

## **ACT-2X Pipe Temperature Sensor**

### **Technical Instructions**

#### **1. Instructions**

ACT-2X series pipe temperature sensor is 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-2X 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.

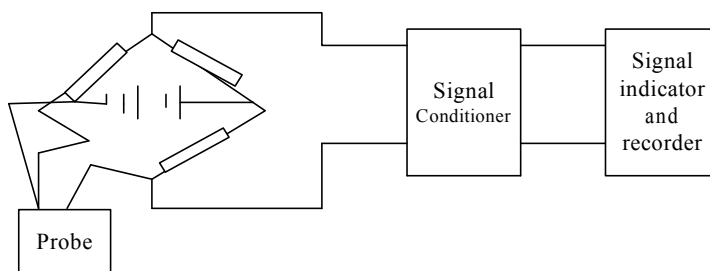
Different protective covers (X=1, 2, 3 or 4) are available for the temperature sensing element of ACT-2X series sensor. The pressure it can withstand is also different (see Table 1) and its length "L" is defined as required by the user. All parts of the sensor housing are made of 1Cr18Ni9Ti stainless 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 temperature transmitter (or signal conditioner). The transmitter outputs a 4 to 20mA or 1 to 5V DC electrical signal. The output value is linear with the temperature of the product measured.

##### **Wiring Diagram**



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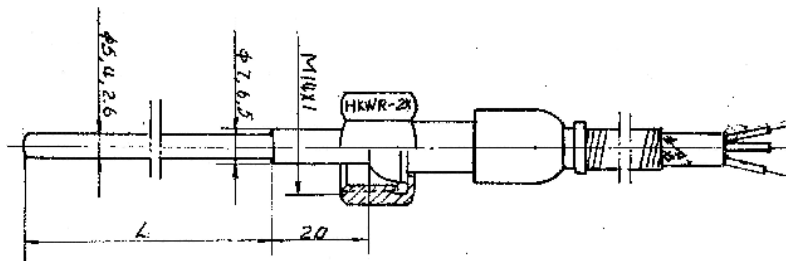
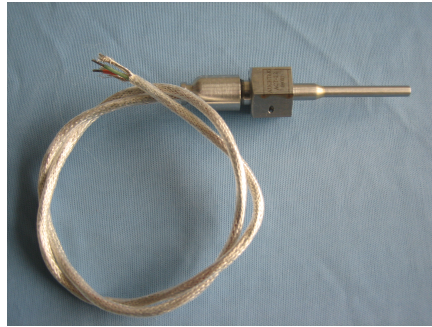
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### 3. Technical Specifications

- Temperature Measurement Range:  $T = -60$  to  $450^{\circ}\text{C}$
- Ambient Temperature:  $-50 \sim 250^{\circ}\text{C}$
- Resistance at Freezing Point:  $R_0 = 100 \pm 0.12 \Omega$
- $W_{100}$   $R_{100}/R_0 = 1.3850 \pm 0.0010$
- Accuracy:  $\Delta t = \pm (0.3 + 0.5\%/t)^{\circ}\text{C}$
- Allowable Operating Current:  $I_p \leq 5\text{mA}$
- Pressure:  $P =$  (See the attached table)
- Transmitter Operating Power:  $25\text{VDC} \pm 20\%$
- Accuracy:  $0.5\%$
- Output Signal:  $4$  to  $20\text{mA}$  or  $1$  to  $5\text{VDC}$

### 4. Outline Dimensions



**Table 1**

<b>X</b>	1	2	3	4
Outer Diameter of Protective Cover	5	4	4	2.6
Pressure	$\leq 3$	$\leq 4$	25	2
Model	ACT-21	ACT-22	ACT-23	ACT-24
Length of Protective Cover				

5. **Note: Our company is able to design and manufacture non-standard products with different dimensions, structures and performances as required by users.** Act-22 The nut thread with the installation mount is  $5 \text{ " } / 8$  and has an angle of  $55^{\circ}$  and 14 teeth / 1 " .

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