



NEW
product

- Monitoring of motor temperature
- The relay responds to short circuit or wire break ❶
- Test function with integrated Test/Reset key
- Rated isolated voltage on the sensor circuit up to 690 V
- 1 changeover contact: 1 C/O
- Rated load: 5 A / 250 V AC at cat. AC1
- Installation design: width 35 mm
- Recognitions, certifications, directives: **CE**

Type of relay

MR-ET1P

Output circuit

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

Input circuit

Supply voltage U		230 V AC; terminals A1-A2
Rated voltage U _n		230 V AC
Drop-out voltage		AC: $\geq 0,3 U_n$
Operating range of supply voltage		$0,85 < U_n < 1,1$
Rated power consumption		1,3 VA / 1,0 W
Rated frequency		AC: 48...63 Hz
Duty cycle		100%
Measuring circuit	<ul style="list-style-type: none"> • terminals • initial resistance • response value • release value • disconnection • measuring voltage T1-T2 	T1-T2 or T1-T3 $< 1,5 \text{ k}\Omega$ relay in OFF-position: $\geq 3,6 \text{ k}\Omega$ relay in ON-position: $\leq 1,65 \text{ k}\Omega$ short circuit thermistor: yes (T1-T2); no (T1-T3) $\leq 7,5 \text{ V}$ at $R \leq 4 \text{ k}\Omega$ PN-EN 60947-8
Control contact	<ul style="list-style-type: none"> • function • loadable • max. line length • control pulse length • Reset 	connection of an external Reset key no R1-R2: 10 m (twisted pair) min. 50 ms contact 1 NO; terminals R1-R2 ❷

Insulation

Rated surge voltage		6 000 V AC
Overvoltage category		III PN-EN 60664-1
Insulation pollution degree		2, if built-in 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)		87 x 35 x 60 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
Housing protection category		IP40
Relative humidity		15...85% PN-EN 60721-3-3 class 3K3

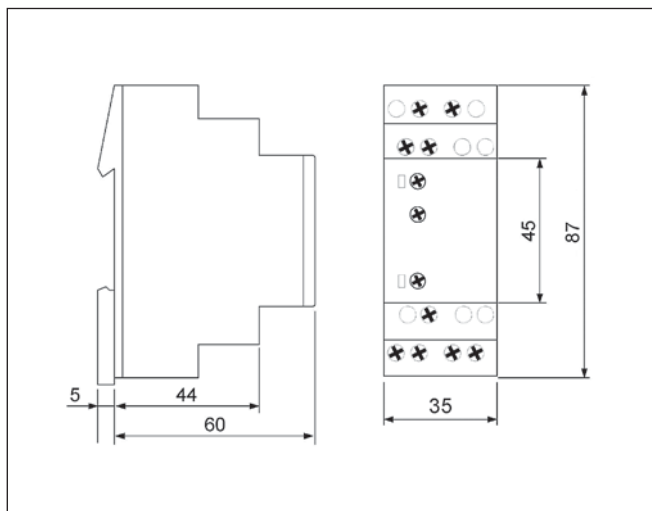
Measuring circuit data

Functions	monitoring of temperature of the motor winding (max. 6 PTC) with fault latch, for temperature sensors DIN 44081, short circuit monitoring of the thermistor line ❶, test function with integrated Test/Reset key
Base accuracy	$\pm 5\%$ (calculate from final range value)
Repeatability	$\pm 1\%$
Temperature influence	$\pm 0,15\% / ^\circ\text{C}$
Recovery time	250 ms
Residual ripple to DC	50 ms
LED indicator	green LED ON - indication of supply voltage red LED ON/OFF - indication of failure

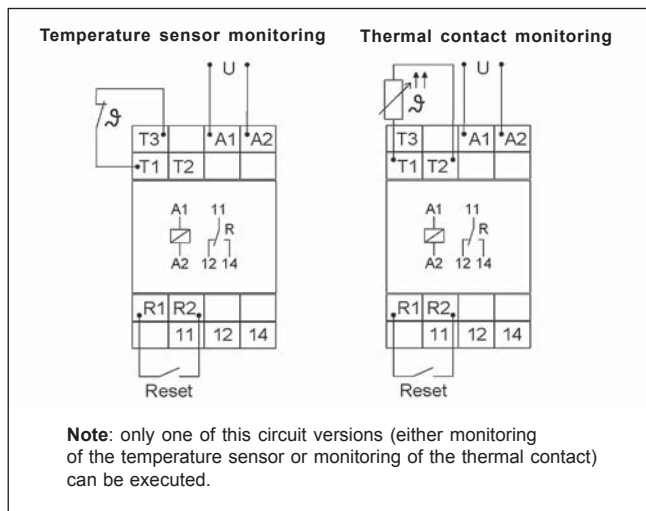
❶ Selectable by means of terminals.

❷ Terminals R2-T2 are internal affiliated with each other.

Dimensions



Connections diagrams



Mounting, mechanical design

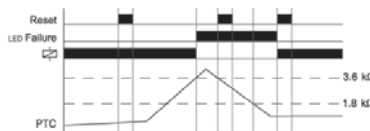
Relays **MR-ET1P** are designed for direct mounting on 35 mm DIN rail mount, EN 50022. Mounting position: any. Self-extinguishing plastic housing, IP 40. Shockproof terminal connection according to VBG 4 (PZ1 required), IP 20. Maximum screw torque: 1,0 Nm. Terminal capacity: 1 x 0,5 do 2,5 mm² with/without 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

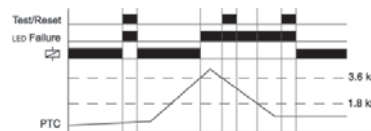
Monitoring of motor temperature with fault latch

If the supply voltage U is applied (green LED illuminated) and the cumulative resistance of the PTC-circuit is less than 3,6 kΩ (standard temperature of the motor), the output relay R switches into on-position. Pressing the Test/Reset key under this conditions forces the output relay R to switch into off-position. It remains in state as long as the Test/Reset key 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 key. When the cumulative resistance of the PTC-circuit exceeds 3,6 kΩ (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 1,65 kΩ by cooling down of the PTC and either a Reset key (internal or external) was pressed or the supply voltage was disconnected and re-applied.

Application of an external Reset key



Application of internal Test/Reset key



U - supply voltage; R - output relay