Intelligent Level Transmitter with High Precision and Digital Output

MPM4700

Applications

- Pharmaceutical and metallurgical industries
- power generation and mining industry
- Urban water supply and drainage
- Hydrological exploration

Features

- Digital temperature compensation and nonlinear correction technology
- RS485 communication interface (customized) or HART® protocol
- Support networking
- Intrinsic safety mark: Ex ia IIB T6 Ga
- CE,RoHS approved, CCS approved for ship-use

Introduction

MPM4700 level transmitter is a fully sealed submersible level measuring instrument that uses the stainless steel construction. The product utilizes a high stable and reliable piezoresistive pressure sensing element and a high precise processing circuit, and adopts the digital temperature compensation technology and non-linear correction technology to achieve high accuracy measurement. The waterproof vented cable of the transmitter is connected to the housing with a hermetic seal, which allows the long-term use of the instrument in the liquids. Its integrated structure and standard output signal make it convenient for the field use and automatic control.

Specifications

Range	0mH_2O ~ 1mH_2O…200mH_2O
Overpressure	≤2 times FS
Pressure Type	gauge, absolute
Accuracy	see Accuracy on page 2
Long-term Stability	≤ ±0.2% FS/ year
Compensated Temperature	-10°C ~ 70°C
Application Temperature	-20°C ~ 60°C (Intrinsic safety type)
	-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
Housing Protection	IP68
Weight	≤250g (not including cable weight)

Accuracy

Pressure Type	Range	Accuracy
Gauge (G)	$0mH_2O$ ~ $1mH_2O \le X < 2mH_2O$	±0.5%FS
	$2mH_2O \le X \le 7mH_2O$	±0.25%FS
	$7mH_2O < X \le 200mH_2O$	±0.25%FS
		±0.1%FS
Absolute (A)	$0mH_2O$ ~ $7mH_2O < X \le 10mH_2O$	±0.5%FS
	$10mH_2O < X \le 200mH_2O$	±0.25%FS

Note: the accuracy is between compensated temperature range (-10℃ ~ 70℃), When the range is larger than $7mH_2O$ (gauge), transmitter with HART output can only reach 0.25% accuracy

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

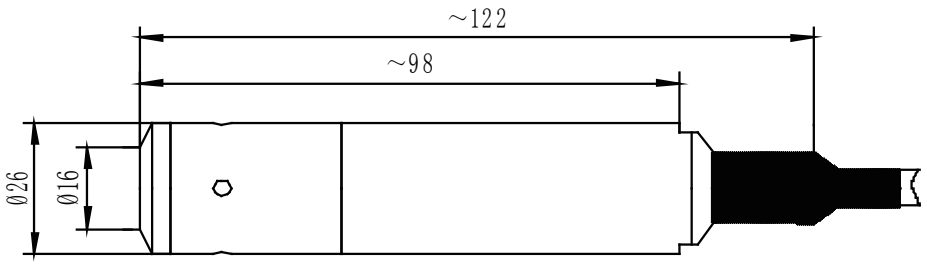
Output Signals

Output Signal	Power Supply	Output Format	Load Resistance
4mA~20mA DC (E)	10V~28V DC	2-wire	≤(U-10)/0.02 (Ω)
RS485, ASCII protocol (R4)		4-wire	RS485 bus can load 99 transmitters
RS485, MODBUS_RTU protocol (R8)			
HART® protocol (H, non-explosion-proof type)	12V~30V DC	2-wire	≤(U-12)/0.02 (Ω)

Note: Intrinsic safety type product is powered by safety barriers, power supply is 10V~12V DC.

Outline Dimensions

unit: mm

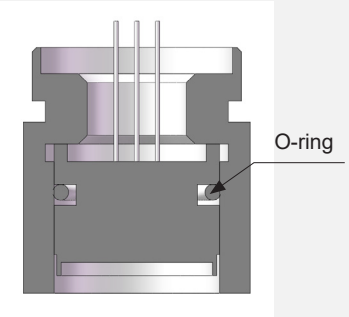
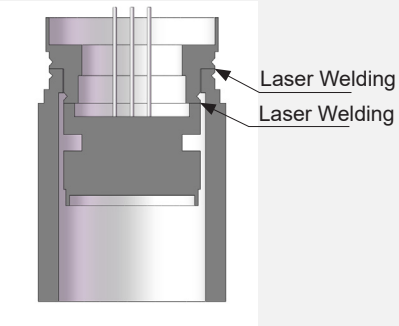


Electrical Connection

Color	2-wire	4-wire
Red	+V	+V
White	null	RS485B
Black	OV/+OUT	-V
Yellow/Green	null	RS485A
Blue	null	Earth

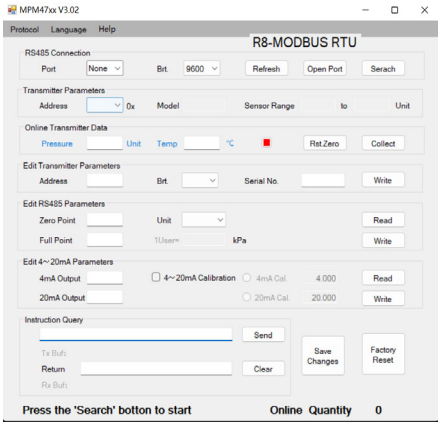
Note: Non-explosion-proof products are not earthed, explosion-proof products must be earthed

Sensor Sealing

O-ring (O-ring material: fluoroelastomer/EPDM)	Welding
	

Software

RS485 transmitter software
47xx software
Through 485 transfer module, basic information about RS485 interface transmitter can be read including address, pressure, temperature.
Note: 47xx software can be downloaded from our company website www.microsensorcorp.com



Materials

Isolated Diaphragm: SS 316L/Tantalum
Housing: SS 304/SS 316L
Cable: PE/PUR/PVC

Ordering Guide

MPM4700	Intelligent Level Transmitter							
	Range	measurement range 0mH_2O ~ 1mH_2O…200mH_2O						
	[0 ~ XmH_2O]L	X: actual measured range, L: cable length, recommended cable length L=X+(1~2)m						
		Code	Output Signal					
		E	4mA~20mA DC					
		R4	RS485 communication interface, customized ASCII protocol					
		R8	RS485 communication interface, MODBUS_RTU protocol					
		H	HART® protocol (for non-explosion-proof type)					
			Code	Material				
				Isolated Diaphragm	Housing			
			22	SS 316L	SS 304			
			24	SS 316L	SS 316L			
			25	Tantalum	SS 304			
				Code	Junction Box			
				null	no junction box			
				Yb	Aluminum junction box without display			
				Yc	MS200 waterproof junction box			
				Yd	PD140 lightening-proof junction box			
				Ye	junction box (with or without display)			
					Code	Display Indicator ① (with Ye junction box only)		
					null	no display indicator		
					M1	0%~100% linear indicator		
					M6	4 digits LED digital indicator		
					M7	4 digits LCD digital indicator		
						Code	Certification Requirement ②	
						null	no certification requirement	
						i	intrinsic safety Ex ia IIC T6 Ga	
						T	ship-use	
							Code	Process Connection
							null	no special process connection
							C1	M20×1.5 male, end face seal
							C3	G1/2 male
							C5	M20×1.5 male, waterline seal
							F1	fixed flange
MPM4700	[0 ~ 5mH_2O]6	E	22	Ye	M6	i	F1	Complete Type Specification

Ordering Notes

1. " ① ", digital display is available for Ye junction box , but can only used along with non-explosion-proof or non-marine products support 4mA~20mA signal.
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. When ordering the transmitter with M6 or M7 indicator, power supply should ≥20V DC.
4. Environmental temperature should be -20℃ ~ 70℃ when ordering the transmitter with M6 indicator, environmental temperature should be -10℃ ~ 60℃ when ordering the transmitter with M7 indicator, indicator setting can refer to our indicator lectotype, which can be found on our company's website.
5. Cable material is available for 3 types: PE cable is provided as default; if other material is needed, please specify in the order.
6. The protection rating of junction boxes are IP65.
7. The measured media should be compatible with the wetted material and the measured media density except water needs to be specified on contract.
8. If the product is installed in a thunderstorm area, a lightning protection device is required and be sure that the product and the power are reliably earthed, which can efficiently prevent the level sensor from lightning damage.
9. If metrology verification certificate is needed or there are other requirements, please contact us and specify it in the order.