

## ▶ Transmitter

Transmitter:  
Temperature Transmitter, Tripping Points adjustable

Typ: Pt100-TR...



### Advantages:

- 3-port isolation provides protection against erroneous measurements due to parasitic voltages or ground loops, protects service personnel and downstream devices against impermissibly high voltage.
- Wide range power supply for 18...72 V DC is applicable world-wide for all common supply voltages.
- Increasing the accuracy of measurement by using „sensor-transmitter matching“.
- Ultra small sized housing saves space in your switch cabinet.
- The unit's high efficiency of >82% contributes significantly to reducing the unit's own heat generation to <3W.
- Temperature tripping points continuously adjustable over a wide range according to customer's requirements: -200°C ... +1000°C.
- Wire breakage and short circuit in the sensor circuit are indicated.
- The device operates according to the closed circuit current principle. This guarantees the secure stopping of the electrical machine, even in the event of a power blackout.

### General function:

The temperature transmitter Pt100-TR converts the sensor signal on input to temperature linear standard signal (0 ... 20 mA/ 4 ... 20 mA or 0 ... 5 V/0 ... 10 V) and makes this signal galvanic isolated available at the output. In normal operation the relay is activated, e.g. there is no thermal overload of the device. When the temperature of the Pt100-sensor exceeds the first tripping point (Advance warning temperature), the specific relay is deactivated, (e.g. relay switches off) and triggers the power cut-off to the equipment, which it is monitoring. A fall in temperature causes re-activation of the relay (e.g. relay switches on) and allows the equipment to be re-started. The relay switches on automatically when the temperature has fallen by 5°C approx. (adjustable by manufacturer). When the temperature of the Pt100-sensor exceeds the second tripping point (Turn-off temperature), the specific relay is deactivated. It works in the same way as the other relay. Break and short circuit in the sensor circuit, are indicated by means of an LED and the switch-off relay is deactivated. The configuration of measurement range and tripping points are provided by the manufacturer on request of the customer.

### Application:

The temperature transmitter is used for thermal protection and monitoring of:

- electric motors and machines,
  - electrical generators,
- transformers,
- heating, ventilation, air conditioning and refrigeration (HVACR)
- components of the chemical industry
- Power semiconductors (heat sinks)

### Basic Information:

The resistance signal of the Pt100 sensor is linear implemented in a standard signal 0 ... 5/10V (0/4 ... 20mA).

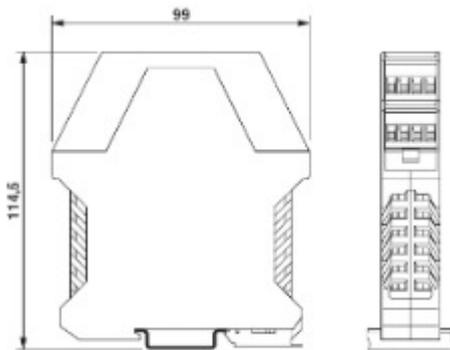
At the same time the Transmitter controls the advance warning temperature and the Turn-off-temperature. Are these limits is reached, they will be visually on the front panel LED's signals. Parallel to this are two relays (NO or NC) ab. If there is no undue rise in temperature, then the output relays are attracted (quiescent current principle). If the limit is reached, it falls from the corresponding relay. The Parametrierung of the switching-points will be adjusted according to customer request factory. This is an immediate operational readiness, without additional pre-configuration, is possible. Three multi-colored LEDs on the front panel indicate the operational status, warning- or turn-off-status, sensor short circuit or sensor failure.

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**DIMENSIONS:**



**MECHANICAL DATA:**

|                          |   |
|--------------------------|---|
| Housing:                 | Plastic: blue/black   |
| Material:                | Polyamid  |
| Width x Height x Length: |   |
| Case design TR1          | 12,5 x 99 x 114,5 ± 0,5 mm  |
| Case design TR2          | 17,5 x 99 x 114,5 ± 0,5 mm  |
| Case design TR3          | 22,5 x 99 x 114,5 ± 0,5 mm  |
| Mounting:                | mounting rail   |
| Protection type:         | IP 20   |
| Terminals:               | screw type,<br>Wire cross-section max. 2.5 mm <sup>2</sup> ,<br>Multi-wire connection max. 1 mm <sup>2</sup><br>(two wires with same cross-section)<br>5 mm pin spacing |

**Technical Data**

ELECTRICAL DATA

|   |  |
|---|--|
| Supply voltage:   | 18 - 72VDC   |
| Power consumption:  | < 3VA  |
| Relay contact:  | up to 2 change-over contacts (optional)                                |
| Switching capacity:   | 250V~/6A/1500VA  |
| Operating temperature range:  | -25 ... 85°C   |
| Input:  | Pt100-Sensor   |
| Sensor conection:   | 2-wire, 3-wire, 4-wire   |
| Output:   | 0 - 5V<br>0 - 10V  |
| Temperature tripping-points:  |  |
| Advance warning temperature T <sub>v</sub> :                              | Customised   |
| Turn-off temperature T <sub>a</sub> :                                     | Customised   |
| Reset hysteresis T <sub>h</sub> :   | Customised (factory-made 5°C)  |
| Measuring range (standard):   | -100°C bis 0°C<br>0°C bis +100°C<br>-100°C bis+100°C<br>0°C bis +200°C |
| - On request:   | -200°C to 1000°C (grading: 100°C) available                            |
| - Temperature tripping-points and measuring range are set by manufacturer |  |
| Sensor current:   | < 1mA  |
| Number of sensors:  | 1 (on request: >1)   |
| Insulation Test Voltage:  |  |
| Supply against output:  |  |
| TR1:  | 2000VDC  |
| TR2, TR3:   | 3000VDC  |
| Input against output:   |  |
| TR1:  | 500VDC   |
| TR2, TR3:   | 1000VDC  |
| certificated on:  | EN 61326-1   |

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Order nomenclature: Pt100 - TR2 - DC - 0 - 200 - 5 - VO - AO - 80 - 150

|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
| Transmitter: Identification = Pt100<br>Case design:<br>TR1: Witdh = 12,5mm<br>TR2: Witdh = 17,5mm<br>TR3: Witdh = 22,5mm<br>Rated supply voltage:<br>DC= DC Wide Range (18 - 72V)<br>AC= AC/DC Wide Range (85 - 265V)<br>Begin of measurement range:<br>-100 = -100°C<br>0 = 0°C (standard)<br>End of measurement range:<br>0 = 0°C<br>100 = +100°C<br>200 = +200°C (standard)<br>analog putput:<br>5 = 0 - 5V    10 = 0-10V (standard)<br>0 = 0-20mA    4 = 4-20mA<br>Advance warning:<br>Relay circuit: (not applicable at case design TR3)<br>VS = Advance warning temperature $T_v$ : normally open contact (NO)<br>VO = Advance warning temperature $T_v$ : normally closed contact (NCC) |  |  |  |  |  |  |  |
| Turn-off:<br>Relay circuit: (not applicable at case design TR3)<br>AS = Turn-off: normally open contact (NO)<br>AO = Turn-off: normally closed contact (NCC)   |  |  |  |  |  |  |  |
| Advance warning temperature:<br>10 = 10°C<br>...<br>150 = 150°C  |  |  |  |  |  |  |  |
| Turn-off temperature:<br>50 = 50°C<br>...<br>200 = 200°C   |  |  |  |  |  |  |  |

| Case design                                 | TR1 | TR2 | TR3 |
|---|-----|-----|-----|
| Supply voltage: DC: 18 - 72V                | x   | x   | x   |
| Supply voltage: AC: 85 - 265V; 50/60Hz      |     |     | x   |
| 2-wire                                      | x   | x   | x   |
| 3-wire                                      |     | x   | x   |
| 4-wire                                      |     | x   | x   |
| analog output: 0 - 5/10V ; 0/4 - 20mA       | x   | x   | x   |
| Relay circuit: Advance warning (NCC or NO)  |     | x   | x   |
| Relay circuit: Advance warning (NCC and NO) |     |     | x   |
| Relay circuit: Turn-off (NCC or NO)         | x   | x   | x   |
| Relay circuit: Turn-off (NCC and NO)        |     |     | x   |