

Pressure Transmitter

for Multiple Applications and Customization

MPM489



Applications

- Hydrology and water resources
- Petroleum and petrochemical industry
- Electricity industry
- Mechanical Manufacturing
- Hydraulic pressure and pneumatic system

Features

- Intrinsic safety type, Ex ia IIC T6 Ga
- Explosion-proof type, Ex d IIC T6 Gb
- ATEX type, Ex II 1 G Ex ia IIC T4 Ga
- CE, RoHS and CCS approved

Introduction

The MPM489 is a pressure transmitter designed for general industrial applications. It contains a piezoresistive sensing element of excellent stability and reliability and a dedicated circuit that are housed in a high-strength stainless steel housing. Featured with integrated structure, standard outputs, multiple process connection and electrical connections, the product is an ideal solution for automation control applications that requires precise measurement. The product is also applicable in harsh environment and hazardous areas.

Specifications

| | |
|-----------------------|---|
| Range | -1bar...0mbar ~ 100mbar...1000bar |
| Overpressure | 2 times FS or 1100bar (minimum value is valid) |
| Pressure Type | gauge, absolute, sealed gauge |
| Accuracy | see Accuracy on page 2 |
| Long-term Stability | ±0.3%FS/year |
| Operation Temperature | -30°C ~ 80°C (B1 type, B4 type) |
| | -20°C ~ 70°C (B2 type, cable material: PE, PVC) |
| | -20°C ~ 80°C (B2 type, cable material: PUR) |
| | -30°C ~ 60°C (intrinsic safety type, B1 type) |
| | -20°C ~ 60°C (intrinsic safety type, B2 type) |
| | -20°C ~ 60°C (Exd type) |
| Storage Temperature | -40°C ~ 120°C |
| | -20°C ~ 85°C (B2 type) |
| Vibration | 10g, 55Hz ~ 2000Hz |
| Shock | 100g, 11ms |
| Protection Rating | IP65 |
| Weight | ≤270g |

Accuracy

| Pressure Type | Range | Accuracy |
|----------------|-------------------------------------|----------|
| Gauge G | 0bar ~ 100mbar < X < 200mbar | ±1%FS |
| | 200mbar ≤ X ≤ 1bar | ±0.5%FS |
| | 1bar ≤ X ≤ 35bar | ±0.25%FS |
| | | ±0.5%FS |
| | -1bar ~ -350mbar < X ≤ 2bar | ±1%FS |
| | -1bar ~ -350mbar < X < 2bar ~ 35bar | ±0.5%FS |
| Absolute A | 0bar ~ 700mbar < X ≤ 1bar | ±1%FS |
| | 1bar < X < 10bar | ±0.5%FS |
| | 10bar < X < 1000bar | ±0.25%FS |
| | | ±0.5%FS |
| Sealed Gauge S | 35bar < X < 1000bar | ±0.25%FS |
| | | ±0.5%FS |

Test standard: GB/T 17614.1-2015/IEC60770-1:2010;

Environment temperature: 20°C ±5°C ;

Relative humidity: 45%~75%

Thermal Drift

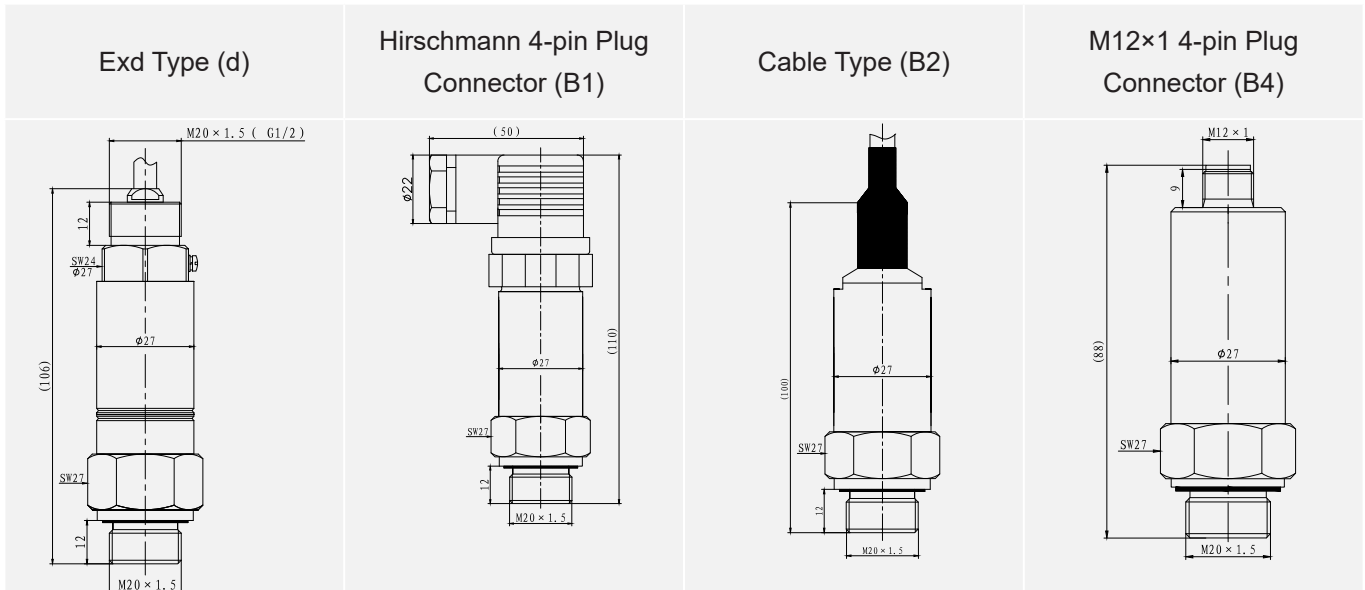
| | |
|--------------------|---------------------|
| Zero Thermal Drift | ±0.05%FS/°C (≤1bar) |
| | ±0.03%FS/°C (>1bar) |
| Span Thermal Drift | ±0.05%FS/°C (≤1bar) |
| | ±0.03%FS/°C (>1bar) |

Output Signals

| Output Singal | Power Supply | Output Format | Load Resistance |
|-------------------|--------------|---------------|------------------|
| 4mA~20mA DC(E) | 11V~28V DC | 2-wire | ≤(U-11)/0.02 (Ω) |
| 1V~5V DC(F) | | | |
| 0V~5V DC(J) | | | |
| 0.5V~4.5V DC (K2) | | | |
| 0V~10V DC (K2) | 15V~28V DC | 3-wire | ≥10kΩ |
| 0.5V~4.5V DC(K1) | 5V±0.1V DC | | |
| 0.5V~2.5V DC(W1) | | | |
| 0.5V~2.5V DC(W2) | | | |

Outline Dimensions

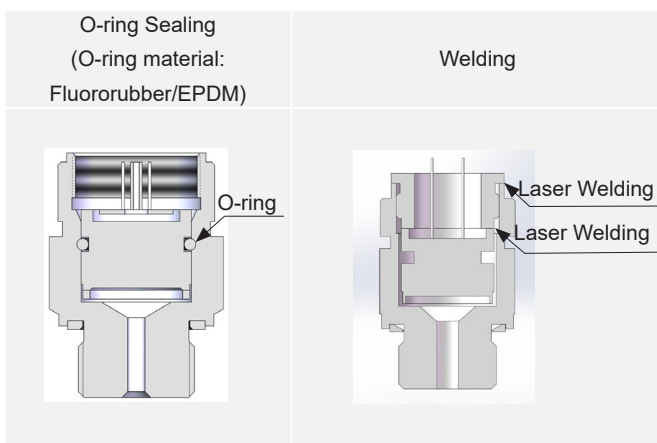
unit: mm



Electrical Connection

| Definition | Hirschmann 4-pin Plug Connector (B1) | | Cable (B2) | | M12x1 4-pin Plug Connector (B4) | |
|------------|--------------------------------------|-------------------|-------------------|-------------------|---------------------------------|-------------------|
| | current 2-wire | voltage 3-wire | current 2-wire | voltage 3-wire | current 2-wire | voltage 3-wire |
| +V | 1 | 1 | red | red | 1 | 1 |
| +OUT | 2 | 3 | black | white | 3 | 3 |
| GND | null | 2 | null | black | null | 2 |

Sensor Sealing



Materials

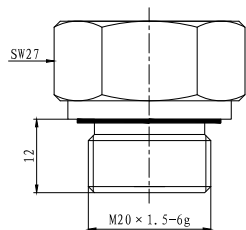
- Wetted Parts
- Isolated Diaphragm: SS 316L/Tantalum
- Pressure Port: SS 304/SS 316L/Hastelloy C
- Non-wetted Parts
- Housing: SS 304/SS 316L
- Cable wire: PE/PUR/PVC

Process Connection

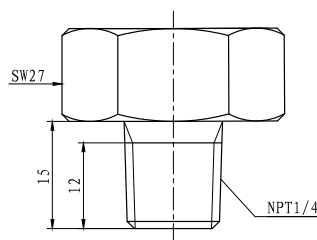
Process Connection Dimensions

unit: mm

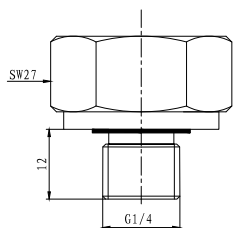
M20×1.5 Male, End Face Seal (C1)



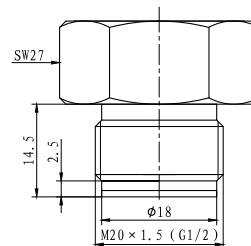
NPT1/4 Male (C6)



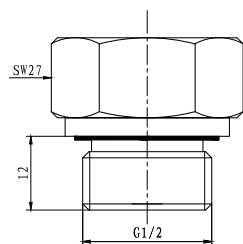
G1/4 Male, End Face Seal (C2)



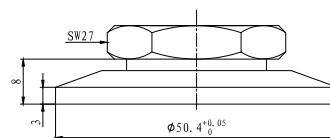
M20×1.5 or G1/2 Flush Structure (PC1/PC3)



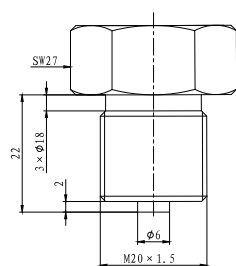
G1/2 Male, End Face Seal (C3)



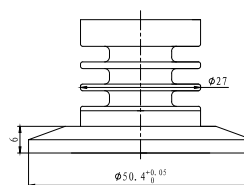
DN25 Clamp Connection (PD1)



M20×1.5 Male, Waterline Seal (C5)



DN25 Clamp Connection with Heat Sink (PD1s)



Ordering Guide

| | | | | | | | | | | |
|--------|----------------------|--|---------------|----|----|----|----|---|--------------------------|-----------------------------|
| MPM489 | Pressure Transmitter | | | | | | | | | |
| | Range | Measurement Range -1bar...0bar ~ 100mbar...1000bar | | | | | | | | |
| | [0 ~ X]mbarL or barL | X: actual measured range, L means cable length when electrical connection is B2 | | | | | | | | |
| | Code | Power Supply | | | | | | | | |
| | V1 | 11V~28V DC | | | | | | | | |
| | V6 | 5V±0.1V DC | | | | | | | | |
| | V7 | 3.3V±0.1V DC | | | | | | | | |
| | Code | Output Signal | | | | | | | | |
| | E | 4mA~20mA DC | | | | | | | | |
| | F | 1V~5V DC | | | | | | | | |
| | J | 0V~5V DC | | | | | | | | |
| | V | 0V~10V DC | | | | | | | | |
| | K | 0.5V~4.5V DC | | | | | | | | |
| | W | 0.5V~2.5V DC | | | | | | | | |
| | Code | Material | | | | | | | | |
| | | Isolated Diaphragm | Pressure Port | | | | | | | Housing |
| | 22 | SS 316L | SS 304 | | | | | | | SS 304 |
| | 24 | SS 316L | SS 316L | | | | | | | SS316L |
| | 25 | Tantalum | SS 304 | | | | | | | SS 304 |
| | 35 | Tantalum | Hastelloy C | | | | | | | SS 304 |
| | Code | Electrical Connection ^① | | | | | | | | |
| | B1 | 4-pin plug connector | | | | | | | | |
| | B2 | cable connection | | | | | | | | |
| | B4 | M12×1 4-pin plug connector | | | | | | | | |
| | Code | Process Connection | | | | | | | | |
| | C1 | M20×1.5 male, end face seal | | | | | | | | |
| | C2 | G1/4 male, end face seal | | | | | | | | |
| | C3 | G1/2 male, end face seal | | | | | | | | |
| | C5 | M20×1.5 male, waterline seal | | | | | | | | |
| | C6 | NPT1/4 male | | | | | | | | |
| | PC1 | M20×1.5 flush structure | | | | | | | 0mbar ~ 200mbar...350bar | |
| | PC3 | G1/2 flush structure | | | | | | | | |
| | PD1 | DN25 clamp | | | | | | | 0mbar ~ 350mbar...350bar | |
| | PD1s | DN25 clamp with heat sink | | | | | | | | |
| | Code | Accessory | | | | | | | | |
| | null | no accessory | | | | | | | | |
| | M6 | 4 digits LED digital indicator (only for 4mA ~ 20mA DC output non-explosion proof or non-ship-use products with B1 connection) | | | | | | | | |
| | M7 | 4 digits LCD digital indicator (only for 4mA ~ 20mA DC output non-explosion proof or non-ship-use products with B1 connection) | | | | | | | | |
| | Code | Certification Requirement ^② | | | | | | | | |
| | null | no certification requirement | | | | | | | | |
| | i | intrinsic safe Ex ia IIC T6 Ga | | | | | | | | |
| | T | ship-use | | | | | | | | |
| | y | ATEX | | | | | | | | |
| | d | Ex d IIC T6 Ga | | | | | | | | |
| | Code | Pressure Type | | | | | | | | |
| | G | gauge | | | | | | | | |
| | A | absolute | | | | | | | | |
| | S | sealed gauge | | | | | | | | |
| MPM489 | [0 ~ 16]bar | V1 | E | 22 | B1 | C2 | M6 | i | G | Complete Type Specification |

Ordering Notes

1. "①", for B1 and B4 electrical connection, if cable is needed, please specify it in the order.
2. "②" refers to certification requirements. For the intrinsically safety type, current output is available only. The product can be intrinsically safe and suitable for ship-use simultaneously or can be intrinsically safe and flameproof simultaneously.
3. As for accuracy, see "Accuracy" on Page 2 for details.
4. The application temperature range of fluororubber O-ring sealing is $-20^{\circ}\text{C} \sim 250^{\circ}\text{C}$, when application temperature $< -20^{\circ}\text{C}$, EPDM O-ring is needed.
5. The cable length is 1.5m by default, cable material is available for 3 types: PE cable is provided as default; if other material is needed, please specify in the order.
6. When ordering 5V DC/3.3V DC power products with cable connection, the cable length should be less than 10m.
7. When ordering the transmitter with M6 or M7 indicator, power supply should $\geq 16\text{V DC}$.
8. Environmental temperature should be $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$ when ordering the transmitter with M6 indicator, environmental temperature should be $-10^{\circ}\text{C} \sim 60^{\circ}\text{C}$ when ordering the transmitter with M7 indicator, indicator setting can refer to our indicator lectotype, which can be found on our company's website.
9. If metrology verification certificate is needed or there are other requirements, please contact us and specify it in the order.