Type S Thermocouple Table (mV vs °C)

Basis: NIST ITS 90 reference functions as adopted in IEC 60584 1. Type S is Platinum 10 % Rhodium vs Platinum: a noble metal reference type for high temperature calibration.

instrumentationblog.in/downloads/engineering-reference-tables/type-s-thermocouple-table/

Type S Thermocouple Table, EMF in mV (reference junction 0 °C)

°C	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
−50	−0.236	−0.232	−0.228	−0.224	−0.219	−0.215	−0.211	−0.207	−0.203	−0.199
−40	−0.194	−0.190	−0.186	−0.181	−0.177	−0.173	−0.168	−0.164	−0.159	−0.155
−30	−0.150	−0.146	−0.141	−0.136	−0.132	−0.127	−0.122	−0.117	−0.113	−0.108
−20	−0.103	−0.098	−0.093	−0.088	−0.083	−0.078	−0.073	−0.068	−0.063	−0.058
−10	−0.053	−0.048	−0.042	−0.037	−0.032	−0.027	−0.021	−0.016	−0.011	−0.005
0	0.000	0.005	0.011	0.016	0.022	0.027	0.033	0.038	0.044	0.050
10	0.055	0.061	0.067	0.072	0.078	0.084	0.090	0.095	0.101	0.107
20	0.113	0.119	0.125	0.131	0.137	0.143	0.149	0.155	0.161	0.167
30	0.173	0.179	0.185	0.191	0.197	0.204	0.210	0.216	0.222	0.229
40	0.235	0.241	0.248	0.254	0.260	0.267	0.273	0.280	0.286	0.292
50	0.299	0.305	0.312	0.319	0.325	0.332	0.338	0.345	0.352	0.358
60	0.365	0.372	0.378	0.385	0.392	0.399	0.405	0.412	0.419	0.426
70	0.433	0.440	0.446	0.453	0.460	0.467	0.474	0.481	0.488	0.495
80	0.502	0.509	0.516	0.523	0.530	0.538	0.545	0.552	0.559	0.566
90	0.573	0.580	0.588	0.595	0.602	0.609	0.617	0.624	0.631	0.639
100	0.646	0.653	0.661	0.668	0.675	0.683	0.690	0.698	0.705	0.713
110	0.720	0.727	0.735	0.743	0.750	0.758	0.765	0.773	0.780	0.788
120	0.795	0.803	0.811	0.818	0.826	0.834	0.841	0.849	0.857	0.865
130	0.872	0.880	0.888	0.896	0.903	0.911	0.919	0.927	0.935	0.942
140	0.950	0.958	0.966	0.974	0.982	0.990	0.998	1.006	1.013	1.021
150	1.029	1.037	1.045	1.053	1.061	1.069	1.077	1.085	1.094	1.102
160	1.110	1.118	1.126	1.134	1.142	1.150	1.158	1.167	1.175	1.183
170	1.191	1.199	1.207	1.216	1.224	1.232	1.240	1.249	1.257	1.265
180	1.273	1.282	1.290	1.298	1.307	1.315	1.323	1.332	1.340	1.348
190	1.357	1.365	1.373	1.382	1.390	1.399	1.407	1.415	1.424	1.432
200	1.441	1.449	1.458	1.466	1.475	1.483	1.492	1.500	1.509	1.517
210	1.526	1.534	1.543	1.551	1.560	1.569	1.577	1.586	1.594	1.603
220	1.612	1.620	1.629	1.638	1.646	1.655	1.663	1.672	1.681	1.690
230	1.698	1.707	1.716	1.724	1.733	1.742	1.751	1.759	1.768	1.777
240	1.786	1.794	1.803	1.812	1.821	1.829	1.838	1.847	1.856	1.865
250	1.874	1.882	1.891	1.900	1.909	1.918	1.927	1.936	1.944	1.953
260	1.962	1.971	1.980	1.989	1.998	2.007	2.016	2.025	2.034	2.043
270	2.052	2.061	2.070	2.078	2.087	2.096	2.105	2.114	2.123	2.132
280	2.141	2.151	2.160	2.169	2.178	2.187	2.196	2.205	2.214	2.223
290	2.232	2.241	2.250	2.259	2.268	2.277	2.287	2.296	2.305	2.314
300	2.323	2.332	2.341	2.350	2.360	2.369	2.378	2.387	2.396	2.405
310	2.415	2.424	2.433	2.442	2.451	2.461	2.470	2.479	2.488	2.497
320	2.507	2.516	2.525	2.534	2.544	2.553	2.562	2.571	2.581	2.590
330	2.599	2.609	2.618	2.627	2.636	2.646	2.655	2.664	2.674	2.683
340	2.692	2.702	2.711	2.720	2.730	2.739	2.748	2.758	2.767	2.776
350	2.786	2.795	2.805	2.814	2.823	2.833	2.842	2.851	2.861	2.870
360	2.880	2.889	2.899	2.908	2.917	2.927	2.936	2.946	2.955	2.965
370	2.974	2.983	2.993	3.002	3.012	3.021	3.031	3.040	3.050	3.059

°C	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
380	3.069	3.078	3.088	3.097	3.107	3.116	3.126	3.135	3.145	3.154
390	3.164	3.173	3.183	3.192	3.202	3.212	3.221	3.231	3.240	3.250
400	3.259	3.269	3.279	3.288	3.298	3.307	3.317	3.326	3.336	3.346
410	3.355	3.365	3.374	3.384	3.394	3.403	3.413	3.423	3.432	3.442
420	3.451	3.461	3.471	3.480	3.490	3.500	3.509	3.519	3.529	3.538
430	3.548	3.558	3.567	3.577	3.587	3.596	3.606	3.616	3.626	3.635
440	3.645	3.655	3.664	3.674	3.684	3.694	3.703	3.713	3.723	3.732
450	3.742	3.752	3.762	3.771	3.781	3.791	3.801	3.810	3.820	3.830
460	3.840	3.850	3.859	3.869	3.879	3.889	3.898	3.908	3.918	3.928
470	3.938	3.947	3.957	3.967	3.977	3.987	3.997	4.006	4.016	4.026
480	4.036	4.046	4.056	4.065	4.075	4.085	4.095	4.105	4.115	4.125
490	4.134	4.144	4.154	4.164	4.174	4.184	4.194	4.204	4.213	4.223
500	4.233	4.243	4.253	4.263	4.273	4.283	4.293	4.303	4.313	4.323
510	4.332	4.342	4.352	4.362	4.372	4.382	4.392	4.402	4.412	4.422
520	4.432	4.442	4.452	4.462	4.472	4.482	4.492	4.502	4.512	4.522
530	4.532	4.542	4.552	4.562	4.572	4.582	4.592	4.602	4.612	4.622
540	4.632	4.642	4.652	4.662	4.672	4.682	4.692	4.702	4.712	4.722
550	4.732	4.742	4.752	4.762	4.772	4.782	4.793	4.803	4.813	4.823
560	4.833	4.843	4.853	4.863	4.873	4.883	4.893	4.904	4.914	4.924
570	4.934	4.944	4.954	4.964	4.974	4.984	4.995	5.005	5.015	5.025
580	5.035	5.045	5.055	5.066	5.076	5.086	5.096	5.106	5.116	5.127
590	5.137	5.147	5.157	5.167	5.178	5.188	5.198	5.208	5.218	5.228
600	5.239	5.249	5.259	5.269	5.280	5.290	5.300	5.310	5.320	5.331
610	5.341	5.351	5.361	5.372	5.382	5.392	5.402	5.413	5.423	5.433
620	5.443	5.454	5.464	5.474	5.485	5.495	5.505	5.515	5.526	5.536
630	5.546	5.557	5.567	5.577	5.588	5.598	5.608	5.618	5.629	5.639
640	5.649	5.660	5.670	5.680	5.691	5.701	5.712	5.722	5.732	5.743
650	5.753	5.763	5.774	5.784	5.794	5.805	5.815	5.826	5.836	5.846
660	5.857	5.867	5.878	5.888	5.898	5.909	5.919	5.930	5.940	5.950
670	5.961	5.971	5.982	5.992	6.003	6.013	6.024	6.034	6.044	6.055
680	6.065	6.076	6.086	6.097	6.107	6.118	6.128	6.139	6.149	6.160
690	6.170	6.181	6.191	6.202	6.212	6.223	6.233	6.244	6.254	6.265
700	6.275	6.286	6.296	6.307	6.317	6.328	6.338	6.349	6.360	6.370
710	6.381	6.391	6.402	6.412	6.423	6.434	6.444	6.455	6.465	6.476
720	6.486	6.497	6.508	6.518	6.529	6.539	6.550	6.561	6.571	6.582
730	6.593	6.603	6.614	6.624	6.635	6.646	6.656	6.667	6.678	6.688
740	6.699	6.710	6.720	6.731	6.742	6.752	6.763	6.774	6.784	6.795
750	6.806	6.817	6.827	6.838	6.849	6.859	6.870	6.881	6.892	6.902
760	6.913	6.924	6.934	6.945	6.956	6.967	6.977	6.988	6.999	7.010
770	7.020	7.031	7.042	7.053	7.064	7.074	7.085	7.096	7.107	7.117
780	7.128	7.139	7.150	7.161	7.172	7.182	7.193	7.204	7.215	7.226
790	7.236	7.247	7.258	7.269	7.280	7.291	7.302	7.312	7.323	7.334
800	7.345	7.356	7.367	7.378	7.388	7.399	7.410	7.421	7.432	7.443
810	7.454	7.465	7.476	7.487	7.497	7.508	7.519	7.530	7.541	7.552
820	7.563	7.574	7.585	7.596	7.607	7.618	7.629	7.640	7.651	7.662
830	7.673	7.684	7.695	7.706	7.717	7.728	7.739	7.750	7.761	7.772
840	7.783	7.794	7.805	7.816	7.827	7.838	7.849	7.860	7.871	7.882
850	7.893	7.904	7.915	7.926	7.937	7.948	7.959	7.970	7.981	7.992
860	8.003	8.014	8.026	8.037	8.048	8.059	8.070	8.081	8.092	8.103
870	8.114	8.125	8.137	8.148	8.159	8.170	8.181	8.192	8.203	8.214

℃	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
880	8.226	8.237	8.248	8.259	8.270	8.281	8.293	8.304	8.315	8.326
890	8.337	8.348	8.360	8.371	8.382	8.393	8.404	8.416	8.427	8.438
900	8.449	8.460	8.472	8.483	8.494	8.505	8.517	8.528	8.539	8.550
910	8.562	8.573	8.584	8.595	8.607	8.618	8.629	8.640	8.652	8.663
920	8.674	8.685	8.697	8.708	8.719	8.731	8.742	8.753	8.765	8.776
930	8.787	8.798	8.810	8.821	8.832	8.844	8.855	8.866	8.878	8.889
940	8.900	8.912	8.923	8.935	8.946	8.957	8.969	8.980	8.991	9.003
950	9.014	9.025	9.037	9.048	9.060	9.071	9.082	9.094	9.105	9.117
960	9.128	9.139	9.151	9.162	9.174	9.185	9.197	9.208	9.219	9.231
970	9.242	9.254	9.265	9.277	9.288	9.300	9.311	9.323	9.334	9.345
980	9.357	9.368	9.380	9.391	9.403	9.414	9.426	9.437	9.449	9.460
990	9.472	9.483	9.495	9.506	9.518	9.529	9.541	9.552	9.564	9.576
1000	9.587	9.599	9.610	9.622	9.633	9.645	9.656	9.668	9.680	9.691
1010	9.703	9.714	9.726	9.737	9.749	9.761	9.772	9.784	9.795	9.807
1020	9.819	9.830	9.842	9.853	9.865	9.877	9.888	9.900	9.911	9.923
1030	9.935	9.946	9.958	9.970	9.981	9.993	10.005	10.016	10.028	10.040
1040	10.051	10.063	10.075	10.086	10.098	10.110	10.121	10.133	10.145	10.156
1050	10.168	10.180	10.191	10.203	10.215	10.227	10.238	10.250	10.262	10.273
1060	10.285	10.297	10.309	10.320	10.332	10.344	10.356	10.367	10.379	10.391
1070	10.403	10.414	10.426	10.438	10.450	10.461	10.473	10.485	10.497	10.509
1080	10.520	10.532	10.544	10.556	10.567	10.579	10.591	10.603	10.615	10.626
1090	10.638	10.650	10.662	10.674	10.686	10.697	10.709	10.721	10.733	10.745
1100	10.757	10.768	10.780	10.792	10.804	10.816	10.828	10.839	10.851	10.863
1110	10.875	10.887	10.899	10.911	10.922	10.934	10.946	10.958	10.970	10.982
1120	10.994	11.006	11.017	11.029	11.041	11.053	11.065	11.077	11.089	11.101
1130	11.113	11.125	11.136	11.148	11.160	11.172	11.184	11.196	11.208	11.220
1140	11.232	11.244	11.256	11.268	11.280	11.291	11.303	11.315	11.327	11.339
1150	11.351	11.363	11.375	11.387	11.399	11.411	11.423	11.435	11.447	11.459
1160	11.471	11.483	11.495	11.507	11.519	11.531	11.542	11.554	11.566	11.578
1170	11.590	11.602	11.614	11.626	11.638	11.650	11.662	11.674	11.686	11.698
1180	11.710	11.722	11.734	11.746	11.758	11.770	11.782	11.794	11.806	11.818
1190	11.830	11.842	11.854	11.866	11.878	11.890	11.902	11.914	11.926	11.939
1200	11.951	11.963	11.975	11.987	11.999	12.011	12.023	12.035	12.047	12.059
1210	12.071	12.083	12.095	12.107	12.119	12.131	12.143	12.155	12.167	12.179
1220	12.191	12.203	12.216	12.228	12.240	12.252	12.264	12.276	12.288	12.300
1230	12.312	12.324	12.336	12.348	12.360	12.372	12.384	12.397	12.409	12.421
1240	12.433	12.445	12.457	12.469	12.481	12.493	12.505	12.517	12.529	12.542
1250	12.554	12.566	12.578	12.590	12.602	12.614	12.626	12.638	12.650	12.662
1260	12.675	12.687	12.699	12.711	12.723	12.735	12.747	12.759	12.771	12.783
1270	12.796	12.808	12.820	12.832	12.844	12.856	12.868	12.880	12.892	12.905
1280	12.917	12.929	12.941	12.953	12.965	12.977	12.989	13.001	13.014	13.026
1290	13.038	13.050	13.062	13.074	13.086	13.098	13.111	13.123	13.135	13.147
1300	13.159	13.171	13.183	13.195	13.208	13.220	13.232	13.244	13.256	13.268
1310	13.280	13.292	13.305	13.317	13.329	13.341	13.353	13.365	13.377	13.390
1320	13.402	13.414	13.426	13.438	13.450	13.462	13.474	13.487	13.499	13.511
1330	13.523	13.535	13.547	13.559	13.572	13.584	13.596	13.608	13.620	13.632
1340	13.644	13.657	13.669	13.681	13.693	13.705	13.717	13.729	13.742	13.754
1350	13.766	13.778	13.790	13.802	13.814	13.826	13.839	13.851	13.863	13.875
1360	13.887	13.899	13.911	13.924	13.936	13.948	13.960	13.972	13.984	13.996
1370	14.009	14.021	14.033	14.045	14.057	14.069	14.081	14.094	14.106	14.118

°C	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
1380	14.130	14.142	14.154	14.166	14.178	14.191	14.203	14.215	14.227	14.239
1390	14.251	14.263	14.276	14.288	14.300	14.312	14.324	14.336	14.348	14.360
1400	14.373	14.385	14.397	14.409	14.421	14.433	14.445	14.457	14.470	14.482
1410	14.494	14.506	14.518	14.530	14.542	14.554	14.567	14.579	14.591	14.603
1420	14.615	14.627	14.639	14.651	14.664	14.676	14.688	14.700	14.712	14.724
1430	14.736	14.748	14.760	14.773	14.785	14.797	14.809	14.821	14.833	14.845
1440	14.857	14.869	14.881	14.894	14.906	14.918	14.930	14.942	14.954	14.966
1450	14.978	14.990	15.002	15.015	15.027	15.039	15.051	15.063	15.075	15.087
1460	15.099	15.111	15.123	15.135	15.148	15.160	15.172	15.184	15.196	15.208
1470	15.220	15.232	15.244	15.256	15.268	15.280	15.292	15.304	15.317	15.329
1480	15.341	15.353	15.365	15.377	15.389	15.401	15.413	15.425	15.437	15.449
1490	15.461	15.473	15.485	15.497	15.509	15.521	15.534	15.546	15.558	15.570
1500	15.582	15.594	15.606	15.618	15.630	15.642	15.654	15.666	15.678	15.690
1510	15.702	15.714	15.726	15.738	15.750	15.762	15.774	15.786	15.798	15.810
1520	15.822	15.834	15.846	15.858	15.870	15.882	15.894	15.906	15.918	15.930
1530	15.942	15.954	15.966	15.978	15.990	16.002	16.014	16.026	16.038	16.050
1540	16.062	16.074	16.086	16.098	16.110	16.122	16.134	16.146	16.158	16.170
1550	16.182	16.194	16.205	16.217	16.229	16.241	16.253	16.265	16.277	16.289
1560	16.301	16.313	16.325	16.337	16.349	16.361	16.373	16.385	16.396	16.408
1570	16.420	16.432	16.444	16.456	16.468	16.480	16.492	16.504	16.516	16.527
1580	16.539	16.551	16.563	16.575	16.587	16.599	16.611	16.623	16.634	16.646
1590	16.658	16.670	16.682	16.694	16.706	16.718	16.729	16.741	16.753	16.765
1600	16.777	16.789	16.801	16.812	16.824	16.836	16.848	16.860	16.872	16.883
1610	16.895	16.907	16.919	16.931	16.943	16.954	16.966	16.978	16.990	17.002
1620	17.013	17.025	17.037	17.049	17.061	17.072	17.084	17.096	17.108	17.120
1630	17.131	17.143	17.155	17.167	17.178	17.190	17.202	17.214	17.225	17.237
1640	17.249	17.261	17.272	17.284	17.296	17.308	17.319	17.331	17.343	17.355
1650	17.366	17.378	17.390	17.401	17.413	17.425	17.437	17.448	17.460	17.472
1660	17.483	17.495	17.507	17.518	17.530	17.542	17.553	17.565	17.577	17.588
1670	17.600	17.612	17.623	17.635	17.647	17.658	17.670	17.682	17.693	17.705
1680	17.717	17.728	17.740	17.751	17.763	17.775	17.786	17.798	17.809	17.821
1690	17.832	17.844	17.855	17.867	17.878	17.890	17.901	17.913	17.924	17.936
1700	17.947	17.959	17.970	17.982	17.993	18.004	18.016	18.027	18.039	18.050
1710	18.061	18.073	18.084	18.095	18.107	18.118	18.129	18.140	18.152	18.163
1720	18.174	18.185	18.196	18.208	18.219	18.230	18.241	18.252	18.263	18.274
1730	18.285	18.297	18.308	18.319	18.330	18.341	18.352	18.362	18.373	18.384
1740	18.395	18.406	18.417	18.428	18.439	18.449	18.460	18.471	18.482	18.493
1750	18.503	18.514	18.525	18.535	18.546	18.557	18.567	18.578	18.588	18.599
1760	18.609	18.620	18.630	18.641	18.651	18.661	18.672	18.682	18.693	

Notes

- IEC colour code: orange positive wire with white negative. ANSI MC96.1: green jacket.
- Values are reference values; real sensors have a tolerance class (see the thermocouple tolerance table).

Free download from instrumentationblog.in. Check values against the current edition of the standard for design work.