

## Safety Precautions

- ⚠ Pressure / differential pressure transmitter should be installed by professional engineers or qualified technical personnel, product specifications and important information should be carefully read before installation and operating
- ⚠ Pressure / differential pressure transmitter is powered by an external power supply, the power supply circuit should comply with local standards
- ⚠ The maximum static pressure overload is stated on the product nameplate the process maximum pressure should not be exceeded
- ⚠ Using pressure / differential pressure transmitter in hazardous areas, installation, and maintenance should comply with of national standards
- ⚠ Attention please! Disassemble the instruments under the condition of normal atmospheric pressure only

## Product Usage

### Pipeline pressure measurement-pressure transmitter



For high-temperature steam measuring, more than half-tube cooling water should be added in the syphon After the steam pipes are stable, slowly open the shut-off valve to start measuring

### Pipeline pressure measurement-differential pressure transmitter



For high-temperature steam measuring, cooling water should be added into the guided pipe , after the steam pipes are stable, slowly open the shut-off valve to start measuring

### Differential pressure measurement



Differential pressure transmitter is used for differential pressure measuring, especially suitable for low pressure measurement of hydrostatic pressure such as filter and equipment leakage tests

### Steam flow measurement



Guiding pressure tube uptilt 45°, the installation location should be lower than the process pipeline. Isolation tank and multiple shut-off valves should be included, cooling liquid should added into the guiding pressure tube, and open the drain/vent valve periodically, clear the residual gas and liquid in the guiding pressure tube to ensure accuracy

### Liquid flow measurement



Guiding pressure tube tilt down 45°, the installation location should be lower than the process pipeline. Isolation tank and multiple shut-off valves should be included, open the drain/vent valve periodically, clear the residual gas and liquid in the guiding pressure tube to ensure accuracy

### Air flow measurement



Guiding pressure tube uptilt 45°, the installation location should be lower than the process pipeline. Isolation tank and multiple shut-off valves should be included, open the drain/vent valve periodically, clear the residual gas and liquid in the guiding pressure tube to ensure accuracy

### Sealed container level measurement



For sealed container level measurement, isolation tank and multiple shut-off valves should be included, open the drain/vent valve periodically, clear the residual gas and liquid in the guiding pressure tube to ensure accuracy

### Open container level measurement-single flange level transmitter



For open container level measurement, media compatibility should be considered, install in location where the liquid level and temperature changes are stable to improve accuracy

### Sealed container level measurement-single flange level transmitter



Single flange diaphragm system used for sealed container level measurement, Isolation tank and multiple shut-off valves should be included, open the drain/vent valve periodically, clear the residual gas and liquid in the guiding pressure tube to ensure accuracy

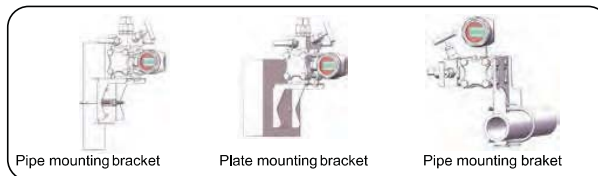
⚠ Media in process pipeline or guiding pressure tube may be effected by the surrounding environment, and may freeze. So anti-freezing measurements are needed.

## Install Pressure Transmitter

### Pressure transmitter- Installation

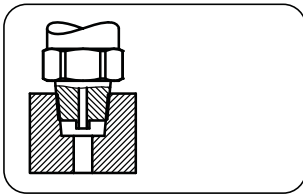


### Differential pressure transmitter-bracket installation



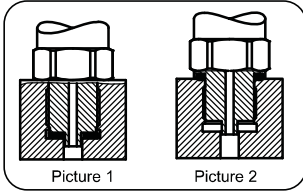
## Process Connection

### Taper thread connection



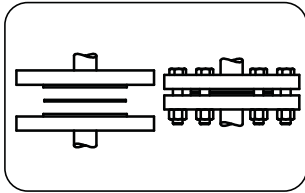
Sealing with teflon tape or sealant glue. When thread lock hard, there is a small part space.

### Stright thread connection



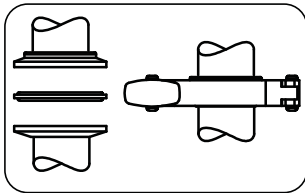
Picture 1: The length of pressure transmitter thread should be longer than the depth of the thread to ensure the seal of head face gasket is effective.  
Picture 2: The length of pressure transmitter thread should be shorter than the depth of the thread to ensure the seal of root gasket is effective

### Flange connection



Choose gasket according to medium features and temperature range, pay attention to the bolt pattern

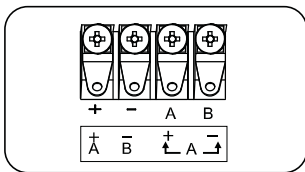
### Clamp connection



Choose gaskets which meet the health standards, to avoid excessive locking clamp and squeeze gasket and diaphragm

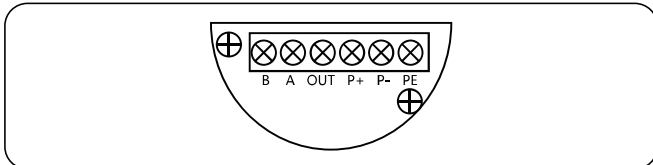
## Electrical Connection

### Module terminals- four terminals



Label	Two wires	Three wires	Four wires
+	Power+	Power+	Power+
-	Power-	Power-	Power-
A		Signal+	Signal+
B			Signal-

### Module terminals- six terminals ( Only for Modbus-RTU/RS485 )



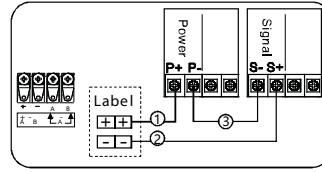
Label	P+	P-	A	B	OUT	**PE
Modbus-RTU/RS485	Power+	Power-	A+	B-		Housing
Five wires	Power+	Power-	A+	B-	*Signal+	Housing ground

\*Signal: 4-20mA

\*\*PE: Housing ground terminals, operate according to local standards

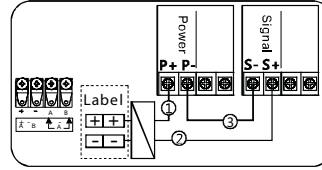
## Signal Connection

### 4-20mA two wires(module terminals-four terminals)



- ① Power supply+ is connected with transmitter terminals+
- ② Signal+ is connected with transmitter terminals-
- ③ Signal- is connected with power supply-

### 4-20mA two wires, intrinsic safety(module terminals-four terminals)



- ① Power supply+ is connected with transmitter terminals+
- ② Signal+ is connected with transmitter terminals-
- ③ Signal- is connected with power supply-

**⚠ Please note that the wiring should refer to the Installation Information provided by the safety barrier manufacturer.**

## Power Supply

Independent linear direct current power supply is suggested to be utilized as the power supply of the pressure transmitter the voltage provided to

- Standard current signal output: 12-30VDC,
- Current signal output with HART: 16.5-55VDC,
- Current signal output with intrinsic safety : 12-30VDC,
- Modbus-RTU/RS485 signal output: 5VDC/9-30VDC,
- 0.5-4.5VDC voltage signal output: 5VDC/6-15VDC.

## Grounding

- Use shielded cable with twisted-pair wiring for the best effect
- Transient resistance built-in module is effective only in the case of good grounding. Metal housing and internal grounding terminals are used for grounding

## Cable Protection System

### Standard protection system



In order to avoid the liquid flowing along the cable to flow into the terminal box or result in waterproof joint effusion, an U-shaped installation needs to be configured between pull box and pressure transmitter as the picture shows, and please ensure the U-shaped bottom is under the pressure transmitter. Enough cable length needs to be considered for maintenance or replacement

### Explosion-proof tube protection system



**⚠** Using explosion-proof pressure transmitters in dangerous situations, metal explosion-proof tubing should be used to connect the cable into the threading box, and lead to safe zone

## Intrinsically Safety Type

**⚠** When choosing intrinsic safety pressure transmitter, as the power, signal connection, grounding and transient solutions are provided by the intrinsic safety and isolated safety barrier suppliers, pay attention to the connection of signal line

## Field Adjustment



For detailed operation of LCD display, please refer to instructions of display, Hart protocol and so on

## Zero Point Adjustment

- Please make an adjustment after installation because the mounting position will affect zero setting
  - The system is absolutely empty (no pressure or media in the measuring diaphragm or in the process connection)
  - Power connection please refer to "Keys operation manual-keyboard shortcuts-PV=0"
  - Please set PV=0 after three weeks of installation to ensure the best accuracy
  - Set PV=0 each year
- ⚠ Zero point adjustment is only available for gauge pressure transmitter**

## Full Span Adjustment

- Fill the vessel with media (to required level)
- The static pressure value should be within the minimum and maximum pressure range
- Power connection please refer to "keys operation manual-keyboard shortcuts-full span document"

## Factory Resets

- Please refer to the LCD Instruction Manual

## Maintenance

Requires no maintenance

## External Cleaning

- Please notice the following when cleaning:
- Use washing agent which will not damage the instrument and gaskets
  - Prevent the process diaphragm from mechanical damage, eg: the mechanical damage caused by sharp objects
  - Mechanical cleaning of metal diaphragm is prohibited
  - Do not point the nozzles to the diaphragm directly when doing internal cleaning by pressure washer

## Transportation/ Storage

- Do not store outside
- Keep dry and dusty-free
- Do not expose to corrosive medium
- avoid solar radiation
- avoid mechanical shock and vibration
- storage temperature -40-85°C (-40~185°F)
- Maximum relative humidity: 95%

## EMC Statement

- EMC equipment instructions 2014/30/EU
- CE mark suggests the instruments are in line with EU standards
- Users need to ensure the whole equipment conforms to all the applicable local standards

## Retransport

- Keep the pressure transmitter away from any dangerous media
- Ensure proper packaging to avoid damage during transportation

## Trouble Shooting

When device malfunction is suspected despite the absence of any diagnostic messages, inspect the following:

- If measurement signal appears irregular, check whether the process pressure is within the working range, or the abnormality lies in the measuring system, installation environment or pressure transmitter. Once diagnosed take corresponding measures
- If no signal output or unchanged output signal on corresponding process pressure changes is observed, then check the power supply polarity, open or short circuit. Check the parameters like voltage, power and load resistance meet the normal working requirements. Also, ensure there is no leakage or line blockage
- If the output signal is large or outside the normal range, check whether the supply voltage, power consumption, and load resistance meet the normal working requirements of pressure transmitters. Verify measuring range settings and adjust the device calibration. Also, ensure there is no leakage, line blockage

## Repair

- Complete the following steps before sending the unit for repair: Remove all residues which would be harmful to human health, such as flammable, poisonous, cancerigenic and radioactive substances
- ⚠** Do not return the instrument if you cannot ensure the dangerous residues are removed, eg: the dangerous residues permeate into cracks or spread into the plastic

## Discard / Disposal

- The instrument does not comply with WEEE 2002/96/EG
- Please pass the instrument to specialized recycling companies