

Gen 2

Industrial PT-1000 Temperature Probe

Reads **Temperature**

Probe type **Class A platinum, RTD**

Range **-55°C to 220 °C**

Accuracy **+/- (0.15 + (0.002*t))**

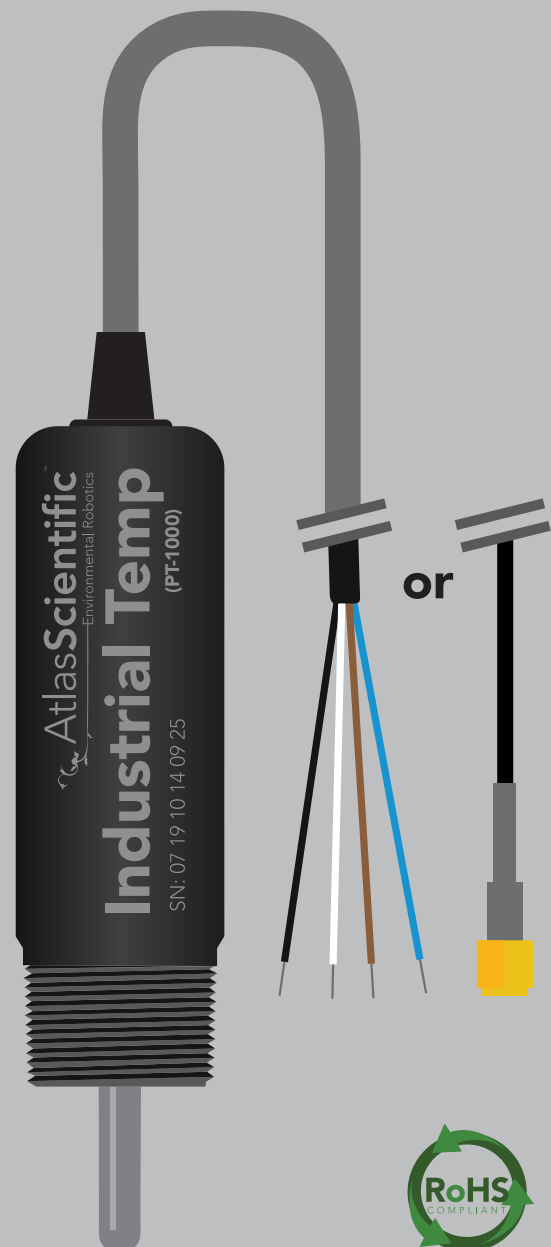
Reaction Time **90% in 13s**

Cable length **3 Meters**

Connector **SMA or Tinned leads**

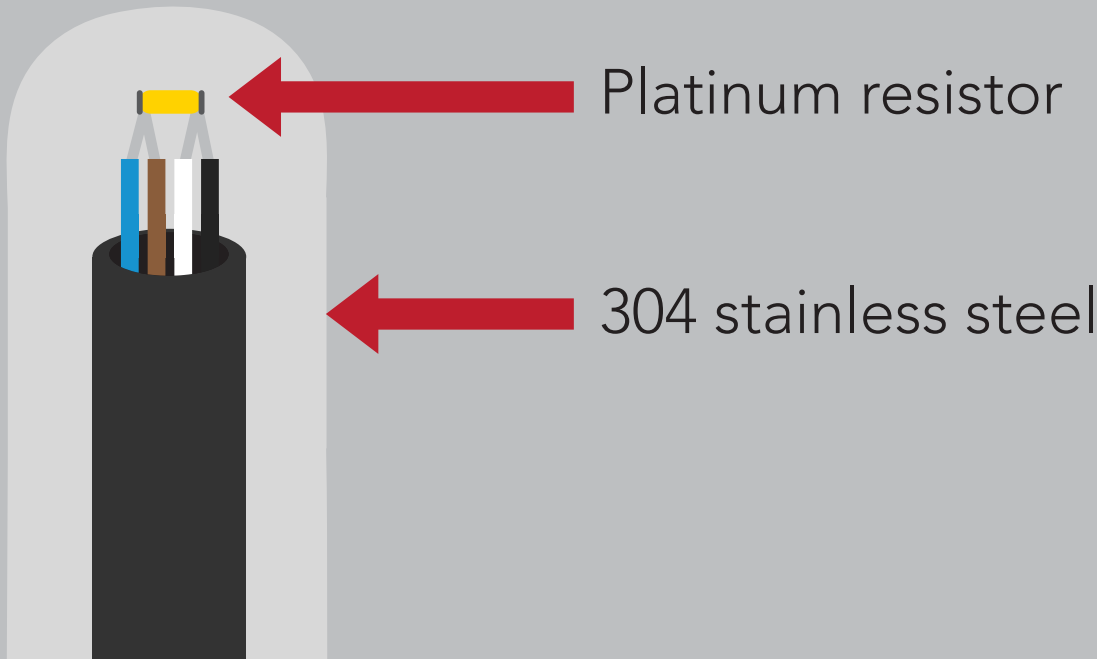
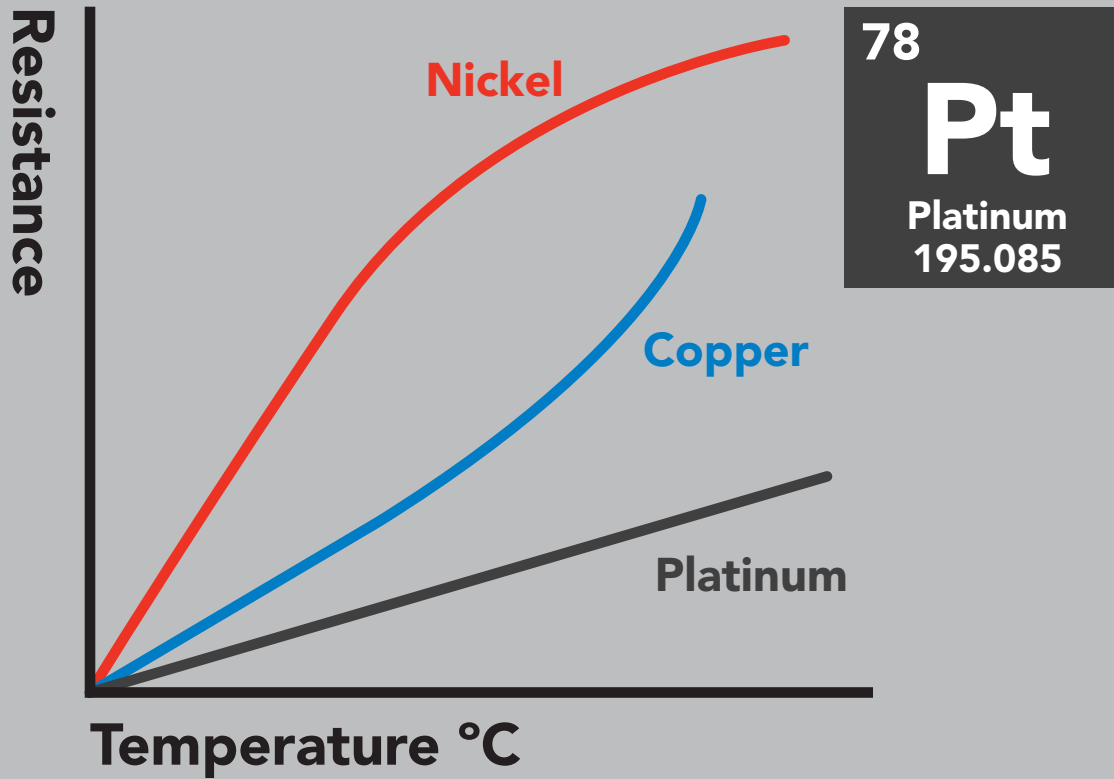
Output **Resistance (Analog)**

Life expectancy **15 years**

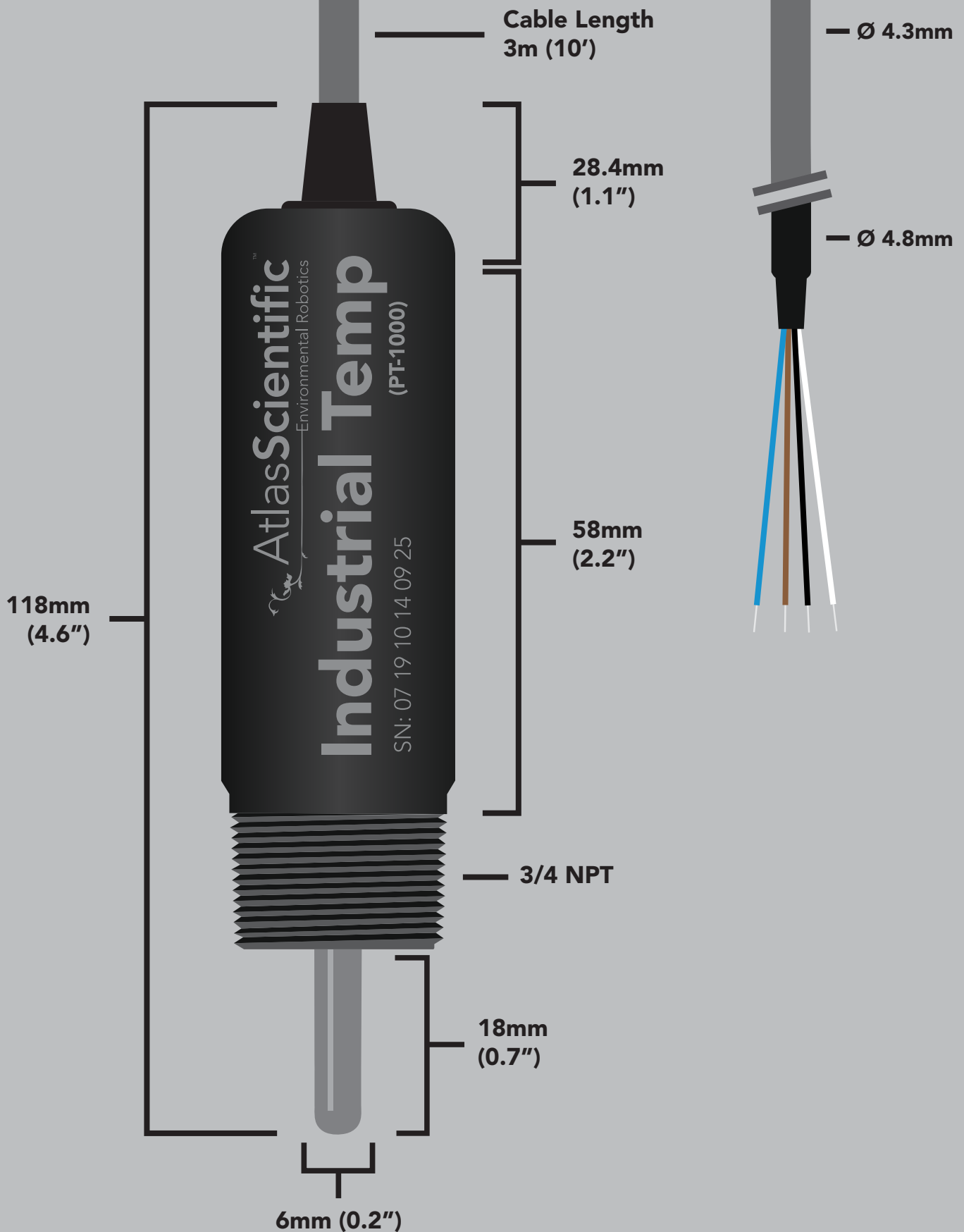


Operating principle

Unlike any other material, platinum's correlation between resistance and temperature seems to be woven into the fabric of the universe. It is for this reason, that the platinum RTD temperature sensor is the industrial standard for temperature measurement.



Measurements



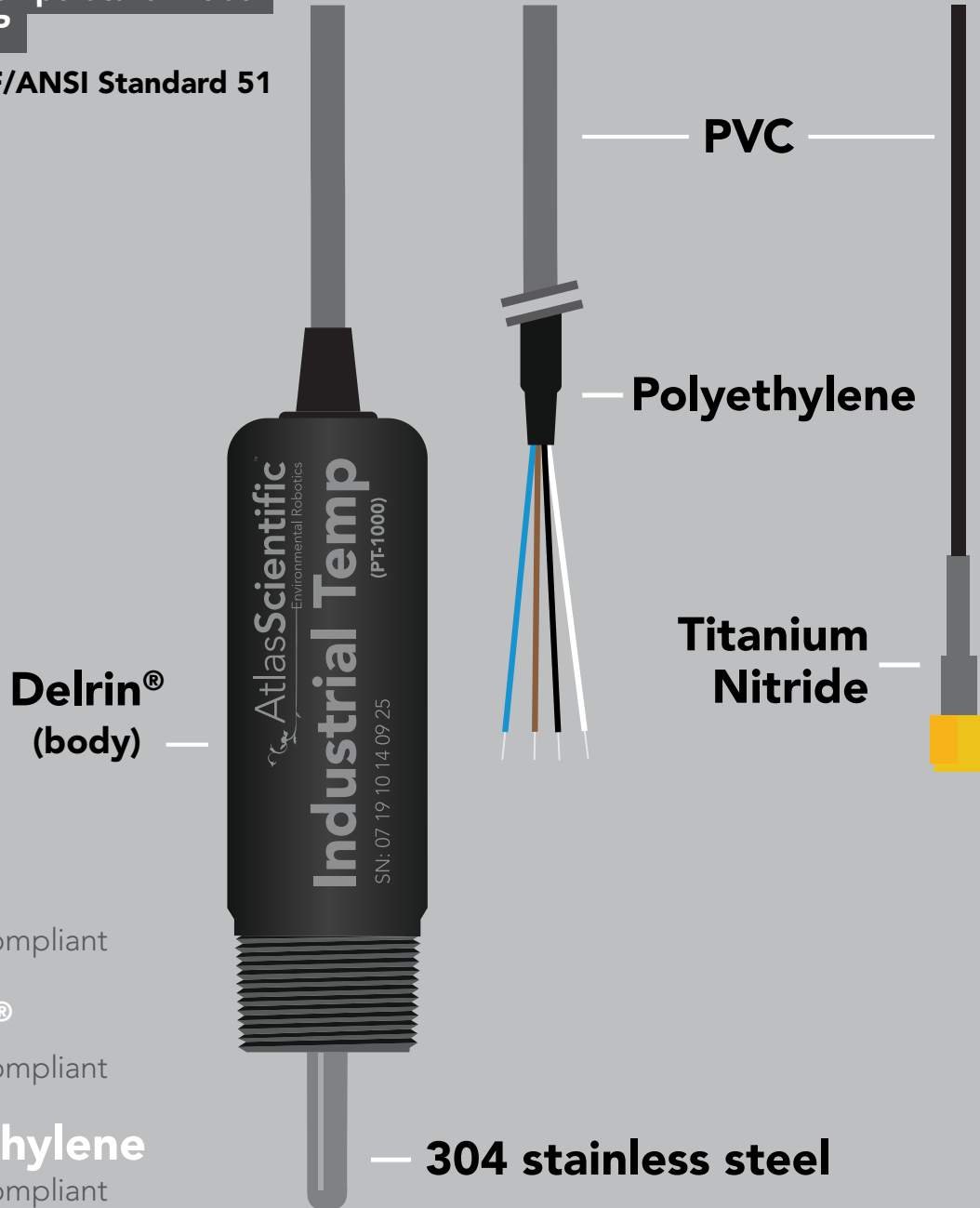
NSF/ANSI 51 Compliant

Food Safe

Atlas Scientific LLC, hereby certifies that,

Industrial PT-100 Temperature Probe
Part # ENV-50-TMP

Complies with NSF/ANSI Standard 51



PVC

NSF-51 Compliant



Delrin®

NSF-51 Compliant



Polyethylene

NSF-51 Compliant



Titanium Nitride

NSF-51 Compliant



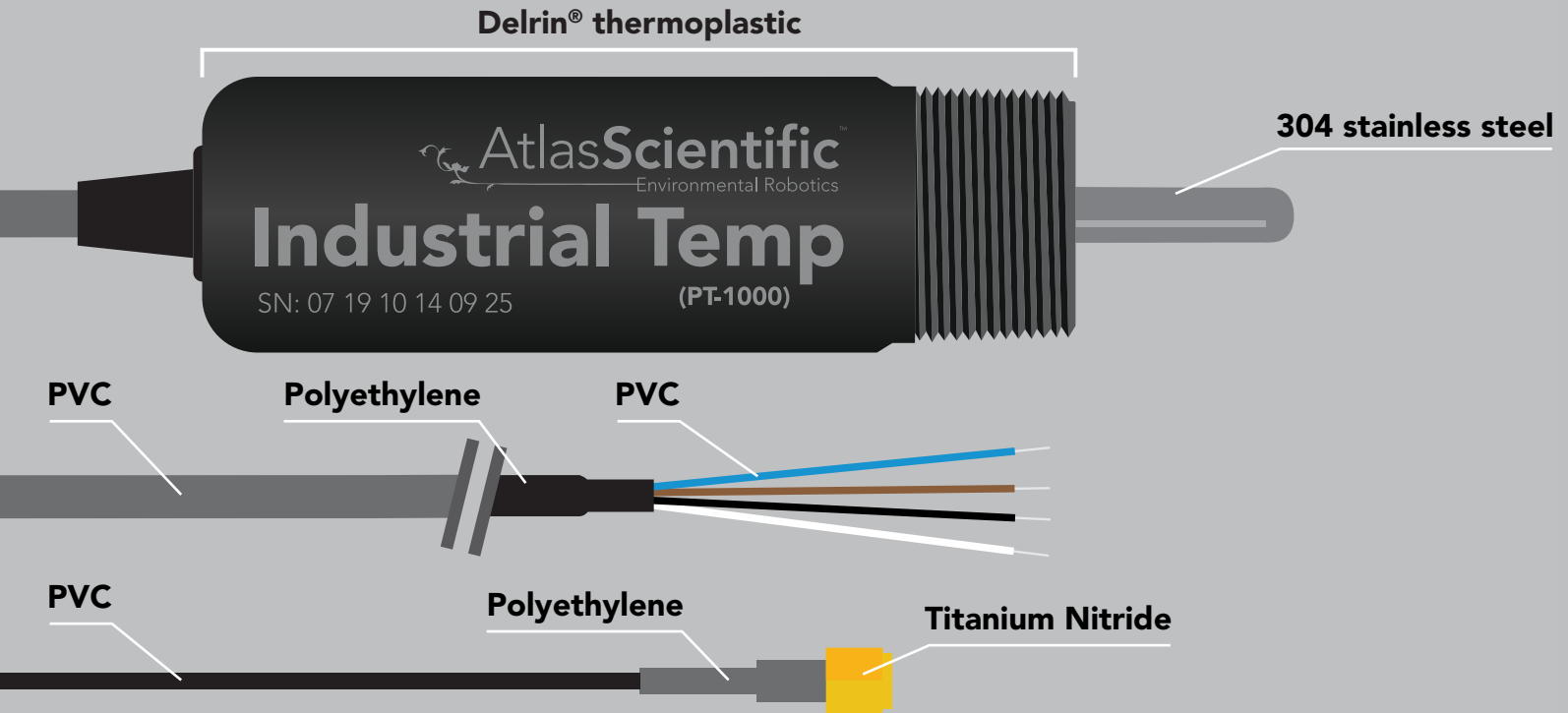
304 stainless steel

NSF-51 Compliant

Specifications

Cable length	3m (10 feet)
Weight	140 grams
Max cable temp	125°C
Sensing material	Platinum
Threading	(3/4") NPT
Connector	SMA or Tinned Leads
Sterilization	Chemical / Autoclave
Food safe	Yes

Materials



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

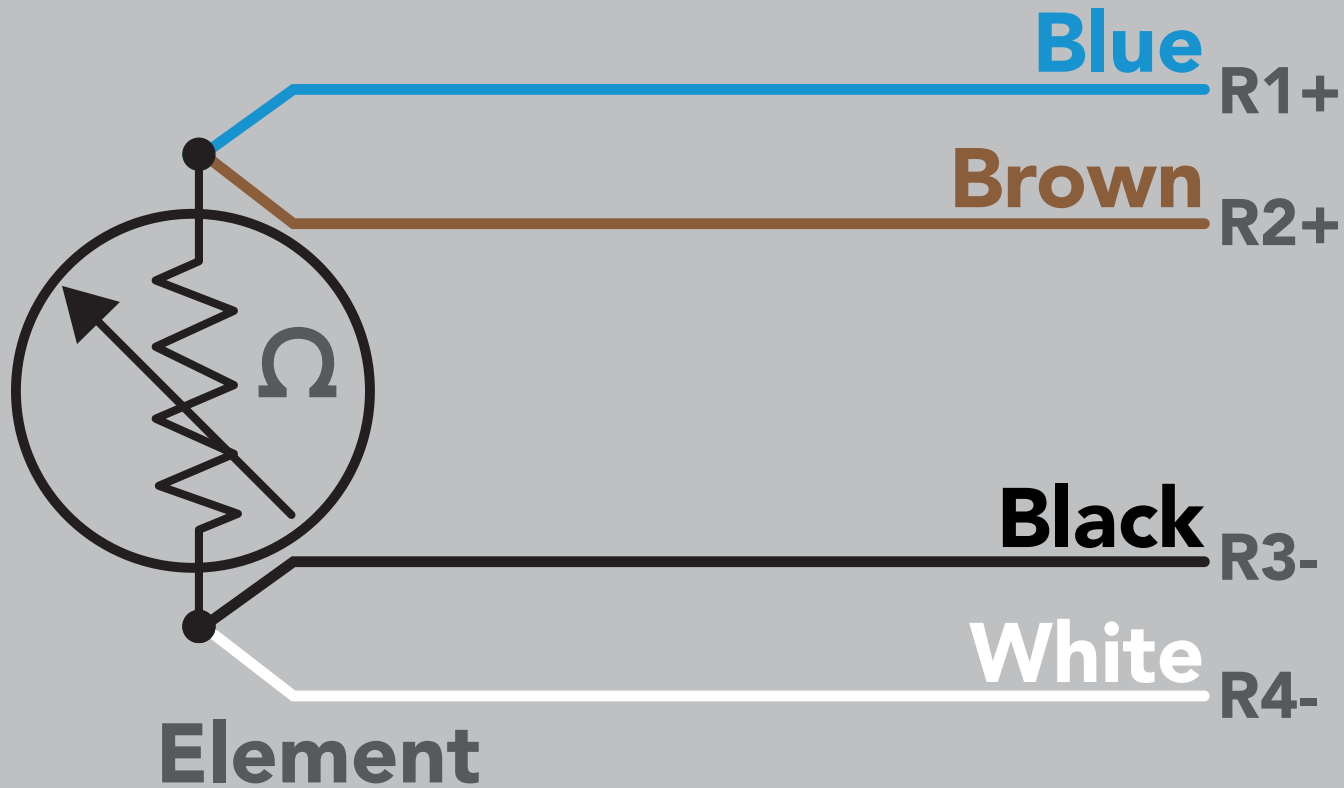
Typical Applications

- Temperature measurement of a liquid oil or gas

Wiring guide

This four wire PT-1000 probe can be connected to any device that can read a two, three or four wire PT-1000 temperature probe.

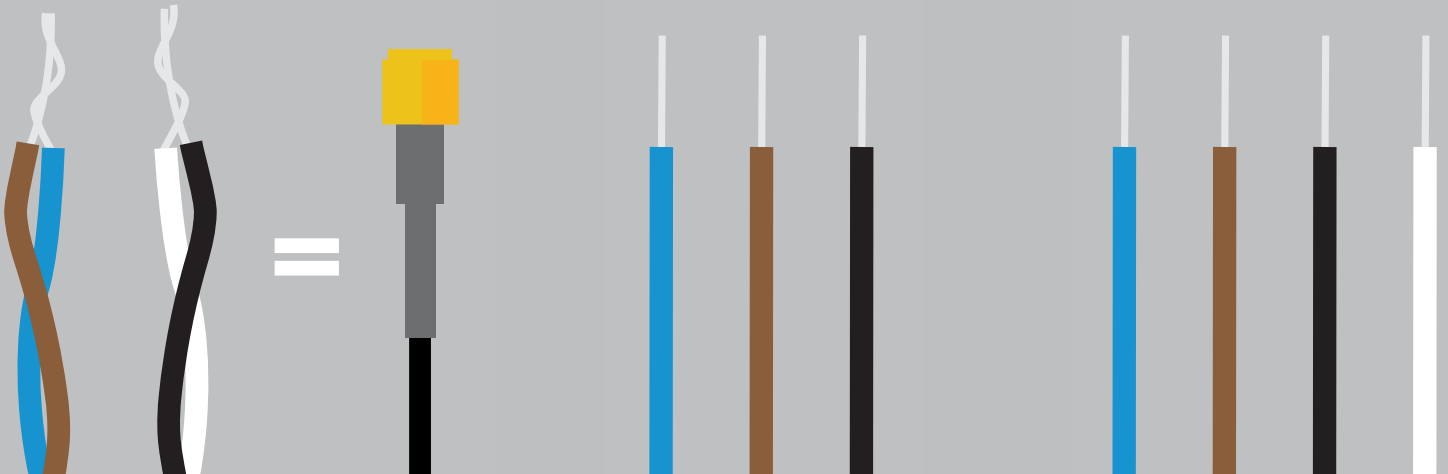
A PT-1000 temperature probe converts the resistance of platinum to temperature.



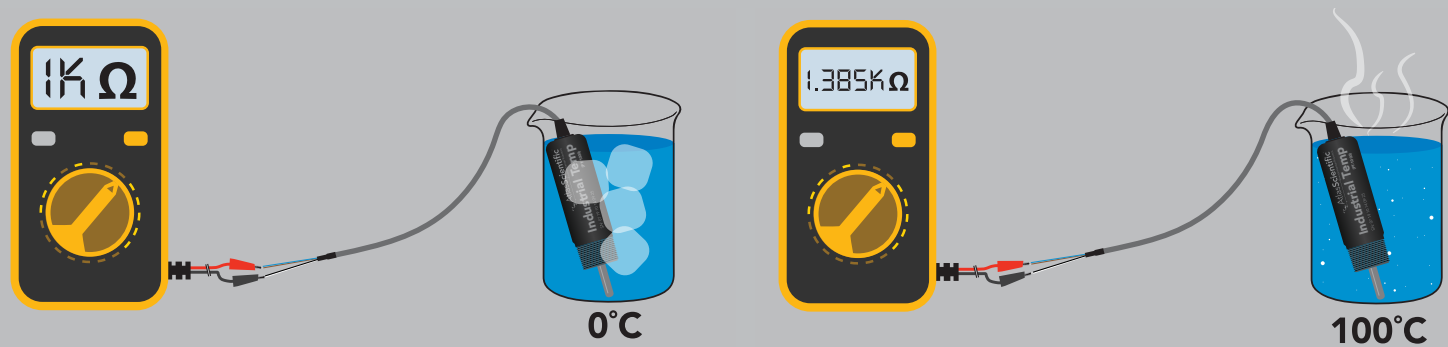
Two wire connection

Three wire connection

Four wire connection



The PT-1000 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, use the following simplified equation:

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

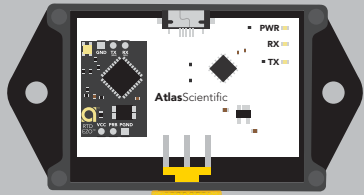
T = Degrees Celsius
R = Resistance measured from PT-1000 temperature probe

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

How to connect the Industrial PT-1000 Temperature probe

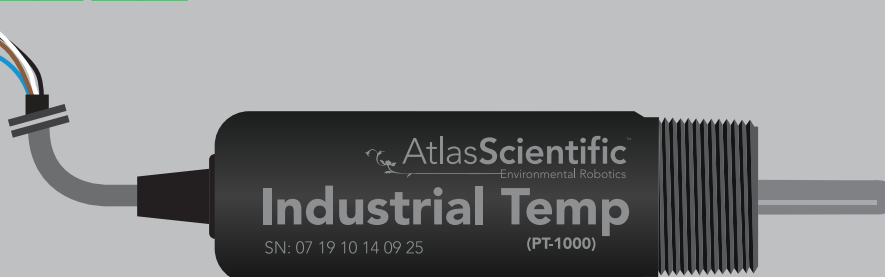
The Atlas Scientific™ Industrial PT-1000 temperature probe can be connected in several different ways. The following show two examples:



You can easily connect the Industrial PT-1000 Temperature probe to our **EZO Complete-TMP™** via the probes SMA connector.



For industrial purposes, the Industrial PT-1000 Temperature probe connects easily to our **Industrial RTD Transmitter** via the probes tinned leads.



Probe cleaning

Over time the Industrial PT-1000 probe can become dirty and covered in deposits. Both soft and hard coatings can be removed by lightly brushing around the sensing area.

