

MPM281Pro Pressure Sensor



Features

- Pressure range: 0kPa ~7kPa...3.5MPa
- Nonlinearity: $\pm 0.1\%$ FS
- Gauge, Absolute
- Constant current power supply
- $\Phi 19\text{mm}$ standard OEM pressure sensor
- Full Stainless Steel 316L
- Wide compensation temperature range of $-20^{\circ}\text{C} \sim 85^{\circ}\text{C}$
- Long-term stability: $\pm 0.1\%$ FS/Year
- $3.012\text{V} \pm 1\%$ Interchangeability (gain resistance)

Applications

- Medical devices
- Industrial process control
- Level measurement
- Air refrigeration or compressors
- Pressure transmitters
- Hydraulic system and switches

Introduction

MPM281Pro Pressure Sensor is a high-accuracy, medium-isolated pressure sensitive element, utilizing a highly stable and reliable diffused silicon die that is encapsulated in a 316L stainless steel structure with an outer diameter of $\Phi 19\text{mm}$. Accurate tuning of temperature error and zero output is achieved through an external laser trimming compensation board. Additionally, the gain resistance can be adjusted to provide a net FS output signal of $3.012\text{V} \pm 1\%$.

This product has undergone strict inspection, repeated assessment, and testing on automated production lines. It can be widely used in various high-demand pressure measurement applications.

Electrical Performance

- Power supply: $\leq 2.0\text{mA DC}$
- Electrical connection: Grey ribbon cable with plug(UL2651-6P,28AWG,2451HM-6P)
- Common mode voltage output: 50% input (typ.)
- Input impedance: $2\text{k}\Omega \sim 8\text{k}\Omega$
- Output impedance: $3\text{k}\Omega \sim 6\text{k}\Omega$
- 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
- Housing: Stainless steel 316L
- Vent tube : Kovar alloy
- Outline: Ribbon cable
- O-ring: FKM
- Net weight: About 16g
- Oil filling: Silicone oil

Basic Conditions

- Medium temperature: $(25 \pm 1)^{\circ}\text{C}$
- Ambient temperature: $(25 \pm 1)^{\circ}\text{C}$
- Vibration: 0.1g (1m/s^2) Max
- Humidity: $(50 \pm 10)\% \text{RH}$
- Ambient pressure: $(86 \sim 106)\text{ kPa}$
- Power supply: $(1.5 \pm 0.0015)\text{ mA DC}$

Environmental Conditions

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

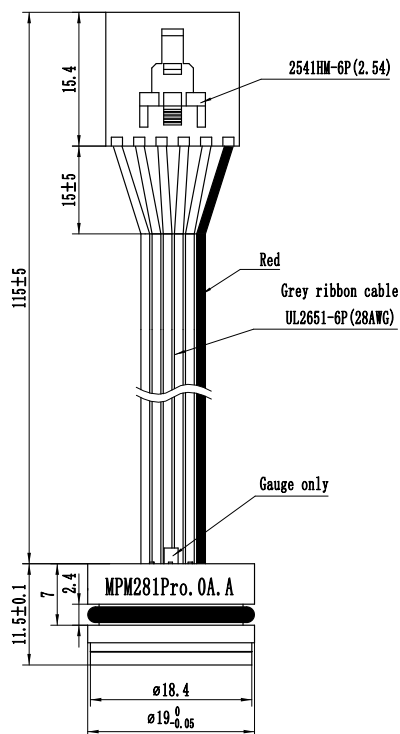
Specifications

Item*	Typ.	Max.	Range	Unit
Pressure nonlinearity**		±0.15	< 35kPa	%FS,BFSL
		±0.10	≥ 35kPa	
Pressure repeatability/hysteresis	±0.02	±0.05		%FS
Zero output		±1.00	> 35kPa	mV DC
		±2.00	≤ 35kPa	
Output/span***	60			mV DC
Zero thermal error		±1.00	≤35kPa	%FS,@25°C
		±1.00	70kPa~100kPa	
		±0.50	> 100kPa	
Span thermal error		±0.75		%FS,@25°C
Span/Zreo thermal hysteresis****	±0.05	±0.10		%FS
Compensation temp. range	0 ~ 50		< 35kPa	°C
	0 ~ 70		35kPa~70kPa	
	-20 ~ 85		> 100kPa	
Operating temp. range	-40 ~ 125			°C
Storage temp. range	-40 ~ 125			°C
Long-term stability error		±0.1		%FS/Year
* Testing under the basic conditions ** P=20kPa NonLinearity ≤ ±0.25%FS *** P=7kPa span ≥45mV,Output/Span=full scale output - zero point **** Over the compensation temperature range with respect to 25°C ,7kPa Span/Zreo thermal hysteresis ≤ ±0.25%FS				

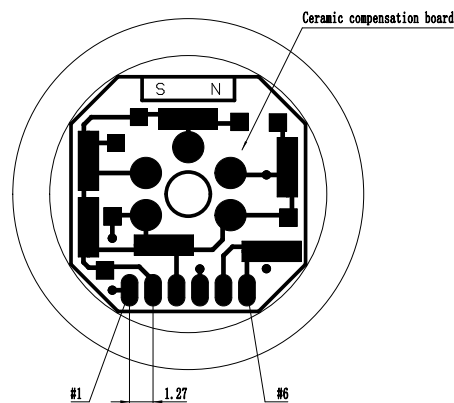
Outline Construction

Unit: mm

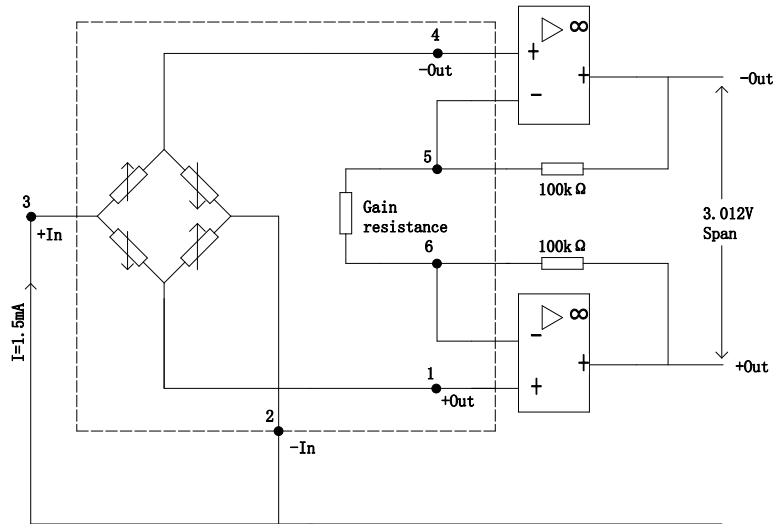
Electrical Connection



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



Pin	Definition	Notes
1	+OUT	#1,#2,#3,#4 mV Output
2	-IN	
3	+IN	
4	-OUT	
5	Gain resistance	#1,#2,#3,#4,#5,#6 Gain Output
6		



Order Guide

MPM281Pro-02-A-F-L-11

Range code	Pressure range	Ref.	Overload pressure	Burst pressure
0C	0kPa~7kPa	G	600%FS	600%FS
0B	0kPa~20kPa	G	600%FS	600%FS
0A	0kPa~35kPa	G.A	1000%FS	1000%FS
02	0kPa~70kPa	G.A	450%FS	450%FS
03	0kPa~100kPa	G.A	300%FS	300%FS
07	0kPa~200kPa	G.A	300%FS	300%FS
08	0kPa~350kPa	G.A	300%FS	300%FS
09	0kPa~700kPa	G.A	300%FS	300%FS
10	0MPa~1MPa	G.A	300%FS	300%FS
12	0MPa~2MPa	G.A	200%FS	200%FS
13	0MPa~3.5MPa	G.A	200%FS	200%FS

Code	Electrical connection
2	100mm silicone wires
11	Grey ribbon cable

Code	Compensation
L	Temperature compensation (1.5mA excitation)

Code	Sealing
F	FKM O-ring

Code	Pressure type
G	Gauge
A	Absolute

Notes

- The default unit of the product is kPa. 1kPa=0.01bar.
- It is recommended that the sensor be assembled as a "suspended" construction to avoid direct pressure on its face and affecting sensor stability.
- Protect the isolated diaphragm and ceramic circuit board to prevent any damage or low performance.