

Platinum Resistance Thermometry: Resistance vs Temperature Relationship, Tolerances, Connection Schematics, Measuring Circuits

Resistance vs Temperature Relationship over the Range -200°C to +850°C for Platinum Resistance Thermometer Detector Elements

°C (t ₉₀)	0	1	2	3	4	5	6	7	8	9	°C (t ₉₀)
-200	18.52										-200
-190	22.83	22.40	21.97	21.54	21.11	20.68	20.25	19.82	19.38	18.95	-190
-180	27.10	26.67	26.24	25.82	25.39	24.97	24.54	24.11	23.68	23.25	-180
-170	31.34	30.91	30.49	30.07	29.64	29.22	28.80	28.37	27.95	27.52	-170
-160	35.54	35.12	34.70	34.28	33.86	33.44	33.02	32.60	32.18	31.76	-160
-150	39.72	39.31	38.89	38.47	38.05	37.64	37.22	36.80	36.38	35.96	-150
-140	43.88	43.46	43.05	42.63	42.22	41.80	41.39	40.97	40.56	40.14	-140
-130	48.00	47.59	47.18	46.77	46.36	45.94	45.53	45.12	44.70	44.29	-130
-120	52.11	51.70	51.29	50.88	50.47	50.06	49.65	49.24	48.83	48.42	-120
-110	56.19	55.79	55.38	54.97	54.56	54.15	53.75	53.34	52.93	52.52	-110
-100	60.26	59.85	59.44	59.04	58.63	58.23	57.82	57.41	57.01	56.60	-100
-90	64.30	63.90	63.49	63.09	62.68	62.28	61.88	61.47	61.07	60.66	-90
-80	68.33	67.92	67.52	67.12	66.72	66.31	65.91	65.51	65.11	64.70	-80
-70	72.33	71.93	71.53	71.13	70.73	70.33	69.93	69.53	69.13	68.73	-70
-60	76.33	75.93	75.53	75.13	74.73	74.33	73.93	73.53	73.13	72.73	-60
-50	80.31	79.91	79.51	79.11	78.72	78.32	77.92	77.52	77.12	76.73	-50
-40	84.27	83.87	83.48	83.08	82.69	82.29	81.89	81.50	81.10	80.70	-40
-30	88.22	87.83	87.43	87.04	86.64	86.25	85.85	85.46	85.06	84.67	-30
-20	92.16	91.77	91.37	90.98	90.59	90.19	89.80	89.40	89.01	88.62	-20
-10	96.09	95.69	95.30	94.91	94.52	94.12	93.73	93.34	92.95	92.55	-10
0	100.00	99.61	99.22	98.83	98.44	98.04	97.65	97.26	96.87	96.48	0
10	100.00	100.39	100.78	101.17	101.56	101.95	102.34	102.73	103.12	103.51	10
20	103.90	104.29	104.68	105.07	105.46	105.85	106.24	106.63	107.02	107.40	20
30	107.79	108.18	108.57	108.96	109.35	109.73	110.12	110.51	110.90	111.29	30
40	111.67	112.06	112.45	112.83	113.22	113.61	114.00	114.38	114.77	115.15	40
50	115.54	115.93	116.31	116.70	117.08	117.47	117.86	118.24	118.63	119.01	50
60	119.40	119.78	120.17	120.55	120.94	121.32	121.71	122.09	122.47	122.86	60
70	123.24	123.63	124.01	124.39	124.78	125.16	125.54	125.93	126.31	126.69	70
80	127.08	127.46	127.84	128.22	128.61	128.99	129.37	129.75	130.13	130.52	80
90	130.90	131.28	131.66	132.04	132.42	132.80	133.18	133.56	133.94	134.33	90
100	134.71	135.09	135.47	135.85	136.23	136.61	136.99	137.37	137.75	138.13	100
110	138.51	138.88	139.26	139.64	140.02	140.40	140.78	141.16	141.54	141.91	110
120	142.29	142.67	143.05	143.43	143.80	144.18	144.56	144.94	145.31	145.69	120
130	146.07	146.44	146.82	147.20	147.57	147.95	148.33	148.70	149.08	149.46	130
140	149.83	150.21	150.58	150.96	151.33	151.71	152.08	152.46	152.83	153.21	140
150	153.58	153.96	154.33	154.71	155.08	155.46	155.83	156.21	156.58	156.95	150
160	157.33	157.70	158.07	158.45	158.82	159.19	159.56	159.94	160.31	160.68	160
170	161.05	161.43	161.80	162.17	162.54	162.91	163.29	163.66	164.03	164.40	170
180	164.77	165.14	165.51	165.89	166.26	166.63	167.00	167.37	167.74	168.11	180
190	168.48	168.85	169.22	169.59	169.96	170.33	170.70	171.07	171.43	171.80	190
200	172.17	172.54	172.91	173.28	173.65	174.02	174.38	174.75	175.12	175.49	200
210	175.86	176.22	176.59	176.96	177.33	177.69	178.06	178.43	178.79	179.16	210
220	179.53	179.89	180.26	180.63	180.99	181.36	181.72	182.09	182.46	182.82	220
230	183.19	183.55	183.92	184.28	184.65	185.01	185.38	185.74	186.11	186.47	230
240	186.84	187.20	187.56	187.93	188.29	188.66	189.02	189.38	189.75	190.11	240
250	190.47	190.84	191.20	191.56	191.92	192.29	192.65	193.01	193.37	193.74	250
260	194.10	194.46	194.82	195.18	195.55	195.91	196.27	196.63	196.99	197.35	260
270	197.71	198.07	198.43	198.79	199.15	199.51	199.87	200.23	200.59	200.95	270
280	201.31	201.67	202.03	202.39	202.75	203.11	203.47	203.83	204.19	204.55	280
290	204.90	205.26	205.62	205.98	206.34	206.70	207.05	207.41	207.77	208.13	290
300	208.48	208.84	209.20	209.56	209.91	210.27	210.63	210.98	211.34	211.70	300
310	212.05	212.41	212.76	213.12	213.48	213.83	214.19	214.54	214.90	215.25	310
320	215.61	215.96	216.32	216.67	217.03	217.38	217.74	218.09	218.44	218.80	320
330	219.15	219.51	219.86	220.21	220.57	220.92	221.27	221.63	221.98	222.33	330

°C (t ₉₀)	0	1	2	3	4	5	6	7	8	9	°C (t ₉₀)
330	222.68	223.04	223.39	223.74	224.09	224.45	224.80	225.15	225.50	225.85	330
340	226.21	226.56	226.91	227.26	227.61	227.96	228.31	228.66	229.02	229.37	340
350	229.72	230.07	230.42	230.77	231.12	231.47	231.82	232.17	232.52	232.87	350
360	233.21	233.56	233.91	234.26	234.61	234.96	235.31	235.66	236.02	236.37	360
370	236.70	237.05	237.40	237.74	238.09	238.44	238.79	239.13	239.48	239.83	370
380	240.18	240.52	240.87	241.22	241.56	241.91	242.26	242.60	242.95	243.29	380
390	243.64	243.99	244.33	244.68	245.02	245.37	245.71	246.06	246.40	246.75	390
400	247.09	247.44	247.78	248.13	248.48	248.83	249.18	249.52	249.87	250.21	400
410	250.53	250.88	251.22	251.56	251.91	252.25	252.59	252.93	253.28	253.62	410
420	253.96	254.30	254.65	254.99	255.33	255.67	256.01	256.35	256.70	257.04	420
430	257.38	257.72	258.06	258.40	258.74	259.08	259.42	259.76	260.10	260.44	430
440	260.78	261.12	261.46	261.80	262.14	262.48	262.82	263.16	263.50	263.84	440
450	264.18	264.52	264.86	265.20	265.54	265.88	266.22	266.56	266.90	267.24	450
460	267.56	267.90	268.24	268.58	268.92	269.26	269.60	269.94	270.28	270.62	460
470	270.93	271.27	271.61	271.95	272.29	272.63	272.97	273.31	273.65	273.99	470
480	274.29	274.63	274.97	275.31	275.65	275.99	276.33	276.67	277.01	277.35	480
490	277.64	277.98	278.32	278.66	279.00	279.34	279.68	280.02	280.36	280.70	490
500	280.98	281.32	281.66	282.00	282.34	282.68	283.02	283.36	283.70	284.04	500
510	284.30	284.64	284.98	285.32	285.66	286.00	286.34	286.68	287.02	287.36	510
520	287.62	287.96	288.30	288.64	288.98	289.32	289.66	290.00	290.34	290.68	520
530	290.92	291.26	291.60	291.94	292.28	292.62	292.96	293.30	293.64	293.98	530
540	294.21	294.55	294.89	295.23	295.57	295.91	296.25	296.59	296.93	297.27	540
550	297.49	297.83	298.17	298.51	298.85	299.19	299.53	299.87	300.21	300.55	550
560	300.75	301.09	301.43	301.77	302.11	302.45	302.79	303.13	303.47	303.81	560
570	304.01	304.35	304.69	305.03	305.37	305.71	306.05	306.39	306.73	307.07	570
580	307.25	307.59	307.93	308.27	308.61	308.95	309.29	309.63	309.97	310.31	580
590	310.49	310.83	311.17	311.51	311.85	312.19	312.53	312.87	313.21	313.55	590
600	313.71	314.05	314.39	314.73	315.07	315.41	315.75	316.09	316.43	316.77	600
610	316.92	317.26	317.60	317.94	318.28	318.62	318.96	319.30	319.64	319.98	610
620	320.12	320.46	320.80	321.14	321.48	321.82	322.16	322.50	322.84	323.18	620
630	323.30	323.64	323.98	324.32	324.66	325.00	325.34	325.68	326.02	326.36	630
640	326.48	326.82	327.16	327.50	327.84	328.18	328.52	328.86	329.20	329.54	640
650	329.64	329.98	330.32	330.66	331.00	331.34	331.68	332.02	332.36	332.70	650
660	332.79	333.13	333.47	333.81	334.15	334.49	334.83	335.17	335.51	335.85	660
670	335.93	336.27	336.61	336.95	337.29	337.63	337.97	338.31	338.65	338.99	670
680	339.06	339.40	339.74	340.08	340.42	340.76	341.10	341.44	341.78	342.12	680
690	342.18	342.52	342.86	343.20	343.54	343.88	344.22	344.56	344.90	345.24	690
700	345.28	345.62	345.96	346.30	346.64	346.98	347.32	347.66	348.00	348.34	700
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