РусАвтоматизация®

MICROSENSOR

# Flexible & Customizable Level Transmitter

# MPM489W

## Applications

- Pharmaceuticals
- Metallurgy
- Power plant
- Mine
- Urban water supply and drainage
- Hydrological exploration

## Features

- Integrated construction with no external adjustment required
- Intrinsically safe, Ex ia IIC T6 Ga
- ATEX explosion-proof:
  Ⓔx II 1 G Ex ia IIC T4 Ga
- CE, EAC, RoHS and CCS approved

## Introduction

MPM489W Level Transmitter is a fully sealed submersible level measurement instrument. It utilizes an OEM pressure sensor, which has undergone extensive stability and reliability testing, along with a high-accuracy dedicated circuit, all encapsulated in a stainless steel housing. Its integrated construction and standardized signal output simplify field installation and integration into automated control systems. The dedicated cable is securely sealed to the housing, ensuring long-term, stable operation in liquids that are compatible with the transmitter materials.

## Specifications

| | |
|---|---|
| Range | 0m$H_2O$ - 1m$H_2O$…200m$H_2O$ |
| Overpressure | ≤ 2 times FS |
| Pressure type | Gauge pressure |
| Accuracy | Refer to “Measuring Range & Accuracy Table” |
| Long-term stability | Range ＞ 10mH2O, ≤ ±0.2% FS/year |
| | Range ≤ 10mH2O, ≤ 20mmH2O/year |
| Operating temperature | -10°C～ 60°C (Intrinsically safe explosion-proof) |
| | -20°C～ 70°C (cable material: PE, PVC) |
| | -20°C～ 80°C (cable material: PUR) |
| Storage temperature | -20°C～ 85°C |
| Vibration | 10g，55Hz ～ 2000Hz |
| Shock | 100g，11ms |
| IP rating | IP68 |
| Weight | ≤220g |

## Measuring Range & Accuracy Table

| Unit | Measuring Range | Overpressure | Code | Accuracy |
|---|---|---|---|---|
| $mH_2O$ | 0 - 1 | 4 | H001 | ±1%FS |
| | 0 - 2 | 4 | H002 | |
| | 0 - 2.5 | 4 | H2D5 | |
| | 0 - 3 | 7 | H003 | ±0.5%FS |
| | 0 - 3.5 | 14 | H3D5 | |
| | 0 - 4 | 14 | H004 | |
| | 0 - 5 | 20 | H005 | |
| | 0 - 6 | 20 | H006 | |
| | 0 - 7 | 20 | H007 | |
| | 0 - 8 | 20 | H008 | |
| | 0 - 9 | 20 | H009 | |
| | 0 - 10 | 20 | H010 | |
| | 0 - 15 | 40 | H015 | ±0.25%FS |
| | 0 - 20 | 40 | H020 | |
| | 0 - 25 | 70 | H025 | |
| | 0 - 30 | 70 | H030 | |
| | 0 - 35 | 70 | H035 | |
| | 0 - 40 | 140 | H040 | |
| | 0 - 45 | 140 | H045 | |
| | 0 - 50 | 140 | H050 | |
| | 0 - 60 | 140 | H060 | |
| | 0 - 70 | 140 | H070 | |
| | 0 - 80 | 200 | H080 | |
| | 0 - 90 | 200 | H090 | |
| | 0 - 100 | 200 | H100 | |
| | 0 - 110 | 400 | H110 | |
| | 0 - 120 | 400 | H120 | |
| | 0 - 150 | 400 | H150 | |
| | 0 - 200 | 400 | H200 | |

Test standard: GB/T 17614.1-2015/IEC60770-1:2010
Ambient temperature: 20°C ±5°C
Relative humidity: 45% ~ 75%

## Thermal Error

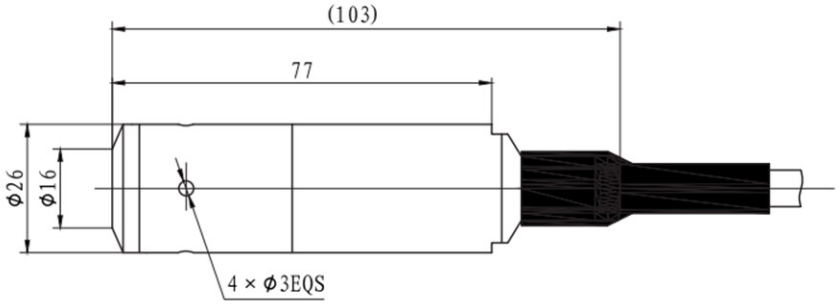
| | |
|---|---|
| Zero thermal error | ≤ ±0.05% FS/℃（≤ 10m$H_2O$） |
| | ≤ ±0.02% FS/℃（＞ 10m$H_2O$） |
| Span thermal error | ≤ ±0.05% FS/℃（≤ 10m$H_2O$） |
| | ≤ ±0.05% FS/℃（＞ 10m$H_2O$） |

## Output Signals

| Output Signal | Supply Voltage | Output Type | Load Resistance |
|---|---|---|---|
| 4mA~20mA DC | 11V~28V DC | 2-wire | ≤(U-11)/0.02 (Ω) |
| 1V~5V DC | | 3-wire | ≥10kΩ |
| 0V~5V DC | | | |
| 0.5V~4.5V DC | | | |
| 0V~10V DC | 15V~28V DC | | |
| 0.5V~4.5V DC | 5V±0.1V DC | | |
| 0.5V~2.5V DC | | | |
| 0.5V~2.5V DC | 3.3V±0.1V DC | | |

## Outline Construction

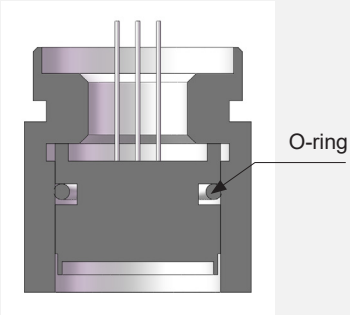
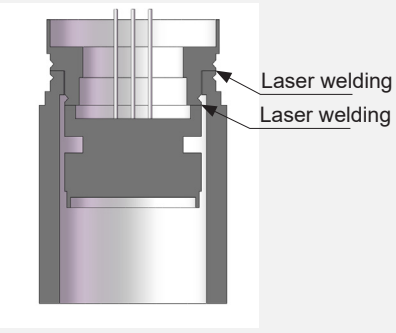
Unit: mm




## Electrical Connection

| Color | 2-wire | 3-wire |
|---|---|---|
| Red | (+V) | (+V) |
| White | Null | OUT |
| Black | 0V/OUT | GND |

## Sensor Sealing

| O-ring (FKM/EPDM) | Welding |
|---|---|
|  |  |



## Construction Materials

Isolated diaphragm: SS 316L/Titanium alloy
Housing: SS 304/ SS 316L/Titanium alloy
Cable: PE/PUR/PVC

## Order Guide

| MPM489W | Level Transmitter |
|---|---|
| Range | Measuring Range 0m$H_2O$ - 1m$H_2O$…200m $H_2O$ |
| XXXX | Range-specific code |

| 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 | Power supply |
|---|---|
| V5 | 11V~28V DC |
| V6 | 5V±0.1V DC |
| V7 | 3.3V±0.1V DC |
| V13 | 15V~28V DC |

| Code | Accuracy |
|---|---|
| A1 | ±0.25%FS |
| A2 | ±0.5%FS |
| A3 | ±1%FS |

| Code | Construction material | | |
|---|---|---|---|
| | Isolated diaphragm | Pressure port | Housing |
| 22 | SS 316L | SS 304 | SS 304 |
| 24 | SS 316L | SS 316L | SS 316L |
| 40 | Titanium | Titanium | Titanium |

| Code | Sensor sealing |
|---|---|
| 00 | FKM (standard) |
| 01 | EPDM (optional for special media based on compatibility) |
| 02 | Welding (optional for special media based on compatibility) |

| Code | Cable material |
|---|---|
| P1 | PE (standard) |
| P2 | PUR (optional for special media based on compatibility) |
| P3 | PVC (optional for special media based on compatibility) |

| Code | Cable length (Unit: m) |
|---|---|
| L001 | 1 |
| L002 | 2 |
| L003 | 3 |
| L004 | 4 |
| L005 | 5 |
| L006 | 6 |
| L007 | 7 |
| L008 | 8 |
| L009 | 9 |
| L010 | 10 |
| L012 | 12 |
| L015 | 15 |
| L017 | 17 |
| L020 | 20 |
| L025 | 25 |
| L030 | 30 |
| L035 | 35 |
| L040 | 40 |
| L045 | 45 |

| MPM489W | H005 | E | V5 | A2 | 22 | 00 | P1 | The complete spec. |
|---|---|---|---|---|---|---|---|---|

| Code (Table continued) | Cable length (Unit: m) |
|---|---|
| L050 | 50 |
| L060 | 60 |
| L070 | 70 |
| L080 | 80 |
| L090 | 90 |
| L100 | 100 |
| L110 | 110 |
| L120 | 120 |
| L150 | 150 |
| L200 | 200 |

| Code | Certification requirement① |
|---|---|
| N | None |
| i | Intrinsically safe Ex ia IIC T6 Ga |
| T | Ship-use Ex ia IIC T6 Ga |
| y | ATEX Ex ia IIC T4 Ga |

| Code | Accessory | |
|---|---|---|
| N | No accessory | |
| Yb3 | YYb junction box (3-core terminals) | Polymer plug (default) |
| Yc3 | MS200 (3-core terminals) | |
| Yd | PD140 | |
| YeM6 | Ye（M6） | |
| YeM7 | Ye（M7） | |
| Ye | Ye (Without indicator) | |
| MS01 | Polymer plug (except for Yb, Yc, Yd) | |

| | | | |
|---|---|---|---|
| L002 | i | Yb | The complete spec. |

## Notes

1、" ① " refers to certification requirements. The details are:
For the intrinsically safety type, current output is available only.
The product can be intrinsically safe explosion-proof/flameproof and suitable for ship-use simultaneously.

2、Only transmitters with a 4mA~20mA output signal can be equipped with M6 or M7 indicators, with a power supply of ≥ 16V DC.

3、The ambient temperature of transmitter should be -20°C~ 70°C with M6 indicator, while -10°C~ 60°C with M7 indicator. Indicator settings refer to its order guide, which can be obtained from the MICROSENSOR website.

4、Please note that for 5V DC/3.3V DC powered products, the cable length must be less than 10m if connected.

5、The IP rating of junction box is IP65.

6、The measured medium shall be compatible with the wetted parts materials, and the medium's density (excluding water) under measurement conditions must be specified.

7、In areas prone to thunderstorms, install lightning protection and ensure proper grounding of the product and power supply to minimize lightning damage to the transmitter.

8、If a metrology verification certificate is required, or there are any other special requirements, please consult with the MICROSENSOR and specify them in the order.