FLTSN-PXXXP100 | PASSIVE TEMPERATURE PROBE

Mounting and operating instructions

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SAFETY AND PRECAUTIONS

Read all the information in this manual, in the datasheet and in the Modbus Register Map before working with the product. For personal and equipment safety and for optimum product performance, make sure you fully understand the content before installing, using or servicing this product.

For safety and licensing (CE) reasons, unauthorised conversions and / or modifications of the product are inadmissible.

The product should not be exposed to abnormal conditions, such as extreme temperatures, direct sunlight or vibrations. Long-term exposure to chemical vapors in high concentration can affect the product performance. Make sure the work environment is as dry as possible and avoid condensation.

All installations must comply with local health and safety regulations and local electrical standards and approved codes. This product should only be installed by an engineer or a technician with expert knowledge of the product and safety precautions.

Avoid contact with energised electrical parts. Always disconnect the power supply before connecting, servicing or repairing the product.

Always check that you are connecting the correct power supply to the product and use wires of the correct characteristics and cross-section. Make sure all screws and nuts are properly tightened and fuses (if any) are in place.

Consideration should be given to recycling the equipment and packaging. These should be disposed of in accordance with local and national laws and regulations.

If there are questions that are not answered, contact your technical support or consult a professional.

PRODUCT DESCRIPTION

FLTSN-PXXXP100 are passive temperature probes (Resistance Temperature Detectors), which function by measuring the change in electrical resistance of a material as its temperature changes. They have a positive linear temperature coefficient (PTC) of resistance: when the measured temperature rises, the electrical resistance of the sensor increases.

The passive temperature probes FLTSN-PXXXP100 provide the following benefits:

- Stability: Reliable temperature measurements due to the platinum sensor element used.
- Robustness: The sensing element is coated with a waterproof acrylic coating and enclosed in an ABS (Acrylonitrile Butadiene Styrene) plastic tube.
- User-Friendliness: Simple connection with two wires.

With their simplicity and practicality, the passive temperature probes FLTSN-PXXXP100 can be implemented effortlessly in various HVAC applications.

ARTICLE CODES

Article code	PTC
FLTSN-P500P100	PT500
FLTSN-P1K0P100	PT1000

INTENDED AREA OF USE

- Temperature measurement in HVAC applications
- Indoor and outdoor applications

TECHNICAL DATA

- General characteristics
  - Acrylic coated sensing element in a plastic tube
  - Positive linear temperature coefficient
  - Tinned connections
  - Cable sheath: white
- Enclosure
  - Material of plastic tube: ABS (Acrylonitrile Butadiene Styrene) plastic
  - Colour: Black
  - Ingress protection: IP65
- Sensing element characteristics
  - Standardised characteristics according to IEC 60751
  - Short reaction times down to t0.9 ≤ 5 s (flowing air, 3.0 m/s)
  - Outstanding stability of temperature characteristic

STANDARDS

CE

- Low Voltage Directive 2014/35/EU
- Electromagnetic Compatibility (EMC) Directive 2014/30/EU
- Commission Delegated Directive (EU) 2015/863 (RoHs 3) of 31 March 2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances
- WEEE Directive 2012/19/EU

MOUNTING & OPERATING INSTRUCTIONS IN STEPS

Before you start mounting the unit, read carefully **"Safety and Precautions"** and make sure the following recommendations are met:

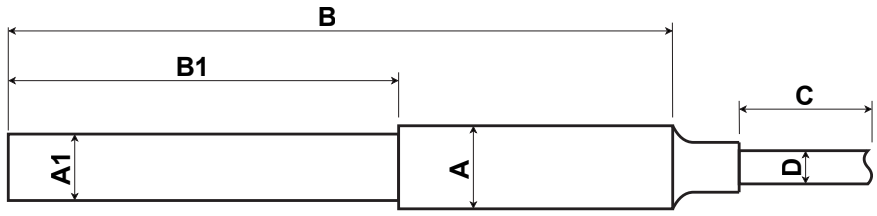
- When the sensor is used to measure ambient temperature, it should not be installed near diffusers, vents, windows and other sources of airflow since they can affect the accuracy of the sensor measurements. Make sure there is distance of at least 0,3—0,5 m between the sensor and airflow source.
- The sensor should be protected from direct sunlight.
- The sensor should not be installed where vibrations and/or electromagnetic interference occur.

Follow these steps:

The passive temperature probe can be hung in the airflow or fixed in a hole in the air duct.

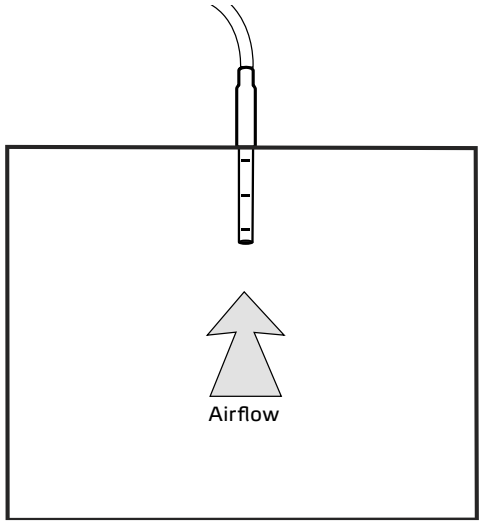
1. Before installing the sensor, mind the mounting dimensions — see **Fig. 1**
2. Make sure the device is not powered.
3. In case of fixation of the sensor in an air duct: drill a Ø9.5 mm hole in the duct and insert the temperature probe — see **Fig. 2**.
4. Apply sealing to prevent air leakage.
5. Connect the temperature probe.

Fig. 1 Mounting dimensions



Article code	A1	A	B1	B	C	D
FLTSN-PXXXP100	8 mm	9 mm	53 ± 2 mm	89 mm	1000 mm	4 mm

Fig. 2 Mounting position

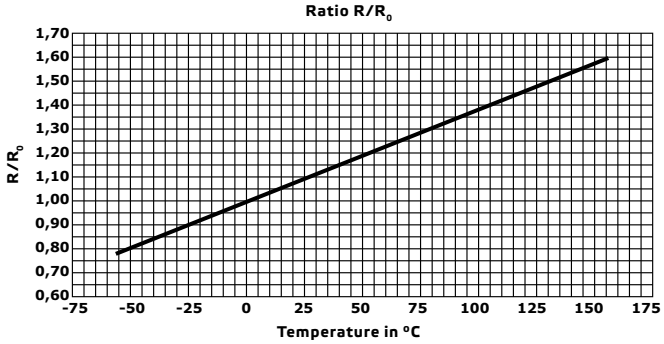


WIRING AND CONNECTIONS

Connections	
Cable cross-section	0,5 mm²
Cable characteristics	2-pole stranded wire, unshielded, tinned connections

OPERATIONAL DIAGRAMS

Resistance values



This diagram helps you to calculate the electrical resistance of your temperature probe at different temperatures. To calculate it, multiply the resistance of the temperature probe at 0 °C by the factor mentioned on the left side of the diagram. For example, at 0 °C, a PT500 has a resistance of 500 Ohm. At 25 °C the factor is 1,1. So at 25 °C the PT500 probe will have a resistance of 550 Ohm.

TROUBLESHOOTING

In case of faulty operation, please check if:

- All connections are correct.
- The mounting recommendations have been fulfilled.
- The device to which the sensor is connected is functioning correctly.
- Disconnect the temperature probe and measure the electrical resistance. Check if it corresponds to the above mentioned table.

FREQUENTLY ASKED QUESTIONS (FAQs)

Can the sensor be submerged in water?

This sensor is suitable for both indoor and outdoor applications due to its high protection rating — IP65. The enclosure of the sensor ensures that the PCB components are completely protected from dust ingress and water jets from any direction. However, the sensor is not designed to function underwater.

Can the cable of the sensor be extended?

FLTSN-PXXXP100 probes are passive resistance temperature detectors that work by sensing temperature-related changes in their electrical resistance. As the temperature goes up, their resistance increases proportionally. Technically, cable extension is possible, however, it should be taken into account that the longer the cable, the less accurate sensor measurements are since the resistance of the cable influences the reading.

Is the sensor easy to connect?

Thanks to its compact design and integrated 2-wire cable, the FLTSN-PXXXP100 sensor ensures effortless connection. The unit does not require separate power supply and can be used in different applications. Typically, the sensor is connected to an external device (e.g. fan speed controller), which sends an excitation current to the sensor, measures the voltage drop across it, calculates the resistance and converts it into a temperature reading.

TRANSPORT AND STORAGE

Avoid shocks and extreme conditions; stock in original packaging.

WARRANTY AND RESTRICTIONS

Two years from the delivery date against defects in manufacturing. Any modifications or alterations to the product after the production date relieve the manufacturer of any responsibilities. The manufacturer bears no responsibility for any misprints or mistakes in this data.

MAINTENANCE

In normal conditions, this product is maintenance-free. If soiled, clean with a dry or damp cloth. In case of heavy pollution, clean with a non-aggressive product. In these circumstances, the unit should be disconnected from the supply. Pay attention that no fluids enter the unit. Only reconnect it to the supply when it is completely dry.