# PC8 Piezoresistive Silicon Pressure Sensor

## Features

- With constant current and constant voltage excitation options
- Highly reliable imported pressure die
- Wide temperature compensation
- Normalized output available
- The compensating board with glue for moisture-proof protection
- Φ15mm standard OEM
- All 316L material
- High performance, all-solid-state, high reliability
- 18 months warranty period

## Applications

- Process control systems
- Pressure calibration instruments
- Refrigeration equipment and HVAC control
- Hydraulic systems and valves
- Level measurement
- Biomedical instruments
- Ships and navigation
- Aircraft and avionics systems
- Weaponry

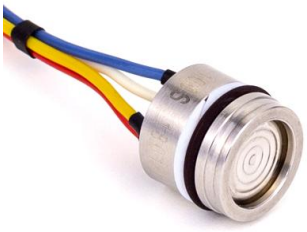
**Notes:**

1 Do not touch the diaphragm with hard objects, which may cause damage to the diaphragm.

2 Please read the Instruction Manual of the product carefully before installation and check the relevant information of the product.

3 Strictly follow the wiring method for wiring, otherwise, it may cause product damage or other potential faults.

4 Misuse of the product may cause danger or personal injury.



## Product overview

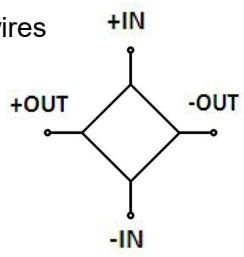
The PC8 piezoresistive silicon pressure sensor is the core component for manufacturing pressure sensors and pressure transmitters. As a high-performance pressure sensitive component, it can easily amplify signals and be assembled into pressure transmitters with standard signal output.

PC8 seals diffused silicon pressure sensitive die to 316L stainless steel housing. External pressure is transmitted to the pressure sensitive die through the 316L stainless steel diaphragm and internally sealed silicon oil. Pressure sensitive die does not directly contact the measured medium, forming an all-solid structure of pressure measurement. This allows the product to be applied to a variety of occasions, including harsh corrosive medium environments.

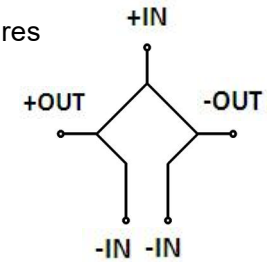
PC8 uses the O-ring for pressure sealing, making installation easy. Our company can also undertake special customizations to meet users' requirements, such as pressure sensors with a fully-welded structure, wide temperature compensation, high reliability, shock resistance, and vibration resistance, especially suitable for supporting national defense weapons and equipment.

## Equivalent circuit

(1) 4 wires




(2) 5 wires




**Notes:**

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 | |
|---|---|
| Pressure range | 1.6MPa…60MPa |
| Pressure reference | Absolute pressure, Sealed gauge pressure |
| Excitation | 1.5mA recommended for constant current<br>10V recommended for constant voltage |
| Input impedance | Constant current: 2kΩ~5kΩ<br>Constant voltage: 3kΩ~18kΩ |
| Electrical connection | Gold-plated KOVAR pins or silicon soft wires |
| Compensation temp. | -10℃~70℃ |
| Operating temp. | -40℃~125℃ |
| Storage temp. | -40℃~125℃ |
| Insulation resistance | ≥200MΩ/250VDC |
| Response time | ≤1ms (up to 90%FS) |
| Measured medium | All the liquids and gases compatible with 316L. |
| Mechanical vibration | 20g (20~5000Hz) |
| Shock | 100g (10ms) |
| Durability | $1\times10^6$ (cycles) |

| Structural performance parameters | |
|---|---|
| Diaphragm material | 316L |
| Housing material | 316L |
| Oil filling | Silicon oil |
| Sealing ring | Fluorine rubber |

**Basic parameters**

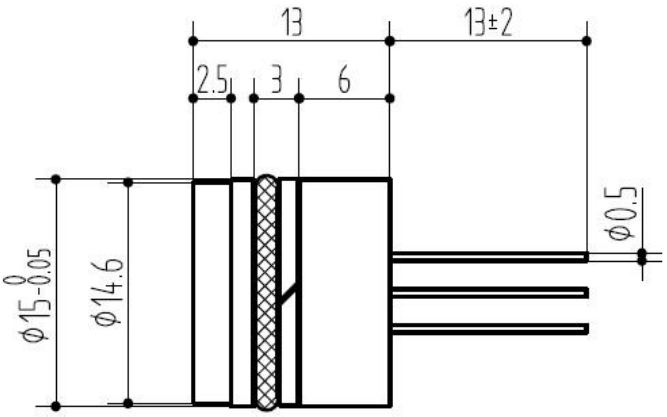
| Item | Condition | Min | Nominal | Max | Unit | Note |
|---|---|---|---|---|---|---|
| Nonlinearity | | -0.3 | ±0.2 | 0.3 | %FS | Note(1) |
| Hysteresis | | -0.05 | ±0.03 | 0.05 | %FS | |
| Repeatability | | -0.05 | ±0.03 | 0.05 | %FS | |
| Output signal under zero pressure | | -2 | ±1 | 2 | mV | |
| Output signal under full-scale span pressure | 1.5mA<br>10V | 60<br>98 | 90<br>100 | 150<br>102 | mV | |
| Temp.effect on offset | | -1.5 | ±0.75 | 1.5 | %FS | Note(2) |
| Sensitivity temp. drift | | -1.5 | ±0.75 | 1.5 | %FS | Note(2) |
| Thermal hysteresis | | -0.075 | ±0.05 | 0.075 | %FS | Note(3) |
| Long-term stability | | -0.3 | ±0.2 | 0.3 | %FS/Year | |

Notes: (1) Calculate according to BFSL method. The negative pressure range is calculated in segments.

(2) In the compensation temperature range, refer to 30℃ for -10℃~70℃.

(3) After measuring pressure under the high and low temperatures, return to the room temperature.

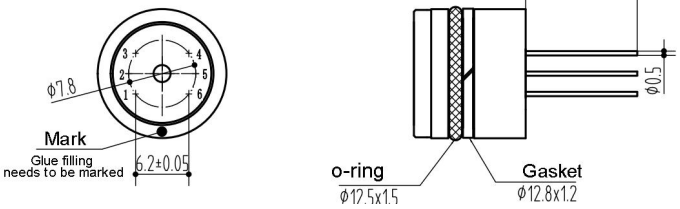
## Structure & dimension (in mm)




## Electrical connection (in mm)

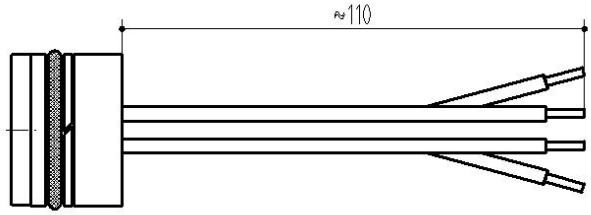
1. Constant current: 6 pins (6p)

Constant voltage: Please confirm specifications with the technical team.




| Pin | Definition |
|---|---|
| 3 | Excitation+(IN+) |
| 5 | Excitation-(IN-) |
| 2 | Output+(OUT+) |
| 4 | Output-(OUT-) |
| 1 | Die- |
| 6 | Die- |

2. 4 wires (4w)



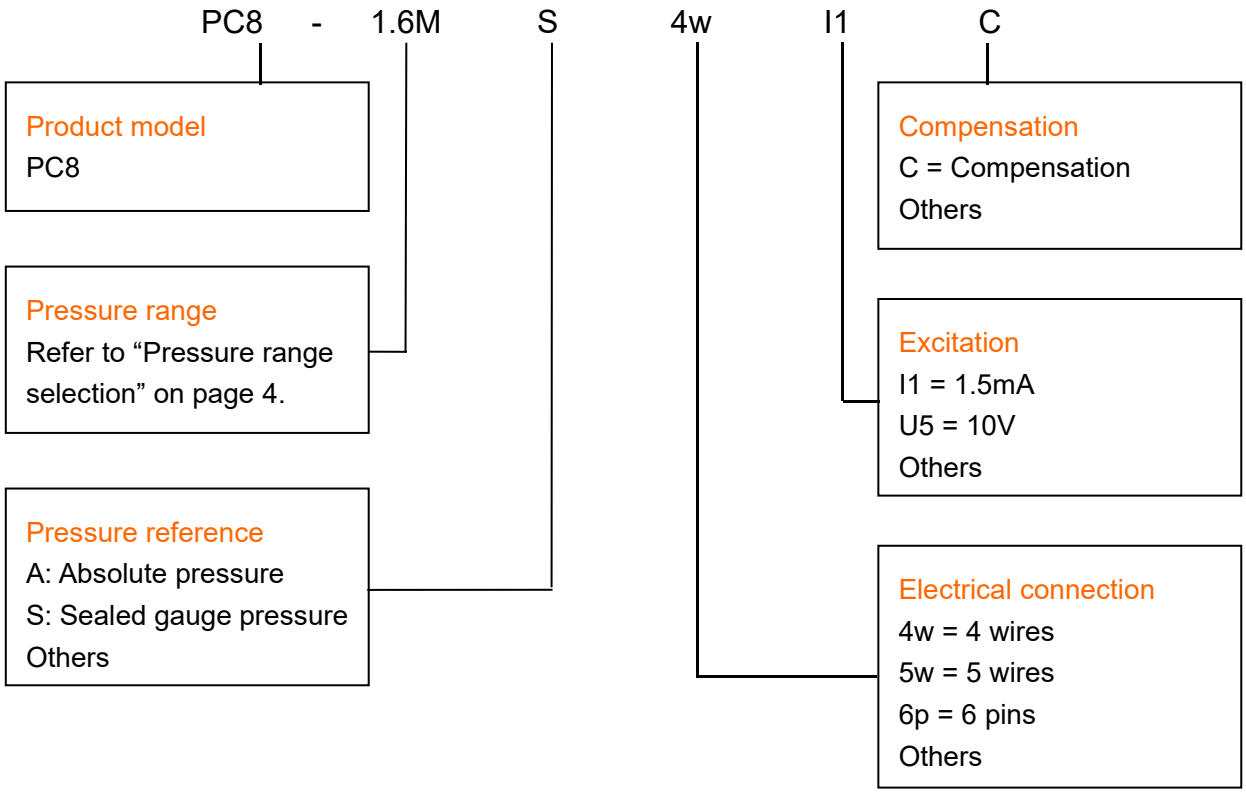

| Wire color | Definition |
|---|---|
| Red | Excitation+(IN+) |
| Blue | Excitation-(IN-) |
| Yellow | Output+(OUT+) |
| White | Output-(OUT-) |

## Pressure range selection

| Code | Pressure reference | Pressure range | Overload pressure | Burst pressure | O-ring |
|---|---|---|---|---|---|
| 1.6M | A, S | 0~1.6MPa | 200%FS | 500%FS | Fluorine rubber |
| 2.5M | A, S | 0~2.5MPa | 200%FS | 500%FS | Fluorine rubber |
| 4M | S | 0~4MPa | 200%FS | 400%FS | Fluorine rubber |
| 6M | S | 0~6MPa | 200%FS | 400%FS | Fluorine rubber |
| 10M | S | 0~10MPa | 200%FS | 400%FS | Fluorine rubber |
| 16M | S | 0~16MPa | 150%FS | 300%FS | Fluorine rubber |
| 25M | S | 0~25MPa | 150%FS | 300%FS | Fluorine rubber |
| 40M | S | 0~40MPa | 150%FS | 200%FS | Fluorine rubber |
| 60M | S | 0~60MPa | 150%FS | 200%FS | Fluorine rubber |

Note: A: Absolute pressure, S: Sealed gauge pressure

## How to order




**Example:** PC8-1.6MS4wI1C

Product model PC8, pressure range 0~1.6MPa, sealed gauge pressure, electrical connection 4 wires, 1.5mA excitation, constant current compensation.

## Ordering tips:

1 Pressure range can be selected higher or lower than actual conditions but should be within ±30%FS.

2 Pressure reference consists of gauge pressure, absolute pressure, and sealed gauge pressure.
As for sealed gauge pressure, PC8 uses the absolute pressure die for the gauge pressure product based on the atmospheric pressure of the production site. For pressure ranges above 4MPa, gauge pressure cannot be selected, but only sealed gauge 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's durability or even damage the product.

4 The commonly used compensation of the product is 1.5mA constant current compensation. Suggest selecting this option with priority.

5 For special requirements on performance parameters and functions of the product, please contact us.



## Contact us

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