MPM271 Pressure Sensor

Features

- Measurement range: 0bar~0.07bar…35bar
- Nonlinearity: ±0.1%FS
- Gauge, Absolute
- Constant current power supply
- Φ19mm standard OEM pressure sensor
- Fully Stainless Steel 316L
- Wide compensated temperature range of -20℃ ~85℃
- Long-term stability: ± 0.1%FS/Year
- ±1.0% Interchangeable Span (provided by gain set resistor)

Application

- Medical instruments
- Indusrial process control
- Level measurements
- Air refrigeration or compressors
- Pressure transmitters
- Hydraulic system and switch

Introduction

MPM271 is a high-accuracy, medium-isolated pressure sensitive element , utilizing a highly stable and reliable diffused silicon chip that is encapsulated in a 316L stainless steel structure with an outer diameter of Φ19mm. 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 3.012V±1%.

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

Electrical Performance

- Power supply: ≤2.0mA DC
- Electrical connection: Gray Ribbon with plug(UL2651-6P,26AWG,2451HM-6P)
- Common mode voltage output: 50% input (typ.)
- Input impedance: 2kΩ ~ 8kΩ
- Output impedance: 3kΩ ~ 6kΩ
- Response time (10%~90%): <1ms
- Insulation resistance: 100MΩ@100V DC
- Overload: 2 times FS or 1100bar(min. value is valid)

Construction Performance

- Diaphragm: Stainless steel 316L
- Housing: Stainless steel 316L
- Vent tube : Stainless steel 316L
- Outline: Ribbon cable
- O-ring: EPDM (ethylene propylene diene monomer)
- Net weight: Approx 16g

Basic Condition

- Medium temperature: (25±1)℃
- Environment temperature: (25±1)℃
- Shock: 0.1g (1m/s^2) Max
- Humidity: (50±10) %RH
- Local air pressure: (0.86~1.06) bar
- Power supply: (1.5±0.0015) mA DC

Environment Condition

- Vibration: No change at 10gRMS, (20~2000)Hz
- Shock: 100g,11ms
- Medium compatibility: Liquids or gases that are compatible with stainless steel and EPDM

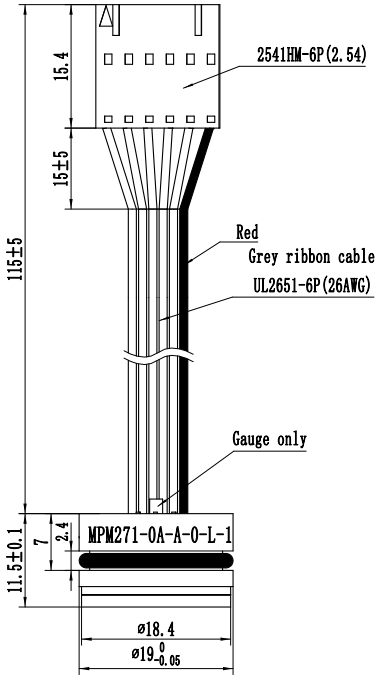
Specification

Item*	Typ.	Max.	Range	Units
NonLinearity**		±0.15	< 0.35bar	%FS,BFSL
		±0.10	≥ 0.35bar	
Repeatability/Hysteresis	±0.02	±0.05		%FS
Zero output		±1.00	< 0.35bar	mV DC
		±2.00	≥ 0.35bar	
Output/span***	60			mV DC
Zero thermal error		±1.00	≤ 0.35bar	%FS,@25℃
		±0.75	0.70bar,1bar	
		±0.50	> 1bar	
Span thermal error		±0.75		%FS,@25℃
Compensated temp. range	0 ~ 50		< 0.35bar	℃
	0 ~ 70		0.35bar,0.70bar	
	-20 ~ 85		≥ 1bar	
Span/Zreo thermal hysteresis****	±0.05	±0.10		%FS
Working temp. range	-40 ~ 125			℃
Storage temp. range	-40 ~ 125			℃
Long-term Stability error		±0.1		%FS/Year

* Testing at basic condition
** 0.2bar NonLinearity ≤ ±0.25%FS
*** Output/Span=full scale output - zero point
**** Over the compensated temperature range with respect to 25°C,
0.07bar Span/Zreo thermal hysteresis ≤ ±0.25%FS

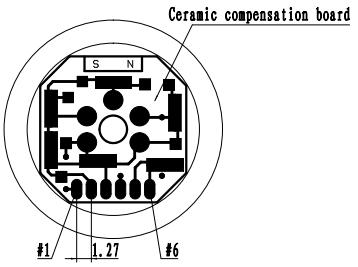
Outline Construction

Unit: mm

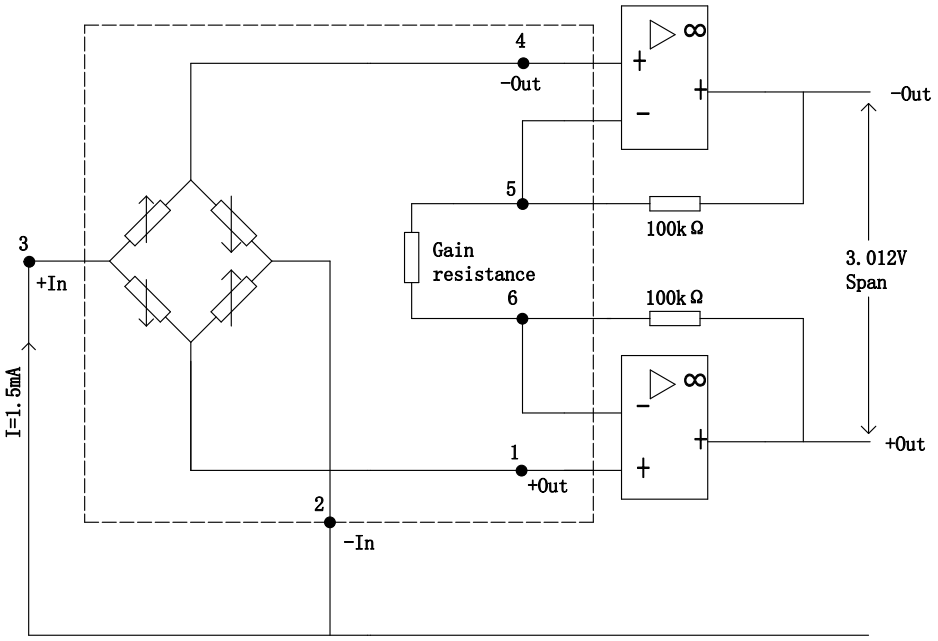


The suggested installation dimension is Φ19 $^{+0.05}_{+0.02}$ mm

Electrical Connection



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

MPM271	Pressure Sensor				
Range code	Pressure range	Ref.	Overpress(×FS)	Burst pressure (×FS)	
0C	0bar ~ 0.07bar	G	6	> 6	
0B	0bar ~ 0.20bar	G	6	> 6	
0A	0bar ~ 0.35bar	G.A	10	> 10	
02	0bar ~ 0.70bar	G.A	4.5	> 4.5	
03	0bar ~ 1bar	G.A	3	> 3	
07	0bar ~ 2bar	G.A	3	> 3	
08	0bar ~ 3.5bar	G.A	3	> 3	
09	0bar ~ 7bar	G.A	3	> 3	
10	0bar ~ 10bar	G.A	3	> 3	
12	0bar ~ 20bar	G.A	2	> 2	
13	0bar ~ 35bar	G.A	2	> 2	

Code	Pressure type
G	Gauge
A	Absolute

Code	Pressure connection
0 or null	O-ring

Code*	Temperature compensation method
L	Laser trimming

Code	Electrical connection
1	Gray ribbon cable

MPM271	07	G	0	L	1	the whole spec

* For products whose electrical connection is “gray ribbon cable”, the electrical connection code in the model specification on the parameter card may be the default code “1”, and the length of the conductor may be as required by the contract.

Notes

1. It is recommended that a "suspended" structure be used for assembling pressure sensor, in order to avoid tight sealing on its end face and prevent any impact on the stability of the sensor.
2. Safeguard the isolation diaphragm at the front end of the pressure sensor and the ceramic board at the rear end to prevent contact that may impair the performance or cause damage to the sensor.