MDM4901FL

Operation Manual

MICROSENSOR

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

Thanks for your using products from MICROSENSOR. MDM4901FL piezo-resistive differential pressure transmitter is one of precise instruments. We suggest you to read this manual carefully before use.

1 Introduction

MDM4901FL piezo-resistive differential pressure transmitter is a differential pressure measurement device with compact size. The transmitter using a differential pressure sensor and special amplified circuit, through stability and reliability experiments, can provide standard 2-wire 4mA～20mADC and 3-wire 0/1V～5VDC 、0mA～10mA/20mADC signal output by external power supply 24VDC, as well zero and span compensation in the wide temperature range.The parts being contacted with the medium are the stainless steel and EPDM. The differential pressure transmitter can be used in vary industry processing control and differential pressure, flow and level measurement, etc.

2 Specifications

Pressure Range: 0 mbar ~ 350mbar…35bar

Overpressure: positive pressure:≤ 2 times FS

negative pressure is not allowed

Maximum Static Pressure: ≤200bar

Pressure Type: differential pressure

Accuracy: ≤±0. 5%FS (Static pressure effect: ±0.05%FS/1bar)

Long-term Stability: ±0.5%FS/year (≤2bar)

±0.2%FS/year (>2bar)

Power Supply: 15V~28VDC

Output: 2-wire 4mA~20mADC

3-wire 0/1V~5/10VDC，0mA~10/20mADC

Operation Temperature: -30℃~80℃（4-pin Plug、M12×1 Plug）

-20℃~70℃（cable material: PE, PVC）

-20℃~80℃ (cable material: PUR)

Storage Temperature:-40℃~120℃ -20℃～85℃（Cable）

Response: ≤1ms

Insulation: 100MΩ， 50VDC

Housing Protection: IP65

3 Outline Construction and Installation

Unit:mm

3.1 Construction and Mounting Dimension

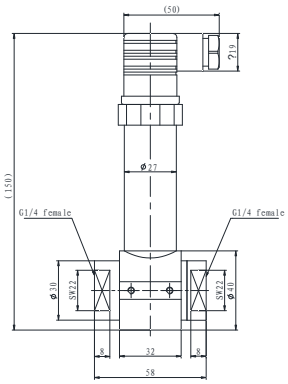

Fig.1

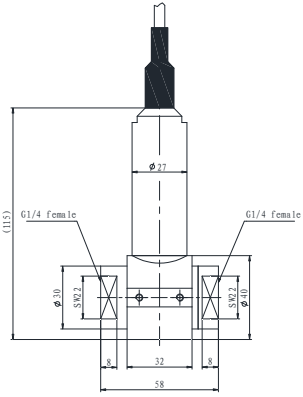

Fig.2

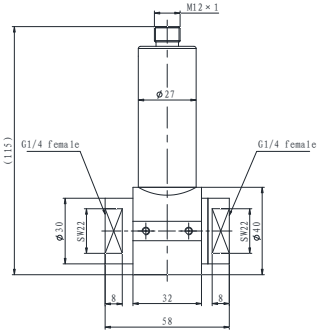

Fig.3

3.2 Installation

3.2.1 Attentions before installation:

a) The operating pressure of measuring medium is no more than the static pressure of transmitter;

b) The differential pressure of measuring medium in the worksite is no more than the maximum pressure.

c) For positive and negative pressure balance and convenient repair, we recommend to use tri-valve （such as J23SA）to connect with the leading tube, to prevent one-side overpressure destroying the transmitter. Or the customer can buy the leading tube and tri-valve from our factory. Tri-valve operation method can see appendix “Tri-valve Operation Menu”.

3.2.2 Installation Method

a) The recommended method is to see Fig. 4.

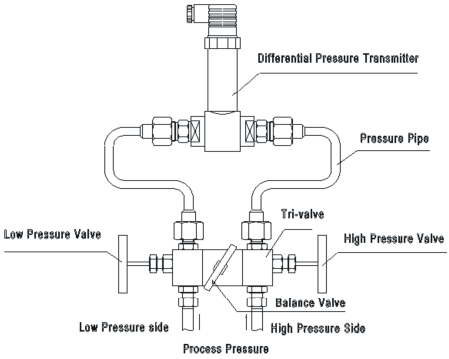

Fig. 4

b) Installation notes:

1) To prevent the installation position from affecting zero output signal, the transmitter can be installed horizontally on the tube and the plug could be installed vertically up.

2) Pay attention to whether the measured medium is consistent with the transmitter structure material.

3) Pay attention to the measuring medium is compatible with the construction material or not.Notice the positive(“＋”) and negative (“－”) mark on the pressure ports while connecting the actual pressure direction corrrectly.

4) The transmitter should be installed in the low temperature gradient and low temperature fluctuation place, to prevent vibration and shock.

5) The protection of transmitter is IP65。

6) Prevent leak, friction and temperature difference error, to prevent dregs settling on the tube affecting the diaphragm.

7) The transmitter has been calibrated when out of the factory, the customer can operate the transmitter without calibration, but checking the installation and electrical connection correct or not is necessary. The transmitter can work when excitation is connected, but the signal output is more reliable after 30 minutes.

8) Ban to pulling the cable violently, and to prevent the diaphragm damaging don't poke the diaphragm with metal still objects.

MDM4901FL piezo-resistive differential pressure transmitter allows the customers to adjust the zero and Span output signals while you own a standard pressure controller. While adjusting, for the transmitter with plug connection, remove the socket on the top of housing (take care not to break the cable), then trim "Zero" and "Span" buttons to adjust. For the transmitter with cable connection, you need to use a wrench slightly screw the cap and you will find the Zero and Span calibrators on the top of housing. Restore them when finish.

If the transmitter is fail to work, the customer should contact with factory checking the reasons, and return to factory for repair.

Caution：do not poke the pressure-leading hole with metal wire or something hard; and do not pres

4 Electric Connection

4.1 The transmitter is connected with the outside circuit

through plug or special cable.

The pin arrangements of socket are to see Fig.5, and pin definitions are as follows：

Table 1

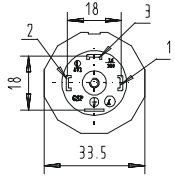

Fig.5

Pin	2-wire	3-wire
1	+V	+V
2	OV/+OUT	GND
3	Null	+OUT

The electric definitions of cable are as follow：

Table 2

Cable	2-wire	3-wire
Red	+V	+V
Black	OV/+OUT	GND
White	Null	+OUT

The electric definitions of M12x1 Plug are as follow

Table 3

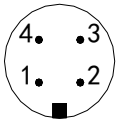

Fig. 6

Pin	2-wire	3-wire
1	+V	+V
2	Null	GND
3	OV/+OUT	+OUT

4.2 Electrical connection method is indicated as follow

4.2.1 4mA~20mADC(2-wire)

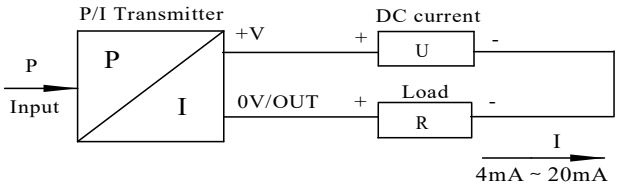

Fig. 7

4.2.2 0/1V~5VDC(3-wire)

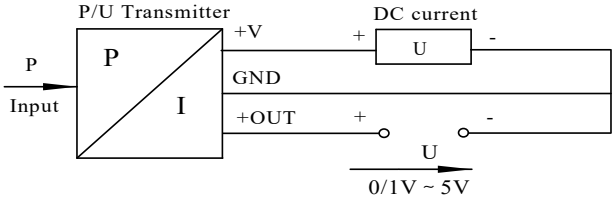

Fig. 8

4.3 Plug connection Operation Method：

a) If the plug has been connected with transmitter, loose the central bolt on the top of plug with little screwdriver and pull out the plug from transmitter.

（caution：do not take out the socket on the transmitter to protect it）

b) To disconnect the plug, please take out the central bolt on the

top of plug, then turn the plug to the bottom and insert a little flat screwdriver into a corner signed “Lift” and give a force. The plug core will be disconnected with housing.

c) To connect the cable, put the cable through the cable jack and connect the wires with terminals on the plug core correctly (the connection terminals are signed with clear numbers). Please choose Φ4.5mm~7mm shield cable and connect the cable reliably to prevent short circuit.

d) Pull the cable slightly and push the plug core into housing (a rattling sound could be listened), then screw down the cable-fixed nut.

e) To remove the cable, loose the cable-fixed nut to relax the cable, and operate as Item2 to disconnect the plug. Take out the cable from terminals with little screwdriver and pull out the cable from cable-fixed nut, then renew the connection between plug core, plug and socket.

Caution: renew the rectangle-ring to the pre-mounting situation in order tomaintain the protection class when connect plug and socket.

5 Unpacking、Components and Storage

5.1 Unpacking

a) Be sure the package is completed, and the package should be put as the sign “UP”.

b) Be sure unpacking carefully, and prevent damaging instruments or accessories. Pay attention to the housing jacket and rubber bushing of transmitter cable.

5.2 Enclosed

The transmitter should be enclosed when out of factory：

When out-factory, the transmitter should include:

MDM4901FL piezo-resistive differential pressure transmitter	1pc
Electrical connection plug (insert supplied)	1pc
Cable (cable supplied)	1.5 meter or based on order
Product operation menu	1pc
Product certificate of quality	1pc
Quality following card	1pc

5.3 Storage

The transmitter should be stored in dry ventilate room, ambient temperature -40℃~120℃ -20℃～85℃（Cable） and the relative humidity≤85%, no corrosive substance in the room.

6 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. But the material cost and the shuttle transportation fees should be borne by users.

www.microsensorcorp.com

MICRO SENSOR CO.,LTD.

ADD:No. 18 Ying Da Road, Baoji City, Shaanxi Province
Tel: +86-(0)917-3600739/909　400 860 0606
Fax:0917-3600755
E-mail:sales@microsensor.cn