MPM/MDM4760

Operation Manual

V2.1

MICROSENSOR

Thank you very much for selecting Micro Sensor's product, please take some time to read this operation manual very carefully before using the product.

1 Introduction

MPM/MDM4760 transmitter is a new-developed digital intelligent transmitter with high accuracy & good stability, and can provide prompt measurement and displaying with the update of measured pressure/differential pressure. The transmitter adopts the latest research results of special wide temperature LCD display and digital technology in sensor manufacture industry, combining with the most advantaged production technologies of piezoresistive pressure/differential pressure transmitters, precise digital temperature compensation and non-linearity modification technology to ensure the high accuracy and good stability of pressure measurement. The transmitter strictly conforms to ISO9000 international quality production system, could be used for the precise measurement of flowing pressure in various industries.

The product measurement tools type approval No. 15F139-61.

2 Specifications

MPM4760 pressure transmitter：

Measure range：-100kPa…0kPa~10kPa…100MPa

Overpressure:1.5 times FS or 110MPa(Min. value is valid)

MDM4760 differential pressure transmitter：

Measure range：0kPa~35kPa…3.5MPa

+overpressure： 2 times FS

-overpressure：FS

Max.static pressure：≤20MPa

Total Accuracy①:±0.25%FS

Stability: ±0.2%FS/YEAR

Compensated Temp.: -10℃~70℃

Working Temp: -30℃~80℃

Storage Temp: -40℃~85℃

Power Supply: 8V~28V DC or Battery supply

Output signal Standard: analog 4mA~20mA DC, 2-wire; digital RS485 interface

Battery Supply: None

Battery supply with RS485 output: digital RS485 interface

RS485 interface: ASCII agreement or MODBUS RTU, BUS with 99 transmitters.

Load Resistance (Ω)：(U-8V) /0.02A U is power voltage（standard）

Display Range：-19999~19999 LCD Display

Insulation: 50V, 100M

Shock: 20g, 20Hz~5000Hz

Impact: 20g, 11ms

Protection: IP65

Weight: ~420g

Housing: stainless steel

Diaphragm: stainless steel 316L

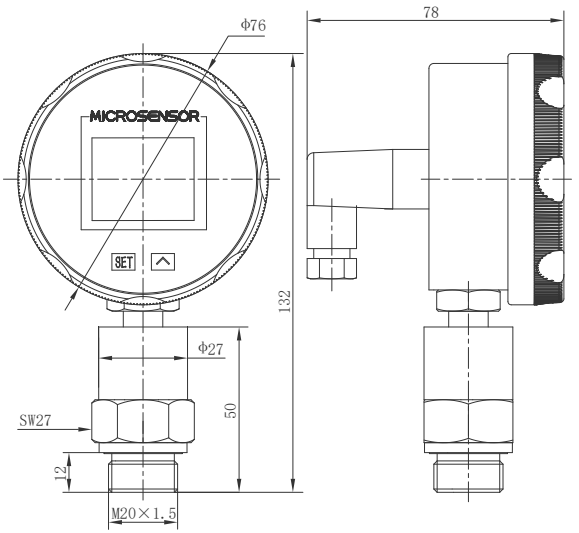
O- Ring: Viton

①: Total accuracy including: Lin.+Hys.+ Rep.+ Zero Temp. Error + Sensitivity Error (be suitable for basic range)

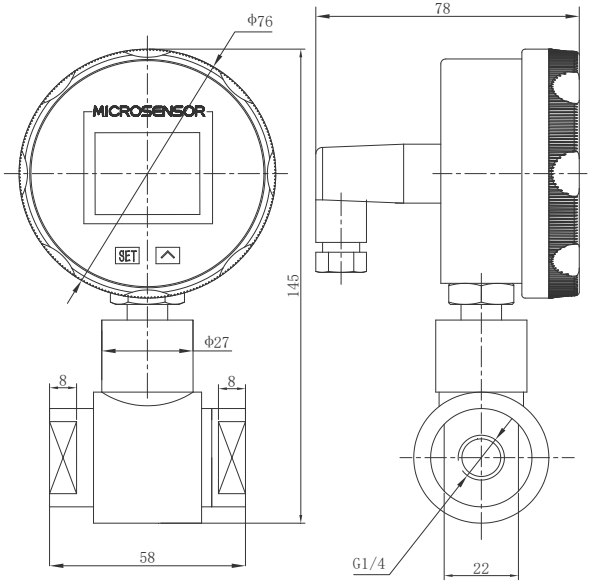
3 Outline Construction and Installation

3.1 Outline construction (Unit: mm)

MPM4760 pressure transmitter:



MDM4760 differential pressure transmitter：



3.2 Installation

3. 2. 1 Notes for installation

a) Measured pressure shall not be beyond the scope of transmitter pressure range;

b) Media should be compatible with the contacting parts of transmitter;

c) Be sure the pressure hole shall not be blocked by media.

3. 2. 2 Installation procedure for Pressure transmitter

The transmitter usually is installed upward and perpendicular to the horizontal direction. If the condition is limited, it is allowed to install the transmitter at most 30 degrees angel with the horizontal direction. a shut-off valve is suggested to mounted between the flange and pipe for easier installation and maintenance. The hexagonal nut at the connection between the housing and the base of the MPM4760 can be used to adjust the face orientation of the meter. H is high pressure interface, L is low pressure interface. Three valves manifold are recommended for differential pressure products to protect the transmitter.

Notes: Pushing or poking the pressure hole with iron wire, steel pin and other hard objects, and pushing diaphragm by hand are forbidden to keep diaphragm from damage or deformation. Note the interface of differential pressure transmitter.

Installation (suggested) as below:

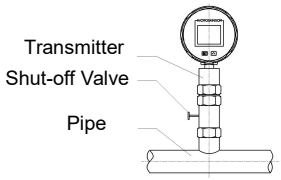
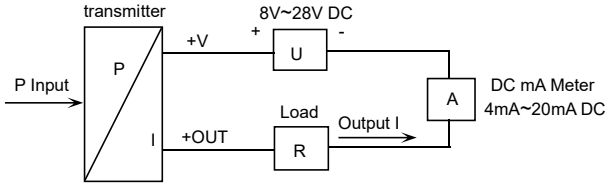


Figure 3.1

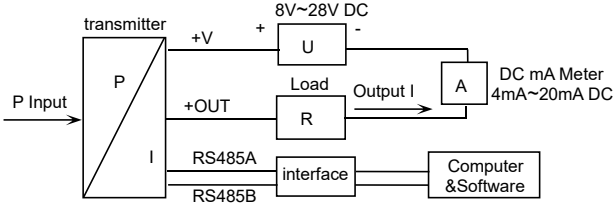
4 Electric Connection

Output Signal	Function	Pins	Cable
4~20mA DC,2-wire	+V	1	Black
	+OUT	2	Red
Communication interface	RS485A	3	Yellow
	RS485B	⏚	White

The electrical connection of transducer with 2-wire，4～20mADC output to see below.

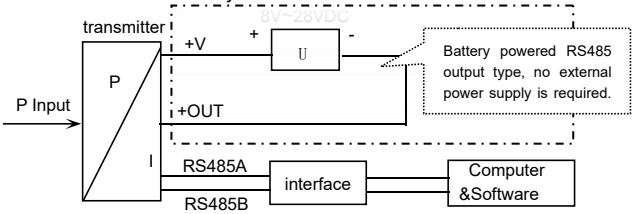


The electrical connection of transducer with 4mA～20mADC output and RS485 to see below.



Note: when 4mA～20Ma DC output and RS485 are used at the same time, signal 485 may interfere 4mA ～ 20mA DC output signal. The influence is related to communication speed and frequency. “Setonline” controlling software could be downloaded from our website.

The electric connection only to RS485 is to see below.



5 Unpacking、Components and Storage

5.1 Unpacking

Attentions:

a) Please be sure that the package is complete, and the package is put as the sign “UP”;

b) Please be sure do not knock at the package violently, and protect the housing jacket and rubber bushing.

5.2 Components

MPM/MDM4760 pressure/differential pressure Transmitter	1pc
Product instruction manual	1pc
Certificate of quality	1pc
Software	due to the order

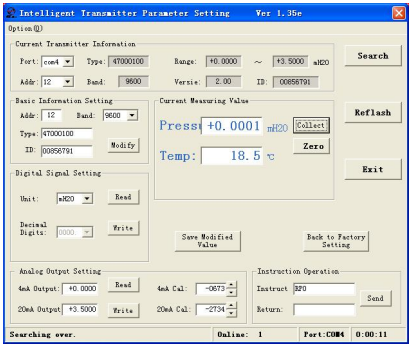
5.3 Storage

The transmitter should be stored in dry & ventilate room with environment temperature -40℃~85℃, relative humility ≤85%, and no corrosive gas.

6 Assistant Software

MS Setonline Software.

Through RS485 conversation module, the user could read inner basic information for RS485 interface transmitter (Includes model number, ID number, range, unit, etc.) and display pressure value, reset operation, set analog output, set meter address, etc.



Note: MS Setonline Software can be downloaded on our website: www.microsensor.cn

7 Parameter Setup and Calibration

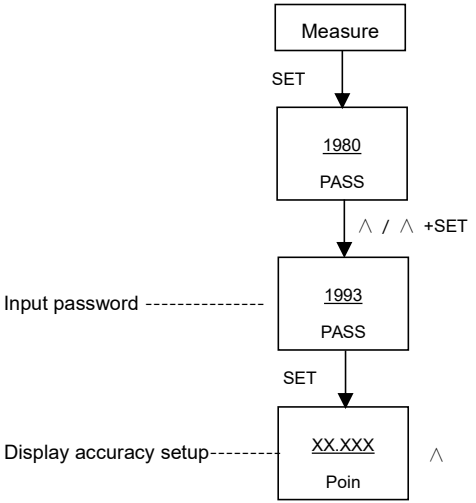
7.1 Display and Press Key Instruction

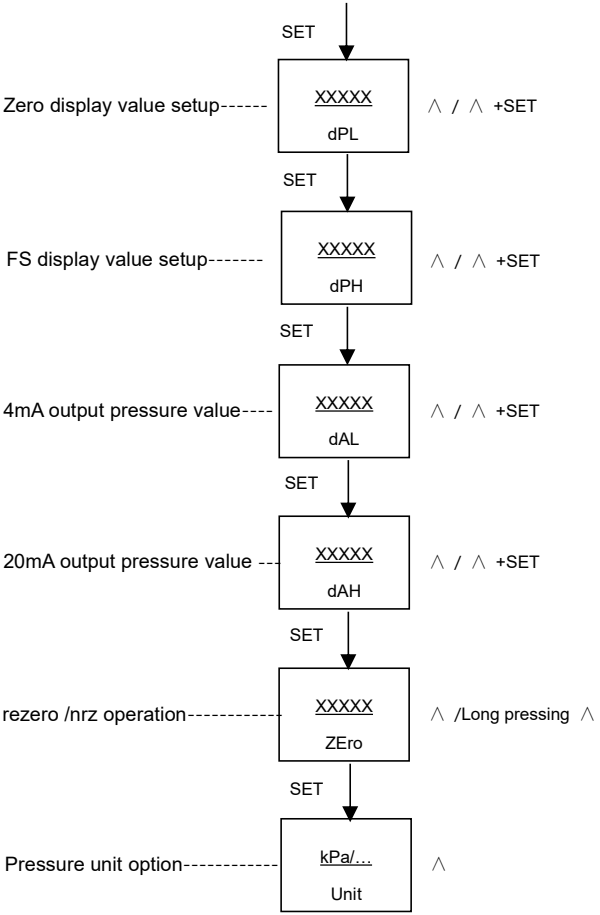
The two keys on the front panel are “SET” and “∧” respectively.“ ∧ ”key is used for parameter modification. “SET” key is used for choosing function parameters and making sure parameter modification.

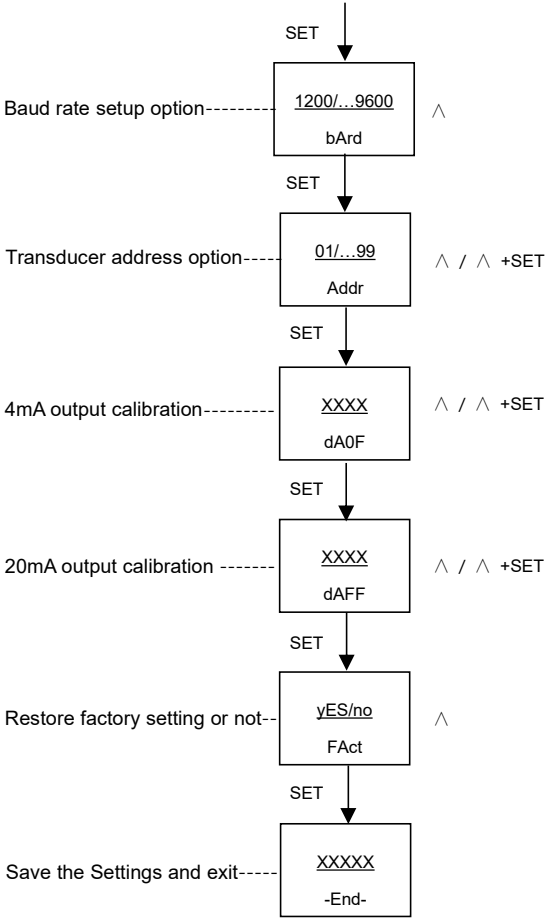
7.2 Basic Parameter Setup

We have calibrated the transmitter according to your requirements when the products are out of factory, you could operate it directly. However, you also could modify or calibrate the parameter in the worksite due to 7.2 and 7.3.

7. 2. 1 Under measurement situation, press “SET” key about 3 seconds, the sub-display screen indicates “PASS” and the main display screen indicates “1980”. Press “∧” and “∧+SET ” to modify the password into “1993”, then press “SET” to confirm. The transmitter indicates the first basic parameter sign. See the following chart:




SET
Zero display value setup------
XXXXX
dPL
∧ / ∧ +SET
SET
FS display value setup-------
XXXXX
dPH
∧ / ∧ +SET
SET
4mA output pressure value----
XXXXX
dAL
∧ / ∧ +SET
SET
20mA output pressure value ---
XXXXX
dAH
∧ / ∧ +SET
SET
rezero /nrz operation----------
XXXXX
ZEro
∧ /Long pressing ∧
SET
Pressure unit option----------
kPa/…
Unit
∧


SET
Baud rate setup option---------
1200/…9600
bArd
∧
SET
Transducer address option-----
01/…99
Addr
∧ / ∧ +SET
SET
4mA output calibration---------
XXXX
dA0F
∧ / ∧ +SET
SET
20mA output calibration -------
XXXX
dAFF
∧ / ∧ +SET
SET
Restore factory setting or not--
yES/no
FAct
∧
SET
Save the Settings and exit-----
XXXXX
-End-

7. 2. 2 Under parameter modification situation, press “∧”and“∧+SET” to modify the current parameter value, then press “SET” to make sure. The transmitter indicates the next parameter note sign automatically;

7. 2. 3 Repeat steps (1) and (2) to modify other parameters, then the transmitter returns to measurement situation automatically;

7. 2. 4 Under basic parameter setup situation, if no any other key to be pressed in thirty seconds, the transmitter will return to measurement situation automatically;

7. 2. 5 If the user choose Restore Factory Setting, the transmitter will restore to the basic parameter setting when out of factory;

7. 2. 6 The number of menus varies depending on the product type.

Note: when you calibrate the parameters of standard 4mA output and 20mA output, it is needed to connect DC mA meter in series to monitor the loop current and calibrate 4mA and 20mA output current exactly.

7.3 Operation Instruction

When the transmitter is powered, it indicated the transmitter type and software version No., then enters to measurement situation, the main display screen indicates the current pressure value. The vice- display screen could indicate max. value, min. value, percentage, output current , temperature and pressure unit.

a) Under measurement situation, short pressing “∧”key （no more than 2 seconds）, the vice display indicates max. value, min. value, percentage, output current, temperature and pressure unit.

b) Under measurement situation, long pressing“∧”key （more than 2 seconds）, the transmitter will clear the vice display’s record of max. value and min. value, and restart to record the peak value.

c) For battery supplied type:

d) The backlight is turned on after any key operation， No key operation for 30 seconds, the transmitter will turn off the backlight.

8 Operation、Maintenance and Responsibility

8.1 Operation

The user could operate the transmitter without any adjustment.

Please check the installation and make sure the correct electric connection before operation. Then connect the power and operate.

8.2 Maintenance

Transmitter does not need regular maintenance. However, please pay attention to the following items for better operation.

a) Please check the cable connection often and make sure the cable connection reliably and no aging.

b) Please clean the steel cap and diaphragm cavity according to the measuring media. (take care!)

c) Please do not pull the cable violently or press the diaphragm with sharp or hard metal, etc.

d) Please dispose the waste batteries properly to avoid polluting the environment.

8.3 Failure identification

If the transmitter is failure, such as no output or output unstable, ect. Please shut the power first, then check if the installation and cable connection conform to manual, power voltage is correct or not, vented tube is unobstructed or not and the system works well or not. If something is abnormal, please try to get rid of the failure. If the failure can not be dealt with, please contact with our company promptly.

8.4 Responsibility

Within one year from the delivery date, we shall repair or replace the instrument with any quality fault caused by material parts or our manufacturing technique free of charge. For non-quality malfunction during user's operation, we are in charge of repair. The material cost and the shuttle transportation fees should be borne by users.

www.microsensor.cn

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