

PC10PTFE Silicon Piezoresistive Pressure Sensor

Features

- Constant current excitation
- High reliability pressure chip
- surfacePTFEMaterial
- Wide temperature compensation
- Can do normalized output
- Moisture-proof protection of compensation plate
- High performance, all solid state, high reliability
- 18Months warranty period

Application and industry

- Process Control Systems
- Pressure Calibration Instruments
- Refrigeration equipment and HVACcontrol
- Hydraulic system and valves
- Liquid level measurement
- Biomedical Instruments
- Ships and Navigation
- Aircraft and avionics systems
- Weapons and Equipment

Notice:

1. Do not touch the diaphragm with hard objects, as this will cause isolation. Diaphragm damaged.
2. Please read the product instructions carefully before installation and check the relevant information of the product.
3. Strictly follow the wiring method to connect, otherwise it may cause resulting in product damage and other potential failures.
4. Misuse of the product may cause danger or personal inquiry



Product Overview

PC10PTFE, PTFE type silicon piezoresistive pressure sensor is the core component of pressure sensor and pressure transmitter as the high performance pressure sensitive element. It adopts integrated structure, high static pressure resistance, stable and reliable.

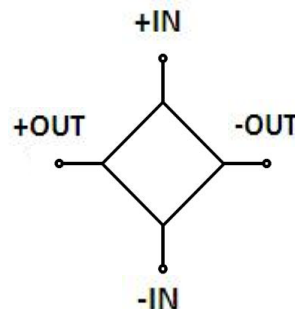
PC10PTFE sensor is a diffused silicon pressure sensitive chip encapsulated in a 316L stainless steel housing. The external pressure is transmitted to the sensitive chip through the stainless steel diaphragm coated with PTFE and the internally sealed silicone oil. The sensitive chip does not directly contact the measured medium, forming a fully solid-state structure for pressure measurement. Therefore, this product can be used in various occasions, including harsh corrosive media environments.

PC10PTFE sensor uses an O-ring for pressure sealing, which is easy to install.

Our company can also undertake special customization according to user needs, such as fully welded structure, wide temperature compensation, high reliability, strong impact resistance and vibration resistance pressure sensors, especially for national defense weapons and equipment.

Equivalent circuit

(1) 4 Wire



Notice:

- 1 Do not misuse documentation.
- 2 The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- 3 Complete installation, operation, and maintenance information is provided in the instructions of the product.
- 4 Misuse of the product may cause danger or personal injury.

Electrical performance parameters

Range	0~35kPa...25MPa
Pressure Type	Gauge pressure, Absolute pressure, sealed gauge pressure
Stimulate Encourage	recommend 1.5 mA
Input Impedance	Constant current: 2kΩ~5kΩ
Electrical Connections	Silicone soft wire
Compensation temperature	0°C~60°C (≤70kPa) ; -10°C~70°C (Other range)
Operating temperature	-40°C~120°C
Storage temperature	-40°C~120°C
Insulation resistance	≥200MΩ/250VDC
Response time	≤1ms (rising to 90%FS)
Measuring medium	All liquids and gases compatible with 316L and PTFE
Mechanical vibration	20g (20~5000HZ)
rush hit	100g (10ms)
Service life	1×10 ⁶ (cycles)

Structural performance parameters

Diaphragm material	316L+ sprayed black PTFE
Housing material	316L+ sprayed black PTFE
Oil filling	Silicone Oil
Sealing ring	Nitrile or fluorine rubber

Basic parameters

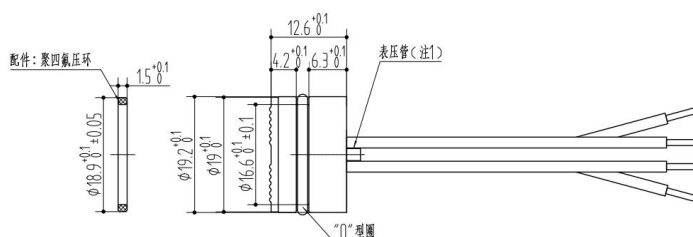
Item	Condition	Min	Nominal	Max	Unit	Note
Nonlinear		-2	±1	2	%FS	Note (1)
Late Hysteresis			0.03	0.05	%FS	
Repeatability			0.03	0.05	%FS	
Zero output		-2	±1	2	mV	
Full scale output	1.5mA	60	90	150	mV	Note (2)
Zero temperature drift		-15	±10	15	%FS	Note (3)
Sensitivity temperature drift		-15	±10	15	%FS	Note (3)

Note:

1. According to BFSL Least squares calculation, negative pressure range segmented calculation.
2. Under 1.5mA excitation, the output of different ranges is different. The output of small range is small, and the output of large range is large. If the customer needs a detailed range, please ask us before ordering.
3. In the compensation temperature range, 0°C~60°C 、 -10°C~70°C midpoint reference 30°C.

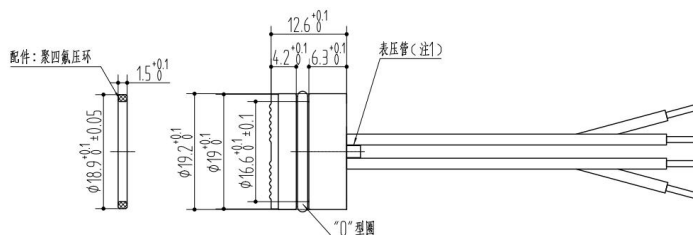
Structure Dimension

Unit (mm)



Electrical connection (In mm)

4 wires (4w)

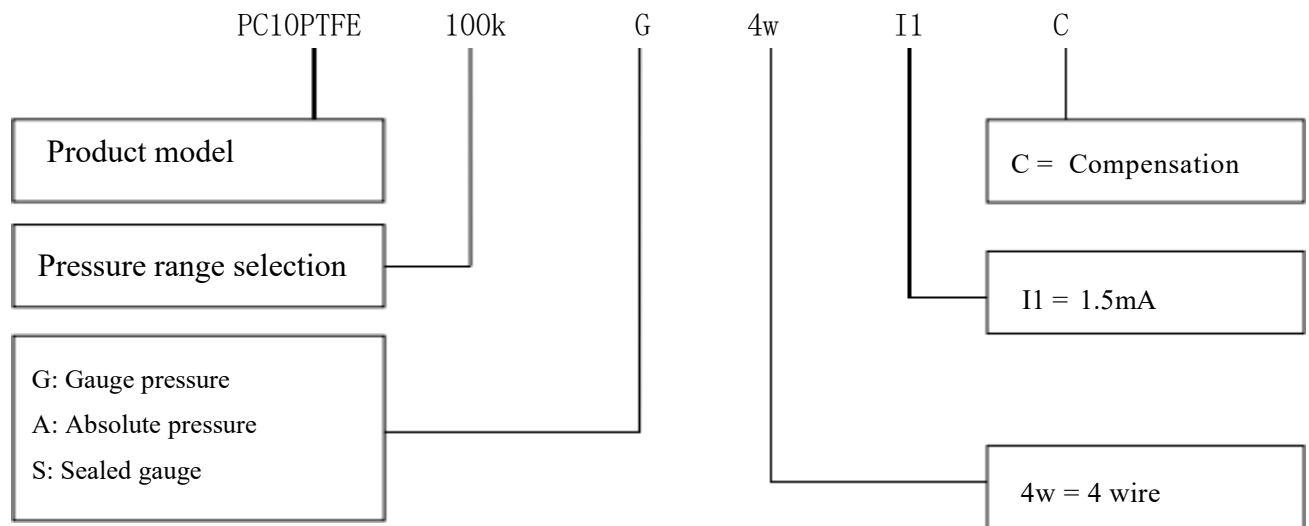


Wire color	Definition
Red	Excitation+(IN+)
Blue	Excitation-(IN-)
Yellow	Output+(OUT+)
White	Output-(OUT-)

Range selection

Range code	Pressure Type	Range	Overload pressure	Burst pressure	O-ring
35k	G	0~35kPa	300 %FS	600 %FS	Nitrile
70k	G	0~70kPa	300 %FS	600 %FS	Nitrile
100k	G、A	0~100kPa	200 %FS	500 %FS	Nitrile
250k	G、A	0~250kPa	200 %FS	500 %FS	Nitrile
500k	G、A	0~400kPa	200 %FS	500 %FS	Nitrile
1M	G、A	0~1MPa	200 %FS	500 %FS	Nitrile
1.6M	G、A、S	0~1.6MPa	200 %FS	500 %FS	Nitrile
2.5M	G、A、S	0~2.5MPa	200 %FS	500 %FS	Nitrile
4M	S	0~4MPa	200 %FS	400 %FS	Nitrile
6M	S	0~6MPa	200 %FS	400 %FS	Nitrile
10M	S	0~10MPa	200 %FS	400 %FS	Fluorine rubber
16M	S	0~16MPa	200 %FS	400 %FS	Fluorine rubber
25M	S	0~25MPa	200 %FS	400 %FS	Fluorine rubber

Note: G is gauge pressure, A is absolute pressure, S is Sealed gauge pressure



Example: PC10PTFE-100kG4wI1C

PC10PTFE sensor, pressure range 100kPa, gauge pressure, 4 wire electrical connection, 1.5mA excitation, current compensation

Ordering tips:

- 1 Pressure range can be selected higher or lower than actual conditions but should be within $\pm 30\%$ FS.
- 2 Pressure reference consists of gauge pressure, absolute pressure and sealed gauge pressure.
 - (1) Gauge pressure is based on the current atmospheric pressure. Generally, it refers to the measurement of pressure which is greater than the current atmospheric pressure. Negative pressure is a special case of gauge pressure. It refers that there is such working condition that the pressure of work site is lower than the current atmospheric pressure.
 - (2) Absolute pressure is based on vacuum.
 - (3) The sealing pressure is the absolute pressure used as the gauge pressure, but the reference is the atmospheric pressure at the production site. There is no gauge pressure above 4MPa, only sealing pressure.
- 3 Confirm the maximum overload of the applied system, which should be less than the overload protection limit of the sensor, otherwise it will affect the product life or even damage the product.
- 4 The commonly used compensation of the product is 1.5mA constant current compensation. Suggest to select the option with priority.
- 5 The material and process for manufacturing negative pressure sensors are different from those of positive pressure sensors. So gauge pressure sensors cannot be used as substitute of negative pressure sensors.
- 6 For special requirements on performance parameters and functions of the product, please contact us.

Contact us

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