

M20 Pressure Transmitter

Installation and Operation Manual



KEY FEATURES

- Absolute, Gauge and Sealed Gauge
- -1 to 1000 bar
- Stainless steel construction
- 4-20mA or voltage

Description

At the heart of the M20 pressure transmitter is a precision, silicon Piezoresistive sensing element, enclosed in a 316L stainless steel housing. The diaphragm material is 316L (up to 250 bar) or 17-4PH (above 250 bar).

Please read this manual carefully to ensure correct & reliable operation.

Scope of Supply

The transmitter is supplied with the following items as standard :

M20 Pressure Transmitter	1
Mating Connector	1 (DIN connector only)
Operation Manual	1
Calibration sheet	1

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Unpacking

Carefully unpack the transmitter, taking care not to damage the transmitter or accessories.

Storage

The transmitter should be stored in a dry, well-ventilated room with an ambient temperature of -40°C to $100^{\circ}\text{C}/-20^{\circ}\text{C}$ to 85°C (depending on the cable type) and a relative humidity of $\leq 85\%$. The room should not contain any corrosive substances.

Outline Construction and Installation

Dimensions (mm)

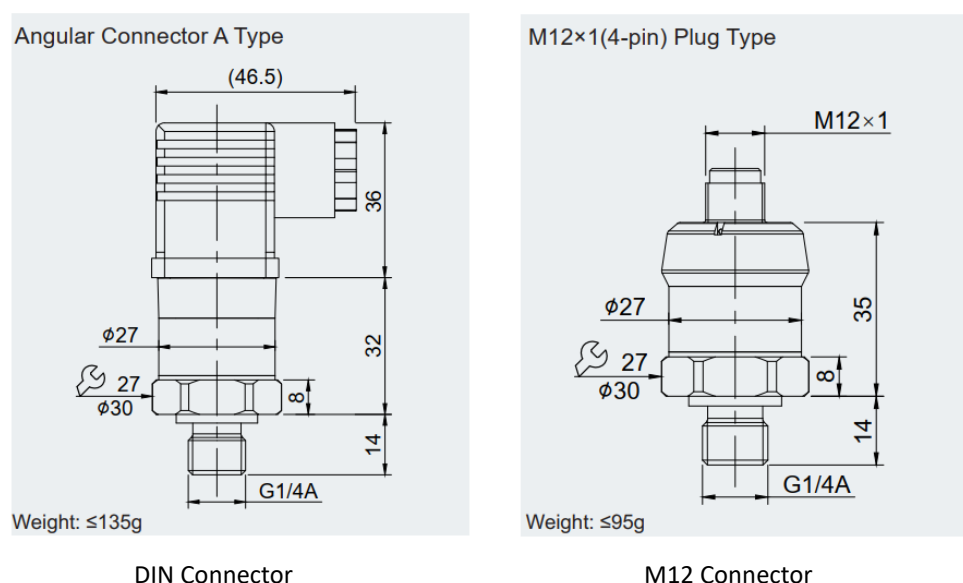


Fig. 1

Installation

Check before Installation:

- The measuring pressure is within the transmitter's pressure range.
- The pressure media is compatible with the sensor's construction material.
- The pressure media is unlikely to obstruct the pressure port opening.

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Installation method

Generally, the transmitter should be mounted vertically, perpendicular to the ground, with the pressure port downwards. If this is not possible, the maximum slope angle between the transmitter and the ground should not exceed 30 degrees. It is NOT recommended to mount the transmitter upside down.

As an example, the M20 pressure transmitter with a suitable male pressure port can be directly installed on a measuring pipe joint. To facilitate installation and maintenance, a shut-off valve should be installed between the connector and the pipeline (See Figure 2.). The recommended torque is between 20Nm and 35Nm.

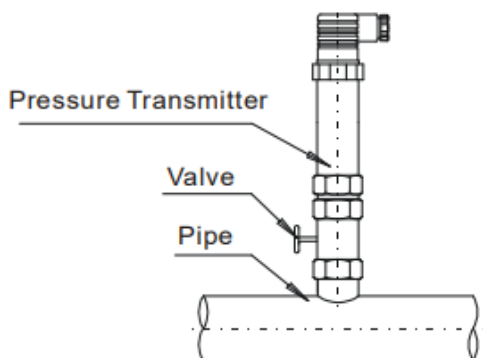


Fig. 2

Electrical Connection

Pin definition

The transmitter either comes with cable or connectors (DIN/M12) for connecting to a measurement system.

Please refer to table 1 and 2 for the pin arrangement of DIN and M12 connectors

Pin	2 wires	3 wires
1	+V	+V
2	+OUT	GND
3	-	+OUT

Table 1 - DIN Connector

Pin	2 wires	3 wires
1	-	+OUT
2	+OUT	GND
4	+V	+V

Table 2 – M12 Connector

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The pin definitions of M12 cable (MS903/MS904) are as follows:

Color	2 wires	3 wires
Brown	+V	+V
Blue	+OUT	GND
Black	-	+OUT
Yellow/Green	Ground	Ground

DIN Connector Fitting

- If the DIN connector is already connected to the transmitter, loosen the central screw on the top of the connector using a small screwdriver and pull the socket away from the transmitter. (Caution: Do not remove the plug from the transmitter to protect it.)
- To disconnect the wiring block, remove the central screw on the top of the socket. Then, turn the socket over and insert a small flat-head screwdriver into a corner marked "Lift" or an arrow and apply force. The socket wiring block can then be disconnected from the housing
- To connect the cable, pass the cable through the cable jack and connect the wires to the terminals on the plug core correctly. (The connection terminals are marked with clear numbers.) Please use $\varnothing 4.5\text{mm} \sim \varnothing 7\text{mm}$ shielded cable and connect the cable cores securely to prevent short circuits.
- Gently pull the cable and push the socket wiring block into the housing, then tighten the cable-fixing nut.
- Securely attach the mating socket to the transmitter.

Caution: Ensure that the rectangular sealing ring is installed / seated correctly to maintain the protection class when connecting the plug and socket.

- To remove the cable, loosen the cable-fixing nut to release the cable. Then, perform the same steps as in steps a) to disconnect the socket & step b) to access the wiring block. Remove the cable from the terminals using a small screwdriver and pull the cable out of the cable-fixing nut. Then, reassemble the socket assembly.

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Connection Diagram

a) 4 to 20mA - 2 wire output

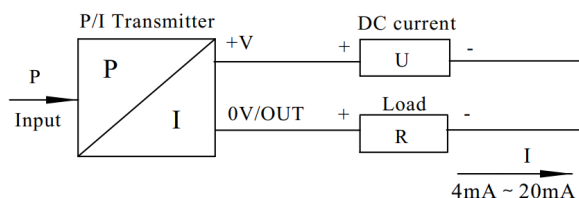


Fig. 3 – Current output

b) 0/1V to 5Vdc - 3 wire output

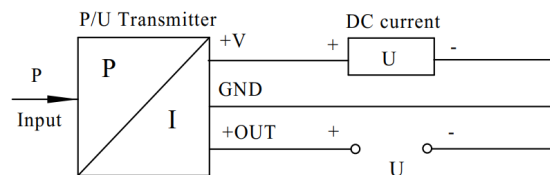


Fig. 4 – Voltage output

Operation

Ensure that the installation and electrical connections are correct. The transmitter will begin to respond immediately after the power is applied.

NOTE: The output signal may take up to 30 minutes to become stable (warm-up).

Maintenance

The M20 pressure transmitter is a precision measuring device. Please pay attention to the following items during operation:

- If the pressure port is blocked or the diaphragm is dirty, please clean them with a solvent that is compatible with the transmitter's construction material. Do not insert any hard object / cleaning tools into the pressure port. For a flush diaphragm version, gently brush the diaphragm to remove any contamination. Any damage to the exposed diaphragm will cause transmitter performance issues.
- Any other cable cores / connector terminals not mentioned on page 3 and 4 should not be connected to protect the transmitter (additional cores/connections are for internal factory use only).
- Note: For Gauge sensors, any vent hole / vent tube in the centre of the cable must not be blocked or become contaminated with water, and must be allowed to vent to the atmosphere at all times. This is to protect the product and ensure the accuracy of the output measurement (See figure 5).

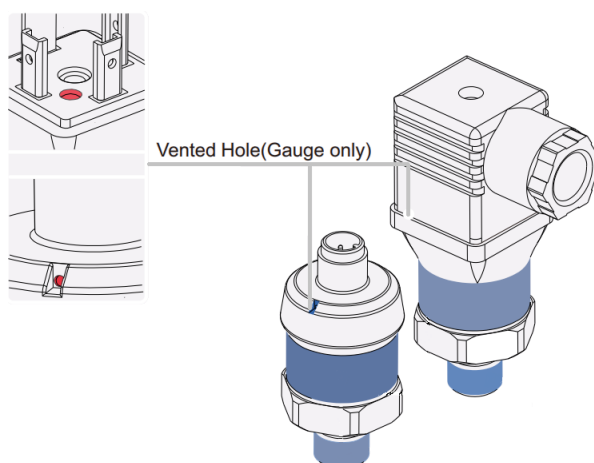


Fig. 5 – Vent hole position

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Warranty

Within one year from the delivery date, we will repair or replace the instrument free of charge for any quality defect caused by material defects or our manufacturing process. However, for any non-quality malfunction that occurs during the user's operation, we will repair it but the user will be responsible for all material costs and shuttle transportation fees.

Appendix

Description of Calibration Sheet

