TEPW-102 temperature sensor

Manual

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Content

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 TR160A are designed for measuring temperatures of gaseous and liquid substances. The temperature range for application of the sensor is — 30°C to 80 °C and it must not be exceeded even for a short term. The sensors may be used for all control systems compatible with the Pt1000 temperature sensor with a temperature coefficient of 3850 ppm / °C. The temperature sensors are designed for universal application, the sensor housing and supply cable are resistant to salt solutions, oils and greases.

Sensor description:

The sensor consists of a hermetically closed plastic housing with the sensing element inside and a supply cable. The sensor housing is made of plastic based on polyamide. The length of housing is 20 mm and diameter of housing is 6 mm. The sensor is connected as two-wire. The supply cable has external PVC insulation and is shielded. The shielding is not connected with the temperature element.

Technical parameters:

Type of element	Pt1000 /3850 ppm/ °C
Accuracy class of element *	±(0,3 + 0,005ltl) in °C
Temperature element wiring	Two wire
Measuring range	-30 °C to 80 °C
Max. / recomm. measuring current	1 mA/ 0,3 mA
Sensor IP code	IP67
Response time	$t_{0,5}$ < 12 sec (in flowing water > 0,2 $m.s.^{-1}$)
Housing material	Plastic based on polyamide
Housing diameter	6,0 ± 0,1 mm
Housing length	20mm
Dielectric strength	4kVef
Insulation resistance	> 200 MΩ at 500VDC ,25 ± 3 °C
Supply cable length	1m
Supply cable type	Shielded PVC 2 x 0,14 mm^2
Supply leads resistance	0,254Ω/1m at a temperature of 25°C
External pressure endurance	Without Thermowell 2,5MPa
Class of electrical equipment	Protection class III
Weight	0,05kg/1m

* 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 0,066°C/ 1m at a temperature of 25°C.

Operating conditions:

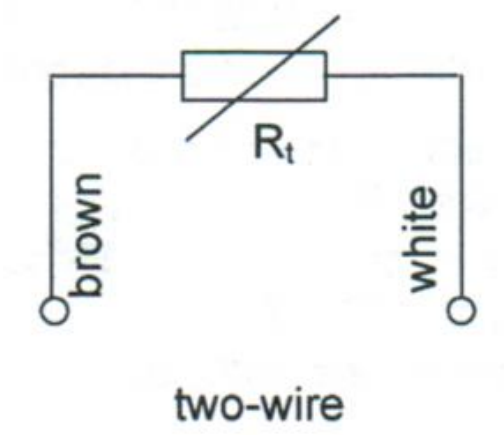
The sensors are designed for continuous operation in the environment defined by the parameters according to CSN EN 60721-3-3 with the degree of strictness IE 37 and on the following conditions:

- temperature round the supply cable: -30°C to 80°C
- relative humidity of the surroundings: 10 to 100 %
- atmospheric pressure: 70 to 106kPa

Sensor installation:

- Install the sensor in the measured location.
- 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 temperature element.
- After installation and connection to the consequential electrical measuring device, the sensor is ready for operation. The sensor does not require any special attendance or maintenance. Operating position is arbitrary.

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)
- With the operating pressure higher than indicated in technical parameters
- Where the sensor could be exposed to permanent submersion in a liquid
- Where the sensor could be exposed to acids, alkalis and solvents

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

- Where sufficient contact with the measured fluid is not secured (low submersion of the sensor, effects of the surroundings).
- 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 0,5m 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.