

TS-XX-D-YY Duct Temperature Sensor

Features

- Thermistor, PT or NI sensing elements to fit your system
- Simple and secure installation
- Wide range of temperature probes
- Compact size and modern design

Applications

- On return air ducts to measure heating/cooling return air
- On supply air ducts to measure heating/cooling supply air
- In heat exchangers and air handling units to control heating/cooling coils for temperature and humidity control
- As frost protection sensor

Temperature Sensor

The sensor measures the temperature by use of a NTC, PT or NI sensing element. The sensing element is either a glass packed thermistor with a negative temperature coefficient or a platinum film sensor or a thin nickel layer on a ceramic substrate. Its resistance changes according to the temperature. The change follows a specified curve. Below is a list of available sensor elements, curves and accuracies:



Item name	Sensing element	Curve	Compatible with
N18	Thermistor 1.8k at 25 °C	Curve 5	TAC, CSI
N3	Thermistor 3k at 25 °C	Curve 6	Alerton
N10	Thermistor 10k at 25 °C	Curve 24	Hysine, Alerton,ALC, Delta,Trane, CSI
N11	Thermistor 10k at 25 °C	Curve 7	Andover, Invensys, Carrier, KMC
N20	Thermistor 20k at 25 °C	Curve 20	Honeywell
N100	Thermistor 100k at 25 °C	Curve 9	Siemens SBT
Tp1	PT100	0.3851ohm/K	Honeywell
Tp2	PT1000	3.851ohm/K	Johnson Control
TK5	NI1000	5000ppm/k	Siemens SBT

Ordering

Ordering number:TS-XX-D-YY

XX indicates the sensor element optional, see table above.

YY indicates the probe length. Standard probe length is 20 cm.

For example:TS-N10-D-20

-N10 indicates the sensor element is Thermistor 10k .

-20 indicates the probe length is 20 cm.

Installation

Duct probes should be installed directly on the duct, in an area where the air stream is well mixed:

- Locate a supply air sensor two or three meters down stream from the nearest fan and coil.
- Mount the return air sensor close to the air inlet but downstream from a return fan if one is present.
- To install the sensor, assemble base plate and probe, then drill a 8 mm hole and two 3 mm holes on a diameter of 25 mm in the duct.
- Use two self-tapping sheet metal screws to tighten the mounting circuit in the cover.
- Connect the wires according to the wiring diagram to the measuring circuit in the cover:
 - The Thermistors require two conductors; normally 18ga unshielded twisted pair.
 - The PT100, PT1000 and NI1000 sensors come with each two terminal connectors in order to connect up to four conductors for compensating conductor resistance.
- Assemble the cover with the mounting plate.
- Insert the assembled probe through the center opening of the mounting plate into the air stream.
- Tighten the horizontal screw on the mounting plate to fix the probe to the duct.

Technical Specification

Sensing Probe	Thermistor: Range Accuracy	NTC -30----70°C ±0.5k
	Platinum-Film: Range Accuracy	PT, 0.3851ohm/k -30----70°C ±0.3k
	Nickel Thin Layer Range Accuracy	NI, 5000 ppm/k -30----70°C ±1k
Connection	Connection Terminals	2.5 mm ²
Environment	Operation Climatic Conditions Temperature Humidity	To IEC 721-3-3 class 3 K5 -40...70°C <95% r.h.
	Transport & Storage Climatic Conditions Temperature Humidity Mechanical Conditions	To IEC 721-3-2 and IEC 721-3-1 class 3 K3 and class 1 K3 -40...80°C <95% r.h. class 2M2
Standards	CE conform according to EMC Standard 89/336/EEC EMEI Standard 73/23/EEC	EN 61 000-6-1/ EN 61 000-6-3
	Automatic electrical controls for household and similar use	EN 60 730 -1
	Special requirement on temperature dependent controls	EN 60 730 - 2 - 9
	Pollution Class	Normal acc. To EN 60 730,RoHS compliant
	Degree of Protection	IP56 to EN 60 529
	Safety Class	III (IEC 60536)
Housing Materials	Cover & Mounting Plate Probe	Fire proof ABS plastic Stainless Steel
General	Dimensions [mm]	Cover: 42 x 112 x 88 (H x W x D) Probe: ø 6 x 200 (Diameter x L)
	Weight (including package)	135g

Wiring Diagram

Terminal Connections:

- 1, 2 and 3 terminal connection is connected on the PCB board.
- 2, If sensing elements is Thermistor:
Only use 1 and 2 terminal connection
- 3, If sensing elements is Platinum film sensors:
use double contacts in order to compensate wire resistance.

TS-N10-D-20

Dimension [mm]

