INSTRUCTION MANUAL

TEMPERATURE SENSOR PTS 350B
Pt 1000/3850

Temperature sensor with cable for contact temperature measurements
on the surface of the pipes and tubes in the range of -30 to 105 ° C



SENSIT s.r.o.
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Company is incorporated in the Companies Register at the Regional Court in Ostrava, Section C, File 13728, sensit@sensit.cz, www.sensit.cz

2991.1	10-20
Supersede	

Legal regulations and standards:

- Electrical connection of the detector may only be carried out by a competent person with electrician qualification who is familiarized with the "Instruction Manual" in detail.
- The Instruction Manual is part of the product and it is necessary to keep it for the entire service life of the product.
- The Instruction Manual must be transferred to any other owner or user of the product.
- The disposal must be performed in compliance with the Directive 2008/98/EC of the European Parliament and of the Council - on waste and the Directive 2012/19/EU of the European Parliament and of the Council – on waste electrical and electronic equipment (WEEE), as amended.
- The sensors are delivered in packages, which guarantee resistance to mechanical influences and that meet the conditions with the European Parliament and Council Directive 94/62/EC on packaging and packaging waste), as amended.
- The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o. laboratory (according to EN ISO/IEC 17025 standard) or in an Accredited laboratory.

Application:

The temperature sensors PTS 350B are designed for contact temperature measurements of smooth and plane surface of solids. The temperature range for application of the sensor is – 30°C to 105 °C and it must not be exceeded even for a short term. The sensors may be used for all control systems compatible with the Pt 1000 temperature sensor with a temperature coefficient of 3850 ppm / °C. They meet the ingress protection IP65 according to the EN 60 529 standard. Sensors, includes fastening straps and closure, are suitable for temperature measurement on pipes for operation in chemically non-aggressive environments.

Recommended use and location of sensors:

- To ensure accuracy of measurement is recommended to purify surface and use a thermal conductive paste or silicone vaseline on a surface
- The minimum pipe diameter is 20 mm
- Operating position is arbitrary, sensor dimensions enables its location under the insulation on pipes

Warnings and restrictions:

The sensors must not be used for measuring in locations:

- Where the specified technical parameters and operating conditions are not adhered
- Where the sensor is exposed to mechanical action
- With explosion hazard
- For measuring temperatures of subjects under voltage
- With chemically aggressive environment that does not correspond the used metal and plastic materials
- Where the sensor is exposed to prolonged immersion in liquid or intense jetting liquid

It is not suitable to use the sensors for measuring temperature in locations:

- Where exposure to direct heat radiation from surroundings or to sunlight may occur
- Where the measured surface is not flat and its roughness does not provide a sufficient contact with the measured surface
- Where the supply cable might run parallel to mains cables (risk of interference signal induction and the measurement results may be influenced), the safe distance from mains power cables when cables run parallel can be as much as 0,5 m according to the nature of interfering fields.
- Where the sensor might be exposed to effects of strong organic and inorganic acids with medium and strong concentrations at high temperatures, weak organic acids with high concentrations and high temperatures, chlorinated hydrocarbons, and undiluted alkaline substances.

Failure to follow the said recommendations will negatively affect measurement accuracy, reliability and service life of the temperature sensor.

Declaration of conformity

SENSIT s.r.o. provides the product with the **EU Declaration of Conformity** issued according to Act No. 22/1997 Coll., as subsequently amended. The product is in accordance with the following directives:

- European Parliament and Council Directive 2011/65/EU of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment and Commission delegated Directive 2015/863/EU of 31 March 2015 amending annex II to Directive 2011/65/EU, as amended

Product safety and technical parameters were evaluated according to the following standards and norms, as amended:

- EN 60751, EN 60529
- EN 60730-1, EN 60730-2-9

Sensor description:

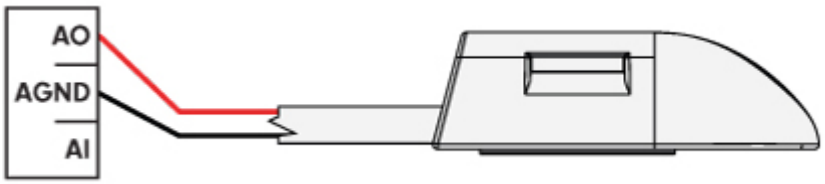
The sensor consists of a metallic housing with the sensing element inside and a supply cable. The metallic housing is located in protective case made of material POLYAMID. The sensor housing is made of brass. The sensors can be connected as two-wire, three-wire or four-wire probes. The supply cable has external silicone insulation and is shielded. The shielding is not connected with the housing or with the temperature element. They are available including a fastening strap and a closure, enables mounting the sensor on pipe. Thanks to its design, the sensor is partially isolated from the ambient influence temperature and environment.

Sensor installation:

1. Insert the fastening strap with closure into the holes of the protective case. Adjust fastening strap length according to the diameter of the tube or pipe.
2. Put the temperature sensor on the surface of the measured material and fasten it by fastening strap and closure. Use a screwdriver.
3. Connect the wires of the supply cable to the evaluation unit according the wiring diagram. **The supply cable shielding is not conductively connected with the external housing of the sensor or with the temperature element.**
4. After installation and connection to the consequential electrical measuring device, the sensor is ready for operation. The sensor does not require any special manipulation or maintenance.

Wiring diagram:

unipi technology



Technical parameters:

Type of element	Pt 1000 / 3850 ppm / °C
Accuracy class of element A *	± (0,15 + 0,002 |t|) in °C
Accuracy class of element B *	± (0,3 + 0,005 |t|) in °C
Temperature element wiring	
Measuring range	-30 °C to 105 °C
Power supply	SELV or PELV
Max. / recomm. measuring current	Cl. A: 0,5 mA / 0,2 mA Cl. B: 0,8 mA / 0,3 mA
Sensor IP code	IP 65 according to EN 60 529
Response time	$\tau_{0,5}$ < 13 sec (on smooth surface without paste)
Material of the housing / protective case	Brass / POLYAMID
Dimensions of the protective case	40 x 13 x 12 mm
Dielectric strength	500 VAC according to EN 60730-1
Insulation resistance	> 200 MΩ at 500VDC, 25 ± 3 °C
Supply cable type	PVC unshielded 2 x 0,35 mm^2
Supply cable length	
Lead resistance of the cable (two-wire)	0,102 Ω / 1 m at a temperature of 25 °C
Material of the fastening strap / closure	Stainless steel / Galvanized steel
Fastening strap length	40 cm
Minimum pipe diameter	20 mm
Weight	100 g / 2 m

* for two wire connection the influence of the cable resistance must be add to measured value, for example at temperature 25°C must be add the value 0,016 °C / 1m.

Operating conditions:

- temperature round the supply cable: -30 °C to 105 °C
- relative humidity of the surroundings: 10 to 100 %
- atmospheric pressure: 70 to 106 kPa

Storage:

- Ambient temperature 5 to 40 °C
- Humidity 5 to 85%

Delivery:

Each delivery contains the following unless otherwise agreed by the customer:

- Sensor according to purchase order
- Instruction Manual, including Guarantee Certificate
- Delivery Note

Complaints and repairs:

Guarantee and after-guarantee repairs of sensors are ensured by the manufacturer. The product must be delivered including a copy of the Guarantee Certificate, duly packed and fit to shipment so as not to get damaged during transportation.

GUARANTEE CERTIFICATE

The product is covered by guarantee for 24 months from the date of purchase.

In this period, the manufacturer will remove all material or manufacturing defects arisen demonstrably during the applicable warranty period. The manufacturer is liable for the technical and operational parameters of the product given in the user manual. Any identified defects will be claimed by the buyer without undue delay after their identification or, as appropriate, after the buyer was able to identify them during his routine care. A completed Warranty Certificate with a brief description of the defect plus the product must be submitted with the claim.

Warranty does not cover a product:

- That was damaged during transport and inappropriate storage, improper commissioning and/or that has been used for a purpose other than specified
- That has been used in an improper manner, inconsistent with the user manual and/or generally applicable technical standards or safety regulations
- That is worn or damaged as a result of normal use of the product, without loss of its operational characteristics and guaranteed technical parameters
- Into which unskilled intervention, unauthorised structural or other changes (reprogramming, resetting of set parameters, etc.) have been made
- That is mechanically damaged, e.g. by fall, being hit by a hard object, cleaning with unsuitable agents, power cord tearing/breaking, breaking or other damage of individual product parts
- That has been exposed to adverse external influence, e.g. object intrusion, wrong supply voltage, influence of chemical processes, electrical surge (obviously burnt components or printed circuits), dusty, dirty, aggressive or otherwise unsuitable environment, except normal variation
- That has been damaged by an incidental or natural disaster or as a result of natural or external phenomena, such as storm, fire, water, excessive heat
- That is claimed without the Warranty Certificate or nameplate.

Rights and obligations regarding the rights arising from defective performance will be governed by the applicable legislations and the applicable Business Terms and Conditions of SENSIT s.r.o. and this Warranty Certificate**.**

Date of sale confirmation:

Serial number: