



**NEW**  
product

- Current monitoring in 3-phase mains ❶
- Multifunctions monitoring relays
- 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-GI3M2P-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"> <li>• terminals</li> <li>• measuring variable</li> <li>• measuring input</li> <li>• overload capacity</li> <li>• input resistance</li> <li>• switching threshold <math>U_s</math></li> </ul>	K-11 or K-12 or K-13 (distance > 5 mm) AC sinus, 48...63 Hz 5 AAC 6 AAC 10 m $\Omega$ 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"> <li>• storage, transport</li> <li>• operating</li> </ul>	-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 timing adjustment for start-up suppression time and tripping delay ❷
Time intervals (timing adjustment)		start-up suppression time (0...10 s) tripping delay (0,1...10 s)
Base accuracy		$\pm 5\%$ (calculate from final range value)
Setting accuracy		$\pm 5\%$ (calculate from final range value)
Repeatability		$\pm 2\%$
Temperature influence		$\pm 0,1\% / ^\circ\text{C}$
Recovery time		100 ms
LED indicator		green LED ON - indication of supply voltage red LED ON/OFF - indication of failure ❹ red LED flashes - indication of tripping delay ❺ yellow LED ON/OFF - indication of output relay

❶ With adjustable threshold.

❷ Separately adjustable.

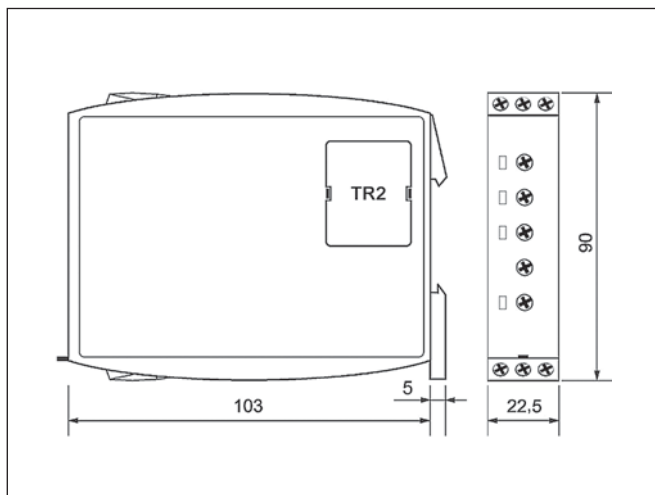
❸ TR2 transformers shall be ordered separately.

❹ Selectable via supply transformers TR2.

❺ Selectable by means of rotary switch.

❻ Of the corresponding threshold.

## Dimensions



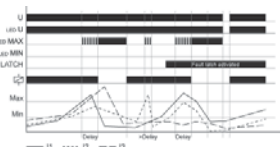
## Mounting, mechanical design

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 mm<sup>2</sup> with/without multicore cable end, 1 x 4 mm<sup>2</sup> without multicore cable end, 2 x 0,5 do 1,5 mm<sup>2</sup> with/without multicore cable end, 2 x 2,5 mm<sup>2</sup> flexible without multicore cable end.

## Functions

For all functions the LED's MIN and MAX are flashing alternating, when the minimum value for the measured current was chosen to be greater than the maximum value. If a failure already exists, when the device is activated, the output relay R remains in off-position and the LED for the corresponding threshold is illuminated.

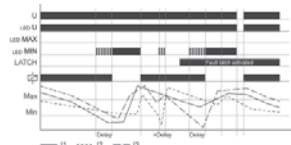
### OVER, OVER+LATCH - overcurrent monitoring, overcurrent monitoring with fault latch



When the measured current of one of the phases 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 of all the phases 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 of one of the phases 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 of all the phases falls below the value adjusted at the MIN-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).

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



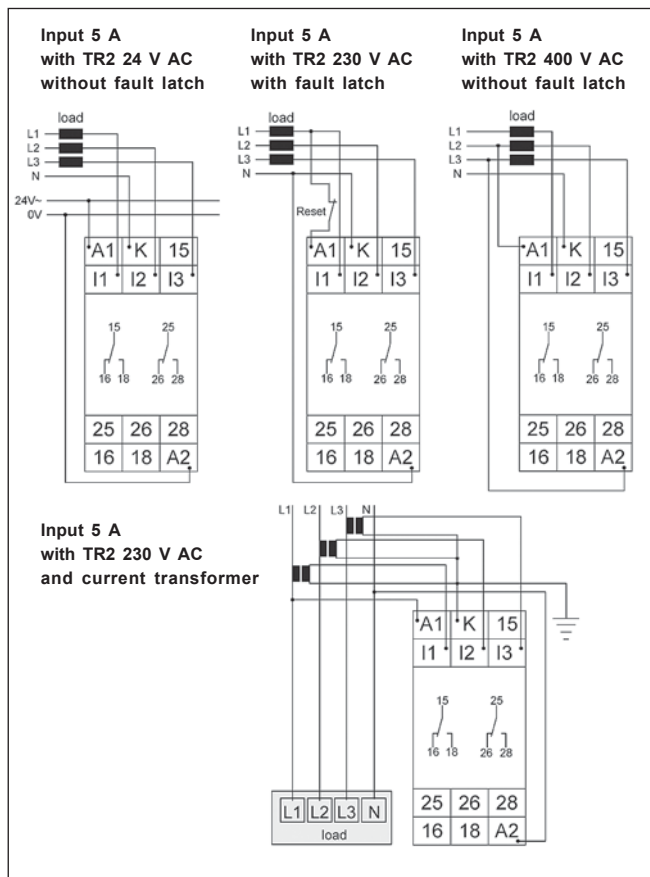
When the measured current of one of the phases falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (Delay) begins (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relay R switches into off-position (yellow LED not illuminated).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

If the fault latch is activated (UNDER+LATCH) and the measured current of one of the phases 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 of all the phases 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).

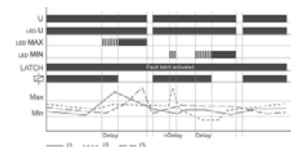
### WIN, WIN+LATCH - current monitoring in windowfunction between MIN and MAX values, current monitoring in windowfunction between MIN and MAX values with fault latch

The output relay R switches into on-position (yellow LED illuminated) when the measured current of all the phases exceeds the value adjusted at the

## Connections diagrams



MIN-regulator. When the measured current of one of the phases 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 of all the phases falls below the value adjusted at the MAX-regulator (red LED MAX not illuminated). When the measured current of one of the phases 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 of one of the phases 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 of all the phases exceeds the value adjusted at the MIN-regulator. If the measured current of one of the phases 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 of all the phases 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).