

RESISTANCE TEMPERATURE SENSORS T 16



DESCRIPTION AND APPLICATION

The sensors were designed as a part of meters that measure a heat quantity supplied by vapour according to TPM 3723-03 and TPM 3724-03. They are produced with the Pt 100, Pt 500 and Pt 1000 temperature sensing elements. Two-wire or four-wire circuits can be connected to the sensors (the inner circuit is always two-wire). The standard operating temperature range is 0 to 150 °C.

The sensors are designed to operate in a chemically non-aggressive environment and they are supplied with a calibration certificate, issued by the metrological centre of our manufacturing facility.

ACCESSORIES

- The thermowell JPT 16

DECLARATION, CERTIFICATES

The sensors are compliant with the requirements of the EN 60 751 standard and TPM 3342-94, which is declared by official certification. The approval mark of the sensor type is TCM 321/01-3608.

Declaration of Conformity – in accordance with EN ISO/IEC 17050-1 standard as amended for sensors with resistance output.



SPECIFICATIONS

BASIC DATA

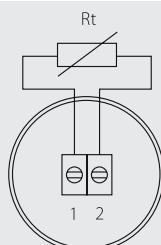
Type of sensing element	Pt 100, Pt 500, Pt 1000
Maximum measuring DC current	3 mA (Pt 100); 1.5 mA (Pt 500); 1 mA (Pt 1000)
Recommended measuring DC current	1 mA (Pt 100); 0.5 mA (Pt 500); 0.3 mA (Pt 1000)
Measuring range	0 to 150 °C
Accuracy class of individual sensors	B according to IEC 751
Sensor connection	according to the wiring diagram

OTHER PARAMETERS

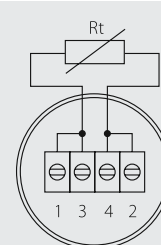
Length of the case	105, 140, 230 mm
Diameter of the case	6 mm
Material of the case and of the thermowell	stainless steel 1.4301
Connection head type	LIMATHERM MA
Material of the connection head	aluminium alloy
Temperature stability of the connection head	-25 to 100 °C
Internal wiring resistance	0.013 Ω / 105 mm
	0.017 Ω / 140 mm
	0.027 Ω / 230 mm
Recommended wire cross section	0.35 to 1.5 mm ²
Ingress protection	IP 54 according to EN 60 529
Insulation resistance	> 100 MΩ at 100 V DC, 15 to 35 °C, humidity < 80 %
Response time	$\tau_{0.5} < 6$ s (in streaming water at 0.4 m.s ⁻¹)
Lengths of thermowells	105, 140, 230 mm
Thermowell thread	G 1/2", M 20 x 1.5

WIRING DIAGRAM

2-wire connection

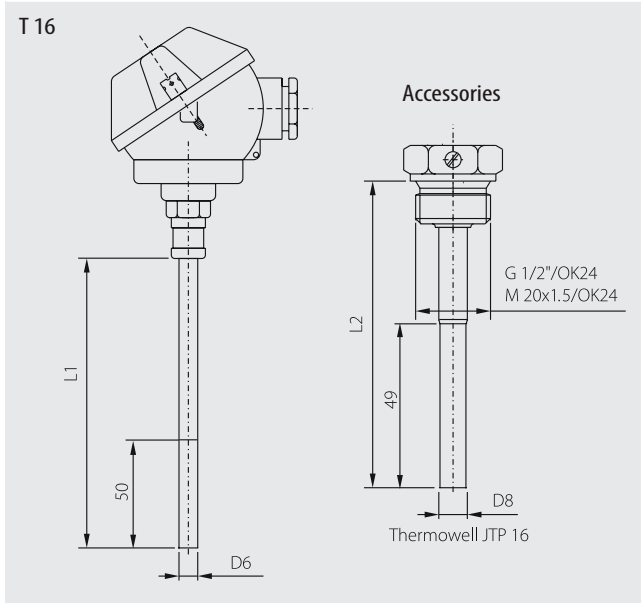


4-wire connection



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DIMENSIONAL DRAFT



L1 Case length – T 16	L2 thermowell length – JTP 16
105	105
140	140
230	230

SENSOR INSTALLATION AND SERVICING

As a rule, the sensors are fitted with thermowells and installed in tubing in the skew position in the angle of 45° counter to the streaming of the media of which the temperature is to be measured. Before installing these temperature sensors first place the thermowells in locations where the temperature is to be measured, after that push in the sensors as far as the thermowell bottom. Secure the sensor by a screw located in the thermowell. The screw must be tightened to the endstop. Before connecting the lead-in cable screw off the lid of the metal connection head. To secure the IP 54 ingress protection the grommet has to be tightened and the lid has to be securely screwed after connecting the lead-in cable.

To prevent unauthorized manipulation the sensors are provided with sealing openings. The installation sealing wire has to be pushed through the opening in the connection head first, and then through the plumb opening in the thermowell. Then it has to be sealed not to allow to pull out the sensor out of the thermowell. Finally the individual sensors are connected to the heat quantity meter.