

# MDM490 Piezoresistive 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 standard; ex-proof certificate is approved;
- Ship-use product conforms to CCS Rules of Classification of Sea-going Steel Ships(2006); 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, chemi-industry, power station and hydrology, etc.

## Specification

Range code	0A	02	03	07	08	09	10	12	13
Unit	kPa						MPa		
Measure range	0~35	0~70	0~100	0~200	0~350	0~700	0~1	0~2	0~3.5
+overpressure	70	150	200	400	700	1400	2.0	4.0	7.0
-overpressure	35	70	100	200	350	700	1.0	1.0	1.0
Max.static pressure	≤20MPa								

<http://www.microsensor.cn>

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		Min.	Typ.	Max.	Unit
Accuracy	0~100kPa		0.25	0.5	%FS
	200~3500kPa		0.25	0.5	
Zero Thermal error	0~100kPa		0.75	1.25	±%FS, @25°C
	200~3500kPa		0.5	0.75	
FS Thermal error	0~100kPa		0.75	1.25	
	200~3500kPa		0.5	0.75	
Stability	≤200kPa	0.5			%FS/year
	≤3500kPa	0.2			
Static pressure effect		0.05			±%FS, each 100kPa
Compensation temp.		0~50			°C
Operation temp.		-10~80			
Storage temp.		-40~120			

### Electric Characteristic

Power supply: 2-wire 15~28VDC      3-wire 15~28VDC  
 Output signal: 2-wire 4~20mADC      3-wire 0/1~5VDC, 0~10/20mADC  
 Electric connection: plug connection or Φ7.2mm 7-pin cable  
 Response time (10%~90%) : ≤1ms  
 Insulation resistor: 100MΩ, 50VDC

### Construction Material

Housing: stainless steel 1Cr18Ni9Ti  
 Diaphragm: stainless steel 316L  
 O-ring: Viton  
 Filled liquid: silicon oil  
 Pressure port: G1/4 female

### Environment Condition

Shock effect: ≤1% at 3gRMS, 30~2000Hz  
 Impact: ≤1% at 100g, 10ms  
 Lifetime: 1×10<sup>8</sup> pressure cycles  
 Media: liquid or gas which is compatible with construction material

### Outline Construction

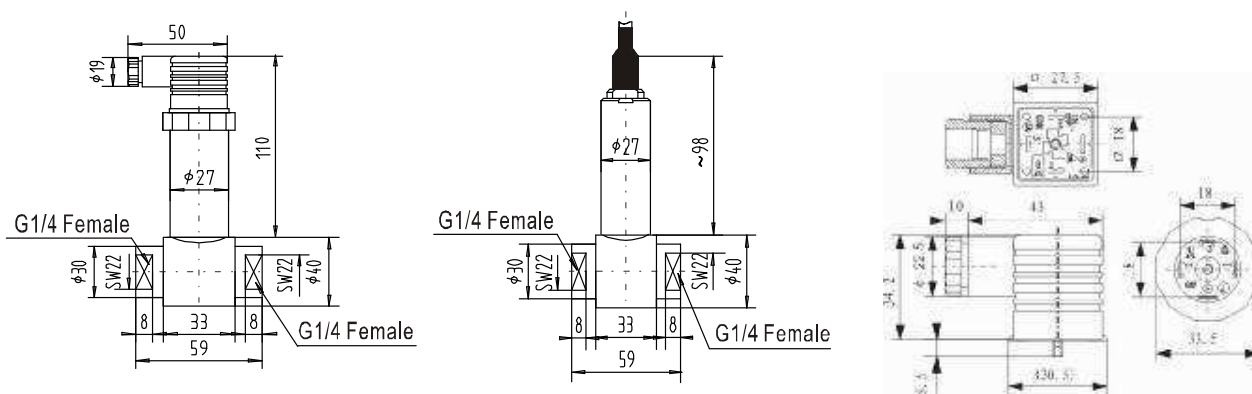
(Unit: mm)

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Plug Connection type

Cable Connection

Plug Outline and Pin Arrangement

### Electric Connection

#### Plug Connection

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

#### Cable Connec

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

### Order Guide

MDM490	Piezoresistive Differential Pressure Transmitter								
	Code	Pressure range: kPa or MPa							
	X[0~X] kPa or MPa	Code	Pressure range kPa	overpressure kPa		Code	Pressure Range MPa	Overpressur e MPa	
+				-	+			-	
		0A	0~35	70	35	09	0~0.7	1.4	0.7
		02	0~70	150	70	10	0~1.0	2.0	1.0
		03	0~100	200	100	12	0~2.0	4.0	1.0
	07	0~200	400	200	13	0~3.5	7.0	1.0	
	08	0~350	700	350					
		Code	Output signal						
		E	4~20mADC						
		F	1~5VDC						
		J	0~5VDC						
		Q	0~10mADC						
		U	0~20mADC						
		V	0~10VDC						
		Code	Construction material						

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				Diaphragm	Pressure port	Housing
			22	SS 316L	SS	SS
				Code	Others	
				C <sub>4</sub>	G1/4 female	
				B <sub>1</sub>	Plug connection	
				B <sub>2</sub>	Cable connection    Default length: 1.5m	
				M <sub>3</sub>	31/2LCD digital indicator (only 4~20mADC)	
				M <sub>4</sub>	31/2LED digital indicator (only 4~20mADC)	
				i	Intrinsic safe version Exia II CT6	
				T	Ship-use	
MDM490	[0~100]kPa	E	22	C <sub>4</sub> B <sub>2</sub>	the whole spec	

### Order Note

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 20Mpa, transmitter positive and negative cavity should be in the rating pressure range;
4. Please note ex-proof, M3 or M4 options in the order if the user needs ;
5. Digital indicator information, please refer to MPM480 datasheet;
6. If the user has special requirement, please feel free to contact our company.

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