

# PT-1000 temperature probe v 1.0

## Specifications

- Accuracy +/- (0.15 + (0.002\*t))
- Probe type: Class A platinum, RTD (resistance temperature detector)
- Cable length: 81cm (32")
- Cable material: Silicone rubber
- 30mm sensing area (304 SS)
- 6mm Diameter
- BNC Connector
- Reaction Time: 90% value in 13 seconds
- Probe output: analog
- Full temperature sensing range -200°C to 850°C
- 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



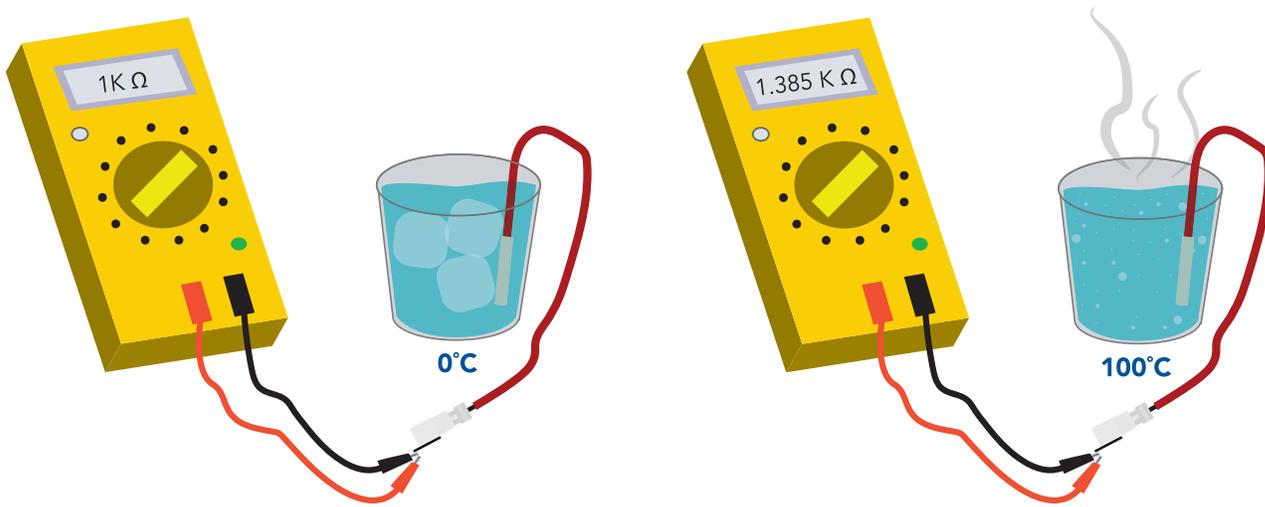
50mm Temperature Thermowell



30mm Temperature Thermowell

## 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°C in ohms (1k at 0°C). As the temperature changes the resistance of the platinum changes.



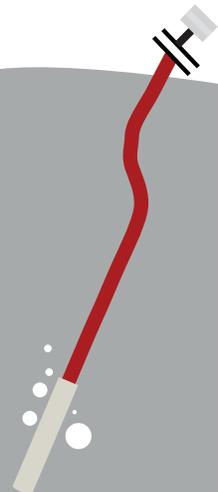
To convert the resistance of the probe to temperature the use the following simplified equation:

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

**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 BNC connector indefinitely.



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

<b>°C</b>	<b>Ω</b>	<b>°C</b>	<b>Ω</b>
-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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