

Common Reference Information Conversions and Tables

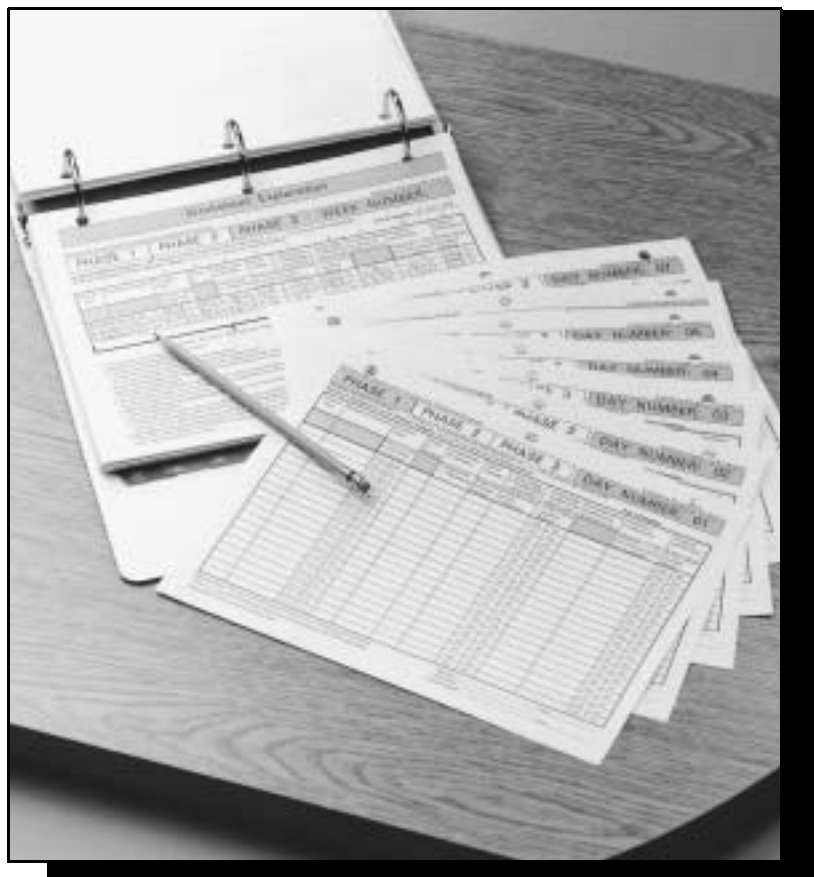


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Section 1 Preface

Units and Conversion Factors

Rapidly becoming the most commonly used units system in the world, the International System of Units (SI, for Systeme International d'Unites) derives nearly all quantities needed in all technologies from only seven base units: the Meter (m), for length; the kilogram (kg), for mass (what is usually called weight); the second (s), for time; the ampere (A), for electric current; the Kelvin (K), for thermodynamic temperature; the mole (mol), for amount of substance; and the candela (cd), for luminous intensity. There are also two supplementary units, the radian (rad), for plane angle, and the steradian (sr), for solid angle. More information on the properties of these units and their conversion factors can be found in documents published by the International Standards Organization.

To take maximum advantage of the SI system, only base supplementary, or derived SI units should be used. The appropriate units for quantities commonly used in process control are listed in Table 1-1, along with the base or supplementary units from which they are derived.

SI units are terms and symbols to abbreviate numbers and show relationships between any number and its unit. For example, 1 000 000 (one million) meters is expressed as one megameter or one Mm. The most common terms and symbols are listed in the Multiplication Factors Table 5-8 on page 5-6

To assist in preserving the advantage of SI as a coherent system, it is advisable to minimize the use of units from other systems. It is also desirable not to mix unit symbols with unit names or abbreviations (including the name "per" and its symbol, "/"). Some examples of proper and improper usage are listed below.

Proper Usage	Improper Usage
joules per kilogram	joules/kilogram
J/kg	joules/kg
kilometers per second	kilometers/second
km/s	km/second
liters per minute	liters/minute
L/min	L/m (because "m" alone means "meter")

All units in the following table are listed in alphabetical order and are cross-referenced to commonly used units in both the U.S. customary and metric systems.

In some units, the preferred form may pose too great a magnitude for all applications. For examples, while kilogram is the proper term for mass, a very small amount is more easily expressed in terms of grams. Similarly, kilowatts are usually used instead of watts and kilopascals instead of pascals. The expression of speed (which in an aspect of velocity) takes this concept a little further; the proper term is meter per second, but common usage expresses traffic speeds as kilometers per hour in SI countries.



Pressure and mass are two particularly appropriate examples, since each is affected (at least very slightly) by gravity. For example, many pressure and differential pressure instruments use forms of springs as measuring elements, which measure force directly; these are called “gravity-independent.” However, the pressure standards used to calibrate the springs, such as dead-weight testers which measure the force of gravity on a column of mercury or other substance of fixed mass, are often “gravity-dependent.” Pneumatic systems cancel the effect of gravity when the same type of pressure standard is used for both input and output (current or voltage). They must have either a gravity-independent input or be calibrated in a way that accommodates the local gravitational force (either by incorporating a correction factor or by calibrating the pressure instrument at the location where it will be used).

Complicating the problem is the fact that force units (which more closely reflect weight) often incorporate mass terminology (for example, pounds-force or kilograms-force). Even pressure units sometimes use mass terminology (e.g., pounds per square inch). The SI system provides the means to incorporate the effect of gravity, establish a common terminology, and distinguish pure mass from force (mass accelerated over a distance), pressure (force per unit area), density (mass per unit volume), and flow (mass per unit time). Even energy, power, and torque units are partially derived from mass, but mass is not a significant enough factor for the mass vs. force issue to be of concern. Refer to the table of proper SI units to see how they all relate.

NOTES ABOUT UNITS

The following is general information about the unit categories and helpful hints for working with individual units.

ABSOLUTE VISCOSITY:

Also called “dynamic viscosity” or just “viscosity.”

ACCELERATION:

1. “Meter per second squared” (the term preferred in SI guidelines) is also called “meters per second per second.”
2. The acceleration of gravity is about 10 m/s^2 .

ANGULAR VELOCITY:

1. The SI unit for this is defined in terms of a supplemental unit, the radian; rad/s.
2. The terms “revolutions per minute” and “revolutions per second” are properly abbreviated “r/min” and “r/s,” respectively, rather than “rpm” and “rps”.
3. This category is also called rotational frequency, primarily in specifications on rotating machinery, when the revolution per second and revolution per minute are widely used as units.

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AREA:

1. The term “hectare” (abbreviated “ha”) is used as an alternative name for square hectometer and is restricted to the measurement of large land areas. Agricultural engineers use the term to relate machines to field sizes.
2. The square meter is also called “centare.”
3. Although the centimeter (cm) is rarely used to indicate length (meter or millimeter is preferred), the square centimeter (cm²) is often used to indicate area because the interval between the square meter (m²) and square millimeter (mm²) is so great (1 000 000 to 1).

ENERGY:

1. This unit category includes “quantity of heat” and “work.”
2. The use of the calorie was discontinued by SI on January 1, 1978.
3. The kilowatt-hour and variations thereon (e.g., MW-h, GW-h), although not proper SI units (the joule is the proper one), are in widespread use for measurement of electric energy.
4. The units based on the electronvolt (eV, keV, MeV, and GeV) are also improperly but widely used in atomic and nuclear physics and in accelerator technology (the joule should be used).
5. The joule is equivalent to one watt-second.

FORCE:

1. The use of the kilogram-force (once widely used in Europe) was discontinued by SI on January 1, 1978.
2. The kilogram-force is also called “kilopond.”

KINEMATIC VISCOSITY:

The SI unit, the square meter per second (m²/s) is equivalent to the English unit Stoke (St) and the SI unit square millimeter per second (mm²/s) is equivalent to the English unit centiStoke (cSt).

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LENGTH:

1. The smaller units in this category (like the meter and millimeter) are easy to learn because they can be related to items contacted every day. For example, a U.S. dime is about one millimeter thick, a U.S. quarter is about 25 millimeters wide, and the height of most home doorways is about two meters. However, the kilometer is harder to visualize and is therefore easier to learn by memorization. Following is a list of common values.

miles or mph	km or km/h
10	16
25	40
50	80
55	90
62	100
75	120
100	160

2. The millimeter is used all over the world on industrial engineering drawings.
3. The use of centimeter is generally restricted to body measurements, clothing sizes, and textile weights.
4. The micrometer (sometimes called "micron") is the preferred unit to express surface finish.

MASS:

1. The kilogram and gram will generally replace the use of the pound and ounce, respectively.
2. Two aspirins, an American dollar bill, and one paper clip each weight about one gram.
3. A kilogram is the weight of one liter of water.
4. The alternate name of "tonne" is "metric ton." A tonne is equal to one megagram.
5. A load-supporting rating (e.g., floor load) should be expressed in kilograms.
6. This unit category is also called "weight."

MASS PER UNIT VOLUME:

This unit category is also called "flow" and "mass density."

MASS PER UNIT VOLUME:

1. This unit category is also called "density," "mass density," and "mass capacity."
2. One part per million is equal to one milligram per liter or one gram per cubic meter, referenced as "by weight in water" at a specified temperature.

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PLANE ANGLES:

1. The radian, a supplementary SI unit, is the proper unit for this category. The decimalized degree (defined as $[\pi \text{ divided by } 180] \text{ rad}$) is not proper but is widely used. Although the minute and the second are still widely accepted, their use is discouraged because they require an extra conversion step.
2. The plane angle is also called "angle."

POWER:

1. There are several types of horsepower. The one usually assumed is electric horsepower (unless otherwise stated.)
2. Boiler horsepower is primarily used to rate the size of small industrial boilers.
3. The use of the calorie was discontinued by SI on January 1, 1978.
4. Power is also called "heat flow rate" and "radiant flux."

PRESSURE:

1. Although the pascal is the proper SI unit for pressure, the kilopascal (kPa) is recognized for use in all fields except high vacuum measurement of absolute pressure, for which the pascal may be more convenient.
2. The kPa is used for measurement of both gauge and absolute pressure (gauge pressure is absolute pressure minus ambient pressure [ambient pressure is usually atmospheric pressure]). However, when absolute pressure is intended, the unit kPa should be followed by the word "absolute."
3. The bar is a convenient multiple of the pascal, the proper SI term for pressure ($1 \text{ bar} = 10^5 \text{ Pa}$), but its use is discouraged. The millibar is and will continue to be widely used in meteorology; however, the kilopascal should be used in most cases.
4. The mmHg is also called "torr." (The torr was once widely used in Europe but its use, as well as use of the kilogram-force per square centimeter, was discontinued by SI on January 1, 1978.
5. This unit category is also called "stress" and "force per unit area."

SOLID ANGLE:

The steradian is a supplementary SI unit.

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TEMPERATURE:

1. Technically, this unit is called “thermodynamic temperature.”
2. The proper SI unit for this category is the Kelvin, not the degree Kelvin. For example, a temperature would be correctly expressed as 283K or, less properly but more commonly, as 10°C (though not 10C). But be careful not to confuse the abbreviation for Kelvin with the designation for 1000, as in a 10K ohm resistor.
3. Degrees Celsius was called Degrees Centigrade and it is the most commonly encountered form of temperature measurement.
4. One degree Celsius as a temperature interval is equal to one Kelvin unit.
5. Kelvin is the absolute temperature scale in the metric (Celsius) system.
6. Degrees Rankine is the absolute temperature scale in the English (Fahrenheit) system.

TIME:

1. The second is the proper SI unit of time. However, a coherent system of time measurement is not practical (e.g., a solar day cannot be conveniently divided into kilo- seconds). Therefore, the noncoherent system now in use with minutes, hours, days, and years will continue to be used indefinitely.
2. Time units can be defined as mean or sidereal: mean time closely approximates actual star movement but is modified slightly to provide regularity of measurement; sidereal units are based on actual movement of stars but do not break down into neat units (e.g., a sidereal day is 23 hours, 56 minutes, and 4.09 seconds long - expressed in mean time).
3. Note that the SI symbol for “year” is “a.”

TORQUE:

1. The units in this category are mathematically the same as those in the category “bending movement,” although the application of the units is different.
2. Torque is also called “moment of force.”
3. The preferred unit for this category, the N.m, is the same as the definition for the energy unit joule ($J = N.m$), but the two should not be used interchangeably since they have different applications.
4. The use of the unit kilogram-force times meter was discontinued by SI on January 1, 1978.

VELOCITY:

1. The best way to learn the commonly used velocity measurement, kilometers per hour (although meters per second is the proper unit) is by memorizing comparable values. (Refer to the kilometers-to-miles list under “length.”)
2. This unit category includes “speed.” (Velocity, a vector, is magnitude plus direction while speed, a scalar, is magnitude only.)

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VOLUME:

1. Although liters are frequently used as a substitute for quarts, at least in the U.S., it is not technically correct to do so. According to SI guidelines, the cubic meter should be used instead. However, the liter will probably continue to be used for measurement of displacement of an internal combustion engine and for the volume of space in a refrigerator or the trunk of a car.
2. A liter is equivalent to a cube 10 cm on each side (a cubic decimeter).
3. A milliliter is equivalent to a cubic centimeter.
4. The symbol for liter has been a lower case l, but is changing to upper case L to avoid confusion with the number one (1).
5. Water and gas supplies for homes and factories - in fact, almost anything now measured in cubic feet - will be measured in cubic meters, the proper SI unit.
6. Automotive fuel consumption is expressed in countries using the metric system as liters per 100 kilometers or kilometers per liter rather than miles per gallon. A conversion estimate from mpg to L/100 km is achieved by dividing 235 by the mpg (e.g., if 20 mpg is normal, approximately 12 L/100 km); to go from mpg to km/L, divide the mpg by 2.35 (e.g., 20 mpg = 8.5 km/L).
7. This unit category is also called "capacity."

VOLUME PER UNIT TIME:

This unit category is also called "instantaneous volume velocity" or where is "volume velocity." The unit category "mass per unit time" also includes flow.

NOTE:

In some cases, a prefix symbol is the same as a unit symbol, so it is important to look at the position of each symbol in the term to determine its meaning. For example, in ms the "m" means "milli" (millisecond), but in km the "m" means "meter" (kilometer). Also to avoid confusion, it is important that no more than one prefix be used when forming the decimal multiple or submultiple of a derived unit. For example, μm should be expressed as nm. Refer to Table I - Proper SI Units for appropriate abbreviations.

Another general rule is to use SI prefixes to indicate order of magnitude and eliminate nonsignificant digits and leading zeroes. This also provides a convenient conversational alternative to the powers-of-ten notation preferred in computation. For example,

12300 mm becomes 12.3m

$12.3 \times 10^3\text{m}$ becomes 12.3km

0.001230 μA becomes 1.23nA

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Another point illustrated by the numbers above is the place-holding value of the comma. Outside the United States the comma is sometimes used instead of the decimal point (e.g., the American 0.00123 would be written 0,00123). To avoid confusion, recommended international practice uses a space instead of a comma when dividing numbers into groups of three digits (a decimal point is still used to indicate a break between numbers greater than one and numbers less than one). This applies to groupings of numbers on either side of zero. For example, 12,300.001230 could be written as 12 300.001 230.

Table 1-1. Proper SI Units

Quantity	Name of Unit	Symbol of Derived Unit	Unit Expressed as Base or Supplementary Units
Absolute Viscosity	Pascal Second	Pa · s	Pa × s
Acceleration	Meter per Second Squared		m/s ²
Angular Velocity	Radian per Second		rad/s
Area	Square Meter		m ²
Energy	Joule	J	N · m (kg × m ² × s ⁻²)
Force	Newton	N	kg × m ² × s ⁻²
Kinematic Viscosity	Square Meters per Second		m ² /s
Length	Meter		m
Mass	Kilogram		kg
Mass per Unit Time	Kilogram per Second		kg/s
Mass per Unit Volume	Kilograms per Cubic Meter		kg/m ³
Plane Angle	Radians	rad	m × m ⁻¹
Power	Watt	W	J/s (kg × m ⁻² × s ⁻³)
Pressure	Pascal	Pa	N/m ² (kg × m ⁻¹ × s ⁻²)
Solid Angle	Steradian	sr	m ² × m ⁻²
Temperature	Kelvin		K
	Celsius	°C	K -273.15
Time	Second		s
Torque	Newton-Meter	N · m	K/s ² × m
Velocity	Meters per Second		m/s
Volume	Cubic Meters		m ³
Volume per Unit Time	Cubic Meters per Second		m ³ /s

Section 2 Thermocouples

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T/C TYPE B - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°C) Reference Junctions at 0 °C
 Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-1. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
0	0.000	-0.000	-0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	0
10	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	10
20	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	20
30	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.000	30
40	-0.000	-0.000	-0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.002	0.002	40
50	0.002	0.003	0.003	0.003	0.004	0.004	0.004	0.005	0.005	0.006	0.006	50
60	0.006	0.007	0.007	0.008	0.008	0.009	0.009	0.010	0.010	0.011	0.011	60
70	0.011	0.012	0.012	0.013	0.014	0.014	0.015	0.015	0.016	0.017	0.017	70
80	0.017	0.018	0.019	0.020	0.020	0.021	0.022	0.022	0.023	0.024	0.025	80
90	0.025	0.026	0.026	0.027	0.028	0.029	0.030	0.031	0.031	0.032	0.033	90
100	0.033	0.034	0.035	0.036	0.037	0.038	0.039	0.040	0.041	0.042	0.043	100
110	0.043	0.044	0.045	0.046	0.047	0.048	0.049	0.050	0.051	0.052	0.053	110
120	0.053	0.055	0.056	0.057	0.058	0.059	0.060	0.062	0.063	0.064	0.065	120
130	0.065	0.066	0.068	0.069	0.070	0.071	0.073	0.074	0.075	0.077	0.078	130
140	0.078	0.079	0.081	0.082	0.083	0.085	0.086	0.088	0.089	0.091	0.092	140
150	0.092	0.093	0.095	0.096	0.098	0.099	0.101	0.102	0.104	0.106	0.107	150
160	0.107	0.109	0.110	0.112	0.113	0.115	0.117	0.118	0.120	0.122	0.123	160
170	0.123	0.125	0.127	0.128	0.130	0.132	0.133	0.135	0.137	0.139	0.140	170
180	0.140	0.142	0.144	0.146	0.148	0.149	0.151	0.153	0.155	0.157	0.159	180
190	0.159	0.161	0.163	0.164	0.166	0.168	0.170	0.172	0.174	0.176	0.178	190
200	0.178	0.180	0.182	0.184	0.186	0.188	0.190	0.192	0.194	0.197	0.199	200
210	0.199	0.201	0.203	0.205	0.207	0.209	0.211	0.214	0.216	0.218	0.220	210
220	0.220	0.222	0.225	0.227	0.229	0.231	0.234	0.236	0.238	0.240	0.243	220
230	0.243	0.245	0.247	0.250	0.252	0.254	0.257	0.259	0.262	0.264	0.266	230
240	0.266	0.269	0.271	0.274	0.276	0.279	0.281	0.284	0.286	0.289	0.291	240
250	0.291	0.294	0.296	0.299	0.301	0.304	0.307	0.309	0.312	0.314	0.317	250

Table 2-1. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
260	0.317	0.320	0.322	0.325	0.328	0.330	0.333	0.336	0.338	0.341	0.344	260
270	0.344	0.347	0.349	0.352	0.355	0.358	0.360	0.363	0.366	0.369	0.372	270
280	0.372	0.375	0.377	0.380	0.383	0.386	0.389	0.392	0.395	0.398	0.401	280
290	0.401	0.404	0.406	0.409	0.412	0.415	0.418	0.421	0.424	0.427	0.431	290
300	0.431	0.434	0.437	0.440	0.443	0.446	0.449	0.452	0.455	0.458	0.462	300
310	0.462	0.465	0.468	0.471	0.474	0.477	0.481	0.484	0.487	0.490	0.494	310
320	0.494	0.497	0.500	0.503	0.507	0.510	0.513	0.517	0.520	0.523	0.527	320
330	0.527	0.530	0.533	0.537	0.540	0.544	0.547	0.550	0.554	0.557	0.561	330
340	0.561	0.564	0.568	0.571	0.575	0.578	0.582	0.585	0.589	0.592	0.596	340
350	0.596	0.599	0.603	0.606	0.610	0.614	0.617	0.621	0.625	0.628	0.632	350
360	0.632	0.636	0.639	0.643	0.647	0.650	0.654	0.658	0.661	0.665	0.669	360
370	0.669	0.673	0.677	0.680	0.684	0.688	0.692	0.696	0.699	0.703	0.707	370
380	0.707	0.711	0.715	0.719	0.723	0.727	0.730	0.734	0.738	0.742	0.746	380
390	0.746	0.750	0.754	0.758	0.762	0.766	0.770	0.774	0.778	0.782	0.786	390
400	0.786	0.790	0.794	0.799	0.803	0.807	0.811	0.815	0.819	0.823	0.827	400
410	0.827	0.832	0.836	0.840	0.844	0.848	0.853	0.857	0.861	0.865	0.870	410
420	0.870	0.874	0.878	0.882	0.887	0.891	0.895	0.900	0.904	0.908	0.913	420
430	0.913	0.917	0.921	0.926	0.930	0.935	0.939	0.943	0.948	0.952	0.957	430
440	0.957	0.961	0.966	0.970	0.975	0.979	0.984	0.988	0.993	0.997	1.002	440
450	1.002	1.006	1.011	1.015	1.020	1.025	1.029	1.034	1.039	1.043	1.048	450
460	1.048	1.052	1.057	1.062	1.066	1.071	1.076	1.081	1.085	1.090	1.095	460
470	1.095	1.100	1.104	1.109	1.114	1.119	1.123	1.128	1.133	1.138	1.143	470
480	1.143	1.148	1.152	1.157	1.162	1.167	1.172	1.177	1.182	1.187	1.192	480
490	1.192	1.197	1.202	1.206	1.211	1.216	1.221	1.226	1.231	1.236	1.241	490
500	1.241	1.246	1.252	1.257	1.262	1.267	1.272	1.277	1.282	1.287	1.292	500
510	1.292	1.297	1.303	1.308	1.313	1.318	1.323	1.328	1.334	1.339	1.344	510
520	1.344	1.349	1.354	1.360	1.365	1.370	1.375	1.381	1.386	1.391	1.397	520
530	1.397	1.402	1.407	1.413	1.418	1.423	1.429	1.434	1.439	1.445	1.450	530
540	1.450	1.456	1.461	1.467	1.472	1.477	1.483	1.488	1.494	1.499	1.505	540
550	1.505	1.510	1.516	1.521	1.527	1.532	1.538	1.544	1.549	1.555	1.560	550
560	1.560	1.566	1.571	1.577	1.583	1.588	1.594	1.600	1.605	1.611	1.617	560
570	1.617	1.622	1.628	1.634	1.639	1.645	1.651	1.657	1.662	1.668	1.674	570
580	1.674	1.680	1.685	1.691	1.697	1.703	1.709	1.715	1.720	1.726	1.732	580
590	1.732	1.738	1.744	1.750	1.756	1.762	1.767	1.773	1.779	1.785	1.791	590
600	1.791	1.797	1.803	1.809	1.815	1.821	1.827	1.833	1.839	1.845	1.851	600
610	1.851	1.857	1.863	1.869	1.875	1.882	1.888	1.894	1.900	1.906	1.912	610
620	1.912	1.918	1.924	1.931	1.937	1.943	1.949	1.955	1.961	1.968	1.974	620
630	1.974	1.980	1.986	1.993	1.999	2.005	2.011	2.018	2.024	2.030	2.036	630
640	2.036	2.043	2.049	2.055	2.062	2.068	2.074	2.081	2.087	2.094	2.100	640
650	2.100	2.106	2.113	2.119	2.126	2.132	2.139	2.145	2.151	2.158	2.164	650
660	2.164	2.171	2.177	2.184	2.190	2.197	2.203	2.210	2.216	2.223	2.230	660
670	2.230	2.236	2.243	2.249	2.256	2.263	2.269	2.276	2.282	2.289	2.296	670
680	2.296	2.302	2.309	2.316	2.322	2.329	2.336	2.343	2.349	2.356	2.363	680
690	2.363	2.369	2.376	2.383	2.390	2.396	2.403	2.410	2.417	2.424	2.430	690
700	2.430	2.437	2.444	2.451	2.458	2.465	2.472	2.478	2.485	2.492	2.499	700
710	2.499	2.506	2.513	2.520	2.527	2.534	2.541	2.548	2.555	2.562	2.569	710
720	2.569	2.576	2.583	2.590	2.597	2.604	2.611	2.618	2.625	2.632	2.639	720
730	2.639	2.646	2.653	2.660	2.667	2.674	2.682	2.689	2.696	2.703	2.710	730
740	2.710	2.717	2.724	2.732	2.739	2.746	2.753	2.760	2.768	2.775	2.782	740
750	2.782	2.789	2.797	2.804	2.811	2.818	2.826	2.833	2.840	2.848	2.855	750
760	2.855	2.862	2.869	2.877	2.884	2.892	2.899	2.906	2.914	2.921	2.928	760
770	2.928	2.936	2.943	2.951	2.958	2.966	2.973	2.980	2.988	2.995	3.003	770
780	3.003	3.010	3.018	3.025	3.033	3.040	3.048	3.055	3.063	3.070	3.078	780

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Table 2-1. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
790	3.078	3.086	3.093	3.101	3.108	3.116	3.124	3.131	3.139	3.146	3.154	790
800	3.154	3.162	3.169	3.177	3.185	3.192	3.200	3.208	3.215	3.223	3.231	800
810	3.231	3.239	3.246	3.254	3.262	3.269	3.277	3.285	3.293	3.301	3.308	810
820	3.308	3.316	3.324	3.332	3.340	3.347	3.355	3.363	3.371	3.379	3.387	820
830	3.387	3.395	3.402	3.410	3.418	3.426	3.434	3.442	3.450	3.458	3.466	830
840	3.466	3.474	3.482	3.490	3.498	3.506	3.514	3.522	3.530	3.538	3.546	840
850	3.546	3.554	3.562	3.570	3.578	3.586	3.594	3.602	3.610	3.618	3.626	850
860	3.626	3.634	3.643	3.651	3.659	3.667	3.675	3.683	3.691	3.700	3.708	860
870	3.708	3.716	3.724	3.732	3.741	3.749	3.757	3.765	3.773	3.782	3.790	870
880	3.790	3.798	3.806	3.815	3.823	3.831	3.840	3.848	3.856	3.865	3.873	880
890	3.873	3.881	3.890	3.898	3.906	3.915	3.923	3.931	3.940	3.948	3.957	890
900	3.957	3.965	3.973	3.982	3.990	3.999	4.007	4.016	4.024	4.032	4.041	900
910	4.041	4.049	4.058	4.066	4.075	4.083	4.092	4.100	4.109	4.117	4.126	910
920	4.126	4.135	4.143	4.152	4.160	4.169	4.177	4.186	4.195	4.203	4.212	920
930	4.212	4.220	4.229	4.238	4.246	4.255	4.264	4.272	4.281	4.290	4.298	930
940	4.298	4.307	4.316	4.325	4.333	4.342	4.351	4.359	4.368	4.377	4.386	940
950	4.386	4.394	4.403	4.412	4.421	4.430	4.438	4.447	4.456	4.465	4.474	950
960	4.474	4.483	4.491	4.500	4.509	4.518	4.527	4.536	4.545	4.553	4.562	960
970	4.562	4.571	4.580	4.589	4.598	4.607	4.616	4.625	4.634	4.643	4.652	970
980	4.652	4.661	4.670	4.679	4.688	4.697	4.706	4.715	4.724	4.733	4.742	980
990	4.742	4.751	4.760	4.769	4.778	4.787	4.796	4.805	4.814	4.824	4.833	990
1000	4.833	4.842	4.851	4.860	4.869	4.878	4.887	4.897	4.906	4.915	4.924	1000
1010	4.924	4.933	4.942	4.952	4.961	4.970	4.979	4.989	4.998	5.007	5.016	1010
1020	5.016	5.025	5.035	5.044	5.053	5.063	5.072	5.081	5.090	5.100	5.109	1020
1030	5.109	5.118	5.128	5.137	5.146	5.156	5.165	5.174	5.184	5.193	5.202	1030
1040	5.202	5.212	5.221	5.231	5.240	5.249	5.259	5.268	5.278	5.287	5.297	1040
1050	5.297	5.306	5.316	5.325	5.334	5.344	5.353	5.363	5.372	5.382	5.391	1050
1060	5.391	5.401	5.410	5.420	5.429	5.439	5.449	5.458	5.468	5.477	5.487	1060
1070	5.487	5.496	5.506	5.516	5.525	5.535	5.544	5.554	5.564	5.573	5.583	1070
1080	5.583	5.593	5.602	5.612	5.621	5.631	5.641	5.651	5.660	5.670	5.680	1080
1090	5.680	5.689	5.699	5.709	5.718	5.728	5.738	5.748	5.757	5.767	5.777	1090
1100	5.777	5.787	5.796	5.806	5.816	5.826	5.836	5.845	5.855	5.865	5.875	1100
1110	5.875	5.885	5.895	5.904	5.914	5.924	5.934	5.944	5.954	5.964	5.973	1110
1120	5.973	5.983	5.993	6.003	6.013	6.023	6.033	6.043	6.053	6.063	6.073	1120
1130	6.073	6.083	6.093	6.102	6.112	6.122	6.132	6.142	6.152	6.162	6.172	1130
1140	6.172	6.182	6.192	6.202	6.212	6.223	6.233	6.243	6.253	6.263	6.273	1140
1150	6.273	6.283	6.293	6.303	6.313	6.323	6.333	6.343	6.353	6.364	6.374	1150
1160	6.374	6.384	6.394	6.404	6.414	6.424	6.435	6.445	6.455	6.465	6.475	1160
1170	6.475	6.485	6.496	6.506	6.516	6.526	6.536	6.547	6.557	6.567	6.577	1170
1180	6.577	6.588	6.598	6.608	6.618	6.629	6.639	6.649	6.659	6.670	6.680	1180
1190	6.680	6.690	6.701	6.711	6.721	6.732	6.742	6.752	6.763	6.773	6.783	1190
1200	6.783	6.794	6.804	6.814	6.825	6.835	6.846	6.856	6.866	6.877	6.887	1200
1210	6.887	6.898	6.908	6.918	6.929	6.939	6.950	6.960	6.971	6.981	6.991	1210
1220	6.991	7.002	7.012	7.023	7.033	7.044	7.054	7.065	7.075	7.086	7.096	1220
1230	7.096	7.107	7.117	7.128	7.138	7.149	7.159	7.170	7.181	7.191	7.202	1230
1240	7.202	7.212	7.223	7.233	7.244	7.255	7.265	7.276	7.286	7.297	7.308	1240
1250	7.308	7.318	7.329	7.339	7.350	7.361	7.371	7.382	7.393	7.403	7.414	1250
1260	7.414	7.425	7.435	7.446	7.457	7.467	7.478	7.489	7.500	7.510	7.521	1260
1270	7.521	7.532	7.542	7.553	7.564	7.575	7.585	7.596	7.607	7.618	7.628	1270
1280	7.628	7.639	7.650	7.661	7.671	7.682	7.693	7.704	7.715	7.725	7.736	1280
1290	7.736	7.747	7.758	7.769	7.780	7.790	7.801	7.812	7.823	7.834	7.845	1290
1300	7.845	7.855	7.866	7.877	7.888	7.899	7.910	7.921	7.932	7.943	7.953	1300
1310	7.953	7.964	7.975	7.986	7.997	8.008	8.019	8.030	8.041	8.052	8.063	1310

Table 2-1. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
1320	8.063	8.074	8.085	8.096	8.107	8.118	8.128	8.139	8.150	8.161	8.172	1320
1330	8.172	8.183	8.194	8.205	8.216	8.227	8.238	8.249	8.261	8.272	8.283	1330
1340	8.283	8.294	8.305	8.316	8.327	8.338	8.349	8.360	8.371	8.382	8.393	1340
1350	8.393	8.404	8.415	8.426	8.437	8.449	8.460	8.471	8.482	8.493	8.504	1350
1360	8.504	8.515	8.526	8.538	8.549	8.560	8.571	8.582	8.593	8.604	8.616	1360
1370	8.616	8.627	8.638	8.649	8.660	8.671	8.683	8.694	8.705	8.716	8.727	1370
1380	8.727	8.738	8.750	8.761	8.772	8.783	8.795	8.806	8.817	8.828	8.839	1380
1390	8.839	8.851	8.862	8.873	8.884	8.896	8.907	8.918	8.929	8.941	8.952	1390
1400	8.952	8.963	8.974	8.986	8.997	9.008	9.020	9.031	9.042	9.053	9.065	1400
1410	9.065	9.076	9.087	9.099	9.110	9.121	9.133	9.144	9.155	9.167	9.178	1410
1420	9.178	9.189	9.201	9.212	9.223	9.235	9.246	9.257	9.269	9.280	9.291	1420
1430	9.291	9.303	9.314	9.326	9.337	9.348	9.360	9.371	9.382	9.394	9.405	1430
1440	9.405	9.417	9.428	9.439	9.451	9.462	9.474	9.485	9.497	9.508	9.519	1440
1450	9.519	9.531	9.542	9.554	9.565	9.577	9.588	9.599	9.611	9.622	9.634	1450
1460	9.634	9.645	9.657	9.668	9.680	9.691	9.703	9.714	9.726	9.737	9.748	1460
1470	9.748	9.760	9.771	9.783	9.794	9.806	9.817	9.829	9.840	9.852	9.863	1470
1480	9.863	9.875	9.886	9.898	9.909	9.921	9.933	9.944	9.956	9.967	9.979	1480
1490	9.979	9.990	10.002	10.013	10.025	10.036	10.048	10.059	10.071	10.082	10.094	1490
1500	10.094	10.106	10.117	10.129	10.140	10.152	10.163	10.175	10.187	10.198	10.210	1500
1510	10.210	10.221	10.233	10.244	10.256	10.268	10.279	10.291	10.302	10.314	10.325	1510
1520	10.325	10.337	10.349	10.360	10.372	10.383	10.395	10.407	10.418	10.430	10.441	1520
1530	10.441	10.453	10.465	10.476	10.488	10.500	10.511	10.523	10.534	10.546	10.558	1530
1540	10.558	10.569	10.581	10.593	10.604	10.616	10.627	10.639	10.651	10.662	10.674	1540
1550	10.674	10.686	10.697	10.709	10.721	10.732	10.744	10.756	10.767	10.779	10.790	1550
1560	10.790	10.802	10.814	10.825	10.837	10.849	10.860	10.872	10.884	10.895	10.907	1560
1570	10.907	10.919	10.930	10.942	10.954	10.965	10.977	10.989	11.000	11.012	11.024	1570
1580	11.024	11.035	11.047	11.059	11.070	11.082	11.094	11.105	11.117	11.129	11.141	1580
1590	11.141	11.152	11.164	11.176	11.187	11.199	11.211	11.222	11.234	11.246	11.257	1590
1600	11.257	11.269	11.281	11.292	11.304	11.316	11.328	11.339	11.351	11.363	11.374	1600
1610	11.374	11.386	11.398	11.409	11.421	11.433	11.444	11.456	11.468	11.480	11.491	1610
1620	11.491	11.503	11.515	11.526	11.538	11.550	11.561	11.573	11.585	11.597	11.608	1620
1630	11.608	11.620	11.632	11.643	11.655	11.667	11.678	11.690	11.702	11.714	11.725	1630
1640	11.725	11.737	11.749	11.760	11.772	11.784	11.795	11.807	11.819	11.830	11.842	1640
1650	11.842	11.854	11.866	11.877	11.889	11.901	11.912	11.924	11.936	11.947	11.959	1650
1660	11.959	11.971	11.983	11.994	12.006	12.018	12.029	12.041	12.053	12.064	12.076	1660
1670	12.076	12.088	12.099	12.111	12.123	12.134	12.146	12.158	12.170	12.181	12.193	1670
1680	12.193	12.205	12.216	12.228	12.240	12.251	12.263	12.275	12.286	12.298	12.310	1680
1690	12.310	12.321	12.333	12.345	12.356	12.368	12.380	12.391	12.403	12.415	12.426	1690
1700	12.426	12.438	12.450	12.461	12.473	12.485	12.496	12.508	12.520	12.531	12.543	1700
1710	12.543	12.555	12.566	12.578	12.590	12.601	12.613	12.624	12.636	12.648	12.659	1710
1720	12.659	12.671	12.683	12.694	12.706	12.718	12.729	12.741	12.752	12.764	12.776	1720
1730	12.776	12.787	12.799	12.811	12.822	12.834	12.845	12.857	12.869	12.880	12.892	1730
1740	12.892	12.903	12.915	12.927	12.938	12.950	12.961	12.973	12.985	12.996	13.008	1740
1750	13.008	13.019	13.031	13.043	13.054	13.066	13.077	13.089	13.100	13.112	13.124	1750
1760	13.124	13.135	13.147	13.158	13.170	13.181	13.193	13.204	13.216	13.228	13.239	1760
1770	13.239	13.251	13.262	13.274	13.285	13.297	13.308	13.320	13.331	13.343	13.354	1770
1780	13.354	13.366	13.378	13.389	13.401	13.412	13.424	13.435	13.447	13.458	13.470	1780
1790	13.470	13.481	13.493	13.504	13.516	13.527	13.539	13.550	13.562	13.573	13.585	1790
1800	13.585	13.596	13.607	13.619	13.630	13.642	13.653	13.665	13.676	13.688	13.699	1800
1810	13.699	13.711	13.722	13.733	13.745	13.756	13.768	13.779	13.791	13.802	13.814	1810

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T/C TYPE B - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°F) Reference Junctions at 32 °F
Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-2. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
30			-0.000	-0.000	-0.000	-0.000	-0.001	-0.001	-0.001	-0.001	-0.001	30
40	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	40
50	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	50
60	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	60
70	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	70
80	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	80
90	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	90
100	-0.001	-0.001	-0.001	-0.001	-0.000	-0.000	-0.000	-0.000	0.000	0.000	0.000	100
110	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	110
120	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004	120
130	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.006	0.006	0.006	130
140	0.006	0.006	0.007	0.007	0.007	0.007	0.008	0.008	0.008	0.009	0.009	140
150	0.009	0.009	0.009	0.010	0.010	0.010	0.011	0.011	0.011	0.012	0.012	150
160	0.012	0.012	0.013	0.013	0.013	0.014	0.014	0.014	0.015	0.015	0.015	160
170	0.015	0.016	0.016	0.016	0.017	0.017	0.017	0.018	0.018	0.019	0.019	170
180	0.019	0.019	0.020	0.020	0.021	0.021	0.021	0.022	0.022	0.023	0.023	180
190	0.023	0.023	0.024	0.024	0.025	0.025	0.026	0.026	0.027	0.027	0.027	190
200	0.027	0.028	0.028	0.029	0.029	0.030	0.030	0.031	0.031	0.032	0.032	200
210	0.032	0.033	0.033	0.034	0.034	0.035	0.035	0.036	0.036	0.037	0.037	210
220	0.037	0.038	0.038	0.039	0.039	0.040	0.041	0.041	0.042	0.042	0.043	220
230	0.043	0.043	0.044	0.044	0.045	0.046	0.046	0.047	0.047	0.048	0.049	230
240	0.049	0.049	0.050	0.050	0.051	0.052	0.052	0.053	0.053	0.054	0.055	240
250	0.055	0.055	0.056	0.057	0.057	0.058	0.058	0.059	0.060	0.060	0.061	250
260	0.061	0.062	0.062	0.063	0.064	0.064	0.065	0.066	0.067	0.067	0.068	260
270	0.068	0.069	0.069	0.070	0.071	0.071	0.072	0.073	0.074	0.074	0.075	270
280	0.075	0.076	0.077	0.077	0.078	0.079	0.080	0.080	0.081	0.082	0.083	280
290	0.083	0.083	0.084	0.085	0.086	0.086	0.087	0.088	0.089	0.090	0.090	290
300	0.090	0.091	0.092	0.093	0.094	0.094	0.095	0.096	0.097	0.098	0.099	300
310	0.099	0.099	0.100	0.101	0.102	0.103	0.104	0.104	0.105	0.106	0.107	310
320	0.107	0.108	0.109	0.110	0.111	0.111	0.112	0.113	0.114	0.115	0.116	320
330	0.116	0.117	0.118	0.119	0.120	0.120	0.121	0.122	0.123	0.124	0.125	330
340	0.125	0.126	0.127	0.128	0.129	0.130	0.131	0.132	0.133	0.134	0.135	340
350	0.135	0.136	0.137	0.138	0.138	0.139	0.140	0.141	0.142	0.143	0.144	350
360	0.144	0.145	0.146	0.147	0.148	0.149	0.151	0.152	0.153	0.154	0.155	360
370	0.155	0.156	0.157	0.158	0.159	0.160	0.161	0.162	0.163	0.164	0.165	370
380	0.165	0.166	0.167	0.168	0.169	0.171	0.172	0.173	0.174	0.175	0.176	380
390	0.176	0.177	0.178	0.179	0.180	0.182	0.183	0.184	0.185	0.186	0.187	390
400	0.187	0.188	0.189	0.191	0.192	0.193	0.194	0.195	0.196	0.197	0.199	400
410	0.199	0.200	0.201	0.202	0.203	0.205	0.206	0.207	0.208	0.209	0.210	410
420	0.210	0.212	0.213	0.214	0.215	0.217	0.218	0.219	0.220	0.221	0.223	420
430	0.223	0.224	0.225	0.226	0.228	0.229	0.230	0.231	0.233	0.234	0.235	430
440	0.235	0.236	0.238	0.239	0.240	0.242	0.243	0.244	0.245	0.247	0.248	440
450	0.248	0.249	0.251	0.252	0.253	0.254	0.256	0.257	0.258	0.260	0.261	450
460	0.261	0.262	0.264	0.265	0.266	0.268	0.269	0.271	0.272	0.273	0.275	460
470	0.275	0.276	0.277	0.279	0.280	0.281	0.283	0.284	0.286	0.287	0.288	470
480	0.288	0.290	0.291	0.293	0.294	0.295	0.297	0.298	0.300	0.301	0.303	480
490	0.303	0.304	0.305	0.307	0.308	0.310	0.311	0.313	0.314	0.315	0.317	490

Table 2-2. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
500	0.317	0.318	0.320	0.321	0.323	0.324	0.326	0.327	0.329	0.330	0.332	500
510	0.332	0.333	0.335	0.336	0.338	0.339	0.341	0.342	0.344	0.345	0.347	510
520	0.347	0.348	0.350	0.351	0.353	0.355	0.356	0.358	0.359	0.361	0.362	520
530	0.362	0.364	0.365	0.367	0.369	0.370	0.372	0.373	0.375	0.376	0.378	530
540	0.378	0.380	0.381	0.383	0.384	0.386	0.388	0.389	0.391	0.392	0.394	540
550	0.394	0.396	0.397	0.399	0.401	0.402	0.404	0.405	0.407	0.409	0.410	550
560	0.410	0.412	0.414	0.415	0.417	0.419	0.420	0.422	0.424	0.425	0.427	560
570	0.427	0.429	0.431	0.432	0.434	0.436	0.437	0.439	0.441	0.442	0.444	570
580	0.444	0.446	0.448	0.449	0.451	0.453	0.455	0.456	0.458	0.460	0.462	580
590	0.462	0.463	0.465	0.467	0.469	0.470	0.472	0.474	0.476	0.477	0.479	590
600	0.479	0.481	0.483	0.485	0.486	0.488	0.490	0.492	0.494	0.495	0.497	600
610	0.497	0.499	0.501	0.503	0.504	0.506	0.508	0.510	0.512	0.514	0.515	610
620	0.515	0.517	0.519	0.521	0.523	0.525	0.527	0.528	0.530	0.532	0.534	620
630	0.534	0.536	0.538	0.540	0.542	0.544	0.545	0.547	0.549	0.551	0.553	630
640	0.553	0.555	0.557	0.559	0.561	0.563	0.565	0.566	0.568	0.570	0.572	640
650	0.572	0.574	0.576	0.578	0.580	0.582	0.584	0.586	0.588	0.590	0.592	650
660	0.592	0.594	0.596	0.598	0.600	0.602	0.604	0.606	0.608	0.610	0.612	660
670	0.612	0.614	0.616	0.618	0.620	0.622	0.624	0.626	0.628	0.630	0.632	670
680	0.632	0.634	0.636	0.638	0.640	0.642	0.644	0.646	0.648	0.650	0.652	680
690	0.652	0.654	0.656	0.659	0.661	0.663	0.665	0.667	0.669	0.671	0.673	690
700	0.673	0.675	0.677	0.679	0.682	0.684	0.686	0.688	0.690	0.692	0.694	700
710	0.694	0.696	0.699	0.701	0.703	0.705	0.707	0.709	0.711	0.714	0.716	710
720	0.716	0.718	0.720	0.722	0.724	0.727	0.729	0.731	0.733	0.735	0.737	720
730	0.737	0.740	0.742	0.744	0.746	0.748	0.751	0.753	0.755	0.757	0.759	730
740	0.759	0.762	0.764	0.766	0.768	0.771	0.773	0.775	0.777	0.780	0.782	740
750	0.782	0.784	0.786	0.789	0.791	0.793	0.795	0.798	0.800	0.802	0.804	750
760	0.804	0.807	0.809	0.811	0.814	0.816	0.818	0.821	0.823	0.825	0.827	760
770	0.827	0.830	0.832	0.834	0.837	0.839	0.841	0.844	0.846	0.848	0.851	770
780	0.851	0.853	0.855	0.858	0.860	0.862	0.865	0.867	0.870	0.872	0.874	780
790	0.874	0.877	0.879	0.881	0.884	0.886	0.889	0.891	0.893	0.896	0.898	790
800	0.898	0.901	0.903	0.905	0.908	0.910	0.913	0.915	0.918	0.920	0.922	800
810	0.922	0.925	0.927	0.930	0.932	0.935	0.937	0.939	0.942	0.944	0.947	810
820	0.947	0.949	0.952	0.954	0.957	0.959	0.962	0.964	0.967	0.969	0.972	820
830	0.972	0.974	0.977	0.979	0.982	0.984	0.987	0.989	0.992	0.994	0.997	830
840	0.997	0.999	1.002	1.004	1.007	1.009	1.012	1.014	1.017	1.020	1.022	840
850	1.022	1.025	1.027	1.030	1.032	1.035	1.037	1.040	1.043	1.045	1.048	850
860	1.048	1.050	1.053	1.056	1.058	1.061	1.063	1.066	1.069	1.071	1.074	860
870	1.074	1.076	1.079	1.082	1.084	1.087	1.090	1.092	1.095	1.097	1.100	870
880	1.100	1.103	1.105	1.108	1.111	1.113	1.116	1.119	1.121	1.124	1.127	880
890	1.127	1.129	1.132	1.135	1.137	1.140	1.143	1.145	1.148	1.151	1.153	890
900	1.153	1.156	1.159	1.162	1.164	1.167	1.170	1.172	1.175	1.178	1.181	900
910	1.181	1.183	1.186	1.189	1.192	1.194	1.197	1.200	1.203	1.205	1.208	910
920	1.208	1.211	1.214	1.216	1.219	1.222	1.225	1.228	1.230	1.233	1.236	920
930	1.236	1.239	1.241	1.244	1.247	1.250	1.253	1.255	1.258	1.261	1.264	930
940	1.264	1.267	1.270	1.272	1.275	1.278	1.281	1.284	1.287	1.289	1.292	940
950	1.292	1.295	1.298	1.301	1.304	1.307	1.309	1.312	1.315	1.318	1.321	950
960	1.321	1.324	1.327	1.330	1.332	1.335	1.338	1.341	1.344	1.347	1.350	960
970	1.350	1.353	1.356	1.359	1.361	1.364	1.367	1.370	1.373	1.376	1.379	970
980	1.379	1.382	1.385	1.388	1.391	1.394	1.397	1.400	1.403	1.406	1.409	980
990	1.409	1.411	1.414	1.417	1.420	1.423	1.426	1.429	1.432	1.435	1.438	990
1000	1.438	1.441	1.444	1.447	1.450	1.453	1.456	1.459	1.462	1.465	1.468	1000
1010	1.468	1.471	1.474	1.477	1.480	1.483	1.487	1.490	1.493	1.496	1.499	1010
1020	1.499	1.502	1.505	1.508	1.511	1.514	1.517	1.520	1.523	1.526	1.529	1020

Technical Data Sheet

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Table 2-2. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1030	1.529	1.532	1.536	1.539	1.542	1.545	1.548	1.551	1.554	1.557	1.560	1030
1040	1.560	1.563	1.566	1.570	1.573	1.576	1.579	1.582	1.585	1.588	1.591	1040
1050	1.591	1.595	1.598	1.601	1.604	1.607	1.610	1.613	1.617	1.620	1.623	1050
1060	1.623	1.262	1.629	1.632	1.636	1.639	1.642	1.645	1.648	1.652	1.655	1060
1070	1.655	1.658	1.661	1.664	1.668	1.671	1.674	1.677	1.680	1.684	1.687	1070
1080	1.687	1.690	1.693	1.696	1.700	1.703	1.706	1.709	1.713	1.716	1.719	1080
1090	1.719	1.722	1.726	1.729	1.732	1.735	1.739	1.742	1.745	1.748	1.752	1090
1100	1.752	1.755	1.758	1.762	1.765	1.768	1.771	1.775	1.778	1.781	1.785	1100
1110	1.785	1.788	1.791	1.795	1.798	1.801	1.804	1.808	1.811	1.814	1.818	1110
1120	1.818	1.821	1.824	1.828	1.831	1.834	1.838	1.841	1.844	1.848	1.851	1120
1130	1.851	1.855	1.858	1.861	1.865	1.868	1.871	1.875	1.878	1.882	1.885	1130
1140	1.885	1.888	1.892	1.895	1.898	1.902	1.905	1.909	1.912	1.915	1.919	1140
1150	1.919	1.922	1.926	1.929	1.933	1.936	1.939	1.943	1.946	1.950	1.953	1150
1160	1.953	1.957	1.960	1.963	1.967	1.970	1.974	1.977	1.981	1.984	1.988	1160
1170	1.988	1.991	1.995	1.998	2.002	2.005	2.009	2.012	2.015	2.019	2.022	1170
1180	2.022	2.026	2.029	2.033	2.036	2.040	2.043	2.047	2.051	2.054	2.058	1180
1190	2.058	2.061	2.065	2.068	2.072	2.075	2.079	2.082	2.086	2.089	2.093	1190
1200	2.093	2.096	2.100	2.104	2.107	2.111	2.114	2.118	2.121	2.125	2.128	1200
1210	2.128	2.132	2.136	2.139	2.143	2.146	2.150	2.154	2.157	2.161	2.164	1210
1220	2.164	2.168	2.172	2.175	2.179	2.182	2.186	2.190	2.193	2.197	2.201	1220
1230	2.201	2.204	2.208	2.211	2.215	2.219	2.222	2.226	2.230	2.233	2.237	1230
1240	2.237	2.241	2.244	2.248	2.252	2.255	2.259	2.263	2.266	2.270	2.274	1240
1250	2.274	2.277	2.281	2.285	2.288	2.292	2.296	2.299	2.303	2.307	2.311	1250
1260	2.311	2.314	2.318	2.322	2.325	2.329	2.333	2.337	2.340	2.344	2.348	1260
1270	2.348	2.351	2.355	2.359	2.363	2.366	2.370	2.374	2.378	2.381	2.385	1270
1280	2.385	2.389	2.393	2.396	2.400	2.404	2.408	2.412	2.415	2.419	2.423	1280
1290	2.423	2.427	2.430	2.434	2.438	2.442	2.446	2.449	2.453	2.457	2.461	1290
1300	2.461	2.465	2.469	2.472	2.476	2.480	2.484	2.488	2.491	2.495	2.499	1300
1310	2.499	2.503	2.507	2.511	2.515	2.518	2.522	2.526	2.30	2.534	2.538	1310
1320	2.538	2.542	2.545	2.549	2.553	2.557	2.561	2.565	2.569	2.573	2.576	1320
1340	2.576	2.580	2.584	2.588	2.592	2.596	2.600	2.604	2.608	2.612	2.615	1340
1350	2.615	2.619	2.623	2.627	2.631	2.635	2.639	2.643	2.647	2.651	2.655	1350
1360	2.655	2.659	2.663	2.667	2.670	2.674	2.678	2.682	2.686	2.690	2.694	1360
1370	2.694	2.698	2.702	2.706	2.710	2.714	2.718	2.722	2.726	2.730	2.734	1370
1380	2.734	2.738	2.742	2.746	2.750	2.754	2.758	2.762	2.766	2.770	2.774	1380
1390	2.774	2.778	2.782	2.786	2.790	2.794	2.798	2.802	2.806	2.810	2.814	1390
1400	2.814	2.818	2.822	2.826	2.830	2.835	2.839	2.843	2.847	2.851	2.855	1400
1410	2.855	2.859	2.863	2.867	2.871	2.875	2.879	2.883	2.887	2.892	2.896	1410
1420	2.896	2.900	2.904	2.908	2.912	2.916	2.920	2.924	2.928	2.933	2.937	1420
1430	2.937	2.941	2.945	2.949	2.953	2.957	2.961	2.966	2.970	2.974	2.978	1430
1450	2.978	2.982	2.986	2.990	2.995	2.999	3.003	3.007	3.011	3.015	3.019	1450
1460	3.019	3.024	3.028	3.032	3.036	3.040	3.045	3.049	3.053	3.057	3.061	1460
1470	3.061	3.065	3.070	3.074	3.078	3.082	3.086	3.091	3.095	3.099	3.103	1470
1480	3.103	3.107	3.112	3.116	3.120	3.124	3.129	3.133	3.137	3.141	3.146	1480
1490	3.231	3.235	3.239	3.244	3.248	3.252	3.257	3.261	3.265	3.269	3.274	1490
1500	3.274	3.278	3.282	3.287	3.291	3.295	3.300	3.304	3.308	3.313	3.317	1500
1510	3.317	3.321	3.326	3.330	3.334	3.339	3.343	3.347	3.352	3.356	3.361	1510
1520	3.361	3.365	3.369	3.374	3.378	3.382	3.387	3.391	3.395	3.400	3.404	1520
1530	3.404	3.409	3.413	3.417	3.422	3.426	3.431	3.435	3.439	3.444	3.448	1530
1540	3.448	3.453	3.457	3.461	3.466	3.470	3.475	3.479	3.484	3.488	3.492	1540
1550	3.492	3.497	3.501	3.506	3.510	3.515	3.519	3.523	3.528	3.532	3.537	1550
1560	3.537	3.541	3.546	3.550	3.555	3.559	3.564	3.568	3.573	3.577	3.581	1560
1570	3.581	3.586	3.590	3.595	3.599	3.604	3.608	3.613	3.617	3.622	3.626	1570

Table 2-2. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1580	3.626	3.631	3.635	3.640	3.644	3.649	3.653	3.658	3.662	3.667	3.672	1580
1590	3.672	3.676	3.681	3.685	3.690	3.694	3.699	3.703	3.708	3.712	3.717	1590
1600	3.717	3.721	3.726	3.731	3.735	3.740	3.744	3.749	3.753	3.758	3.762	1600
1610	3.762	3.767	3.772	3.776	3.781	3.785	3.790	3.795	3.799	3.804	3.808	1610
1620	3.808	3.813	3.818	3.822	3.827	3.831	3.836	3.841	3.845	3.850	3.854	1620
1630	3.854	3.859	3.864	3.868	3.873	3.877	3.882	3.887	3.891	3.896	3.901	1630
1640	3.901	3.905	3.910	3.915	3.919	3.924	3.929	3.933	3.938	3.943	3.947	1640
1650	3.947	3.952	3.957	3.961	3.966	3.971	3.975	3.980	3.985	3.989	3.994	1650
1660	3.994	3.999	4.003	4.008	4.013	4.017	4.022	4.027	4.031	4.036	4.041	1660
1670	4.041	4.046	4.050	4.055	4.060	4.064	4.069	4.074	4.079	4.083	4.088	1670
1680	4.088	4.093	4.098	4.102	4.107	4.112	4.117	4.121	4.126	4.131	4.136	1680
1690	4.136	4.140	4.145	4.150	4.155	4.159	4.164	4.169	4.174	4.178	4.183	1690
1700	4.183	4.188	4.193	4.198	4.202	4.207	4.212	4.217	4.221	4.226	4.231	1700
1710	4.231	4.236	4.241	4.245	4.250	4.255	4.260	4.265	4.269	4.274	4.279	1710
1720	4.279	4.284	4.289	4.294	4.298	4.303	4.308	4.313	4.318	4.323	4.327	1720
1730	4.327	4.332	4.337	4.342	4.347	4.352	4.357	4.361	4.366	4.371	4.376	1730
1740	4.376	4.381	4.386	4.391	4.395	4.400	4.405	4.410	4.415	4.420	4.425	1740
1750	4.425	4.430	4.435	4.439	4.444	4.449	4.454	4.459	4.464	4.469	4.474	1750
1760	4.474	4.479	4.484	4.488	4.493	4.498	4.503	4.508	4.513	4.518	4.523	1760
1770	4.523	4.528	4.533	4.538	4.543	4.548	4.552	4.557	4.562	4.567	4.572	1770
1780	4.572	4.577	4.582	4.587	4.592	4.597	4.602	4.607	4.612	4.617	4.622	1780
1790	4.622	4.627	4.632	4.637	4.642	4.647	4.652	4.657	4.662	4.667	4.672	1790
1800	4.672	4.677	4.682	4.687	4.692	4.697	4.702	4.707	4.712	4.717	4.722	1800
1810	4.722	4.727	4.732	4.737	4.742	4.747	4.752	4.757	4.762	4.767	4.772	1810
1820	4.772	4.777	4.782	4.787	4.792	4.797	4.802	4.807	4.812	4.817	4.823	1820
1830	4.823	4.828	4.833	4.838	4.843	4.848	4.853	4.858	4.863	4.868	4.873	1830
1840	4.873	4.878	4.883	4.888	4.894	4.899	4.904	4.909	4.914	4.919	4.924	1840
1850	4.924	4.929	4.934	4.939	4.945	4.950	4.955	4.960	4.965	4.970	4.975	1850
1860	4.975	4.980	4.985	4.991	4.996	5.001	5.006	5.011	5.016	5.021	5.027	1860
1870	5.027	5.032	5.037	5.042	5.047	5.052	5.057	5.063	5.068	5.073	5.078	1870
1880	5.078	5.083	5.088	5.094	5.099	5.104	5.109	5.114	5.119	5.125	5.130	1880
1890	5.130	5.135	5.140	5.145	5.150	5.156	5.161	5.166	5.171	5.176	5.182	1890
1900	5.182	5.187	5.192	5.197	5.202	5.208	5.213	5.218	5.223	5.229	5.234	1900
1910	5.234	5.239	5.244	5.249	5.255	5.260	5.265	5.270	5.276	5.281	5.286	1910
1920	5.286	5.291	5.297	5.302	5.307	5.312	5.318	5.323	5.328	5.333	5.339	1920
1930	5.339	5.344	5.349	5.354	5.360	5.365	5.370	5.376	5.381	5.386	5.391	1930
1940	5.391	5.397	5.402	5.407	5.413	5.418	5.423	5.428	5.434	5.439	5.444	1940
1950	5.444	5.450	5.455	5.460	5.466	5.471	5.476	5.482	5.487	5.492	5.497	1950
1960	5.497	5.503	5.508	5.513	5.519	5.524	5.529	5.535	5.540	5.545	5.551	1960
1970	5.551	5.556	5.561	5.567	5.572	5.578	5.583	5.588	5.594	5.599	5.604	1970
1980	5.604	5.610	5.615	5.620	5.626	5.631	5.637	5.642	5.647	5.653	5.658	1980
1990	5.658	5.663	5.669	5.674	5.680	5.685	5.690	5.696	5.701	5.707	5.712	1990
2000	5.712	5.717	5.723	5.728	5.734	5.739	5.744	5.750	5.755	5.761	5.766	2000
2010	5.766	5.771	5.777	5.782	5.788	5.793	5.799	5.804	5.810	5.815	5.820	2010
2020	5.820	5.826	5.831	5.837	5.842	5.848	5.853	5.859	5.864	5.869	5.875	2020
2030	5.875	5.880	5.886	5.891	5.897	5.902	5.908	5.913	5.919	5.924	5.930	2030
2040	5.930	5.935	5.941	5.946	5.951	5.957	5.962	5.968	5.973	5.979	5.984	2040
2050	5.984	5.990	5.995	6.001	6.006	6.012	6.017	6.023	6.028	6.034	6.039	2050
2060	6.039	6.045	6.051	6.056	6.062	6.067	6.073	6.078	6.084	6.089	6.095	2060
2070	6.095	6.100	6.106	6.111	6.117	6.122	6.128	6.134	6.139	6.145	6.150	2070
2080	6.150	6.156	6.161	6.167	6.172	6.178	6.184	6.189	6.195	6.200	6.206	2080
2090	6.206	6.211	6.217	6.223	6.228	6.234	6.239	6.245	6.250	6.256	6.262	2090
2100	6.262	6.267	6.273	6.278	6.284	6.290	6.295	6.301	6.306	6.312	6.318	2100

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Table 2-2. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
2110	6.318	6.323	6.329	6.334	6.340	6.346	6.351	6.357	6.362	6.368	6.374	2110
2120	6.374	6.379	6.385	6.391	6.396	6.402	6.408	6.413	6.419	6.424	6.430	2120
2130	6.430	6.436	6.441	6.447	6.453	6.458	6.464	6.470	6.475	6.481	6.487	2130
2140	6.487	6.492	6.498	6.504	6.509	6.515	6.521	6.526	6.532	6.538	6.543	2140
2150	6.543	6.549	6.555	6.560	6.566	6.572	6.577	6.583	6.589	6.594	6.600	2150
2160	6.600	6.606	6.612	6.617	6.623	6.629	6.634	6.640	6.646	6.651	6.657	2160
2170	6.657	6.663	6.669	6.674	6.680	6.686	6.692	6.697	6.703	6.709	6.714	2170
2180	6.714	6.720	6.726	6.732	6.737	6.743	6.749	6.755	6.760	6.766	6.772	2180
2190	6.772	6.778	6.783	6.789	6.795	6.801	6.806	6.812	6.818	6.824	6.829	2190
2200	6.829	6.835	6.841	6.847	6.852	6.858	6.864	6.870	6.876	6.881	6.887	2200
2210	6.887	6.893	6.899	6.904	6.910	6.916	6.922	6.928	6.933	6.939	6.945	2210
2220	6.945	6.951	6.957	6.962	6.968	6.974	6.980	6.986	6.991	6.997	7.003	2220
2230	7.003	7.009	7.015	7.021	7.026	7.032	7.038	7.044	7.050	7.055	7.061	2230
2240	7.061	7.067	7.073	7.079	7.085	7.090	7.096	7.102	7.108	7.114	7.120	2240
2250	7.120	7.126	7.131	7.137	7.143	7.149	7.155	7.161	7.167	7.172	7.178	2250
2260	7.178	7.184	7.190	7.196	7.202	7.208	7.213	7.219	7.225	7.231	7.237	2260
2270	7.237	7.243	7.249	7.255	7.260	7.266	7.272	7.278	7.284	7.290	7.296	2270
2280	7.296	7.302	7.308	7.314	7.319	7.325	7.331	7.337	7.343	7.349	7.355	2280
2290	7.355	7.361	7.367	7.373	7.378	7.384	7.390	7.396	7.402	7.408	7.414	2290
2300	7.414	7.420	7.426	7.432	7.438	7.444	7.450	7.456	7.461	7.467	7.473	2300
2310	7.473	7.479	7.485	7.491	7.497	7.503	7.509	7.515	7.521	7.527	7.533	2310
2320	7.533	7.539	7.545	7.551	7.557	7.563	7.569	7.575	7.581	7.587	7.592	2320
2330	7.592	7.598	7.604	7.610	7.616	7.622	7.628	7.634	7.640	7.646	7.652	2330
2340	7.652	7.658	7.664	7.670	7.676	7.682	7.688	7.694	7.700	7.706	7.712	2340
2350	7.712	7.718	7.724	7.730	7.736	7.742	7.748	7.754	7.760	7.766	7.772	2350
2360	7.772	7.778	7.784	7.790	7.796	7.802	7.808	7.814	7.820	7.827	7.833	2360
2370	7.833	7.839	7.845	7.851	7.857	7.863	7.869	7.875	7.881	7.887	7.893	2370
2380	7.893	7.899	7.905	7.911	7.917	7.923	7.929	7.935	7.941	7.947	7.953	2380
2390	7.953	7.959	7.966	7.972	7.978	7.984	7.990	7.996	8.002	8.008	8.014	2390
2400	8.014	8.020	8.026	8.032	8.038	8.044	8.051	8.057	8.063	8.069	8.075	2400
2410	8.075	8.081	8.087	8.093	8.099	8.105	8.111	8.118	8.124	8.130	8.136	2410
2420	8.136	8.142	8.148	8.154	8.160	8.166	8.172	8.179	8.185	8.191	8.197	2420
2430	8.197	8.203	8.209	8.215	8.221	8.227	8.234	8.240	8.246	8.252	8.258	2430
2440	8.258	8.264	8.270	8.276	8.283	8.289	8.295	8.301	8.307	8.313	8.319	2440
2450	8.319	8.326	8.332	8.338	8.344	8.350	8.356	8.362	8.369	8.375	8.381	2450
2460	8.381	8.387	8.393	8.399	8.405	8.412	8.418	8.424	8.430	8.436	8.442	2460
2470	8.442	8.449	8.455	8.461	8.467	8.473	8.479	8.486	8.492	8.498	8.504	2470
2480	8.504	8.510	8.516	8.523	8.529	8.535	8.541	8.547	8.554	8.560	8.566	2480
2490	8.566	8.572	8.578	8.585	8.591	8.597	8.603	8.609	8.616	8.622	8.628	2490
2500	8.628	8.634	8.640	8.647	8.653	8.659	8.665	8.671	8.678	8.684	8.690	2500
2510	8.690	8.696	8.702	8.709	8.715	8.721	8.727	8.733	8.740	8.746	8.752	2510
2520	8.752	8.758	8.765	8.771	8.777	8.783	8.790	8.796	8.802	8.808	8.814	2520
2530	8.814	8.821	8.827	8.833	8.839	8.846	8.852	8.858	8.864	8.871	8.877	2530
2540	8.877	8.883	8.889	8.896	8.902	8.908	8.914	8.921	8.927	8.933	8.939	2540
2550	8.939	8.946	8.952	8.958	8.964	8.971	8.977	8.983	8.989	8.996	9.002	2550
2560	9.002	9.008	9.015	9.021	9.027	9.033	9.040	9.046	9.052	9.058	9.065	2560
2570	9.065	9.071	9.077	9.084	9.090	9.096	9.102	9.109	9.115	9.121	9.128	2570
2580	9.128	9.134	9.140	9.146	9.153	9.159	9.165	9.172	9.178	9.184	9.191	2580
2590	9.191	9.197	9.203	9.209	9.216	9.222	9.228	9.235	9.241	9.247	9.254	2590
2600	9.254	9.260	9.266	9.273	9.279	9.285	9.291	9.298	9.304	9.310	9.317	2600
2610	9.317	9.323	9.329	9.336	9.342	9.348	9.355	9.361	9.367	9.374	9.380	2610
2620	9.380	9.386	9.393	9.399	9.405	9.412	9.418	9.424	9.431	9.437	9.443	2620
2630	9.443	9.450	9.456	9.462	9.469	9.475	9.481	9.488	9.494	9.500	9.507	2630

Table 2-2. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
2640	9.507	9.513	9.519	9.526	9.532	9.538	9.545	9.551	9.558	9.564	9.570	2640
2650	9.570	9.577	9.583	9.589	9.596	9.602	9.608	9.615	9.621	9.627	9.634	2650
2660	9.634	9.640	9.647	9.653	9.659	9.666	9.672	9.678	9.685	9.691	9.697	2660
2670	9.697	9.704	9.710	9.717	9.723	9.729	9.736	9.742	9.748	9.755	9.761	2670
2680	9.761	9.768	9.774	9.780	9.787	9.793	9.800	9.806	9.812	9.819	9.825	2680
2690	9.825	9.831	9.838	9.844	9.851	9.857	9.863	9.870	9.876	9.883	9.889	2690
2700	9.889	9.895	9.902	9.908	9.915	9.921	9.927	9.934	9.940	9.947	9.953	2700
2710	9.953	9.959	9.966	9.972	9.979	9.985	9.991	9.998	10.004	10.011	10.017	2710
2720	10.017	10.023	10.030	10.036	10.043	10.049	10.056	10.062	10.068	10.075	10.081	2720
2730	10.081	10.088	10.094	10.100	10.107	10.113	10.120	10.126	10.133	10.139	10.145	2730
2740	10.145	10.152	10.158	10.165	10.171	10.178	10.184	10.190	10.197	10.203	10.210	2740
2750	10.210	10.216	10.223	10.229	10.235	10.242	10.248	10.255	10.261	10.268	10.274	2750
2760	10.274	10.280	10.287	10.293	10.300	10.306	10.313	10.319	10.325	10.332	10.338	2760
2770	10.338	10.345	10.351	10.358	10.364	10.371	10.377	10.383	10.390	10.396	10.403	2770
2780	10.403	10.409	10.416	10.422	10.429	10.435	10.441	10.448	10.454	10.461	10.467	2780
2790	10.467	10.474	10.480	10.487	10.493	10.500	10.506	10.512	10.519	10.525	10.532	2790
2800	10.532	10.538	10.545	10.551	10.558	10.564	10.571	10.577	10.584	10.590	10.596	2800
2810	10.596	10.603	10.609	10.616	10.622	10.629	10.635	10.642	10.648	10.655	10.661	2810
2820	10.661	10.668	10.674	10.680	10.687	10.693	10.700	10.706	10.713	10.719	10.726	2820
2830	10.726	10.732	10.739	10.745	10.752	10.758	10.765	10.771	10.778	10.784	10.790	2830
2840	10.790	10.797	10.803	10.810	10.816	10.823	10.829	10.836	10.842	10.849	10.855	2840
2850	10.855	10.862	10.868	10.875	10.881	10.888	10.894	10.901	10.907	10.914	10.920	2850
2860	10.920	10.926	10.933	10.939	10.946	10.952	10.959	10.965	10.972	10.978	10.985	2860
2870	10.985	10.991	10.998	11.004	11.011	11.017	11.024	11.030	11.037	11.043	11.050	2870
2880	11.050	11.056	11.063	11.069	11.076	11.082	11.089	11.095	11.102	11.108	11.115	2880
2890	11.115	11.121	11.128	11.134	11.141	11.147	11.154	11.160	11.166	11.173	11.179	2890
2900	11.179	11.186	11.192	11.199	11.205	11.212	11.218	11.225	11.231	11.238	11.244	2900
2910	11.244	11.251	11.257	11.264	11.270	11.277	11.283	11.290	11.296	11.303	11.309	2910
2920	11.309	11.316	11.322	11.329	11.335	11.342	11.348	11.355	11.361	11.368	11.374	2920
2930	11.374	11.381	11.387	11.394	11.400	11.407	11.413	11.420	11.426	11.433	11.439	2930
2940	11.439	11.446	11.452	11.459	11.465	11.472	11.478	11.485	11.491	11.498	11.504	2940
2950	11.504	11.511	11.517	11.524	11.530	11.537	11.543	11.550	11.556	11.563	11.569	2950
2960	11.569	11.576	11.582	11.589	11.595	11.602	11.608	11.615	11.621	11.628	11.634	2960
2970	11.634	11.641	11.647	11.654	11.660	11.667	11.673	11.680	11.686	11.693	11.699	2970
2980	11.699	11.706	11.712	11.719	11.725	11.732	11.738	11.745	11.751	11.758	11.764	2980
2990	11.764	11.771	11.777	11.784	11.790	11.797	11.803	11.810	11.816	11.823	11.829	2990
3000	11.829	11.836	11.842	11.849	11.855	11.862	11.868	11.875	11.881	11.888	11.894	3000
3010	11.894	11.901	11.907	11.914	11.920	11.927	11.933	11.940	11.946	11.953	11.959	3010
3020	11.959	11.966	11.972	11.979	11.985	11.992	11.998	12.005	12.011	12.018	12.024	3020
3030	12.024	12.031	12.037	12.044	12.050	12.057	12.063	12.070	12.076	12.083	12.089	3030
3040	12.089	12.096	12.102	12.109	12.115	12.121	12.128	12.134	12.141	12.147	12.154	3040
3050	12.154	12.160	12.167	12.173	12.180	12.186	12.193	12.199	12.206	12.212	12.219	3050
3060	12.219	12.225	12.232	12.238	12.245	12.251	12.258	12.264	12.271	12.277	12.284	3060
3070	12.284	12.290	12.297	12.303	12.310	12.316	12.323	12.329	12.336	12.342	12.349	3070
3080	12.349	12.355	12.362	12.368	12.374	12.381	12.387	12.394	12.400	12.407	12.413	3080
3090	12.413	12.420	12.426	12.433	12.439	12.446	12.452	12.459	12.465	12.472	12.478	3090
3100	12.478	12.485	12.491	12.498	12.504	12.511	12.517	12.523	12.530	12.536	12.543	3100
3110	12.543	12.549	12.556	12.562	12.569	12.575	12.582	12.588	12.595	12.601	12.608	3110
3120	12.608	12.614	12.621	12.627	12.633	12.640	12.646	12.653	12.659	12.666	12.672	3120
3130	12.672	12.679	12.685	12.692	12.698	12.705	12.711	12.718	12.724	12.730	12.737	3130
3140	12.737	12.743	12.750	12.756	12.763	12.769	12.776	12.782	12.789	12.795	12.801	3140
3150	12.801	12.808	12.814	12.821	12.827	12.834	12.840	12.847	12.853	12.860	12.866	3150
3160	12.866	12.872	12.879	12.885	12.892	12.898	12.905	12.911	12.918	12.924	12.930	3160

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Table 2-2. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
3170	12.930	12.937	12.943	12.950	12.956	12.963	12.969	12.976	12.982	12.988	12.995	3170
3180	12.995	13.001	13.008	13.014	13.021	13.027	13.034	13.040	13.046	13.053	13.059	3180
3190	13.059	13.066	13.072	13.079	13.085	13.091	13.098	13.104	13.111	13.117	13.124	3190
3200	13.124	13.130	13.136	13.143	13.149	13.156	13.162	13.169	13.175	13.181	13.188	3200
3210	13.188	13.194	13.201	13.207	13.213	13.220	13.226	13.233	13.239	13.246	13.252	3210
3220	13.252	13.258	13.265	13.271	13.278	13.284	13.290	13.297	13.303	13.310	13.316	3220
3230	13.316	13.322	13.329	13.335	13.342	13.348	13.354	13.361	13.367	13.374	13.380	3230
3240	13.380	13.387	13.393	13.399	13.406	13.412	13.418	13.425	13.431	13.438	13.444	3240
3250	13.444	13.450	13.457	13.463	13.470	13.476	13.482	13.489	13.495	13.502	13.508	3250
3260	13.508	13.514	13.521	13.527	13.533	13.540	13.546	13.553	13.559	13.565	13.572	3260
3270	13.572	13.578	13.585	13.591	13.597	13.604	13.610	13.616	13.623	13.629	13.635	3270
3280	13.635	13.642	13.648	13.655	13.661	13.667	13.674	13.680	13.686	13.693	13.699	3280
3290	13.699	13.706	13.712	13.718	13.725	13.731	13.737	13.744	13.750	13.756	13.763	3290
3300	13.763	13.769	13.775	13.782	13.788	13.794	13.801	13.807	13.814			3300

T/C TYPE E - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°C) Reference Junctions at 0 °C
Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-3. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-270	-9.825	-9.833	-9.831	-9.828	-9.825	-9.821	-9.817	-9.813	-9.808	-9.802	-9.797	-270
-260	-9.797	-9.791	-9.784	-9.777	-9.770	-9.762	-9.754	-9.746	-9.737	-9.728	-9.719	-260
-250	-9.719	-9.709	-9.699	-9.688	-9.677	-9.666	-9.654	-9.642	-9.630	-9.617	-9.604	-250
-240	-9.604	-9.591	-9.577	-9.563	-9.549	-9.534	-9.519	-9.503	-9.488	-9.472	-9.455	-240
-230	-9.455	-9.438	-9.421	-9.404	-9.386	-9.368	-9.350	-9.332	-9.313	-9.293	-9.274	-230
-220	-9.274	-9.254	-9.234	-9.214	-9.193	-9.172	-9.151	-9.129	-9.107	-9.085	-9.063	-220
-210	-9.063	-9.040	-9.017	-8.994	-8.971	-8.947	-8.923	-8.899	-8.874	-8.850	-8.824	-210
-200	-8.824	-8.977	-8.774	-8.748	-8.722	-8.696	-8.669	-8.642	-8.615	-8.588	-8.561	-200
-190	-8.561	-8.533	-8.505	-8.477	-8.449	-8.420	-8.391	-8.362	-8.333	-8.303	-8.273	-190
-180	-8.273	-8.243	-8.213	-8.183	-8.152	-8.121	-8.090	-8.058	-8.027	-7.995	-7.963	-180
-170	-7.963	-7.931	-7.898	-7.866	-7.833	-7.800	-7.767	-7.733	-7.699	-7.665	-7.631	-170
-160	-7.631	-7.597	-7.562	-7.528	-7.493	-7.458	-7.422	-7.387	-7.351	-7.315	-7.279	-160
-150	-7.279	-7.243	-7.206	-7.169	-7.132	-7.095	-7.058	-7.020	-6.983	-6.945	-6.907	-150
-140	-6.907	-6.869	-6.830	-6.792	-6.753	-6.714	-6.675	-6.635	-6.596	-6.556	-6.516	-140
-130	-6.516	-6.476	-6.436	-6.395	-6.354	-6.314	-6.273	-6.231	-6.190	-6.149	-6.107	-130
-120	-6.107	-6.065	-6.023	-5.981	-5.938	-5.896	-5.853	-5.810	-5.767	-5.724	-5.680	-120
-110	-5.680	-5.637	-5.593	-5.549	-5.505	-5.460	-5.416	-5.371	-5.327	-5.282	-5.237	-110
-100	-5.237	-5.191	-5.146	-5.100	-5.055	-5.009	-4.963	-4.916	-4.870	-4.824	-4.777	-100
-90	-4.777	-4.730	-4.683	-4.636	-4.588	-4.541	-4.493	-4.446	-4.398	-4.350	-4.301	-90
-80	-4.301	-4.253	-4.204	-4.156	-4.107	-4.058	-4.009	-3.959	-3.910	-3.860	-3.811	-80
-70	-3.811	-3.761	-3.711	-3.661	-3.610	-3.560	-3.509	-3.459	-3.408	-3.357	-3.306	-70
-60	-3.306	-3.254	-3.203	-3.152	-3.100	-3.048	-2.996	-2.944	-2.892	-2.839	-2.787	-60
-50	-2.787	-2.734	-2.681	-2.628	-2.575	-2.522	-2.469	-2.416	-2.362	-2.308	-2.254	-50
-40	-2.254	-2.200	-2.146	-2.092	-2.038	-1.983	-1.929	-1.874	-1.819	-1.764	-1.709	-40
-30	-1.709	-1.654	-1.599	-1.543	-1.487	-1.432	-1.376	-1.320	-1.264	-1.208	-1.151	-30
-20	-1.151	-1.095	-1.038	-0.982	-0.925	-0.868	-0.811	-0.754	-0.696	-0.639	-0.581	-20
-10	-0.581	-0.524	-0.466	-0.408	-0.350	-0.292	-0.234	-0.176	-0.117	-0.059	0.000	-10
0	0.000	0.059	0.118	0.176	0.235	0.295	0.354	0.413	0.472	0.532	0.591	0
10	0.591	0.651	0.711	0.770	0.830	0.890	0.950	1.011	1.071	1.131	1.192	10
20	1.192	1.252	1.313	1.373	1.434	1.495	1.556	1.617	1.678	1.739	1.801	20

Table 2-3. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
30	1.801	1.862	1.924	1.985	2.047	2.109	2.171	2.233	2.295	2.357	2.419	30
40	2.419	2.482	2.544	2.607	2.669	2.732	2.795	2.858	2.921	2.984	3.047	40
50	3.047	3.110	3.173	3.237	3.300	3.364	3.428	3.491	3.555	3.619	3.683	50
60	3.683	3.748	3.812	3.876	3.941	4.005	4.070	4.134	4.199	4.264	4.329	60
70	4.329	4.394	4.459	4.524	4.590	4.655	4.720	4.786	4.852	4.917	4.983	70
80	4.983	5.049	5.115	5.181	5.247	5.314	5.380	5.446	5.513	5.579	5.646	80
90	5.646	5.713	5.780	5.846	5.913	5.981	6.048	6.115	6.182	6.250	6.317	90
100	6.317	6.385	6.452	6.520	6.588	6.656	6.724	6.792	6.860	6.928	6.996	100
110	6.996	7.064	7.133	7.201	7.270	7.339	7.407	7.476	7.545	7.614	7.683	110
120	7.683	7.752	7.821	7.890	7.960	8.029	8.099	8.168	8.238	8.307	8.377	120
130	8.377	8.447	8.517	8.587	8.657	8.727	8.797	8.867	8.938	9.008	9.078	130
140	9.078	9.149	9.220	9.290	9.361	9.432	9.503	9.573	9.644	9.715	9.787	140
150	9.787	9.858	9.929	10.000	10.072	10.143	10.215	10.286	10.358	10.429	10.501	150
160	10.501	10.573	10.645	10.717	10.789	10.861	10.933	11.005	11.077	11.150	11.222	160
170	11.222	11.294	11.367	11.439	11.512	11.585	11.657	11.730	11.803	11.876	11.949	170
180	11.949	12.022	12.095	12.168	12.241	12.314	12.387	12.461	12.534	12.608	12.681	180
190	12.681	12.755	12.828	12.902	12.975	13.049	13.123	13.197	13.271	13.345	13.419	190
200	13.419	13.493	13.567	13.641	13.715	13.789	13.864	13.938	14.012	14.087	14.161	200
210	14.161	14.236	14.310	14.385	14.460	14.534	14.609	14.684	14.759	14.834	14.909	210
220	14.909	14.984	15.059	15.134	15.209	15.284	15.359	15.435	15.510	15.585	15.661	220
230	15.661	15.736	15.812	15.887	15.963	16.038	16.114	16.190	16.266	16.341	16.417	230
240	16.417	16.493	16.569	16.645	16.721	16.797	16.873	16.949	17.025	17.101	17.178	240
250	17.178	17.254	17.330	17.406	17.483	17.559	17.636	17.712	17.789	17.865	17.942	250
260	17.942	18.018	18.095	18.172	18.248	18.325	18.402	18.479	18.556	18.633	18.710	260
270	18.710	18.787	18.864	18.941	19.018	19.095	19.172	19.249	19.326	19.404	19.481	270
280	19.481	19.558	19.636	19.713	19.790	19.868	19.945	20.023	20.100	20.178	20.256	280
290	20.256	20.333	20.411	20.488	20.566	20.644	20.722	20.800	20.877	20.955	21.033	290
300	21.033	21.111	21.189	21.267	21.345	21.423	21.501	21.579	21.657	21.735	21.814	300
310	21.814	21.892	21.970	22.048	22.127	22.205	22.283	22.362	22.440	22.518	22.597	310
320	22.597	22.675	22.754	22.832	22.911	22.989	23.068	23.147	23.225	23.304	23.383	320
330	23.383	23.461	23.540	23.619	23.698	23.777	23.855	23.934	24.013	24.092	24.171	330
340	24.171	24.250	24.329	24.408	24.487	24.566	24.645	24.724	24.803	24.882	24.961	340
350	24.961	25.041	25.120	25.199	25.278	25.357	25.437	25.516	25.595	25.675	25.754	350
360	25.754	25.833	25.913	25.992	26.072	26.151	26.230	26.310	26.389	26.469	26.549	360
370	26.549	26.628	26.708	26.787	26.867	26.947	27.026	27.106	27.186	27.265	27.345	370
380	27.345	27.425	27.504	27.584	27.664	27.744	27.824	27.903	27.983	28.063	28.143	380
390	28.143	28.223	28.303	28.383	28.463	28.543	28.623	28.703	28.783	28.863	28.943	390
400	28.943	29.023	29.103	29.183	29.263	29.343	29.423	29.503	29.584	29.664	29.744	400
410	29.744	29.824	29.904	29.984	30.065	30.145	30.225	30.305	30.386	30.466	30.546	410
420	30.546	30.627	30.707	30.787	30.868	30.948	31.028	31.109	31.189	31.270	31.350	420
430	31.350	31.430	31.511	31.591	31.672	31.752	31.833	31.913	31.994	32.074	32.155	430
440	32.155	32.235	32.316	32.396	32.477	32.557	32.638	32.719	32.799	32.880	32.960	440
450	32.960	33.041	33.122	33.202	33.283	33.364	33.444	33.525	33.605	33.686	33.767	450
460	33.767	33.848	33.928	34.009	34.090	34.170	34.251	34.332	34.413	34.493	34.574	460
470	34.574	34.655	34.736	34.816	34.897	34.978	35.059	35.140	35.220	35.301	35.382	470
480	35.382	35.463	35.544	35.624	35.705	35.786	35.867	35.948	36.029	36.109	36.190	480
490	36.190	36.271	36.352	36.433	36.514	36.595	36.675	36.756	36.837	36.918	36.999	490
500	36.999	37.080	37.161	37.242	37.323	37.403	37.484	37.565	37.646	37.727	37.808	500
510	37.808	37.889	37.970	38.051	38.132	38.213	38.293	38.374	38.455	38.536	38.617	510
520	38.617	38.698	38.779	38.860	38.941	39.022	39.103	39.184	39.264	39.345	39.426	520
530	39.426	39.507	39.588	39.669	39.750	39.831	39.912	39.993	40.074	40.155	40.236	530
540	40.236	40.316	40.397	40.478	40.559	40.640	40.721	40.802	40.883	40.964	41.045	540
550	41.045	41.125	41.206	41.287	41.368	41.449	41.530	41.611	41.692	41.773	41.853	550

Technical Data Sheet

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Table 2-3. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
560	41.853	41.934	42.015	42.096	42.177	42.258	42.339	42.419	42.500	42.581	42.662	560
570	42.662	42.743	42.824	42.904	42.985	43.066	43.147	43.228	43.308	43.389	43.470	570
580	43.470	43.551	43.632	43.712	43.793	43.874	43.955	44.035	44.116	44.197	44.278	580
590	44.278	44.358	44.439	44.520	44.601	44.681	44.762	44.843	44.923	45.004	45.085	590
600	45.085	45.165	45.246	45.327	45.407	45.488	45.569	45.649	45.730	45.811	45.891	600
610	45.891	45.972	46.052	46.133	46.213	46.294	46.375	46.455	46.536	46.616	46.697	610
620	46.697	46.777	46.858	46.938	47.019	47.099	47.180	47.260	47.341	47.421	47.502	620
630	47.502	47.582	47.663	47.743	47.824	47.904	47.984	48.065	48.145	48.226	48.306	630
640	48.306	48.386	48.467	48.547	48.627	48.708	48.788	48.868	48.949	49.029	49.109	640
650	49.109	49.189	49.270	49.350	49.430	49.510	49.591	49.671	49.751	49.831	49.911	650
660	49.911	49.992	50.072	50.152	50.232	50.312	50.392	50.472	50.553	50.633	50.713	660
670	50.713	50.793	50.873	50.953	51.033	51.113	51.193	51.273	51.353	51.433	51.513	670
680	51.513	51.593	51.673	51.753	51.833	51.913	51.993	52.073	52.152	52.232	52.312	680
690	52.312	52.392	52.472	52.552	52.632	52.711	52.791	52.871	52.951	53.031	53.110	690
700	53.110	53.190	53.270	53.350	53.429	53.509	53.589	53.668	53.748	53.828	53.907	700
710	53.907	53.987	54.066	54.146	54.226	54.305	54.385	54.464	54.544	54.623	54.703	710
720	54.703	54.782	54.862	54.941	55.021	55.100	55.180	55.259	55.339	55.418	55.498	720
730	55.498	55.577	55.656	55.736	55.815	55.894	55.974	56.053	56.132	56.212	56.291	730
740	56.291	56.370	56.449	56.529	56.608	56.687	56.766	56.845	56.924	57.004	57.083	740
750	57.083	57.162	57.241	57.320	57.399	57.478	57.557	57.636	57.715	57.794	57.873	750
760	57.873	57.952	58.031	58.110	58.189	58.268	58.347	58.426	58.505	58.584	58.663	760
770	58.663	58.742	58.820	58.899	58.978	59.057	59.136	59.214	59.293	59.372	59.451	770
780	59.451	59.529	59.608	59.687	59.765	59.844	59.923	60.001	60.080	60.159	60.237	780
790	60.237	60.316	60.394	60.473	60.551	60.630	60.708	60.787	60.865	60.944	61.022	790
800	61.022	61.101	61.179	61.258	61.336	61.414	61.493	61.571	61.649	61.728	61.806	800
810	61.806	61.884	61.962	62.041	62.119	62.197	62.275	62.353	62.432	62.510	62.588	810
820	62.588	62.666	62.744	62.822	62.900	62.978	63.056	63.134	63.212	63.290	63.368	820
830	63.368	63.446	63.524	63.602	63.680	63.758	63.836	63.914	63.992	64.069	64.147	830
840	64.147	64.225	64.303	64.380	64.458	64.536	64.614	64.691	64.769	64.847	64.924	840
850	64.924	65.002	65.080	65.157	65.235	65.312	65.390	65.467	65.545	65.622	65.700	850
860	65.700	65.777	65.855	65.932	66.009	66.087	66.164	66.241	66.319	66.396	66.473	860
870	66.473	66.551	66.628	66.705	66.782	66.859	66.937	67.014	67.091	67.168	67.245	870
880	67.245	67.322	67.399	67.476	67.553	67.630	67.707	67.784	67.861	67.938	68.015	880
890	68.015	68.092	68.169	68.246	68.323	68.399	68.476	68.553	68.630	68.706	68.783	890
900	68.783	68.860	68.936	69.013	69.090	69.166	69.243	69.320	69.396	69.473	69.549	900
910	69.549	69.626	69.702	69.779	69.855	69.931	70.008	70.084	70.161	70.237	70.313	910
920	70.313	70.390	70.466	70.542	70.618	70.694	70.771	70.847	70.923	70.999	71.075	920
930	71.075	71.151	71.227	71.304	71.380	71.456	71.532	71.608	71.683	71.759	71.835	930
940	71.835	71.911	71.987	72.063	72.139	72.215	72.290	72.366	72.442	72.518	72.593	940
950	72.593	72.669	72.745	72.820	72.896	72.972	73.047	73.123	73.199	73.274	73.350	950
960	73.350	73.425	73.501	73.576	73.652	73.727	73.802	73.878	73.953	74.029	74.104	960
970	74.104	74.179	74.255	74.330	74.405	74.480	74.556	74.631	74.706	74.781	74.857	970
980	74.857	74.932	75.007	75.082	75.157	75.232	75.307	75.382	75.458	75.533	75.608	980
990	75.608	75.683	75.758	75.833	75.908	75.983	76.058	76.133	76.208	76.283	76.358	990

T/C TYPE E - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°F) Reference Junctions at 32 °F
Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-4. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-460							-9.835	-9.834	-9.833	-9.832	-9.830	-460
-450	-9.830	-9.829	-9.827	-9.825	-9.823	-9.821	-9.819	-9.817	-9.814	-9.812	-9.809	-450
-440	-9.809	-9.806	-9.803	-9.800	-9.797	-9.793	-9.790	-9.786	-9.783	-9.779	-9.775	-440
-430	-9.778	-9.771	-9.767	-9.762	-9.758	-9.753	-9.749	-9.744	-9.739	-9.734	-9.729	-430
-420	-9.729	-9.724	-9.719	-9.713	-9.708	-9.702	-9.696	-9.690	-9.684	-9.678	-9.672	-420
-410	-9.672	-9.666	-9.659	-9.653	-9.646	-9.639	-9.633	-9.626	-9.619	-9.611	-9.604	-410
-400	-9.604	-9.597	-9.589	-9.582	-9.574	-9.566	-9.558	-9.550	-9.542	-9.534	-9.526	-400
-390	-9.526	-9.517	-9.509	-9.500	-9.491	-9.482	-9.473	-9.464	-9.455	-9.446	-9.437	-390
-380	-9.437	-9.427	-9.418	-9.408	-9.398	-9.388	-9.378	-9.368	-9.358	-9.348	-9.338	-380
-370	-9.338	-9.327	-9.317	-9.306	-9.296	-9.285	-9.274	-9.263	-9.252	-9.241	-9.229	-370
-360	-9.229	-9.218	-9.207	-9.195	-9.184	-9.172	-9.130	-9.148	-9.136	-9.124	-9.112	-360
-350	-9.112	-9.100	-9.088	-9.075	-9.063	-9.050	-9.038	-9.025	-9.012	-8.999	-8.986	-350
-340	-8.986	-8.973	-8.960	-8.947	-8.934	-8.920	-8.907	-8.893	-8.880	-8.866	-8.852	-340
-330	-8.852	-8.838	-8.824	-8.810	-8.796	-8.782	-8.768	-8.754	-8.739	-8.725	-8.710	-330
-320	-8.710	-8.696	-8.681	-8.666	-8.651	-8.636	-8.621	-8.606	-8.591	-8.576	-8.561	-320
-310	-8.561	-8.545	-8.530	-8.514	-8.499	-8.483	-8.468	-8.452	-8.436	-8.420	-8.404	-310
-300	-8.404	-8.388	-8.372	-8.355	-8.339	-8.323	-8.306	-8.290	-8.273	-8.257	-8.240	-300
-290	-8.240	-8.223	-8.206	-8.189	-8.172	-8.155	-8.138	-8.121	-8.104	-8.086	-8.069	-290
-280	-8.069	-8.051	-8.034	-8.016	-7.999	-7.981	-7.963	-7.945	-7.927	-7.909	-7.891	-280
-270	-7.891	-7.873	-7.855	-7.837	-7.818	-7.800	-7.781	-7.763	-7.744	-7.726	-7.707	-270
-260	-7.707	-7.688	-7.669	-7.650	-7.631	-7.612	-7.593	-7.574	-7.555	-7.535	-7.516	-260
-250	-7.516	-7.497	-7.477	-7.458	-7.438	-7.418	-7.399	-7.379	-7.359	-7.339	-7.319	-250
-240	-7.319	-7.299	-7.279	-7.259	-7.239	-7.218	-7.198	-7.178	-7.157	-7.137	-7.116	-240
-230	-7.116	-7.095	-7.075	-7.054	-7.033	-7.012	-6.991	-6.970	-6.949	-6.928	-6.907	-230
-220	-6.907	-6.886	-6.864	-6.843	-6.822	-6.800	-6.779	-6.757	-6.735	-6.714	-6.692	-220
-210	-6.692	-6.670	-6.648	-6.626	-6.604	-6.582	-6.560	-6.538	-6.516	-6.494	-6.471	-210
-200	-6.471	-6.449	-6.427	-6.404	-6.382	-6.359	-6.336	-6.314	-6.291	-6.268	-6.245	-200
-190	-6.245	-6.222	-6.199	-6.176	-6.153	-6.130	-6.107	-6.084	-6.060	-6.037	-6.013	-190
-180	-6.013	-5.990	-5.967	-5.943	-5.919	-5.896	-5.872	-5.848	-5.824	-5.800	-5.776	-180
-170	-5.776	-5.752	-5.728	-5.704	-5.680	-5.656	-5.632	-5.607	-5.583	-5.559	-5.534	-170
-160	-5.534	-5.540	-5.485	-5.460	-5.436	-5.411	-5.386	-5.362	-5.337	-5.312	-5.287	-160
-150	-5.287	-5.262	-5.237	-5.212	-5.186	-5.161	-5.136	-5.111	-5.085	-5.060	-5.034	-150
-140	-5.034	-5.009	-4.983	-4.958	-4.932	-4.906	-4.880	-4.855	-4.829	-4.803	-4.777	-140
-130	-4.777	-4.751	-4.725	-4.699	-4.672	-4.646	-4.620	-4.594	-4.567	-4.541	-4.515	-130
-120	-4.515	-4.488	-4.462	-4.435	-4.408	-4.382	-4.355	-4.328	-4.301	-4.274	-4.248	-120
-110	-4.248	-4.221	-4.194	-4.167	-4.139	-4.112	-4.085	-4.058	-4.031	-4.003	-3.976	-110
-100	-3.976	-3.949	-3.921	-3.894	-3.866	-3.838	-3.811	-3.783	-3.755	-3.728	-3.700	-100
-90	-3.700	-3.672	-3.644	-3.616	-3.588	-3.560	-3.532	-3.504	-3.476	-3.447	-3.419	-90
-80	-3.419	-3.391	-3.363	-3.334	-3.306	-3.277	-3.249	-3.220	-3.192	-3.163	-3.134	-80
-70	-3.134	-3.106	-3.077	-3.048	-3.019	-2.990	-2.961	-2.932	-2.903	-2.874	-2.845	-70
-60	-2.845	-2.816	-2.787	-2.758	-2.728	-2.699	-2.670	-2.640	-2.611	-2.581	-2.552	-60
-50	-2.552	-2.522	-2.493	-2.463	-2.433	-2.404	-2.374	-2.344	-2.314	-2.284	-2.254	-50
-40	-2.254	-2.224	-2.194	-2.164	-2.134	-2.104	-2.074	-2.044	-2.014	-1.983	-1.953	-40
-30	-1.953	-1.923	-1.892	-1.862	-1.831	-1.801	-1.770	-1.740	-1.709	-1.678	-1.648	-30
-20	-1.648	-1.617	-1.586	-1.555	-1.525	-1.494	-1.463	-1.432	-1.401	-1.370	-1.339	-20
-10	-1.339	-1.308	-1.276	-1.245	-1.214	-1.183	-1.151	-1.120	-1.089	-1.057	-1.026	-10
0	-1.026	-0.994	-0.963	-0.931	-0.900	-0.868	-0.836	-0.805	-0.773	-0.741	-0.709	0

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Table 2-4. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
10	-0.709	-0.677	-0.645	-0.613	-0.581	-0.549	-0.517	-0.485	-0.453	-0.421	-0.389	10
20	-0.389	-0.357	-0.324	-0.292	-0.260	-0.227	-0.195	-0.163	-0.130	-0.098	-0.065	20
30	-0.065	-0.033	0.000	0.033	0.065	0.098	0.131	0.163	0.196	0.229	0.262	30
40	0.262	0.295	0.327	0.360	0.393	0.426	0.459	0.492	0.525	0.558	0.591	40
50	0.591	0.624	0.658	0.691	0.724	0.757	0.790	0.824	0.857	0.890	0.924	50
60	0.924	0.957	0.990	1.024	1.057	1.091	1.124	1.158	1.192	1.225	1.259	60
70	1.259	1.292	1.326	1.360	1.394	1.427	1.461	1.495	1.529	1.563	1.597	70
80	1.597	1.631	1.665	1.699	1.733	1.767	1.801	1.835	1.869	1.903	1.937	80
90	1.937	1.972	2.006	2.040	2.075	2.109	2.143	2.178	2.212	2.247	2.281	90
100	2.281	2.316	2.350	2.385	2.419	2.454	2.489	2.523	2.558	2.593	2.627	100
110	2.627	2.662	2.697	2.732	2.767	2.802	2.837	2.872	2.907	2.942	2.977	110
120	2.977	3.012	3.047	3.082	3.117	3.152	3.187	3.223	3.258	3.293	3.329	120
130	3.329	3.364	3.399	3.435	3.470	3.506	3.541	3.577	3.612	3.648	3.683	130
140	3.683	3.719	3.755	3.790	3.826	3.862	3.898	3.933	3.969	4.005	4.041	140
150	4.041	4.077	4.113	4.149	4.185	4.221	4.257	4.293	4.329	4.365	4.401	150
160	4.401	4.437	4.474	4.510	4.546	4.582	4.619	4.655	4.691	4.728	4.764	160
170	4.764	4.801	4.837	4.874	4.910	4.947	4.983	5.020	5.056	5.093	5.130	170
180	5.130	5.166	5.203	5.240	5.277	5.314	5.350	5.387	5.424	5.461	5.498	180
190	5.498	5.535	5.572	5.609	5.646	5.683	5.720	5.757	5.794	5.832	5.869	190
200	5.869	5.906	5.943	5.981	6.018	6.055	6.092	6.130	6.167	6.205	6.242	200
210	6.242	6.280	6.317	6.355	6.392	6.430	6.467	6.505	6.543	6.580	6.618	210
220	6.618	6.656	6.693	6.731	6.769	6.807	6.845	6.882	6.920	6.958	6.996	220
230	6.996	7.034	7.072	7.110	7.148	7.186	7.224	7.262	7.300	7.339	7.377	230
240	7.377	7.415	7.453	7.491	7.530	7.568	7.606	7.645	7.683	7.721	7.760	240
250	7.760	7.798	7.837	7.875	7.914	7.952	7.991	8.029	8.068	8.106	8.145	250
260	8.145	8.184	8.222	8.261	8.300	8.338	8.377	8.416	8.455	8.494	8.532	260
270	8.532	8.571	8.610	8.649	8.688	8.727	8.766	8.805	8.844	8.883	8.922	270
280	8.922	8.961	9.000	9.039	9.078	9.118	9.157	9.196	9.235	9.274	9.314	280
290	9.314	9.353	9.392	9.432	9.471	9.510	9.550	9.589	9.629	9.668	9.708	290
300	9.708	9.747	9.787	9.826	9.866	9.905	9.945	9.984	10.024	10.064	10.103	300
310	10.103	10.143	10.183	10.223	10.262	10.302	10.342	10.382	10.421	10.461	10.501	310
320	10.501	10.541	10.581	10.621	10.661	10.701	10.741	10.781	10.821	10.861	10.901	320
330	10.901	10.941	10.981	11.021	11.061	11.101	11.142	11.182	11.222	11.262	11.302	330
340	11.302	11.343	11.383	11.423	11.464	11.504	11.544	11.585	11.625	11.665	11.706	340
350	11.706	11.746	11.787	11.827	11.868	11.908	11.949	11.989	12.030	12.070	12.111	350
360	12.111	12.152	12.192	12.233	12.273	12.314	12.355	12.396	12.436	12.477	12.518	360
370	12.518	12.559	12.599	12.640	12.681	12.722	12.763	12.804	12.844	12.885	12.926	370
380	12.926	12.967	13.008	13.049	13.090	13.131	13.172	13.213	13.254	13.295	13.336	380
390	13.336	13.378	13.419	13.460	13.501	13.542	13.583	13.624	13.666	13.707	13.748	390
400	13.748	13.789	13.831	13.872	13.913	13.955	13.996	14.037	14.079	14.120	14.161	400
410	14.161	14.203	14.244	14.286	14.327	14.368	14.410	14.451	14.493	14.534	14.576	410
420	14.576	14.618	14.659	14.701	14.742	14.784	14.826	14.867	14.909	14.950	14.992	420
430	14.992	15.034	15.076	15.117	15.159	15.201	15.243	15.284	15.326	15.368	15.410	430
440	15.410	15.451	15.493	15.535	15.577	15.619	15.661	15.703	15.745	15.787	15.829	440
450	15.829	15.871	15.912	15.954	15.996	16.038	16.080	16.123	16.165	16.207	16.249	450
460	16.249	16.291	16.333	16.375	16.417	16.459	16.501	16.544	16.586	16.628	16.670	460
470	16.670	16.712	16.755	16.797	16.839	16.881	16.924	16.966	17.008	17.051	17.093	470
480	17.093	17.135	17.178	17.220	17.262	17.305	17.347	17.389	17.432	17.474	17.517	480
490	17.517	17.559	17.602	17.644	17.687	17.729	17.772	17.814	17.857	17.899	17.942	490
500	17.942	17.984	18.027	18.070	18.112	18.155	18.197	18.240	18.283	18.325	18.368	500
510	18.368	18.411	18.453	18.496	18.539	18.581	18.624	18.667	18.710	18.752	18.795	510
520	18.795	18.838	18.881	18.924	18.966	19.009	19.052	19.095	19.138	19.181	19.223	520
530	19.223	19.266	19.309	19.352	19.395	19.438	19.481	19.524	19.567	19.610	19.653	530

Table 2-4. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
540	19.653	19.696	19.739	19.782	19.825	19.868	19.911	19.954	19.997	20.040	20.083	540
550	20.083	20.126	20.169	20.212	20.256	20.299	20.342	20.385	20.428	20.471	20.514	550
560	20.514	20.558	20.601	20.644	20.687	20.730	20.774	20.817	20.860	20.903	20.947	560
570	20.947	20.990	21.033	21.076	21.120	21.163	21.206	21.250	21.293	21.336	21.380	570
580	21.380	21.423	21.466	21.510	21.553	21.597	21.640	21.683	21.727	21.770	21.814	580
590	21.814	21.857	21.901	21.944	21.987	22.031	22.074	22.118	22.161	22.205	22.248	590
600	22.248	22.292	22.336	22.379	22.423	22.466	22.510	22.553	22.597	22.640	22.684	600
610	22.684	22.728	22.771	22.815	22.859	22.902	22.946	22.989	23.033	23.077	23.120	610
620	23.120	23.164	23.208	23.252	23.295	23.339	23.383	23.426	23.470	23.514	23.558	620
630	23.558	23.601	23.645	23.689	23.733	23.777	23.820	23.864	23.908	23.952	23.996	630
640	23.996	24.039	24.083	24.127	24.171	24.15	24.259	24.302	24.346	24.390	24.434	640
650	24.434	24.478	24.522	24.566	24.610	24.6554	24.698	24.742	24.786	24.829	24.873	650
660	24.873	24.917	24.961	25.005	25.049	25.093	25.137	25.181	25.225	25.269	25.313	660
670	25.313	25.357	25.401	25.445	25.490	25.534	25.578	25.622	25.666	25.710	25.754	670
680	25.754	25.798	25.842	25.886	25.930	25.74	26.019	26.063	26.107	26.151	26.195	680
690	26.195	26.239	26.283	26.328	26.372	26.416	26.460	26.504	26.549	26.593	26.637	690
700	26.637	26.681	26.725	26.770	26.814	26.858	26.902	26.947	26.991	27.035	27.079	700
710	27.079	27.124	27.168	27.212	27.256	27.301	27.345	27.389	27.434	27.478	27.522	710
720	27.522	27.566	27.611	27.655	27.699	27.744	27.788	27.832	27.877	27.921	27.966	720
730	27.966	28.010	28.054	28.099	28.143	28.187	28.232	28.276	28.321	28.365	28.409	730
740	28.409	28.454	28.498	28.543	28.587	28.632	28.676	28.720	28.765	28.809	28.854	740
750	28.854	28.898	28.943	28.987	29.032	29.076	29.121	29.165	29.210	29.254	29.299	750
760	29.299	29.343	29.388	29.432	29.477	29.521	29.566	29.610	29.655	29.699	29.744	760
770	29.744	29.788	29.833	29.878	29.922	29.967	30.011	30.056	30.100	30.145	30.190	770
780	30.190	30.234	30.279	30.323	30.368	30.412	30.457	30.502	30.546	30.591	30.636	780
790	30.636	30.680	30.725	30.769	30.814	30.859	30.903	30.948	30.993	31.037	31.082	790
800	31.082	31.127	31.171	31.216	31.261	31.305	31.350	31.395	31.439	31.484	31.529	800
810	31.529	31.573	31.618	31.663	31.707	31.752	31.797	31.842	31.886	31.931	31.976	810
820	31.976	32.020	32.065	32.110	32.155	32.199	32.244	32.289	32.334	32.378	32.423	820
830	32.423	32.468	32.513	32.557	32.602	32.647	32.692	32.736	32.781	32.826	32.871	830
840	32.871	32.916	32.960	33.005	33.050	33.095	33.140	33.184	33.229	33.274	33.319	840
850	33.319	33.364	33.408	33.453	33.498	33.543	33.588	33.632	33.677	33.722	33.767	850
860	33.767	33.812	33.857	33.901	33.946	33.991	34.036	34.081	34.126	34.170	34.215	860
870	34.215	34.260	34.305	34.350	34.395	34.440	34.484	34.529	34.574	34.619	34.664	870
880	34.664	34.709	34.754	34.798	34.843	34.888	34.933	34.978	35.023	35.068	35.113	880
890	35.113	35.157	35.202	35.247	35.292	35.337	35.382	35.427	35.472	35.517	35.562	890
900	35.562	35.606	35.651	35.696	35.741	35.786	35.831	35.876	35.921	35.966	36.011	900
910	36.011	36.056	36.100	36.145	36.190	36.235	36.280	36.325	36.370	36.415	36.460	910
920	36.460	36.505	36.550	36.595	36.640	36.684	36.729	36.774	36.819	36.864	36.909	920
930	36.909	36.954	36.999	37.044	37.089	37.134	37.179	37.224	37.269	37.314	37.358	930
940	37.358	37.403	37.448	37.493	37.538	37.583	37.628	37.673	37.718	37.763	37.808	940
950	37.808	37.853	37.898	37.943	37.988	38.033	38.078	38.123	38.168	38.213	38.257	950
960	38.257	38.302	38.347	38.392	38.437	38.482	38.527	38.572	38.617	38.662	38.707	960
970	38.707	38.752	38.797	38.842	38.887	38.932	38.977	39.022	39.067	39.112	39.157	970
980	39.157	39.202	39.247	39.291	39.336	39.381	39.426	39.471	39.516	39.561	39.606	980
990	39.606	39.651	39.696	39.741	39.786	39.831	39.876	39.921	39.966	40.011	40.056	990
1000	40.056	40.101	40.146	40.191	40.236	40.280	40.325	40.370	40.415	40.460	40.505	1000
1010	40.505	40.550	40.595	40.640	40.685	40.730	40.775	40.820	40.865	40.910	40.955	1010
1020	40.955	41.000	41.045	41.090	41.134	41.179	41.224	41.269	41.314	41.359	41.404	1020
1030	41.404	41.449	41.494	41.539	41.584	41.629	41.674	41.719	41.764	41.808	41.853	1030
1040	41.853	41.898	41.943	41.988	42.033	42.078	42.123	42.168	42.213	42.258	42.303	1040
1050	42.303	42.348	42.392	42.437	42.482	42.527	42.572	42.617	42.662	42.707	42.752	1050
1060	42.752	42.797	42.842	42.886	42.931	42.976	43.021	43.066	43.111	43.156	43.201	1060

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Table 2-4. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1070	43.201	43.246	43.290	43.335	43.380	43.425	43.470	43.515	43.560	43.605	43.650	1070
1080	43.650	43.694	43.739	43.784	43.829	43.874	43.919	43.964	44.008	44.053	44.098	1080
1090	44.098	44.143	44.188	44.233	44.278	44.322	44.367	44.412	44.457	44.502	44.547	1090
1100	44.547	44.592	44.636	44.681	44.726	44.771	44.816	44.861	44.905	44.950	44.995	1100
1110	44.995	45.040	45.085	45.130	45.174	45.219	45.264	45.309	45.354	45.398	45.443	1110
1120	45.443	45.488	45.533	45.578	45.622	45.667	45.712	45.757	45.802	45.846	45.891	1120
1130	45.891	45.936	45.981	46.025	46.070	46.115	46.160	46.205	46.249	46.294	46.339	1130
1140	46.339	46.384	46.428	46.473	46.518	46.563	46.607	46.652	46.697	46.742	46.786	1140
1150	46.786	46.831	46.876	46.921	46.965	47.010	47.055	47.099	47.144	47.189	47.234	1150
1160	47.234	47.278	47.323	47.368	47.412	47.457	47.502	47.546	47.591	47.636	47.681	1160
1170	47.681	47.725	47.770	47.815	47.859	47.904	47.949	47.993	48.038	48.083	48.127	1170
1180	48.127	48.172	48.217	48.261	48.306	48.351	48.395	48.440	48.484	48.529	48.574	1180
1190	48.574	48.618	48.663	48.708	48.752	48.797	48.842	48.886	48.931	48.975	49.020	1190
1200	49.020	49.065	49.109	49.154	49.198	49.243	49.288	49.332	49.377	49.421	49.466	1200
1210	49.466	49.510	49.555	49.600	49.644	49.689	49.733	49.778	49.822	49.867	49.911	1210
1220	49.911	49.956	50.001	50.045	50.090	50.134	50.179	50.223	50.268	50.312	50.357	1220
1230	50.357	50.401	50.446	50.490	50.535	50.579	50.624	50.668	50.713	50.757	50.802	1230
1240	50.802	50.846	50.891	50.935	50.980	51.024	51.069	51.113	51.157	51.202	51.246	1240
1250	51.246	51.291	51.335	51.380	51.424	51.469	51.513	51.557	51.602	51.646	51.691	1250
1260	51.691	51.735	51.780	51.824	51.868	51.913	51.957	52.002	52.046	52.090	52.135	1260
1270	52.135	52.179	52.223	52.268	52.312	52.357	52.401	52.445	52.490	52.534	52.578	1270
1280	52.578	52.623	52.667	52.711	52.756	52.800	52.844	52.889	52.933	52.977	53.022	1280
1290	53.022	53.066	53.110	53.155	53.199	53.243	53.288	53.332	53.376	53.420	53.465	1290
1300	53.465	53.509	53.553	53.597	53.642	53.686	53.730	53.774	53.819	53.863	53.907	1300
1310	53.907	53.951	53.996	54.040	54.084	54.128	54.173	54.217	54.261	54.305	54.349	1310
1320	54.349	54.394	54.438	54.482	54.526	54.570	54.615	54.659	54.703	54.747	54.791	1320
1330	54.791	54.835	54.880	54.924	54.968	55.012	55.056	55.100	55.145	55.189	55.233	1330
1340	55.233	55.277	55.321	55.365	55.409	55.453	55.498	55.542	55.586	55.630	55.674	1340
1350	55.674	55.718	55.762	55.806	55.850	55.894	55.938	55.982	56.026	56.071	56.115	1350
1360	56.115	56.159	56.203	56.247	56.291	56.335	56.379	56.423	56.467	56.511	56.555	1360
1370	56.555	56.599	56.643	56.687	56.731	56.775	56.819	56.863	56.907	56.951	56.995	1370
1380	56.995	57.039	57.083	57.127	57.171	57.215	57.259	57.303	57.346	57.390	57.434	1380
1390	57.434	57.478	57.522	57.566	57.610	57.654	57.698	57.742	57.786	57.830	57.873	1390
1400	57.873	57.917	57.961	58.005	58.049	58.093	58.137	58.181	58.224	58.268	58.312	1400
1410	58.312	58.356	58.400	58.444	58.487	58.531	58.575	58.619	58.663	58.707	58.750	1410
1420	58.750	58.794	58.838	58.882	58.926	58.969	59.013	59.057	59.101	59.144	59.188	1420
1430	59.188	59.232	59.276	59.319	59.363	59.407	59.451	59.494	59.538	59.582	59.626	1430
1440	59.626	59.669	59.713	59.757	59.800	59.844	59.888	59.932	59.975	60.019	60.063	1440
1450	60.063	60.106	60.150	60.194	60.237	60.281	60.325	60.368	60.412	60.455	60.499	1450
1460	60.499	60.543	60.586	60.630	60.674	60.717	60.761	60.804	60.848	60.892	60.935	1460
1470	60.935	60.979	61.022	61.066	61.109	61.153	61.197	61.240	61.284	61.327	61.371	1470
1480	61.371	61.414	61.458	61.501	61.545	61.588	61.632	61.675	61.719	61.762	61.806	1480
1490	61.806	61.849	61.893	61.936	61.980	62.023	62.067	62.110	62.154	62.197	62.240	1490
1500	62.240	62.284	62.327	62.371	62.414	62.458	62.501	62.544	62.588	62.631	62.675	1500
1510	62.675	62.718	62.761	62.805	62.848	62.892	62.935	62.978	63.022	63.065	63.108	1510
1520	63.108	63.152	63.195	63.238	63.282	63.325	63.368	63.412	63.455	63.498	63.542	1520
1530	63.542	63.585	63.628	63.671	63.715	63.758	63.801	63.844	63.888	63.931	63.974	1530
1540	63.974	64.017	64.061	64.104	64.147	64.190	64.234	64.277	64.320	64.363	64.406	1540
1550	64.406	64.450	64.493	64.536	64.579	64.622	64.665	64.709	64.752	64.795	64.838	1550
1560	64.838	64.881	64.924	64.967	65.011	65.054	65.097	65.140	65.183	65.226	65.269	1560
1570	65.269	65.312	65.355	65.398	65.441	65.484	65.528	65.571	65.614	65.657	65.700	1570
1580	65.700	65.743	65.786	65.829	65.872	65.915	65.958	66.001	66.044	66.087	66.130	1580
1590	66.130	66.173	66.216	66.259	66.302	66.345	66.387	66.430	66.473	66.516	66.559	1590

Table 2-4. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1600	66.559	66.602	66.645	66.688	66.731	66.774	66.817	66.859	66.902	66.945	66.988	1600
1610	66.988	67.031	67.074	67.117	67.159	67.202	67.245	67.288	67.331	67.374	67.416	1610
1620	67.416	67.459	67.502	67.545	67.588	67.630	67.673	67.716	67.759	67.801	67.844	1620
1630	67.844	67.887	67.930	67.972	68.015	68.058	68.101	68.143	68.186	68.229	68.271	1630
1640	68.271	68.314	68.357	68.399	68.442	68.485	68.527	68.570	68.613	68.655	68.698	1640
1650	68.698	68.740	68.783	68.826	68.868	68.911	68.953	68.996	69.039	69.081	69.124	1650
1660	69.124	69.166	69.209	69.251	69.294	69.337	69.379	69.422	69.464	69.507	69.549	1660
1670	69.549	69.592	69.634	69.677	69.719	69.762	69.804	69.847	69.889	69.931	69.974	1670
1680	69.974	70.016	70.059	70.101	70.144	70.186	70.228	70.271	70.313	70.356	70.398	1680
1690	70.398	70.440	70.483	70.525	70.567	70.610	70.652	70.694	70.737	70.779	70.821	1690
1700	70.821	70.864	70.906	70.948	70.991	71.033	71.075	71.118	71.160	71.202	71.244	1700
1710	71.244	71.287	71.329	71.371	71.413	71.456	71.498	71.540	71.582	71.624	71.667	1710
1720	71.667	71.709	71.751	71.793	71.835	71.878	71.920	71.962	72.004	72.046	72.088	1720
1730	72.088	72.130	72.173	72.215	72.257	72.299	72.341	72.383	72.425	72.467	72.509	1730
1740	72.509	72.551	72.593	72.635	72.678	72.720	72.762	72.804	72.846	72.888	72.930	1740
1750	72.930	72.972	73.014	73.056	73.098	73.140	73.182	73.224	73.266	73.308	73.350	1750
1760	73.350	73.392	73.434	73.475	73.517	73.559	73.601	73.643	73.685	73.727	73.769	1760
1770	73.769	73.811	73.853	73.895	73.936	73.978	74.020	74.062	74.104	74.146	74.188	1770
1780	74.188	74.229	74.271	74.313	74.355	74.397	74.439	74.480	74.522	74.564	74.606	1780
1790	74.606	74.648	74.689	74.731	74.773	74.815	74.857	74.898	74.940	74.982	75.024	1790
1800	75.024	75.065	75.107	75.149	75.191	75.232	75.274	75.316	75.357	75.399	75.441	1800
1810	75.441	75.483	75.524	75.566	75.608	75.649	75.691	75.733	75.774	75.816	75.858	1810
1820	75.858	75.899	75.941	75.983	76.024	76.066	76.108	76.149	76.191	76.233	76.274	1820
1830	76.274	76.316	76.358									1830

T/C TYPE J- THERMOELECTRIC VOLTAGE

as a Function of Temperature (°C) Reference Junctions at 0 °C
Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-5. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-210	-8.096	-8.076	-8.057	-8.037	-8.017	-7.996	-7.976	-7.955	-7.934	-7.912	-7.890	-210
-200	-7.890	-7.868	-7.846	-7.824	-7.801	-7.778	-7.755	-7.731	-7.707	-7.683	-7.659	-200
-190	-7.659	-7.634	-7.609	-7.584	-7.559	-7.533	-7.508	-7.482	-7.455	-7.429	-7.402	-190
-180	-7.402	-7.375	-7.348	-7.321	-7.293	-7.265	-7.237	-7.209	-7.180	-7.151	-7.122	-180
-170	-7.122	-7.093	-7.064	-7.034	-7.004	-6.974	-6.944	-6.914	-6.883	-6.852	-6.821	-170
-160	-6.821	-6.790	-6.758	-6.727	-6.695	-6.663	-6.630	-6.598	-6.565	-6.532	-6.499	-160
-150	-6.499	-6.466	-6.433	-6.399	-6.365	-6.331	-6.297	-6.263	-6.228	-6.194	-6.159	-150
-140	-6.159	-6.124	-6.089	-6.053	-6.018	-5.982	-5.946	-5.910	-5.874	-5.837	-5.801	-140
-130	-5.801	-5.764	-5.727	-5.690	-5.653	-5.615	-5.578	-5.540	-5.502	-5.464	-5.426	-130
-120	-5.426	-5.388	-5.349	-5.311	-5.272	-5.233	-5.194	-5.155	-5.115	-5.076	-5.036	-120
-110	-5.036	-4.996	-4.956	-4.916	-4.876	-4.836	-4.795	-4.755	-4.714	-4.673	-4.632	-110
-100	-4.632	-4.591	-4.550	-4.508	-4.467	-4.425	-4.383	-4.341	-4.299	-4.257	-4.215	-100
-90	-4.215	-4.172	-4.130	-4.087	-4.044	-4.001	-3.958	-3.915	-3.872	-3.829	-3.785	-90
-80	-3.785	-3.742	-3.698	-3.654	-3.610	-3.566	-3.522	-3.478	-3.433	-3.389	-3.344	-80
-70	-3.344	-3.299	-3.255	-3.210	-3.165	-3.120	-3.074	-3.029	-2.984	-2.938	-2.892	-70
-60	-2.892	-2.847	-2.801	-2.755	-2.709	-2.663	-2.617	-2.570	-2.524	-2.478	-2.431	-60
-50	-2.431	-2.384	-2.338	-2.291	-2.244	-2.197	-2.150	-2.102	-2.055	-2.008	-1.960	-50
-40	-1.960	-1.913	-1.865	-1.818	-1.770	-1.722	-1.674	-1.626	-1.578	-1.530	-1.481	-40
-30	-1.481	-1.433	-1.385	-1.336	-1.288	-1.239	-1.190	-1.141	-1.093	-1.044	-0.995	-30
-20	-0.995	-0.945	-0.896	-0.847	-0.798	-0.748	-0.699	-0.650	-0.600	-0.550	-0.501	-20

Technical Data Sheet

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Table 2-5. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-10	-0.501	-0.451	-0.401	-0.351	-0.301	-0.251	-0.201	-0.151	-0.101	-0.050	0.000	-10
0	0.000	0.050	0.101	0.151	0.202	0.153	0.303	0.354	0.405	0.456	0.507	0
10	0.507	0.558	0.609	0.660	0.711	0.762	0.813	0.865	0.916	0.867	1.019	10
20	1.019	1.070	1.122	1.174	1.225	1.277	1.329	1.381	1.432	1.484	1.536	20
30	1.536	1.588	1.640	1.693	1.745	1.797	1.849	1.901	1.954	2.006	2.058	30
40	2.058	2.111	2.163	2.216	2.268	2.321	2.374	2.426	2.479	2.532	2.585	40
50	2.585	2.638	2.691	2.743	2.796	2.849	2.902	2.956	3.009	3.062	3.115	50
60	3.115	3.168	3.221	3.275	3.328	3.381	3.435	3.488	3.542	3.595	3.649	60
70	3.649	3.702	3.756	3.809	3.863	3.917	3.971	4.024	4.078	4.132	4.186	70
80	4.186	4.239	4.293	4.347	4.401	4.455	4.509	4.563	4.617	4.671	4.725	80
90	4.725	4.780	4.834	4.888	4.942	4.996	5.050	5.105	5.159	5.213	5.268	90
100	5.268	5.322	5.376	5.431	5.485	5.540	5.594	5.649	5.703	5.758	5.812	100
110	5.812	5.867	5.921	5.976	6.031	6.085	6.140	6.195	6.249	6.304	6.359	110
120	6.359	6.414	6.468	6.523	6.578	6.633	6.688	6.742	6.797	6.852	6.907	120
130	6.907	6.962	7.017	7.072	7.127	7.182	7.237	7.292	7.347	7.402	7.457	130
140	7.457	7.512	7.567	7.622	7.677	7.732	7.787	7.843	7.898	7.953	8.008	140
150	8.008	8.063	8.118	8.174	8.229	8.284	8.339	8.394	8.450	8.505	8.560	150
160	8.560	8.616	8.671	8.726	8.781	8.837	8.892	8.947	9.003	9.058	9.113	160
170	9.113	9.169	9.224	9.279	9.335	9.390	9.446	9.501	9.556	9.612	9.667	170
180	9.667	9.723	9.778	9.834	9.889	9.944	10.000	10.055	10.111	10.166	10.222	180
190	10.222	10.277	10.333	10.388	10.444	10.499	10.555	10.610	10.666	10.721	10.777	190
200	10.777	10.832	10.888	10.943	10.999	11.054	11.110	11.165	11.221	11.276	11.332	200
210	11.332	11.387	11.443	11.498	11.554	11.609	11.665	11.720	11.776	11.831	11.887	210
220	11.887	11.943	11.998	12.054	12.109	12.165	12.220	12.276	12.331	12.387	12.442	220
230	12.442	12.498	12.553	12.609	12.664	12.720	12.776	12.831	12.887	12.942	12.998	230
240	12.998	13.053	13.109	13.164	13.220	13.275	13.331	13.386	13.442	13.497	13.553	240
250	13.553	13.608	13.664	13.719	13.775	13.830	13.886	13.941	13.997	14.052	14.108	250
260	14.108	14.163	14.219	14.274	14.330	14.385	14.441	14.496	14.552	14.607	14.663	260
270	14.663	14.718	14.774	14.829	14.885	14.940	14.995	15.051	15.106	15.162	15.217	270
280	15.217	15.273	15.328	15.383	15.439	15.494	15.550	15.605	15.661	15.716	15.771	280
290	15.771	15.827	15.882	15.938	15.993	16.048	16.104	16.159	16.214	16.270	16.325	290
300	16.325	16.380	16.436	16.491	16.547	16.602	16.657	16.713	16.768	16.823	16.879	300
310	16.879	16.934	16.989	17.044	17.100	17.155	17.210	17.266	17.321	17.376	17.432	310
320	17.432	17.487	17.542	17.597	17.653	17.708	17.763	17.818	17.874	17.929	17.984	320
330	17.984	18.039	18.095	18.150	18.205	18.260	18.316	18.371	18.426	18.481	18.537	330
340	18.537	18.592	18.647	18.702	18.757	18.813	18.868	18.923	18.978	19.033	19.089	340
350	19.089	19.144	19.199	19.254	19.309	19.364	19.420	19.475	19.530	19.585	19.640	350
360	19.640	19.695	19.751	19.806	19.861	19.916	19.971	20.026	20.081	20.137	20.192	360
370	20.192	20.247	20.302	20.357	20.412	20.467	20.523	20.578	20.633	20.688	20.743	370
380	20.743	20.798	20.853	20.909	20.964	21.019	21.074	21.129	21.184	21.239	21.295	380
390	21.295	21.350	21.405	21.460	21.515	21.570	21.625	21.680	21.736	21.791	21.846	390
400	21.846	21.901	21.956	22.011	22.066	22.122	22.177	22.232	22.287	22.342	22.397	400
410	22.397	22.453	22.508	22.563	22.618	22.673	22.728	22.784	22.839	22.894	22.949	410
420	22.949	23.004	23.060	23.115	23.170	23.225	23.280	23.336	23.391	23.446	23.501	420
430	23.501	23.556	23.612	23.667	23.722	23.777	23.833	23.888	23.943	23.999	24.054	430
440	24.054	24.109	24.164	24.220	24.275	24.330	24.386	24.441	24.496	24.552	24.607	440
450	24.607	24.662	24.718	24.773	24.829	24.884	24.939	24.995	25.050	25.106	25.161	450
460	25.161	25.217	25.272	25.327	25.383	25.438	25.494	25.549	25.605	25.661	25.716	460
470	25.716	25.772	25.827	25.883	25.938	25.994	26.050	26.105	26.161	26.216	26.272	470
480	26.272	26.328	26.383	26.439	26.495	26.551	26.606	26.662	26.718	26.774	26.829	480
490	26.829	26.885	26.941	26.997	27.053	27.109	27.165	27.220	27.276	27.332	27.388	490
500	27.388	27.444	27.500	27.556	27.612	27.668	27.724	27.780	27.836	27.893	27.949	500
510	27.949	28.005	28.061	28.117	28.173	28.230	28.286	28.342	28.398	28.455	28.511	510

Table 2-5. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
520	28.511	28.567	28.624	28.680	28.736	28.793	28.849	28.906	28.962	29.019	29.075	520
530	29.075	29.132	29.188	29.245	29.301	29.358	29.415	29.471	29.528	29.585	29.642	530
540	29.642	29.698	29.755	29.812	29.869	29.926	29.983	30.039	30.096	30.153	30.210	540
550	30.210	30.267	30.324	30.381	30.439	30.496	30.553	30.610	30.667	30.724	30.782	550
560	30.782	30.839	30.896	30.954	31.011	31.068	31.126	31.183	31.241	31.298	31.356	560
570	31.356	31.413	31.471	31.528	31.586	31.644	31.702	31.759	31.817	31.875	31.933	570
580	31.933	31.991	32.048	32.106	32.164	32.222	32.280	32.338	32.396	32.455	32.513	580
590	32.513	32.571	32.629	32.687	32.746	32.804	32.862	32.921	32.979	33.038	33.096	590
600	33.096	33.155	33.213	33.272	33.330	33.389	33.448	33.506	33.565	33.624	33.683	600
610	33.683	33.742	33.800	33.859	33.918	33.977	34.036	34.095	34.155	34.214	34.273	610
620	34.273	34.332	34.391	34.451	34.510	34.569	34.629	34.688	34.748	34.807	34.867	620
630	34.867	34.926	34.986	35.046	35.105	35.165	35.225	35.285	35.344	35.404	35.464	630
640	35.464	35.524	35.584	35.644	35.704	35.764	35.825	35.885	35.945	36.005	36.066	640
650	36.066	36.126	36.186	36.247	36.307	36.368	36.428	36.489	36.549	36.610	36.671	650
660	36.671	36.732	36.792	36.853	36.914	36.975	37.036	37.097	37.158	37.219	37.280	660
670	37.280	37.341	37.402	37.463	37.525	37.586	37.647	37.709	37.770	37.831	37.893	670
680	37.893	37.954	38.016	38.078	38.139	38.201	38.262	38.324	38.386	38.448	38.510	680
690	38.510	38.572	38.633	38.695	38.757	38.819	38.882	38.944	39.006	39.068	39.130	690
700	39.130	39.192	39.255	39.317	39.379	39.442	39.504	39.567	39.629	39.692	39.754	700
710	39.754	39.817	39.880	39.942	40.005	40.068	40.131	40.193	40.256	40.319	40.382	710
720	40.382	40.445	40.508	40.571	40.634	40.697	40.760	40.823	40.886	40.950	41.013	720
730	41.013	41.076	41.139	41.203	41.266	41.329	41.393	41.456	41.520	41.583	41.647	730
740	41.647	41.710	41.774	41.837	41.901	41.965	42.028	42.092	42.156	42.219	42.283	740
750	42.283	42.347	42.411	42.475	42.538	42.602	42.666	42.730	42.794	42.858	42.922	750

T/C TYPE J - THERMOELECTRIC VOLTAGE

**as a Function of Temperature (°F) Reference Junctions at 32 °F
Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7**

Table 2-6. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-350					-8.096	-8.085	-8.074	-8.063	-8.052	-8.041	-8.030	-350
-340	-8.030	-8.019	-8.008	-7.996	-7.985	-7.973	-7.962	-7.950	-7.938	-7.927	-7.915	-340
-330	-7.915	-7.903	-7.890	-7.878	-7.866	-7.854	-7.841	-7.829	-7.816	-7.803	-7.791	-330
-320	-7.791	-7.778	-7.765	-7.752	-7.739	-7.726	-7.712	-7.699	-7.686	-7.672	-7.659	-320
-310	-7.659	-7.645	-7.631	-7.618	-7.604	-7.590	-7.576	-7.562	-7.548	-7.533	-7.519	-310
-300	-7.519	-7.505	-7.490	-7.476	-7.461	-7.447	-7.432	-7.417	-7.402	-7.387	-7.372	-300
-290	-7.372	-7.357	-7.342	-7.327	-7.311	-7.296	-7.281	-7.265	-7.250	-7.234	-7.218	-290
-280	-7.218	-7.202	-7.187	-7.171	-7.155	-7.139	-7.122	-7.106	-7.090	-7.074	-7.057	-280
-270	-7.057	-7.041	-7.024	-7.008	-6.991	-6.974	-6.958	-6.941	-6.924	-6.907	-6.890	-270
-260	-6.890	-6.873	-6.856	-6.838	-6.821	-6.804	-6.786	-6.769	-6.751	-6.734	-6.716	-260
-250	-6.716	-6.698	-6.680	-6.663	-6.645	-6.627	-6.609	-6.591	-6.572	-6.554	-6.536	-250
-240	-6.536	-6.518	-6.499	-6.481	-6.462	-6.444	-6.425	-6.407	-6.388	-6.369	-6.350	-240
-230	-6.350	-6.331	-6.312	-6.293	-6.274	-6.255	-6.236	-6.217	-6.198	-6.178	-6.159	-230
-220	-6.159	-6.139	-6.120	-6.100	-6.081	-6.061	-6.041	-6.022	-6.002	-5.982	-5.962	-220
-210	-5.962	-5.942	-5.922	-5.902	-5.882	-5.861	-5.841	-5.821	-5.801	-5.780	-5.760	-210
-200	-5.760	-5.739	-5.719	-5.698	-5.678	-5.657	-5.636	-5.615	-5.594	-5.574	-5.553	-200
-190	-5.553	-5.532	-5.511	-5.490	-5.468	-5.447	-5.426	-5.405	-5.383	-5.362	-5.341	-190
-180	-5.341	-5.319	-5.298	-5.276	-5.255	-5.233	-5.211	-5.190	-5.168	-5.146	-5.124	-180
-170	-5.124	-5.102	-5.080	-5.058	-5.036	-5.014	-4.992	-4.970	-4.948	-4.925	-4.903	-170
-160	-4.903	-4.881	-4.858	-4.836	-4.813	-4.791	-4.768	-4.746	-4.723	-4.700	-4.678	-160

Technical Data Sheet

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Table 2-6. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-150	-4.678	-4.655	-4.632	-4.609	-4.586	-4.563	-4.540	-4.517	-4.494	-4.471	-4.448	-150
-140	-4.448	-4.425	-4.402	-4.379	-4.355	-4.332	-4.309	-4.285	-4.262	-4.238	-4.215	-140
-130	-4.215	-4.191	-4.168	-4.144	-4.120	-4.097	-4.073	-4.049	-4.025	-4.001	-3.978	-130
-120	-3.978	-3.954	-3.930	-3.906	-3.882	-3.858	-3.833	-3.809	-3.785	-3.761	-3.737	-120
-110	-3.737	-3.712	-3.688	-3.664	-3.639	-3.615	-3.590	-3.566	-3.541	-3.517	-3.492	-110
-100	-3.492	-3.468	-3.443	-3.418	-3.394	-3.369	-3.344	-3.319	-3.294	-3.270	-3.245	-100
-90	-3.245	-3.220	-3.195	-3.170	-3.145	-3.120	-3.094	-3.069	-3.044	-3.019	-2.994	-90
-80	-2.994	-2.968	-2.943	-2.918	-2.892	-2.867	-2.842	-2.816	-2.791	-2.765	-2.740	-80
-70	-2.740	-2.714	-2.689	-2.663	-2.637	-2.612	-2.586	-2.560	-2.534	-2.509	-2.483	-70
-60	-2.483	-2.457	-2.431	-2.405	-2.379	-2.353	-2.327	-2.301	-2.275	-2.249	-2.223	-60
-50	-2.223	-2.197	-2.171	-2.144	-2.118	-2.092	-2.066	-2.039	-2.013	-1.987	-1.960	-50
-40	-1.960	-1.934	-1.908	-1.881	-1.855	-1.828	-1.802	-1.775	-1.748	-1.722	-1.695	-40
-30	-1.695	-1.669	-1.642	-1.615	-1.589	-1.562	-1.535	-1.508	-1.481	-1.455	-1.428	-30
-20	-1.428	-1.401	-1.374	-1.347	-1.320	-1.293	-1.266	-1.239	-1.212	-1.185	-1.158	-20
-10	-1.158	-1.131	-1.103	-1.076	-1.049	-1.022	-0.995	-0.967	-0.940	-0.913	-0.885	-10
0	-0.885	-0.858	-0.831	-0.803	-0.776	-0.748	-0.721	-0.694	-0.666	-0.639	-0.611	0
10	-0.611	-0.583	-0.556	-0.528	-0.501	-0.473	-0.445	-0.418	-0.390	-0.362	-0.334	10
20	-0.334	-0.307	-0.279	-0.251	-0.223	-0.195	-0.168	-0.140	-0.112	-0.084	-0.056	20
30	-0.056	-0.028	0.000	0.028	0.056	0.084	0.112	0.140	0.168	0.196	0.224	30
40	0.224	0.253	0.281	0.309	0.337	0.365	0.394	0.422	0.450	0.478	0.507	40
50	0.507	0.535	0.563	0.592	0.620	0.648	0.677	0.705	0.734	0.762	0.791	50
60	0.791	0.819	0.848	0.876	0.905	0.933	0.962	0.990	1.019	1.048	1.076	60
70	1.076	1.105	1.134	1.162	1.191	1.220	1.248	1.277	1.306	1.335	1.363	70
80	1.363	1.392	1.421	1.450	1.479	1.507	1.536	1.565	1.594	1.623	1.652	80
90	1.652	1.681	1.710	1.739	1.768	1.797	1.826	1.855	1.884	1.913	1.942	90
100	1.942	1.971	2.000	2.029	2.058	2.088	2.117	2.146	2.175	2.204	2.233	100
110	2.233	2.263	2.292	2.321	2.350	2.380	2.409	2.438	2.467	2.497	2.526	110
120	2.526	2.555	2.585	2.614	2.644	2.673	2.702	2.732	2.761	2.791	2.820	120
130	2.820	2.849	2.879	2.908	2.938	2.967	2.997	3.026	3.056	3.085	3.115	130
140	3.115	3.145	3.174	3.204	3.233	3.263	3.293	3.322	3.352	3.381	3.411	140
150	3.411	3.441	3.470	3.500	3.530	3.560	3.589	3.619	3.649	3.678	3.708	150
160	3.708	3.738	3.768	3.798	3.827	3.857	3.887	3.917	3.947	3.976	4.006	160
170	4.006	4.036	4.066	4.096	4.126	4.156	4.186	4.216	4.245	4.275	4.305	170
180	4.305	4.335	4.365	4.395	4.425	4.455	4.485	4.515	4.545	4.575	4.605	180
190	4.605	4.635	4.665	4.695	4.725	4.755	4.786	4.816	4.846	4.876	4.906	190
200	4.906	4.936	4.966	4.996	5.026	5.057	5.087	5.117	5.147	5.177	5.207	200
210	5.207	5.238	5.268	5.298	5.328	5.358	5.389	5.419	5.449	5.479	5.509	210
220	5.509	5.540	5.570	5.600	5.630	5.661	5.691	5.721	5.752	5.782	5.812	220
230	5.812	5.843	5.873	5.903	5.934	5.964	5.994	6.025	6.055	6.085	6.116	230
240	6.116	6.146	6.176	6.207	6.237	6.268	6.298	6.328	6.359	6.389	6.420	240
250	6.420	6.450	6.481	6.511	6.541	6.572	6.602	6.633	6.663	6.694	6.724	250
260	6.724	6.755	6.785	6.816	6.846	6.877	6.907	6.938	6.968	6.999	7.029	260
270	7.029	7.060	7.090	7.121	7.151	7.182	7.212	7.243	7.274	7.304	7.335	270
280	7.335	7.365	7.396	7.426	7.457	7.488	7.518	7.549	7.579	7.610	7.641	280
290	7.641	7.671	7.702	7.732	7.763	7.794	7.824	7.855	7.885	7.916	7.947	290
300	7.947	7.977	8.008	8.039	8.069	8.100	8.131	8.161	8.192	8.223	8.253	300
310	8.253	8.284	8.315	8.345	8.376	8.407	8.437	8.468	8.499	8.530	8.560	310
320	8.560	8.591	8.622	8.652	8.683	8.714	8.745	8.775	8.806	8.837	8.867	320
330	8.867	8.898	8.929	8.960	8.990	9.021	9.052	9.083	9.113	9.144	9.175	330
340	9.175	9.206	9.236	9.267	9.298	9.329	9.359	9.390	9.421	9.452	9.483	340
350	9.483	9.513	9.544	9.575	9.606	9.636	9.667	9.698	9.729	9.760	9.790	350
360	9.790	9.821	9.852	9.883	9.914	9.944	9.975	10.006	10.037	10.068	10.098	360
370	10.098	10.129	10.160	10.191	10.222	10.252	10.283	10.314	10.345	10.376	10.407	370

Table 2-6. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
380	10.407	10.437	10.468	10.499	10.530	10.561	10.592	10.622	10.653	10.684	10.715	380
390	10.715	10.746	10.777	10.807	10.838	10.869	10.900	10.931	10.962	10.992	11.023	390
400	11.023	11.054	11.085	11.116	11.147	11.177	11.208	11.239	11.270	11.301	11.332	400
410	11.332	11.363	11.393	11.424	11.455	11.486	11.517	11.548	11.578	11.609	11.640	410
420	11.640	11.671	11.702	11.733	11.764	11.794	11.825	11.856	11.887	11.918	11.949	420
430	11.949	11.980	12.010	12.041	12.072	12.103	12.134	12.165	12.196	12.226	12.257	430
440	12.257	12.288	12.319	12.350	12.381	12.411	12.442	12.473	12.504	12.535	12.566	440
450	12.566	12.597	12.627	12.658	12.689	12.720	12.751	12.782	12.813	12.843	12.874	450
460	12.874	12.905	12.936	12.967	12.998	13.029	13.059	13.090	13.121	13.152	13.183	460
470	13.183	13.214	13.244	13.275	13.306	13.337	13.368	13.399	13.430	13.460	13.491	470
480	13.491	13.522	13.553	13.584	13.615	13.645	13.676	13.707	13.738	13.769	13.800	480
490	13.800	13.830	13.861	13.892	13.923	13.954	13.985	14.015	14.046	14.077	14.108	490
500	14.108	14.139	14.170	14.200	14.231	14.262	14.293	14.324	14.355	14.385	14.416	500
510	14.416	14.447	14.478	14.509	14.539	14.570	14.601	14.632	14.663	14.694	14.724	510
520	14.724	14.755	14.786	14.817	14.848	14.878	14.909	14.940	14.971	15.002	15.032	520
530	15.032	15.063	15.094	15.125	15.156	15.186	15.217	15.248	15.279	15.310	15.340	530
540	15.340	15.371	15.402	15.433	15.464	15.494	15.525	15.556	15.587	15.617	15.648	540
550	15.648	15.679	15.710	15.741	15.771	15.802	15.833	15.864	15.894	15.925	15.956	550
560	15.956	15.987	16.018	16.048	16.079	16.110	16.141	16.171	16.202	16.233	16.264	560
570	16.264	16.294	16.325	16.356	16.387	16.417	16.448	16.479	16.510	16.540	16.571	570
580	16.571	16.602	16.633	16.663	16.694	16.725	16.756	16.786	16.817	16.848	16.879	580
590	16.879	16.909	16.940	16.971	17.001	17.032	17.063	17.094	17.124	17.155	17.186	590
600	17.186	17.217	17.247	17.278	17.309	17.339	17.370	17.401	17.432	17.462	17.493	600
610	17.493	17.524	17.554	17.585	17.616	17.646	17.677	17.708	17.739	17.769	17.800	610
620	17.800	17.831	17.861	17.892	17.923	17.953	17.984	18.015	18.046	18.076	18.107	620
630	18.107	18.138	18.168	18.199	18.230	18.260	18.291	18.322	18.352	18.383	18.414	630
640	18.414	18.444	18.475	18.506	18.537	18.567	18.598	18.629	18.659	18.690	18.721	640
650	18.721	18.751	18.782	18.813	18.843	18.874	18.905	18.935	18.966	18.997	19.027	650
660	19.027	19.058	19.089	19.119	19.150	19.180	19.211	19.242	19.272	19.303	19.334	660
670	19.334	19.364	19.395	19.426	19.456	19.487	19.518	19.548	19.579	19.610	19.640	670
680	19.640	19.671	19.702	19.732	19.763	19.793	19.824	19.855	19.885	19.916	19.947	680
690	19.947	19.977	20.008	20.039	20.069	20.100	20.131	20.161	20.192	20.222	20.253	690
700	20.253	20.284	20.314	20.345	20.376	20.406	20.437	20.467	20.498	20.529	20.559	700
710	20.559	20.590	20.621	20.651	20.682	20.713	20.743	20.774	20.804	20.835	20.866	710
720	20.866	20.896	20.927	20.958	20.988	21.019	21.049	21.080	21.111	21.141	21.172	720
730	21.172	21.203	21.233	21.264	21.295	21.325	21.356	21.386	21.417	21.448	21.478	730
740	21.478	21.509	21.540	21.570	21.601	21.631	21.662	21.693	21.723	21.754	21.785	740
750	21.785	21.815	21.846	21.877	21.907	21.938	21.968	21.999	22.030	22.060	22.091	750
760	22.091	22.122	22.152	22.183	22.214	22.244	22.275	22.305	22.336	22.367	22.397	760
770	22.397	22.428	22.459	22.489	22.520	22.551	22.581	22.612	22.643	22.673	22.704	770
780	22.704	22.735	22.765	22.796	22.826	22.857	22.888	22.918	22.949	22.980	23.010	780
790	23.010	23.041	23.072	23.102	23.133	23.164	23.194	23.225	23.256	23.286	23.317	790
800	23.317	23.348	23.378	23.409	23.440	23.471	23.501	23.532	23.563	23.593	23.624	800
810	23.624	23.655	23.685	23.716	23.747	23.777	23.808	23.839	23.870	23.900	23.931	810
820	23.931	23.962	23.992	24.023	24.054	24.085	24.115	24.146	24.177	24.207	24.238	820
830	24.238	24.269	24.300	24.330	24.361	24.392	24.423	24.453	24.484	24.515	24.546	830
840	24.546	24.576	24.607	24.638	24.669	24.699	24.730	24.761	24.792	24.822	24.853	840
850	24.853	24.884	24.915	24.946	24.976	25.007	25.038	25.069	25.099	25.130	25.161	850
860	25.161	25.192	25.223	25.254	25.284	25.315	25.346	25.377	25.408	25.438	25.469	860
870	25.469	25.500	25.531	25.562	25.593	25.623	25.654	25.685	25.716	25.747	25.778	870
880	25.778	25.809	25.840	25.870	25.901	25.932	25.963	25.994	26.025	26.056	26.087	880
890	26.087	26.118	26.148	26.179	26.210	26.241	26.272	26.303	26.334	26.365	26.396	890
900	26.396	26.427	26.458	26.489	26.520	26.551	26.582	26.613	26.644	26.675	26.705	900

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Table 2-6. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
910	26.705	26.736	26.767	26.798	26.829	26.860	26.891	26.922	26.954	26.985	27.016	910
920	27.016	27.047	27.078	27.109	27.140	27.171	27.202	27.233	27.264	27.295	27.326	920
930	27.326	27.357	27.388	27.419	27.450	27.482	27.513	27.544	27.575	27.606	27.637	930
940	27.637	27.668	27.699	27.731	27.762	27.793	27.824	27.855	27.886	27.917	27.949	940
950	27.949	27.980	28.011	28.042	28.073	28.105	28.136	28.167	28.198	28.230	28.261	950
960	28.261	28.292	28.323	28.355	28.386	28.417	28.448	28.480	28.511	28.542	28.573	960
970	28.573	28.605	28.636	28.667	28.699	28.730	28.761	28.793	28.824	28.855	28.887	970
980	28.887	28.918	28.950	28.981	29.012	29.044	29.075	29.107	29.138	29.169	29.201	980
990	29.201	29.232	29.264	29.295	29.327	29.358	29.390	29.421	29.452	29.484	29.515	990
1000	29.515	29.547	29.578	29.610	29.642	29.673	29.705	29.736	29.768	29.799	29.831	1000
1010	29.831	29.862	29.894	29.926	29.957	29.989	30.020	30.052	30.084	30.115	30.147	1010
1020	30.147	30.179	30.210	30.242	30.274	30.305	30.337	30.369	30.400	30.432	30.464	1020
1030	30.464	30.496	30.527	30.559	30.591	30.623	30.654	30.686	30.718	30.750	30.782	1030
1040	30.782	30.813	30.845	30.877	30.909	30.941	30.973	31.005	31.036	31.068	31.100	1040
1050	31.100	31.132	31.164	31.196	31.228	31.260	31.292	31.324	31.356	31.388	31.420	1050
1060	31.420	31.452	31.484	31.516	31.548	31.580	31.612	31.644	31.676	31.708	31.740	1060
1070	31.740	31.772	31.804	31.836	31.868	31.901	31.933	31.965	31.997	32.029	32.061	1070
1080	32.061	32.094	32.126	32.158	32.190	32.222	32.255	32.287	32.319	32.351	32.384	1080
1090	32.384	32.416	32.448	32.480	32.513	32.545	32.577	32.610	32.642	32.674	32.707	1090
1100	32.707	32.739	32.772	32.804	32.836	32.869	32.901	32.934	32.966	32.999	33.031	1100
1110	33.031	33.064	33.096	33.129	33.161	33.194	33.226	33.259	33.291	33.324	33.356	1110
1120	33.356	33.389	33.422	33.454	33.487	33.519	33.552	33.585	33.617	33.650	33.683	1120
1130	33.683	33.715	33.748	33.781	33.814	33.846	33.879	33.912	33.945	33.977	34.010	1130
1140	34.010	34.043	34.076	34.109	34.141	34.174	34.207	34.240	34.273	34.306	34.339	1140
1150	34.339	34.372	34.405	34.437	34.470	34.503	34.536	34.569	34.602	34.635	34.668	1150
1160	34.668	34.701	34.734	34.767	34.801	34.834	34.867	34.900	34.933	34.966	34.999	1160
1170	34.999	35.032	35.065	35.099	35.132	35.165	35.198	35.231	35.265	35.298	35.331	1170
1180	35.331	35.364	35.398	35.431	35.464	35.498	35.531	35.564	35.598	35.631	35.664	1180
1190	35.664	35.698	35.731	35.764	35.798	35.831	35.865	35.898	35.932	35.965	35.999	1190
1200	35.999	36.032	36.066	36.099	36.133	36.166	36.200	36.233	36.267	36.301	36.334	1200
1210	36.334	36.368	36.401	36.435	36.469	36.502	36.536	36.570	36.603	36.637	36.671	1210
1220	36.671	36.705	36.738	36.772	36.806	36.840	36.873	36.907	36.941	36.975	37.009	1220
1230	37.009	37.043	37.076	37.110	37.144	37.178	37.212	37.246	37.280	37.314	37.348	1230
1240	37.348	37.382	37.416	37.450	37.484	37.518	37.552	37.586	37.620	37.654	37.688	1240
1250	37.688	37.722	37.756	37.790	37.825	37.859	37.893	37.927	37.961	37.995	38.030	1250
1260	38.030	38.064	38.098	38.132	38.167	38.201	38.235	38.269	38.304	38.338	38.372	1260
1270	38.372	38.407	38.441	38.475	38.510	38.544	38.578	38.613	38.647	38.682	38.716	1270
1280	38.716	38.751	38.785	38.819	38.854	38.888	38.923	38.957	38.992	39.027	39.061	1280
1290	39.061	39.096	39.130	39.165	39.199	39.234	39.269	39.303	39.338	39.373	39.407	1290
1300	39.407	39.442	39.477	39.511	39.546	39.581	39.615	39.650	39.685	39.720	39.754	1300
1310	39.754	39.789	39.824	39.859	39.894	39.928	39.963	39.998	40.033	40.068	40.103	1310
1320	40.103	40.138	40.172	40.207	40.242	40.277	40.312	40.347	40.382	40.417	40.452	1320
1330	40.452	40.487	40.522	40.557	40.592	40.627	40.662	40.697	40.732	40.767	40.802	1330
1340	40.802	40.837	40.872	40.908	40.943	40.978	41.013	41.048	41.083	41.118	41.154	1340
1350	41.154	41.189	41.224	41.259	41.294	41.329	41.365	41.400	41.435	41.470	41.506	1350
1360	41.506	41.541	41.576	41.611	41.647	41.682	41.717	41.753	41.788	41.823	41.859	1360
1370	41.859	41.894	41.929	41.965	42.000	42.035	42.071	42.106	42.142	42.177	42.212	1370
1380	42.212	42.248	42.283	42.319	42.354	42.390	42.425	42.460	42.496	42.531	42.567	1380
1390	42.567	42.602	42.638	42.673	42.709	42.744	42.780	42.815	42.851	42.886	42.922	1390

T/C TYPE K - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°C) Reference Junctions at 0 °C
Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-7. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-270	-6.458	-6.457	-6.456	-6.455	-6.453	-6.452	-6.450	-6.448	-6.446	-6.444	-6.441	-270
-260	-6.441	-6.438	-6.435	-6.432	-6.429	-6.425	-6.421	-6.417	-6.413	-6.408	-6.404	-260
-250	-6.404	-6.399	-6.394	-6.388	-6.382	-6.377	-6.371	-6.364	-6.358	-6.351	-6.344	-250
-240	-6.344	-6.337	-6.329	-6.322	-6.314	-6.306	-6.297	-6.289	-6.280	-6.271	-6.262	-240
-230	-6.262	-6.253	-6.243	-6.233	-6.223	-6.213	-6.202	-6.192	-6.181	-6.170	-6.158	-230
-220	-6.158	-6.147	-6.135	-6.123	-6.111	-6.099	-6.087	-6.074	-6.061	-6.048	-6.035	-220
-210	-6.035	-6.021	-6.007	-5.994	-5.980	-5.965	-5.951	-5.936	-5.922	-5.907	-5.891	-210
-200	-5.891	-5.876	-5.860	-5.845	-5.829	-5.813	-5.796	-5.780	-5.763	-5.747	-5.730	-200
-190	-5.730	-5.712	-5.695	-5.678	-5.660	-5.642	-5.624	-5.606	-5.587	-5.569	-5.550	-190
-180	-5.550	-5.531	-5.512	-5.493	-5.474	-5.454	-5.434	-5.414	-5.394	-5.374	-5.354	-180
-170	-5.354	-5.333	-5.313	-5.292	-5.271	-5.249	-5.228	-5.207	-5.185	-5.163	-5.141	-170
-160	-5.141	-5.119	-5.097	-5.074	-5.051	-5.029	-5.006	-4.983	-4.959	-4.936	-4.912	-160
-150	-4.912	-4.889	-4.865	-4.841	-4.817	-4.792	-4.768	-4.743	-4.719	-4.694	-4.669	-150
-140	-4.669	-4.644	-4.618	-4.593	-4.567	-4.541	-4.515	-4.489	-4.463	-4.437	-4.410	-140
-130	-4.410	-4.384	-4.357	-4.330	-4.303	-4.276	-4.248	-4.221	-4.193	-4.166	-4.138	-130
-120	-4.138	-4.110	-4.082	-4.053	-4.025	-3.997	-3.968	-3.939	-3.910	-3.881	-3.852	-120
-110	-3.852	-3.823	-3.793	-3.764	-3.734	-3.704	-3.674	-3.644	-3.614	-3.584	-3.553	-110
-100	-3.553	-3.523	-3.492	-3.461	-3.430	-3.399	-3.368	-3.337	-3.305	-3.274	-3.242	-100
-90	-3.242	-3.211	-3.179	-3.147	-3.115	-3.082	-3.050	-3.018	-2.985	-2.953	-2.920	-90
-80	-2.920	-2.887	-2.854	-2.821	-2.788	-2.754	-2.721	-2.687	-2.654	-2.620	-2.586	-80
-70	-2.586	-2.552	-2.518	-2.484	-2.450	-2.416	-2.381	-2.347	-2.312	-2.277	-2.243	-70
-60	-2.243	-2.208	-2.173	-2.137	-2.102	-2.067	-2.032	-1.996	-1.961	-1.925	-1.889	-60
-50	-1.889	-1.853	-1.817	-1.781	-1.745	-1.709	-1.673	-1.636	-1.600	-1.563	-1.527	-50
-40	-1.527	-1.490	-1.453	-1.416	-1.379	-1.342	-1.305	-1.268	-1.231	-1.193	-1.156	-40
-30	-1.156	-1.118	-1.081	-1.043	-1.005	-0.968	-0.930	-0.892	-0.854	-0.816	-0.777	-30
-20	-0.777	-0.739	-0.701	-0.662	-0.624	-0.585	-0.547	-0.508	-0.469	-0.431	-0.392	-20
-10	-0.392	-0.353	-0.314	-0.275	-0.236	-0.197	-0.157	-0.118	-0.079	-0.039	0.000	-10
0	0.000	0.039	0.079	0.119	0.158	0.198	0.238	0.277	0.317	0.357	0.397	0
10	0.397	0.437	0.477	0.517	0.557	0.597	0.637	0.677	0.718	0.758	0.798	10
20	0.798	0.838	0.879	0.919	0.960	1.000	1.041	1.081	1.122	1.162	1.203	20
30	1.203	1.244	1.285	1.325	1.366	1.407	1.448	1.489	1.529	1.570	1.611	30
40	1.611	1.652	1.693	1.734	1.776	1.817	1.858	1.899	1.940	1.981	2.022	40
50	2.022	2.064	2.105	2.146	2.188	2.229	2.270	2.312	2.353	2.394	2.436	50
60	2.436	2.477	2.519	2.560	2.601	2.643	2.684	2.726	2.767	2.809	2.850	60
70	2.850	2.892	2.933	2.975	3.016	3.058	3.100	3.141	3.183	3.224	3.266	70
80	3.266	3.307	3.349	3.390	3.432	3.473	3.515	3.556	3.598	3.639	3.681	80
90	3.681	3.722	3.764	3.805	3.847	3.888	3.930	3.971	4.012	4.054	4.095	90
100	4.095	4.137	4.178	4.219	4.261	4.302	4.343	4.384	4.426	4.467	4.508	100
110	4.508	4.549	4.590	4.632	4.673	4.714	4.755	4.796	4.837	4.878	4.919	110
120	4.919	4.960	5.001	5.042	5.083	5.124	5.164	5.205	5.246	5.287	5.327	120
130	5.327	5.368	5.409	5.450	5.490	5.531	5.571	5.612	5.652	5.693	5.733	130
140	5.733	5.774	5.814	5.855	5.895	5.936	5.976	6.016	6.057	6.097	6.137	140
150	6.137	6.177	6.218	6.258	6.298	6.338	6.378	6.419	6.459	6.499	6.539	150
160	6.539	6.579	6.619	6.659	6.699	6.739	6.779	6.819	6.859	6.899	6.939	160
170	6.939	6.979	7.019	7.059	7.099	7.139	7.179	7.219	7.259	7.299	7.338	170
180	7.338	7.378	7.418	7.458	7.498	7.538	7.578	7.618	7.658	7.697	7.737	180
190	7.737	7.777	7.817	7.857	7.897	7.937	7.977	8.017	8.057	8.097	8.137	190

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Table 2-7. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
200	8.137	8.177	8.216	8.256	8.296	8.336	8.376	8.416	8.456	8.497	8.537	200
210	8.537	8.577	8.617	8.657	8.697	8.737	8.777	8.817	8.857	8.898	8.938	210
220	8.938	8.978	9.018	9.058	9.099	9.139	9.179	9.220	9.260	9.300	9.341	220
230	9.341	9.381	9.421	9.462	9.502	9.543	9.583	9.624	9.664	9.705	9.745	230
240	9.745	9.786	9.826	9.867	9.907	9.948	9.989	10.029	10.070	10.111	10.151	240
250	10.151	10.192	10.233	10.274	10.315	10.355	10.396	10.437	10.478	10.519	10.560	250
260	10.560	10.600	10.641	10.682	10.723	10.764	10.805	10.846	10.887	10.928	10.969	260
270	10.969	11.010	11.051	11.093	11.134	11.175	11.216	11.257	11.298	11.339	11.381	270
280	11.381	11.422	11.463	11.504	11.546	11.587	11.628	11.669	11.711	11.752	11.793	280
290	11.793	11.835	11.876	11.918	11.959	12.000	12.042	12.083	12.125	12.166	12.207	290
300	12.207	12.249	12.290	12.332	12.373	12.415	12.456	12.498	12.539	12.581	12.623	300
310	12.623	12.664	12.706	12.747	12.789	12.831	12.872	12.914	12.955	12.997	13.039	310
320	13.039	13.080	13.122	13.164	13.205	13.247	13.289	13.331	13.372	13.414	13.456	320
330	13.456	13.497	13.539	13.581	13.623	13.665	13.706	13.748	13.790	13.832	13.874	330
340	13.874	13.915	13.957	13.999	14.041	14.083	14.125	14.167	14.208	14.250	14.292	340
350	14.292	14.334	14.376	14.418	14.460	14.502	14.544	14.586	14.628	14.670	14.712	350
360	14.712	14.754	14.796	14.838	14.880	14.922	14.964	15.006	15.048	15.090	15.132	360
370	15.132	15.174	15.216	15.258	15.300	15.342	15.384	15.426	15.468	15.510	15.552	370
380	15.552	15.594	15.636	15.679	15.721	15.763	15.805	15.847	15.889	15.931	15.974	380
390	15.974	16.016	16.058	16.100	16.142	16.184	16.227	16.269	16.311	16.353	16.395	390
400	16.395	16.438	16.480	16.522	16.564	16.607	16.649	16.691	16.733	16.776	16.818	400
410	16.818	16.860	16.902	16.945	16.987	17.029	17.072	17.114	17.156	17.199	17.241	410
420	17.241	17.283	17.326	17.368	17.410	17.453	17.495	17.537	17.580	17.622	17.664	420
430	17.664	17.707	17.749	17.792	17.834	17.876	17.919	17.964	18.004	18.046	18.088	430
440	18.088	18.131	18.173	18.216	18.258	18.301	18.343	18.385	18.428	18.470	18.513	440
450	18.513	18.555	18.598	18.640	18.683	18.725	18.768	18.810	18.853	18.895	18.938	450
460	18.938	18.980	19.023	19.065	19.108	19.150	19.193	19.235	19.278	19.320	19.363	460
470	19.363	19.405	19.448	19.490	19.533	19.576	19.618	19.661	19.703	19.746	19.788	470
480	19.788	19.831	19.873	19.916	19.959	20.001	20.044	20.086	20.129	20.172	20.214	480
490	20.214	20.257	20.299	20.342	20.385	20.427	20.470	20.512	20.555	20.598	20.640	490
500	20.640	20.683	20.725	20.768	20.811	20.853	20.896	20.938	20.981	21.024	21.066	500
510	21.066	21.109	21.152	21.194	21.237	21.280	21.322	21.365	21.407	21.450	21.493	510
520	21.493	21.535	21.578	21.621	21.663	21.706	21.749	21.791	21.834	21.876	21.919	520
530	21.919	21.962	22.004	22.047	22.090	22.132	22.175	22.218	22.260	22.303	22.346	530
540	22.346	22.388	22.431	22.473	22.516	22.559	22.601	22.644	22.687	22.729	22.772	540
550	22.772	22.815	22.857	22.900	22.942	22.985	23.028	23.070	23.113	23.156	23.198	550
560	23.198	23.241	23.284	23.326	23.369	23.411	23.454	23.497	23.539	23.582	23.624	560
570	23.624	23.667	23.710	23.752	23.795	23.837	23.880	23.923	23.965	24.008	24.050	570
580	24.050	24.093	24.136	24.178	24.221	24.263	24.306	24.348	24.391	24.434	24.476	580
590	24.476	24.519	24.561	24.604	24.646	24.689	24.731	24.774	24.817	24.859	24.902	590
600	24.902	24.944	24.987	25.029	25.072	25.114	25.157	25.199	25.242	25.284	25.327	600
610	25.327	25.369	25.412	25.454	25.497	25.539	25.582	25.624	25.666	25.709	25.751	610
620	25.751	25.794	25.836	25.879	25.921	25.964	26.006	26.048	26.091	26.133	26.176	620
630	26.176	26.218	26.260	26.303	26.345	26.387	26.430	26.472	26.515	26.557	26.599	630
640	26.599	26.642	26.684	26.726	26.769	26.811	26.853	26.896	26.938	26.980	27.022	640
650	27.022	27.065	27.107	27.149	27.192	27.234	27.276	27.318	27.361	27.403	27.445	650
660	27.445	27.487	27.529	27.572	27.614	27.656	27.698	27.740	27.783	27.825	27.867	660
670	27.867	27.909	27.951	27.993	28.035	28.078	28.120	28.162	28.204	28.246	28.288	670
680	28.288	28.330	28.372	28.414	28.456	28.498	28.540	28.583	28.625	28.667	28.709	680
690	28.709	28.751	28.793	28.835	28.877	28.919	28.961	29.002	29.044	29.086	29.128	690
700	29.128	29.170	29.212	29.254	29.296	29.338	29.380	29.422	29.464	29.505	29.547	700
710	29.547	29.589	29.631	29.673	29.715	29.756	29.798	29.840	29.882	29.924	29.965	710
720	29.965	30.007	30.049	30.091	30.132	30.174	30.216	30.257	30.299	30.341	30.383	720

Table 2-7. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
730	30.383	30.424	30.466	30.508	30.549	30.591	30.632	30.674	30.716	30.757	30.799	730
740	30.799	30.840	30.882	30.924	30.965	31.007	31.048	31.090	31.131	31.173	31.214	740
750	31.214	31.256	31.297	31.339	31.380	31.422	31.463	31.504	31.546	31.587	31.629	750
760	31.629	31.670	31.712	31.753	31.794	31.836	31.877	31.918	31.960	32.001	32.042	760
770	32.042	32.084	32.125	32.166	32.207	32.249	32.290	32.331	32.372	32.414	32.455	770
780	32.455	32.496	32.537	32.578	32.619	32.661	32.702	32.743	32.784	32.825	32.866	780
790	32.866	32.907	32.948	32.990	33.031	33.072	33.113	33.154	33.195	33.236	33.277	790
800	33.277	33.318	33.359	33.400	33.441	33.482	33.523	33.564	33.604	33.645	33.686	800
810	33.686	33.727	33.768	33.809	33.850	33.891	33.931	33.972	34.013	34.054	34.095	810
820	34.095	34.136	34.176	34.217	34.258	34.299	34.339	34.380	34.421	34.461	34.502	820
830	34.502	34.543	34.583	34.624	34.665	34.705	34.746	34.787	34.827	34.868	34.909	830
840	34.909	34.949	34.990	35.030	35.071	35.111	35.152	35.192	35.233	35.273	35.314	840
850	35.314	35.354	35.395	35.435	35.476	35.516	35.557	35.597	35.637	35.678	35.718	850
860	35.718	35.758	35.799	35.839	35.880	35.920	35.960	36.000	36.041	36.081	36.121	860
870	36.121	36.162	36.202	36.242	36.282	36.323	36.363	36.403	36.443	36.483	36.524	870
880	36.524	36.564	36.604	36.644	36.684	36.724	36.764	36.804	36.844	36.885	36.925	880
890	36.925	36.965	37.005	37.045	37.085	37.125	37.165	37.205	37.245	37.285	37.325	890
900	37.325	37.365	37.405	37.445	37.484	37.524	37.564	37.604	37.644	37.684	37.724	900
910	37.724	37.764	37.803	37.843	37.883	37.923	37.963	38.002	38.042	38.082	38.122	910
920	38.122	38.162	38.201	38.241	38.281	38.320	38.360	38.400	38.439	38.479	38.519	920
930	38.519	38.558	38.598	38.638	38.677	38.717	38.756	38.796	38.836	38.875	38.915	930
940	38.915	38.954	38.994	39.033	39.073	39.112	39.152	39.191	39.231	39.270	39.310	940
950	39.310	39.349	39.388	39.428	39.467	39.507	39.546	39.585	39.625	39.664	39.703	950
960	39.703	39.743	39.782	39.821	39.861	39.900	39.939	39.979	40.018	40.057	40.096	960
970	40.096	40.136	40.175	40.214	40.253	40.292	40.332	40.371	40.410	40.449	40.488	970
980	40.488	40.527	40.566	40.605	40.645	40.684	40.723	40.762	40.801	40.840	40.879	980
990	40.879	40.918	40.957	40.996	41.035	41.074	41.113	41.152	41.191	41.230	41.269	990
1000	41.269	41.308	41.347	41.385	41.424	41.463	41.502	41.541	41.580	41.619	41.657	1000
1010	41.657	41.696	41.735	41.774	41.813	41.851	41.890	41.929	41.968	42.006	42.045	1010
1020	42.045	42.084	42.123	42.161	42.200	42.239	42.277	42.316	42.355	42.393	42.432	1020
1030	42.432	42.470	42.509	42.548	42.586	42.625	42.663	42.702	42.740	42.779	42.817	1030
1040	42.817	42.856	42.894	42.933	42.971	43.010	43.048	43.087	43.125	43.164	43.202	1040
1050	43.202	43.240	43.279	43.317	43.356	43.394	43.432	43.471	43.509	43.547	43.585	1050
1060	43.585	43.624	43.662	43.700	43.739	43.777	43.815	43.853	43.891	43.930	43.968	1060
1070	43.968	44.006	44.044	44.082	44.121	44.159	44.197	44.235	44.273	44.311	44.349	1070
1080	44.349	44.387	44.425	44.463	44.501	44.539	44.577	44.615	44.653	44.691	44.729	1080
1090	44.729	44.767	44.805	44.843	44.881	44.919	44.957	44.995	45.033	45.070	45.108	1090
1100	45.108	45.146	45.184	45.222	45.260	45.297	45.335	45.373	45.411	45.448	45.486	1100
1110	45.486	45.524	45.561	45.599	45.637	45.675	45.712	45.750	45.787	45.825	45.863	1110
1120	45.863	45.900	45.938	45.975	46.013	46.051	46.088	46.126	46.163	46.201	46.238	1120
1130	46.238	46.275	46.313	46.350	46.388	46.425	46.463	46.500	46.537	46.575	46.612	1130
1140	46.612	46.649	46.687	46.724	46.761	46.799	46.836	46.873	46.910	46.948	46.985	1140
1150	46.985	47.022	47.059	47.096	47.134	47.171	47.208	47.245	47.282	47.319	47.356	1150
1160	47.356	47.393	47.430	47.468	47.505	47.542	47.579	47.616	47.653	47.689	47.726	1160
1170	47.726	47.763	47.800	47.837	47.874	47.911	47.948	47.985	48.021	48.058	48.095	1170
1180	48.095	48.132	48.169	48.205	48.242	48.279	48.316	48.352	48.389	48.426	48.462	1180
1190	48.462	48.499	48.536	48.572	48.609	48.645	48.682	48.718	48.755	48.792	48.828	1190
1200	48.828	48.865	48.901	48.937	48.974	49.010	49.047	49.083	49.120	49.156	49.192	1200
1210	49.192	49.229	49.265	49.301	49.338	49.374	49.410	49.446	49.483	49.519	49.555	1210
1220	49.555	49.591	49.627	49.663	49.700	49.736	49.772	49.808	49.844	49.880	49.916	1220
1230	49.916	49.952	49.988	50.024	50.060	50.096	50.132	50.168	50.204	50.240	50.276	1230
1240	50.276	50.311	50.347	50.383	50.419	50.455	50.491	50.526	50.562	50.598	50.633	1240
1250	50.633	50.669	50.705	50.741	50.776	50.812	50.847	50.883	50.919	50.954	50.990	1250

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Table 2-7. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
1260	50.990	51.025	51.061	51.096	51.132	51.167	51.203	51.238	51.274	51.309	51.344	1260
1270	51.344	51.380	51.415	51.450	51.486	51.521	51.556	51.592	51.627	51.662	51.697	1270
1280	51.697	51.733	51.768	51.803	51.838	51.873	51.908	51.943	51.979	52.014	52.049	1280
1290	52.049	52.084	52.119	52.154	52.189	52.224	52.259	52.294	52.329	52.364	52.398	1290
1300	52.398	52.433	52.468	52.503	52.538	52.573	52.608	52.642	52.677	52.712	52.747	1300
1310	52.747	52.781	52.816	52.851	52.886	52.920	52.955	52.989	53.024	53.059	53.093	1310
1320	53.093	53.128	53.162	53.197	53.232	53.266	53.301	53.335	53.370	53.404	53.439	1320
1330	53.439	53.473	53.507	53.542	53.576	53.611	53.645	53.679	53.714	53.748	53.782	1330
1340	53.782	53.817	53.851	53.885	53.920	53.954	53.988	54.022	54.057	54.091	54.125	1340
1350	54.125	54.159	54.193	54.228	54.262	54.296	54.330	54.364	54.398	54.432	54.466	1350
1360	54.466	54.501	54.535	54.569	54.603	54.637	54.671	54.705	54.739	54.773	54.807	1360
1370	54.807	54.841	54.875									1370

T/C TYPE K - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°F) Reference Junctions at 0 °F
Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-8. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-460							-6.458	-6.457	-6.457	-6.456	-6.456	-460
-450	-6.456	-6.455	-6.454	-6.454	-6.453	-6.452	-6.451	-6.450	-6.449	-6.448	-6.447	-450
-440	-6.447	-6.445	-6.444	-6.443	-6.441	-6.440	-6.438	-6.436	-6.435	-6.433	-6.431	-440
-430	-6.431	-6.429	-6.427	-6.425	-6.423	-6.421	-6.419	-6.416	-6.414	-6.411	-6.409	-430
-420	-6.409	-6.406	-6.404	-6.401	-6.398	-6.395	-6.392	-6.389	-6.386	-6.383	-6.380	-420
-410	-6.380	-6.377	-6.373	-6.370	-6.366	-6.363	-6.359	-6.355	-6.352	-6.348	-6.344	-410
-400	-6.344	-6.340	-6.336	-6.332	-6.328	-6.323	-6.319	-6.15	-6.310	-6.306	-6.301	-400
-390	-6.301	-6.296	-6.292	-6.287	-6.282	-6.277	-6.272	-6.267	-6.262	-6.257	-6.251	-390
-380	-6.251	-6.246	-6.241	-6.235	-6.230	-6.224	-6.219	-6.213	-6.207	-6.201	-6.195	-380
-370	-6.195	-6.189	-6.183	-6.177	-6.171	-6.165	-6.158	-6.152	-6.146	-6.139	-6.133	-370
-360	-6.133	-6.126	-6.119	-6.113	-6.106	-6.099	-6.092	-6.085	-6.078	-6.071	-6.064	-360
-350	-6.064	-6.057	-6.049	-6.042	-6.035	-6.027	-6.020	-6.012	-6.004	-5.997	-5.989	-350
-340	-5.989	-5.981	-5.973	-5.965	-5.957	-5.949	-5.941	-5.933	-5.925	-5.917	-5.908	-340
-330	-5.908	-5.900	-5.891	-5.883	-5.874	-5.866	-5.857	-5.848	-5.839	-5.831	-5.822	-330
-320	-5.822	-5.813	-5.804	-5.795	-5.786	-5.776	-5.767	-5.758	-5.748	-5.739	-5.730	-320
-310	-5.730	-5.720	-5.711	-5.701	-5.691	-5.682	-5.672	-5.662	-5.652	-5.642	-5.632	-310
-300	-5.632	-5.622	-5.612	-5.602	-5.592	-5.581	-5.571	-5.561	-5.550	-5.540	-5.529	-300
-290	-5.529	-5.519	-5.508	-5.497	-5.487	-5.476	-5.465	-5.454	-5.443	-5.432	-5.421	-290
-280	-5.421	-5.410	-5.399	-5.388	-5.376	-5.365	-5.354	-5.342	-5.331	-5.319	-5.308	-280
-270	-5.308	-5.296	-5.285	-5.273	-5.261	-5.249	-5.238	-5.226	-5.214	-5.202	-5.190	-270
-260	-5.190	-5.178	-5.165	-5.153	-5.141	-5.129	-5.116	-5.104	-5.092	-5.079	-5.067	-260
-250	-5.067	-5.054	-5.041	-5.029	-5.016	-5.003	-4.990	-4.978	-4.965	-4.952	-4.939	-250
-240	-4.939	-4.926	-4.912	-4.899	-4.886	-4.873	-4.860	-4.846	-4.833	-4.819	-4.806	-240
-230	-4.806	-4.792	-4.779	-4.765	-4.752	-4.738	-4.724	-4.710	-4.697	-4.683	-4.669	-230
-220	-4.669	-4.655	-4.641	-4.627	-4.613	-4.598	-4.584	-4.570	-4.556	-4.541	-4.527	-220
-210	-4.527	-4.512	-4.498	-4.484	-4.469	-4.454	-4.440	-4.425	-4.410	-4.396	-4.381	-210
-200	-4.381	-4.366	-4.351	-4.336	-4.321	-4.306	-4.291	-4.276	-4.261	-4.245	-4.230	-200
-190	-4.230	-4.215	-4.200	-4.184	-4.169	-4.153	-4.138	-4.122	-4.107	-4.091	-4.075	-190
-180	-4.075	-4.060	-4.044	-4.028	-4.012	-3.997	-3.981	-3.965	-3.949	-3.933	-3.917	-180
-170	-3.917	-3.901	-3.884	-3.868	-3.852	-3.836	-3.819	-3.803	-3.787	-3.770	-3.754	-170
-160	-3.754	-3.737	-3.721	-3.704	-3.688	-3.671	-3.654	-3.637	-3.621	-3.604	-3.587	-160
-150	-3.587	-3.570	-3.553	-3.536	-3.519	-3.502	-3.485	-3.468	-3.451	-3.434	-3.417	-150

Table 2-8. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-140	-3.417	-3.399	-3.382	-3.365	-3.347	-3.330	-3.312	-3.295	-3.277	-3.260	-3.242	-140
-130	-3.242	-3.225	-3.207	-3.189	-3.172	-3.154	-3.136	-3.118	-3.100	-3.082	-3.065	-130
-120	-3.065	-3.047	-3.029	-3.010	-2.992	-2.974	-2.956	-2.938	-2.920	-2.902	-2.883	-120
-110	-2.883	-2.865	-2.847	-2.828	-2.810	-2.791	-2.773	-2.754	-2.736	-2.717	-2.699	-110
-100	-2.699	-2.680	-2.661	-2.643	-2.624	-2.605	-2.586	-2.567	-2.549	-2.530	-2.511	-100
-90	-2.511	-2.492	-2.473	-2.454	-2.435	-2.416	-2.397	-2.377	-2.358	-2.339	-2.320	-90
-80	-2.320	-2.300	-2.281	-2.262	-2.243	-2.223	-2.204	-2.184	-2.165	-2.145	-2.126	-80
-70	-2.126	-2.106	-2.087	-2.067	-2.047	-2.028	-2.008	-1.988	-1.968	-1.949	-1.929	-70
-60	-1.929	-1.909	-1.889	-1.869	-1.849	-1.829	-1.809	-1.789	-1.769	-1.749	-1.729	-60
-50	-1.729	-1.709	-1.689	-1.669	-1.648	-1.628	-1.608	-1.588	-1.567	-1.547	-1.527	-50
-40	-1.527	-1.506	-1.486	-1.465	-1.445	-1.424	-1.404	-1.383	-1.363	-1.342	-1.322	-40
-30	-1.322	-1.301	-1.280	-1.260	-1.239	-1.218	-1.197	-1.177	-1.156	-1.135	-1.114	-30
-20	-1.114	-1.093	-1.072	-1.051	-1.031	-1.010	-0.989	-0.968	-0.946	-0.925	-0.904	-20
-10	-0.904	-0.883	-0.862	-0.841	-0.820	-0.799	-0.777	-0.756	-0.735	-0.714	-0.692	-10
0	-0.692	-0.671	-0.650	-0.628	-0.607	-0.585	-0.564	-0.543	-0.521	-0.500	-0.478	0
10	-0.478	-0.457	-0.435	-0.413	-0.392	-0.370	-0.349	-0.327	-0.305	-0.284	-0.262	10
20	-0.262	-0.240	-0.218	-0.197	-0.175	-0.153	-0.131	-0.109	-0.088	-0.066	-0.044	20
30	-0.044	-0.022	0.000	0.022	0.044	0.066	0.088	0.110	0.132	0.154	0.176	30
40	0.176	0.198	0.220	0.242	0.264	0.286	0.308	0.331	0.353	0.375	0.397	40
50	0.397	0.419	0.441	0.464	0.486	0.508	0.530	0.553	0.575	0.597	0.619	50
60	0.619	0.642	0.664	0.686	0.709	0.731	0.753	0.776	0.798	0.821	0.843	60
70	0.843	0.865	0.888	0.910	0.933	0.955	0.978	1.000	1.023	1.045	1.068	70
80	1.068	1.090	1.113	1.135	1.158	1.181	1.203	1.226	1.248	1.271	1.294	80
90	1.294	1.316	1.339	1.362	1.384	1.407	1.430	1.452	1.475	1.498	1.520	90
100	1.520	1.543	1.566	1.589	1.611	1.634	1.657	1.680	1.703	1.725	1.748	100
110	1.748	1.771	1.794	1.817	1.839	1.862	1.885	1.908	1.931	1.954	1.977	110
120	1.977	2.000	2.022	2.045	2.068	2.091	2.114	2.137	2.160	2.183	2.206	120
130	2.206	2.229	2.252	2.275	2.298	2.321	2.344	2.367	2.390	2.413	2.436	130
140	2.436	2.459	2.482	2.505	2.528	2.551	2.574	2.597	2.620	2.643	2.666	140
150	2.666	2.689	2.712	2.735	2.758	2.781	2.804	2.827	2.850	2.873	2.896	150
160	2.896	2.920	2.943	2.966	2.989	3.012	3.035	3.058	3.081	3.104	3.127	160
170	3.127	3.150	3.173	3.196	3.220	3.243	3.266	3.289	3.312	3.335	3.358	170
180	3.358	3.381	3.404	3.427	3.450	3.473	3.496	3.519	3.543	3.566	3.589	180
190	3.589	3.612	3.635	3.658	3.681	3.704	3.727	3.750	3.773	3.796	3.819	190
200	3.819	3.842	3.865	3.888	3.911	3.934	3.957	3.980	4.003	4.026	4.049	200
210	4.049	4.072	4.095	4.118	4.141	4.164	4.187	4.210	4.233	4.256	4.279	210
220	4.279	4.302	4.325	4.348	4.371	4.394	4.417	4.439	4.462	4.485	4.508	220
230	4.508	4.531	4.554	4.577	4.600	4.622	4.645	4.668	4.691	4.714	4.737	230
240	4.737	4.759	4.782	4.805	4.828	4.851	4.873	4.896	4.919	4.942	4.964	240
250	4.964	4.987	5.010	5.033	5.055	5.078	5.101	5.124	5.146	5.169	5.192	250
260	5.192	5.214	5.237	5.260	5.282	5.305	5.327	5.350	5.373	5.395	5.418	260
270	5.418	5.440	5.463	5.486	5.508	5.531	5.553	5.576	5.598	5.621	5.643	270
280	5.643	5.666	5.688	5.711	5.733	5.756	5.778	5.801	5.823	5.846	5.868	280
290	5.868	5.891	5.913	5.936	5.958	5.980	6.003	6.025	6.048	6.070	6.092	290
300	6.092	6.115	6.137	6.160	6.182	6.204	6.227	6.249	6.271	6.294	6.316	300
310	6.316	6.338	6.361	6.383	6.405	6.428	6.450	6.472	6.494	6.517	6.539	310
320	6.539	6.561	6.583	6.606	6.628	6.650	6.672	6.695	6.717	6.739	6.761	320
330	6.761	6.784	6.806	6.828	6.850	6.873	6.895	6.917	6.939	6.961	6.984	330
340	6.984	7.006	7.028	7.050	7.072	7.094	7.117	7.139	7.161	7.183	7.205	340
350	7.205	7.228	7.250	7.272	7.294	7.316	7.338	7.361	7.383	7.405	7.427	350
360	7.427	7.449	7.471	7.494	7.516	7.538	7.560	7.582	7.604	7.627	7.649	360
370	7.649	7.671	7.693	7.715	7.737	7.760	7.782	7.804	7.826	7.848	7.870	370
380	7.870	7.893	7.915	7.937	7.959	7.981	8.003	8.026	8.048	8.070	8.092	380

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Table 2-8. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
390	8.092	8.114	8.137	8.159	8.181	8.203	8.225	8.248	8.270	8.292	8.314	390
400	8.314	8.336	8.359	8.381	8.403	8.425	8.448	8.470	8.492	8.514	8.537	400
410	8.537	8.559	8.581	8.603	8.626	8.648	8.670	8.692	8.715	8.737	8.759	410
420	8.759	8.782	8.804	8.826	8.849	8.871	8.893	8.916	8.938	8.960	8.983	420
430	8.983	9.005	9.027	9.050	9.072	9.094	9.117	9.139	9.161	9.184	9.206	430
440	9.206	9.229	9.251	9.273	9.296	9.318	9.341	9.363	9.385	9.408	9.430	440
450	9.430	9.453	9.475	9.498	9.520	9.543	9.565	9.588	9.610	9.633	9.655	450
460	9.655	9.678	9.700	9.723	9.745	9.768	9.790	9.813	9.835	9.858	9.880	460
470	9.880	9.903	9.926	9.948	9.971	9.993	10.016	10.038	10.061	10.084	10.106	470
480	10.106	10.129	10.151	10.174	10.197	10.219	10.242	10.265	10.287	10.310	10.333	480
490	10.333	10.355	10.378	10.401	10.423	10.446	10.469	10.491	10.514	10.537	10.560	490
500	10.560	10.582	10.605	10.628	10.650	10.673	10.696	10.719	10.741	10.764	10.787	500
510	10.787	10.810	10.833	10.855	10.878	10.901	10.924	10.947	10.969	10.992	11.015	510
520	11.015	11.038	11.061	11.083	11.106	11.129	11.152	11.175	11.198	11.221	11.243	520
530	11.243	11.266	11.289	11.312	11.335	11.358	11.381	11.404	11.426	11.449	11.472	530
540	11.472	11.495	11.518	11.541	11.564	11.587	11.610	11.633	11.656	11.679	11.702	540
550	11.702	11.725	11.748	11.770	11.793	11.816	11.839	11.862	11.885	11.908	11.931	550
560	11.931	11.954	11.977	12.000	12.023	12.046	12.069	12.092	12.115	12.138	12.161	560
570	12.161	12.184	12.207	12.230	12.254	12.277	12.300	12.323	12.346	12.369	12.392	570
580	12.392	12.415	12.438	12.461	12.484	12.507	12.530	12.553	12.576	12.599	12.623	580
590	12.623	12.646	12.669	12.692	12.715	12.738	12.761	12.784	12.807	12.831	12.854	590
600	12.854	12.877	12.900	12.923	12.946	12.969	12.992	13.016	13.039	13.062	13.085	600
610	13.085	13.108	13.131	13.154	13.178	13.201	13.224	13.247	13.270	13.293	13.317	610
620	13.317	13.340	13.363	13.386	13.409	13.433	13.456	13.479	13.502	13.525	13.549	620
630	13.549	13.572	13.595	13.618	13.641	13.665	13.688	13.711	13.734	13.757	13.781	630
640	13.781	13.804	13.827	13.850	13.874	13.897	13.920	13.943	13.967	13.990	14.013	640
650	14.013	14.036	14.060	14.083	14.106	14.129	14.153	14.176	14.199	14.222	14.246	650
660	14.246	14.269	14.292	14.316	14.339	14.362	14.385	14.409	14.432	14.455	14.479	660
670	14.479	14.502	14.525	14.548	14.572	14.595	14.618	14.642	14.665	14.688	14.712	670
680	14.712	14.735	14.758	14.782	14.805	14.828	14.852	14.875	14.898	14.922	14.945	680
690	14.945	14.968	14.992	15.015	15.038	15.062	15.085	15.108	15.132	15.155	15.178	690
700	15.178	15.202	15.225	15.248	15.272	15.295	15.318	15.342	15.365	15.389	15.412	700
710	15.412	15.435	15.459	15.482	15.505	15.529	15.552	15.576	15.599	15.622	15.646	710
720	15.646	15.669	15.693	15.716	15.739	15.763	15.786	15.810	15.833	15.856	15.880	720
730	15.880	15.903	15.927	15.950	15.974	15.997	16.020	16.044	16.067	16.091	16.114	730
740	16.114	16.138	16.161	16.184	16.208	16.231	16.255	16.278	16.302	16.325	16.349	740
750	16.349	16.372	16.395	16.419	16.442	16.466	16.489	16.513	16.536	16.560	16.583	750
760	16.583	16.607	16.630	16.654	16.677	16.700	16.724	16.747	16.771	16.794	16.818	760
770	16.818	16.841	16.865	16.888	16.912	16.935	16.959	16.982	17.006	17.029	17.053	770
780	17.053	17.076	17.100	17.123	17.147	17.170	17.194	17.217	17.241	17.264	17.288	780
790	17.288	17.311	17.335	17.358	17.382	17.406	17.429	17.453	17.476	17.500	17.523	790
800	17.523	17.547	17.570	17.594	17.617	17.641	17.664	17.688	17.711	17.735	17.759	800
810	17.759	17.782	17.806	17.829	17.853	17.876	17.900	17.923	17.947	17.971	17.994	810
820	17.994	18.018	18.041	18.065	18.088	18.112	18.136	18.159	18.183	18.206	18.230	820
830	18.230	18.253	18.277	18.301	18.324	18.348	18.371	18.395	18.418	18.442	18.466	830
840	18.466	18.489	18.513	18.536	18.560	18.584	18.607	18.631	18.654	18.678	18.702	840
850	18.702	18.725	18.749	18.772	18.796	18.820	18.843	18.867	18.890	18.914	18.938	850
860	18.938	18.961	18.985	19.008	19.032	19.056	19.079	19.103	19.127	19.150	19.174	860
870	19.174	19.197	19.221	19.245	19.268	19.292	19.316	19.339	19.363	19.386	19.410	870
880	19.410	19.434	19.457	19.481	19.505	19.528	19.552	19.576	19.599	19.623	19.646	880
890	19.646	19.670	19.694	19.717	19.741	19.765	19.788	19.812	19.836	19.859	19.883	890
900	19.883	19.907	19.930	19.954	19.978	20.001	20.025	20.049	20.072	20.096	20.120	900
910	20.120	20.143	20.167	20.190	20.214	20.238	20.261	20.285	20.309	20.332	20.356	910

Table 2-8. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
920	20.356	20.380	20.403	20.427	20.451	20.474	20.498	20.522	20.545	20.569	20.593	920
930	20.593	20.616	20.640	20.664	20.688	20.711	20.735	20.759	20.782	20.806	20.830	930
940	20.830	20.853	20.877	20.901	20.924	20.948	20.972	20.995	21.019	21.043	21.066	940
950	21.066	21.090	21.114	21.137	21.161	21.185	21.208	21.232	21.256	21.280	21.303	950
960	21.303	21.327	21.351	21.374	21.398	21.422	21.445	21.469	21.493	21.516	21.540	960
970	21.540	21.564	21.587	21.611	21.635	21.659	21.682	21.706	21.730	21.753	21.777	970
980	21.777	21.801	21.824	21.848	21.872	21.895	21.919	21.943	21.966	21.990	22.014	980
990	22.014	22.038	22.061	22.085	22.109	22.132	22.156	22.180	22.203	22.227	22.251	990
1000	22.251	22.274	22.298	22.322	22.346	22.369	22.393	22.417	22.440	22.464	22.488	1000
1010	22.488	22.511	22.535	22.559	22.582	22.606	22.630	22.654	22.677	22.701	22.725	1010
1020	22.725	22.748	22.772	22.796	22.819	22.843	22.867	22.890	22.914	22.938	22.961	1020
1030	22.961	22.985	23.009	23.032	23.056	23.080	23.104	23.127	23.151	23.175	23.198	1030
1040	23.198	23.222	23.246	23.269	23.293	23.317	23.340	23.364	23.388	23.411	23.435	1040
1050	23.435	23.459	23.482	23.506	23.530	23.553	23.577	23.601	23.624	23.648	23.672	1050
1060	23.672	23.695	23.719	23.743	23.766	23.790	23.814	23.837	23.861	23.885	23.908	1060
1070	23.908	23.932	23.956	23.979	24.003	24.027	24.050	24.074	24.098	24.121	24.145	1070
1080	24.145	24.169	24.192	24.216	24.240	24.263	24.287	24.311	24.334	24.358	24.382	1080
1090	24.382	24.405	24.429	24.453	24.476	24.500	24.523	24.547	24.571	24.594	24.618	1090
1100	24.618	24.642	24.665	24.689	24.713	24.736	24.760	24.783	24.807	24.831	24.854	1100
1110	24.854	24.878	24.902	24.925	24.949	24.972	24.996	25.020	25.043	25.067	25.091	1110
1120	25.091	25.114	25.138	25.161	25.185	25.209	25.232	25.256	25.279	25.303	25.327	1120
1130	25.327	25.350	25.374	25.397	25.421	25.445	25.468	25.492	25.515	25.539	25.563	1130
1140	25.563	25.586	25.610	25.633	25.657	25.681	25.704	25.728	25.751	25.775	25.799	1140
1150	25.799	25.822	25.846	25.869	25.893	25.916	25.940	25.964	25.987	26.011	26.034	1150
1160	26.034	26.058	26.081	26.105	26.128	26.152	26.176	26.199	26.223	26.246	26.270	1160
1170	26.270	26.293	26.317	26.340	26.364	26.387	26.411	26.435	26.458	26.482	26.505	1170
1180	26.505	26.529	26.552	26.576	26.599	26.623	26.646	26.670	26.693	26.717	26.740	1180
1190	26.740	26.764	26.787	26.811	26.834	26.858	26.881	26.905	26.928	26.952	26.975	1190
1200	26.975	26.999	27.022	27.046	27.069	27.093	27.116	27.140	27.163	27.187	27.210	1200
1210	27.210	27.234	27.257	27.281	27.304	27.328	27.351	27.375	27.398	27.422	27.445	1210
1220	27.445	27.468	27.492	27.515	27.539	27.562	27.586	27.609	27.633	27.656	27.679	1220
1230	27.679	27.703	27.726	27.750	27.773	27.797	27.820	27.843	27.867	27.890	27.914	1230
1240	27.914	27.937	27.961	27.984	28.007	28.031	28.054	28.078	28.101	28.124	28.148	1240
1250	28.148	28.171	28.195	28.218	28.241	28.265	28.288	28.311	28.335	28.358	28.382	1250
1260	28.382	28.405	28.428	28.452	28.475	28.498	28.522	28.545	28.569	28.592	28.615	1260
1270	28.615	28.639	28.662	28.685	28.709	28.732	28.755	28.779	28.802	28.825	28.849	1270
1280	28.849	28.872	28.895	28.919	28.942	28.965	28.988	29.012	29.035	29.058	29.082	1280
1290	29.082	29.105	29.128	29.152	29.175	29.198	29.221	29.245	29.268	29.291	29.315	1290
1300	29.315	29.338	29.361	29.384	29.408	29.431	29.454	29.477	29.501	29.524	29.547	1300
1310	29.547	29.570	29.594	29.617	29.640	29.663	29.687	29.710	29.733	29.756	29.780	1310
1320	29.780	29.803	29.826	29.849	29.872	29.896	29.919	29.942	29.965	29.989	30.012	1320
1330	30.012	30.035	30.058	30.081	30.104	30.128	30.151	30.174	30.197	30.220	30.244	1330
1340	30.244	30.267	30.290	30.313	30.336	30.359	30.383	30.406	30.429	30.452	30.475	1340
1350	30.475	30.498	30.521	30.545	30.568	30.591	30.614	30.637	30.660	30.683	30.706	1350
1360	30.706	30.730	30.753	30.776	30.799	30.822	30.845	30.868	30.891	30.914	30.937	1360
1370	30.937	30.961	30.984	31.007	31.030	31.053	31.076	31.099	31.122	31.145	31.168	1370
1380	31.168	31.191	31.214	31.237	31.260	31.283	31.306	31.329	31.353	31.376	31.399	1380
1390	31.399	31.422	31.445	31.468	31.491	31.514	31.537	31.560	31.583	31.606	31.629	1390
1400	31.629	31.652	31.675	31.698	31.721	31.744	31.767	31.790	31.813	31.836	31.859	1400
1410	31.859	31.882	31.905	31.927	31.950	31.973	31.996	32.019	32.042	32.065	32.088	1410
1420	32.088	32.111	32.134	32.157	32.180	32.203	32.226	32.249	32.272	32.294	32.317	1420
1430	32.317	32.340	32.363	32.386	32.409	32.432	32.455	32.478	32.501	32.523	32.546	1430
1440	32.546	32.569	32.592	32.615	32.638	32.661	32.683	32.706	32.729	32.752	32.775	1440

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Table 2-8. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1450	32.775	32.798	32.821	32.843	32.866	32.889	32.912	32.935	32.958	32.980	33.003	1450
1460	33.003	33.026	33.049	33.072	33.094	33.117	33.140	33.163	33.186	33.208	33.231	1460
1470	33.231	33.254	33.277	33.300	33.322	33.345	33.368	33.391	33.413	33.436	33.459	1470
1480	33.459	33.482	33.504	33.527	33.550	33.573	33.595	33.618	33.641	33.664	33.686	1480
1490	33.686	33.709	33.732	33.754	33.777	33.800	33.823	33.845	33.868	33.891	33.913	1490
1500	33.913	33.936	33.959	33.981	34.004	34.027	34.049	34.072	34.095	34.117	34.140	1500
1510	34.140	34.163	34.185	34.208	34.231	34.253	34.276	34.299	34.321	34.344	34.366	1510
1520	34.366	34.389	34.412	34.434	34.457	34.480	34.502	34.525	34.547	34.570	34.593	1520
1530	34.593	34.615	34.638	34.660	34.683	34.705	34.728	34.751	34.773	34.796	34.818	1530
1540	34.818	34.841	34.863	34.886	34.909	34.931	34.954	34.976	34.999	35.021	35.044	1540
1550	35.044	35.066	35.089	35.111	35.134	35.156	35.179	35.201	35.224	35.246	35.269	1550
1560	35.269	35.291	35.314	35.336	35.359	35.381	35.404	35.426	35.449	35.471	35.494	1560
1570	35.494	35.516	35.539	35.561	35.583	35.606	35.628	35.651	35.673	35.696	35.718	1570
1580	35.718	35.741	35.763	35.785	35.808	35.830	35.853	35.875	35.897	35.920	35.942	1580
1590	35.942	35.965	35.987	36.009	36.032	36.054	36.077	36.099	36.121	36.144	36.166	1590
1600	36.166	36.188	36.211	36.233	36.256	36.278	36.300	36.323	36.345	36.367	36.390	1600
1610	36.390	36.412	36.434	36.457	36.479	36.501	36.524	36.546	36.568	36.590	36.613	1610
1620	36.613	36.635	36.657	36.680	36.702	36.724	36.746	36.769	36.791	36.813	36.836	1620
1630	36.836	36.858	36.880	36.902	36.925	36.947	36.969	36.991	37.014	37.036	37.058	1630
1640	37.058	37.080	37.103	37.125	37.147	37.169	37.191	37.214	37.236	37.258	37.280	1640
1650	37.280	37.303	37.325	37.347	37.369	37.391	37.413	37.436	37.458	37.480	37.502	1650
1660	37.502	37.524	37.547	37.569	37.591	37.613	37.635	37.657	37.679	37.702	37.724	1660
1670	37.724	37.746	37.768	37.790	37.812	37.834	37.857	37.879	37.901	37.923	37.945	1670
1680	37.945	37.967	37.989	38.011	38.033	38.055	38.078	38.100	38.122	38.144	38.166	1680
1690	38.166	38.188	38.210	38.232	38.254	38.276	38.298	38.320	38.342	38.364	38.387	1690
1700	38.387	38.409	38.431	38.453	38.475	38.497	38.519	38.541	38.563	38.585	38.607	1700
1710	38.607	38.629	38.651	38.673	38.695	38.717	38.739	38.761	38.783	38.805	38.827	1710
1720	38.827	38.849	38.871	38.893	38.915	38.937	38.959	38.981	39.003	39.024	39.046	1720
1730	39.046	39.068	39.090	39.112	39.134	39.156	39.178	39.200	39.222	39.244	39.266	1730
1740	39.266	39.288	39.310	39.331	39.353	39.375	39.397	39.419	39.441	39.463	39.485	1740
1750	39.485	39.507	39.529	39.550	39.572	39.594	39.616	39.638	39.660	39.682	39.703	1750
1760	39.703	39.725	39.747	39.769	39.791	39.813	39.835	39.856	39.878	39.900	39.922	1760
1770	39.922	39.944	39.965	39.987	40.009	40.031	40.053	40.075	40.096	40.118	40.140	1770
1780	40.140	40.162	40.183	40.205	40.227	40.249	40.271	40.292	40.314	40.336	40.358	1780
1790	40.358	40.379	40.401	40.423	40.445	40.466	40.488	40.510	40.532	40.553	40.575	1790
1800	40.575	40.597	40.619	40.640	40.662	40.684	40.705	40.727	40.749	40.770	40.792	1800
1810	40.792	40.814	40.836	40.857	40.879	40.901	40.922	40.944	40.966	40.987	41.009	1810
1820	41.009	41.031	41.052	41.074	41.096	41.117	41.139	41.161	41.182	41.204	41.225	1820
1830	41.225	41.247	41.269	41.290	41.312	41.334	41.355	41.377	41.398	41.420	41.442	1830
1840	41.442	41.463	41.485	41.506	41.528	41.550	41.571	41.593	41.614	41.636	41.657	1840
1850	41.657	41.679	41.701	41.722	41.744	41.765	41.787	41.808	41.830	41.851	41.873	1850
1860	41.873	41.895	41.916	41.938	41.959	41.981	42.002	42.024	42.045	42.067	42.088	1860
1870	42.088	42.110	42.131	42.153	42.174	42.196	42.217	42.239	42.260	42.282	42.303	1870
1880	42.303	42.325	42.346	42.367	42.389	42.410	42.432	42.453	42.475	42.496	42.518	1880
1890	42.518	42.539	42.560	42.582	42.603	42.625	42.646	42.668	42.689	42.710	42.732	1890
1900	42.732	42.753	42.775	42.796	42.817	42.839	42.860	42.882	42.903	42.924	42.946	1900
1910	42.946	42.967	42.989	43.010	43.031	43.053	43.074	43.095	43.117	43.138	43.159	1910
1920	43.159	43.181	43.202	43.223	43.245	43.266	43.287	43.309	43.330	43.351	43.373	1920
1930	43.373	43.394	43.415	43.436	43.458	43.479	43.500	43.522	43.543	43.564	43.585	1930
1940	43.585	43.607	43.628	43.649	43.671	43.692	43.713	43.734	43.756	43.777	43.798	1940
1950	43.798	43.819	43.841	43.862	43.883	43.904	43.925	43.947	43.968	43.989	44.010	1950
1960	44.010	44.031	44.053	44.074	44.095	44.116	44.137	44.159	44.180	44.201	44.222	1960
1970	44.222	44.243	44.265	44.286	44.307	44.328	44.349	44.370	44.391	44.413	44.434	1970

Table 2-8. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1980	44.434	44.455	44.476	44.497	44.518	44.539	44.560	44.582	44.603	44.624	44.645	1980
1990	44.645	44.666	44.687	44.708	44.729	44.750	44.771	44.793	44.814	44.835	44.856	1990
2000	44.856	44.877	44.898	44.919	44.940	44.961	44.982	45.003	45.024	45.045	45.066	2000
2010	45.066	45.087	45.108	45.129	45.150	45.171	45.192	45.213	45.234	45.255	45.276	2010
2020	45.276	45.297	45.318	45.339	45.360	45.381	45.402	45.423	45.444	45.465	45.486	2020
2030	45.486	45.507	45.528	45.549	45.570	45.591	45.612	45.633	45.654	45.675	45.695	2030
2040	45.695	45.716	45.737	45.758	45.779	45.800	45.821	45.842	45.863	45.884	45.904	2040
2050	45.904	45.925	45.946	45.967	45.988	46.009	46.030	46.051	46.071	46.092	46.113	2050
2060	46.113	46.134	46.155	46.176	46.196	46.217	46.238	46.259	46.280	46.300	46.321	2060
2070	46.321	46.342	46.363	46.384	46.404	46.425	46.446	46.467	46.488	46.508	46.529	2070
2080	46.529	46.550	46.571	46.591	46.612	46.633	46.654	46.674	46.695	46.716	46.737	2080
2090	46.737	46.757	46.778	46.799	46.819	46.840	46.861	46.881	46.902	46.923	46.944	2090
2100	46.944	46.964	46.985	47.006	47.026	47.047	47.068	47.088	47.109	47.130	47.150	2100
2110	47.150	47.171	47.191	47.212	47.233	47.253	47.274	47.295	47.315	47.336	47.356	2110
2120	47.356	47.377	47.398	47.418	47.439	47.459	47.480	47.500	47.521	47.542	47.562	2120
2130	47.562	47.583	47.603	47.624	47.644	47.665	47.685	47.706	47.726	47.747	47.767	2130
2140	47.767	47.788	47.808	47.829	47.849	47.870	47.890	47.911	47.931	47.952	47.972	2140
2150	47.972	47.993	48.013	48.034	48.054	48.075	48.095	48.116	48.136	48.156	48.177	2150
2160	48.177	48.197	48.218	48.238	48.258	48.279	48.299	48.320	48.340	48.360	48.381	2160
2170	48.381	48.401	48.422	48.442	48.462	48.483	48.503	48.523	48.544	48.564	48.584	2170
2180	48.584	48.605	48.625	48.645	48.666	48.686	48.706	48.727	48.747	48.767	48.787	2180
2190	48.787	48.808	48.828	48.848	48.869	48.889	48.909	48.929	48.950	48.970	48.990	2190
2200	48.990	49.010	49.031	49.051	49.071	49.091	49.111	49.132	49.152	49.172	49.192	2200
2210	49.192	49.212	49.233	49.253	49.273	49.293	49.313	49.333	49.354	49.374	49.394	2210
2220	49.394	49.414	49.434	49.454	49.474	49.495	49.515	49.535	49.555	49.575	49.595	2220
2230	49.595	49.615	49.635	49.655	49.675	49.696	49.716	49.736	49.756	49.776	49.796	2230
2240	49.796	49.816	49.836	49.856	49.876	49.896	49.916	49.936	49.956	49.976	49.996	2240
2250	49.996	50.016	50.036	50.056	50.076	50.096	50.116	50.136	50.156	50.176	50.196	2250
2260	50.196	50.216	50.236	50.256	50.276	50.296	50.315	50.335	50.355	50.375	50.395	2260
2270	50.395	50.415	50.435	50.455	50.475	50.494	50.514	50.534	50.554	50.574	50.594	2270
2280	50.594	50.614	50.633	50.653	50.673	50.693	50.713	50.733	50.752	50.772	50.792	2280
2290	50.792	50.812	50.832	50.851	50.871	50.891	50.911	50.930	50.950	50.970	50.990	2290
2300	50.990	51.009	51.029	51.049	51.069	51.088	51.108	51.128	51.148	51.167	51.187	2300
2310	51.187	51.207	51.226	51.246	51.266	51.285	51.305	51.325	51.344	51.364	51.384	2310
2320	51.384	51.403	51.423	51.443	51.462	51.482	51.501	51.521	51.541	51.560	51.580	2320
2330	51.580	51.599	51.619	51.639	51.658	51.678	51.697	51.717	51.736	51.756	51.776	2330
2340	51.776	51.795	51.815	51.834	51.854	51.873	51.893	51.912	51.932	51.951	51.971	2340
2350	51.971	51.990	52.010	52.029	52.049	52.068	52.088	52.107	52.127	52.146	52.165	2350
2360	52.165	52.185	52.204	52.224	52.243	52.263	52.282	52.301	52.321	52.340	52.360	2360
2370	52.360	52.379	52.398	52.418	52.437	52.457	52.476	52.495	52.515	52.534	52.553	2370
2380	52.553	52.573	52.592	52.611	52.631	52.650	52.669	52.689	52.708	52.727	52.747	2380
2390	52.747	52.766	52.785	52.805	52.824	52.843	52.862	52.882	52.901	52.920	52.939	2390
2400	52.939	52.959	52.978	52.997	53.016	53.136	53.055	53.074	53.093	53.113	53.132	2400
2410	53.132	53.151	53.170	53.189	53.209	53.228	53.247	53.266	53.285	53.304	53.324	2410
2420	53.324	53.343	53.362	53.381	53.400	53.419	53.439	53.458	53.477	53.496	53.515	2420
2430	53.515	53.534	53.553	53.572	53.592	53.611	53.630	53.649	53.668	53.687	53.706	2430
2440	53.706	53.725	53.744	53.763	53.782	53.801	53.821	53.840	53.859	53.878	53.897	2440
2450	53.897	53.916	53.935	53.954	53.973	53.992	54.011	54.030	54.049	54.068	54.087	2450
2460	54.087	54.106	54.125	54.144	54.163	54.182	54.201	54.220	54.239	54.258	54.277	2460
2470	54.277	54.296	54.315	54.334	54.353	54.372	54.391	54.410	54.429	54.447	54.466	2470
2480	54.466	54.485	54.504	54.523	54.542	54.561	54.580	54.599	54.618	54.637	54.656	2480
2490	54.656	54.675	54.694	54.712	54.731	54.750	54.769	54.788	54.807	54.826	54.845	2490
2500	54.845	54.864	54.882									2500

Technical Data Sheet

00816-0200-3061, Rev CA

November 2002

T/C TYPE N - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°C) Reference Junctions at 0 °C

Reference Standard: BS 4937 part 8

Table 2-9. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-270	-4.345	-4.345	-4.344	-4.344	-4.343	-4.342	-4.341	-4.340	-4.339	-4.337	-4.336	-270
-260	-4.336	-4.334	-4.332	-4.330	-4.328	-4.326	-4.324	-4.321	-4.319	-4.316	-4.313	-260
-250	-4.313	-4.310	-4.307	-4.304	-4.300	-4.297	-4.293	-4.289	-4.285	-4.281	-4.277	-250
-240	-4.277	-4.273	-4.268	-4.263	-4.259	-4.254	-4.248	-4.243	-4.238	-4.232	-4.227	-240
-230	-4.277	-4.221	-4.215	-4.209	-4.202	-4.196	-4.189	-4.183	-4.176	-4.169	-4.162	-230
-220	-4.162	-4.155	-4.147	-4.140	-4.132	-4.124	-4.116	-4.108	-4.100	-4.091	-4.083	-220
-210	-4.083	-4.074	-4.066	-4.057	-4.048	-4.038	-4.029	-4.020	-4.010	-4.000	-3.990	-210
-200	-3.990	-3.980	-3.970	-3.960	-3.950	-3.939	-3.928	-3.918	-3.907	-3.896	-3.884	-200
-190	-3.884	-3.873	-3.862	-3.850	-3.838	-3.827	-3.815	-3.803	-3.790	-3.778	-3.766	-190
-180	-3.766	-3.753	-3.740	-3.727	-3.715	-3.701	-3.688	-3.675	-3.661	-3.648	-3.634	-180
-170	-3.634	-3.620	-3.607	-3.592	-3.578	-3.564	-3.550	-3.535	-3.521	-3.506	-3.491	-170
-160	-3.491	-3.476	-3.461	-3.446	-3.430	-3.415	-3.399	-3.384	-3.368	-3.352	-3.336	-160
-150	-3.336	-3.320	-3.304	-3.288	-3.271	-3.255	-3.238	-3.221	-3.204	-3.187	-3.170	-150
-140	-3.170	-3.153	-3.136	-3.118	-3.101	-3.083	-3.066	-3.048	-3.030	-3.012	-2.994	-140
-130	-2.994	-2.976	-2.957	-2.939	-2.921	-2.902	-2.883	-2.864	-2.846	-2.827	-2.807	-130
-120	-2.807	-2.788	-2.769	-2.750	-2.730	-2.711	-2.691	-2.671	-2.651	-2.632	-2.612	-120
-110	-2.612	-2.591	-2.571	-2.551	-2.531	-2.510	-2.490	-2.469	-2.448	-2.427	-2.407	-110
-100	-2.407	-2.386	-2.365	-2.343	-2.322	-2.301	-2.280	-2.258	-2.237	-2.215	-2.193	-100
-90	-2.193	-2.171	-2.150	-2.128	-2.106	-2.084	-2.061	-2.039	-2.017	-1.995	-1.972	-90
-80	-1.972	-1.950	-1.927	-1.904	-1.882	-1.859	-1.836	-1.813	-1.790	-1.767	-1.744	-80
-70	-1.744	-1.721	-1.697	-1.674	-1.651	-1.627	-1.604	-1.580	-1.556	-1.533	-1.509	-70
-60	-1.509	-1.485	-1.461	-1.437	-1.413	-1.389	-1.365	-1.341	-1.317	-1.293	-1.268	-60
-50	-1.268	-1.244	-1.220	-1.195	-1.171	-1.146	-1.121	-1.097	-1.072	-1.047	-1.023	-50
-40	-1.023	-0.998	-0.973	-0.948	-0.923	-0.898	-0.873	-0.848	-0.823	-0.797	-0.772	-40
-30	-0.772	-0.747	-0.722	-0.696	-0.671	-0.646	-0.620	-0.595	-0.569	-0.544	-0.518	-30
-20	-0.518	-0.492	-0.467	-0.441	-0.415	-0.390	-0.364	-0.338	-0.312	-0.286	-0.260	-20
-10	-0.260	-0.234	-0.208	-0.183	-0.157	-0.130	-0.104	-0.078	-0.052	-0.026	0.000	-10
0	0.000	0.026	0.052	0.078	0.104	0.130	0.156	0.182	0.208	0.234	0.261	0
10	0.261	0.287	0.313	0.340	0.366	0.392	0.419	0.445	0.472	0.498	0.525	10
20	0.525	0.551	0.578	0.605	0.632	0.658	0.685	0.712	0.739	0.766	0.793	20
30	0.793	0.820	0.847	0.874	0.901	0.928	0.955	0.982	1.010	1.037	1.064	30
40	1.064	1.092	1.119	1.146	1.174	1.201	1.229	1.256	1.284	1.312	1.339	40
50	1.339	1.367	1.395	1.423	1.451	1.479	1.506	1.534	1.562	1.591	1.619	50
60	1.619	1.647	1.675	1.703	1.731	1.760	1.788	1.816	1.845	1.873	1.902	60
70	1.902	1.930	1.959	1.987	2.016	2.045	2.073	2.102	2.131	2.160	2.188	70
80	2.188	2.217	2.246	2.275	2.304	2.333	2.362	2.392	2.421	2.450	2.479	80
90	2.479	2.508	2.538	2.567	2.596	2.626	2.655	2.685	2.714	2.744	2.774	90
100	2.774	2.803	2.833	2.863	2.892	2.922	2.952	2.982	3.012	3.042	3.072	100
110	3.072	3.102	3.132	3.162	3.192	3.222	3.252	3.283	3.313	3.343	3.374	110
120	3.374	3.404	3.434	3.465	3.495	3.526	3.557	3.587	3.618	3.648	3.679	120
130	3.679	3.710	3.741	3.772	3.802	3.833	3.864	3.895	3.926	3.957	3.988	130
140	3.988	4.019	4.050	4.082	4.113	4.144	4.175	4.207	4.238	4.269	4.301	140
150	4.301	4.332	4.364	4.395	4.427	4.458	4.490	4.521	4.553	4.585	4.617	150
160	4.617	4.648	4.680	4.712	4.744	4.776	4.808	4.840	4.872	4.904	4.936	160
170	4.936	4.968	5.000	5.032	5.064	5.097	5.129	5.161	5.193	5.226	5.258	170
180	5.258	5.290	5.323	5.355	5.388	5.420	5.453	5.486	5.518	5.551	5.584	180
190	5.584	5.616	5.649	5.682	5.715	5.747	5.780	5.813	5.846	5.879	5.912	190

Table 2-9. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
200	5.912	5.945	5.978	6.011	6.044	6.077	6.110	6.144	6.177	6.210	6.243	200
210	6.243	6.277	6.310	6.343	6.377	6.410	6.443	6.477	6.510	6.544	6.577	210
220	6.577	6.611	6.645	6.678	6.712	6.745	6.779	6.813	6.847	6.880	6.914	220
230	6.914	6.948	6.982	7.016	7.050	7.084	7.118	7.152	7.186	7.220	7.254	230
240	7.254	7.288	7.322	7.356	7.390	7.424	7.458	7.493	7.527	7.561	7.596	240
250	7.596	7.630	7.664	7.699	7.733	7.767	7.802	7.836	7.871	7.905	7.940	250
260	7.940	7.975	8.009	8.044	8.078	8.113	8.148	8.182	8.217	8.252	8.287	260
270	8.287	8.321	8.356	8.391	8.426	8.461	8.496	8.531	8.566	8.601	8.636	270
280	8.636	8.671	8.706	8.741	8.776	8.811	8.846	8.881	8.916	8.952	8.987	280
290	8.987	9.022	9.057	9.093	9.128	9.163	9.198	9.234	9.269	9.305	9.340	290
300	9.340	9.375	9.411	9.446	9.482	9.517	9.553	9.589	9.624	9.660	9.695	300
310	9.695	9.731	9.767	9.802	9.838	9.874	9.909	9.945	9.981	10.017	10.053	310
320	10.053	10.088	10.124	10.160	10.196	10.232	10.268	10.304	10.340	10.376	10.412	320
330	10.412	10.448	10.484	10.520	10.556	10.592	10.628	10.664	10.700	10.736	10.772	330
340	10.772	10.809	10.845	10.881	10.917	10.954	10.990	11.026	11.062	11.099	11.135	340
350	11.135	11.171	11.208	11.244	11.281	11.317	11.354	11.390	11.426	11.463	11.499	350
360	11.499	11.536	11.572	11.609	11.646	11.682	11.719	11.755	11.792	11.829	11.865	360
370	11.865	11.902	11.939	11.975	12.012	12.049	12.086	12.122	12.159	12.196	12.233	370
380	12.233	12.270	12.306	12.343	12.380	12.417	12.454	12.491	12.528	12.565	12.602	380
390	12.602	12.639	12.676	12.713	12.750	12.787	12.824	12.861	12.898	12.935	12.972	390
400	12.972	13.009	13.046	13.084	13.121	13.158	13.195	13.232	13.269	13.307	13.344	400
410	13.344	13.381	13.418	13.456	13.493	13.530	13.568	13.605	13.642	13.680	13.717	410
420	13.717	13.754	13.792	13.829	13.867	13.904	13.942	13.979	14.017	14.054	14.091	420
430	14.091	14.129	14.167	14.204	14.242	14.279	14.317	14.354	14.392	14.430	14.467	430
440	14.467	14.505	14.542	14.580	14.618	14.655	14.693	14.731	14.769	14.806	14.844	440
450	14.844	14.882	14.919	14.957	14.995	15.033	15.071	15.108	15.146	15.184	15.222	450
460	15.222	15.260	15.298	15.336	15.373	15.411	15.449	15.487	15.525	15.563	15.601	460
470	15.601	15.639	15.677	15.715	15.753	15.791	15.829	15.867	15.905	15.943	15.981	470
480	15.981	16.019	16.057	16.095	16.133	16.172	16.210	16.248	16.286	16.324	16.362	480
490	16.362	16.400	16.439	16.477	16.515	16.553	16.591	16.630	16.668	16.706	16.744	490
500	16.744	16.783	16.821	16.859	16.897	16.936	16.974	17.012	17.051	17.089	17.127	500
510	17.127	17.166	17.204	17.243	17.281	17.319	17.358	17.396	17.434	17.473	17.511	510
520	17.511	17.550	17.588	17.627	17.665	17.704	17.742	17.781	17.819	17.858	17.896	520
530	17.896	17.935	17.973	18.012	18.050	18.089	18.127	18.166	18.204	18.243	18.282	530
540	18.282	18.320	18.359	18.397	18.436	18.475	18.513	18.552	18.591	18.629	18.668	540
550	18.668	18.707	18.745	18.784	18.823	18.861	18.900	18.939	18.977	19.016	19.055	550
560	19.055	19.094	19.132	19.171	19.210	19.249	19.287	19.326	19.365	19.404	19.443	560
570	19.443	19.481	19.520	19.559	19.598	19.637	19.676	19.714	19.753	19.792	19.831	570
580	19.831	19.870	19.909	19.948	19.986	20.025	20.064	20.103	20.142	20.181	20.220	580
590	20.220	20.259	20.298	20.337	20.376	20.415	20.453	20.492	20.531	20.570	20.609	590
600	20.609	20.648	20.687	20.726	20.765	20.804	20.843	20.882	20.921	20.960	20.999	600
610	20.999	21.038	21.077	21.116	21.155	21.195	21.234	21.273	21.312	21.351	21.390	610
620	21.390	21.429	21.468	21.507	21.546	21.585	21.624	21.663	21.702	21.742	21.781	620
630	21.781	21.820	21.859	21.898	21.937	21.976	22.015	22.055	22.094	22.133	22.172	630
640	22.172	22.211	22.250	22.289	22.329	22.368	22.407	22.446	22.485	22.524	22.564	640
650	22.564	22.603	22.642	22.681	22.720	22.760	22.799	22.838	22.877	22.916	22.956	650
660	22.956	22.995	23.034	23.073	23.112	23.152	23.191	23.230	23.269	23.309	23.348	660
670	23.348	23.387	23.426	23.466	23.505	23.544	23.583	23.623	23.662	23.701	23.740	670
680	23.740	23.780	23.819	23.858	23.897	23.937	23.976	24.015	24.054	24.094	24.133	680
690	24.133	24.172	24.212	24.251	24.290	24.329	24.369	24.408	24.447	24.487	24.526	690
700	24.526	24.565	24.604	24.644	24.683	24.722	24.762	24.801	24.840	24.879	24.919	700
710	24.919	24.958	24.997	25.037	25.076	25.115	25.155	25.194	25.233	25.273	25.312	710
720	25.312	25.351	25.391	25.430	25.469	25.508	25.548	25.587	25.626	25.666	25.705	720

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Table 2-9. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
730	25.705	25.744	25.784	25.823	25.862	25.902	25.941	25.980	26.020	26.059	26.098	730
740	26.098	26.138	26.177	26.216	26.255	26.295	26.334	26.373	26.413	26.452	26.491	740
750	26.491	26.531	26.570	26.609	26.649	26.688	26.727	26.767	26.806	26.845	26.885	750
760	26.885	26.924	26.963	27.002	27.042	27.081	27.120	27.160	27.199	27.238	27.278	760
770	27.278	27.317	27.356	27.396	27.435	27.474	27.513	27.553	27.592	27.631	27.671	770
780	27.671	27.710	27.749	27.788	27.828	27.867	27.906	27.946	27.985	28.024	28.063	780
790	28.063	28.103	28.142	28.181	28.221	28.260	28.299	28.338	28.378	28.417	28.456	790
800	28.456	28.495	28.535	28.574	28.613	28.652	28.692	28.731	28.770	28.809	28.849	800
810	28.849	28.888	28.927	28.966	29.006	29.045	29.084	29.123	29.163	29.202	29.241	810
820	29.241	29.280	29.319	29.359	29.398	29.437	29.476	29.516	29.555	29.594	29.633	820
830	29.633	29.672	29.712	29.751	29.790	29.829	29.868	29.908	29.947	29.986	30.025	830
840	30.025	30.064	30.103	30.143	30.182	30.221	30.260	30.299	30.338	30.378	30.417	840
850	30.417	30.456	30.495	30.534	30.573	30.612	30.652	30.691	30.730	30.769	30.808	850
860	30.808	30.847	30.886	30.925	30.964	31.004	31.043	31.082	31.121	31.160	31.199	860
870	31.199	31.238	31.277	31.316	31.355	31.394	31.434	31.473	31.512	31.551	31.590	870
880	31.590	31.629	31.668	31.707	31.746	31.785	31.824	31.863	31.902	31.941	31.980	880
890	31.980	32.019	32.058	32.097	32.136	32.175	32.214	32.253	32.292	32.331	32.370	890
900	32.370	32.409	32.448	32.487	32.526	32.565	32.604	32.643	32.682	32.721	32.760	900
910	32.760	32.799	32.838	32.877	32.916	32.955	32.993	33.032	33.071	33.110	33.149	910
920	33.149	33.188	33.227	33.266	33.305	33.344	33.382	33.421	33.460	33.499	33.538	920
930	33.538	33.577	33.616	33.655	33.693	33.732	33.771	33.810	33.849	33.888	33.926	930
940	33.926	33.965	34.004	34.043	34.082	34.121	34.159	34.198	34.237	34.276	34.315	940
950	34.315	34.353	34.392	34.431	34.470	34.508	34.547	34.586	34.625	34.663	34.702	950
960	34.702	34.741	34.780	34.818	34.857	34.896	34.935	34.973	35.012	35.051	35.089	960
970	35.089	35.128	35.167	35.205	35.244	35.283	35.321	35.360	35.399	35.437	35.476	970
980	35.476	35.515	35.553	35.592	35.631	35.669	35.708	35.747	35.785	35.824	35.862	980
990	35.862	35.901	35.940	35.978	36.017	36.055	36.094	36.132	36.171	36.210	36.248	990
1000	36.248	36.287	36.325	36.364	36.402	36.441	36.479	36.518	36.556	36.595	36.633	1000
1010	36.633	36.672	36.710	36.749	36.787	36.826	36.864	36.903	36.941	36.980	37.018	1010
1020	37.018	37.057	37.095	37.134	37.172	37.210	37.249	37.287	37.326	37.364	37.402	1020
1030	37.402	37.441	37.479	37.518	37.556	37.594	37.633	37.671	37.710	37.748	37.786	1030
1040	37.786	37.825	37.863	37.901	37.940	37.978	38.016	38.055	38.093	38.131	38.169	1040
1050	38.169	38.208	38.246	38.284	38.323	38.361	38.399	38.437	38.476	38.514	38.552	1050
1060	38.552	38.590	38.628	38.667	38.705	38.743	38.781	38.819	38.858	38.896	38.934	1060
1070	38.934	38.972	39.010	39.049	39.087	39.125	39.163	39.201	39.239	39.277	39.315	1070
1080	39.315	39.354	39.392	39.430	39.468	39.506	39.544	39.582	39.620	39.658	39.696	1080
1090	39.696	39.734	39.772	39.810	39.848	39.886	39.924	39.962	40.000	40.038	40.076	1090
1100	40.076	40.114	40.152	40.190	40.228	40.266	40.304	40.342	40.380	40.418	40.456	1100
1110	40.456	40.494	40.532	40.570	40.607	40.645	40.683	40.721	40.759	40.797	40.835	1110
1120	40.835	40.872	40.910	40.948	40.986	41.024	41.062	41.099	41.137	41.175	41.213	1120
1130	41.213	41.250	41.288	41.326	41.364	41.401	41.439	41.477	41.515	41.552	41.590	1130
1140	41.590	41.628	41.665	41.703	41.741	41.778	41.816	41.854	41.891	41.929	41.966	1140
1150	41.966	42.004	42.042	42.079	42.117	42.154	42.192	42.229	42.267	42.305	42.342	1150
1160	42.342	42.380	42.417	42.455	42.492	42.530	42.567	42.605	42.642	42.680	42.717	1160
1170	42.717	42.754	42.792	42.829	42.867	42.904	42.941	42.979	43.016	43.054	43.091	1170
1180	43.091	43.128	43.166	43.203	43.240	43.278	43.315	43.352	43.389	43.427	43.464	1180
1190	43.464	43.501	43.538	43.576	43.613	43.650	43.687	43.725	43.762	43.799	43.836	1190
1200	43.836	43.873	43.910	43.948	43.985	44.022	44.059	44.096	44.133	44.170	44.207	1200
1210	44.207	44.244	44.281	44.318	44.355	44.393	44.430	44.467	44.504	44.541	44.577	1210
1220	44.577	44.614	44.651	44.688	44.725	44.762	44.799	44.836	44.873	44.910	44.947	1220
1230	44.947	44.984	45.020	45.057	45.094	45.131	45.168	45.204	45.241	45.278	45.315	1230
1240	45.315	45.352	45.388	45.425	45.462	45.498	45.535	45.572	45.609	45.645	45.682	1240
1250	45.682	45.719	45.755	45.792	45.828	45.865	45.902	45.938	45.975	46.011	46.048	1250

Table 2-9. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
1260	46.048	46.085	46.121	46.158	46.194	46.231	46.267	46.304	46.340	46.377	46.413	1260
1270	46.413	46.449	46.486	46.522	46.559	46.595	46.631	46.668	46.704	46.741	46.777	1270
1280	46.777	46.813	46.850	46.886	46.922	46.959	46.995	47.031	47.067	47.104	47.140	1280
1290	47.140	47.176	47.212	47.249	47.285	47.321	47.357	47.393	47.430	47.466	47.502	1290

T/C TYPE N - THERMOELECTRIC VOLTAGE

**as a Function of Temperature (°F) Reference Junctions at 32 °F
Reference Standard: BS 4937 part 8**

Table 2-10. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-460							-4.345	-4.345	-4.345	-4.344	-4.344	-460
-450	-4.344	-4.344	-4.343	-4.343	-4.343	-4.342	-4.341	-4.341	-4.340	-4.340	-4.339	-450
-440	-4.339	-4.338	-4.337	-4.337	-4.336	-4.335	-4.334	-4.333	-4.332	-4.332	-4.330	-440
-430	-4.330	-4.329	-4.327	-4.326	-4.325	-4.324	-4.322	-4.321	-4.319	-4.318	-4.316	-430
-420	-4.316	-4.315	-4.313	-4.312	-4.310	-4.308	-4.306	-4.305	-4.303	-4.301	-4.299	-420
-410	-4.299	-4.297	-4.295	-4.293	-4.291	-4.289	-4.286	-4.284	-4.282	-4.279	-4.277	-410
-400	-4.277	-4.275	-4.272	-4.270	-4.267	-4.264	-4.262	-4.259	-4.256	-4.254	-4.251	-400
-390	-4.251	-4.248	-4.245	-4.242	-4.239	-4.236	-4.233	-4.230	-4.227	-4.223	-4.220	-390
-380	-4.220	-4.217	-4.213	-4.210	-4.207	-4.203	4.200	4.196	4.192	4.189	4.185	-380
370	4.185	4.181	4.177	4.174	4.170	4.166	4.162	4.158	4.154	4.150	4.145	370
-360	4.145	4.141	4.137	4.133	4.128	4.124	4.120	4.115	4.111	4.106	4.102	-360
-350	4.102	4.097	4.092	4.088	4.083	4.078	4.073	4.058	4.064	4.059	4.054	-350
-340	4.054	4.049	4.043	4.038	4.033	4.028	4.023	4.017	4.012	4.007	4.001	-340
-330	4.001	-3.996	-3.990	-3.985	-3.979	-3.974	-3.968	-3.962	-3.957	-3.951	-3.945	-330
-320	-3.945	-3.939	-3.933	-3.927	-3.921	-3.915	-3.909	-3.903	-3.897	-3.891	-3.884	-320
-310	-3.884	-3.878	-3.872	-3.865	-3.859	-3.853	-3.846	-3.840	-3.833	-3.827	-3.820	-310
-300	-3.820	-3.813	-3.807	-3.800	-3.793	-3.786	-3.779	-3.772	-3.766	-3.759	-3.752	-300
-290	-3.752	-3.745	-3.737	-3.730	-3.723	-3.716	-3.709	-3.701	-3.694	-3.687	-3.679	-290
-280	-3.679	-3.672	-3.664	-3.657	-3.649	-3.642	-3.634	-3.627	-3.619	-3.611	-3.603	-280
-270	-3.603	-3.596	-3.588	-3.580	-3.572	-3.564	-3.556	-3.548	-3.540	-3.532	-3.524	-270
-260	-3.524	-3.516	-3.507	-3.499	-3.491	-3.483	-3.474	-3.466	-3.458	-3.449	-3.441	-260
-250	-3.441	-3.432	-3.424	-3.415	-3.406	-3.398	-3.389	-3.380	-3.372	-3.363	-3.354	-250
-3.354	-3.354	-3.345	-3.336	-3.327	-3.318	-3.309	-3.300	-3.291	-3.282	-3.273	-3.264	-240
-230	-3.264	-3.255	-3.245	-3.236	-3.227	-3.217	-3.208	-3.199	-3.189	-3.180	-3.170	-230
-220	-3.170	-3.161	-3.151	-3.142	-3.132	-3.122	-3.113	-3.103	-3.093	-3.083	-3.074	-220
-210	-3.074	-3.064	-3.054	-3.044	-3.034	-3.024	-3.014	-3.004	-2.994	-2.984	-2.974	-210
-200	-2.974	-2.964	-2.953	-2.943	-2.933	-2.923	-2.912	-2.902	-2.892	-2.881	-2.871	-200
-190	-2.871	-2.860	-2.850	-2.839	-2.829	-2.818	-2.807	-2.797	-2.786	-2.775	-2.765	-190
-180	-2.765	-2.754	-2.743	-2.732	-2.722	-2.711	-2.700	-2.689	-2.678	-2.667	-2.656	-180
-170	-2.656	-2.645	-2.634	-2.623	-2.612	-2.600	-2.589	-2.578	-2.567	-2.555	-2.544	-170
-160	-2.544	-2.533	-2.521	-2.510	-2.499	-2.487	-2.476	-2.464	-2.453	-2.441	-2.430	-160
-150	-2.430	-2.418	-2.407	-2.395	-2.383	-2.372	-2.360	-2.348	-2.336	-2.325	-2.313	-150
-140	-2.313	-2.301	-2.289	-2.277	-2.265	-2.253	-2.241	-2.229	-2.217	-2.205	-2.193	-140
-130	-2.193	-2.181	-2.169	-2.157	-2.145	-2.133	-2.120	-2.108	-2.096	-2.084	-2.071	-130
-120	-2.071	-2.059	-2.047	-2.034	-2.022	-2.009	-1.997	-1.985	-1.972	-1.960	-1.947	-120
-110	-1.947	-1.935	-1.922	-1.909	-1.897	-1.884	-1.871	-1.859	-1.846	-1.833	-1.821	-110
-100	-1.821	-1.808	-1.795	-1.782	-1.770	-1.757	-1.744	-1.731	-1.718	-1.705	-1.692	-100
-90	-1.692	-1.679	-1.666	-1.653	-1.640	-1.627	-1.614	-1.601	-1.588	-1.575	-1.562	-90
-80	-1.562	-1.549	-1.535	-1.522	-1.509	-1.496	-1.483	-1.469	-1.456	-1.443	-1.429	-80
-70	-1.429	-1.416	-1.403	-1.389	-1.376	-1.363	-1.349	-1.336	-1.322	-1.309	-1.295	-70

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Table 2-10. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-60	-1.295	-1.282	-1.268	-1.255	-1.241	-1.228	-1.214	-1.201	-1.187	-1.173	-1.160	-60
-50	-1.160	-1.146	-1.132	-1.119	-1.105	-1.091	-1.078	-1.064	-1.050	-1.036	-1.023	-50
-40	-1.023	-1.009	-0.995	-0.981	-0.967	-0.953	-0.940	-0.926	-0.912	-0.898	-0.884	-40
-30	-0.884	-0.870	-0.856	-0.842	-0.828	-0.814	-0.800	-0.786	-0.772	-0.758	-0.744	-30
-20	-0.744	-0.730	-0.716	-0.702	-0.688	-0.674	-0.660	-0.646	-0.631	-0.617	-0.603	-20
-10	-0.603	-0.589	-0.575	-0.561	-0.546	-0.532	-0.518	-0.504	-0.489	-0.475	-0.461	-10
0	-0.461	-0.447	-0.432	-0.418	-0.404	-0.390	-0.375	-0.361	-0.347	-0.332	-0.318	0
10	-0.318	-0.303	-0.289	-0.275	-0.260	-0.246	-0.232	-0.217	-0.203	-0.188	-0.174	10
20	-0.174	-0.159	-0.145	-0.130	-0.116	-0.102	-0.087	-0.073	-0.058	-0.044	-0.029	20
30	-0.029	-0.015	0.000	0.014	0.029	0.043	0.058	0.072	0.087	0.101	0.115	30
40	0.115	0.130	0.144	0.159	0.173	0.188	0.202	0.217	0.232	0.246	0.261	40
50	0.261	0.275	0.290	0.304	0.319	0.334	0.348	0.363	0.378	0.392	0.407	50
60	0.407	0.422	0.436	0.451	0.466	0.481	0.495	0.510	0.525	0.540	0.554	60
70	0.554	0.569	0.584	0.599	0.614	0.629	0.643	0.658	0.673	0.688	0.703	70
80	0.703	0.718	0.733	0.748	0.763	0.778	0.793	0.808	0.823	0.838	0.853	80
90	0.853	0.868	0.883	0.898	0.913	0.928	0.943	0.958	0.973	0.988	1.003	90
100	1.003	1.019	1.034	1.049	1.064	1.079	1.095	1.110	1.125	1.140	1.156	100
110	1.156	1.171	1.186	1.201	1.217	1.232	1.247	1.263	1.278	1.293	1.309	110
120	1.309	1.324	1.339	1.355	1.370	1.386	1.401	1.417	1.432	1.448	1.463	120
130	1.463	1.479	1.494	1.510	1.525	1.541	1.556	1.572	1.587	1.603	1.619	130
140	1.619	1.634	1.650	1.666	1.681	1.697	1.713	1.728	1.744	1.760	1.775	140
150	1.775	1.791	1.807	1.823	1.838	1.854	1.870	1.886	1.902	1.917	1.933	150
160	1.933	1.949	1.965	1.981	1.997	2.013	2.029	2.045	2.060	2.076	2.092	160
170	2.092	2.108	2.124	2.140	2.156	2.172	2.188	2.204	2.221	2.237	2.253	170
180	2.253	2.269	2.285	2.301	2.317	2.333	2.349	2.366	2.382	2.398	2.414	180
190	2.414	2.430	2.447	2.463	2.479	2.495	2.512	2.528	2.544	2.561	2.577	190
200	2.577	2.593	2.610	2.626	2.642	2.659	2.675	2.691	2.708	2.724	2.741	200
210	2.741	2.757	2.774	2.790	2.807	2.823	2.840	2.856	2.873	2.889	2.906	210
220	2.906	2.922	2.939	2.955	2.972	2.989	3.005	3.022	3.038	3.055	3.072	220
230	3.072	3.088	3.105	3.122	3.139	3.155	3.172	3.189	3.205	3.222	3.239	230
240	3.239	3.256	3.273	3.289	3.306	3.323	3.340	3.357	3.374	3.391	3.407	240
250	3.407	3.424	3.441	3.458	3.475	3.492	3.509	3.526	3.543	3.560	3.577	250
260	3.577	3.594	3.611	3.628	3.645	3.662	3.679	3.696	3.713	3.730	3.748	260
270	3.748	3.765	3.782	3.799	3.816	3.833	3.850	3.868	3.885	3.902	3.919	270
280	3.919	3.936	3.954	3.971	3.988	4.005	4.023	4.040	4.057	4.075	4.092	280
290	4.092	4.109	4.127	4.144	4.161	4.179	4.196	4.214	4.231	4.248	4.266	290
300	4.266	4.283	4.301	4.318	4.336	4.353	4.371	4.388	4.406	4.423	4.441	300
310	4.441	4.458	4.476	4.493	4.511	4.529	4.546	4.564	4.581	4.599	4.617	310
320	4.617	4.634	4.652	4.670	4.687	4.705	4.723	4.740	4.758	4.776	4.794	320
330	4.794	4.811	4.829	4.847	4.865	4.882	4.900	4.918	4.936	4.954	4.971	330
340	4.971	4.989	5.007	5.025	5.043	5.061	5.079	5.097	5.114	5.132	5.150	340
350	5.150	5.168	5.186	5.204	5.222	5.240	5.258	5.276	5.294	5.312	5.330	350
360	5.330	5.348	5.366	5.384	5.402	5.420	5.439	5.457	5.475	5.493	5.511	360
370	5.511	5.529	5.547	5.565	5.584	5.602	5.620	5.638	5.656	5.674	5.693	370
380	5.693	5.711	5.729	5.747	5.766	5.784	5.802	5.820	5.839	5.857	5.875	380
390	5.875	5.894	5.912	5.930	5.949	5.967	5.985	6.004	6.022	6.040	6.059	390
400	6.059	6.077	6.096	6.114	6.132	6.151	6.169	6.188	6.206	6.225	6.243	400
410	6.243	6.262	6.280	6.299	6.317	6.336	6.354	6.373	6.391	6.410	6.429	410
420	6.429	6.447	6.466	6.484	6.503	6.521	6.540	6.559	6.577	6.596	6.615	420
430	6.615	6.633	6.652	6.671	6.689	6.708	6.727	6.745	6.764	6.783	6.802	430
440	6.802	6.820	6.839	6.858	6.877	6.895	6.914	6.933	6.952	6.971	6.989	440
450	6.989	7.008	7.027	7.046	7.065	7.084	7.102	7.121	7.140	7.159	7.178	450
460	7.178	7.197	7.216	7.235	7.254	7.273	7.291	7.310	7.329	7.348	7.367	460

Table 2-10. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
470	7.367	7.386	7.405	7.424	7.443	7.462	7.481	7.500	7.519	7.538	7.557	470
480	7.557	7.576	7.596	7.615	7.634	7.653	7.672	7.691	7.710	7.729	7.748	480
490	7.748	7.767	7.787	7.806	7.825	7.844	7.863	7.882	7.902	7.921	7.940	490
500	7.940	7.959	7.978	7.998	8.017	8.036	8.055	8.075	8.094	8.113	8.132	500
510	8.132	8.152	8.171	8.190	8.209	8.229	8.248	8.267	8.287	8.305	8.325	510
520	8.325	8.345	8.364	8.383	8.403	8.422	8.441	8.461	8.480	8.500	8.519	520
530	8.519	8.538	8.558	8.577	8.597	8.616	8.636	8.655	8.675	8.694	8.713	530
540	8.713	8.733	8.752	8.772	8.791	8.811	8.830	8.850	8.870	8.889	8.909	540
550	8.909	8.928	8.948	8.967	8.987	9.006	9.026	9.046	9.065	9.085	9.104	550
560	9.104	9.124	9.144	9.163	9.183	9.202	9.222	9.242	9.261	9.281	9.301	560
570	9.301	9.320	9.340	9.360	9.379	9.399	9.419	9.439	9.458	9.478	9.498	570
580	9.498	9.517	9.537	9.557	9.577	9.596	9.616	9.636	9.656	9.676	9.695	580
590	9.695	9.715	9.735	9.755	9.775	9.794	9.814	9.834	9.854	9.874	9.894	590
600	9.894	9.913	9.933	9.953	9.973	9.993	10.013	10.033	10.053	10.072	10.092	600
610	10.092	10.112	10.132	10.152	10.172	10.192	10.212	10.232	10.252	10.272	10.292	610
620	10.292	10.312	10.332	10.352	10.372	10.392	10.412	10.432	10.452	10.472	10.492	620
630	10.492	10.512	10.532	10.552	10.572	10.592	10.612	10.632	10.652	10.672	10.692	630
640	10.692	10.712	10.732	10.752	10.772	10.793	10.813	10.833	10.853	10.873	10.893	640
650	10.893	10.913	10.933	10.954	10.974	10.994	11.014	11.034	11.054	11.075	11.095	650
660	11.095	11.115	11.135	11.155	11.176	11.196	11.216	11.236	11.256	11.277	11.297	660
670	11.297	11.317	11.337	11.358	11.378	11.398	11.418	11.439	11.459	11.479	11.499	670
680	11.499	11.520	11.540	11.560	11.581	11.601	11.621	11.642	11.662	11.682	11.703	680
690	11.703	11.723	11.743	11.764	11.784	11.804	11.825	11.845	11.865	11.886	11.906	690
700	11.906	11.926	11.947	11.967	11.988	12.008	12.028	12.049	12.069	12.090	12.110	700
710	12.110	12.131	12.151	12.171	12.192	12.212	12.233	12.253	12.274	12.294	12.315	710
720	12.315	12.335	12.356	12.376	12.397	12.417	12.438	12.458	12.479	12.499	12.520	720
730	12.520	12.540	12.561	12.581	12.602	12.622	12.643	12.663	12.684	12.705	12.725	730
740	12.725	12.746	12.766	12.787	12.807	12.828	12.849	12.869	12.890	12.910	12.931	740
750	12.931	12.952	12.972	12.993	13.013	13.034	13.055	13.075	13.096	13.117	13.137	750
760	13.137	13.158	13.179	13.199	13.220	13.241	13.261	13.282	13.303	13.323	13.344	760
770	13.344	13.365	13.385	13.406	13.427	13.447	13.468	13.489	13.510	13.530	13.551	770
780	13.551	13.572	13.593	13.613	13.634	13.655	13.676	13.696	13.717	13.738	13.759	780
790	13.759	13.779	13.800	13.821	13.842	13.863	13.883	13.904	13.925	13.946	13.967	790
800	13.967	13.987	14.008	14.029	14.050	14.071	14.091	14.112	14.133	14.154	14.175	800
810	14.175	14.196	14.217	14.237	14.258	14.279	14.300	14.321	14.342	14.363	14.384	810
820	14.384	14.404	14.425	14.446	14.467	14.488	14.509	14.530	14.551	14.572	14.593	820
830	14.593	14.614	14.634	14.655	14.676	14.697	14.718	14.739	14.760	14.781	14.802	830
840	14.802	14.823	14.844	14.865	14.886	14.907	14.928	14.949	14.970	14.991	15.012	840
850	15.012	15.033	15.054	15.075	15.096	15.117	15.138	15.159	15.180	15.201	15.222	850
860	15.222	15.243	15.264	15.285	15.306	15.327	15.348	15.369	15.390	15.411	15.432	860
870	15.432	15.453	15.475	15.496	15.517	15.538	15.559	15.580	15.601	15.622	15.643	870
880	15.643	15.664	15.685	15.707	15.728	15.749	15.770	15.791	15.812	15.833	15.854	880
890	15.854	15.875	15.897	15.918	15.939	15.960	15.981	16.002	16.023	16.045	16.066	890
900	16.066	16.087	16.108	16.129	16.150	16.172	16.193	16.214	16.235	16.256	16.278	900
910	16.278	16.299	16.320	16.341	16.362	16.383	16.405	16.426	16.447	16.468	16.490	910
920	16.490	16.511	16.532	16.553	16.574	16.596	16.617	16.638	16.659	16.681	16.702	920
930	16.702	16.723	16.744	16.766	16.787	16.808	16.829	16.851	16.872	16.893	16.915	930
940	16.915	16.936	16.957	16.978	17.000	17.021	17.042	17.064	17.085	17.106	17.127	940
950	17.127	17.149	17.170	17.191	17.213	17.234	17.255	17.277	17.298	17.319	17.341	950
960	17.341	17.362	17.383	17.405	17.426	17.447	17.469	17.490	17.511	17.533	17.554	960
970	17.554	17.575	17.597	17.618	17.639	17.661	17.682	17.704	17.725	17.746	17.768	970
980	17.768	17.789	17.811	17.832	17.853	17.875	17.896	17.917	17.939	17.960	17.982	980
990	17.982	18.003	18.025	18.046	18.067	18.089	18.110	18.132	18.153	18.174	18.196	990

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Table 2-10. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1000	18.196	18.217	18.239	18.260	18.282	18.303	18.325	18.346	18.367	18.389	18.410	1000
1010	18.410	18.432	18.453	18.475	18.496	18.518	18.539	18.561	18.582	18.603	18.625	1010
1020	18.625	18.646	18.668	18.689	18.711	18.732	18.754	18.775	18.797	18.818	18.840	1020
1030	18.840	18.861	18.883	18.904	18.926	18.947	18.969	18.990	19.012	19.033	19.055	1030
1040	19.055	19.076	19.098	19.120	19.141	19.163	19.184	19.206	19.227	19.249	19.270	1040
1050	19.270	19.292	19.313	19.335	19.356	19.378	19.400	19.421	19.443	19.464	19.486	1050
1060	19.486	19.507	19.529	19.550	19.572	19.594	19.615	19.637	19.658	19.680	19.701	1060
1070	19.701	19.723	19.745	19.766	19.788	19.809	19.831	19.853	19.874	19.896	19.917	1070
1080	19.917	19.939	19.961	19.982	20.004	20.025	20.047	20.069	20.090	20.112	20.133	1080
1090	20.133	20.155	20.177	20.198	20.220	20.241	20.263	20.285	20.306	20.328	20.350	1090
1100	20.350	20.371	20.393	20.415	20.436	20.458	20.479	20.501	20.523	20.544	20.566	1100
1110	20.566	20.588	20.609	20.631	20.653	20.674	20.696	20.718	20.739	20.761	20.783	1110
1120	20.783	20.804	20.826	20.848	20.869	20.891	20.913	20.934	20.956	20.978	20.999	1120
1130	20.999	21.021	21.043	21.064	21.086	21.108	21.129	21.151	21.173	21.195	21.216	1130
1140	21.216	21.238	21.260	21.281	21.303	21.325	21.346	21.368	21.390	21.411	21.433	1140
1150	21.433	21.455	21.477	21.498	21.520	21.542	21.563	21.585	21.607	21.629	21.650	1150
1160	21.650	21.672	21.694	21.716	21.737	21.759	21.781	21.802	21.824	21.846	21.868	1160
1170	21.868	21.889	21.911	21.933	21.955	21.976	21.998	22.020	22.041	22.063	22.085	1170
1180	22.085	22.107	22.128	22.150	22.172	22.194	22.215	22.237	22.259	22.281	22.302	1180
1190	22.302	22.324	22.346	22.368	22.390	22.411	22.433	22.455	22.477	22.498	22.520	1190
1200	22.520	22.542	22.564	22.585	22.607	22.629	22.651	22.672	22.694	22.716	22.738	1200
1210	22.738	22.760	22.781	22.803	22.825	22.847	22.868	22.890	22.912	22.934	22.956	1210
1220	22.956	22.977	22.999	23.021	23.043	23.064	23.086	23.108	23.130	23.152	23.173	1220
1230	23.173	23.195	23.217	23.239	23.261	23.282	23.304	23.326	23.348	23.370	23.391	1230
1240	23.391	23.413	23.435	23.457	23.479	23.500	23.522	23.544	23.566	23.588	23.609	1240
1250	23.609	23.631	23.653	23.675	23.697	23.718	23.740	23.762	23.784	23.806	23.828	1250
1260	23.828	23.849	23.871	23.893	23.915	23.937	23.958	23.980	24.002	24.024	24.046	1260
1270	24.046	24.068	24.089	24.111	24.133	24.155	24.177	24.198	24.220	24.242	24.264	1270
1280	24.264	24.286	24.308	24.329	24.351	24.373	24.395	24.417	24.439	24.460	24.482	1280
1290	24.482	24.504	24.526	24.548	24.569	24.591	24.613	24.635	24.657	24.679	24.700	1290
1300	24.700	24.722	24.744	24.766	24.788	24.810	24.831	24.853	24.875	24.897	24.919	1300
1310	24.919	24.941	24.962	24.984	25.006	25.028	25.050	25.072	25.093	25.115	25.137	1310
1320	25.137	25.159	25.181	25.203	25.225	25.246	25.268	25.290	25.312	25.334	25.356	1320
1330	25.356	25.377	25.399	25.421	25.443	25.465	25.487	25.508	25.530	25.552	25.574	1330
1340	25.574	25.596	25.618	25.640	25.661	25.683	25.705	25.727	25.749	25.771	25.792	1340
1350	25.792	25.814	25.836	25.858	25.880	25.902	25.923	25.945	25.967	25.989	26.011	1350
1360	26.011	26.033	26.055	26.076	26.098	26.120	26.142	26.164	26.186	26.207	26.229	1360
1370	26.229	26.251	26.273	26.295	26.317	26.338	26.360	26.382	26.404	26.426	26.448	1370
1380	26.448	26.470	26.491	26.513	26.535	26.557	26.579	26.601	26.622	26.644	26.666	1380
1390	26.666	26.688	26.710	26.732	26.753	26.775	26.797	26.819	26.841	26.863	26.885	1390
1400	26.885	26.906	26.928	26.950	26.972	26.994	27.016	27.037	27.059	27.081	27.103	1400
1410	27.103	27.125	27.147	27.168	27.190	27.212	27.234	27.256	27.278	27.299	27.321	1410
1420	27.321	27.343	27.365	27.387	27.409	27.430	27.452	27.474	27.496	27.518	27.540	1420
1430	27.540	27.561	27.583	27.605	27.627	27.649	27.671	27.692	27.714	27.736	27.758	1430
1440	27.758	27.780	27.802	27.823	27.845	27.867	27.889	27.911	27.933	27.954	27.976	1440
1450	27.976	27.998	28.020	28.042	28.063	28.085	28.107	28.129	28.151	28.173	28.194	1450
1460	28.194	28.216	28.238	28.260	28.282	28.303	28.325	28.347	28.369	28.391	28.413	1460
1470	28.413	28.434	28.456	28.478	28.500	28.522	28.543	28.565	28.587	28.609	28.631	1470
1480	28.631	28.652	28.674	28.696	28.718	28.740	28.761	28.783	28.805	28.827	28.849	1480
1490	28.849	28.871	28.892	28.914	28.936	28.958	28.980	29.001	29.023	29.045	29.067	1490
1500	29.067	29.088	29.110	29.132	29.154	29.176	28.197	29.219	29.241	29.263	29.285	1500
1510	29.285	29.306	29.328	29.350	29.372	29.394	29.415	29.437	29.459	29.481	29.502	1510
1520	29.502	29.524	29.546	29.568	29.590	29.611	29.633	29.655	29.677	29.699	29.720	1520

Table 2-10. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1530	29.720	29.742	29.764	29.786	29.807	29.829	29.851	29.873	29.894	29.916	29.938	1530
1540	29.938	29.960	29.982	30.003	30.025	30.047	30.069	30.090	30.112	30.134	30.156	1540
1550	30.156	30.177	30.199	30.221	30.243	30.264	30.286	30.308	30.330	30.351	30.373	1550
1560	30.373	30.395	30.417	30.438	30.460	30.482	30.504	30.525	30.547	30.569	30.591	1560
1570	30.591	30.612	30.634	30.656	30.678	30.699	30.721	30.743	30.765	30.786	30.808	1570
1580	30.808	30.830	30.851	30.873	30.895	30.917	30.938	30.960	30.982	31.004	31.025	1580
1590	31.025	31.047	31.069	31.090	31.112	31.134	31.156	31.177	31.199	31.221	31.242	1590
1600	31.242	31.264	31.286	31.308	31.329	31.351	31.373	31.394	31.416	31.438	31.460	1600
1610	31.460	31.481	31.503	31.525	31.546	31.568	31.590	31.611	31.633	31.655	31.677	1610
1620	31.677	31.698	31.720	31.742	31.763	31.785	31.807	31.828	31.850	31.872	31.893	1620
1630	31.893	31.915	31.937	31.958	31.980	32.002	32.023	32.045	32.067	32.089	32.110	1630
1640	32.110	32.13	32.154	32.175	32.197	32.219	32.240	32.262	32.284	32.305	32.327	1640
1650	32.327	32.349	32.370	32.392	32.413	32.435	32.457	32.478	32.500	32.522	32.543	1650
1660	32.543	32.565	32.587	32.608	32.630	32.652	32.673	32.695	32.717	32.738	32.760	1660
1670	32.760	32.781	32.803	32.825	32.846	32.868	32.890	32.911	32.933	32.955	32.976	1670
1680	32.976	32.998	33.019	33.041	33.063	33.084	33.106	33.127	33.149	33.171	33.192	1680
1690	33.192	33.214	33.236	33.257	33.279	33.300	33.322	33.344	33.365	33.387	33.408	1690
1700	33.408	33.430	33.452	33.473	33.495	33.516	33.538	33.560	33.581	33.603	33.624	1700
1710	33.624	33.646	33.668	33.689	33.711	33.732	33.754	33.775	33.797	33.819	33.840	1710
1720	33.840	33.862	33.883	33.905	33.926	33.948	33.970	33.991	34.013	34.034	34.056	1720
1730	34.056	34.077	34.099	34.121	34.142	34.164	34.185	34.207	34.228	34.250	34.271	1730
1740	34.271	34.293	34.315	34.336	34.358	34.379	34.401	34.422	34.444	34.465	34.487	1740
1750	34.487	34.508	34.530	34.551	34.573	34.595	34.616	34.638	34.659	34.681	34.702	1750
1760	34.702	34.724	34.745	34.767	34.788	34.810	34.831	34.853	34.874	34.896	34.917	1760
1770	34.917	34.939	34.960	34.982	35.003	35.025	35.046	35.068	35.089	35.111	35.132	1770
1780	35.132	35.154	35.175	35.197	35.218	35.240	35.261	35.283	35.304	35.326	35.347	1780
1790	35.347	35.369	35.390	35.412	35.433	35.455	35.476	35.498	35.519	35.540	35.562	1790
1800	35.562	35.583	35.605	35.626	35.648	35.669	35.691	35.712	35.734	35.755	35.777	1800
1810	35.777	35.798	35.819	35.841	35.862	35.884	35.905	35.927	35.948	35.970	35.991	1810
1820	35.991	36.012	36.034	36.055	36.077	36.098	36.120	36.141	36.162	36.184	36.205	1820
1830	36.205	36.227	36.248	36.270	36.291	36.312	36.334	36.355	36.377	36.398	36.419	1830
1840	36.419	36.441	36.462	36.484	36.505	36.526	36.548	36.569	36.591	36.612	36.633	1840
1850	36.633	36.655	36.676	36.698	36.719	36.740	36.762	36.783	36.805	36.826	36.847	1850
1860	36.847	36.869	36.890	36.911	36.933	36.954	36.975	36.997	37.018	37.040	37.061	1860
1870	37.061	37.082	37.104	37.125	37.146	37.168	37.189	37.210	37.232	37.253	37.274	1870
1880	37.274	37.296	37.317	37.338	37.360	37.381	37.402	37.424	37.445	37.466	37.488	1880
1890	37.488	37.509	37.530	37.552	37.573	37.594	37.616	37.637	37.658	37.680	37.701	1890
1900	37.701	37.722	37.744	37.765	37.786	37.808	37.829	37.850	37.871	37.893	37.914	1900
1910	37.914	37.935	37.957	37.978	37.999	38.020	38.042	38.063	38.084	38.106	38.127	1910
1920	38.127	38.148	38.169	38.191	38.212	38.233	38.254	38.276	38.297	38.318	38.340	1920
1930	38.340	38.361	38.382	38.403	38.425	38.446	38.467	38.488	38.510	38.531	38.552	1930
1940	38.552	38.573	38.594	38.616	38.637	38.658	38.679	38.701	38.722	38.743	38.764	1940
1950	38.764	38.786	38.807	38.828	38.849	38.870	38.892	38.913	38.934	38.955	38.976	1950
1960	38.976	38.998	39.019	39.040	39.061	39.082	39.104	39.125	39.146	39.167	39.188	1960
1970	39.188	39.210	39.231	39.252	39.273	39.294	39.315	39.337	39.358	39.379	39.400	1970
1980	39.400	39.421	39.442	39.464	39.485	39.506	39.527	39.548	39.569	39.591	39.612	1980
1990	39.612	39.633	39.654	39.675	39.696	39.717	39.739	39.760	39.781	39.802	39.823	1990
2000	39.823	39.844	39.865	39.886	39.908	39.929	39.950	39.971	39.992	40.013	40.034	2000
2010	40.034	40.055	40.076	40.097	40.119	40.140	40.161	40.182	40.203	40.224	40.245	2010
2020	40.245	40.266	40.287	40.308	40.329	40.351	40.372	40.393	40.414	40.435	40.456	2020
2030	40.456	40.477	40.498	40.519	40.540	40.561	40.582	40.603	40.624	40.645	40.666	2030
2040	40.666	40.687	40.708	40.729	40.750	40.772	40.793	40.814	40.835	40.856	40.877	2040
2050	40.877	40.898	40.919	40.940	40.961	40.982	41.003	41.024	41.045	41.066	41.087	2050

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Table 2-10. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
2060	41.087	41.108	41.129	41.150	41.171	41.192	41.213	41.234	41.255	41.276	41.297	2060
2070	41.297	41.318	41.338	41.359	41.380	41.401	41.422	41.443	41.464	41.485	41.506	2070
2080	41.506	41.527	41.548	41.569	41.590	41.611	41.632	41.653	41.674	41.695	41.716	2080
2090	41.716	41.736	41.757	41.778	41.799	41.820	41.841	41.862	41.883	41.904	41.925	2090
2100	41.925	41.946	41.966	41.987	42.008	42.029	42.050	42.071	42.092	42.113	42.134	2100
2110	42.134	42.154	42.175	42.196	42.217	42.238	42.259	42.280	42.300	42.321	42.342	2110
2120	42.342	42.363	42.384	42.405	42.425	42.446	42.467	42.488	42.509	42.530	42.550	2120
2130	42.550	42.571	42.592	42.613	42.634	42.655	42.675	42.696	42.717	42.738	42.759	2130
2140	42.759	42.779	42.800	42.821	42.842	42.862	42.883	42.904	42.925	42.946	42.966	2140
2150	42.966	42.987	43.008	43.029	43.049	43.070	43.091	43.112	43.132	43.153	43.174	2150
2160	43.174	43.195	43.215	43.236	43.257	43.278	43.298	43.319	43.340	43.360	43.381	2160
2170	43.381	43.402	43.423	43.443	43.464	43.485	43.505	43.526	43.547	43.567	43.588	2170
2180	43.588	43.609	43.629	43.650	43.671	43.692	43.712	43.733	43.754	43.774	43.795	2180
2190	43.795	43.815	43.836	43.857	43.877	43.898	43.919	43.939	43.960	43.981	44.001	2190
2200	44.001	44.022	44.042	44.063	44.084	44.104	44.125	44.146	44.166	44.187	44.207	2200
2210	44.207	44.228	44.248	44.269	44.290	44.310	44.331	44.351	44.372	44.393	44.413	2210
2220	44.413	44.434	44.454	44.475	44.495	44.516	44.536	44.557	44.577	44.598	44.619	2220
2230	44.619	44.639	44.660	44.680	44.701	44.721	44.742	44.762	44.783	44.803	44.824	2230
2240	44.824	44.844	44.865	44.885	44.906	44.926	44.947	44.967	44.988	45.008	45.029	2240
2250	45.029	45.049	45.069	45.090	45.110	45.131	45.151	45.172	45.192	45.213	45.233	2250
2260	45.233	45.254	45.274	45.294	45.315	45.335	45.356	45.376	45.396	45.417	45.437	2260
2270	45.437	45.458	45.478	45.498	45.519	45.539	45.560	45.580	45.600	45.621	45.641	2270
2280	45.641	45.662	45.682	45.702	45.723	45.743	45.763	45.784	45.804	45.824	45.845	2280
2290	45.845	45.865	45.885	45.906	45.926	45.946	45.967	45.987	46.007	46.028	46.048	2290
2300	46.048	46.068	46.089	46.109	46.129	46.149	46.170	46.190	46.210	46.231	46.251	2300
2310	46.251	46.271	46.291	46.312	46.332	46.352	46.372	46.393	46.413	46.433	46.453	2310
2320	46.453	46.474	46.494	46.514	46.534	46.555	46.575	46.595	46.615	46.636	46.656	2320
2330	46.656	46.676	46.696	46.716	46.737	46.757	46.777	46.797	46.817	46.838	46.858	2330
2340	46.858	46.878	46.898	46.918	46.938	46.959	46.979	46.999	47.019	47.039	47.059	2340
2350	47.059	47.079	47.100	47.120	47.140	47.160	47.180	47.200	47.220	47.241	47.261	2350
2360	47.261	47.281	47.301	47.321	47.341	47.361	47.381	47.401	47.421	47.442	47.462	2360
2370	47.462	47.482	47.502									2370

T/C TYPE R - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°C) Reference Junctions at 0 °C
Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-11. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-50	-0.226	-0.223	-0.219	-0.215	-0.211	-0.207	-0.204	-0.200	-0.196	-0.192	-0.188	-50
-40	-0.188	-0.184	-0.180	-0.175	-0.171	-0.167	-0.163	-0.158	-0.154	-0.150	-0.145	-40
-30	-0.145	-0.141	-0.137	-0.132	-0.128	-0.123	-0.119	-0.114	-0.109	-0.105	-0.100	-30
-20	-0.100	-0.095	-0.091	-0.086	-0.081	-0.076	-0.071	-0.066	-0.061	-0.056	-0.051	-20
-10	-0.051	-0.046	-0.041	-0.036	-0.031	-0.026	-0.021	-0.016	-0.011	-0.005	0.000	-10
0	0.000	0.005	0.011	0.016	0.021	0.027	0.032	0.038	0.043	0.049	0.054	0
10	0.054	0.060	0.065	0.071	0.077	0.082	0.088	0.094	0.100	0.105	0.111	10
20	0.111	0.117	0.123	0.129	0.135	0.141	0.147	0.152	0.158	0.165	0.171	20
30	0.171	0.177	0.183	0.189	0.195	0.201	0.207	0.214	0.220	0.226	0.232	30
40	0.232	0.239	0.245	0.251	0.258	0.264	0.271	0.277	0.283	0.290	0.296	40
50	0.296	0.303	0.310	0.316	0.323	0.329	0.336	0.343	0.349	0.356	0.363	50
60	0.363	0.369	0.376	0.383	0.390	0.397	0.403	0.410	0.417	0.424	0.431	60

Table 2-11. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
70	0.431	0.438	0.445	0.452	0.459	0.466	0.473	0.480	0.487	0.494	0.501	70
80	0.501	0.508	0.515	0.523	0.530	0.537	0.544	0.552	0.559	0.566	0.573	80
90	0.573	0.581	0.588	0.595	0.603	0.610	0.617	0.625	0.632	0.640	0.647	90
100	0.647	0.655	0.662	0.670	0.677	0.685	0.692	0.700	0.708	0.715	0.723	100
110	0.723	0.730	0.738	0.746	0.754	0.761	0.769	0.777	0.784	0.792	0.800	110
120	0.800	0.808	0.816	0.824	0.831	0.839	0.847	0.855	0.863	0.871	0.879	120
130	0.879	0.887	0.895	0.903	0.911	0.919	0.927	0.935	0.943	0.951	0.959	130
140	0.959	0.967	0.975	0.983	0.992	1.000	1.008	1.016	1.024	1.032	1.041	140
150	1.041	1.049	1.057	1.065	1.074	1.082	1.090	1.099	1.107	1.115	1.124	150
160	1.124	1.132	1.140	1.149	1.157	1.166	1.174	1.183	1.191	1.200	1.208	160
170	1.208	1.217	1.225	1.234	1.242	1.251	1.259	1.268	1.276	1.285	1.294	170
180	1.294	1.302	1.311	1.319	1.328	1.337	1.345	1.354	1.363	1.372	1.380	180
190	1.380	1.389	1.398	1.407	1.415	1.424	1.433	1.442	1.450	1.459	1.468	190
200	1.468	1.477	1.486	1.495	1.504	1.512	1.521	1.530	1.539	1.548	1.557	200
210	1.557	1.566	1.575	1.584	1.593	1.602	1.611	1.620	1.629	1.638	1.647	210
220	1.647	1.656	1.665	1.674	1.683	1.692	1.702	1.711	1.720	1.729	1.738	220
230	1.738	1.747	1.756	1.766	1.775	1.784	1.793	1.802	1.812	1.821	1.830	230
240	1.830	1.839	1.849	1.858	1.867	1.876	1.886	1.895	1.904	1.914	1.923	240
250	1.923	1.932	1.942	1.951	1.960	1.970	1.979	1.988	1.998	2.007	2.017	250
260	2.017	2.026	2.036	2.045	2.054	2.064	2.073	2.083	2.092	2.102	2.111	260
270	2.111	2.121	2.130	2.140	2.149	2.159	2.169	2.178	2.188	2.197	2.207	270
280	2.207	2.216	2.226	2.236	2.245	2.255	2.264	2.274	2.284	2.293	2.303	280
290	2.303	2.313	2.322	2.332	2.342	2.351	2.361	2.371	2.381	2.390	2.400	290
300	2.400	2.410	2.420	2.429	2.439	2.449	2.459	2.468	2.478	2.488	2.498	300
310	2.498	2.508	2.517	2.527	2.537	2.547	2.557	2.567	2.577	2.586	2.596	310
320	2.596	2.606	2.616	2.626	2.636	2.646	2.656	2.666	2.676	2.685	2.695	320
330	2.695	2.705	2.715	2.725	2.735	2.745	2.755	2.765	2.775	2.785	2.795	330
340	2.795	2.805	2.815	2.825	2.835	2.845	2.855	2.866	2.876	2.886	2.896	340
350	2.896	2.906	2.916	2.926	2.936	2.946	2.956	2.966	2.977	2.987	2.997	350
360	2.997	3.007	3.017	3.027	3.037	3.048	3.058	3.068	3.078	3.088	3.099	360
370	3.099	3.109	3.119	3.129	3.139	3.150	3.160	3.170	3.180	3.191	3.201	370
380	3.201	3.211	3.221	3.232	3.242	3.252	3.263	3.273	3.283	3.293	3.304	380
390	3.304	3.314	3.324	3.335	3.345	3.355	3.366	3.376	3.386	3.397	3.407	390
400	3.407	3.418	3.428	3.438	3.449	3.459	3.470	3.480	3.490	3.501	3.511	400
410	3.511	3.522	3.532	3.543	3.553	3.563	3.574	3.584	3.595	3.605	3.616	410
420	3.616	3.626	3.637	3.647	3.658	3.668	3.679	3.689	3.700	3.710	3.721	420
430	3.721	3.731	3.742	3.752	3.763	3.774	3.784	3.795	3.805	3.816	3.826	430
440	3.826	3.837	3.848	3.858	3.869	3.879	3.890	3.901	3.911	3.922	3.933	440
450	3.933	3.943	3.954	3.964	3.975	3.986	3.996	4.007	4.018	4.028	4.039	450
460	4.039	4.050	4.061	4.071	4.082	4.093	4.103	4.114	4.125	4.136	4.146	460
470	4.146	4.157	4.168	4.178	4.189	4.200	5.211	5.222	4.232	4.243	4.254	470
480	4.254	4.265	4.275	4.286	4.297	4.308	4.319	4.329	4.340	4.351	4.362	480
490	4.362	4.373	4.384	4.394	4.405	4.416	4.427	4.438	4.449	4.460	4.471	490
500	4.471	4.481	4.492	4.503	4.514	4.525	4.536	4.547	4.558	4.569	4.580	500
510	4.580	4.591	4.601	4.612	4.623	4.634	4.645	4.656	4.667	4.678	4.689	510
520	4.689	4.700	4.711	4.722	4.733	4.744	4.755	4.766	4.777	4.788	4.799	520
530	4.799	4.810	4.821	4.832	4.843	4.854	4.865	4.876	4.888	4.899	4.910	530
540	4.910	4.921	4.932	4.943	4.954	4.965	4.976	4.987	4.998	5.009	5.021	540
550	5.021	5.032	5.043	5.054	5.065	5.076	5.087	5.099	5.110	5.121	5.132	550
560	5.132	5.143	5.154	5.166	5.177	5.188	5.199	5.210	5.221	5.233	5.244	560
570	5.244	5.255	5.266	5.276	5.289	5.300	5.311	5.322	5.334	5.345	5.356	570
580	5.356	5.368	5.379	5.390	5.401	5.413	5.424	5.435	5.446	5.458	5.469	580
590	5.469	5.480	5.492	5.503	5.514	5.526	5.537	5.548	5.560	5.571	5.582	590

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Table 2-11. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
600	5.582	5.594	5.605	5.616	5.628	5.639	5.650	5.662	5.673	5.685	5.696	600
610	5.696	5.707	5.719	5.730	5.742	5.753	5.764	5.776	5.787	5.799	5.810	610
620	5.810	5.821	5.833	5.844	5.856	5.867	5.879	5.890	5.902	5.913	5.925	620
630	5.925	5.936	5.948	5.959	5.971	5.982	5.994	6.005	6.017	6.028	6.040	630
640	6.040	6.051	6.063	6.074	6.086	6.098	6.109	6.121	6.132	6.144	6.155	640
650	6.155	6.167	6.179	6.190	6.202	6.213	6.225	6.237	6.248	6.260	6.272	650
660	6.272	6.283	6.295	6.307	6.318	6.330	6.342	6.353	6.365	6.377	6.388	660
670	6.388	6.400	6.412	6.423	6.435	6.447	6.458	6.470	6.482	6.494	6.505	670
680	6.505	6.517	6.529	6.541	6.552	6.564	6.576	6.588	6.599	6.611	6.623	680
690	6.623	6.635	6.647	6.658	6.670	6.682	6.694	6.706	6.718	6.729	6.741	690
700	6.741	6.753	6.765	6.777	6.789	6.800	6.812	6.824	6.836	6.848	6.860	700
710	6.860	6.872	6.884	6.895	6.907	6.919	6.931	6.943	6.955	6.967	6.979	710
720	6.979	6.991	7.003	7.015	7.027	7.039	7.051	7.063	7.074	7.086	7.098	720
730	7.098	7.110	7.122	7.134	7.146	7.158	7.170	7.182	7.194	7.206	7.218	730
740	7.218	7.231	7.243	7.255	7.267	7.279	7.291	7.303	7.315	7.327	7.339	740
750	7.339	7.351	7.363	7.375	7.387	7.399	7.412	7.424	7.436	7.448	7.460	750
760	7.460	7.472	7.484	7.496	7.509	7.521	7.533	7.545	7.557	7.569	7.582	760
770	7.582	7.594	7.606	7.618	7.630	7.642	7.655	7.667	7.679	7.691	7.703	770
780	7.703	7.716	7.728	7.740	7.752	7.765	7.777	7.789	7.801	7.814	7.826	780
790	7.826	7.838	7.850	7.863	7.875	7.887	7.900	7.912	7.924	7.937	7.949	790
800	7.949	7.961	7.973	7.986	7.998	8.010	8.023	8.035	8.047	8.060	8.072	800
810	8.072	8.085	8.097	8.109	8.122	8.134	8.146	8.159	8.171	8.184	8.196	810
820	8.196	8.208	8.221	8.233	8.246	8.258	8.271	8.283	8.295	8.308	8.320	820
830	8.320	8.333	8.345	8.358	8.370	8.383	8.395	8.408	8.420	8.433	8.445	830
840	8.445	8.458	8.470	8.483	8.495	8.508	8.520	8.533	8.545	8.558	8.570	840
850	8.570	8.583	8.595	8.608	8.621	8.633	8.646	8.658	8.671	8.683	8.696	850
860	8.696	8.709	8.721	8.734	8.746	8.759	8.772	8.784	8.797	8.810	8.822	860
870	8.822	8.835	8.847	8.860	8.873	8.885	8.898	8.911	8.923	8.936	8.949	870
880	8.949	8.961	8.974	8.987	9.000	9.012	9.025	9.038	9.050	9.063	9.076	880
890	9.076	9.089	9.101	9.114	9.127	9.140	9.152	9.165	9.178	9.191	9.203	890
900	9.203	9.216	9.229	9.242	9.254	9.267	9.280	9.293	9.306	9.319	9.331	900
910	9.331	9.344	9.357	9.370	9.383	9.395	9.408	9.421	9.434	9.447	9.460	910
920	9.460	9.473	9.485	9.498	9.511	9.524	9.537	9.550	9.563	9.576	9.589	920
930	9.589	9.602	9.614	9.627	9.640	9.653	9.666	9.679	9.692	9.705	9.718	930
940	9.718	9.731	9.744	9.757	9.770	9.783	9.796	9.809	9.822	9.835	9.848	940
950	9.848	9.861	9.874	9.887	9.900	9.913	9.926	9.939	9.952	9.965	9.978	950
960	9.978	9.991	10.004	10.017	10.030	10.043	10.056	10.069	10.082	10.095	10.109	960
970	10.109	10.122	10.135	10.148	10.161	10.174	10.187	10.200	10.213	10.227	10.240	970
980	10.240	10.253	10.266	10.279	10.292	10.305	10.319	10.332	10.345	10.358	10.371	980
990	10.371	10.384	10.398	10.411	10.424	10.437	10.450	10.464	10.477	10.490	10.503	990
1000	10.503	10.516	10.530	10.543	10.556	10.569	10.583	10.596	10.609	10.622	10.636	1000
1010	10.636	10.649	10.662	10.675	10.689	10.702	10.715	10.729	10.742	10.755	10.768	1010
1020	10.768	10.782	10.795	10.808	10.822	10.835	10.848	10.862	10.875	10.888	10.902	1020
1030	10.902	10.915	10.928	10.942	10.955	10.968	10.982	10.995	11.009	11.022	11.035	1030
1040	11.035	11.049	11.062	11.076	11.089	11.102	11.116	11.129	11.143	11.156	11.170	1040
1050	11.170	11.183	11.196	11.210	11.223	11.237	11.250	11.264	11.277	11.291	11.304	1050
1060	11.304	11.318	11.331	11.345	11.358	11.372	11.385	11.399	11.412	11.426	11.439	1060
1070	11.439	11.453	11.466	11.480	11.493	11.507	11.520	11.534	11.547	11.561	11.574	1070
1080	11.574	11.588	11.602	11.615	11.629	11.642	11.656	11.669	11.683	11.697	11.710	1080
1090	11.710	11.724	11.737	11.751	11.765	11.778	11.792	11.805	11.819	11.833	11.846	1090
1100	11.846	11.860	11.874	11.887	11.901	11.914	11.928	11.942	11.955	11.969	11.983	1100
1110	11.983	11.996	12.010	12.024	12.037	12.051	12.065	12.078	12.092	12.106	12.119	1110
1120	12.119	12.133	12.147	12.161	12.174	12.188	12.202	12.215	12.229	12.243	12.257	1120

Table 2-11. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
1130	12.257	12.270	12.284	12.298	12.311	12.325	12.339	12.353	12.366	12.380	12.394	1130
1140	12.394	12.408	12.421	12.435	12.449	12.463	12.476	12.490	12.504	12.518	12.532	1140
1150	12.532	12.545	12.559	12.573	12.587	12.600	12.614	12.628	12.642	12.656	12.669	1150
1160	12.669	12.683	12.697	12.711	12.725	12.739	12.752	12.766	12.780	12.794	12.808	1160
1170	12.808	12.822	12.835	12.849	12.863	12.877	12.891	12.905	12.918	12.932	12.946	1170
1180	12.946	12.960	12.974	12.988	13.002	13.016	13.029	13.043	13.057	13.071	13.085	1180
1190	13.085	13.099	13.113	13.127	13.140	13.154	13.168	13.182	13.196	13.210	13.224	1190
1200	13.224	13.238	13.252	13.266	13.280	13.293	13.307	13.321	13.335	13.349	13.363	1200
1210	13.363	13.377	13.391	13.405	13.419	13.433	13.447	13.461	13.475	13.489	13.502	1210
1220	13.502	13.516	13.530	13.544	13.558	13.572	13.586	13.600	13.614	13.628	13.642	1220
1230	13.642	13.656	13.670	13.684	13.698	13.712	13.726	13.740	13.754	13.768	13.782	1230
1240	13.782	13.796	13.810	13.824	13.838	13.852	13.866	13.880	13.894	13.908	13.922	1240
1250	13.922	13.936	13.950	13.964	13.978	13.992	14.006	14.020	14.034	14.048	14.062	1250
1260	14.062	14.076	14.090	14.104	14.118	14.132	14.146	14.160	14.174	14.188	14.202	1260
1270	14.202	14.216	14.230	14.244	14.258	14.272	14.286	14.301	14.315	14.329	14.343	1270
1280	14.343	14.357	14.371	14.385	14.399	14.413	14.427	14.441	14.455	14.469	14.483	1280
1290	14.483	14.497	14.511	14.525	14.539	14.554	14.568	14.582	14.596	14.610	14.624	1290
1300	14.624	14.638	14.652	14.666	14.680	14.694	14.708	14.722	14.737	14.751	14.765	1300
1310	14.765	14.779	14.793	14.807	14.821	14.835	14.849	14.863	14.877	14.891	14.906	1310
1320	14.906	14.920	14.934	14.948	14.962	14.976	14.990	15.004	15.018	15.032	15.047	1320
1330	15.047	15.061	15.075	15.089	15.103	15.117	15.131	15.145	15.159	15.173	15.188	1330
1340	15.188	15.202	15.216	15.230	15.244	15.258	15.272	15.286	15.300	15.315	15.329	1340
1350	15.329	15.343	15.357	15.371	15.385	15.399	15.413	15.427	15.442	15.456	15.470	1350
1360	15.470	15.484	15.498	15.512	15.526	15.540	15.555	15.569	15.583	15.597	15.611	1360
1370	15.611	15.625	15.639	15.653	15.667	15.682	15.696	15.710	15.724	15.738	15.752	1370
1380	15.752	15.766	15.780	15.795	15.809	15.823	15.837	15.851	15.865	15.879	15.893	1380
1390	15.893	15.908	15.922	15.936	15.950	15.964	15.978	15.992	16.006	16.021	16.035	1390
1400	16.035	16.049	16.063	16.077	16.091	16.105	16.119	16.134	16.148	16.162	16.176	1400
1410	16.176	16.190	16.204	16.218	16.232	16.247	16.261	16.275	16.289	16.303	16.317	1410
1420	16.317	16.331	16.345	16.360	16.374	16.388	16.402	16.416	16.430	16.444	16.458	1420
1430	16.458	16.472	16.487	16.501	16.515	16.529	16.543	16.557	16.571	16.585	16.599	1430
1440	16.599	16.614	16.628	16.642	16.656	16.670	16.684	16.698	16.712	16.726	16.741	1440
1450	16.741	16.755	16.769	16.783	16.797	16.811	16.825	16.839	16.853	16.867	16.882	1450
1460	16.882	16.896	16.910	16.924	16.938	16.952	16.966	16.980	16.994	17.008	17.022	1460
1470	17.022	17.037	17.051	17.065	17.079	17.093	17.107	17.121	17.135	17.149	17.163	1470
1480	17.163	17.177	17.192	17.206	17.220	17.234	17.248	17.262	17.276	17.290	17.304	1480
1490	17.304	17.318	17.332	17.346	17.360	17.374	17.388	17.403	17.417	17.431	17.445	1490
1500	17.445	17.459	17.473	17.487	17.501	17.515	17.529	17.543	17.557	17.571	17.585	1500
1510	17.585	17.599	17.613	17.627	17.641	17.655	17.669	17.684	17.698	17.712	17.726	1510
1520	17.726	17.740	17.754	17.768	17.782	17.796	17.810	17.824	17.838	17.852	17.866	1520
1530	17.866	17.880	17.894	17.908	17.922	17.936	17.950	17.964	17.978	17.992	18.006	1530
1540	18.006	18.020	18.034	18.048	18.062	18.076	18.090	18.104	18.118	18.132	18.146	1540
1550	18.146	18.160	18.174	18.188	18.202	18.216	18.230	18.244	18.258	18.272	18.286	1550
1560	18.286	18.299	18.313	18.327	18.341	18.355	18.369	18.383	18.397	18.411	18.425	1560
1570	18.425	18.439	18.453	18.467	18.481	18.495	18.509	18.523	18.537	18.550	18.564	1570
1580	18.564	18.578	18.592	18.606	18.620	18.634	18.648	18.662	18.676	18.690	18.703	1580
1590	18.703	18.717	18.731	18.745	18.759	18.773	18.787	18.801	18.815	18.828	18.842	1590
1600	18.842	18.856	18.870	18.884	18.898	18.912	18.926	18.939	18.953	18.967	18.981	1600
1610	18.981	18.995	19.009	19.023	19.036	19.050	19.064	19.078	19.092	19.106	19.119	1610
1620	19.119	19.133	19.147	19.161	19.175	19.188	19.202	19.216	19.230	19.244	19.257	1620
1630	19.257	19.271	19.285	19.299	19.313	19.326	19.340	19.354	19.368	19.382	19.395	1630
1640	19.395	19.409	19.423	19.437	19.450	19.464	19.478	19.492	19.505	19.519	19.533	1640
1650	19.533	19.547	19.560	19.574	19.588	19.602	19.615	19.629	19.643	19.656	19.670	1650

Technical Data Sheet

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Table 2-11. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
1660	19.670	19.684	19.698	19.711	19.725	19.739	19.752	19.766	19.780	19.793	19.807	1660
1670	19.807	19.821	19.834	19.848	19.862	19.875	19.889	19.903	19.916	19.930	19.944	1670
1680	19.944	19.957	19.971	19.985	19.998	20.012	20.025	20.039	20.053	20.066	20.080	1680
1690	20.080	20.093	20.107	20.120	20.134	20.148	20.161	20.175	20.188	20.202	20.215	1690
1700	20.215	20.229	20.242	20.256	20.269	20.283	20.296	20.309	20.323	20.336	20.350	1700
1710	20.350	20.363	20.377	20.390	20.403	20.417	20.430	20.443	20.457	20.470	20.483	1710
1720	20.483	20.497	20.510	20.523	20.537	20.550	20.563	20.576	20.590	20.603	20.616	1720
1730	20.616	20.629	20.642	20.656	20.669	20.682	20.695	20.708	20.721	20.734	20.748	1730
1740	20.748	20.761	20.774	20.787	20.800	20.813	20.826	20.839	20.852	20.865	20.878	1740
1750	20.878	20.891	20.904	20.916	20.929	20.942	20.955	20.968	20.981	20.994	21.006	1750
1760	21.006	21.019	21.032	21.045	21.057	21.070	21.083	21.096	21.108			1760

T/C TYPE R - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°F) Reference Junctions at 32 °F
Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-12. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-60			-0.226	-0.224	-0.222	-0.220	-0.218	-0.216	-0.214	-0.212	-0.210	-60
-50	-0.210	-0.207	-0.205	-0.203	-0.201	-0.199	-0.197	-0.194	-0.192	-0.190	-0.188	-50
-40	-0.188	-0.185	-0.183	-0.181	-0.179	-0.176	-0.174	-0.172	-0.169	-0.167	-0.165	-40
-30	-0.165	-0.162	-0.160	-0.158	-0.155	-0.153	-0.150	-0.148	-0.145	-0.143	-0.141	-30
-20	-0.141	-0.138	-0.136	-0.133	-0.131	-0.128	-0.126	-0.123	-0.121	-0.118	-0.116	-20
-10	-0.116	-0.113	-0.110	-0.108	-0.105	-0.103	-0.100	-0.097	-0.095	-0.092	-0.089	-10
0	-0.089	-0.087	-0.084	-0.082	-0.079	-0.076	-0.073	-0.071	-0.068	-0.065	-0.063	0
10	-0.063	-0.060	-0.057	-0.054	-0.051	-0.049	-0.046	-0.043	-0.040	-0.037	-0.035	10
20	-0.035	-0.032	-0.029	-0.026	-0.023	-0.020	-0.017	-0.015	-0.012	-0.009	-0.006	20
30	-0.006	-0.003	0.000	0.003	0.006	0.009	0.012	0.015	0.018	0.021	0.024	30
40	0.024	0.027	0.030	0.033	0.036	0.039	0.042	0.045	0.048	0.051	0.054	40
50	0.054	0.057	0.060	0.064	0.067	0.070	0.073	0.076	0.079	0.082	0.086	50
60	0.086	0.089	0.092	0.095	0.098	0.101	0.105	0.108	0.111	0.114	0.118	60
70	0.118	0.121	0.124	0.127	0.131	0.134	0.137	0.141	0.144	0.147	0.150	70
80	0.150	0.154	0.157	0.161	0.164	0.167	0.171	0.174	0.177	0.181	0.184	80
90	0.184	0.188	0.191	0.194	0.198	0.201	0.205	0.208	0.212	0.215	0.218	90
100	0.218	0.222	0.225	0.229	0.232	0.236	0.239	0.243	0.246	0.250	0.253	100
110	0.253	0.257	0.261	0.264	0.268	0.271	0.275	0.278	0.282	0.286	0.289	110
120	0.289	0.293	0.296	0.300	0.304	0.307	0.311	0.315	0.318	0.322	0.326	120
130	0.326	0.329	0.333	0.337	0.340	0.344	0.348	0.351	0.355	0.359	0.363	130
140	0.363	0.366	0.370	0.374	0.378	0.381	0.385	0.389	0.393	0.397	0.400	140
150	0.400	0.404	0.408	0.412	0.416	0.419	0.423	0.427	0.431	0.435	0.439	150
160	0.439	0.443	0.446	0.450	0.454	0.458	0.462	0.466	0.470	0.474	0.478	160
170	0.478	0.482	0.475	0.489	0.493	0.497	0.501	0.505	0.509	0.513	0.517	170
180	0.517	0.521	0.525	0.529	0.533	0.537	0.541	0.545	0.549	0.553	0.557	180
190	0.557	0.561	0.565	0.569	0.573	0.577	0.581	0.586	0.590	0.594	0.598	190
200	0.598	0.602	0.606	0.610	0.614	0.618	0.622	0.627	0.631	0.635	0.639	200
210	0.639	0.643	0.647	0.651	0.656	0.660	0.664	0.668	0.672	0.676	0.681	210
220	0.681	0.685	0.689	0.693	0.697	0.702	0.706	0.710	0.714	0.719	0.723	220
230	0.723	0.727	0.731	0.736	0.740	0.744	0.748	0.753	0.757	0.761	0.766	230
240	0.766	0.770	0.774	0.778	0.783	0.787	0.791	0.796	0.800	0.804	0.809	240
250	0.809	0.813	0.817	0.822	0.826	0.830	0.835	0.839	0.844	0.848	0.852	250
260	0.852	0.857	0.861	0.866	0.870	0.874	0.879	0.883	0.888	0.892	0.897	260

Table 2-12. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
270	0.897	0.901	0.905	0.910	0.914	0.919	0.923	0.928	0.932	0.937	0.941	270
280	0.941	0.946	0.950	0.955	0.959	0.964	0.968	0.973	0.977	0.982	0.986	280
290	0.986	0.991	0.995	1.000	1.004	1.009	1.013	1.018	1.022	1.027	1.032	290
300	1.032	1.036	1.041	1.045	1.050	1.054	1.059	1.064	1.068	1.073	1.077	300
310	1.077	1.082	1.087	1.091	1.096	1.101	1.105	1.110	1.114	1.119	1.124	310
320	1.124	1.128	1.133	1.138	1.142	1.147	1.152	1.156	1.161	1.166	1.170	320
330	1.170	1.175	1.180	1.184	1.189	1.194	1.199	1.203	1.208	1.213	1.217	330
340	1.217	1.222	1.227	1.232	1.236	1.241	1.246	1.251	1.255	1.260	1.265	340
350	1.265	1.270	1.274	1.279	1.284	1.289	1.294	1.298	1.303	1.308	1.313	350
360	1.313	1.318	1.322	1.327	1.332	1.337	1.342	1.346	1.351	1.356	1.361	360
370	1.361	1.366	1.371	1.375	1.380	1.385	1.390	1.395	1.400	1.405	1.409	370
380	1.409	1.414	1.419	1.424	1.429	1.434	1.439	1.444	1.449	1.453	1.458	380
390	1.458	1.463	1.468	1.473	1.478	1.483	1.488	1.493	1.498	1.503	1.508	390
400	1.508	1.512	1.517	1.522	1.527	1.532	1.537	1.542	1.547	1.552	1.557	400
410	1.557	1.562	1.567	1.572	1.577	1.582	1.587	1.592	1.597	1.602	1.607	410
420	1.607	1.612	1.617	1.622	1.627	1.632	1.637	1.642	1.647	1.652	1.657	420
430	1.657	1.662	1.667	1.672	1.677	1.682	1.687	1.692	1.698	1.703	1.708	430
440	1.708	1.713	1.718	1.723	1.728	1.733	1.738	1.743	1.748	1.753	1.758	440
450	1.758	1.764	1.769	1.774	1.779	1.784	1.789	1.794	1.799	1.804	1.810	450
460	1.810	1.815	1.820	1.825	1.830	1.835	1.840	1.845	1.851	1.856	1.861	460
470	1.861	1.866	1.871	1.876	1.882	1.887	1.892	1.897	1.902	1.907	1.913	470
480	1.913	1.918	1.923	1.928	1.933	1.938	1.944	1.949	1.954	1.959	1.964	480
490	1.964	1.970	1.975	1.980	1.985	1.991	1.996	2.001	2.006	2.011	2.017	490
500	2.017	2.022	2.027	2.032	2.038	2.043	2.048	2.053	2.059	2.064	2.069	500
510	2.069	2.074	2.080	2.085	2.090	2.095	2.101	2.106	2.111	2.117	2.122	510
520	2.122	2.127	2.132	2.138	2.143	2.148	2.154	2.159	2.164	2.170	2.175	520
530	2.175	2.180	2.186	2.191	2.196	2.201	2.207	2.212	2.217	2.223	2.228	530
540	2.228	2.233	2.239	2.244	2.249	2.255	2.260	2.266	2.271	2.276	2.282	540
550	2.282	2.287	2.292	2.298	2.303	2.308	2.314	2.319	2.325	2.330	2.335	550
560	2.335	2.341	2.346	2.351	2.357	2.362	2.368	2.373	2.378	2.384	2.389	560
570	2.389	2.395	2.400	2.405	2.411	2.416	2.422	2.427	2.433	2.438	2.443	570
580	2.443	2.449	2.454	2.460	2.465	2.471	2.476	2.481	2.487	2.492	2.498	580
590	2.498	2.503	2.509	2.514	2.520	2.525	2.531	2.536	2.541	2.547	2.552	590
600	2.552	2.558	2.563	2.569	2.574	2.580	2.585	2.591	2.596	2.602	2.607	600
610	2.607	2.613	2.618	2.624	2.629	2.635	2.640	2.646	2.651	2.657	2.662	610
620	2.662	2.668	2.673	2.679	2.684	2.690	2.695	2.701	2.706	2.712	2.718	620
630	2.718	2.723	2.729	2.734	2.740	2.745	2.751	2.756	2.762	2.767	2.773	630
640	2.773	2.779	2.784	2.790	2.795	2.801	2.806	2.812	2.818	2.823	2.829	640
650	2.829	2.834	2.840	2.845	2.851	2.857	2.862	2.868	2.873	2.879	2.885	650
660	2.885	2.890	2.896	2.901	2.907	2.913	2.918	2.924	2.929	2.935	2.941	660
670	2.941	2.946	2.952	2.957	2.963	2.969	2.974	2.980	2.986	2.991	2.997	670
680	2.997	3.002	3.008	3.014	3.019	3.025	3.031	3.036	3.042	3.048	3.053	680
690	3.053	3.059	3.065	3.070	3.076	3.082	3.087	3.093	3.099	3.104	3.110	690
700	3.110	3.116	3.121	3.127	3.133	3.138	3.144	3.150	3.155	3.161	3.167	700
710	3.167	3.172	3.178	3.184	3.189	3.195	3.201	3.207	3.212	3.218	3.224	710
720	3.224	3.229	3.235	3.241	3.247	3.252	3.258	3.264	3.269	3.275	3.281	720
730	3.281	3.287	3.292	3.298	3.304	3.309	3.315	3.321	3.327	3.332	3.338	730
740	3.338	3.344	3.350	3.355	3.361	3.367	3.373	3.378	3.384	3.390	3.396	740
750	3.396	3.401	3.407	3.413	3.419	3.424	3.430	3.436	3.442	3.448	3.453	750
760	3.453	3.459	3.465	3.471	3.476	3.482	3.488	3.494	3.500	3.505	3.511	760
770	3.511	3.517	3.523	3.529	3.534	3.540	3.546	3.552	3.558	3.563	3.569	770
780	3.569	3.575	3.581	3.587	3.592	3.598	3.604	3.610	3.616	3.622	3.627	780
790	3.627	3.633	3.639	3.645	3.651	3.657	3.662	3.668	3.674	3.680	3.686	790

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Table 2-12. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
800	3.686	3.692	3.697	3.703	3.709	3.715	3.721	3.727	3.733	3.738	3.744	800
810	3.744	3.750	3.756	3.762	3.768	3.774	3.779	3.785	3.791	3.797	3.803	810
820	3.803	3.809	3.815	3.821	3.826	3.832	3.838	3.844	3.850	3.856	3.862	820
830	3.862	3.868	3.874	3.879	3.885	3.891	3.897	3.903	3.909	3.915	3.921	830
840	3.921	3.927	3.933	3.938	3.944	3.950	3.956	3.962	3.968	3.974	3.980	840
850	3.980	3.986	3.992	3.998	4.004	4.009	4.015	4.021	4.027	4.033	4.039	850
860	4.039	4.045	4.051	4.057	4.063	4.069	4.075	4.081	4.087	4.093	4.099	860
870	4.099	4.105	4.110	4.116	4.122	4.128	4.134	4.140	4.146	4.152	4.158	870
880	4.158	4.164	4.170	4.176	4.182	4.188	4.194	4.200	4.206	4.212	4.218	880
890	4.218	4.224	4.230	4.236	4.242	4.248	4.254	4.260	4.266	4.272	4.278	890
900	4.278	4.284	4.290	4.296	4.302	4.308	4.314	4.320	4.326	4.332	4.338	900
910	4.338	4.344	4.350	4.356	4.362	4.368	4.374	4.380	4.386	4.392	4.398	910
920	4.398	4.404	4.410	4.416	4.422	4.428	4.434	4.440	4.446	4.452	4.458	920
930	4.458	4.465	4.471	4.477	4.483	4.489	4.495	4.501	4.507	4.513	4.519	930
940	4.519	4.525	4.531	4.537	4.543	4.549	4.555	4.561	4.567	4.574	4.580	940
950	4.580	4.586	4.592	4.598	4.604	4.610	4.616	4.622	4.628	4.634	4.640	950
960	4.640	4.647	4.653	4.659	4.665	4.671	4.677	4.683	4.689	4.695	4.701	960
970	4.701	4.707	4.714	4.720	4.726	4.732	4.738	4.744	4.750	4.756	4.762	970
980	4.762	4.769	4.775	4.781	4.787	4.793	4.799	4.805	4.811	4.818	4.824	980
990	4.824	4.830	4.836	4.842	4.848	4.854	4.860	4.867	4.873	4.879	4.885	990
1000	4.885	4.891	4.897	4.904	4.910	4.916	4.922	4.928	4.934	4.940	4.947	1000
1010	4.947	4.953	4.959	4.965	4.971	4.977	4.984	4.990	4.996	5.002	5.008	1010
1020	5.008	5.014	5.021	5.027	5.033	5.039	5.045	5.052	5.058	5.064	5.070	1020
1030	5.070	5.076	5.082	5.089	5.095	5.101	5.107	5.113	5.120	5.126	5.132	1030
1040	5.132	5.138	5.144	5.151	5.157	5.163	5.169	5.175	5.182	5.188	5.194	1040
1050	5.194	5.200	5.207	5.213	5.219	5.225	5.231	5.238	5.244	5.250	5.256	1050
1060	5.256	5.263	5.269	5.275	5.281	5.288	5.294	5.300	5.306	5.313	5.319	1060
1070	5.319	5.325	5.331	5.337	5.344	5.350	5.356	5.362	5.369	5.375	5.381	1070
1080	5.381	5.388	5.394	5.400	5.406	5.413	5.419	5.425	5.431	5.438	5.444	1080
1090	5.444	5.450	5.456	5.463	5.469	5.475	5.482	5.488	5.494	5.500	5.507	1090
1100	5.507	5.513	5.519	5.526	5.532	5.538	5.544	5.551	5.557	5.563	5.570	1100
1110	5.570	5.576	5.582	5.589	5.595	5.601	5.607	5.614	5.620	5.626	5.633	1110
1120	5.633	5.639	5.645	5.652	5.658	5.664	5.671	5.677	5.683	5.690	5.696	1120
1130	5.696	5.702	5.709	5.715	5.721	5.728	5.734	5.740	5.747	5.753	5.759	1130
1140	5.759	5.766	5.772	5.778	5.785	5.791	5.797	5.804	5.810	5.816	5.823	1140
1150	5.823	5.829	5.835	5.842	5.848	5.855	5.861	5.867	5.874	5.880	5.886	1150
1160	5.886	5.893	5.899	5.905	5.912	5.918	5.925	5.931	5.937	5.944	5.950	1160
1170	5.950	5.957	5.963	5.969	5.976	5.982	5.988	5.995	6.001	6.008	6.014	1170
1180	6.014	6.021	6.027	6.033	6.040	6.046	6.053	6.059	6.065	6.072	6.078	1180
1190	6.078	6.085	6.091	6.098	6.104	6.110	6.117	6.123	6.130	6.136	6.143	1190
1200	6.143	6.149	6.155	6.162	6.168	6.175	6.181	6.188	6.194	6.201	6.207	1200
1210	6.207	6.213	6.220	6.226	6.233	6.239	6.246	6.252	6.259	6.265	6.272	1210
1220	6.272	6.278	6.285	6.291	6.297	6.304	6.310	6.317	6.323	6.330	6.336	1220
1230	6.336	6.343	6.349	6.356	6.362	6.369	6.375	6.382	6.388	6.395	6.401	1230
1240	6.401	6.408	6.414	6.421	6.427	6.434	6.440	6.447	6.453	6.460	6.466	1240
1250	6.466	6.473	6.479	6.486	6.492	6.499	6.505	6.512	6.518	6.525	6.532	1250
1260	6.532	6.538	6.545	6.551	6.558	6.564	6.571	6.577	6.584	6.590	6.597	1260
1270	6.597	6.603	6.610	6.616	6.623	6.630	6.636	6.643	6.649	6.656	6.662	1270
1280	6.662	6.669	6.675	6.682	6.689	6.695	6.702	6.708	6.715	6.721	6.728	1280
1290	6.728	6.735	6.741	6.748	6.754	6.761	6.767	6.774	6.781	6.787	6.794	1290
1300	6.794	6.800	6.807	6.814	6.820	6.827	6.833	6.840	6.847	6.853	6.860	1300
1310	6.860	6.866	6.873	6.880	6.886	6.893	6.899	6.906	6.913	6.919	6.926	1310
1320	6.926	6.932	6.939	6.946	6.952	6.959	6.966	6.972	6.979	6.985	6.992	1320

Table 2-12. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1330	6.992	6.999	7.005	7.012	7.019	7.025	7.032	7.039	7.045	7.052	7.059	1330
1340	7.059	7.065	7.072	7.078	7.085	7.092	7.098	7.105	7.112	7.118	7.125	1340
1350	7.125	7.132	7.138	7.145	7.152	7.158	7.165	7.172	7.178	7.185	7.192	1350
1360	7.192	7.198	7.205	7.212	7.218	7.225	7.232	7.239	7.245	7.252	7.259	1360
1370	7.259	7.265	7.272	7.279	7.285	7.292	7.299	7.305	7.312	7.319	7.326	1370
1380	7.326	7.332	7.339	7.346	7.352	7.359	7.366	7.373	7.379	7.386	7.393	1380
1390	7.393	7.399	7.406	7.413	7.420	7.426	7.433	7.440	7.447	7.453	7.460	1390
1400	7.460	7.467	7.474	7.480	7.487	7.494	7.500	7.507	7.514	7.521	7.527	1400
1410	7.527	7.534	7.541	7.548	7.554	7.561	7.568	7.575	7.582	7.588	7.595	1410
1420	7.595	7.602	7.609	7.615	7.622	7.629	7.636	7.642	7.649	7.656	7.663	1420
1430	7.663	7.670	7.676	7.683	7.690	7.697	7.703	7.710	7.717	7.724	7.731	1430
1440	7.731	7.737	7.744	7.751	7.758	7.765	7.771	7.778	7.785	7.792	7.799	1440
1450	7.799	7.805	7.812	7.819	7.826	7.833	7.840	7.846	7.853	7.860	7.867	1450
1460	7.867	7.874	7.880	7.887	7.894	7.901	7.908	7.915	7.921	7.928	7.935	1460
1470	7.935	7.942	7.949	7.956	7.963	7.969	7.976	7.983	7.990	7.997	8.004	1470
1480	8.004	8.010	8.017	8.024	8.031	8.038	8.045	8.052	8.058	8.065	8.072	1480
1490	8.072	8.079	8.086	8.093	8.100	8.107	8.113	8.120	8.127	8.134	8.141	1490
1500	8.141	8.148	8.155	8.162	8.168	8.175	8.182	8.189	8.196	8.203	8.210	1500
1510	8.210	8.217	8.224	8.231	8.237	8.244	8.251	8.258	8.265	8.272	8.279	1510
1520	8.279	8.286	8.293	8.300	8.306	8.313	8.320	8.327	8.334	8.341	8.348	1520
1530	8.348	8.355	8.362	8.369	8.376	8.383	8.390	8.397	8.403	8.410	8.417	1530
1540	8.417	8.424	8.431	8.438	8.445	8.452	8.459	8.466	8.473	8.480	8.487	1540
1550	8.487	8.494	8.501	8.508	8.515	8.522	8.529	8.535	8.542	8.549	8.556	1550
1560	8.556	8.563	8.570	8.577	8.584	8.591	8.598	8.605	8.612	8.619	8.626	1560
1570	8.626	8.633	8.640	8.647	8.654	8.661	8.668	8.675	8.682	8.689	8.696	1570
1580	8.696	8.703	8.710	8.717	8.724	8.731	8.738	8.745	8.752	8.759	8.766	1580
1590	8.766	8.773	8.780	8.787	8.794	8.801	8.808	8.815	8.822	8.829	8.836	1590
1600	8.836	8.843	8.850	8.857	8.864	8.871	8.878	8.885	8.892	8.899	8.907	1600
1610	8.907	8.914	8.921	8.928	8.935	8.942	8.949	8.956	8.963	8.970	8.977	1610
1620	8.977	8.984	8.991	8.998	9.005	9.012	9.019	9.026	9.033	9.040	9.048	1620
1630	9.048	9.055	9.062	9.069	9.076	9.083	9.090	9.097	9.104	9.111	9.118	1630
1640	9.118	9.125	9.132	9.140	9.147	9.154	9.161	9.168	9.175	9.182	9.189	1640
1650	9.189	9.196	9.203	9.210	9.218	9.225	9.232	9.239	9.246	9.253	9.260	1650
1660	9.260	9.267	9.274	9.282	9.289	9.296	9.303	9.310	9.317	9.324	9.331	1660
1670	9.331	9.338	9.346	9.353	9.360	9.367	9.374	9.381	9.388	9.395	9.403	1670
1680	9.403	9.410	9.417	9.424	9.431	9.438	9.445	9.453	9.460	9.467	9.474	1680
1690	9.474	9.481	9.488	9.495	9.503	9.510	9.517	9.524	9.531	9.538	9.546	1690
1700	9.546	9.553	9.560	9.567	9.574	9.581	9.589	9.596	9.603	9.610	9.617	1700
1710	9.617	9.624	9.632	9.639	9.646	9.653	9.660	9.668	9.675	9.682	9.689	1710
1720	9.689	9.696	9.704	9.711	9.718	9.725	9.732	9.740	9.747	9.754	9.761	1720
1730	9.761	9.768	9.776	9.783	9.790	9.797	9.804	9.812	9.819	9.826	9.833	1730
1740	9.833	9.840	9.848	9.855	9.862	9.869	9.877	9.884	9.891	9.898	9.906	1740
1750	9.906	9.913	9.920	9.927	9.934	9.942	9.949	9.956	9.963	9.971	9.978	1750
1760	9.978	9.985	9.992	10.000	10.007	10.014	10.021	10.029	10.036	10.043	10.050	1760
1770	10.050	10.058	10.065	10.072	10.079	10.087	10.094	10.101	10.109	10.116	10.123	1770
1780	10.123	10.130	10.138	10.145	10.152	10.159	10.167	10.174	10.181	10.189	10.196	1780
1790	10.196	10.203	10.210	10.218	10.225	10.232	10.240	10.247	10.254	10.262	10.269	1790
1800	10.269	10.276	10.283	10.291	10.298	10.305	10.313	10.320	10.327	10.335	10.342	1800
1810	10.342	10.349	10.357	10.364	10.371	10.379	10.386	10.393	10.400	10.408	10.415	1810
1820	10.415	10.422	10.430	10.437	10.444	10.452	10.459	10.466	10.474	10.481	10.488	1820
1830	10.488	10.496	10.503	10.511	10.518	10.525	10.533	10.540	10.547	10.555	10.562	1830
1840	10.562	10.569	10.577	10.584	10.591	10.599	10.606	10.613	10.621	10.628	10.636	1840
1850	10.636	10.643	10.650	10.658	10.665	10.672	10.680	10.687	10.695	10.702	10.709	1850

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Table 2-12. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1860	10.709	10.717	10.724	10.731	10.739	10.746	10.754	10.761	10.768	10.776	10.783	1860
1870	10.783	10.791	10.798	10.805	10.813	10.820	10.828	10.835	10.842	10.850	10.857	1870
1880	10.857	10.865	10.872	10.879	10.887	10.894	10.902	10.909	10.917	10.924	10.931	1880
1890	10.931	10.939	10.946	10.954	10.961	10.968	10.976	10.983	10.991	10.998	11.006	1890
1900	11.006	11.013	11.021	11.028	11.035	11.043	11.050	11.058	11.065	11.073	11.080	1900
1910	11.080	11.088	11.095	11.102	11.110	11.117	11.125	11.132	11.140	11.147	11.155	1910
1920	11.155	11.162	11.170	11.177	11.184	11.192	11.199	11.207	11.214	11.222	11.229	1920
1930	11.229	11.237	11.244	11.252	11.259	11.267	11.274	11.282	11.289	11.297	11.304	1930
1940	11.304	11.312	11.319	11.327	11.334	11.342	11.349	11.357	11.364	11.372	11.379	1940
1950	11.379	11.387	11.394	11.402	11.409	11.417	11.424	11.432	11.439	11.447	11.454	1950
1960	11.454	11.462	11.469	11.477	11.484	11.492	11.499	11.507	11.514	11.522	11.529	1960
1970	11.529	11.537	11.544	11.552	11.559	11.567	11.574	11.582	11.590	11.597	11.605	1970
1980	11.605	11.612	11.620	11.627	11.635	11.642	11.650	11.657	11.665	11.672	11.680	1980
1990	11.680	11.688	11.695	11.703	11.710	11.718	11.725	11.733	11.740	11.748	11.756	1990
2000	11.756	11.763	11.771	11.778	11.786	11.793	11.801	11.808	11.816	11.824	11.831	2000
2010	11.831	11.839	11.846	11.854	11.861	11.869	11.877	11.884	11.892	11.899	11.907	2010
2020	11.907	11.914	11.922	11.930	11.937	11.945	11.952	11.960	11.968	11.975	11.983	2020
2030	11.983	11.990	11.998	12.005	12.013	12.021	12.028	12.036	12.043	12.051	12.059	2030
2040	12.059	12.066	12.074	12.081	12.089	12.097	12.104	12.112	12.119	12.127	12.135	2040
2050	12.135	12.142	12.150	12.157	12.165	12.173	12.180	12.188	12.196	12.203	12.211	2050
2060	12.211	12.218	12.226	12.234	12.241	12.249	12.257	12.264	12.272	12.279	12.287	2060
2070	12.287	12.295	12.302	12.310	12.318	12.325	12.333	12.340	12.348	12.356	12.363	2070
2080	12.363	12.371	12.379	12.386	12.394	12.402	12.409	12.417	12.424	12.432	12.440	2080
2090	12.440	12.447	12.455	12.463	12.470	12.478	12.486	12.493	12.501	12.509	12.516	2090
2100	12.516	12.524	12.532	12.539	12.547	12.555	12.562	12.570	12.577	12.585	12.593	2100
2110	12.593	12.600	12.608	12.616	12.623	12.631	12.639	12.646	12.654	12.662	12.669	2110
2120	12.669	12.677	12.685	12.693	12.700	12.708	12.716	12.723	12.731	12.739	12.746	2120
2130	12.746	12.754	12.762	12.769	12.777	12.785	12.792	12.800	12.808	12.815	12.823	2130
2140	12.823	12.831	12.838	12.846	12.854	12.862	12.869	12.877	12.885	12.892	12.900	2140
2150	12.900	12.908	12.915	12.923	12.931	12.938	12.946	12.954	12.962	12.969	12.977	2150
2160	12.977	12.985	12.992	13.000	13.008	13.016	13.023	13.031	13.039	13.046	13.054	2160
2170	13.054	13.062	13.069	13.077	13.085	13.093	13.100	13.108	13.116	13.123	13.131	2170
2180	13.131	13.139	13.147	13.154	13.162	13.170	13.178	13.185	13.193	13.201	13.208	2180
2190	13.208	13.216	13.224	13.232	13.239	13.247	13.255	13.263	13.270	13.278	13.286	2190
2200	13.286	13.293	13.301	13.309	13.317	13.324	13.332	13.340	13.348	13.355	13.363	2200
2210	13.363	13.371	13.379	13.386	13.394	13.402	13.409	13.417	13.425	13.433	13.440	2210
2220	13.440	13.448	13.456	13.464	13.471	13.479	13.487	13.495	13.502	13.510	13.518	2220
2230	13.518	13.526	13.533	13.541	13.549	13.557	13.564	13.572	13.580	13.588	13.595	2230
2240	13.595	13.603	13.611	13.619	13.627	13.634	13.642	13.650	13.658	13.665	13.673	2240
2250	13.673	13.681	13.689	13.696	13.704	13.712	13.720	13.727	13.735	13.743	13.751	2250
2260	13.751	13.759	13.766	13.774	13.782	13.790	13.797	13.805	13.813	13.821	13.828	2260
2270	13.828	13.836	13.844	13.852	13.860	13.867	13.875	13.883	13.891	13.898	13.906	2270
2280	13.906	13.914	13.922	13.930	13.937	13.945	13.953	13.961	13.968	13.976	13.984	2280
2290	13.984	13.992	14.000	14.007	14.015	14.023	14.031	14.039	14.046	14.054	14.062	2290
2300	14.062	14.070	14.078	14.085	14.093	14.101	14.109	14.116	14.124	14.132	14.140	2300
2310	14.140	14.148	14.155	14.163	14.171	14.179	14.187	14.194	14.202	14.210	14.218	2310
2320	14.218	14.226	14.233	14.241	14.249	14.257	14.265	14.272	14.280	14.288	14.296	2320
2330	14.296	14.304	14.311	14.319	14.327	14.335	14.343	14.350	14.358	14.366	14.374	2330
2340	14.374	14.382	14.389	14.397	14.405	14.413	14.421	14.429	14.436	14.444	14.452	2340
2350	14.452	14.460	14.468	14.475	14.483	14.491	14.499	14.507	14.514	14.522	14.530	2350
2360	14.530	14.538	14.546	14.554	14.561	14.569	14.577	14.585	14.593	14.600	14.608	2360
2370	14.608	14.616	14.624	14.632	14.640	14.647	14.655	14.663	14.671	14.679	14.686	2370
2380	14.686	14.694	14.702	14.710	14.718	14.726	14.733	14.741	14.749	14.757	14.765	2380

Table 2-12. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
2390	14.765	14.772	14.780	14.788	14.796	14.804	14.812	14.819	14.827	14.835	14.843	2390
2400	14.843	14.851	14.859	14.866	14.874	14.882	14.890	14.898	14.906	14.913	14.921	2400
2410	14.921	14.929	14.937	14.945	14.953	14.960	14.968	14.976	14.984	14.992	15.000	2410
2420	15.000	15.007	15.015	15.023	15.031	15.039	15.047	15.054	15.062	15.070	15.078	2420
2430	15.078	15.086	15.094	15.101	15.109	15.117	15.125	15.133	15.141	15.148	15.156	2430
2440	15.156	15.164	15.172	15.180	15.188	15.195	15.203	15.211	15.219	15.227	15.235	2440
2450	15.235	15.242	15.250	15.258	15.266	15.274	15.282	15.289	15.297	15.305	15.313	2450
2460	15.313	15.321	15.329	15.337	15.344	15.352	15.360	15.368	15.376	15.384	15.391	2460
2470	15.391	15.399	15.407	15.415	15.423	15.431	15.438	15.446	15.454	15.462	15.470	2470
2480	15.470	15.478	15.486	15.493	15.501	15.509	15.517	15.525	15.533	15.540	15.548	2480
2490	15.548	15.556	15.564	15.572	15.580	15.587	15.595	15.603	15.611	15.619	15.627	2490
2500	15.627	15.635	15.642	15.650	15.658	15.666	15.674	15.682	15.689	15.697	15.705	2500
2510	15.705	15.713	15.721	15.729	15.737	15.744	15.752	15.760	15.768	15.776	15.784	2510
2520	15.784	15.791	15.799	15.807	15.815	15.823	15.831	15.839	15.846	15.854	15.862	2520
2530	15.862	15.870	15.878	15.886	15.893	15.901	15.909	15.917	15.925	15.933	15.941	2530
2540	15.941	15.948	15.956	15.964	15.972	15.980	15.988	15.995	16.003	16.011	16.019	2540
2550	16.019	16.027	16.035	16.043	16.050	16.058	16.066	16.074	16.082	16.090	16.097	2550
2560	16.097	16.105	16.113	16.121	16.129	16.137	16.145	16.152	16.160	16.168	16.176	2560
2570	16.176	16.184	16.192	16.199	16.207	16.215	16.223	16.231	16.239	16.247	16.254	2570
2580	16.254	16.262	16.270	16.278	16.286	16.294	16.301	16.309	16.317	16.325	16.333	2580
2590	16.333	16.341	16.349	16.356	16.364	16.372	16.380	16.388	16.396	16.403	16.411	2590
2600	16.411	16.419	16.427	16.435	16.443	16.450	16.458	16.466	16.474	16.482	16.490	2600
2610	16.490	16.498	16.505	16.513	16.521	16.529	16.537	16.545	16.552	16.560	16.568	2610
2620	16.568	16.576	16.584	16.592	16.599	16.607	16.615	16.623	16.631	16.639	16.646	2620
2630	16.646	16.654	16.662	16.670	16.678	16.686	16.694	16.701	16.709	16.717	16.725	2630
2640	16.725	16.733	16.741	16.748	16.756	16.764	16.772	16.780	16.788	16.795	16.803	2640
2650	16.803	16.811	16.819	16.827	16.835	16.842	16.850	16.858	16.866	16.874	16.882	2650
2660	16.882	16.889	16.897	16.905	16.913	16.921	16.929	16.936	16.944	16.952	16.960	2660
2670	16.960	16.968	16.976	16.983	16.991	16.999	17.007	17.015	17.022	17.030	17.038	2670
2680	17.038	17.046	17.054	17.062	17.069	17.077	17.085	17.093	17.101	17.109	17.116	2680
2690	17.116	17.124	17.132	17.140	17.148	17.156	17.163	17.171	17.179	17.187	17.195	2690
2700	17.195	17.202	17.210	17.218	17.226	17.234	17.242	17.249	17.257	17.265	17.273	2700
2710	17.273	17.281	17.288	17.296	17.304	17.312	17.320	17.328	17.335	17.343	17.351	2710
2720	17.351	17.359	17.367	17.374	17.382	17.390	17.398	17.406	17.413	17.421	17.429	2720
2730	17.429	17.437	17.445	17.453	17.460	17.468	17.476	17.484	17.492	17.499	17.507	2730
2740	17.507	17.515	17.523	17.531	17.538	17.546	17.554	17.562	17.570	17.577	17.585	2740
2750	17.585	17.593	17.601	17.609	17.616	17.624	17.632	17.640	17.648	17.655	17.663	2750
2760	17.663	17.671	17.679	17.687	17.694	17.702	17.710	17.718	17.726	17.733	17.741	2760
2770	17.741	17.749	17.757	17.765	17.772	17.780	17.788	17.796	17.804	17.811	17.819	2770
2780	17.819	17.827	17.835	17.842	17.850	17.858	17.866	17.874	17.881	17.889	17.897	2780
2790	17.897	17.905	17.913	17.920	17.928	17.936	17.944	17.951	17.959	17.967	17.975	2790
2800	17.975	17.983	17.990	17.998	18.006	18.014	18.021	18.029	18.037	18.045	18.053	2800
2810	18.053	18.060	18.068	18.076	18.084	18.091	18.099	18.107	18.115	18.123	18.130	2810
2820	18.130	18.138	18.146	18.154	18.161	18.169	18.177	18.185	18.192	18.200	18.208	2820
2830	18.208	18.216	18.223	18.231	18.239	18.247	18.255	18.262	18.270	18.278	18.286	2830
2840	18.286	18.293	18.301	18.309	18.317	18.324	18.332	18.340	18.348	18.355	18.363	2840
2850	18.363	18.371	18.379	18.386	18.394	18.402	18.410	18.417	18.425	18.433	18.441	2850
2860	18.441	18.448	18.456	18.464	18.472	18.479	18.487	18.495	18.502	18.510	18.518	2860
2870	18.518	18.526	18.533	18.541	18.549	18.557	18.564	18.572	18.580	18.588	18.595	2870
2880	18.595	18.603	18.611	18.619	18.626	18.634	18.642	18.649	18.657	18.665	18.673	2880
2890	18.673	18.680	18.688	18.696	18.703	18.711	18.719	18.727	18.734	18.742	18.750	2890
2900	18.750	18.758	18.765	18.773	18.781	18.788	18.796	18.804	18.812	18.819	18.827	2900
2910	18.827	18.835	18.842	18.850	18.858	18.865	18.873	18.881	18.889	18.896	18.904	2910

Technical Data Sheet

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Table 2-12. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
2920	18.904	18.912	18.919	18.927	18.935	18.943	18.950	18.958	18.966	18.973	18.981	2920
2930	18.981	18.989	18.996	19.004	19.012	19.019	19.027	19.035	19.043	19.050	19.058	2930
2940	19.058	19.066	19.073	19.081	19.089	19.096	19.104	19.112	19.119	19.127	19.135	2940
2950	19.135	19.143	19.150	19.158	19.165	19.173	19.181	19.188	19.196	19.204	19.211	2950
2960	19.211	19.219	19.227	19.234	19.242	19.250	19.257	19.265	19.273	19.280	19.288	2960
2970	19.288	19.296	19.303	19.311	19.319	19.326	19.334	19.342	19.349	19.357	19.365	2970
2980	19.365	19.372	19.380	19.388	19.395	19.403	19.411	19.418	19.426	19.434	19.441	2980
2990	19.441	19.449	19.457	19.464	19.472	19.479	19.487	19.495	19.502	19.510	19.518	2990
3000	19.518	19.525	19.533	19.541	19.548	19.556	19.563	19.571	19.579	19.586	19.594	3000
3010	19.594	19.602	19.609	19.617	19.624	19.632	19.640	19.647	19.655	19.663	19.670	3010
3020	19.670	19.678	19.685	19.693	19.701	19.708	19.716	19.723	19.731	19.739	19.746	3020
3030	19.746	19.754	19.761	19.769	19.777	19.784	19.792	19.800	19.807	19.815	19.822	3030
3040	19.822	19.830	19.837	19.845	19.853	19.860	19.868	19.875	19.883	19.891	19.898	3040
3050	19.898	19.906	19.913	19.921	19.929	19.936	19.944	19.951	19.959	19.966	19.974	3050
3060	19.974	19.982	19.989	19.997	20.004	20.012	20.019	20.027	20.034	20.042	20.050	3060
3070	20.050	20.057	20.065	20.072	20.080	20.087	20.095	20.102	20.110	20.117	20.125	3070
3080	20.125	20.132	20.140	20.148	20.155	20.163	20.170	20.178	20.185	20.193	20.200	3080
3090	20.200	20.208	20.215	20.223	20.230	20.238	20.245	20.253	20.260	20.268	20.275	3090
3100	20.275	20.283	20.290	20.297	20.305	20.312	20.320	20.327	20.335	20.342	20.350	3100
3110	20.350	20.357	20.365	20.372	20.380	20.387	20.394	20.402	20.409	20.417	20.424	3110
3120	20.424	20.432	20.439	20.446	20.454	20.461	20.469	20.476	20.483	20.491	20.498	3120
3130	20.498	20.506	20.513	20.520	20.528	20.535	20.543	20.550	20.557	20.565	20.572	3130
3140	20.572	20.579	20.587	20.594	20.601	20.609	20.616	20.623	20.631	20.638	20.645	3140
3150	20.645	20.653	20.660	20.667	20.675	20.682	20.689	20.697	20.704	20.711	20.718	3150
3160	20.718	20.726	20.733	20.740	20.748	20.755	20.762	20.769	20.777	20.784	20.791	3160
3170	20.791	20.798	20.806	20.813	20.820	20.827	20.834	20.842	20.849	20.856	20.863	3170
3180	20.863	20.870	20.878	20.885	20.892	20.899	20.906	20.914	20.921	20.928	20.935	3180
3190	20.935	20.942	20.949	20.956	20.964	20.971	20.978	20.985	20.992	20.999	21.006	3190
3200	21.006	21.013	21.021	21.028	21.035	21.042	21.049	21.056	21.063	21.070	21.077	3200
3210	21.077	21.084	21.091	21.098	21.105							3210

T/C TYPE S - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°C) Reference Junctions at 0 °C
Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-13. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-50	-0.236	-0.232	-0.228	-0.224	-0.220	-0.215	-0.211	-0.207	-0.203	-0.199	-0.194	-50
-40	-0.194	-0.190	-0.186	-0.181	-0.177	-0.173	-0.168	-0.164	-0.159	-0.155	-0.150	-40
-30	-0.150	-0.145	-0.141	-0.136	-0.132	-0.127	-0.122	-0.117	-0.112	-0.108	-0.103	-30
-20	-0.103	-0.098	-0.093	-0.088	-0.083	-0.078	-0.073	-0.068	-0.063	-0.058	-0.053	-20
-10	-0.053	-0.048	-0.042	-0.037	-0.032	-0.027	-0.021	-0.016	-0.011	-0.005	-0.000	-10
0	0.000	0.005	0.011	0.016	0.022	0.027	0.033	0.038	0.044	0.050	0.055	0
10	0.055	0.061	0.067	0.072	0.078	0.084	0.090	0.095	0.101	0.107	0.113	10
20	0.113	0.119	0.125	0.131	0.137	0.142	0.148	0.154	0.161	0.167	0.173	20
30	0.173	0.179	0.185	0.191	0.197	0.203	0.210	0.216	0.222	0.228	0.235	30
40	0.235	0.241	0.247	0.254	0.260	0.266	0.273	0.279	0.286	0.292	0.299	40
50	0.299	0.305	0.312	0.318	0.325	0.331	0.338	0.345	0.351	0.358	0.365	50
60	0.365	0.371	0.378	0.385	0.391	0.398	0.405	0.412	0.419	0.425	0.432	60
70	0.432	0.439	0.446	0.453	0.460	0.467	0.474	0.481	0.488	0.495	0.502	70
80	0.502	0.509	0.516	0.523	0.530	0.537	0.544	0.551	0.558	0.566	0.573	80

Table 2-13. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
90	0.573	0.580	0.587	0.594	0.602	0.609	0.616	0.623	0.631	0.638	0.645	90
100	0.645	0.653	0.660	0.667	0.675	0.682	0.690	0.697	0.704	0.712	0.719	100
110	0.719	0.727	0.734	0.742	0.749	0.754	0.764	0.772	0.780	0.787	0.795	110
120	0.795	0.802	0.810	0.818	0.825	0.833	0.841	0.848	0.856	0.864	0.872	120
130	0.872	0.879	0.887	0.895	0.903	0.910	0.918	0.926	0.934	0.942	0.950	130
140	0.950	0.957	0.965	0.973	0.981	0.989	0.997	1.005	1.013	1.021	1.029	140
150	1.029	1.037	1.045	1.053	1.061	1.069	1.077	1.085	1.093	1.101	1.109	150
160	1.109	1.117	1.125	1.133	1.141	1.149	1.158	1.166	1.174	1.182	1.190	160
170	1.190	1.198	1.207	1.215	1.223	1.231	1.240	1.248	1.256	1.264	1.273	170
180	1.273	1.281	1.289	1.297	1.306	1.314	1.322	1.331	1.339	1.347	1.356	180
190	1.356	1.364	1.373	1.381	1.389	1.398	1.406	1.415	1.423	1.432	1.440	190
200	1.440	1.448	1.457	1.465	1.474	1.482	1.491	1.499	1.508	1.516	1.525	200
210	1.525	1.534	1.542	1.551	1.559	1.568	1.576	1.595	1.594	1.602	1.611	210
220	1.611	1.620	1.628	1.637	1.645	1.654	1.663	1.671	1.680	1.689	1.698	220
230	1.698	1.706	1.715	1.724	1.732	1.741	1.750	1.759	1.767	1.776	1.785	230
240	1.785	1.794	1.802	1.811	1.820	1.829	1.838	1.846	1.855	1.864	1.873	240
250	1.873	1.882	1.891	1.899	1.908	1.917	1.926	1.935	1.944	1.953	1.962	250
260	1.962	1.971	1.979	1.988	1.997	2.006	2.015	2.024	2.033	2.042	2.051	260
270	2.051	2.060	2.069	2.078	2.087	2.096	2.105	2.114	2.123	2.132	2.141	270
280	2.141	2.150	2.159	2.168	2.177	2.186	2.195	2.204	2.213	2.222	2.232	280
290	2.232	2.241	2.250	2.259	2.268	2.277	2.286	2.295	2.304	2.314	2.323	290
300	2.323	2.332	2.341	2.350	2.359	2.368	2.378	2.387	2.396	2.405	2.414	300
310	2.414	2.424	2.433	2.442	2.451	2.460	2.470	2.479	2.488	2.497	2.506	310
320	2.506	2.516	2.525	2.534	2.543	2.553	2.562	2.571	2.581	2.590	2.599	320
330	2.599	2.608	2.618	2.627	2.636	2.646	2.655	2.664	2.674	2.683	2.692	330
340	2.692	2.702	2.711	2.720	2.730	2.739	2.748	2.758	2.767	2.776	2.786	340
350	2.786	2.795	2.805	2.814	2.823	2.833	2.842	2.852	2.861	2.870	2.880	350
360	2.880	2.889	2.899	2.908	2.917	2.927	2.936	2.946	2.955	2.965	2.974	360
370	2.974	2.984	2.993	3.003	3.012	3.022	3.031	3.041	3.050	3.059	3.069	370
380	3.069	3.078	3.088	3.097	3.107	3.117	3.126	3.136	3.145	3.155	3.164	380
390	3.164	3.174	3.183	3.193	3.202	3.212	3.221	3.231	3.241	3.250	3.260	390
400	3.260	3.269	3.279	3.288	3.298	3.308	3.317	3.327	3.336	3.346	3.356	400
410	3.356	3.365	3.375	3.384	3.394	3.404	3.413	3.423	3.433	3.442	3.452	410
420	3.452	3.462	3.471	3.481	3.491	3.500	3.510	3.520	3.529	3.539	3.549	420
430	3.549	3.558	3.568	3.578	3.587	3.597	3.607	3.616	3.626	3.636	3.645	430
440	3.645	3.655	3.665	3.675	3.684	3.694	3.704	3.714	3.723	3.733	3.743	440
450	3.743	3.752	3.762	3.772	3.782	3.791	3.801	3.811	3.821	3.831	3.840	450
460	3.840	3.850	3.860	3.870	3.879	3.889	3.899	3.909	3.919	3.928	3.938	460
470	3.938	3.948	3.958	3.968	3.977	3.987	3.997	4.007	4.017	4.027	4.036	470
480	4.036	4.046	4.056	4.066	4.076	4.086	4.095	4.105	4.115	4.125	4.135	480
490	4.135	4.145	4.155	4.164	4.174	4.184	4.194	4.204	4.214	4.224	4.234	490
500	4.234	4.243	4.253	4.263	4.273	4.283	4.293	4.303	4.313	4.323	4.333	500
510	4.333	4.343	4.352	4.362	4.372	4.382	4.392	4.402	4.412	4.422	4.432	510
520	4.432	4.442	4.452	4.462	4.472	4.482	4.492	4.502	4.512	4.522	4.532	520
530	4.532	4.542	4.552	4.562	4.572	4.582	4.592	4.602	4.612	4.622	4.632	530
540	4.632	4.642	4.652	4.662	4.672	4.682	4.692	4.702	4.712	4.722	4.732	540
550	4.732	4.742	4.752	4.762	4.772	4.782	4.792	4.802	4.812	4.822	4.832	550
560	4.832	4.842	4.852	4.862	4.873	4.883	4.893	4.903	4.913	4.923	4.933	560
570	4.933	4.943	4.953	4.963	4.973	4.984	4.994	5.004	5.014	5.024	5.034	570
580	5.034	5.044	5.054	5.065	5.075	5.085	5.095	5.105	5.115	5.125	5.136	580
590	5.136	5.146	5.156	5.166	5.176	5.186	5.197	5.207	5.217	5.227	5.237	590
600	5.237	5.247	5.258	5.268	5.278	5.288	5.298	5.309	5.319	5.329	5.339	600
610	5.339	5.350	5.360	5.370	5.380	5.391	5.401	5.411	5.421	5.431	5.442	610

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Table 2-13. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
620	5.442	5.452	5.462	5.473	5.483	5.493	5.503	5.514	5.524	5.534	5.544	620
630	5.544	5.555	5.565	5.575	5.586	5.596	5.606	5.617	5.627	5.637	5.648	630
640	5.648	5.658	5.668	5.679	5.689	5.700	5.710	5.720	5.731	5.741	5.751	640
650	5.751	5.762	5.772	5.782	5.793	5.803	5.814	5.824	5.834	5.845	5.855	650
660	5.855	5.866	5.876	5.887	5.897	5.907	5.918	5.928	5.939	5.949	5.960	660
670	5.960	5.970	5.980	5.991	6.001	6.012	6.022	6.033	6.043	6.054	6.064	670
680	6.064	6.075	6.085	6.096	6.106	6.117	6.127	6.138	6.148	6.159	6.169	680
690	6.169	6.180	6.190	6.201	6.211	6.222	6.232	6.243	6.253	6.264	6.274	690
700	6.274	6.285	6.265	6.306	6.316	6.327	6.338	6.348	6.359	6.369	6.380	700
710	6.380	6.390	6.401	6.412	6.422	6.433	6.443	6.454	6.465	6.475	6.486	710
720	6.486	6.496	6.507	6.518	6.528	6.539	6.549	6.560	6.571	6.581	6.592	720
730	6.592	6.603	6.613	6.624	6.635	6.645	6.656	6.667	6.677	6.688	6.699	730
740	6.699	6.709	6.720	6.731	6.741	6.752	6.763	6.773	6.784	6.795	6.805	740
750	6.805	6.816	6.827	6.838	6.848	6.859	6.870	6.880	6.891	6.902	6.913	750
760	6.913	6.923	6.934	6.945	6.956	6.966	6.977	6.988	6.999	7.009	7.020	760
770	7.020	7.031	7.042	7.053	7.063	7.074	7.085	7.096	7.107	7.117	7.128	770
780	7.128	7.139	7.150	7.161	7.171	7.182	7.193	7.204	7.215	7.225	7.236	780
790	7.236	7.247	7.258	7.269	7.280	7.291	7.301	7.312	7.323	7.334	7.345	790
800	7.345	7.356	7.367	7.377	7.388	7.399	7.410	7.421	7.432	7.443	7.454	800
810	7.454	7.465	7.476	7.486	7.497	7.508	7.519	7.530	7.541	7.552	7.563	810
820	7.563	7.574	7.585	7.596	7.607	7.618	7.629	7.640	7.651	7.661	7.672	820
830	7.672	7.683	7.694	7.705	7.716	7.727	7.738	7.749	7.760	7.771	7.782	830
840	7.782	7.793	7.804	7.815	7.826	7.837	7.848	7.859	7.870	7.881	7.892	840
850	7.892	7.904	7.915	7.926	7.937	7.948	7.959	7.970	7.981	7.992	8.003	850
860	8.003	8.014	8.025	8.036	8.047	8.058	8.069	8.081	8.092	8.103	8.114	860
870	8.114	8.125	8.136	8.147	8.158	8.169	8.180	8.192	8.203	8.214	8.225	870
880	8.225	8.236	8.247	8.258	8.270	8.281	8.292	8.303	8.314	8.325	8.336	880
890	8.336	8.348	8.359	8.370	8.381	8.392	8.404	8.415	8.426	8.437	8.448	890
900	8.448	8.460	8.471	8.482	8.493	8.504	8.516	8.527	8.538	8.549	8.560	900
910	8.560	8.572	8.583	8.594	8.605	8.617	8.628	8.639	8.650	8.662	8.673	910
920	8.673	8.684	8.695	8.707	8.718	8.729	8.741	8.752	8.763	8.774	8.786	920
930	8.786	8.797	8.808	8.820	8.831	8.842	8.854	8.865	8.876	8.888	8.899	930
940	8.899	8.910	8.922	8.933	8.944	8.956	8.967	8.978	8.990	9.001	9.012	940
950	9.012	9.024	9.035	9.047	9.058	9.069	9.081	9.092	9.103	9.115	9.126	950
960	9.126	9.138	9.149	9.160	9.172	9.183	9.195	9.206	9.217	9.229	9.240	960
970	9.240	9.252	9.263	9.275	9.286	9.298	9.309	9.320	9.332	9.343	9.355	970
980	9.355	9.366	9.378	9.389	9.401	9.412	9.424	9.435	9.447	9.458	9.470	980
990	9.470	9.481	9.493	9.504	9.516	9.527	9.539	9.550	9.562	9.573	9.585	990
1000	9.585	9.596	9.608	9.619	9.631	9.642	9.654	9.665	9.677	9.689	9.700	1000
1010	9.700	9.712	9.723	9.735	9.746	9.758	9.770	9.781	9.793	9.804	9.816	1010
1020	9.816	9.828	9.839	9.851	9.862	9.874	9.886	9.897	9.909	9.920	9.932	1020
1030	9.932	9.944	9.955	9.967	9.979	9.990	10.002	10.013	10.025	10.037	10.048	1030
1040	10.048	10.060	10.072	10.083	10.095	10.107	10.118	10.130	10.142	10.154	10.165	1040
1050	10.165	10.177	10.189	10.200	10.212	10.224	10.235	10.247	10.259	10.271	10.282	1050
1060	10.282	10.294	10.306	10.318	10.329	10.341	10.353	10.364	10.376	10.388	10.400	1060
1070	10.400	10.411	10.423	10.435	10.447	10.459	10.470	10.482	10.494	10.506	10.517	1070
1080	10.517	10.529	10.541	10.553	10.565	10.576	10.588	10.600	10.612	10.624	10.635	1080
1090	10.635	10.647	10.659	10.671	10.683	10.694	10.706	10.718	10.730	10.742	10.754	1090
1100	10.754	10.765	10.777	10.789	10.801	10.813	10.825	10.836	10.848	10.860	10.872	1100
1120	10.991	11.003	11.014	11.026	11.038	11.050	11.062	11.074	11.086	11.098	11.110	1120
1130	11.110	11.121	11.133	11.145	11.157	11.169	11.181	11.193	11.205	11.217	11.229	1130
1140	11.229	11.241	11.252	11.264	11.276	11.288	11.300	11.312	11.324	11.336	11.348	1140
1150	11.348	11.360	11.372	11.384	11.408	11.420	11.432	11.443	11.455	11.467	11.467	1150

Table 2-13. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
1160	11.467	11.479	11.491	11.503	11.515	11.527	11.539	11.551	11.563	11.575	11.587	1160
1170	11.587	11.599	11.611	11.623	11.635	11.647	11.659	11.671	11.683	11.695	11.707	1170
1180	11.707	11.719	11.731	11.743	11.755	11.767	11.779	11.791	11.803	11.815	11.827	1180
1190	11.827	11.839	11.851	11.863	11.875	11.887	11.899	11.911	11.923	11.935	11.947	1190
1200	11.947	11.959	11.971	11.983	11.995	12.007	12.019	12.031	12.043	12.055	12.067	1200
1210	12.067	12.079	12.091	12.103	12.116	12.128	12.140	12.152	12.164	12.176	12.188	1210
1220	12.188	12.200	12.212	12.224	12.236	12.248	12.260	12.272	12.284	12.296	12.308	1220
1230	12.308	12.320	12.332	12.345	12.357	12.369	12.381	12.393	12.405	12.417	12.429	1230
1240	12.429	12.441	12.453	12.465	12.477	12.489	12.501	12.514	12.526	12.538	12.550	1240
1250	12.550	12.562	12.574	12.586	12.598	12.610	12.622	12.634	12.647	12.659	12.671	1250
1260	12.671	12.683	12.695	12.707	12.719	12.731	12.743	12.755	12.767	12.780	12.792	1260
1270	12.792	12.804	12.816	12.828	12.840	12.852	12.864	12.876	12.888	12.901	12.913	1270
1280	12.913	12.925	12.937	12.949	12.961	12.973	12.985	12.997	13.010	13.022	13.034	1280
1290	13.034	13.046	13.058	13.070	13.082	13.094	13.107	13.119	13.131	13.143	13.155	1290
1300	13.155	13.167	13.179	13.191	13.203	13.216	13.228	13.240	13.252	13.264	13.276	1300
1310	13.276	13.288	13.300	13.313	13.325	13.337	13.349	13.361	13.373	13.385	13.397	1310
1320	13.397	13.410	13.422	13.434	13.446	13.458	13.470	13.482	13.495	13.507	13.519	1320
1330	13.519	13.531	13.543	13.555	13.567	13.579	13.592	13.604	13.616	13.628	13.640	1330
1340	13.640	13.652	13.664	13.677	13.689	13.701	13.713	13.725	13.737	13.749	13.761	1340
1350	13.761	13.774	13.786	13.798	13.810	13.822	13.834	13.846	13.859	13.871	13.883	1350
1360	13.883	13.895	13.907	13.919	13.931	13.943	13.956	13.968	13.980	13.992	14.004	1360
1370	14.004	14.016	14.028	14.040	14.053	14.065	14.077	14.089	14.101	14.113	14.125	1370
1380	14.125	14.138	14.150	14.162	14.174	14.186	14.198	14.210	14.222	14.235	14.247	1380
1390	14.247	14.259	14.271	14.283	14.295	14.307	14.319	14.332	14.344	14.356	14.368	1390
1400	14.368	14.380	14.392	14.404	14.416	14.429	14.441	14.453	14.465	14.477	14.489	1400
1410	14.489	14.501	14.513	14.526	14.538	14.550	14.562	14.574	14.586	14.598	14.610	1410
1420	14.610	14.622	14.635	14.647	14.659	14.671	14.683	14.695	14.707	14.719	14.731	1420
1430	14.731	14.744	14.756	14.768	14.780	14.792	14.804	14.816	14.828	14.840	14.852	1430
1440	14.852	14.865	14.877	14.889	14.901	14.913	14.925	14.937	14.949	14.961	14.973	1440
1450	14.973	14.985	14.998	15.010	15.022	15.034	15.046	15.058	15.070	15.082	15.094	1450
1460	15.094	15.106	15.118	15.130	15.143	15.155	15.167	15.179	15.191	15.203	15.215	1460
1470	15.215	15.227	15.239	15.251	15.263	15.275	15.287	15.299	15.311	15.324	15.336	1470
1480	15.336	15.348	15.360	15.372	15.384	15.396	15.408	15.420	15.432	15.444	15.456	1480
1490	15.456	15.468	15.480	15.492	15.504	15.516	15.528	15.540	15.552	15.564	15.576	1490
1500	15.576	15.589	15.601	15.613	15.625	15.637	15.649	15.661	15.673	15.685	15.697	1500
1510	15.697	15.709	15.721	15.733	15.745	15.757	15.769	15.781	15.793	15.805	15.817	1510
1520	15.817	15.829	15.841	15.853	15.865	15.877	15.889	15.901	15.913	15.925	15.937	1520
1530	15.937	15.949	15.961	15.973	15.985	15.997	16.009	16.021	16.033	16.045	16.057	1530
1540	16.057	16.069	16.080	16.092	16.104	16.116	16.128	16.140	16.152	16.164	16.176	1540
1550	16.176	16.188	16.200	16.212	16.224	16.236	16.248	16.260	16.272	16.284	16.296	1550
1560	16.296	16.308	16.319	16.331	16.343	16.355	16.367	16.379	16.391	16.403	16.415	1560
1570	16.415	16.427	16.439	16.451	16.462	16.474	16.486	16.498	16.510	16.522	16.534	1570
1580	16.534	16.546	16.558	16.569	16.581	16.593	16.605	16.617	16.629	16.641	16.653	1580
1590	16.653	16.664	16.676	16.688	16.700	16.712	16.724	16.736	16.747	16.759	16.771	1590
1600	16.771	16.783	16.795	16.807	16.819	16.830	16.842	16.854	16.866	16.878	16.890	1600
1610	16.890	16.901	16.913	16.925	16.937	16.949	16.960	16.972	16.984	16.996	17.008	1610
1620	17.008	17.019	17.031	17.043	17.055	17.067	17.078	17.090	17.102	17.114	17.125	1620
1630	17.125	17.137	17.149	17.161	17.173	17.184	17.196	17.208	17.220	17.231	17.243	1630
1640	17.243	17.255	17.267	17.278	17.290	17.302	17.313	17.325	17.337	17.349	17.360	1640
1650	17.360	17.372	17.384	17.396	17.407	17.419	17.431	17.442	17.454	17.466	17.477	1650
1660	17.477	17.489	17.501	17.512	17.524	17.536	17.548	17.559	17.571	17.583	17.594	1660
1670	17.594	17.606	17.617	17.629	17.641	17.652	17.664	17.676	17.687	17.699	17.711	1670
1680	17.711	17.722	17.734	17.745	17.757	17.769	17.780	17.792	17.803	17.815	17.826	1680

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Table 2-13. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
1690	17.826	17.838	17.850	17.861	17.873	17.884	17.896	17.907	17.919	17.930	17.942	1690
1700	17.942	17.953	17.965	17.976	17.988	17.999	18.010	18.022	18.033	18.045	18.056	1700
1710	18.056	18.068	18.079	18.090	18.102	18.113	18.124	18.136	18.147	18.158	18.170	1710
1720	18.170	18.181	18.192	18.204	18.215	18.226	18.237	18.249	18.260	18.271	18.282	1720
1730	18.282	18.293	18.305	18.316	18.327	18.338	18.349	18.360	18.372	18.383	18.394	1730
1740	18.394	18.405	18.416	18.427	18.438	18.449	18.460	18.471	18.482	18.493	18.504	1740
1750	18.504	18.515	18.526	18.536	18.547	18.558	18.569	18.580	18.591	18.602	18.612	1750
1760	18.612	18.623	18.634	18.645	18.655	18.666	18.677	18.687	18.698			1760

T/C TYPE S - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°F) Reference Junctions at 32 °F
Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-14. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-60			-0.236	-0.233	-0.231	-0.229	-0.227	-0.225	-0.222	-0.220	-0.218	-60
-50	-0.218	-0.215	-0.213	-0.211	-0.209	-0.206	-0.204	-0.202	-0.199	-0.197	-0.194	-50
-40	-0.194	-0.192	-0.190	-0.187	-0.185	-0.182	-0.180	-0.178	-0.175	-0.173	-0.170	-40
-30	-0.170	-0.168	-0.165	-0.163	-0.160	-0.158	-0.155	-0.153	-0.150	-0.148	-0.145	-30
-20	-0.145	-0.142	-0.140	-0.137	-0.135	-0.132	-0.129	-0.127	-0.124	-0.122	-0.119	-20
-10	-0.119	-0.116	-0.114	-0.111	-0.108	-0.106	-0.103	-0.100	-0.097	-0.095	-0.092	-10
0	-0.092	-0.089	-0.086	-0.084	-0.081	-0.078	-0.075	-0.073	-0.070	-0.067	-0.064	0
10	-0.064	-0.061	-0.058	-0.056	-0.053	-0.050	-0.047	-0.044	-0.041	-0.038	-0.035	10
20	-0.035	-0.033	-0.030	-0.027	-0.024	-0.021	-0.018	-0.015	-0.012	-0.009	-0.006	20
30	-0.006	-0.003	0.000	0.003	0.006	0.009	0.012	0.015	0.018	0.021	0.024	30
40	0.024	0.027	0.030	0.033	0.037	0.040	0.043	0.046	0.049	0.052	0.055	40
50	0.055	0.058	0.062	0.065	0.068	0.071	0.074	0.077	0.081	0.084	0.087	50
60	0.087	0.090	0.093	0.097	0.100	0.103	0.106	0.110	0.113	0.116	0.119	60
70	0.119	0.123	0.126	0.129	0.133	0.136	0.139	0.142	0.146	0.149	0.152	70
80	0.152	0.156	0.159	0.163	0.166	0.169	0.173	0.176	0.179	0.183	0.186	80
90	0.186	0.190	0.193	0.197	0.200	0.203	0.207	0.210	0.214	0.217	0.221	90
100	0.221	0.224	0.228	0.231	0.235	0.238	0.242	0.245	0.249	0.252	0.256	100
110	0.256	0.259	0.263	0.266	0.270	0.274	0.277	0.281	0.284	0.288	0.291	110
120	0.291	0.295	0.299	0.302	0.306	0.309	0.313	0.317	0.320	0.324	0.328	120
130	0.328	0.331	0.335	0.339	0.342	0.346	0.350	0.353	0.357	0.361	0.365	130
140	0.365	0.368	0.372	0.376	0.379	0.383	0.387	0.391	0.394	0.398	0.402	140
150	0.402	0.406	0.409	0.413	0.417	0.421	0.425	0.428	0.432	0.436	0.440	150
160	0.440	0.444	0.448	0.451	0.455	0.459	0.463	0.467	0.471	0.474	0.478	160
170	0.478	0.482	0.486	0.490	0.494	0.498	0.502	0.506	0.510	0.513	0.517	170
180	0.517	0.521	0.525	0.529	0.533	0.537	0.541	0.545	0.549	0.553	0.557	180
190	0.557	0.561	0.565	0.569	0.573	0.577	0.581	0.585	0.589	0.593	0.597	190
200	0.597	0.601	0.605	0.609	0.613	0.617	0.621	0.625	0.629	0.633	0.637	200
210	0.637	0.641	0.645	0.649	0.653	0.658	0.662	0.666	0.670	0.674	0.678	210
220	0.678	0.682	0.686	0.690	0.695	0.699	0.703	0.707	0.711	0.715	0.719	220
230	0.719	0.724	0.728	0.732	0.736	0.740	0.744	0.749	0.753	0.757	0.761	230
240	0.761	0.765	0.770	0.774	0.778	0.782	0.786	0.791	0.795	0.799	0.803	240
250	0.803	0.808	0.812	0.816	0.820	0.824	0.829	0.833	0.837	0.842	0.846	250
260	0.846	0.850	0.854	0.859	0.863	0.867	0.872	0.876	0.880	0.884	0.889	260
270	0.889	0.893	0.897	0.902	0.906	0.910	0.915	0.919	0.923	0.928	0.932	270
280	0.932	0.936	0.941	0.945	0.950	0.954	0.958	0.963	0.967	0.971	0.976	280
290	0.976	0.980	0.985	0.989	0.993	0.998	1.002	1.007	1.011	1.015	1.020	290

Table 2-14. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
300	1.020	1.024	1.029	1.033	1.038	1.042	1.046	1.051	1.055	1.060	1.064	300
310	1.064	1.069	1.073	1.078	1.082	1.087	1.091	1.095	1.100	1.104	1.109	310
320	1.109	1.113	1.118	1.122	1.127	1.131	1.136	1.140	1.145	1.149	1.154	320
330	1.154	1.158	1.163	1.168	1.172	1.177	1.181	1.186	1.190	1.195	1.199	330
340	1.199	1.204	1.208	1.213	1.218	1.222	1.227	1.231	1.236	1.240	1.245	340
350	1.245	1.250	1.254	1.259	1.263	1.268	1.273	1.277	1.282	1.286	1.291	350
360	1.291	1.296	1.300	1.305	1.309	1.314	1.319	1.323	1.328	1.333	1.337	360
370	1.337	1.342	1.347	1.351	1.356	1.360	1.365	1.370	1.374	1.379	1.384	370
380	1.384	1.388	1.393	1.398	1.402	1.407	1.412	1.417	1.421	1.426	1.431	380
390	1.431	1.435	1.440	1.445	1.449	1.454	1.459	1.464	1.468	1.473	1.478	390
400	1.478	1.482	1.487	1.492	1.497	1.501	1.506	1.511	1.516	1.520	1.525	400
410	1.525	1.530	1.535	1.539	1.544	1.549	1.554	1.558	1.563	1.568	1.573	410
420	1.573	1.577	1.582	1.587	1.592	1.597	1.601	1.606	1.611	1.616	1.620	420
430	1.620	1.625	1.630	1.635	1.640	1.644	1.649	1.654	1.659	1.664	1.669	430
440	1.669	1.673	1.678	1.683	1.688	1.693	1.698	1.702	1.707	1.712	1.717	440
450	1.717	1.722	1.727	1.731	1.736	1.741	1.746	1.751	1.756	1.761	1.765	450
460	1.765	1.770	1.775	1.780	1.785	1.790	1.795	1.799	1.804	1.809	1.814	460
470	1.814	1.819	1.824	1.829	1.834	1.839	1.843	1.848	1.853	1.858	1.863	470
480	1.863	1.868	1.873	1.878	1.883	1.888	1.893	1.898	1.902	1.907	1.912	480
490	1.912	1.917	1.922	1.927	1.932	1.937	1.942	1.947	1.952	1.957	1.962	490
500	1.962	1.967	1.972	1.977	1.981	1.986	1.991	1.996	2.001	2.006	2.011	500
510	2.011	2.016	2.021	2.026	2.031	2.036	2.041	2.046	2.051	2.056	2.061	510
520	2.061	2.066	2.071	2.076	2.081	2.086	2.091	2.096	2.101	2.106	2.111	520
530	2.111	2.116	2.121	2.126	2.131	2.136	2.141	2.146	2.151	2.156	2.161	530
540	2.161	2.166	2.171	2.176	2.181	2.186	2.191	2.196	2.201	2.206	2.211	540
550	2.211	2.216	2.221	2.227	2.232	2.237	2.242	2.247	2.252	2.257	2.262	550
560	2.262	2.267	2.272	2.277	2.282	2.287	2.292	2.297	2.302	2.307	2.313	560
570	2.313	2.318	2.323	2.328	2.333	2.338	2.343	2.348	2.353	2.358	2.363	570
580	2.363	2.368	2.374	2.379	2.384	2.389	2.394	2.399	2.404	2.409	2.414	580
590	2.414	2.419	2.425	2.430	2.435	2.440	2.445	2.450	2.455	2.460	2.465	590
600	2.465	2.471	2.476	2.481	2.486	2.491	2.496	2.501	2.506	2.512	2.517	600
610	2.517	2.522	2.527	2.532	2.537	2.542	2.548	2.553	2.558	2.563	2.568	610
620	2.568	2.573	2.578	2.584	2.589	2.594	2.599	2.604	2.609	2.615	2.620	620
630	2.620	2.625	2.630	2.635	2.640	2.646	2.651	2.656	2.661	2.666	2.672	630
640	2.672	2.677	2.682	2.687	2.692	2.697	2.703	2.708	2.713	2.718	2.723	640
650	2.723	2.729	2.734	2.739	2.744	2.749	2.755	2.760	2.765	2.770	2.775	650
660	2.775	2.781	2.786	2.791	2.796	2.801	2.807	2.812	2.817	2.822	2.828	660
670	2.828	2.833	2.838	2.843	2.848	2.854	2.859	2.864	2.869	2.875	2.880	670
680	2.880	2.885	2.890	2.895	2.901	2.906	2.911	2.916	2.922	2.927	2.932	680
690	2.932	2.937	2.943	2.948	2.953	2.958	2.964	2.969	2.974	2.979	2.985	690
700	2.985	2.990	2.995	3.000	3.006	3.011	3.016	3.022	3.027	3.032	3.037	700
710	3.037	3.043	3.048	3.053	3.058	3.064	3.069	3.074	3.080	3.085	3.090	710
720	3.090	3.095	3.101	3.106	3.111	3.117	3.122	3.127	3.132	3.138	3.143	720
730	3.143	3.148	3.154	3.159	3.164	3.169	3.175	3.180	3.185	3.191	3.196	730
740	3.196	3.201	3.207	3.212	3.217	3.223	3.228	3.233	3.238	3.244	3.249	740
750	3.249	3.254	3.260	3.265	3.270	3.276	3.281	3.286	3.292	3.297	3.302	750
760	3.302	3.308	3.313	3.318	3.324	3.329	3.334	3.340	3.345	3.350	3.356	760
770	3.356	3.361	3.366	3.372	3.377	3.382	3.388	3.393	3.398	3.404	3.409	770
780	3.409	3.414	3.420	3.425	3.430	3.436	3.441	3.447	3.452	3.457	3.463	780
790	3.463	3.468	3.473	3.479	3.484	3.489	3.495	3.500	3.506	3.511	3.516	790
800	3.516	3.522	3.527	3.532	3.538	3.543	3.549	3.554	3.559	3.565	3.570	800
810	3.570	3.575	3.581	3.586	3.592	3.597	3.602	3.608	3.613	3.619	3.624	810
820	3.624	3.629	3.635	3.640	3.645	3.651	3.656	3.662	3.667	3.672	3.678	820

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Table 2-14. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
830	3.678	3.683	3.689	3.694	3.699	3.705	3.710	3.716	3.721	3.726	3.732	830
840	3.732	3.737	3.743	3.748	3.754	3.759	3.764	3.770	3.775	3.781	3.786	840
850	3.786	3.791	3.797	3.802	3.808	3.813	3.819	3.824	3.829	3.835	3.840	850
860	3.840	3.846	3.851	3.857	3.862	3.867	3.873	3.878	3.884	3.889	3.895	860
870	3.895	3.900	3.906	3.911	3.916	3.922	3.927	3.933	3.938	3.944	3.949	870
880	3.949	3.955	3.960	3.965	3.971	3.976	3.982	3.987	3.993	3.998	4.004	880
890	4.004	4.009	4.015	4.020	4.025	4.031	4.036	4.042	4.047	4.053	4.058	890
900	4.058	4.064	4.069	4.075	4.080	4.086	4.091	4.096	4.102	4.107	4.113	900
910	4.113	4.118	4.124	4.129	4.135	4.140	4.146	4.151	4.157	4.162	4.168	910
920	4.168	4.173	4.179	4.184	4.190	4.195	4.201	4.206	4.212	4.217	4.223	920
930	4.223	4.228	4.234	4.239	4.245	4.250	4.256	4.261	4.267	4.272	4.278	930
940	4.278	4.283	4.289	4.294	4.300	4.305	4.311	4.316	4.322	4.327	4.333	940
950	4.333	4.338	4.344	4.349	4.355	4.360	4.366	4.371	4.377	4.382	4.388	950
960	4.388	4.393	4.399	4.404	4.410	4.415	4.421	4.426	4.432	4.438	4.443	960
970	4.443	4.449	4.454	4.460	4.465	4.471	4.476	4.482	4.487	4.493	4.498	970
980	4.498	4.504	4.509	4.515	4.521	4.526	4.532	4.537	4.543	4.548	4.554	980
990	4.554	4.559	4.565	4.570	4.576	4.582	4.587	4.593	4.598	4.604	4.609	990
1000	4.609	4.615	4.620	4.626	4.632	4.637	4.643	4.648	4.654	4.659	4.665	1000
1010	4.665	4.670	4.676	4.682	4.687	4.693	4.698	4.704	4.709	4.715	4.721	1010
1020	4.721	4.726	4.732	4.737	4.743	4.748	4.754	4.760	4.765	4.771	4.776	1020
1030	4.776	4.782	4.788	4.793	4.799	4.804	4.810	4.815	4.821	4.827	4.832	1030
1040	4.832	4.838	4.843	4.849	4.855	4.860	4.866	4.871	4.877	4.883	4.888	1040
1050	4.888	4.894	4.899	4.905	4.911	4.916	4.922	4.927	4.933	4.939	4.944	1050
1060	4.944	4.950	4.956	4.961	4.967	4.972	4.978	4.984	4.989	4.995	5.000	1060
1070	5.000	5.006	5.012	5.017	5.023	5.029	5.034	5.040	5.045	5.051	5.057	1070
1080	5.057	5.062	5.068	5.074	5.079	5.085	5.090	5.096	5.102	5.107	5.113	1080
1090	5.113	5.119	5.124	5.130	5.136	5.141	5.147	5.153	5.158	5.164	5.169	1090
1100	5.169	5.175	5.181	5.186	5.192	5.198	5.203	5.209	5.215	5.220	5.226	1100
1110	5.226	5.232	5.237	5.243	5.249	5.254	5.260	5.266	5.271	5.277	5.283	1110
1120	5.283	5.288	5.294	5.300	5.305	5.311	5.317	5.322	5.328	5.334	5.339	1120
1130	5.339	5.345	5.351	5.356	5.362	5.368	5.373	5.379	5.385	5.391	5.396	1130
1140	5.396	5.402	5.408	5.413	5.419	5.425	5.430	5.436	5.442	5.447	5.453	1140
1150	5.453	5.459	5.465	5.470	5.476	5.482	5.487	5.493	5.499	5.504	5.510	1150
1160	5.510	5.516	5.522	5.527	5.533	5.539	5.544	5.550	5.556	5.562	5.567	1160
1170	5.567	5.573	5.579	5.585	5.590	5.596	5.602	5.608	5.613	5.619	5.625	1170
1180	5.625	5.631	5.636	5.642	5.648	5.653	5.659	5.665	5.671	5.676	5.682	1180
1190	5.682	5.688	5.694	5.700	5.705	5.711	5.717	5.723	5.728	5.734	5.740	1190
1200	5.740	5.746	5.751	5.757	5.763	5.769	5.774	5.780	5.786	5.792	5.797	1200
1210	5.797	5.803	5.809	5.815	5.821	5.826	5.832	5.838	5.844	5.849	5.855	1210
1220	5.855	5.861	5.867	5.873	5.878	5.884	5.890	5.896	5.902	5.907	5.913	1220
1230	5.913	5.919	5.925	5.931	5.936	5.942	5.948	5.954	5.960	5.965	5.971	1230
1240	5.971	5.977	5.983	5.989	5.994	6.000	6.006	6.012	6.018	6.023	6.029	1240
1250	6.029	6.035	6.041	6.047	6.052	6.058	6.064	6.070	6.076	6.082	6.087	1250
1260	6.087	6.093	6.099	6.105	6.111	6.117	6.122	6.128	6.134	6.140	6.146	1260
1270	6.146	6.152	6.157	6.163	6.169	6.175	6.181	6.187	6.192	6.198	6.204	1270
1280	6.204	6.210	6.216	6.222	6.227	6.233	6.239	6.245	6.251	6.257	6.263	1280
1290	6.263	6.268	6.274	6.280	6.286	6.292	6.298	6.304	6.309	6.315	6.321	1290
1300	6.321	6.327	6.333	6.339	6.345	6.350	6.356	6.362	6.368	6.374	6.380	1300
1310	6.380	6.386	6.392	6.397	6.403	6.409	6.415	6.421	6.427	6.433	6.439	1310
1320	6.439	6.445	6.450	6.456	6.462	6.468	6.474	6.480	6.486	6.492	6.498	1320
1330	6.498	6.503	6.509	6.515	6.521	6.527	6.533	6.539	6.545	6.551	6.557	1330
1340	6.557	6.562	6.568	6.574	6.580	6.586	6.592	6.598	6.604	6.610	6.616	1340
1350	6.616	6.622	6.627	6.633	6.639	6.645	6.651	6.657	6.663	6.669	6.675	1350

Table 2-14. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1360	6.675	6.681	6.687	6.693	6.699	6.704	6.710	6.716	6.722	6.728	6.734	1360
1370	6.734	6.740	6.746	6.752	6.758	6.764	6.770	6.776	6.782	6.788	6.794	1370
1380	6.794	6.800	6.805	6.811	6.817	6.823	6.829	6.835	6.841	6.847	6.853	1380
1390	6.853	6.859	6.865	6.871	6.877	6.883	6.889	6.895	6.901	6.907	6.913	1390
1400	6.913	6.919	6.925	6.931	6.937	6.943	6.948	6.954	6.960	6.966	6.972	1400
1410	6.972	6.978	6.984	6.990	6.996	7.002	7.008	7.014	7.020	7.026	7.032	1410
1420	7.032	7.038	7.044	7.050	7.056	7.062	7.068	7.074	7.080	7.086	7.092	1420
1430	7.092	7.098	7.104	7.110	7.116	7.122	7.128	7.134	7.140	7.146	7.152	1430
1440	7.152	7.158	7.164	7.170	7.176	7.182	7.188	7.194	7.200	7.206	7.212	1440
1450	7.212	7.218	7.224	7.230	7.236	7.242	7.248	7.254	7.260	7.266	7.272	1450
1460	7.272	7.278	7.285	7.291	7.297	7.303	7.309	7.315	7.321	7.327	7.333	1460
1470	7.333	7.339	7.345	7.351	7.357	7.363	7.369	7.375	7.381	7.387	7.393	1470
1480	7.393	7.399	7.405	7.411	7.417	7.423	7.429	7.436	7.442	7.448	7.454	1480
1490	7.454	7.460	7.466	7.472	7.478	7.484	7.490	7.496	7.502	7.508	7.514	1490
1500	7.514	7.520	7.526	7.533	7.539	7.545	7.551	7.557	7.563	7.569	7.575	1500
1510	7.575	7.581	7.587	7.593	7.599	7.605	7.612	7.618	7.624	7.630	7.636	1510
1520	7.636	7.642	7.648	7.654	7.660	7.666	7.672	7.679	7.685	7.691	7.697	1520
1530	7.697	7.703	7.709	7.715	7.721	7.727	7.733	7.740	7.746	7.752	7.758	1530
1540	7.758	7.764	7.770	7.776	7.782	7.788	7.795	7.801	7.807	7.813	7.819	1540
1550	7.819	7.825	7.831	7.837	7.843	7.850	7.856	7.862	7.868	7.874	7.880	1550
1560	7.880	7.886	7.892	7.899	7.905	7.911	7.917	7.923	7.929	7.935	7.942	1560
1570	7.942	7.948	7.954	7.960	7.966	7.972	7.978	7.985	7.991	7.997	8.003	1570
1580	8.003	8.009	8.015	8.021	8.028	8.034	8.040	8.046	8.052	8.058	8.065	1580
1590	8.065	8.071	8.077	8.083	8.089	8.095	8.101	8.108	8.114	8.120	8.126	1590
1600	8.126	8.132	8.138	8.145	8.151	8.157	8.163	8.169	8.176	8.182	8.188	1600
1610	8.188	8.194	8.200	8.206	8.213	8.219	8.225	8.231	8.237	8.244	8.250	1610
1620	8.250	8.256	8.262	8.268	8.275	8.281	8.287	8.293	8.299	8.305	8.312	1620
1630	8.312	8.318	8.324	8.330	8.336	8.343	8.349	8.355	8.361	8.368	8.374	1630
1640	8.374	8.380	8.386	8.392	8.399	8.405	8.411	8.417	8.423	8.430	8.436	1640
1650	8.436	8.442	8.448	8.455	8.461	8.467	8.473	8.479	8.486	8.492	8.498	1650
1660	8.498	8.504	8.511	8.517	8.523	8.529	8.536	8.542	8.548	8.554	8.560	1660
1670	8.560	8.567	8.573	8.579	8.585	8.592	8.598	8.604	8.610	8.617	8.623	1670
1680	8.623	8.629	8.635	8.642	8.648	8.654	8.660	8.667	8.673	8.679	8.685	1680
1690	8.685	8.692	8.698	8.704	8.711	8.717	8.723	8.729	8.736	8.742	8.748	1690
1700	8.748	8.754	8.761	8.767	8.773	8.780	8.786	8.792	8.798	8.805	8.811	1700
1710	8.811	8.817	8.823	8.830	8.836	8.842	8.849	8.855	8.861	8.867	8.874	1710
1720	8.874	8.880	8.886	8.893	8.899	8.905	8.912	8.918	8.924	8.930	8.937	1720
1730	8.937	8.943	8.949	8.956	8.962	8.968	8.975	8.981	8.987	8.993	9.000	1730
1740	9.000	9.006	9.012	9.019	9.025	9.031	9.038	9.044	9.050	9.057	9.063	1740
1750	9.063	9.069	9.076	9.082	9.088	9.095	9.101	9.107	9.114	9.120	9.126	1750
1760	9.126	9.133	9.139	9.145	9.152	9.158	9.164	9.171	9.177	9.183	9.190	1760
1770	9.190	9.196	9.202	9.209	9.215	9.221	9.228	9.234	9.240	9.247	9.253	1770
1780	9.253	9.259	9.266	9.272	9.278	9.285	9.291	9.298	9.304	9.310	9.317	1780
1790	9.317	9.323	9.329	9.336	9.342	9.348	9.355	9.361	9.368	9.374	9.380	1790
1800	9.380	9.387	9.393	9.399	9.406	9.412	9.419	9.425	9.431	9.438	9.444	1800
1810	9.444	9.450	9.457	9.463	9.470	9.476	9.482	9.489	9.495	9.502	9.508	1810
1820	9.508	9.514	9.521	9.527	9.533	9.540	9.546	9.553	9.559	9.565	9.572	1820
1830	9.572	9.578	9.585	9.591	9.598	9.604	9.610	9.617	9.623	9.630	9.636	1830
1840	9.636	9.642	9.649	9.655	9.662	9.668	9.674	9.681	9.687	9.694	9.700	1840
1850	9.700	9.707	9.713	9.719	9.726	9.732	9.739	9.745	9.752	9.758	9.764	1850
1860	9.764	9.771	9.777	9.784	9.790	9.797	9.803	9.809	9.816	9.822	9.829	1860
1870	9.829	9.835	9.842	9.848	9.855	9.861	9.867	9.874	9.880	9.887	9.893	1870
1880	9.893	9.900	9.906	9.913	9.919	9.926	9.932	9.938	9.945	9.951	9.958	1880

Technical Data Sheet

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Table 2-14. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1890	9.958	9.964	9.971	9.977	9.984	9.990	9.997	10.003	10.010	10.016	10.023	1890
1900	10.023	10.029	10.036	10.042	10.048	10.055	10.061	10.068	10.074	10.081	10.087	1900
1910	10.087	10.094	10.100	10.107	10.113	10.120	10.126	10.133	10.139	10.146	10.152	1910
1920	10.152	10.159	10.165	10.172	10.178	10.185	10.191	10.198	10.204	10.211	10.217	1920
1930	10.217	10.224	10.230	10.237	10.243	10.250	10.256	10.263	10.269	10.276	10.282	1930
1940	10.282	10.289	10.295	10.302	10.308	10.315	10.321	10.328	10.334	10.341	10.348	1940
1950	10.348	10.354	10.361	10.367	10.374	10.380	10.387	10.393	10.400	10.406	10.413	1950
1960	10.413	10.419	10.426	10.432	10.439	10.445	10.452	10.459	10.465	10.472	10.478	1960
1970	10.478	10.485	10.491	10.498	10.504	10.511	10.517	10.524	10.531	10.537	10.544	1970
1980	10.544	10.550	10.557	10.563	10.570	10.576	10.583	10.589	10.596	10.603	10.609	1980
1990	10.609	10.616	10.622	10.629	10.635	10.642	10.648	10.655	10.662	10.668	10.675	1990
2000	10.675	10.681	10.688	10.694	10.701	10.708	10.714	10.721	10.727	10.734	10.740	2000
2010	10.740	10.747	10.754	10.760	10.767	10.773	10.780	10.786	10.793	10.800	10.806	2010
2020	10.806	10.813	10.819	10.826	10.832	10.839	10.846	10.852	10.859	10.865	10.872	2020
2030	10.872	10.879	10.885	10.892	10.898	10.905	10.912	10.918	10.925	10.931	10.938	2030
2040	10.938	10.944	10.951	10.958	10.964	10.971	10.977	10.984	10.991	10.997	11.004	2040
2050	11.004	11.010	11.017	11.024	11.030	11.037	11.043	11.050	11.057	11.063	11.070	2050
2060	11.070	11.076	11.083	11.090	11.096	11.103	11.110	11.116	11.123	11.129	11.136	2060
2070	11.136	11.143	11.149	11.156	11.162	11.169	11.176	11.182	11.189	11.196	11.202	2070
2080	11.202	11.209	11.215	11.222	11.229	11.235	11.242	11.248	11.255	11.262	11.268	2080
2090	11.268	11.275	11.282	11.288	11.295	11.301	11.308	11.315	11.321	11.328	11.335	2090
32100	11.335	11.341	11.348	11.355	11.361	11.368	11.374	11.381	11.388	11.394	11.401	32100
2110	11.401	11.408	11.414	11.421	11.428	11.434	11.441	11.447	11.454	11.461	11.467	2110
2120	11.467	11.474	11.481	11.487	11.494	11.501	11.507	11.514	11.521	11.527	11.534	2120
2130	11.534	11.541	11.547	11.554	11.560	11.567	11.574	11.580	11.587	11.594	11.600	2130
2140	11.600	11.607	11.614	11.620	11.627	11.634	11.640	11.647	11.654	11.660	11.667	2140
2150	11.667	11.674	11.680	11.687	11.694	11.700	11.707	11.714	11.720	11.727	11.734	2150
2160	11.734	11.740	11.747	11.754	11.760	11.767	11.774	11.780	11.787	11.794	11.800	2160
2170	11.800	11.807	11.814	11.820	11.827	11.834	11.840	11.847	11.854	11.860	11.867	2170
2180	11.867	11.874	11.880	11.887	11.894	11.900	11.907	11.914	11.920	11.927	11.934	2180
2190	11.934	11.940	11.947	11.954	11.960	11.967	11.974	11.980	11.987	11.994	12.001	2190
2200	12.001	12.007	12.014	12.021	12.027	12.034	12.041	12.047	12.054	12.061	12.067	2200
2210	12.067	12.074	12.081	12.087	12.094	12.101	12.107	12.114	12.121	12.128	12.134	2210
2220	12.134	12.141	12.148	12.154	12.161	12.168	12.174	12.181	12.188	12.194	12.201	2220
2230	12.201	12.208	12.215	12.221	12.228	12.235	12.241	12.248	12.255	12.261	12.268	2230
2240	12.268	12.275	12.282	12.288	12.295	12.302	12.308	12.315	12.322	12.328	12.335	2240
2250	12.335	12.342	12.349	12.355	12.362	12.369	12.375	12.382	12.389	12.395	12.402	2250
2260	12.402	12.409	12.416	12.422	12.429	12.436	12.442	12.449	12.456	12.463	12.469	2260
2270	12.469	12.476	12.483	12.489	12.496	12.503	12.510	12.516	12.523	12.530	12.536	2270
2280	12.536	12.543	12.550	12.557	12.563	12.570	12.577	12.583	12.590	12.597	12.604	2280
2290	12.604	12.610	12.617	12.624	12.630	12.637	12.644	12.651	12.657	12.664	12.671	2290
2300	12.671	12.677	12.684	12.691	12.698	12.704	12.711	12.718	12.724	12.731	12.738	2300
2310	12.738	12.745	12.751	12.758	12.765	12.771	12.778	12.785	12.792	12.798	12.805	2310
2320	12.805	12.812	12.819	12.825	12.832	12.839	12.845	12.852	12.859	12.866	12.872	2320
2330	12.872	12.879	12.886	12.893	12.899	12.906	12.913	12.919	12.926	12.933	12.940	2330
2340	12.940	12.946	12.953	12.960	12.967	12.973	12.980	12.987	12.993	13.000	13.007	2340
2350	13.007	13.014	13.020	13.027	13.034	13.041	13.047	13.054	13.061	13.067	13.074	2350
2360	13.074	13.081	13.088	13.094	13.101	13.108	13.115	13.121	13.128	13.135	13.142	2360
2370	13.142	13.148	13.155	13.162	13.168	13.175	13.182	13.189	13.195	13.202	13.209	2370
2380	13.209	13.216	13.222	13.229	13.236	13.243	13.249	13.256	13.263	13.269	13.276	2380
2390	13.276	13.283	13.290	13.296	13.303	13.310	13.317	13.323	13.330	13.337	13.344	2390
2400	13.344	13.350	13.357	13.364	13.371	13.377	13.384	13.391	13.397	13.404	13.411	2400
2410	13.411	13.418	13.424	13.431	13.438	13.445	13.451	13.458	13.465	13.472	13.478	2410

Table 2-14. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
2420	13.478	13.485	13.492	13.499	13.505	13.512	13.519	13.526	13.532	13.539	13.546	2420
2430	13.546	13.552	13.559	13.566	13.573	13.579	13.586	13.593	13.600	13.606	13.613	2430
2440	13.613	13.620	13.627	13.633	13.640	13.647	13.654	13.660	13.667	13.674	13.681	2440
2450	13.681	13.687	13.694	13.701	13.708	13.714	13.721	13.728	13.734	13.741	13.748	2450
2460	13.748	13.755	13.761	13.768	13.775	13.782	13.788	13.795	13.802	13.809	13.815	2460
2470	13.815	13.822	13.829	13.836	13.842	13.849	13.856	13.863	13.869	13.876	13.883	2470
2480	13.883	13.890	13.896	13.903	13.910	13.916	13.923	13.930	13.937	13.943	13.950	2480
2490	13.950	13.957	13.964	13.970	13.977	13.984	13.991	13.997	14.004	14.011	14.018	2490
2500	14.018	14.024	14.031	14.038	14.045	14.051	14.058	14.065	14.072	14.078	14.085	2500
2510	14.085	14.092	14.098	14.105	14.112	14.119	14.125	14.132	14.139	14.146	14.152	2510
2520	14.152	14.159	14.166	14.173	14.179	14.186	14.193	14.200	14.206	14.213	14.220	2520
2530	14.220	14.226	14.233	14.240	14.247	14.253	14.260	14.267	14.274	14.280	14.287	2530
2540	14.287	14.294	14.301	14.307	14.314	14.321	14.328	14.334	14.341	14.348	14.354	2540
2550	14.354	14.361	14.368	14.375	14.381	14.388	14.395	14.402	14.408	14.415	14.422	2550
2560	14.422	14.429	14.435	14.442	14.449	14.455	14.462	14.469	14.476	14.482	14.489	2560
2570	14.489	14.496	14.503	14.509	14.516	14.523	14.530	14.536	14.543	14.550	14.556	2570
2580	14.556	14.563	14.570	14.577	14.583	14.590	14.597	14.604	14.610	14.617	14.624	2580
2590	14.624	14.631	14.637	14.644	14.651	14.657	14.664	14.671	14.678	14.684	14.691	2590
2600	14.691	14.698	14.705	14.711	14.718	14.725	14.731	14.738	14.745	14.752	14.758	2600
2610	14.758	14.765	14.772	14.778	14.785	14.792	14.799	14.805	14.812	14.819	14.826	2610
2620	14.826	14.832	14.839	14.846	14.852	14.859	14.866	14.873	14.879	14.886	14.893	2620
2630	14.893	14.899	14.906	14.913	14.920	14.926	14.933	14.940	14.946	14.953	14.960	2630
2640	14.960	14.967	14.973	14.980	14.987	14.994	15.000	15.007	15.014	15.020	15.027	2640
2650	15.027	15.034	15.041	15.047	15.054	15.061	15.067	15.074	15.081	15.088	15.094	2650
2660	15.094	15.101	15.108	15.114	15.121	15.128	15.134	15.141	15.148	15.155	15.161	2660
2670	15.161	15.168	15.175	15.181	15.188	15.195	15.202	15.208	15.215	15.222	15.228	2670
2680	15.228	15.235	15.242	15.248	15.255	15.262	15.269	15.275	15.282	15.289	15.295	2680
2690	15.295	15.302	15.309	15.315	15.322	15.329	15.336	15.342	15.349	15.356	15.362	2690
2700	15.362	15.369	15.376	15.382	15.389	15.396	15.403	15.409	15.416	15.423	15.429	2700
2710	15.429	15.436	15.443	15.449	15.456	15.463	15.469	15.476	15.483	15.490	15.496	2710
2720	15.496	15.503	15.510	15.516	15.523	15.530	15.536	15.543	15.550	15.556	15.563	2720
2730	15.563	15.570	15.576	15.583	15.590	15.597	15.603	15.610	15.617	15.623	15.630	2730
2740	15.630	15.637	15.643	15.650	15.657	15.663	15.670	15.677	15.683	15.690	15.697	2740
2750	15.697	15.703	15.710	15.717	15.723	15.730	15.737	15.743	15.750	15.757	15.763	2750
2760	15.763	15.770	15.777	15.783	15.790	15.797	15.804	15.810	15.817	15.824	15.830	2760
2770	15.830	15.837	15.844	15.850	15.857	15.864	15.870	15.877	15.883	15.890	15.897	2770
2780	15.897	15.903	15.910	15.917	15.923	15.930	15.937	15.943	15.950	15.957	15.963	2780
2790	15.963	15.970	15.977	15.983	15.990	15.997	16.003	16.010	16.017	16.023	16.030	2790
2800	16.030	16.037	16.043	16.050	16.057	16.063	16.070	16.077	16.083	16.090	16.096	2800
2810	16.096	16.103	16.110	16.116	16.123	16.130	16.136	16.143	16.150	16.156	16.163	2810
2820	16.163	16.170	16.176	16.183	16.189	16.196	16.203	16.209	16.216	16.223	16.229	2820
2830	16.229	16.236	16.243	16.249	16.256	16.262	16.269	16.276	16.282	16.289	16.296	2830
2840	16.296	16.302	16.309	16.315	16.322	16.329	16.335	16.342	16.349	16.355	16.362	2840
2850	16.362	16.368	16.375	16.382	16.388	16.395	16.402	16.408	16.415	16.421	16.428	2850
2860	16.428	16.435	16.441	16.448	16.454	16.461	16.468	16.474	16.481	16.488	16.494	2860
2870	16.494	16.501	16.507	16.514	16.521	16.527	16.534	16.540	16.547	16.554	16.560	2870
2880	16.560	16.567	16.573	16.580	16.587	16.593	16.600	16.606	16.613	16.620	16.626	2880
2890	16.626	16.633	16.639	16.646	16.653	16.659	16.666	16.672	16.679	16.686	16.692	2890
2900	16.692	16.699	16.705	16.712	16.719	16.725	16.732	16.738	16.745	16.751	16.758	2900
2910	16.758	16.765	16.771	16.778	16.784	16.791	16.797	16.804	16.811	16.817	16.824	2910
2920	16.824	16.830	16.837	16.844	16.850	16.857	16.863	16.870	16.876	16.883	16.890	2920
2930	16.890	16.896	16.903	16.909	16.916	16.922	16.929	16.935	16.942	16.949	16.955	2930
2940	16.955	16.962	16.968	16.975	16.981	16.988	16.995	17.001	17.008	17.014	17.021	2940

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Table 2-14. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
2950	17.021	17.027	17.034	17.040	17.047	17.053	17.060	17.067	17.073	17.080	17.086	2950
2960	17.086	17.093	17.099	17.106	17.112	17.119	17.125	17.132	17.139	17.145	17.152	2960
2970	17.152	17.158	17.165	17.171	17.178	17.184	17.191	17.197	17.204	17.210	17.217	2970
2980	17.217	17.223	17.230	17.237	17.243	17.250	17.256	17.263	17.269	17.276	17.282	2980
2990	17.282	17.289	17.295	17.302	17.308	17.315	17.321	17.328	17.334	17.341	17.347	2990
3000	17.347	17.354	17.360	17.367	17.373	17.380	17.386	17.393	17.399	17.406	17.412	3000
3010	17.412	17.419	17.425	17.432	17.438	17.445	17.451	17.458	17.464	17.471	17.477	3010
3020	17.477	17.484	17.490	17.497	17.503	17.510	17.516	17.523	17.529	17.536	17.542	3020
3030	17.542	17.549	17.555	17.562	17.568	17.575	17.581	17.588	17.594	17.601	17.607	3030
3040	17.607	17.614	17.620	17.627	17.633	17.639	17.646	17.652	17.659	17.665	17.672	3040
3050	17.672	17.678	17.685	17.691	17.698	17.704	17.711	17.717	17.723	17.730	17.736	3050
3060	17.736	17.743	17.749	17.756	17.762	17.769	17.775	17.781	17.788	17.794	17.801	3060
3070	17.801	17.807	17.814	17.820	17.826	17.833	17.839	17.846	17.852	17.859	17.865	3070
3080	17.865	17.871	17.878	17.884	17.891	17.897	17.903	17.910	17.916	17.923	17.929	3080
3090	17.929	17.935	17.942	17.948	17.954	17.961	17.967	17.974	17.980	17.986	17.993	3090
3100	17.993	17.999	18.005	18.012	18.018	18.024	18.031	18.037	18.043	18.050	18.056	3100
3110	18.056	18.063	18.069	18.075	18.081	18.088	18.094	18.100	18.107	18.113	18.119	3110
3120	18.119	18.126	18.132	18.138	18.145	18.151	18.157	18.163	18.170	18.176	18.182	3120
3130	18.182	18.189	18.195	18.201	18.207	18.214	18.220	18.226	18.232	18.239	18.245	3130
3140	18.245	18.251	18.257	18.264	18.270	18.276	18.282	18.289	18.295	18.301	18.307	3140
3150	18.307	18.313	18.320	18.326	18.332	18.338	18.344	18.351	18.357	18.363	18.369	3150
3160	18.369	18.375	18.381	18.388	18.394	18.400	18.406	18.412	18.418	18.424	18.431	3160
3170	18.431	18.437	18.443	18.449	18.455	18.461	18.467	18.473	18.479	18.486	18.492	3170
3180	18.492	18.498	18.504	18.510	18.516	18.522	18.528	18.534	18.540	18.546	18.552	3180
3190	18.552	18.558	18.564	18.570	18.576	18.582	18.588	18.594	18.600	18.606	18.612	3190
3200	18.612	18.618	18.624	18.630	18.636	18.642	18.648	18.654	18.660	18.666	18.672	3200
3210	18.672	18.678	18.684	18.690	18.696							3210

T/C TYPE T - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°C) Reference Junctions at 0 °C

Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-15. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-270	-6.258	-6.256	-6.255	-6.253	-6.251	-6.248	-6.245	-6.242	-6.239	-6.236	-6.232	-270
-260	-6.232	-6.228	-6.224	-6.219	-6.214	-6.209	-6.204	-6.198	-6.193	-6.187	-6.181	-260
-250	-6.181	-6.174	-6.167	-6.160	-6.153	-6.146	-6.138	-6.130	-6.122	-6.114	-6.105	-250
-240	-6.105	-6.096	-6.087	-6.078	-6.068	-6.059	-6.049	-6.039	-6.028	-6.018	-6.007	-240
-230	-6.007	-5.996	-5.985	-5.973	-5.962	-5.950	-5.938	-5.926	-5.914	-5.901	-5.889	-230
-220	-5.889	-5.876	-5.863	-5.850	-5.836	-5.823	-5.809	-5.795	-5.782	-5.767	-5.753	-220
-210	-5.753	-5.739	-5.724	-5.710	-5.695	-5.680	-5.665	-5.650	-5.634	-5.619	-5.603	-210
-200	-5.603	-5.587	-5.571	-5.555	-5.539	-5.522	-5.506	-5.489	-5.473	-5.456	-5.439	-200
-190	-5.439	-5.421	-5.404	-5.387	-5.369	-5.351	-5.333	-5.315	-5.297	-5.279	-5.261	-190
-180	-5.261	-5.242	-5.223	-5.205	-5.186	-5.167	-5.147	-5.128	-5.109	-5.089	-5.069	-180
-170	-5.069	-5.050	-5.030	-5.010	-4.989	-4.969	-4.948	-4.928	-4.907	-4.886	-4.865	-170
-160	-4.865	-4.844	-4.823	-4.801	-4.780	-4.758	-4.737	-4.715	-4.693	-4.670	-4.648	-160
-150	-4.648	-4.626	-4.603	-4.581	-4.558	-4.535	-4.512	-4.489	-4.466	-4.442	-4.419	-150
-140	-4.419	-4.395	-4.371	-4.347	-4.323	-4.299	-4.275	-4.251	-4.226	-4.202	-4.177	-140
-130	-4.177	-4.152	-4.127	-4.102	-4.077	-4.051	-4.026	-4.000	-3.974	-3.949	-3.923	-130
-120	-3.923	-3.897	-3.870	-3.844	-3.818	-3.791	-3.764	-3.737	-3.711	-3.684	-3.656	-120
-110	-3.656	-3.629	-3.602	-3.574	-3.547	-3.519	-3.491	-3.463	-3.435	-3.407	-3.378	-110

Table 2-15. Thermoelectric Voltage in Absolute Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-100	-3.378	-3.350	-3.321	-3.293	-3.264	-3.235	-3.206	-3.177	-3.147	-3.118	-3.089	-100
-90	-3.089	-3.059	-3.029	-2.999	-2.970	-2.939	-2.909	-2.879	-2.849	-2.818	-2.788	-90
-80	-2.788	-2.757	-2.726	-2.695	-2.664	-2.633	-2.602	-2.570	-2.539	-2.507	-2.475	-80
-70	-2.475	-2.444	-2.412	-2.380	-2.348	-2.315	-2.283	-2.250	-2.218	-2.185	-2.152	-70
-60	-2.152	-2.120	-2.087	-2.053	-2.020	-1.987	-1.953	-1.920	-1.886	-1.853	-1.819	-60
-50	-1.819	-1.785	-1.751	-1.717	-1.682	-1.648	-1.614	-1.579	-1.544	-1.510	-1.475	-50
-40	-1.475	-1.440	-1.405	-1.370	-1.334	-1.299	-1.263	-1.228	-1.192	-1.157	-1.121	-40
-30	-1.121	-1.085	-1.049	-1.013	-0.976	-0.940	-0.903	-0.867	-0.830	-0.794	-0.757	-30
-20	-0.757	-0.720	-0.683	-0.646	-0.608	-0.571	-0.534	-0.496	-0.458	-0.421	-0.383	-20
-10	-0.383	-0.345	-0.307	-0.269	-0.231	-0.193	-0.154	-0.116	-0.077	-0.039	0.000	-10
0	0.000	0.039	0.078	0.117	0.156	0.195	0.234	0.273	0.312	0.351	0.391	0
10	0.391	0.430	0.470	0.510	0.549	0.589	0.629	0.669	0.709	0.749	0.789	10
20	0.789	0.830	0.870	0.911	0.951	0.992	1.032	1.073	1.114	1.155	1.196	20
30	1.196	1.237	1.279	1.320	1.361	1.403	1.444	1.486	1.528	1.569	1.611	30
40	1.611	1.653	1.695	1.738	1.780	1.822	1.865	1.907	1.950	1.992	2.035	40
50	2.035	2.078	2.121	2.164	2.207	2.250	2.294	2.337	2.380	2.424	2.467	50
60	2.467	2.511	2.555	2.599	2.643	2.687	2.731	2.775	2.819	2.864	2.908	60
70	2.908	2.953	2.997	3.042	3.087	3.131	3.176	3.221	3.266	3.312	3.357	70
80	3.357	3.402	3.447	3.493	3.538	3.584	3.630	3.676	3.721	3.767	3.813	80
90	3.813	3.859	3.906	3.952	3.998	4.044	4.091	4.137	4.184	4.231	4.277	90
100	4.277	4.324	4.371	4.418	4.465	4.512	4.559	4.607	4.654	4.701	4.749	100
110	4.749	4.796	4.844	4.891	4.939	4.987	5.035	5.083	5.131	5.179	5.227	110
120	5.227	5.275	5.324	5.372	5.420	5.469	5.517	5.566	5.615	5.663	5.712	120
130	5.712	5.761	5.810	5.859	5.908	5.957	6.007	6.056	6.105	6.155	6.204	130
140	6.204	6.254	6.303	6.353	6.403	6.452	6.502	6.552	6.602	6.652	6.702	140
150	6.702	6.753	6.803	6.853	6.903	6.954	7.004	7.055	7.106	7.156	7.207	150
160	7.207	7.258	7.309	7.360	7.411	7.462	7.513	7.564	7.615	7.666	7.718	160
170	7.718	7.769	7.821	7.872	7.924	7.975	8.027	8.079	8.131	8.183	8.235	170
180	8.235	8.287	8.339	8.391	8.443	8.495	8.548	8.600	8.652	8.705	8.757	180
190	8.757	8.810	8.863	8.915	8.968	9.021	9.074	9.127	9.180	9.233	9.286	190
200	9.286	9.339	9.392	9.446	9.499	9.553	9.606	9.659	9.713	9.767	9.820	200
210	9.820	9.874	9.928	9.982	10.036	10.090	10.144	10.198	10.252	10.306	10.360	210
220	10.360	10.414	10.469	10.523	10.578	10.632	10.687	10.741	10.796	10.851	10.905	220
230	10.905	10.960	11.015	11.070	11.125	11.180	11.235	11.290	11.345	11.401	11.456	230
240	11.456	11.511	11.566	11.622	11.677	11.733	11.788	11.844	11.900	11.956	12.011	240
250	12.011	12.067	12.123	12.179	12.235	12.291	12.347	12.403	12.459	12.515	12.572	250
260	12.572	12.628	12.684	12.741	12.797	12.854	12.910	12.967	13.024	13.080	13.137	260
270	13.137	13.194	13.251	13.307	13.364	13.421	13.478	13.535	13.592	13.650	13.707	270
280	13.707	13.764	13.821	13.879	13.936	13.993	14.051	14.108	14.166	14.223	14.281	280
290	14.281	14.339	14.396	14.454	14.512	14.570	14.628	14.686	14.744	14.802	14.860	290
300	14.860	14.918	14.976	15.034	15.092	15.151	15.209	15.267	15.326	15.384	15.443	300
310	15.443	15.501	15.560	15.619	15.677	15.736	15.795	15.853	15.912	15.971	16.030	310
320	16.030	16.089	16.148	16.207	16.266	16.325	16.384	16.444	16.503	16.562	16.621	320
330	16.621	16.681	16.740	16.800	16.859	16.919	16.978	17.038	17.097	17.157	17.217	330
340	17.217	17.277	17.336	17.396	17.456	17.516	17.576	17.636	17.696	17.756	17.816	340
350	17.816	17.877	17.937	17.997	18.057	18.118	18.178	18.238	18.299	18.359	18.420	350
360	18.420	18.480	18.541	18.602	18.662	18.723	18.784	18.845	18.905	18.966	19.027	360
370	19.027	19.088	19.149	19.210	19.271	19.332	19.393	19.455	19.516	19.577	19.638	370
380	19.638	19.699	19.761	19.822	19.883	19.945	20.006	20.068	20.129	20.191	20.252	380
390	20.252	20.314	20.376	20.437	20.499	20.560	20.622	20.684	20.746	20.807	20.869	390

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T/C TYPE T - THERMOELECTRIC VOLTAGE

as a Function of Temperature (°F) Reference Junctions at 32 °F
Reference Standard: NBS Monograph 125 and BS 4937 parts 1-7

Table 2-16. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-460							-6.258	-6.257	-6.256	-6.255	-6.254	-460
-450	-6.254	-6.253	-6.252	-6.251	-6.250	-6.248	-6.247	-6.245	-6.243	-6.242	-6.240	-450
-440	-6.240	-6.238	-6.236	-6.234	-6.232	-6.230	-6.227	-6.225	-6.223	-6.220	-6.217	-440
-430	-6.217	-6.215	-6.212	-6.209	-6.206	-6.203	-6.200	-6.197	-6.194	-6.191	-6.187	-430
-420	-6.187	-6.184	-6.181	-6.177	-6.173	-6.170	-6.166	-6.162	-6.158	-6.154	-6.150	-420
-410	-6.150	-6.146	-6.142	-6.137	-6.133	-6.128	-6.124	-6.119	-6.115	-6.110	-6.105	-410
-400	-6.105	-6.100	-6.095	-6.090	-6.085	-6.080	-6.075	-6.069	-6.064	-6.059	-6.053	-400
-390	-6.053	-6.048	-6.042	-6.036	-6.030	-6.025	-6.019	-6.013	-6.007	-6.001	-5.995	-390
-380	-5.995	-5.988	-5.982	-5.976	-5.969	-5.963	-5.957	-5.950	-5.943	-5.937	-5.930	-380
-370	-5.930	-5.923	-5.916	-5.910	-5.903	-5.896	-5.889	-5.881	-5.874	-5.867	-5.860	-370
-360	-5.860	-5.853	-5.845	-5.838	-5.830	-5.823	-5.815	-5.808	-5.800	-5.792	-5.785	-360
-350	-5.785	-5.777	-5.769	-5.761	-5.753	-5.745	-5.737	-5.729	-5.721	-5.713	-5.705	-350
-340	-5.705	-5.697	-5.688	-5.680	-5.672	-5.663	-5.655	-5.646	-5.638	-5.629	-5.620	-340
-330	-5.620	-5.612	-5.603	-5.594	-5.585	-5.576	-5.568	-5.559	-5.550	-5.541	-5.532	-330
-320	-5.532	-5.522	-5.513	-5.504	-5.495	-5.486	-5.476	-5.467	-5.457	-5.448	-5.439	-320
-310	-5.439	-5.429	-5.419	-5.410	-5.400	-5.390	-5.381	-5.371	-5.361	-5.351	-5.341	-310
-300	-5.341	-5.331	-5.321	-5.311	-5.301	-5.291	-5.281	-5.271	-5.261	-5.250	-5.240	-300
-290	-5.240	-5.230	-5.219	-5.209	-5.198	-5.188	-5.177	-5.167	-5.156	-5.145	-5.135	-290
-280	-5.135	-5.124	-5.113	-5.102	-5.091	-5.080	-5.069	-5.058	-5.047	-5.036	-5.025	-280
-270	-5.025	-5.014	-5.003	-4.992	-4.980	-4.969	-4.958	-4.946	-4.935	-4.923	-4.912	-270
-260	-4.912	-4.900	-4.889	-4.877	-4.865	-4.853	-4.842	-4.830	-4.818	-4.806	-4.794	-260
-250	-4.794	-4.782	-4.770	-4.758	-4.746	-4.734	-4.722	-4.710	-4.698	-4.685	-4.673	-250
-240	-4.673	-4.661	-4.648	-4.636	-4.623	-4.611	-4.598	-4.586	-4.573	-4.560	-4.548	-240
-230	-4.548	-4.535	-4.522	-4.509	-4.497	-4.484	-4.471	-4.458	-4.445	-4.432	-4.419	-230
-220	-4.419	-4.406	-4.392	-4.379	-4.366	-4.353	-4.339	-4.326	-4.313	-4.299	-4.286	-220
-210	-4.286	-4.272	-4.259	-4.245	-4.232	-4.218	-4.204	-4.191	-4.177	-4.163	-4.149	-210
-200	-4.149	-4.135	-4.121	-4.107	-4.093	-4.079	-4.065	-4.051	-4.037	-4.023	-4.009	-200
-190	-4.009	-3.994	-3.980	-3.966	-3.951	-3.937	-3.923	-3.908	-3.894	-3.879	-3.864	-190
-180	-3.864	-3.850	-3.835	-3.820	-3.806	-3.791	-3.776	-3.761	-3.746	-3.732	-3.717	-180
-170	-3.717	-3.702	-3.687	-3.671	-3.656	-3.641	-3.626	-3.611	-3.596	-3.580	-3.565	-170
-160	-3.565	-3.550	-3.534	-3.519	-3.503	-3.488	-3.472	-3.457	-3.441	-3.425	-3.410	-160
-150	-3.410	-3.394	-3.378	-3.362	-3.347	-3.361	-3.315	-3.299	-3.283	-3.267	-3.251	-150
-140	-3.251	-3.235	-3.219	-3.203	-3.186	-3.170	-3.154	-3.138	-3.121	-3.105	-3.089	-140
-130	-3.089	-3.072	-3.056	-3.039	-3.023	-3.006	-2.989	-2.973	-2.956	-2.939	-2.923	-130
-120	-2.923	-2.906	-2.889	-2.872	-2.855	-2.838	-2.822	-2.805	-2.788	-2.771	-2.753	-120
-110	-2.753	-2.736	-2.719	-2.702	-2.685	-2.667	-2.650	-2.633	-2.616	-2.598	-2.581	-110
-100	-2.581	-2.563	-2.546	-2.528	-2.511	-2.493	-2.475	-2.458	-2.440	-2.422	-2.405	-100
-90	-2.405	-2.387	-2.369	-2.351	-2.333	-2.315	-2.297	-2.279	-2.261	-2.243	-2.225	-90
-80	-2.225	-2.207	-2.189	-2.171	-2.152	-2.134	-2.116	-2.098	-2.079	-2.061	-2.042	-80
-70	-2.042	-2.024	-2.005	-1.987	-1.968	-1.950	-1.931	-1.912	-1.894	-1.875	-1.856	-70
-60	-1.856	-1.838	-1.819	-1.800	-1.781	-1.762	-1.743	-1.724	-1.705	-1.686	-1.667	-60
-50	-1.667	-1.648	-1.629	-1.610	-1.591	-1.571	-1.552	-1.533	-1.513	-1.494	-1.475	-50
-40	-1.475	-1.455	-1.436	-1.416	-1.397	-1.377	-1.358	-1.338	-1.319	-1.299	-1.279	-40
-30	-1.279	-1.260	-1.240	-1.220	-1.200	-1.180	-1.160	-1.141	-1.121	-1.101	-1.081	-30
-20	-1.081	-1.061	-1.041	-1.021	-1.000	-0.980	-0.960	-0.940	-0.920	-0.899	-0.879	-20
-10	-0.879	-0.859	-0.838	-0.818	-0.798	-0.777	-0.757	-0.736	-0.716	-0.695	-0.674	-10
0	-0.674	-0.654	-0.633	-0.613	-0.592	-0.571	-0.550	-0.529	-0.509	-0.488	-0.467	0

Table 2-16. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
10	-0.467	-0.446	-0.425	-0.404	-0.383	-0.362	-0.341	-0.320	-0.299	-0.277	-0.256	10
20	-0.256	-0.235	-0.214	-0.193	-0.171	-0.150	-0.129	-0.107	-0.086	-0.064	-0.043	20
30	-0.043	-0.022	0.000	0.022	0.043	0.065	0.086	0.108	0.130	0.151	0.173	30
40	0.173	0.195	0.216	0.238	0.260	0.282	0.303	0.325	0.347	0.369	0.391	40
50	0.391	0.413	0.435	0.457	0.479	0.501	0.523	0.545	0.567	0.589	0.611	50
60	0.611	0.634	0.656	0.678	0.700	0.722	0.745	0.767	0.789	0.812	0.834	60
70	0.834	0.857	0.879	0.902	0.924	0.947	0.969	0.992	1.014	1.037	1.060	70
80	1.060	1.082	1.105	1.128	1.151	1.173	1.196	1.219	1.242	1.265	1.288	80
90	1.288	1.311	1.334	1.357	1.380	1.403	1.426	1.449	1.472	1.495	1.518	90
100	1.518	1.542	1.565	1.588	1.611	1.635	1.658	1.681	1.705	1.728	1.752	100
110	1.752	1.775	1.799	1.822	1.846	1.869	1.893	1.917	1.940	1.964	1.988	110
120	1.988	2.011	2.035	2.059	2.083	2.107	2.131	2.154	2.178	2.202	2.226	120
130	2.226	2.250	2.274	2.298	2.322	2.347	2.371	2.395	2.419	2.443	2.467	130
140	2.467	2.492	2.516	2.540	2.565	2.589	2.613	2.638	2.662	2.687	2.711	140
150	2.711	2.736	2.760	2.785	2.809	2.834	2.859	2.883	2.908	2.933	2.958	150
160	2.958	2.982	3.007	3.032	3.057	3.082	3.107	3.131	3.156	3.181	3.206	160
170	3.206	3.231	3.256	3.281	3.307	3.332	3.357	3.382	3.407	3.432	3.458	170
180	3.458	3.483	3.508	3.533	3.559	3.584	3.609	3.635	3.660	3.686	3.711	180
190	3.711	3.737	3.762	3.788	3.813	3.839	3.864	3.890	3.916	3.941	3.967	190
200	3.967	3.993	4.019	4.044	4.070	4.096	4.122	4.148	4.174	4.199	4.225	200
210	4.225	4.251	4.277	4.303	4.329	4.355	4.381	4.408	4.434	4.460	4.486	210
220	4.486	4.512	4.538	4.565	4.591	4.617	4.643	4.670	4.696	4.722	4.749	220
230	4.749	4.775	4.801	4.828	4.854	4.881	4.907	4.934	4.960	4.987	5.014	230
240	5.014	5.040	5.067	5.093	5.120	5.147	5.174	5.200	5.227	5.254	5.281	240
250	5.281	5.307	5.334	5.361	5.388	5.415	5.442	5.469	5.496	5.523	5.550	250
260	5.550	5.577	5.604	5.631	5.658	5.685	5.712	5.739	5.767	5.794	5.821	260
270	5.821	5.848	5.875	5.903	5.930	5.957	5.985	6.012	6.039	6.067	6.094	270
280	6.094	6.122	6.149	6.177	6.204	6.232	6.259	6.287	6.314	6.342	6.369	280
290	6.369	6.397	6.425	6.452	6.480	6.508	6.536	6.563	6.591	6.619	6.647	290
300	6.647	6.675	6.702	6.730	6.758	6.786	6.814	6.842	6.870	6.898	6.926	300
310	6.926	6.954	6.982	7.010	7.038	7.066	7.094	7.122	7.151	7.179	7.207	310
320	7.207	7.235	7.263	7.292	7.320	7.348	7.377	7.405	7.433	7.462	7.490	320
330	7.490	7.518	7.547	7.575	7.604	7.632	7.661	7.689	7.718	7.746	7.775	330
340	7.775	7.804	7.832	7.861	7.889	7.918	7.947	7.975	8.004	8.033	8.062	340
350	8.062	8.090	8.119	8.148	8.177	8.206	8.235	8.264	8.292	8.321	8.350	350
360	8.350	8.379	8.408	8.437	8.466	8.495	8.524	8.553	8.583	8.612	8.641	360
370	8.641	8.670	8.699	8.728	8.757	8.787	8.816	8.845	8.874	8.904	8.933	370
380	8.933	8.962	8.992	9.021	9.050	9.080	9.109	9.139	9.168	9.198	9.227	380
390	9.227	9.257	9.286	9.316	9.345	9.375	9.404	9.434	9.464	9.493	9.523	390
400	9.523	9.553	9.582	9.612	9.642	9.671	9.701	9.731	9.761	9.791	9.820	400
410	9.820	9.850	9.880	9.910	9.940	9.970	10.000	10.030	10.060	10.090	10.120	410
420	10.120	10.150	10.180	10.210	10.240	10.270	10.300	10.330	10.360	10.390	10.420	420
430	10.420	10.451	10.481	10.511	10.541	10.572	10.602	10.632	10.662	10.693	10.723	430
440	10.723	10.753	10.784	10.814	10.845	10.875	10.905	10.936	10.966	10.997	11.027	440
450	11.027	11.058	11.088	11.119	11.149	11.180	11.211	11.241	11.272	11.302	11.333	450
460	11.333	11.364	11.394	11.425	11.456	11.487	11.517	11.548	11.579	11.610	11.640	460
470	11.640	11.671	11.702	11.733	11.764	11.795	11.826	11.856	11.887	11.918	11.949	470
480	11.949	11.980	12.011	12.042	12.073	12.104	12.135	12.166	12.198	12.229	12.260	480
490	12.260	12.291	12.322	12.353	12.384	12.416	12.447	12.478	12.509	12.540	12.572	490
500	12.572	12.603	12.634	12.666	12.697	12.728	12.760	12.791	12.822	12.854	12.885	500
510	12.885	12.917	12.948	12.979	13.011	13.042	13.074	13.105	13.137	13.168	13.200	510
520	13.200	13.232	13.263	13.295	13.326	13.358	13.390	13.421	13.453	13.485	13.516	520
530	13.516	13.548	13.580	13.611	13.643	13.675	13.707	13.739	13.770	13.802	13.834	530

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Table 2-16. Thermoelectric Voltage in Absolute Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
540	13.834	13.866	13.898	13.930	13.961	13.993	14.025	14.057	14.089	14.121	14.153	540
550	14.153	14.185	14.217	14.249	14.281	14.313	14.345	14.377	14.409	14.441	14.474	550
560	14.474	14.506	14.538	14.570	14.602	14.634	14.666	14.699	14.731	14.763	14.795	560
570	14.795	14.828	14.860	14.892	14.924	14.957	14.989	15.021	15.054	15.086	15.118	570
580	15.118	15.151	15.183	15.216	15.248	15.280	15.313	15.345	15.378	15.410	15.443	580
590	15.443	15.475	15.508	15.540	15.573	15.605	15.638	15.671	15.703	15.736	15.769	590
600	15.769	15.801	15.834	15.866	15.899	15.932	15.965	15.997	16.030	16.063	16.096	600
610	16.096	16.128	16.161	16.194	16.227	16.259	16.292	16.325	16.358	16.391	16.424	610
620	16.424	16.457	16.490	16.523	16.555	16.588	16.621	16.654	16.687	16.720	16.753	620
630	16.753	16.786	16.819	16.852	16.886	16.919	16.952	16.985	17.018	17.051	17.084	630
640	17.084	17.117	17.150	17.184	17.217	17.250	17.283	17.316	17.350	17.383	17.416	640
650	17.416	17.450	17.483	17.516	17.549	17.583	17.616	17.649	17.683	17.716	17.750	650
660	17.750	17.783	17.816	17.850	17.883	17.917	17.950	17.984	18.017	18.051	18.084	660
670	18.084	18.118	18.151	18.185	18.218	18.252	18.285	18.319	18.353	18.386	18.420	670
680	18.420	18.454	18.487	18.521	18.555	18.588	18.622	18.656	18.689	18.723	18.757	680
690	18.757	18.791	18.824	18.858	18.892	18.926	18.960	18.993	19.027	19.061	19.095	690
700	19.095	19.129	19.163	19.197	19.230	19.264	19.298	19.332	19.366	19.400	19.434	700
710	19.434	19.468	19.502	19.536	19.570	19.604	19.638	19.672	19.706	19.740	19.774	710
720	19.774	19.808	19.843	19.877	19.911	19.945	19.979	20.013	20.047	20.081	20.116	720
730	20.116	20.150	20.184	20.218	20.252	20.287	20.321	20.355	20.389	20.423	20.458	730
740	20.458	20.492	20.526	20.560	20.595	20.629	20.663	20.698	20.732	20.766	20.801	740
750	20.801	20.835	20.869									750

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Section 3 Wire

Table 3-1. Thermocouple Wire Identification

ANSI Code	Alloy Combination		Color Coding	DIN 4
	+Lead	-Lead		
B	Platinum-30% Rhodium Pt-30% Rh	Platinum-6% Rhodium Pt-6% Rh	None Established	
E	Chromel Nickel-Chromium Ni-Cr	Constantan Copper-Nickel Cu-Ni	+Purple -Red	
J	Iron Fe	Constantan Copper-Nickel Cu-Ni	+White -Red	+Red -Blue
K	Chromel Nickel-Chromium Ni-Cr	Alumel Nickel-Alumel Ni-Al	+Yellow -Red	+Red -Green
N ⁽¹⁾	Omega-P™ Nicrosil Ni-Cr-Si	Omega-N™ NISIL Ni-Si-Mg	+Orange -Red	
R	Platinum-13% Rhodium Pt-13% Rh	Platinum Pt	None Established	
S	Platinum-10% Rhodium Pt-10% Rh	Platinum Pt	None Established	+Red ⁽²⁾ -White ⁽²⁾
T	Copper Cu	Constantan Copper-Nickel Cu-Ni	+Blue -Red	+Red -Brown

(1) Not Official Symbol or Standard

(2) Extension Grade

Table 3-2. Resistance vs. Wire Diameter

Resistance in Ohms per Double Foot at 68 °F							
AWG No.	Diameter (Inches)	Type K Chromel/Alumel	Type J Iron/Constantan	Type T Copper/Constantan	Type E Chromel/Constantan	Type S Pt/Pt10% Rh	Type R Pt/Pt13% Rh
6	0.162	0.023	0.014	0.012	0.027	0.007	0.007
8	0.128	0.037	0.022	0.019	0.044	0.011	0.011
10	0.102	0.058	0.034	0.029	0.069	0.018	0.018
12	0.081	0.091	0.054	0.046	0.109	0.028	0.029
14	0.064	0.146	0.087	0.074	0.175	0.045	0.047
16	0.051	0.230	0.137	0.117	0.276	0.071	0.073
18	0.040	0.374	0.222	0.190	0.448	0.116	0.119
20	0.032	0.586	0.357	0.298	0.707	0.185	0.190
24	0.0201	1.490	0.878	0.7526	1.78	0.464	0.478
26	0.0159	2.381	1.405	1.204	2.836	0.740	0.760
30	0.0100	5.984	3.551	3.043	7.169	1.85	1.91
32	0.0080	9.524	5.599	4.758	11.31	1.96	3.04
34	0.0063	15.17	8.946	7.66	18.09	4.66	4.82
36	0.0050	24.08	14.20	12.17	28.76	7.40	7.64
38	0.0039	38.20	23.35	19.99	45.41	11.6	11.95
40	0.00315	60.88	37.01	31.64	73.57	18.6	19.3
44	0.0020	149.6	88.78	76.09	179.2	74.0	76.5
50	0.0010	598.4	355.1	304.3	716.9	185	191
56	0.00049	2408	1420	1217	2816	740	764

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Table 3-3. Wire Table, Standard Annealed Copper

American Wire Gage English Units			
Gage No. A.W.G.	Diameter in Mils at 20°C	Ohms per 1000 ft ⁽¹⁾ at 20°C (68°F)	Feet per Ohm ⁽²⁾ at 20°C (68°F)
0000	460.0	0.04901	20,400.0
000	409.6	0.06180	16,180.0
00	364.8	0.07793	12,830.0
0	324.9	0.09827	10,180.0
1	289.3	0.1239	8,070.0
2	257.6	0.1563	6,400.0
3	229.4	0.1970	5,075.0
4	204.3	0.2485	4,025.0
5	181.9	0.3133	3,192.0
6	162.0	0.3951	2,531.0
7	144.3	0.4982	2,007.0
8	128.5	0.6282	1,592.0
9	114.4	0.7921	1,262.0
10	101.9	0.9989	1,001.0
11	90.74	1.260	794.0
12	80.81	1.588	629.6
13	71.96	2.003	499.3
14	64.08	2.525	396.0
15	57.07	3.184	314.0
16	50.82	4.016	249.0
17	45.26	5.064	197.5
18	40.30	6.385	156.6
19	35.89	8.051	124.2
20	31.96	10.15	98.50
21	28.46	12.80	78.11
22	25.35	16.14	61.95
23	22.57	20.36	49.13
24	20.10	25.67	38.96
25	17.90	32.37	30.90
26	15.94	40.81	24.50
27	14.20	51.47	19.43
28	12.64	64.90	15.41
29	11.26	81.83	12.22
30	10.03	103.2	9.691
31	8.928	130.1	7.685
32	7.950	164.1	6.095
33	7.080	206.9	4.833
34	6.305	260.9	3.833
35	5.615	329.0	3.040
36	5.000	414.8	2.411
37	4.453	523.1	1.912
38	3.965	659.6	1.516
39	3.531	831.8	1.202
40	3.145	1049.0	0.9534

(1) Resistance at the stated temperatures of a wire whose length is 1000 ft at 20°C.

(2) Length at 20°C of a wire whose resistance is 1 ohm at the stated temperatures.

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Section 4 RTD's

Platinum 100, Alpha = 0.00385	page 4-1
Platinum 100, Alpha = 0.00392	page 4-7
Platinum 200, Alpha = 0.00385	page 4-12
Platinum 500, Alpha = 0.00385	page 4-18
Nickel 120	page 4-24
Copper 10	page 4-26

PLATINUM 100, ALPHA = 0.00385

Resistance as a Function of Temperature (°C)
Reference Standard: IEC 751

Table 4-1. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-200	18.49	18.93	19.36	19.79	20.22	20.65	21.08	21.51	21.94	22.37	22.80	-200
-190	22.80	23.23	23.66	24.09	24.53	24.94	25.37	25.80	26.23	26.65	27.08	-190
-180	27.08	27.50	27.93	28.35	28.78	28.20	28.63	30.05	30.47	30.90	31.32	-180
-170	31.32	31.74	32.16	32.59	33.01	33.43	33.85	34.27	34.69	35.11	35.53	-170
-160	35.53	35.95	36.37	36.79	37.21	37.63	38.04	38.46	38.88	39.30	39.71	-160
-150	39.71	40.13	40.55	40.96	41.38	41.79	42.21	42.63	43.04	43.45	43.87	-150
-140	43.87	44.28	44.70	45.11	45.52	45.94	46.35	46.76	47.18	47.59	48.00	-140
-130	48.00	48.41	48.82	49.23	49.64	50.06	50.47	50.88	51.29	51.70	52.11	-130
-120	52.11	52.52	52.92	53.33	53.74	54.15	54.56	54.97	55.38	55.78	56.19	-120
-110	56.19	56.60	57.00	57.41	57.82	58.22	58.63	59.04	59.44	59.85	60.25	-110
-100	30.25	60.66	61.06	61.47	61.87	62.28	62.68	63.09	63.49	63.90	64.30	-100
-90	64.30	64.70	65.11	65.51	65.91	66.31	66.72	67.12	67.52	67.91	68.33	-90
-80	68.33	68.73	69.13	69.53	69.93	70.33	70.73	74.13	71.53	71.93	72.33	-80
-70	72.33	72.73	73.13	73.53	73.93	74.33	74.73	75.13	75.53	75.93	76.33	-70
-60	76.33	76.73	77.13	77.52	77.92	78.32	78.72	79.11	79.51	79.91	80.31	-60
-50	80.31	80.70	81.10	81.50	81.89	82.29	82.69	83.08	83.48	83.88	84.27	-50
-40	84.27	84.67	85.06	85.46	85.85	86.25	86.64	87.04	87.43	87.83	88.22	-40
-30	88.22	88.62	89.01	89.40	89.80	90.19	90.59	90.98	91.37	91.77	92.16	-30
-20	92.16	92.55	92.95	93.34	93.73	94.12	94.52	94.91	95.30	95.69	96.09	-20
-10	96.09	96.48	96.87	97.26	97.65	98.04	98.44	98.83	99.22	99.61	100.00	-10
0	100.00	100.39	100.78	101.17	101.56	101.95	102.34	102.73	103.12	103.51	103.90	0
10	103.90	104.29	104.68	105.07	105.46	105.85	106.24	106.63	107.02	107.40	107.79	10
20	107.79	108.18	108.57	108.96	109.35	109.73	110.12	110.51	110.90	111.28	111.67	20
30	111.67	112.06	112.45	112.83	113.22	113.61	113.99	114.38	114.77	115.15	115.54	30
40	115.54	115.93	116.31	116.70	117.08	117.47	117.85	118.24	118.62	119.01	119.40	40
50	119.40	119.78	120.16	120.55	120.93	121.32	121.70	122.09	122.47	122.86	123.24	50
60	123.24	123.62	124.01	124.39	124.77	125.16	125.54	125.92	126.31	126.69	127.07	60
70	127.07	127.45	127.84	128.22	128.60	128.98	129.37	129.75	130.13	130.51	130.89	70



Table 4-1. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
80	130.89	131.27	131.66	132.04	132.42	132.80	133.18	133.56	133.94	134.32	134.70	80
90	134.70	135.08	135.46	135.84	136.22	136.60	136.98	137.36	137.74	138.12	138.50	90
100	138.50	138.88	139.26	139.64	140.02	140.39	140.77	141.15	141.53	141.91	142.29	100
110	142.29	142.66	143.04	143.42	143.80	144.17	144.55	144.93	145.31	145.68	146.06	110
120	146.06	146.44	146.81	147.19	147.57	147.94	148.32	148.70	149.07	149.45	149.82	120
130	149.82	150.20	150.57	150.95	151.33	151.70	152.08	152.45	152.83	153.20	153.58	130
140	153.58	153.95	154.32	154.70	155.07	155.45	155.82	156.19	156.57	156.94	157.31	140
150	157.31	157.69	158.06	158.43	158.81	159.18	159.55	159.93	160.30	160.67	161.04	150
160	161.04	161.42	161.79	162.16	162.53	162.90	163.27	163.65	164.02	164.39	164.76	160
170	164.76	165.13	165.50	165.87	166.24	166.61	166.98	167.35	167.72	168.09	168.46	170
180	168.46	168.83	169.20	169.57	169.94	170.31	170.68	171.05	171.42	171.79	172.16	180
190	172.16	172.53	172.90	173.26	173.63	174.00	174.37	174.74	175.10	175.47	175.84	190
200	175.84	176.21	176.57	176.94	177.31	177.68	178.04	178.41	178.78	179.14	179.51	200
210	179.51	179.88	180.24	180.61	180.97	181.34	181.71	182.07	182.44	182.80	183.17	210
220	183.17	183.53	183.90	184.26	184.63	184.99	185.36	185.72	186.09	186.45	186.82	220
230	186.82	187.18	187.54	187.91	188.27	188.63	189.00	189.36	189.72	190.09	190.45	230
240	190.45	190.81	191.18	191.54	191.90	192.26	192.63	192.99	193.35	193.71	194.07	240
250	194.07	194.44	194.80	195.16	195.52	195.88	196.24	196.60	196.96	197.33	197.69	250
260	197.69	198.05	198.41	198.77	199.13	199.49	199.85	200.21	200.57	200.93	201.29	260
270	201.29	201.65	202.01	202.36	202.72	203.08	203.44	203.80	204.16	204.52	204.88	270
280	204.88	205.23	205.59	205.95	206.31	206.67	207.02	207.38	207.74	208.10	208.45	280
290	208.45	208.81	209.17	209.52	209.88	210.24	210.59	210.95	211.31	211.66	212.02	290
300	212.02	212.37	212.73	213.09	213.44	213.80	214.15	214.51	214.86	215.22	215.57	300
310	215.57	215.93	216.28	216.64	216.99	217.35	217.70	218.05	218.41	218.76	219.12	310
320	219.12	219.47	219.82	220.18	220.53	220.88	221.24	221.59	221.94	222.29	222.65	320
330	222.65	223.00	223.35	223.70	224.06	224.41	224.76	225.11	225.46	225.81	226.17	330
340	226.17	226.52	226.87	227.22	227.57	227.92	228.27	228.62	228.97	229.32	229.67	340
350	229.67	230.02	230.37	230.72	231.07	231.42	231.77	232.12	232.47	232.82	233.17	350
360	233.17	233.52	233.87	234.22	234.56	234.91	235.26	235.61	235.96	236.31	236.65	360
370	236.65	237.00	237.35	237.70	238.04	238.39	238.74	239.09	239.43	239.78	240.13	370
380	240.13	240.47	240.82	241.17	241.51	241.86	242.20	242.55	242.90	243.24	243.59	380
390	243.59	243.93	244.28	244.62	244.97	245.31	245.66	246.00	246.35	246.69	247.04	390
400	247.04	247.38	247.73	248.07	248.41	248.76	249.10	249.45	249.79	250.13	250.48	400
410	250.48	250.82	251.16	251.50	251.85	252.19	252.53	252.88	253.22	253.56	253.90	410
420	253.90	254.24	254.59	254.93	255.27	255.61	255.95	256.29	256.63	256.98	257.32	420
430	257.32	257.66	258.00	258.34	258.68	259.02	259.36	259.70	260.04	260.38	260.72	430
440	260.72	261.06	261.40	261.74	262.08	262.42	262.76	263.10	263.43	263.77	264.11	440
450	264.11	264.45	264.79	265.13	265.47	265.80	266.14	266.48	266.82	267.15	267.49	450
460	267.49	267.83	268.17	268.50	268.84	269.18	269.51	269.85	270.19	270.52	270.86	460
470	270.86	271.20	271.53	271.87	272.20	272.54	272.88	273.21	273.55	273.88	274.22	470
480	274.22	274.55	274.89	275.22	275.56	275.89	276.23	276.56	276.89	277.23	277.56	480
490	277.56	277.90	278.23	278.56	278.90	279.23	279.56	279.90	280.23	280.56	280.90	490
500	280.90	281.23	281.56	281.89	282.23	282.56	282.89	283.22	283.55	283.89	284.22	500
510	284.22	284.55	284.88	285.21	285.54	285.87	286.21	286.54	286.87	287.20	287.53	510
520	287.53	287.86	288.19	288.52	288.85	289.18	289.51	289.84	290.17	290.50	290.83	520
530	290.83	291.16	291.49	291.81	292.14	292.47	292.80	293.13	293.46	293.79	294.11	530
540	294.11	294.44	294.77	295.10	295.43	295.75	296.08	296.41	296.74	297.06	297.39	540
550	297.39	297.72	298.04	298.37	298.70	299.02	299.35	299.68	300.00	300.33	300.65	550
560	300.65	300.98	301.31	301.63	301.96	302.28	302.61	302.93	303.26	303.58	303.91	560
570	303.91	304.23	304.56	304.88	305.20	305.53	305.85	306.18	306.50	306.82	307.15	570
580	307.15	307.47	307.79	308.12	308.44	308.76	309.09	309.41	309.73	310.05	310.38	580
590	310.38	310.70	311.02	311.34	311.66	311.99	312.31	312.63	312.95	313.27	313.59	590
600	313.59	313.92	314.24	314.56	314.88	315.20	315.52	315.84	316.16	316.48	316.80	600

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Table 4-1. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
610	316.80	317.12	317.44	317.76	318.08	318.40	318.72	319.04	319.36	319.68	319.99	610
620	319.99	320.31	320.63	320.95	321.27	321.59	321.91	322.22	322.54	322.86	323.18	620
630	323.18	323.49	323.81	324.13	324.45	324.76	325.08	325.40	325.72	326.03	326.35	630
640	326.35	326.66	326.98	327.30	327.61	327.93	328.25	328.56	328.88	329.19	329.51	640
650	329.51	329.82	330.14	330.45	330.77	331.08	331.40	331.71	332.03	332.34	332.66	650
660	332.66	332.97	333.28	333.60	333.91	334.23	334.54	334.85	335.17	335.48	335.79	660
670	335.79	336.11	336.42	336.73	337.04	337.36	337.67	337.98	338.29	338.61	338.92	670
680	338.92	339.23	339.54	339.85	340.16	340.47	340.79	341.10	341.41	341.72	342.03	680
690	342.03	342.34	342.65	342.96	343.27	343.58	343.89	344.20	344.51	344.82	345.13	690
700	345.13	345.44	345.75	346.06	346.37	346.68	346.99	347.30	347.60	347.91	348.22	700
710	348.22	348.53	348.84	349.15	349.45	349.76	350.07	350.38	350.69	350.99	351.30	710
720	351.30	351.61	351.91	352.22	352.53	352.83	353.14	353.45	353.75	354.06	354.37	720
730	354.37	354.67	354.98	355.28	355.59	355.90	356.20	356.51	356.81	357.12	357.42	730
740	357.42	357.73	358.03	358.34	358.64	358.94	359.25	359.55	359.86	360.16	360.47	740
750	360.47	360.77	361.07	361.38	361.68	361.98	362.29	362.59	362.89	363.19	363.50	750
760	363.50	363.80	364.10	364.40	364.71	365.01	365.31	365.61	365.91	366.22	366.52	760
770	366.52	366.82	367.12	367.42	367.72	368.02	368.32	368.62	368.93	369.23	369.53	770
780	369.53	369.83	370.13	370.43	370.73	371.03	371.33	371.63	371.92	372.22	372.52	780
790	372.52	372.82	373.12	373.42	373.72	374.02	374.32	374.61	374.92	375.21	375.51	790
800	375.51	375.81	376.10	376.40	376.70	377.00	377.29	377.59	377.89	378.19	378.48	800
810	378.48	378.78	379.08	379.37	379.67	379.97	380.26	380.56	380.85	381.15	381.45	810
820	381.45	381.74	382.04	382.33	382.63	382.92	383.22	383.51	383.81	384.10	384.40	820
830	384.40	384.69	384.98	385.28	385.57	385.87	386.16	386.45	386.75	387.04	387.33	830
840	387.33	387.63	387.92	388.21	388.51	388.80	389.09	389.39	389.68	389.97	390.26	840

PLATINUM 100, ALPHA = 0.00385

Resistance as a Function of Temperature (°F)

Reference Standard: IEC 751

Table 4-2. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-330	18.01	18.25	18.49	18.73	18.97	19.21	19.45	19.69	19.93	20.17	20.41	-330
-320	20.41	20.65	20.89	21.13	21.37	21.61	21.85	22.09	22.33	22.56	22.80	-320
-310	22.80	23.04	23.28	23.52	23.76	23.99	24.23	24.47	24.71	24.94	25.18	-310
-300	25.18	25.43	25.66	25.89	26.13	26.37	26.60	26.84	27.08	27.31	27.55	-300
-290	27.55	27.79	28.02	28.26	28.50	28.73	28.97	29.20	29.44	29.67	29.91	-290
-280	29.91	30.14	30.38	30.62	30.85	31.09	31.32	31.55	31.79	32.02	32.26	-280
-270	32.26	32.49	32.73	32.96	33.20	33.43	33.66	33.90	34.13	34.36	34.60	-270
-260	34.60	34.83	35.06	35.30	35.53	35.76	36.00	36.23	36.46	36.70	36.93	-260
-250	36.93	37.16	37.39	37.63	37.86	38.09	38.32	38.55	38.79	39.02	39.25	-250
-240	39.25	39.48	39.71	39.95	40.18	40.41	40.64	40.87	41.10	41.33	41.56	-240
-230	41.56	41.79	42.03	42.26	42.49	42.72	42.95	43.18	43.41	43.64	43.87	-230
-220	43.87	44.10	44.33	44.56	44.79	45.02	45.25	45.48	45.71	45.94	46.17	-220
-210	46.17	46.40	46.63	46.85	47.08	47.31	47.54	47.77	48.00	48.23	48.46	-210
-200	48.46	48.69	48.91	49.14	49.37	49.60	49.83	50.06	50.28	50.51	50.74	-200
-190	50.74	50.97	51.20	51.42	51.65	51.88	52.11	52.33	52.56	52.79	53.02	-190
-180	53.02	53.24	53.47	53.70	53.92	54.15	54.38	54.60	54.83	55.06	55.28	-180
-170	55.28	55.51	55.74	55.96	56.19	56.42	56.64	56.87	57.10	57.32	57.55	-170
-160	57.55	57.77	58.00	58.22	58.45	58.68	58.90	59.13	59.35	59.58	59.80	-160
-150	59.80	60.03	60.25	60.48	60.70	60.93	61.15	61.38	61.60	61.83	62.05	-150

Table 4-2. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-140	62.05	62.28	62.50	62.73	62.95	63.18	63.40	63.63	63.85	64.07	64.30	-140
-130	64.30	64.52	64.75	64.97	65.19	65.42	65.64	65.87	66.09	66.31	66.54	-130
-120	66.54	66.76	66.98	67.21	67.43	67.66	67.88	68.10	68.33	68.55	68.77	-120
-110	68.77	68.99	69.22	69.44	69.66	69.89	70.11	70.33	70.55	70.78	71.00	-110
-100	71.00	71.22	71.45	71.67	71.89	72.11	72.33	72.56	72.78	73.00	73.22	-100
-90	73.22	73.45	73.67	73.89	74.11	74.33	74.56	74.78	75.00	75.22	75.44	-90
-80	75.44	75.66	75.89	76.11	76.33	76.55	76.77	76.99	77.21	77.43	77.66	-80
-70	77.66	77.88	78.10	78.32	78.54	78.76	78.98	79.20	79.42	79.64	79.87	-70
-60	79.87	80.09	80.31	80.53	80.75	80.97	81.19	81.41	81.63	81.85	82.07	-60
-50	82.07	82.29	82.51	82.73	82.95	83.17	83.39	83.61	83.83	84.05	84.27	-50
-40	84.27	84.49	84.71	84.93	85.15	85.37	85.59	85.81	86.03	86.25	86.47	-40
-30	86.47	86.69	86.91	87.13	87.35	87.56	87.78	88.00	88.22	88.44	88.66	-30
-20	88.66	88.88	89.10	89.32	89.54	89.76	89.97	90.19	90.41	90.63	90.85	-20
-10	90.85	91.07	91.29	91.50	91.72	91.94	92.16	92.38	92.60	92.82	93.03	-10
0	93.03	93.25	93.47	93.69	93.91	94.12	94.34	94.56	94.78	95.00	95.21	0
10	95.21	95.43	95.65	95.87	96.09	96.30	96.52	96.74	96.96	97.17	97.39	10
20	97.39	97.61	97.83	98.04	98.26	98.48	98.70	98.91	99.13	99.35	99.57	20
30	99.57	99.78	100.00	100.22	100.43	100.65	100.87	101.09	101.30	101.52	101.74	30
40	101.74	101.95	102.17	102.39	102.60	102.82	103.04	103.25	103.47	103.69	103.90	40
50	103.90	104.12	104.34	104.55	104.77	104.98	105.20	105.42	105.63	105.85	106.07	50
60	106.07	106.28	106.50	106.71	106.93	107.15	107.36	107.58	107.79	108.01	108.22	60
70	108.22	108.44	108.66	108.87	109.09	109.30	109.52	109.73	109.95	110.16	110.38	70
80	110.38	110.60	110.81	111.03	111.24	111.46	111.67	111.89	112.10	112.32	112.53	80
90	112.53	112.75	112.96	113.18	113.39	113.61	113.82	114.04	114.25	114.47	114.68	90
100	114.68	114.90	115.11	115.32	115.54	115.75	115.97	116.18	116.40	116.61	116.83	100
110	116.83	117.04	117.25	117.47	117.68	117.90	118.11	118.33	118.54	118.75	118.97	110
120	118.97	119.18	119.40	119.61	119.82	120.04	120.25	120.46	120.68	120.89	121.11	120
130	121.11	121.32	121.53	121.75	121.96	122.17	122.39	122.60	122.81	123.03	123.24	130
140	123.24	123.45	123.67	123.88	124.09	124.31	124.52	124.73	124.94	125.16	125.37	140
150	125.37	125.58	125.80	126.01	126.22	126.43	126.65	126.86	127.07	127.28	127.50	150
160	127.50	127.71	127.92	128.13	128.35	128.56	128.77	128.98	129.20	129.41	129.62	160
170	129.62	129.83	130.04	130.26	130.47	130.68	130.89	131.10	131.32	131.53	131.74	170
180	131.74	131.95	132.16	132.38	132.59	132.80	133.01	133.22	133.43	133.65	133.86	180
190	133.86	134.07	134.28	134.49	134.70	134.91	135.12	135.34	135.55	135.76	135.97	190
200	135.97	136.18	136.39	136.60	136.81	137.02	137.24	137.45	137.66	137.87	138.08	200
210	138.08	138.29	138.50	138.71	138.92	139.13	139.34	139.55	139.76	139.97	140.18	210
220	140.18	140.39	140.60	140.82	141.03	141.24	141.45	141.66	141.87	142.08	142.29	220
230	142.29	142.50	142.71	142.92	143.13	143.34	143.55	143.76	143.97	144.17	144.38	230
240	144.38	144.59	144.80	145.01	145.22	145.43	145.64	145.85	146.06	146.27	146.48	240
250	146.48	146.69	146.90	147.11	147.32	147.53	147.73	147.94	148.15	148.36	148.57	250
260	148.57	148.78	148.99	149.20	149.41	149.61	149.82	150.03	150.24	150.45	150.66	260
270	150.66	150.87	151.08	151.28	151.49	151.70	151.91	152.12	152.33	152.53	152.74	270
280	152.74	152.95	153.16	153.37	153.58	153.78	153.99	154.20	154.41	154.62	154.82	280
290	154.82	155.03	155.24	155.45	155.65	155.86	156.07	156.28	156.48	156.69	156.90	290
300	156.90	157.11	157.31	157.52	157.73	157.94	158.14	158.35	158.56	158.77	158.97	300
310	158.97	159.18	159.39	159.59	159.80	160.01	160.22	160.42	160.63	160.84	161.04	310
320	161.04	161.25	161.46	161.66	161.87	162.08	162.28	162.49	162.70	162.90	163.11	320
330	163.11	163.32	163.52	163.73	163.93	164.14	164.35	164.55	164.76	164.97	165.17	330
340	165.17	165.38	165.58	165.79	166.00	166.20	166.41	166.61	166.82	167.03	167.23	340
350	167.23	167.44	167.64	167.85	168.05	168.26	168.46	168.67	168.88	169.08	169.29	350
360	169.29	169.49	169.70	169.90	170.11	170.31	170.52	170.72	170.93	171.13	171.34	360
370	171.34	171.54	171.75	171.95	172.16	172.36	172.57	172.77	172.98	173.18	173.39	370
380	173.39	173.59	173.80	174.00	174.20	174.41	174.61	174.82	175.02	175.23	175.43	380

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Table 4-2. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
390	175.43	175.64	175.84	176.04	176.25	176.45	176.66	176.86	177.06	177.27	177.47	390
400	177.47	177.68	177.88	178.08	178.29	178.49	178.70	178.90	179.10	179.31	179.51	400
410	179.51	179.71	179.92	180.12	180.32	180.53	180.73	180.93	181.14	181.34	181.54	410
420	181.54	181.75	181.95	182.15	182.36	182.56	182.76	182.97	183.17	183.37	183.57	420
430	183.57	183.78	183.98	184.18	184.39	184.59	184.79	184.99	185.20	185.40	185.60	430
440	185.60	185.80	186.01	186.21	186.41	186.61	186.82	187.02	187.22	187.42	187.62	440
450	187.62	187.83	188.03	188.23	188.43	188.63	188.84	189.04	189.24	189.44	189.64	450
460	189.64	189.85	190.05	190.25	190.45	190.65	190.85	191.06	191.26	191.46	191.66	460
470	191.66	191.86	192.06	192.26	192.47	192.67	192.87	193.07	193.27	193.47	193.67	470
480	193.67	193.87	194.07	194.28	194.48	194.68	194.88	195.08	195.28	195.48	195.68	480
490	195.68	195.88	196.08	196.28	196.48	196.68	196.88	197.09	197.29	197.49	197.69	490
500	197.69	197.89	198.09	198.29	198.49	198.69	198.89	199.09	199.29	199.49	199.69	500
510	199.69	199.89	200.09	200.29	200.49	200.69	200.89	201.09	201.29	201.49	201.69	510
520	201.69	201.89	202.09	202.28	202.48	202.68	202.88	203.08	203.28	203.48	203.68	520
530	203.68	203.88	204.08	204.28	204.48	204.68	204.88	205.07	205.27	205.47	205.67	530
540	205.67	205.87	206.07	206.27	206.47	206.67	206.86	207.06	207.26	207.46	207.66	540
550	207.66	207.86	208.06	208.25	208.45	208.65	208.85	209.05	209.25	209.44	209.64	550
560	209.64	209.84	210.04	210.24	210.44	210.63	210.83	211.03	211.23	211.43	211.62	560
570	211.62	211.82	212.02	212.22	212.41	212.61	212.81	213.01	213.20	213.40	213.60	570
580	213.60	213.80	213.99	214.19	214.39	214.59	214.78	214.98	215.18	215.38	215.57	580
590	215.57	215.77	215.97	216.16	216.36	216.56	216.76	216.95	217.15	217.35	217.54	590
600	217.54	217.74	217.94	218.13	218.33	218.53	218.72	218.92	219.12	219.31	219.51	600
610	219.51	219.70	219.90	220.10	220.29	220.49	220.69	220.88	221.08	221.27	221.47	610
620	221.47	221.67	221.86	22.06	222.25	222.45	222.65	222.84	223.04	223.23	223.43	620
630	223.43	223.63	223.82	224.02	224.21	224.41	224.60	224.80	224.99	225.19	225.38	630
640	225.38	225.58	225.78	225.97	226.17	226.36	226.56	226.75	226.95	227.14	227.34	640
650	227.34	227.53	227.73	227.92	228.12	228.31	228.51	228.70	228.89	229.09	229.28	650
660	229.28	229.48	229.67	229.87	230.06	230.26	230.45	230.65	230.84	231.03	231.23	660
670	231.23	231.42	231.62	231.81	232.01	232.20	232.39	232.59	232.78	232.98	233.17	670
680	233.17	233.36	233.56	233.75	233.94	234.14	234.33	234.53	234.72	234.91	235.11	680
690	235.11	235.30	235.49	235.69	235.88	236.07	236.27	236.46	236.65	236.85	237.04	690
700	237.04	237.23	237.43	237.62	237.81	238.01	238.20	238.39	238.58	238.78	238.97	700
710	238.97	239.16	239.36	239.55	239.74	239.93	240.13	240.32	240.51	240.70	240.90	710
720	240.90	241.09	241.28	241.47	241.67	241.86	242.05	242.24	242.44	242.63	242.82	720
730	242.82	243.01	243.20	243.40	243.59	243.78	243.97	244.16	244.36	244.55	244.74	730
740	244.74	244.93	245.12	245.31	245.51	245.70	245.89	246.08	246.27	246.46	246.65	740
750	246.65	246.85	247.04	247.23	247.42	247.61	247.80	247.99	248.18	248.38	248.57	750
760	248.57	248.76	248.95	249.14	249.33	249.52	249.71	249.90	250.09	250.28	250.48	760
770	250.48	250.67	250.86	251.05	251.24	251.43	251.62	251.81	252.00	252.19	252.38	770
780	252.38	252.57	252.76	252.95	253.14	253.33	253.52	253.71	253.90	254.09	254.28	780
790	254.28	254.47	254.66	254.85	255.04	255.23	255.42	255.61	255.80	255.99	256.18	790
800	256.18	256.37	256.56	256.75	256.94	257.13	257.32	257.51	257.70	257.88	258.07	800
810	258.07	258.26	258.45	258.64	258.83	259.02	259.21	259.40	259.59	259.78	259.96	810
820	259.96	260.15	260.34	260.53	260.72	260.91	261.10	261.29	261.47	261.66	261.85	820
830	261.85	262.04	262.23	262.42	262.61	262.79	262.98	263.17	263.36	263.55	263.74	830
840	263.74	263.92	264.11	264.30	264.49	264.68	264.86	265.05	265.24	265.43	265.62	840
850	265.62	265.80	265.99	266.18	266.37	266.55	266.74	266.93	267.12	267.30	267.49	850
860	267.49	267.68	267.87	268.05	268.24	268.43	268.62	268.80	268.99	269.18	269.36	860
870	269.36	269.55	269.74	269.93	270.11	270.30	270.49	270.67	270.86	271.05	271.23	870
880	271.23	271.42	271.61	271.79	271.98	272.17	272.35	272.54	272.73	272.91	273.10	880
890	273.10	273.29	273.47	273.66	273.84	274.03	274.22	274.40	274.59	274.78	274.96	890
900	274.96	275.15	275.33	275.52	275.71	275.89	276.08	276.26	276.45	276.63	276.82	900
910	276.82	277.01	277.19	277.38	277.56	277.75	277.93	278.12	278.30	278.49	278.67	910

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Table 4-2. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
920	278.67	278.86	279.05	279.23	279.42	279.60	279.79	279.97	280.16	280.34	280.53	920
930	280.53	280.71	280.90	281.08	281.27	281.45	281.64	281.82	282.00	282.19	282.37	930
940	282.37	282.56	282.74	282.93	283.11	283.30	283.48	283.67	283.85	284.03	284.22	940
950	284.22	284.40	284.59	284.77	284.95	285.14	285.32	285.51	285.69	285.87	286.06	950
960	286.06	286.24	286.43	286.61	286.79	286.98	287.16	287.34	287.53	287.71	287.90	960
970	287.90	288.08	288.26	288.45	288.63	288.81	289.00	289.18	289.36	289.55	289.73	970
980	289.73	289.91	290.10	290.28	290.46	290.64	290.83	291.01	291.19	291.38	291.56	980
990	291.56	291.74	291.92	292.11	292.29	292.47	292.65	292.84	293.02	293.20	293.38	990
1000	293.38	293.57	293.75	293.93	294.11	294.30	294.48	294.66	294.84	295.03	295.21	1000
1010	295.21	295.39	295.57	295.75	295.94	296.12	296.30	296.48	296.66	296.84	297.03	1010
1020	297.03	297.21	297.39	297.57	297.75	297.93	298.12	298.30	298.48	298.66	298.84	1020
1030	298.84	299.02	299.20	299.39	299.57	299.75	299.93	300.11	300.29	300.47	300.65	1030
1040	300.65	300.84	301.02	301.20	301.38	301.56	301.74	301.92	302.10	302.28	302.46	1040
1050	302.46	302.64	302.82	303.00	303.18	303.37	303.55	303.73	303.91	304.09	304.27	1050
1060	304.27	304.45	304.63	304.81	304.99	305.17	305.35	305.53	305.71	305.89	306.07	1060
1070	306.07	306.25	306.43	306.61	306.79	306.97	307.15	307.33	307.51	307.69	307.87	1070
1080	307.87	308.05	308.22	308.40	308.58	308.76	308.94	309.12	309.30	309.48	309.66	1080
1090	309.66	309.84	310.02	310.20	310.38	310.56	310.73	310.91	311.09	311.27	311.45	1090
1100	311.45	311.63	311.81	311.99	312.17	312.34	312.52	312.70	312.88	313.06	313.24	1100
1110	313.24	313.42	313.59	313.77	313.95	314.13	314.31	314.49	314.66	314.84	315.02	1110
1120	315.02	315.20	315.38	315.55	315.73	315.91	316.09	316.27	316.44	316.62	316.80	1120
1130	316.80	316.98	317.16	317.33	317.51	317.69	317.87	318.04	318.22	318.40	318.58	1130
1140	318.58	318.75	318.93	319.11	319.29	319.46	319.64	319.82	319.99	320.17	320.35	1140
1150	320.35	320.53	320.70	320.88	321.06	321.23	321.41	321.59	321.76	321.94	322.12	1150
1160	322.12	322.29	322.47	322.65	322.82	323.00	323.18	323.35	323.53	323.71	323.88	1160
1170	323.88	324.06	324.24	324.41	324.59	324.76	324.94	325.12	325.29	325.47	325.64	1170
1180	325.64	325.82	326.00	326.17	326.35	326.52	326.70	326.88	327.05	327.23	327.40	1180
1190	327.40	327.58	327.75	327.93	328.11	328.28	328.46	328.63	328.81	328.98	329.16	1190
1200	329.16	329.33	329.51	329.68	329.86	330.03	330.21	330.38	330.56	330.73	330.91	1200
1210	330.91	331.08	331.26	331.43	331.61	331.78	331.96	332.13	332.31	332.48	332.66	1210
1220	332.66	332.83	333.00	333.18	333.35	333.53	333.70	333.88	334.05	334.23	334.40	1220
1230	334.40	334.57	334.75	334.92	335.10	335.27	335.44	335.62	335.79	335.97	336.14	1230
1240	336.14	336.31	336.49	336.66	336.84	337.01	337.18	337.36	337.53	337.70	337.88	1240
1250	337.88	338.05	338.22	338.40	338.57	338.74	338.92	339.09	339.26	339.44	339.61	1250
1260	339.61	339.78	339.96	340.13	340.30	340.47	340.65	340.82	340.99	341.17	341.34	1260
1270	341.34	341.51	341.68	341.86	342.03	342.20	342.38	342.55	342.72	342.89	343.07	1270
1280	343.07	343.24	343.41	343.58	343.75	343.93	344.10	344.27	344.44	344.62	344.79	1280
1290	344.79	344.96	345.13	345.30	345.48	345.65	345.82	345.99	346.16	346.33	346.51	1290
1300	346.51	346.68	346.85	347.02	347.19	347.36	347.54	347.71	347.88	348.05	348.22	1300
1310	348.22	348.39	348.56	348.74	348.91	349.08	349.25	349.42	349.59	349.76	349.93	1310
1320	349.93	350.10	350.28	350.45	350.62	350.79	350.96	351.13	351.30	351.47	351.64	1320
1330	351.64	351.81	351.98	352.15	352.32	352.49	352.66	352.83	353.01	353.18	353.35	1330
1340	353.35	353.52	353.69	353.86	354.03	354.20	354.37	354.54	354.71	354.88	355.05	1340
1350	355.05	355.22	355.39	355.56	355.73	355.90	356.07	356.24	356.40	356.57	356.74	1350
1360	356.74	356.91	357.08	357.25	357.42	357.59	357.76	357.93	358.10	358.27	358.44	1360
1370	358.44	358.61	358.78	358.94	359.11	359.28	359.45	359.62	359.79	359.96	360.13	1370
1380	360.13	360.30	360.47	360.63	360.80	360.97	361.14	361.31	361.48	361.65	361.81	1380
1390	361.81	361.98	362.15	362.32	362.49	362.66	362.82	362.99	363.16	363.33	363.50	1390
1400	363.50	363.67	363.83	364.00	364.17	364.34	364.51	364.67	364.84	365.01	365.18	1400
1410	365.18	365.34	365.51	365.68	365.85	366.01	366.18	366.35	366.52	366.68	366.85	1410
1420	366.85	367.02	367.19	367.35	367.52	367.69	367.86	368.02	368.19	368.36	368.52	1420
1430	368.52	368.69	368.86	369.03	369.19	369.36	369.53	369.69	369.86	370.03	370.19	1430
1440	370.19	370.36	370.53	370.69	370.86	371.03	371.19	371.36	371.53	371.69	371.86	1440

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Table 4-2. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1450	371.86	372.02	372.19	372.36	372.52	372.69	372.86	373.02	373.19	373.35	373.52	1450
1460	373.52	373.69	373.85	374.02	374.18	374.35	374.51	374.68	374.85	375.01	375.18	1460
1470	375.18	375.34	375.51	375.67	375.84	376.01	376.17	376.34	376.50	376.67	376.83	1470
1480	376.83	377.00	377.16	377.33	377.49	377.66	377.82	377.99	378.15	378.32	378.48	1480
1490	378.48	378.65	378.81	378.98	379.14	379.31	379.47	379.64	379.80	379.97	380.13	1490
1500	380.13	380.29	380.46	380.62	380.79	380.95	381.12	381.28	381.45	381.61	381.77	1500
1510	381.77	381.94	382.10	382.27	382.43	382.59	382.76	382.92	383.09	383.25	383.41	1510
1520	383.41	383.58	383.74	383.90	384.07	384.23	384.40	384.56	384.72	384.89	385.05	1520
1530	385.05	385.21	385.38	385.54	385.70	385.87	386.03	386.19	386.36	386.52	386.68	1530
1540	386.68	386.85	387.01	387.17	387.33	387.50	387.66	387.82	387.99	388.15	388.31	1540
1550	388.31	388.47	388.64	388.80	388.96	389.13	389.29	389.45	389.61	389.78	389.94	1550
1560	389.94	390.10	390.26									1560

PLATINUM 100, ALPHA = 0.00392

Resistance as a Function of Temperature (°C)

Reference Standard: JIS C 1604

Table 4-3. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-200	17.14	17.57	18.00	18.43	18.87	19.30	19.73	20.17	20.60	21.03	21.47	-200
-190	21.47	21.90	22.33	22.77	23.20	23.63	24.07	24.50	24.93	25.37	25.80	-190
-180	25.80	26.23	26.66	27.10	27.53	27.96	28.39	28.82	29.26	29.69	30.12	-180
-170	30.12	30.55	30.98	31.41	31.84	32.27	32.70	33.13	33.56	33.99	34.41	-170
-160	34.41	34.84	35.27	35.70	36.12	36.55	36.98	37.40	37.83	38.26	38.68	-160
-150	38.68	39.11	39.53	39.95	40.38	40.80	41.22	41.65	42.07	42.49	42.91	-150
-140	42.91	43.34	43.76	44.18	44.60	45.02	45.44	45.86	46.28	46.70	47.12	-140
-130	47.12	47.53	47.95	48.37	48.79	49.20	49.62	50.04	50.45	50.87	51.29	-130
-120	51.29	51.70	52.12	52.53	52.95	53.36	53.78	54.19	54.61	55.02	55.44	-120
-110	55.44	55.85	56.26	56.68	57.09	57.50	57.92	58.33	58.75	59.16	59.57	-110
-100	59.57	59.98	60.39	60.80	61.22	61.63	62.04	62.45	62.86	63.27	63.68	-100
-90	63.68	64.09	64.50	64.91	65.32	65.73	66.14	66.55	66.95	67.36	67.77	-90
-80	67.77	68.18	68.59	69.00	69.40	69.81	70.22	70.63	71.03	71.44	71.85	-80
-70	71.85	72.26	72.66	73.07	73.48	73.88	74.29	74.69	75.10	75.50	75.91	-70
-60	75.91	76.32	76.72	77.13	77.53	77.94	78.34	78.74	79.15	79.55	79.96	-60
-50	79.96	80.36	80.77	81.17	81.57	81.98	82.38	82.78	83.19	83.59	83.99	-50
-40	83.99	84.39	84.80	85.20	85.60	86.00	86.41	86.81	87.21	87.61	88.01	-40
-30	88.01	88.41	88.81	89.22	89.62	90.02	90.42	90.82	91.22	91.62	92.02	-30
-20	92.02	92.42	92.82	93.22	93.62	94.02	94.42	94.82	95.22	95.62	96.02	-20
-10	96.02	96.42	96.81	97.21	97.61	98.01	98.41	98.81	99.21	99.60	100.00	-10
0	100.00	100.40	100.79	101.19	101.59	101.99	102.38	102.78	103.18	103.57	103.97	0
10	103.97	104.37	104.76	105.16	105.56	105.95	106.35	106.74	107.14	107.54	107.93	10
20	107.93	108.33	108.72	109.12	109.51	109.91	110.30	110.69	111.09	111.48	111.88	20
30	111.88	112.27	112.66	113.06	113.45	113.85	114.24	114.63	115.02	115.42	115.81	30
40	115.81	116.20	116.60	116.99	117.38	117.77	118.16	118.56	118.95	119.34	119.73	40
50	119.73	120.12	120.51	120.91	121.30	121.69	122.08	122.47	122.86	123.25	123.64	50
60	123.64	124.03	124.42	124.81	125.20	125.59	125.98	126.37	126.76	127.15	127.54	60
70	127.54	127.93	128.32	128.70	129.09	129.48	129.87	130.26	130.65	131.04	131.42	70
80	131.42	131.81	132.20	132.59	132.97	133.36	133.75	134.14	134.52	134.91	135.30	80
90	135.30	135.68	136.07	136.46	136.84	137.23	137.62	138.00	138.39	138.77	139.16	90
100	139.16	139.55	139.93	140.32	140.70	141.09	141.47	141.86	142.24	142.63	143.01	100
110	143.01	143.39	143.78	144.16	144.55	144.93	145.31	145.70	146.08	146.46	146.85	110

Table 4-3. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
120	146.85	147.23	147.61	148.00	148.38	148.76	149.14	149.53	149.91	150.29	150.67	120
130	150.67	151.06	151.44	151.82	152.20	152.58	152.96	153.34	153.73	154.11	154.49	130
140	154.49	154.87	155.25	155.63	156.01	156.39	156.77	157.15	157.53	157.91	158.29	140
150	158.29	158.67	159.05	159.43	159.81	160.19	160.57	160.94	161.32	161.70	162.08	150
160	162.08	162.46	162.84	163.22	163.59	163.97	164.35	164.73	165.10	165.48	165.86	160
170	165.86	166.24	166.61	166.99	167.37	167.75	168.12	168.50	168.87	169.25	169.63	170
180	169.63	170.00	170.38	170.76	171.13	171.51	171.88	172.26	172.63	173.01	173.38	180
190	173.38	173.76	174.13	174.51	174.88	175.26	175.63	176.01	176.38	176.75	177.13	190
200	177.13	177.50	177.88	178.25	178.62	179.00	179.37	179.74	180.11	180.49	180.86	200
210	180.86	181.23	181.61	181.98	182.35	182.72	183.09	183.47	183.84	184.21	184.58	210
220	184.58	184.95	185.32	185.70	186.07	186.44	186.81	187.18	187.55	187.92	188.29	220
230	188.29	188.66	189.03	189.40	189.77	190.14	190.51	190.88	191.25	191.62	191.99	230
240	191.99	192.36	192.72	193.09	193.46	193.83	194.20	194.57	194.94	195.30	195.67	240
250	195.67	196.04	196.41	196.78	197.14	197.51	197.88	198.25	198.61	198.98	199.35	250
260	199.35	199.71	200.08	200.45	200.81	201.18	201.55	201.91	202.28	202.64	203.01	260
270	203.01	203.38	203.74	204.11	204.47	204.84	205.20	205.57	205.93	206.30	206.66	270
280	206.66	207.03	207.39	207.75	208.12	208.48	208.85	209.21	209.57	209.94	210.30	280
290	210.30	210.66	211.03	211.39	211.75	212.12	212.48	212.84	213.20	213.57	213.93	290
300	213.93	214.29	214.65	215.01	215.38	215.74	216.10	216.46	216.82	217.18	217.54	300
310	217.54	217.90	218.27	218.63	218.99	219.35	219.71	220.07	220.43	220.79	221.15	310
320	221.15	221.51	221.87	222.23	222.59	222.95	223.30	223.66	224.02	224.38	224.74	320
330	224.74	225.10	225.46	225.82	226.17	226.53	226.89	227.25	227.61	227.96	228.32	330
340	228.32	228.68	229.04	229.39	229.75	230.11	230.46	230.82	231.18	231.53	231.89	340
350	231.89	232.25	232.60	232.96	233.31	233.67	234.03	234.38	234.74	235.09	235.45	350
360	235.45	235.80	236.16	236.51	236.87	237.22	237.58	237.93	238.29	238.64	238.99	360
370	238.99	239.35	239.70	240.06	240.41	240.76	241.12	241.47	241.82	242.18	242.53	370
380	242.53	242.88	243.23	243.59	243.94	244.29	244.64	244.99	245.35	245.70	246.05	380
390	246.05	246.40	246.75	247.10	247.46	247.81	248.16	248.51	248.86	249.21	249.56	390
400	249.56	249.91	250.26	250.61	250.96	251.31	251.66	252.01	252.36	252.71	253.06	400
410	253.06	253.41	253.76	254.11	254.46	254.81	255.15	255.50	255.85	256.20	256.55	410
420	256.55	256.90	257.24	257.59	257.94	258.29	258.63	258.98	259.33	259.68	260.02	420
430	260.02	260.37	260.72	261.06	261.41	261.76	262.10	262.45	262.79	263.14	263.49	430
440	263.49	263.83	264.18	264.52	264.87	265.21	265.56	265.90	266.25	266.59	266.94	440
450	266.94	267.28	267.63	267.97	268.32	268.66	269.00	269.35	269.69	270.03	270.38	450
460	270.38	270.72	271.06	271.41	271.75	272.09	272.44	272.78	273.12	273.46	273.81	460
470	273.81	274.15	274.49	274.83	275.17	275.52	275.86	276.20	276.54	276.88	277.22	470
480	277.22	277.56	277.90	278.25	278.59	278.93	279.27	279.61	279.95	280.29	280.63	480
490	280.63	280.97	281.31	281.65	281.99	282.32	282.66	283.00	283.34	283.68	284.02	490
500	284.02	284.36	284.70	285.04	285.37	285.71	286.05	286.39	286.72	287.06	287.40	500
510	287.40	287.74	288.07	288.41	288.75	289.09	289.42	289.76	290.10	290.43	290.77	510
520	290.77	291.10	291.44	291.78	292.11	292.45	292.78	293.12	293.45	293.79	294.12	520
530	294.12	294.46	294.79	295.13	295.46	295.80	296.13	296.47	296.80	297.13	297.47	530
540	297.47	297.80	298.14	298.47	298.80	299.14	299.47	299.80	300.13	300.47	300.80	540
550	300.80	301.13	301.47	301.80	302.13	302.46	302.79	303.13	303.46	303.79	304.12	550
560	304.12	304.45	304.78	305.11	305.44	305.78	306.11	306.44	306.77	307.10	307.43	560
570	307.43	307.76	308.09	308.42	308.75	309.08	309.41	309.74	310.07	310.39	310.72	570
580	310.72	311.05	311.38	311.71	312.04	312.37	312.70	313.02	313.35	313.68	314.01	580
590	314.01	314.34	314.66	314.99	315.32	315.64	315.97	316.30	316.63	316.95	317.28	590
600	317.28	317.61	317.93	318.26	318.58	318.91	319.24	319.56	319.89	320.21	320.54	600
610	320.54	320.86	321.19	321.51	321.84	322.16	322.49	322.81	323.14	323.46	323.78	610
620	323.78	324.11	324.43	324.76	325.08	325.40	325.73	326.05	326.37	326.70	327.02	620
630	327.02	327.34	327.66	327.99	328.31	328.63	328.95	329.28	329.60	329.92	330.24	630
640	330.24	330.56	330.88	331.20	331.53	331.85	332.17	332.49	332.81	333.13		640

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Resistance as a Function of Temperature (°F) Reference Standard: JIS C 1604

Table 4-4. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-330			17.14	17.38	17.62	17.86	18.10	18.34	18.58	18.82	19.06	-330
-320	19.06	19.30	19.54	19.78	20.02	20.26	20.50	20.75	20.99	21.23	21.47	-320
-310	21.47	21.71	21.95	22.19	22.43	22.67	22.91	23.15	23.39	23.63	23.87	-310
-300	23.87	24.12	24.36	24.60	24.84	25.08	25.32	25.56	25.80	26.04	26.28	-300
-290	26.28	26.52	26.75	27.00	27.24	27.48	27.72	27.96	28.20	28.44	28.68	-290
-280	28.68	28.92	29.16	29.40	29.64	29.88	30.12	30.36	30.60	30.84	31.07	-280
-270	31.07	31.31	31.55	31.79	32.03	32.27	32.51	32.75	32.99	33.22	33.46	-270
-260	33.46	33.70	33.94	34.18	34.41	34.65	34.89	35.13	35.37	35.60	35.84	-260
-250	35.84	36.08	36.31	36.55	36.79	37.03	37.26	37.50	37.74	37.97	38.21	-250
-240	38.21	38.44	38.68	38.92	39.15	39.39	39.62	39.86	40.10	40.33	40.57	-240
-230	40.57	40.80	41.04	41.27	41.51	41.74	41.98	42.21	42.45	42.68	42.91	-230
-220	42.91	43.15	43.38	43.62	43.85	44.08	44.32	44.55	44.79	45.02	45.25	-220
-210	45.25	45.49	45.72	45.95	46.18	46.42	46.65	46.88	47.12	47.35	47.58	-210
-200	47.58	47.81	48.04	48.28	48.51	48.74	48.97	49.20	49.44	49.67	49.90	-200
-190	49.90	50.13	50.36	50.59	50.82	51.06	51.29	51.52	51.75	51.98	52.21	-190
-180	52.21	52.44	52.67	52.90	53.13	53.36	53.59	53.82	54.05	54.28	54.52	-180
-170	54.52	54.75	54.98	55.21	55.44	55.67	55.90	56.13	56.36	56.59	56.82	-170
-160	56.82	57.05	57.28	57.50	57.73	57.96	58.19	58.42	58.65	58.88	59.11	-160
-150	59.11	59.34	59.57	59.80	60.03	60.26	60.48	60.71	60.94	61.17	61.40	-150
-140	61.40	61.63	61.86	62.08	62.31	62.54	62.77	63.00	63.22	63.45	63.68	-140
-130	63.68	63.91	64.14	64.36	64.59	64.82	65.05	65.27	65.50	65.73	65.96	-130
-120	65.96	66.18	66.41	66.64	66.86	67.09	67.32	67.55	67.77	68.00	68.23	-120
-110	68.23	68.45	68.68	68.91	69.13	69.36	69.59	69.81	70.04	70.27	70.49	-110
-100	70.49	70.72	70.94	71.17	71.40	71.62	71.85	72.07	72.30	72.53	72.75	-100
-90	72.75	72.98	73.20	73.43	73.66	73.88	74.11	74.33	74.56	74.78	75.01	-90
-80	75.01	75.23	75.46	75.68	75.91	76.14	76.36	76.59	76.81	77.04	77.26	-80
-70	77.26	77.49	77.71	77.94	78.16	78.39	78.61	78.83	79.06	79.28	79.51	-70
-60	79.51	79.73	79.96	80.18	80.41	80.63	80.85	81.08	81.30	81.53	81.75	-60
-50	81.75	81.98	82.20	82.42	82.65	82.87	83.10	83.32	83.54	83.77	83.99	-50
-40	83.99	84.21	84.44	84.66	84.89	85.11	85.33	85.56	85.78	86.00	86.23	-40
-30	86.23	86.45	86.67	86.90	87.12	87.34	87.57	87.79	88.01	88.24	88.46	-30
-20	88.46	88.68	88.90	89.13	89.35	89.57	89.80	90.02	90.24	90.46	90.69	-20
-10	90.69	90.91	91.13	91.35	91.58	91.80	92.02	92.24	92.47	92.69	92.91	-10
0	92.91	93.13	93.35	93.58	93.80	94.02	94.24	94.46	94.69	94.91	95.13	0
10	95.13	95.35	95.57	95.80	96.02	96.24	96.46	96.68	96.90	97.12	97.35	10
20	97.35	97.57	97.79	98.01	98.23	98.45	98.67	98.90	99.12	99.34	99.56	20
30	99.56	99.78	100.00	100.22	100.44	100.66	100.88	101.10	101.32	101.55	101.77	30
40	101.77	101.99	102.31	102.43	102.65	102.87	103.09	103.31	103.53	103.75	103.97	40
50	103.97	104.19	101.41	104.63	104.85	105.07	105.29	105.51	105.73	105.95	106.17	50
60	106.17	106.39	106.61	106.83	107.05	107.27	107.49	107.71	107.93	108.15	108.37	60
70	108.37	108.59	108.81	109.03	109.25	109.47	109.69	109.91	110.12	110.34	110.56	70
80	110.56	110.78	111.00	111.22	111.44	111.66	111.88	112.10	112.31	112.53	112.75	80
90	112.75	112.97	113.19	113.41	113.63	113.85	114.06	114.28	114.50	114.72	114.94	90
100	114.94	115.16	115.37	115.59	115.81	116.03	116.25	116.46	116.68	116.90	117.12	100
110	117.12	117.34	117.55	117.77	117.99	118.21	118.43	118.64	118.86	119.08	119.30	110
120	119.30	119.51	119.73	119.95	120.17	120.38	120.60	120.82	121.04	121.25	121.47	120
130	121.47	121.69	121.90	122.12	122.34	122.56	122.78	122.99	123.21	123.42	123.64	130
140	123.64	123.86	124.08	124.29	124.51	124.72	124.94	125.16	125.37	125.59	125.81	140

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Table 4-4. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
150	125.81	126.02	126.24	126.46	126.67	126.89	127.11	127.32	127.54	127.75	127.97	150
160	127.97	128.19	128.40	128.62	128.83	129.05	129.27	129.48	129.70	129.91	130.13	160
170	130.13	130.35	130.56	130.78	130.99	131.21	131.42	131.64	131.85	132.07	132.29	170
180	132.29	132.50	132.72	132.93	133.15	133.36	133.58	133.79	134.01	134.22	134.44	180
190	134.44	134.65	134.87	135.08	135.30	135.51	135.73	135.94	136.16	136.37	136.59	190
200	136.59	136.80	137.02	137.23	137.45	137.66	137.87	138.09	138.30	138.52	138.73	200
210	138.73	138.95	139.16	139.37	139.59	139.80	140.02	140.23	140.44	140.66	140.87	210
220	140.87	141.09	141.30	141.51	141.73	141.94	142.16	142.37	142.58	142.80	143.01	220
230	143.01	143.22	143.44	143.65	143.86	144.08	144.29	144.50	144.72	144.93	145.14	230
240	145.14	145.36	145.57	145.78	146.00	146.21	146.42	146.64	146.85	147.06	147.27	240
250	147.27	147.49	147.70	147.91	148.12	148.34	148.55	148.76	148.97	149.19	149.40	250
260	149.40	149.61	149.82	150.04	150.25	150.46	150.67	150.89	151.10	151.31	151.52	260
270	151.52	151.73	151.95	152.16	152.37	152.58	152.79	153.01	153.22	153.43	153.64	270
280	153.64	153.85	154.06	154.28	154.49	154.70	154.91	155.12	155.33	155.55	155.76	280
290	155.76	155.97	156.18	156.37	156.60	156.81	157.02	157.24	157.45	157.66	157.87	290
300	157.87	158.08	158.29	158.50	158.71	158.92	159.13	159.34	159.55	159.77	159.98	300
310	159.98	160.19	160.40	160.61	160.82	161.03	161.24	161.45	161.66	161.87	162.08	310
320	162.08	162.29	162.50	162.71	162.92	163.13	163.34	163.55	163.76	163.97	164.18	320
330	164.18	164.39	164.60	164.81	165.02	165.23	165.44	165.65	165.86	166.07	166.28	330
340	166.28	166.49	166.70	166.91	167.12	167.33	167.54	167.75	167.95	168.16	168.37	340
350	168.37	168.58	168.79	169.00	169.21	169.42	169.63	169.84	170.05	170.25	170.46	350
360	170.46	170.67	170.88	171.09	171.30	171.51	171.72	171.92	172.13	172.34	172.55	360
370	172.55	172.76	172.97	173.18	173.38	173.59	173.80	174.01	174.22	174.42	174.63	370
380	174.63	174.84	175.05	175.26	175.47	175.67	175.88	176.09	176.30	176.50	176.71	380
390	176.71	176.92	177.13	177.34	177.54	177.75	177.96	178.17	178.37	178.58	178.79	390
400	178.79	179.00	179.20	179.41	179.62	179.82	180.03	180.24	180.45	180.65	180.86	400
410	180.86	181.07	181.27	181.48	181.69	181.90	182.10	182.31	182.52	182.72	182.93	410
420	182.93	183.14	183.34	183.55	183.76	183.96	184.17	184.38	184.58	184.79	184.99	420
430	184.99	185.20	185.41	185.61	185.82	186.03	186.23	186.44	186.64	186.85	187.06	430
440	187.06	187.26	187.47	187.67	187.88	188.08	188.29	188.50	188.70	188.91	189.11	440
450	189.11	189.32	189.52	189.73	189.93	190.14	190.35	190.55	190.76	190.96	191.17	450
460	191.17	191.37	191.58	191.78	191.99	192.19	192.40	192.60	192.81	193.01	193.22	460
470	193.22	193.42	193.63	193.83	194.04	194.24	194.44	194.65	194.85	195.06	195.26	470
480	195.26	196.47	195.67	195.88	196.08	196.29	196.49	196.69	196.90	197.10	197.31	480
490	197.31	197.51	197.72	197.92	198.12	198.33	198.53	198.74	198.94	199.14	199.35	490
500	199.35	199.55	199.75	199.96	200.16	200.37	200.57	200.77	200.98	201.18	201.38	500
510	201.38	201.59	201.79	201.99	202.20	202.40	202.60	202.81	203.01	203.21	203.42	510
520	203.42	203.63	203.82	204.03	204.23	204.43	204.63	204.84	205.04	205.24	205.45	520
530	205.45	205.65	205.85	206.05	206.26	206.46	206.66	206.86	207.07	207.27	207.47	530
540	207.47	207.67	207.88	208.08	208.28	208.48	208.68	208.89	209.09	209.29	209.49	540
550	209.49	209.69	209.90	210.10	210.30	210.50	210.70	210.91	211.11	211.31	211.51	550
560	211.51	211.71	211.91	212.12	212.32	212.52	212.72	212.92	213.12	213.32	213.53	560
570	213.53	213.73	213.93	214.13	214.33	214.53	214.73	214.93	215.13	215.34	215.54	570
580	215.54	215.74	215.94	216.14	216.34	216.54	216.74	216.94	217.14	217.34	217.54	580
590	217.54	217.74	217.94	218.15	218.35	218.55	218.75	218.95	219.15	219.35	219.55	590
600	219.55	219.75	219.95	220.15	220.35	220.55	220.75	220.95	221.15	221.35	221.55	600
610	221.55	221.75	221.95	222.15	222.35	222.55	222.75	222.95	223.15	223.34	223.54	610
620	223.54	223.74	223.94	224.14	224.34	224.54	224.74	224.94	225.14	225.34	225.54	620
630	225.54	225.74	225.94	226.13	226.33	226.53	226.73	226.93	227.13	227.33	227.53	630
640	227.53	227.73	227.92	228.12	228.32	228.52	228.72	228.92	229.12	229.31	229.51	640
650	229.51	229.71	229.91	230.11	230.31	230.50	230.70	230.90	231.10	231.30	231.49	650
660	231.49	231.69	231.89	232.09	232.29	232.48	232.68	232.88	233.08	233.28	233.47	660
670	233.47	233.67	233.87	234.07	234.26	234.46	234.66	234.86	235.05	235.25	235.45	670

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Table 4-4. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
680	235.45	235.65	235.84	236.04	236.24	236.43	236.63	236.83	237.03	237.22	237.42	680
690	237.42	237.62	237.81	238.01	238.21	238.40	238.60	238.80	238.99	239.19	239.39	690
700	239.39	239.58	239.78	239.98	240.17	240.37	240.57	240.76	240.96	241.15	241.35	700
710	241.35	241.55	241.74	241.94	242.14	242.33	242.53	242.72	242.92	243.12	243.31	710
720	243.31	243.51	243.70	243.90	244.09	244.29	244.49	244.68	244.88	245.07	245.27	720
730	245.27	245.46	245.66	245.85	246.05	246.25	246.44	246.64	246.83	247.03	247.22	730
740	247.22	247.42	247.61	247.81	248.00	248.20	248.39	248.59	248.78	248.98	249.17	740
750	249.17	249.37	249.56	249.76	249.95	250.15	250.34	250.53	250.73	250.92	251.12	750
760	251.12	251.31	251.51	251.70	251.89	252.09	252.28	252.48	252.67	252.87	253.06	760
770	253.06	253.25	253.45	253.64	253.84	254.03	254.22	254.42	254.61	254.81	255.00	770
780	255.00	255.19	255.39	255.58	255.77	255.94	256.16	256.35	256.55	256.74	256.93	780
790	256.93	257.13	257.32	257.52	257.71	257.90	258.09	258.29	258.48	258.67	258.87	790
800	258.87	259.06	259.25	259.44	259.64	259.83	260.02	260.22	260.41	260.60	260.79	800
810	260.79	260.99	261.18	261.37	261.56	261.76	61.95	262.15	262.33	262.53	262.72	810
820	262.72	262.91	263.10	263.29	263.49	263.68	263.87	264.06	264.25	264.45	264.64	820
30	264.64	264.83	265.02	265.21	265.41	265.60	265.79	265.98	266.17	266.36	266.56	30
40	266.56	266.75	266.94	267.13	267.32	267.51	267.70	267.89	268.09	268.28	268.47	40
50	268.47	268.66	268.85	269.04	269.23	269.42	269.61	269.81	270.00	270.19	270.38	50
860	270.38	270.57	270.76	270.95	271.14	271.33	271.52	271.71	271.90	272.09	272.28	860
870	272.28	272.47	272.67	272.86	273.05	273.24	273.43	273.62	273.81	274.00	274.19	870
880	274.19	274.38	274.57	274.76	274.95	275.14	275.33	275.52	275.71	275.90	276.09	880
890	276.09	276.27	276.46	276.65	276.84	277.03	277.22	277.41	277.60	277.79	277.98	890
900	277.98	278.17	278.36	278.55	278.74	278.93	279.12	279.30	279.49	279.68	279.87	900
910	279.87	280.06	280.25	280.44	280.63	280.82	281.00	281.19	281.38	281.57	281.76	910
920	281.76	281.95	282.14	282.32	282.51	282.70	282.89	283.08	283.27	283.45	283.64	920
930	283.64	283.83	284.02	284.21	284.40	284.58	284.77	284.96	285.15	285.34	285.52	930
940	285.52	285.71	285.90	286.09	286.27	286.46	286.65	286.84	287.02	287.21	287.40	940
950	287.40	287.59	287.77	287.96	288.15	288.34	288.52	288.71	288.90	289.09	289.27	950
960	289.27	289.46	289.65	289.83	290.02	290.21	290.39	290.58	290.77	290.95	291.14	960
970	291.14	291.33	291.51	291.70	291.89	292.07	292.26	292.45	292.63	292.82	293.01	970
980	293.01	293.19	293.38	293.57	293.75	293.94	294.12	294.31	294.50	294.68	294.87	980
990	294.87	295.05	295.24	295.43	295.61	295.80	295.98	296.17	296.35	296.54	296.73	990
1000	296.73	296.91	297.10	297.28	297.47	297.65	297.84	298.02	298.21	298.39	298.58	1000
1010	298.58	298.77	298.95	299.14	299.32	299.51	299.69	299.88	300.06	300.25	300.43	1010
1020	300.43	300.62	300.80	300.98	301.17	301.35	301.54	301.72	301.91	302.09	302.28	1020
1030	302.28	302.46	302.65	302.83	303.01	303.20	303.38	303.57	303.75	303.94	304.12	1030
1040	304.12	304.30	304.49	304.67	304.86	305.04	305.22	305.41	305.59	305.78	305.96	1040
1050	305.96	306.14	306.33	306.51	306.69	306.88	307.06	307.24	307.43	307.61	307.79	1050
1060	307.79	307.98	308.16	308.34	308.53	308.71	308.89	309.08	309.26	309.44	309.63	1060
1070	309.63	309.81	309.99	310.18	310.36	310.54	310.72	310.91	311.09	311.27	311.45	1070
1080	311.45	311.64	311.82	312.00	312.18	312.37	312.55	312.73	312.91	313.10	313.28	1080
1090	313.28	313.46	313.64	313.83	314.01	314.19	314.37	314.55	314.74	314.92	315.10	1090
1100	315.10	315.28	315.46	315.64	315.83	316.01	316.19	316.37	316.55	316.73	316.92	1100
1110	316.92	317.10	317.28	317.46	317.64	317.82	318.00	318.19	318.37	318.55	318.73	1110
1120	318.73	318.91	319.09	319.27	319.45	319.63	319.81	320.00	320.18	320.36	320.54	1120
1130	320.54	320.72	320.90	321.08	321.26	321.44	321.62	321.80	321.98	322.16	322.34	1130
1140	322.34	322.52	322.70	322.88	323.06	323.24	323.42	323.60	323.78	323.96	324.14	1140
1150	324.14	324.32	324.50	324.68	324.86	325.04	325.22	325.40	325.58	325.76	325.94	1150
1160	325.94	326.12	326.30	326.48	326.66	326.84	327.02	327.20	327.38	327.56	327.74	1160
1170	327.74	327.91	328.09	328.27	328.45	328.63	328.81	328.99	329.17	329.35	329.53	1170
1180	329.53	329.70	329.88	330.06	330.24	330.42	330.60	330.78	330.95	331.13	331.31	1180
1190	331.31	331.49	331.67	331.85	332.02	332.20	332.38	332.56	332.74	332.92	333.09	1190
1200	333.09											1200

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PLATINUM 200, ALPHA = 0.00385

Resistance as a Function of Temperature (°C)

Reference Standard: IEC 751

Table 4-5. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-200	36.99	37.85	38.72	39.58	40.44	41.31	42.17	43.03	43.89	44.75	45.61	-200
-190	45.61	46.46	47.32	48.18	49.03	49.89	50.74	51.60	52.45	53.30	54.16	-190
-180	54.16	55.01	55.86	56.71	57.56	58.41	59.25	60.10	60.95	61.79	62.64	-180
-170	62.64	63.48	64.33	65.17	66.02	66.86	67.70	68.54	69.38	70.22	71.06	-170
-160	71.06	71.90	72.74	73.58	74.42	75.25	76.09	76.92	77.76	78.59	79.43	-160
-150	79.43	80.26	81.09	81.93	82.76	83.59	84.42	85.25	86.08	86.91	87.74	-150
-140	87.74	88.57	89.39	90.22	91.05	91.87	92.70	93.53	94.35	95.17	96.00	-140
-130	96.00	96.82	97.64	98.47	99.29	100.11	100.93	101.75	102.57	103.39	104.21	-130
-120	104.21	105.03	105.85	106.67	107.48	108.30	109.12	109.93	110.75	111.57	112.38	-120
-110	112.38	113.20	114.01	114.82	115.64	116.45	117.26	118.07	118.89	119.70	120.51	-110
-100	120.51	121.32	122.13	122.94	123.75	124.56	125.37	126.17	126.98	127.79	128.60	-100
-90	128.60	129.40	130.21	131.02	131.82	132.63	133.43	134.24	135.04	135.85	136.65	-90
-80	136.65	137.45	138.26	139.06	139.86	140.66	141.47	142.27	143.07	143.87	144.67	-80
-70	144.67	145.47	146.27	147.07	147.87	148.67	149.47	150.26	151.06	151.86	152.66	-70
-60	152.66	153.45	154.25	155.05	155.84	156.64	157.43	158.23	159.02	159.82	160.61	-60
-50	160.61	161.41	162.20	163.00	163.79	164.58	165.37	166.17	166.96	167.75	168.54	-50
-40	168.54	169.33	170.13	170.92	171.71	172.50	173.29	174.08	174.87	175.66	176.44	-40
-30	176.44	177.23	178.02	178.81	179.60	180.39	181.17	181.96	182.75	183.53	184.32	-30
-20	184.32	185.11	185.89	186.68	187.46	188.25	189.03	189.82	190.60	191.39	192.17	-20
-10	192.17	192.96	193.74	194.52	195.31	196.09	196.87	197.65	198.44	199.22	200.00	-10
0	200.00	200.78	201.56	202.34	203.12	203.91	204.69	205.47	206.25	207.03	207.80	0
10	207.80	208.58	209.36	210.14	210.92	211.70	212.48	213.25	214.03	214.81	215.59	10
20	215.59	216.36	217.14	217.92	218.69	219.47	220.24	221.02	221.79	222.57	223.34	20
30	223.34	224.12	224.89	225.67	226.44	227.21	227.99	228.76	229.53	230.31	231.08	30
40	231.08	231.85	232.62	233.39	234.17	234.94	235.71	236.48	237.25	238.02	238.79	40
50	238.79	239.56	240.33	241.10	241.87	242.64	243.41	244.17	244.94	245.71	246.48	50
60	246.48	247.25	248.01	248.78	249.55	250.31	251.08	251.85	252.61	253.38	254.14	60
70	254.14	254.91	255.67	256.44	257.20	257.97	258.73	259.50	260.26	261.02	261.79	70
80	261.79	262.55	263.31	264.07	264.84	265.60	266.36	267.12	267.88	268.64	269.40	80
90	269.40	270.17	270.93	271.69	272.45	273.21	273.96	274.72	275.48	276.24	277.00	90
100	277.00	277.76	278.52	279.27	280.03	280.79	281.55	282.30	283.06	283.82	284.57	100
110	284.57	285.33	286.08	286.84	287.59	288.35	289.10	289.86	290.61	291.37	292.12	110
120	292.12	292.88	293.63	294.38	295.13	295.89	296.64	297.39	298.14	298.90	299.65	120
130	299.65	300.40	301.15	301.90	302.65	303.40	304.15	304.90	305.65	306.40	307.15	130
140	307.15	307.90	308.65	309.40	310.14	310.89	311.64	312.39	313.14	313.88	314.63	140
150	314.63	315.38	316.12	316.87	317.62	318.36	319.11	319.85	320.60	321.34	322.09	150
160	322.09	322.83	323.57	324.32	325.06	325.81	326.55	327.29	328.03	328.78	329.52	160
170	329.52	330.26	331.00	331.74	332.49	333.23	333.97	334.71	335.45	336.19	336.93	170
180	336.93	337.67	338.41	339.15	339.89	340.63	341.36	342.10	342.84	343.58	344.32	180
190	344.32	345.05	345.79	346.53	347.26	348.00	348.74	349.47	350.21	350.94	351.68	190
200	351.68	352.41	353.15	353.88	354.62	355.35	356.09	356.82	357.55	358.29	359.02	200
210	359.02	359.75	360.48	361.22	361.95	362.68	363.41	364.14	364.87	365.61	366.34	210
220	366.34	367.07	367.80	368.53	369.26	369.99	370.72	371.44	372.17	372.90	373.63	220
230	373.63	374.36	375.09	375.81	376.54	377.27	378.00	378.72	379.45	380.18	380.90	230
240	380.90	381.63	382.35	383.08	383.80	384.53	385.25	385.98	386.70	387.42	388.15	240
250	388.15	388.87	389.60	390.32	391.04	391.76	392.49	393.21	393.93	394.65	395.37	250
260	395.37	396.09	396.81	397.54	398.26	398.98	399.70	400.42	401.14	401.85	402.57	260

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Table 4-5. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
270	402.57	403.29	404.01	404.73	405.45	406.17	406.88	407.60	408.32	409.03	409.75	270
280	409.75	410.47	411.18	411.90	412.62	413.33	414.05	414.76	415.48	416.19	416.91	280
290	416.91	417.62	418.33	419.05	419.76	420.47	421.19	421.90	422.61	423.33	424.04	290
300	424.04	424.75	425.46	426.17	426.88	427.59	428.31	429.02	429.73	430.44	431.15	300
310	431.15	431.86	432.56	433.27	433.98	434.69	435.40	436.11	436.82	437.52	438.23	310
320	438.23	438.94	439.65	440.35	441.06	441.76	442.47	443.18	443.88	444.59	445.29	320
330	445.29	446.00	446.70	447.41	448.11	448.81	449.52	450.22	450.93	451.63	452.33	330
340	452.33	453.03	453.74	454.44	455.14	455.84	456.54	457.24	457.95	458.65	459.35	340
350	459.35	460.05	460.75	461.45	462.15	462.85	463.54	464.24	464.94	465.64	466.34	350
360	466.34	467.04	467.73	468.43	469.13	469.83	470.52	471.22	471.92	472.61	473.31	360
370	473.31	474.00	474.70	475.39	476.09	476.78	477.48	478.17	478.87	479.56	480.25	370
380	480.25	480.95	481.64	482.33	483.03	483.72	484.41	485.10	485.79	486.48	487.18	380
390	487.18	487.87	488.56	489.25	489.94	490.63	491.32	492.01	492.70	493.39	494.08	390
400	494.08	494.76	495.45	496.14	496.83	497.52	498.20	498.89	499.58	500.26	500.95	400
410	500.95	501.64	502.32	503.01	503.70	504.38	505.07	505.75	506.44	507.12	507.80	410
420	507.80	508.49	509.17	509.86	510.54	511.22	511.90	512.59	513.27	513.95	514.63	420
430	514.63	515.32	516.00	516.68	517.36	518.04	518.72	519.40	520.08	520.76	521.44	430
440	521.44	522.12	522.80	523.48	524.16	524.83	525.51	526.19	526.87	527.55	528.22	440
450	528.22	528.90	529.58	530.25	530.93	531.61	532.28	532.96	533.63	534.31	534.98	450
460	534.98	535.66	536.33	537.01	537.68	538.36	539.03	539.70	540.38	541.05	541.72	460
470	541.72	542.39	543.07	543.74	544.41	545.08	545.75	546.42	547.09	547.76	548.43	470
480	548.43	549.10	549.77	550.44	551.11	551.78	552.45	553.12	553.79	554.46	555.12	480
490	555.12	555.79	556.46	557.13	557.79	558.46	559.13	559.79	560.46	561.13	561.79	490
500	561.79	562.46	563.12	563.79	564.45	565.12	565.78	566.45	567.11	567.77	568.44	500
510	568.44	569.10	569.76	570.42	571.09	571.75	572.41	573.07	573.73	574.40	575.06	510
520	575.06	575.72	576.38	577.04	577.70	578.36	579.02	579.68	580.34	581.00	581.65	520
530	581.65	582.31	582.97	583.63	584.29	584.94	585.60	586.26	586.92	587.57	588.23	530
540	588.23	588.89	589.54	590.20	590.85	591.51	592.16	592.82	593.47	594.13	594.78	540
550	594.78	595.43	596.09	596.74	597.39	598.05	598.70	599.35	600.00	600.66	601.31	550
560	601.31	601.96	602.61	603.26	603.91	604.56	605.21	605.86	606.51	607.16	607.81	560
570	607.81	608.46	609.11	609.76	610.41	611.06	611.70	612.35	613.00	613.65	614.29	570
580	614.29	614.94	615.59	616.23	616.88	617.53	618.17	618.82	619.46	620.11	620.75	580
590	620.75	621.40	622.04	622.69	623.33	623.97	624.62	625.26	625.90	626.55	627.19	590
600	627.19	627.83	628.47	629.11	629.76	630.40	631.04	631.68	632.32	632.96	633.60	600
610	633.60	634.24	634.88	635.52	636.16	636.80	637.44	638.07	638.71	639.35	639.99	610
620	639.99	640.63	641.26	641.90	642.54	643.17	643.81	644.45	645.08	645.72	646.35	620
630	646.35	646.99	647.62	648.26	648.89	649.53	650.16	650.80	651.43	652.06	652.70	630
640	652.70	653.33	653.96	654.59	655.23	655.86	656.49	657.12	657.75	658.38	659.02	640
650	659.02	659.65	660.28	660.91	661.54	662.17	662.80	663.43	664.05	664.68	665.31	650
660	665.31	665.94	666.57	667.20	667.82	668.45	669.08	669.71	670.33	670.96	671.58	660
670	671.58	672.21	672.84	673.46	674.09	674.71	675.34	675.96	676.59	677.21	677.83	670
680	677.83	678.46	679.08	679.70	680.33	680.95	681.57	682.19	682.82	683.44	684.06	680
690	684.06	684.68	685.30	685.92	686.54	687.16	687.78	688.40	689.02	689.64	690.26	690
700	690.26	690.88	691.50	692.12	692.74	693.36	693.97	694.59	695.21	695.83	696.44	700
710	696.44	697.06	697.68	698.29	698.91	699.52	700.14	700.76	701.37	701.99	702.60	710
720	702.60	703.21	703.83	704.44	705.06	705.67	706.28	706.90	707.51	708.12	708.73	720
730	708.73	709.35	709.96	710.57	711.18	711.79	712.40	713.01	713.62	714.23	714.84	730
740	714.84	715.45	716.06	716.67	717.28	717.89	718.50	719.11	719.72	720.32	720.93	740
750	720.93	721.54	722.15	722.75	723.36	723.97	724.57	725.18	725.78	726.39	726.99	750
760	726.99	727.60	728.20	728.81	729.41	730.02	730.62	731.23	731.83	732.43	733.04	760
770	733.04	733.64	734.24	734.84	735.44	736.05	736.65	737.25	737.85	738.45	739.05	770
780	739.05	739.65	740.25	740.85	741.45	742.05	742.65	743.25	743.85	744.45	745.05	780
790	745.05	745.64	746.24	746.84	747.44	748.04	748.63	749.23	749.83	750.42	751.02	790

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Table 4-5. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
800	751.02	751.61	752.21	752.80	753.40	753.99	754.59	755.18	755.78	756.37	756.97	800
810	756.97	757.56	758.15	758.75	759.34	759.93	760.52	761.12	761.71	762.30	762.89	810
820	762.89	763.48	764.07	764.66	765.25	765.84	766.43	767.02	767.61	768.20	768.79	820
830	768.79	769.38	769.97	770.56	771.15	771.73	772.32	772.91	773.50	774.08	774.67	830
840	774.67	775.26	775.84	776.43	777.01	777.60	778.19	778.77	779.36	779.94	780.52	840

PLATINUM 200, ALPHA = 0.00385

Resistance as a Function of Temperature (°F)

Reference Standard: IEC 751

Table 4-6. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-330	36.02	36.51	36.99	37.47	37.95	38.43	38.91	39.39	39.87	40.35	40.83	-330
-320	40.83	41.31	41.78	42.26	42.74	43.22	43.70	44.17	44.65	45.13	45.61	-320
-310	45.61	46.08	46.56	47.04	47.51	47.99	48.46	48.94	49.41	49.89	50.36	-310
-300	50.36	50.84	51.31	51.79	52.26	52.74	53.21	53.68	54.16	54.63	55.10	-300
-290	55.10	55.57	56.05	56.52	56.99	57.46	57.93	58.41	58.88	59.35	59.82	-290
-280	59.82	60.29	60.76	61.23	61.70	62.17	62.64	63.11	63.58	64.05	64.52	-280
-270	64.52	64.99	65.45	65.92	66.39	66.86	67.33	67.79	68.26	68.73	69.20	-270
-260	69.20	69.66	70.13	70.60	71.06	71.53	71.99	72.46	72.93	73.39	73.86	-260
-250	73.86	74.32	74.79	75.25	75.72	76.18	76.65	77.11	77.57	78.04	78.50	-250
-240	78.50	78.96	79.43	79.89	80.35	80.82	81.28	81.74	82.20	82.67	83.13	-240
-230	83.13	83.59	84.05	84.51	84.97	85.43	85.90	86.36	86.82	87.28	87.74	-230
-220	87.74	88.20	88.66	89.12	89.58	90.04	90.50	90.96	91.42	91.87	92.33	-220
-210	92.33	92.79	93.25	93.71	94.17	94.63	95.08	95.54	96.00	96.46	96.91	-210
-200	96.91	97.37	97.83	98.28	98.74	99.20	99.65	100.11	100.57	101.02	101.48	-200
-190	101.48	101.93	102.39	102.85	103.30	103.76	104.21	104.67	105.12	105.58	106.03	-190
-180	106.03	106.49	106.94	107.39	107.85	108.30	108.76	109.21	109.66	110.12	110.57	-180
-170	110.57	111.02	111.48	111.93	112.38	112.83	113.29	113.74	114.19	114.64	115.09	-170
-160	115.09	115.55	116.00	116.45	116.90	117.35	117.80	118.25	118.71	119.16	119.61	-160
-150	119.61	120.06	120.51	120.96	121.41	121.86	122.31	122.76	123.21	123.66	124.11	-150
-140	124.11	124.56	125.01	125.46	125.91	126.35	126.80	127.25	127.70	128.15	128.60	-140
-130	128.60	129.05	129.49	129.94	130.39	130.84	131.29	131.73	132.18	132.63	133.08	-130
-120	133.08	133.52	133.97	134.42	134.86	135.31	135.76	136.20	136.65	137.10	137.54	-120
-110	137.54	137.99	138.44	138.88	139.33	139.77	140.22	140.66	141.11	141.55	142.00	-110
-100	142.00	142.45	142.89	143.34	143.78	144.22	144.67	145.11	145.56	146.00	146.45	-100
-90	146.45	146.89	147.34	147.78	148.22	148.67	149.11	149.55	150.00	150.44	150.88	-90
-80	150.88	151.33	151.77	152.21	152.66	153.10	153.54	153.98	154.43	154.87	155.31	-80
-70	155.31	155.75	156.20	156.64	157.08	157.52	157.96	158.41	158.85	159.29	159.73	-70
-60	159.73	160.17	160.61	161.05	161.50	161.94	162.38	162.82	163.26	163.70	164.14	-60
-50	164.14	164.58	165.02	165.46	165.90	166.34	166.78	167.22	167.66	168.10	168.54	-50
-40	168.54	168.98	169.42	169.86	170.30	170.74	171.18	171.62	172.06	172.50	172.94	-40
-30	172.94	173.37	173.81	174.25	174.69	175.13	175.57	176.01	176.44	176.88	177.32	-30
-20	177.32	177.76	178.20	178.63	179.07	179.51	179.95	180.39	180.82	181.26	181.70	-20
-10	181.70	182.14	182.57	183.01	183.45	183.88	184.32	184.76	185.19	185.63	186.07	-10
0	186.07	186.50	186.94	187.38	187.81	188.25	188.69	189.12	189.56	189.99	190.43	0
10	190.43	190.87	191.30	191.74	192.17	192.61	193.04	193.48	193.91	194.35	194.78	10
20	194.78	195.22	195.65	196.09	196.52	196.96	197.39	197.83	198.26	198.70	199.13	20
30	199.13	199.57	200.00	200.43	200.87	201.30	201.74	202.17	202.60	203.04	203.47	30
40	203.47	203.91	204.34	204.77	205.21	205.64	206.07	206.51	206.94	207.37	207.80	40

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Table 4-6. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
50	207.80	208.24	208.67	209.10	209.54	209.97	210.40	210.83	211.27	211.70	212.13	50
60	212.13	212.56	212.99	213.43	213.86	214.29	214.72	215.15	215.59	216.02	216.45	60
70	216.45	216.88	217.31	217.74	218.17	218.61	219.04	219.47	219.90	220.33	220.76	70
80	220.76	221.19	221.62	222.05	222.48	222.91	223.34	223.77	224.20	224.63	225.06	80
90	225.06	225.49	225.92	226.35	226.78	227.21	227.64	228.07	228.50	228.93	229.36	90
100	229.36	229.79	230.22	230.65	231.08	231.51	231.94	232.37	232.79	233.22	233.65	100
110	233.65	234.08	234.51	234.94	235.37	235.79	236.22	236.65	237.08	237.51	237.93	110
120	237.93	238.36	238.79	239.22	239.65	240.07	240.50	240.93	241.36	241.78	242.21	120
130	242.21	242.64	243.06	243.49	243.92	244.35	244.77	245.20	245.63	246.05	246.48	130
140	246.48	246.90	247.33	247.76	248.18	248.61	249.04	249.46	249.89	250.31	250.74	140
150	250.74	251.17	251.59	252.02	252.44	252.87	253.29	253.72	254.14	254.57	254.99	150
160	254.99	255.42	255.84	256.27	256.69	257.12	257.54	257.97	258.39	258.82	259.24	160
170	259.24	259.67	260.09	260.51	260.94	261.36	261.79	262.21	262.63	263.06	263.48	170
180	263.48	263.90	264.33	264.75	265.17	265.60	266.02	266.44	266.87	267.29	267.71	180
190	267.71	268.14	268.56	268.98	269.40	269.83	270.25	270.67	271.09	271.52	271.94	190
200	271.94	272.36	272.78	273.21	273.63	274.05	274.47	274.89	275.31	275.74	276.16	200
210	276.16	276.58	277.00	277.42	277.84	278.26	278.68	279.11	279.53	279.95	280.37	210
220	280.37	280.79	281.21	281.63	282.05	282.47	282.89	283.31	283.73	284.15	284.57	220
230	284.57	284.99	285.41	285.83	286.25	286.67	287.09	287.51	287.93	288.35	288.77	230
240	288.77	289.19	289.61	290.03	290.45	290.86	291.28	291.70	292.12	292.54	292.96	240
250	292.96	293.38	293.80	294.21	294.63	295.05	295.47	295.89	296.31	296.72	297.14	250
260	297.14	297.56	297.98	298.39	298.81	299.23	299.65	300.06	300.48	300.90	301.32	260
270	301.32	301.73	302.15	302.57	302.98	303.40	303.82	304.24	304.65	305.07	305.48	270
280	305.48	305.90	306.32	306.73	307.15	307.57	307.98	308.40	308.81	309.23	309.65	280
290	309.65	310.06	310.48	310.89	311.31	311.72	312.14	312.55	312.97	313.38	313.80	290
300	313.80	314.21	314.63	315.04	315.46	315.87	316.29	316.70	317.12	317.53	317.95	300
310	317.95	318.36	318.77	319.19	319.60	320.02	320.43	320.84	321.26	321.67	322.09	310
320	322.09	322.50	322.91	323.33	323.74	324.15	324.57	324.98	325.39	325.81	326.22	320
330	326.22	326.63	327.04	327.46	327.87	328.28	328.69	329.11	329.52	329.93	330.34	330
340	330.34	330.76	331.17	331.58	331.99	332.40	332.82	333.23	333.64	334.05	334.46	340
350	334.46	334.87	335.28	335.70	336.11	336.52	336.93	337.34	337.75	338.16	338.57	350
360	338.57	338.98	339.39	339.80	340.21	340.63	341.04	341.45	341.86	342.27	342.68	360
370	342.68	343.09	343.50	343.91	344.32	344.73	345.14	345.54	345.95	346.36	346.77	370
380	346.77	347.18	347.59	348.00	348.41	348.82	349.23	349.64	350.04	350.45	350.86	380
390	350.86	351.27	351.68	352.09	352.50	352.90	353.31	353.72	354.13	354.54	354.94	390
400	354.94	355.35	355.76	356.17	356.58	356.98	357.39	357.80	358.21	358.61	359.02	400
410	359.02	359.43	359.83	360.24	360.65	361.05	361.46	361.87	362.27	362.68	363.09	410
420	363.09	363.49	363.90	364.31	364.71	365.12	365.52	365.93	366.34	366.74	367.15	420
430	367.15	367.55	367.96	368.36	368.77	369.18	369.58	369.99	370.39	370.80	371.20	430
440	371.20	371.61	372.01	372.42	372.82	373.23	373.63	374.03	374.44	374.84	375.25	440
450	375.25	375.65	376.06	376.46	376.86	377.27	377.67	378.08	378.48	378.88	379.29	450
460	379.29	379.69	380.09	380.50	380.90	381.30	381.71	382.11	382.51	382.92	383.32	460
470	383.32	383.72	384.13	384.53	384.93	385.33	385.74	386.14	386.54	386.94	387.34	470
480	387.34	387.75	388.15	388.55	388.95	389.35	389.76	390.16	390.56	390.96	391.36	480
490	391.36	391.76	392.16	392.57	392.97	393.37	393.77	394.17	394.57	394.97	395.37	490
500	395.37	395.77	396.17	396.57	396.97	397.38	397.78	398.18	398.58	398.98	399.38	500
510	399.38	399.78	400.18	400.58	400.98	401.38	401.77	402.17	402.57	402.97	403.37	510
520	403.37	403.77	404.17	404.57	404.97	405.37	405.77	406.17	406.56	406.96	407.36	520
530	407.36	407.76	408.16	408.56	408.96	409.35	409.75	410.15	410.55	410.95	411.34	530
540	411.34	411.74	412.14	412.54	412.93	413.33	413.73	414.13	414.52	414.92	415.32	540
550	415.32	415.72	416.11	416.51	416.91	417.30	417.70	418.10	418.49	418.89	419.29	550
560	419.29	419.68	420.08	420.47	420.87	421.27	421.66	422.06	422.45	422.85	423.25	560
570	423.25	423.64	424.04	424.43	424.83	425.22	425.62	426.01	426.41	426.80	427.20	570

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Table 4-6. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
580	427.20	427.59	427.99	428.38	428.78	429.17	429.57	429.96	430.36	430.75	431.15	580
590	431.15	431.54	431.93	432.33	432.72	433.12	433.51	433.90	434.30	434.69	435.08	590
600	435.08	435.48	435.87	436.27	436.66	437.05	437.44	437.84	438.23	438.62	439.02	600
610	439.02	439.41	439.80	440.19	440.59	440.98	441.37	441.76	442.16	442.55	442.94	610
620	442.94	443.33	443.73	444.12	444.51	444.90	445.29	445.68	446.08	446.47	446.86	620
630	446.86	447.25	447.64	448.03	448.42	448.81	449.21	449.60	449.99	450.38	450.77	630
640	450.77	451.16	451.55	451.94	452.33	452.72	453.11	453.50	453.89	454.28	454.67	640
650	454.67	455.06	455.45	455.84	456.23	456.62	457.01	457.40	457.79	458.18	458.57	650
660	458.57	458.96	459.35	459.74	460.12	460.51	460.90	461.29	461.68	462.07	462.46	660
670	462.46	462.85	463.23	463.62	464.01	464.40	464.79	465.17	465.56	465.95	466.34	670
680	466.34	466.73	467.11	467.50	467.89	468.28	468.66	469.05	469.44	469.83	470.21	680
690	470.21	470.60	470.99	471.37	471.76	472.15	472.53	472.92	473.31	473.69	474.08	690
700	474.08	474.47	474.85	475.24	475.63	476.01	476.40	476.78	477.17	477.56	477.94	700
710	477.94	478.33	478.71	479.10	479.48	479.87	480.25	480.64	481.02	481.41	481.79	710
720	481.79	482.18	482.56	482.95	483.33	483.72	484.10	484.49	484.87	485.26	485.64	720
730	485.64	486.02	486.41	486.79	487.18	487.56	487.94	488.33	488.71	489.09	489.48	730
740	489.48	489.86	490.25	490.63	491.01	491.39	491.78	492.16	492.54	492.93	493.31	740
750	493.31	493.69	494.08	494.46	494.84	495.22	495.61	495.99	496.37	496.75	497.13	750
760	497.13	497.52	497.90	498.28	498.66	499.04	499.43	499.81	500.19	500.57	500.95	760
770	500.95	501.33	501.71	502.10	502.48	502.86	503.24	503.62	504.00	504.38	504.76	770
780	504.76	505.14	505.52	505.90	506.28	506.66	507.04	507.42	507.80	508.18	508.56	780
790	508.56	508.94	509.32	509.70	510.08	510.46	510.84	511.22	511.60	511.98	512.36	790
800	512.36	512.74	513.12	513.50	513.88	514.26	514.63	515.01	515.39	515.77	516.15	800
810	516.15	516.53	516.91	517.28	517.66	518.04	518.42	518.80	519.17	519.55	519.93	810
820	519.93	520.31	520.69	521.06	521.44	521.82	522.20	522.57	522.95	523.33	523.70	820
830	523.70	524.08	524.46	524.83	525.21	525.59	525.97	526.34	526.72	527.09	527.47	830
840	527.47	527.85	528.22	528.60	528.98	529.35	529.73	530.10	530.48	530.86	531.23	840
850	531.23	531.61	531.98	532.36	532.73	533.11	533.48	533.86	534.23	534.61	534.98	850
860	534.98	535.36	535.73	536.11	536.48	536.86	537.23	537.61	537.98	538.36	538.73	860
870	538.73	539.10	539.48	539.85	540.23	540.60	540.97	541.35	541.72	542.09	542.47	870
880	542.47	542.84	543.21	543.59	543.96	544.33	544.71	545.08	545.45	545.83	546.20	880
890	546.20	546.57	546.94	547.32	547.69	548.06	548.43	548.81	549.18	549.55	549.92	890
900	549.92	550.30	550.67	551.04	551.41	551.78	552.15	552.53	552.90	553.27	553.64	900
910	553.64	554.01	554.38	554.75	555.12	555.50	555.87	556.24	556.61	556.98	557.35	910
920	557.35	557.72	558.09	558.46	558.83	559.20	559.57	559.94	560.31	560.68	561.05	920
930	561.05	561.42	561.79	562.16	562.53	562.90	563.27	563.64	564.01	564.38	564.75	930
940	564.75	565.12	565.49	565.86	566.22	566.59	566.96	567.33	567.70	568.07	568.44	940
950	568.44	568.80	569.17	569.54	569.91	570.28	570.65	571.01	571.38	571.75	572.12	950
960	572.12	572.48	572.85	573.22	573.59	573.96	574.32	574.69	575.06	575.42	575.79	960
970	575.79	576.16	576.53	576.89	577.26	577.63	577.99	578.36	578.73	579.09	579.46	970
980	579.46	579.82	580.19	580.56	580.92	581.29	581.65	582.02	582.39	582.75	583.12	980
990	583.12	583.48	583.85	584.21	584.58	584.94	585.31	585.67	586.04	586.41	586.77	990
1000	586.77	587.13	587.50	587.86	588.23	588.59	588.96	589.32	589.69	590.05	590.42	1000
1010	590.42	590.78	591.14	591.51	591.87	592.24	592.60	592.96	593.33	593.69	594.05	1010
1020	594.05	594.42	594.78	595.14	595.51	595.87	596.23	596.60	596.96	597.32	597.68	1020
1030	597.68	598.05	598.41	598.77	599.13	599.50	599.86	600.22	600.58	600.95	601.31	1030
1040	601.31	601.67	602.03	602.39	602.76	603.12	603.48	603.84	604.20	604.56	604.92	1040
1050	604.92	605.29	605.65	606.01	606.37	606.73	607.09	607.45	607.81	608.17	608.53	1050
1060	608.53	608.89	609.26	609.62	609.98	610.34	610.70	611.06	611.42	611.78	612.14	1060
1070	612.14	612.50	612.86	613.22	613.58	613.94	614.29	614.65	615.01	615.37	615.73	1070
1080	615.73	616.09	616.45	616.81	617.17	617.53	617.89	618.24	618.60	618.96	619.32	1080
1090	619.32	619.68	620.04	620.39	620.75	621.11	621.47	621.83	622.18	622.54	622.90	1090
1100	622.90	623.26	623.62	623.97	624.33	624.69	625.05	625.40	625.76	626.12	626.47	1100

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Table 4-6. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1110	626.47	626.83	627.19	627.54	627.90	628.26	628.61	628.97	629.33	629.68	630.04	1110
1120	630.04	630.40	630.75	631.11	631.47	631.82	632.18	632.53	632.89	633.24	633.60	1120
1130	633.60	633.96	634.31	634.67	635.02	635.38	635.73	636.09	636.44	636.80	637.15	1130
1140	637.15	637.51	637.86	638.22	638.57	638.93	639.28	639.63	639.99	640.34	640.70	1140
1150	640.70	641.05	641.41	641.76	642.11	642.47	642.82	643.17	643.53	643.88	644.24	1150
1160	644.24	644.59	644.94	645.30	645.65	646.00	646.35	646.71	647.06	647.41	647.77	1160
1170	647.77	648.12	648.47	648.82	649.18	649.53	649.88	650.23	650.59	650.94	651.29	1170
1180	651.29	651.64	651.99	652.34	652.70	653.05	653.40	653.75	654.10	654.45	654.81	1180
1190	654.81	655.16	655.51	655.86	656.21	656.56	656.91	657.26	657.61	657.96	658.31	1190
1200	658.31	658.67	659.02	659.37	659.72	660.07	660.42	660.77	661.12	661.47	661.82	1200
1210	661.82	662.17	662.52	662.87	663.22	663.57	663.91	664.26	664.61	664.96	665.31	1210
1220	665.31	665.66	666.01	666.36	666.71	667.06	667.41	667.75	668.10	668.45	668.80	1220
1230	668.80	669.15	669.50	669.84	670.19	670.54	670.89	671.24	671.58	671.93	672.28	1230
1240	672.28	672.63	672.98	673.32	673.67	674.02	674.36	674.71	675.06	675.41	675.75	1240
1250	675.75	676.10	676.45	676.79	677.14	677.49	677.83	678.18	678.53	678.87	679.22	1250
1260	679.22	679.57	679.91	680.26	680.60	680.95	681.30	681.64	681.99	682.33	682.68	1260
1270	682.68	683.02	683.37	683.71	684.06	684.41	684.75	685.10	685.44	685.79	686.13	1270
1280	686.13	686.48	686.82	687.16	687.51	687.85	688.20	688.54	688.89	689.23	689.58	1280
1290	689.58	689.92	690.26	690.61	690.95	691.29	691.64	691.98	692.33	692.67	693.01	1290
1300	693.01	693.36	693.70	694.04	694.39	694.73	695.07	695.41	695.76	696.10	696.44	1300
1310	696.44	696.79	697.13	697.47	697.81	698.16	698.50	698.84	699.18	699.52	699.87	1310
1320	699.87	700.21	700.55	700.89	701.23	701.58	701.92	702.26	702.60	702.94	703.28	1320
1330	703.28	703.62	703.96	704.31	704.65	704.99	705.33	705.67	706.01	706.35	706.69	1330
1340	706.69	707.03	707.37	707.71	708.05	708.39	708.73	709.07	709.41	709.75	710.09	1340
1350	710.09	710.43	710.77	711.11	711.45	711.79	712.13	712.47	712.81	713.15	713.49	1350
1360	713.49	713.83	714.17	714.50	714.84	715.18	715.52	715.86	716.20	716.54	716.88	1360
1370	716.88	717.21	717.55	717.89	718.23	718.57	718.90	719.24	719.58	719.92	720.26	1370
1380	720.26	720.59	720.93	721.27	721.61	721.94	722.28	722.62	722.95	723.29	723.63	1380
1390	723.63	723.97	724.30	724.64	724.98	725.31	725.65	725.99	726.32	726.66	726.99	1390
1400	726.99	727.33	727.67	728.00	728.34	728.67	729.01	729.35	729.68	730.02	730.35	1400
1410	730.35	730.69	731.02	731.36	731.69	732.03	732.37	732.70	733.04	733.37	733.70	1410
1420	733.70	734.04	734.37	734.71	735.04	735.38	735.71	736.05	736.38	736.72	737.05	1420
1430	737.05	737.38	737.72	738.05	738.39	738.72	739.05	739.39	739.72	740.05	740.39	1430
1440	740.39	740.72	741.05	741.39	741.72	742.05	742.39	742.72	743.05	743.38	743.72	1440
1450	743.72	744.05	744.38	744.71	745.05	745.38	745.71	746.04	746.38	746.71	747.04	1450
1460	747.04	747.37	747.70	748.04	748.37	748.70	749.03	749.36	749.69	750.02	750.36	1460
1470	750.36	750.69	751.02	751.35	751.68	752.01	752.34	752.67	753.00	753.33	753.66	1470
1480	753.66	753.99	754.32	754.66	754.99	755.32	755.65	755.98	756.31	756.64	756.97	1480
1490	756.97	757.30	757.62	757.95	758.28	758.61	758.94	759.27	759.60	759.93	760.26	1490
1500	760.26	760.59	760.92	761.25	761.58	761.90	762.23	762.56	762.89	763.22	763.55	1500
1510	763.55	763.88	764.20	764.53	764.86	765.19	765.52	765.84	766.17	766.50	766.83	1510
1520	766.83	767.15	767.48	767.81	768.14	768.46	768.79	769.12	769.45	769.77	770.10	1520
1530	770.10	770.43	770.75	771.08	771.41	771.73	772.06	772.39	772.71	773.04	773.37	1530
1540	773.37	773.69	774.02	774.34	774.67	775.00	775.32	775.65	775.97	776.30	776.62	1540
1550	776.62	776.95	777.27	777.60	777.93	778.25	778.58	778.90	779.23	779.55	779.88	1550
1560	779.88	780.20	780.52									1560

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PLATINUM 500, ALPHA = 0.00385

Resistance as a Function of Temperature (°C)

Reference Standard: IEC 751

Table 4-7. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-200	92.47	94.63	96.79	98.95	101.11	103.26	105.42	107.57	109.72	111.87	114.02	-200
-190	114.02	116.16	118.30	120.45	122.59	124.72	126.86	129.00	131.13	133.26	135.39	-190
-180	135.39	137.52	139.64	141.77	143.89	146.01	148.13	150.25	152.37	154.49	156.60	-180
-170	156.60	158.71	160.82	162.93	165.04	167.15	169.25	171.35	173.46	175.56	177.66	-170
-160	177.66	179.75	181.85	183.94	186.04	188.13	190.22	192.31	194.40	196.48	198.57	-160
-150	198.57	200.65	202.73	204.82	206.89	208.97	211.05	213.13	215.20	217.27	219.35	-150
-140	219.35	221.42	223.49	225.55	227.62	229.69	231.75	233.81	235.88	237.94	240.00	-140
-130	240.00	242.05	244.11	246.17	248.22	250.28	252.33	254.38	256.43	258.48	260.53	-130
-120	260.53	262.58	264.62	266.67	268.71	270.75	272.80	274.84	276.88	278.91	280.95	-120
-110	280.95	282.99	285.02	287.06	289.09	291.12	293.15	295.19	297.21	299.24	301.27	-110
-100	301.27	303.30	305.32	307.35	309.37	311.39	313.42	315.44	317.46	319.48	321.49	-100
-90	321.49	323.51	325.53	327.54	329.56	331.57	333.58	335.60	337.61	339.62	341.63	-90
-80	341.63	343.63	345.64	347.65	349.65	351.66	353.66	355.67	357.67	359.67	361.67	-80
-70	361.67	363.67	365.67	367.67	369.67	371.67	373.66	375.66	377.65	379.65	381.64	-70
-60	381.64	383.63	385.63	387.62	389.61	391.60	393.59	395.57	397.56	399.55	401.53	-60
-50	401.53	403.52	405.50	407.49	409.47	411.45	413.44	415.42	417.40	419.38	421.36	-50
-40	421.36	423.33	425.31	427.29	429.27	431.24	433.22	435.19	437.17	439.14	441.11	-40
-30	441.11	443.08	445.05	447.02	448.99	450.96	452.93	454.90	456.87	458.84	460.80	-30
-20	460.80	462.77	464.73	466.70	468.66	470.62	472.59	474.55	476.51	478.47	480.43	-20
-10	480.43	482.39	484.35	486.31	488.27	490.22	492.18	494.14	496.09	498.05	500.00	-10
0	500.00	501.95	503.91	505.86	507.81	509.76	511.71	513.66	515.61	517.56	519.51	0
10	519.51	521.46	523.41	525.35	527.30	529.24	531.19	533.13	535.08	537.02	538.96	10
20	538.96	540.91	542.85	544.79	546.73	548.67	550.61	552.55	554.48	556.42	558.36	20
30	558.36	560.30	562.23	564.17	566.10	568.03	569.97	571.90	573.83	575.77	577.70	30
40	577.70	579.63	581.56	583.49	585.41	587.34	589.27	591.20	593.12	595.05	596.98	40
50	596.98	598.90	600.82	602.75	604.67	606.59	608.51	610.44	612.36	614.28	616.20	50
60	616.20	618.12	620.03	621.95	623.87	625.78	627.70	629.62	631.53	633.45	635.36	60
70	635.36	637.27	639.18	641.10	643.01	644.92	646.83	648.74	650.65	652.56	654.46	70
80	654.46	656.37	658.28	660.18	662.09	663.99	665.90	667.80	669.71	671.61	673.51	80
90	673.51	675.41	677.31	679.21	681.11	683.01	684.91	686.81	688.71	690.60	692.50	90
100	692.50	694.40	696.29	698.19	700.08	701.97	703.87	705.76	707.65	709.54	711.43	100
110	711.43	713.32	715.21	717.10	718.99	720.87	722.76	724.65	726.53	728.42	730.30	110
120	730.30	732.19	734.07	735.95	737.84	739.72	741.60	743.48	745.36	747.24	749.12	120
130	749.12	751.00	752.87	754.75	756.63	758.50	760.38	762.25	764.13	766.00	767.88	130
140	767.88	769.75	771.62	773.49	775.36	777.23	779.10	780.97	782.84	784.71	786.57	140
150	786.57	788.44	790.31	792.17	794.04	795.90	797.77	799.63	801.49	803.35	805.22	150
160	805.22	807.08	808.94	810.80	812.66	814.51	816.37	818.23	820.09	821.94	823.80	160
170	823.80	825.65	827.51	829.36	831.21	833.07	834.92	836.77	838.62	840.47	842.32	170
180	842.32	844.17	846.02	847.87	849.72	851.56	853.41	855.26	857.10	858.95	860.79	180
190	860.79	862.63	864.48	866.32	868.16	870.00	871.84	873.68	875.52	877.36	879.20	190
200	879.20	881.04	882.87	884.71	886.55	888.38	890.22	892.05	893.88	895.72	897.55	200
210	897.55	899.38	901.21	903.04	904.87	906.70	908.53	910.36	912.19	914.01	915.84	210
220	915.84	917.67	919.49	921.32	923.14	924.97	926.79	928.61	930.43	932.26	934.08	220
230	934.08	935.90	937.72	939.54	941.35	943.17	944.99	946.81	948.62	950.44	952.25	230
240	952.25	954.07	955.88	957.69	959.51	961.32	963.13	964.94	966.75	968.56	970.37	240
250	970.37	972.18	973.99	975.80	977.60	979.41	981.21	983.02	984.82	986.63	988.43	250
260	988.43	990.23	992.04	993.84	995.64	997.44	999.24	1001.04	1002.84	1004.64	1006.43	260

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Table 4-7. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
270	1006.43	1008.23	1010.03	1011.82	1013.62	1015.41	1017.21	1019.00	1020.79	1022.59	1024.38	270
280	1024.38	1026.17	1027.96	1029.75	1031.54	1033.33	1035.12	1036.91	1038.69	1040.48	1042.27	280
290	1042.27	1044.05	1045.84	1047.62	1049.40	1051.19	1052.97	1054.75	1056.53	1058.31	1060.09	290
300	1060.09	1061.87	1063.65	1065.43	1067.21	1068.99	1070.76	1072.54	1074.32	1076.09	1077.86	300
310	1077.86	1079.64	1081.41	1083.18	1084.96	1086.73	1088.50	1090.27	1092.04	1093.81	1095.58	310
320	1095.58	1097.35	1099.11	1100.88	1102.65	1104.41	1106.18	1107.94	1109.71	1111.47	1113.23	320
330	1113.23	1114.99	1116.76	1118.52	1120.28	1122.04	1123.80	1125.56	1127.31	1129.07	1130.83	330
340	1130.83	1132.58	1134.34	1136.10	1137.85	1139.60	1141.36	1143.11	1144.86	1146.62	1148.37	340
350	1148.37	1150.12	1151.87	1153.62	1155.37	1157.11	1158.86	1160.61	1162.36	1164.10	1165.85	350
360	1165.85	1167.59	1169.34	1171.08	1172.82	1174.57	1176.31	1178.05	1179.79	1181.53	1183.27	360
370	1183.27	1185.01	1186.75	1188.48	1190.22	1191.96	1193.69	1195.43	1197.17	1198.90	1200.63	370
380	1200.63	1202.37	1204.10	1205.83	1207.56	1209.29	1211.02	1212.75	1214.48	1216.21	1217.94	380
390	1217.94	1219.67	1221.39	1223.12	1224.85	1226.57	1228.30	1230.02	1231.74	1233.47	1235.19	390
400	1235.19	1236.91	1238.63	1240.35	1242.07	1243.79	1245.51	1247.23	1248.94	1250.66	1252.38	400
410	1252.38	1254.09	1255.81	1257.52	1259.24	1260.95	1262.66	1264.38	1266.09	1267.80	1269.51	410
420	1269.51	1271.22	1272.93	1274.64	1276.35	1278.06	1279.76	1281.47	1283.17	1284.88	1286.58	420
430	1286.58	1288.29	1289.99	1291.70	1293.40	1295.10	1296.80	1298.50	1300.20	1301.90	1303.60	430
440	1303.60	1305.30	1307.00	1308.69	1310.39	1312.09	1313.78	1315.48	1317.17	1318.87	1320.56	440
450	1320.56	1322.25	1323.94	1325.64	1327.33	1329.02	1330.71	1332.40	1334.08	1335.77	1337.46	450
460	1337.46	1339.15	1340.83	1342.52	1344.20	1345.89	1347.57	1349.26	1350.94	1352.62	1354.30	460
470	1354.30	1355.98	1357.66	1359.34	1361.02	1362.70	1364.38	1366.06	1367.73	1369.41	1371.09	470
480	1371.09	1372.76	1374.44	1376.11	1377.78	1379.46	1381.13	1382.80	1384.47	1386.14	1387.81	480
490	1387.81	1389.48	1391.15	1392.82	1394.49	1396.15	1397.82	1399.49	1401.15	1402.82	1404.48	490
500	1404.48	1406.14	1407.81	1409.47	1411.13	1412.79	1414.45	1416.11	1417.77	1419.43	1421.09	500
510	1421.09	1422.75	1424.41	1426.06	1427.72	1429.37	1431.03	1432.68	1434.34	1435.99	1437.64	510
520	1437.64	1439.29	1440.95	1442.60	1444.25	1445.90	1447.55	1449.19	1450.84	1452.49	1454.14	520
530	1454.14	1455.78	1457.43	1459.07	1460.72	1462.36	1464.00	1465.65	1467.29	1468.93	1470.57	530
540	1470.57	1472.21	1473.85	1475.49	1477.13	1478.77	1480.41	1482.04	1483.68	1485.32	1486.95	540
550	1486.95	1488.59	1490.22	1491.85	1493.49	1495.12	1496.75	1498.38	1500.01	1501.64	1503.27	550
560	1503.27	1504.90	1506.53	1508.16	1509.78	1511.41	1513.03	1514.66	1516.28	1517.91	1519.53	560
570	1519.53	1521.16	1522.78	1524.40	1526.02	1527.64	1529.26	1530.88	1532.50	1534.12	1535.74	570
580	1535.74	1537.35	1538.97	1540.59	1542.20	1543.82	1545.43	1547.04	1548.66	1550.27	1551.88	580
590	1551.88	1553.49	1555.10	1556.71	1558.32	1559.93	1561.54	1563.15	1564.76	1566.36	1567.97	590
600	1567.97	1569.58	1571.18	1572.79	1574.39	1575.99	1577.60	1579.20	1580.80	1582.40	1584.00	600
610	1584.00	1585.60	1587.20	1588.80	1590.40	1591.99	1593.59	1595.19	1596.78	1598.38	1599.97	610
620	1599.97	1601.57	1603.16	1604.75	1606.34	1607.94	1609.53	1611.12	1612.71	1614.30	1615.89	620
630	1615.89	1617.47	1619.06	1620.65	1622.24	1623.82	1625.41	1626.99	1628.58	1630.16	1631.74	630
640	1631.74	1633.32	1634.91	1636.49	1638.07	1639.65	1641.23	1642.81	1644.38	1645.96	1647.54	640
650	1647.54	1649.12	1650.69	1652.27	1653.84	1655.42	1656.99	1658.56	1660.14	1661.71	1663.28	650
660	1663.28	1664.85	1666.42	1667.99	1669.56	1671.13	1672.70	1674.26	1675.83	1677.40	1678.96	660
670	1678.96	1680.53	1682.09	1683.65	1685.22	1686.78	1688.34	1689.90	1691.46	1693.03	1694.58	670
680	1694.58	1696.14	1697.70	1699.26	1700.82	1702.37	1703.93	1705.49	1707.04	1708.60	1710.15	680
690	1710.15	1711.70	1713.26	1714.81	1716.36	1717.91	1719.46	1721.01	1722.56	1724.11	1725.66	690
700	1725.66	1727.21	1728.75	1730.30	1731.85	1733.39	1734.94	1736.48	1738.02	1739.57	1741.11	700
710	1741.11	1742.65	1744.19	1756.73	1747.27	1748.81	1750.35	1751.89	1753.43	1754.96	1756.50	710
720	1756.50	1758.04	1759.57	1761.11	1762.64	1764.17	1765.71	1767.24	1768.77	1770.30	1771.83	720
730	1771.83	1773.36	1774.89	1776.42	1777.95	1779.48	1781.01	1782.53	1784.06	1785.58	1787.11	730
740	1787.11	1788.63	1790.16	1791.68	1793.20	1794.72	1796.25	1797.77	1799.29	1800.81	1802.33	740
750	1802.33	1803.85	1805.36	1806.99	1808.40	1809.91	1811.43	1812.94	1814.46	1815.97	1817.49	750
760	1817.49	1819.00	1820.51	1822.02	1823.53	1825.04	1826.55	1828.06	1829.57	1831.08	1832.59	760
770	1832.59	1834.09	1835.60	1837.11	1838.61	1840.12	1841.62	1843.12	1844.63	1846.13	1847.63	770
780	1847.63	1849.13	1850.63	1852.13	1853.63	1855.13	1856.63	1858.13	1859.62	1861.12	1862.62	780
790	1862.62	1864.11	1865.61	1867.10	1868.59	1870.09	1871.58	1873.07	1874.56	1876.05	1877.54	790

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Table 4-7. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
800	1877.54	1879.03	1880.52	1882.01	1883.50	1884.99	1886.47	1887.96	1889.44	1890.93	1892.41	800
810	1892.41	1893.90	1895.38	1896.86	1898.35	1899.83	1901.31	1902.79	1904.27	1905.75	1907.23	810
820	1907.23	1908.70	1910.18	1911.66	1913.13	1914.61	1916.08	1917.56	1919.03	1920.51	1921.98	820
830	1921.98	1923.45	1924.92	1926.39	1927.86	1929.33	1930.80	1932.27	1933.74	1935.21	1936.67	830
840	1936.67	1938.14	1939.61	1941.07	1942.54	1944.00	1945.46	1946.93	1948.39	1949.85	1951.31	840

PLATINUM 500, ALPHA = 0.00385

Resistance as a Function of Temperature (°F)

Reference Standard: IEC 751

Table 4-8. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-330	90.06	91.26	92.47	93.67	94.87	96.07	97.27	98.47	99.67	100.87	102.07	-330
-320	102.07	103.26	104.46	105.66	106.85	108.05	109.24	110.44	111.63	112.82	114.02	-320
-310	114.02	115.21	116.40	117.59	118.78	119.97	121.16	122.35	123.54	124.72	125.91	-310
-300	125.91	127.10	128.28	129.47	130.65	131.84	133.02	134.21	135.39	136.57	137.75	-300
-290	137.75	138.94	140.12	141.30	142.48	143.66	144.84	146.01	147.19	148.37	149.55	-290
-280	149.55	150.72	151.90	153.08	154.25	155.43	156.60	157.77	158.95	160.12	161.29	-280
-270	161.29	162.46	163.64	164.81	165.98	167.15	167.32	169.49	170.65	171.82	172.99	-270
-260	172.99	174.16	175.32	176.49	177.66	178.82	179.99	181.15	182.32	183.48	184.64	-260
-250	184.64	185.81	186.97	188.13	189.29	190.45	191.61	192.77	193.93	195.09	196.25	-250
-240	196.25	197.41	198.57	199.73	200.88	202.04	203.20	204.35	205.51	206.66	207.82	-240
-230	207.82	208.97	210.13	211.28	212.43	213.59	214.74	215.89	217.04	218.19	219.35	-230
-220	219.35	220.50	221.65	222.80	223.95	225.09	226.24	227.39	228.54	229.69	230.83	-220
-210	230.83	231.98	233.13	234.27	235.42	236.56	237.71	238.85	240.00	241.14	242.28	-210
-200	242.28	243.43	244.57	245.71	246.85	247.99	249.14	250.28	251.42	252.56	253.70	-200
-190	253.70	254.84	255.98	257.11	258.25	259.39	260.53	261.67	262.80	263.94	265.08	-190
-180	265.08	266.21	267.35	268.48	269.62	270.75	271.89	273.02	274.16	275.29	276.42	-180
-170	276.42	277.56	278.69	279.82	280.95	282.08	283.21	284.34	285.48	286.61	287.74	-170
-160	287.74	288.87	289.99	291.12	292.25	293.38	294.51	295.64	296.76	297.89	299.02	-160
-150	299.02	300.14	301.27	302.40	303.52	304.65	305.77	306.90	308.02	309.15	310.27	-150
-140	310.27	311.39	312.52	313.64	314.76	315.89	317.01	318.13	319.25	320.37	321.49	-140
-130	321.49	322.61	323.73	324.85	325.97	327.09	328.21	329.33	330.45	331.57	332.69	-130
-120	332.69	333.81	334.92	336.04	337.16	338.28	339.39	340.51	341.63	342.74	343.86	-120
-110	343.86	344.97	346.09	347.20	348.32	349.43	350.55	351.66	352.77	353.89	355.00	-110
-100	355.00	356.11	357.23	358.34	359.45	360.56	361.67	362.78	363.90	365.01	366.12	-100
-90	366.12	367.23	368.34	369.45	370.56	371.67	372.78	373.89	374.99	376.10	377.21	-90
-80	377.21	378.32	379.43	380.53	381.64	382.75	383.86	384.96	386.07	387.17	388.28	-80
-70	388.28	389.39	390.49	391.60	392.70	393.81	394.91	396.02	397.12	398.22	399.33	-70
-60	399.33	400.43	401.53	402.64	403.74	404.84	405.95	407.05	408.15	409.25	410.35	-60
-50	410.35	411.45	412.55	413.66	414.76	415.86	416.96	418.06	419.16	420.26	421.36	-50
-40	421.36	422.46	423.55	424.65	425.75	426.85	427.95	429.05	430.14	431.24	432.34	-40
-30	432.34	433.44	434.53	435.63	436.73	437.82	438.92	440.02	441.11	442.21	443.30	-30
-20	443.30	444.40	445.49	446.59	447.68	448.78	449.87	450.96	452.06	453.15	454.25	-20
-10	454.25	455.34	456.43	457.52	458.62	459.71	460.80	461.89	462.99	464.08	465.17	-10
0	465.17	466.26	467.35	468.44	469.53	470.62	471.71	472.80	473.89	474.98	476.07	0
10	476.07	477.16	478.25	479.34	480.43	481.52	482.61	483.70	484.78	485.87	486.96	10
20	486.96	488.05	489.14	490.22	491.31	492.40	493.48	494.57	495.66	496.74	497.83	20
30	497.83	498.91	500.00	501.09	502.17	503.26	504.34	505.43	506.51	507.59	508.68	30
40	508.68	509.76	510.85	511.93	513.01	514.10	515.18	516.26	517.35	518.43	519.51	40

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Table 4-8. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
50	519.51	520.59	521.68	522.76	523.84	524.92	526.00	527.08	528.16	529.24	530.33	50
60	530.33	531.41	532.49	533.57	534.65	535.73	536.81	537.88	538.96	540.04	541.12	60
70	541.12	542.20	543.28	544.36	545.44	546.51	547.59	548.67	549.75	550.82	551.90	70
80	551.90	552.98	554.05	555.13	556.21	557.28	558.36	559.44	560.51	561.59	562.66	80
90	562.66	563.74	564.81	565.89	566.96	568.03	569.11	570.18	571.26	572.33	573.40	90
100	573.40	574.48	575.55	576.62	577.70	578.77	579.84	580.91	581.99	583.06	584.13	100
110	584.13	585.20	586.27	587.34	588.41	589.48	590.56	591.63	592.70	593.77	594.84	110
120	594.84	595.91	596.98	598.04	599.11	600.18	601.25	602.32	603.39	604.46	605.53	120
130	605.53	606.59	607.66	608.73	609.80	610.86	611.93	613.00	614.06	615.13	616.20	130
140	616.20	617.26	618.33	619.39	620.46	621.53	622.59	623.66	624.72	625.78	626.85	140
150	626.85	627.91	628.98	630.04	631.11	632.17	633.23	634.30	635.36	636.42	637.48	150
160	637.48	638.55	639.61	640.67	641.73	642.80	643.86	644.92	645.98	647.04	648.10	160
170	648.10	649.16	650.22	651.28	652.34	653.40	654.46	655.52	656.58	657.64	658.70	170
180	658.70	659.76	660.82	661.88	662.94	663.99	665.05	666.11	667.17	668.23	669.28	180
190	669.28	670.34	671.40	672.45	673.51	674.57	675.62	676.68	677.74	678.79	679.85	190
200	679.85	680.90	681.96	683.01	684.07	685.12	686.18	687.23	688.29	689.34	690.39	200
210	690.39	691.45	692.50	693.55	694.61	695.66	696.71	697.76	698.82	699.87	700.92	210
220	700.92	701.97	703.02	704.08	705.13	706.18	707.23	708.28	709.33	710.38	711.43	220
230	711.43	712.48	713.53	714.58	715.63	716.68	717.73	718.78	719.83	720.87	721.92	230
240	721.92	722.97	724.02	725.07	726.11	727.16	728.21	729.26	730.30	731.35	732.40	240
250	732.40	733.44	734.49	735.54	736.58	737.63	738.67	739.72	740.76	741.81	742.85	250
260	742.85	743.90	744.94	745.99	747.03	748.07	749.12	750.16	751.21	752.25	753.29	260
270	753.29	754.33	755.38	756.42	757.46	758.50	759.55	760.59	761.63	762.67	763.71	270
280	763.71	764.75	765.79	766.83	767.88	768.92	769.96	771.00	772.04	773.08	774.11	280
290	774.11	775.15	776.19	777.23	778.27	779.31	780.35	781.39	782.42	783.46	784.50	290
300	784.50	785.54	786.57	787.61	788.65	789.69	790.72	791.76	792.79	793.83	794.87	300
310	794.87	795.90	796.94	797.97	799.01	800.04	801.08	802.11	803.15	804.18	805.22	310
320	805.22	806.25	807.28	808.32	809.35	810.38	811.42	812.45	813.48	814.51	815.55	320
330	815.55	816.58	817.61	818.64	819.67	820.70	821.74	822.77	823.80	824.83	825.86	330
340	825.86	826.89	827.92	828.95	829.98	831.01	832.04	833.07	834.10	835.13	836.15	340
350	836.15	837.18	838.21	839.24	840.27	841.29	842.32	843.35	844.38	845.40	846.43	350
360	846.43	847.46	848.48	849.51	850.54	851.56	852.59	853.61	854.64	855.67	856.69	360
370	856.69	857.72	858.74	859.76	860.79	861.81	862.84	863.86	864.89	865.91	866.93	370
380	866.93	867.96	868.98	870.00	871.02	872.05	873.07	874.09	875.11	876.13	877.16	380
390	877.16	878.18	879.20	880.22	881.24	882.26	883.28	884.30	885.32	886.34	887.36	390
400	887.36	888.38	889.40	890.42	891.44	892.46	893.48	894.49	895.51	896.53	897.55	400
410	897.55	898.57	899.58	900.60	901.62	902.64	903.65	904.67	905.69	906.70	907.72	410
420	907.72	908.73	909.75	910.77	911.78	912.80	913.81	914.83	915.84	916.86	917.87	420
430	917.87	918.88	919.90	920.91	921.93	922.94	923.95	924.97	925.98	926.99	928.00	430
440	928.00	929.02	930.03	931.04	932.05	933.06	934.08	935.09	936.10	937.11	938.12	440
450	938.12	939.13	940.14	941.15	942.16	943.17	944.18	945.19	946.20	947.21	948.22	450
460	948.22	949.23	950.24	951.24	952.25	953.26	954.27	955.28	956.28	957.29	958.30	460
470	958.30	959.31	960.31	961.32	962.33	963.33	964.34	965.34	966.35	967.36	968.36	470
480	968.36	969.37	970.37	971.38	972.38	973.39	974.39	975.39	976.40	977.40	978.41	480
490	978.41	979.41	980.41	981.42	982.42	983.42	984.42	985.43	986.43	987.43	988.43	490
500	988.43	989.43	990.44	991.44	992.44	993.44	994.44	995.44	996.44	997.44	998.44	500
510	998.44	999.44	1000.44	1001.44	1002.44	1003.44	1004.44	1005.44	1006.43	1007.43	1008.43	510
520	1008.43	1009.43	1010.43	1011.42	1012.42	1013.42	1014.42	1015.41	1016.41	1017.41	1018.40	520
530	1018.40	1019.40	1020.40	1021.39	1022.39	1023.38	1024.38	1025.37	1026.37	1027.36	1028.36	530
540	1028.36	1029.35	1030.35	1031.34	1032.34	1033.33	1034.32	1035.32	1036.31	1037.30	1038.30	540
550	1038.30	1039.29	1040.28	1041.27	1042.27	1043.26	1044.25	1045.24	1046.23	1047.22	1048.21	550
560	1048.21	1049.21	1050.20	1051.19	1052.18	1053.17	1054.16	1055.15	1056.14	1057.13	1058.12	560
570	1058.12	1059.11	1060.09	1061.08	1062.07	1063.06	1064.05	1065.04	1066.02	1067.01	1068.00	570

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Table 4-8. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
580	1068.00	1068.99	1069.97	1070.96	1071.95	1072.93	1073.92	1074.91	1075.89	1076.88	1077.86	580
590	1077.86	1078.85	1079.84	1080.82	1081.81	1082.79	1083.78	1084.76	1085.74	1086.73	1087.71	590
600	1087.71	1088.70	1089.68	1090.66	1091.65	1092.63	1093.61	1094.59	1095.58	1096.56	1097.54	600
610	1097.54	1098.52	1099.51	1100.49	1101.47	1102.45	1103.43	1104.41	1105.39	1106.37	1107.35	610
620	1107.35	1108.33	1109.31	1110.29	1111.27	1112.25	1113.23	1114.21	1115.19	1116.17	1117.15	620
630	1117.15	1118.13	1119.10	1120.08	1121.06	1122.04	1123.01	1123.99	1134.73	1135.71	1136.68	630
640	1136.68	1137.66	1138.63	1139.60	1140.58	1141.55	1142.53	1143.50	1144.47	1145.45	1146.42	640
650	1146.42	1147.39	1148.37	1149.34	1150.31	1151.28	1152.26	1153.23	1154.20	1155.17	1156.14	650
660	1156.14	1157.11	1158.08	1159.06	1160.03	1161.00	1161.97	1162.94	1163.91	1164.88	1165.85	660
670	1165.85	1166.82	1167.79	1168.75	1169.72	1170.69	1171.55	1172.63	1173.60	1174.57	1175.53	670
680	1165.85	1166.82	1167.79	1168.75	1169.72	1170.69	1171.66	1172.63	1173.60	1174.57	1175.53	680
690	1175.53	1176.50	1177.47	1178.44	1179.40	1180.37	1181.34	1182.30	1183.27	1184.24	1185.20	690
700	1185.20	1186.17	1187.13	1188.10	1189.06	1190.03	1190.99	1191.96	1192.92	1193.89	1194.85	700
710	1194.85	1195.82	1196.78	1197.74	1198.71	1199.67	1200.63	1201.60	1202.56	1203.52	1204.48	710
720	1204.48	1205.45	1206.41	1207.37	1208.33	1209.29	1210.26	1211.22	1212.18	1213.14	1214.10	720
730	1214.10	1215.06	1216.02	1216.98	1217.94	1218.90	1219.86	1220.82	1221.78	1222.74	1223.70	730
740	1223.70	1224.65	1225.61	1226.57	1227.53	1228.49	1229.45	1230.40	1231.36	1232.32	1233.27	740
750	1233.27	1234.23	1235.19	1236.14	1237.10	1238.06	1239.01	1239.97	1240.92	1241.88	1242.84	750
760	1242.84	1243.79	1244.75	1245.70	1246.65	1247.61	1248.56	1249.52	1250.47	1251.42	1252.38	760
770	1252.38	1253.33	1254.28	1255.24	1256.19	1257.14	1258.10	1259.05	1260.00	1260.95	1261.90	770
780	1261.90	1262.85	1263.81	1264.76	1265.71	1266.66	1267.61	1268.56	1269.51	1270.46	1271.41	780
790	1271.41	1272.36	1273.31	1274.26	1275.21	1276.16	1277.11	1278.06	1279.00	1279.95	1280.90	790
800	1280.90	1281.85	1282.80	1283.74	1284.69	1285.64	1286.58	1287.53	1288.48	1289.42	1290.37	800
810	1290.37	1291.32	1292.26	1293.21	1294.15	1295.10	1296.05	1296.99	1297.94	1298.88	1299.82	810
820	1299.82	1300.77	1301.71	1302.66	1303.60	1304.54	1305.49	1306.43	1307.37	1308.32	1309.26	820
830	1309.26	1310.20	1311.15	1312.09	1313.03	1313.97	1314.91	1315.85	1316.80	1317.74	1318.68	830
840	1318.68	1319.62	1320.56	1321.50	1322.44	1323.38	1324.32	1325.26	1326.20	1327.14	1328.08	840
850	1328.08	1329.02	1329.96	1330.89	1331.83	1332.77	1333.71	1334.65	1335.58	1336.52	1337.46	850
860	1337.46	1338.40	1339.33	1340.27	1341.21	1342.14	1343.08	1344.02	1344.95	1345.89	1346.82	860
870	1346.82	1347.76	1348.69	1349.63	1350.56	1351.50	1352.43	1353.37	1354.30	1355.24	1356.17	870
880	1356.17	1357.10	1358.04	1358.97	1359.90	1360.84	1361.77	1362.70	1363.63	1364.57	1365.50	880
890	1365.50	1366.43	1367.36	1368.29	1369.22	1370.15	1371.09	1372.02	1372.95	1373.88	1374.81	890
900	1374.81	1375.74	1376.67	1377.60	1378.53	1379.46	1380.39	1381.31	1382.24	1383.17	1384.10	900
910	1384.10	1385.03	1385.96	1386.88	1387.81	1388.74	1389.67	1390.59	1391.52	1392.45	1393.37	910
920	1393.37	1394.30	1395.23	1396.15	1397.08	1398.00	1398.93	1399.86	1400.78	1401.71	1402.63	920
930	1402.63	1403.56	1404.48	1405.40	1406.33	1407.25	1408.18	1409.10	1410.02	1410.95	1411.87	930
940	1411.87	1412.79	1413.72	1414.64	1415.56	1416.48	1417.40	1418.33	1419.25	1420.17	1421.09	940
950	1421.09	1422.01	1422.93	1423.85	1424.77	1425.69	1426.61	1427.53	1428.45	1429.37	1430.29	950
960	1430.29	1431.21	1432.13	1433.05	1433.97	1434.89	1435.81	1436.72	1437.64	1438.56	1439.48	960
970	1439.48	1440.40	1441.31	1442.23	1443.15	1444.06	1444.98	1445.90	1446.81	1447.73	1448.64	970
980	1448.64	1449.56	1450.48	1451.39	1452.31	1453.22	1454.14	1455.05	1455.97	1456.88	1457.79	980
990	1457.79	1458.71	1459.62	1460.54	1461.45	1462.36	1463.27	1464.19	1465.10	1466.01	1466.92	990
1000	1466.92	1467.84	1468.75	1469.66	1470.57	1471.48	1472.40	1473.31	1474.22	1475.13	1476.04	1000
1010	1476.04	1476.95	1477.86	1478.77	1479.68	1480.59	1481.50	1482.41	1483.32	1484.22	1485.13	1010
1020	1485.13	1486.04	1486.95	1487.86	1488.77	1489.67	1490.58	1491.49	1492.40	1493.30	1494.21	1020
1030	1494.21	1495.12	1496.02	1496.93	1497.84	1498.74	1499.65	1500.55	1501.46	1502.37	1503.27	1030
1040	1503.27	1504.18	1505.08	1505.98	1506.89	1507.79	1508.70	1509.60	1510.51	1511.41	1512.31	1040
1050	1512.31	1513.22	1514.12	1515.02	1515.92	1516.83	1517.73	1518.63	1519.53	1520.43	1521.34	1050
1060	1521.34	1522.24	1523.14	1524.04	1524.94	1525.84	1526.74	1527.64	1528.54	1529.44	1530.34	1060
1070	1530.34	1531.24	1532.14	1533.04	1533.94	1534.84	1535.74	1536.63	1537.53	1538.43	1539.33	1070
1080	1539.33	1540.23	1541.12	1542.02	1542.92	1543.82	1544.71	1545.61	1546.51	1547.40	1548.30	1080
1090	1548.30	1549.20	1550.09	1550.99	1551.88	1552.78	1553.67	1554.57	1555.46	1556.36	1557.25	1090
1100	1557.25	1558.15	1559.04	1559.93	1560.83	1561.72	1562.61	1563.51	1564.40	1565.29	1566.19	1100

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Table 4-8. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
1110	1566.19	1567.08	1567.97	1568.86	1569.75	1570.65	1571.54	1572.43	1573.32	1574.21	1575.10	1110
1120	1575.10	1575.99	1576.88	1577.77	1578.66	1579.55	1580.44	1581.33	1582.22	1583.11	1584.00	1120
1130	1584.00	1584.89	1585.78	1586.67	1587.55	1588.44	1589.33	1590.22	1591.11	1591.99	1592.88	1130
1140	1592.88	1593.77	1594.65	1595.54	1596.43	1597.31	1598.20	1599.09	1599.97	1600.86	1601.74	1140
1150	1601.74	1602.63	1603.51	1604.40	1605.28	1606.17	1607.05	1607.94	1608.82	1609.70	1610.59	1150
1160	1610.59	1611.47	1612.35	1613.24	1614.12	1615.00	1615.89	1616.77	1617.65	1618.53	1619.41	1160
1170	1619.41	1620.30	1621.18	1622.06	1622.94	1623.82	1624.70	1625.58	1626.46	1627.34	1628.22	1170
1180	1628.22	1629.10	1629.98	1630.86	1631.74	1632.62	1633.50	1634.38	1635.26	1636.14	1637.01	1180
1190	1637.01	1637.89	1638.77	1639.65	1640.53	1641.40	1642.28	1643.16	1644.03	1644.91	1645.79	1190
1200	1645.79	1646.66	1647.54	1648.42	1649.29	1650.17	1651.04	1651.92	1652.79	1653.67	1654.54	1200
1210	1654.54	1655.42	1656.29	1657.17	1658.04	1658.91	1659.79	1660.66	1661.53	1662.41	1663.28	1210
1220	1663.28	1664.15	1665.02	1665.90	1666.77	1667.64	1668.51	1669.38	1670.26	1671.13	1672.00	1220
1230	1672.00	1672.87	1673.74	1674.61	1675.48	1676.35	1677.22	1678.09	1678.96	1679.83	1680.70	1230
1240	1680.70	1681.57	1682.44	1683.31	1684.18	1685.04	1685.91	1686.78	1687.65	1688.52	1689.38	1240
1250	1689.38	1690.25	1691.12	1691.98	1692.85	1693.72	1694.58	1695.45	1696.32	1697.18	1698.05	1250
1260	1698.05	1698.91	1699.78	1700.65	1701.51	1702.37	1703.24	1704.10	1704.97	1705.83	1706.70	1260
1270	1706.70	1707.56	1708.42	1709.29	1710.15	1711.01	1711.88	1712.74	1713.60	1714.46	1715.33	1270
1280	1715.33	1716.19	1717.05	1717.91	1718.77	1719.63	1720.50	1721.36	1722.22	1723.08	1723.94	1280
1290	1723.94	1724.80	1725.66	1726.52	1727.38	1728.24	1729.10	1729.96	1730.81	1731.67	1732.53	1290
1300	1732.53	1733.39	1734.25	1735.11	1735.96	1736.82	1737.68	1738.54	1739.39	1740.25	1741.11	1300
1310	1741.11	1741.96	1742.82	1743.68	1744.53	1745.39	1746.24	1747.10	1747.96	1748.81	1749.67	1310
1320	1749.67	1750.52	1751.38	1752.23	1753.08	1753.94	1754.79	1755.65	1756.50	1757.35	1758.21	1320
1330	1758.21	1759.06	1759.91	1760.76	1761.62	1762.47	1763.32	1764.17	1765.03	1765.88	1766.73	1330
1340	1766.73	1767.58	1768.43	1769.28	1770.13	1770.98	1771.83	1772.68	1773.53	1774.38	1775.23	1340
1350	1775.23	1776.08	1776.93	1777.78	1778.63	1779.48	1780.33	1781.18	1782.02	1782.87	1783.72	1350
1360	1783.72	1784.57	1785.41	1786.26	1787.11	1787.96	1788.80	1789.65	1790.50	1791.34	1792.19	1360
1370	1792.19	1793.03	1793.88	1794.72	1795.57	1796.42	1797.26	1798.11	1798.95	1799.79	1800.64	1370
1380	1800.64	1801.48	1802.33	1803.17	1804.01	1804.86	1805.70	1806.54	1807.39	1808.23	1809.07	1380
1390	1809.07	1809.91	1810.76	1811.60	1812.44	1813.28	1814.12	1814.96	1815.80	1816.65	1817.49	1390
1400	1817.49	1818.33	1819.17	1820.01	1820.85	1821.69	1822.53	1823.37	1824.21	1825.04	1825.88	1400
1410	1825.88	1826.72	1827.56	1828.40	1829.24	1830.07	1830.91	1831.75	1832.59	1833.42	1834.26	1410
1420	1834.26	1835.10	1835.94	1836.77	1837.61	1838.44	1839.28	1840.12	1840.95	1841.79	1842.62	1420
1430	1842.62	1843.46	1844.29	1845.13	1845.96	1846.80	1847.63	1848.47	1849.30	1850.13	1850.97	1430
1440	1850.97	1851.80	1852.63	1853.47	1854.30	1855.13	1855.96	1856.80	1857.63	1858.46	1859.29	1440
1450	1859.29	1860.12	1860.95	1861.79	1862.62	1863.45	1864.28	1865.11	1865.94	1866.77	1867.60	1450
1460	1867.60	1868.43	1869.26	1870.09	1870.92	1871.75	1872.57	1873.40	1874.23	1875.06	1875.89	1460
1470	1875.89	1876.72	1877.54	1878.37	1879.20	1880.03	1880.85	1881.68	1882.51	1883.33	1884.16	1470
1480	1884.16	1884.99	1885.81	1886.64	1887.46	1888.29	1889.11	1889.94	1890.76	1891.59	1892.41	1480
1490	1892.41	1893.24	1894.06	1894.89	1895.71	1896.53	1897.36	1898.18	1899.00	1899.83	1900.65	1490
1500	1900.65	1901.47	1902.29	1903.12	1903.94	1904.76	1905.58	1906.40	1907.23	1908.05	1908.87	1500
1510	1908.87	1909.69	1910.51	1911.33	1912.15	1912.97	1913.79	1914.61	1915.43	1916.25	1917.07	1510
1520	1917.07	1917.89	1918.71	1919.52	1920.34	1921.16	1921.98	1922.80	1923.61	1924.43	1925.25	1520
1530	1925.25	1926.07	1926.88	1927.70	1928.52	1929.33	1930.15	1930.97	1931.78	1932.60	1933.41	1530
1540	1933.41	1934.23	1935.04	1935.86	1936.67	1937.49	1938.30	1939.12	1939.93	1940.75	1941.56	1540
1550	1941.56	1942.37	1943.19	1944.00	1944.81	1945.63	1946.44	1947.25	1948.06	1948.88	1949.69	1550
1560	1949.69	1950.50	1951.31									1560

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NICKEL 120

Resistance as a Function of Temperature (°C) Reference Standard: Edison Curve 7

Table 4-9. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-70	73.10	73.75	74.40	75.05	75.71	76.36	77.01	77.66	78.31	78.97	79.62	-70
-60	79.62	80.27	80.93	81.58	82.24	82.89	83.55	84.20	84.86	85.51	86.17	-60
-50	86.17	86.83	87.48	88.14	88.80	89.46	90.12	90.78	91.44	92.10	92.76	-50
-40	92.76	93.42	94.08	94.75	95.41	96.08	96.74	97.41	98.08	98.74	99.41	-40
-30	99.41	100.08	100.75	101.42	102.09	102.77	103.44	104.12	104.79	105.47	106.15	-30
-20	106.15	106.83	107.51	108.19	108.87	109.56	110.24	110.93	111.62	112.31	113.00	-20
-10	113.00	113.69	114.39	115.08	115.78	116.48	117.18	117.88	118.59	119.29	120.00	-10
0	120.00	120.71	121.42	122.13	122.85	123.56	124.28	125.00	125.72	126.44	127.17	0
10	127.17	127.90	128.62	129.35	130.09	130.82	131.56	132.29	133.03	133.77	134.52	10
20	134.52	135.24	134.01	134.76	137.51	138.26	139.02	139.77	140.53	141.29	142.06	20
30	142.06	142.82	143.59	144.36	145.13	145.90	146.68	147.45	148.23	149.01	149.80	30
40	149.80	150.58	151.37	152.16	152.95	153.74	154.54	155.34	156.14	156.94	157.74	40
50	157.74	158.55	159.36	160.17	160.98	161.79	162.61	163.43	164.25	165.07	165.90	50
60	165.90	166.73	167.56	168.39	169.22	170.06	170.89	171.73	172.58	173.42	174.27	60
70	174.27	175.11	175.97	176.82	177.67	178.53	179.39	180.25	181.11	181.98	182.85	70
80	182.85	183.72	184.59	185.46	186.34	187.22	188.10	188.98	189.86	190.75	191.64	80
90	191.64	192.53	193.42	194.32	195.21	196.11	197.02	197.92	198.83	199.73	200.64	90
100	200.64	201.56	202.47	203.39	204.31	205.23	206.15	207.08	208.00	208.93	209.86	100
110	209.86	210.80	211.73	212.67	213.61	214.55	215.50	216.45	217.40	218.35	219.30	110
120	219.30	220.26	221.21	222.17	223.14	224.10	225.07	226.04	227.01	227.98	228.96	120
130	228.96	229.94	230.92	231.90	232.89	233.87	234.86	235.86	236.85	237.85	238.85	130
140	238.85	239.85	240.85	241.86	242.87	243.88	244.89	245.91	246.93	247.95	248.97	140
150	248.97	250.01	251.04	252.08	253.12	254.16	255.20	256.24	257.28	258.32	259.37	150
160	259.37	260.41	261.46	262.51	263.56	264.62	265.67	266.73	267.80	268.86	269.93	160
170	269.93	271.00	272.07	273.15	274.23	275.31	276.40	277.49	278.58	279.68	280.78	170
180	280.78	281.88	282.99	284.10	285.21	286.33	287.45	288.57	289.70	290.83	291.96	180
190	291.96	293.10	294.24	295.38	296.53	297.68	298.83	299.98	301.14	302.30	303.46	190
200	303.46	304.63	305.80	306.97	308.15	309.34	310.52	311.71	312.90	314.10	315.30	200
210	315.30	316.51	317.72	318.93	320.15	321.37	322.59	323.82	325.05	326.29	327.53	210
220	327.53	328.77	330.02	331.27	332.53	333.79	335.05	336.32	337.59	338.86	340.14	220
230	340.14	341.43	342.71	344.00	345.30	346.59	347.90	349.20	350.51	351.82	353.14	230
240	353.14	354.46	355.79	357.12	358.45	359.79	361.13	362.47	363.82	365.17	366.53	240
250	366.53	367.89	369.25	370.62	371.99	373.37	374.75	376.13	377.52	378.91	380.31	250
260	380.31	381.71	383.11	384.52	385.93	387.35	388.77	390.19	391.62	393.05	394.49	260
270	394.49	395.93	397.37	398.82	400.27	401.73	403.19	404.65	406.12	407.59	409.07	270
280	409.07	410.55	412.03	413.52	415.01	416.51	418.01	419.51	421.02	422.53	424.05	280
290	424.05	425.57	427.09	428.62	430.15	431.69	433.23	434.77	436.32	437.87	439.43	290

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NICKEL 120

Resistance as a Function of Temperature (°F) Reference Standard: Edison Curve 7

Table 4-10. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-90	74.55	74.91	75.27	75.63	76.00	76.36	76.72	77.08	77.44	77.81	78.17	-90
-80	78.17	78.53	78.90	79.26	79.62	79.98	80.35	80.71	81.07	81.44	81.80	-80
-70	81.80	82.16	82.53	82.89	83.25	83.62	83.98	84.35	84.71	85.08	85.44	-70
-60	85.44	85.80	86.17	86.53	86.90	87.26	87.63	87.99	88.36	88.73	89.09	-60
-50	89.09	89.46	89.82	90.19	90.56	90.92	91.29	91.66	92.02	92.39	92.76	-50
-40	92.76	93.13	93.50	93.86	94.23	94.60	94.97	95.34	95.71	96.08	96.45	-40
-30	96.45	96.82	97.19	97.56	97.93	98.30	98.67	99.04	99.41	99.78	100.16	-30
-20	100.16	100.53	100.90	101.27	101.65	102.02	102.39	102.77	103.14	103.52	103.89	-20
-10	103.89	104.27	104.64	105.02	105.40	105.77	106.15	106.53	106.90	107.28	107.66	-10
0	107.66	108.44	108.42	108.80	109.18	109.56	109.94	110.32	110.70	111.08	111.47	0
10	111.47	111.85	112.23	112.62	113.00	113.39	113.77	114.16	114.54	114.93	115.32	10
20	115.32	115.70	116.09	116.48	116.87	117.26	117.65	118.04	118.43	118.82	119.21	20
30	119.21	119.61	120.00	120.39	120.79	121.18	121.58	121.98	122.37	122.77	123.17	30
40	123.17	123.56	123.96	124.36	124.76	125.16	125.56	125.96	126.36	126.77	127.17	40
50	127.17	127.57	127.98	128.38	128.79	129.19	129.60	130.0	130.41	130.82	131.23	50
60	131.23	131.64	132.05	132.46	132.87	133.28	133.69	134.10	134.52	134.93	135.35	60
70	135.35	135.76	136.18	136.59	137.01	137.43	137.84	138.26	138.68	139.10	139.52	70
80	139.52	139.94	140.36	140.79	141.21	141.63	142.06	142.48	142.91	143.33	143.76	80
90	143.76	144.19	144.61	145.04	145.47	145.90	146.33	146.76	147.19	147.63	148.06	90
100	148.06	148.49	148.93	149.36	149.80	150.23	150.67	151.11	151.54	151.98	152.42	100
110	152.42	152.86	153.30	153.74	154.19	154.63	155.07	155.52	155.96	156.40	156.85	110
120	156.85	157.30	157.74	158.19	158.64	159.09	159.54	159.99	160.44	160.89	161.34	120
130	161.34	161.9	162.25	162.70	163.16	163.61	164.07	164.53	164.98	165.44	165.90	130
140	165.90	166.36	166.82	167.28	167.74	168.20	168.66	169.13	169.59	170.06	170.52	140
150	170.52	170.99	171.45	171.92	172.39	172.86	173.33	173.80	174.27	174.74	175.21	150
160	175.21	175.68	176.15	176.63	177.10	177.58	178.05	178.53	179.01	179.48	179.96	160
170	179.96	180.44	180.92	181.40	181.88	182.36	182.85	183.33	183.81	184.30	184.78	170
180	184.78	185.27	185.75	186.24	186.73	187.22	187.70	188.19	188.68	189.17	189.67	180
190	189.67	190.16	190.65	191.14	191.64	192.13	192.63	193.12	193.62	194.12	194.62	190
200	194.62	195.12	195.61	196.11	196.62	197.12	197.62	198.12	198.62	199.13	199.63	200
210	199.63	200.12	200.64	201.15	201.66	202.17	202.67	203.18	203.69	204.20	204.71	210
220	204.71	205.23	205.74	206.25	206.77	207.28	207.80	208.31	208.83	209.35	209.86	220
230	209.86	210.38	210.93	211.42	211.94	212.46	212.98	213.51	214.03	214.55	215.08	230
240	215.08	215.60	216.13	216.66	217.18	217.71	218.24	218.77	219.30	219.83	220.36	240
250	220.36	220.89	221.43	221.96	222.50	223.03	223.57	224.10	224.64	225.18	225.71	250
260	225.71	226.25	226.79	227.33	227.87	228.42	228.96	229.50	230.05	230.59	231.14	260
270	231.14	231.68	232.23	232.78	233.32	233.87	234.42	234.97	235.52	236.08	236.63	270
280	236.63	237.18	237.74	238.29	238.85	239.40	239.96	240.52	241.08	241.63	242.19	280
290	242.19	242.75	243.32	243.88	244.44	245.01	245.57	246.13	246.70	247.27	247.83	290
300	247.83	248.40	248.97	249.55	250.12	250.70	251.27	251.85	252.43	253.00	253.58	300
310	253.58	254.16	254.73	255.31	255.89	256.47	257.05	257.63	258.20	258.78	259.37	310
320	259.37	259.95	260.53	261.11	261.69	262.28	262.86	263.45	264.03	264.62	265.20	320
330	265.20	265.79	266.38	266.97	267.56	268.15	268.74	269.34	269.93	270.52	271.12	330
340	271.12	271.72	272.31	272.91	273.51	274.11	274.71	275.31	275.92	276.52	277.13	340
350	277.13	277.73	278.34	278.95	279.56	280.17	280.78	281.39	282.01	282.62	283.24	350
360	283.24	283.85	284.47	285.09	285.71	286.33	286.95	287.58	288.20	288.82	289.45	360
370	289.45	290.08	290.71	291.33	291.96	292.60	293.23	293.86	294.49	295.13	295.76	370

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Table 4-10. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
380	295.76	296.40	297.04	297.68	298.32	298.96	299.60	300.24	300.88	301.52	302.17	380
390	302.17	302.81	303.46	304.11	304.76	305.41	306.06	306.71	307.37	308.02	308.68	390
400	308.68	309.34	309.99	310.65	311.31	311.98	312.64	313.30	313.97	314.64	315.30	400
410	315.30	315.97	316.64	317.31	317.99	318.66	319.34	320.01	320.69	321.37	322.05	410
420	322.05	322.73	323.41	324.10	324.78	325.47	326.15	326.84	327.53	328.22	328.91	420
430	328.91	329.61	330.30	330.99	331.69	332.39	333.09	333.79	334.49	335.19	335.90	430
440	335.90	336.60	337.31	338.01	338.72	339.43	340.14	340.85	341.57	342.28	343.00	440
450	343.00	343.72	344.43	345.15	345.87	346.59	347.32	348.04	348.77	349.49	350.22	450
460	350.22	350.95	351.68	352.41	353.14	353.88	354.61	355.35	356.08	356.82	357.56	460
470	357.56	358.30	359.04	359.79	360.53	361.28	362.02	362.77	363.52	364.27	365.02	470
480	365.02	365.77	366.53	367.29	368.04	368.80	369.56	370.32	371.08	371.84	372.61	480
490	372.61	373.37	374.14	374.90	375.67	376.44	377.21	377.99	378.76	379.53	380.31	490
500	380.31	381.09	381.87	382.65	383.43	384.21	384.99	385.78	386.56	387.35	388.14	500
510	388.14	388.93	389.72	390.51	391.30	392.10	392.89	393.69	394.49	395.29	396.09	510
520	396.09	396.89	397.70	398.50	399.31	400.11	400.92	401.73	402.54	403.35	404.17	520
530	404.17	404.98	405.80	406.61	407.43	408.25	409.07	409.89	410.71	411.54	412.36	530
540	412.36	413.19	414.02	414.85	415.68	416.51	417.34	418.18	419.01	419.85	420.69	540
550	420.69	421.53	422.37	423.21	424.05	424.89	425.74	426.59	427.43	428.28	429.13	550
560	429.13	429.98	430.84	431.69	432.55	433.40	434.26	435.12	435.98	436.84	437.70	560
570	437.70	438.57	439.43									570

COPPER 10

Resistance as a Function of Temperature (°C)

Reference Standard: SAMA RC21-4-1996

Table 4-11. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
-70	6.33	6.37	6.41	6.45	6.49	6.53	6.57	6.60	6.64	6.68	6.72	-70
-60	6.72	6.76	6.80	6.84	6.88	6.92	6.96	6.99	7.03	7.07	7.11	-60
-50	7.11	7.15	7.19	7.23	7.27	7.31	7.34	7.38	7.42	7.46	7.50	-50
-40	7.50	7.54	7.58	7.62	7.65	7.69	7.73	7.77	7.81	7.85	7.89	-40
-30	7.89	7.92	7.96	8.00	8.04	8.08	8.12	8.16	8.19	8.23	8.27	-30
-20	8.27	8.31	8.35	8.39	8.43	8.46	8.50	8.54	8.58	8.62	8.66	-20
-10	8.66	8.70	8.73	8.77	8.81	8.85	8.89	8.93	8.97	9.00	9.04	-10
0	9.04	9.08	9.12	9.16	9.20	9.23	9.27	9.31	9.35	9.39	9.43	0
10	9.43	9.47	9.50	9.54	9.58	9.62	9.66	9.70	9.74	9.77	9.81	10
20	9.81	9.85	9.89	9.93	9.97	10.01	10.04	10.08	10.12	10.16	10.20	20
30	10.20	10.24	10.27	10.31	10.35	10.39	10.43	10.47	10.51	10.54	10.58	30
40	10.58	10.62	10.66	10.70	10.74	10.78	10.81	10.85	10.89	10.93	10.97	40
50	10.97	11.01	11.05	11.08	11.12	11.16	11.20	11.24	11.28	11.31	11.35	50
60	11.35	11.39	11.43	11.47	11.51	11.55	11.58	11.62	11.66	11.70	11.74	60
70	11.74	11.78	11.82	11.85	11.89	11.93	11.97	12.01	12.05	12.09	12.12	70
80	12.12	12.16	12.20	12.24	12.28	12.32	12.35	12.39	12.43	12.47	12.51	80
90	12.51	12.55	12.59	12.62	12.66	12.70	12.74	12.78	12.82	12.86	12.89	90
100	12.89	12.93	12.97	13.01	13.05	13.09	13.13	13.16	13.20	13.24	13.28	100
110	13.28	13.32	13.36	13.39	13.43	13.47	13.51	13.55	13.59	13.63	13.66	110
120	13.66	13.70	13.74	13.78	13.82	13.86	13.90	13.93	13.97	14.01	14.05	120
130	14.05	14.09	14.13	14.17	14.20	14.24	14.28	14.32	14.36	14.40	14.43	130
140	14.43	14.47	14.51	14.55	14.59	14.63	14.67	14.70	14.74	14.78	14.82	140
150	14.82	14.86	14.90	14.94	14.97	15.01	15.05	15.09	15.13	15.17	15.21	150

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Table 4-11. Resistance in Ohms

°C	0	1	2	3	4	5	6	7	8	9	10	°C
160	15.21	15.24	15.28	15.32	15.36	15.40	15.44	15.47	15.51	15.55	15.59	160
170	15.59	15.63	15.67	15.71	15.74	15.78	15.82	15.86	15.90	15.94	15.98	170
180	15.98	16.01	16.05	16.09	16.13	16.17	16.21	16.25	16.28	16.32	16.36	180
190	16.36	16.40	16.44	16.48	16.51	16.55	16.59	16.63	16.67	16.71	16.75	190
200	16.75	16.78	16.82	16.86	16.90	16.94	16.98	17.02	17.05	17.09	17.13	200
210	17.13	17.17	17.21	17.25	17.29	17.32	17.36	17.40	17.44	17.48	17.52	210
220	17.52	17.55	17.59	17.63	17.67	17.71	17.75	17.79	17.82	17.86	17.90	220
230	17.90	17.94	17.98	18.02	18.06	18.09	18.13	18.17	18.21	18.25	18.29	230
240	18.29	18.33	18.36	18.40	18.44	18.48	18.52	18.56	18.59	18.63	18.67	240

COPPER 10

Resistance as a Function of Temperature (°F)

Reference Standard: SAMA RC21-4-1996

Table 4-12. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
-90	6.42	6.44	6.46	6.48	6.51	6.53	6.55	6.57	6.59	6.61	6.64	-90
-80	6.64	6.66	6.68	6.70	6.72	6.74	6.77	6.79	6.81	6.83	6.85	-80
-70	6.85	6.87	6.89	6.92	6.94	6.96	6.98	7.00	7.02	7.05	7.07	-70
-60	7.07	7.09	7.11	7.13	7.15	7.18	7.20	7.22	7.24	7.26	7.28	-60
-50	7.28	7.31	7.33	7.35	7.37	7.39	7.41	7.43	7.46	7.48	7.50	-50
-40	7.50	7.52	7.54	7.56	7.59	7.61	7.63	7.65	7.67	7.69	7.71	-40
-30	7.71	7.74	7.76	7.78	7.80	7.82	7.84	7.86	7.89	7.91	7.93	-30
-20	7.93	7.95	7.97	7.99	8.01	8.04	8.06	8.08	8.10	8.12	8.14	-20
-10	8.14	8.16	8.19	8.21	8.23	8.25	8.27	8.29	8.31	8.34	8.36	-10
0	8.36	8.38	8.40	8.42	8.44	8.46	8.49	8.51	8.53	8.55	8.57	0
10	8.57	8.59	8.61	8.64	8.66	8.68	8.70	8.72	8.74	8.76	8.79	10
20	8.79	8.81	8.83	8.85	8.87	8.89	8.91	8.94	8.96	8.98	9.00	20
30	9.00	9.02	9.04	9.06	9.08	9.11	9.13	9.15	9.17	9.19	9.21	30
40	9.21	9.23	9.26	9.28	9.30	9.32	9.34	9.36	9.38	9.41	9.43	40
50	9.43	9.45	9.47	9.49	9.51	9.53	9.56	9.58	9.60	9.62	9.64	50
60	9.64	9.66	9.68	9.71	9.73	9.75	9.77	9.79	9.81	9.83	9.86	60
70	9.86	9.88	9.90	9.92	9.94	9.96	9.98	10.01	10.03	10.05	10.07	70
80	10.07	10.09	10.11	10.13	10.15	10.18	10.20	10.22	10.24	10.26	10.28	80
90	10.28	10.30	10.33	10.35	10.37	10.39	10.41	10.43	10.45	10.48	10.50	90
100	10.50	10.52	10.54	10.56	10.58	10.60	10.63	10.65	10.67	10.69	10.71	100
110	10.71	10.73	10.75	10.78	10.80	10.82	10.84	10.86	10.88	10.90	10.93	110
120	10.93	10.95	10.97	10.99	11.01	11.03	11.05	11.08	11.10	11.12	11.14	120
130	11.14	11.16	11.18	11.20	11.22	11.25	11.27	11.29	11.31	11.33	11.35	130
140	11.35	11.37	11.40	11.42	11.44	11.46	11.48	11.50	11.52	11.55	11.57	140
150	11.57	11.59	11.61	11.63	11.65	11.67	11.70	11.72	11.74	11.76	11.78	150
160	11.78	11.80	11.82	11.85	11.87	11.89	11.91	11.93	11.95	11.97	12.00	160
170	12.00	12.02	12.04	12.06	12.08	12.10	12.12	12.15	12.17	12.19	12.21	170
180	12.21	12.23	12.25	12.27	12.29	12.32	12.34	12.36	12.38	12.40	12.42	180
190	12.42	12.44	12.47	12.49	12.51	12.53	12.55	12.57	12.59	12.62	12.64	190
200	12.64	12.66	12.68	12.70	12.72	12.74	12.77	12.79	12.81	12.83	12.85	200
210	12.85	12.87	12.89	12.92	12.94	12.96	12.98	13.00	13.02	13.04	13.07	210
220	13.07	13.09	13.11	13.13	13.15	13.17	13.19	13.22	13.24	13.26	13.28	220
230	13.28	13.30	13.32	13.34	13.36	13.39	13.41	13.43	13.45	13.47	13.49	230
240	13.49	13.51	13.54	13.56	13.58	13.60	13.62	13.64	13.66	13.69	13.71	240

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Table 4-12. Resistance in Ohms

°F	0	1	2	3	4	5	6	7	8	9	10	°F
250	13.71	13.73	13.75	13.77	13.79	13.81	13.84	13.86	13.88	13.90	13.92	250
260	13.92	13.94	13.96	13.99	14.01	14.03	14.05	14.07	14.09	14.11	14.14	260
270	14.14	14.16	14.18	14.20	14.22	14.24	14.26	14.29	14.31	14.33	14.35	270
280	14.35	14.37	14.39	14.41	14.43	14.46	14.48	14.50	14.52	14.54	14.56	280
290	14.56	14.58	14.61	14.63	14.65	14.67	14.69	14.71	14.73	14.76	14.78	290
300	14.78	14.80	14.82	14.84	14.86	14.88	14.91	14.93	14.95	14.97	14.99	300
310	14.99	15.01	15.03	15.06	15.08	15.10	15.12	15.14	15.16	15.18	15.21	310
320	15.21	15.23	15.25	15.28	15.29	15.31	15.33	15.36	15.38	15.40	15.42	320
330	15.42	15.44	15.46	15.48	15.50	15.53	15.55	15.57	15.59	15.61	15.63	330
340	15.63	15.65	15.68	15.70	15.72	15.74	15.76	15.78	15.80	15.83	15.85	340
350	15.85	15.87	15.89	15.91	15.93	15.95	15.98	16.00	16.02	16.04	16.06	350
360	16.06	16.08	16.10	16.13	16.15	16.17	16.19	16.21	16.23	16.25	16.28	360
370	16.28	16.30	16.32	16.34	16.36	16.38	16.40	16.43	16.45	16.47	16.49	370
380	16.49	16.51	16.53	16.55	16.57	16.60	16.62	16.64	16.66	16.68	16.70	380
390	16.70	16.72	16.75	16.77	16.79	16.81	16.83	16.85	16.87	16.90	16.92	390
400	16.92	16.94	16.96	16.98	17.00	17.02	17.05	17.07	17.09	17.11	17.13	400
410	17.13	17.15	17.17	17.20	17.22	17.24	17.26	17.28	17.30	17.32	17.35	410
420	17.35	17.37	17.39	17.41	17.43	17.45	17.47	17.50	17.52	17.54	17.56	420
430	17.56	17.58	17.60	17.62	17.64	17.67	17.69	17.71	17.73	17.75	17.77	430
440	17.77	17.79	17.82	17.84	17.86	17.88	17.90	17.92	17.94	17.97	17.99	440
450	17.99	18.01	18.03	18.05	18.07	18.09	18.12	18.14	18.16	18.18	18.20	450
460	18.20	18.22	18.24	18.27	18.29	18.31	18.33	18.35	18.37	18.39	18.42	460
470	18.42	18.44	18.46	18.48	18.50	18.52	18.54	18.57	18.59	18.61	18.63	470
480	18.63	18.65	18.67									480

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Section 5 Conversion Data

Table 5-1. Temperature Conversion⁽¹⁾

-459.4° to 0°			1° to 60°			61° to 290°			300° to 890°			900° to 3000°		
C	FC	F	C	FC	F	C	FC	F	C	FC	F	C	FC	F
-273	-459.4		-17.2	1	33.8	16.1	61	141.8	149	300	572	482	900	1652
-268	-450		-16.7	2	35.6	16.7	62	143.6	154	310	590	488	910	1670
-262	-440		-16.1	3	37.4	17.2	63	145.4	160	320	608	493	920	1688
-257	-430		-15.6	4	39.2	17.8	64	147.2	166	330	626	499	930	1706
-251	-420		-15.0	5	41.0	18.3	65	149.0	171	340	644	504	940	1724
-246	-410		-14.4	6	42.8	18.9	66	150.8	177	350	662	510	950	1742
-240	-400		-13.9	7	44.6	19.4	67	152.6	182	360	680	516	960	1760
-234	-390		-13.3	8	46.4	20.0	68	154.4	188	370	698	521	970	1778
-229	-380		-12.8	9	48.2	20.6	69	156.2	193	380	716	527	980	1796
-223	-370		-12.2	10	50.0	21.1	70	158.0	199	390	734	532	990	1814
-218	-360		-11.7	11	51.8	21.7	71	159.8	204	400	752	538	1000	1832
-212	-350		-11.1	12	53.6	22.2	72	161.6	210	410	770	549	1020	1868
-207	-340		-10.6	13	55.4	22.8	73	163.4	216	420	788	560	1040	1904
-201	-330		-10.0	14	57.2	23.3	74	165.2	221	430	806	571	1060	1940
-196	-320		-9.4	15	59.0	23.9	75	167.0	227	440	824	582	1080	1976
-190	-310		-8.9	16	60.8	24.4	76	168.8	232	450	842	593	1100	2012
-184	-300		-8.3	17	62.6	25.0	77	170.6	238	460	860	604	1120	2048
-179	-290		-7.8	18	64.4	25.6	78	172.4	243	470	878	616	1140	2084
-173	-280		-7.2	19	66.2	26.1	79	174.2	249	480	896	627	1160	2120
-169	-273	-459.4	-6.7	20	68.0	26.7	80	176.0	254	490	914	638	1180	2156
-168	-270	-454	-6.1	21	69.8	27.2	81	177.8	260	500	932	649	1200	2192
-162	-260	-436	-5.6	22	71.6	27.8	82	179.6	266	510	950	660	1220	2228
-157	-250	-418	-5.0	23	73.4	28.3	83	181.4	271	520	968	671	1240	2264
-151	-240	-400	-4.4	24	75.2	28.9	84	183.2	277	530	986	682	1260	2300
-146	-230	-382	-3.9	25	77.0	29.4	85	185.0	282	540	1004	693	1280	2336
-140	-220	-364	-3.3	26	78.8	30.0	86	186.8	288	550	1022	704	1300	2372
-134	-210	-346	-2.8	27	80.6	30.6	87	188.6	293	560	1040	732	1350	2462
-129	-200	-328	-2.2	28	82.4	31.1	88	190.4	299	570	1058	760	1400	2552
-123	-190	-310	-1.7	29	84.2	31.7	89	192.2	304	580	1076	788	1450	2642
-118	-180	-292	-1.1	30	86.0	32.2	90	194.0	310	590	1094	816	1500	2732
-112	-170	-274	-0.6	31	87.8	32.8	91	195.8	316	600	1112	843	1550	2822
-107	-160	-256	0.0	32	89.6	33.3	92	197.6	321	610	1130	871	1600	2912
-101	-150	-238	0.6	33	91.4	33.9	93	199.4	327	620	1148	899	1650	3002
-96	-140	-220	1.1	34	93.2	34.4	94	201.2	332	630	1166	927	1700	3092
-90	-130	-202	1.7	35	95.0	35.0	95	203.0	338	640	1184	954	1750	3182
-84	-120	-184	2.2	36	96.8	35.6	96	204.8	343	650	1202	982	1800	3272
-79	-110	-166	2.8	37	98.6	36.1	97	206.6	349	660	1220	1010	1850	3362
-73	-100	-148	3.3	38	100.4	36.7	98	208.4	354	670	1238	1038	1900	3452
-68	-90	-130	3.9	39	102.2	37.2	99	210.2	360	680	1256	1066	1950	3542
-62	-80	-112	4.4	40	104.0	37.8	100	212.0	366	690	1274	1093	2000	3632
-57	-70	-94	5.0	41	105.8	43	110	230	371	700	1292	1121	2050	3722



Table 5-1. Temperature Conversion⁽¹⁾

-459.4° to 0°			1° to 60°			61° to 290°			300° to 890°			900° to 3000°		
-51	-60	-76	5.6	42	107.6	49	120	248	377	710	1310	1149	2100	3812
-46	-50	-58	6.1	43	109.4	54	130	266	382	720	1328	1177	2150	3902
-40	-40	-40	6.7	44	111.2	60	140	284	388	730	1346	1204	2200	3992
-34	-30	-22	7.2	45	113.0	66	150	302	393	740	1364	1232	2250	4082
-29	-20	-4	7.8	46	114.8	71	160	320	399	750	1382	1260	2300	4172
-23	-10	14	8.3	47	116.6	77	170	338	404	760	1400	1288	2350	4262
-17.8	0	32	8.9	48	118.4	82	180	356	410	770	1418	1316	2400	4352
			9.4	49	120.2	88	190	374	416	780	1436	1343	2450	4442
			10.0	50	122.0	93	200	392	421	790	1454	1371	2500	4532
			10.6	51	123.8	99	210	410	427	800	1472	1399	2550	4622
			11.1	52	125.6	100	212	413.6	432	810	1490	1427	2600	4712
			11.7	53	127.4	104	220	428	438	820	1508	1454	2650	4802
			12.2	54	129.2	110	230	446	443	830	1526	1482	2700	4892
			12.8	55	131.0	116	240	464	449	840	1544	1510	2750	4982
			13.3	56	132.8	121	250	482	454	850	1562	1538	2800	5072
			13.9	57	134.6	127	260	500	460	860	1580	1566	2850	5162
			14.4	58	136.4	132	270	518	466	870	1598	1593	2900	5252
			15.0	59	138.2	138	280	536	471	880	1616	1621	2950	5342
			15.6	60	140.0	143	290	554	477	890	1634	1649	3000	5432

(1) Locate temperature in middle column. If in degrees Celsius, read Fahrenheit equivalent in right hand column; if in degrees Fahrenheit, read Celsius equivalent in left hand column.

Table 5-2. Pressure Conversion⁽¹⁾

from/to	PSI	KPA	Inches ⁽²⁾ H ₂ O	mmH ₂ O	Inches ⁽³⁾ Hg	mm Hg	Bars	m Bars	Kg/cm ²	gm/cm ²
PSI	1	6.8948	27.7620	705.1500	2.0360	51.7149	0.0689	68.9470	0.0703	70.3070
KPA	0.1450	1	4.0266	102.2742	0.2953	7.5006	0.0100	10.0000	0.0102	10.197
inH ₂ O*	0.0361	0.2483	1	25.4210	0.0734	1.8650	0.0025	2.4864	0.0025	2.5355
mmH ₂ O	0.0014	0.0098	0.0394	1	0.0028	0.0734	0.0001	0.0979	0.00001	0.0982
inHg**	0.4912	3.3867	13.6195	345.936	1	25.4000	0.0339	33.8639	0.0345	34.532
mm Hg	0.0193	0.1331	0.5362	13.6195	0.0394	1	0.0013	1.3332	0.0014	1.3595
Bars	14.5040	100.000	402.180	10215.0	29.5300	750.060	1	1000	1.0197	1019.72
m Bars	0.0145	0.1000	0.4022	10.2150	0.0295	0.7501	0.001	1	0.0010	1.0197
Kg/cm ²	14.2233	97.9047	394.408	10018.0	28.9590	735.559	0.9000	980.700	1	1000
gm/cm ²	0.0142	0.0979	0.3944	10.0180	0.0290	0.7356	0.0009	0.9807	0.001	1

(1) EXAMPLE
 $1 \text{ mm Hg} = 0.5362 \text{ inH}_2\text{O} = 1.3332 \text{ mBars}$
 $97 \text{ mm Hg} = 97(0.5362) = 52.0114 \text{ inH}_2\text{O}$
 $97 \text{ mm Hg} = 97(1.332) = 129.3204 \text{ mBars}$

(2) at 60 °F
 (3) at 32 °F

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Table 5-3. Volume Conversion⁽¹⁾

from/to	cm ³	liter	m ³	in ³	ft ³	yd ³	fl oz	fl pt	fl qt	gal	gal(imp.)	bbl(oil)	bbl(liq)
cm ³	1	0.001	1×10 ⁻⁶	0.06102	3.53×10 ⁻⁵	1.31×10 ⁻⁴	0.0338	0.0021	0.0010	2.64×10 ⁻⁴	2.20×10 ⁻⁴	6.29×10 ⁻⁶	8.39×10 ⁻⁶
liter	1000	1	0.001	61.02	0.03532	0.00131	33.81	2.113	1.057	0.2642	0.2200	0.00629	0.00839
m ³	1×10 ⁶	1000	1	6.10×10 ⁴	35.31	1.308	3.38×10 ⁴	2113	1057	264.2	220.0	6.290	8.386
in ³	16.39	0.016	1.64×10 ⁻⁵	1	5.79×10 ⁻⁴	2.14×10 ⁻⁵	0.5541	0.0346	0.0173	0.00433	0.00360	1.03×10 ⁻⁴	1.37×10 ⁻⁴
ft ³	2.83×10 ⁴	28.32	0.02832	1728	1	0.03704	957.5	59.84	29.92	7.481	6.229	0.1781	0.2375
yd ³	7.65×10 ⁵	764.5	0.7646	4.67×10 ⁴	27	1	2.59×10 ⁴	1616	807.9	202.0	168.2	4.809	6.412
fl oz	29.57	0.029	2.96×10 ⁻⁶	1.805	0.00104	3.87×10 ⁻⁵	1	0.0625	0.0312	0.00781	0.00651	1.86×10 ⁻⁴	2.48×10 ⁻⁴
fl pt	473.2	0.473	4.73×10 ⁻⁴	28.88	0.01671	6.19×10 ⁻⁴	16	1	0.5000	0.1250	0.1041	0.00298	0.00397
fl qt	946.4	0.046	9.46×10 ⁻⁴	57.75	0.03342	0.00124	32	2	1	0.2500	0.2082	0.00595	0.00794
gal	3785	3.785	0.00379	231.0	0.1337	0.00495	128	8	4	1	0.8327	0.02381	0.03175
gal(imp.)	4546	4.546	0.00455	277.4	0.1605	0.00595	153.7	9.608	4.804	1.201	1	0.02859	0.03813
bbl(oil)	1.59×10 ⁵	159.0	0.1590	9702	5.615	0.2079	5376	336	168	42	34.97	1	1.333

(1) 1 cord = 128 ft³ = 3.625 m³

Table 5-4. Flow Rate Conversion⁽¹⁾

from/to	lit/sec	gal/min	ft ³ /sec	ft ³ /min	bbl/hr	bbl/day
lit/sec	1	15.85	0.03532	2.119	22.66	543.8
gal/min	0.06309	1	0.00223	0.1337	1.429	34.30
ft ³ /sec	28.32	448.8	1	60	641.1	1.54 ×10 ⁴
ft ³ /min	0.4719	7.481	0.01667	1	10.69	256.5
bbl/hr	0.04415	0.6997	0.00156	0.09359	1	24
bbl/day	0.00184	0.02917	6.50 ×10 ⁻⁵	0.00390	0.04167	1

(1) bbl refers to bbl oil = 42 gallons

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Table 5-5. Equivalentents

Linear Measure		Measure of Volume	
1 micron	0.000001 meter	1 cu centimeter	0.061 cu in.
1 mm	0.03937 in.	1 cu inch	16.39 cu cm
1mm	0.00328 ft	1 cu decimeter	0.0353 cu ft
1 centimeter	0.3937 in.	1 cu foot	28.317 cu decimeters
1 inch	2.54 centimeters	1 cu yard	0.7646 cu meters
1 inch	25.4 mm	1 stere	0.2759 cord
1 decimeter	3.937 in.	1 cord	3.264 steres
1 decimeter	0.328 foot	1 liter	0.908 qt dry
1 foot	3.048 decimeters	1 liter	1.0567 qts liq
1 foot	30.48 cm	1 quart dry	1.101 liters
1 foot	304.8 mm	1 quart liquid	0.9463 liters
1 meter	39.37 in.	1 dekaliter	2.6417 gals
1 meter	1.0936 yds	1 dekaliter	1.135 pecks
1 yard	0.9144 meter	1 gallon	0.3785 dekaliter
1 dekameter	1.9884 rods	1 peck	0.881 dekaliter
1 rod	0.5029 dekameter	1 hectoliter	2.8375 bushels
1 kilometer	0.62137 mile	1 bushel	0.3524 hectoliter
1 mile	1.6093 kilometers		
Square Measure		Weights	
1 sq centimeter	0.1550 sq in.	1 gram	0.03527 ounce
1 sq centimeter	0.00108 sq ft	1 ounce	28.35 grams
1 sq inch	6.4516 sq centimeters	1 kilogram	2.2046 pounds
1 sq decimeter	0.1076 sq ft	1 pound	0.4536 kilogram
1 sq ft	929.03 sq cm	1 metric ton	0.98421 English ton
1 sq ft	9.2903 sq dec	1 English ton	1.016 metric ton
1 sq meter	1.196 sq yds	1 kg	2.205 pounds
1 sq yard	0.8361 sq meter	1 cu in. of water (60 °F)	0.073551 cu in. of mercury (32 °F)
1 acre	160 sq rods	1 cu in. of mercury (32 °F)	13.596 cu in. of water (60 °F)
1 sq rod	0.00625 acre	1 cu in. of mercury (32 °F)	0.4905 pounds
1 hectare	2.47 acres		
1 acre	0.4047 hectare		
1 sq kilometer	0.386 sq mile		
1 sq mile	2.59 sq kilometers		
Circumference of a circle	$2 \pi r$		
Circumference of a circle	πd		
Area of a circle	πr^2		
Area of a circle	$\pi d^2/4$		
Velocity			
		1 ft/sec	0.3048 m/sec
		1 m/sec	3.2808 ft/sec
Density			
		1 lb/cu in.	27.68 gram/cu cm
		1 gr/cu cm	0.03613 lb/cu in.
		1 lb/cu ft	16.0184 kg/cu m
		1 kg/cu m	0.06243 lb/cu ft

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Table 5-6. English to Metric System Conversion

1 To Convert from:	2 To:	3 Multiply by:	To Convert Column 2 to Column 1 Multiply by:
acre-feet	cubic meters	1233	8.11×10^{-4}
cubic feet (cu ft) (US)	cubic centimeters	28,317	3.53×10^{-5}
cubic feet (cu ft) (US)	cubic meters	0.0283	35.33
cubic feet (cu ft) (US)	liters	28.32	0.035
cu ft/min	cu cm/sec	472	0.0021
cu ft/min	liters/sec	0.472	2.119
cu ft/sec	liters/min	1699	5.886×10^{-4}
cubic inches (US)	cubic meters	1.64×10^{-5}	61,024
cubic inches (US)	liters	0.0164	61.024
cubic inches (US)	milliliters (ml)	16.387	0.0610
feet (US)	meters	0.3048	3.281
feet (US)	millimeters (mm)	304.8	3.28×10^{-3}
feet/min	cm/sec	0.508	1.97
feet/min	kilometers/hr	1.829×10^{-2}	54.68
feet/min	meters/min	0.305	3.28
ft/sec ²	km/hr/sec	1.0973	0.911
gallons (US)	cu cm (ml)	3785	2.64×10^{-4}
gallons (US)	liters	3.785	0.264
gallons/min	liters/sec	0.063	15.87
US gal/min	cu meters/hr	0.227	4.4
US gal/sq ft/min	cu meters/hr/sq meters	2.45	0.408
grains (troy)	grams	0.0648	15.432
grains (troy)	milligrams (mg)	64.8	0.01543
grains/gal (US)	grams/liter	0.0171	58.417
grains/gal (US)	ppm	17.1	0.0584
inches (US)	centimeters (cm)	2.54	0.3937
inches (US)	millimeters (mm)	25.4	0.0394
miles (US)	kilometers (km)	1.609	0.6215
miles (US)	meters	1609	6.214×10^{-4}
miles/hr	cm/sec	44.7	0.0224
miles/hr	meters/min	26.82	0.0373
miles/min	kilometers/hr	96.6	1.03×10^{-2}
ounces (avoirdupois)	grams	28.35	0.0353
ounces (US fluid)	ml	29.6	0.0338
ounces (US fluid)	liters	0.0296	33.81
pounds (av)	grams	453.6	0.0022
pounds (av)/sq in	kgr/cm ²	0.071	14.223
pounds (av)	kilograms	0.4536	2.205
pounds (av)	grains	7000	14.2×10^{-5}
pounds/cu ft	grams/l	16.02	0.0624
pounds/ft	grams/cm	14.88	0.067
pounds/gal (US)	grams/ml	0.12	8.345
pounds/gal (US)	grams/liter	119.8	8.34×10^{-3}
quart (US liq)	ml	946.4	0.001057
quart (US liq)	liters	0.946	1.057
square feet (US)	sq cm	929	1.08×10^{-3}
square feet (US)	sq meters	0.0929	10.76
square inches (US)	sq cm	6.452	0.155

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Table 5-7. Decimal Equivalents

8ths	16ths	32nds	64ths
1/8 = 0.125	1/16 = 0.0625	1/32 = 0.03125	1/64 = 0.015625
1/4 = 0.250	3/16 = 0.1875	3/32 = 0.09375	3/64 = 0.046875
3/8 = 0.375	5/16 = 0.3125	5/32 = 0.15625	5/64 = 0.078125
1/2 = 0.500	7/16 = 0.4375	7/32 = 0.21875	7/64 = 0.109375
5/8 = 0.625	9/16 = 0.5625	9/32 = 0.28125	9/64 = 0.140625
3/4 = 0.750	11/16 = 0.6875	11/32 = 0.34375	11/64 = 0.171875
7/8 = 0.875	13/16 = 0.8125	13/32 = 0.40625	13/64 = 0.203125
	15/16 = 0.9375	15/32 = 0.46875	15/64 = 0.234375
		17/32 = 0.53125	17/64 = 0.265625
		19/32 = 0.59375	19/64 = 0.296875
		21/32 = 0.65625	21/64 = 0.328125
		23/32 = 0.71875	23/64 = 0.359375
		25/32 = 0.78125	25/64 = 0.390625
		27/32 = 0.84375	27/64 = 0.421875
		29/32 = 0.90625	29/64 = 0.453125
		31/32 = 0.96875	31/64 = 0.484375
			33/64 = 0.515625
			35/64 = 0.546875
			37/64 = 0.578125
			39/64 = 0.609375
			41/64 = 0.640625
			43/64 = 0.671875
			45/64 = 0.703125
			47/64 = 0.734375
			49/64 = 0.765625
			51/64 = 0.796875
			53/64 = 0.828125
			55/64 = 0.859375
			57/64 = 0.890625
			59/64 = 0.921875
			61/64 = 0.953125
			63/64 = 0.984375

Table 5-8. Multiplications Factors

Prefix	Symbol	Name	Multiplication Factor
atto	a	one-quintillionth	0.000 000 000 000 000 001
femto	f	one-quadrillionth	0.000 000 000 000 001
pico	p	one-trillionth	0.000 000 000 001
nano	n	one-billionth	0.000 000 001
micro	m	one-millionth	0.000 001
milli	m	one-thousandth	0.001
centi	c	one-hundreth	0.01
deci	d	one-tenth	0.1
uni		one	1.0
deka	da	ten	10.0
hecto	h	one hundred	100.0
kilo	k	one thousand	1 000.0
mega	M	one million	1 000 000.0
giga	G	one billion	1 000 000 000.0
tera	T	one trillion	1 000 000 000 000.0

Table 5-9. Saturated Steam Table

Pressure inches Hg at 32 °F	Absolute Pressure Lbs./Sq. In.	Temperature °F	Cu. Ft./Lb. Sat. Vapor	TOTAL HEAT IN B.T.U. PER LB.		
				Sat. Liquid	Evap.	Sat. Vapor
1.02	0.5	80	642	47.60	1047.5	1095.1
2.03	1	101	334	69.69	1035.3	1105.0
4.06	2	126	174	93.97	1021.6	1115.6
6.09	3	142	119	109.33	1012.7	1120.0
10.15	5	162	74.0	130.10	1000.4	1130.6
15.3	7.5	180	50.3	147.81	989.9	1137.7
20.3	10	193	38.4	161.13	981.8	1143.0
28.5	14	209	28.0	177.55	971.8	1149.3
29.92	14.696	212	26.8	180.00	970.2	1150.2

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Table 5-10. Saturated Steam Table

Gage Pressure Lbs. \ Sq. Inch	Absolute Pressure Lbs./Sq. In.	Temperature °F	TOTAL HEAT IN B.T.U. PER LB.			
			Cu. Ft./Lb. Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor
0.0	14.696	212	26.8	180.0	970.2	1150.2
1.3	16	216	24.8	184.35	967.4	1151.8
2.3	17	219	23.4	187.48	965.4	1152.9
3.3	18	222	22.2	190.48	963.5	1154.0
4.3	19	225	21.1	193.34	961.7	1155.0
5.3	20	228	20.1	196.09	959.9	1156.0
7.3	22	233	18.4	201.25	956.6	1157.8
10.3	25	240	16.3	208.33	951.9	1160.2
15.3	30	250	13.7	218.73	945.0	1163.7
20.3	35	259	11.9	227.82	938.9	1166.7
25.3	40	267	10.5	235.93	933.3	1169.2
30.3	45	274	9.40	243.28	928.2	1171.5
35.3	50	281	8.51	249.98	923.5	1173.5
40.3	55	287	7.78	256.19	919.1	1175.3
45.3	60	293	7.17	261.98	915.0	1177.0
50.3	65	298	6.65	267.39	911.1	1178.5
55.3	70	303	6.20	272.49	907.4	1179.9
60.3	75	307	5.81	277.32	903.9	1181.2
65.3	80	312	5.47	281.90	900.5	1182.4
70.3	85	316	5.16	286.90	897.3	1183.6
75.3	90	320	4.89	290.45	894.2	1184.6
80.3	95	324	4.65	294.47	891.2	1185.6
85.3	100	328	4.42	298.33	888.2	1186.6
90.3	105	331	4.22	302.03	885.4	1187.5
95.3	110	335	4.04	305.61	882.7	1188.3
100.3	115	338	3.88	309.04	880.0	1189.1
105.3	120	341	3.72	312.37	877.4	1189.8
110.3	125	344	3.60	315.60	874.9	1190.5
115.3	130	347	3.45	318.73	872.4	1191.2
120.3	135	350	3.33	321.77	870.0	1191.8
125.3	140	353	3.22	324.74	867.7	1192.4
130.3	145	356	3.20	327.63	865.3	1193.0
135.3	150	358	3.01	330.44	863.1	1193.5
140.3	155	361	2.92	333.18	860.8	1194.0
145.3	160	363	2.83	335.86	858.7	1194.5
150.3	165	366	2.75	338.47	856.5	1195.0
155.3	170	368	2.67	341.03	854.5	1195.4
160.3	175	370	2.60	343.54	852.3	1195.9
165.3	180	373	2.53	345.99	850.3	1196.3
170.3	185	375	2.46	348.42	848.2	1196.7
175.3	190	377	2.40	350.77	846.3	1197.0
180.3	195	380	2.34	353.07	844.3	1197.4
185.3	200	382	2.28	355.33	842.4	1197.8
210.3	225	392	2.039	366.10	833.2	1199.3
235.3	250	401	1.841	376.02	824.5	1200.5
260.3	275	409	1.678	385.24	816.3	1201.6
285.3	300	417	1.541	393.90	808.5	1202.4
335.3	350	432	1.324	409.81	793.7	1203.6
385.3	400	444	1.160	424.2	779.8	1204.1
435.3	450	456	1.030	437.4	766.7	1204.1
485.3	500	467	0.926	449.7	754.0	1203.7
585.3	600	486	0.767	472.3	729.8	1202.1
685.3	700	503	0.653	492.9	706.8	1199.7
785.3	800	518	0.565	511.8	684.9	1196.7

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Table 5-10. Saturated Steam Table

Gage Pressure Lbs. \ Sq. Inch	Absolute Pressure Lbs./Sq. In.	Temperature °F	TOTAL HEAT IN B.T.U. PER LB.			
			Cu. Ft./Lb. Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor
885.3	900	532	0.496	529.5	663.8	1193.3
985.3	1000	544	0.442	546.0	643.5	1189.6
1235.3	1250	572	0.341	583.6	595.6	1179.2
1485.3	1500	596	0.274	617.5	550.2	1167.6
1985.3	2000	635	0.187	679.0	460.0	1139.0
2485.3	2500	668	0.130	742.8	352.8	1095.6
2985.3	3000	695	0.084	823.1	202.5	1025.6
3211.3	3226	706	0.0522	925.0	0	925.0

Table 5-11. Maximum Permissible ID and Minimum Wall in Accordance with ASTM A106 Pipe⁽¹⁾

Nominal Pipe Size	Outsid e Diam. Max.	Wall I.D.	Nominal Wall Thickness and Inside Diameters													Dbl. Ext. Strong	
			Schedule 10	Schedule 20	Schedule 30	Standard Weight	Schedule 40	Schedule 60	Extra Strong	Schedule 80	Schedule 100	Schedule 120	Schedule 140	Schedule 160			
1/8	0.421	Wall I.D.				0.060 0.302	0.060 0.302		0.083 0.254	0.083 0.254							
1/4	0.556	Wall I.D.				0.077 0.402	0.077 0.402		0.110 0.335	0.110 0.335							
3/8	0.691	Wall I.D.				0.080 0.531	0.080 0.531		0.110 0.470	0.110 0.470							
1/2	0.856	Wall I.D.				0.095 0.665	0.095 0.665		0.129 0.598	0.129 0.598					0.164 0.528	0.257 0.341	
3/4	1.066	Wall I.D.				0.099 0.868	0.099 0.868		0.135 0.796	0.135 0.796					0.191 0.684	0.270 0.527	
1	1.331	Wall I.D.				0.116 1.098	0.116 1.098		0.157 1.017	0.157 1.017					0.219 0.893	0.313 0.704	
1 1/4	1.676	Wall I.D.				0.123 1.431	0.123 1.431		0.167 1.341	0.167 1.341					0.219 1.238	0.334 1.007	
1 1/2	1.916	Wall I.D.				0.127 1.662	0.127 1.662		0.175 1.566	0.175 1.566					0.246 1.424	0.350 1.216	
2	2.406	Wall I.D.				0.135 2.137	0.135 2.137		0.191 2.025	0.191 2.025					0.300 1.806	0.382 1.643	
2 1/2	2.906	Wall I.D.				0.178 2.551	0.178 2.551		0.242 2.423	0.242 2.423					0.328 2.250	0.483 1.940	
3	3.531	Wall I.D.				0.189 3.153	0.189 3.153		0.263 3.006	0.263 3.006					0.383 2.765	0.525 2.481	
3 1/2	4.031	Wall I.D.				0.198 3.636	0.198 3.636		0.278 3.475	0.278 3.475						0.557 2.918	
4	4.531	Wall I.D.				0.207 4.117	0.207 4.117		0.295 3.942	0.295 3.942		0.383 3.765			0.465 3.602	0.590 3.352	
5	5.626	Wall I.D.				0.226 5.174	0.226 5.174		0.328 4.969	0.328 4.969		0.438 4.751			0.547 4.532	0.656 4.313	
6	6.688	Wall I.D.				0.245 6.198	0.245 6.198		0.378 5.932	0.378 5.932		0.492 5.704			0.628 5.431	0.756 5.176	
8		Wall I.D.		0.219 8.250	0.242 8.203	0.282 8.124	0.282 8.124	0.355 7.977	0.438 7.813	0.438 7.813	0.519 7.650	0.628 7.431	0.711 7.267	0.793 7.102	0.766 7.156		
10	10.84 4	Wall I.D.		0.219 10.406	0.269 10.307	0.319 10.205	0.319 10.205	0.438 9.969	0.438 9.969	0.519 9.806	0.628 9.587	0.738 9.369	0.875 9.094	0.984 8.875			
12	12.84 4	Wall I.D.		0.219 12.406	0.289 12.266	0.328 12.188	0.355 12.133	0.492 11.860	0.438 11.969	0.601 11.642	0.738 11.369	0.875 11.094	0.984 10.875	1.148 10.548			
14	14.09 4	Wall I.D.	0.219 13.656	0.273 13.548	0.328 13.438	0.328 13.438	0.383 13.327	0.519 13.056	0.438 13.219	0.656 12.781	0.820 12.454	0.956 12.181	1.094 11.906	1.230 11.633			
16	16.09 4	Wall I.D.	0.219 15.656	0.273 15.548	0.328 15.438	0.328 15.438	0.438 15.219	0.574 14.946	0.438 15.219	0.738 14.619	0.902 14.290	1.066 13.962	1.258 13.577	1.394 13.306			
18	18.09 4	Wall I.D.	0.219 17.656	0.273 17.548	0.383 17.327	0.328 17.438	0.492 17.110	0.656 16.781	0.438 17.219	0.820 16.454	1.012 16.071	1.203 15.688	1.367 15.360	1.558 14.977			
20	20.12 5	Wall I.D.	0.219 19.688	0.328 19.469	0.438 19.250	0.328 19.469	0.519 19.087	0.711 18.704	0.438 19.250	0.902 18.321	1.121 17.883	1.313 17.500	1.531 17.063	1.722 16.681			
24	24.12 5	Wall I.D.	0.219 23.688	0.328 23.469	0.492 23.142	0.328 23.469	0.601 22.923	0.847 22.431	0.438 23.250	1.066 21.994	1.340 21.446	1.586 20.954	1.804 20.517	2.050 20.025			
30	30.12 5	Wall I.D.	0.273 29.579	0.438 29.250	0.547 29.031	0.328 29.469			0.438 29.250								

(1) O.D.—MAX. I.D.—MAX. WALL—MIN.

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Table 5-12. Dimensions Of Welded And Seamless Pipe Carbon And Alloy Steel

Nominal Pipe Size	Outside Diameter	Wall Thickness Inside Diameter	Nominal Wall Thickness And Inside Diameter			
			Schedule 5S*	Schedule 10S*	Schedule 40S	Schedule 80S
1/8	0.405	Wall	–	0.049	0.068	0.095
		I.D.	–	0.307	0.269	0.215
1/4	0.540	Wall	–	0.065	0.088	0.119
		I.D.	–	0.410	0.364	0.302
3/8	0.675	Wall	–	0.065	0.091	0.126
		I.D.	–	0.545	0.493	0.423
1/2	0.840	Wall	0.065	0.083	0.109	0.147
		I.D.	0.710	0.674	0.622	0.546
3/4	1.050	Wall	0.065	0.083	0.113	0.154
		I.D.	0.920	0.884	0.824	0.742
1	1.315	Wall	0.065	0.109	0.133	0.179
		I.D.	1.185	1.097	1.049	0.957
1 1/4	1.660	Wall	0.065	0.109	0.140	0.191
		I.D.	1.530	1.442	1.380	1.278
1 1/2	1.900	Wall	0.065	0.109	0.145	0.200
		I.D.	1.770	1.682	1.610	1.500
2	2.375	Wall	0.065	0.109	0.154	0.218
		I.D.	2.245	2.157	2.067	1.939
2 1/2	2.875	Wall	0.083	0.120	0.203	0.276
		I.D.	2.709	2.635	2.469	2.323
3	3.500	Wall	0.083	0.120	0.216	0.300
		I.D.	3.334	3.260	3.068	2.900
3 1/2	4.000	Wall	0.083	0.120	0.226	0.318
		I.D.	3.834	3.760	3.548	3.364
4	4.500	Wall	0.083	0.120	0.237	0.337
		I.D.	4.334	4.260	4.026	3.826
5	5.563	Wall	0.109	0.134	0.258	0.375
		I.D.	5.345	5.295	5.047	4.813
6	6.625	Wall	0.109	0.134	0.280	0.432
		I.D.	6.407	6.357	6.065	5.761
8	8.625	Wall	0.109	0.148	0.322	0.500
		I.D.	8.407	8.329	7.981	7.625
10	10.750	Wall	0.134	0.165	0.365	0.500**
		I.D.	10.482	10.420	10.020	9.750**
12	12.750	Wall	0.156	0.180	0.375**	0.500**
		I.D.	12.438	12.390	12.000**	11.750**
14†	14.000	Wall	0.156	0.188	–	–
		I.D.	13.688	13.624	–	–
16†	16.000	Wall	0.165	0.188	–	–
		I.D.	15.670	15.624	–	–
18†	18.000	Wall	0.165	0.188	–	–
		I.D.	17.670	17.624	–	–
20†	20.000	Wall	0.188	0.218	–	–
		I.D.	19.624	19.564	–	–
24†	24.000	Wall	0.218	0.250	–	–
		I.D.	23.564	23.500	–	–
30†	30.000	Wall	0.250	0.312	–	–
		I.D.	29.500	29.376	–	–

NOTE

All dimensions given for inches. The wall thicknesses shown represent nominal or average wall dimensions which are subject to 12.5% mill tolerance.

†Sizes 14" through 30" show dimensions commonly used in the industry.

*Schedule 5S and 10S wall thicknesses do not permit threading in accordance with ASA B2.1.

**Schedule 40S and schedule 80S in these sizes do not agree with schedule 40 and schedule 80 of ASA B36.10 and that they are identical to standard weight and extra strong respectively of ASA B36.10.

Technical Data Sheet

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