

MPM289 Pressure Sensor



Features

- Pressure range: -100kPa...0kPa~20kPa...100MPa
- Gauge, Absolute, Sealed gauge, Vacuum
- Isolated construction, suitable for various fluid media
- Φ 19mm standard OEM pressure sensor
- Full stainless steel 316L

Applications

- Industrial process control
- Level measurement
- Gas, liquid pressure measurement
- Pressure gauges
- Pressure calibrators
- Hydraulic system and switches
- HVAC system
- Aviation and navigation inspection

Introduction

MPM289 Pressure Sensor is the piezoresistive pressure sensor with isolated construction and precise compensation. It uses high stable silicon die. Stainless steel 316L housing with diameter Φ 19mm. Wider temperature compensation and zero correction are calibrated by resistor network compensation. The measured pressure is transmitted onto pressure sensitive chip through 316L diaphragm and inner media, to transform the pressure to electric signal.

MPM289 Pressure Sensor is inspected and screened on automatic production line, testing and checking time after time strictly. It is widely used for various pressure measurement fields.

Electrical Performance

- Power supply: $\leq 2.0\text{mA DC}$
- Electrical connection: 100mm silicone wires
- Common mode voltage output: 50% input (typ.)
- Input impedance: $2\text{k}\Omega \sim 5\text{k}\Omega$
- Output impedance: $3\text{k}\Omega \sim 6\text{k}\Omega$

Construction Performance

- Vent tube: Stainless steel 304
- Diaphragm: Stainless steel 316L
- Housing: Stainless steel 316L
- Pin: Gold-plated Kovar or silicone wires
- O-ring: FKM/EPDM/NBR
- Net weight: $\sim 25\text{g}$
- Oil filling: Silicone oil

Environmental Conditions

- Vibration: No change at 10gRMS, (20 ~ 2000) Hz
- Shock: 100g, 11ms
- Medium compatibility: Liquid or gas that is compatible with stainless steel and FKM

Basic Conditions

- Medium temperature: $(35\pm 1)^\circ\text{C}$
- Ambient temperature: $(35\pm 1)^\circ\text{C}$
- Vibration: 0.1g (1m/s^2)Max
- Relative humidity: $(50\%\pm 10\%)$ RH
- Ambient pressure: (86 ~ 106)kPa
- Power supply: $(1.5\pm 0.0015)\text{mA DC}$

Specifications

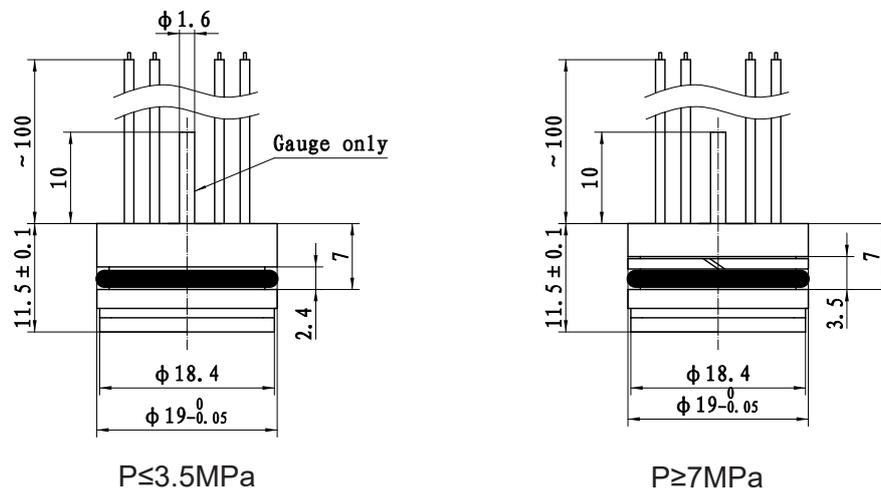
All specifications were tested under basic conditions.

Item	Min.	Typ.	Max.	Units	Notes
Pressure nonlinearity		±0.15	±0.25	%FS,BFSL	1
Pressure repeatability		±0.05	±0.075	%FS	
Pressure hysteresis		±0.05	±0.075	%FS	
Zero output			±2.0	mV DC	
Output/Span	50			mV DC	2
Zero thermal error		±0.75	±1.0	%FS, @35°C	3
Span thermal error		±0.75	±1.0	%FS, @35°C	
Compensation temp. range		0 ~ 70		°C (≤70kPa)	
		-10 ~ 70		°C (≥100kPa)	
Long-term stability error		±0.2		%FS/Year	4
Zero thermal hysteresis		±0.2		%FS	5
Insulation resistance		250		MΩ@250V DC	6
Lifetime		≥10 million		cycles	
Operating temp. range		-40 ~ 125		°C	
Storage temp. range		-40 ~ 125		°C	

1. P=35kPa, NL ≤ ±0.3%FS.
2. P=20kPa, output /span ≥ 45mV.
3. P=20kPa, zero thermal error ≤ ±1.5%FS.
3. The stability error of negative pressure products is ±0.3%FS/Year.
4. Within compensation temp. range.
5. Insulation resistance was tested under RH≤65% and Temp.≤35°C .

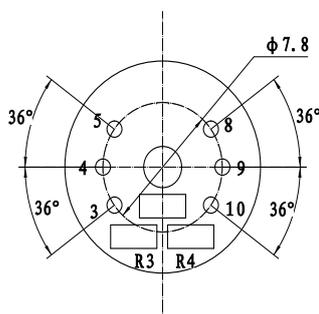
Outline Construction

Unit: mm



The recommended installation dimension is $\Phi 19_{+0.02}^{+0.05}$ mm

Electrical Connection



Pin	Definition	Wire color
4	-OUT	Blue
5	-IN	Yellow
8	+IN	Black
9	+OUT	Red

Order Guide

MPM289-10-G-F-L-2-EP

Range code	Pressure range	Ref.	Overload pressure	Burst pressure
0B	0kPa~20kPa	G	250%FS	600%FS
0A	0kPa~35kPa	G.A	250%FS	600%FS
02	0kPa~70kPa	G.A	200%FS	500%FS
03	0kPa~100kPa	G.A	200%FS	500%FS
07	0kPa~200kPa	G.A	200%FS	500%FS
08	0kPa~350kPa	G.A	200%FS	500%FS
09	0kPa~700kPa	G.A	200%FS	500%FS
10	0MPa~1MPa	G.A	200%FS	500%FS
12	0MPa~2MPa	G.A	200%FS	500%FS
13	0MPa~3.5MPa	G.A.S	200%FS	500%FS
14	0MPa~7MPa	S.A	200%FS	400%FS
15	0MPa~10MPa	S.A	150%FS	300%FS
17	0MPa~20MPa	S.A	150%FS	200%FS
18	0MPa~35MPa	S.A	150%FS	200%FS
19	0MPa~70MPa	S.A	150%FS	200%FS
20	0MPa~100MPa	S.A	110%FS	150%FS

Code	Potting
Code P	No potting
Code EP	Potting with EP gel (Default)

Code	Electrical connection
1	Kovar pin
2	100mm silicone wires (Default)

Code	Compensation
L	Temperature compensation(1.5mA exitcation) (Default)
M	Without temperature compensation

Code	Sealing mode
0	Null
F	FKM O-ring

Code	Pressure type
G	Gauge
A	Absolute
S	Sealed gauge
GY0	Withstand vacuum pressure while Zero at atmospheric pressure
GY	Withstand vacuum pressure while Zero at -100kPa

Notes

1. The default unit of the product is kPa. 1kPa=0.01bar.
2. Zeo shift: Range code 0B can be shifted to -5kPa, -10kPa or -20kPa, 0A can be shifted to -10kPa or -20kPa, 02 can be shifted to -35kPa, -50kPa or -70kPa, 03 ~13 can be shifted to -100kPa.
3. It is recommended that the sensor be assembled as a "suspended" construction to avoid direct pressure on its face and affecting sensor stability.
4. Protect the isolated diaphragm to prevent any damage or low performance.
5. The FKM O-ring of sensor has a temperature range of -20°C~250°C by default. For operating temperature below -20°C or harsh media, please contact the MICROSENSOR.
6. The default configuration for MPM289 Pressure Sensor comes with temperature compensation, silicone wires, and potting(priority inventory). For non-default items, please consult with us to verify inventory and delivery cycle.