

# MPM280Au Pressure Sensor



## Features

- Pressure range: -100kPa...0kPa ~ 35kPa...20MPa
- Gauge / sealed gauge / absolute
- Isolated construction, suitable for hydrogen pressure measurement
- $\Phi 19\text{mm}$  OEM pressure sensor
- Gold-plated corrugated diaphragm

## Applications

- Hydrogen pressure measurement instrument
- Hydrogen production and purification equipment
- Hydrogen storage and transportation equipment

## Introduction

MPM280Au Pressure Sensor is designed for hydrogen measurement applications. It features a flush and gold-plated stainless steel diaphragm, effectively preventing hydrogen embrittlement and permeation, thus enhancing safety and lifespan.

The product undergoes automated testing, with zero adjustment and temperature compensation, ensuring stable, reliable performance. It is suitable for high-accuracy, high-reliability hydrogen pressure measurement.

## Electrical Performance

- Power supply:  $\leq 2.0\text{mA DC}$
- Electrical connection:  $\Phi 0.5\text{mm}$  gold-plated Kovar pin or 100mm silicone wires
- Common mode voltage output: 50% of the input (typ.)
- Input impedance:  $3\text{k}\Omega \sim 8\text{k}\Omega$
- Output impedance:  $3.5\text{k}\Omega \sim 6\text{k}\Omega$
- Response time (10% ~ 90%):  $< 1\text{ms}$
- Insulation resistance:  $100\text{M}\Omega @ 100\text{V DC}$
- Overpressure: 2 times FS

## Construction Performance

- Diaphragm: Stainless steel 316L with gold plated
- Housing: Stainless steel 316L
- Vent tube: Stainless steel 316L
- Pin: Gold-plated Kovar
- Net weight:  $\sim 16\text{g}$
- Oil filling: Silicone oil

## Environment Conditions

- Vibration: No change at  $10\text{gRMS}, (20 \sim 2000)\text{Hz}$
- Shock:  $100\text{g}, 11\text{ms}$
- Medium compatibility: High purity hydrogen or mixed gas with high hydrogen content

## Basic Conditions

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

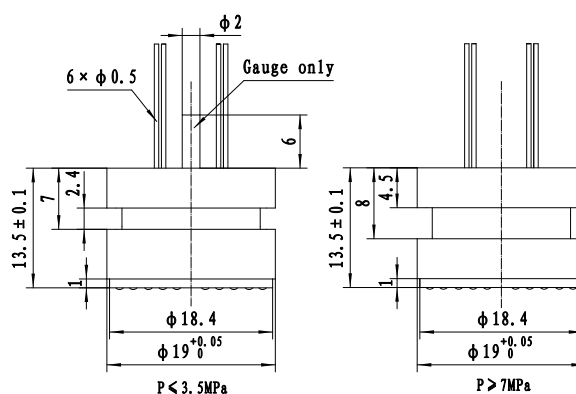
## Specifications

| Item*                     | Min.    | Typ.       | Max.        | Units                     |
|---------------------------|---------|------------|-------------|---------------------------|
| Pressure nonlinearity**   |         | $\pm 0.15$ | $\pm 0.25$  | %FS, BFSL                 |
| Pressure repeatability    |         | $\pm 0.05$ | $\pm 0.075$ | %FS                       |
| Pressure hysteresis       |         | $\pm 0.05$ | $\pm 0.075$ | %FS                       |
| Zero output               |         | $\pm 1.0$  | $\pm 2.0$   | mV DC                     |
| FS output                 | 60      |            |             | mV DC                     |
| Zero thermal error***     |         | $\pm 0.75$ | $\pm 1.0$   | %FS, @ $35^\circ\text{C}$ |
| FS thermal error          |         | $\pm 0.75$ | $\pm 1.0$   | %FS, @ $35^\circ\text{C}$ |
| Compensation temp. range  | 0~70    |            |             | $^\circ\text{C}$          |
| Operating temp. range     | -40~125 |            |             | $^\circ\text{C}$          |
| Storage temp. range       | -40~125 |            |             | $^\circ\text{C}$          |
| Long-term stability error |         | $\pm 0.2$  | $\pm 0.3$   | %FS/year                  |

\* Testing at basic condition, G: Gauge; A: Absolute; S: Sealed gauge;  
 \*\* For range code 0A, Nonlinearity  $\leq \pm 0.3\%\text{FS}$ ;  
 \*\*\* For range code 0A, Zero thermal error  $\leq 1.5\%\text{FS}$ .

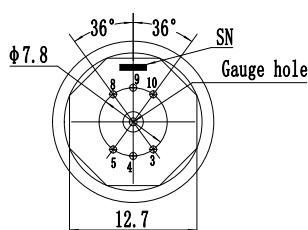
## Outline Construction

(Unit: mm)



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

## Electrical Connection



| Pin | Range code 02G/03G/17 |            | Other range codes |            |
|-----|-----------------------|------------|-------------------|------------|
|     | Definition            | Wire color | Definition        | Wire color |
| 4   | -OUT                  | Blue       | +OUT              | Red        |
| 5   | -IN                   | Yellow     | -IN               | Yellow     |
| 8   | +IN                   | Black      | +IN               | Black      |
| 9   | +OUT                  | Red        | -OUT              | Blue       |

## Order Guide

## MPM280Au-08-A-F-M-1

| Range code | Pressure range | Ref.  |
|------------|----------------|-------|
| 0A         | 0kPa~35kPa     | G.A   |
| 02         | 0kPa~70kPa     | G.A   |
| 03         | 0kPa~100kPa    | G.A   |
| 07         | 0kPa~200kPa    | G.A   |
| 08         | 0kPa~350kPa    | G.A   |
| 09         | 0kPa~700kPa    | G.A   |
| 10         | 0MPa~1MPa      | G.A   |
| 12         | 0MPa~2MPa      | G.A   |
| 13         | 0MPa~3.5MPa    | G.A.S |
| 14         | 0MPa~7MPa      | S.A   |
| 15         | 0MPa~10MPa     | S.A   |
| 17         | 0MPa~20MPa     | S.A   |

| Code | Electrical connection |
|------|-----------------------|
| 1    | Kovar pin             |
| 2    | 100mm silicone wires  |

| Code | Compensation                                |
|------|---------------------------------------------|
| L    | Temperature compensation (1.5mA excitation) |
| M    | Compensation resistor (1.5mA excitation)    |

| Code | Sealing    |
|------|------------|
| 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. Zero shift: Range code 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. Protect the isolated diaphragm to prevent any damage or low performance.
4. Over-range or under-range use is allowed, recommended within  $\pm 30\%$ .
5. Verify the system's maximum overload to ensure it is below the sensor's limit to avoid performance impact, reduced lifetime, or damage.