



# Space Temperature Sensors TE-R

Page 1 of 5

## Description

The TE-R range of space temperature sensors are designed to interface with a wide variety of HVAC control equipment. Units are available with a high quality thermistor element or platinum element.

The housing is designed for both direct surface mounting and with fixing holes for standard recessed patress and conduit boxes.

The housing is designed to maximise air flow through it thus providing fast response times and returning values indicative of the space in which it is installed.

## Features

- Flame retardant ABS housing
- Wide choice of sensor options



## Technical Specification

<b>Sensor Type:</b>	Thermistor or RTD element - see order codes for options
<b>Accuracy:</b>	Thermistor - $\pm 0.2^{\circ}\text{C}$ , 0...70 $^{\circ}\text{C}$ RTD - Class A $\pm 0.15^{\circ}\text{C}$ @ 0 $^{\circ}\text{C}$ , $\pm 0.35^{\circ}\text{C}$ @ 100 $^{\circ}\text{C}$
<b>Housing:</b>	Flame retardant ABS
<b>Colour:</b>	White
<b>Protection:</b>	IP30
<b>Terminals:</b>	Rising clamp 0.5-2.5mm <sup>2</sup> cable
<b>Ambient:</b>	-20 $^{\circ}\text{C}$ to +60 $^{\circ}\text{C}$ , 0-95% RH non-condensing
<b>Dimensions:</b>	85mm(H) x 85mm(W) x 30mm approx

## Order Codes

<b>TE-RT</b>	Space Temperature Sensor - 10K $\Omega$ @ 25 $^{\circ}\text{C}$
<b>TE-RA</b>	Space Temperature Sensor - 10K $\Omega$ @ 25 $^{\circ}\text{C}$
<b>TE-RTAC</b>	Space Temperature Sensor - 1.8K $\Omega$ @ 25 $^{\circ}\text{C}$
<b>TE-RSAT</b>	Space Temperature Sensor - 5025 $\Omega$ @ 25 $^{\circ}\text{C}$
<b>TE-R3K</b>	Space Temperature Sensor - 3K $\Omega$ @ 25 $^{\circ}\text{C}$
<b>TE-RH</b>	Space Temperature Sensor - 20K $\Omega$ @ 25 $^{\circ}\text{C}$
<b>TE-RD</b>	Space Temperature Sensor - 30K $\Omega$ @ 25 $^{\circ}\text{C}$
<b>TE-RP</b>	Space Temperature Sensor - 50K $\Omega$ @ 25 $^{\circ}\text{C}$
<b>TE-R100</b>	Space Temperature Sensor - 100 $\Omega$ @ 0 $^{\circ}\text{C}$
<b>TE-R1K</b>	Space Temperature Sensor - 1000 $\Omega$ @ 0 $^{\circ}\text{C}$

Other sensor types available. Contact us for details

A Tamperproof screw can be fitted. Locate the small dimple in the top edge of the housing, drill a 2.5mm hole and fit a No.4x 6mm Self tapping Screw

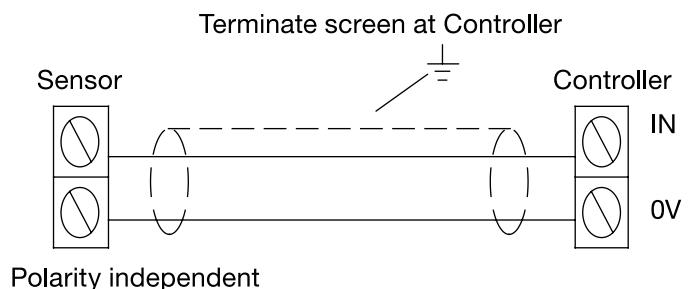
## Installation

The TE-R sensor should be installed by a suitably qualified technician in conjunction with any guidelines for the equipment which it is to be connected to. Field wiring should be installed to satisfy the requirements set out by the manufacturer of the equipment that the sensor is being connected to. As a general rule, screened cable should be used to connect the sensor to a BMS or other controller. Please note that none of the TE-R sensors are suitable for use with mains voltage.

The TE-R is a two part unit. The base can be separated from the main body by pushing the latch on the underside of the unit and then levering the case upwards. The base has a number of mounting options which can be utilised to fix it to a standard conduit or patress box. The two centre holes can also be used to mount the sensor directly on a wall. The type of fixings required will depend upon what the sensor is being fixed to. The base also has a 15mm square cut-out for passing the cable through. If mounting the sensor on a thin cavity wall, such as plasterboard, it is recommended that a grommet or other seal is fitted around the cable entry to prevent air from the cavity passing into the sensor housing.

## Wiring

Connect wires into the two way terminal block on the printed circuit board. Do not over-tighten the terminal screws as excessive force can cause damage to the terminal block and housing.



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## BMS Compatibility

Element Type	Manufacturer	Room	Outside	Duct	Immersion	Clamp	Bullet
10K3A1 Type T	Aquatrol	•	•	•	•	•	•
	Honeywell	T8120B	T7416A T7043E	•	T7106A T7043F	T7044C	T7076D
	Johnson	•	•	TE-6361V TE-636GV-1	•	•	•
	Satchwell	•	DOT10K2 DOS10K2	DDT10K1	DWT10K1 DST10K1	•	•
	Seachange	SEN/PTR/ROM	SEN/PR/OAT	SEN/PR/DCT	SEN/PR/IMM	SEN/PR/CLP	SEN/FL
	Trend	TE-TS	TE-TO	TE-TD	TE-TI	TE-TC	•
10K4A1 Type A	Andover	TTS-S Series	•	TT-O Series	TT-I Series	TT-ST	•
	Delta Controls	•	•	•	•	•	•
	Siebe	•	•	•	•	•	•
	York <40°C	•	•	•	•	•	•
20K6A1 Type H	Honeywell	T7460H, T7470A, DRF20-S, RF20 T4712	AF20, DAF20, T7416A1022	LF20	VF20T, VF20NT, VF20L, VF20LN, WPF20, T7425A	VF20A, WPF20A	KFT20, KFT20B, DKF20
PT100 Type 100	Sauter	EGT430/F011	•	EGT466/F011 EGT447/F011	•	•	EGT456/F011
	Serck	•	•	•	•	•	•
	Siemens/ Landis & Staefa	QAA100 QAA2010	QAC2010	FK-TP/200 QAM2110	QAE2110		QAP2010
PT1000 Type 1K	Honeywell	T7412	T7416A1014	T7411	T7413	T7414	
	Sauter	EGT430/F101	EGT401/ F101	EGT446/F101 EGT447/F101		EGT411/ F101	EGT456/F101
	Serck	•	•	•	•	•	•
	Siebe	TS-5811	•	•	•	•	•
	Cylon	•	•	•	•	•	•
Ni1000 Type N1K	Sauter	EGT330/F101	EGT301/ F101	EGT346/F101 EGT347/F101 EGT348/F101	EGT346/F101 EGT347/F101 EGT348/F101	EGT311/ F101	EGT354/F101 EGT356/F101
Ni1000/ TK5000 Type LAN	Siemens/ Landis & Staefa	QAA24/25/ 26/27, QAA64	QAC22	QAM2120	QAE2120	QAD22 QAD26	QAP21 QAP22 QAZ21
SAT	Satchwell	DRT, DU, DUS, DUSF	DOT0002 DOS0002	DDT0001	DWT0001 DST0001	•	DDU
TAC	TAC	•	•	•	•	•	•
3K3A1 Type 3K	Alerton	MS-1000 Series, TS-1050	•	•	•	•	•
30K6A1 Type D	Drayton	A701	A702	•	A703	A704	•
50K6A1 Type P	Ambiflex	•	•	•	•	•	•
100K6A1 Type Y	York >40°C	•	•	•	•	•	•
SIE	Barber Colman	•	•	•	•	•	•
	Siebe	•	•	•	•	•	•

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## Thermistor Temperature Range

10K3A1 - Type T		10K4A1 - Type A		20K6A1 - Type H		PT100A - Type 100		PT1000A - Type 1K	
Thermistor, temp coef. -ve		Thermistor, temp coef. -ve		Thermistor, temp coef. -ve		Thermistor, temp coef. +ve		Thermistor, temp coef. +ve	
Temp °C	Ω	Temp °C	Ω	Temp °C	Ω	Temp °C	Ω	Temp °C	Ω
-50	667828	-50	441667	0	71120	-50	80.3	-50	803
-40	335671	-40	239831	1	67324	-40	84.3	-40	843
-30	176683	-30	135233	2	63749	-30	88.2	-30	882
-20	96974	-20	78930	3	60385	-20	92.2	-20	921
-15	72895	-15	61030	4	57218	-15	96.1	-15	961
-10	55298	-10	47549	5	54397	-10	96.1	-10	961
-5	42314	-5	37316	6	51429	-5		-5	
0	32650	0	29490	7	48032	0	100.0	0	1000
1	31030	1	28157	8	46258	5		5	
2	29500	2	26891	9	43938	10	103.9	10	1039
3	28054	3	25689	10	41719	15		15	
4	26688	4	24547	11	39640	20	107.8	20	1078
5	25396	5	23462	12	37676	25	109.8	25	
6	24173	6	22430	13	36020	30	111.7	30	1117
7	23016	7	21450	14	34067	35		35	
8	21921	8	20517	15	32409	40	115.5	40	1155
9	20885	9	19631	16	30841	45		45	
10	19904	10	18787	17	29388	50	119.4	50	1194
11	18974	11	17983	18	27954	55		55	
12	18092	12	17219	19	26625	60	123.2	60	1232
13	17257	13	16490	20	25387	65		65	
14	16465	14	15797	21	24178	70	127.1	70	1271
15	15714	15	15136	22	23047	75		75	
16	15001	16	14507	23	21977	80	130.9	80	1309
17	14325	17	13906	24	20962	85		85	
18	13623	18	13334	25	20000	90	134.7	90	1347
19	13053	19	12788	26	19085	95		95	
20	12494	20	12268	27	18225	100	138.5	100	1385
21	11943	21	11771	28	17404	105		105	
22	11420	22	11297	29	16824	110	142.3	110	1423
23	10923	23	10845	30	16384	115		115	
24	10450	24	10413	31	16189	120	146.1	120	1461
25	10000	25	10000	32	14491	125		125	
26	9572	26	9606	33	13847	130	149.8	130	1498
27	9165	27	9229	34	13235	140	153.6	140	1536
28	8777	28	8869	35	12654	150	157.3	150	1573
29	8408	29	8525	36	12010	160	161.0	160	1611
30	8056	30	8197	37	11578	170	164.8	170	1648
35	6530	35	6754	38	11076	180	168.5	180	1685
40	5325	40	5594	39	10600	190	172.2	190	1722
45	4367	45	4656	40	10148	200	175.8	200	1758
50	3601	50	3893	41	9721.1	210	179.5	210	1795
55	2985	55	3271	42	9314.5	220	183.2	220	1832
60	2487	60	2760	43	8826.8	230	186.8	230	1868
65	2082	65	2339	44	8557.5	240	190.5	240	1905
70	1751	70	1990	45	8205.3	250	194.1	250	1941
75	1480	75	1700	46	7899.3	260	197.7	260	1977
80	1256	80	1458	47	7548.9	270	201.3	270	2013
85	1070	85	1255	48	7243.1	280	204.9	280	2049
90	916.1	90	1084	49	6951.2	290	208.5	290	2085
95	787.0	95	939.6	50	6672.6	300	212.0	300	2121
100	678.6	100	817.2	51	6404.0	310	215.6	310	2156
105	587.3	105	713.0	52	6148.9	320	219.1	320	2191
110	510.1	110	624.1	53	5904.6	330	222.7	330	2227
115	444.5	115	547.9	54	5671.4	340	226.2	340	2262
120	388.6	120	482.5	55	5448.6	350	229.7	350	2297
125	340.8	125	426.0	56	5235.7	360	233.2	360	2332
130	300.0	130	377.2	57	5092.3	370	236.7	370	2367
140	234.1	140	298.1	58	4837.8	380	240.1	380	2401
150	184.8	150	238.0	59	4651.6	390	243.6	390	2436
160	-	160	-	60	4473.9	400	247.0	400	2470
170	-	170	-	61	-	401	-	401	-
180	-	180	-	62	-	402	-	402	-
190	-	190	-	63	-	403	-	403	-
200	-	200	-	64	-				

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## Thermistor Temperature Range (continued)

NI1000 - Type NIK		Ni1000/TK5000		Type SAT		Type TAC		3K3A1 - Type 3K	
Thermistor, temp coef. +ve		Type LAN		Thermistor, temp coef. -ve		Thermistor, temp coef. -ve		Thermistor, temp coef. -ve	
Temp°C	Ω	Temp°C	Ω	Temp°C	Ω	Temp°C	Ω	Temp°C	Ω
-50	743	-50	790.8	-50	9719	0	5085	-50	200348
-40	791	-40	826.8	-40	9584	5	4078	-40	100701
-30	842	-30	871.7	-30	9349	10	3294	-30	53005
-20	893	-20	913.4	-20	8968	15	2676	-20	29092
-15		-15	934.7	-15	8708	20	2188	-15	21868
-10	946	-10	956.2	-10	8396	25	1800	-10	16589
-5		-5	978.0	-5	8031	30	1488	-5	12694
0	1000	0	1000.0	0	7614	35	1237	0	9795
5		1	1004.4	1	7525	40	1034	1	9309
10	1056	2	1008.9	2	7434	50	740	2	8850
15		3	1013.3	3	7341	60	540	3	8416
20	1112	4	1017.8	4	7246	70	400	4	8006
25		5	1022.3	5	7150	80	300	5	7619
30	1171	6	1026.7	6	7053	90	230	6	7252
35		7	1031.2	7	6954	100	180	7	6905
40	1230	8	1035.8	8	6853	110	-	8	6577
45		9	1040.3	9	6752	120	-	9	6266
50	1291	10	1044.8	10	6649	130	-	10	5971
55		11	1049.3	11	6545			11	5692
60	1353	12	1053.9	12	6440			12	5428
65		13	1058.4	13	6334			13	5177
70	1417	14	1063.0	14	6228			14	4940
75		15	1067.6	15	6121			15	4714
80	1483	16	1072.2	16	6013			16	4500
85		17	1076.8	17	5905			17	4297
90	1549	18	1081.4	18	5786			18	4105
95		19	1086.0	19	5684			19	3916
100	1618	20	1090.7	20	5580			20	3748
105		21	1095.3	21	5471			21	3583
110	1688	22	1100.0	22	5362			22	3426
115		23	1104.6	23	5254			23	3277
120	1760	24	1109.3	24	5147			24	3135
125		25	1114.0	25	5039			25	3000
130	1833	26	1120.0	26	4933			26	2871
140	1909	27	1123.4	27	4827			27	2749
150	1987	28	1128.1	28	4721			28	2633
160	2066	29	1132.9	29	4617			29	2522
170	2148	30	1137.6	30	4513			30	2417
180	2232	35	1161.5	35	4012			35	1959
190	-	40	1185.7	40	3545			40	1598
200	-	45	1210.2	45	3117			45	1310
201	-	50	1235.0	50	2730			50	1080
202	-	55	1260.1	55	2386			55	895.5
203	-	60	1285.4	60	2082			60	746.2
204	-	65	1311.1	65	1816			65	624.7
205	-	70	1337.1	70	1585			70	525.5
		75	1363.5	75	1385			75	444.0
		80	1390.1	80	1213			80	376.9
		85	1417.1	85	1064			85	321.2
		90	1444.4	90	937			90	274.8
		95	1472.0	95	828			95	236.1
		100	1500.0	100	734			100	203.6
		105	1528.3	105	654			105	176.2
		110	1557.0	110	585			110	153.0
		115	1586.0	115	525			115	133.3
		120	1625.4	120	474			120	116.6
		125	-	125	429			125	102.2
		130	-	130	391			130	89.95
		135	-	140	329			140	70.23
		140	-	150	281			150	55.44
		150	-	160	-			160	-
		160	-	170	-			170	-
		170	-	180	-			180	-
		180	-	190	-			190	-
		190	-	200	-			200	-

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## Thermistor Temperature Range (continued)

30K6A1 - Type D		50K6A1 - Type P		100K6A1 - Type Y		Type SIE	
Thermistor, temp coef. -ve		Thermistor, temp coef. -ve		Thermistor, temp coef. -ve		Thermistor, temp coef. -ve	
Temp°C	Ω	Temp°C	Ω	Temp°C	Ω	Temp°C	Ω
-50	2497K	-50	4168K	-50	8337K	-50	10732
-40	1219K	-40	2033K	-40	4067K	-40	10517
-30	622911	-30	1038K	-30	2077K	-30	10172
-20	331876	-20	553243	-20	1106K	-20	9654
-15	245785	-15	409689	-15	819378	-15	9320
-10	183697	-10	306183	-10	612366	-10	8933
-5	138502	-5	230842	-5	461683	-5	8496
0	105305	0	175508	0	351017	0	8044
1	99787	1	166310	1	332619	1	7910
2	94588	2	157644	2	315288	2	7807
3	89689	3	149480	3	298959	3	7702
4	85069	4	141779	4	283558	4	7596
5	80713	5	134521	5	269041	5	7489
6	76604	6	127669	6	255337	6	7381
7	72726	7	121207	7	242414	7	7271
8	69064	8	115105	8	230210	8	7161
9	65608	9	109344	9	218688	9	7050
10	62347	10	103903	10	207807	10	6938
11	59257	11	98761	11	197521	11	6825
12	56346	12	93901	12	187803	12	6712
13	53585	13	89307	13	178613	13	6598
14	50978	14	84962	14	169924	14	6485
15	48511	15	80851	15	161702	15	6370
16	46178	16	76961	16	153923	16	6256
17	43969	17	73280	17	146560	17	6141
18	41877	18	69794	18	139588	18	6028
19	39895	19	66492	19	132984	19	5913
20	38019	20	63364	20	126729	20	5798
21	36240	21	60400	21	120799	21	5686
22	34554	22	57589	22	115179	22	5573
23	32955	23	54925	23	109850	23	5461
24	31438	24	52398	24	104796	24	5349
25	30000	25	50000	25	100000	25	5238
26	28635	26	47724	26	95449	26	5128
27	27339	27	45564	27	91128	27	5019
28	26108	28	43513	28	87026	28	4910
29	24939	29	41565	29	83129	29	4803
30	23828	30	39714	30	79428	30	4696
35	19046	35	31744	35	63489	35	4185
40	15317	40	25529	40	51058	40	3707
45	12390	45	20650	45	41301	45	3271
50	10079	50	16799	50	33598	50	2875
55	8243	55	13740	55	27479	55	2521
60	6777	60	11297	60	22593	60	2206
65	5600	65	9334	65	18669	65	1929
70	4650	70	7751	70	15502	70	1685
75	3879	75	6466	75	12932	75	1472
80	3251	80	5419	80	10837	80	1287
85	2737	85	4560	85	9121	85	1127
90	2313	90	3855	90	7710	90	986
95	1963	95	3271	95	6543	95	866
100	1672	100	2787	100	5574	100	760
105	1430	105	2384	105	4767	105	670
110	1228	110	2046	110	4092	110	590
115	1058	115	1762	115	3525	115	522
120	914.6	120	1523	120	3047	120	462
125	793.2	125	1321	125	2642	125	410
130	690.2	130	1149	130	2299	130	365
140	527.4	140	878.2	140	1756	140	290
150	407.7	150	678.8	150	1357	150	233
160	-	160	-	160	-	160	-
170	-	170	-	170	-	170	-
180	-	180	-	180	-	180	-
190	-	190	-	190	-	190	-
200	-	200	-	200	-	200	-

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