

Thermistor Manual

Product Introduction:

Platinum resistance, also known as platinum thermistor, changes its resistance value with temperature. It has PT100 and PT1000 and other series products are suitable for medical, electrical, industrial, temperature calculation, satellite, meteorological, and impedance applications. High precision temperature devices such as value calculation have a wide range of applications.

Working Principle:

Armored thermistor measures temperature by utilizing the characteristic that the resistance of a substance changes with temperature. When the resistance value changes, the working instrument displays the temperature value corresponding to the resistance value. Armored thermistor is a type of temperature sensor that has a smaller diameter, is more flexible, and has better seismic resistance compared to prefabricated thermistors. It is suitable for installation in situations where prefabricated thermistors cannot be installed. The WZPK series armored thermistors use imported thermistors for temperature measurement, which have the advantages of precision, sensitivity, fast thermal response time, stable quality, and long service life.

Component:

The outer protective sleeve of the armored thermal resistor is made of stainless steel and filled with high-density oxide material insulation. Therefore, the armored thermal resistor has strong anti pollution performance and mechanical strength, making it suitable for installation in harsh environments. Common Pt100 temperature sensing components include ceramic components, glass components, and mica components, which are made by winding platinum wires around ceramic skeletons, glass skeletons, and mica skeletons through complex processing techniques.



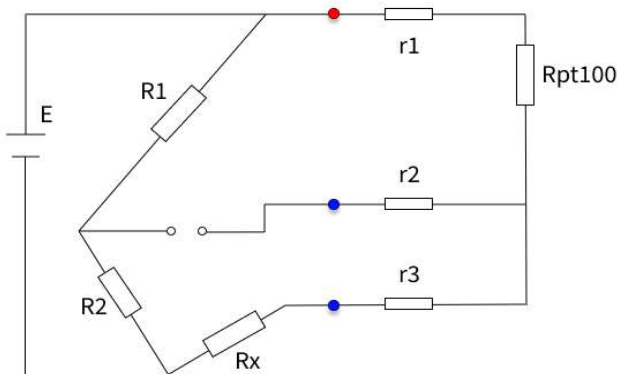
(Photo of Platinum Resistance)

Technical Indicators:

1. The resistance at 0 °C is 100 Ω, and the resistance at 100 °C is 138.51 Ω.
2. Measurement range: -100~500 °C.
3. Response time parameter: <3 seconds.
4. Minimum insertion depth: 15mm.
5. External dimensions: The temperature sensor housing material is 304 stainless steel, the base is made of carbon steel M27 * 2, M16 * 1.5 specifications, and the sensor lead is a three core heat-resistant shielded wire.

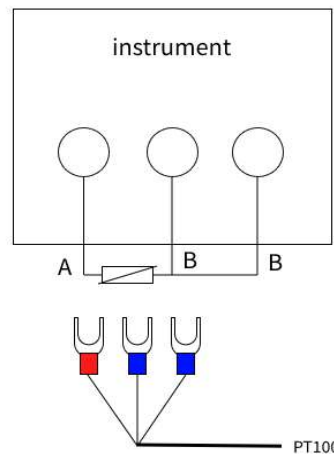
Sensor Wiring:

1. The wiring is a three wire system: the red wire represents a separate end, and the two green wires share the other end.
2. Note: The length of the extension cable cannot exceed 100m, and the material of the three wires must be the same, otherwise it will affect the measurement accuracy.



When $R1 \times (Rx+r2+r3) = R2 \times (Rpt100+r1+r2+r3)$
 The bridge is balanced when $U=0$
 When $Rpt100$ is subjected to temperature changes,
 the bridge becomes unbalanced, $U \neq 0$

wiring diagram:



Installation and usage methods and precautions:

Firstly, for the installation of thermocouples and thermal resistors, the copper gasket should be quenched and fixed as vertically as possible to prevent deformation of the protective sleeve at high temperatures. However, in the case of flow velocity, it must be inserted against the flow direction of the measured medium to ensure sufficient contact between the temperature measuring element and the fluid to ensure its measurement accuracy. In addition, thermocouples and thermal resistors should be installed as much as possible in pipelines with protective layers to prevent heat loss. Secondly, when thermocouples and thermistors are installed in negative pressure pipelines, it is necessary to ensure the sealing of the measuring point to prevent the entry of cold air from the outside, which may cause readings to be lower. When thermocouples and thermistors are installed outdoors, the junction box cover of thermocouples and thermistors should be facing upwards, and the wire inlet should be facing downwards to avoid rainwater or dust entering the junction box, which may damage the wiring inside the thermocouple and thermistors junction box and affect their measurement accuracy. It is necessary to regularly check the wiring of thermocouples and resistance thermometers, especially for thermocouple thermometers. Due to the high hardness of the compensating wire material, it is very easy for the thermocouple thermometer to detach from the terminal and cause open circuit faults. Therefore, it is necessary to have good wiring and not touch the thermometer wiring too much. Regular inspections should be carried out to obtain the correct measurement temperature.

Avoid fixing the temperature sensor in a vibrating area. If dirt adheres to the sensor, it should be cleaned in a timely manner to ensure reliable and accurate operation of the sensor. The laying of cables should be based on the principle of not obstructing the on-site operation of personnel, being less likely to be hit or damaged, and being installed safely and reliably.

Fault symptoms and on-site handling methods:

1. If the temperature sensor malfunctions during use, such as no signal output or exceeding the standard output, the first step is to check for broken wires, short circuits, and loose connections in the extension cable.

2. Suspect that the temperature sensor is faulty. Use a multimeter to measure whether the input of the platinum resistor has tens to hundreds of Ω resistance.

3. This sensor has been sealed before leaving the factory. If there is a malfunction, please send it to the factory for repair. Users should not disassemble it by themselves.

product image

Integrated



 STRONG



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Split-type



With display



-50~200°C
304 stainless steel



-50~200°C
304 stainless steel



-50~200°C
304 stainless steel



-50~200°C
304 stainless steel

Temperature Transmitter

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