

# MPM289 Pressure Sensor



## Features

- Pressure range 0bar~ 0.35bar...1000bar
- Gauge, Absolute, Sealed gauge
- Constant current power supply
- Isolated construction, enable to measure various media
- $\Phi$ 19mm standard OEM pressure sensor
- Full stainless steel 316L
- Wide temperature compensation  $0^{\circ}\text{C} \sim 70^{\circ}\text{C}$

## Application

- Industrial process control
- Level measurement
- Gas, Liquid pressure measurement
- Pressure checking meter
- Pressure calibrator
- Liquid pressure system and switch
- Cooling equipment and Air conditioning 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  $\Phi$ 19mm. Wider temperature compensation and zero correction are calibrated by laser trimming technics. The measured pressure is transmitted onto silicon die 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 Specification

- Power Supply:  $\leq 2.0\text{mA DC}$
- Electric Connection: Kovar pin or 100mm silicon rubber flexible wires
- Common mode voltage output: 50% input (typ.)
- Input Impedance:  $2\text{k}\Omega \sim 5\text{k}\Omega$
- Output Impedance:  $3.5\text{k}\Omega \sim 6\text{k}\Omega$
- Insulation Resistor:  $100\text{M}\Omega @ 100\text{V DC}$
- Overpressure: 2 times FS or 1100bar(min.value is valid)

## Construction

- Diaphragm: Stainless steel 316L
- Housing: Stainless steel 316L
- Pin: Kovar
- O-ring:FKM
- Net weight:  $\sim 25\text{g}$

## Environment Condition

- Shock: No change at 10gRMS, (20~ 2000) Hz
- Impact: 100g, 11ms
- Media Compatibility: The gas or liquid which is compatible with stainless steel and FKM

## Basic Condition

- Media temperature:  $(35\pm 1)^\circ\text{C}$
- Environment temperature:  $(35\pm 1)^\circ\text{C}$
- Shock: 0.1g (1m/s<sup>2</sup>)Max
- Humidity:  $(50\%\pm 10\%)\text{RH}$
- Local air pressure: (0.86~1.06)bar
- Power supply:  $(1.5\pm 0.0015)\text{mA DC}$

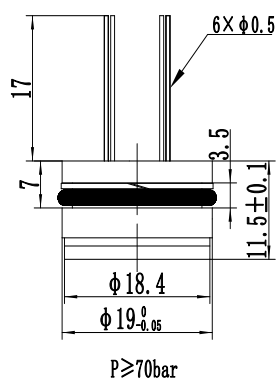
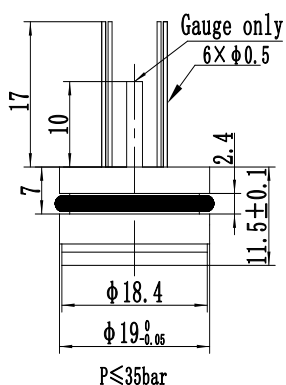
## Specification

| Item*                   | Min. | Typ.       | Max.        | Units      |
|-------------------------|------|------------|-------------|------------|
| Linearity**             |      | $\pm 0.10$ | $\pm 0.25$  | %FS,BFSL   |
| Repeatability           |      |            | $\pm 0.075$ | %FS        |
| Hysteresis              |      |            | $\pm 0.075$ | %FS        |
| Zero output             |      |            | $\pm 2.0$   | mV DC      |
| Output/Span***          | 50   |            |             | mV DC      |
| Zero thermal error      |      |            | $\pm 1.0$   | %FS, @35°C |
| Span thermal error      |      |            | $\pm 1.0$   | %FS, @35°C |
| Compensated temp. range |      | 0 ~ 70     |             | °C         |
| Working temp. range     |      | -40 ~ 125  |             | °C         |
| Storage temp. range     |      | -40 ~ 125  |             | °C         |
| Stability error         |      | $\pm 0.2$  |             | %FS/Year   |

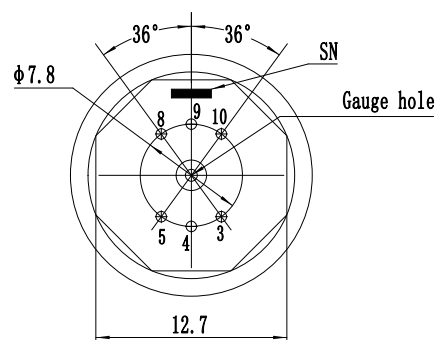
\* Testing at basic condition  
 \*\* Code 0.35bar Max. Linearity: $\pm 0.3(\%FS,BFSL)$   
 \*\*\* Output/Span=full scale output - zero point

## Outline Construction

Unit: mm



## Electrical Connection



The suggested mounting dimension is  $\Phi 19^{+0.05}_{+0.02}$  mm

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

## Order Guide

| MPM289 |            | Pressure Sensor |                                     |            |                |                |
|--------|------------|-----------------|-------------------------------------|------------|----------------|----------------|
|        | Range code | Pressure range  | Ref.                                | Range code | Pressure range | Ref.           |
|        | 35K0       | 0bar~0.35bar    | G.A                                 | 07M0       | 0bar~70bar     | S.A            |
|        | 100K       | 0bar~1bar       | G.A                                 | 10M0       | 0bar~100bar    | S.A            |
|        | 200K       | 0bar~2bar       | G.A                                 | 20M0       | 0bar~200bar    | S.A            |
|        | 500K       | 0bar~ 5bar      | G.A                                 | 35M0       | 0bar~350bar    | S.A            |
|        | 01M0       | 0bar ~ 10bar    | G.A                                 | 70M0       | 0bar~700bar    | S.A            |
|        | 02M0       | 0bar ~ 20bar    | G.A                                 | 100M0      | 0bar~1000bar   | S.A            |
|        | 03M5       | 0bar ~ 35bar    | G.A                                 |            |                |                |
|        |            | Code            | Pressure type                       |            |                |                |
|        |            | G               | Gauge                               |            |                |                |
|        |            | A               | Absolute                            |            |                |                |
|        |            | S               | Sealed gauge                        |            |                |                |
|        |            | Code            | Pressure connection                 |            |                |                |
|        |            | 0 or null       | O-ring                              |            |                |                |
|        |            | Code            | Compensation                        |            |                |                |
|        |            | L               | Laser trimming                      |            |                |                |
|        |            | Code            | Electrical connection               |            |                |                |
|        |            | 1               | Kovar pin(default)                  |            |                |                |
|        |            | 2*              | 100mm silicon rubber flexible wires |            |                |                |
| MPM289 | 01M0       | G               | 0                                   | L          | 2              | the whole spec |

### Notes

1. The default unit of all the products is kPa (1kPa=0.01bar).
2. It is recommended that the sensor should be installed by a "suspended" structure so as to avoid pressing the seal on its end face and to prevent the stability of sensor element.
3. Please pay attention to protect the diaphragm and the compensated board to prevent any damage or bad performance.
4. Temperature resistant range of standard FKM O-ring of sensor is -20℃ ~ 250℃ . When working temperature is lower than -20 ℃ , or sensor is applied in critical environment, please contact us.