

Resistance values for platinum temperature sensors

according to DIN EN 60751

Calculation basis:	
$t \geq 0$	$t < 0$
$R_t = R_0 \cdot (1 + At + Bt^2)$	$R_t = R_0 \cdot [1 + At + Bt^2 + C(t - 100^\circ\text{C})t^3]$
with constants:	with constants:
$A = 3.9083 \cdot 10^{-3} \text{ }^\circ\text{C}^{-1}$	$A = 3.9083 \cdot 10^{-3} \text{ }^\circ\text{C}^{-1}$
$B = -5.775 \cdot 10^{-7} \text{ }^\circ\text{C}^{-2}$	$B = -5.775 \cdot 10^{-7} \text{ }^\circ\text{C}^{-2}$
	$C = -4.183 \cdot 10^{-12} \text{ }^\circ\text{C}^{-4}$

Nominal value $R_0 = 500 \Omega$ below 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
-200	92.60									
-190	114.13	111.98	109.84	107.69	105.54	103.39	101.23	99.08	96.92	94.76
-180	135.48	133.35	131.22	129.09	126.96	124.83	122.69	120.55	118.41	116.27
-170	156.68	154.56	152.45	150.33	148.22	146.10	143.98	141.86	139.73	137.61
-160	177.72	175.62	173.52	171.42	169.32	167.21	165.11	163.00	160.90	158.79
-150	198.62	196.53	194.45	192.36	190.27	188.18	186.09	184.00	181.91	179.81
-140	219.38	217.31	215.24	213.17	211.09	209.02	206.94	204.86	202.78	200.70
-130	240.02	237.96	235.91	233.84	231.78	229.72	227.65	225.59	223.52	221.45
-120	260.55	258.50	256.45	254.40	252.35	250.30	248.25	246.19	244.14	242.08
-110	280.97	278.93	276.89	274.85	272.81	270.77	268.73	266.68	264.64	262.60
-100	301.28	299.25	297.22	295.20	293.17	291.13	289.10	287.07	285.04	283.00
-90	321.50	319.48	317.46	315.44	313.42	311.40	309.38	307.35	305.33	303.31
-80	341.63	339.62	337.61	335.60	333.59	331.57	329.56	327.55	325.53	323.51
-70	361.67	359.67	357.67	355.67	353.66	351.66	349.66	347.65	345.64	343.64
-60	381.64	379.65	377.65	375.66	373.66	371.67	369.67	367.67	365.67	363.67
-50	401.53	399.55	397.56	395.57	393.58	391.59	389.60	387.61	385.62	383.63
-40	421.35	419.37	417.39	415.41	413.43	411.45	409.47	407.49	405.50	403.52
-30	441.11	439.14	437.16	435.19	433.21	431.24	429.26	427.29	425.31	423.33
-20	460.80	458.83	456.87	454.90	452.93	450.96	448.99	447.02	445.05	443.08
-10	480.43	478.47	476.51	474.55	472.58	470.62	468.66	466.69	464.73	462.77
0	500.00	498.05	496.09	494.13	492.18	490.22	488.26	486.31	484.35	482.39

Nominal value $R_0 = 500 \Omega$ 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
0	500.00	501.95	503.91	505.86	507.81	509.76	511.71	513.66	515.61	517.56
10	519.51	521.46	523.41	525.36	527.30	529.25	531.19	533.14	535.08	537.02
20	538.97	540.91	542.85	544.79	546.73	548.67	550.61	552.55	554.49	556.43
30	558.36	560.30	562.24	564.17	566.11	568.04	569.98	571.91	573.84	575.77
40	577.70	579.63	581.56	583.49	585.42	587.35	589.28	591.21	593.13	595.06
50	596.99	598.91	600.84	602.76	604.68	606.60	608.53	610.45	612.37	614.29
60	616.21	618.13	620.05	621.97	623.88	625.80	627.72	629.63	631.55	633.46
70	635.38	637.29	639.20	641.11	643.03	644.94	646.85	648.76	650.67	652.58
80	654.48	656.39	658.30	660.21	662.11	664.02	665.92	667.83	669.73	671.63
90	673.53	675.44	677.34	679.24	681.14	683.04	684.94	686.84	688.73	690.63
100	692.53	694.42	696.32	698.21	700.11	702.00	703.90	705.79	707.68	709.57
110	711.46	713.35	715.24	717.13	719.02	720.91	722.80	724.68	726.57	728.45
120	730.34	732.22	734.11	735.99	737.87	739.76	741.64	743.52	745.40	747.28
130	749.16	751.04	752.92	754.79	756.67	758.55	760.42	762.30	764.17	766.05

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

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Nominal value $R_0 = 500 \Omega$ above 0°C

Temp. t [°C]	Resistance R [Ω] at temperature t [°C]									
	0	1	2	3	4	5	6	7	8	9
140	767.92	769.79	771.67	773.54	775.41	777.28	779.15	781.02	782.89	784.76
150	786.63	788.49	790.36	792.23	794.09	795.96	797.82	799.68	801.55	803.41
160	805.27	807.13	808.99	810.85	812.71	814.57	816.43	818.29	820.15	822.00
170	823.86	825.72	827.57	829.43	831.28	833.13	834.99	836.84	838.69	840.54
180	842.39	844.24	846.09	847.94	849.79	851.64	853.48	855.33	857.17	859.02
190	860.86	862.71	864.55	866.40	868.24	870.08	871.92	873.76	875.60	877.44
200	879.28	881.12	882.96	884.79	886.63	888.47	890.30	892.14	893.97	895.80
210	897.64	899.47	901.30	903.13	904.96	906.79	908.62	910.45	912.28	914.11
220	915.94	917.76	919.59	921.42	923.24	925.07	926.89	928.71	930.54	932.36
230	934.18	936.00	937.82	939.64	941.46	943.28	945.10	946.91	948.73	950.55
240	952.36	954.18	955.99	957.81	959.62	961.43	963.25	965.06	966.87	968.68
250	970.49	972.30	974.11	975.92	977.73	979.53	981.34	983.14	984.95	986.76
260	988.56	990.36	992.17	993.97	995.77	997.57	999.37	1001.17	1002.97	1004.77
270	1006.57	1008.37	1010.17	1011.96	1013.76	1015.55	1017.35	1019.14	1020.94	1022.73
280	1024.52	1026.32	1028.11	1029.90	1031.69	1033.48	1035.27	1037.06	1038.85	1040.63
290	1042.42	1044.21	1045.99	1047.78	1049.56	1051.35	1053.13	1054.91	1056.69	1058.48
300	1060.26	1062.04	1063.82	1065.60	1067.38	1069.15	1070.93	1072.71	1074.49	1076.26
310	1078.04	1079.81	1081.59	1083.36	1085.13	1086.91	1088.68	1090.45	1092.22	1093.99
320	1095.76	1097.53	1099.30	1101.07	1102.83	1104.60	1106.37	1108.13	1109.90	1111.66
330	1113.42	1115.19	1116.95	1118.71	1120.47	1122.24	1124.00	1125.76	1127.51	1129.27
340	1131.03	1132.79	1134.55	1136.30	1138.06	1139.81	1141.57	1143.32	1145.08	1146.83
350	1148.58	1150.33	1152.08	1153.83	1155.58	1157.33	1159.08	1160.83	1162.58	1164.33
360	1166.07	1167.82	1169.56	1171.31	1173.05	1174.80	1176.54	1178.28	1180.02	1181.76
370	1183.51	1185.25	1186.99	1188.72	1190.46	1192.20	1193.94	1195.67	1197.41	1199.15
380	1200.88	1202.62	1204.35	1206.08	1207.82	1209.55	1211.28	1213.01	1214.74	1216.47
390	1218.20	1219.93	1221.66	1223.38	1225.11	1226.84	1228.56	1230.29	1232.01	1233.74
400	1235.46	1237.18	1238.91	1240.63	1242.35	1244.07	1245.79	1247.51	1249.23	1250.94
410	1252.66	1254.38	1256.10	1257.81	1259.53	1261.24	1262.96	1264.67	1266.38	1268.10
420	1269.81	1271.52	1273.23	1274.94	1276.65	1278.36	1280.07	1281.77	1283.48	1285.19
430	1286.89	1288.60	1290.31	1292.01	1293.71	1295.42	1297.12	1298.82	1300.52	1302.22
440	1303.92	1305.62	1307.32	1309.02	1310.72	1312.42	1314.11	1315.81	1317.51	1319.20
450	1320.90	1322.59	1324.28	1325.98	1327.67	1329.36	1331.05	1332.74	1334.43	1336.12
460	1337.81	1339.50	1341.19	1342.87	1344.56	1346.24	1347.93	1349.61	1351.30	1352.98
470	1354.67	1356.35	1358.03	1359.71	1361.39	1363.07	1364.75	1366.43	1368.11	1369.79
480	1371.46	1373.14	1374.82	1376.49	1378.17	1379.84	1381.52	1383.19	1384.86	1386.53
490	1388.20	1389.88	1391.55	1393.22	1394.88	1396.55	1398.22	1399.89	1401.56	1403.22
500	1404.89	1406.55	1408.22	1409.88	1411.54	1413.21	1414.87	1416.53	1418.19	1419.85
510	1421.51	1423.17	1424.83	1426.49	1428.15	1429.80	1431.46	1433.12	1434.77	1436.43
520	1438.08	1439.73	1441.39	1443.04	1444.69	1446.34	1447.99	1449.64	1451.29	1452.94
530	1454.59	1456.24	1457.88	1459.53	1461.18	1462.82	1464.47	1466.11	1467.76	1469.40
540	1471.04	1472.68	1474.32	1475.97	1477.61	1479.25	1480.88	1482.52	1484.16	1485.80
550	1487.44	1489.07	1490.71	1492.34	1493.98	1495.61	1497.24	1498.88	1500.51	1502.14
560	1503.77	1505.40	1507.03	1508.66	1510.29	1511.92	1513.55	1515.17	1516.80	1518.43
570	1520.05	1521.68	1523.30	1524.92	1526.55	1528.17	1529.79	1531.41	1533.03	1534.65
580	1536.27	1537.89	1539.51	1541.13	1542.74	1544.36	1545.98	1547.59	1549.21	1550.82
590	1552.43	1554.05	1555.66	1557.27	1558.88	1560.49	1562.10	1563.71	1565.32	1566.93
600	1568.54	1570.15	1571.75	1573.36	1574.97	1576.57	1578.18	1579.78	1581.38	1582.99
610	1584.59	1586.19	1587.79	1589.39	1590.99	1592.59	1594.19	1595.79	1597.38	1598.98
620	1600.58	1602.17	1603.77	1605.36	1606.96	1608.55	1610.14	1611.74	1613.33	1614.92
630	1616.51	1618.10	1619.69	1621.28	1622.87	1624.45	1626.04	1627.63	1629.21	1630.80
640	1632.38	1633.97	1635.55	1637.14	1638.72	1640.30	1641.88	1643.46	1645.04	1646.62
650	1648.20	1649.78	1651.36	1652.93	1654.51	1656.09	1657.66	1659.24	1660.81	1662.39
660	1663.96	1665.53	1667.10	1668.68	1670.25	1671.82	1673.39	1674.96	1676.53	1678.09
670	1679.66	1681.23	1682.79	1684.36	1685.92	1687.49	1689.05	1690.62	1692.18	1693.74
680	1695.30	1696.87	1698.43	1699.99	1701.55	1703.10	1704.66	1706.22	1707.78	1709.33
690	1710.89	1712.45	1714.00	1715.55	1717.11	1718.66	1720.21	1721.77	1723.32	1724.87
700	1726.42	1727.97	1729.52	1731.06	1732.61	1734.16	1735.71	1737.25	1738.80	1740.34

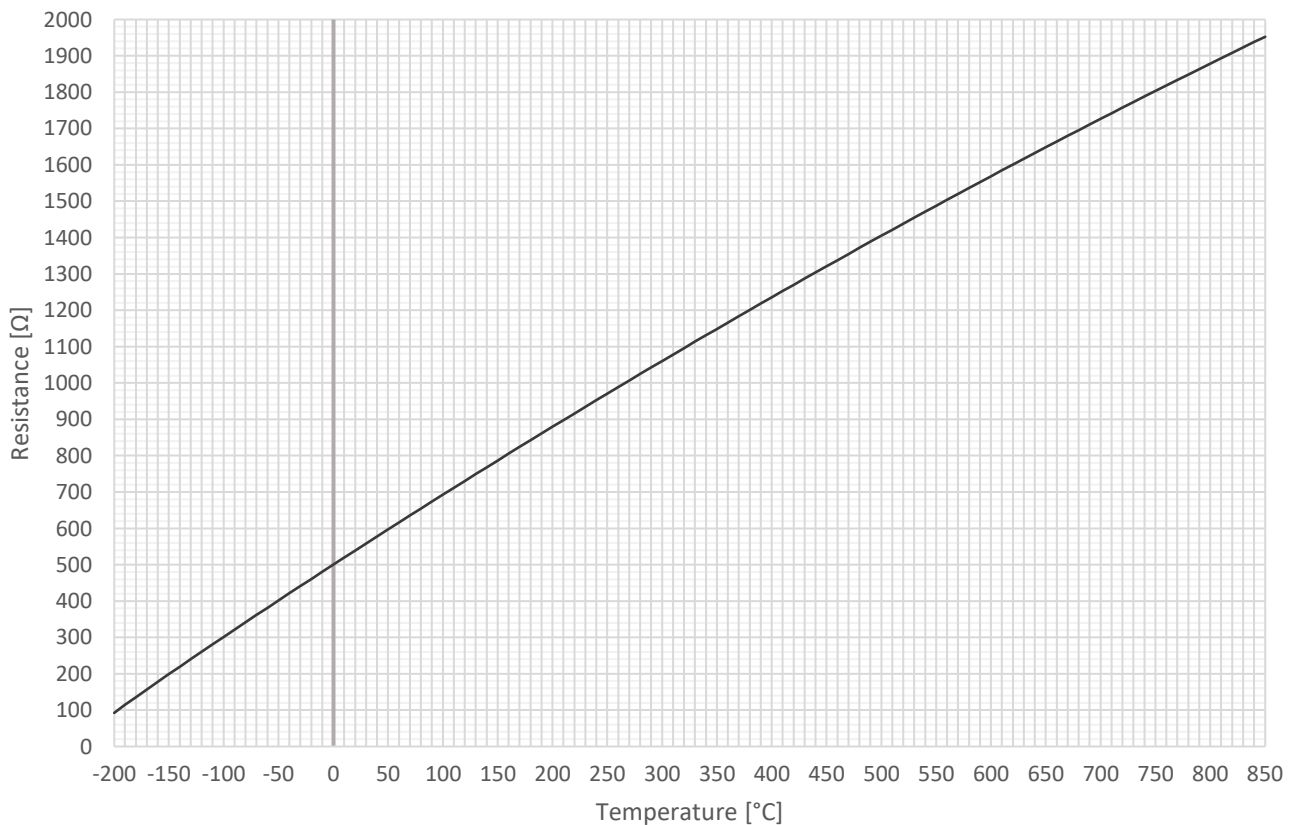
The mentioned table values were calculated to the polynomial of DIN EN 60751 with microsoft excel.

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Nominal value $R_0 = 500 \Omega$ 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	1741.89	1743.43	1744.97	1746.52	1748.06	1749.60	1751.14	1752.68	1754.22	1755.76
720	1757.30	1758.84	1760.38	1761.91	1763.45	1764.98	1766.52	1768.05	1769.59	1771.12
730	1772.65	1774.19	1775.72	1777.25	1778.78	1780.31	1781.84	1783.37	1784.90	1786.42
740	1787.95	1789.48	1791.00	1792.53	1794.05	1795.58	1797.10	1798.62	1800.15	1801.67
750	1803.19	1804.71	1806.23	1807.75	1809.27	1810.79	1812.31	1813.82	1815.34	1816.86
760	1818.37	1819.89	1821.40	1822.92	1824.43	1825.94	1827.45	1828.96	1830.48	1831.99
770	1833.50	1835.00	1836.51	1838.02	1839.53	1841.04	1842.54	1844.05	1845.55	1847.06
780	1848.56	1850.06	1851.57	1853.07	1854.57	1856.07	1857.57	1859.07	1860.57	1862.07
790	1863.57	1865.07	1866.56	1868.06	1869.56	1871.05	1872.55	1874.04	1875.53	1877.03
800	1878.52	1880.01	1881.50	1882.99	1884.48	1885.97	1887.46	1888.95	1890.44	1891.93
810	1893.41	1894.90	1896.38	1897.87	1899.35	1900.84	1902.32	1903.80	1905.29	1906.77
820	1908.25	1909.73	1911.21	1912.69	1914.17	1915.64	1917.12	1918.60	1920.07	1921.55
830	1923.02	1924.50	1925.97	1927.45	1928.92	1930.39	1931.86	1933.33	1934.80	1936.27
840	1937.74	1939.21	1940.68	1942.15	1943.62	1945.08	1946.55	1948.01	1949.48	1950.94
850	1952.41									

Characteristic Curve Pt500



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