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## Интеллектуальный датчик уровня MPM4700. Технические характеристики.

### Introduction

MPM4700 level transmitter is the full stainless steel construction and full-sealed submersible intelligent level transmitter with high accuracy. It uses highly reliable and stable pressure sensor, intelligent processing circuit, precise digital temperature compensation and linearity correction technics for production. The water-proof cable connects with housing sealed, with vented tube putting in, the transmitter could be used in the water or liquid in a long time. Integrated construction and standard output signal could provide easy operation and good automatic control. With 2-wire working, compact size, light weight and easy installation and operation, it is widely used for industry field instead of normal 2-wire 4mA~20mA DC analog output transmitter.

### Specification





## Features

- 4mA~20mA DC 2-wire current output;
- Digital temperature compensation and linearity correction;
- RS485 communication interface(Custom protocol) or HART®communication protocol(optional);
- Netting application;
- Full stainless steel construction, compact size, light weight;
- Special requirement available;
- RoHS Certificate;
- Intrinsic safe ex-proof version conforming to GB3836.4 Exia II BT6 Ga Regulation; Ex-proof Certificate is issued;
- Marine type products accord with CCS classification of sea-going steel ships of the rules "(2006) the requirements, has obtained the type approval.

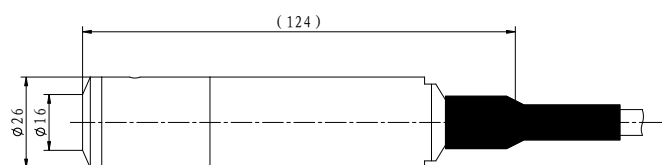
|                                  |     |    |    |    |    |     |     |     |
|----------------------------------|-----|----|----|----|----|-----|-----|-----|
| Basic range (mH <sub>2</sub> O)  | 3.5 | 7  | 10 | 20 | 35 | 70  | 100 | 200 |
| Overpressure (mH <sub>2</sub> O) | 5   | 10 | 15 | 30 | 50 | 100 | 150 | 300 |

### Notes:

- 1.The min.shrunked available range is 1/5 of basic range;
- 2.For the other pressure range between min.range and max.range, but not indicated on the above table, we enlarge the above basic pressure range to produce (overpressure unavailable).

|                                                                                                                  |                                                                                |
|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Total accuracy <sup>①③</sup>                                                                                     | ±0.075%FS(min.); ±0.1%FS(typ.); ±0.25%FS(max.)                                 |
| Stability                                                                                                        | ±0.2%FS/year                                                                   |
| Compensation temp. <sup>②</sup>                                                                                  | -10°C ~70°C                                                                    |
| Operation temp.                                                                                                  | -10°C ~70°C ; -20°C ~60°C (Intrinsic safe)                                     |
| Storage temp.                                                                                                    | -20°C ~85°C                                                                    |
| Power supply                                                                                                     | 10V~28V DC(RS485); 12V~30V DC(HART®)                                           |
|                                                                                                                  | 10V~12V DC(The Ann model, the security gate power supply)                      |
| Output                                                                                                           | 4mA~20mA DC                                                                    |
|                                                                                                                  | RS485 communication interface(Custom protocol) or HART® communication protocol |
| Load                                                                                                             | 4mA~20mA DC output, (U-12V) /0.02A (Ω)                                         |
|                                                                                                                  | RS485 bus line could connect with 99 transmitter                               |
| Insulation                                                                                                       | 100MΩ/50V                                                                      |
| Shock                                                                                                            | 20g, 20Hz~5000Hz                                                               |
| Impact                                                                                                           | 20g, 11ms                                                                      |
| Protection                                                                                                       | IP68(Transmitter part); IP65(Junction box part)                                |
| Media compatibility                                                                                              | Diaphragm: Stainless steel 316L                                                |
|                                                                                                                  | Housing: Stainless steel 304                                                   |
|                                                                                                                  | O-ring: Viton                                                                  |
| Weight                                                                                                           | ~250g                                                                          |
| ① Total accuracy: including non-linearity, hysteresis, repeatability and thermal error;                          |                                                                                |
| ② For special temperature requirement, please contact with our company;                                          |                                                                                |
| ③ For pressure range 3.5mH <sub>2</sub> O ad 7mH <sub>2</sub> O, after shrinking, the total accuracy is ±0.5%FS. |                                                                                |

## Outline Construction (Unit: mm)

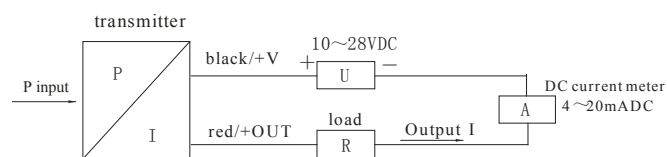


## Electrical Connection

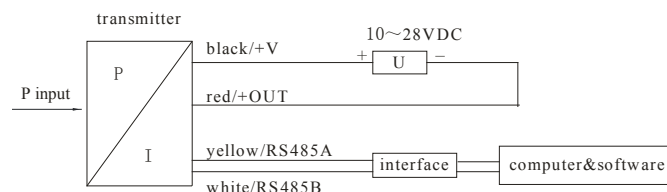
Transmitter connecting the air through plug or cable:

| Wire color                                                                                   | Connection |
|----------------------------------------------------------------------------------------------|------------|
| Black                                                                                        | +V         |
| Red                                                                                          | OUT/GND    |
| Yellow(Green)                                                                                | RS485A     |
| White                                                                                        | RS485B     |
| Blue                                                                                         | $\perp$    |
| <b>Note:</b> conventional products are not grounded,explosio-proof products must be grounde. |            |

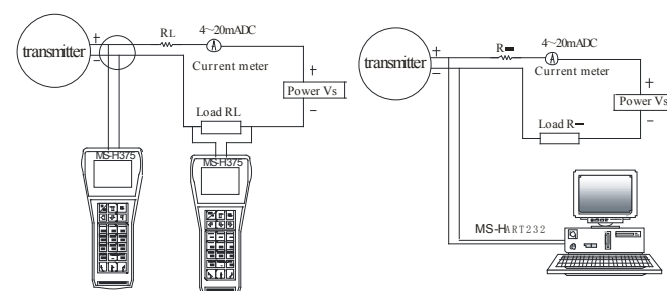
A: Electrical connection for transmitter with 2-wire 4mA~20mA DC output:



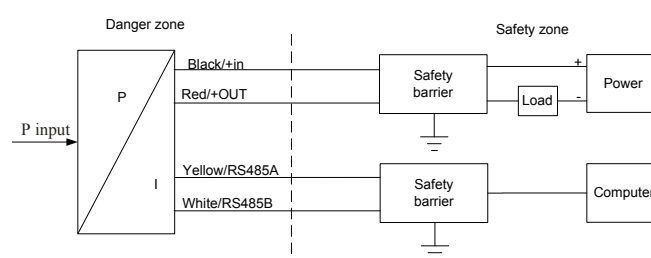
B: Electrical connection for transmitter with RS485 interface:



C: Wiring for HART® transmitter connecting with hand-communicator:



D: This Ann explosion-proof type electrical connection methods are shown below:



ExialIBT6 Ga

Transmitter Ex-proof parameter:

Ui: 12.4V DC Ii:140mA DC

Li: 0mH Ci:1.049μF Pi: 0.43W

ExialIC

Safe barrier's ex-proof parameter:

Uo:12.4V DC

Io:140mA DC Po:0.43W

## Assistant Software

RS485 type:

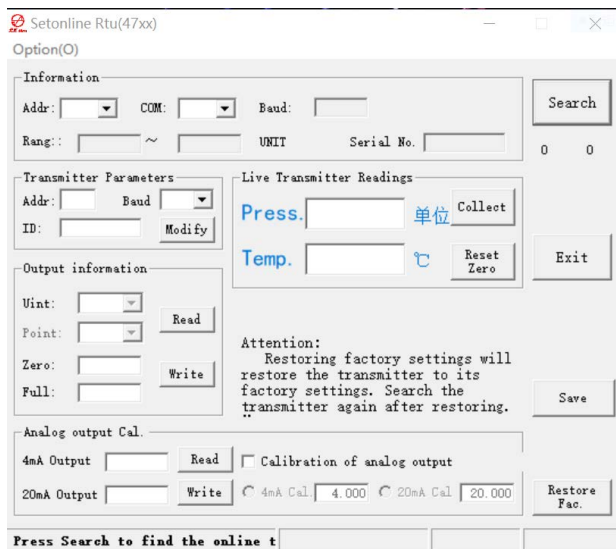
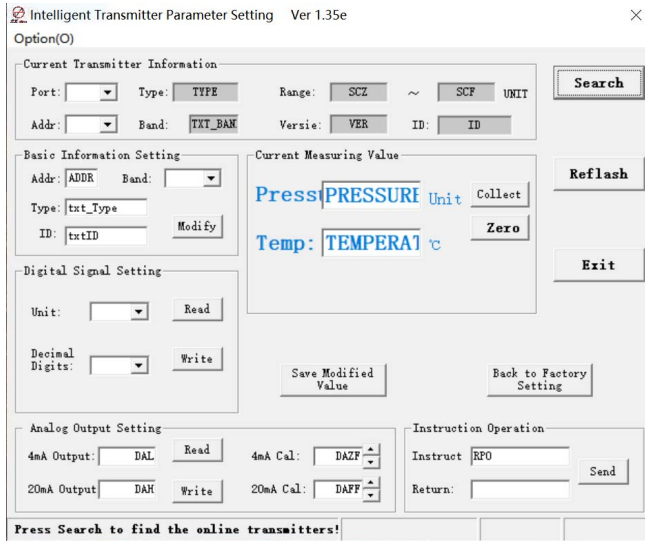
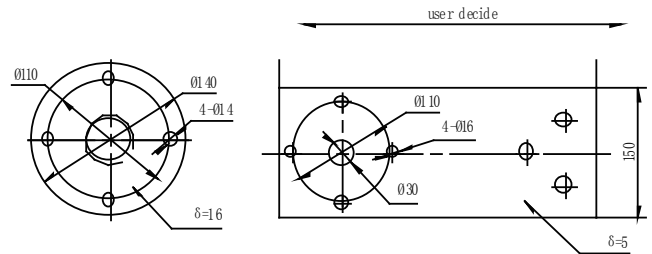
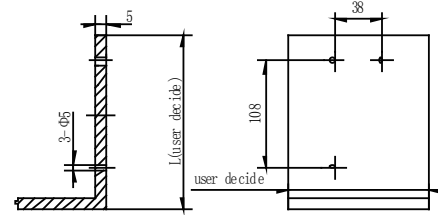
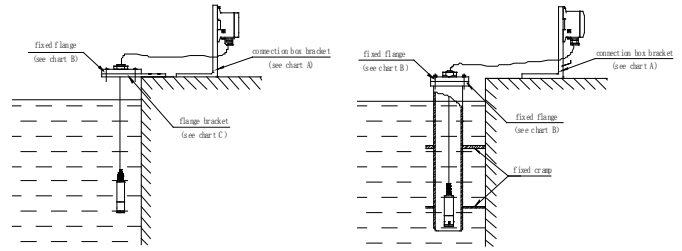
Transmitter software through RS232/RS485 conversion module, is used to communicate with RS485 interface (including level range, compensated temperature range and version), displaying actual pressure, setting new zero, analog output and transmitter address.

“MS Setonline” is used for ASCII protocol product (R4 type), Setonline Rtu is used for Modbus protocol product(R8 type).

Software could be downloaded from our website.  
Users may need to download other necessary tools.

The initial address is random, if the user needs to reset the address, please notify us or reset it after receiving the product.

## Application Example



## Order Guide

| MPM4700 |                           | Intelligent Level Transmitter |    |                                                               |                                                           |                                                 |         |         |
|---------|---------------------------|-------------------------------|----|---------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------|---------|---------|
|         |                           | Range                         |    | Pressure range: 0m~3.5m...200mH <sub>2</sub> O                |                                                           |                                                 |         |         |
|         |                           | [0m~XmH <sub>2</sub> O]L      |    | X=actual pressure range, L=cable length, suggested L-X=(1~2)m |                                                           |                                                 |         |         |
|         |                           |                               |    | Code                                                          | Output signal                                             |                                                 |         |         |
|         |                           |                               |    | E                                                             | 4mA~20mA DC                                               |                                                 |         |         |
|         |                           |                               |    | R <sub>4</sub>                                                | RS485 interface, Customized ASCII protocol by MICROSENSOR |                                                 |         |         |
|         |                           |                               |    | R <sub>8</sub>                                                | RS485 interface, MODBUS_RTU protocol                      |                                                 |         |         |
|         |                           |                               |    | H                                                             | HART® communication protocol                              |                                                 |         |         |
|         |                           |                               |    | Code                                                          | Construction material                                     |                                                 |         |         |
|         |                           |                               |    |                                                               | Diaphragm                                                 | Interface                                       | Housing |         |
|         |                           |                               |    |                                                               | 22                                                        | SS 316L                                         | SS      | SS      |
|         |                           |                               |    |                                                               | 24                                                        | SS 316L                                         | SS 316L | SS 316L |
|         |                           |                               |    |                                                               | Code                                                      | Others                                          |         |         |
|         |                           |                               |    |                                                               | C <sub>1</sub>                                            | M20×1.5 male, face type seal                    |         |         |
|         |                           |                               |    |                                                               | C <sub>5</sub>                                            | M20×1.5 male, waterline seal                    |         |         |
|         |                           |                               |    |                                                               | Y <sub>b</sub>                                            | Aluminum connection box without display         |         |         |
|         |                           |                               |    |                                                               | Y <sub>c</sub>                                            | MS200 water-proof connection box(default)       |         |         |
|         |                           |                               |    |                                                               | Y <sub>d</sub>                                            | PD140 lightening-proof protection device        |         |         |
|         |                           |                               |    |                                                               | Y <sub>e</sub>                                            | Connection box(with display or without display) |         |         |
|         |                           |                               |    |                                                               | F <sub>1</sub>                                            | Fixed flange                                    |         |         |
|         |                           |                               |    |                                                               | i                                                         | Intrinsic safe version Exia II BT6 Ga           |         |         |
|         |                           |                               |    |                                                               | T                                                         | Ship-use                                        |         |         |
| MPM4700 | [0~10mH <sub>2</sub> O]12 | ER <sub>4</sub>               | 22 | Yc                                                            | the whole spec.                                           |                                                 |         |         |

## Notes

1. If the user has no special requirement for cable, we provide default PVC cable;
2. If the user has special requirement, please feel free to contact our company.

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