PT-1000 temperature probe
V 1.0

Specifications
- Cable length: 81cm (32")
- 30mm (Stainless steel)
- 6mm Diameter
- 2 wire
- Class: A
- Probe type: RTD (resistance temperature detector)
- Sensing element: platinum (PT)
- Stainless steel housing
- Cable material: Silicone rubber
- Probe output: analog
- Accuracy +/- $(0.15 + (0.002*t))$
- Full temperature sensing range -200℃ to 850℃
- Cable max temp 125°C
- Cable min temp -55°C

*To read temperatures above, or below the max cable temperature an additional probe housing is needed to protect the cable.
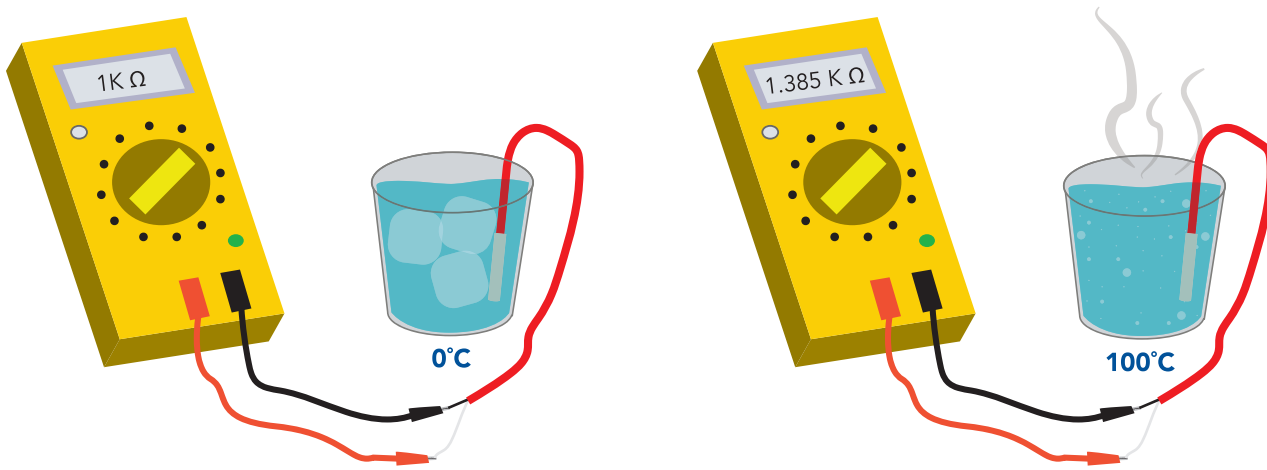
100mm Temperature Thermowell

50mm Temperature Thermowell

30mm Temperature Thermowell

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Mechanism of operation

A PT1000 temperature probe is a resistance type thermometer. Where PT stands for platinum and 1000 is the measured resistance of the probe at 0℃ in ohms (1k at 0℃). As the temperature changes the resistance of the platinum changes.
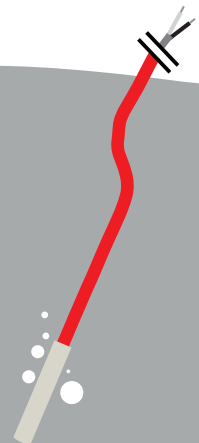

To convert the resistance of the probe to temperature the use the following simplified equation:

$$T = -\frac{\sqrt{(-0.00232(R) + 17.59246\,)} - 3.908}{0.00116}$$

T = Degrees Celsius.
R = Resistance measured from PT1000 temperature probe.

The PT-1000 can be *fully submerged* in fresh water or salt water, up to the tinned leads indefinitely.

Here is a small table of temperatures and resistances, to help insure the above equation has been properly embedded into your code.

°C	Ω		°C	Ω
-10	960.9		17	1066.3
-9	964.8		18	1070.2
-8	968.7		19	1074
-7	972.6		20	1077.9
-6	976.5		21	1081.8
-5	980.4		22	1085.7
-4	984.4		23	1089.6
-3	988.3		24	1093.5
-2	992.2		25	1097.3
-1	996.1		26	1101.2
0	1000		27	1105.1
1	1003.9		28	1109
2	1007.8		29	1112.8
3	1011.7		30	1116.7
4	1015.6		31	1120.6
5	1019.5		32	1124.5
6	1023.4		33	1128.3
7	1027.3		34	1132.2
8	1031.2		35	1136.1
9	1035.1		36	1139.9
10	1039		37	1143.8
11	1042.9		38	1147.7
12	1046.8		39	1151.5
13	1050.7		40	1155.4
14	1054.6			
15	1058.5			
16	1062.4			

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