

Resistance values for platinum temperature sensors

according to DIN EN 60751

Calculation basis:

$t \geq 0$

$$R_t = R_0 \cdot (1 + At + Bt^2)$$

with constants:

$$A = 3.9083 \cdot 10^{-3} \text{ } ^\circ\text{C}^{-1}$$

$$B = -5.775 \cdot 10^{-7} \text{ } ^\circ\text{C}^{-2}$$

$t < 0$

$$R_t = R_0 \cdot [1 + At + Bt^2 + C(t - 100^\circ\text{C})t^3]$$

with constants:

$$A = 3.9083 \cdot 10^{-3} \text{ } ^\circ\text{C}^{-1}$$

$$B = -5.775 \cdot 10^{-7} \text{ } ^\circ\text{C}^{-2}$$

$$C = -4.183 \cdot 10^{-12} \text{ } ^\circ\text{C}^{-4}$$

Nominal value $R_0 = 2000 \text{ } \Omega$ below $0 \text{ } ^\circ\text{C}$

Temp.	Resistance R [Ω] at temperature t [$^\circ\text{C}$]									
t [$^\circ\text{C}$]	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-200	370.40									
-190	456.51	447.93	439.34	430.75	422.15	413.54	404.93	396.31	387.68	379.04
-180	541.93	533.42	524.90	516.37	507.84	499.30	490.76	482.21	473.65	465.08
-170	626.70	618.25	609.80	601.33	592.87	584.39	575.91	567.43	558.93	550.43
-160	710.87	702.48	694.08	685.68	677.27	668.86	660.44	652.01	643.58	635.14
-150	794.46	786.13	777.79	769.44	761.09	752.73	744.37	736.00	727.63	719.25
-140	877.53	869.24	860.96	852.66	844.36	836.06	827.75	819.44	811.12	802.79
-130	960.10	951.86	943.62	935.38	927.13	918.87	910.61	902.35	894.08	885.81
-120	1042.20	1034.01	1025.81	1017.61	1009.41	1001.20	992.99	984.77	976.55	968.33
-110	1123.86	1115.71	1107.56	1099.40	1091.24	1083.08	1074.91	1066.74	1058.56	1050.38
-100	1205.12	1197.01	1188.90	1180.78	1172.66	1164.54	1156.41	1148.28	1140.14	1132.00
-90	1285.99	1277.92	1269.85	1261.77	1253.69	1245.60	1237.51	1229.42	1221.32	1213.22
-80	1366.51	1358.47	1350.43	1342.39	1334.34	1326.29	1318.24	1310.18	1302.12	1294.06
-70	1446.69	1438.69	1430.68	1422.67	1414.66	1406.64	1398.62	1390.60	1382.57	1374.54
-60	1526.56	1518.58	1510.61	1502.63	1494.65	1486.66	1478.67	1470.68	1462.69	1454.69
-50	1606.13	1598.18	1590.23	1582.29	1574.33	1566.38	1558.42	1550.46	1542.49	1534.53
-40	1685.41	1677.50	1669.58	1661.66	1653.73	1645.80	1637.87	1629.94	1622.01	1614.07
-30	1764.43	1756.54	1748.65	1740.75	1732.86	1724.96	1717.05	1709.15	1701.24	1693.33
-20	1843.20	1835.33	1827.46	1819.59	1811.72	1803.85	1795.97	1788.09	1780.21	1772.32
-10	1921.72	1913.88	1906.03	1898.19	1890.34	1882.49	1874.63	1866.78	1858.92	1851.06
0	2000.00	1992.18	1984.36	1976.54	1968.72	1960.89	1953.06	1945.23	1937.39	1929.56

Nominal value $R_0 = 2000 \text{ } \Omega$ above $0 \text{ } ^\circ\text{C}$

Temp.	Resistance R [Ω] at temperature t [$^\circ\text{C}$]									
t [$^\circ\text{C}$]	0	1	2	3	4	5	6	7	8	9
0	2000.00	2007.82	2015.63	2023.44	2031.25	2039.05	2046.86	2054.66	2062.46	2070.26
10	2078.05	2085.84	2093.63	2101.42	2109.21	2116.99	2124.77	2132.55	2140.32	2148.10
20	2155.87	2163.64	2171.41	2179.17	2186.93	2194.69	2202.45	2210.21	2217.96	2225.71
30	2233.46	2241.20	2248.95	2256.69	2264.43	2272.17	2279.90	2287.63	2295.36	2303.09
40	2310.82	2318.54	2326.26	2333.98	2341.69	2349.41	2357.12	2364.83	2372.54	2380.24
50	2387.94	2395.64	2403.34	2411.04	2418.73	2426.42	2434.11	2441.79	2449.48	2457.16
60	2464.84	2472.51	2480.19	2487.86	2495.53	2503.20	2510.86	2518.53	2526.19	2533.85
70	2541.50	2549.16	2556.81	2564.46	2572.10	2579.75	2587.39	2595.03	2602.67	2610.30
80	2617.94	2625.57	2633.19	2640.82	2648.44	2656.07	2663.69	2671.30	2678.92	2686.53
90	2694.14	2701.75	2709.35	2716.95	2724.55	2732.15	2739.75	2747.34	2754.93	2762.52
100	2770.11	2777.69	2785.28	2792.86	2800.43	2808.01	2815.58	2823.15	2830.72	2838.29
110	2845.85	2853.41	2860.97	2868.53	2876.08	2883.63	2891.18	2898.73	2906.28	2913.82
120	2921.36	2928.90	2936.43	2943.97	2951.50	2959.03	2966.55	2974.08	2981.60	2989.12
130	2996.64	3004.15	3011.67	3019.18	3026.69	3034.19	3041.69	3049.20	3056.69	3064.19

The mentioned table values were calculated to the polynomial of DIN EN 60751 with microsoft excel.

The accuracy of the information is not guaranteed by YAGEO Nexensos GmbH.

Nominal value $R_0 = 2000 \Omega$ above 0°C

Temp. t [°C]	Resistance R [Ω] at temperature t [°C]									
	0	1	2	3	4	5	6	7	8	9
140	3071.69	3079.18	3086.67	3094.16	3101.64	3109.12	3116.60	3124.08	3131.56	3139.03
150	3146.50	3153.97	3161.44	3168.90	3176.36	3183.82	3191.28	3198.74	3206.19	3213.64
160	3221.09	3228.53	3235.98	3243.42	3250.86	3258.29	3265.73	3273.16	3280.59	3288.02
170	3295.44	3302.87	3310.29	3317.70	3325.12	3332.53	3339.94	3347.35	3354.76	3362.16
180	3369.57	3376.97	3384.36	3391.76	3399.15	3406.54	3413.93	3421.32	3428.70	3436.08
190	3443.46	3450.84	3458.21	3465.58	3472.95	3480.32	3487.68	3495.05	3502.41	3509.76
200	3517.12	3524.47	3531.82	3539.17	3546.52	3553.86	3561.21	3568.55	3575.88	3583.22
210	3590.55	3597.88	3605.21	3612.53	3619.86	3627.18	3634.50	3641.81	3649.13	3656.44
220	3663.75	3671.06	3678.36	3685.66	3692.97	3700.26	3707.56	3714.85	3722.14	3729.43
230	3736.72	3744.00	3751.28	3758.56	3765.84	3773.12	3780.39	3787.66	3794.93	3802.19
240	3809.46	3816.72	3823.98	3831.23	3838.49	3845.74	3852.99	3860.23	3867.48	3874.72
250	3881.96	3889.20	3896.44	3903.67	3910.90	3918.13	3925.36	3932.58	3939.80	3947.02
260	3954.24	3961.45	3968.67	3975.88	3983.08	3990.29	3997.49	4004.69	4011.89	4019.09
270	4026.28	4033.47	4040.66	4047.85	4055.04	4062.22	4069.40	4076.58	4083.75	4090.93
280	4098.10	4105.26	4112.43	4119.60	4126.76	4133.92	4141.07	4148.23	4155.38	4162.53
290	4169.68	4176.82	4183.97	4191.11	4198.25	4205.38	4212.52	4219.65	4226.78	4233.91
300	4241.03	4248.15	4255.27	4262.39	4269.51	4276.62	4283.73	4290.84	4297.94	4305.05
310	4312.15	4319.25	4326.35	4333.44	4340.53	4347.62	4354.71	4361.80	4368.88	4375.96
320	4383.04	4390.12	4397.19	4404.26	4411.33	4418.40	4425.46	4432.53	4439.59	4446.64
330	4453.70	4460.75	4467.80	4474.85	4481.90	4488.94	4495.98	4503.02	4510.06	4517.09
340	4524.13	4531.16	4538.18	4545.21	4552.23	4559.25	4566.27	4573.29	4580.30	4587.31
350	4594.32	4601.33	4608.33	4615.34	4622.34	4629.33	4636.33	4643.32	4650.31	4657.30
360	4664.29	4671.27	4678.25	4685.23	4692.21	4699.18	4706.16	4713.13	4720.09	4727.06
370	4734.02	4740.98	4747.94	4754.90	4761.85	4768.80	4775.75	4782.70	4789.64	4796.59
380	4803.53	4810.46	4817.40	4824.33	4831.26	4838.19	4845.12	4852.04	4858.96	4865.88
390	4872.80	4879.71	4886.63	4893.54	4900.44	4907.35	4914.25	4921.15	4928.05	4934.95
400	4941.84	4948.73	4955.62	4962.51	4969.39	4976.27	4983.15	4990.03	4996.91	5003.78
410	5010.65	5017.52	5024.38	5031.25	5038.11	5044.97	5051.83	5058.68	5065.53	5072.38
420	5079.23	5086.08	5092.92	5099.76	5106.60	5113.43	5120.27	5127.10	5133.93	5140.75
430	5147.58	5154.40	5161.22	5168.04	5174.85	5181.67	5188.48	5195.29	5202.09	5208.89
440	5215.70	5222.50	5229.29	5236.09	5242.88	5249.67	5256.46	5263.24	5270.02	5276.80
450	5283.58	5290.36	5297.13	5303.90	5310.67	5317.44	5324.20	5330.97	5337.73	5344.48
460	5351.24	5357.99	5364.74	5371.49	5378.24	5384.98	5391.72	5398.46	5405.20	5411.93
470	5418.66	5425.39	5432.12	5438.84	5445.57	5452.29	5459.01	5465.72	5472.44	5479.15
480	5485.86	5492.56	5499.27	5505.97	5512.67	5519.37	5526.06	5532.75	5539.44	5546.13
490	5552.82	5559.50	5566.18	5572.86	5579.54	5586.21	5592.89	5599.55	5606.22	5612.89
500	5619.55	5626.21	5632.87	5639.52	5646.18	5652.83	5659.48	5666.12	5672.77	5679.41
510	5686.05	5692.69	5699.32	5705.96	5712.59	5719.21	5725.84	5732.46	5739.08	5745.70
520	5752.32	5758.93	5765.55	5772.16	5778.76	5785.37	5791.97	5798.57	5805.17	5811.77
530	5818.36	5824.95	5831.54	5838.13	5844.71	5851.29	5857.87	5864.45	5871.02	5877.60
540	5884.17	5890.73	5897.30	5903.86	5910.42	5916.98	5923.54	5930.09	5936.65	5943.20
550	5949.74	5956.29	5962.83	5969.37	5975.91	5982.44	5988.98	5995.51	6002.04	6008.56
560	6015.09	6021.61	6028.13	6034.65	6041.16	6047.67	6054.18	6060.69	6067.20	6073.70
570	6080.20	6086.70	6093.20	6099.69	6106.18	6112.67	6119.16	6125.65	6132.13	6138.61
580	6145.09	6151.56	6158.03	6164.51	6170.97	6177.44	6183.91	6190.37	6196.83	6203.28
590	6209.74	6216.19	6222.64	6229.09	6235.53	6241.98	6248.42	6254.86	6261.29	6267.73
600	6274.16	6280.59	6287.02	6293.44	6299.86	6306.28	6312.70	6319.12	6325.53	6331.94
610	6338.35	6344.76	6351.16	6357.56	6363.96	6370.36	6376.75	6383.15	6389.54	6395.92
620	6402.31	6408.69	6415.07	6421.45	6427.83	6434.20	6440.57	6446.94	6453.31	6459.68
630	6466.04	6472.40	6478.76	6485.11	6491.47	6497.82	6504.16	6510.51	6516.85	6523.20
640	6529.54	6535.87	6542.21	6548.54	6554.87	6561.20	6567.52	6573.85	6580.17	6586.49
650	6592.80	6599.12	6605.43	6611.74	6618.04	6624.35	6630.65	6636.95	6643.25	6649.54
660	6655.84	6662.13	6668.42	6674.70	6680.99	6687.27	6693.55	6699.83	6706.10	6712.37
670	6718.64	6724.91	6731.18	6737.44	6743.70	6749.96	6756.21	6762.47	6768.72	6774.97
680	6781.22	6787.46	6793.70	6799.94	6806.18	6812.42	6818.65	6824.88	6831.11	6837.33
690	6843.56	6849.78	6856.00	6862.22	6868.43	6874.64	6880.85	6887.06	6893.27	6899.47
700	6905.67	6911.87	6918.06	6924.26	6930.45	6936.64	6942.83	6949.01	6955.19	6961.37

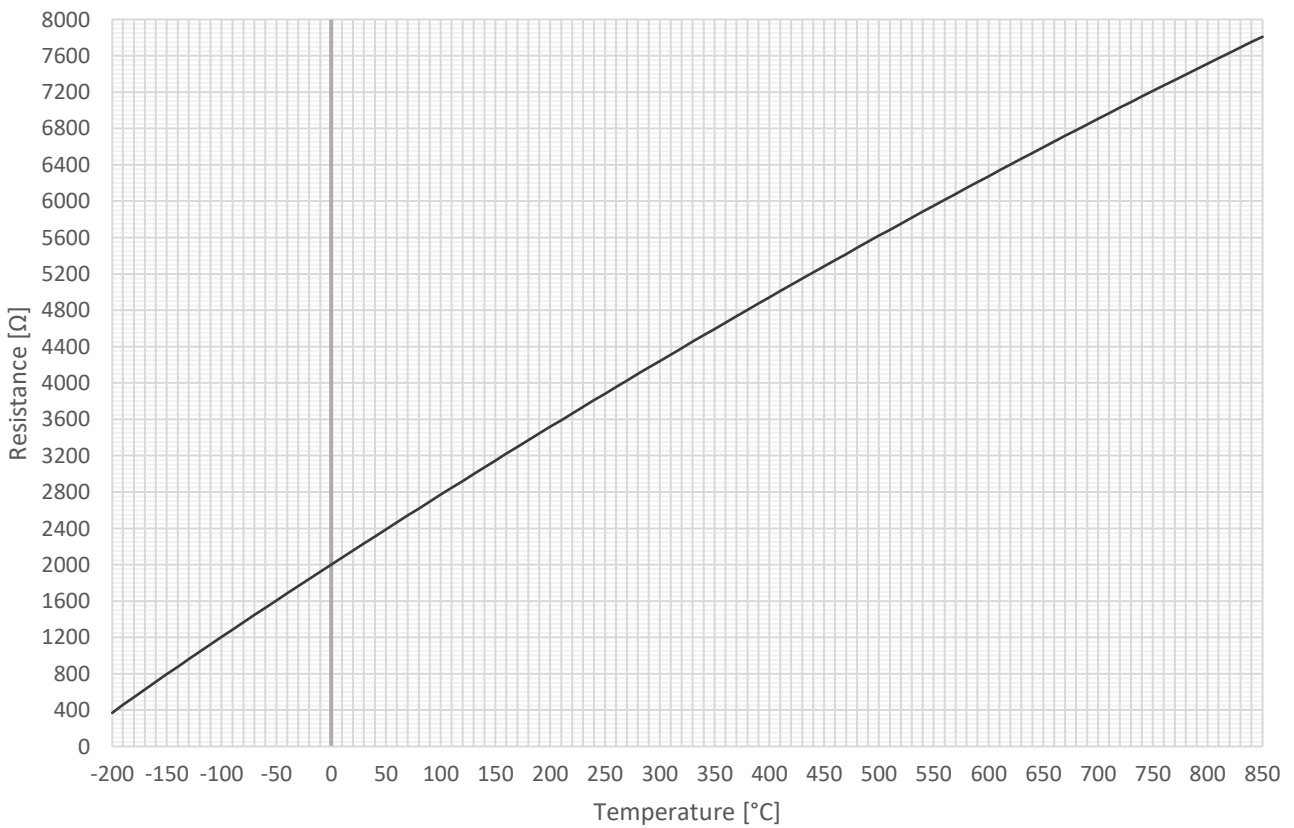
The mentioned table values were calculated to the polynomial of DIN EN 60751 with microsoft excel.

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Nominal value $R_0 = 2000 \Omega$ above 0°C

Temp.	Resistance R [Ω] at temperature t [$^\circ\text{C}$]									
t [$^\circ\text{C}$]	0	1	2	3	4	5	6	7	8	9
710	6967.55	6973.73	6979.90	6986.07	6992.24	6998.40	7004.57	7010.73	7016.89	7023.05
720	7029.20	7035.35	7041.50	7047.65	7053.80	7059.94	7066.08	7072.22	7078.35	7084.49
730	7090.62	7096.75	7102.87	7109.00	7115.12	7121.24	7127.36	7133.47	7139.59	7145.70
740	7151.81	7157.91	7164.02	7170.12	7176.22	7182.31	7188.41	7194.50	7200.59	7206.68
750	7212.76	7218.85	7224.93	7231.00	7237.08	7243.15	7249.23	7255.29	7261.36	7267.43
760	7273.49	7279.55	7285.61	7291.66	7297.71	7303.76	7309.81	7315.86	7321.90	7327.94
770	7333.98	7340.02	7346.05	7352.09	7358.12	7364.14	7370.17	7376.19	7382.21	7388.23
780	7394.25	7400.26	7406.27	7412.28	7418.29	7424.29	7430.29	7436.29	7442.29	7448.29
790	7454.28	7460.27	7466.26	7472.24	7478.23	7484.21	7490.19	7496.16	7502.14	7508.11
800	7514.08	7520.05	7526.01	7531.98	7537.94	7543.89	7549.85	7555.80	7561.75	7567.70
810	7573.65	7579.59	7585.54	7591.48	7597.41	7603.35	7609.28	7615.21	7621.14	7627.07
820	7632.99	7638.91	7644.83	7650.75	7656.66	7662.57	7668.48	7674.39	7680.30	7686.20
830	7692.10	7698.00	7703.89	7709.79	7715.68	7721.57	7727.45	7733.34	7739.22	7745.10
840	7750.98	7756.85	7762.72	7768.59	7774.46	7780.33	7786.19	7792.05	7797.91	7803.77
850	7809.62									

Characteristic Curve Pt2000



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