

MDM490 Differential Pressure Transmitter



Features

- Full stainless steel construction, compact size, easy installation;
- Laser welding, full-sealed construction; protection IP65;
- Using piezoresistive differential pressure sensor, 316L isolated diaphragm;
- Temperature compensation and aging, stable performance;
- Zero and span adjustable outside;
- Ex-proof version MDM490 conforms to GB3836.4 Exia II CT6 Ga standard; ex-proof certificate is approved;
- Ship-use product conforms to CCS Rules of Classification of Sea-going Steel Ships(2018); ship-use certificate is approved;
- CE and RoHS certificates.

Introduction

MDM490 uses piezoresistive differential pressure sensor as sensing element. Silicon oil is filled in between die and two diaphragms, when measured differential pressure is added on two diaphragm, the pressure could be transferred onto die through silicon oil. Sensor die connects with amplifier circuit through wires, using semi-conductor's piezoresistive effect, transforming differential pressure signal into electric signal. The whole product is used for differential pressure measurement of petroleum, chemical industry, power station and hydrology, etc.

Electric Performance

- Power supply: 2-wire 15V~28V DC; 3-wire 15V~28V DC
- Output signal: 2-wire 4mA~20mA DC; 3-wire 0/1V~5V DC, 0mA~10/20mA DC
- Electrical connection: plug connection or $\Phi 7.2$ mm 7-pin cable
- Response time(10%~90%): ≤ 1 ms
- Insulation resistor: 100M Ω ,500V DC

Construction Performance

- Housing: stainless steel 304
- Diaphragm: stainless steel 316L
- O-ring: Viton
- Filled liquid: silicon oil

Environment Condition

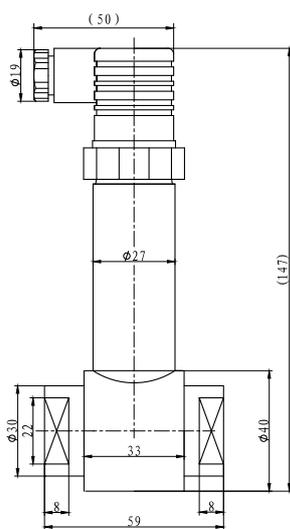
- Shock effect: $\leq 1\%$ at 3gRMS, 30Hz~2000Hz
- Impact: $\leq 1\%$ at 100g, 10ms
- Media: liquid or gas which is compatible with construction material

Specification

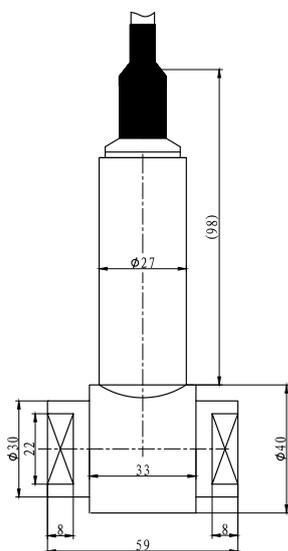
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|---------------------|----------------------|-------|-----|-----|-------|-----|------|------|------|
| Range code | 0A | 02 | 03 | 07 | 08 | 09 | 10 | 12 | 13 |
| Unit | bar | | | | | | | | |
| Measure range | 0~0.35 | 0~0.7 | 0~1 | 0~2 | 0~3.5 | 0~7 | 0~10 | 0~20 | 0~35 |
| +overpressure | 0.7 | 1.5 | 2 | 4 | 7 | 14 | 20 | 40 | 70 |
| -overpressure | 0.35 | 0.7 | 1 | 2 | 3.5 | 7 | 10 | 10 | 10 |
| Max.static pressure | $\leq 200\text{bar}$ | | | | | | | | |

| Item* | Min. | Typ. | Max. | Unit |
|------------------------|---------------------|------------------------|------|--------------------------------------|
| Accuracy | 0bar ~ 1bar | 0.25 | 0.5 | %FS |
| | 2bar ~ 35bar | 0.25 | 0.5 | |
| Zero Thermal error | 0bar ~ 1bar | 0.75 | 1.25 | $\pm\%FS, @25^{\circ}C$ |
| | 2bar ~ 35bar | 0.5 | 0.75 | |
| FS Thermal error | 0bar ~ 1bar | 0.75 | 1.25 | |
| | 2bar ~ 35bar | 0.5 | 0.75 | |
| Stability | $\leq 2\text{bar}$ | 0.5 | | %FS/year |
| | $\leq 35\text{bar}$ | 0.2 | | |
| Static pressure effect | | 0.05 | | $\pm\%FS, \text{ each } 1\text{bar}$ |
| Compensation temp. | | 0~50 | | $^{\circ}C$ |
| Operation temp. | | -30~80 ; -10~70(Cable) | | |
| Storage temp. | | -40~120; -20~85(Cable) | | |

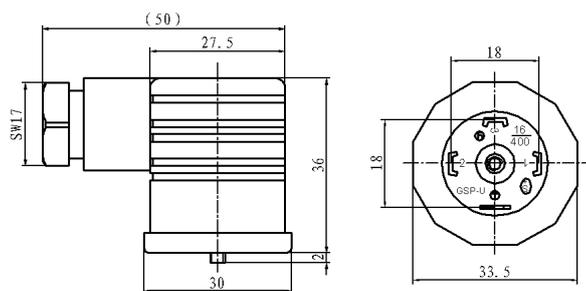
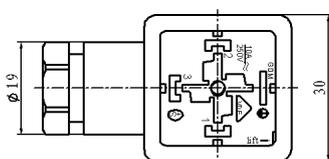
Outline Construction (Unit: mm)



Plug Connection type



Cable Connection



Electrical Connection

Plug Connection:

| Pin | 2-wire | 3-wire |
|-----|---------|--------|
| 1 | +V | +V |
| 2 | 0V/+OUT | GND |
| 3 | Null | +OUT |

Cable Connection:

| Wire color | 2-wire | 3-wire |
|------------|---------|--------|
| Black | +V | +V |
| Red | 0V/+OUT | +OUT |
| White | Null | GND |

Order Guide

| MDM490 | | Differential Pressure Transmitter | | | | | | | |
|----------------|----------|---|--------------------|-------------------------------|-----------------|--------------------|--------------------|----|--|
| Code | | Pressure range: bar | | | | | | | |
| X[0~X] bar | Code | Pressure range bar | Overpressure (bar) | | Code | Pressure Range bar | Overpressure (bar) | | |
| | | | + | - | | | + | - | |
| | 0A | 0~0.35 | 0.7 | 0.35 | 09 | 0~7 | 14 | 7 | |
| | 02 | 0~0.7 | 1.5 | 0.7 | 10 | 0~10 | 20 | 10 | |
| | 03 | 0~1 | 2 | 1 | 12 | 0~20 | 40 | 10 | |
| | 07 | 0~2 | 4 | 2 | 13 | 0~30 | 70 | 10 | |
| | 08 | 0~3.5 | 7 | 3.5 | | | | | |
| Code | | Output signal | | | | | | | |
| E | | 4mA~20mA DC | | | | | | | |
| F | | 1V~5V DC | | | | | | | |
| J | | 0V~5V DC | | | | | | | |
| Q | | 0mA~10mA DC | | | | | | | |
| U | | 0mA~20mA DC | | | | | | | |
| V | | 0V~10V DC | | | | | | | |
| code | | Construction material | | | | | | | |
| | | Diaphragm | | Pressure port | | Housing | | | |
| 22 | | SS 316L | | SS | | SS | | | |
| 24 | | SS 316L | | SS 316L | | SS 316L | | | |
| Code | | Others | | | | | | | |
| C ₄ | | G1/4 female | | | | | | | |
| B ₁ | | Plug connection | | | | | | | |
| B ₂ | | Cable connection Default length: 1.5m | | | | | | | |
| M ₆ | | 4 digits LED digital indicator (only for 4mA~20mA DC) | | | | | | | |
| M ₇ | | 4 digits LCD digital indicator (only for 4mA~20mA DC) | | | | | | | |
| i | | Intrinsic safe version Exia II CT6Ga | | | | | | | |
| T | | Ship-use | | | | | | | |
| MDM490 | [0~1]bar | E | 22 | C ₄ B ₂ | the whole spec. | | | | |

Notes

1. We suggest to install tri-valve between the measured point and transmitter to protect the media adding on transmitter's positive and negative cavities slowly;
2. We suggest to make two pressure ports horizontally to reduce installation direction effect;
3. Please pay attention that the static pressure should be less than 200bar, transmitter positive and negative cavity should be in the rating pressure range;
4. Please note ex-proof, M₆ or M₇ options in the order if the user needs ;
5. Digital indicator information, please refer to MPM490 datasheet;
6. If the user has special requirement, please feel free to contact our company.