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Tables and polynomials

How to use the tables

Thermocouples

The tables show the thermocouple output signal as a function of the temperature of the measuring junction. It is assumed that the reference junction (cold junction) is at 0°C—which is controlled electronically by most temperature indicators (see Section 3 for outline of the theory).

If the output signal is measured using a voltmeter that does not include compensation for the reference junction, the emf will be displayed, eg, for 100°C minus the temperature of the reference junction, which is assumed here to be 20°C. Thus, for a type K thermocouple, expressed in terms of the emf, this will be 4096 - 798 = 3298 μV.

If we compare this figure with the emf for a type K thermocouple at 80°C, the result will be different. This is because the relation between temperature and emf is nonlinear. The rule is that the emf at room temperature must be added to the emf of the thermocouple to obtain the correct result.

The nonlinearity is indicated in the last column, which contains the Seebeck coefficient, ie, μV/°C for the respective temperatures. The Seebeck coefficient for a type K thermocouple fluctuates around 40 μV/°C for temperatures between 0 and 1000°C. At higher temperatures, the value falls. The coefficient can be used for interpolation in the tables.

Above each table are the polynomials from which the table values have been calculated. The polynomials have been determined experimentally and the more irregular the relation, the more t^i terms that are included. For type K thermocouples, an additional correction in the form of an “e” function is included. Anyone interested in creating their own tables can do so by using a computer to calculate the polynomials.

Pentronic can provide tables with additional intermediate temperatures on request.

Platinum sensors

The tables show resistance as a function of temperature. For example, the resistance at 100°C is 138.506 Ω. The right-hand column for each temperature contains DR/Dt in ohms per °C, which is the sensitivity for the temperature range concerned. Thus, at 100°C, the sensitivity is 0.379 Ω/°C.

The sensitivity value can be used for interpolation between the table values (see Section 4 for outline of the theory).

Pentronic can provide tables with additional intermediate temperatures on request. Further information on Pt100s and other PRTs is given on p. 10:12.

Table for type B thermocouples

Range: 0 °C till 630.615 °C
Coefficients: C0 = 0.000 000 000 0 ...
C1 = -2.465 081 834 6 E-1
C2 = 5.904 042 117 1 E-3
C3 = -1.325 793 163 6 E-6
C4 = 1.566 829 190 1 E-9
C5 = -1.694 452 924 0 E-12
C6 = 6.299 034 709 4 E-16

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Range: 630.615 °C till 1820 °C
Coefficients: C0 = -3.893 816 862 1 E+3
C1 = 2.857 174 747 0 E+1
C2 = -8.488 510 478 5 E-2
C3 = 1.578 528 016 4 E-4
C4 = -1.683 534 486 4 E-7
C5 = 1.110 979 401 3 E-10
C6 = -4.451 543 103 3 E-14
C7 = 9.897 564 082 1 E-18
C8 = -9.379 133 028 9 E-22

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Table: 0 to 1820°C for type B as per IEC 584-1 (1995)

Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C
0	0	-0.2	400	787	4.1	800	3154	7.6	1200	6786	10.4	1600	11263	11.7
10	-2	-0.1	410	828	4.2	810	3230	7.7	1210	6890	10.4	1610	11380	11.7
20	-3	0.0	420	870	4.3	820	3308	7.8	1220	6995	10.5	1620	11497	11.7
30	-2	0.1	430	913	4.4	830	3386	7.9	1230	7100	10.5	1630	11614	11.7
40	0	0.2	440	957	4.5	840	3466	8.0	1240	7205	10.6	1640	11731	11.7
50	2	0.3	450	1002	4.6	850	3546	8.0	1250	7311	10.6	1650	11848	11.7
60	6	0.4	460	1048	4.7	860	3626	8.1	1260	7417	10.7	1660	11965	11.7
70	11	0.6	470	1095	4.7	870	3708	8.2	1270	7524	10.7	1670	12082	11.7
80	17	0.7	480	1143	4.8	880	3790	8.3	1280	7632	10.8	1680	12199	11.7
90	25	0.8	490	1192	4.9	890	3873	8.3	1290	7740	10.8	1690	12316	11.7
100	33	0.9	500	1242	5.0	900	3957	8.4	1300	7848	10.9	1700	12433	11.7
110	43	1.0	510	1293	5.1	910	4041	8.5	1310	7957	10.9	1710	12549	11.7
120	53	1.1	520	1344	5.2	920	4127	8.6	1320	8066	11.0	1720	12666	11.6
130	65	1.2	530	1397	5.3	930	4213	8.6	1330	8176	11.0	1730	12782	11.6
140	78	1.3	540	1451	5.4	940	4299	8.7	1340	8286	11.0	1740	12898	11.6
150	92	1.5	550	1505	5.5	950	4387	8.8	1350	8397	11.1	1750	13014	11.6
160	107	1.6	560	1561	5.6	960	4475	8.8	1360	8508	11.1	1760	13130	11.6
170	123	1.7	570	1617	5.7	970	4564	8.9	1370	8620	11.2	1770	13246	11.6
180	141	1.8	580	1675	5.8	980	4653	9.0	1380	8731	11.2	1780	13361	11.5
190	159	1.9	590	1733	5.9	990	4743	9.1	1390	8844	11.2	1790	13476	11.5
200	178	2.0	600	1792	6.0	1000	4834	9.1	1400	8956	11.3	1800	13591	11.5
210	199	2.1	610	1852	6.0	1010	4926	9.2	1410	9069	11.3	1810	13706	11.4
220	220	2.2	620	1913	6.1	1020	5018	9.3	1420	9182	11.3	1820	13820	11.4
230	243	2.3	630	1975	6.2	1030	5111	9.3	1430	9296	11.4			
240	267	2.4	640	2037	6.3	1040	5205	9.4	1440	9410	11.4			
250	291	2.5	650	2101	6.4	1050	5299	9.5	1450	9524	11.4			
260	317	2.6	660	2165	6.5	1060	5394	9.5	1460	9639	11.5			
270	344	2.7	670	2230	6.6	1070	5489	9.6	1470	9753	11.5			
280	372	2.8	680	2296	6.6	1080	5585	9.6	1480	9868	11.5			
290	401	2.9	690	2363	6.7	1090	5682	9.7	1490	9984	11.5			
300	431	3.0	700	2431	6.8	1100	5780	9.8	1500	10099	11.6			
310	462	3.2	710	2499	6.9	1110	5878	9.8	1510	10215	11.6			
320	494	3.3	720	2569	7.0	1120	5976	9.9	1520	10331	11.6			
330	527	3.4	730	2639	7.1	1130	6075	10.0	1530	10447	11.6			
340	561	3.5	740	2710	7.1	1140	6175	10.0	1540	10563	11.6			
350	596	3.6	750	2782	7.2	1150	6276	10.1	1550	10679	11.6			
360	632	3.7	760	2854	7.3	1160	6377	10.1	1560	10796	11.7			
370	669	3.8	770	2928	7.4	1170	6478	10.2	1570	10913	11.7			
380	707	3.9	780	3002	7.5	1180	6580	10.2	1580	11029	11.7			
390	746	4.0	790	3078	7.6	1190	6683	10.3	1590	11146	11.7			

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Table for type E thermocouples

Range: -270 °C till 0 °C.
Coefficients: C0 = 0.000 000 000 0 ...
C1 = 5.866 550 870 8 E+1
C2 = 4.541 097 712 4 E-2
C3 = -7.799 804 868 6 E-4
C4 = -2.580 016 084 3 E-5
C5 = -5.945 258 305 7 E-7
C6 = -9.321 405 866 7 E-9
C7 = -1.028 760 553 4 E-10
C8 = -8.037 012 362 1 E-13
C9 = -4.397 949 739 1 E-15
C10 = -1.641 477 635 5 E-17
C11 = -3.967 361 951 6 E-20
C12 = -5.582 732 872 1 E -23
C13 = -3.465 784 201 3 E-26

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Range: 0 °C till 1000 °C.
Coefficients: C0 = 0.000 000 000 0 ...
C1 = 5.866 550 871 0 E+1
C2 = 4.503 227 558 2 E-2
C3 = 2.890 840 721 2 E-5
C4 = -3.305 689 665 2 E-7
C5 = 6.502 440 327 0 E-10
C6 = -1.919 749 550 4 E-13
C7 = -1.253 660 049 7 E-15
C8 = 2.148 921 756 9 E-18
C9 = -1.438 804 178 2 E-21
C10 = 3.596 089 948 1 E-25

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Table: -270°C to 1000°C for type E as per IEC 584-1 (1995)

Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C
-270	-9835	1.6	80	4985	65.9	430	31354	80.4	780	59446	78.7
-260	-9797	5.9	90	5648	66.7	440	32159	80.6	790	60232	78.6
-250	-9718	9.7	100	6319	67.5	450	32965	80.6	800	61017	78.4
-240	-9604	13.2	110	6998	68.3	460	33772	80.7	810	61801	78.3
-230	-9455	16.5	120	7685	69.1	470	34579	80.8	820	62583	78.2
-220	-9274	19.6	130	8379	69.8	480	35387	80.9	830	63364	78.0
-210	-9063	22.5	140	9081	70.5	490	36196	80.9	840	64144	77.9
-200	-8825	25.1	150	9789	71.1	500	37005	80.9	850	64922	77.7
-190	-8561	27.6	160	10503	71.8	510	37815	81.0	860	65698	77.6
-180	-8273	29.9	170	11224	72.4	520	38624	81.0	870	66473	77.4
-170	-7963	32.1	180	11951	73.0	530	39434	81.0	880	67246	77.2
-160	-7632	34.2	190	12684	73.5	540	40243	80.9	890	68017	77.0
-150	-7279	36.2	200	13421	74.0	550	41053	80.9	900	68787	76.8
-140	-6907	38.2	210	14164	74.5	560	41862	80.9	910	69554	76.6
-130	-6516	40.0	220	14912	75.0	570	42671	80.8	920	70319	76.4
-120	-6107	41.8	230	15664	75.4	580	43479	80.8	930	71082	76.2
-110	-5681	43.5	240	16420	75.8	590	44286	80.7	940	71844	76.0
-100	-5237	45.2	250	17181	76.2	600	45093	80.7	950	72603	75.8
-90	-4777	46.8	260	17945	76.6	610	45900	80.6	960	73360	75.6
-80	-4302	48.3	270	18713	77.0	620	46705	80.5	970	74115	75.4
-70	-3811	49.8	280	19484	77.3	630	47509	80.4	980	74869	75.3
-60	-3306	51.2	290	20259	77.6	640	48313	80.3	990	75621	75.2
-50	-2787	52.6	300	21036	77.9	650	49116	80.2	1000	76373	75.2
-40	-2255	53.9	310	21817	78.2	660	49917	80.1			
-30	-1709	55.2	320	22600	78.5	670	50718	80.0			
-20	-1152	56.4	330	23386	78.7	680	51517	79.9			
-10	-582	57.6	340	24174	78.9	690	52315	79.8			
0	0	58.7	350	24964	79.2	700	53112	79.7			
10	591	59.6	360	25757	79.4	710	53908	79.5			
20	1192	60.5	370	26552	79.6	720	54703	79.4			
30	1801	61.4	380	27348	79.7	730	55497	79.3			
40	2420	62.3	390	28146	79.9	740	56289	79.2			
50	3048	63.2	400	28946	80.1	750	57080	79.1			
60	3685	64.1	410	29747	80.2	760	57870	78.9			
70	4330	65.0	420	30550	80.3	770	58659	78.8			

Table for type J thermocouples

Range: -210 till +760 °C.

Coefficients:

$$E=\sum_{i=0}^{n} C_i\, t^i$$

C0 = 0.000 000 000 0 ...
C1 = 5.038 118 781 5 E+1
C2 = 3.047 583 693 0 E-2
C3 = -8.568 106 572 0 E-5
C4 = 1.322 819 529 5 E-7
C5 = -1.705 295 833 7 E-10
C6 = 2.094 809 069 7 E-13
C7 = -1.253 839 533 6 E-16
C8 = 1.563 172 569 7 E-20

Range: 760 till 1200 °C

Coefficientes:

$$E=\sum_{i=0}^{n} C_i\, t^i$$

C0 = 2.964 562 568 1 E+5
C1 = -1.497 612 778 6 E+3
C2 = 3.178 710 392 4 ...
C3 = -3.184 768 670 1 E-3
C4 = 1.572 081 900 4 E-6
C5 = -3.069 136 905 6 E-10

Table: -210°C to 1200°C for type J as per IEC 584-1 (1995)

Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C
-210	-8095	19.1	190	10224	55.5	590	32519	58.2	990	57360	59.5
-200	-7890	21.9	200	10779	55.5	600	33102	58.5	1000	57953	59.3
-190	-7659	24.4	210	11334	55.5	610	33689	58.8	1010	58545	59.0
-180	-7403	26.8	220	11889	55.5	620	34279	59.2	1020	59134	58.8
-170	-7123	29.1	230	12445	55.5	630	34873	59.5	1030	59721	58.6
-160	-6821	31.2	240	13000	55.5	640	35470	59.9	1040	60307	58.5
-150	-6500	33.1	250	13555	55.5	650	36071	60.3	1050	60890	58.3
-140	-6159	35.0	260	14110	55.5	660	36675	60.7	1060	61473	58.2
-130	-5801	36.7	270	14665	55.5	670	37284	61.0	1070	62054	58.1
-120	-5426	38.2	280	15219	55.4	680	37896	61.4	1080	62634	58.0
-110	-5037	39.7	290	15773	55.4	690	38512	61.8	1090	63214	57.9
-100	-4633	41.1	300	16327	55.4	700	39132	62.2	1100	63792	57.8
-90	-4215	42.4	310	16881	55.3	710	39755	62.5	1110	64370	57.8
-80	-3786	43.5	320	17434	55.3	720	40382	62.8	1120	64948	57.8
-70	-3344	44.7	330	17986	55.2	730	41012	63.2	1130	65525	57.7
-60	-2893	45.7	340	18538	55.2	740	41645	63.4	1140	66102	57.7
-50	-2431	46.6	350	19090	55.2	750	42281	63.7	1150	66679	57.6
-40	-1961	47.5	360	19642	55.2	760	42919	63.9	1160	67255	57.6
-30	-1482	48.3	370	20194	55.1	770	43559	64.2	1170	67831	57.5
-20	-995	49.1	380	20745	55.1	780	44203	64.5	1180	68406	57.5
-10	-501	49.7	390	21297	55.1	790	44848	64.6	1190	68980	57.4
0	0	50.4	400	21848	55.2	800	45494	64.6	1200	69553	57.2
10	507	51.0	410	22400	55.2	810	46141	64.6			
20	1019	51.5	420	22952	55.2	820	46786	64.5			
30	1537	52.0	430	23504	55.3	830	47431	64.4			
40	2059	52.4	440	24057	55.3	840	48074	64.2			
50	2585	52.8	450	24610	55.4	850	48715	64.0			
60	3116	53.2	460	25164	55.5	860	49353	63.7			
70	3650	53.6	470	25720	55.6	870	49989	63.4			
80	4187	53.9	480	26276	55.7	880	50622	63.1			
90	4726	54.1	490	26834	55.8	890	51251	62.8			
100	5269	54.4	500	27393	56.0	900	51877	62.4			
110	5814	54.6	510	27953	56.2	910	52500	62.1			
120	6360	54.8	520	28516	56.3	920	53119	61.7			
130	6909	54.9	530	29080	56.6	930	53735	61.4			
140	7459	55.1	540	29647	56.8	940	54347	61.0			
150	8010	55.2	550	30216	57.0	950	54956	60.7			
160	8562	55.3	560	30788	57.3	960	55561	60.4			
170	9115	55.4	570	31362	57.6	970	56164	60.1			
180	9669	55.4	580	31939	57.9	980	56763	59,8			

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Table for type K thermocouples

Range: -270 °C till 0 °C.

Coefficients: C0 = 0.000 000 000 0 ...
C1 = 3.945 012 802 5 E+1
C2 = 2.362 237 359 8 E-2
C3 = -3.285 890 678 4 E-4
C4 = -4.990 482 877 7 E-6
C5 = -6.750 905 917 3 E-8
C6 = -5.741 032 742 8 E-10
C7 = -3.108 887 289 4 E-12
C8 = -1.045 160 936 5 E-14
C9 = -1.988 926 687 8 E-17
C10 = -1.632 269 748 6 E-20

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Range: 0 °C till 1372 °C.

Coefficientes: C0 = -1.760 041 368 6 E+1
C1 = 3.892 120 497 5 E+1
C2 = 1.855 877 003 2 E-2
C3 = -9.945 759 287 4 E-5
C4 = 3.184 094 571 9 E-7
C5 = -5.607 284 488 9 E-10
C6 = 5.607 505 905 9 E-13
C7 = -3.202 072 000 3 E-16
C8 = 9.715 114 715 2 E-20
C9 = -1.210 472 127 5 E-23
α 0 = 1.185 976 E+2
α 1= -1.183 432 E-4

$$E=\sum_{i=0}^{n} C_i\, t^i + \alpha_0\, e^{\alpha_1 (t - 126{,}9686)^2}$$

Table: -270°C to 1370°C for type K as per IEC 584-1 (1995)

Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C
-270	-6458	0.7	80	3267	41.5	430	17667	42.4	780	32453	41.2	1130	46249	37.5
-260	-6441	2.7	90	3682	41.5	440	18091	42.4	790	32865	41.1	1140	46623	37.3
-250	-6404	4.9	100	4096	41.4	450	18516	42.5	800	33275	41.0	1150	46995	37.2
-240	-6344	7.1	110	4509	41.2	460	18941	42.5	810	33685	40.9	1160	47367	37.1
-230	-6262	9.3	120	4920	41.0	470	19366	42.6	820	34093	40.8	1170	47737	36.9
-220	-6158	11.4	130	5328	40.7	480	19792	42.6	830	34501	40.7	1180	48105	36.8
-210	-6035	13.4	140	5735	40.5	490	20218	42.6	840	34908	40.6	1190	48473	36.6
-200	-5891	15.3	150	6138	40.3	500	20644	42.6	850	35313	40.5	1200	48838	36.5
-190	-5730	17.1	160	6540	40.1	510	21071	42.6	860	35718	40.4	1210	49202	36.3
-180	-5550	18.8	170	6941	40.0	520	21497	42.6	870	36121	40.3	1220	49565	36.2
-170	-5354	20.5	180	7340	39.9	530	21924	42.6	880	36524	40.2	1230	49926	36.0
-160	-5141	22.1	190	7739	39.9	540	22350	42.6	890	36925	40.1	1240	50286	35.9
-150	-4913	23.6	200	8138	40.0	550	22776	42.6	900	37326	40.0	1250	50644	35.7
-140	-4669	25.1	210	8539	40.1	560	23203	42.6	910	37725	39.9	1260	51000	35.6
-130	-4411	26.5	220	8940	40.2	570	23629	42.6	920	38124	39.8	1270	51355	35.4
-120	-4138	27.9	230	9343	40.4	580	24055	42.6	930	38522	39.7	1280	51708	35.2
-110	-3852	29.2	240	9747	40.5	590	24480	42.5	940	38918	39.6	1290	52060	35.1
-100	-3554	30.5	250	10153	40.7	600	24905	42.5	950	39314	39.5	1300	52410	34.9
-90	-3243	31.7	260	10561	40.9	610	25330	42.5	960	39708	39.4	1310	52759	34.8
-80	-2920	32.8	270	10971	41.0	620	25755	42.4	970	40101	39.3	1320	53106	34.6
-70	-2587	33.9	280	11382	41.2	630	26179	42.4	980	40494	39.2	1330	53451	34.5
-60	-2243	34.9	290	11795	41.3	640	26602	42.3	990	40885	39.1	1340	53795	34.3
-50	-1889	35.8	300	12209	41.4	650	27025	42.3	1000	41276	39.0	1350	54138	34.2
-40	-1527	36.7	310	12624	41.6	660	27447	42.2	1010	41665	38.9	1360	54479	34.0
-30	-1156	37.5	320	13040	41.7	670	27869	42.1	1020	42053	38.8	1370	54819	33.9
-20	-778	38.2	330	13457	41.7	680	28289	42.0	1030	42440	38.7			
-10	-392	38.9	340	13874	41.8	690	28710	42.0	1040	42826	38,6			
0	0	39.5	350	14293	41.9	700	29129	41.9	1050	43211	38.4			
10	397	39.9	360	14713	42.0	710	29548	41.8	1060	43595	38.3			
20	798	40.3	370	15133	42.0	720	29965	41.7	1070	43978	38.2			
30	1203	40.7	380	15554	42.1	730	30382	41.6	1080	44359	38.1			
40	1612	41.0	390	15975	42.2	740	30798	41.6	1090	44740	38.0			
50	2023	41.2	400	16397	42.2	750	31213	41.5	1100	45119	37.9			
60	2436	41.4	410	16820	42.3	760	31628	41.4	1110	45497	37.7			
70	2851	41.5	420	17243	42.4	770	32041	41.3	1120	45873	37.6			

Table for type N thermocouples

Range: -270 °C till 0 °C.
Coefficients: C0 = 0.000 000 000 0 ...
C1 = 2.615 910 596 2 E+1
C2 = 1.095 748 422 8 E-2
C3 = -9.384 111 155 4 E-5
C4 = -4.641 203 975 9 E-8
C5 = -2.630 335 771 6 E-9
C6 = -2.265 343 800 3 E-11
C7 = -7.608 930 079 1 E-14
C8 = -9.341 966 783 5 E-17

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Range: 0 °C till 1300 °C.
Coefficients: C0 = 0.000 000 000 0 ...
C1 = 2.592 939 460 1 E+1
C2 = 1.571 014 188 0 E-2
C3 = 4.382 562 723 7 E-5
C4 = -2.526 116 979 4 E-7
C5 = 6.431 181 933 9 E-10
C6 = -1.006 347 151 9 E-12
C7 = 9.974 533 899 2 E-16
C8 = -6.086 324 560 7 E-19
C9 = 2.084 922 933 9 E-22
C10 = -3.068 219 615 1 E-26

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Table: -270°C to 1300°C for type N as per IEC 584-1 (1995)

Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C
-270	-4345	0.3	80	2189	28.9	430	14094	37.5	780	27669	39.3	1130	41223	37.8
-260	-4336	1.6	90	2480	29.3	440	14469	37.6	790	28062	39.3	1140	41600	37.7
-250	-4313	2.9	100	2774	29.6	450	14846	37.8	800	28455	39.3	1150	41976	37.6
-240	-4277	4.3	110	3072	30.0	460	15225	37.9	810	28847	39.2	1160	42352	37.5
-230	-4226	5.8	120	3374	30.4	470	15604	38.0	820	29239	39.2	1170	42727	37.4
-220	-4162	7.2	130	3680	30.7	480	15984	38.1	830	29632	39.2	1180	43101	37.4
-210	-4083	8.6	140	3989	31.1	490	16366	38.2	840	30024	39.2	1190	43474	37.3
-200	-3990	9.9	150	4302	31.4	500	16748	38.3	850	30416	39.2	1200	43846	37.2
-190	-3884	11.2	160	4618	31.8	510	17131	38.4	860	30807	39.2	1210	44218	37.1
-180	-3766	12.5	170	4937	32.1	520	17515	38.4	870	31199	39.1	1220	44588	37.0
-170	-3634	13.7	180	5259	32.4	530	17900	38.5	880	31590	39.1	1230	44958	36.9
-160	-3491	14.9	190	5585	32.7	540	18286	38.6	890	31981	39.1	1240	45326	36.8
-150	-3336	16.0	200	5913	33.0	550	18672	38.7	900	32371	39.0	1250	45694	36.7
-140	-3171	17.1	210	6245	33.3	560	19059	38.7	910	32761	39.0	1260	46060	36.6
-130	-2994	18.1	220	6579	33.5	570	19447	38.8	920	33151	39.0	1270	46425	36.5
-120	-2808	19.1	230	6916	33.8	580	19835	38.9	930	33541	38.9	1280	46789	36.3
-110	-2612	20.1	240	7255	34.1	590	20224	38.9	940	33930	38.9	1290	47152	36.2
-100	-2407	20.9	250	7597	34.3	600	20613	39.0	950	34319	38.9	1300	47513	36.0
-90	-2193	21.7	260	7941	34.6	610	21003	39.0	960	34707	38.8			
-80	-1972	22.5	270	8288	34.8	620	21393	39.0	970	35095	38.8			
-70	-1744	23.2	280	8637	35.0	630	21784	39.1	980	35482	38.7			
-60	-1509	23.8	290	8988	35.2	640	22175	39.1	990	35869	38.7			
-50	-1269	24.3	300	9341	35.4	650	22566	39.1	1000	36256	38.6			
-40	-1023	24.8	310	9696	35.6	660	22958	39.2	1010	36641	38.6			
-30	-772	25.2	320	10054	35.8	670	23350	39.2	1020	37027	38.5			
-20	-518	25.6	330	10413	36.0	680	23742	39.2	1030	37411	38.4			
-10	-260	25.9	340	10774	36.2	690	24134	39.2	1040	37795	38.4			
0	0	25.9	350	11136	36.4	700	24527	39.3	1050	38179	38.3			
10	261	26.3	360	11501	36.5	710	24919	39.3	1060	38562	38.3			
20	525	26.6	370	11867	36.7	720	25312	39.3	1070	38944	38.2			
30	793	27.0	380	12234	36.8	730	25705	39.3	1080	39326	38.1			
40	1065	27.3	390	12603	37.0	740	26098	39.3	1090	39706	38.1			
50	1340	27.7	400	12974	37.1	750	26491	39.3	1100	40087	38.0			
60	1619	28.1	410	13346	37.3	760	26883	39.3	1110	40466	37.9			
70	1902	28.5	420	13719	37.4	770	27276	39.3	1120	40845	37.8			

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Table for type R thermocouples

Range: -50 °C till 1064.18 °C.
Coefficients: C0 = 0.000 000 000 0 ...
C1 = 5.289 617 297 65 ...
C2 = 1.391 665 897 82 E-2
C3 = -2.388 556 930 17 E-5
C4 = 3.569 160 010 63 E-8
C5 = -4.623 476 662 98 E-11
C6 = 5.007 774 410 34 E-14
C7 = -3.731 058 861 91 E-17
C8 = 1.577 164 823 67 E-20
C9 = -2.810 386 252 51 E-24

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Range: 1064.18 °C till 1664.5 °C
Coefficients: C0 = 2.951 579 253 16 E+3
C1 = -2.520 612 513 32 ...
C2 = 1.595 645 018 65 E-2
C3 = -7.640 859 475 76 E-6
C4 = 2.053 052 910 24 E-9
C5 = -2.933 596 681 73 E-13

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Range: 1664,5 °C till 1768,1 °C
Coefficients: C0 = 1.522 321 182 09 E+5
C1 = -2.688 198 885 45 E+2
C2 = 1.712 802 804 71 E-1
C3 = -3.458 957 064 53 E-5
C4 = -9.346 339 710 46 E-12

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Table: -50°C to 1760°C for type R as per IEC 584-1 (1995)

Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C
-50	-226	3.7	320	2597	9.9	690	6625	11.8	1060	11307	13.5	1430	16464	14.1
-40	-188	4.1	330	2696	9.9	700	6743	11.8	1070	11442	13.5	1440	16605	14.1
-30	-145	4.4	340	2796	10.0	710	6861	11.9	1080	11578	13.6	1450	16746	14.1
-20	-100	4.7	350	2896	10.1	720	6980	11.9	1090	11714	13.6	1460	16887	14.1
-10	-51	5.0	360	2997	10.1	730	7100	12.0	1100	11850	13.6	1470	17028	14.1
0	0	5.3	370	3099	10.2	740	7220	12.0	1110	11986	13.7	1480	17169	14.1
10	54	5.6	380	3201	10.3	750	7340	12.1	1120	12123	13.7	1490	17310	14.1
20	111	5.8	390	3304	10.3	760	7461	12.1	1130	12260	13.7	1500	17451	14.1
30	171	6.1	400	3408	10.4	770	7583	12.2	1140	12397	13.8	1510	17591	14.1
40	232	6.3	410	3512	10.4	780	7705	12.2	1150	12535	13.8	1520	17732	14.0
50	296	6.5	420	3616	10.5	790	7827	12.3	1160	12673	13.8	1530	17872	14.0
60	363	6.7	430	3721	10.5	800	7950	12.3	1170	12812	13.8	1540	18012	14.0
70	431	6.9	440	3827	10.6	810	8073	12.4	1180	12950	13.9	1550	18152	14.0
80	501	7.1	450	3933	10.6	820	8197	12.4	1190	13089	13.9	1560	18292	14.0
90	573	7.3	460	4040	10.7	830	8321	12.5	1200	13228	13.9	1570	18431	13.9
100	647	7.5	470	4147	10.7	840	8446	12.5	1210	13367	13.9	1580	18571	13.9
110	723	7.6	480	4255	10.8	850	8571	12.6	1220	13507	14.0	1590	18710	13.9
120	800	7.8	490	4363	10.8	860	8697	12.6	1230	13646	14.0	1600	18849	13.9
130	879	8.0	500	4471	10.9	870	8823	12.6	1240	13786	14.0	1610	18988	13.9
140	959	8.1	510	4580	10.9	880	8950	12.7	1250	13926	14.0	1620	19126	13.8
150	1041	8.2	520	4690	11.0	890	9077	12.7	1260	14066	14.0	1630	19264	13.8
160	1124	8.4	530	4800	11.0	900	9205	12.8	1270	14207	14.0	1640	19402	13.8
170	1208	8.5	540	4910	11.1	910	9333	12.8	1280	14347	14.1	1650	19540	13.7
180	1294	8.6	550	5021	11.1	920	9461	12.9	1290	14488	14.1	1660	19677	13.7
190	1381	8.7	560	5133	11.2	930	9590	12.9	1300	14629	14.1	1670	19814	13.7
200	1469	8.8	570	5245	11.2	940	9720	13.0	1310	14770	14.1	1680	19951	13.6
210	1558	8.9	580	5357	11.3	950	9850	13.0	1320	14911	14.1	1690	20087	13.6
220	1648	9.1	590	5470	11.3	960	9980	13.1	1330	15052	14.1	1700	20222	13.5
230	1739	9.1	600	5583	11.4	970	10111	13.1	1340	15193	14.1	1710	20356	13.3
240	1831	9.2	610	5697	11.4	980	10242	13.1	1350	15334	14.1	1720	20488	13.2
250	1923	9.3	620	5812	11.5	990	10374	13.2	1360	15475	14.1	1730	20620	13.0
260	2017	9.4	630	5926	11.5	1000	10506	13.2	1370	15616	14.1	1740	20749	12.9
270	2112	9.5	640	6041	11.5	1010	10638	13.3	1380	15758	14.1	1750	20877	12.7
280	2207	9.6	650	6157	11.6	1020	10771	13.3	1390	15899	14.1	1760	21003	12.4
290	2304	9.7	660	6273	11.6	1030	10905	13.4	1400	16040	14.1			
300	2401	9.7	670	6390	11.7	1040	11039	13.4	1410	16181	14.1			
310	2498	9.8	680	6507	11.7	1050	11173	13.4	1420	16323	14.1			

EMF tables for thermocouple type S

Temperature interval
-50 °C to 1064,18 °C

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Coefficients
C0 = 0,000 000 000 0 ...
C1 = 5,403 133 086 31 ...
C2 = 1,259 342 897 40 E-2
C3 = -2,324 779 686 89 E-5
C4 = 3,220 288 230 36 E-8
C5 = -3,314 651 963 89 E-11
C6 = 2,557 442 517 86 E-14
C7 = -1,250 688 713 93 E-17
C8 = 2,714 431 761 45 E-21

Temperature interval
1064,18 °C to 1664,5 °C

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Coefficients
C0 = 1,329 004 440 85 E+3
C1 = 3,345 093 113 44 ...
C2 = 6,548 051 928 18 E-3
C3 = -1,648 562 592 09 E-6
C4 = 1.299 896 051 74 E-11

Temperature interval
1664,5 °C to 1768,1 °C

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Coefficients
C0 = 1,466 282 326 36 E+5
C1 = -2,584 305 167 52 E+2
C2 = 1,636 935 746 41 E-1
C3 = -3,304 390 469 87 E-5
C4 = -9.432 236 906 12 E-12

TABLE: –50 - 1760 °C for type S as per IEC 60584-1 (1995)

Temp °C	emk µV	Seebeckkoefficient µV / °C	Temp °C	emk µV	Seebeckkoefficient µV / °C	Temp °C	emk µV	Seebeckkoefficient µV / °C	Temp °C	emk µV	Seebeckkoefficient µV / °C	Temp °C	emk µV	Seebeckkoefficient µV / °C
-50	-236	4,0	320	2507	9,2	690	6170	10,5	1060	10285	11,7	1430	14736	12,1
-40	-194	4,3	330	2599	9,3	700	6275	10,5	1070	10403	11,8	1440	14857	12,1
-30	-150	4,6	340	2692	9,3	710	6381	10,6	1080	10520	11,8	1450	14978	12,1
-20	-103	4,9	350	2786	9,4	720	6486	10,6	1090	10638	11,8	1460	15099	12,1
-10	-53	5,1	360	2880	9,4	730	6593	10,6	1100	10757	11,8	1470	15220	12,1
0	0	5,4	370	2974	9,5	740	6699	10,7	1110	10875	11,9	1480	15341	12,1
10	55	5,6	380	3069	9,5	750	6806	10,7	1120	10994	11,9	1490	15461	12,1
20	113	5,9	390	3164	9,5	760	6913	10,7	1130	11113	11,9	1500	15582	12,0
30	173	6,1	400	3259	9,6	770	7020	10,8	1140	11232	11,9	1510	15702	12,0
40	235	6,3	410	3355	9,6	780	7128	10,8	1150	11351	11,9	1520	15822	12,0
50	299	6,5	420	3451	9,6	790	7236	10,8	1160	11471	12,0	1530	15942	12,0
60	365	6,7	430	3548	9,7	800	7345	10,9	1170	11590	12,0	1540	16062	12,0
70	433	6,9	440	3645	9,7	810	7454	10,9	1180	11710	12,0	1550	16182	12,0
80	502	7,0	450	3742	9,7	820	7563	10,9	1190	11830	12,0	1560	16301	11,9
90	573	7,2	460	3840	9,8	830	7673	11,0	1200	11951	12,0	1570	16420	11,9
100	646	7,3	470	3938	9,8	840	7783	11,0	1210	12071	12,0	1580	16539	11,9
110	720	7,5	480	4036	9,8	850	7893	11,0	1220	12191	12,1	1590	16658	11,9
120	795	7,6	490	4134	9,9	860	8003	11,1	1230	12312	12,1	1600	16777	11,9
130	872	7,7	500	4233	9,9	870	8114	11,1	1240	12433	12,1	1610	16895	11,8
140	950	7,9	510	4332	9,9	880	8226	11,1	1250	12554	12,1	1620	17013	11,8
150	1029	8,0	520	4432	10,0	890	8337	11,2	1260	12675	12,1	1630	17131	11,8
160	1110	8,1	530	4532	10,0	900	8449	11,2	1270	12796	12,1	1640	17249	11,8
170	1191	8,2	540	4632	10,0	910	8562	11,2	1280	12917	12,1	1650	17366	11,7
180	1273	8,3	550	4732	10,1	920	8674	11,3	1290	13038	12,1	1660	17483	11,7
190	1357	8,4	560	4833	10,1	930	8787	11,3	1300	13159	12,1	1670	17600	11,7
200	1441	8,5	570	4934	10,1	940	8900	11,3	1310	13280	12,1	1680	17717	11,6
210	1526	8,5	580	5035	10,1	950	9014	11,4	1320	13402	12,1	1690	17832	11,5
220	1612	8,6	590	5137	10,2	960	9128	11,4	1330	13523	12,1	1700	17947	11,5
230	1698	8,7	600	5239	10,2	970	9242	11,4	1340	13644	12,1	1710	18061	11,3
240	1786	8,8	610	5341	10,2	980	9357	11,5	1350	13766	12,1	1720	18174	11,2
250	1874	8,8	620	5443	10,3	990	9472	11,5	1360	13887	12,1	1730	18285	11,1
260	1962	8,9	630	5546	10,3	1000	9587	11,5	1370	14009	12,1	1740	18395	10,9
270	2052	9,0	640	5649	10,3	1010	9703	11,6	1380	14130	12,1	1750	18503	10,7
280	2141	9,0	650	5753	10,4	1020	9819	11,6	1390	14251	12,1	1760	18609	10,5
290	2232	9,1	660	5857	10,4	1030	9935	11,6	1400	14373	12,1			
300	2323	9,1	670	5961	10,4	1040	10051	11,7	1410	14494	12,1			
310	2415	9,2	680	6065	10,5	1050	10168	11,7	1420	14615	12,1			

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PENTRONIC
Tel. +46 (0)490 25 85 00 Fax +46 (0)490 237 66
Pentronic AB, SE-590 93 Gunnebo, Sweden.
www.pentronic.se info@pentronic.se

Table for type T thermocouples

Range: -270 °C till 0 °C.

Coefficients: C0 = 0.000 000 000 0 ...
C1 = 3.874 810 636 4 E+1
C2 = 4.419 443 434 7 E-2
C3 = 1.184 432 310 5 E-4
C4 = 2.003 297 355 4 E-5
C5 = 9.013 801 955 9 E-7
C6 = 2.265 115 659 3 E-8
C7 = 3.607 115 420 5 E-10
C8 = 3.849 393 988 3 E-12
C9 = 2.821 352 192 5 E-14
C10 = 1.425 159 477 9 E-16
C11 = 4.876 866 228 6 E-19
C12 = 1.079 553 927 0 E-21
C13 = 1.394 502 706 2 E-24
C14 = 7.979 515 392 7 E-28

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Range: 0 °C till 400 °C.

Coefficients: C0 = 0.000 000 000 0 ...
C1 = 3.874 810 636 4 E+1
C2 = 3.329 222 788 0 E-2
C3 = 2.061 824 340 4 E-4
C4 = -2.188 225 684 6 E-6
C5 = 1.099 688 092 8 E-8
C6 = -3.081 575 877 2 E-11
C7 = 4.547 913 529 0 E-14
C8 = -2.751 290 167 3 E-17

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Table: -270°C to 400°C for type T as per IEC 584-1 (1995)

Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C	Temp °C	EMF µV	Seebeck coefficient µV / °C
-270	-6258	1.0	30	1196	41.1	330	16624	59.3
-260	-6232	3.9	40	1612	42.0	340	17219	59.8
-250	-6180	6.3	50	2036	42.8	350	17819	60.2
-240	-6105	8.7	60	2468	43.7	360	18422	60.6
-230	-6007	10.9	70	2909	44.5	370	19030	60.9
-220	-5888	12.7	80	3358	45.3	380	19641	61.3
-210	-5753	14.3	90	3814	46.0	390	20255	61.6
-200	-5603	15.7	100	4279	46.8	400	20872	61.8
-190	-5439	17.1	110	4750	47.5			
-180	-5261	18.5	120	5228	48.2			
-170	-5070	19.8	130	5714	48.9			
-160	-4865	21.1	140	6206	49.5			
-150	-4648	22.3	150	6704	50.2			
-140	-4419	23.6	160	7209	50.8			
-130	-4177	24.8	170	7720	51.4			
-120	-3923	26.0	180	8237	52.0			
-110	-3657	27.2	190	8759	52.6			
-100	-3379	28.4	200	9288	53.1			
-90	-3089	29.5	210	9822	53.7			
-80	-2788	30.7	220	10362	54.3			
-70	-2476	31.8	230	10907	54.8			
-60	-2153	32.8	240	11458	55.3			
-50	-1819	33.9	250	12013	55.8			
-40	-1475	34.9	260	12574	56.3			
-30	-1121	35.9	270	13139	56.8			
-20	-757	36.9	280	13709	57.2			
-10	-383	37.9	290	14283	57.7			
0	0	38.7	300	14862	58.1			
10	391	39.5	310	15445	58.5			
20	790	40.3	320	16032	58.9			

EMF tables for thermocouple WRe 3/25 (type C)

Temperature interval
-0 °C to 783 **°C**

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Coefficients
C0 = 0,000 000 000 0 ...
C1 = 9,5685256 x 10-3
C2 = 2,0592621 x 10-5
C3 = -1,8464576 x 10-8
C4 = 7,9498033 x 10-12
C5 = -1,4240735 x 10-15

Temperature interval
783 °C to 2315 °C

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Coefficients
C0 = 0,000 000 000 0 ...
C1 = 9,9109462 x 10-3
C2 = 1,8666488 x 10-5
C3 = -1,4935266 x 10-8
C4 = 5,3743821 x 10-12
C5 = -7,9026726 x 10-16

TABLE: 0 - 2315 °C for type C as per ASTM 988

Temp	Emk	Temp	Emk	Temp	Emk	Temp	Emk	Temp	Emk
0	0,000	500	8,077	1000	18,226	1500	27,666	2000	35,707
10	0,098	510	8,275	1010	18,426	1510	27,842	2010	35,848
20	0,199	520	8,475	1020	18,625	1520	28,018	2020	35,987
30	0,305	530	8,675	1030	18,824	1530	28,193	2030	36,126
40	0,415	540	8,875	1040	19,023	1540	28,368	2040	36,263
50	0,528	550	9,076	1050	19,221	1550	28,542	2050	36,399
60	0,644	560	9,277	1060	19,419	1560	28,715	2060	36,535
70	0,765	570	9,479	1070	19,616	1570	28,888	2070	36,668
80	0,888	580	9,681	1080	19,813	1580	29,061	2080	36,801
90	1,015	590	9,883	1090	20,009	1590	29,233	2090	36,933
100	1,145	600	10,086	1100	20,206	1600	29,404	2100	37,063
110	1,278	610	10,289	1110	20,401	1610	29,575	2110	37,192
120	1,414	620	10,492	1120	20,597	1620	29,745	2120	37,319
130	1,554	630	10,695	1130	20,791	1630	29,914	2130	37,446
140	1,696	640	10,899	1140	20,986	1640	30,083	2140	37,571
150	1,840	650	11,103	1150	21,180	1650	30,252	2150	37,694
160	1,988	660	11,307	1160	21,373	1660	30,419	2160	37,816
170	2,137	670	11,511	1170	21,566	1670	30,587	2170	37,937
180	2,290	680	11,715	1180	21,759	1680	30,753	2180	38,056
190	2,445	690	11,920	1190	21,951	1690	30,919	2190	38,174
200	2,602	700	12,124	1200	22,143	1700	31,085	2200	38,290
210	2,761	710	12,329	1210	22,334	1710	31,249	2210	38,404
220	2,923	720	12,534	1220	22,525	1720	31,413	2220	38,517
230	3,087	730	12,738	1230	22,715	1730	31,577	2230	38,628
240	3,253	740	12,943	1240	22,905	1740	31,740	2240	38,738
250	3,420	750	13,147	1250	23,094	1750	31,902	2250	38,845
260	3,590	760	13,352	1260	23,283	1760	32,063	2260	38,951
270	3,761	770	13,557	1270	23,471	1770	32,224	2270	39,055
280	3,935	780	13,761	1280	23,659	1780	32,384	2280	39,158
290	4,110	790	13,966	1290	23,846	1790	32,543	2290	39,258
300	4,286	800	14,171	1300	24,033	1800	32,702	2300	39,356
310	4,464	810	14,376	1310	24,220	1810	32,860	2310	39,453
320	4,644	820	14,580	1320	24,406	1820	33,017		
330	4,825	830	14,785	1330	24,591	1830	33,174		
340	5,008	840	14,989	1340	24,776	1840	33,330		
350	5,192	850	15,194	1350	24,961	1850	33,485		
360	5,377	860	15,398	1360	25,145	1860	33,639		
370	5,563	870	15,601	1370	25,328	1870	33,792		
380	5,751	880	15,805	1380	25,511	1880	33,945		
390	5,940	890	16,008	1390	25,693	1890	34,097		
400	6,129	900	16,211	1400	25,875	1900	34,248		
410	6,320	910	16,414	1410	26,057	1910	34,398		
420	6,512	920	16,617	1420	26,238	1920	34,547		
430	6,705	930	16,819	1430	26,418	1930	34,695		
440	6,898	940	17,021	1440	26,598	1940	34,843		
450	7,093	950	17,223	1450	26,777	1950	34,989		
460	7,288	960	17,424	1460	26,956	1960	35,135		
470	7,484	970	17,625	1470	27,134	1970	35,279		
480	7,681	980	17,826	1480	27,312	1980	35,423		
490	7,879	990	18,026	1490	27,489	1990	35,566		

PENTRONIC
Tel. +46 (0)490 25 85 00 Fax +46 (0)490 237 66
Pentronic AB, SE-590 93 Gunnebo, Sweden.
www.pentronic.se info@pentronic.se

Table for type WRe 5/26 thermocouples

Range: 0°C till 2315°C.

Coefficients: C0 = 0.000 000 000 0 ...
C1 = 1.3387723 x 10-2
C2 = 1.2252599 x 10-5
C3 = -1.0489145 x 10-8
C4 = 3.6006582 x 10-12
C5 = -4.9446064 x 10-16

$$E=\sum_{i=0}^{n} C_i\, t^i$$

Termocouples
W 5%Re vs W 26%Re

Table: 0°C to 2315°C for type WRe 5/26 as per ASTM 988

Temp	EMF	Temp	EMF	Temp	EMF	Temp	EMF	Temp	EMF
0	0.000	500	8.655	1000	18.257	1500	26.723	2000	33.660
10	0.135	510	8.850	1010	18.441	1510	26.877	2010	33.782
20	0.273	520	9.044	1020	18.623	1520	27.030	2020	33.903
30	0.412	530	9.239	1030	18.806	1530	27.183	2030	34.023
40	0.554	540	9.434	1040	18.987	1540	27.335	2040	34.142
50	0.699	550	9.629	1050	19.169	1550	27.487	2050	34.260
60	0.845	560	9.824	1060	19.349	1560	27.638	2060	34.378
70	0.994	570	10.020	1070	19.529	1570	27.788	2070	34.495
80	1.144	580	10.215	1080	19.709	1580	27.938	2080	34.611
90	1.297	590	10.411	1090	19.888	1590	28.087	2090	34.726
100	1.451	600	10.606	1100	20.066	1600	28.236	2100	34.840
110	1.607	610	10.802	1110	20.244	1610	28.384	2110	34.953
120	1.766	620	10.997	1120	20.422	1620	28.531	2120	35.066
130	1.925	630	11.193	1130	20.598	1630	28.678	2130	35.177
140	2.087	640	11.388	1140	20.775	1640	28.824	2140	35.288
150	2.250	650	11.584	1150	20.950	1650	28.970	2150	35.398
160	2.415	660	11.779	1160	21.125	1660	29.115	2160	35.506
170	2.581	670	11.974	1170	21.300	1670	29.259	2170	35.614
180	2.749	680	12.169	1180	21.474	1680	29.403	2180	35.721
190	2.919	690	12.364	1190	21.647	1690	29.546	2190	35.827
200	3.089	700	12.559	1200	21.820	1700	29.688	2200	35.932
210	3.261	710	12.753	1210	21.992	1710	29.830	2210	36.036
220	3.435	720	12.948	1220	22.163	1720	29.971	2220	36.139
230	3.609	730	13.142	1230	22.334	1730	30.112	2230	36.241
240	3.785	740	13.336	1240	22.505	1740	30.252	2240	36.341
250	3.962	750	13.530	1250	22.674	1750	30.391	2250	36.441
260	4.141	760	13.723	1260	22.844	1760	30.530	2260	36.540
270	4.320	770	13.916	1270	23.012	1770	30.668	2270	36.637
280	4.500	780	14.109	1280	23.180	1780	30.806	2280	36.733
290	4.682	790	14.302	1290	23.347	1790	30.943	2290	36.829
300	4.864	800	14.494	1300	23.514	1800	31.079	2300	36.923
310	5.047	810	14.686	1310	23.680	1810	31.214	2310	37.015
320	5.231	820	14.878	1320	23.846	1820	31.349		
330	5.416	830	15.069	1330	24.011	1830	31.483		
340	5.602	840	15.260	1340	24.175	1840	31.617		
350	5.788	850	15.451	1350	24.339	1850	31.750		
360	5.976	860	15.641	1360	24.502	1860	31.882		
370	6.164	870	15.831	1370	24.665	1870	32.014		
380	6.352	880	16.020	1380	24.827	1880	32.145		
390	6.541	890	16.209	1390	24.988	1890	32.275		
400	6.731	900	16.397	1400	25.149	1900	32.404		
410	6.922	910	16.585	1410	25.309	1910	32.533		
420	7.113	920	16.773	1420	25.468	1920	32.661		
430	7.304	930	16.960	1430	25.627	1930	32.789		
440	7.496	940	17.147	1440	25.785	1940	32.915		
450	7.688	950	17.333	1450	25.943	1950	33.041		
460	7.881	960	17.519	1460	26.100	1960	33.167		
470	8.074	970	17.704	1470	26.257	1970	33.291		
480	8.268	980	17.889	1480	26.413	1980	33.415		
490	8.461	990	18.074	1490	26.568	1990	33.538		

Tables for RTD Pt100

Temperature interval
-200 °C to 0 °C
$R_t = R_0 [1 + At + Bt^2 + C(t - 100) t^3]$

Coefficients
A = 3,9083 E-3
B = -5,775 E-7
C = -4,183 E-12
a = 3.85055 E-3

$$\alpha = \frac{(R_{100} - R_0)}{100 \cdot R_0}$$

Temperature interval
0 °C to 850 °C
$R_t = R_0 (1 + At + Bt^2)$

Coefficients
A = 3,9083 E-3
B = -5,775 E-7
C = -4,183 E-12
a = 3.85055 E-3

$$\alpha = \frac{(R_{100} - R_0)}{100 \cdot R_0}$$

TABLE: –200 - 850 °C for Pt100 as per IEC 60751 (2008)

Temp °C	res ohm	DR/Dt ohm / °C	Temp °C	res ohm	DR/Dt ohm / °C	Temp °C	res ohm	DR/Dt ohm / °C	Temp °C	res ohm	DR/Dt ohm / °C
-200	18,520	0,432	100	138,506	0,379	400	247,092	0,345	700	345,284	0,310
-190	22,825	0,429	110	142,293	0,378	410	250,533	0,343	710	348,378	0,309
-180	27,096	0,425	120	146,068	0,377	420	253,962	0,342	720	351,460	0,308
-170	31,335	0,422	130	149,832	0,376	430	257,379	0,341	730	354,531	0,307
-160	35,543	0,419	140	153,584	0,375	440	260,785	0,340	740	357,590	0,305
-150	39,723	0,417	150	157,325	0,374	450	264,179	0,339	750	360,638	0,304
-140	43,876	0,414	160	161,054	0,372	460	267,562	0,338	760	363,674	0,303
-130	48,005	0,412	170	164,772	0,371	470	270,933	0,337	770	366,699	0,302
-120	52,110	0,409	180	168,478	0,370	480	274,293	0,335	780	369,712	0,301
-110	56,193	0,407	190	172,173	0,369	490	277,641	0,334	790	372,714	0,300
-100	60,256	0,405	200	175,856	0,368	500	280,978	0,333	800	375,704	0,298
-90	64,300	0,403	210	179,528	0,367	510	284,303	0,332	810	378,683	0,297
-80	68,325	0,402	220	183,188	0,365	520	287,616	0,331	820	381,650	0,296
-70	72,335	0,400	230	186,836	0,364	530	290,918	0,330	830	384,605	0,295
-60	76,328	0,399	240	190,473	0,363	540	294,208	0,328	840	387,549	0,294
-50	80,306	0,397	250	194,098	0,362	550	297,487	0,327	850	390,481	0,293
-40	84,271	0,396	260	197,712	0,361	560	300,754	0,326			
-30	88,222	0,394	270	201,314	0,360	570	304,010	0,325			
-20	92,160	0,393	280	204,905	0,358	580	307,254	0,324			
-10	96,086	0,392	290	208,484	0,357	590	310,487	0,323			
0	100,000	0,391	300	212,052	0,356	600	313,708	0,322			
10	103,903	0,390	310	215,608	0,355	610	316,918	0,320			
20	107,794	0,389	320	219,152	0,354	620	320,116	0,319			
30	111,673	0,387	330	222,685	0,353	630	323,302	0,318			
40	115,541	0,386	340	226,206	0,352	640	326,477	0,317			
50	119,397	0,385	350	229,716	0,350	650	329,640	0,316			
60	123,242	0,384	360	233,214	0,349	660	332,792	0,315			
70	127,075	0,383	370	236,701	0,348	670	335,932	0,313			
80	130,897	0,382	380	240,176	0,347	680	339,061	0,312			
90	134,707	0,380	390	243,640	0,346	690	342,178	0,311			

Platinum RTDs with other nominal resistances than Pt100
The above table is valid for industrial Pt100s with resistance 100 ohms at 0 °C. Resistances for Pt1000s is obtained by multiplying the values of the table by the factor 1000/100 = 10.
Example: At 100 °C the resistance of a Pt1000 is 10 x 138,506 = 1385.06 ohms. I the analog way you find the resistance values of a Pt250, Pt500 etc.

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PENTRONIC
Tel. +46 (0)490 25 85 00 Fax +46 (0)490 237 66
Pentronic AB, SE-590 93 Gunnebo, Sweden.
www.pentronic.se info@pentronic.se