

MPM489WZ3

Operation Manual



MICROSENSOR



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Our company reserves the modification right for this operation manual due to renovation of production technology and craftwork. If some information is changed, no more notice will be edited.

Please pay attention to the latest version.

Our company also reserves the right of final explanation for this manual.

Version: V1.0

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

MPM489WZ3 Submersible Level Transmitter is a full-sealed submersible piezoresistive level measurement instrument with compact size. A high stable and reliable piezoresistive OEM pressure sensing element is mounted with a special PCB of the transmitter in a stainless steel housing. The integration construction and the standard output signal support worksite operation and automatic controlling facilities. The special cable is connected tightly with the housing and the vent tube is in the cable. And the cable could be put into the liquid compatible with construction material of the transmitter for a long term use.

MPM489WZ3 Submersible Level Transmitter has advantages of compact size, light weight and long-term stability without need of adjustment; it can be applied for liquid measurement and control in fields of petroleum, chemi-industry, medicine, metallurgy, power station, mine, city water supply, drainage and hydrology survey, etc.

The protection class of MPM489WZ3 Submersible Level Transmitter is IP68.

To be convenient for worksite local installation and observation, the connection box and indicator could be assembled according to customers' option.

2 Specifications

Pressure Range: 0mH₂O ~ 1mH₂O...7mH₂O

Overpressure: ≤2 times FS

Accuracy: ±1%FS

Stability: ±0.5% FS/ year

Compensated Temp.: 0°C~50°C

Operation temp.: -20°C~70°C

Storage Temp.: -20°C~85°C

Power Supply: 11V~28V DC

Transmitting: 2-wire

3-wire

Output Signal: 4mA~20mA DC

0.5V~4.5V DC

Load (Ω): ≤ (U-11)/0.02 (Ω)

>100k

Protection Rating: IP68

3 Outline Construction and Installation

3.1 Construction Material Transmitter

Housing: Stainless steel 304

Cap: Nylon

O- ring: Viton

Rubber casing: Chloroprene Rubber

Cable: Φ7.5mm PUR cable with vent tube

Diaphragm: SS 316L

Connection Box: Cast aluminium (ZL102)/ PBT

3.2 Outline Construction

The outline dimension is showed as Figure 1:

Unit:mm

Cable length: Customized and the longest is 100m.

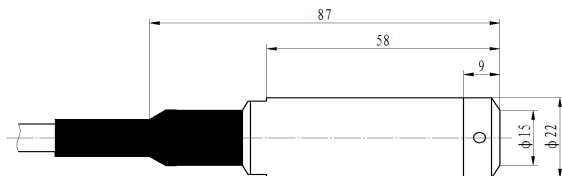
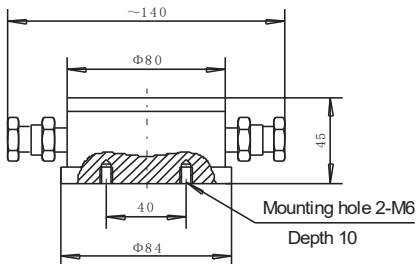


Figure 1

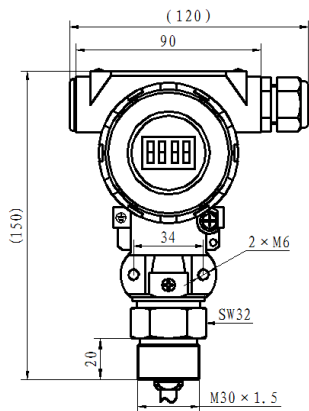
3.3 Outline Construction of connection box (Only for the transmitter of 2-wire, 4mA~20mADC output)(seeing Figure 2)

Connection box: Please note it in the order when a connection box is needed.

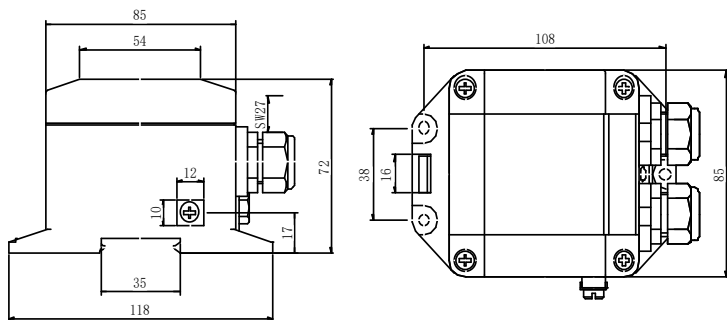
Indicator: Connection box Ye, we could provide the indicator based on users' requirement.



Connection box Yb



Connection box Ye



Connection box Yc

Figure2

3.4 Installation

3.4.1 Check before Installation

Attention before transmitter installation:

- a) The static pressure produced by the liquid at installation place exceeds the transmitter FS or not.
- b) The measuring liquid is compatible with the transmitter construction material or not.
- c) The measuring liquid may jam the holes on the protection cap or not.

3.4.2 Installation Methods

The transmitter should be installed vertically down.

In the flowing water, the acted surface should be parallel with the water flowing direction.

3.4.2.1 Installation in the Static Water

The installation method in the static water see chart 3.

To prevent shaking or destroying the transmitter when pumping, the transmitter should be put away from the liquid resource. Otherwise it should be installed as chart 4, protected by steel tube.

The installation method in the deep well see chart 4.

Steel tube inserted method is usually used. The steel tube cannot be bent; the inner diameter of steel tube must be more than 30mm. Several holes should be made at different heights on the tube so as to easily raising and make water flow smoothly. If necessary, wrap steel wire around transmitter to prevent breaking the cable by lifting with the steel

wire.

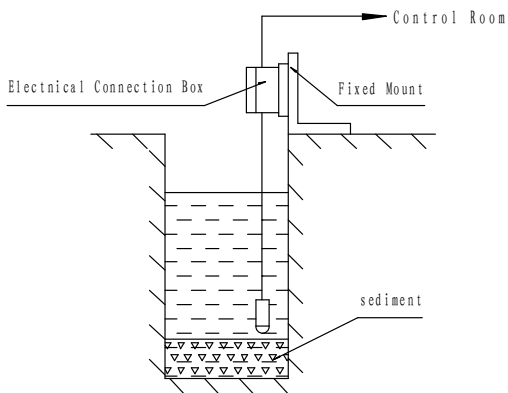


Chart 3

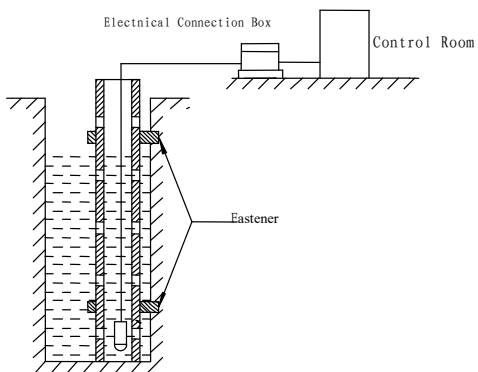


Chart 4

3.4.2.2 Installation in Flowing Water (e.g. river channel, reservoir area, etc.)

The water-calming equipment are required.

Method one: Insert a steel tube in the water channel (see chart 5).

The steel tube wall should be thicker, and several holes should be made at different heights on the tube to damp waves and clear the water pressure influence.

Method two: Superficial burying is better in the sand and stone channel (see chart 6).

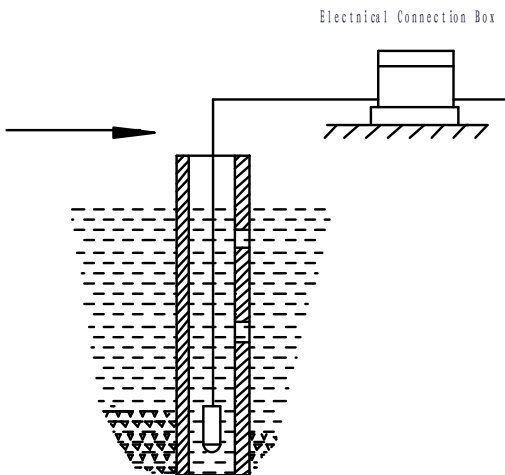


Chart 5

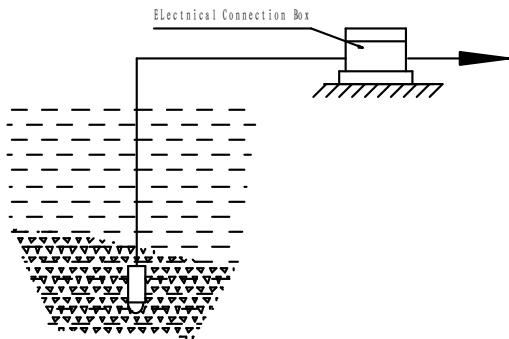


Chart 6

Method three: see chart 7.

This method can not only clear water flowing pressure and wave influence, but also filter the sand and mud.

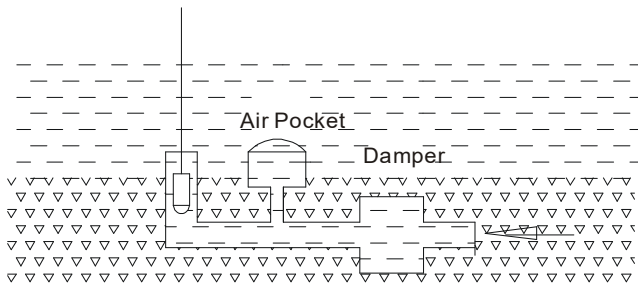


Chart 7

4 Electric Connection

Cable connection:

Current output:

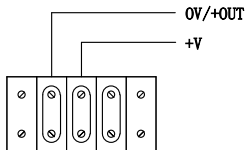
Wire Color	Definition
Red	+V
Black	0V/+OUT

Voltage output:

Wire Color	Definition
Red	+V
Black	GND
White	+OUT
Blue(Only with temperature type)	TEMP(+)
Brown(Only with temperature type)	TEMP(-)
Green(Only with temperature type)	DRAIN

The electronic connection method of transmitter with connection box:

There is a terminal connection board in transmitter connection box, and the terminal definitions are indicated below.



The Reference Tube Installation

- a) There is a plastic tube in the transmitter special cable; the back pressure cavity of gauge sensor is connected to atmosphere by this tube. In the process of installation and operation, be sure to keep the reference tube be well connected with the atmosphere. Mud or sand should not be jammed into the reference tube. Prevent water or other liquid going through the reference tube to destroy the transmitter.
- b) If the product is installed in “lightning and thunder” area, please note “lightning-proof” in the order. We suggest to install a Lightning-proof Protection Device to protect transmitter.

5 Unpacking、Components and Storage

5.1 Unpacking

Attention:

- a) Check the package completed or not firstly, and the box should be put as the sign “up”.
- b) Avoid knocking violently when opening, and prevent injuring instruments or accessory. Please be carefully to prevent the housing and rubber casing of transmitter cable from damage.

5.2 Enclosed

When out-factory, the transmitter includes:

MPM489WZ3 Submersible Level Transmitter	1
PUR Special Cable(connected with transmitter)	the ordered length
Connection Box (connected with cable)	due to the order
Indicator (in connection box Ye)	due to the order
Product Operation Manual	1
Product Quality Certificate	1

5.3 Storage

The transmitter should be stored in dry and ventilative room with ambient temperature $-20^{\circ}\text{C}\sim 85^{\circ}\text{C}$, relative humidity no more than 85% and the air in the room without corrosive gas.

6 Operation、Maintenance and Fault Diagnosis

6.1 Operation

- The customer could operate the transmitter without adjustment.
- Please be sure that the installation and electrical connection are correct or not before operation.
- Connect the excitation and operate.
- The transmitter could work at once as soon as it is connected with excitation, but the output signal could be more reliable after 30 minutes.

6.2 Maintenance

MPM489WZ3 Submersible Level Transmitter does not need to be maintained regularly, but please pay attention to items as follow for better operating effect and reliability.

- a) Check wire connection is reliable or not, and the cable is broken and old or not.
- b) Clean the protection cap and diaphragm cavity periodically(take care!)
- c) Don't violently pull cables or poke the diaphragm with metal or other hard objects.

6.3 Fault Diagnosis

MPM489WZ3 Submersible Level Transmitter is integrative full-sealed construction without movable parts inside, owning advantage of long-term stability and reliability.

If some failure occur, such as no output, output too big or too small and unreliable, please turn off the excitation firstly, then check the installation and wire connection conform with the operation manual or not, the excitation is correct or not and the reference tube is unobstructed or not.

If unsuccessful, the transmitter may be destroyed, please contact our company.

7 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.

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