

DESCRIPTION AND APPLICATION

These paired temperature sensors are used as component parts of the electrical heat-quantity meters. They meet the requirements of the IEC 751 and IEC 1434 standards and they have the EU Certificate - type approval identification TCM 321/07-4530. They are produced with the Pt 100, Pt 500 and PT1000 temperature sensing elements. The sensors consist of a case, in which the resistance-type sensing element is encapsulated, and an unshielded lead-in cable provided with a silicone insulation. The sensor case is made of the stainless steel EN X5CrNi18-10 (DIN 1.4301). The resistance-type sensing elements are connected by means of 2-wire or 4-wire connection.

Thermowells made of the stainless steel EN X5CrNi18-10 (DIN 1.4301) are available optionally.

The sensors are designed to operate in a chemically non-aggressive environment. The standard operating temperature range is 0 to 180 °C and 0 to 150 °C.

The sensors are produced in accordance with the Council Directive 2004/22/EEC for measure devices that was implemented to the legal system of the Czech Republic by the government regulation no. 464/2005 Col.



SPECIFICATIONS

BASIC DATA

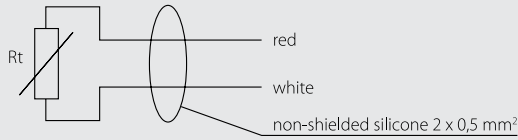
Type of sensing element	Pt 100, Pt 500, Pt 1000
Maximum measuring DC current	3 mA (Pt 100); 1,5 mA (Pt 500); 1 mA (Pt 1000)
Measuring range	0 to 180 °C or 0 to 150 °C
$\Delta\Theta_{\min}$	2 °C or 3 °C
$\Delta\Theta_{\max}$	180 °C or 150 °C
Accuracy class of individual sensors	B according to IEC 751
Sensor connection	according to the wiring diagram

OTHER PARAMETERS:

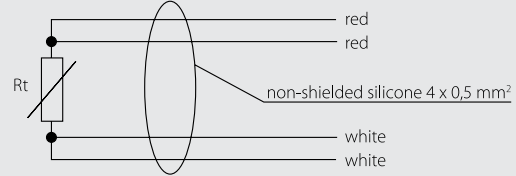
Length of the case	TP 15: 65, 105, 140, 230 mm TP 15A: 120/91; 175/146 mm
Diameter of the case	6 mm (with tolerance d10 in the length 50 mm)
Material of the case and of the thermowell	stainless steel EN X5CrNi18-10 (DIN 1.4301)
Lead-in cable	2-wire non-shielded silicone 2 x 0,5 mm ² 4-wire non-shielded silicone 4 x 0,25 mm ²
Cable lengths	according to EN 1434-2, art. 3.3.4, tab. 2
Wire resistance	0,07 Ω per 1 m of the 2-wire cable
Temperature stability of the cable	-25 to 180 °C
Ingress protection	IP 67 according to EN 60 529
Insulation resistance	> 100 MΩ at 100 V DC, 15 to 35 °C, humidity < 80 %
Time response	$\tau_{0,5} < 6$ s (in streaming water at 0,4 m.s ⁻¹)
Lengths of the thermowells	65, 105, 140, 230 mm (TP 15); 91, 146 mm (TP 15 A)
Thermowell thread	G1/2", M 20 x 1,5
Maximum overpressure of the thermowell	6,3 MPa

WIRING DIAGRAM

2-wire connection

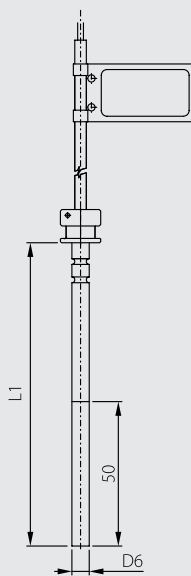


4-wire connection

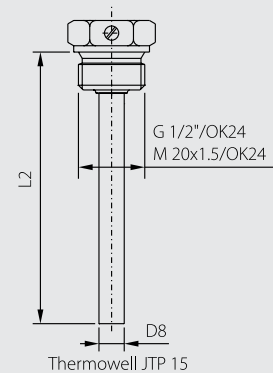
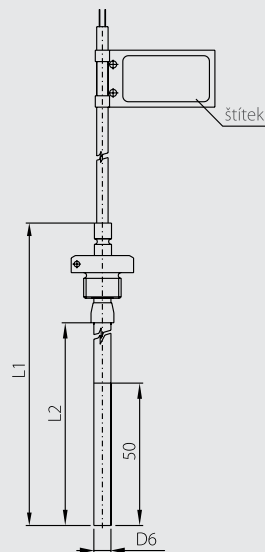


DIMENSIONAL DRAFT

TP 15



TP 15A



L1 Case length for TP 15	Thermowell length L2 – JTP 15
65	65
105	105
140	140
230	230

L1 Case length for TP 15A	Thermowell length L2 – JP 15A
120	91
175	146

SENSOR INSTALLATION AND SERVICING

As a rule, the sensors are assembled with thermowells and they are fitted into tubings in a skew position at an angle of 45° counter to the streaming of the media the temperature of which is to be measured. Before installing the temperature sensor fix the thermowell in the location where the temperature should be measured, then insert the sensor into the thermowell up to the thermowell bottom together with a plug, which is put on the cable between the case and the name plate. Then secure the plug and thereby the whole sensor by a screw placed in the thermowell. Tighten the screw to secure the sensor reliably.

The sensor marked with the red identification label, the red plug and the red spaghetti insulation is intended for wiring in supply circuit. The second sensor with blue identification label, plug and insulation is intended for assembly in reverse branch.

To prevent unauthorized manipulation, the sensors are provided with sealing openings. The assembly seal wire has first to be pushed through the screw opening, then through the plug opening, after which the wire has to be sealed in such a way that the screw cannot be turned more than one turn! In the last step the individual sensors are connected to the heat consumption meter according to the wiring diagram.

Caution: Before installation check the identity of the paired sensors by means of the code quoted in the sensor's name plate. The numbers within one pair must be identical. Also, check the attestation date. Consult the producer in case the serial numbers in the name plate are not identical.

Caution: The lead-in cable resistance in the two-wire connection depends on the cable length. That is why the conductors must not be modified (shortened). The superfluous cable has to be rolled up and fastened.

CUSTOMER SPECIFIC MODIFICATIONS

REGARDING TO SENSORS MANUFACTURED IN A STANDARD VERSION THE FOLLOWING PARAMETERS CAN BE MODIFIED:

- changing the case length
- changing the thermowell thread

