
ACT-3P Pipe Temperature Sensor

Technical and Operation Instructions

1. Introduction

ACT-3P pipe temperature sensor is a pressure-resistant temperature sensor and used for measuring the temperature of product (gas or liquid) in the piping lines in aircraft, submarines, special vehicles, ships, locomotives, mining and other industries.

For the $74^{\circ}\pm 30'$ and $60^{\circ}\pm 30'$ tapered holes and the M14×1 and M12×1 connecting threads of the sensor mounting base set on the piping lines for different users (military or civil), a wire contact structure is used for ACT-3P sensor, providing a secure and tight fit with the $74^{\circ}\pm 30'$ or $60^{\circ}\pm 30'$ tapered hole of the mounting base. When the connecting thread is changed (such as from M14×1 to M12×1), it is simply required to change the connecting nut thread for normal application. This has enhanced the adaptability of the sensor to the change of local dimensions and is convenient for users.

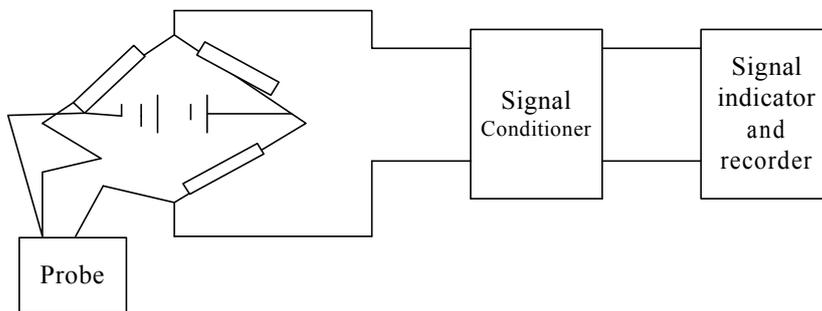
All parts of ACT-3P sensor housing are made of 1Cr18Ni9Ti stainless steel with excellent resistance to corrosion. A high precision platinum thermo-sensitive resistor which is linear with temperature change is used as the temperature sensing element and enclosed tightly in the housing. Therefore, the temperature sensor features high precision, excellent stability and powerful resistance to shock and moisture.

2. Operation Principle and Wiring Diagram

Operation Principle

When the temperature of the measured product (gas or liquid) changes, the resistance of the platinum thermo-sensitive resistor will change accordingly and this temperature signal is sent to a transmitter. The transmitter outputs a 4 to 20mA or 1 to 5V DC electrical signal. Another solution is that the resistance change of the temperature sensing element is converted through a bridge and processed by a signal conditioner to output a digital signal consistent with the operation requirement. The signal value is linear with the temperature of the product measured.

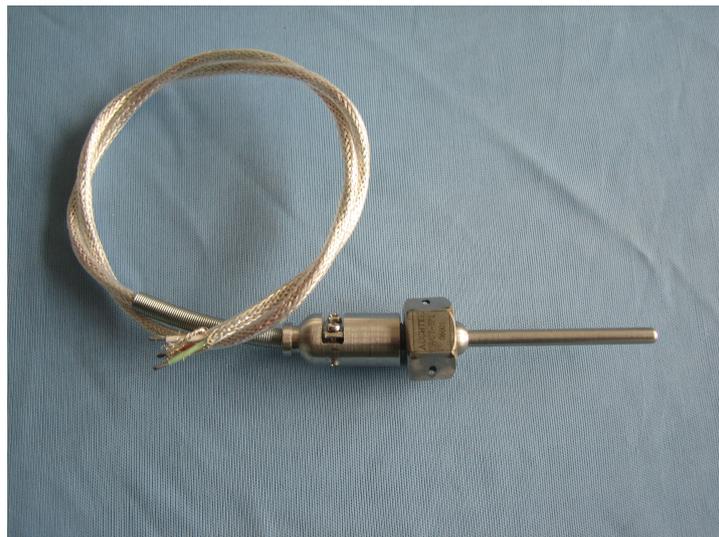
Wiring Diagram



3. Technical Specifications

- Temperature Measurement Range: $T = -60$ to 450°C
- Ambient Temperature: -50 to 250°C
- Resistance at Freezing Point: $R_o = 100 \pm 0.12 \Omega$
- w_{100} $R_{100}/R_o = 1.3850 \pm 0.0010$
- Accuracy: $\Delta t = \pm (0.3 + 0.5\% | t |)^{\circ}\text{C}$
- Allowable Operating Current: $I \leq 5 \text{ mA}$
- Pressure: $P \leq 30 \text{ MPa}$
- Transmitter Operating Power: D.C = $25\text{V} \pm 20\%$
- Accuracy: 0.5%
- Output Signal: $4 \sim 20 \text{ mA}$ or $1 \sim 5 \text{ V D.C}$

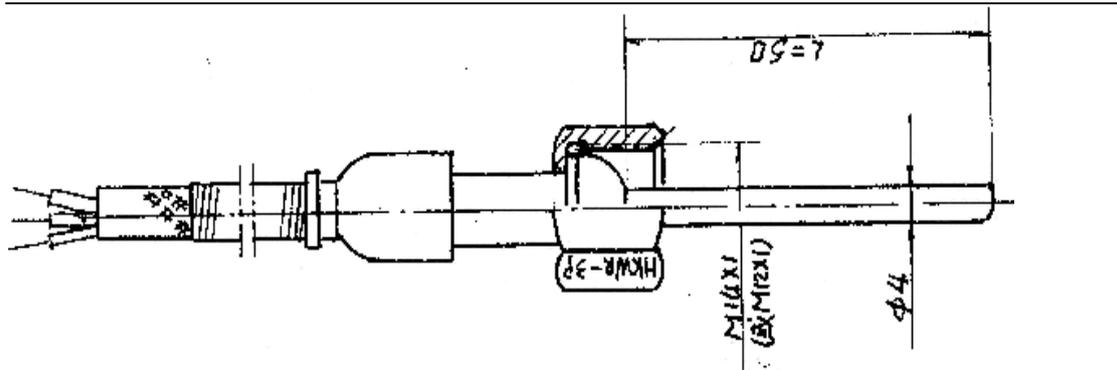
4. Outline Dimensions



Address: 23 Swan Lake Crescent, Calamvale QLD 4116 Australia

Tel: +61 7 37116958

Fax: +61 7 37117698



5. Note: Our company is able to design and manufacture non-standard products with different dimensions, structures and performances as required by users.

Address: 23 Swan Lake Crescent, Calamvale QLD 4116 Australia

Tel: +61 7 37116958

Fax: +61 7 37117698