

PAIRED TEMPERATURE SENSORS TP 15, TP 15A, TP 15B



DESCRIPTION AND APPLICATION

These paired temperature sensors are used as component parts of the electrical heat-quantity meters. They are produced with the Pt 100, Pt 500 and Pt 1000 temperature sensing elements. The sensors are compatible with heat-quantity meters manufactured by SIEMENS, LANDIS+GYR, KAMSTRUP, ITRON, CODEA, COMAC CAL, SENSUS METERING and others. The sensors are intended for installation in thermowells. The standard operating temperature range is 0 to 180 °C or 0 to 150 °C.

The sensors are designed to operate in a chemically non-aggressive environment.

ACCESSORIES

- The thermowell JTP 15

DECLARATION, CERTIFICATES

The sensors are compliant with the requirements of the EN 60 751 and EN 1434 standards and have an EC-Type Examination Certificate No. TCM 321/07-4530.

EC Declaration of Conformity – the sensors are manufactured in conformity with the Directive of the European Parliament and of the Council 2004/22/EC on Measuring Instruments (so-called MID).



Variable design of temperature sensors allows for precise installation and helps to achieve fast time responses even for sensors installed in thermowells.

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 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

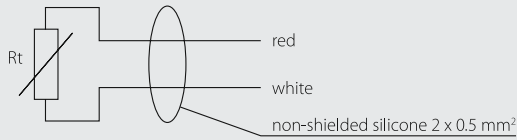
OTHER PARAMETERS

The standard length of the case	TP 15: 65, 105, 140, 230 mm TP 15A: 120/91; 175/146 mm TP 15B: 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 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, chart 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 %
Response time	$\tau_{0.5} < 6$ 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

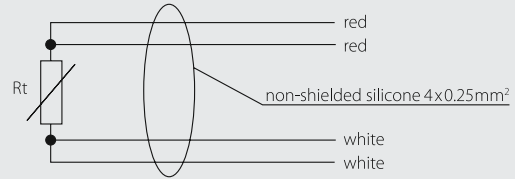
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WIRING DIAGRAM

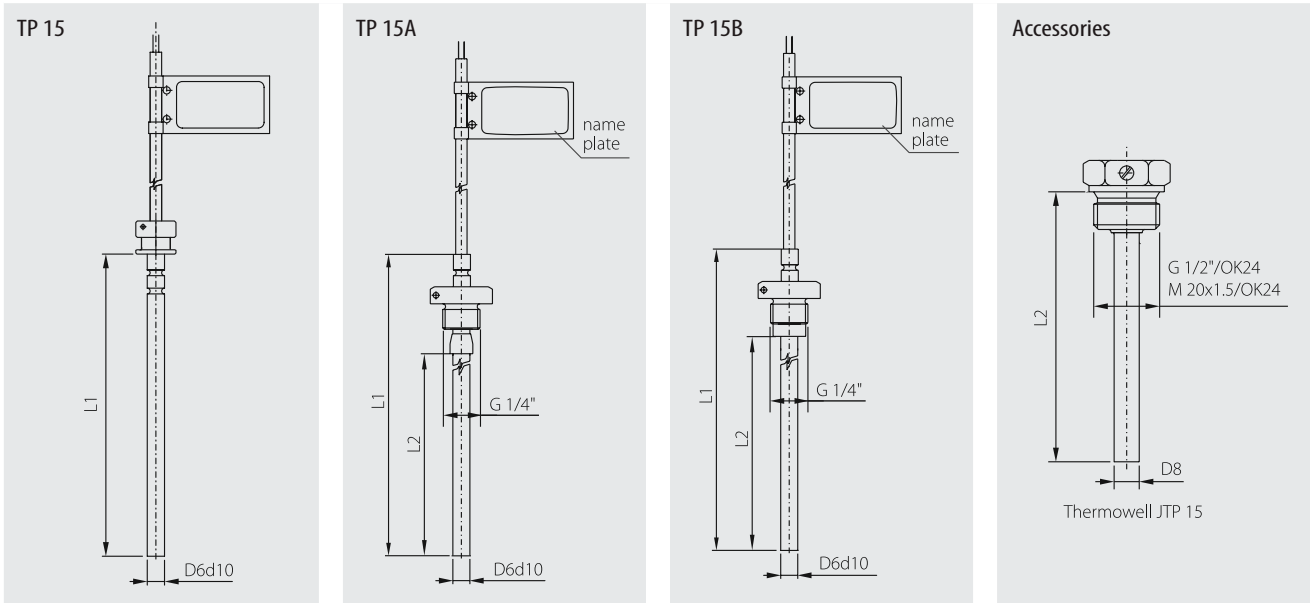
2-wire connection



4-wire connection



DIMENSIONAL DRAFT



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, TP 15B	Thermowell length L2 – JTP 15A, JTP 15B
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 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 unauthorised manipulation, the sensors are provided with sealing openings. The installation seal wire has to be pushed through the fixing nut opening first, then through the installation opening in the flow meter (or the weld-on piece) body, after which it has to be sealed in such a way that the fixing nut cannot be turned! Finally the individual sensors are connected to the heat consumption meter according to wiring diagram.

Caution: Before installation check the identity of the paired sensors by means of the code specified on 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 changed (shortened). The superfluous cable has to be rolled up and fastened.