

# MPM251 Pressure Sensor

## Introduction

MPM251 pressure sensor is a pressure measuring device that converts pressure signal into standard electrical signal output. It is composed of PCB'A circuit board composed of ASIC chips of famous manufacturers and diffused silicone oil-filled core of standard  $\phi 19\text{mm}$  size. Flexible to match a variety of electrical connections, assembly into a variety of field measuring pressure instruments.

MPM251 pressure sensor output signal including two wire (4 ~ 20) mA DC current type, three-wire system (fixed) voltage output and the proportion of three wire system voltage output form. Based on the company's mature production process and signal conditioning technology of pressure sensor, we choose the pressure sensor special conditioning chip (ASIC), whose digital processing part has a dual-channel 24-bit ADC, so that the product signal resolution is high. After high and low temperature aging and wide temperature range compensation, the performance is stable and reliable.

Its product shape, assembly size and sealing way are consistent with foreign and our company's mainstream similar products, with good interchangeability.

## Electrical Specification

- Range:  $-1\text{bar} \dots -0.35\text{bar} \sim 0\text{bar} \sim 0.35\text{bar} \dots 700\text{bar}$
- Pressure type: gauge, absolute, sealed gauge
- Common power supply: See output parameters for details
- Accuracy<sup>1</sup>:  $\pm 0.25\% \text{FS}$ ,  $\pm 0.5\% \text{FS}$
- Insulation Resistor:  $100\text{M}\Omega @ 50\text{V DC}$
- Insulation strength:  $50\text{Hz}, 500\text{V AC}$
- Compensated temp. range<sup>2</sup>:  $0 \sim 70^\circ\text{C}$
- Working temp. range:  $-40 \sim 125^\circ\text{C}$
- Storage temp. range:  $-40 \sim 125^\circ\text{C}$
- Vibration: No change at  $10\text{gRMS}$ ,  $(20 \sim 2000)\text{Hz}$
- Common mode voltage output: 50% input (typ.)
- Impact:  $100\text{g}, 11\text{ms}$
- Overpressure: 2 times FS or  $1100\text{bar}$  (min. value is valid)
- Burst pressure: 3 FS

1. The test standard was carried out according to JJG 1640-2017.

2. This is the compensation temperature of conventional products, if you have special temperature requirements, please consult.



## Features

- Standard voltage, current output signal
- $\Phi 19\text{mm}$  standard outside diameter, high interchangeability
- All stainless steel 316L
- Wide power supply range
- No calibration, high precision
- The dimensions are customizable

## Application

- Medical instrument
- Pressure transmitter
- Liquid level measurement
- Intelligent pressure measuring instrument
- Gas and liquid pressure measurement
- Flow meter matching

## Construction Performance

- Diaphragm: Stainless steel 316L
- Housing: Stainless steel 316L
- Pressure leading tube : Stainless steel 304
- Outline: Silicone cable
- O-ring: FKM
- Net weight: Approx 30g

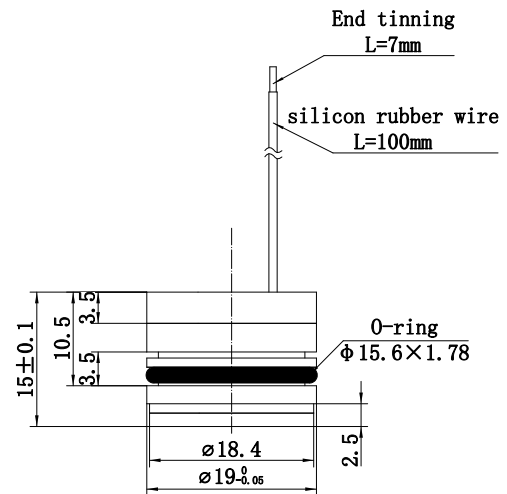
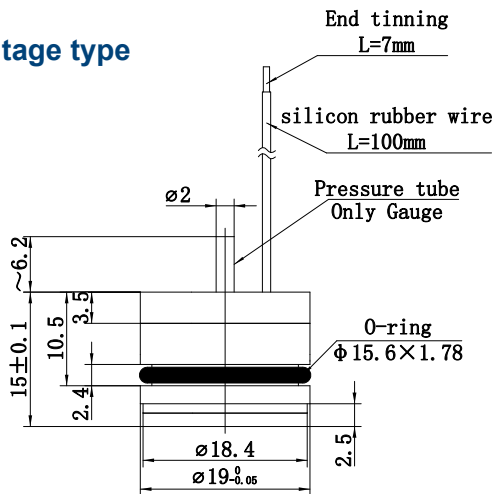
## Basic Condition

- Media temperature: (35±1)°C
- Environment temperature: (35±1)°C
- Relative humidity: ≤ 80% RH
- Local air pressure: (0.86 ~ 1.06)bar
- Power supply: 24V DC(8 ~ 28V DC), 5V DC(5±0.3V DC), 3.3V DC(3.3±0.3V DC)
- Load resistance: 250Ω(current type), ≥ 10k(voltage type)

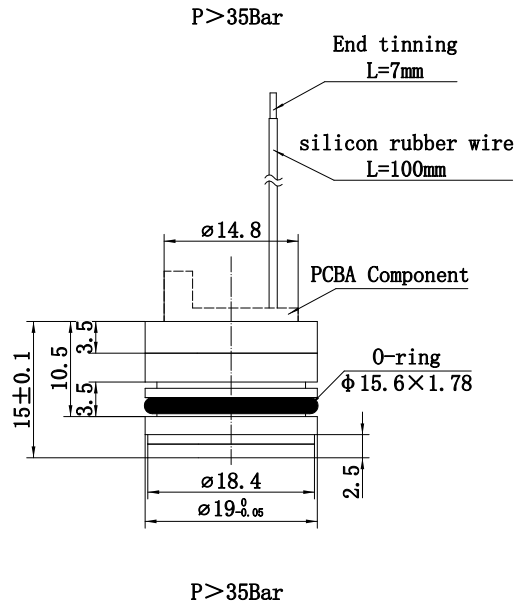
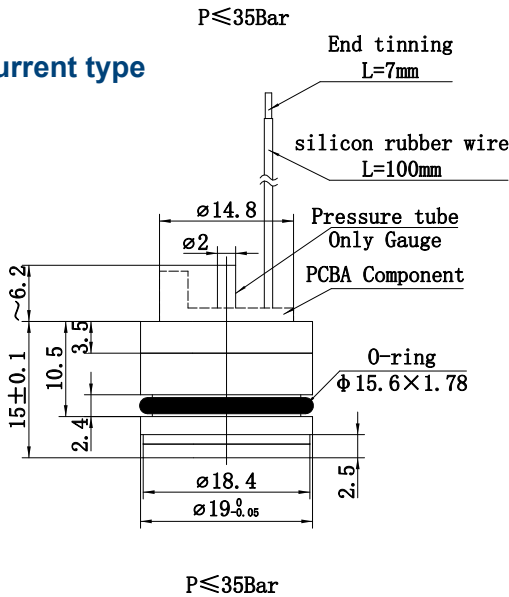
## Outline Construction

Unit: mm

### Voltage type



### Current type



The suggested mounting dimension is  $\Phi 19^{+0.05}_{+0.02}$  mm,  $L \geq 15$ mm

## Output parameter

Output signal	Supply voltage	Output form	Load resistance
4 ~ 20mA DC	8 ~ 28V DC	2-wire	$\leq (U-8)/0.02(\Omega)$
0.5 ~ 4.5V DC			
0.5 ~ 4.5V DC	5±0.3V DC	3-wire	≥ 10k
0.5 ~ 2.5V DC	3.3±0.3V DC		

## Electrical Connection

Output signal	2-wire	3-wire
Red	+V	+V
White	/	+OUT
Black	GND	GND

Order Guide

MPM251		Pressure Sensor					
		Range code	Pressure range	Ref.	Range code	Pressure range	Ref.
		0A	0bar~0.35bar	G.A	12	0bar~20bar	G.A
		02	0bar~0.7bar	G.A	13	0bar~35bar	G.S.A
		03	0bar~1bar	G.A	14	0bar~70bar	S.A
		07	0bar~2bar	G.A	15	0bar~100bar	S.A
		08	0bar~3.5bar	G.A	17	0bar~200bar	S.A
		09	0bar~7bar	G.A	18	0bar~350bar	S.A
		10	0bar~10bar	G.A	19	0bar~700bar	S.A
		Code	Pressure type				
		G	Gauge				
		A	Absolute				
		S	Sealed gauge				
		Code	Power supply type				
		V1	24V DC				
		V6	5.0V DC				
		V7	3.3V DC				
		Code	Output type				
		E	4mA ~ 20mA DC				
		K	0.5 ~ 4.5V DC				
		Kb	0.5 ~ 4.5V DC(Ratio metric)				
		W	0.5 ~ 2.5V DC				
		Code	Electrical connection				
		2	100mm flexible silicon rubber wires(default)				
		Code	Special measurement				
		Y	Gauge type can be used to measure negative pressure (-1bar ~ -0.35bar)				
MPM251	07	G	V6	Kb	2	Y	the whole spec

Notes

1. The range listed in the selection is the conventional range of this product. If you have special range requirements (including negative pressure type), please call for details.
2. Low voltage power supply: 3.3VDC for a fixed output of 0.5V to 2.5V DC. The power supply for a fixed output of 0.5V to 4.5V DC is 5.0V DC.
3. If the pressure sensor is fixed using a locking ring, the inner hole of the locking ring should not be smaller than  $\phi 15$  mm.
4. It is recommended that the sensor shall be installed by a "suspended" structure to prevent affecting the sensor stability.