

## Resistance values for platinum temperature sensors

according to "Automotive TC 3770 pmm/K"

**Calculation basis:**

$$t \geq 0 ; t < 0$$

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

with constants:

$$A = 3.8285 \cdot 10^{-3} \text{ } ^\circ\text{C}^{-1}$$

$$B = -5.85 \cdot 10^{-7} \text{ } ^\circ\text{C}^{-2}$$

Accuracy:

from -40 °C to 300 °C = ±2.7 K

from 300 °C to 950 °C = ±0.9 %

### Nominal value $R_0 = 200 \Omega$ below 0 °C

Temp.	Resistance R [Ω] at temperature t [°C]									
t [°C]	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-40	169.18	168.41	167.63	166.86	166.08	165.31	164.53	163.75	162.98	162.20
-30	176.92	176.15	175.38	174.60	173.83	173.06	172.28	171.51	170.73	169.96
-20	184.64	183.87	183.10	182.33	181.56	180.78	180.01	179.24	178.47	177.70
-10	192.33	191.56	190.79	190.03	189.26	188.49	187.72	186.95	186.18	185.41
0	200.00	199.23	198.47	197.70	196.94	196.17	195.40	194.63	193.87	193.10

### Nominal value $R_0 = 200 \Omega$ above 0 °C

Temp.	Resistance R [Ω] at temperature t [°C]									
t [°C]	0	1	2	3	4	5	6	7	8	9
0	200.00	200.78	201.56	202.34	203.12	203.91	204.69	205.47	206.25	207.03
10	207.65	208.41	209.17	209.93	210.70	211.46	212.22	212.98	213.74	214.51
20	215.27	216.03	216.79	217.55	218.31	219.07	219.83	220.59	221.35	222.11
30	222.87	223.62	224.38	225.14	225.90	226.66	227.41	228.17	228.93	229.68
40	230.44	231.20	231.95	232.71	233.46	234.22	234.97	235.73	236.48	237.24
50	237.99	238.75	239.50	240.25	241.01	241.76	242.51	243.26	244.02	244.77
60	245.52	246.27	247.02	247.77	248.53	249.28	250.03	250.78	251.53	252.28
70	253.03	253.77	254.52	255.27	256.02	256.77	257.52	258.27	259.01	259.76
80	260.51	261.25	262.00	262.75	263.49	264.24	264.98	265.73	266.48	267.22
90	267.97	268.71	269.45	270.20	270.94	271.69	272.43	273.17	273.91	274.66
100	275.40	276.14	276.88	277.63	278.37	279.11	279.85	280.59	281.33	282.07
110	282.81	283.55	284.29	285.03	285.77	286.51	287.25	287.99	288.72	289.46
120	290.20	290.94	291.67	292.41	293.15	293.88	294.62	295.36	296.09	296.83
130	297.56	298.30	299.03	299.77	300.50	301.24	301.97	302.70	303.44	304.17
140	304.90	305.64	306.37	307.10	307.83	308.57	309.30	310.03	310.76	311.49
150	312.22	312.95	313.68	314.41	315.14	315.87	316.60	317.33	318.06	318.79
160	319.52	320.24	320.97	321.70	322.43	323.16	323.88	324.61	325.34	326.06
170	326.79	327.51	328.24	328.96	329.69	330.41	331.14	331.86	332.59	333.31
180	334.04	334.76	335.48	336.20	336.93	337.65	338.37	339.09	339.82	340.54
190	341.26	341.98	342.70	343.42	344.14	344.86	345.58	346.30	347.02	347.74
200	348.46	349.18	349.90	350.62	351.33	352.05	352.77	353.49	354.20	354.92
210	355.64	356.35	357.07	357.79	358.50	359.22	359.93	360.65	361.36	362.08
220	362.79	363.51	364.22	364.93	365.65	366.36	367.07	367.79	368.50	369.21
230	369.92	370.63	371.34	372.06	372.77	373.48	374.19	374.90	375.61	376.32
240	377.03	377.74	378.45	379.16	379.87	380.57	381.28	381.99	382.70	383.41
250	384.11	384.82	385.53	386.23	386.94	387.65	388.35	389.06	389.76	390.47
260	391.17	391.88	392.58	393.29	393.99	394.69	395.40	396.10	396.80	397.51
270	398.21	398.91	399.61	400.32	401.02	401.72	402.42	403.12	403.82	404.52
280	405.22	405.92	406.62	407.32	408.02	408.72	409.42	410.12	410.82	411.52
290	412.21	412.91	413.61	414.31	415.00	415.70	416.40	417.09	417.79	418.48

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 $R_0 = 200 \Omega$ above $0^\circ\text{C}$

Temp. t [°C]	Resistance R [Ω] at temperature t [°C]									
	0	1	2	3	4	5	6	7	8	9
300	419.18	419.88	420.57	421.27	421.96	422.65	423.35	424.04	424.74	425.43
310	426.12	426.82	427.51	428.20	428.89	429.59	430.28	430.97	431.66	432.35
320	433.04	433.73	434.42	435.11	435.80	436.49	437.18	437.87	438.56	439.25
330	439.94	440.63	441.32	442.00	442.69	443.38	444.07	444.75	445.44	446.13
340	446.81	447.50	448.18	448.87	449.56	450.24	450.93	451.61	452.29	452.98
350	453.66	454.35	455.03	455.71	456.40	457.08	457.76	458.44	459.13	459.81
360	460.49	461.17	461.85	462.53	463.21	463.89	464.57	465.25	465.93	466.61
370	467.29	467.97	468.65	469.33	470.01	470.68	471.36	472.04	472.72	473.39
380	474.07	474.75	475.42	476.10	476.78	477.45	478.13	478.80	479.48	480.15
390	480.83	481.50	482.18	482.85	483.52	484.20	484.87	485.54	486.22	486.89
400	487.56	488.23	488.90	489.58	490.25	490.92	491.59	492.26	492.93	493.60
410	494.27	494.94	495.61	496.28	496.95	497.62	498.28	498.95	499.62	500.29
420	500.96	501.62	502.29	502.96	503.62	504.29	504.96	505.62	506.29	506.95
430	507.62	508.28	508.95	509.61	510.28	510.94	511.60	512.27	512.93	513.59
440	514.26	514.92	515.58	516.24	516.91	517.57	518.23	518.89	519.55	520.21
450	520.87	521.53	522.19	522.85	523.51	524.17	524.83	525.49	526.15	526.81
460	527.46	528.12	528.78	529.44	530.10	530.75	531.41	532.07	532.72	533.38
470	534.03	534.69	535.34	536.00	536.65	537.31	537.96	538.62	539.27	539.93
480	540.58	541.23	541.89	542.54	543.19	543.84	544.50	545.15	545.80	546.45
490	547.10	547.75	548.40	549.05	549.70	550.35	551.00	551.65	552.30	552.95
500	553.60	554.25	554.90	555.55	556.19	556.84	557.49	558.14	558.78	559.43
510	560.08	560.72	561.37	562.01	562.66	563.30	563.95	564.59	565.24	565.88
520	566.53	567.17	567.81	568.46	569.10	569.74	570.39	571.03	571.67	572.31
530	572.96	573.60	574.24	574.88	575.52	576.16	576.80	577.44	578.08	578.72
540	579.36	580.00	580.64	581.28	581.92	582.55	583.19	583.83	584.47	585.11
550	585.74	586.38	587.02	587.65	588.29	588.92	589.56	590.20	590.83	591.47
560	592.10	592.74	593.37	594.00	594.64	595.27	595.90	596.54	597.17	597.80
570	598.44	599.07	599.70	600.33	600.96	601.59	602.23	602.86	603.49	604.12
580	604.75	605.38	606.01	606.64	607.27	607.89	608.52	609.15	609.78	610.41
590	611.04	611.66	612.29	612.92	613.54	614.17	614.80	615.42	616.05	616.67
600	617.30	617.93	618.55	619.17	619.80	620.42	621.05	621.67	622.29	622.92
610	623.54	624.16	624.79	625.41	626.03	626.65	627.27	627.90	628.52	629.14
620	629.76	630.38	631.00	631.62	632.24	632.86	633.48	634.10	634.72	635.34
630	635.95	636.57	637.19	637.81	638.42	639.04	639.66	640.28	640.89	641.51
640	642.12	642.74	643.36	643.97	644.59	645.20	645.82	646.43	647.04	647.66
650	648.27	648.89	649.50	650.11	650.73	651.34	651.95	652.56	653.17	653.79
660	654.40	655.01	655.62	656.23	656.84	657.45	658.06	658.67	659.28	659.89
670	660.50	661.11	661.72	662.32	662.93	663.54	664.15	664.75	665.36	665.97
680	666.58	667.18	667.79	668.39	669.00	669.61	670.21	670.82	671.42	672.02
690	672.63	673.23	673.84	674.44	675.04	675.65	676.25	676.85	677.46	678.06
700	678.66	679.26	679.86	680.46	681.07	681.67	682.27	682.87	683.47	684.07
710	684.67	685.27	685.87	686.46	687.06	687.66	688.26	688.86	689.46	690.05
720	690.65	691.25	691.85	692.44	693.04	693.63	694.23	694.83	695.42	696.02
730	696.61	697.21	697.80	698.40	698.99	699.58	700.18	700.77	701.36	701.96
740	702.55	703.14	703.73	704.33	704.92	705.51	706.10	706.69	707.28	707.87
750	708.46	709.05	709.64	710.23	710.82	711.41	712.00	712.59	713.18	713.76
760	714.35	714.94	715.53	716.12	716.70	717.29	717.88	718.46	719.05	719.63
770	720.22	720.81	721.39	721.98	722.56	723.14	723.73	724.31	724.90	725.48
780	726.06	726.65	727.23	727.81	728.39	728.98	729.56	730.14	730.72	731.30
790	731.88	732.46	733.04	733.62	734.20	734.78	735.36	735.94	736.52	737.10
800	737.68	738.26	738.84	739.41	739.99	740.57	741.15	741.72	742.30	742.88
810	743.45	744.03	744.61	745.18	745.76	746.33	746.91	747.48	748.06	748.63
820	749.20	749.78	750.35	750.92	751.50	752.07	752.64	753.21	753.79	754.36
830	754.93	755.50	756.07	756.64	757.21	757.78	758.35	758.92	759.49	760.06
840	760.63	761.20	761.77	762.34	762.91	763.48	764.04	764.61	765.18	765.75
850	766.31	766.88	767.45	768.01	768.58	769.14	769.71	770.27	770.84	771.40
860	771.97	772.53	773.10	773.66	774.22	774.79	775.35	775.91	776.48	777.04

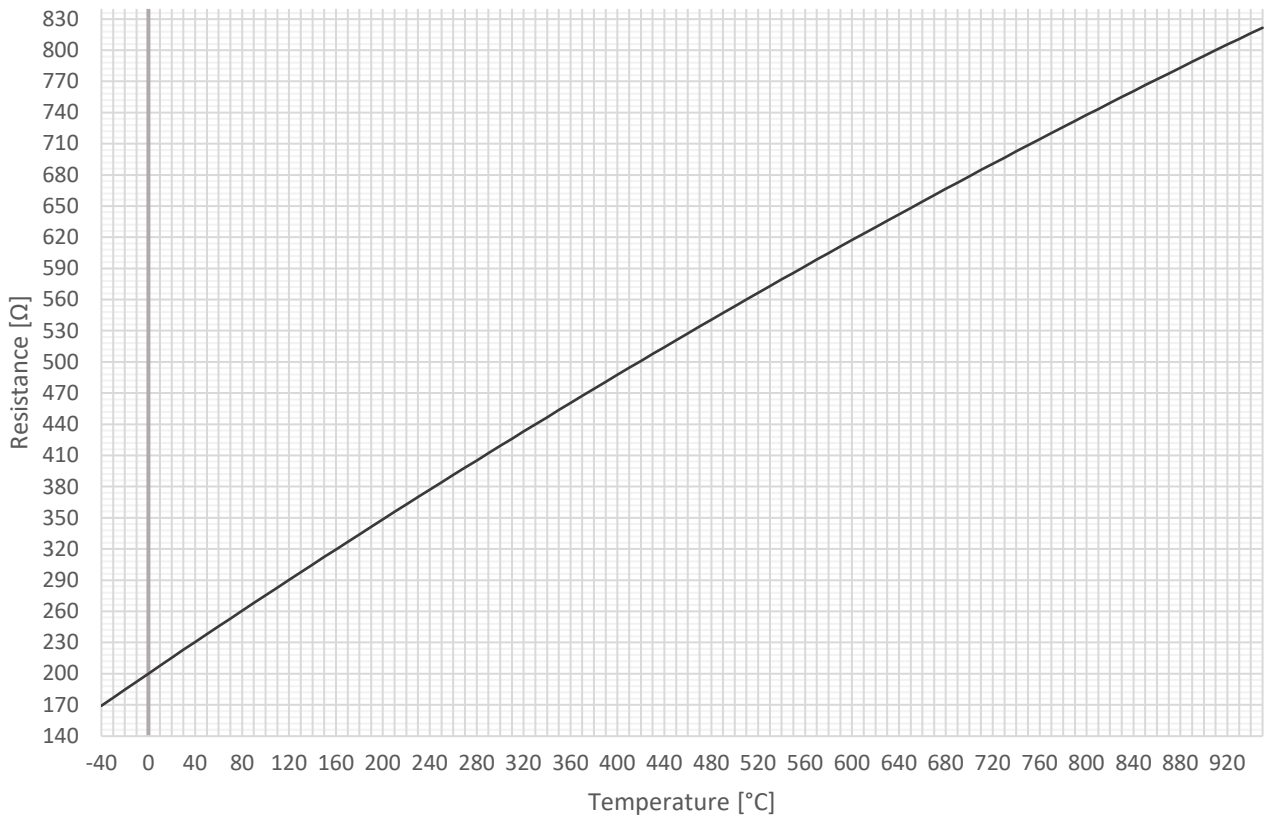
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**Nominal value  $R_0 = 200 \Omega$  above  $0^\circ\text{C}$**

Temp.	Resistance $R$ [ $\Omega$ ] at temperature $t$ [ $^\circ\text{C}$ ]									
$t$ [ $^\circ\text{C}$ ]	0	1	2	3	4	5	6	7	8	9
870	777.60	778.16	778.73	779.29	779.85	780.41	780.97	781.53	782.09	782.65
880	783.21	783.77	784.33	784.89	785.45	786.01	786.57	787.12	787.68	788.24
890	788.80	789.35	789.91	790.47	791.03	791.58	792.14	792.69	793.25	793.80
900	794.36	794.91	795.47	796.02	796.58	797.13	797.69	798.24	798.79	799.35
910	799.90	800.45	801.00	801.56	802.11	802.66	803.21	803.76	804.31	804.86
920	805.42	805.97	806.52	807.07	807.62	808.16	808.71	809.26	809.81	810.36
930	810.91	811.46	812.00	812.55	813.10	813.65	814.19	814.74	815.28	815.83
940	816.38	816.92	817.47	818.01	818.56	819.10	819.65	820.19	820.74	821.28
950	821.82	822.37	822.91	823.45	823.99	824.54	825.08	825.62	826.16	826.70

Characteristic Curve Pt200 (TC 3770 ppm/K)



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