

# MPM283 Piezoresistive OEM Pressure Sensor

## Features

- Pressure range: 0~700kPa...100MPa
- Gauge, absolute and sealed gauge
- Constant current power supply
- Isolated construction, enable to test measure various media
- Φ12.6mm compact size OEM pressure sensor
- Stainless steel 316L
- Wider temperature compensation range -10 °C~+80 °C



## Application

- Industrial process control
- Level measurement
- Gas, liquid pressure measurement
- Pressure inspection meter
- Pressure calibrator
- Liquid pressure system and switch
- Cooling equipment and air conditioner
- Aviation and navigation inspection

## Introduction

MPM283 piezoresistive pressure sensor is OEM pressure sensor with stainless steel isolated diaphragm, the whole product has integrated construction, high endurance, high stability and good reliability, it can be used specially for middle and high pressure measurement. The sensor using high accurate and stable pressure die, are produced on the advanced production line. Sensors are tested automatically, and compensated zero and temperature performance. With identical mounting dimension, the sensors are widely used for chemi-industry, process control, liquid pressure system and switch, etc.

## Electric Performance

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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%):  $< 1\text{ms}$

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

Overpressure: 1.5 time FS or 110MPa(min. value is valid)

## Construction Performance

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Diaphragm: stainless steel 316L

<http://www.microsensor.cn>

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**MICRO SENSOR CO.,LTD.**

Housing: stainless steel 316L  
 Pin: Kovar or silicon rubber flexible wires  
 O-ring: Viton  
 Net weight: ~8g

### Environment Condition

Position effect: deviate 90° from any orientation, zero change  $\leq 0.1\%FS$   
 Shock: no change at 10gRMS, (20~2000) Hz  
 Impact: 100g, 11ms  
 Media compatibility: the liquid or gas which is compatible with stainless steel and Viton

### Basic Condition

Media temperature: (35±1) °C  
 Environment temperature: (35±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

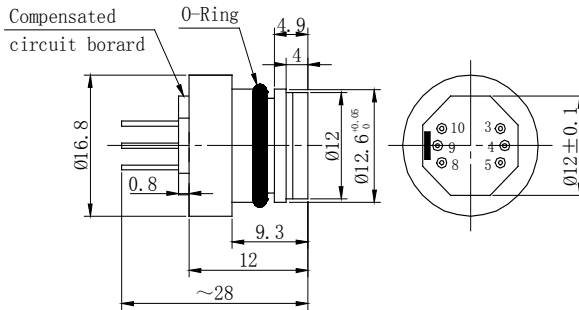
Specification*	Min.	Typ.	Max.	Units
Non-Linearity **		±0.2	±0.25	%FS,BFSL
Repeatability		±0.05	±0.075	%FS
Hysteresis		±0.05	±0.075	%FS
Zero output			±3	mVDC
FS output	70			mVDC
Zero thermal error		±0.75	±1.0	%FS, @35 °C
Span thermal error		±0.75	±1.0	%FS, @35 °C
Compensated temp. range		-10~80		°C
Working temp. range		-40~125		°C
Storage temp. range		-40~125		°C
Stability		±0.1	±0.2	%FS/year

\* testing at basic condition

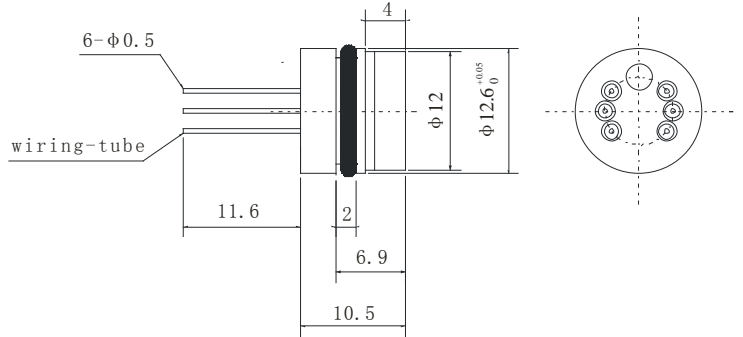
\*\* 100MPa pressure sensor's non-linearity: typ. ±0.30, max. ±0.35(units ±%FS,BFSL)

### Outline Construction

(units: mm)



MPM283 Type I

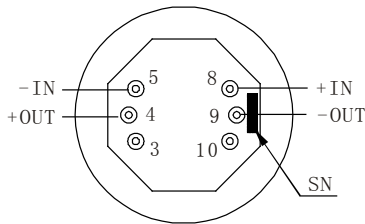


MPM283 Type II

The suggested mounting dimension is  $\Phi 12.6^{+0.12}_{+0.08}$  mm

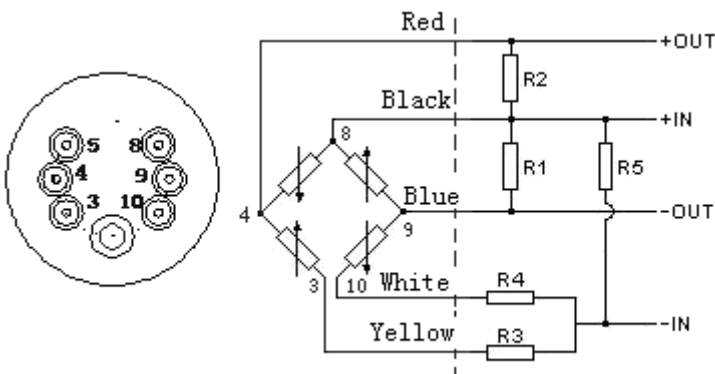
### Electric Connection

MPM283 Type I



Pin	Connection	Wire color
8	(+IN)	Black
5	(-IN)	Yellow
4	(+OUT)	Red
9	(-OUT)	Blue
The other pins are useless		

MPM283 Type II / I (M)



Pin	Connection	Wire color
8	(+IN)	Black
3	(-IN)	Yellow
10	(-IN)	White
4	(+OUT)	Red
9	(-OUT)	Blue
The other pins are useless		

1. The resistance bridge on the left of the dashed is sensing die's bridge circuit;

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2. The sensor has no compensated board, it is needed to connect outer compensated resistor to compensate zero and temperature drift, the connection to see the above chart. Connect zero calibrated resistor R3 (R4), the other resistor R4 (R3) is short circuit as negative power supply; R1 or R2 is zero temperature compensated resistor, only one of them is used, the other is open circuit. The user could select according the specification label which is enclosed with pressure sensor; R5 is sensitivity compensated resistors. We suggest that please connect the outer compensated resistors with pressure sensor as close as possible.

## Order Guide

MPM283	Piezoresistive OEM Pressure Sensor		
	Code	Assembling type	
	I	with cap $\Phi 16.8$ mm	
	II	$\Phi 12.6 \times 10.5$ mm	
	Range code	Pressure range	Pressure type
	09	0~700kPa	G.A
	10	0~1000kPa	G.A
	12	0~2MPa	G.A
	13	0~3.5MPa	G.S.A
	14	0~7MPa	S
	15	0~10MPa	S
	17	0~20MPa	S
	18	0~35MPa	S
	19	0~70MPa	S
	20	0~100MPa	S
	Code	Pressure type	
	G	Gauge	
	A	Absolute	
	S	Sealed gauge	
	Code	Temperature compensated type	
	L	With laser trimming compensated circuit board (only for MPM283 I )	
	M	Compensated by outer resistors	
	Code	Electric connection	
	1	Kovar pin(default)	
	2*	flexible wire, default length:100mm	

MPM283  
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\* The default version code for electric connection for sensors on the parameter card is 1. And it is also allowable to print code 1 even though the electric connection is flexible wire (original code 2). The wire length shall be as per customers' request on the contact.

### **Order Note**

1. Please pay attention to protect the diaphragm to prevent sensor from damaging;
2. Please do not pull or drag the Kovar pin or flexible leading wires.
3. Temperature resistant range of standard Viton O-ring of sensor is  $-20^{\circ}\text{C} \sim 250^{\circ}\text{C}$ . When working temperature is lower than  $-20^{\circ}\text{C}$ , or sensor is applied in critical environment, please contact us.