

## RTD Sensor PT1000 Temperature Sensing Probe

## RTD 1000 Sensor specifications

## PT1000-2W series RTD Sensor TECHNICAL INDEX

Item	Component Type	RTD Sensor pt1000	Component Size	2.0mmx4.0mmx1.0mm
1	Lead specification	Length 10mm, Diameter 0.2mm	Lead material	Platinum Nickel Wire (Silver Palladium/Pure Platinum/Pure Silver Optional)
2	Lead specification	≥9N	Insulation resistance	>100MΩ at 20℃, >2MΩ at 500℃
3	Temperature Coefficient (TCR)	3850ppm/℃	Operating Current	0.1 - 0.3mA (Consideration for self-heating)
4	Long-term Stability	Resistance drift of R (0℃) ≤0.04% after 1000h at 500℃		
5	Response Time	Water flow (v=0.4m/s): τ0.5=0.1s, τ0.9=0.3s Airflow (v=2m/s): τ0.5=5s, τ0.9=15s		
6	Natural Coefficient	0℃ 0.4℃/mW	Vibration Resistance	Frequency acceleration from 10 to 2000Hz ≥40g
7	Shock Resistance	8ms half-sine wave acceleration ≥100g	RTD 1000 Sensor Packaging	Vacuum plastic packaging (Other packaging formats available upon request)
8	Others	Basic dimensions, base resistance, and lead specifications can be provided upon request.		

## Pt1000-2W Temperature Sensing Probe Model Number

Item	Model number	Operate temperature range	Grade	R0 (Ω)	Temperature range	Accuracy
1	Pt1000-2W	-70~+500℃	1/3B	1000±0.4	0~+150℃	±(0.1+0.0017 T )
2			A	1000±0.6	-50~+300℃	±(0.15+0.002 T )
3			B	1000±1.2	-70~+500℃	±(0.3+0.005 T )
4			2B	1000±2.4	-70~+500℃	±(0.6+0.01 T )
5	Pt1000-2W -H650	-70~+650℃	B	1000±1.2	-70~+650℃	±(0.3+0.005 T )
6			2B	1000±2.4	-70~+650℃	±(0.6+0.01 T )
7	Pt1000-2W -L200	-200~+150℃	B	1000±1.2	-200~+150℃	±(0.3+0.005 T )
8			2B	1000±2.4	-200~+150℃	±(0.6+0.01 T )

Note \* : The grades and temperature measurement accuracy are all referred to IEC60751 standards, and are the temperature measurement accuracy within the corresponding specified temperature range, and do not represent the temperature measurement accuracy of the whole temperature range. T is the measured temperature.

## Pt1000-2W RTD Sensor table

## Pt1000 resistance-temperature comparison table

## RTD Sensor PT1000 Temperature Sensing Probe Resistance value according to IEC60751 standard

t ≥ 0	t < 0
$R(t) = R_0 * (1 + A * t + B * t^2)$	$R(t) = R_0 * (1 + A * t + B * t^2 + C * (t - 100)^3)$
A = 3.9083 * 10 <sup>-3</sup> °C <sup>-1</sup> B = -5.775 * 10 <sup>-7</sup> °C <sup>-2</sup>	A = 3.9083 * 10 <sup>-3</sup> °C <sup>-1</sup> B = -5.775 * 10 <sup>-7</sup> °C <sup>-2</sup> C = -4.183 * 10 <sup>-12</sup> °C <sup>-3</sup>

RTD 1000 Sensor Nominal Resistance value: 1000 Ω

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T°C	0	1	2	3	4	5	6	7	8	9
-200	185.2	189.52	193.84	198.15	202.47	206.77	211.08	215.38	219.67	223.97
-190	228.25	232.54	236.82	241.1	245.38	249.65	253.92	258.19	262.45	266.71
-180	270.96	275.22	279.47	283.71	287.96	292.2	296.43	300.67	304.9	309.13
-170	313.35	317.57	321.79	326.01	330.22	334.43	338.64	342.84	347.04	351.24
-160	355.43	359.63	363.82	368	372.19	376.37	380.55	384.72	388.89	393.06
-150	397.23	401.4	405.56	409.72	413.88	418.03	422.18	426.33	430.48	434.62
-140	438.76	442.9	447.04	451.17	455.31	459.44	463.56	467.69	471.81	475.93
-130	480.05	484.16	488.28	492.39	496.49	500.6	504.7	508.81	512.91	517
-120	521.1	525.19	529.28	533.37	537.46	541.54	545.62	549.7	553.78	557.86
-110	561.93	566	570.07	574.14	578.21	582.27	586.33	590.39	594.45	598.5
-100	602.56	606.61	610.66	614.71	618.76	622.8	626.84	630.88	634.92	638.96
-90	643	647.03	651.06	655.09	659.12	663.15	667.17	671.2	675.22	679.24
-80	683.25	687.27	691.29	695.3	699.31	703.32	707.33	711.34	715.34	719.34
-70	723.35	727.35	731.34	735.34	739.34	743.33	747.32	751.31	755.3	759.29
-60	763.28	767.26	771.25	775.23	779.21	783.19	787.17	791.14	795.12	799.09
-50	803.06	807.03	811	814.97	818.94	822.9	826.87	830.83	834.79	838.75
-40	842.71	846.66	850.62	854.57	858.53	862.48	866.43	870.38	874.32	878.27
-30	882.22	886.16	890.1	894.04	897.98	901.92	905.86	909.8	913.73	917.67
-20	921.6	925.53	929.46	933.39	937.32	941.24	945.17	949.09	953.02	956.94
-10	960.86	964.78	968.7	972.61	976.53	980.44	984.36	988.27	992.18	996.09
0	1000	1003.91	1007.81	1011.72	1015.62	1019.53	1023.43	1027.33	1031.23	1035.13
10	1039.03	1042.92	1046.82	1050.71	1054.6	1058.5	1062.39	1066.27	1070.16	1074.05
20	1077.94	1081.82	1085.7	1089.59	1093.47	1097.35	1101.23	1105.1	1108.98	1112.86
30	1116.73	1120.6	1124.47	1128.35	1132.22	1136.08	1139.95	1143.82	1147.68	1151.55
40	1155.41	1159.27	1163.13	1166.99	1170.85	1174.7	1178.56	1182.41	1186.27	1190.12
50	1193.97	1197.82	1201.67	1205.52	1209.36	1213.21	1217.05	1220.9	1224.74	1228.58
60	1232.42	1236.26	1240.1	1243.93	1247.77	1251.6	1255.43	1259.26	1263.09	1266.92
70	1270.75	1274.58	1278.4	1282.23	1286.05	1289.87	1293.7	1297.52	1301.33	1305.15
80	1308.97	1312.78	1316.6	1320.41	1324.22	1328.03	1331.84	1335.65	1339.46	1343.26
90	1347.07	1350.87	1354.68	1358.48	1362.28	1366.08	1369.88	1373.67	1377.47	1381.26
100	1385.06	1388.85	1392.64	1396.43	1400.22	1404.01	1407.79	1411.58	1415.36	1419.14
110	1422.93	1426.71	1430.49	1434.26	1438.04	1441.82	1445.59	1449.37	1453.14	1456.91
120	1460.68	1464.45	1468.22	1471.98	1475.75	1479.51	1483.28	1487.04	1490.8	1494.56
130	1498.32	1502.08	1505.83	1509.59	1513.34	1517.1	1520.85	1524.6	1528.35	1532.1
140	1535.84	1539.59	1543.33	1547.08	1550.82	1554.56	1558.3	1562.04	1565.78	1569.52
150	1573.25	1576.99	1580.72	1584.45	1588.18	1591.91	1595.64	1599.37	1603.1	1606.82
160	1610.54	1614.27	1617.99	1621.71	1625.43	1629.15	1632.86	1636.58	1640.3	1644.01
170	1647.72	1651.43	1655.14	1658.85	1662.56	1666.27	1669.97	1673.68	1677.38	1681.08
180	1684.78	1688.48	1692.18	1695.88	1699.58	1703.27	1706.97	1710.66	1714.35	1718.04
190	1721.73	1725.42	1729.11	1732.79	1736.48	1740.16	1743.84	1747.52	1751.2	1754.88
200	1758.56	1762.24	1765.91	1769.59	1773.26	1776.93	1780.6	1784.27	1787.94	1791.61
210	1795.28	1798.94	1802.6	1806.27	1809.93	1813.59	1817.25	1820.91	1824.56	1828.22
220	1831.88	1835.53	1839.18	1842.83	1846.48	1850.13	1853.78	1857.43	1861.07	1864.72
230	1868.36	1872	1875.64	1879.28	1882.92	1886.56	1890.19	1893.83	1897.46	1901.1
240	1904.73	1908.36	1911.99	1915.62	1919.24	1922.87	1926.49	1930.12	1933.74	1937.36
250	1940.98	1944.6	1948.22	1951.84	1955.45	1959.07	1962.68	1966.29	1969.9	1973.51
260	1977.12	1980.73	1984.33	1987.94	1991.54	1995.15	1998.75	2002.35	2005.95	2009.54
270	2013.14	2016.74	2020.33	2023.93	2027.52	2031.11	2034.7	2038.29	2041.88	2045.46
280	2049.05	2052.63	2056.22	2059.8	2063.38	2066.96	2070.54	2074.11	2077.69	2081.27
290	2084.84	2088.41	2091.98	2095.55	2099.12	2102.69	2106.26	2109.82	2113.39	2116.95
300	2120.52	2124.08	2127.64	2131.2	2134.75	2138.31	2141.87	2145.42	2148.97	2152.52
310	2156.08	2159.63	2163.17	2166.72	2170.27	2173.81	2177.36	2180.9	2184.44	2187.98
320	2191.52	2195.06	2198.6	2202.13	2205.67	2209.2	2212.73	2216.26	2219.79	2223.32
330	2226.85	2230.38	2233.9	2237.43	2240.95	2244.47	2247.99	2251.51	2255.03	2258.55
340	2262.06	2265.58	2269.09	2272.61	2276.12	2279.63	2283.14	2286.64	2290.15	2293.66

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350	2297.16	2300.67	2304.17	2307.67	2311.17	2314.67	2318.17	2321.66	2325.16	2328.65
360	2332.14	2335.64	2339.13	2342.62	2346.11	2349.59	2353.08	2356.56	2360.05	2363.53
370	2367.01	2370.49	2373.97	2377.45	2380.93	2384.4	2387.88	2391.35	2394.82	2398.29
380	2401.76	2405.23	2408.7	2412.17	2415.63	2419.1	2422.56	2426.02	2429.48	2432.94
390	2436.4	2439.86	2443.31	2446.77	2450.22	2453.67	2457.13	2460.58	2464.03	2467.47
400	2470.92	2474.37	2477.81	2481.25	2484.7	2488.14	2491.58	2495.02	2498.45	2501.89
410	2505.33	2508.76	2512.19	2515.62	2519.06	2522.49	2525.91	2529.34	2532.77	2536.19
420	2539.62	2543.04	2546.46	2549.88	2553.3	2556.72	2560.13	2563.55	2566.96	2570.38
430	2573.79	2577.2	2580.61	2584.02	2587.43	2590.83	2594.24	2597.64	2601.05	2604.45
440	2607.85	2611.25	2614.65	2618.04	2621.44	2624.83	2628.23	2631.62	2635.01	2638.4
450	2641.79	2645.18	2648.57	2651.95	2655.34	2658.72	2662.1	2665.48	2668.86	2672.24
460	2675.62	2679	2682.37	2685.75	2689.12	2692.49	2695.86	2699.23	2702.6	2705.97
470	2709.33	2712.7	2716.06	2719.42	2722.78	2726.14	2729.5	2732.86	2736.22	2739.57
480	2742.93	2746.28	2749.63	2752.99	2756.33	2759.68	2763.03	2766.38	2769.72	2773.07
490	2776.41	2779.75	2783.09	2786.43	2789.77	2793.11	2796.44	2799.78	2803.11	2806.44
500	2809.78	2813.11	2816.43	2819.76	2823.09	2826.42	2829.74	2833.06	2836.38	2839.71
510	2843.03	2846.34	2849.66	2852.98	2856.29	2859.61	2862.92	2866.23	2869.54	2872.85
520	2876.16	2879.47	2882.77	2886.08	2889.38	2892.68	2895.99	2899.29	2902.59	2905.88
530	2909.18	2912.48	2915.77	2919.06	2922.36	2925.65	2928.94	2932.22	2935.51	2938.8
540	2942.08	2945.37	2948.65	2951.93	2955.21	2958.49	2961.77	2965.05	2968.32	2971.6
550	2974.87	2978.14	2981.42	2984.69	2987.95	2991.22	2994.49	2997.75	3001.02	3004.28
560	3007.54	3010.81	3014.07	3017.32	3020.58	3023.84	3027.09	3030.35	3033.6	3036.85
570	3040.1	3043.35	3046.6	3049.85	3053.09	3056.34	3059.58	3062.82	3066.06	3069.3
580	3072.54	3075.78	3079.02	3082.25	3085.49	3088.72	3091.95	3095.18	3098.41	3101.64
590	3104.87	3108.1	3111.32	3114.55	3117.77	3120.99	3124.21	3127.43	3130.65	3133.86
600	3137.08	3140.3	3143.51	3146.72	3149.93	3153.14	3156.35	3159.56	3162.77	3165.97
610	3169.18	3172.38	3175.58	3178.78	3181.98	3185.18	3188.38	3191.57	3194.77	3197.96
620	3201.16	3204.35	3207.54	3210.73	3213.92	3217.1	3220.29	3223.47	3226.66	3229.84
630	3233.02	3236.2	3239.38	3242.56	3245.73	3248.91	3252.08	3255.26	3258.43	3261.6
640	3264.77	3267.94	3271.1	3274.27	3277.44	3280.6	3283.76	3286.92	3290.08	3293.24
650	3296.4	3299.56	3302.71	3305.87	3309.02	3312.18	3315.33	3318.48	3321.63	3324.77
660	3327.92	3331.06	3334.21	3337.35	3340.49	3343.64	3346.77	3349.91	3353.05	3356.19
670	3359.32	3362.46	3365.59	3368.72	3371.85	3374.98	3378.11	3381.23	3384.36	3387.49
680	3390.61	3393.73	3396.85	3399.97	3403.09	3406.21	3409.33	3412.44	3415.55	3418.67
690	3421.78	3424.89	3428	3431.11	3434.22	3437.32	3440.43	3443.53	3446.63	3449.74
700	3452.84	3455.93	3459.03	3462.13	3465.23	3468.32	3471.41	3474.51	3477.6	3480.69
710	3483.78	3486.86	3489.95	3493.04	3496.12	3499.2	3502.28	3505.37	3508.44	3511.52
720	3514.6	3517.68	3520.75	3523.83	3526.9	3529.97	3533.04	3536.11	3539.18	3542.24
730	3545.31	3548.37	3551.44	3554.5	3557.56	3560.62	3563.68	3566.74	3569.79	3572.85
740	3575.9	3578.96	3582.01	3585.06	3588.11	3591.16	3594.2	3597.25	3600.3	3603.34
750	3606.38	3609.42	3612.46	3615.5	3618.54	3621.58	3624.61	3627.65	3630.68	3633.71
760	3636.74	3639.77	3642.8	3645.83	3648.86	3651.88	3654.91	3657.93	3660.95	3663.97
770	3666.99	3670.01	3673.03	3676.04	3679.06	3682.07	3685.08	3688.1	3691.11	3694.12
780	3697.12	3700.13	3703.14	3706.14	3709.14	3712.15	3715.15	3718.15	3721.15	3724.14
790	3727.14	3730.14	3733.13	3736.12	3739.11	3742.1	3745.09	3748.08	3751.07	3754.06
800	3757.04	3760.02	3763.01	3765.99	3768.97	3771.95	3774.93	3777.9	3780.88	3783.85
810	3786.83	3789.8	3792.77	3795.74	3798.71	3801.68	3804.64	3807.61	3810.57	3813.53
820	3816.5	3819.46	3822.42	3825.37	3828.33	3831.29	3834.24	3837.2	3840.15	3843.1
830	3846.05	3849	3851.95	3854.89	3857.84	3860.78	3863.73	3866.67	3869.61	3872.55
840	3875.49	3878.43	3881.36	3884.3	3887.23	3890.16	3893.1	3896.03	3898.96	3901.88
850	3904.81	3907.74	3910.66	3913.59	3916.51	3919.43	3922.35	3925.27	3928.19	3931.1

The above pt100 temperature sensor resistance table values are polynomials calculated to IEC60751 using Microsoft excel.