

# MR-GT2P-TR2

## monitoring relays



- **Single-functions monitoring relays (motor temperature monitoring)** • Test functions: built-in Test/Reset button, connection of the external Reset button (optional)
- Supply via TR2 supply transformer ❶
- Output: 2 CO (2 changeover contacts)
- Industrial cover, width 22,5 mm
- Direct mounting on 35 mm rail mount acc. to EN 60715
- Recognitions, certifications, directives: RoHS, CE

### Output circuit - contact data

Number and type of contacts		2 CO
Rated voltage		250 V AC
Max. breaking capacity	AC1	750 VA (3 A / 250 V AC) ❷      1 250 VA (5 A / 250 V AC) ❸
Max. operating frequency		3 600 cycles/hour
• at resistive load 100 VA		360 cycles/hour
• at resistive load 1 000 VA		
<b>Input circuit</b>		
Supply voltage	AC	12, 24, 42, 48, 110, 127, 230, 400 V ❶      terminals A1-A2
Must release voltage		AC: $\geq 0,3 U_n$
Operating range of supply voltage		as per the specification of TR2 supply transformer ❶
Rated power consumption	AC	2,0 VA / 1,5 W
Range of supply frequency	AC	as per the specification of TR2 supply transformer ❶
Duty cycle		100%
<b>Measuring circuit</b>	<ul style="list-style-type: none"> <li>• terminals</li> <li>• initial resistance</li> <li>• response value</li> <li>• release value</li> <li>• disconnection ❹</li> <li>• measuring voltage T1-T2</li> </ul>	T1-T2 $< 1,5 \text{ k}\Omega$ relay in OFF-position: $\geq 3,6 \text{ k}\Omega$ relay in ON-position: $\leq 1,8 \text{ k}\Omega$ no $\leq 2,5 \text{ V}$ at $R \leq 4 \text{ k}\Omega$ EN 60947-8
<b>Control contact</b>	<ul style="list-style-type: none"> <li>• function</li> <li>• load</li> <li>• max. line length</li> <li>• control pulse length</li> <li>• Reset</li> </ul>	connection of an external Reset button no R-T2: 10 m (twisted pair) min. 50 ms contact 1 NO; terminals R-T2
<b>Insulation according to EN 60664-1</b>		
Rated surge voltage		4 000 V      1,2 / 50 $\mu\text{s}$
Overvoltage category		III
Insulation pollution degree		3
<b>General data</b>		
Electrical life	• resistive AC1	$> 2 \times 10^5$ 1 000 VA
Mechanical life (cycles)		$> 2 \times 10^7$
Dimensions (L x W x H)		90 x 22,5 x 108 mm
Weight		100 g
Ambient temperature	• storage	-25...+70 °C
(non-condensation and/or icing)	• operating	-25...+55 °C
Cover protection category		IP 20      EN 60529
Relative humidity		15...85%
Shock resistance		15 g      11 ms
Vibration resistance		0,35 mm DA      10...55 Hz
<b>Measuring circuit data</b>		
Functions		temperature monitoring of the motor winding, with fault latch (max. 6 PTC - temperature sensors DIN 44081) test functions: built-in Test/Reset button, connection of the external Reset button (optional)
Base accuracy		$\pm 10\%$ (calculated from the final range values)
Repeatability		$\pm 1\%$
Voltage influence		$\pm 2,2\%$
Temperature influence		$\pm 0,1\% / ^\circ\text{C}$
Recovery time		500 ms
LED indicator		green LED U ON - indication of supply voltage U red LED ON/OFF - indication of failure

❶ Supply voltage depending on the TR2 transformer which shall be ordered as a separate product - see page 4.      ❷ If the distance between the relays mounted side by side is less than 5 mm.      ❸ If the distance between the relays mounted side by side is greater than 5 mm.      ❹ At short circuit.

# MR-GT2P-TR2

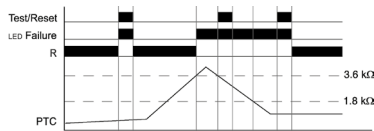
## monitoring relays

### Functions

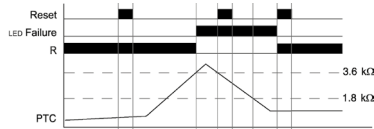
#### Motor temperature monitoring with fault latch.

If the supply voltage  $U$  is applied (green LED illuminated) and the cumulative resistance of the PTC-circuit is less than  $3,6\text{ k}\Omega$  (standard temperature of the motor), the output relay  $R$  switches into on-position. Pressing the Test/Reset button under this conditions forces the output relay  $R$  to switch into off-position. It remains in state as long as the Test/Reset button is pressed and thus the switching function can be checked in case of fault. The test function is not effective by using an external Reset button. When the cumulative resistance of the PTC-circuit exceeds  $3,6\text{ k}\Omega$  (at least one of the PTCs has reached the cut-off temperature), the output relay  $R$  switches into off-position (red LED illuminated). The output relay  $R$  switches into on-position again (red LED not illuminated), if the cumulative resistance drops below  $1,8\text{ k}\Omega$  by cooling down of the PTC and either a Reset button (internal or external) was pressed or the supply voltage was disconnected and re-applied.

#### Application of built-in Test/Reset button.

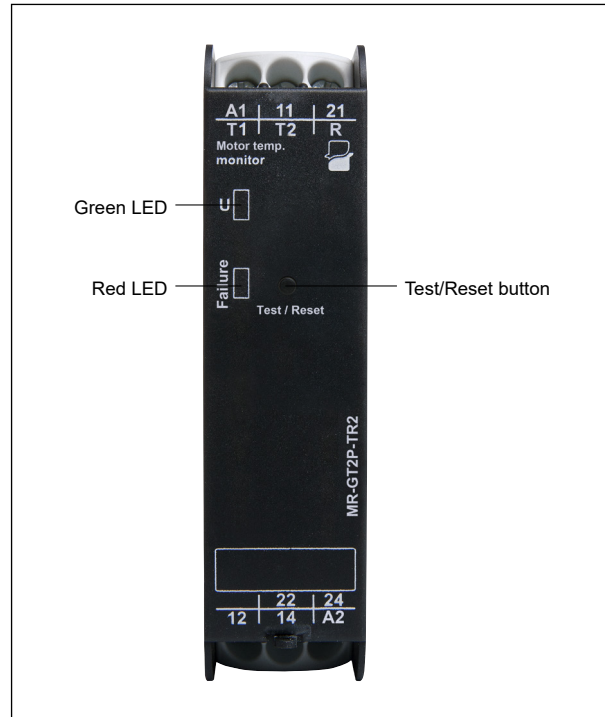


#### Application of an external Reset button.

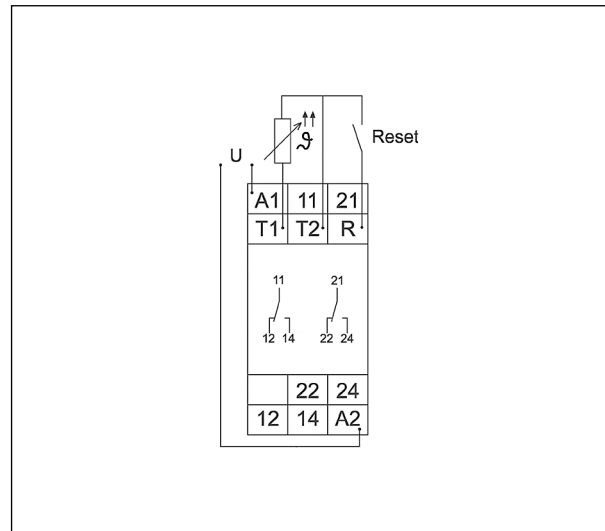


$U$  - supply voltage;  $R$  - output state of the relay;  
 $PTC$  - state of sensors; **Failure** - fault latch

### Front panel description



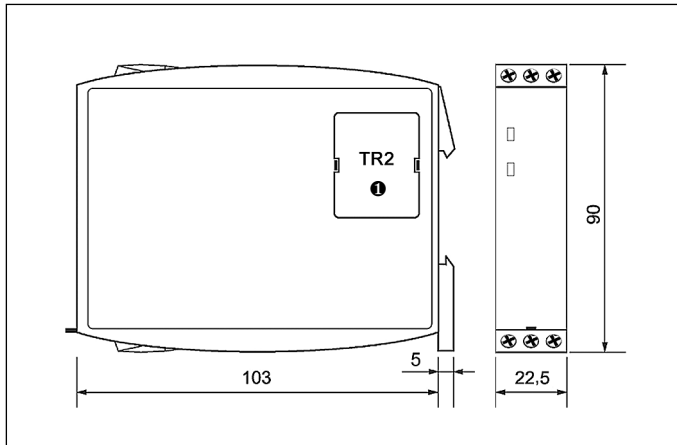
### Connection diagram



# MR-GT2P-TR2

## monitoring relays

### Dimensions

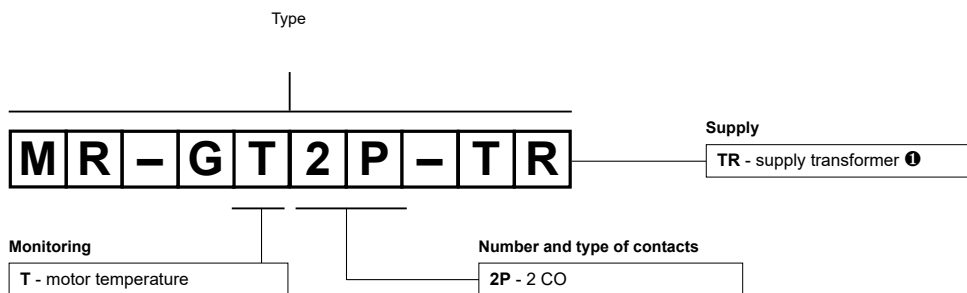


### Mounting

Relays **MR-GT2P-TR2** are designed for direct mounting on 35 mm rail mount acc. to EN 60715. Operational position - any. **Terminals - cross section of the connection cables:** 1 x 0,5 ... 2,5 mm<sup>2</sup> with/without multicore cable end, 1 x 4 mm<sup>2</sup> without multicore cable end, 2 x 0,5 ... 1,5 mm<sup>2</sup> with/without multicore cable end, 2 x 2,5 mm<sup>2</sup> flexible without multicore cable end.

❶ Supply voltage depending on the TR2 transformer which shall be ordered as a separate product - see page 4.

### Ordering codes



Example of ordering code:

**MR-GT2P-TR2** monitoring relay **MR-GT2P-TR2**, single-function (relay monitors the motor temperature), industrial cover, width 22,5 mm, two changeover contacts, rated input voltage (supply): AC - 12, 24, 42, 48, 110, 127, 230, 400 V AC ❶

# TR2

## supply transformers for relays MR-G... series

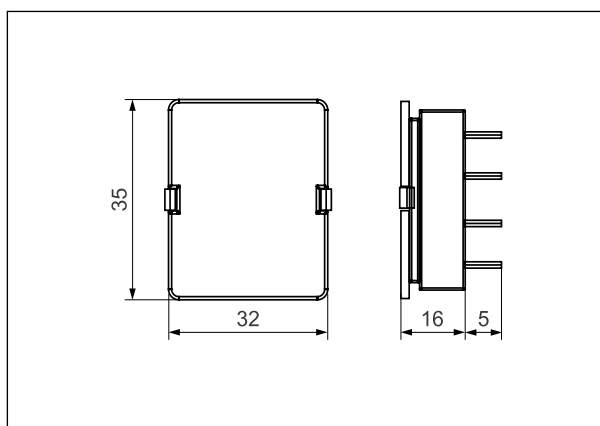


- Separating TR2... supply transformers for the monitoring relays of MR-G... series to reduce the input voltage applied to the terminals A1 and A2 of monitoring relays to the level required by the internal system
- TR2 transformers shall be ordered as a separate product.

### Input circuit

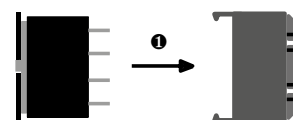
Supply voltage	50/60 Hz AC	12, 24, 42, 48, 110, 127, 230, 400 V
Operating range of supply voltage		0,85...1,1 U <sub>n</sub>
Rated power consumption	AC	0,5...2,0 VA
Rated frequency	AC	50/60 Hz
Duty cycle		100%
<b>General data</b>		
Dimensions (L x W x H)		32 x 35 x 16 mm
Weight		40 g
Ambient temperature (non-condensation and/or icing)	• storage • operating	-25...+70 °C -25...+55 °C
Cover protection category		IP 20
Relative humidity		15...85%

### Dimensions

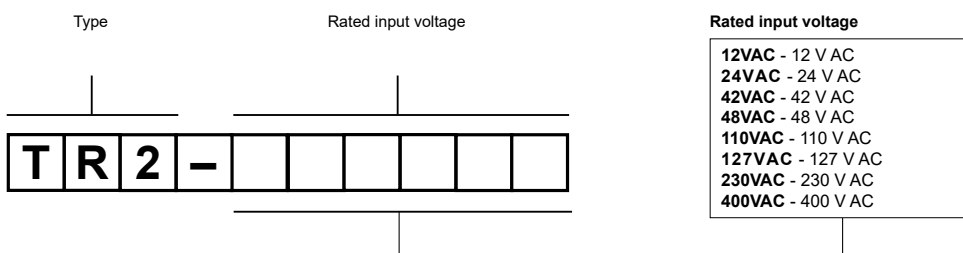


### Mounting, mechanical design

TR2 supply transformers are designed for mounting in MR-G... monitoring relays and they are inseparable for their operation. MR-G... relays will not operate without the TR2... transformers. In order to mount the TR2... transformer in the monitoring relay, it is necessary to remove the protective cap ❶ from the relay, which protects the terminals of TR2... Then, TR2... shall be placed in the assembly opening of the MR-G... relay. The cover of TR2... is made of self-extinguishing plastic. When mounted, the tightness of TR2... is IP 20.



### Ordering codes



Example of ordering code:

**TR2-230VAC** supply transformer **TR2**, rated input voltage 230 V AC 50/60 Hz

### PRECAUTIONS:

1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. 2. Never touch any live parts of the device. 3. Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire. 4. In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation.