

INSTRUCTION MANUAL

TEMPERATURE SENSOR TG7 Pt 1000/3850

The temperature sensor with a cable for contact temperature measurements of smooth and plane surface ranging from -30 to 200 °C



Instruction Manual in Czech language is available here: www.cometsystem.cz/sondy.htm, or can be obtained from your supplier.

SENSIT s.r.o.

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2155.1	04.11
Supersede	

Legal regulations and standards:

- Laws, regulations and technical standards referring to occupational safety must be followed during installation.
- 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.

Application:

The temperature sensors NS 151 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 200°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 $3850\text{ ppm}/^{\circ}\text{C}$. They meet the ingress protection IP65 according to the ČSN EN 60 529 standard. The sensors are intended for operation in chemically non-aggressive environments.

Sensor description:

The sensor consists of a metallic housing with the sensing element inside and a supply cable. The sensor housing is made of brass, holes in the housing are intended for mounting on a flat surface. The sensors are connected as two-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.

Technical parameters:

Type of element	Pt 1000 / 3850 ppm / $^{\circ}\text{C}$
Accuracy class of element *, **	$\pm (0,15 + 0,002 t)$ in $^{\circ}\text{C}$
Temperature element wiring	Two-wire configuration
Measuring range	-30°C to 200°C
Max. / recomm. measuring current	1 mA / 0,3 mA
Sensor IP code	IP 65 according to ČSN EN 60 529
Response time **	$\tau_{0,5} < 10$ sec (on smooth surface without thermally conducting paste)
Housing material	Brass
Housing diameter	$19,5 \pm 0,1$ mm
Housing height	$6 \pm 0,1$ mm
Mounting holes diameter	$4,3 \pm 0,05$ mm
Dielectric strength	500 Vef according to ČSN EN 61010-1 Art. 6.8.4.
Insulation resistance	$> 200\text{ M}\Omega$ at 500VDC, $25 \pm 3^{\circ}\text{C}$
Supply cable type	shielded silicone $2 \times 0,22\text{ mm}^2$
Supply cable length	
Supply leads resistance	$0,162\ \Omega / 1\text{ m}$ at a temperature of 25°C
External pressure endurance	2,5 MPa
Class of electrical equipment	Protection class III
Weight	0,05 kg / 1 m

* In the case of two-wire connection, it is necessary to add the effect of supply cable line resistance to the measured values, which is $0,042^{\circ}\text{C} / 1\text{m}$ at a temperature of 25°C .

** there is recommended to apply a thermal conductive paste or silicone vaseline on a surface to ensure a faster response time and minimize errors

Operating conditions:

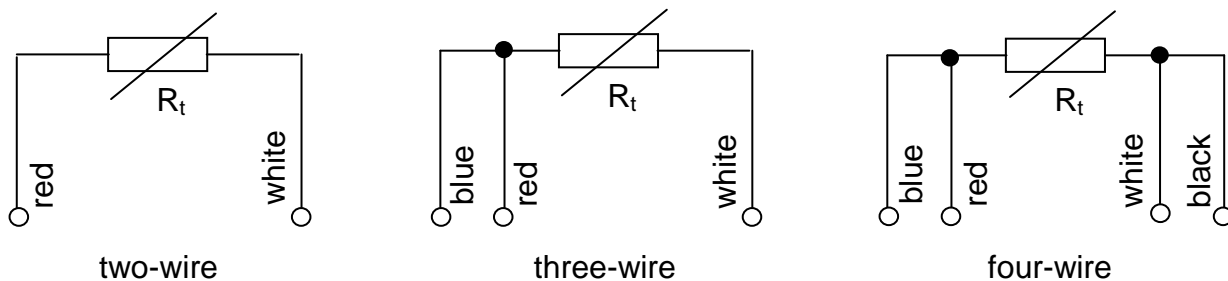
The sensors are designed for continuous operation in the environment defined by the parameters according to ČSN EN 60721-3-3 with the degree of strictness IE 37 and on the following conditions:

- temperature round the supply cable: -30°C to 200°C
- relative humidity of the surroundings: 10 to 100 %
- atmospheric pressure: 70 to 106 kPa

Sensor installation:

1. Make one or two M4 threaded holes in the measured material to fix the sensor. The smallest material thickness is 3 mm. In the case of thinner materials in which the threaded hole cannot be made, drill the 4.2 mm holes through.
2. In the case that the measured surface is rough, make it smooth and flat, possibly apply a thermally conductive paste or vaseline.
3. Put the temperature sensor on the surface of the measured material and fasten it using M4 erection bolts. In the case of the material with thickness below 3 mm, use a screw and a nut.
4. 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.**
5. After installation and connection to the consequential electrical measuring device, the sensor is ready for operation. **Operating position is arbitrary.** To ensure the aforesaid measurement accuracy, the sensor is recommended to be covered with an additional insulation which reduces the influence of surroundings on measurement.

Wiring diagram:



Warnings and restrictions:

The sensors must not be used for measuring in locations:

- Where the specified operating conditions are not adhered to
- Where the sensor is exposed to mechanical action
- With explosion hazard (the supply cable is not resistant to flame propagation)
- For measuring temperatures of subjects under voltage
- With chemically aggressive environment – the endurance of brass against acids and lyes is very low
- With the operating pressure higher than indicated in technical parameters
- Where the supply cable may be bent at a distance of 2 cm from the edge of the housing

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.

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

Calibration:

SENSIT s.r.o. performs the initial calibration of meters in compliance with § 10 Act 505/1990 Coll. as subsequently amended within the scope of their manufacturing processes. The calibration is performed by submersion of the measuring housing into a liquid bath. The continuity of operating meters is ensured in compliance with § 9, Sect. 4 in this Act.

Delivery:

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

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

Packaging:

The sensors are delivered in packages that meet the conditions of Act 477/2001 Coll. on packaging as subsequently which is in compliance with the European Parliament and Council Directive 94/62/ES on packaging and packaging waste

Storage:

The sensors located in their original delivered packages can be stored under conditions corresponding to IE 11 Class according to ČSN EN 60721-3-1:

- Ambient temperature 5 to 40 °C
- Humidity 5 to 95%

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.

Disposal:

The disposal must be performed in compliance with Act No. 185/2001 Coll. on waste as subsequently amended and Implementation Decree No. 352/2005 Coll. on details of electronic equipment and electronic waste management in which the Directive 2002/95/ES – RoHS of the European Parliament and of the Council is implemented. Individual materials used are disposed of in the following manner:

- Product package --- is fully recyclable --- dispose in compliance with local regulations (forwarding to authorized person), catalogue number of waste 150101
- Metallic parts (ferrous metals) --- are recyclable --- dispose in compliance with local regulations (forwarding to the authorized person), catalogue number of waste 160117
- Cables, insulation tubing --- dispose in compliance with local regulations (forwarding to authorized person), catalogue number of waste 170411
- Defective products (non-disassembled) --- dispose in compliance with local regulations (forwarding to authorized person) - catalogue number of waste 160216 - Other constituents removed from discarded equipment.

DECLARATION OF CONFORMITY, CERTIFICATES

SENSIT s.r.o. provides the product with the manufacturer's Declaration of Conformity issued according to Act ČSN EN ISO/IEC 17050-1 as subsequently amended.

GUARANTEE CERTIFICATE

The product is covered by guarantee for 30 months from the date of purchase.

In this period, SENSIT s.r.o. will remove all manufacturing defects free of charge. When filing a claim, the product along with its Guarantee Certificate and the Claim Report with a concise description of the fault must be submitted. The guarantee does not cover the product damaged during shipment, undue storage and mishandling, the product used for purposes other than intended or failure to follow the operating instructions, the product being tampered with and the product without Guarantee Certificate or its name plate.

Serial number:/.....