MAXIMUM TEMPERATURE RANGE

Thermocouple Grade 0 to 1450°C, 32 to 2642°F Extension Grade 32 to 300°F 0 to 150°C

LIMITS OF ERROR

(whichever is greater)
Standard: 1.5°C or 0.25%
Special: 0.6°C or 0.1%

COMMENTS, BARE WIRE ENVIRONMENT:

Oxidising or Inert; Do Not Insert in Metal Tubes; Beware of Contamination; High Temperature

TEMPERATURE IN DEGREES °C REFERENCE JUNCTION AT 0°C

Platinum-10% Rhodium VS. **Platinum**



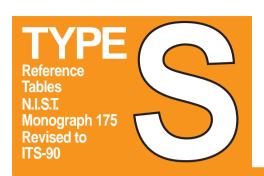
Reference **Tables** N.I.S.T. Monograph 175 Revised to **ITS-90**



Thermoelectric	Voltage	in	Millivolte
mennoelecing	voltage	ш	IVIIIIIVOILS

°C -40 -30 -20 -10 0	-0.194 -0.150 -0.103		-0.186	-0.181 -0.136 -0.088	-0.177 -0.132 -0.083	-0.173 -0.127 -0.078	-0.168 -0.122 -0.073	-0.164 -0.117 -0.068	-0.159 -0.113 -0.063	-0.155 -0.108 -0.058	-0.150 -0.103 -0.053	°C -40 -30 -20 -10 0	550 560 570 580 590	0 4.732 4.833 4.934 5.035 5.137	1 4.742 4.843 4.944 5.045 5.147	2 4.752 4.853 4.954 5.055 5.157	4.964 5.066	4.873 4.974 5.076	4.883 4.984 5.086	6 4.793 4.893 4.995 5.096 5.198	4.904 5.005 5.106	8 4.813 4.914 5.015 5.116 5.218	9 4.823 4.924 5.025 5.127 5.228	5.137	°C 550 560 570 580 590
0 10 20 30 40	0.173	0.061 0.119 0.179	0.011 0.067 0.125 0.185 0.248	0.072 0.131 0.191	0.078 0.137 0.197	0.084 0.143 0.204	0.090 0.149 0.210	0.095 0.155 0.216	0.101 0.161 0.222		0.113 0.173 0.235	0 10 20 30 40	600 610 620 630 640	5.239 5.341 5.443 5.546 5.649	5.249 5.351 5.454 5.557 5.660	5.259 5.361 5.464 5.567 5.670	5.372 5.474 5.577	5.382 5.485 5.588	5.392 5.495 5.598	5.300 5.402 5.505 5.608 5.712	5.413 5.515 5.618	5.320 5.423 5.526 5.629 5.732	5.331 5.433 5.536 5.639 5.743	5.546 5.649	600 610 620 630 640
50 60 70 80 90	0.299 0.365 0.433 0.502 0.573	0.305 0.372 0.440 0.509 0.580	0.312 0.378 0.446 0.516 0.588	0.385 0.453 0.523	0.392 0.460 0.530	0.332 0.399 0.467 0.538 0.609	0.405 0.474 0.545	0.412 0.481 0.552	0.559	0.358 0.426 0.495 0.566 0.639	0.433 0.502 0.573	50 60 70 80 90	650 660 670 680 690	5.753 5.857 5.961 6.065 6.170	5.763 5.867 5.971 6.076 6.181	5.774 5.878 5.982 6.086 6.191	5.888 5.992 6.097	6.003	5.909 6.013 6.118	5.919 6.024 6.128	6.034	5.836 5.940 6.044 6.149 6.254	5.950 6.055 6.160	5.857 5.961 6.065 6.170 6.275	650 660 670 680 690
100 110 120 130 140	0.720 0.795	0.653 0.727 0.803 0.880 0.958	0.661 0.735 0.811 0.888 0.966	0.743 0.818 0.896	0.750 0.826 0.903	0.683 0.758 0.834 0.911 0.990	0.765 0.841 0.919	0.773 0.849 0.927	0.780 0.857 0.935	0.713 0.788 0.865 0.942 1.021	0.795 0.872 0.950	100 110 120 130 140	700 710 720 730 740	6.381 6.486			6.412 6.518 6.624	6.423 6.529	6.434 6.539 6.646	6.550 6.656	6.349 6.455 6.561 6.667 6.774	6.360 6.465 6.571 6.678 6.784	6.582 6.688	6.486 6.593	700 710 720 730 740
150 160 170 180 190	1.110 1.191 1.273	1.199 1.282	1.126	1.134 1.216 1.298	1.142 1.224 1.307	1.150 1.232 1.315	1.158 1.240 1.323	1.167 1.249 1.332	1.175 1.257 1.340	1.183 1.265 1.348	1.273 1.357	160 170 180	750 760 770 780 790	6.913 7.020 7.128	6.817 6.924 7.031 7.139 7.247	6.934 7.042 7.150		6.956 7.064 7.172	6.967 7.074 7.182	7.193	6.988 7.096 7.204	6.892 6.999 7.107 7.215 7.323	7.010 7.117 7.226	7.128 7.236	750 760 770 780 790
200 210 220 230 240	1.612 1.698	1.534 1.620	1.458 1.543 1.629 1.716 1.803	1.551 1.638 1.724	1.560 1.646 1.733	1.569 1.655 1.742	1.577 1.663 1.751	1.586 1.672 1.759	1.594 1.681 1.768	1.777	1.612 1.698 1.786	200 210 220 230 240	800 810 820 830 840		7.356 7.465 7.574 7.684 7.794	7.476 7.585 7.695	7.378 7.487 7.596 7.706 7.816	7.497 7.607 7.717	7.508 7.618 7.728	7.519 7.629 7.739	7.530 7.640 7.750	7.541 7.651 7.761	7.552 7.662 7.772	7.563 7.673 7.783	800 810 820 830 840
250 260 270 280 290	1.874 1.962 2.052 2.141 2.232		1.891 1.980 2.070 2.160 2.250	1.989 2.078 2.169	1.998 2.087 2.178		2.016 2.105 2.196	2.025 2.114 2.205	2.214	1.953 2.043 2.132 2.223 2.314	2.052 2.141 2.232	250 260 270 280 290	850 860 870 880 890	8.226			8.037		8.059 8.170 8.281	8.070 8.181 8.293	8.304	7.981 8.092 8.203 8.315 8.427	8.103 8.214	8.337	850 860 870 880 890
300 310 320 330 340	2.323 2.415 2.507 2.599 2.692		2.341 2.433 2.525 2.618 2.711	2.442 2.534 2.627	2.451 2.544 2.636	2.646	2.470 2.562 2.655	2.479 2.571 2.664	2.488 2.581 2.674	2.683	2.507 2.599 2.692	300 310 320 330 340	920	8.674 8.787	8.685 8.798	8.584 8.697 8.810		8.607 8.719 8.832	8.618 8.731 8.844	8.629 8.742 8.855	8.640 8.753 8.866	8.539 8.652 8.765 8.878 8.991	8.889	8.674 8.787	900 910 920 930 940
350 360 370 380 390	2.786 2.880 2.974 3.069 3.164	3.078	2.805 2.899 2.993 3.088 3.183	2.908 3.002 3.097	2.917 3.012 3.107		2.936 3.031 3.126	2.946 3.040 3.135	3.145	2.870 2.965 3.059 3.154 3.250	2.974 3.069 3.164	350 360 370 380 390	950 960 970 980 990	9.242 9.357		9.265	9.162 9.277 9.391	9.174 9.288 9.403	9.185 9.300 9.414	9.311	9.208 9.323 9.437	9.105 9.219 9.334 9.449 9.564	9.117 9.231 9.345 9.460 9.576	9.357 9.472	950 960 970 980 990
400 410 420 430 440	3.259 3.355 3.451 3.548 3.645	3.269 3.365 3.461 3.558 3.655	3.279 3.374 3.471 3.567 3.664	3.384 3.480 3.577 3.674	3.394 3.490 3.587 3.684	3.307 3.403 3.500 3.596 3.694	3.413 3.509 3.606 3.703	3.423 3.519 3.616 3.713	3.432 3.529 3.626 3.723	3.346 3.442 3.538 3.635 3.732	3.451 3.548 3.645 3.742	400 410 420 430 440		10.051	9.714 9.830 9.946 10.063	9.726 9.842 9.958 10.075		9.749 9.865 9.981 10.098	9.761 9.877 9.993 10.110	9.772 9.888 10.005 10.121	9.784 9.900 10.016 10.133	9.911 10.028 10.145	9.807 9.923 10.040 10.156	9.935 10.051 10.168	1010 1020 1030 1040
450 460 470 480 490	3.840 3.938 4.036 4.134	3.850 3.947 4.046 4.144	3.957 4.056 4.154	3.869 3.967 4.065 4.164	3.879 3.977 4.075 4.174	3.889 3.987 4.085 4.184	3.898 3.997 4.095 4.194	3.908 4.006 4.105 4.204	3.918 4.016 4.115 4.213	3.928 4.026 4.125 4.223	3.938 4.036 4.134 4.233	450 460 470 480 490	1060 1070 1080 1090	10.168 10.285 10.403 10.520 10.638	10.297 10.414 10.532 10.650	10.309 10.426 10.544 10.662	10.320 10.438 10.556 10.674	10.332 10.450 10.567 10.686	10.344 10.461 10.579 10.697	10.356 10.473 10.591 10.709	10.367 10.485 10.603 10.721	10.379 10.497 10.615 10.733	10.391 10.509 10.626 10.745	10.403 10.520 10.638 10.757	1060 1070 1080 1090
500 510 520 530 540	4.332 4.432 4.532 4.632	4.342 4.442 4.542 4.642	4.253 4.352 4.452 4.552 4.652	4.362 4.462 4.562 4.662	4.372 4.472 4.572 4.672	4.283 4.382 4.482 4.582 4.682	4.392 4.492 4.592 4.692	4.402 4.502 4.602 4.702	4.412 4.512 4.612 4.712	4.522 4.622 4.722	4.432 4.532 4.632 4.732	500 510 520 530 540	1110 1120 1130 1140	10.757 10.875 10.994 11.113 11.232	10.887 11.006 11.125 11.244	10.899 11.017 11.136 11.256	10.911 11.029 11.148 11.268	10.922 11.041 11.160 11.280	10.934 11.053 11.172 11.291	10.946 11.065 11.184 11.303	10.958 11.077 11.196 11.315	10.970 11.089 11.208 11.327	10.982 11.101 11.220 11.339	10.994 11.113 11.232 11.351	1110 1120 1130 1140
°C	0	1	2	3	4	5	6	7	8	9	10	°C	°C	0	1	2	3	4	5	6	7	8	9	10	°C

Revised Thermocouple Reference Tables



Platinum-10% Rhodium vs. Platinum



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TEMPERATURE IN DEGREES °C REFERENCE JUNCTION AT 0°C

Thermoelectric Voltage in Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C	l °C	0	1	2	3	4	5	6	7	8	9	10	°C
1150	11.351	11.363	11.375	11.387	11.399	11.411	11.423	11.435	11.447	11.459	11.471	1150	1500	15.58	2 15.594	15.606	15.618	15.630	15.642	15.654	15.666	15.678	15.690	15.702	1500
1160	11.471	11.483	11.495	11.507	11.519	11.531	11.542	11.554	11.566	11.578	11.590	1160	1510	15.70	2 15.714	15.726	15.738	15.750	15.762	15.774	15.786	15.798	15.810	15.822	1510
1170	11.590	11 602	11 614	11 626	11 638	11 650	11 662	11 674	11 686	11 698	11 710	1170	1520	15.82	2 15.834	15 846	15 858	15 870	15 882	15 894	15 906	15 918	15 930	15 942	1520
	11.710														2 15.954										
	11.830														2 16.074										
1170	11.030	11.042	11.034	11.000	11.070	11.070	11.702	11.714	11.720	11.737	11.731	1170	1340	10.00	2 10.074	10.000	10.070	10.110	10.122	10.134	10.140	10.130	10.170	10.102	1340
1000	11.051	11 0/2	11 075	11 007	11 000	10.011	10.000	10.005	10.047	10.050	10.071	1200	155	1/10	1/104	1/ 205	1/017	1/ 220	1/0/1	1/ 252	1/ 0/5	1/077	1/ 200	1/ 201	1550
	11.951												1550		2 16.194										
	12.071														1 16.313										
	12.191														16.432										
	12.312														9 16.551										
1240	12.433	12.445	12.457	12.469	12.481	12.493	12.505	12.517	12.529	12.542	12.554	1240	1590	16.65	3 16.670	16.682	16.694	16.706	16.718	16.729	16.741	16.753	16.765	16.777	1590
1250	12.554	12.566	12.578	12.590	12.602	12.614	12.626	12.638	12.650	12.662	12.675	1250	1600	16.77	7 16.789	16.801	16.812	16.824	16.836	16.848	16.860	16.872	16.883	16.895	1600
1260	12.675	12.687	12.699	12.711	12.723	12.735	12.747	12.759	12.771	12.783	12.796	1260	1610	16.89	16.907	16.919	16.931	16.943	16.954	16.966	16.978	16.990	17.002	17.013	1610
1270	12.796	12.808	12.820	12.832	12.844	12.856	12.868	12.880	12.892	12.905	12.917	1270	1620	17.01	3 17.025	17.037	17.049	17.061	17.072	17.084	17.096	17.108	17.120	17.131	1620
1280	12.917	12 929	12 941	12 953	12 965	12 977	12 989	13 001	13 014	13 026	13 038	1280	1630	17.13	1 17.143	17.155	17.167	17.178	17.190	17.202	17.214	17.225	17.237	17.249	1630
	13.038														7 17.261										
1270	10.000	10.000	10.002	10.071	10.000	10.070		10.120	10.100	10.117	10.107	1270			, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		17.201	171270	17.000	171017	171001	17.010	17.000	17.000	1010
1300	13.159	12 171	13 193	13 105	13 208	13 220	13 232	13 2//	13 256	13 268	13 280	1300	1650	17 36	5 17.378	17 300	17 /01	17 /113	17 /25	17 /137	17 // 18	17 /60	17 /72	17 /03	1650
	13.280														3 17.376										
	13.402														17.473										
	13.523														7 17.728										
1340	13.644	13.65/	13.669	13.681	13.693	13.705	13./1/	13.729	13.742	13.754	13.766	1340	1690	17.83	2 17.844	17.855	17.867	17.878	17.890	17.901	17.913	17.924	17.936	17.947	1690
	13.766														7 17.959										
1360	13.887	13.899	13.911	13.924	13.936	13.948	13.960	13.972	13.984	13.996	14.009	1360	1710	18.06	1 18.073	18.084	18.095	18.107	18.118	18.129	18.140	18.152	18.163	18.174	1710
	14.009														4 18.185										
1380	14.130	14.142	14.154	14.166	14.178	14.191	14.203	14.215	14.227	14.239	14.251	1380	1730	18.28	5 18.297	18.308	18.319	18.330	18.341	18.352	18.362	18.373	18.384	18.395	1730
1390	14.251	14.263	14.276	14.288	14.300	14.312	14.324	14.336	14.348	14.360	14.373	1390	1740	18.39	18.406	18.417	18.428	18.439	18.449	18.460	18.471	18.482	18.493	18.503	1740
1400	14.373	14.385	14.397	14.409	14.421	14.433	14.445	14.457	14.470	14.482	14.494	1400	1750	18.50	3 18.514	18.525	18.535	18.546	18.557	18.567	18.578	18.588	18.599	18.609	1750
1410	14.494	14.506	14.518	14.530	14.542	14.554	14.567	14.579	14.591	14.603	14.615	1410	1760	18.60	18.620	18.630	18.641	18.651	18.661	18.672	18.682	18.693			1760
1420	14.615	14.627	14.639	14.651	14.664	14.676	14.688	14.700	14.712	14.724	14.736	1420													
1430	14.736	14 748	14 760	14 773	14 785	14 797	14 809	14 821	14 833	14 845	14 857	1430													
	14.857																								
1440	14.007	14.007	14.001	14.074	14.700	14.710	14.750	17.772	14.704	14.700	14.770	1440													
1450	14.978	14 990	15.002	15 015	15 027	15 030	15.051	15.063	15 075	15 087	15 090	1450													
	15.099																								
	15.220																								
	15.341																								
1490	15.461	15.4/3	15.485	15.497	15.509	15.521	15.534	15.546	15.558	15.5/0	15.582	1490													
°C	0	1	2	3	4	5	6	7	8	9	10	°C	°C	0	1	2	3	4	5	6	7	8	9	10	°C
C	U	'	2	3	4	J	J	,	J	7	10	C	·	U			3	4	J	J	,	o	7	10	·