Smart Level Transmitter with High Accuracy & Digital Output

MPM4700

Applications

- Medicine, metallurgy
- Power plants, mines
- Urban water supply and drainage
- Hydrological exploration

Features

- Digital temperature compensation and non-linear correction technology
- RS485 (custom protocol) or HART® communication protocol
- Networking applications are available
- Intrinsically safe, Ex ia IICT4 Ga

Introduction

MPM4700 Smart Level Transmitter is a fully sealed, stainless steel submersible instrument for precise level measurement. It incorporates a high-stability piezoresistive OEM pressure sensor and a high-accuracy signal processing circuit, utilizing digital temperature compensation and nonlinear correction for enhanced measurement precision. The waterproof cable is securely sealed to the housing, with an integrated vent tube, allowing long-term submersion in liquid. Its compact, integral design and standardized output signal facilitate on-site applications and automated control systems.

Specifications

Range	Refer to"Measuring Range & Accuracy Table"
Overpressure	
Accuracy	
Pressure type	Gauge pressure
Long-term stability	≤ ±0.2% FS/year
Compensation temperature	-10°C ~ 70°C
Operating temperature	-20°C~ 70°C (cable material: PE, PVC)
	-20°C ~ 80°C (cable material: PUR)
Storage temperature	-20°C ~ 85°C
Vibration	20g, 20Hz ～ 5000Hz
Shock	20g, 11ms
IP rating	IP68
Weight	≤ 250g (excluding cable weight)

Measuring Range & Accuracy Table

Gauge Pressure G				
Unit	Measuring Range	Accuracy	Overpressure	Code
mH_2O	0 ~ 1	±0.5%FS	4	H001
	0 ~ 2	±0.25%FS	4	H002
	0 ~ 2.5		4	H2D5
	0 ~ 3		7	H003
	0 ~ 3.5		14	H3D5
	0 ~ 4		14	H004
	0 ~ 5		20	H005
	0 ~ 6		20	H006
	0 ~ 7		20	H007
	0 ~ 8	±0.1%FS	20	H008
	0 ~ 9		20	H009
	0 ~ 10		20	H010
	0 ~ 15		40	H015
	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

Note: The specified accuracy applies within the compensation temperature range (-10°C ~ 70°C);
HART output products do not support 0.1% accuracy, the highest accuracy is ±0.25%FS;
Test standard: GB/T 17614.1-2015/IEC60770-1:2010.

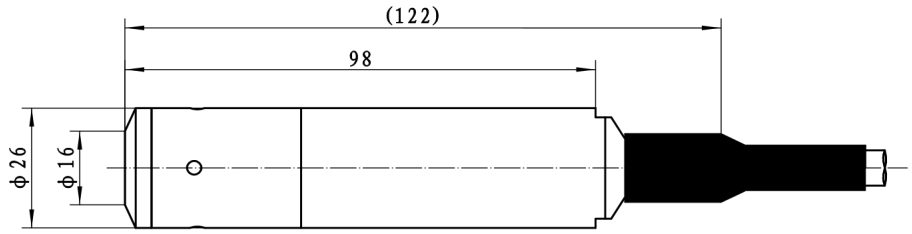
Output Signals

Output signal	Supply voltage	Output type	Load resistance
4mA~20mA DC（E）	10V~28V DC (standard, intrinsically safe)	2-wire	≤(U-10)/0.02 (Ω)
RS485, ASCII communication protocol (R4)		4-wire	The RS485 bus supports up to 99 devices.
RS485, MODBUS_RTU communication protocol(R8)			
HART® communication protocol (H, non-explosion-proof)	12V~30V DC	2-wire	≤(U-12)/0.02 (Ω)

Note: For intrinsically safe, powered by safety barrier.

Outline Construction

Unit: mm

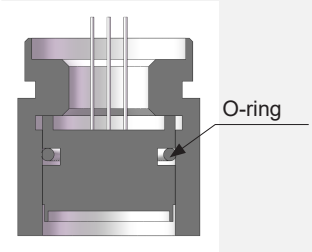
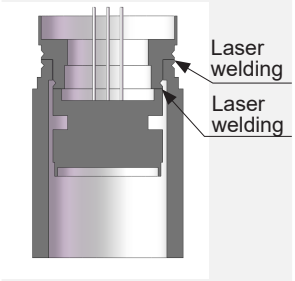


Electrical Connection

Color	2-wire	4-wire
Red	(+V)	(+V)
White	None	RS485B
Black	(OV/+OUT)	(-V)
Yellow (Green)	None	RS485A
Blue	None	Ground wire

Note: Standard products do not require grounding, while explosion-proof must be grounded.

Sensor Sealing

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

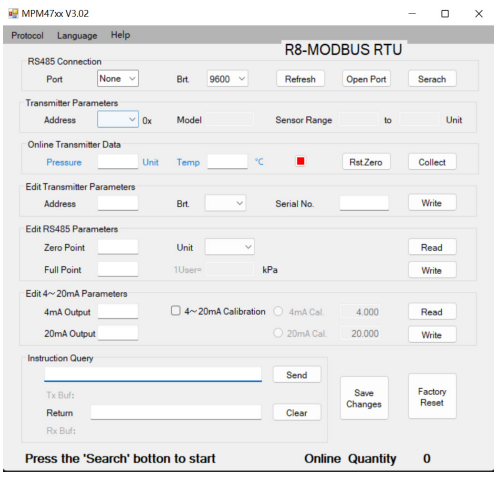
Auxiliary Software

RS485 Transmitter software

47XX software

Used with an RS485 converter module, this software enables reading basic internal information from RS485 transmitters, including transmitter address, real-time pressure, and temperature values.

Note: The “47XX” programming software is available for download from our official website: www.microsensorcorp.com.



Construction Materials

Isolated diaphragm: SS 316L/Titanium

Housing: SS 304/ SS 316L/Titanium

Cable: PE/PUR/PVC

Order Guide

MPM4700	Smart Level Transmitter
Range	Measuring range 0mH2O ～ 1mH2O…200mH2O
HXXX	Range -specific code

Code	Output signal
E	4mA ～ 20mA DC
R4	RS485, ASCII
R8	RS485, MODBUS_RTU
H	HART communication protocol
ER4	4m ～ 20mA DC+RS485, ASCII
ER8	4m ～ 20mA DC+RS485，MODBUS_RTU

Code	Power supply
V10	12V ～ 30V DC
V22	10V ～ 28V DC

Code	Accuracy
A0	±0.1%
A1	±0.25%FS
A2	±0.5%FS

Code	Construction material	
	Isolated diaphragm	Housing
22	Stainless steel 316L	Stainless steel 304
24	Stainless steel 316L	Stainless steel 316L
40	Titanium Ta1	Titanium TC4

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

MPM4700	H005	E	V22	A1	22	00	P2	L005	The complete spec.

Order Guide

Code	Cable length (Unit: m)
L035	35
L040	40
L045	45
L050	50
L060	60
L070	70
L080	80
L090	90
L100	100
L110	110
L120	120
L150	150
L200	200

Code	Certification requirement ①
N	None
i	Intrinsically safe Ex ia IICT4 Ga
T	Ship-use

Code	Accessory
N	No accessories required
Yb5	Yb junction box (5-core terminals)
Yc5	MS200 (5-core terminals)
Yd	PD140
Ye	Ye (without indicator)
YeM6	Ye (M6)
YeM7	Ye (M7)
MS01	Polymer plug
LJ8	Locking adapter (flange optional)

N	Ye	The complete spec.

Notes

1. " ① " refers to certification requirements. The details are:
   For the intrinsically safe explosion-proof type, current output and RS485 output are available.
   The product can be explosion-proof and suitable for ship-use simultaneously.
2. When selecting the YeM6 or YeM7, only 4mA~20mA DC output is available, and requiring a power supply of ≥15VDC.
3. The ambient temperature of transmitter should be -20°C~ 70°C with YeM6 indicator, while -10°C~ 60°C with YeM7 indicator. Indicator settings refer to its order guide, which can be obtained from the MICROSENSOR website.
4. The recommended IP rating for the junction box is IP65.
5. The measured medium shall be compatible with the wetted parts materials, and the medium's density (excluding water) under measurement conditions must be specified.
6. 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.
7. 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.