PAIRED TEMPERATURE SENSORS TP 11E

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 11

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**).

The variable location of the plug allows the use of these short sensor tips even in longer existing 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

Length of the case	40 ± 5 mm (37 mm as a standard)
Diameter of the case	5.5 ± 0,5 mm
Material of the case and 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
Lengths of the cable	according to the standard EN 1434-2, art. 3.3.4, chart 2
Wire resistance	0.07 Ω for 1 m of 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 $m.s^{-1}$)
Recommended minimum immersion	75 mm
Lengths of thermowells	36, 86, 136, 176 mm
Thermowell thread	G ½", M 20 x 1.5
Maximum overpressure for a thermowell	6.3 MPa

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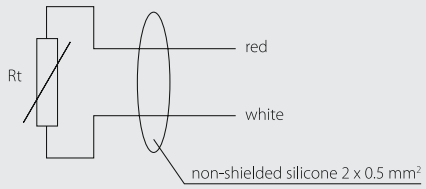
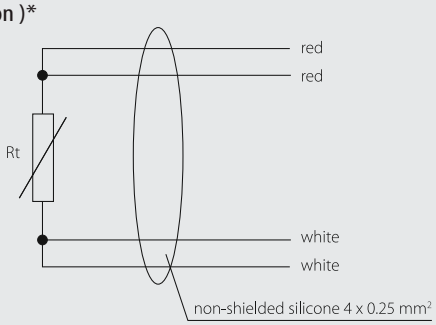
WIRING DIAGRAM

2-wire connection

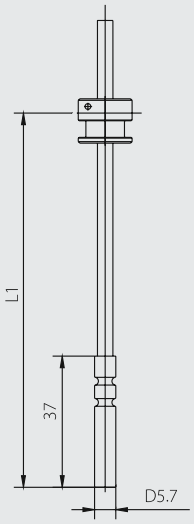


4-wire connection)*

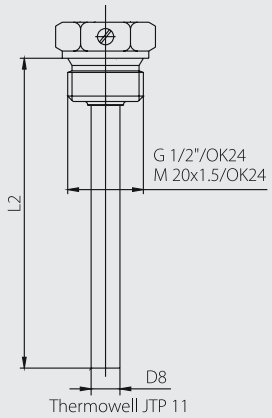


DIMENSIONAL DRAFT

TP 11E



Accessories



L1 Distance of the fixing plug for TP 11E)**	L2 thermowell length for JTP 11
47	36
97	86
147	136
187	176

)* In the 4-wire connection the wire colour design can be red, blue / black, white

)** By means of the length L1 the distance of the fixing plug is defined and the length of a spacer is defined by the length of the thermowell

SENSOR INSTALLATION AND SERVICING

As a rule, the sensors are fitted with thermowells and installed in tubing in perpendicular or in a skew position in an angle of 45° counter to the streaming of the media the temperature to be measured. Before installing these paired temperature sensors first place the thermowells in locations where the temperature is to be measured, after that push the sensors in to the the thermowell bottom, together with the spacer tube and the plug, which are placed on the cable between the sensor's case and name plate. Secure the plug, and thereby the whole sensor, by a screw located in the thermowell. The screw must be tightened to secure the sensor reliably.
The sensor marked with the red identifi cation label, the red plug and the red insulation is intended for wiring in supply circuit. The second sensor with blue identifi cation label, plug and insulation is intended for assembly in reverse branch.
To prevent unauthorized manipulation the sensors are provided with sealing openings. The installation sealing wire has to be pushed through the screw opening first, and then through the plumb opening. Then it has to be sealed not to allow to turn the screw more than one turn!
Finally the individual sensors are connected to the heat quantity meter according to the 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.