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02-211/2016 Rev.: 1



TER-7

Thermostat for monitoring temperature of motor winding



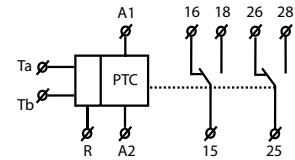
Characteristics

- monitors temperature of motor winding
- sensor PTC which is in-built in motor winding (or external sensor or bi-metal contact) is used as monitoring element
- PTC sensor is used for sensing, It is in-built in motor winding by its manufacturer
- MEMORY function - active by DIP switch
- RESET of faulty state:
 - a) button on the front panel
 - b) by external contact (remote by two wires)
- function of short-circuit or sensor disconnection monitoring, red LED flashing indicates faulty sensor
- output contact: 2x changeover 8 A / 250 V AC1
- red LED shines and indicates exceeded temperature
- terminals of sensor are galvanically separated, they can be shorted out by terminal PE without damaging the device.
- multivoltage supply AC/DC 24-240 V, not galvanically separated
- 1-MODULE, DIN rail mounting

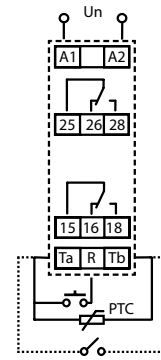
Warning!

In case of supply from the main, neutral wire must be connected to terminal A2. Sensors could be in series in abide with conditions in technical specification - switching limits.

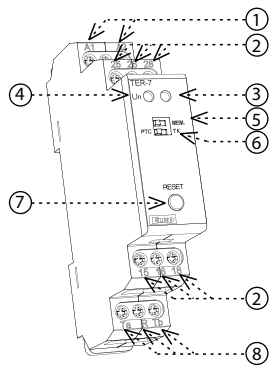
Symbol



Connection



Description



1. Supply voltage terminals
2. Output contact
3. Faulty states indication
4. Supply indication
5. MEMORY function
6. TEST function
7. RESET button
8. Terminals for sensor and reset

| | | | | | | | | | |
|--------------------------------|--------------------------|-----------|-----------|---------------------|------------------|----------|----------|-----------|-----------|
| Type of load | $\cos \varphi \geq 0.95$ | AC2 | AC3 | AC5a uncompensated | AC5a compensated | AC5b | AC6a | AC7b | AC12 |
| Mat. contacts AgNi, contact 8A | 250V / 8A | 250V / 3A | 250V / 2A | 230V / 1.5A (345VA) | x | 300W | x | 250V / 1A | 250V / 1A |
| Type of load | AC13 | AC14 | AC15 | DC1 | DC3 | DC5 | DC12 | DC13 | DC14 |
| Mat. contacts AgNi, contact 8A | x | 250V / 3A | 250V / 3A | 24V / 8A | 24V / 3A | 24V / 2A | 24V / 8A | 24V / 2A | x |

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| | |
|---|---|
| Function: | monitoring temperature of motor winding |
| Supply terminals: | A1-A2 |
| Supply voltage: | AC/ DC 24 - 240 V (AC 50-60 Hz) |
| Consumption: | max. 2 VA / 1 W |
| Max. dissipated power (Un + terminals): | 2.5 W |
| Supply voltage tolerance: | -15 %; +10 % |

Measuring circuit

| | |
|----------------------------|----------------------------------|
| Measuring terminals: | Ta-Tb |
| Cold sensor resistance: | 50 Ω - 1.5 kΩ |
| Upper level: | 3.3 kΩ |
| Bottom level: | 1.8 kΩ |
| Sensor: | PTC temperature of motor winding |
| Sensor failure indication: | blinking red LED |

Accuracy

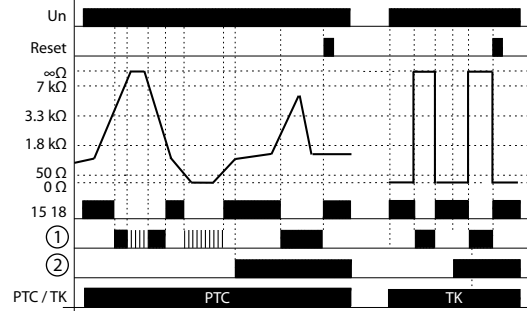
| | |
|---------------------------------|--------------|
| Accuracy in repetition (mech.): | < 5 % |
| Switching difference: | ± 5 % |
| Temperature dependence: | < 0.1 % / °C |

Output

| | |
|------------------------|--|
| Number of contacts: | 2x changeover / DPDT (AgNi / Silver Alloy) |
| Rated current: | 8 A / AC1 |
| Switching capacity: | 2000 VA / AC1, 192 W / DC |
| Inrush current: | 10 A / < 3 s |
| Switching voltage: | 250 V AC / 24 V DC |
| Mechanical life: | 3x10 ⁷ |
| Electrical life (AC1): | 0.7x10 ⁵ |

Other information

| | |
|-------------------------------------|---|
| Operating temperature: | -20 °C to 55 °C (-4 °F to 131 °F) |
| Storage temperature: | -30 °C to 70 °C (-22 °F to 158 °F) |
| Electrical strength: | 4 kV (supply - output) |
| Operating position: | any |
| Mounting: | DIN rail EN 60715 |
| Protection degree: | IP 40 from front panel / IP 20 terminals |
| Overvoltage category: | III. |
| Pollution degree: | 2 |
| Max. cable size (mm ²): | solid wire max. 1x 2.5 or 2x 1.5 with sleeve max. 1x 2.5 (AWG 12) |
| Dimensions: | 90 x 17.6 x 64 mm (3.5" x 0.7" x 2.5") |
| Weight: | 71 g (2.5 oz.) |
| Standards: | EN 60730-2-9, EN 61010-1 |



- 1) red LED
- 2) memory

Relay controls temperature of motor winding with PTC thermistor which is mostly placed in motor winding or very close to it. Resistance of PTC thermistor run to max 1.5 kΩ in cold stage. By temperature increase the resistance goes strongly up and by overrun the limit of 3.3 kΩ the contact of output relay switch off - mostly contactor controlling a motor. By temperature decrease and thereby decrease of thermistor resistance under 1.8 kΩ the output contact of relay again switches on. The relay has function "Control of sensor fault". This controls interruption or disconnection of sensor. When switch is in position "TK" monitoring of faulty sensor is not functional - it is possible to connect bimetal sensor with only 2 states: ON or OFF. Other safety unit is function "Memory". The device can work with bi-metal sensor in this position. In case temperature is exceeded (and output OFF) it leaves the output in faulty state until servicing when a relay is switched into a normal state (by reset button on front panel or by external contact (remote reset) in case resistance of sensor is lower than 1.8 kΩ (temperature of motor is normal).

Warning

The device is constructed to be connected into 1-phase main and must be installed in accordance with regulations and norms applicable in a particular country. Installation, connection and setting can be done only by a person with an adequate electro-technical qualification which has read and understood this instruction manual and product functions. The device contains protections against over-voltage peaks and disturbing elements in the supply main. To ensure correct function of these protection elements it is necessary to front-end other protective elements of higher degree (A, B, C) and screening of disturbances of switched devices (contactors, motors, inductive load etc.) as it is stated in a standard. Before you start with installation, make sure that the device is not energized and that the main switch is OFF. Do not install the device to the sources of excessive electromagnetic disturbances. By correct installation, ensure good air circulation so the maximal allowed operational temperature is not exceeded in case of permanent operation and higher ambient temperature. While installing the device use screwdriver width approx. 2 mm. Keep in mind that this device is fully electronic while installing. Correct function of the device is also depended on transportation, storing and handling. In case you notice any signs of damage, deformation, malfunction or missing piece, do not install this device and claim it at the seller. After operational life treat the product as electronic waste.