency with which the contaminant reduces the dielectric strength and/or surface resistance. Pollution degree 1: - there is no contamination or only dry occurrences of non-conductive pollution. The pollution has no influence. Pollution degree 2: - there is only non-conductive pollution. Temporary occurrences of conductivity caused by condensation may also occur. Pollution degree 3: - conductive pollution or dry, non-conductive pollution that can become conductive due to condensation is likely to occur. Pollution degree 4: - the contamination leads to continual conductivity which can be caused by contaminants such as conductive dust, rain or snow.	x	x
Positively driven contacts	Relays with positively driven contacts according to EN 61810-3 are characterised by the fact that, due to a mechanical guide, the NO and NC contacts of a relay cannot be closed at the same time. Design differences compared to relays with standard contacts: In relays with positively driven contacts, some components within the relay have a more heavy-duty design. This is the case for components such as the contact springs and the armature. This is in order to reduce the possibility of a dangerous failure. However, it also means that the coils in these relays need to be stronger in order to move the larger or heavier parts. As a result, these types of relays have up to twice the power consumption compared to standard relays. In addition, there is more insulation between the input and output and between the output channels in relays with positively driven contacts compared to standard relays of the same size. To use relays with positively driven contacts for safety applications, at least one of the relay's NO contacts and one of its NC contacts must be integrated into the circuit design. The NO contact of the first channel then switches the function in the safety application and the NC contact of a second channel gives a feedback signal to the control unit. This means that if one of the NO contacts welds, for example, the following function step of the application cannot be initiated and the circuit is stopped because the NC contact cannot give a feedback signal due to the fact that the NO is welded. The standard EN 61810-3 describes the requirements for relays with positively driven contacts. - Type A: Type A relays only have NO and NC contacts - Type B: Type B relays have CO contacts; in applications where the positively driven contact function is to be used, only the NO or NC contacts of a CO contact may be used.	x	

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Power rating (input)	The nominal value of the power that is converted when the rated control voltage is applied in individual installation. For AC, specifications are valid for 50 Hz unless otherwise indicated. Measured at room temperature (approx. 23 °C) and an only briefly energised coil (coil temperature below thermal stability). The power rating depends on environmental parameters such as the ambient temperature, the mounting position and the manufacturing tolerances (coil resistance). Therefore, the values in the application may differ from the data sheet specifications.	x	x
Protection degree – (IEC 60529), IP	The degree of protection afforded by an enclosure is shown using the IP Code (IP = International Protection). This information is equally relevant for industrial relays and accessories. Protection levels for touch contact and foreign bodies (the first digit): the first digit indicates the degree of protection inside the housing against ingress of solid foreign objects and against any human access to hazardous parts. 0: no protection 1: protection for large body parts with a diameter > 50 mm 2: finger protection (diameter 12 mm) 3: tools and wires (diameter > 2.5 mm) 4: tools and wires (diameter > 1 mm) 5: full protection against touch contact 6: full protection against touch contact Degree of water protection (the second digit) Degrees of protection: water protection (2nd digit) The second digit indicates the degree of protection provided against the ingress of water into the housing: 0: no protection 1: protection against vertically falling drops of water 2: protection against water droplets falling diagonally (up to 15°) 3: protection against water spray that falls at an angle up to 60° from vertical 4: protection against splashed water from all sides 5: protection against water jets 6: protection against powerful jets of water (flooding) 7: protection against sporadic submersion 8: protection against constant submersion	x	x

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Protective circuit on the control side (solid-state relay) or protective circuit (electromechanical relay) at the input	The protective suppressor circuit at the input can either be plugged into the socket by a plug-in module or it can be integrated into the electromechanical relay or the solid-state relay. The various protective suppressor circuits and their function are explained below: Free-wheeling diode: Protects only the control electronics from the inductive cut-off voltages of the relay coil of an electromechanical relay with DC coil. Attention: If no additional reverse polarity protection has been previously installed, a short circuit can be caused by reverse polarity. Varistor: Protects the input of an electromechanical relay or solid-state relay from surge voltages. In electromechanical relays, it also protects the control electronics from the inductive cut-off voltages of the relay coil. Rectifier: Enables AC and DC voltages to be connected as a protective suppressor circuit in the input without prescribing a polarity direction. In electromechanical relays, it also protects the control electronics from the inductive cut-off voltages of the coil. RC element: Protects the control electronics from the inductive cut-off voltages of the relay coil of an electromechanical relay with AC coil. Coupled voltages in long control lines at the input may mean that an electromechanical relay or solid-state relay no longer switches off reliably. An RC element allows for the reduction of the coupled voltages, which can cause the electromechanical relay or solid-state relay to drop out.	x	x
Protective circuit, load side (solid-state relay)	Protective suppressor circuit integrated in the output of the solid-state relay. The protective suppressor circuit at the output of a solid-state relay protects the output against surge voltages such as those that occur when switching off inductive loads. Due to the very compact design of pluggable solid-state relays such as those used in the TERMSERIES as well as the limited heat dissipation, the protective suppressor circuit of these solid-state relays often only offers protection against small surge voltages, e.g. from very light inductive loads. It is therefore highly recommended to have an additional external protective suppressor circuit parallel to the load when switching inductive loads with these pluggable solid-state relays. Otherwise, the semiconductor output may be destroyed. When switching inductive loads with switching frequencies faster than 0.5 Hz, an external protective suppressor circuit must be connected in parallel with the load. If this is not possible, solid-state relays specially designed for switching inductive loads must be selected.		x

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Pull-in current, typ (input)	Typical current at which monostable electromechanical relays and solid-state relays reliably switch on. This means that this is the minimum input current value that must not be fallen below for switch-on in order to switch on the relays. They can also switch on at currents that are lower than the specified value, since the specified value is a typical value at which they should be switched on. For AC, specifications are valid for 50 Hz unless otherwise indicated. Measured at room temperature (approx. 23 °C), coil temperature equal to room temperature and cold coil (without pre-excitation). The switching thresholds of electromechanical relays are strongly dependent on environmental parameters such as ambient temperature, mounting position, manufacturing tolerances (e.g. coil resistance) and the shape of the control signal. Therefore, the values in the application may differ from the data sheet specifications. The switching thresholds of solid-state relays fluctuate less, since the electronic components are less temperature-dependent than a relay coil.	x	x
Pull-in voltage, typ (input)	Typical voltage at which monostable electromechanical relays and solid-state relays switch on. This means that this is the minimum input voltage value that must not be fallen below for switch-on in order to switch on the relays. They can also switch on at voltages that are lower than the specified value, since the specified value is a typical value at which they should be switched on. For AC, specifications are valid for 50 Hz unless otherwise indicated. Measured at room temperature (approx. 23 °C), coil temperature equal to room temperature and cold coil (without pre-excitation). The switching thresholds of electromechanical relays are strongly dependent on environmental parameters such as ambient temperature, mounting position, manufacturing tolerances (e.g. coil resistance) and the shape of the control signal. Therefore, the values in the application may differ from the data sheet specifications. The switching thresholds of solid-state relays fluctuate less, since the electronic components are less temperature-dependent than a relay coil.	x	x
R			
Rated control voltage	Rated voltage at which the relay is to be operated and at which other input and output characteristics are measured. For AC, specifications are valid for 50 Hz unless otherwise indicated. Control with other operating modes, such as pulse width modulation (PWM) or half-wave rectification, can lead to changes in the input and output characteristics, which are measured with the rated control voltage.	x	x
Rated current DC or AC (input)	Rated current that the relay draws when controlled with rated control voltage. For AC, specifications are valid for 50 Hz unless otherwise indicated. Measured at room temperature (approx. 23 °C) and an only briefly energised input (coil temperature below thermal stability). Control with other operating modes, such as pulse width modulation (PWM) or half-wave rectification, can lead to changes in the input and output characteristics, which are measured with the rated control voltage.	x	x
Rated switching voltage	The value of the nominal mains voltage with the standard tolerances found in the mains, which the contact can switch on the basis of the insulation data.	x	x
Rated voltage (Isolation)	Voltage level at which the insulation specifications are measured – this is the basis for sizing the clearance and creepage distance.	x	x

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Relay times (time response) electromechanical relays	Because of the self-inductance of the coil and the inertia of the moving parts, the steps involved in operating a relay do not occur instantaneously. The following chart illustrates several time-function terms for the main contact variants of non-delayed switching relays.	x	
Repeat accuracy	Difference between the highest and lowest time range values for several measurements of a timing relay's time response under identical conditions. The value is given as a percentage of the mean value of all measured values.	x	x
Rest position	The switched position of a mono-stable relay in its de-energized state.	x	
RoHS Directive	RoHS stands for "Restriction of (the use of certain) Hazardous Substances". According to the EU Directive 2002/95/EC from 01.07.2006, all EU member nations must forbid the use of hazardous substances which damage human health and the environment (including mercury (Hg), cadmium (Cd), lead (Pb), hexavalent chrome (Cr6), polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)) in new electrical and electronic devices. The term "compliant" means that the entire product group meets the requirements of the RoHS Directive.	x	x

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S			
Schmitt trigger	Strictly speaking, switching voltages for digital control follow an analogue pattern (no changeover from 0 to 1 between maximum and minimum voltages). This can lead to inaccuracies in switching results, above all when signals are being transmitted rapidly. In this case, the Schmitt trigger functions as a threshold switch. If the threshold voltage set in the Schmitt Trigger is exceeded, the output assumes the maximum possible output voltage (logic 1). Otherwise it is the minimum possible output voltage (logic 0). The Schmitt trigger is normally designed with a hysteresis. The threshold voltage set for activating is higher than that for deactivating. That prevents small irregularities from triggering a switching operation.		x
Self-heating	The heating up of an operational component based on the power loss from the relay coil and the switching contacts.	x	
Self-heating, power loss	The heating up of a relay module or solid-state relay during operation due to the power consumption of the input and the power loss from the switching contacts. The standard DIN EN 61439 "Low-voltage switchgear and controlgear assemblies - Part 1: General rules" requires that the heating up of a switching combination be determined for planners, panel builders and installers. The power loss of all installed equipment must be taken into account. However, this presupposes that the respective manufacturers of the equipment make the corresponding values available. In practice, determining the actual power loss for certain equipment is difficult and only possible with a lot of effort. This also includes electromechanical relays and relay modules. We would like to provide you with a simple recommendation to help calculate these power loss values for Weidmüller relay modules and solid-state relays.	x	x
Self-heating, power loss	Power loss in electromechanical relays: The power loss of a relay module can be calculated by adding the input power specified in the data sheet to the output power loss. If you want to determine the real power loss for the output, this depends on a number of parameters such as switching current, switching frequency, ambient temperature, arcing time, etc. Performing the calculation using all these values would be almost impossible, because many of these parameters are not known. Therefore, we recommend calculating the power loss at the output using a highly simplified formula of contact resistance and switching current: $P = I^2 \times R$ The contact resistance is dynamic during the service life, and increases due to wear, e.g. contact erosion towards the end of the service life. Weidmüller recommends using 50 mOhm (0.05 Ohm) as the contact resistance for calculating the output power loss of a relay module. It is not recommended to measure the contact resistance with a multimeter, because this can give completely incorrect values. For the maximum power loss, simply insert the continuous current from the data sheet into the formula. To calculate a value that is closer to the real power loss, it is recommended to insert the actual current switched in the application into the formula. These formulas calculate the power loss for 100% duty cycle. If you now want to determine the value more accurately, the power loss should be multiplied by the duty cycle (in per cent). With a duty cycle of 50%, the power loss would be halved.	x	

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Self-heating, power loss	Power dissipation in solid-state relays: The power loss calculation in solid-state relays behaves in almost the same way as that of electromechanical relays. Here, however, the maximum voltage drop specified in the data sheet is used instead of the contact resistance. This voltage drop is essentially dependent on the switched current. At low switching currents, the voltage drop is low, but it is recommended to use the maximum voltage drop from the data sheet. The highly simplified formula is then as follows: $P = U \text{ voltage drop} \times I$ For the maximum power loss, simply enter the continuous current from the data sheet into the formula. In order to calculate a value that is closer to the real power loss, it is recommended to insert the actual current switched in the application into the formula These formulas calculate the power loss for 100% duty cycle. If you now want to determine the value more accurately, the power loss should be multiplied by the duty cycle (in per cent). With a duty cycle of 50%, the power loss would be halved.		x
Series-circuit connection of relay contacts	The serial connection of 2 or more NO contacts of a relay causes the contact opening to increase on switch-off. Arcs which occur from DC loads are cleared more quickly which results in reduced burn-off on the contact. This increases the electrical endurance or the possible switching current or switching voltage. The possible switching current or the possible switching voltage is shown with dashed lines in the DC load limit curves diagrams, if specified. Information about the electrical endurance should not be derived from these curves!	x	
Setting tolerance	Difference between the measured value of the delay period and the set value on the time relay. The specification refers to the full scale value. The setting tolerance is measured directly at the relay contacts, i.e. a time is set using the scale on the device and then measured. The input signal (start of time measurement) is either the power supply or the control contact, depending on the definition of the function. The time measurement is ended by switching the output contact.	x	x
Short-circuit-proof	Switching off the output stage of some solid-state relays whose output was developed to be short-circuit proof in order to protect the output circuit from damage in the event of a short circuit. Solid-state relays without a special design in the output are not short-circuit proof and must be protected with a special fuse for device protection. A short-circuit-proof output does not release the user from the obligation to install line protection to protect the installation.		x
SIL	Safety Integrity Level. To reduce risk, the components must comply with the requirements of IEC 61508. This standard provides general requirements for avoiding and minimising device and equipment outages. It stipulates organisation and technical requirements concerning device design and operation. Four safety levels are distinguished for systems and risk-reducing measures, ranging from SIL1 for low risk to SIL4 for very high risk. Measures taken to reduce risk must be more reliable when the classified risk level is higher.	x	x
Solid state contactor, Power Solid-State Relay (PSSR)	A solid-state relay that can switch a high level of power, which is why they are called semiconductor contactors or PSSR (Power Solid-State Relays). They are considerably larger than conventional solid-state relays and often have a heat sink, which is needed in order to remove the power loss in the output.		x

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Standardised labelling of connections	Connection designation according to EN 50005: The connections are defined by a two-digit code: A1 and A2 are used for the connections of the input or the coil For inputs of time relays which have connections for triggering the time function (control input), these are designated B1. For the connections at the output, the first number indicates the respective output channel and the second number the function. The following examples are given for a 1-channel output: NO contact: 13, 14 NC contact: 11, 12 CO contact: 11, 12, 14 (connection 11 is the common contact, i.e. the root) For relays with more than one output channel, the first number for the respective contact set is exchanged. For example, for a 2 changeover relay: 11, 12, 14 for the first CO contact and 21, 22, 24 for the second CO contact For outputs of timing relays, the function numbers change from .1 to .5, from .2 to .6 and from .4 to .8. The first CO contact is therefore designated 15, 16 and 18 for timing relays. Connection designation according to IEC 67: Common in the USA. In this case, the connections are numbered consecutively. A relay with 4 CO contacts therefore has the numbers 1 to 14. It should be noted that numbers 11, 12 and 14 appear in both connection marking systems but have different functions. Instead of the coil connection markings A1 and A2, the terminal markings A and B are also commonly used. However, the connection designations according to IEC 67 are being used less and less frequently, which is why they are seen on fewer and fewer relay modules.	x	x
Status indicator (input)	Unless otherwise described, the status indicator for relay modules and solid-state relays indicates the presence of a control voltage at the input. It does not indicate the state of the output and may deviate from the state of the output in the following cases: • Welded/defective switching elements • Interference radiation or residual voltages on the control lines At ambient temperatures > 50°C, the luminosity and service life of the LED may be reduced. The function of other status indicators is described in the respective documentation.	x	x
Storage temperature	The permitted ambient temperature, related to a specific relative humidity level, for which the product should be stored while in a current-free state.	x	x

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Surge voltage category	The overvoltage category of a circuit or an electrical system is numbered conventionally (from I to IV) and is based on limiting the assumed surge voltage values that can occur in a circuit (or electrical system with different mains voltages). The assignment to a particular overvoltage category is dependent on the measures which are used to influence (reduce) the surge voltages. Overvoltage category I - Devices that are intended to be connected to the permanent electrical building installation. The measures for limiting transient surge voltages to the proper level are taken outside of the device. The protective mechanisms can either be in the permanent installation or between the permanent installation and the device. Overvoltage category II - Devices that are intended to be connected to the permanent electrical building installation (such as a household appliances or portable tools). Overvoltage category III - Devices that are a part of the permanent installation and other devices where a higher degree of availability is required. This includes the distributor panels, power switches, distribution systems (including cable, busbars, distributor boxes, switches and outlets) that are part of the permanent installation, devices intended for industrial use, and devices that are continually connected to the permanent installation (such as stationary motors). Overvoltage category IV - Devices that are intended to be used on or near the power feed in a building's electrical installation – ranging from the main distribution to the mains power system. This includes electrical meters, surge protection switches and ripple control equipment.	x	x
Switch-off delay	Typical time interval from switching off the rated control voltage of a switched electromechanical relay and solid-state relay until the first opening or closing of the last output circuit (not including the bounce time). For AC, specifications are valid for 50 Hz unless otherwise indicated. Measured at room temperature (approx. 23 °C) and an only briefly energised input (coil temperature below thermal stability). The switching times are strongly dependent on environmental parameters such as ambient temperature, mounting position, manufacturing tolerances, voltage level of the control signal and the shape of the control signal. Therefore, the values in the application may differ from the data sheet specifications.	x	x
Switch-on delay	Typical time interval from switching on the rated control voltage of an electromechanical relay and solid-state relay until the first closing or opening of the last output circuit (not including the bounce time). For AC, specifications are valid for 50 Hz unless otherwise indicated. Measured at room temperature (approx. 23 °C) and coil temperature equal to room temperature. The switching times are strongly dependent on environmental parameters such as ambient temperature, mounting position, manufacturing tolerances, voltage level of the control signal and the shape of the control signal. Therefore, the values in the application may differ from the data sheet specifications.	x	x

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Switching cycle	Describes the cycle of the switching state of response/switch-on and subsequent reset/switch-off of a relay or solid-state relay.	x	x
Switching voltage AC max. Switching voltage DC max.	Maximum permissible voltage with the standard mains tolerances between the switching contacts before closing and after opening a relay contact.	x	

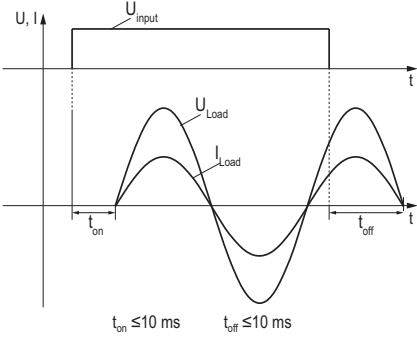
T

Time ranges	List of the different adjustable time ranges of a timing relay. Mostly adjustable via rotary switch or dip switch.	x	x																																
Timing relay, multifunction timing relay	Electromechanical relay modules or solid-state relays that can switch with a time delay thanks to a time switch in the control input. Some timing relays can perform different time functions, which is why they are called multifunction timing relays.	x	x																																
Type code	The type code explains the composition of the article designation (type name). It allows for a large number of possible variations, but not all possible combinations can be found in the current product line, as some combinations cannot be implemented or some variants may be discontinued. Special versions are available on request to meet customer specifications.	x	x																																
Type of contact	The following contact arrangements are specified and described: • NO contact: Contact which is closed in the relay's operating position and open in its rest position. • NC contact: Contact which is closed in the relay's rest position and open in its operating position. • CO contact: Contact consisting of an NO contact and an NC contact with a common connection (root). When changing the switch position, first the previously closed contact opens and then the previously opened contact closes. The following table shows the different designations for the contacts: <table><tr><th></th><th>Short description</th><th>NARM designator</th><th>Circuit symbol</th></tr><tr><td>Make contact</td><td>NO</td><td>SPST-NO</td><td></td></tr><tr><td>Break contact</td><td>NC</td><td>SPST-NC</td><td></td></tr><tr><td>Changeover contact</td><td>CO</td><td>SPDT</td><td></td></tr></table> For multiple contact relays, the contacts are designated as in the following examples: <table><tr><th>Multiple pole configurations</th><th>Short description</th><th>NARM designator</th><th>Circuit symbol</th></tr><tr><td>2 Make contacts</td><td>2 NO</td><td>DPST-NO</td><td></td></tr><tr><td>3 Break contacts</td><td>3 NC</td><td>3PST-NC</td><td></td></tr><tr><td>4 Changeover contacts</td><td>4 CO</td><td>4PDT</td><td></td></tr></table> Abbreviations: NO: normally open; NC: normally closed; CO: changeover; SPST: single pole, single throw; SPDT: single pole, double throw; DPST: double pole, single throw		Short description	NARM designator	Circuit symbol	Make contact	NO	SPST-NO		Break contact	NC	SPST-NC		Changeover contact	CO	SPDT		Multiple pole configurations	Short description	NARM designator	Circuit symbol	2 Make contacts	2 NO	DPST-NO		3 Break contacts	3 NC	3PST-NC		4 Changeover contacts	4 CO	4PDT		x	x
	Short description	NARM designator	Circuit symbol																																
Make contact	NO	SPST-NO																																	
Break contact	NC	SPST-NC																																	
Changeover contact	CO	SPDT																																	
Multiple pole configurations	Short description	NARM designator	Circuit symbol																																
2 Make contacts	2 NO	DPST-NO																																	
3 Break contacts	3 NC	3PST-NC																																	
4 Changeover contacts	4 CO	4PDT																																	

EMR = Electromechanical relay
SSR = Solid-state relay

		for EMR	for SSR
Type of insulation	Quality of the insulation system, depending on the design and application conditions: • Functional insulation: insulation between live components – necessary so the relay functions properly. • Basic insulation: insulation of live parts to provide basic protection against electrical shock. • Doubled insulation: consisting of a base insulation and additional insulation. • Reinforced insulation: a single “enhanced” insulation of active components, which ensures the same protection against electric shock as doubled insulation. The doubled insulation is composed of a base insulation and an additional insulation; the extra insulation protects against electric shock if the basic insulation fails.	x	x
U			
Utilisation category according to EN 60947 (mechanical relays)	The contactor standard EN 60947 divides loads into different utilisation categories, thereby making it possible to determine service life values for various applications. This standard is also partly applied to relays. However, users must be aware that even these values are only of limited practical use, as the test loads are often highly inductive and are operated without a protective circuit. More precise information on switching capacity and service life can be made on the basis of concrete application data. Explanation of the most important common categories for relay modules: AC1: Non-inductive or only weakly inductive load, e.g. heating elements AC14: Small electromagnetic loads (<72VA), e.g. small contactors AC15: Electromagnetic loads (>72VA), e.g. power contactors DC1: Non-inductive or only weakly inductive load, e.g. heating elements DC13: electromagnetic loads, e.g. solenoid valves	x	
V			
Voltage drop at max. load	Voltage drop across the switched output of the solid-state relay, when measured under full load. This is due to the fact that semiconductor switches do not become as low-resistance as electromechanical switches. Therefore, when switched, they have more power loss compared to electromechanical relays.		x

EMR = Electromechanical relay
SSR = Solid-state relay

		for EMR	for SSR
Z			
Zero-voltage switching , zero-cross switching	Solid-state relays with AC outputs such as triacs or thyristors which switch on at the zero crossing of the switching voltage and switch off at the zero crossing of the switching current. For this reason, the switching procedure may be delayed depending on the phase position at the time of switching and on the mains frequency of the switching voltage. Signal characteristics of zero cross switching PSSR shown at an example with resistive load  $t_{on} \leq 10\text{ ms}$ $t_{off} \leq 10\text{ ms}$		x

EMR = Electromechanical relay
SSR = Solid-state relay

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RCI314730	8868980000	B.75
RCI314AB2	8870090000	B.75
RCI314AC4	8870100000	B.75
RCI314AE8	8870110000	B.75
RCI314BB0	8870120000	B.75
RCI314R24	8870130000	B.75
RCI314S15	8870140000	B.75
RCI314T30	8870150000	B.75
RCI374012	8868950000	B.75
RCI374024	8868960000	B.75
RCI374524	8868990000	B.75
RCI374730	8870010000	B.75
RCI374AB2	8870240000	B.75
RCI374AC4	8870250000	B.75
RCI374AE8	8870260000	B.75
RCI374BB0	8870270000	B.75
RCI374R24	8870280000	B.75

RCI374S15	8870290000	B.75
RCI374T30	8870300000	B.75
RCH424012	8868970000	B.77
RCH424024	8868980000	B.77
RCH424048	8868990000	B.77
RCH424110	8868910000	B.77
RCH424524	8868920000	B.77
RCH424615	8868930000	B.77
RCH424730	8868940000	B.77
RCH424AB2	8870170000	B.77
RCH424AC4	8870180000	B.77
RCH424AE8	8870190000	B.77
RCH424BB0	8870200000	B.77
RCH424R24	8870210000	B.77
RCH424S15	8870220000	B.77
RCH424T30	8870230000	B.77
RCH484012	8870020000	B.77
RCH484024	8870030000	B.77
RCH484048	8870040000	B.77
RCI484110	8870050000	B.77
RCI484524	8870060000	B.77
RCI484615	8870070000	B.77
RCI484730	8870080000	B.77
RCI484AB2	8870310000	B.77
RCI484AC4	8870320000	B.77
RCI484AE8	8870330000	B.77
RCI484BB0	8870340000	B.77
RCI484R24	8870350000	B.77
RCI484S15	8870360000	B.77
RCI484T30	8870370000	B.77

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RCIKIT 115VAC 1CD LD/PB	8897060000	B.69
RCIKIT 115VAC 2CD LD	8897100000	B.73
RCIKIT 115VAC 2CD LD/PB	8897080000	B.73
RCIKIT 230VAC 1CD LD	8871020000	B.69
RCIKIT 230VAC 1CD LD/PB	8881600000	B.69
RCIKIT 230VAC 2CD LD	8871050000	B.73
RCIKIT 230VAC 2CD LD/PB	8881630000	B.73
RCIKIT 24VAC 1CD LD	8871010000	B.69
RCIKIT 24VAC 1CD LD/PB	8881590000	B.69
RCIKIT 24VAC 2CD LD	8871040000	B.73
RCIKIT 24VAC 2CD LD/PB	8881620000	B.73
RCIKIT 24VDC 1CD LD	8871000000	B.69
RCIKIT 24VDC 1CD LD/PB	8881580000	B.69
RCIKIT 24VDC 2CD LD	8871030000	B.73
RCIKIT 24VDC 2CD LD/FG	1218410000	C.118
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RCIKITP 24VAC 1CD LD/PB	8897200000	B.67
RCIKITP 24VAC 2CD LD	8897160000	B.71
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RCIKITP 24VDC 1CD LD	8897110000	B.67
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RCIKITP 24VDC 2CD LD	8897150000	B.71
RCIKITP 24VDC 2CD LD/PB	8897230000	B.71
RCIKITP115VAC 1CD LD/PB	8897210000	B.67
RCIKITP115VAC 2CD LD	8897250000	B.71
RCIKITP230VAC 1CD LD/PB	8897220000	B.67
RCIKITP230VAC 2CD LD	8897260000	B.71
RCIKITZ 24VDC 2CD LD/FG	1218390000	C.118
RCL424005	8693790000	B.50
RCL424012	4058560000	B.50
RCL424024	4058570000	B.50
RCL424048	4058750000	B.50
RCL424060	4058760000	B.50
RCL424110	4058590000	B.50
RCL425005	1174490000	B.50
RCL425012	4074580000	B.50
RCL425024	4058580000	B.50
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RCM270024	8689860000	B.93
RCM270048	8689880000	B.93
RCM270110	8689900000	B.93
RCM270524	8689760000	B.93
RCM270548	8689780000	B.93
RCM270615	8689900000	B.93
RCM270730	8689820000	B.93
RCM270AB2	8957020000	B.93
RCM270AC4	8957030000	B.93
RCM270L12	8689850000	B.93
RCM270L24	8689870000	B.93
RCM270L48	8689890000	B.93
RCM270R24	8689770000	B.93
RCM270S15	8689810000	B.93
RCM270T30	8689830000	B.93
RCM370012	8690020000	B.99
RCM370024	8690040000	B.99
RCM370048	8690060000	B.99
RCM370110	8690080000	B.99
RCM370524	8690030000	B.99
RCM370615	8689980000	B.99
RCM370730	8690000000	B.99
RCM370AB2	8957090000	B.99
RCM370AC4	8957100000	B.99
RCM370BB0	8957120000	B.99
RCM370R24	8689950000	B.99
RCM370R48	8689970000	B.99
RCM370S15	8689990000	B.99
RCM370T30	8690010000	B.99
RCM570012	8054360000	B.103
RCM570024	8690200000	B.103
RCM570048	8074670000	B.103
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RCM570524	8690110000	B.103
RCM570548	1180900000	B.103
RCM570615	1180800000	B.103
RCM570730	1181100000	B.103
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RCMKIT4 230VAC 2CD LD	8920970000	B.85
RCMKIT4 230VAC 3CD LD	8921020000	B.87
RCMKIT4 230VAC 4CD LD	8921060000	B.91
RCMKIT4 24VAC 2CD LD	8920950000	B.85
RCMKIT4 24VAC 3CD LD	8920990000	B.87
RCMKIT4 24VAC 4CD LD	8921040000	B.91
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RIM 1 6/230VDC	7760056169	B.124
RIM 1 6/230VDC	7760056169	B.136
RIM 1 6/230VDC	7760056169	B.140
RIM 1 6/230VDC	7760056169	B.141
RIM 1 6/230VDC	7760056169	B.156
RIM 1 6/230VDC	7760056169	B.156
RIM 2 110/230VDC	7760056017	B.120
RIM 2 110/230VDC	7760056017	B.124
RIM 2 110/230VDC	7760056017	B.136
RIM 2 110/230VDC	7760056017	B.140
RIM 2 110/230VDC	7760056017	B.141
RIM 2 110/230VDC	7760056017	B.156
RIM 2 110/230VDC	7760056017	B.156
RIM 2 24/60VDC	7760056016	B.120
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RIM 2 24/60VDC	7760056016	B.140
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RIM 2 6/24VDC	7760056015	B.120
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TOP 120VUC 48VDC0.1A	2618680000	B.33
TOP 120VUC 48VDC0.1A	2618680000	C.57
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TOP 230VAC RC 48VDC0.1A	2618620000	B.33
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TOP 230VAC/230VAC 0.1A	8951290000	C.47
TOP 230VAC/48VDC 0.1A	8950890000	C.43
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TOP 230VUC 48VDC0.1A	2618690000	B.33
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TOP 24-230VUC 230VAC1A ED2	2663090000	B.42
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TOP 48VUC 48VDC0.1A	2618710000	B.33
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TOS 120VAC RC 48VDC0,1A	1127000000	C.199
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TOS 120VAC RC 48VDC0,1A	1127000000	C.205
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TOS 120VAC RC 48VDC0,1A	1127000000	C.209
TOS 120VAC RC 48VDC0,1A	1127000000	C.211
TOS 120VAC RC 48VDC0,1A	1127000000	C.213
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TOS 48VUC 48VDC0,1A	1126960000	B.33
TOS 48VUC 48VDC0,1A	1126960000	C.57
TOS 48VUC 48VDC0,1A	1126960000	C.75
TOS 5VDC 230VAC1A	1127390000	B.41
TOS 5VDC 230VAC1A	1127390000	C.79
TOS 5VDC 24VDC2A	1127140000	B.37
TOS 5VDC 24VDC2A	1127140000	C.77
TOS 5VDC 48VDC0,1A	1126920000	B.33
TOS 5VDC 48VDC0,1A	1126920000	C.57
TOS 5VDC 48VDC0,1A	1126920000	C.75
TOS 5VDC 230VAC1A	1127390000	B.41
TOS 5VDC 230VAC1A	1127390000	C.79
TOS 5VDC 24VDC2A	1127140000	B.37
TOS 5VDC 24VDC2A	1127140000	C.77
TOS 5VDC 48VDC0,1A	1126920000	B.33
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TOS 5VDC/230VAC 0,1A	8951100000	C.47
TOS 5VDC/230VAC 0,1A	8951100000	C.67
TOS 5VDC/48VDC 0,1A	8950700000	C.43
TOS 5VDC/48VDC 0,5A	8950900000	C.45
TOS 60VUC 230VAC1A	1127440000	B.41
TOS 60VUC 230VAC1A	1127440000	C.79
TOS 60VUC 24VDC2A	1127200000	B.37
TOS 60VUC 24VDC2A	1127200000	C.77
TOS 60VUC 48VDC0,1A	1126970000	B.33
TOS 60VUC 48VDC0,1A	1126970000	C.57
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TRP 120VAC RC 1CD AGSNO	2617840000	B.13
TRP 120VAC RC 1CD AU	2618030000	B.9
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TRP 120VAC RC 1CD EMPTY	2618880000	B.52
TRP 120VAC RC 2CD	2618470000	B.23
TRP 120VAC RC 2CD AU	2618490000	B.25
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TRP 24-230VUC 1CD AGSNO ED2	2663160000	B.14
TRP 24-230VUC 1CD AU ED2	2663020000	B.11
TRP 24-230VUC 1CD AU ED2	2663020000	C.52
TRP 24-230VUC 1CD ED2	2663010000	B.10
TRP 24-230VUC 1CD EMPTY ED2	2663030000	B.52
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TRP 24-230VUC 1NO HCP ED2	2663140000	B.21
TRP 24-230VUC 1NO HCP ED2	2663140000	C.17
TRP 24-230VUC 2CD AU ED2	2663050000	B.27
TRP 24-230VUC 2CD AU ED2	2663050000	C.53
TRP 24-230VUC 2CD ED2	2663040000	B.26
TRP 24-230VUC 2CD EMPTY ED2	2663060000	B.53
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TRP 24VDC 1NO HCP	2617930000	C.17

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TRP 24VDC 2CD EMPTY	2680970000	B.53
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TRP 24VDC ACT	2618230000	C.18
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TRP T 24VDC 1CD M3 EMPTY	2639740000	C.85
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WS 12/6 MC NE WS	1609900000	C.144
WS 12/6 MC NE WS	1609900000	C.145

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ZDV 4N/10 BL	1794050000	C.144
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ZDV 4N/10 GE	1758260000	B.180
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ZDV 4N/10 GE	1758260000	C.145
ZDV 4N/10 RT	1794040000	B.180
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ZDV 4N/10 SW	1794060000	B.180
ZDV 4N/10 SW	1794060000	C.144
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ZDV 4N/4 GE	1762620000	C.145
ZDV 4N/4 RT	1794010000	B.180
ZDV 4N/4 RT	1794010000	C.144
ZDV 4N/4 RT	1794010000	C.145
ZDV 4N/4 SW	1794030000	B.180
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0526760000	ISPF QB75 RT	C.146
0526780000	ISPF QB75 BL	C.145

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1122800000	TRS 60VUC 1CD	B.7
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1122830000	TRS 120VAC RC 1CD	B.7
1122840000	TRS 230VAC RC 1CD	B.7
1122980000	TRS 5VDC 1CD AU	B.9
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1122990000	TRS 12VDC 1CD AU	B.9
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1126920000	TOS 5VDC 48VDC0,1A	C.75
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1127720000	TOS 24VDC EMPTY	B.53

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1132070000	SRCL1QV S	B.124
1132080000	SCM1QV S	B.94
1132080000	SCM1QV S	B.95
1132080000	SCM1QV S	B.100
1132080000	SCM1QV S	B.104
1132080000	SCM1QV S	B.136
1132080000	SCM1QV S	B.140
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1132090000	SRCL1CLP HM RC1	B.80
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1132290000	SSR 24VDC/MAX.240VAC 1A	B.51
1132310000	SSR 24VDC/0-24VDC 3,5A	B.51
1132810000	SRD ECO 2CD	B.146
1132820000	SRD ECO 3CD	B.146
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1133390000	DRR270110L	B.143
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1133550000	DRL270220L	B.151
1133550000	DRL270220L	C.23
1133560000	DRR370220L	B.145
1133570000	DRL370012L	B.153
1133570000	DRL370012L	C.25
1133580000	DRL370024L	B.153
1133580000	DRL370024L	C.25
1133590000	DRL370048L	B.153
1133590000	DRL370048L	C.25
1133600000	DRL370110L	B.153
1133600000	DRL370110L	C.25
1133610000	DRL370220L	B.153
1133610000	DRL370220L	C.25
1133620000	DRL570012L	B.155
1133620000	DRL570012L	C.27
1133630000	DRL570024L	B.155
1133630000	DRL570024L	C.27
1133640000	DRL570048L	B.155
1133640000	DRL570048L	C.27
1133650000	DRL570110L	B.155
1133650000	DRL570110L	C.27
1133660000	DRL570220L	B.155
1133660000	DRL570220L	C.27
1133670000	DRR270524L	B.143
1133780000	DRR270615L	B.143
1133800000	DRR270730L	B.143
1133810000	DRR370524L	B.145
1133820000	DRR370615L	B.145
1133830000	DRR370730L	B.145
1133840000	DRL170524L	B.149
1133840000	DRL170524L	C.21
1133850000	DRL170615L	B.149
1133850000	DRL170615L	C.21
1133860000	DRL170730L	B.149
1133860000	DRL170730L	C.21
1133870000	DRL270524L	B.151
1133870000	DRL270524L	C.23
1133880000	DRL270615L	B.151
1133880000	DRL270615L	C.23
1133890000	DRL270730L	B.151
1133890000	DRL270730L	C.23
1133910000	DRL370524L	B.153
1133910000	DRL370524L	C.25
1133920000	DRL370615L	B.153
1133920000	DRL370615L	C.25
1133930000	DRL370730L	B.153
1133930000	DRL370730L	C.25
1133940000	DRL570524L	B.155
1133940000	DRL570524L	C.27
1133950000	DRL570615L	B.155
1133950000	DRL570615L	C.27
1133960000	DRL570730L	B.155
1133960000	DRL570730L	C.27
1134160000	DRR CLP M	B.146

1170000000

1172210000	RIM-I 3 230VAC RC	B.78
1172210000	RIM-I 3 230VAC RC	B.80
1172210000	RIM-I 3 230VAC RC	B.94
1172210000	RIM-I 3 230VAC RC	B.95
1172210000	RIM-I 3 230VAC RC	B.96
1172210000	RIM-I 3 230VAC RC	B.100
1172210000	RIM-I 3 230VAC RC	B.104
1172210000	RIM-I 3 230VAC RC	B.106
1174490000	RCL425005	B.50
1174540000	RSS112005	B.50
1174650000	RIM 5 6/230VDC	B.146
1174650000	RIM 5 6/230VDC	B.157
1174650000	RIM 5 6/230VDC	B.166
1174650000	RIM 5 6/230VDC	C.29
1174650000	RIM 5 6/230VDC	C.38
1174670000	RIM 5 6/230VAC	B.146
1174670000	RIM 5 6/230VAC	B.157
1174670000	RIM 5 6/230VAC	B.166
1174670000	RIM 5 6/230VAC	C.29
1174670000	RIM 5 6/230VAC	C.38

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1219970000	DRH174110LT	B.161
1219970000	DRH174110LT	C.33
1219980000	DRH174220LT	B.161
1219980000	DRH174220LT	C.33
1219990000	DRH174524LT	B.161
1219990000	DRH174524LT	C.33

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1220010000	DRH174548LT	B.161
1220010000	DRH174548LT	C.33
1220020000	DRH174615LT	B.161
1220020000	DRH174615LT	C.33
1220030000	DRH174730LT	B.161
1220030000	DRH174730LT	C.33
1220040000	DRH275012LT	B.163
1220040000	DRH275012LT	C.35
1220050000	DRH275024LT	B.163
1220050000	DRH275024LT	C.35
1220060000	DRH275048LT	B.163
1220060000	DRH275048LT	C.35
1220070000	DRH275110LT	B.163
1220070000	DRH275110LT	C.35
1220080000	DRH275220LT	B.163
1220080000	DRH275220LT	C.35
1220090000	DRH275524LT	B.163
1220090000	DRH275524LT	C.35
1220110000	DRH275548LT	B.163
1220110000	DRH275548LT	C.35
1220120000	DRH275615LT	B.163
1220120000	DRH275615LT	C.35
1220130000	DRH275730LT	B.163
1220130000	DRH275730LT	C.35
1220140000	DRH276012LT	B.165
1220140000	DRH276012LT	C.37
1220150000	DRH276024LT	B.165
1220150000	DRH276024LT	C.37
1220170000	DRH276048LT	B.165
1220170000	DRH276048LT	C.37
1220180000	DRH276110LT	B.165
1220180000	DRH276110LT	C.37
1220190000	DRH276220LT	B.165
1220190000	DRH276220LT	C.37
1220200000	DRH276524LT	B.165
1220200000	DRH276524LT	C.37
1220210000	DRH276548LT	B.165
1220210000	DRH276548LT	C.37
1220220000	DRH276615LT	B.165
1220220000	DRH276615LT	C.37
1220230000	DRH276730LT	B.165
1220230000	DRH276730LT	C.37
1220250000	SPW ECO 3CO	B.166
1220250000	SPW ECO 3CO	C.38
1220260000	DRW/DRH CLIP M	B.166
1220260000	DRW/DRH CLIP M	C.38
1220670000	RSS112012	B.50

12400000000

1240780000	TXS SUPPLY	B.62
1240800000	TW TXS/TXZ R3.2	B.62

12500000000

1254880000	TOP 24VDC/24VDC 4A	C.14
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12700000000

1274660000	SDIS SL 0.6X3.5X100	B.80
1274660000	SDIS SL 0.6X3.5X100	B.96
1274660000	SDIS SL 0.6X3.5X100	B.106
1274710000	SDIK PH1 SL	B.141
1274710000	SDIK PH1 SL	B.146
1274720000	SDIK PH2 SL	B.156
1274720000	SDIK PH2 SL	B.157
1274720000	SDIK PH2 SL	B.166
1274720000	SDIK PH2 SL	C.28
1274720000	SDIK PH2 SL	C.29
1274720000	SDIK PH2 SL	C.38
1274730000	SDIK PZ1 SL	B.78
1274730000	SDIK PZ1 SL	B.94
1274730000	SDIK PZ1 SL	B.95
1274730000	SDIK PZ1 SL	B.100
1274730000	SDIK PZ1 SL	B.104
1275100000	TOS 24VDC/24VDC 4A	C.14

12800000000

1283230000	MOS 24VDC/8-30VDC 2A E	C.13
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13000000000

1303760000	SCS 24VDC P1SIL3DS M	C.109
1303890000	SCS 24VDC P1SIL3DS	C.109
1304040000	SCS 24VDC P1SIL3DS MG3	C.109

13100000000

1319270000	SCS 24VDC P2SIL3DSES	C.111
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1319280000	SCS 24VDC P2SIL3ES	C.112

13800000000

1381900000	TRS 24VDC ACT	B.15
1381900000	TRS 24VDC ACT	C.18

13900000000

1391680000	TOS 24VDC ACT	B.39
1391680000	TOS 24VDC ACT	C.19

14000000000

1406200000	PSSR 24VDC/1PH AC 25A	C.128
1406210000	PSSR 24VDC/1PH AC 35A	C.130
1406220000	PSSR 230VAC/1PH AC 25A	C.129
1406230000	PSSR 1PH CONTROL UNIT	C.132
1406240000	PSSR 24VDC/1PH AC50A HP	C.133
1406250000	PSSR 24VDC/1PH AC75A HP	C.134

14200000000

1421450000	SSR 10-32VDC/0-35VDC 5A	B.51
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14500000000

1454430000	RSS113024F	B.50
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14600000000

1463520000	TIA F10	B.56
1463530000	TIA SUBD 15S	B.57
1463540000	TIAL F10	B.58
1463550000	TIAL F20	B.59

14700000000

1479650000	TRS 5VDC 1CO 16A	B.17
1479670000	TRS 12VDC 1CO 16A	B.17
1479680000	TRS 24VDC 1CO 16A	B.17
1479690000	TRS 24VUC 1CO 16A	B.17
1479700000	TRS 48VUC 1CO 16A	B.17
1479710000	TRS 60VUC 1CO 16A	B.17
1479730000	TRS 120VUC 1CO 16A	B.17
1479740000	TRS 230VUC 1CO 16A	B.17
1479750000	TRS 120VAC RC 1CO 16A	B.17
1479760000	TRS 230VAC RC 1CO 16A	B.17
1479780000	TRS 24VDC 1NO HC	B.20
1479780000	TRS 24VDC 1NO HC	C.16
1479810000	TRS 24VDC 1NO HCP	B.21
1479810000	TRS 24VDC 1NO HCP	C.17

15200000000

1520980000	ESG 9/26 SCM ECO MC NE WS	B.136
1520980000	ESG 9/26 SCM ECO MC NE WS	B.140

15400000000

1542360000	DRMKIT 24VDC 2CO LD	B.129
1542370000	DRMKIT 220VDC 2CO LD	B.129
1542380000	DRMKIT 24VAC 2CO LD	B.129
1542390000	DRMKIT 230VAC 2CO LD	B.129
1542410000	DRMKIT 24VDC 4CO LD	B.133
1542420000	DRMKIT 220VDC 4CO LD	B.133
1542430000	DRMKIT 24VAC 4CO LD	B.133
1542450000	DRMKIT 230VAC 4CO LD	B.133
1542460000	DRMKIT 24VDC 2CO LD/PB	B.129
1542470000	DRMKIT 220VDC 2CO LD/PB	B.129
1542480000	DRMKIT 24VAC 2CO LD/PB	B.129
1542490000	DRMKIT 230VAC 2CO LD/PB	B.129
1542510000	DRMKIT 24VDC 4CO LD/PB	B.133
1542520000	DRMKIT 220VDC 4CO LD/PB	B.133
1542530000	DRMKIT 24VAC 4CO LD/PB	B.133
1542540000	DRMKIT 230VAC 4CO LD/PB	B.133

16000000000

1609900000	WS 12/6 MC NE WS	C.144
1609900000	WS 12/6 MC NE WS	C.145

17500000000

1758250000	ZOV 4N/2 GE	B.180
1758250000	ZOV 4N/2 GE	C.144
1758250000	ZOV 4N/2 GE	C.145
1758260000	ZOV 4N/10 GE	B.180
1758260000	ZOV 4N/10 GE	C.144
1758260000	ZOV 4N/10 GE	C.145

17600000000

1762620000	ZOV 4N/4 GE	B.180
1762620000	ZOV 4N/4 GE	C.144
1762620000	ZOV 4N/4 GE	C.145
1762630000	ZOV 4N/3 GE	B.180
1762630000	ZOV 4N/3 GE	C.144
1762630000	ZOV 4N/3 GE	C.145

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17900000000

1793950000	ZOV 4N/2 RT	B.180
1793950000	ZOV 4N/2 RT	C.144
1793950000	ZOV 4N/2 RT	C.145
1793960000	ZOV 4N/2 BL	B.180
1793960000	ZOV 4N/2 BL	C.144
1793960000	ZOV 4N/2 BL	C.145
1793970000	ZOV 4N/2 SW	B.180
1793970000	ZOV 4N/2 SW	C.144
1793970000	ZOV 4N/2 SW	C.145
1793980000	ZOV 4N/3 RT	B.180
1793980000	ZOV 4N/3 RT	C.144
1793980000	ZOV 4N/3 RT	C.145
1793990000	ZOV 4N/3 BL	B.180
1793990000	ZOV 4N/3 BL	C.144
1793990000	ZOV 4N/3 BL	C.145
1794000000	ZOV 4N/3 SW	B.180
1794000000	ZOV 4N/3 SW	C.144
1794000000	ZOV 4N/3 SW	C.145
1794010000	ZOV 4N/4 RT	B.180
1794010000	ZOV 4N/4 RT	C.144
1794010000	ZOV 4N/4 RT	C.145
1794020000	ZOV 4N/4 BL	B.180
1794020000	ZOV 4N/4 BL	C.144
1794020000	ZOV 4N/4 BL	C.145
1794030000	ZOV 4N/4 SW	B.180
1794030000	ZOV 4N/4 SW	C.144
1794030000	ZOV 4N/4 SW	C.145
1794040000	ZOV 4N/10 RT	B.180
1794040000	ZOV 4N/10 RT	C.144
1794040000	ZOV 4N/10 RT	C.145
1794050000	ZOV 4N/10 BL	B.180
1794050000	ZOV 4N/10 BL	C.144
1794050000	ZOV 4N/10 BL	C.145
1794060000	ZOV 4N/10 SW	B.180
1794060000	ZOV 4N/10 SW	C.144
1794060000	ZOV 4N/10 SW	C.145

18100000000

1818400000	WS 10/6 M MC NE WS	B.62
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18200000000

1828450000	WS 10/6 MC NE WS	B.180
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19000000000

1905970000	WS 10/12 MC NE WS	B.62
1909020000	ZOV 4N/20 GE	B.180
1909020000	ZOV 4N/20 GE	C.144
1909020000	ZOV 4N/20 GE	C.145
1909100000	ZOV 4N/20 BL	B.180
1909100000	ZOV 4N/20 BL	C.144
1909100000	ZOV 4N/20 BL	C.145
1909120000	ZOV 4N/20 SW	B.180
1909120000	ZOV 4N/20 SW	C.144
1909120000	ZOV 4N/20 SW	C.145
1909150000	ZOV 4N/20 RT	B.180
1909150000	ZOV 4N/20 RT	C.144
1909150000	ZOV 4N/20 RT	C.145

19800000000

1984090000	RSS110024	B.50
1984100000	RSS110005	B.50
1984110000	RSS110012	B.50
1984120000	RSS110060	B.50
1984540000	TRS 24VDC 1CO AGSNO	B.13
1984560000	TRS 12VDC 1CO C1D2	B.47
1984570000	TRS 24VDC 1CO C1D2	B.47
1984580000	TRS 24VUC 1CO C1D2	B.47
1984590000	TRS 120VACRC 1CO C1D2	B.47
1984600000	TRS 230VACRC 1CO C1D2	B.47
1984610000	TRS 24-230VUC 1CO C1D2	B.47
1984620000	TRS 12VDC 1COAU C1D2	B.49
1984630000	TRS 24VDC 1COAU C1D2	B.49
1984640000	TRS 120VACRC 1CO C1D2	B.49
1984650000	TRS 24-230VUC 1COAU C1D2	B.49

19900000000

1990960000	TOS 24VDC 24VDC5A	B.45
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21500000000

2152860000	TRS 5VDC 1CO AGSNO	B.13
2152880000	TRS 12VDC 1CO AGSNO	B.13
2152900000	TRS 120VAC RC 1CO AGSNO	B.13
2152920000	TRS 230VAC RC 1CO AGSNO	B.13
2152940000	TRS 24VUC 1CO AGSNO	B.13
2153060000	TRS 48VUC 1CO AGSNO	B.13
2153550000	TRS 60VUC 1CO AGSNO	B.13
2153570000	TRS 120VUC 1CO AGSNO	B.13
2153590000	TRS 230VUC 1CO AGSNO	B.13

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2476340000	DRIKIT 12VDC 1CO LD	B.113
2476680000	DRIKIT 24VDC 1CO LD	B.113
2476680000	DRIKIT 48VDC 1CO LD	B.113
2476700000	DRIKIT 110VDC 1CO LD	B.113
2476710000	DRIKIT 24VAC 1CO LD	B.113
2476720000	DRIKIT 115VAC 1CO LD	B.113
2476730000	DRIKIT 230VAC 1CO LD	B.113
2476740000	DRIKIT 12VDC 1CO LD/PB	B.113
2476750000	DRIKIT 24VDC 1CO LD/PB	B.113
2476760000	DRIKIT 48VDC 1CO LD/PB	B.113
2476770000	DRIKIT 110VDC 1CO LD/PB	B.113
2476780000	DRIKIT 24VAC 1CO LD/PB	B.113
2476790000	DRIKIT 115VAC 1CO LD/PB	B.113
2476800000	DRIKIT 230VAC 1CO LD/PB	B.113
2476810000	DRIKIT 12VDC 2CO LD	B.117
2476820000	DRIKIT 24VDC 2CO LD	B.117
2476830000	DRIKIT 48VDC 2CO LD	B.117
2476840000	DRIKIT 110VDC 2CO LD	B.117
2476850000	DRIKIT 24VAC 2CO LD	B.117
2476860000	DRIKIT 115VAC 2CO LD	B.117
2476870000	DRIKIT 230VAC 2CO LD	B.117
2476880000	DRIKIT 12VDC 2CO LD/PB	B.117
2476890000	DRIKIT 24VDC 2CO LD/PB	B.117
2476900000	DRIKIT 48VDC 2CO LD/PB	B.117
2476910000	DRIKIT 110VDC 2CO LD/PB	B.117
2476920000	DRIKIT 24VAC 2CO LD/PB	B.117
2476930000	DRIKIT 115VAC 2CO LD/PB	B.117
2476940000	DRIKIT 230VAC 2CO LD/PB	B.117

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2576210000	DRIKTP 24VDC 1CD LD/PB	B.111
2576220000	DRIKTP 24VDC 1CD LD	B.111
2576230000	DRIKTP 24VAC 2CD LD/PB	B.115
2576240000	DRIKTP 24VAC 2CD LD	B.115
2576250000	DRIKTP 24VAC 1CD LD/PB	B.111
2576260000	DRIKTP 24VAC 1CD LD	B.111
2576270000	DRIKTP 230VAC 2CD LD	B.115
2576280000	DRIKTP 230VAC 1CD LD	B.111
2576290000	DRIKTP 115VAC 2CD LD	B.115

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2614820000	TRP 5VDC 1CD AGSNO	B.13
2614830000	TRP 5VDC 1CD	B.7
2614840000	TRP 5VDC 2CD	B.23
2614850000	TOP 5VDC 230VAC1A	B.41
2614850000	TOP 5VDC 230VAC1A	C.79
2614860000	TOP 5VDC 48VDC0.1A	B.33
2614860000	TOP 5VDC 48VDC0.1A	C.57
2614860000	TOP 5VDC 48VDC0.1A	C.75
2614870000	TRP 5VDC 1CD EMPTY	B.52
2614880000	TOP 60VUC 48VDC0.1A	B.33
2614880000	TOP 60VUC 48VDC0.1A	C.57
2614880000	TOP 60VUC 48VDC0.1A	C.75
2617830000	TRP 230VUC 1CD AGSNO	B.13
2617840000	TRP 120VAC RC 1CD AGSNO	B.13
2617850000	TRP 230VAC RC 1CD AGSNO	B.13
2617860000	TRP 12VDC 1CD AGSNO	B.13
2617870000	TRP 60VUC 1CD AGSNO	B.13
2617880000	TRP 24VUC 1CD AGSNO	B.13
2617890000	TRP 48VUC 1CD AGSNO	B.13
2617900000	TRP 120VUC 1CD AGSNO	B.13
2617910000	TRP 24VUC 1CD 16A	B.17
2617930000	TRP 24VDC 1NO HCP	B.21
2617930000	TRP 24VDC 1NO HCP	C.17
2617950000	TRP 230VAC RC 1CD AU	B.9
2617950000	TRP 230VAC RC 1CD AU	C.51
2617960000	TRP 48VUC 1CD 16A	B.17
2617970000	TRP 60VUC 1CD 16A	B.17
2618000000	TRP 24VDC 1CD	B.7
2618010000	TRP 120VUC 1CD	B.13
2618020000	TRP 24VDC 1CD AGSNO	B.7
2618030000	TRP 120VAC RC 1CD AU	B.9
2618030000	TRP 120VAC RC 1CD AU	C.51
2618040000	TRP 12VDC 1CD 16A	B.17
2618050000	TRP 230VUC 1CD	B.7
2618060000	TRP 5VDC 1CD AU	B.9
2618060000	TRP 5VDC 1CD AU	C.51
2618070000	TRP 60VUC 1CD AU	B.9
2618070000	TRP 60VUC 1CD AU	C.51
2618080000	TRP 120VUC 1CD AU	B.9
2618080000	TRP 120VUC 1CD AU	C.51
2618090000	TRP 24VDC 1NO HC	B.20
2618090000	TRP 24VDC 1NO HC	C.16
2618100000	TRP 24VDC 1CD 16A	B.17
2618110000	TRP 24VDC 1CD AU	B.9
2618110000	TRP 24VDC 1CD AU	C.51
2618120000	TRP 12VDC 1CD AU	B.9
2618120000	TRP 12VDC 1CD AU	C.51
2618130000	TRP 5VDC 1CD 16A	B.17
2618140000	TRP 60VUC 1CD	B.7
2618150000	TRP 120VAC RC 1CD	B.7
2618160000	TRP 24VUC 1CD AU	B.9
2618160000	TRP 24VUC 1CD AU	C.51
2618170000	TRP 48VUC 1CD AU	B.9
2618170000	TRP 48VUC 1CD AU	C.51
2618180000	TRP 12VDC 1CD	B.7
2618190000	TRP 230VAC RC 1CD 16A	B.17
2618200000	TRP 230VAC RC 1CD	B.7
2618200000	TRP 230VAC RC 1CD	C.51
2618210000	TRP 230VUC 1CD AU	B.9
2618210000	TRP 230VUC 1CD AU	C.51
2618220000	TRP 24VUC 1CD	B.7
2618230000	TRP 24VDC ACT	B.15
2618230000	TRP 24VDC ACT	C.18
2618240000	TRP 48VUC 1CD	B.7
2618260000	TRP 230VUC 1CD 16A	B.17
2618270000	TRP 120VAC RC 1CD 16A	B.17
2618280000	TRP 120VUC 1CD 16A	B.17
2618290000	TRP 60VUC 2CD	B.23
2618300000	TRP 230VUC 2CD AU	B.25
2618300000	TRP 230VUC 2CD AU	C.55
2618310000	TRP 12VDC 2CD AU	B.25
2618310000	TRP 12VDC 2CD AU	C.55
2618320000	TRP 24VUC 2CD	B.23
2618330000	TRP 230VAC RC 2CD	B.23
2618350000	TOP 24VUC 230VAC1A	B.41
2618350000	TOP 24VUC 230VAC1A	C.79
2618360000	TRP 60VUC 2CD AU	B.25
2618370000	TOP 60VUC 230VAC1A	B.41
2618370000	TOP 60VUC 230VAC1A	C.79
2618380000	TOP 12VDC 230VAC1A	B.41
2618380000	TOP 12VDC 230VAC1A	C.79
2618390000	TOP 120VAC RC 230VAC1A	B.41
2618400000	TRP 24VDC 2CD	B.23
2618420000	TOP 24VDC 230VAC1A	B.41
2618420000	TOP 24VDC 230VAC1A	C.79
2618430000	TOP 230VAC RC 230VAC1A	B.41

2618430000	TOP 230VAC RC 230VAC1A	C.79
2618440000	TRP 230VUC 2CD	B.23
2618450000	TOP 230VUC 230VAC1A	B.41
2618450000	TOP 230VUC 230VAC1A	C.79
2618460000	TOP 48VUC 230VAC1A	B.41
2618460000	TOP 48VUC 230VAC1A	C.79
2618470000	TRP 120VAC RC 2CD	B.23
2618480000	TOP 120VUC 230VAC1A	B.41
2618480000	TOP 120VUC 230VAC1A	C.79
2618490000	TRP 120VAC RC 2CD AU	B.25
2618490000	TRP 120VAC RC 2CD AU	C.55
2618500000	TRP 230VAC RC 2CD AU	B.25
2618500000	TRP 230VAC RC 2CD AU	C.55
2618520000	TRP 48VUC 2CD	B.23
2618530000	TRP 24VDC 2CD AU	B.25
2618530000	TRP 24VDC 2CD AU	C.55
2618540000	TRP 24VUC 2CD AU	B.25
2618540000	TRP 24VUC 2CD AU	C.55
2618550000	TRP 12VDC 2CD	B.23
2618560000	TRP 48VUC 2CD AU	B.25
2618560000	TRP 48VUC 2CD AU	C.55
2618570000	TRP 120VUC 2CD	B.23
2618580000	TRP 5VDC 2CD AU	B.25
2618580000	TRP 5VDC 2CD AU	C.55
2618590000	TRP 120VUC 2CD AU	B.25
2618590000	TRP 120VUC 2CD AU	C.55
2618600000	TOP 12VDC 48VDC0.1A	B.33
2618600000	TOP 12VDC 48VDC0.1A	C.57
2618600000	TOP 12VDC 48VDC0.1A	C.75
2618620000	TOP 230VAC RC 48VDC0.1A	B.33
2618620000	TOP 230VAC RC 48VDC0.1A	C.57
2618620000	TOP 230VAC RC 48VDC0.1A	C.75
2618640000	TOP 24VUC 48VDC0.1A	B.33
2618640000	TOP 24VUC 48VDC0.1A	C.57
2618640000	TOP 24VUC 48VDC0.1A	C.75
2618650000	TOP 120VAC RC 48VDC0.1A	B.33
2618650000	TOP 120VAC RC 48VDC0.1A	C.57
2618650000	TOP 120VAC RC 48VDC0.1A	C.75
2618660000	TOP 120VAC RC 24VDC2A	B.37
2618660000	TOP 120VAC RC 24VDC2A	C.77
2618670000	TOP 230VAC RC 24VDC2A	B.37
2618670000	TOP 230VAC RC 24VDC2A	C.77
2618680000	TOP 120VUC 48VDC0.1A	B.33
2618680000	TOP 120VUC 48VDC0.1A	C.57
2618680000	TOP 120VUC 48VDC0.1A	C.75
2618690000	TOP 230VUC 48VDC0.1A	B.33
2618690000	TOP 230VUC 48VDC0.1A	C.57
2618690000	TOP 230VUC 48VDC0.1A	C.75
2618700000	TOP 24VDC 24VDC3.5A	B.44
2618710000	TOP 48VUC 48VDC0.1A	B.33
2618710000	TOP 48VUC 48VDC0.1A	C.57
2618710000	TOP 48VUC 48VDC0.1A	C.75
2618720000	TOP 24VDC 24VDC2A	B.37
2618720000	TOP 24VDC 24VDC2A	C.77
2618730000	TOP 24VUC 24VDC2A	B.37
2618730000	TOP 24VUC 24VDC2A	C.77
2618730000	TOP 24VUC 24VDC2A	C.79
2618740000	TOP 24VDC 24VDC ACT	B.53
2618750000	TOP 24VDC ACT	B.39
2618750000	TOP 24VDC ACT	C.19
2618760000	TOP 48VUC 24VDC2A	B.37
2618760000	TOP 48VUC 24VDC2A	C.77
2618770000	TOP 120VUC 24VDC2A	B.37
2618770000	TOP 120VUC 24VDC2A	C.77
2618790000	TOP 24VDC 48VDC0.1A	B.33
2618790000	TOP 24VDC 48VDC0.1A	C.57
2618790000	TOP 24VDC 48VDC0.1A	C.75
2618800000	TOP 230VUC 24VDC2A	B.37
2618800000	TOP 230VUC 24VDC2A	C.77
2618810000	TOP 5VDC 24VDC2A	B.37
2618810000	TOP 5VDC 24VDC2A	C.77
2618820000	TOP 12VDC 24VDC2A	B.37
2618820000	TOP 12VDC 24VDC2A	C.77
2618840000	TOP 24VDC 24VDC5A	B.45
2618870000	TRP 24VDC 1CD EMPTY	B.52
2618880000	TRP 120VAC RC 1CD EMPTY	B.52
2618890000	TRP 230VAC RC 1CD EMPTY	B.52
2618900000	TRP 60VUC 1CD EMPTY	B.52
2618910000	TRP 24VUC 1CD EMPTY	B.52
2618920000	TRP 48VUC 1CD EMPTY	B.52
2618930000	TRP 12VDC 1CD EMPTY	B.52
2618940000	TXP SUPPLY	B.62
2618950000	TRP 120VUC 1CD EMPTY	B.52
2618960000	TRP 230VUC 1CD EMPTY	B.52
2618970000	TOP 60VUC 24VDC2A	B.37
2618970000	TOP 60VUC 24VDC2A	C.77

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2633940000	SCS 24VDC P1SIL3ES LL	C.114
2634010000	SCS 24VDC P1SIL3ES LL-T	C.115
2639560000	TRST 24VDC 1CD M3	B.28
2639560000	TRST 24VDC 1CD M3	C.84
2639720000	TRST 24VDC 1CD M3 EMPTY	B.29
2639720000	TRST 24VDC 1CD M3 EMPTY	C.85
2639730000	TRP T 24VDC 1CD M3	B.28
2639730000	TRP T 24VDC 1CD M3	C.84
2639740000	TRP T 24VDC 1CD M3 EMPTY	B.29
2639740000	TRP T 24VDC 1CD M3 EMPTY	C.85

2662850000	TRS 24-230VUC 1CD ED2	B.10
2662860000	TRS 24-230VUC 2CD AU ED2	B.11
2662860000	TRS 24-230VUC 1CD AU ED2	C.52
2662870000	TRS 24-230VUC 1CD EMPTY ED2	B.52
2662880000	TRS 24-230VUC 2CD ED2	B.26
2662890000	TRS 24-230VUC 2CD AU ED2	B.27
2662890000	TRS 24-230VUC 2CD AU ED2	C.53
2662900000	TRS 24-230VUC 2CD EMPTY ED2	B.53
2662910000	TOS 24-230VUC 48VDC0.1A ED2	B.34
2662910000	TOS 24-230VUC 48VDC0.1A ED2	C.58
2662920000	TOS 24-230VUC 24VDC2A ED2	B.38
2662930000	TOS 24-230VUC 230VAC1A ED2	B.42
2662940000	TOS 24-230VUC 24VDC3.5A ED2	B.44
2662950000	TOS 24-230VUC EMPTY ED2	B.53
2662960000	TRS 24-230VUC 1CD 16A ED2	B.18
2662970000	TRS 24-230VUC 1NO HC ED2	B.20
2662970000	TRS 24-230VUC 1NO HC ED2	C.16
2662980000	TRS 24-230VUC 1NO HCP ED2	B.21
2662980000	TRS 24-230VUC 1NO HCP ED2	C.17
2662990000	TOS 24-230VUC 24VDC5A ED2	B.45
2663000000	TRS 24-230VUC 1CD AGSNO ED2	B.14
2663010000	TRP 24-230VUC 1CD ED2	B.10
2663020000	TRP 24-230VUC 1CD AU ED2	B.11
2663020000	TRP 24-230VUC 1CD AU ED2	C.52
2663030000	TRP 24-230VUC 1CD EMPTY ED2	B.52
2663040000	TRP 24-230VUC 2CD ED2	B.26
2663050000	TRP 24-230VUC 2CD AU ED2	B.27
2663050000	TRP 24-230VUC 2CD AU ED2	C.53
2663060000	TRP 24-230VUC 2CD EMPTY ED2	B.53
2663070000	TOP 24-230VUC 48VDC0.1A ED2	B.34
2663070000	TOP 24-230VUC 48VDC0.1A ED2	C.58
2663080000	TOP 24-230VUC 24VDC2A ED2	B.38
2663090000	TOP 24-230VUC 230VAC1A ED2	B.42
2663100000	TOP 24-230VUC 24VDC3.5A ED2	B.44
2663110000	TOP 24-230VUC EMPTY ED2	B.53
2663120000	TRP 24-230VUC 1CD 16A ED2	B.18
2663130000	TRP 24-230VUC 1NO HC ED2	C.16
2663130000	TRP 24-230VUC 1NO HC ED2	C.20
2663140000	TRP 24-230VUC 1NO HCP ED2	B.21
2663140000	TRP 24-230VUC 1NO HCP ED2	C.17
2663150000	TOP 24-230VUC 24VDC5A ED2	B.45
2663160000	TRP 24-230VUC 1CD AGSNO ED2	B.14

2680000000

2680850000	TRP 5VDC 2CD EMPTY	B.53
2680960000	TRP 12VDC 2CD EMPTY	B.53
2680970000	TRP 24VDC 2CD EMPTY	B.53
2680980000	TRP 24VUC 2CD EMPTY	B.53
2680990000	TRP 48VUC 2CD EMPTY	B.53
2681000000	TRP 60VUC 2CD EMPTY	B.53
2681010000	TRP 120VUC 2CD EMPTY	B.53
2681020000	TRP 230VUC 2CD EMPTY	B.53
2681030000	TRP 120VAC RC 2CD EMPTY	B.53
2681190000	TRP 230VAC RC 2CD EMPTY	B.53

2690000000

2697250000	TFIS 12-240VUC 1CD M7C	C.88
2697260000	TFIS 12-240VUC 1CD CG	C.89
2697270000	TFIS 12-240VUC 2NO SD	C.92
2697280000	TFIS 24-240VUC 1CD ON	C.90
2697290000	TFIS 24-240VUC 1CD OFFC	C.91

2700000000

2706290000	TRS 24VUC 2CD FG	B.31
2706290000	TRS 24VUC 2CD FG	C.123
2706430000	TRP 24VUC 2CD FG	B.31
2706430000	TRP 24VUC 2CD FG	C.123

2720000000

2723360000	RCH424024FG	B.31
2723360000	RCH424024FG	C.123

4050000000

4058560000	RCL424012	B.50
4058570000	RCL424024	B.50
4058580000	RCL425024	B

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7760056097	DRM570024LT	B.139
7760056098	DRM570048LT	B.139
7760056099	DRM570110LT	B.139
7760056100	DRM570220LT	B.139
7760056101	DRM570524LT	B.139
7760056102	DRM570548LT	B.139
7760056103	DRM570615LT	B.139
7760056104	DRM570730LT	B.139
7760056105	DRM570024LD	B.139
7760056106	FS 2CD	B.137
7760056107	FS 4CD	B.141
7760056108	DRM/DRL CLIP M	B.136
7760056108	DRM/DRL CLIP M	B.137
7760056108	DRM/DRL CLIP M	B.140
7760056108	DRM/DRL CLIP M	B.141
7760056108	DRM/DRL CLIP M	B.156
7760056108	DRM/DRL CLIP M	C.28
7760056169	RIM 1 6/230VDC	B.120
7760056169	RIM 1 6/230VDC	B.124
7760056169	RIM 1 6/230VDC	B.136
7760056169	RIM 1 6/230VDC	B.140
7760056169	RIM 1 6/230VDC	B.141
7760056169	RIM 1 6/230VDC	B.156
7760056169	RIM 1 6/230VDC	C.28
7760056225	SLD F 2CD	B.156
7760056225	SLD F 2CD	C.28
7760056226	SLD F 3CD	B.156
7760056226	SLD F 3CD	C.28
7760056227	SLD F 4CD	B.157
7760056227	SLD F 4CD	C.29
7760056234	SLD CLIP 3CD M	B.156
7760056234	SLD CLIP 3CD M	C.28
7760056235	SLD CLIP 4CD M	B.157
7760056235	SLD CLIP 4CD M	C.29
7760056249	Test Lever Block DRH/DRW	B.161
7760056249	Test Lever Block DRH/DRW	B.163
7760056249	Test Lever Block DRH/DRW	B.165
7760056249	Test Lever Block DRH/DRW	C.33
7760056249	Test Lever Block DRH/DRW	C.35
7760056249	Test Lever Block DRH/DRW	C.37
7760056263	SCM 2CD ECO	B.136
7760056264	SCM 4CD ECO	B.140
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7760056297	DR1314024	B.119
7760056298	DR1314048	B.119
7760056299	DR1314110	B.119
7760056300	DR1314524	B.119
7760056301	DR1314615	B.119
7760056302	DR1314730	B.119
7760056303	DR1314012L	B.119
7760056304	DR1314024L	B.119
7760056305	DR1314048L	B.119
7760056306	DR1314110L	B.119
7760056307	DR1314524L	B.119
7760056308	DR1314615L	B.119
7760056309	DR1314730L	B.119
7760056310	DR1314012LD	B.119
7760056311	DR1314024LD	B.119
7760056312	DR1314048LD	B.119
7760056313	DR1314110LD	B.119
7760056314	DR1314012LTD	B.119
7760056315	DR1314024LTD	B.119
7760056316	DR1314048LTD	B.119
7760056317	DR1314110LTD	B.119
7760056318	DR1314524LT	B.119
7760056319	DR1314615LT	B.119
7760056320	DR1314730LT	B.119
7760056321	DR1424012	B.123
7760056322	DR1424024	B.123
7760056323	DR1424048	B.123
7760056324	DR1424110	B.123
7760056325	DR1424524	B.123
7760056326	DR1424615	B.123
7760056327	DR1424730	B.123
7760056328	DR1424012L	B.123
7760056329	DR1424024L	B.123
7760056330	DR1424048L	B.123
7760056331	DR1424110L	B.123
7760056332	DR1424524L	B.123
7760056333	DR1424615L	B.123
7760056334	DR1424730L	B.123
7760056335	DR1424012LD	B.123
7760056336	DR1424024LD	B.123
7760056337	DR1424048LD	B.123
7760056338	DR1424110LD	B.123
7760056339	DR1424012LTD	B.123
7760056340	DR1424024LTD	B.123
7760056341	DR1424048LTD	B.123
7760056342	DR1424110LTD	B.123
7760056343	DR1424524LT	B.123
7760056344	DR1424615LT	B.123
7760056345	DR1424730LT	B.123
7760056348	SDI 1CD F ECO	B.121
7760056349	SDI 2CD F ECO	B.125
7760056350	SDI 1CD	B.120
7760056351	SDI 2CD	B.124
7760056352	SDI CLIP	B.120
7760056352	SDI CLIP	B.124
7760056362	SCM 2CD P	B.136

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7760056364	SDI 1CD P	B.120
7760056365	SDI 2CD P	B.124
7760056366	SCM/SDI P CC	B.120
7760056366	SCM/SDI P CC	B.124
7760056366	SCM/SDI P CC	B.136
7760056366	SCM/SDI P CC	B.140
7760056367	SCM CLIP P	B.136
7760056367	SCM CLIP P	B.140
7760056368	SDI CLIP LM	B.120
7760056368	SDI CLIP LM	B.124
7760056389	SDI CLIP P	B.120
7760056389	SDI CLIP P	B.124
7760056390	SDI CLIP HM	B.120
7760056390	SDI CLIP HM	B.124

79400000000

79400007637	RCM580730	B.103
7940018455	RIM 3 110/230VUC	B.120
7940018455	RIM 3 110/230VUC	B.124
7940018455	RIM 3 110/230VUC	B.136
7940018455	RIM 3 110/230VUC	B.140
7940018455	RIM 3 110/230VUC	B.141
7940018455	RIM 3 110/230VUC	B.156
7940018455	RIM 3 110/230VUC	C.28
7940018455	RIM 3 110/230VUC	C.29
7940018455	RIM 3 110/230VUC	C.33
7940018457	RIM 3 6/24VUC	B.120
7940018457	RIM 3 6/24VUC	B.124
7940018457	RIM 3 6/24VUC	B.136
7940018457	RIM 3 6/24VUC	B.140
7940018457	RIM 3 6/24VUC	B.141
7940018457	RIM 3 6/24VUC	B.156
7940018457	RIM 3 6/24VUC	C.28

80500000000

8054360000	RCM570012	B.103
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80700000000

8074670000	RCM570048	B.103
8074700000	RCM570110	B.103

82300000000

8237710000	MCZ R 230VAC	B.171
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82800000000

8286410000	MCZ TO 24VDC/150MS	C.100
8287730000	MCZ O 24VUC	B.176

83200000000

8324580000	MCZ TO 24VDC/50MS	C.100
8324610000	MCZ O 24VDC	B.178

83600000000

8365940000	MCZ O 24VUC	B.176
8365980000	MCZ R 24VDC	B.171

83800000000

8389030000	AP MCZ1.5 1674	B.180
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83900000000

8390590000	MCZ R 24VUC	B.171
8398940000	MCZ O 5V TTL	B.178

84200000000

8420880000	MCZ R 120VAC	B.171
8421060000	MCZ O 120VUC	B.177
8421380000	MCZ O 230VAC	B.177

84400000000

8442960000	MCZ R 24VDC 5UAA	B.171
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84600000000

8467470000	MCZ R 110VDC	B.171
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84900000000

8499550000	MCZ R 24Vdc: 1NO TRAK	B.173
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85700000000

8574070000	MCZ R 48...110Vdc: 1NO TRAK	B.173
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86800000000

8689760000	RCM270524	B.93
8689770000	RCM270R24	B.93
8689780000	RCM270548	B.93
8689800000	RCM270615	B.93

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8689820000	RCM270730	B.93
8689830000	RCM270730	B.93
8689840000	RCM270012	B.93
8689850000	RCM270112	B.93
8689860000	RCM270024	B.93
8689870000	RCM270L24	B.93
8689880000	RCM270048	B.93
8689890000	RCM270L48	B.93
8689900000	RCM270110	B.93
8689950000	RCM370R24	B.99
8689970000	RCM370R48	B.99
8689980000	RCM370615	B.99
8689990000	RCM370515	B.99

86900000000

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8690040000	RCM370024	B.99
8690060000	RCM370R48	B.99
8690080000	RCM370110	B.99
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8690120000	RCM570R24	B.103
8690130000	RCM570R48	B.103
8690150000	RCM570515	B.103
8690160000	RCM570730	B.103
8690180000	RCM570L12	B.103
8690200000	RCM570024	B.103
8690220000	RCM570L24	B.103
8690230000	RCM570L48	B.103
8690240000	RCM570M10	B.103
8693790000	RC1424005	B.50
8694460000	RCM580024	B.103

87100000000

8713890000	MCZ R 24Vdc: 1CD TRAK	B.173
8713900000	MCZ R 36Vdc: 1CD TRAK	B.173
8713910000	MCZ R 48...110Vdc: 1CD TRAK	B.173

87900000000

8790500000	MCZ R 48...110VDC: 1CD AU TRAK	B.175
8790510000	MCZ R 36VDC: 1CD AU TRAK	B.175
8790520000	MCZ R 24VDC: 1CD AU TRAK	B.175

88200000000

8820710000	MCZ O TRAK 24.110VDC	B.179
8824860000	RCM580615	B.103
8828370000	RC1425110	B.50

88600000000

8869390000	SCM4 4CD N	B.95
8869390000	SCM4 4CD N	B.104
8869400000	SCM4 2CD	B.94
8869410000	SCM4 3CD N	B.100
8869420000	SCM4 4CD	B.94
8869420000	SCM4 4CD	B.104
8869430000	SCM4 4CD P	B.96
8869430000	SCM4 4CD P	B.106
8869440000	SCMH CLIP P	B.94
8869440000	SCMH CLIP P	B.96
8869440000	SCMH CLIP P	B.104
8869440000	SCMH CLIP P	B.106
8869450000	SCMH CLIP M	B.94
8869450000	SCMH CLIP M	B.96
8869450000	SCMH CLIP M	B.100
8869450000	SCMH CLIP M	B.104
8869450000	SCMH CLIP M	B.106
8869460000	SCMH MARK	B.94
8869460000	SCMH MARK	B.95
8869460000	SCMH MARK	B.96
8869460000	SCMH MARK	B.100
8869460000	SCMH MARK	B.104
8869460000	SCMH MARK	B.106
8869480000	SRC1 2CD N	B.78
8869490000	SRC1 2CD	B.78
8869500000	SRC1 2CD P	B.80
8869510000	SRC1 CLIP HP	B.78
8869510000	SRC1 CLIP HP	B.80
8869530000	SRC1 MARK	B.78
8869530000	SRC1 MARK	B.80
8869580000	RIM4 1 6/230V	B.78
8869580000	RIM4 1 6/230V	B.80
8869580000	RIM4 1 6/230V	B.94
8869580000	RIM4 1 6/230V	B.95
8869580000	RIM4 1 6/230V	B.96
8869580000	RIM4 1 6/230V	B.100
8869580000	RIM4 1 6/230V	B.104
8869580000	RIM4 1 6/230V	B.106
8869600000	RIM4 2 6/24VDC GN	B.78
8869600000	RIM4 2 6/24VDC GN	B.80
8869600000	RIM4 2 6/24VDC GN	B.94

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8869600000	RIM4 2 6/24VDC GN	B.95
8869600000	RIM4 2 6/24VDC GN	B.96
8869600000	RIM4 2 6/24VDC GN	B.100
8869600000	RIM4 2 6/24VDC GN	B.104
8869600000	RIM4 2 6/24VDC GN	B.106
8869620000	RIM4 3 24/60VUC GN	B.78
8869620000	RIM4 3 24/60VUC GN	B.80
8869620000	RIM4 3 24/60VUC GN	B.84
8869620000	RIM4 3 24/60VUC GN	B.86
8869620000	RIM4 3 24/60VUC GN	B.89
8869620000	RIM4 3 24/60VUC GN	B.96
8869620000	RIM4 3 24/60VUC GN	B.100
8869620000	RIM4 3 24/60VUC GN	B.104
8869620000	RIM4 3 24/60VUC GN	B.106
8869640000	RIM4 3 6/24VUC GN	B.80
8869640000	RIM4 3 6/24VUC GN	B.84
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8869990000	RCI374524	B.75

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8870010000	RCI374730	B.75
8870020000	RCI484012	B.77
8870030000	RCI484024	B.77
8870040000	RCI484048	B.77
8870050000	RCI484110	B.77
8870060000	RCI484524	B.77
8870070000	RCI484615	B.77
8870080000	RCI484730	B.77
8870090000	RCI314AB2	B.75
8870100000	RCI314AC4	B.75
8870110000	RCI314AE8	B.75
8870120000	RCI314BB0	B.75
8870130000	RCI314R24	B.75
8870140000	RCI314S15	B.75
8870150000	RCI314T30	B.75
8870170000	RCI424AB2	B.77
8870180000	RCI424AC4	B.77
8870190000	RCI424AE8	B.77
8870200000	RCI424BB0	B.77
8870210000	RCI424R24	B.77
8870220000	RCI424S15	B.77
8870230000	RCI424T30	B.77
8870240000	RCI374AB2	B.75
8870250000	RCI374AC4	B.75
8870260000	RCI374AE8	B.75
8870270000	RCI374BB0	B.75
8870280000	RCI374R24	B.75
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8870320000	RCI484AC4	B.77
8870330000	RCI484AE8	B.77
8870340000	RCI484BB0	B.77
8870350000	RCI484R24	B.77
8870360000	RCI484S15	B.77
8870370000	RCI484T30	B.77
8870830000	RIM4 1 R 110/230V	B.78
8870830000	RIM4 1 R 110/230V	B.80
8870830000	RIM4 1 R 110/230V	B.94
8870830000	RIM4 1 R 110/230V	B.95
8870830000	RIM4 1 R 110/230V	B.96
8870830000	RIM4 1 R 110/230V	B.100
8870830000	RIM4 1 R 110/230V	B.104
8870830000	RIM4 1 R 110/230V	B.106
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8870850000	SCM4QVP	B.96
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8871010000	RCIKIT 24VAC 1C0 LD	B.69
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8871040000	RCIKIT 24VAC 2C0 LD	B.73
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8875620000	SCM4CLIP N	B.95
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8875620000	SCM4CLIP N	B.104
8876220000	SCM42C0 P	B.96

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8881620000	RCIKIT 24VAC 2C0 LD/PB	B.73
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8897080000	RCIKIT 115VAC 2C0 LD/PB	B.73
8897090000	RCIKIT 115VAC 1C0 LD	B.69
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8897130000	RCIKITP 115VAC 1C0 LD	B.67
8897140000	RCIKITP 230VAC 1C0 LD	B.67
8897150000	RCIKITP 24VDC 2C0 LD	B.71
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8897170000	RCIKITP 115VAC 2C0 LD	B.71
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8897190000	RCIKITP 24VDC 1C0 LD/PB	B.67
8897200000	RCIKITP 24VAC 1C0 LD/PB	B.67
8897210000	RCIKITP1 115VAC 1C0 LD/PB	B.67
8897220000	RCIKITP230VAC 1C0 LD/PB	B.67
8897230000	RCIKITP 24VDC 2C0 LD/PB	B.71
8897240000	RCIKITP 24VAC 2C0 LD/PB	B.71
8897250000	RCIKITP1 115VAC 2C0 LD/PB	B.71
8897260000	RCIKITP230VAC 2C0 LD/PB	B.71

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8920950000	RCMKIT4 24VAC 2C0 LD	B.85

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8920990000	RCMKIT4 24VAC 3C0 LD	B.87
8921010000	RCMKIT4 115VAC 3C0 LD	B.87
8921020000	RCMKIT4 230VAC 3C0 LD	B.87
8921030000	RCMKIT4 24VDC 4C0 LD	B.91
8921040000	RCMKIT4 24VAC 4C0 LD	B.91
8921050000	RCMKIT4 115VAC 4C0 LD	B.91
8921060000	RCMKIT4 230VAC 4C0 LD	B.91
8921080000	RCMKITP4 24VDC 2C0 LD	B.83
8921090000	RCMKITP4 24VAC 2C0 LD	B.83
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8921120000	RCMKITP4 24VDC 4C0 LD	B.89
8921130000	RCMKITP4 24VAC 4C0 LD	B.89
8921140000	RCMKITP4 115VAC 4C0 LD	B.89
8921150000	RCMKITP4 230VAC 4C0 LD	B.89

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8937830000	MOS 24VDC/12-300VDC 1A	C.11
8937920000	MOS 5VTTU/24VDC 0,1A	C.63
8937920000	MOS 5VTTU/24VDC 0,1A	C.71
8937930000	MOS 12-28VDC/5VTTTL	C.64
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8937940000	MOS 24VDC/5-33VDC 10A	C.10
8937970000	MOS 24VDC/8-30VDC 2A	C.12
8937980000	MOS 24VDC/5-48VDC 0,5A	C.70
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8950700000	TOS 5VDC/48VDC 0,1A	C.43
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8950720000	TOS 24VDC/48VDC 0,1A	C.43
8950730000	TOS 48-60VDC/48VDC 0,1A	C.43
8950740000	TOS 110VDC/48VDC 0,1A	C.43
8950750000	TOS 220VDC/48VDC 0,1A	C.43
8950760000	TOP 5VDC/48VDC 0,1A	C.43
8950770000	TOP 12VDC/48VDC 0,1A	C.43
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8950820000	TOS 24VAC/48VDC 0,1A	C.43
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8950880000	TOP 120VAC/48VDC 0,1A	C.43
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8950900000	TOS 5VDC/48VDC 0,5A	C.45
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8951010000	TOP 220VDC/48VDC 0,5A	C.45
8951020000	TOS 24VAC/48VDC 0,5A	C.45
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8951040000	TOS 120VAC/48VDC 0,5A	C.45
8951050000	TOS 230VAC/48VDC 0,5A	C.45
8951060000	TOP 24VAC/48VDC 0,5A	C.45
8951070000	TOP 48-60VAC/48VDC 0,5A	C.45
8951080000	TOP 120VAC/48VDC 0,5A	C.45
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8951110000	TOS 12VDC/230VAC 0,1A	C.47
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8951160000	TOP 5VDC/230VAC 0,1A	C.47
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8957090000	RCM370AB2	B.99
8957100000	RCM370AC4	B.99
8957120000	RCM370BB0	B.99
8957160000	RCM570AB2	B.103
8957170000	RCM570AC4	B.103
8957180000	RCM570AE8	B.103
8957190000	RCM570BB0	B.103

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9008330000	SDS 0.6X3.5X100	B.62
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9037160000	SDS 0.4X2.0X60	B.62
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