

MDM490 Piezoresistive Differential Pressure Transmitter

Sold in North America by:

Servoflo Corporation

75 Allen Street Lexington, MA 02421

Tel: 781-862-9572

www.servoflo.com / info@servoflo.com



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(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, chemical industry, power station and hydrology, etc.

Electric Performance

- Power supply: 2-wire 15~28VDC; 3-wire 15~28VDC
- Output signal: 2-wire 4~20mA; 3-wire 0/1~5VDC, 0~10/20mAADC
- Electrical connection: plug connection or $\Phi 7.2$ mm 7-pin cable
- Response time(10%~90%): ≤ 1 ms
- Insulation resistor: $100M\Omega \sim 50VDC$

Construction Performance

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

Environment Condition

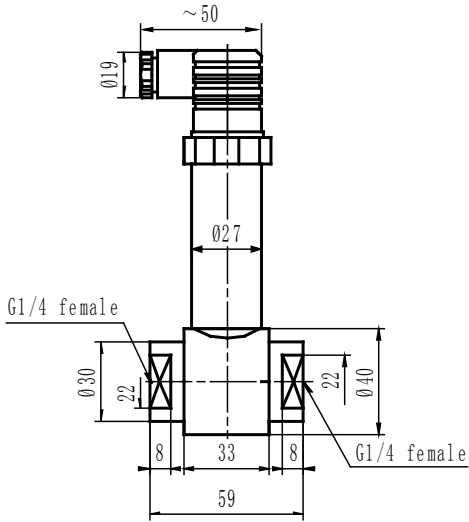
- Shock effect: $\leq 1\%$ at 3gRMS, 30~2000Hz
- Impact: 100g, 10ms
- Lifetime: 1×10^8 pressure cycles
- Media: liquid or gas which is compatible with construction material

Specification

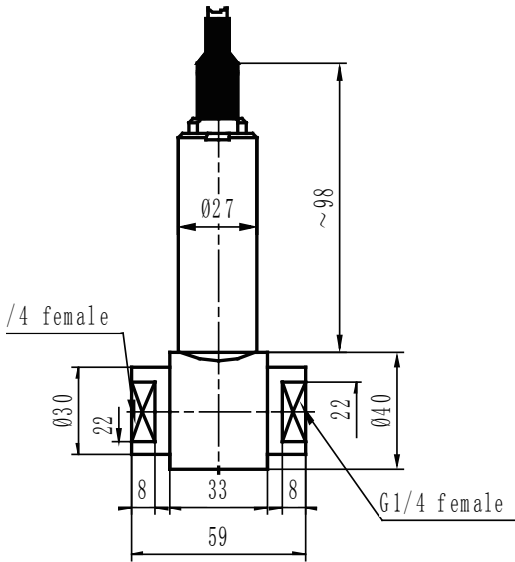
Range code	0A	02	03	07	08	09	10	12	13
Unit	kPa						MPa		
Measure range	0~35	0~70	0~100	0~200	0~350	0~700	0~1	0~2	0~3.5
+overpressure	70	150	200	400	700	1400	2.0	4.0	7.0
-overpressure	35	70	100	200	350	700	1.0	1.0	1.0
Max.static pressure	$\leq 20\text{MPa}$								

Item*		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	$\pm\%$ 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	$\leq 200\text{kPa}$	0.5			%FS/year
	$\leq 3500\text{kPa}$	0.2			
Static pressure effect		0.05			$\pm\%$ FS, each 100kPa
Compensation temp.		0~50			°C
Operation temp.		-30~80 -10~70(Cable)			
Storage temp.		-40~120 -20~85(Cable)			

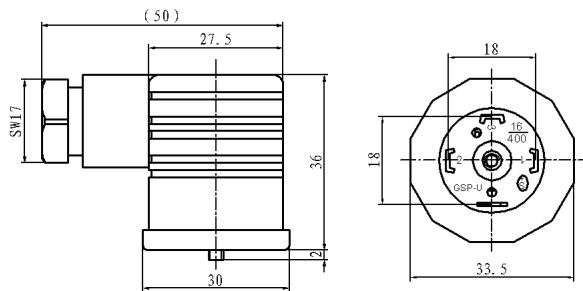
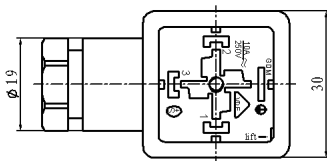
Outline Construction (Unit: mm)



Plug Connection type



Cable Connection



Plug Outline and Pin Arrangement

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		Piezoresistive Differential Pressure Transmitter								
X[0~X] kPa or MPa	Code		Pressure range: kPa or MPa							
	Code	Pressure range kPa	Overpressure (kPa)		Code	Pressure Range (MPa)	Overpressure (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								
		Diaphragm		Pressure port		Housing				
22		SS 316L		SS		SS				
Code		Others								
C ₄		G1/4 female								
B ₁		Plug connection								
B ₂		Cable connection Default length: 1.5m								
M ₃		31/2LCD digital indicator (only 4~20mADC)								
M ₆		4LED digital indicator (only 4~20mADC)								
i		Intrinsic safe version Exia II CT6Ga								
T		Ship-use								
MDM490 [0~100]kPa		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 20MPa, transmitter positive and negative cavity should be in the rating pressure range;
4. Please note ex-proof, M3 or M6 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.