

SOD-T Outdoor temperature sensor

Features

- Outdoor temperature measurement
- Thermistor, NI and PT sensing elements to fit your system
- Simple and secure installation, single screw cover
- Surface mounting without opening cover
- Wide range of temperature probes

Applications

- Outside air temperature measurements for summer winter compensation, energy optimization and economizer
- Frost protection control of outside air dampers



Temperature sensor

The sensor measures the temperature by use of a glass packed thermistor with a negative temperature coefficient (NTC), a platinum film (PT) or a nickel thin layer (NI) based probe. Its resistance changes according to the temperature. The change follows a specified curve. A summary of such curves is printed on the back of this document. Contact our sales department for curves or sensing elements not yet listed below.

Compensating conductor resistance

The length and type of conductors used to connect the sensor to the measuring electronic influences the accuracy of the measurement. Especially for elements with low resistance this has to be taken into account. Compensation needs to be performed by the measurement electronics.

Ordering

Item Name	Item Code	Probe	Definition	Time Constant	Comments
SOD-Tn3-1	40-200141	NTC 3kΩ at 25°C	B _{25/50} 3935	ca. 12 min	
SOD-Tn10-1	40-200108	NTC 10kΩ at 25°C	B _{25/50} 3935	ca. 12 min	Vector Standard
SOD-Tn11-1	40-200143	NTC 10kΩ at 25°C	B _{25/50} 3630	ca. 12 min	
SOD-Tn12-1	40-200144	NTC 10kΩ at 25°C	B _{25/50} 3380	ca. 12 min	
SOD-Tn20-1	40-200145	NTC 20kΩ at 25°C	B _{25/50} 4200	ca. 12 min	
SOD-Tn100-1	40-200146	NTC 100kΩ at 25°C	B _{25/50} 4200	ca. 12 min	
SOD-Tp1-1	40-200147	PT100	EN60751	ca. 12 min	
SOD-Tp2-1	40-200148	PT1000	EN60751	ca. 12 min	
SOD-Tk5-1	40-200149	NI1000, 5000 ppm/K	DIN 43760	ca. 12 min	

Accessories

Per default, a cable gland AMC-1 is included for cables Ø 4 – 8 mm (AWG 6 – 1). Order AMC-2 If a conduit connector for ½" conduits is needed.

Item Name	Item Code	Description/Option
AMC-2	40-500074	Conduit connector NPT 1/2

Technical Specification

Important notice and safety advice: This device is for use as a temperature sensor. It is not a safety device. Where a device failure could endanger human life and property, it is the responsibility of the client, installer and system designer to add additional safety devices to prevent such a device failure. Ignoring specifications and local regulations may cause equipment damage and endangers life and property. Tampering with the device and misapplication will void warranty.

Sensing Probe	Thermistor:	NTC
	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:	1000Ω 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 wire 0.34...2.5 mm ² (AWG 24...12)
Environment	Operation	To IEC 721-3-3
	Climatic Conditions	class 3 K5
	Temperature	-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
General	Degree of Protection	IP65 to EN 60 529
	Safety Class	III (IEC 60536)
	Material	Fire proof PC + ABS plastic
	Dimensions: (H x W x D) (incl. Package)	42 x 125 x 70 mm (1.7 x 4.9 x 2.8 in)
	Weight (including package)	88 g (3.1 oz)

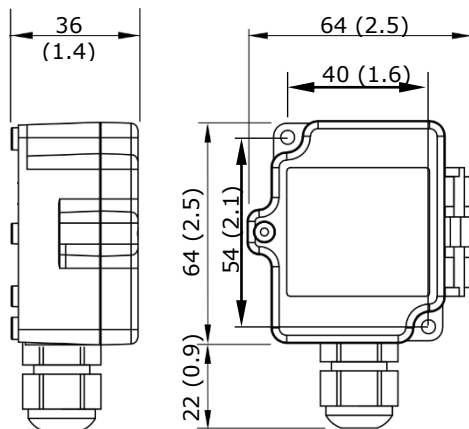
Product certification



Declaration of conformity

Information about the conformity of our products can be found on our website www.vectorcontrols.com on the corresponding product page under "Downloads"

Dimension



Installation

See installation sheet no. 70-000533B (www.vectorcontrols.com).

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

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