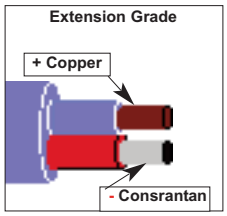
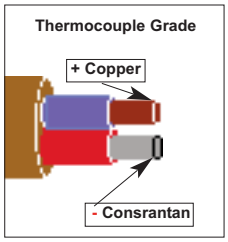
Technical Information Data Bulletin

Type T Thermocouple
Copper-Constantan

TEMPERATURE & PROCESS INSTRUMENTS INC



Temperature vs Millivolt Table
Reference Junction 32°F



Temperature Range
Maximum Useful Temperature Range:
Thermocouple Grade: -328 to 662°F
-200 to 350°C
Extension Grade: -76 to 212°F
-60 to 100°C

Maximum Thermocouple Grade
Temperature Range
–454 to 752°F
–270 to 400°C
Accuracy: Standard: 1.0°C or 0.75%
Special: 0.5°C or 0.4%

Recommended Applications:
Mild Oxidizing,Reducing Vacuum or Inert Environments. Good Where Moisture Is Present. Low Temperature Applications.

Temp	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-450	-6.2544	-6.2553	-6.2562	-6.2569	-6.2575					
-440	-6.2399	-6.2417	-6.2434	-6.2451	-6.2467	-6.2482	-6.2496	-6.2509	-6.2522	-6.2533
-430	-6.2174	-6.2199	-6.2225	-6.2249	-6.2273	-6.2296	-6.2318	-6.2339	-6.2360	-6.2380
-420	-6.1873	-6.1907	-6.1939	-6.1971	-6.2002	-6.2033	-6.2062	-6.2091	-6.2119	-6.2147
-410	-6.1498	-6.1539	-6.1579	-6.1619	-6.1657	-6.1695	-6.1732	-6.1769	-6.1804	-6.1839
-400	-6.1050	-6.1098	-6.1145	-6.1192	-6.1238	-6.1283	-6.1328	-6.1372	-6.1415	-6.1457
-390	-6.0530	-6.0585	-6.0640	-6.0693	-6.0746	-6.0799	-6.0850	-6.0901	-6.0951	-6.1001
-380	-5.9945	-6.0006	-6.0067	-6.0127	-6.0187	-6.0245	-6.0304	-6.0361	-6.0418	-6.0475
-370	-5.9299	-5.9366	-5.9433	-5.9499	-5.9564	-5.9629	-5.9694	-5.9757	-5.9820	-5.9883
-360	-5.8598	-5.8671	-5.8743	-5.8814	-5.8885	-5.8955	-5.9025	-5.9094	-5.9163	-5.9231
-350	-5.7847	-5.7924	-5.8001	-5.8077	-5.8153	-5.8228	-5.8303	-5.8378	-5.8452	-5.8525
-340	-5.7048	-5.7130	-5.7211	-5.7292	-5.7373	-5.7453	-5.7532	-5.7612	-5.7690	-5.7769
-330	-5.6204	-5.6290	-5.6376	-5.6461	-5.6547	-5.6631	-5.6715	-5.6799	-5.6882	-5.6965
-320	-5.5316	-5.5407	-5.5497	-5.5587	-5.5676	-5.5765	-5.5854	-5.5942	-5.6030	-5.6117
-310	-5.4386	-5.4481	-5.4576	-5.4670	-5.4763	-5.4857	-5.4949	-5.5042	-5.5134	-5.5225
-300	-5.3415	-5.3514	-5.3612	-5.3711	-5.3808	-5.3906	-5.4003	-5.4099	-5.4195	-5.4291
-290	-5.2402	-5.2505	-5.2608	-5.2710	-5.2812	-5.2913	-5.3014	-5.3115	-5.3215	-5.3315
-280	-5.1348	-5.1455	-5.1562	-5.1668	-5.1774	-5.1880	-5.1985	-5.2090	-5.2194	-5.2298
-270	-5.0253	-5.0364	-5.0475	-5.0586	-5.0696	-5.0805	-5.0915	-5.1024	-5.1132	-5.1240
-260	-4.9119	-4.9234	-4.9349	-4.9463	-4.9577	-4.9691	-4.9804	-4.9917	-5.0030	-5.0142
-250	-4.7945	-4.8064	-4.8183	-4.8301	-4.8419	-4.8537	-4.8654	-4.8771	-4.8887	-4.9003
-240	-4.6732	-4.6855	-4.6978	-4.7100	-4.7222	-4.7343	-4.7464	-4.7585	-4.7705	-4.7825
-230	-4.5480	-4.5607	-4.5734	-4.5860	-4.5986	-4.6111	-4.6236	-4.6361	-4.6485	-4.6609
-220	-4.4190	-4.4321	-4.4451	-4.4581	-4.4711	-4.4840	-4.4969	-4.5097	-4.5225	-4.5353
-210	-4.2861	-4.2996	-4.3130	-4.3264	-4.3397	-4.3530	-4.3663	-4.3795	-4.3927	-4.4059
-200	-4.1495	-4.1633	-4.1771	-4.1909	-4.2046	-4.2183	-4.2319	-4.2455	-4.2591	-4.2726
-190	-4.0090	-4.0232	-4.0374	-4.0516	-4.0657	-4.0797	-4.0938	-4.1077	-4.1217	-4.1356
-180	-3.8648	-3.8794	-3.8940	-3.9085	-3.9230	-3.9374	-3.9518	-3.9662	-3.9805	-3.9948
-170	-3.7169	-3.7319	-3.7468	-3.7617	-3.7765	-3.7913	-3.8061	-3.8208	-3.8355	-3.8502
-160	-3.5653	-3.5806	-3.5959	-3.6112	-3.6264	-3.6416	-3.6567	-3.6718	-3.6869	-3.7019
-150	-3.4101	-3.4258	-3.4414	-3.4570	-3.4726	-3.4881	-3.5036	-3.5191	-3.5345	-3.5499
-140	-3.2512	-3.2673	-3.2833	-3.2993	-3.3152	-3.3311	-3.3470	-3.3628	-3.3786	-3.3943
-130	-3.0889	-3.1053	-3.1216	-3.1380	-3.1543	-3.1705	-3.1867	-3.2029	-3.2191	-3.2352
-120	-2.9231	-2.9398	-2.9565	-2.9732	-2.9898	-3.0064	-3.0230	-3.0395	-3.0560	-3.0725
-110	-2.7538	-2.7708	-2.7879	-2.8049	-2.8219	-2.8388	-2.8557	-2.8726	-2.8895	-2.9063
-100	-2.5810	-2.5985	-2.6158	-2.6332	-2.6505	-2.6678	-2.6851	-2.7023	-2.7195	-2.7366
-90	-2.4049	-2.4227	-2.4404	-2.4581	-2.4758	-2.4934	-2.5110	-2.5285	-2.5461	-2.5636
-80	-2.2254	-2.2435	-2.2616	-2.2796	-2.2976	-2.3156	-2.3335	-2.3514	-2.3693	-2.3871
-70	-2.0427	-2.0611	-2.0795	-2.0978	-2.1162	-2.1345	-2.1527	-2.1710	-2.1892	-2.2073
-60	-1.8566	-1.8754	-1.8941	-1.9128	-1.9314	-1.9501	-1.9686	-1.9872	-2.0057	-2.0242
-50	-1.6674	-1.6865	-1.7055	-1.7245	-1.7435	-1.7624	-1.7813	-1.8002	-1.8190	-1.8379
-40	-1.4750	-1.4944	-1.5137	-1.5330	-1.5523	-1.5716	-1.5908	-1.6100	-1.6292	-1.6483
-30	-1.2795	-1.2992	-1.3188	-1.3385	-1.3581	-1.3776	-1.3972	-1.4167	-1.4361	-1.4556
-20	-1.0809	-1.1009	-1.1209	-1.1408	-1.1607	-1.1806	-1.2004	-1.2202	-1.2400	-1.2598
-10	-0.8793	-0.8996	-0.9199	-0.9401	-0.9603	-0.9805	-1.0006	-1.0207	-1.0408	-1.0609
0	-0.6746	-0.6952	-0.7158	-0.7363	-0.7568	-0.7773	-0.7978	-0.8182	-0.8386	-0.8590

Temperature & Process Instruments Inc. **Visit us on the web at www.tnp-instruments.com**
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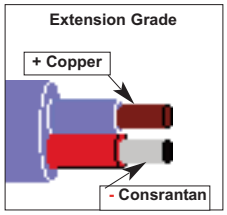
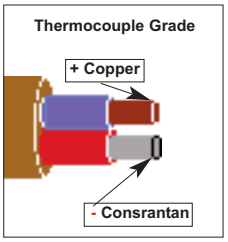


Temperature vs Millivolt Table
Reference Junction 32°F



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Accuracy: Standard: 1.0°C or 0.75%
Special: 0.5°C or 0.4%

Recommended Applications:
Mild Oxidizing,Reducing Vacuum or Inert Environments. Good Where Moisture Is Present. Low Temperature Applications.

Temp	0	1	2	3	4	5	6	7	8	9
0	-0.6746	-0.6540	-0.6333	-0.6126	-0.5919	-0.5711	-0.5504	-0.5296	-0.5087	-0.4878
10	-0.4669	-0.4460	-0.4251	-0.4041	-0.3831	-0.3620	-0.3409	-0.3198	-0.2987	-0.2776
20	-0.2564	-0.2352	-0.2139	-0.1926	-0.1713	-0.1500	-0.1287	-0.1073	-0.0859	-0.0645
30	-0.0430	-0.0215	0.0000	0.0215	0.0431	0.0647	0.0863	0.1079	0.1295	0.1512
40	0.1729	0.1946	0.2163	0.2381	0.2599	0.2817	0.3035	0.3253	0.3472	0.3691
50	0.3910	0.4129	0.4349	0.4569	0.4789	0.5009	0.5230	0.5451	0.5672	0.5893
60	0.6115	0.6336	0.6559	0.6781	0.7003	0.7226	0.7449	0.7673	0.7896	0.8120
70	0.8344	0.8568	0.8793	0.9018	0.9243	0.9468	0.9694	0.9920	1.0146	1.0372
80	1.0599	1.0826	1.1053	1.1281	1.1508	1.1736	1.1965	1.2193	1.2422	1.2651
90	1.2880	1.3110	1.3339	1.3570	1.3800	1.4031	1.4261	1.4493	1.4724	1.4956
100	1.5188	1.5420	1.5652	1.5885	1.6118	1.6351	1.6585	1.6819	1.7053	1.7287
110	1.7522	1.7756	1.7992	1.8227	1.8463	1.8698	1.8935	1.9171	1.9408	1.9645
120	1.9882	2.0120	2.0357	2.0595	2.0834	2.1072	2.1311	2.1550	2.1789	2.2029
130	2.2269	2.2509	2.2749	2.2990	2.3231	2.3472	2.3713	2.3955	2.4197	2.4439
140	2.4682	2.4924	2.5167	2.5410	2.5654	2.5898	2.6142	2.6386	2.6630	2.6875
150	2.7120	2.7365	2.7611	2.7857	2.8103	2.8349	2.8595	2.8842	2.9089	2.9336
160	2.9584	2.9832	3.0080	3.0328	3.0576	3.0825	3.1074	3.1323	3.1573	3.1822
170	3.2072	3.2323	3.2573	3.2824	3.3075	3.3326	3.3577	3.3829	3.4081	3.4333
180	3.4585	3.4838	3.5091	3.5344	3.5597	3.5851	3.6105	3.6359	3.6613	3.6867
190	3.7122	3.7377	3.7632	3.7888	3.8144	3.8399	3.8656	3.8912	3.9169	3.9425
200	3.9683	3.9940	4.0197	4.0455	4.0713	4.0971	4.1230	4.1488	4.1747	4.2006
210	4.2266	4.2525	4.2785	4.3045	4.3306	4.3566	4.3827	4.4088	4.4349	4.4610
220	4.4872	4.5134	4.5396	4.5658	4.5920	4.6183	4.6446	4.6709	4.6972	4.7236
230	4.7500	4.7764	4.8028	4.8292	4.8557	4.8822	4.9087	4.9352	4.9618	4.9883
240	5.0149	5.0416	5.0682	5.0948	5.1215	5.1482	5.1749	5.2017	5.2285	5.2552
250	5.2820	5.3089	5.3357	5.3626	5.3895	5.4164	5.4433	5.4703	5.4972	5.5242
260	5.5512	5.5783	5.6053	5.6324	5.6595	5.6866	5.7138	5.7409	5.7681	5.7953
270	5.8225	5.8498	5.8770	5.9043	5.9316	5.9589	5.9862	6.0136	6.0410	6.0684
280	6.0958	6.1233	6.1507	6.1782	6.2057	6.2332	6.2608	6.2883	6.3159	6.3435
290	6.3711	6.3988	6.4264	6.4541	6.4818	6.5095	6.5373	6.5650	6.5928	6.6206
300	6.6484	6.6762	6.7041	6.7320	6.7599	6.7878	6.8157	6.8437	6.8716	6.8996
310	6.9276	6.9557	6.9837	7.0118	7.0399	7.0680	7.0961	7.1242	7.1524	7.1806
320	7.2088	7.2370	7.2653	7.2935	7.3218	7.3501	7.3784	7.4068	7.4351	7.4635
330	7.4919	7.5203	7.5487	7.5772	7.6056	7.6341	7.6626	7.6911	7.7197	7.7482
340	7.7768	7.8054	7.8340	7.8627	7.8913	7.9200	7.9487	7.9774	8.0061	8.0349
350	8.0636	8.0924	8.1212	8.1500	8.1789	8.2077	8.2366	8.2655	8.2944	8.3233
360	8.3523	8.3813	8.4102	8.4392	8.4683	8.4973	8.5264	8.5554	8.5845	8.6136
370	8.6428	8.6719	8.7011	8.7303	8.7595	8.7887	8.8179	8.8472	8.8764	8.9057
380	8.9350	8.9644	8.9937	9.0231	9.0524	9.0818	9.1113	9.1407	9.1701	9.1996
390	9.2291	9.2586	9.2881	9.3176	9.3472	9.3768	9.4064	9.4360	9.4656	9.4952
400	9.5249	9.5546	9.5843	9.6140	9.6437	9.6734	9.7032	9.7330	9.7628	9.7926
410	9.8224	9.8523	9.8821	9.9120	9.9419	9.9718	10.0017	10.0317	10.0617	10.0916
420	10.1216	10.1517	10.1817	10.2117	10.2418	10.2719	10.3020	10.3321	10.3622	10.3924
430	10.4226	10.4527	10.4829	10.5132	10.5434	10.5736	10.6039	10.6342	10.6645	10.6948
440	10.7251	10.7555	10.7858	10.8162	10.8466	10.8770	10.9075	10.9379	10.9684	10.9988
450	11.0293	11.0598	11.0904	11.1209	11.1515	11.1820	11.2126	11.2432	11.2738	11.3045
460	11.3351	11.3658	11.3965	11.4272	11.4579	11.4886	11.5194	11.5501	11.5809	11.6117
470	11.6425	11.6733	11.7042	11.7350	11.7659	11.7968	11.8277	11.8586	11.8895	11.9205

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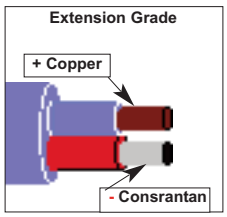

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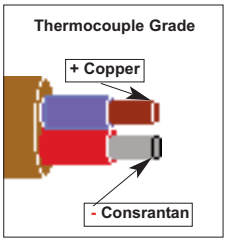

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Special: 0.5°C or 0.4%

Recommended Applications:
Mild Oxidizing,Reducing Vacuum or Inert Environments. Good Where Moisture Is Present. Low Temperature Applications.

Temp	0	1	2	3	4	5	6	7	8	9
480	11.9514	11.9824	12.0134	12.0444	12.0754	12.1065	12.1375	12.1686	12.1997	12.2308
490	12.2619	12.2930	12.3242	12.3553	12.3865	12.4177	12.4489	12.4801	12.5113	12.5426
500	12.5738	12.6051	12.6364	12.6677	12.6990	12.7304	12.7617	12.7931	12.8245	12.8559
510	12.8873	12.9187	12.9501	12.9816	13.0130	13.0445	13.0760	13.1075	13.1391	13.1706
520	13.2021	13.2337	13.2653	13.2969	13.3285	13.3601	13.3917	13.4234	13.4551	13.4867
530	13.5184	13.5501	13.5819	13.6136	13.6453	13.6771	13.7089	13.7407	13.7725	13.8043
540	13.8361	13.8680	13.8998	13.9317	13.9636	13.9955	14.0274	14.0593	14.0913	14.1232
550	14.1552	14.1872	14.2192	14.2512	14.2832	14.3152	14.3473	14.3794	14.4114	14.4435
560	14.4756	14.5078	14.5399	14.5720	14.6042	14.6364	14.6685	14.7007	14.7330	14.7652
570	14.7974	14.8297	14.8619	14.8942	14.9265	14.9588	14.9911	15.0234	15.0558	15.0881
580	15.1205	15.1529	15.1853	15.2177	15.2501	15.2826	15.3150	15.3475	15.3799	15.4124
590	15.4449	15.4775	15.5100	15.5425	15.5751	15.6076	15.6402	15.6728	15.7054	15.7380
600	15.7707	15.8033	15.8360	15.8686	15.9013	15.9340	15.9667	15.9994	16.0322	16.0649
610	16.0977	16.1304	16.1632	16.1960	16.2288	16.2617	16.2945	16.3274	16.3602	16.3931
620	16.4260	16.4589	16.4918	16.5247	16.5577	16.5906	16.6236	16.6565	16.6895	16.7225
630	16.7556	16.7886	16.8216	16.8547	16.8877	16.9208	16.9539	16.9870	17.0201	17.0533
640	17.0864	17.1196	17.1527	17.1859	17.2191	17.2523	17.2855	17.3187	17.3520	17.3852
650	17.4185	17.4518	17.4851	17.5184	17.5517	17.5850	17.6184	17.6517	17.6851	17.7185
660	17.7519	17.7853	17.8187	17.8521	17.8855	17.9190	17.9525	17.9859	18.0194	18.0529
670	18.0864	18.1200	18.1535	18.1870	18.2206	18.2542	18.2878	18.3214	18.3550	18.3886
680	18.4222	18.4559	18.4895	18.5232	18.5569	18.5906	18.6243	18.6580	18.6917	18.7255
690	18.7592	18.7930	18.8268	18.8606	18.8944	18.9282	18.9620	18.9958	19.0297	19.0635
700	19.0974	19.1313	19.1651	19.1990	19.2329	19.2669	19.3008	19.3347	19.3687	19.4027
710	19.4366	19.4706	19.5046	19.5386	19.5726	19.6067	19.6407	19.6747	19.7088	19.7429
720	19.7769	19.8110	19.8451	19.8792	19.9133	19.9475	19.9816	20.0157	20.0499	20.0841
730	20.1182	20.1524	20.1866	20.2208	20.2550	20.2892	20.3234	20.3577	20.3919	20.4261
740	20.4604	20.4947	20.5289	20.5632	20.5975	20.6318	20.6661	20.7004	20.7347	20.7690
750	20.8033	20.8376	20.8720							

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