bar MPM281

FEATURES

- Pressure range 0~0.07bar...1000bar
- Gauge, Absolute, Sealed gauge
- Constant current or constant voltage power supply
- Isolated construction, various medium measurement available
- Φ19mm standard OEM pressure sensor
- Whole stainless steel 316L
- Wide compensated temperature range of -10°C ~80°C
- Long-term stability ± 0.1%FS/Year

MICROSENSOR
AUTHORIZED DISTRIBUTOR

APPLICATIONS

- Industrial process control
- Level measurement
- Gas, liquid pressure measurement
- Pressure checking meter
- Pressure calibrator
- Liquid pressure system and Switch
- Cooling equipment and Air conditioning system
- Aviation and Navigation inspection

MPM281 High Stability Pressure Sensor is a high-stability silicon piezoresistive pressure measuring element with an isolated construction and precise temperature compensation. Adopting high stable and reliable diffused silicon die, it is packaged in a whole stainless steel 316L housing with diameter of Φ19mm. The precision-calibrated compensation circuit performs a temperature compensation and zero-point deviation correction in a wide temperature range for the sensor element. The measured pressure is transmitted to the sensor chip through the isolation diaphragm and the internal medium, which realizes the precise conversion of pressure to electrical signal. The sensor can also be filled with fluorocarbon oil, which is more suitable for pressure measurement of medium in oxygen-enriched environments. MPM281 has been strictly inspected and screened on the automated production line, and has been repeatedly examined and tested, making it widely used in various high-demand pressure measurement occasions.

CONSTRUCTION PERFORMANCE

Diaphragm	Stainless steel 316L
Housing	Stainless steel 316L
Pressure leading tube	Stainless steel 304
Pin	Kovar
O-ring	FKM
Net weight	~16g

BASIC CONDITION

Media temperature	(35±1)°C
Environment temperature	(35±1)°C
Shock	0.1g (1m/s²) Max
Humidity	(50±10)%RH
Local air pressure	(0.86 ~ 1.06)bar
Power supply	(1.5±0.0015)mA DC

ENVIRONMENT CONDITION

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

ELECTRICAL PERFORMANCE

Power supply	≤2.0mA DC(constant current type) ≤10V DC(constant voltage type)
Electrical connection	Φ0.5mm Kovar pin or 100mm silicon rubber flexible wires
Common mode voltage output	50% of input (typ.)
Input impedance	2kΩ ~ 8kΩ(constant current type) 4kΩ ~ 25kΩ(constant voltage type)
Output impedance	3.5kΩ ~ 6kΩ
Response (10% ~ 90%)	< 1ms
Insulated resistor	100MΩ@100V DC
Overpressure	2 times FS or 1100bar (min. value is valid)

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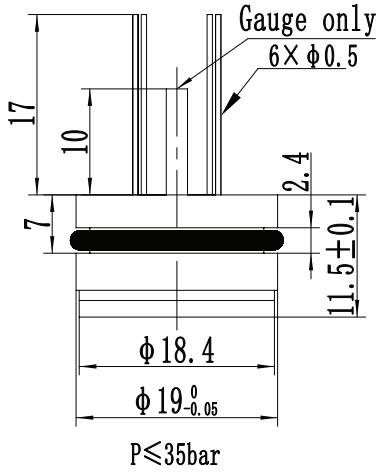
SPECIFICATION

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			±2.0	mV DC
Constant current output/span***	70			mV DC
Constant voltage output/span****	5~25			mV/V
Zero thermal error*****		±0.75	±1.0	%FS, @35°C
Span thermal error		±0.75	±1.0	%FS, @35°C
	0~70(0.07bar G, 0.2bar G, 0.35bar G, 0.35bar A)			°C
Compensated temp. range	-10 ~ 80			
Working temp. range	-40 ~ 125			°C
Storage temp. range	-40 ~ 125			°C
Stability error		±0.1	±0.2	%FS/Year

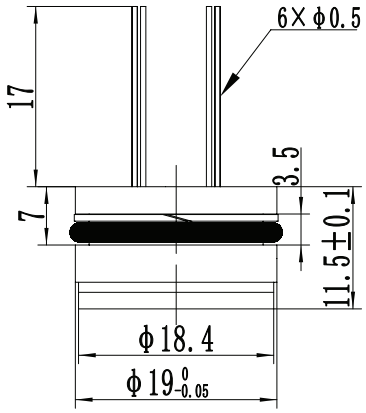
* Testing at basic condition
** For range code 0.35bar,Linearity≤±0.3%FS
*** Output/Span=full scale output - zero point
For range code 70mbar, FS output ≥45mV,Range code 0.7bar,FS output ≥60mV
**** For range code 70mbar,FS output 3mV/V ~ 6mV/V
***** For range code 70mbar, Zero thermal error≤1.5%FS

OUTLINE CONSTRUCTION (UNIT:mm)

MPM281 Type

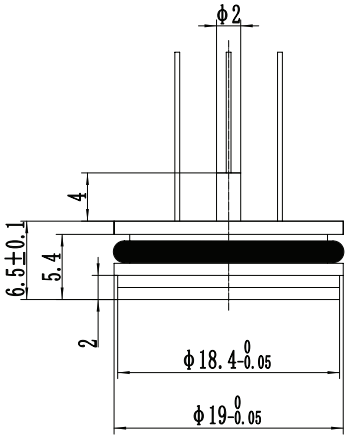


P≤35bar



P≥70bar

MPM281 Type Ⅱ



0.2bar≤P≤35bar

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

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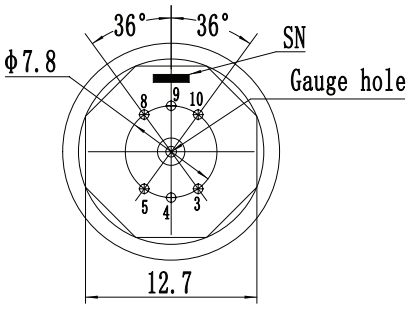
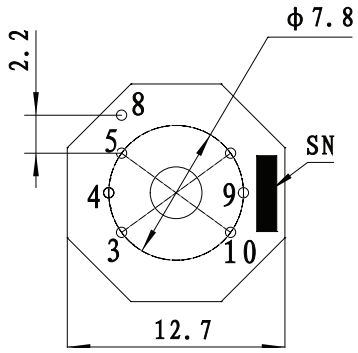
ELECTRICAL CONNECTION

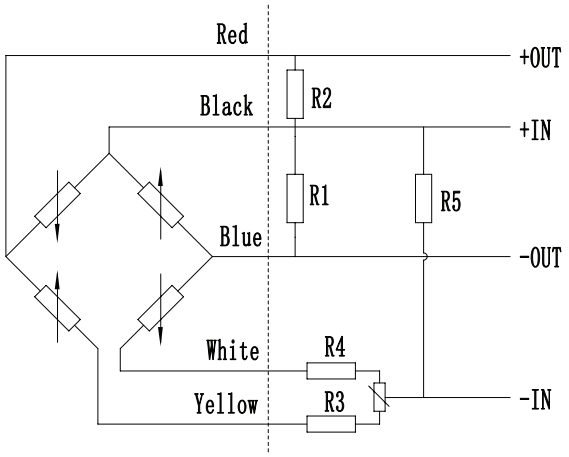


Constant current

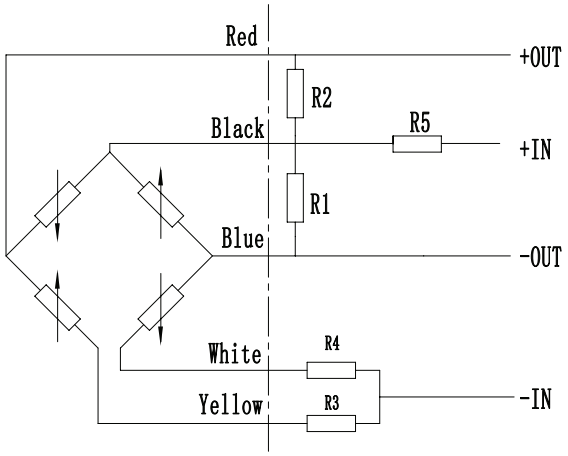


Constant voltage

Pin	For range 02/03/17/18/19/20		Other range codes	
	Definition	Wire color	Definition	Wire color
4	-OUT	Blue	+OUT	Red
5	-IN	Yellow	-IN	Yellow
8	+IN	Black	+IN	Black
9	+OUT	Red	-OUT	Blue



Constant current



Constant voltage

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ORDER GUIDE

MPM281	MPM281FL High Stability Pressure Sensor (MPM281FL:Filling with fluorocarbon oil)

Code	Size
null	φ19mm×11.5mm
II	φ19mm×6.5mm (Only for range: 0.2bar~35bar)

Range code	Pressure range	Ref.	Range code	Pressure range	Ref.
0C	0bar~0.07bar	G	12	0bar~20bar	G.A
0B	0bar~0.20bar	G	13	0bar~35bar	G.A.S
0A	0bar~0.35bar	G.A	14	0bar~70bar	S.A
02	0bar~0.70bar	G.A	15	0bar~100bar	S.A
03	0bar~1bar	G.A	17	0bar~200bar	S.A
07	0bar~2bar	G.A	18	0bar~350bar	S.A
08	0bar~3.5bar	G.A	19	0bar~700bar	S.A
09	0bar~7bar	G.A	20	0bar~1000bar	S.A
10	0bar~10bar	G.A			

Code	Pressure type
G	Gauge
A	Absolute
S	Sealed gauge

Code	Pressure connection
0 or null	O-ring

Code	Compensation
L	Constant current supply laser resistance compensation
LCV	Constant voltage power supply laser resistance compensation
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
	Only available for ranges ≥1bar (code 03~20)

MPM281	07	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. *The default unit of all the products is kPa (1kPa=0.01bar).*
2. *It is recommended that the sensor should be installed by a "suspended" structure so as to avoid pressing the seal on its end face and to prevent the stability of sensor element.*
3. *The isolation diaphragm and the ceramic board should be protected to avoid bumps that affect the performance or cause damage to the element.*
4. *Temperature resistant range of standard FKM 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.*