

**TEMPERATURE SENSORS FOR B.M.S**

A range of NTC Thermistor, Ni1000 & PT100/PT1000 sensors for use with most manufacturers BMS equipment.

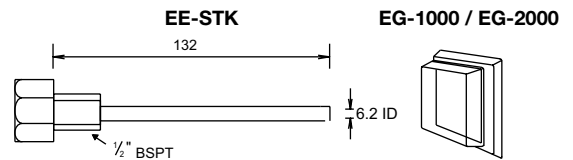


Prefix	Type	Dimensions	Protection	Suffix	Compatibility	Check Temp/Resistance Chart
<b>NTC /Ni</b> Sensors only suitable for up to 110°C Enclosure Flammability: ED, EF = UL94-V0 E , EM, ES, EX = UL94-V0 ER, EV, EH = UL94-HB EF / EJ.. Only suitable for use with PT100 sensors. ALL SENSORS SUPPLIED WITHOUT LOGO						
<b>EC-</b>	Cable	2m long cable. Sensor 7.1 dia x 40	IP65	<b>3K3A1</b>	Alerton	Ibex
<b>ED-</b>	Duct	80 dia x 55 160mm probe	IP65	<b>20K6A1</b>	Honeywell	Excel
<b>EF-</b>	Flue Gas	Probe length 230mm	IP65	<b>10K3A1</b>	Honeywell	Aquatrol 2000
<b>EH-</b>	Black Bulb	85H x 85W x 30D + bulb 16 mm	IP30		Trend	York MR700,701,702,704,708,710
<b>EI-</b>	Immersion <110°C	Approx 80 dia x 55	IP65		Alerton	Backtalk
<b>EJ-</b>	Immersion >110°C	Approx 80 dia x 55	IP65		Smart	
<b>EI-, EJ- ORDER POCKET SEPARATELY</b>				<b>10K3A1/A</b>	Satchwell	DRT,DDT,DWT,DOT,DST,DDU 1803,DC1400
<b>EK-</b>	Fan Coil	1m Cable + Duct tube 80mm	IP65	<b>10K4A1</b>	Andover	
<b>EM-</b>	Duct Averaging	Approx 80 dia x 55 4 sensors at 0.5m intervals along 2m cablex8 dia	IP65	<b>100K6A1</b>	York	MR703,705,709
<b>ER-</b>	Room	85H x 85W x 30D	IP30	<b>30K6A1</b>	Drayton	DC1100 compensator
<b>EV-</b>	Room + Adj knob	85H x 85W x 30D Pot 1-11kΩ	IP30	<b>LST1</b>	Landis & Staefa	T1
<b>ES-</b>	Strap-On	Approx 80 dia x 55 cable 2m includes strap for up to 6" pipe dia	IP65	<b>LS1000</b>	Siemens, Landis	Ni 1000 QAA23, QAD21, QAE21
<b>EX-</b>	Outside	Approx 80 dia x 55	IP65	<b>TAC1</b>	TAC	
<b>EGS-</b>	Thimble sensor	Dome dia 15 x 16.5 L Drill hole 12 dia.	200mm cable IP30	<b>PT100</b>	Serck etc	PT100
<b>EGB-</b>	Thimble sensor	Dome dia 15 x 16.5 L Drill hole 12 dia.	200mm cable IP30	<b>PT1000</b>	Cylon etc	PT1000
<b>EGW-</b>	Thimble sensor	Dome dia 15 x 16.5 L Drill hole 12 dia.	200mm cable IP30			

**TO ORDER - SELECT PREFIX + SUFFIX** ie Room Sensor for Trend System = ER-10K3A1, Andover Duct sensor = ED-10K4A1

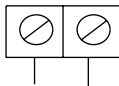
**ACCESSORIES:**

- EE-STK** Stainless Steel Pocket 1/2" BSP 120mm x 6.2mm id for EI- & EJ
- EE-ESS** Fixing strap for ESS Strap-On Thermostats & Sensors
- EG-1000** Thermostat Guard Internal Dims 133H x 155W x 70D
- EG-2000** Thermostat Guard Internal Dims 102H x 123W x 60D

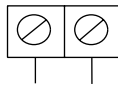


**WIRING:**

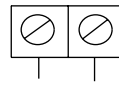
**NTC Thermistor**



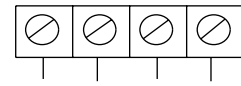
**Ni 1000**



**PT100 / PT1000**



**EV..**



**INSTALLATION:** Terminals 0.5 -2.5mm<sup>2</sup> Max length 100mm. Sensor cable size 7/0.2mm Screened cable is recommended. Keep away from power cables/units which may cause interference. The screen should be earthed at the controller end only.

# BMS TEMPERATURE SENSORS

## CUSTOM SWITCH PLATES

ESP-...

■ A variety of special switch plates are available with different plate and sensor holder materials, with a choice of NTC sensor and with or without a potentiometer.

All plates fit a standard single gang BS box.  
Plate size 86 x 86mm and approx 2mm thick

Most requirements can be specified using a unique part number. The complete part number can be constructed using the following step by step process:

### STEP 1 Choose the plate material.

White plastic  
**ESP-W-**



Stainless  
**ESP-S-**



Brass  
**ESP-B**



Other Finishes  
See special items

### STEP 2 Specify whether a potentiometer is required.

Stainless  
**ESP-S-P**



Brass  
**ESP-B-P**



### STEP 3 Specify the NTC sensor required.

Any of the sensors on the Temperature Sensors for BMS page of this catalogue can be specified. For example 10K3A1, LS1000 etc.

### STEP 4 Specify whether a button sensor holder is required

Thimble (standard)  
**ESP-S-10K3A1**



Button  
**ESP-S-10K3A1/b**



### STEP 5 Specify any special items

Examples of this are:

Special engraving

Off switch on the potentiometer at the low value end

Special finishes-Note a sample must be provided for matching purposes.

**B.M.S TEMPERATURE RESISTANCE CHART**

VALUES LISTED ARE FOR GUIDANCE PURPOSES ONLY - SEE MANUFACTURERS DATA FOR FURTHER INFORMATION IF REQUIRED.

	3K3A1	10K3A1	10K3A1/A	10K4A1	20K6A1	30K6A1	100K6A1	PT100	PT1000	TAC1	LST1	LS1000	SN1000
Temp °C	Res Ω	Res Ω	Res Ω	Res Ω	Res Ω	Res Ω	Res Ω	Res Ω	Res Ω	Res Ω	Res Ω	Res Ω	Res Ω
-30	53005	176683	9465	135233	415479	622944	2077394	88.22	882	23800	1934	871.6	842
-20	29092	96974	9067	78930	221297	331876	1106485	92.16	922	13700	2030	913.5	893
-15	21868	72895	8796	61030	163875	245785	819378	94.12	941	10500	2078	934.7	919
-10	16589	55298	8472	47549	122473	183697	612366	96.09	961	8220	2127	956.2	946
-5	12694	42314	8093	37316	92336	138502	461683	98.04	980	6450	2176	977.9	973
0	9795	32650	7661	29490	70203	105305	351017	100	1000	5120	2226	1000.0	1000
1	9309	31030	7569	28157	66524	99787	332619	100.39	1004		2236	1004.4	1006
2	8850	29500	7475	26891	63058	94588	315258	100.78	1008		2246	1008.8	1011
3	8416	28054	7379	25689	59792	89689	298959	101.17	1012		2256	1013.3	1017
4	8006	26688	7281	24547	56713	85069	283558	101.56	1015		2266	1017.8	1022
5	7619	25396	7182	23462	53809	80713	269041	101.95	1019	4090	2276	1022.2	1028
6	7252	24173	7082	22430	51068	76604	255337	102.34	1024		2286	1026.7	1033
7	6905	23016	6980	21450	48483	72726	242414	102.73	1027		2296	1031.2	1039
8	6577	21921	6877	20517	46043	69064	230210	103.12	1031		2306	1035.7	1044
9	6266	20885	6772	19631	43739	65608	218688	103.51	1035		2316	1040.2	1050
10	5971	19904	6667	18787	41562	62347	207807	103.90	1039	3290	2326	1044.7	1056
11	5692	18974	6560	17983	39505	59257	197521	104.29	1043		2337	1049.3	1061
12	5428	18092	6453	17219	37561	56346	187803	104.68	1047		2347	1053.8	1067
13	5177	17257	6345	16490	35723	53585	178613	105.07	1051		2357	1058.4	1072
14	4940	16465	6236	15797	33985	50978	169924	105.46	1055		2367	1063.0	1078
15	4714	15714	6126	15136	32341	48511	161702	105.85	1058	2670	2377	1067.6	1084
16	4500	15001	6016	14507	30785	46178	153923	106.24	1062	2560	2388	1072.1	1090
17	4297	14325	5906	13906	29312	43969	146560	106.63	1066	2460	2398	1076.7	1095
18	4105	13623	5795	13334	27918	41877	139588	107.02	1070	2360	2408	1081.3	1101
19	3916	13053	5681	12788	26597	39895	132984	107.40	1074	2270	2418	1086.0	1107
20	3748	12494	5573	12268	25346	38019	126729	107.79	1078	2180	2429	1090.6	1112
21	3583	11943	5369	11771	24160	36240	120799	108.18	1082	2100	2439	1095.3	1118
22	3426	11420	5353	11297	23035	34554	115179	108.57	1086	2020	2449	1099.9	1124
23	3277	10923	5243	10845	21970	32955	109850	108.96	1090	1940	2460	1104.6	1130
24	3135	10450	5134	10413	20959	31438	104796	109.35	1094	1870	2470	1109.3	1136
25	3000	10000	5025	10000	20000	30000	100000	109.73	1098	1800	2480	1113.9	1141
26	2871	9572	4917	9606	19089	28635	95449	110.12	1101		2491	1119.6	1147
27	2749	9165	4809	9229	18225	27339	91128	110.51	1105		2501	1123.4	1153
28	2633	8777	4703	8869	17405	26108	87026	110.90	1110		2512	1128.1	1159
29	2522	8408	4597	8525	16625	24939	83129	111.28	1113		2522	1132.8	1165
30	2417	8056	4492	8197	15885	23828	79428	111.67	1117	1490	2532	1137.6	1171
35	1959	6530	3987	6754	12697	19046	63489	113.61	1136		2585	1161.5	1200
40	1598	5325	3518	5594	10211	15317	51058	115.54	1155	1040	2638	1185.7	1230
45	1310	4367	3089	4656	8259	12390	41301	117.47	1175		2692	1210.2	1260
50	1080	3601	2702	3893	6719	10079	33598	119.40	1194	740	2745	1234.9	1291
55	895.5	2985	2358	3271	5495	8243	27479	121.32	1213		2800	1260.0	1322
60	746.2	2487	2056	2760	4518	6777	22593	123.24	1232	540	2855	1285.4	1353
65	624.7	2082	1792	2339	3733	5600	18669	125.16	1251		2910	1311.1	1385
70	525.5	1751	1563	1990	3100	4650	15502	127.07	1271	400	2966	1337.1	1417
80	376.9	1256	1193	1458	2167	3251	10837	130.89	1309	300	3079	1390.1	1483
90	274.8	916.0	921	1084	1542	2313	7710	134.70	1347	230	3194	1444.4	1549
100	203.6	678.6	722	817.2	1115	1672	5574	138.50	1385	180	3311	1500.0	1618
110	153.0	510.1	575	624.1	818.9	1228	4092	142.29	1423		3430	1556.9	1688
120	116.6	388.6	466	482.5	609.9	914	3047	146.06	1461		3552	1615.3	1760
130	89.95	300.0	386	377.2	460.4	690	2299	149.82	1498		3675	1675.1	1833
140	70.23	234.1	324	298.1	351.8	527	1756	153.58	1536		3801	1736.4	1909
150	55.44	184.8	278	238.0	272.0	407	1357	157.31	1573		3929	1799.2	1987
160								161.04	1610				
170								164.76	1648				
180								168.46	1685				
190								172.16	1722				
200								175.84	1758				
250								194.07	1941				
300								212.02	2120				
350								229.67	2297				
400								247.04	2470				

# BMS TEMPERATURE SENSORS

## TEMPERATURE TRANSMITTERS 4-20mA / 0-10VDC

E..

A range of temperature transmitters fitted with PT100 sensing elements giving a 4-20mA or 0-10VDC output signal linear across the temperature range.

Consumption < 32mA & Load < 600Ω for 4-20mA devices  
 Consumption < 25mA & Load < 10KΩ for 0-10VDC devices  
 Accuracy < 1.5% of range  
 Ambient -20/+70 C  
 Temp Effect ± 2µA/ C  
 \*CK1000 fitted with İKİ type thermocouple  
 Enclosure Flammability:  
 ED, EF, EI, EM, ES, EX = UL94-V0  
 EH, ER = UL94-HB

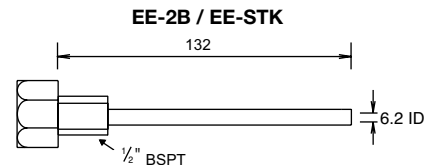
4-20mA	Type -	0-10VDC	Description	Range °C	Dimensions	Protection
<b>ED-C040</b>	<b>ED-V040</b>		Duct	-10 / +40	Approx 80 dia x 55 160mm probe	IP65
<b>ED-C110</b>	<b>ED-V110</b>		Duct	-10 / +110	Approx 80 dia x 55 160mm probe	IP65
<b>EF-C400</b>	<b>EF-V400</b>		Flue Gas	0 / 400	Probe length 230mm	IP65
<b>EF-CK1000</b>	-		Flue Gas	0 / 1000	Probe length 230mm *	IP65
<b>EH-C040</b>	<b>EH-V040</b>		Black Bulb	-10 / +40	85H x 85W x 30D + bulb 16mm	IP30
<b>EI-C040</b>	<b>EI-V040</b>		Immersion	-10 / +40	Approx 80 dia x 55	IP65
<b>EI-C110</b>	<b>EI-V110</b>		Immersion	-10 / +110	Approx 80 dia x 55	IP65
<b>EJ-C160</b>	<b>EJ-V160</b>		Immersion	-10 / +160	Approx 80 dia x 55	IP65
<b>EI- EJ- Order Pocket Separately</b>						
<b>EM-C040</b>	<b>EM-V040</b>		Duct Averaging	-10 / +40	Approx 80 dia x 55 2m capillary	IP65
<b>ER-C040</b>	<b>ER-V040</b>		Room	-10 / +40	85H x 85W x 30D	IP30
<b>ES-C040</b>	<b>ES-V040</b>		Strap-On	-10 / +40	Approx 80 dia x 55 strap up to 6" pipe	IP65
<b>ES-C110</b>	<b>ES-V110</b>		Strap-On	-10 / +110	Approx 80 dia x 55 strap up to 6" pipe	IP65
<b>EX-C040</b>	<b>EX-V040</b>		Outside	-10 / +40	Approx 80 dia x 55	IP65

4-20mA devices Supply = 24VDC loop ± 25%

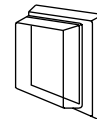
0-10vdc devices Supply = 24VAC/DC ± 15%

**ACCESSORIES:**

- EE-2B** Brass pocket for EI.. up to 110°C
- EE-STK** Stainless steel pocket for EI.. EJ..
- EE-ESS** Larger dia. fixing strap for strap-on stats / sensors. Per metre
- EG-1000** Stat Guard Internal dims 133H X 155W X 70D
- EG-2000** Stat Guard Internal dims 102H X 123W X 60D



**EG-1000 / EG-2000**

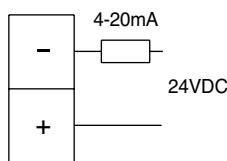


**EE-ESS**

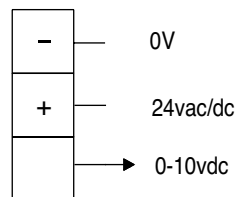


**WIRING:**

**4-20mA devices:**



**0-10VDC devices:**



**INSTALLATION:**

Terminals 0.5-2.5mm  
 Max length 300m.  
 Min sensor cable size 7/0.2mm  
 Screened cable is recommended.

Keep away from power cables/units which may cause interference.  
 The screen should be earthed at the controller end only