

MPM280Au Pressure Sensor



Features

- Pressure range: -100kPa ~ 35kPa... 20MPa
- Gauge / sealed gauge / absolute
- Constant current or constant voltage supply optional
- Isolated structure, suitable for hydrogen measurement
- Φ 19mm OEM pressure element
- Corrugated diaphragm with gold plated

Application

- Pressure measurement of high-purity hydrogen or mixed gas pressure with high hydrogen content
- Industrial process control
- Pressure measuring instrument
- Pressure calibration instrument
- Aviation and Nautical inspection

Introduction

"Hydrogen embrittlement" and "hydrogen penetration" have always been a challenge in the field of hydrogen pressure measurement because Hydrogen, a flammable gas, will cause unimaginable consequences once it leaks. Most pressure sensing elements on the market currently cannot be used to measure the pressure of hydrogen because the materials applied in these products are not resistant to hydrogen embrittlement and hydrogen penetration. Due to the excellent densification and stability of gold, the study shows that gold plating on the surface of the sensor diaphragm can effectively prevent the occurrence of hydrogen embrittlement and increase the service life of the sensor. Therefore, the product developed by our company is suitable for the pressure measurement of hydrogen medium.

Electrical Performance

- Power supply: $\leq 2.0\text{mA DC}$.
- Electrical connection: $\phi 0.5\text{mm}$ gold-plated Kovar pin or 100mm silicon rubber flexible 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 resistor: $100\text{M}\Omega@100\text{V DC}$
- Overload: 2 times FS

Construction Performance

- Diaphragm: stainless steel 316L (surface gold plating)
- Housing: stainless steel 316L
- Vented tube: stainless steel 316L
- Pin: Gold-plated Kovar
- O-ring: Viton
- Net weight: $\sim 23\text{g}$

Environment Condition

- Shock: no change at $10\text{gRMS}, (20\sim 2000)\text{Hz}$
- Impact: 100g, 11ms
- Media compatibility: the gas or liquid which is compatible with construction material and Viton

Basic Condition

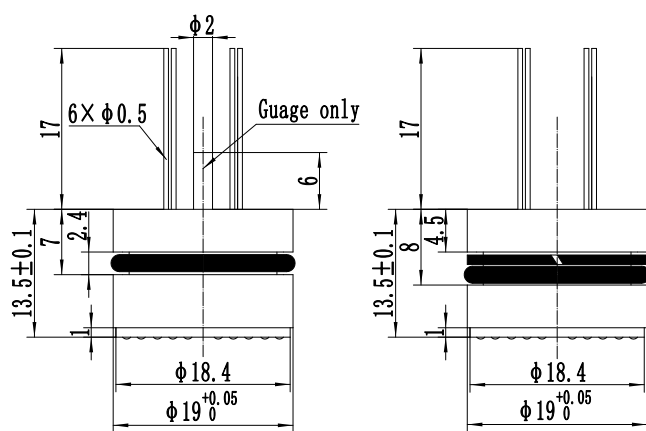
- Media temperature: (25±1)°C
- Environment temperature: (25±1)°C
- Shock: 0.1g (1m/s²) Max
- Humidity: (50±10)%RH
- Local air pressure: (86~106)kPa
- Power supply: (1.5±0.0015)mADC

Specification

Item*	Min.	Typ.	Max.	Units
Linearity		±0.15	±0.25	%FS,BFSL
Repeatability		±0.05	±0.075	%FS
Hysteresis		±0.05	±0.075	%FS
Zero output		±1.0	±2.0	mV DC
FS output	70			mV DC
Zero thermal error		±0.75	±1.0	%FS, @25°C
FS thermal error		±0.75	±1.0	%FS, @25°C
Compensated temp. range		0~50		°C
Working temp. range		-40~125		°C
Storage temp. range		-40~125		°C
Long-term stability		±0.2	±0.3	%FS/year

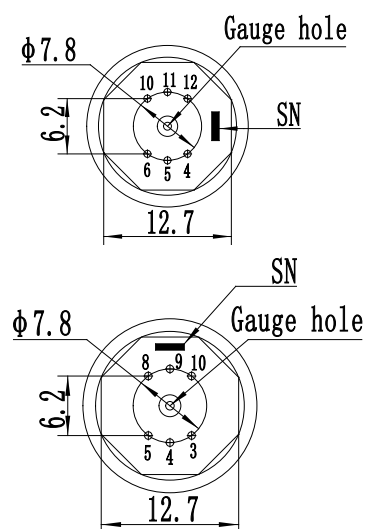
*Testing at basic condition, G: Gauge; A: Absolute; S: Sealed gauge
 ** 0BG, FS output ≥45mV
 0AG, FS output ≥60mV
 02A, 03A, 02GY, 03GY, FS output ≥45mV
 07A, 08A, 07GY, 08GY, FS output ≥60mV

Outline Construction (Unit: mm)



For option 0 or null, suggested installation dimension is $\Phi 19_{+0.02}^{+0.05}$ mm

Electrical Connection



Pin	Definition	Wire color
4	+OUT	Red
5	+IN	Black
6	-IN	Yellow/White
10	-OUT	Blue
Other pins are useless		

Pin	Definition	Wire color
4	+OUT	Red
5	-IN	Yellow/White
8	+IN	Black
9	-OUT	Blue
Other pins are useless		

Pin	Definition	Wire color
4	-OUT	Blue
5	-IN	Yellow/White
8	+IN	Black
9	+OUT	Red
Other pins are useless		

Notes

The actual electrical connection method, please check the parameter label enclosed with products.

Order Guide

MPM280Au		Pressure Sensor					
		code	range	Ref.	Range code	range	Ref.
		0A	0kPa~35kPa	G.A	10	0MPa~1MPa	G.A
		02	0kPa~70kPa	G.A	12	0MPa~2MPa	G.A
		03	0kPa~100kPa	G.A	13	0MPa~3.5MPa	G.S.A
		07	0kPa~200kPa	G.A	14	0MPa~7MPa	S.A
		08	0kPa~350kPa	G.A	15	0MPa~10MPa	S.A
		09	0kPa~700kPa	G.A	17	0MPa~20MPa	S.A
		Code	Pressure type				
		G	Gauge				
		A	Absolute				
		S	Sealed gauge				
		Code	Pressure connection				
		0 or null	O-ring				
		Code	Compensation				
		L	Laser trimming				
		M	Outer compensated resistor (providing resistor value)				
		Code	Electrical connection				
		1	Kovar pin(default)				
		2*	100mm silicon rubber flexible wires				
		Code	Special measurement				
		Y	Gauge sensor to measure vacuum(0kPa~ -100kPa)				
MPM280Au	09	G	0	L	1	Y	The whole spec
*The default code for electrical connection is "1"on the parameter card. And it is also allowed to print code "1" if the electrical connection is flexible wire (original code "2"). The wire length shall be as per customers' request on the contact.							

Notes

- 1.It is recommended that the sensor should be installed as Suspended Mode to avoid face tight press and avoid affecting sensor stability.
- 2.Please pay attention to protect the diaphragm and the compensated board to prevent any damage or bad performance.
- 3.Temperature resistant range of standard Viton O-ring of sensor is -20°C ~ 250°C . When working temperature is lower than -20°C , or sensor is applied in critical environment, please contact us.