



HM-PS Series Pressure Transmitter

Quick Start Guide

About this manual

The Manual includes basic guidelines of the product. Pictures, charts, images and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version of this Manual at the HIKMICRO website (<http://www.hikmicrotech.com>).

Please use this Manual with the guidance and assistance of professionals trained in supporting the Product.

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1. Safety instruction

These instructions are intended to ensure that user can use the product correctly to avoid danger or property loss. The device can only be operated by trained personnel in accordance with these instructions and local safety regulations.

The symbols that may be found in this document are defined as follows.

Symbol	Description
 Danger	Indicates a hazardous situation which, if not avoided, will or could result in serious injury.
 Caution	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
 Note	Provides additional information to emphasize or supplement important points of the main text.

Mounting and Maintenance



Danger

- Caution! Removal of the transmitter is only permitted under normal pressure!
- When using pressure transmitters in hazardous situations, installation, use and maintenance shall be in accordance with the operating instructions in user manual and local safety regulations.
- The pressure transmitter is powered by an external power supply, the supply circuit shall comply with the energy limit circuit specified in the relevant standard and be aware of the high voltage that may be present in the circuit.
- Process leaks can cause injury or death. To avoid process leakage, always use only O-rings that are sealed in conjunction with the corresponding flange joint.



Caution

- The pressure transmitter shall be installed, tested and maintained by professional engineers or technicians. Read the manual carefully before installation.
- The maximum static pressure overload of the pressure transmitter is noted on the label of the Product, and the maximum pressure in process should not exceed the range of the pressure transmitter.

Storage

Storage of transmitters do not require any special handling. There is no limit on the storage period, but the warranty is the same as the period set by the company.

Transportation

After verification, the transmitter is packed in a carton to protect it from damage.

2. Product description

The HM-PS Series pressure transmitters use high-precision silicon sensor, based on electronic components via a microprocessor, to enable communication with field equipment.

The product measures the density and pressure of gases or vapors, and level of liquid, and converts the measured data to 4 to 20 mA DC HART output or Modbus-RTU/RS-485 signal output.

This series of products provides a variety of measuring accuracy, range, liquid sealing for selection, adapting to different application scenarios and environment. Read the specifications for the product you choose to learn about the complete product performance and features.

2.1 Product specification

- Power supply: 24 VDC
- Protection level: IP66/IP67
- Ambient temperature: -40 to 70°C (-40 to 158°F)

3. Appearance and installation



Caution

- For operator and plant safety, it is essential that the installation is carried out by trained personnel according to the technical data of the model. Refer to the data sheet of the model for technical data.
 - For transmitters with a remote seal and a capillary style connection, avoid using capillaries to lift the flange directly during handling, avoid repeated bending at the same position of the capillary, the capillary bend radius is recommended $\geq 10\text{cm}$.
-

3.1 Pressure transmitter installation

- Gauge and absolute transmitters: Mount directly to impulse line without an additional bracket, or mount directly to a wall, panel, or 2-inch pipe with optional mounting bracket.
- Differential pressure transmitter (also, gauge and absolute transmitter in this style): Mount directly to a wall, panel, or 2-inch pipe with an additional mounting bracket.

3.1.1 Gauge and absolute transmitter installation

Mount to impulse line

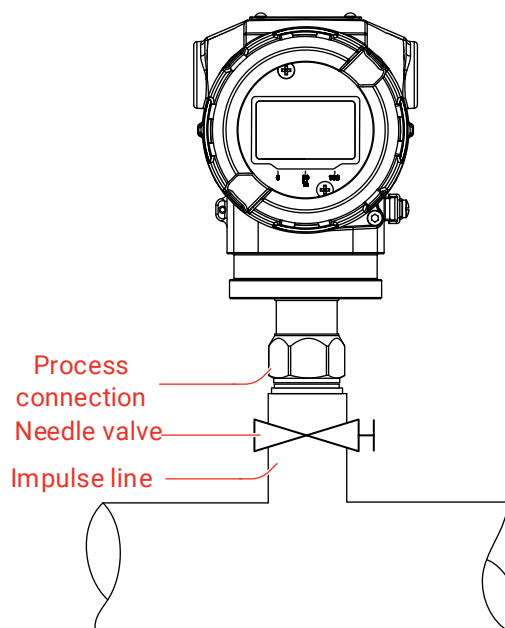


Figure 3-1 Mount to impulse line

The standard process connection is: 1/2 NPT female threaded, which can be connected to the following connectors (optional):

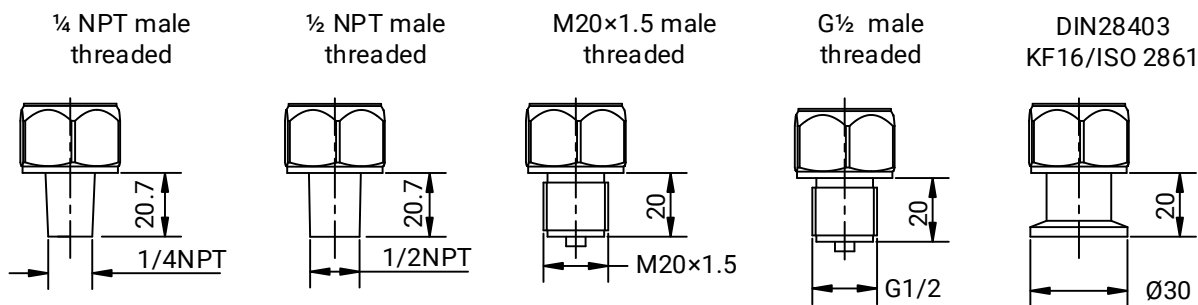


Figure 3-2 Optional process connection

Mounting with bracket

Mount the transmitter to wall or pipe using the optional bracket.

The clamp is used when the bracket is mounted on a pipe and is not required for wall mounting. The holder is used to secure the transmitter body to the bracket.

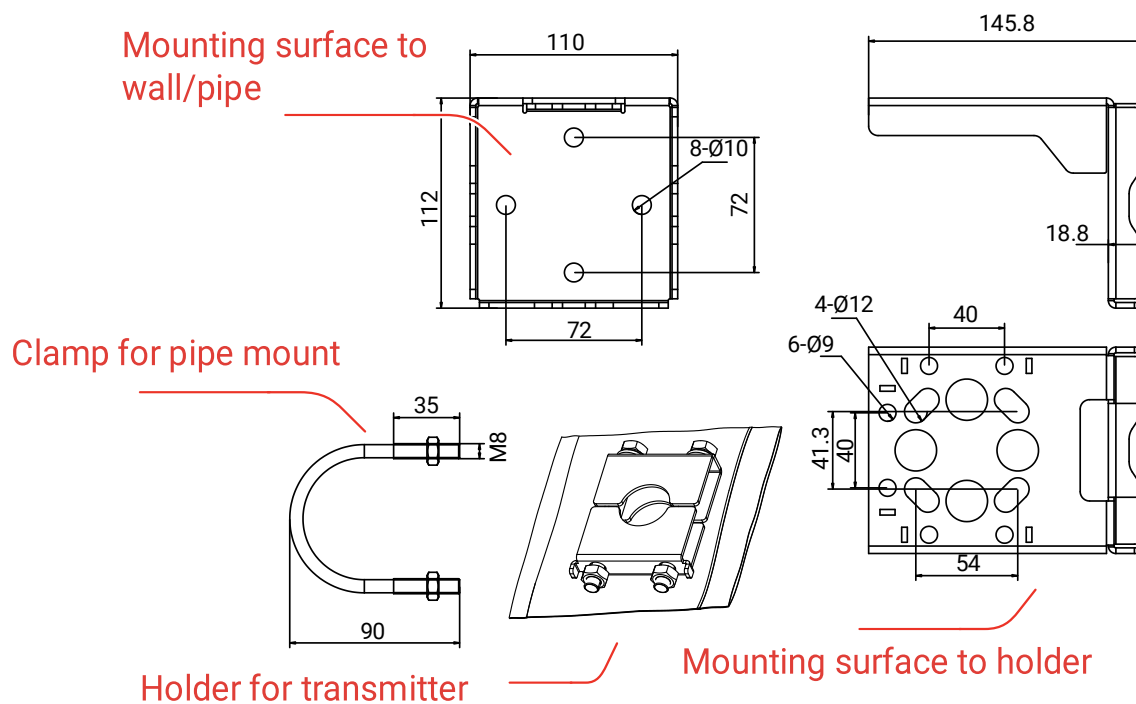


Figure 3-3 Bracket parts and size for gauge and absolute transmitter (unit: mm)

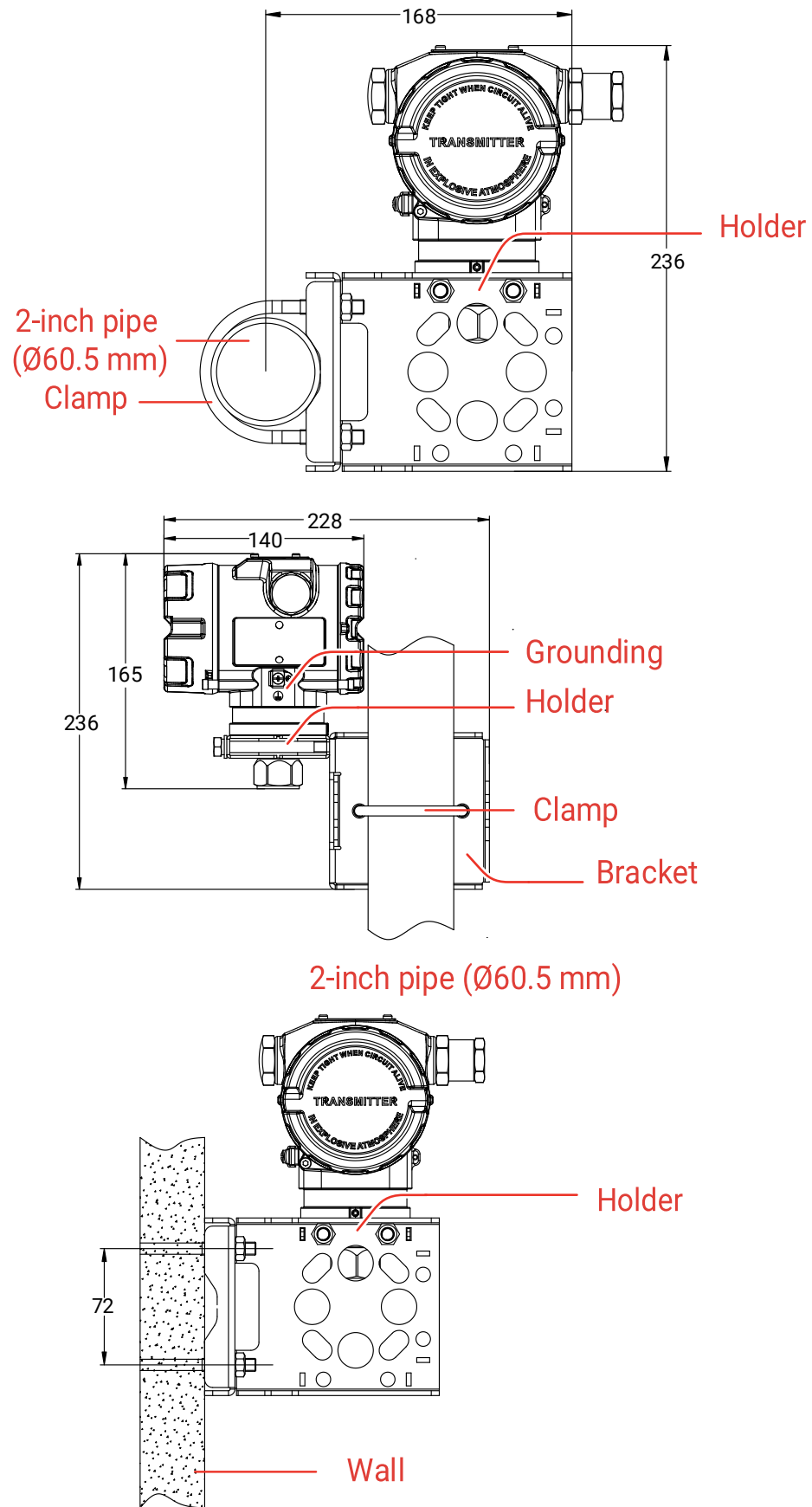


Figure 3-4 Bracket mounting of gauge and absolute pressure transmitter

3.1.2 Differential and differential pressure mounted gauge/absolute transmitter installation

Mount the transmitter to wall or pipe using the optional bracket.

The clamp is used when the bracket is mounted on a pipe and is not required for wall mounting.

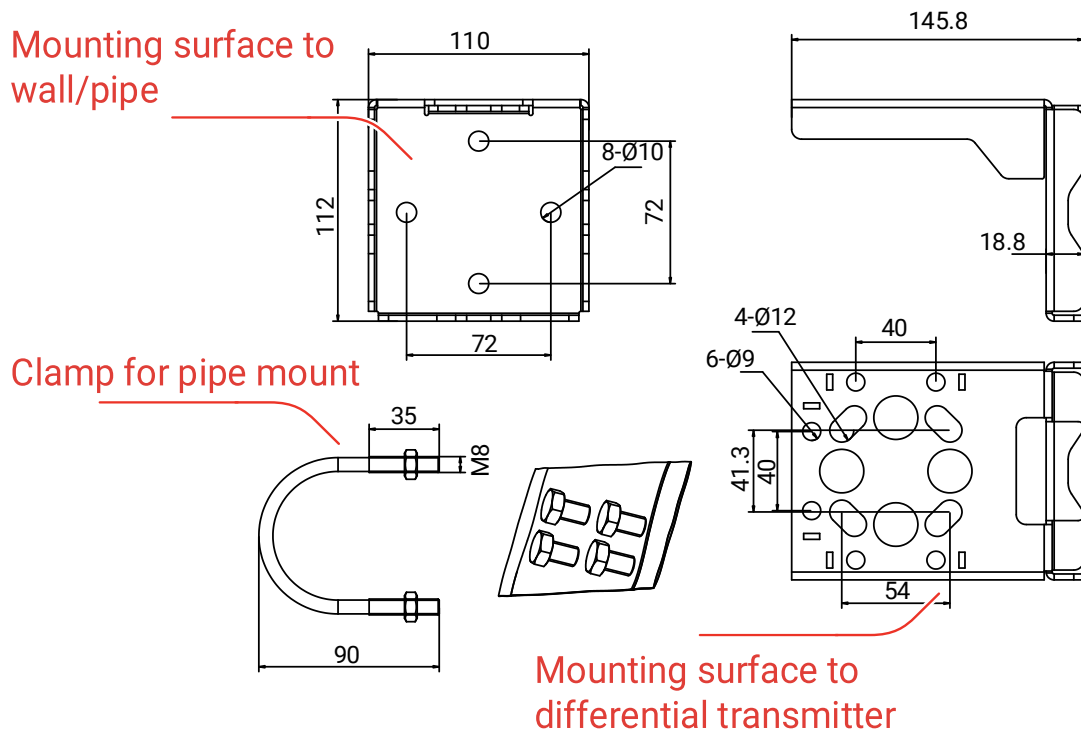


Figure 3-5 Bracket for differential pressure transmitter (unit: mm)

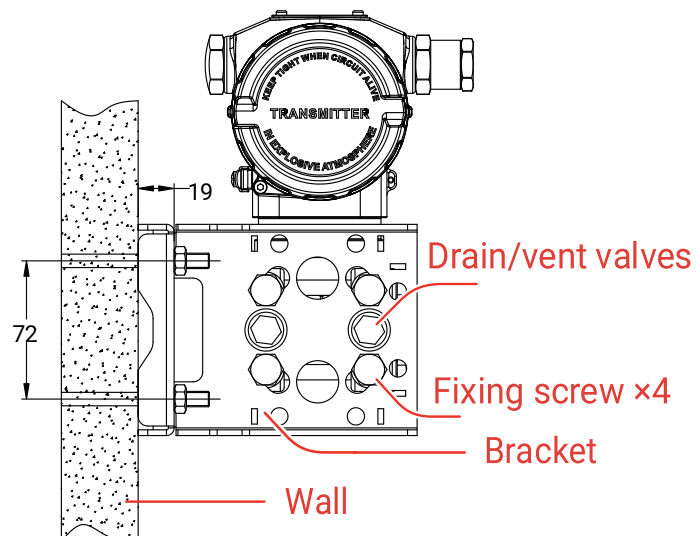
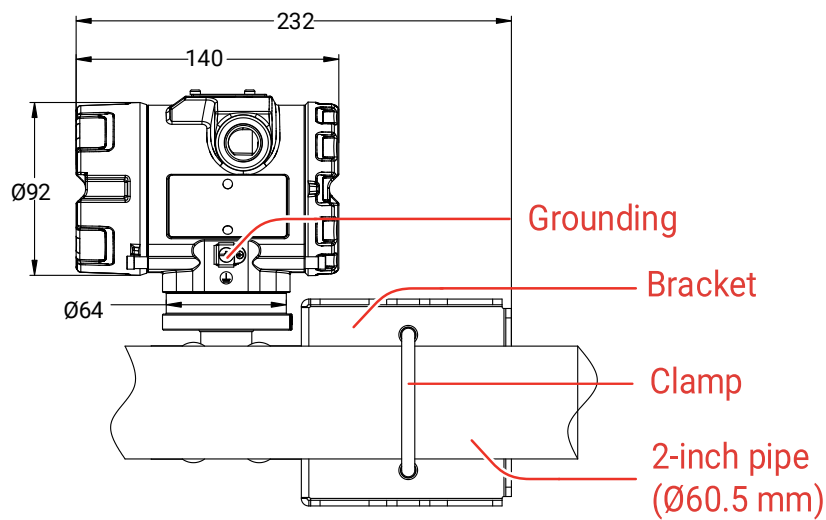
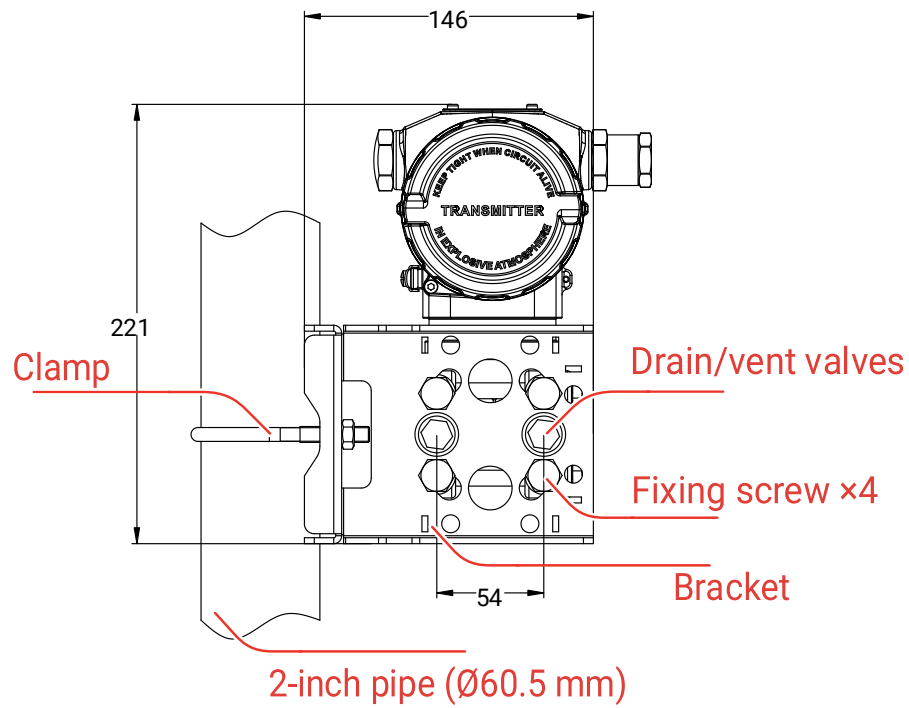


Figure 3-6 Bracket mounting of differential and differential style pressure transmitter

3.1.3 Precautions for installation of the impulse line

For proper installation, the following points must be observed:

- The impulse line shall be as short as possible and avoid sharp bends.
- The installation slope of the impulse line shall not be less than 1:12 to avoid precipitation.
- The impulse line must be blown with compressed air and flushed with the medium measured before connecting to the transmitter.
- If the medium is liquid, drain the impulse line completely.
- The impulse line shall be so arranged that air bubbles in the liquid and deposits in the gas under measurement can be returned to the process piping.
- There must be no leakage during after process pipe installation.
- When installing the differential pressure transmitter impulse lines, note that the negative cavity is connected to the low side and the positive cavity is connected to the high side.

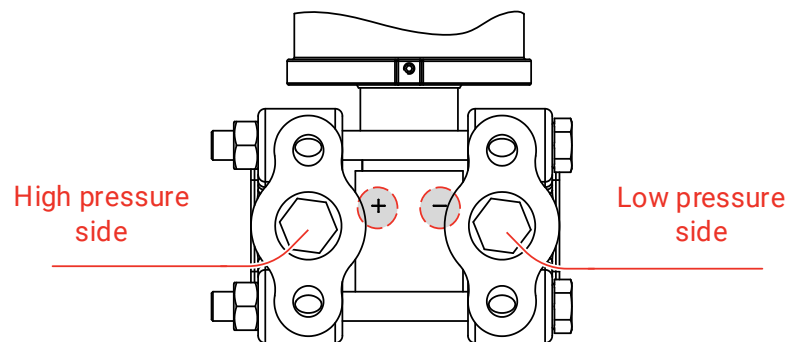


Figure 3-7 Differential pressure transmitter high and low pressure connection

3.1.4 Housing rotation

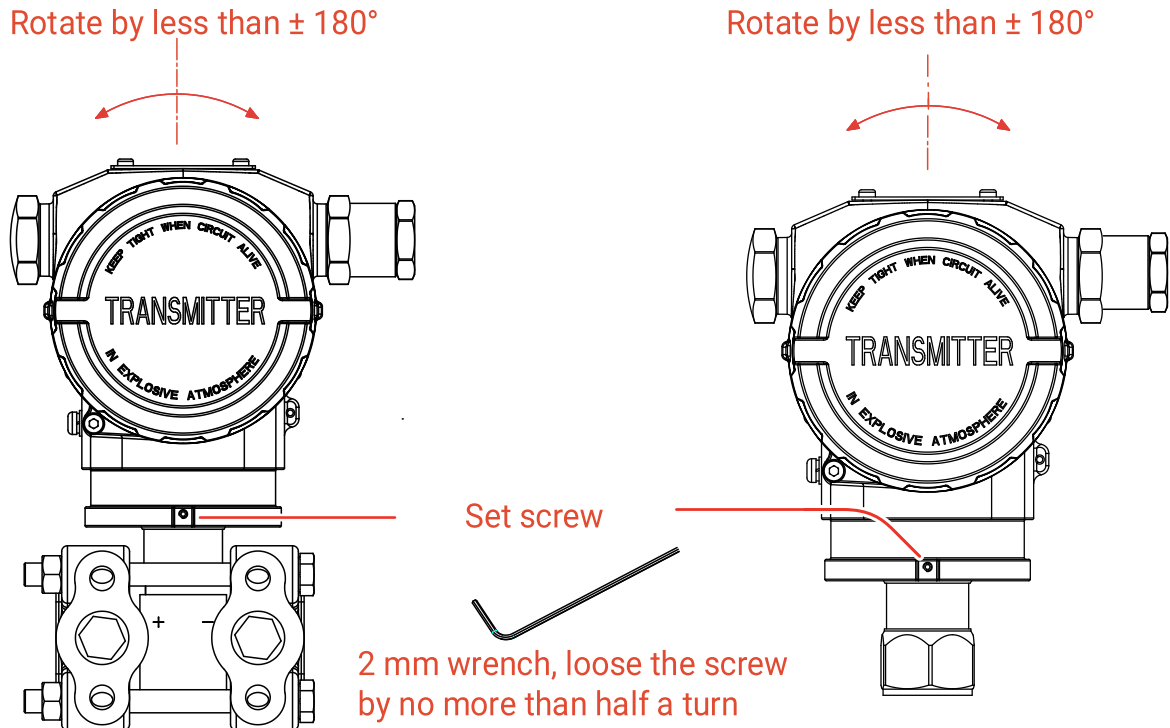


Figure 3-8 Housing rotation schematic

The transmitter housing can rotate approximately ± 180 degrees relative to the sensor without affecting performance and internal wiring. Loosen or lock the set screw with a 2 mm hex wrench.

3.2 Wire connection

3.2.1 4~20mA output and RS-485 output

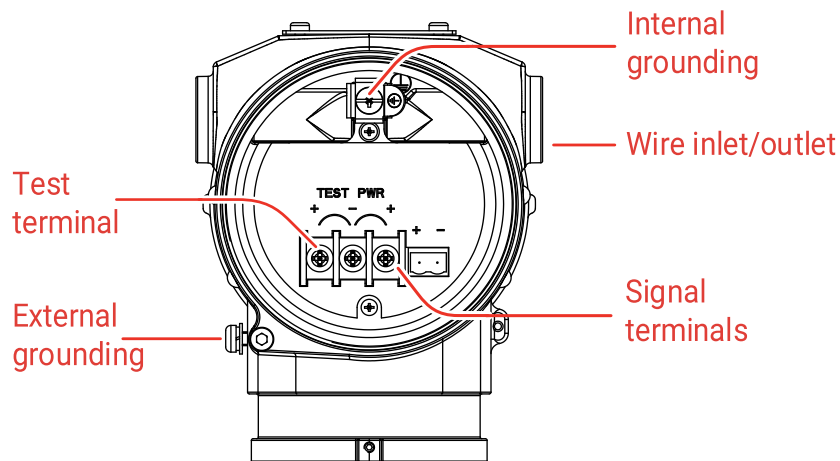


Figure 3-9 4-20 mA output

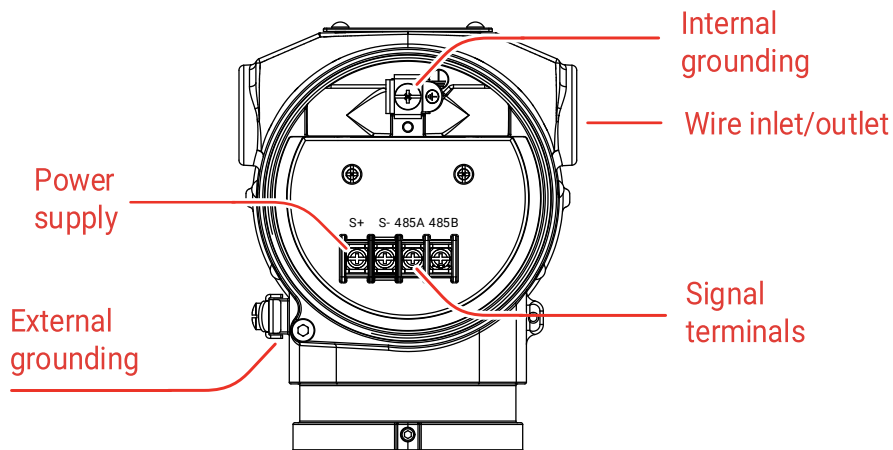


Figure 3-10 RS-485 signal output



- Power and signal wires can be connected to terminals via M20x1.5 wire inlet/outlet at two sides. Use wire with cross section area no more than 2.5 mm² (14 AWG).
- (Non-explosive type) The optional cable entry for M20×1.5 ensures IP67 protection for 6~12mm outer diameter shielded cables.
- For RS-485 connection, connect the 485A terminal to the A-end of the host and the 485B terminal to the B-end of the host.

3.2.2 Grounding

- Use a shielded twisted pair signal cable for optimal performance.
- Ground the enclosure to meet local grounding regulations.
- To ensure proper grounding, cable shielding shall meet the following requirements:
 - The shielding should be trimmed flat and avoid contact to enclosure of the electronic parts.
 - If the wire is routed through the junction box, it should be connected to the next section of the shield.
 - The power supply should be properly grounded.



The earth crimping clip and terminal should be prepared by users.

3.2.3 Voltage input



Caution

- Relevant instructions noted in your local regulations must be followed during wiring.

- Since the transmitter does not have a power switch, the system must have overcurrent protection or a power cut-off device.

The power input shall meet the following requirements:

- Transmitter with backlight LCD display: 24 VDC
- Check that the working voltage is consistent with that specified on the nameplate.

3.2.4 Handheld field communicator wiring (4~20mA output HART models only)

Parameters of the transmitter can be read and set via a handheld field communicator that supports HART protocol.



The handheld field communicator is not an included accessory and need to be purchased by the user.

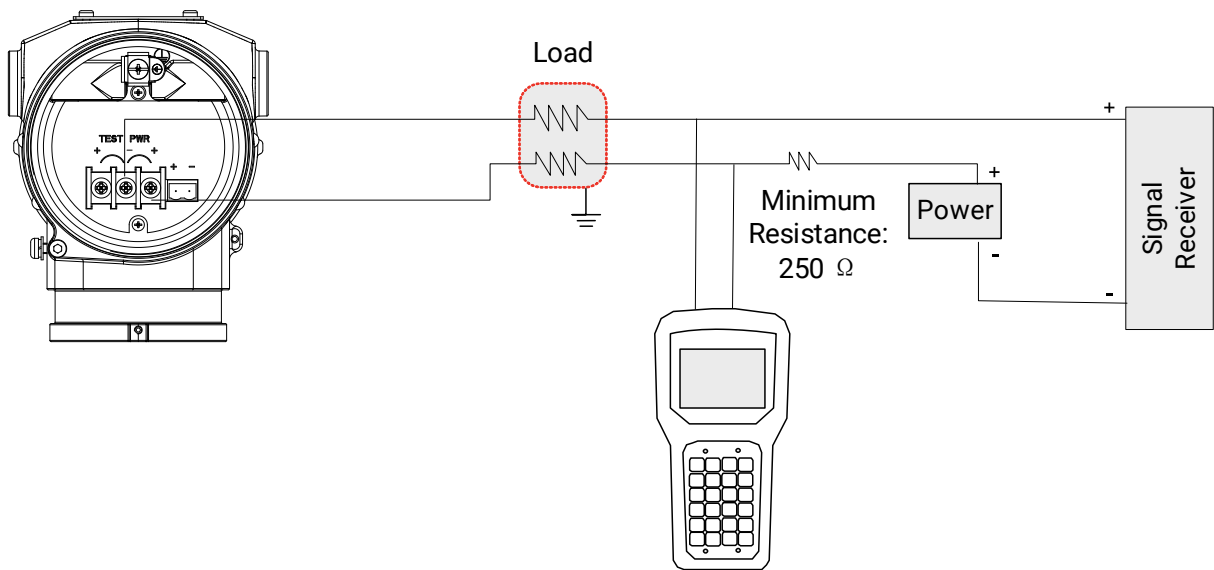


Figure 3-11 Transmitter and handheld field communicator wiring

Wire up the transmitter and a handheld field communicator as shown. The communicator can read and set parameters on the transmitter.

The communicator communicates through AC signals superimposed on 4~20mA output signals. This modulation does not change the mean value and therefore does not affect the measured signal. The resistance between the communicator and the power supply must be at least 250 Ω. If standard installation does not achieve this value, an additional resistor is required.

3.3 Seal for housing

After wiring and setting up, tighten the housing cover until there is no gap between the cover and the housing to achieve waterproof sealing.

For M20 wire inlet/outlet, install a conduit plug with the threads fully engaged or until mechanical resistance occurs.



M20 conduit plugs or cable entry with Ø 18 (ID) × 1.8 sealing ring are recommended.

3.4 Cable protection

To prevent liquid from flowing along the cable causing a liquid build-up at the waterproof connector or entering the junction box, set the cable between the wiring box and the transmitter in a U-loop with the bottom of the U-shape lower than the pressure transmitter.

Please reserve a sufficient length of cable for service replacement.

4. Quick set-up

Once the installation is complete, the power supply is switched on and the transmitter is ready for use.

Refer to 4.1 for the power-up procedure. After power-up, perform zero trim and measurement span adjustment of the transmitter.

4.1 Power-up procedure

Before you start

The following must be checked before power is applied:

- Process connection and electrical connections are properly done.
- The impulse line and measuring chamber of the transmitter are filled with medium.

Steps

Follow the procedure to operate the valves before putting the transmitter into operation.

1. If a shut-off valve is present, open the shut-off valve.
2. Open the equalizing valve on the three-valve block (only for differential pressure transmitters, not for absolute or gauge pressure transmitters).
3. Open the isolate valve to positive chamber.
4. Shut the equalizing valve (only for differential pressure transmitters, not for absolute or gauge pressure transmitters).
5. Open the isolate valve to negative chamber (only for differential pressure transmitters, not for absolute or gauge pressure transmitters).

To exit operation of a transmitter, reverse the steps.



The three valve block is not included and requires the user purchasing.

4.2 Zero trim and measurement span adjustment

Zero offset may occur when mounting the transmitter, for example, tilted mounting position, uneven horizontal position of 2 chambers of differential pressure transmitter. The zero offset must be trimmed at this point.

The transmitter factory-set range may be different from the measurement range of the user's actual demand. Adjusting the transmitter to the actual desired range helps achieve a more accurate reading.

Zero trim and span adjustment can be achieved in the following ways:

- Use local control buttons of the transmitter. Scan the QR code in next chapter for operation guide.

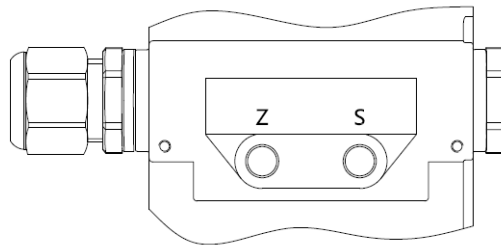


Figure 4-1 Control buttons on top of the transmitter

- For the transmitter supports HART protocol, connect a field communicator to the transmitter (refer to 3.2.4) and perform zero trim. Refer to guide of your field communicator for instructions.
- For the transmitter supports MODBUS-RTU/RS-485 protocol, scan the QR code in next chapter for more information on how to set configure the device via the protocol.

4.3 Notes for 4-20 mA output

If the measured pressure is within the range of the nameplate, the output current signal is 4~20mA. If the pressure is below the calibrated measurement range, the output signal is between 3.9 and 4mA, and if the pressure is above the calibrated measurement range, the output signal is between 20 and 20.5mA.

Output signal limit: $I_{\min} = 3.9\text{mA}$, $I_{\max} = 20.5\text{mA}$.

Alarm type can be set. Low mode (low) is 3.6 mA, high mode (high) is 21 mA, and no-alarm mode (keep) is the current value that was valid until the fault was occurred. The default setting is high mode.

5. Documentation

For more information on installation and configuration, scan the QR code:



6. Regulatory information



Note

These clauses apply only to the products bearing the corresponding mark or information.

EU Conformity Statement



This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the Directive 2014/30/EU (EMCD) and Directive 2011/65/EU (RoHS).



Directive 2012/19/EU (WEEE Directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info



Regulation (EU) 2023/1542 (Battery Regulation): This product contains a battery and it is in conformity with the Regulation (EU) 2023/1542. The battery cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), or lead (Pb). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info.

Industry Canada ICES-003 Compliance

This device meets the CAN ICES-3 (A)/NMB-3(A) standards requirements.



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