



Handbook

## Pressure/Differential Pressure /Level Transmitters

Weifang AOBO Instrument Technology Development Co.,Ltd

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## I. Product Features

- 1· Digital smart chip, all-temperature linear temperature compensation;
- 2· Compact structure, compact, cost-effective, multi-connection forms;
- 3· Shock, vibration, stable performance;
- 4· Adopt international advanced technology imported sensors.

## II. Application

Widely used in air compressors, hydraulic equipment, machine tools, central air conditioning, refrigeration equipment, water treatment works, environmental purification, hydraulic and pneumatic control engineering, automotive, electrical, chemical, pharmaceutical, food and so on. Old-fashioned pressure equipment replacement essential products.

## III. Technical Data

Specifications:

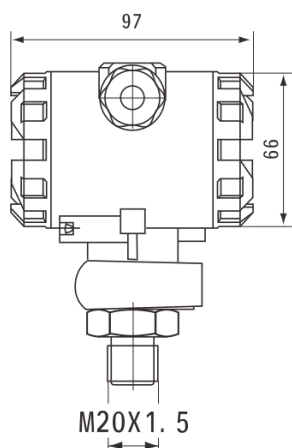
1. Output: (4~20)mA, (1~5)V, RS485, RS232
2. Power supply: DC 24V (12 ~ 32)V
3. Accuracy:  $\pm 0.25\%$  ,  $\pm 0.5\%$  ,  $\pm 1\%$
4. Media temperature:  $-20\text{ }^{\circ}\text{C} \sim 85\text{ }^{\circ}\text{C}$
5. Ambient temperature:  $-20^{\circ}\text{C} \sim 85^{\circ}\text{C}$
6. Response time:  $\leq 200\text{ms}$
7. Load: current type  $\leq 500\ \Omega$  (DC 24V power supply)
8. Repeatability:  $\pm 0.2\% \text{ F} \cdot \text{S}$
9. Long term stability:  $\pm 0.5\% \text{ F} \cdot \text{S} / \text{Y}$
10. Non-linear:  $\pm 0.2\% \text{ F} \cdot \text{S}$
11. Temperature compensation range:  $0\text{ }^{\circ}\text{C} \sim 60\text{ }^{\circ}\text{C}$
12. Overload pressure: 2 times the range
13. Process connection: M20  $\times$  1.5 or 1/4NPT or non-standard (according to user needs processing)

14. Measuring media: oil, water, gas and other media compatible with 304/316 stainless steel.

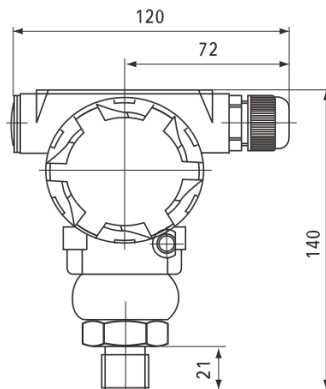
15. Protection: IP65 pressure transmitter / IP68 level transmitter.

Note: Avoid installing at ambient vibration and strong electromagnetic interference.

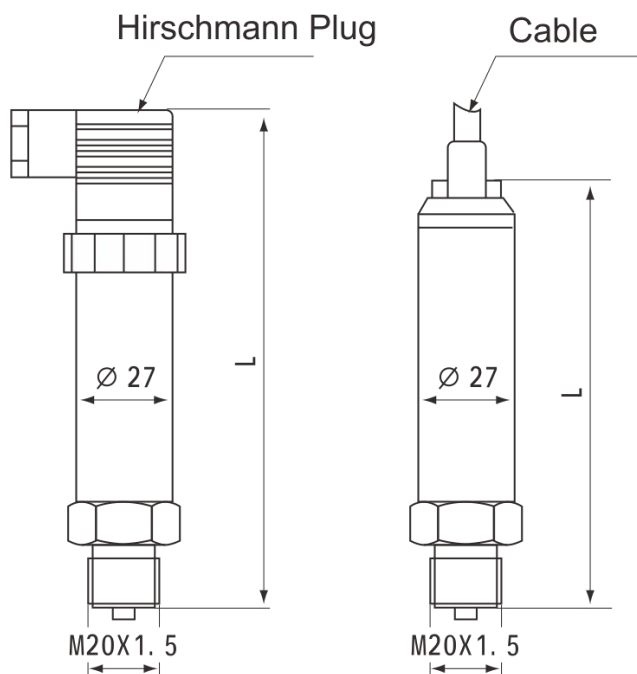
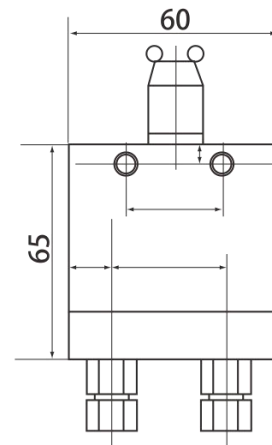
### Dimensions:



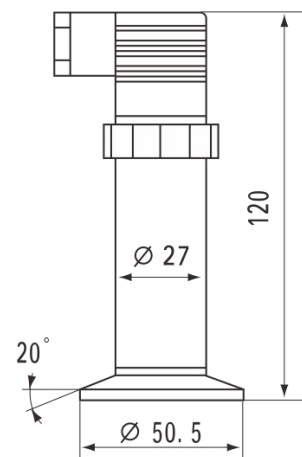
**Pressure transmitter**



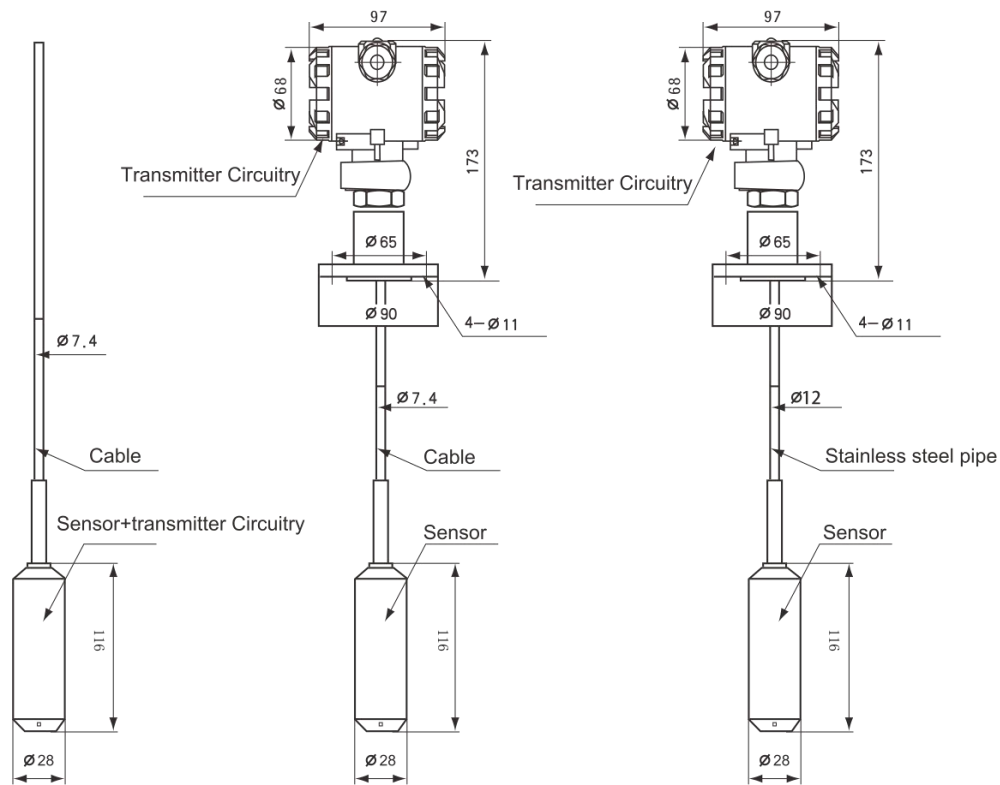
**Differential pressure transmitter**



**Compact pressure**



**Hygienic pressure**



**Level transmitter**

## IV. Installation

### 4.1 Pre-installation inspection

(1) The test pressure must not exceed the upper limit of the measurement range of the transmitter.

(2) With the measured medium is adapted to the structural material of the transmitter, does not corrode.

(3) Whether the measured medium temperature exceeds the operating temperature range of the transmitter.

### 4.2 Installation

(1) Pressure transmitter is mounted vertically, can be installed directly on the pipeline pressure test port.

(2) Directly into liquid level transmitter can be used, attention fixed firmly to the wire, moving water installation should take hydrostatic devices.

(3) Junction box or the wire connections to take anti-rain treatment.

(4)The junction box should be grounded.

Note: The transmitter housing with junction box mounting hole size is M6×1, 32m pitch.

### **4.3 Pressure transmitter installation precautions**

(1)Pressure transmitter pressure interface, the force must be exerted on the lower part of the six-party transmitter, can not be directly screwed the top of the electron shell, so broken inside the transmitter leads.

(2)If there is no standard pressure source user , do not self-adjusting zero and span potentiometers.

(3)If the transient over voltage or frequent shocks ( such as water hammer , etc. ) in the presence of the pipe or vessel buffer device should be installed to prevent damage to the sensor diaphragm.

### **4.4 Level transmitter installation precautions**

(1)Note that when you install wire level transmitter in the guide holes to avoid water port, plug and away from the surface, otherwise it will make the transmitter failure and damage.

(2)The action should be let go gently, to prevent the momentum generated when placed between the media and the diaphragm, the diaphragm is damaged. Prohibited by hand or sharp implements poke holes and diaphragm pressure water,do not remove the head guide.

(3)Waterproof cable when using air conductivity Do not cut , to prevent media leaks to probe damage to the transmitter.

(4)If there is no standard pressure source user , do not self-adjusting zero and span potentiometers.

(5)In the case split level transmitter wiring should be done well sealed to prevent moisture and corrosive gases from entering.

(6)Should be used with protective casing in moving water or particulate media.

(7)The measurement medium is acid, alkali, oil , heat and other special media , please specify when ordering.

## V. Electrical Connections

Pressure transmitter signal terminals mounted in a separate chamber, in the wiring, unscrew the back cover, Which has two terminals, namely signal terminals and test terminal (TEST), the current value on the test terminals and the signal terminal is the same , Test terminals, can be used to connect the instrument to detect current

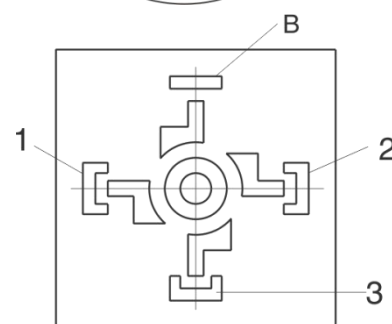
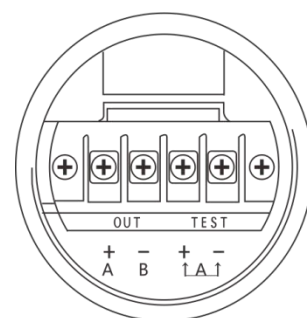
Power to the transmitter via the signal line, do not test the power supply signal cable to the terminal, otherwise the power will burn diode connected in the test terminals, if the diode is burned, to be replaced by a diode or two test terminals shorted The transmitter can work properly.

Connecting hole sides of the transmitter's signal line or cable seal assembly, signal cables by tightening the nut, not that the connection port must be sealed.

| Definition<br>Terminal | Current mode | Voltage mode | RS485 | RS232 |
|------------------------|--------------|--------------|-------|-------|
| POWER+/A/OUT+          | V+           | V+           | V+    | V+    |
| POWER+/B/OUT-          | IO           | GND          | V-    | V-    |
| ↑A↑+/TEST+             | /            | OUT          | 485A  | RX    |
| ↑A↑+/TEST+             | /            | /            | 485B  | TX    |

| Definition<br>Terminal | Current mode | Voltage mode | RS485 | RS232 |
|------------------------|--------------|--------------|-------|-------|
| 1                      | V+           | V+           | V+    | V+    |
| 2                      | IO           | GND          | V-    | V-    |
| 3                      | /            | OUT          | 485A  | RX    |
| B                      | /            | /            | 485B  | TX    |

| Definition<br>Terminal | Current mode | Voltage mode | RS485 | RS232 |
|------------------------|--------------|--------------|-------|-------|
| Red                    | V+           | V+           | V+    | V+    |
| Black                  | IO           | GND          | V-    | V-    |
| Green/Blue             | /            | OUT          | 485A  | RX    |
| White                  | /            | /            | 485B  | TX    |



Note: If the wiring method is different between the manual and the actual product, the actual product shall prevail.

Note: When you install the transmitter, the choice should not be less than the transmitter cable protection level, as well as degree of protection should be used to ensure a diameter of 5mm ~ 6mm cable.

Cables should refer to the wiring diagram is properly connected, such as the use of shielded cable shield should be connected to the shield ground terminal, and to ensure a reliable connection.

## VI. Test Run

To ensure stable and accurate transmitter is able to work properly, the test pressure shall be energized before preheat for 15 minutes. In the pressure measurement process should be slow and pressure relief, avoid instantly added to the high or low pressure drops.

## VII. Safety Description

Installation process should be securely tightened to ensure that the transmitter before pressing the measurement; should disconnect the power before removing the valve and make sure to turn off the pressure drops measured media pressure, square removable media ejected avoid accidents.

Proof of the need for the workplace, to be completed after connecting the cable to be installed in hazardous situations and powered to measure pressure and avoid dangerous situations in live operation, improper operation will cause serious personal injury and material damage.

## VIII. Troubleshooting

Troubleshooting symptoms and corrective actions

| Symptom | Potential source | Corrective action |
|---------|------------------|-------------------|
|---------|------------------|-------------------|

|                                                                                               |                                                            |                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Without display or no output signal                                                           | No power supply<br>Wiring error                            | Check the power supply and wiring                                                                                                                            |
| Erratic output                                                                                | Loop wiring interference                                   | Check for adequate voltage to the transmitter.<br>Check for intermittent shorts, open circuits, and multiple grounds.<br>Looking for sources of interference |
| Missed pressure transmitter but the display is not 0KPa or not its corresponding output value | The transmitter is not required to work in its environment | Under the provisions of the transmitter will be moved to the work environment or to take measures to meet the requirements of the environment                |
| Does not match the output of the transmitter display or measuring pressure                    | Incorrect supply voltage external load is too large.       | Supply voltage is adjusted so that the external load DC24V.                                                                                                  |

If the fault is not a phenomenon of the range, please contact our after-sales service.

## IX. Product Care

Use only neutral cleaning agents transmitter, avoid the use of corrosive cleaning agents, such as acid, alkaline solvents, household detergents. The transmitter is a precision instrument, should be stored in dry and ventilated indoor environment, avoid direct sunlight.

## X. Cautions

1. Prohibit the measured medium icing , otherwise it will damage the sensor !
2. Only qualified or authorized personnel to undertake the installation of the transmitter ,electrical connection,use and maintenance. Qualified personnel engaged in the transmitter or similar device assembly , electrical connection, such as the use and operation of experienced personnel,and holds a qualification certificate holders engaged in this type of work or safety engineering circuits, high pressure and

corrosive media standards operation and maintenance training devices or equipment, guidance or authorization.

3. When making electrical connections, use only tools dielectric strength to meet the requirements.

4. Electrical installation must comply with the relevant safety requirements of construction and operation. For proof transmitter, shall comply with the rules and recommendations related explosion . The transmitter can be run under high pressure and corrosive media occasions. If not handled properly, could result in serious personal injury or material damage. Transmitter for use in other countries, you must comply with the relevant national regulations.

5. Brevity, this manual does not include a detailed description of all product types, does not involve the assembly, operation and maintenance of every detail. If you want a deeper understanding or have special problems, and the instruction manual is not a detailed description section, please contact with the company in order to obtain the necessary information.

## **XI. Ordering Information**

Product selection should be noted that the parameters

- A. Sensor materials;
- B. Explosion occasions;
- C. Connector materials and connections;
- D. Seal material;
- E. Accuracy;
- F. Range;
- G. Whether with other additional options;
- H. Measuring medium temperature.

## Contact

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