

WZ industrial thermal resistance



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Overview

As a sensor for measuring temperature, thermal resistances are usually used in conjunction with display instruments, recording instruments and electronic regulators. It can directly measure the surface temperature of liquid, steam and gas media as well as solids in various production processes ranging from -200°C to 500°C .

Features

- ◆ High quality temperature sensing elements, stable and reliable performance.
- ◆ High mechanical strength and good pressure resistance
- ◆ High measurement accuracy
- ◆ No need for compensation wires, convenient and economical

Technical Parameters

Temperature measurement range and accuracy

| Thermal resistance category | Measuring Range $^{\circ}\text{C}$ | Grading | deviation Δt $^{\circ}\text{C}$ |
|-----------------------------|------------------------------------|---------|---|
| WZP type platinum resistor | -200~500 | Pt100 | B class deviation $\pm (0.3+0.005 t)$ |
| | | | A class deviation $\pm (0.15+0.002 t)$ |
| WZC type copper resistor | -150~100 | Cu50 | $-50\sim 100^{\circ}\text{C}$ deviation $\pm (0.30+6.0\times 10^{-3}t)$ |

Note: “t” in the formula is the absolute value of the actual measured temperature of the temperature sensing element.

Thermal response time

When there is a step change in temperature, the time required for the output of the thermal resistor to change to 50% of the step change is called the thermal response time and is represented by $T_{0.5}$.

| | Protection tube diameter (Unit: mm) | Protective tube material | Thermal response time $T_{0.5}$ (Unit: s) |
|-----------------------------|-------------------------------------|--------------------------|---|
| Platinum thermal resistance | $\Phi 12$ | 1Cr18Ni9Ti | 30~90 |
| | $\Phi 16$ | | 30~90 |
| | Tapered protective tube | | 90~180 |
| Copper thermal resistance | $\Phi 12$ | | <180 |

Minimum insertion depth of thermal resistor

$$l_{\min} = l_s + 15D$$

l_{\min} : Minimum available insertion depth

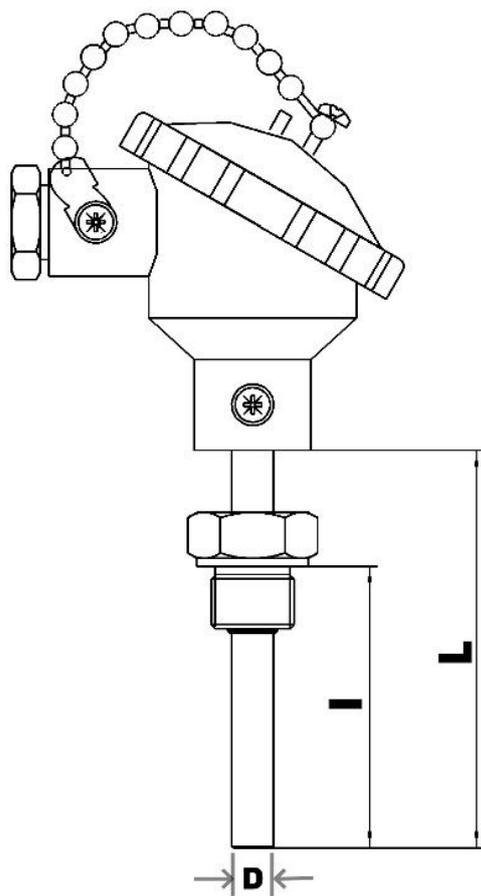
l_s : length of temperature sensing element

D: Outer diameter of protective tube

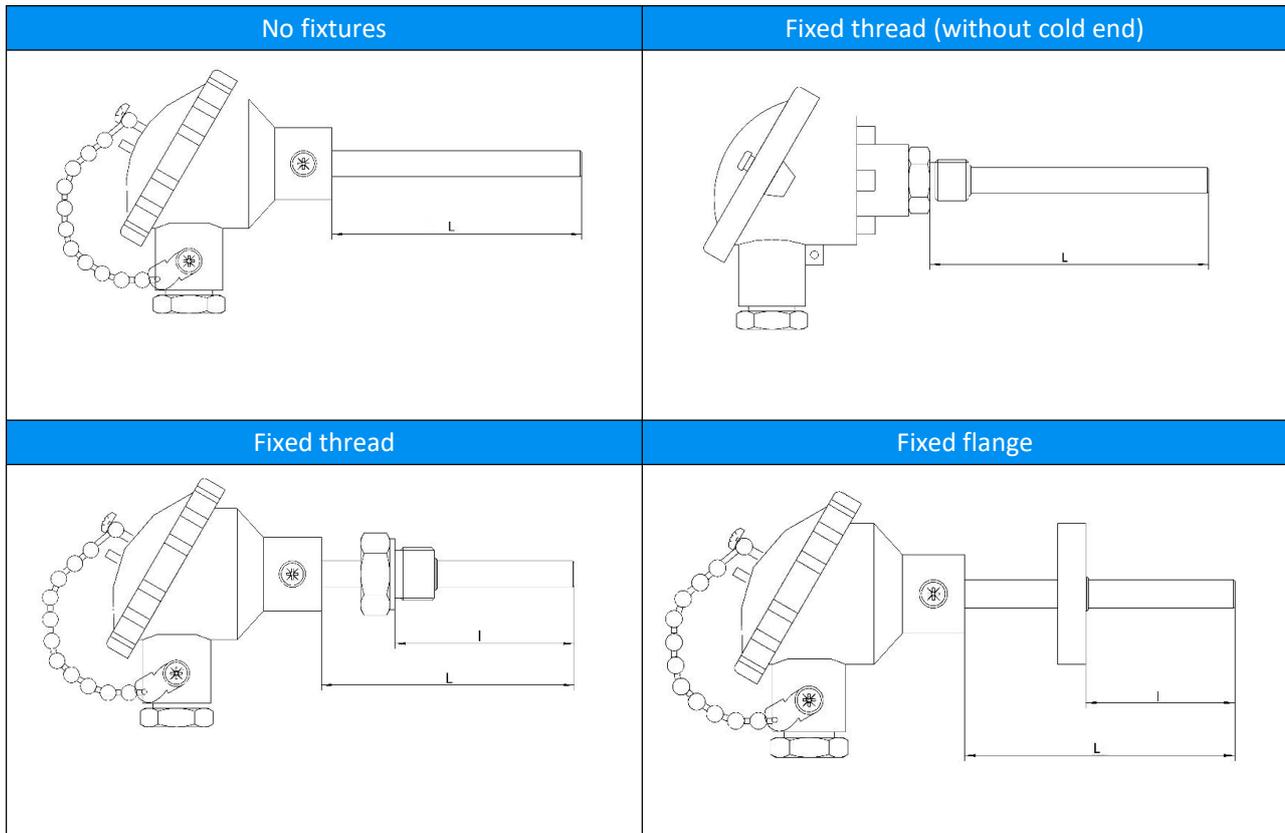
Insulation resistance

The insulation resistance value at room temperature is no less than $100M \Omega$ when DC 10~100V is any value, the ambient temperature is within the range of $15\sim 35^\circ\text{C}$, and the relative humidity not be greater than 80%.

Structure Drawings (Unit: mm)



Installation



Ordering Guide

| Item NO. | Type | | |
|--|-------------------------------------|--------------------------------|--|
| WZ | Thermal resistance | | |
| Code | | Thermal resistance type | |
| P | PT100 | | |
| C | Cu50 | | |
| Code | | Measuring insert | |
| NA | 1xPT100, 3-wire | | |
| 2 | 2xPT100, 3-wire | | |
| Code | | Installation form | |
| 1 | No fixtures | | |
| 2 | Fixed thread | | |
| 3 | Movable flange | | |
| 4 | Fixed flange | | |
| 5 | Ferrule thread | | |
| 6 | Clamp | | |
| Code | | Junction Box | |
| 1 | Simple | | |
| 2 | Splash proof | | |
| 3 | Waterproof | | |
| 4 | Explosion-proof | | |
| 7 | Circular Connector | | |
| Code | | Protection tube diameter | |
| 0 | 16mm | | |
| 1 | 12mm | | |
| Others | | Please highlight the diameters | |
| Code | | Protective tube material | |
| S4 | SUS304 | | |
| S6 | SUS316L | | |
| Code | | Measuring end form | |
| 2 | 2-wire | | |
| 3 | 3-wire | | |
| Code | | Process connection | |
| P1 | M20x1.5 | | |
| P4 | G1/2 | | |
| P17 | M27x2 | | |
| P22 | M16x1.5 | | |
| K1 | 1.5" clamp | | |
| K2 | 2" clamp | | |
| F20 | DN20 | | |
| F50 | DN50 | | |
| Code | | Others | |
| N | Integrated CNC, no welding | | |
| I | Insertion depth(mm) | | |
| L | Total length of protective tube(mm) | | |
| T | temperature range Tc(T1,T2) | | |
| Eg: WZP2-230-S4-3-P17-I=100-L=250-T=[0~300]°C | | | |
| Means: Double platinum thermal resistor, fixed thread installation M27x2, waterproof junction box, protective tube made of 304 material, diameter 16, total length 250, insertion depth 100, 3-wire, measuring temperature range 0~300°C | | | |