

SDB-T-1

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 #	Protype	Definition	Length	Comments
SDB-Tn3-12-1	40-20 0123	NTC 3kΩ at 25 °C (77 °F)	B _{25/50} 3935	120mm (4.7in)	Vector standard
SDB-Tn10-12-1	40-20 0124	NTC 10kΩ at 25 °C (77 °F)	B _{25/50} 3935	120mm (4.7in)	
SDB-Tn11-12-1	40-20 0125	NTC 10kΩ at 25 °C (77 °F)	B _{25/50} 3630	120mm (4.7in)	
SDB-Tn12-12-1	40-20 0126	NTC 10kΩ at 25 °C (77 °F)	B _{25/50} 3380	120mm (4.7in)	
SDB-Tn20-12-1	40-20 0127	NTC 20kΩ at 25 °C (77 °F)	B _{25/50} 4200	120mm (4.7in)	
SDB-Tn100-12-1	40-20 0128	NTC 100kΩ at 25 °C (77 °F)	B _{25/50} 4200	120mm (4.7in)	
SDB-Tp1-12-1	40-20 0129	PT100	EN60751	120mm (4.7in)	
SDB-Tp2-12-1	40-20 0130	PT1000	EN60751	120mm (4.7in)	
SDB-Tk5-12-1	40-20 0131	NI1000, 5000 ppm/K	DIN 43760	120mm (4.7in)	
SDB-Tk6-12-1	40-20 0199	NI1000, 6180 ppm/K	DIN 43760	120mm (4.7in)	

SDB-Tn3-20-1	40-20 0132	NTC 3kΩ at 25 °C (77 °F)	B _{25/50} 3935	200mm (7.9in)	Vector standard
SDB- Tn10-20-1	40-20 0133	NTC 10kΩ at 25 °C (77 °F)	B _{25/50} 3935	200mm (7.9in)	
SDB- Tn11-20-1	40-20 0134	NTC 10kΩ at 25 °C (77 °F)	B _{25/50} 3630	200mm (7.9in)	
SDB-Tn12-20-1	40-20 0135	NTC 10kΩ at 25 °C (77 °F)	B _{25/50} 3380	200mm (7.9in)	
SDB- Tn20-20-1	40-20 0136	NTC 20kΩ at 25 °C (77 °F)	B _{25/50} 4200	200mm (7.9in)	
SDB- Tn100-20-1	40-20 0137	NTC 100kΩ at 25 °C (77 °F)	B _{25/50} 4200	200mm (7.9in)	
SDB- Tp1-20-1	40-20 0138	PT100	EN60751	200mm (7.9in)	
SDB- Tp2-20-1	40-20 0139	PT1000	EN60751	200mm (7.9in)	
SDB- Tk5-20-1	40-20 0140	NI1000, 5000 ppm/K	DIN 43760	200mm (7.9in)	
SDB- Tk6-20-1	40-20 0200	NI1000, 6180 ppm/K	DIN 43760	200mm (7.9in)	

Accessories

Depending on installation requirements add conduit connector.

SDB-T does not include conduit connectors. They need to be ordered separately.

Item name	Article #	Length
AMC-2	40-50 0074	Conduit connector NPT 1/2

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")

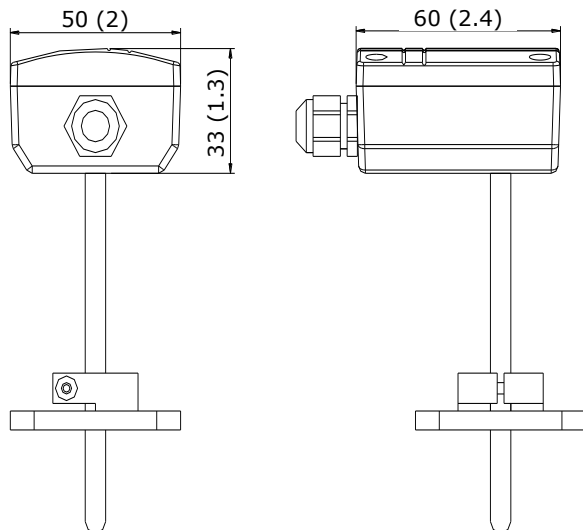
Installation

See installation sheet no. 70-000532 (www.vectorcontrols.com).

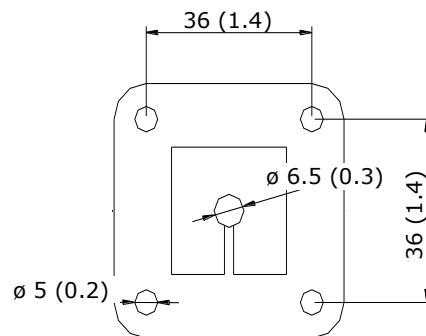
Technical specification

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 22...13)
Environment	Operation	To IEC 721-3-3
	Climatic conditions	class K5
	Temperature (Housing)	-40...100°C (-40...212°F)
	Humidity	<95% RH non-condensing
	Transport & storage	To IEC 721-3-2 and IEC 721-3-1
	Climatic conditions	class 3K3 and class 1K3
	Temperature	-40...100°C (-40...212°F)
	Humidity	<95% RH 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 60730, RoHS compliant
	Degree of protection	IP65 to EN 60529
	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: RAL9003
	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)	114 g (4.0oz)

Dimension



Mounting plate



Resistance Table for Thermistors (NTC)

°C	°F	Tn3 [kΩ]	Tn5 [kΩ]	Tn10 [kΩ]	Tn11 [kΩ]	Tn12 [kΩ]	Tn20 [kΩ]	Tn100 [kΩ]
B _{25/50}		3935	3470	3935	3630	3380	4200	4200
B _{25/85}		3974	3535	3974	3687	3435	4260	4260
B _{25/100}		3988	3526	3988	3715	3455	4285	4285
Signal type →		NTC 3k	NTC 5k	NTC 10k-2	NTC-10k-3		NTC 20k	NTC 100k
-50	-58	201,1	161,9	670,2	441,3	329,2	1711	8558
-40	-40	100,9	89,49	336,4	239,7	188,4	814,0	4095
-30	-22	53,09	54,07	177,0	135,3	111,3	415,6	2077
-20	-4	29,12	33,21	97,08	78,91	67,74	220,6	1105
-10	14	16,60	21,07	55,33	47,54	42,45	122,4	612,4
0	32	9,795	13,73	32,65	29,49	27,28	70,20	351,0
10	50	5,969	9,041	19,90	18,79	17,96	41,56	207,8
20	68	3,747	6,064	12,49	12,26	12,09	25,34	126,7
25	77	3,000	5,000	10,00	10,00	10,00	20,00	100,00
30	86	2,417	4,139	8,057	8,194	8,313	15,88	79,43
40	104	1,598	2,875	5,327	5,592	5,828	10,21	51,06
50	122	1,081	2,032	3,603	3,893	4,161	6,718	33,60
60	140	0,746	1,463	2,488	2,760	3,021	4,518	22,59
70	158	0,525	1,069	1,751	1,990	2,229	3,100	15,50
80	176	0,376	0,792	1,255	1,458	1,669	2,168	10,84
90	194	0,275	0,601	0,915	1,084	1,266	1,542	7,707
100	212	0,203	0,464	0,678	0,817	0,973	1,114	5,571
110	230	0,536	0,354	0,512	0,624	0,752	0,818	4,092
120	248	0,123	0,272	0,410	0,481	0,605	0,609	3,046
130	266	0,097	0,212	0,322	0,380	0,487	0,460	2,298
140	284	0,077	0,169	0,257	0,300	0,395	0,351	1,755
150	302	0,063	0,137	0,210	0,240	0,325	0,271	1,356

Resistance Table for Platinum Film and NI1000 Elements

°C	°F	Tp1 [Ω]	Tp2 [Ω]	Tk5 [Ω]	Tk6 [Ω]
		PT100 DIN 60751	PT1000 DIN 60751	NI1000, K=5000	NI1000 K=6180
-50	-58	80,28	803,0	790,88	742,55
-40	-40	84,27	843,0	830,84	791,31
-30	-22	88,22	882,0	871,69	841,46
-20	-4	92,16	922,0	913,48	892,96
-10	14	96,09	961,0	956,24	945,82
0	32	100,00	1000,0	1000	1000
10	50	103,90	1039,0	1044,79	1055,52
20	68	107,79	1078,0	1090,65	1111,36
30	86	111,67	1117,0	1137,62	1170,56
40	104	115,54	1155,0	1185,71	1230,11
50	122	119,40	1194,0	1234,98	1291,05
60	140	123,24	1232,0	1285,45	1353,40
70	158	127,07	1270,5	1337,15	1417,21
80	176	130,89	1309,0	1390,12	1482,50
90	194	134,70	1347,0	1444,39	1549,34
100	212	138,50	1385,0	1500,00	1617,79
110	230	142,29	1423,0	1556,98	1687,89
120	248	146,06	1460,5	1615,37	1759,72
130	266	149,80	1498,0	1675,19	1833,35
140	284	153,60	1536,0	1736,48	1908,87
150	302	157,30	1573,0	1799,27	1986,35
160	320	161,05	1610,5	1863,60	2065,89
170	338	164,75	1647,5	1929,50	2147,58
180	356	168,45	1684,5	1997,00	2231,53
190	374	172,15	1721,5	2066,15	2317,83
200	392	175,85	1758,5	2136,96	2406,60