

MPM280 Piezoresistive OEM Pressure Sensor

Features

- Pressure range 0~20kPa...35MPa;
- Gauge, absolute and sealed gauge;
- Constant current power supply;
- Isolated construction to measure various media
- Φ19mm OEM pressure element
- Full 316L stainless steel material
- Tantalum diaphragm optional;
- Different male thread connection optional



Application

- Industrial process control
- level measure
- Gas, liquid pressure measure
- Pressure meter
- Pressure calibrator
- Liquid pressure system and switch
- Refrigeration equipment and air conditioner
- Aviation and navigation inspection

Introduction

General MPM280 Piezoresistive Pressure Sensor

The outline, installation dimension and sealing method of the general MPM280 is strongly interchangeable, it is widely used for measuring pressure which is compatible with stainless steel and Viton;

Assembled MPM280 Piezoresistive Pressure Sensor

Put general MPM280 pressure sensor into the housing with standard or special thread; use face type seal or waterline seal; with flexible construction and serious inspecting and screening; the assembled MPM280 sensor has similar application with general type sensor, it can be used for mounting and production of different pressure instruments;

Welded MPM280 Piezoresistive Pressure Sensor

Put general MPM280 pressure sensor into the housing with standard or special thread; and weld sensor with housing together, no O-ring for sealing. The whole product has flexible construction, it has wider application fields than general pressure sensor, can be used for mounting and production of different pressure instruments;

Flush Diaphragm MPM280 Piezoresistive Pressure Sensor

<http://www.microsensor.cn>

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Flush diaphragm pressure sensor is a full-welded pressure sensor, it has pressure port G1/2 male, sealing by Viton O-ring at the end of thread. The isolated diaphragm is welded in front of thread port, the whole measure range is 0~100kPa...35MPa. It can be used for food, medicine, sanitation fields which the media is easily dirty.

Anti-corrosive MPM280 Piezoresistive Pressure Sensor

The anti-corrosive MPM280 pressure sensor has similar outline, installation dimension and sealing methods as general MPM280 pressure sensor. For construction material, anti-corrosive pressure sensor use Tantalum diaphragm and Hastelloy C housing, and sensor type is TH (Tantalum diaphragm + Hastelloy C housing). The sensor is sealed by Viton O-ring. It can be used for strong corrosive media measurement. TH type pressure sensor's range is 0~100kPa...7MPa.

Gauge MPM280 Pressure Sensor with Vacuum Measurement

We can use general type, assembled type as well as flash diaphragm type gauge pressure sensor to measure pressure below air pressure, the min. pressure can be around -100kPa.

Electric Performance

Power supply: $\leq 2.0\text{mA DC}$

Electric connection: Kovar pin or 100mm silicon rubber flexible wires

Common mode voltage output: 50% of 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 (10% ~ 90%): $< 1\text{ms}$

Insulation resistor: $100\text{M}\Omega$, 100VDC

Overpressure: 1.5 times FS

Construction

Diaphragm: stainless steel 316L

Housing: stainless steel 316L

Pin: Kovar

O-ring: Viton

Net weight: ~23g (general type)

~100g (flush diaphragm)

~125g (assembled type)

Environment Condition

Position: deviate 90° from any orientation, zero change $\leq 0.05\% \text{FS}$

Shock: no change at 10gRMS, (20 ~ 2000)Hz

Impact: 100g, 11ms

Media compatibility: the gas or liquid which is compatible with construction material and Viton

Basic Condition

Media temperature: $(25 \pm 1)^\circ \text{C}$

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Environment temperature: (25±1) °C

Shock: 0.1g (1m/s/s) Max

Humidity: (50%±10%) RH

Local air pressure: (86 ~ 106) kPa

Power supply: (1.5±0.0015) mADC

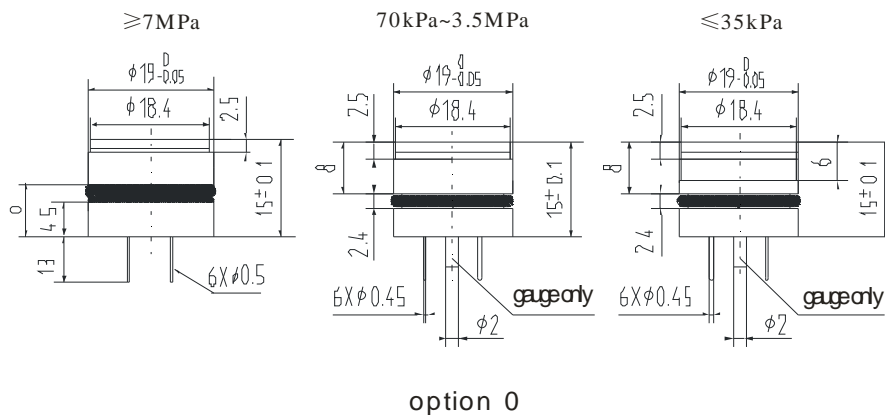
Basic Specification

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			±2	mVDC
FS output**	70			mVDC
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
Stability		±0.2	±0.3	%FS/year

*testing at basic condition
 **0A range, FS output ≥60mV
 0B range, FS output ≥45mV
 02, 03, 07, 08 absolute sensor, FS output ≥60mV
 For gauge sensor which can measure vacuum, FS output ≥60mV

Outline Construction

(Units: mm)



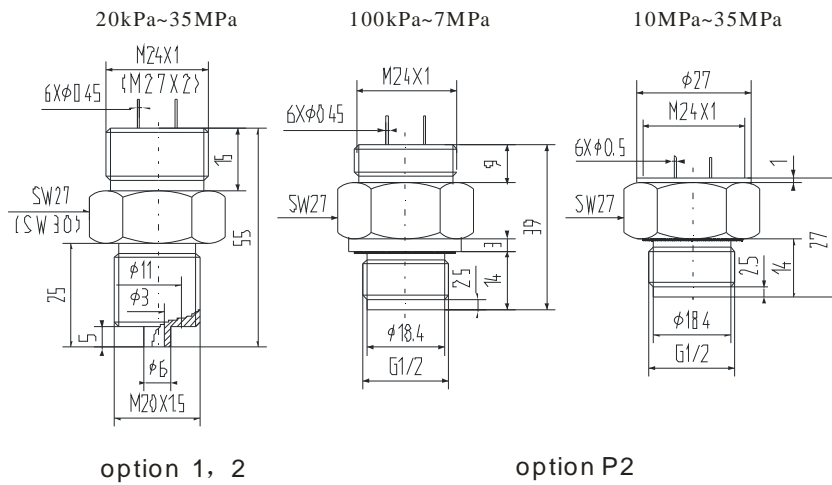
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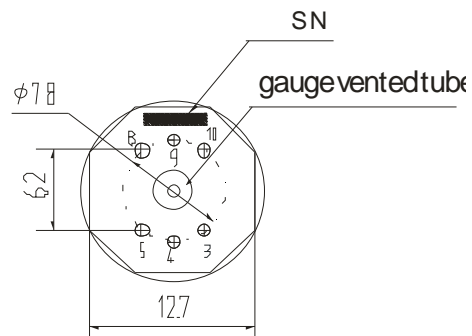
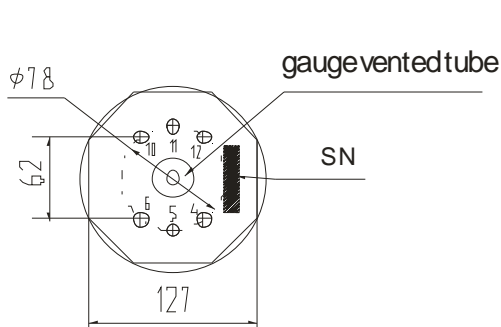
For option 0, we suggest the installation dimension is $\Phi 19^{+0.05}_{+0.02}$ mm.



Electric Connection

Range code: 0B,0A,02,03,07,08,09,10,12,13

Range code: 14,15,17,18



Pin	Electric connection	Wire color
4	(+OUT)	Red
5	(+IN)	Black
6	(-IN)	Yellow (white)
10	(-OUT)	Blue
Other pins are useless		

Pin	Electric connection	Wire color
4	(+OUT)	Red
5	(-IN)	yellow (white)
8	(+IN)	Black
9	(-OUT)	Blue
Other pins are useless		

Note: The actual electric connection method, please check the parameter label enclosed with products.

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Order Guide

MPM280(TH)*	Piezoresistive OEM Pressure Sensor					
	Range code	Pressure range	Ref.	Range code	Pressure range	Ref.
	0B	0~20kPa	G	10	0~1MPa	G.A
	0A	0~35kPa	G	12	0~2MPa	G.A
	02	0~70kPa	G.A	13	0~3.5MPa	G.S.A
	03	0~100kPa	G.A	14	0~7MPa	S
	07	0~200kPa	G.A	15	0~10MPa	S
	08	0~350kPa	G.A	17	0~20MPa	S
	09	0~700kPa	G.A	18	0~35MPa	S
	Code	Pressure type				
	G	Gauge				
	A	Absolute				
	S	Sealed gauge				
	Code	Pressure connection	Installation			
	0 or null	O-ring				
	1	M20x1.5 male, waterline seal	Top: M24x1 male (P<2MPa)			
	2	M20x1.5 male, waterline seal	Top: M27x2 male			
	P2	G1/2 male, Waterline seal	Top: M24x1 male (female)			
	Code	Compensation				
	L	Laser trimming				
	M	Outer compensated resistor (providing resistor value)				
	Code	Electric connection				
	1	Φ0.45mm (φ0.5mm) Kovar pin				
	3	4-color flexible wire, default length:100mm				
	Code	Special measurement				
	Y	Gauge sensor to measure vacuum (0~ -100kPa)				
MPM280	09	G	0	L	1	Y
The whole spec						

*: when you select Tantalum diaphragm and Hastelloy C housing, pressure sensor's type is MPM280TH;

Order Note

1. The real measured pressure should be less than 80% full scale;
2. We recommend that please do not shorten pressure range too much when the user uses the pressure sensor. That will make output signal too small to use;

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3. We suggest that the assembling construction is floating, in order to reduce the mounting effects to the least.

4. Please pay attention to diaphragm and ceramic board, to prevent damaging sensor and affect sensor performance.