

Temperature Sensors

TEMPERATURE-RESISTANCE CURVES

PRODUCT DATA

PT1000 CELSIUS TEMPERATURE CHARACTERISTIC

temp. (°C)	resist. (Ω)	temp. (°C)	resist. (Ω)	temp. (°C)	resist. (Ω)	temp. (°C)	resist. (Ω)	temp. (°C)	resist. (Ω)
-40.0	842.7	1.0	1003.9	41.0	1159.3	81.0	1312.8	121.0	1464.5
-39.0	846.7	2.0	1007.8	42.0	1163.1	82.0	1316.6	122.0	1468.2
-38.0	850.7	3.0	1011.7	43.0	1167.0	83.0	1320.4	123.0	1472.0
-37.0	854.6	4.0	1015.6	44.0	1170.9	84.0	1324.2	124.0	1475.8
-36.0	858.6	5.0	1019.5	45.0	1174.7	85.0	1328.0	125.0	1479.5
-35.0	862.5	6.0	1023.4	46.0	1178.6	86.0	1331.8	126.0	1483.3
-34.0	866.5	7.0	1027.3	47.0	1182.4	87.0	1335.7	127.0	1487.0
-33.0	870.4	8.0	1031.2	48.0	1186.3	88.0	1339.5	128.0	1490.8
-32.0	874.3	9.0	1035.1	49.0	1190.1	89.0	1343.3	129.0	1494.6
-31.0	878.3	10.0	1039.0	50.0	1194.0	90.0	1347.1	130.0	1498.3
-30.0	882.2	11.0	1042.9	51.0	1197.8	91.0	1350.9	131.0	1502.1
-29.0	886.2	12.0	1046.8	52.0	1201.7	92.0	1354.7	132.0	1505.6
-28.0	890.1	13.0	1050.7	53.0	1205.5	93.0	1358.4	133.0	1509.6
-27.0	894.1	14.0	1054.5	54.0	1209.4	94.0	1362.3	134.0	1513.3
-26.0	898.0	15.0	1058.5	55.0	1213.2	95.0	1366.1	135.0	1517.1
-25.0	901.9	16.0	1062.4	56.0	1217.1	96.0	1369.9	136.0	1520.9
-24.0	905.6	17.0	1066.3	57.0	1220.9	97.0	1373.7	137.0	1524.6
-23.0	909.8	18.0	1070.2	58.0	1224.7	98.0	1377.5	138.0	1528.4
-22.0	913.7	19.0	1074.1	59.0	1228.6	99.0	1381.3	139.0	1532.1
-21.0	917.7	20.0	1077.9	60.0	1232.4	100.0	1385.0	140.0	1535.8
-20.0	921.6	21.0	1081.8	61.0	1236.3	101.0	1388.9	141.0	1539.6
-19.0	925.5	22.0	1085.7	62.0	1240.1	102.0	1392.6	142.0	1543.3
-18.0	929.9	23.0	1089.6	63.0	1243.9	103.0	1396.4	143.0	1547.1
-17.0	933.4	24.0	1093.5	64.0	1247.8	104.0	1400.2	144.0	1550.8
-16.0	937.3	25.0	1097.4	65.0	1251.6	105.0	1404.0	145.0	1554.6
-15.0	941.3	26.0	1101.2	66.0	1255.4	106.0	1407.8	146.0	1558.3
-14.0	945.2	27.0	1105.1	67.0	1259.3	107.0	1411.6	147.0	1562.0
-13.0	949.1	28.0	1109.0	68.0	1263.1	108.0	1415.4	148.0	1565.8
-12.0	953.0	29.0	1112.9	69.0	1266.9	109.0	1419.1	149.0	1569.5
-11.0	956.9	30.0	1116.7	70.0	1270.8	110.0	1422.9	150.0	1573.1
-10.0	960.9	31.0	1120.6	71.0	1274.6	111.0	1426.7		
-9.0	964.8	32.0	1124.5	72.0	1278.4	112.0	1430.5		
-8.0	968.7	33.0	1128.4	73.0	1282.2	113.0	1434.3		
-7.0	972.6	34.0	1132.2	74.0	1286.0	114.0	1438.0		
-6.0	976.5	35.0	1136.1	75.0	1289.9	115.0	1441.8		
-5.0	980.4	36.0	1140.0	76.0	1293.7	116.0	1445.6		
-4.0	984.4	37.0	1143.8	77.0	1297.5	117.0	1449.4		
-3.0	988.3	38.0	1147.7	78.0	1301.3	118.0	1453.1		
-2.0	992.2	39.0	1151.6	79.0	1305.2	119.0	1456.9		
-1.0	996.1	40.0	1155.4	80.0	1309.0	120.0	1460.6		
0.0	1000.0								

BALCO 500 CELSIUS TEMPERATURE CHARACTERISTIC

temp. (°C)	resist. (Ω)	temp. (°C)	resist. (Ω)	temp. (°C)	resist. (Ω)	temp. (°C)	resist. (Ω)	temp. (°C)	resist. (Ω)
-40.0	379.35	1.0	455.13	41.0	537.29	81.0	627.58	121.0	726.00
-39.0	381.10	2.0	457.09	42.0	539.45	82.0	629.95	122.0	728.57
-38.0	382.85	3.0	459.05	43.0	541.62	83.0	632.31	123.0	731.14
-37.0	384.61	4.0	461.01	44.0	543.78	84.0	634.68	124.0	733.71
-36.0	386.37	5.0	462.98	45.0	545.96	85.0	637.06	125.0	736.28
-35.0	388.14	6.0	464.96	46.0	548.14	86.0	639.44	126.0	738.88
-34.0	389.91	7.0	466.94	47.0	550.32	87.0	641.83	127.0	741.47
-33.0	391.69	8.0	468.92	48.0	552.51	88.0	644.22	128.0	744.06
-32.0	393.47	9.0	470.91	49.0	554.70	89.0	646.62	129.0	746.66
-31.0	395.26	10.0	472.91	50.0	556.90	90.0	649.02	130.0	749.27
-30.0	397.05	11.0	474.91	51.0	559.10	91.0	651.43	131.0	751.88
-29.0	398.85	12.0	476.92	52.0	561.31	92.0	653.84	132.0	754.49
-28.0	400.65	13.0	478.93	53.0	563.53	93.0	656.26	133.0	757.11
-27.0	402.46	14.0	480.94	54.0	565.75	94.0	658.68	134.0	759.74
-26.0	404.27	15.0	482.96	55.0	567.97	95.0	661.11	135.0	762.37
-25.0	406.09	16.0	484.99	56.0	570.20	96.0	663.54	136.0	765.00
-24.0	407.91	17.0	487.02	57.0	572.43	97.0	665.98	137.0	767.64
-23.0	409.74	18.0	489.06	58.0	574.67	98.0	668.42	138.0	770.29
-22.0	411.57	19.0	491.10	59.0	576.92	99.0	670.87	139.0	772.94
-21.0	413.41	20.0	493.15	60.0	579.17	100.0	673.32	140.0	775.68
-20.0	415.25	21.0	495.20	61.0	581.42	101.0	675.78	141.0	778.26
-19.0	417.10	22.0	497.25	62.0	583.68	102.0	678.24	142.0	780.92
-18.0	418.95	23.0	499.32	63.0	585.95	103.0	680.71	143.0	783.60
-17.0	420.81	24.0	501.38	64.0	588.22	104.0	683.18	144.0	786.28
-16.0	422.68	25.0	503.45	65.0	590.49	105.0	685.66	145.0	788.96
-15.0	424.54	26.0	505.53	66.0	592.77	106.0	688.14	146.0	791.64
-14.0	426.42	27.0	507.61	67.0	595.06	107.0	690.63	147.0	794.32
-13.0	428.30	28.0	509.70	68.0	597.35	108.0	693.12	148.0	797.00
-12.0	430.18	29.0	511.79	69.0	599.64	109.0	695.62	149.0	799.68
-11.0	432.07	30.0	513.89	70.0	601.94	110.0	698.13	150.0	802.36
-10.0	433.96	31.0	515.99	71.0	604.25	111.0	700.64		
-9.0	435.96	32.0	518.10	72.0	606.56	112.0	703.25		
-8.0	437.77	33.0	520.21	73.0	608.88	113.0	705.67		
-7.0	439.68	34.0	522.33	74.0	611.20	114.0	708.19		
-6.0	441.59	35.0	524.45	75.0	613.52	115.0	710.72		
-5.0	443.51	36.0	526.58	76.0	615.85	116.0	713.25		
-4.0	445.43	37.0	528.71	77.0	618.19	117.0	715.79		
-3.0	447.36	38.0	530.85	78.0	620.53	118.0	718.34		
-2.0	449.30	39.0	532.99	79.0	622.88	119.0	720.89		
-1.0	451.24	40.0	535.14	80.0	625.23	120.0	723.44		
0.0	453.18								

NTC 20K CELSIUS TEMPERATURE CHARACTERISTIC

temp. (°C)	resist. (Ω)	temp. (°C)	resist. (Ω)	temp. (°C)	resist. (Ω)	temp. (°C)	resist. (Ω)	temp. (°C)	resist. (Ω)
-50.0	1659706	-9.0	115575	31.0	15180	71.0	2989	111.0	793.7
-49.0	1541379	-8.0	109189	32.0	14511	72.0	2882	112.0	770.3
-48.0	1432919	-7.0	103194	33.0	13875	73.0	2779	113.0	747.7
-47.0	1332091	-6.0	97564	34.0	13270	74.0	2681	114.0	725.8
-46.0	1238358	-5.0	92274	35.0	12695	75.0	2587	115.0	704.7
-45.0	1153525	-4.0	87303	36.0	12148	76.0	2496	116.0	684.2
-44.0	1073429	-3.0	82628	37.0	11627	77.0	2409	117.0	664.5
-43.0	999894	-2.0	78232	38.0	11131	78.0	2325	118.0	645.3
-42.0	932327	-1.0	74094	39.0	10659	79.0	2245	119.0	626.9
-41.0	869327	0.0	70200	40.0	10210	80.0	2168	120.0	609.0
-40.0	814000	1.0	66515	41.0	9781	81.0	2094	121.0	591.7
-39.0	759391	2.0	63046	42.0	9373	82.0	2022	122.0	575.0
-38.0	708806	3.0	59777	43.0	8983	83.0	1954	123.0	558.8
-37.0	661924	4.0	56697	44.0	8612	84.0	1888	124.0	543.2
-36.0	618451	5.0	53793	45.0	8258	85.0	1824	125.0	528.0
-35.0	578119	6.0	51055	46.0	7920	86.0	1763	126.0	513
-34.0	540677	7.0	48472	47.0	7598	87.0	1705	127.0	499
-33.0	505902	8.0	46034	48.0	7291	88.0	1648	128.0	485
-32.0	473588	9.0	43733	49.0	6998	89.0	1594	129.0	472
-31.0	443546	10.0	41560	50.0	6718	90.0	1542	130.0	459
-30.0	415600	11.0	39500	51.0	6450	91.0	1491	131.0	447
-29.0	389298	12.0	37553	52.0	6195	92.0	1443	132.0	435
-28.0	364833	13.0	35714	53.0	5951	93.0	1396	133.0	423
-27.0	342063	14.0	33975	54.0	5718	94.0	1351	134.0	411
-26.0	320860	15.0	32331	55.0	5495	95.0	1308	135.0	400
-25.0	301107	16.0	30775	56.0	5282	96.0	1266	136.0	390
-24.0	282696	17.0	29303	57.0	5078	97.0	1226	137.0	380
-23.0	265528	18.0	27909	58.0	4883	98.0	1187	138.0	370
-22.0	249511	19.0	26590	59.0	4696	99.0	1150	139.0	360
-21.0	234561	20.0	25340	60.0	4518	100.0	1114	140.0	351
-20.0	220600	21.0	24155	61.0	4347	101.0	1079	141.0	342
-19.0	207607	22.0	23032	62.0	4184	102.0	1046	142.0	333
-18.0	195459	23.0	21967	63.0	4027	103.0	1014	143.0	324
-17.0	184096	24.0	20958	64.0	3877	104.0	982.8	144.0	316
-16.0	173463	25.0	20000	65.0	3734	105.0	952.8	145.0	308
-15.0	163508	26.0	19089	66.0	3596	106.0	923.9	146.0	300
-14.0	154185	27.0	18224	67.0	3464	107.0	896.0	147.0	293
-13.0	145450	28.0	17404	68.0	3338	108.0	869.1	148.0	285
-12.0	137262	29.0	16624	69.0	3216	109.0	843.1	149.0	278
-11.0	129583	30.0	15884	70.0	3100	110.0	818.0	150.0	271
-10.0	122380								

NOMINAL VALUES

	sensing element		
	Pt 1000	BALCO 500	NTC Thermistor
resistance	1000 Ω at 0 °C	500 Ω at 23.3 °C	20 k Ω at 25 °C
accuracy	DIN IEC 751 Class B 0.3 + 0.005 • t *	$\pm 1 \Omega$	$\pm 1\%$
sensitivity	$\approx 3.85 \Omega / K$	$\approx 2.2 \Omega / K$	---
characteristics	see page 1	see page 2	see page 3

* |t| = absolute temperature "t" in °C

Automation and Control Solutions

Honeywell GmbH
Böblinger Straße 17
D-71101 Schönaich
Phone: (49) 7031 63701
Fax: (49) 7031 637493
<http://europe.hbc.honeywell.com>

Subject to change without notice. Printed in Germany

Manufacturing location certified to

DIN EN
ISO 9001

EN0B-0476GE51 R0604