MPM4736/4706
Manual
V1.0

MICROSENSOR

Thank you for choosing Micro Sensor products. Please read this manual carefully before use.

1   Introduction

MPM4736/4706 transmitter is a highly precise and stable digital transmitter for the pressure/level measurement. This product utilizes the highly reliable piezoresistive OEM pressure sensing element and the high precision digital processing circuit, coupled with a dedicated algorithm, the transmitter is capable of high precision measurement. The product supports the measurement of both pressure and temperature and communicate via an RS485 interface. The transmitter consumes very low power and automatically enters standby mode when not communicating, and the power consumption at standby mode is as low as 10uA.

2   Specification

Measured range: -1bar...0bar~0.1bar...1000bar (MPM4736)

0~3.5...200mH$_2$O(MPM4706)

Over pressure: 1.5 times FS or 1100bar(Min. value is valid)

Pressure accuracy: ±0.25%FS (-10℃~70℃)

Temperature accuracy (ambient temperature): ±0.5℃ (-20℃~80℃)

±0.75℃(-30℃~-20℃)

Power supply: 3.6V~28V DC

Output signal: RS485 interface, MODBUS RTU/ ASC II

Operation temperature: -30℃~80℃(MPM4736 4-pin angular connector

model and MPM4736 7-pin aviation plug model)

-10℃~70℃(MPM4736 cable outlet model and MPM4706)

Storage temperature: -40℃~85℃(MPM4736 4-pin angular connector

model and MPM4736 7-pin aviation plug model)

-20℃~85℃(MPM4736 cable outlet model and MPM4706)

Long-term stability: ±0.25%FS/year

Baud rate: 1200, 2400, 4800, 9600 optional

Load capacity: RS485 terminal can cascade up to 99 transmitters

Insulation resistance: 100MΩ@500V DC

Vibration: 20g, 20Hz~2000Hz

Shock: 20g, 11ms

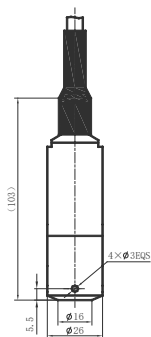Protection rating:

IP65 (MPM4736 4-pin angular connector model)

IP63 (MPM4736 7-pin aviation plug model)

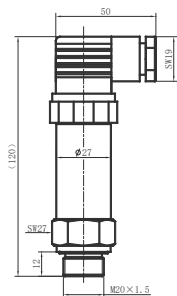IP68 (MPM4706 and MPM4736 cable outlet model)

Cable: Φ7.4mm polyethylene (or polyurethane) vented cable

3   **Outline and Installation** (Unit: mm)

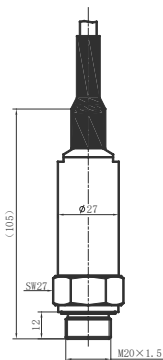See dimension below
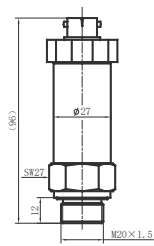

MPM4706

B1 4-pin Angular
Connector Model

B2 Cable outlet
model

B3 7-pin Aviation
plug model

MPM4736

4 Electrical Connection

4.1 Transmitter electrical connection diagram see below Table 1.

Table 1

Connection	Electrical Connection		
	Angular Connector Pin Code	MPM4736 Cable outlet/MPM4706	7-PIN Aviation Plug
+V	1	Red	1
-V	2	Black	2
RS485B	⏚	White	5
RS485A	3	Yellow (Green)	4

4.2 Installation Notes

The gauge pressure type submersible level transmitter includes a plastic vent tube which connects the back-pressure cavity of the gauge sensor to the atmosphere. In the process of installation and operation, care should be taken that the vent tube be well connected with the atmosphere. Always be careful that the vent tube is not jammed, and make sure no water or other liquid flows through the vent tube. Otherwise, failure to protect the vent tube could result in premature failure of the transmitter.

4.3 RS485 Communication Software

The MS Setonline 3.00 communication software can be used to read the basic information (including level range and temperature compensation range, version, etc.) of the transmitter with RS485 interface, display the actual level value, set the new zero point, configure the analog output, and set the instrument address with the assistance of a RS485 conversion module.

Note: The "MS Setonline 3.00" software can be downloaded from Micro Sensor website.
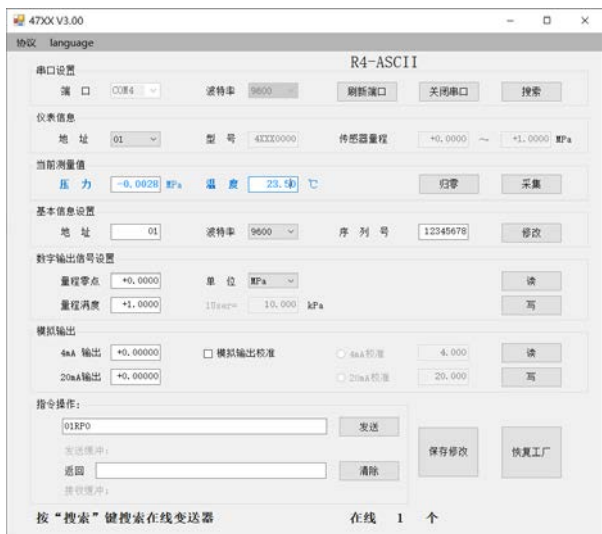
4.3.1 How to use RS485 Communication Software and Precautions

4.3.1.1   Transmitter Parameters Reading Method

a) Connect power to the transmitter correctly in accordance with the Table 1 connection diagram in Section 4.1.

b) Then connect the RS485 communication line with the RS485 communication module as per the diagram of Table 1 in Section 4.1.

c) Following the above 2 steps, connect the RS485 module to the computer, then run the "47XX" communication software, click on the "Refresh", select correct " Serial Port". "The serial port number should be consistent with the port number of the RS485 communication module used in the "Device Manager" of the computer and click on "Protocol" in the upper left corner of the software interface and select " R4-ASCII" or "R8-MODBUS" based on the sensor module.

d) After selecting the correct serial port number, choose the baud rate of the product (the factory default baud rate is "9600"), and click the "Open Serial Port" button, then click the "Search" button. The software will automatically search for the transmitter, and when the transmitter is found, the bottom of the software will prompt the online transmitter number "X online".

e) The real-time pressure and temperature values can be displayed by clicking the "Acquisition" button.

4.3.1.2   How to Modify Transmitter Parameters?

After the "47XX" software reads the product parameters successfully, if users need to modify the product parameters, please refer to the following methods.

a) Zero Adjustment: when there is a slight shift in the zero-pressure output, for example: a Gauge pressure sensor should display "0" pressure in the atmospheric environment, but the actual reading may be greater than or less than "0". The user can click " Zero" button to zero the transmitter, the reading will be changed to "0" after the Zero adjustment.

b) To configure the transmitter address, baud rate and other parameters, change the parameters to be modified to the target values in the "Basic Info" column, and then click the "Modify" button to re-search for the transmitter.

c) No change needs to be made to "Digital Output Signal Set" and "Analog Output Set"

d) "Command " is similar to the function of serial assistant, the RS485 communication function will be implemented directly in string form or in HEX, the software will automatically add Check Start-bit and Stop-bit, and the complete command will be displayed in Send Buffer.

Note: After the parameter's modification is completed, please click the "Save Modification" button to write the modified parameters to the transmitter, otherwise all parameters will return to the state before modification after the transmitter is re-connected to power.

4.3.2 RS485 Communication Failure Self-inspection

a) First be sure the wiring connection is correct.

b) Then ensure that the power supply voltage of the transmitter is within the normal operating voltage range.

c) Before operation, it is recommended to use the "47XX" host computer on the computer to read the parameters of the transmitter to ensure that the product does not have any communication problem, and make sure the address and other parameters of the product are proper as well. If the host computer fails to find the transmitter, please check that the RS485 communication module port is the same as the selected one and confirm that the RS485 module driver is correctly installed. It is suggested to use the USB to RS485 converter directly and not to convert the USB to RS232 then to RS485 converter.

d) When communicating with the transmitter via the commands, if the communication fails, please check, and make sure the product address, function code, CRC check are correct. The commands used by the transmitter can be found in the command set, please strictly follow the instructions in the command set communicate with the transmitter.

5 Unpacking, Shipment Enclosed and Storage

5.1 Unpacking

a) Check the package for shipping damage and be careful it is placed

with right side facing upward.

b) When opening the box, please be careful to protect the housing and
   rubber casing of the transmitter cable from being damaged.

5.2 Shipment Enclosed

The contents of the package include:

MPM4736 Digital Pressure Transmitter	1pc
(or MPM4706 Digital Level Transmitter	1pc)
Special Electrical Connecto2r (for Plug Connection Type)	1pc
Cable (MPM4736 cable type &MPM4706) And Length	By contract
Junction Box (connected to cable)	By contract
Operation Manual	1pc
Certificate of Compliance	1pc
Converter	By contract

5.3 Storage

The transmitters storage temperature range should be within -40℃~85℃
(-20~85 ℃ for MPM4736 Cable connection type and MPM4706), with
the relative humudity level less than 85%, and there is no presence of
corrosive gases.

6 Operation, Maintenance and Responsibility

6.1 Operation

The customer can operate the transmitter without adjustment. Please be

sure that the installation and electrical connection are correct before operation. Connect the (power) excitation and operate. It is recommended that the transmitter output signal be allowed 15 minutes to settle after it has been powered into operation.

6.2 Maintenance

MPM4736/4706 pressure/level transmitter does not require regular maintenance but following these steps can lead to more reliable operation.

a) Check the cable for excessive bends or breaks.

b) Carefully clean the protection cap and diaphragm cavity periodically.

c) Do not pull cables strenuously or poke the diaphragm with metal or other sharp, hard objects.

d) Be careful that the vent tube is not jammed and make sure it is well connected with the atmosphere to protect the transmitter from failure.

6.3 Responsibility

Micro Sensor products are warranted for a period of one year commencing from the date of shipment to the original purchaser. Within the warranty period, the instruments with failures due to defects in material and workmanship will be repaired or replaced without charge; For non-quality failure during user's operation, repair service can be provided, but the material and the double-way transportation cost should be borne by purchasers.

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