

SDB-T Duct Temperature Sensor

Features

- Thermistor, PT and 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 room temperatures
- On supply air ducts to measure heating/cooling supply air
- In heat exchangers and air handling units to control heating/cooling coils
- 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, a platinum film or a nickel thin layer based probe. Its resistance changes according to the temperature. The change follows a specified curve. Contact our sales department for curves not yet listed below.

Ordering

Item name	Article #	Probe Type	Definition	Length	Comments
SDB-Tn3-12	40-20 0073	NTC 3kΩ at 25°C (77°C)	B _{25/50} 3935	120mm (4.7in)	Vector standard
SDB-Tn10-12	40-20 0074	NTC 10kΩ at 25°C (77°C)	B _{25/50} 3935	120mm (4.7in)	
SDB-Tn11-12	40-20 0075	NTC 10kΩ at 25°C (77°C)	B _{25/50} 3630	120mm (4.7in)	
SDB-Tn12-12	40-20 0093	NTC 10kΩ at 25°C (77°C)	B _{25/50} 3380	120mm (4.7in)	
SDB-Tn20-12	40-20 0076	NTC 20kΩ at 25°C (77°C)	B _{25/50} 4200	120mm (4.7in)	
SDB-Tn100-12	40-20 0077	NTC 100kΩ at 25°C (77°C)	B _{25/50} 4200	120mm (4.7in)	
SDB-Tp1-12	40-20 0078	PT100	EN60751	120mm (4.7in)	
SDB-Tp2-12	40-20 0079	PT1000	EN60751	120mm (4.7in)	
SDB-Tk5-12	40-20 0080	NI1000, 5000 ppm/K	DIN 43760	120mm (4.7in)	

SDB-Tn3-20	40-20 0081	NTC 3kΩ at 25°C (77°C)	B _{25/50} 3935	200mm (7.9in)	Vector standard
SDB-Tn10-20	40-20 0082	NTC 10kΩ at 25°C (77°C)	B _{25/50} 3935	200mm (7.9in)	
SDB-Tn11-20	40-20 0083	NTC 10kΩ at 25°C (77°C)	B _{25/50} 3630	200mm (7.9in)	
SDB-Tn12-20	40-20 0092	NTC 10kΩ at 25°C (77°C)	B _{25/50} 3380	200mm (7.9in)	
SDB-Tn20-20	40-20 0084	NTC 20kΩ at 25°C (77°C)	B _{25/50} 4200	200mm (7.9in)	
SDB-Tn100-20	40-20 0085	NTC 100kΩ at 25°C (77°C)	B _{25/50} 4200	200mm (7.9in)	
SDB-Tp1-20	40-20 0069	PT100	EN60751	200mm (7.9in)	
SDB-Tp2-20	40-20 0086	PT1000	EN60751	200mm (7.9in)	
SDB-Tk5-20	40-20 0087	NI1000, 5000 ppm/K	DIN 43760	200mm (7.9in)	

Accessories

Combine with AMI immersion stainless steel pocket for use as immersion sensor.

Spring loaded		Fixing screw		Immersion length (L)
Item name	Article #	Item name	Article #	
AMI-S05	40-51 0001	AMI-S05-1	40-51 0012	5 cm (2")
AMI-S07	40-51 0002	AMI-S07-1	40-51 0013	7.5 cm (3")
AMI-S10	40-51 0003	AMI-S10-1	40-51 0014	10 cm (4")
AMI-S15	40-51 0004	AMI-S15-1	40-51 0015	15 cm (5.9")
AMI-S20	40-51 0021	AMI-S20-1	40-51 0016	20 cm (7.9")
AMI-S30	40-51 0019	AMI-S30-1	40-51 0017	30 cm (11.8")
AMI-S40	40-51 0020	AMI-S40-1	40-51 0018	40 cm (15.7")

Installation

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

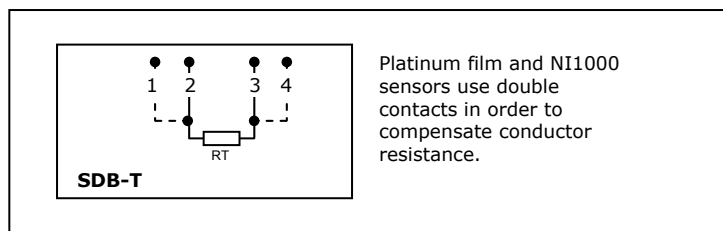
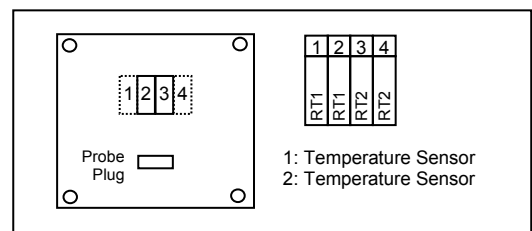
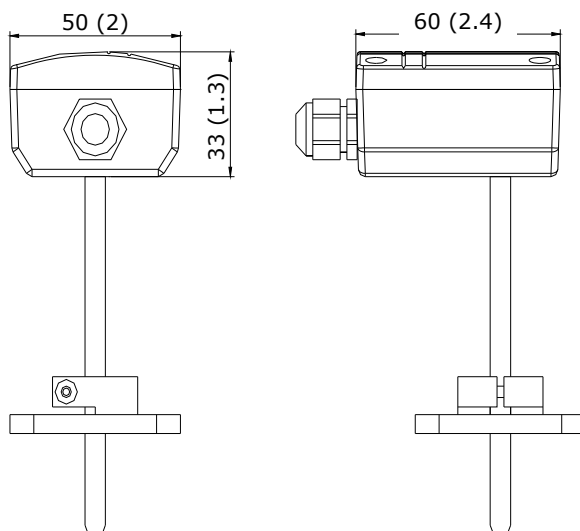
- Locate a supply air sensor two or three meters downstream from the nearest fan and coil.
- Mount the return air sensor close to the air inlet but downstream from a return fan if one is present.
- To install the sensor, drill one 8mm (5/16 in) hole and two 3mm (1/8 in) holes on a diameter of 25mm (1 in) in the duct.
- Use two self-tapping sheet metal screws to tighten the mounting plate to the duct.
- Remove cover by turning the four screws counter clock wise
- 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.
- Replace cover and tighten the four screws with equal force. Make sure sealing is clean and in place.
- 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.

To install immersion sensors,

- Weld a nut to the water pipe according to local regulations.
- Fix an AMI immersion pocket to the nut
- Insert the probe into the immersion pocket
- For AMI-Sx-1 only: Secure the probe with the horizontal fixing screw of the AMI immersion pocket.

Technical Specification

Sensing Probe	Thermistor:	NTC	
	Range: (Probe only)	-40...100°C (-94...212°F)	
	Accuracy	-40...0 °C (-40...32 °F): 0.5 K	
		0...50 °C (32...122 °F): 0.2 K	
	50...100 °C (122...212 °F): 0.5 K		
	Platinum-Film:	PT according EN 60751	
	Accuracy	EN 60751, Class B +/- 0.3 at 0°C (32°F), 0.005 x t[K] for values away from 0°C (32°F).	
	Nickel Thin Layer:	1000 Ω at 0°C (32°F), 5000 ppm/K	
	Accuracy	DIN 43760 +/- 0.4 at 0°C (32°F), <0°C(32°F) 0.028 x t[K], >0°C(32°F) 0.007 x t[K]	
Connection	Terminal Connectors	For wires 0.34...2.5 mm ² (AWG 24...12)	
Environment	Operation	To IEC 721-3-3	
	Climatic Conditions	class 3 K5	
	Temperature (Housing)	-40...100°C (-40...212°F)	
	Humidity	<95% R.H. non-condensing	
	Transport & Storage	To IEC 721-3-2 and IEC 721-3-1	
	Climatic Conditions	class 3 K3 and class 1 K3	
	Temperature	-40...100°C (-40...212°F)	
	Humidity	<95% R.H. non-condensing	
	Mechanical Conditions	class 2M2	
Standards		conformity	
		EMC Directive	2004/108/EC
		Low Voltage Directive	2006/95/EC
	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	IP65 to EN 60 529		
Safety Class	III (IEC 60536)		
Housing	Material Cover & Mounting Plate	Fire proof ABS plastic (UL94 class V-0)	
	Material Probe	Stainless Steel	
	Standard Color	White: RAL 9003	
	Dimensions (H x W x D)	Cover: 33 x 60 x 50 mm (1.3 x 2.4 x 2 in)	
	(Diameter x L)	Probe: ø 6 x YY (ø 0.2 x YY/2.54 in)	
Weight (including package)	110 g (3.9 oz)		

Wiring Diagram

Terminal Connections

Dimension

Mounting Plate
