

# PAIRED TEMPERATURE SENSORS TP 16, TP 16A

118.08en

## 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. Two-wire or four-wire circuits can be connected to the sensors (the inner circuit is always two-wire). The sensors are compatible with heat-quantity meters manufactured by SIEMENS, LANDIS+GYR, KAMSTRUP, ITRON, CODEA, COMACAL, SENSUS METERING, BTU and others. The sensors are designed for installation in thermowells. The standard operating temperature range is 0 to 180 °C. The sensors are designed to operate in a chemically non-aggressive environment.

## ACCESSORIES

- stainless steel thermowell JTP 16 or JTP 16A

## DECLARATION, CERTIFICATES, CALIBRATION

The sensors are compliant with the requirements of the EN 60751, as amended and EN 1434 standards, as amended and have an EC-Type Examination Certificate No. TCM 321/17 - 5471. EU Declaration of Conformity – the sensors are manufactured in conformity with the Directive of the European Parliament and of the Council 2014/32/EU on Measuring Instruments (so-called MID). All sensor dimensions and tolerances comply with the requirements of EN 1434, as amended.

## SPECIFICATIONS

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
$\Delta\Theta$ min	2 °C or 3 °C
$\Delta\Theta$ max	180 °C
Accuracy class of individual sensors	B according to EN 60751, as amended
Sensor connection	according to the wiring diagram
Maximum overpressure of the thermowell	6.3 MPa

## OTHER PARAMETERS

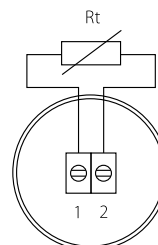
Length of the case	TP 16: 105, 140, 230 mm; TP 16A: 97, 133 mm
Diameter of the case	TP 16: 6 mm $\pm$ 0.1 mm; TP 16A: 3.6 mm $\pm$ 0.05 mm
Material of the case and of the thermowell	stainless steel DIN 1.4301
Type of the connection head	LIMATHERM MA
Material of the connection head	aluminium alloy
Temperature resistance of the connection head	-25 to 100 °C
Internal wiring resistance	TP 16: 0.015 $\Omega$ / 105 mm TP 16A: 0.034 $\Omega$ / 97 mm 0.018 $\Omega$ / 140 mm 0.043 $\Omega$ / 133 mm 0.027 $\Omega$ / 230 mm
Recommended wire cross section	0.35 to 1.5 mm <sup>2</sup>
Ingress protection	IP 54 in accordance with EN 60529, as amended
Insulation resistance	> 100 M $\Omega$ at 100 V DC, 15 to 35 °C, relative humidity < 85 %
Time response	TP 16: $T_{0.5}$ < 5 s (in flowing water at 0.4 m.s <sup>-1</sup> ) TP 16A: $T_{0.5}$ < 3 s (in flowing water at 0.4 m.s <sup>-1</sup> )
Lengths of thermowells	105, 140, 230 mm (TP 16); 88, 124 mm (TP 16A)
Thermowell thread	G 1/2", M 20 x 1.5



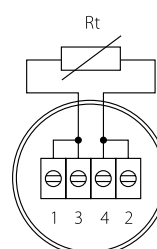
Type TP 16A ensures fast time response to changes in temperature.

## WIRING DIAGRAM

2-wire connection

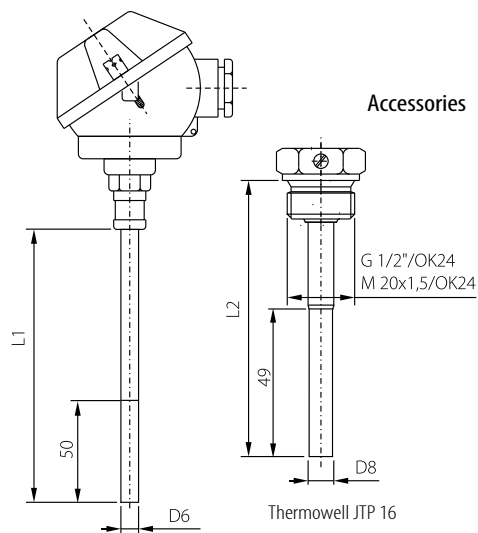


4-wire connection

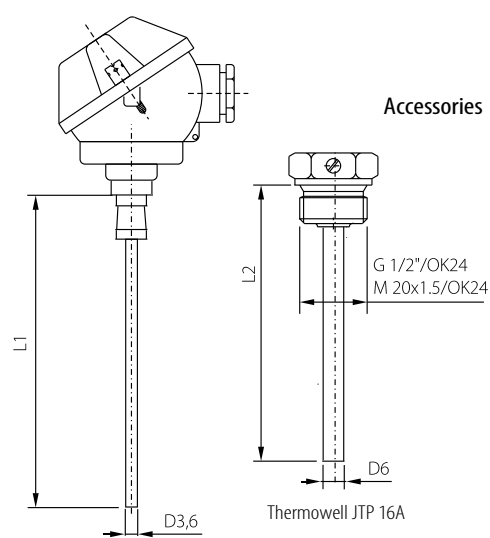


DIMENSIONAL DRAFT

TP 16



TP 16A



L1 Case length for TP 16	L2 thermowell length for JTP 16
105	105
140	140
230	230

L1 Case length for TP 16A	L2 thermowell length for JTP 16A
97	84
133	120

