



NEW
product

- AC/DC current monitoring in 1-phase mains ❶
- Multifunctions monitoring relays (16,6...400 Hz)
- Timing adjustment for start-up suppression time and tripping delay ❷
- Fault latch mode
- Relay supply via the supply transformer of TR2 type ❸ - see page 58
- 2 changeover contacts: 2 C/O
- Rated load: 5 A / 250 V AC at cat. AC1
- Installation design: width 22,5 mm
- Recognitions, certifications, directives: **CE**

Type of relay

MR-GI1M2P-TR2

Output circuit

| | | |
|------------------------------|-----|--------------------|
| Number and type of contacts | | 2 C/O - changeover |
| Rated load | AC1 | 5 A / 250 V AC |
| Max. breaking capacity | AC1 | 1 250 VA |
| Max. operating frequency | | 3 600 cycles/hour |
| • at 100 VA resistive load | | 360 cycles/hour |
| • at 1 000 VA resistive load | | PN-EN 60947-5-1 |

Input circuit

| | | |
|-----------------------------------|---|--|
| Supply voltage U | | 12...400 V AC; terminals A1-A2 (galvanically separated) ❶ |
| Drop-out voltage | | AC: $\geq 0,3 U_n$ |
| Operating range of supply voltage | | as per the specification of TR2 supply transformer |
| Rated power consumption | | 2,0 VA / 1,5 W |
| Rated frequency | | as per the specification of TR2 supply transformer |
| Duty cycle | | 100% |
| Measuring circuit | <ul style="list-style-type: none"> • terminals • measuring variable • measuring input • overload capacity • input resistance • switching threshold U_s | 0,1 A AC/DC: K-I1 1 A AC/DC: K-I2 10 A AC/DC: K-I3 (distance > 5 mm) DC or AC sinus, 16,6...400 Hz (frequency response: -10...+5%) 0,1-1-10 AAC/DC 0,1 A AC/DC: 0,8 A 1 A AC/DC: 3 A 10 A AC/DC: 12 A 0,1 A AC/DC: 470 m Ω 1 A AC/DC: 47 m Ω 10 A AC/DC: 5 m Ω max.: $0,1 < I_n < 1,0$ min.: $0,05 < I_n < 0,95$ |

Insulation

| | | |
|-----------------------------|--|-------------------|
| Rated surge voltage | | 4 000 V AC |
| Overvoltage category | | III PN-EN 60664-1 |
| Insulation pollution degree | | 3 PN-EN 60664-1 |

General data

| | | |
|-----------------------------|---|--|
| Electrical life | • resistive AC1 | $\geq 2 \times 10^5$ 1 000 VA |
| Mechanical life (cycles) | | $\geq 2 \times 10^7$ |
| Dimensions (L x W x H) | | 90 x 22,5 x 103 mm |
| Weight | | 100 g |
| Ambient temperature | <ul style="list-style-type: none"> • storage, transport • operating | -25...+70 °C -25...+55 °C PN-EN 60068-1 -25...+40 °C UL 508 |
| Housing protection category | | IP40 |
| Relative humidity | | 15...85% PN-EN 60721-3-3 class 3K3 |
| Shock resistance | | 15 g 11 ms PN-EN 60068-2-27 |
| Vibration resistance | | 0,35 mm DA 10...55 Hz PN-EN 60068-2-6 |

Measuring circuit data

| | |
|------------------------------------|--|
| Functions | OVER, OVER+LATCH, UNDER, UNDER+LATCH, WIN, WIN+LATCH ❸ |
| Time intervals (timing adjustment) | timing adjustment for start-up suppression time and tripping delay ❷ |
| Base accuracy | start-up suppression time (0...10 s) tripping delay (0,1...10 s) |
| Setting accuracy | $\pm 5\%$ (calculate from final range value) |
| Repeatability | $\pm 5\%$ (calculate from final range value) |
| Temperature influence | $\pm 2\%$ |
| Recovery time | $\pm 0,1\% / ^\circ\text{C}$ |
| LED indicator | 500 ms |
| | green LED ON - indication of supply voltage green LED flashes - indication of start-up suppression time red LED ON/OFF - indication of failure ❹ red LED flashes - indication of tripping delay ❹ yellow LED ON/OFF - indication of output relay |

❶ With adjustable threshold.

❷ Separately adjustable.

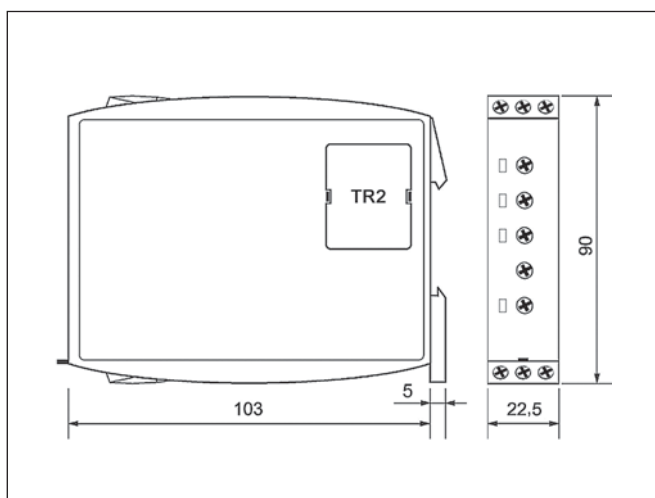
❸ TR2 transformers shall be ordered separately.

❹ Selectable via supply transformers TR2.

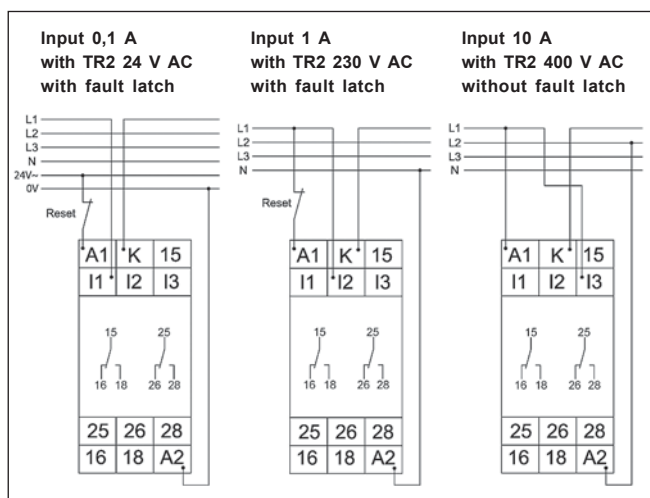
❺ Selectable by means of rotary switch.

❻ Of the corresponding threshold.

Dimensions



Connections diagrams



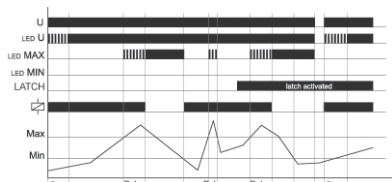
Mounting, mechanical design

Relays **MR-GI1M2P-TR2** are designed for direct mounting on 35 mm DIN rail mount, EN 50022. Mounting position: any. Self-extinguishing plastic housing, IP 40. Shockproof terminal connection according to VBG 4 (PZ1 required), IP 20. Maximum screw torque: 1,0 Nm. Terminal capacity: 1 x 0,5 do 2,5 mm² with/without multicore cable end, 1 x 4 mm² without multicore cable end, 2 x 0,5 do 1,5 mm² with/without multicore cable end, 2 x 2,5 mm² flexible without multicore cable end.

Functions

When the supply voltage *U* is applied, the output relay *R* switches into on-position (yellow LED illuminated) and the set interval of the start-up suppression (START) begins (green LED *U* flashes). Changes of the measured current during this period do not affect the state of the output relay *R*. After the interval has expired the green LED is illuminated steadily. For all the functions the LEDs *MIN* and *MAX* are flashing alternating, when the minimum value for the measured current was chosen to be greater than the maximum value.

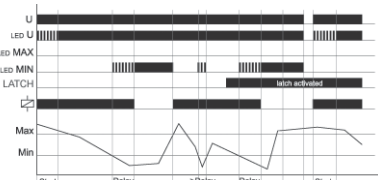
OVER, OVER+LATCH - overcurrent monitoring, overcurrent monitoring with fault latch



When the measured current exceeds the value adjusted at the *MAX*-regulator, the set interval of the tripping delay (Delay) begins (red LED *MAX* flashes). After the interval has expired (red LED *MAX* illuminated), the output relay *R* switches into off-position (yellow LED not illuminated). The output relay *R* again switches into on-position (yellow LED illuminated), when the measured current falls below the value adjusted at the *MIN*-regulator (red LED *MAX* not illuminated). If the fault latch is activated (**OVER+LATCH**) and the measured current remains above the *MAX*-value longer than the set interval of the tripping delay, the output relay *R* remains in the off-position even if the measured current falls below the value adjusted at the *MIN*-regulator. After resetting the failure (interrupting and re-applying the supply

voltage), the output relay *R* again switches into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).

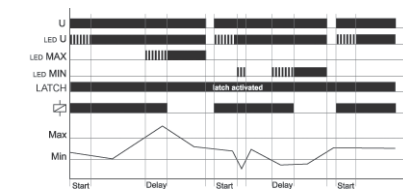
UNDER, UNDER+LATCH - undercurrent monitoring, undercurrent monitoring with fault latch



When the measured current falls below the value adjusted at the *MIN*-regulator, the set interval of the tripping delay (Delay) begins (red LED *MIN* flashes). After the interval has expired (red LED *MIN* illuminated), the output relay *R* switches into off-position (yellow LED not illuminated). The output relay *R* again switches into on-position (yellow LED illuminated), when the measured current exceeds the value adjusted at the *MAX*-regulator.

If the fault latch is activated (**UNDER+LATCH**) and the measured current remains below the *MIN*-value longer than the set interval of the tripping delay, the output relay *R* remains in the off-position even if the measured current exceeds the value adjusted at the *MAX*-regulator. After resetting the failure (interrupting and re-applying the supply voltage), the output relay *R* switches into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).

WIN, WIN+LATCH - current monitoring in windowfunction between MIN and MAX values, current monitoring in windowfunction between MIN and MAX values with fault latch



When the measured current exceeds the value adjusted at the *MAX*-regulator, the set interval of the tripping delay (Delay) begins (red LED *MAX* flashes). After the interval has expired (red LED *MAX* illuminated), the output relay *R* switches into off-position (yellow LED not illuminated). The output relay *R* again switches into on-position (yellow LED illuminated) when the measured current falls below the value adjusted at the *MAX*-regulator (red LED *MAX* not illuminated). When the measured current falls below the value adjusted at the *MIN*-regulator, the set interval of the tripping delay (Delay) begins again (red LED *MIN* flashes). After the interval has expired (red LED *MIN* illuminated), the output relay *R* switches into off-position (yellow LED not illuminated). If the fault latch is activated (**WIN+LATCH**) and the measured current remains below the *MIN*-value longer than the set interval of the tripping delay, the output relay *R* remains in the off-position even if the measured current exceeds the value adjusted at the *MIN*-regulator. If the measured current remains above the *MAX*-value longer than the set interval of the tripping delay, the output relay *R* remains in the off-position even if the measured current falls below the value adjusted at the *MAX*-regulator. After resetting the failure (interrupting and re-applying the supply voltage), the output relay *R* switches into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).