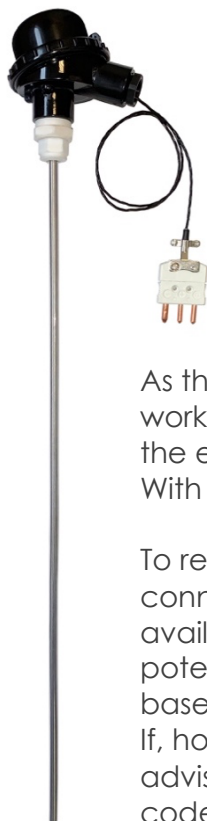


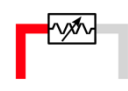
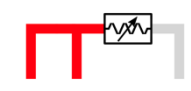
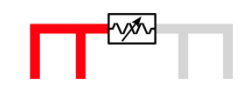

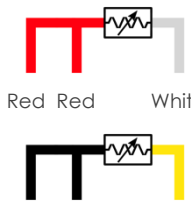
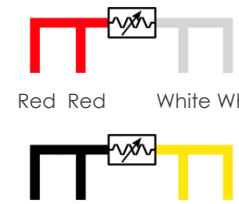
# Resistance Thermometer Device (RTD) Product Datasheet



These are available in a number of shapes and sizes to suit many low temperature sensing requirements (up to 600 °C, depending on construction). The construction is based around a Platinum sensing element (Pt) that has a standard output at 0 °C (100Ω) hence the Pt100 designation, Platinum is used due to its availability in pure form. It also has a wide operating temperature range. Other materials and outputs are available, but the Pt100 is by far most the common type of resistance thermometer device used in industry today.

As the name, Resistance Thermometer Device describes, these sensors work on the principal as temperature increases, so does resistance, and the elements produce a near linear output of temperature vs. resistance. With this relationship very accurate measurements can be taken.

To reduce any potential errors being added to the sensing output, as connection wires are normally added, different wiring configurations are available. When connected to instrumentation, these remove any added potential lead errors, by the use of either a 3 wire or 4 wire system this is based on the assumption that all the lead wires are of the same resistance. If, however a 2-wire configuration system has to be used, it is always advisable to keep the leads as short as possible, the leads wires are colour coded to IEC 751(1995).

	2 Wire Configuration	3 Wire Configuration	4 Wire Configuration
<b>1 Element</b>	 Red White	 Red Red White	 Red Red White White
<b>2 Element</b>	 Red White Black Yellow	 Red Red White Black Black Yellow	 Red Red White White Black Black Yellow Yellow



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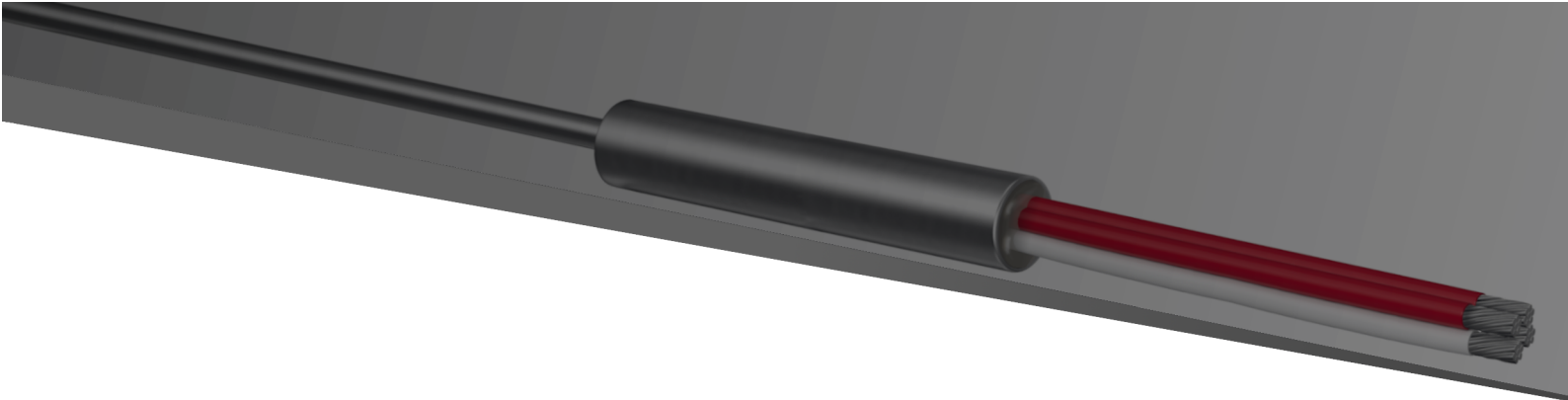
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Elements are also available in different classes and these also conform to IEC 60751.

Temp °C	Resistance Ω	Tolerance			
		Class A		Class B	
		± °C	± Ω	± °C	± Ω
-200	18.52	0.55	0.24	1.3	0.56
-100	60.26	0.35	0.14	0.8	0.32
0	100.00	0.15	0.06	0.3	0.12
100	138.51	0.35	0.13	0.8	0.30
200	175.86	0.55	0.20	1.3	0.48
300	212.05	0.75	0.27	1.8	0.64
400	247.09	0.95	0.33	2.3	0.79
500	280.98	1.15	0.38	2.8	0.93
600	313.71	1.35	0.43	3.3	1.06
650	329.64	1.45	0.46	3.6	1.13
700	345.28	-	-	3.8	1.17
800	375.70	-	-	4.3	1.28
850	390.48	-	-	4.6	1.34

Whilst the sensing elements are available in 3 main construction types; Ceramic wire wound, ceramic film elements, and are available in many shapes and sizes. They do normally require some form of protection from their intended sensing environment. This can be achieved in many ways with the adding of suitable protection housing and adding suitable connection wires. It is always worth remembering that the sensing element are constructed from ceramic, and do not like to be bent. This should be taken into consideration when designing any suitable assembly and will affect the choice of element required. Other element materials are available to suit most industrial requirements.

Assemblies are available with Plugs / sockets/ cables / connection heads / Temperature transmitters are available in either 4-20 Ma or 0-10v output.



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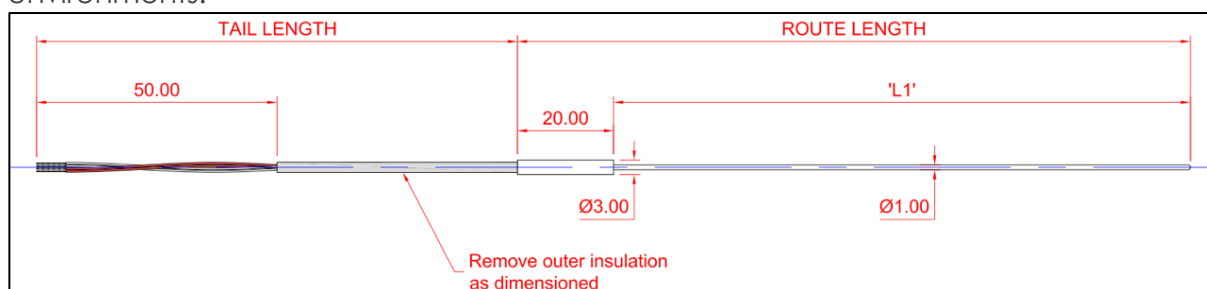
## 4 Wire PT100 | 1 mm Diameter | Ultra low profile design

In a 4 wire PT100 / RTD (Resistance Thermometer Device) the actual resistance of the lead wires can be determined and removed from the sensor measurement. The circuit is a true 4-wire bridge, which works by using wires 1 & 4 to power the circuit and wires 2 & 3 to read.

The 4 wire configuration provides the most reliable and accurate results, with the added benefit of completely eliminating the lead wire resistance from the temperature measurement.

The ultra-fine 1mm outer diameter of the probe is unintrusive and allows accurate measurement with minimal interference to the surrounding areas.

The highly accurate Platinum element provides reliability even in the most hostile of environments.



Sensor variations available;	
Sensor Types	Pt100   4 Wire Configuration
Sensor Class	Class A   1/10th Din
Sensor Diameter	1mm
Sheath Material	316 Stainless Steel   231 Stainless Steel
Sheath Length	Subject to customer requirements
Temperature Range	Min -196 °C   Max 500 °C
Cold Junction Options	Tails   Cables   Plugs   Sockets



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