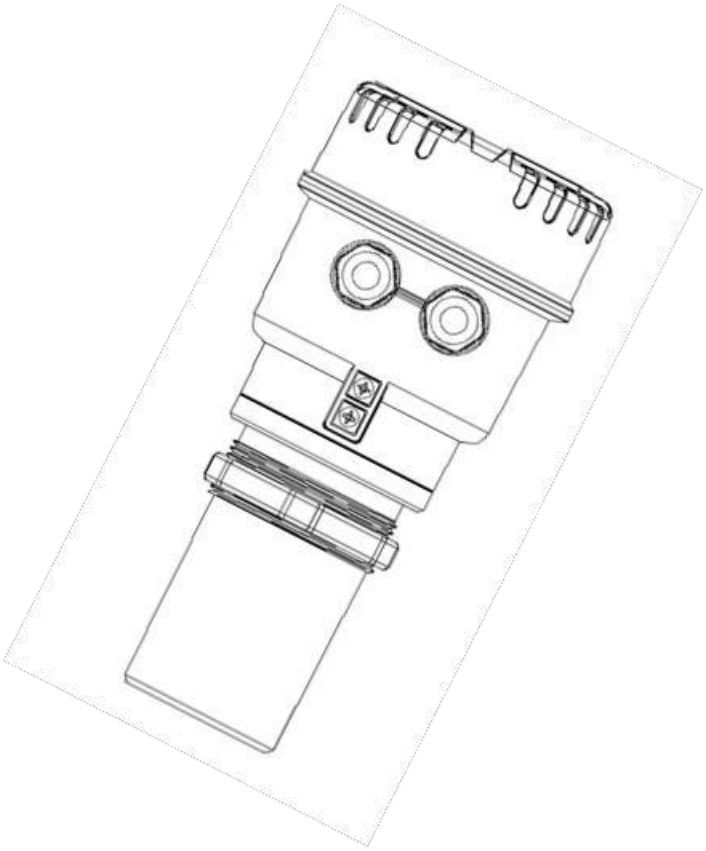
Two-wire Ultrasonic Level Meter

Must-read Manual



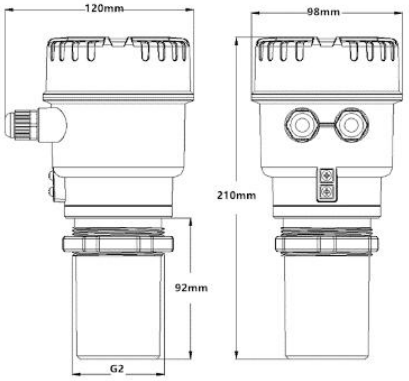
CATALOGUE

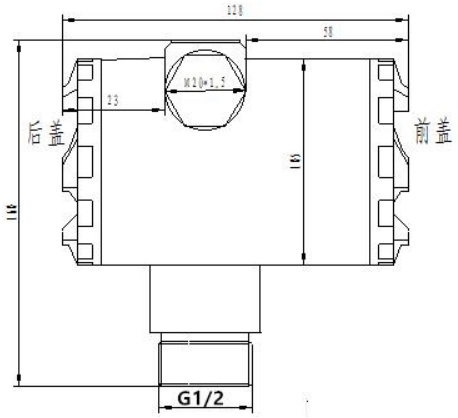
1. INSTALLATION AND DEBUGGING

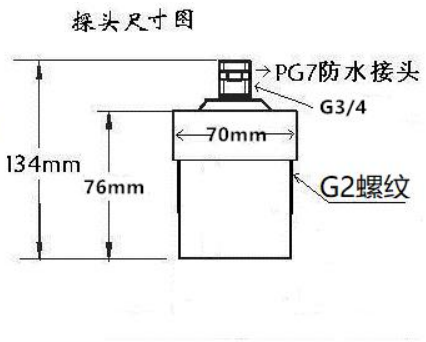
1.1 Installation

1.1.1 External dimension of instrument

(The probe size will change according to the meter range, if there is a difference will be notified in advance)



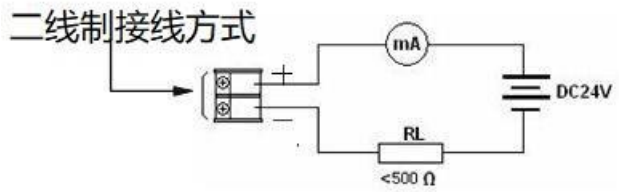




Integrated Size (Figure I)　　Explosion-proof split size (Figure II)

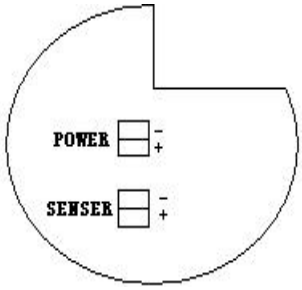
1.1.2 Meter wiring

Integrated instrument wiring method: (as shown below)



Explosion-proof split wiring method:

- POWER: Connect DC24V power supply positive and negative;
- SENSER: Connect the shielded wire, + connect the high-frequency wire;

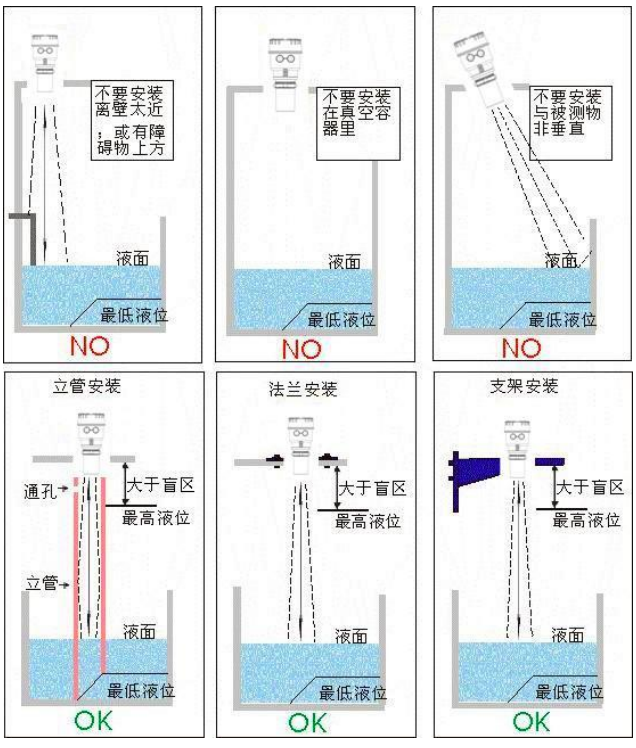


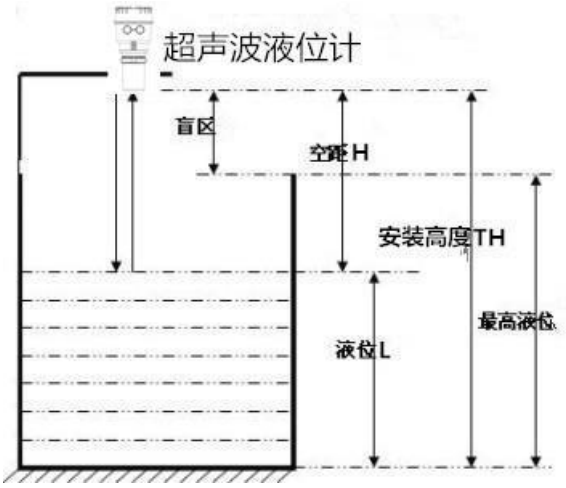
1.1.3 Installation Parameter Meaning

Installation method:

Under the open environment generally adopts bracket mounting method, with the instrument comes the screw to secure. Or open a 60mm diameter round hole directly on the top of the tank or the top mount of the lid, place the meter in and tighten the screw ring from the bottom to the top. The installation must ensure the probe surface and the level of the measured liquid surface of the instrument. As shown in the figure on the right, the probe hair wave of the meter hits the liquid level and reflects back to the probe, the probe

After receiving, calculate the time of the generation to the receiving wave, get the measuring space H, instrument installation height TH minus the measuring space H will get the current liquid level L. Instrument range refers to the distance the meter can measure, installation height TH should be less than the range. Instrument blind area refers to the area where the instrument cannot be measured near the probe, the maximum liquid level and the distance between the probe should be greater than the blind area, for example, the blind area is 0.5m, the maximum liquid level and the distance between the probe must be greater than 0.5m. For example: range: 6 meters, blind area: 0.45 meters, actual measurement maximum level is: 0 ~ 5.55 meters. Probe hair wave is a diffusion process, that is, there is a direction angle, should be noted when installing, otherwise it may hit the wall of the bulge or channel edge.





1.1.4 Installation Principles

- The distance from the transmit surface of the probe to the lowest level should be less than the range of the selected meter.
- The distance from the transmit surface of the probe to the highest level should be greater than the blind area of the optional instrument.
- The surface of the probe should be parallel to the surface of the liquid.
- The installation position of the probe should be as far as possible to avoid the position of the liquid surface fluctuating violently, such as the inlet and outlet.
- If the wall of the pool or tank is not smooth, install the meter more than 0.5m away from the wall of the pool or tank.
- If the distance between the probe launching surface and the highest liquid level is less than the blind area of the optional instrument, it is necessary to install an extension tube, the extension tube diameter is greater than 150mm, the length is 0.45m ~ 0.60m, the vertical installation, the inner wall is smooth, the hole on the tank should be greater than the inner diameter of the extension tube. If there is stirring in the tank or floating matter or foam on the surface of the medium, it is necessary to install a wave guide with a diameter greater than or equal to 150mm, and the inner wall is smooth, and install it vertically to the bottom of the tank.

1.1.5 Installation Precautions

- It is recommended that the instrument be installed outdoors with a visor to extend the instrument life.
- Pay attention to the sealing of the wire and cable protection tube to prevent water accumulation.
- Although the instrument itself has a lightning protection device, when the instrument is used in a heavily mined area, it is recommended to install a special lightning protection device at the inlet and outlet of the instrument.
- When the meter is used in a particularly hot and cold place, that is, when the ambient temperature may exceed the working requirements of the meter, it is recommended to install high and low temperature devices around the liquid level meter.

1.2 Debugging

1.2.1 KEY-HELP

【SET】： Press SET for about 3 seconds, 0000 appears, the first 0 is flashing, change the first 0 to 1, and then press the OK key to enter the menu; When setting, press SET to cancel the setting; After setting up, press the SET key to exit the menu.

【▲】： Scroll up key and number key. In the menu, this key is used as the up key of the menu, and when changing data, this key is used as the addition key.

【▼】： Scroll down key. In the menu, this key is used as the menu scroll down key, and when changing data, this key is used as the subtraction key.

【OK】： Confirm key, shift key for selecting menu or changing data data.

1.2.2 Quick on-site calibration steps

Modify the P06 (Probe Height Settings) menu

The P06 menu sets the installation height of the probe, that is, the vertical

distance between the probe surface and the bottom of the pool or tank, also known as the installation height, mainly for calibration. The setting method is as follows: press SET key for about 3 seconds, 0000 appears, the first 0 is flashing, change the first 0 to 1 press ▲ key, and then press OK to enter the menu. Press the ▼ key to turn to the P06 menu interface, press the OK key to confirm, and then set the installation height. Use ▼ key and ▲ key to change the number to the current actual installation height value, (OK key shift) after the modification is completed, press SET, then press SET, return to the main interface that the calibration is completed, at this time the instrument display data is the current actual liquid level or level value.

1.3 Technical Specifications

Technical Specifications	Parameter	**Technical Specifications**	Parameter
Measurement Range	0 ~ 15m (Customized According To Real Measurement Procedure)	**Blind Zone**	0.35m~0.6m
Ranging Accuracy	± 0.5% (Standard Conditions)	**Range Resolution**	1mm
Pressure	Atmospheric Pressure	**Meter Display**	LCD Display
Analog Output	4～20mA	**Supply Voltage**	DC24V
Ambient Temperature	- 20℃～ + 60℃	**Protection Class**	IP 65

2. OTHER PARAMETERS AND SETTING METHODS

2.1 Parameter Setting

2.1.1 P01 (Level Calibration)

Internal parameters, used if necessary.

2.1.2 P02 (20mA setting)

When the meter is working normally, press SET for about 3 seconds, 0000 appears, the first 0 is flashing, change the first 0 to 1, and press OK to enter the menu. Press the ▼ key to select P02 for 20mA corresponding liquid level. If you need to modify it, press the OK key first, and then press ▲ and ▼ to modify it. After modification, press SET to exit. Press the ▼ key, P03 appears, P03 is 4mA

output current setting, the default value is 0, generally do not need to modify. If you need to change the value, use the same method as changing the value of 20mA.

2.1.3 P05 (Display mode Settings)

Enter the P05 menu as above. In the P05 menu, 1 indicates the liquid level height, 2 indicates the liquid level height and temperature, 3 indicates the air height, and 4 indicates the height and temperature.

2.1.4 P07 (Response speed)

- Option 1: indicates that the instrument responds quickly;
- Option 2: indicates that the instrument responds quickly;
- Option 3: indicates slow meter response;
- Option 4: indicates that the meter responds slowly;

This menu depends on the scene situation, you can use the OK key and ▲ key to make the corresponding choice.

2.1.5 P08 (Current Test)

Internal parameters, no setting required.

2.1.6 P09 (Amplification sensitivity)

Internal parameters, no setting required.

3. METER FEATURES AND WARRANTY

3.1 Meter Features

The instrument has the characteristics of safety, cleanliness, high precision, long life, stability and reliability, easy installation and maintenance, etc., suitable for acid, alkali, salt, anti-corrosion, high temperature and other fields. It can be connected to the display table, PLC and various DCS systems through 4~20mA to provide real-time liquid level data for the automatic operation of the industry. The instrument circuit selects high-quality power components from the power supply part, and selects imported high-stable and reliable devices, which can completely replace imported instruments of the same type. Acoustic wave intelligent technology software can carry out intelligent echo analysis, without any debugging and other special steps, this technology has the function of dynamic thinking and dynamic analysis, so that the accuracy of the instrument is greatly improved, the accuracy of the liquid level is up to ±0.25%, and it can resist various interference

waves. Non-contact instrument, no direct contact with liquid, so the failure rate is low. The instrument can be installed in a variety of ways, and the user can calibrate the instrument through this manual. All input and output lines of the instrument have the protection function of lightning protection and short circuit prevention.

3.2 Warranty Coverage and Warranty

- The following conditions are not covered by the free warranty:
- The product or its parts are out of the free warranty period.
- Hardware failure due to the use of the environment does not meet the requirements of the product.
- Failure or damage caused by poor power conditions or foreign objects entering the equipment.
- Failure caused by failure to operate according to the operation methods and precautions written in the operation manual.
- Failure caused by irresistible natural factors such as lightning, water fire, etc.
- Failure or damage caused by unauthorized dismantling and repair or unauthorized modification or abuse.

Warranty period: The warranty period of our products is twelve months from the factory date.

3.3 Restriction Specification

Please keep the warranty card properly as the warranty certificate, and will not be replaced if lost.

The right to interpret this Warranty card belongs to the Company, and the Company has the right to modify the content of this card without prior notice.

***Note: When the controller is directly exposed to sunlight, its operating temperature may exceed its specified limit temperature and reduce the visibility of the display.**

Suggestion: In the case of direct sunlight, use a sunshade to avoid direct sunlight on the instrument display, otherwise it will reduce the service life of the instrument.