

PC10AU Piezoresistive Silicon Pressure Sensor

Features

- Wide temperature compensation
- $\Phi 19\text{mm}$ standard OEM
- All 316L material
- Prevent hydrogen permeability
- High performance, all solid, high reliability
- 18 months warranty period

Applications

- Process control systems
- Hydraulic systems and valves
- Hydrogen measurement
- Ships and navigation
- Aircraft and avionics system
- Hydrogen vehicle

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.



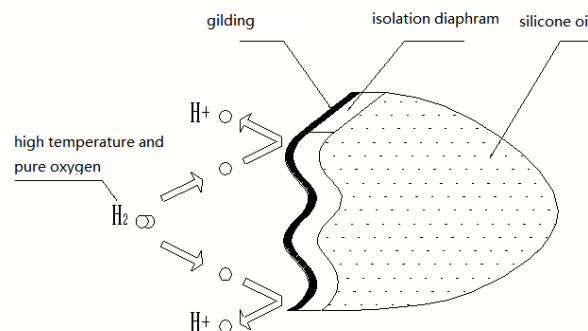
Product overview

PC10AU piezoresistive silicon pressure sensor is the core component of pressure sensor and pressure transmitter suitable for measuring hydrogen environment, can be easily amplified and assembled into a transmitter with standard signal output. It is protected from hydrogen penetration by diaphragm gilding.

Our company can also undertake special customization according to the needs of users, such as all-welded structure, wide temperature compensation, high reliable pressure sensors, especially for defense weapons equipment.

Hydrogen penetration solution

Coating the base metal with a thin layer of gold protects the film from hydrogen penetration. The 99.9% pure gold coating (thickness of $3\mu\text{m}$) can eliminate hydrogen penetration without affecting the properties of the product itself.



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	100kPa~40MPa
Pressure reference	Gauge pressure Absolute pressure Sealed gauge pressure
Excitation	1.5mA recommended for constant current
	10V recommended for constant voltage
Input impedance	Constant current: 2kΩ~5kΩ
	Constant voltage: 3kΩ~18kΩ
Electrical connection	Gold-plated Kovar pin or silicon soft wire
Compensation temp.	Constant current: ≤70kPa 0℃~60℃, -10℃~70℃(other ranges);
	Constant voltage: -20℃~85℃
Operating temp.	-40℃~120℃
Storage temp.	-40℃~125℃
Insulation resistance	≥200MΩ/250VDC
Response time	≤1ms (up to 90%FS)
Measured medium	Hydrogen
Mechanical vibration	20g (20~5000Hz)
Shock	100g/10ms
Durability	10 ⁶ pressure cycles

Structural performance parameters

Diaphragm material	316L(gold plating)
Housing material	316L
Oil filling	Silicon oil
Sealing mode	Welded

Basic parameters

Item	Condition	Min	Nominal	Max	Unit	Note
Non-linearity		-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	
Zero output		-2	±1	2	mV	
Full scale span output	1.5mA	60	90	150	mV	
	10V	98	100	102		
Zero temp. coefficient		-1.5	±0.75	1.5	%FS	Note(2)
Span temp. coefficient		-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	

Note:

- (1) Calculate according to BFSL least square method.
- (2) In the compensation temperature range, 0℃~60℃ and -10℃~70℃, reference temperature 30℃.
- (3) After passing high and low temperature, return to the reference temperature.

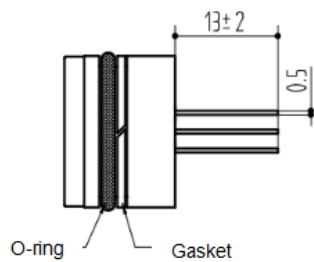
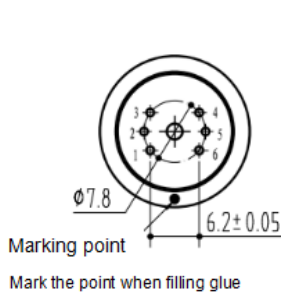
Structure and dimensions

In mm

PC10AU Gauge pressure 0.1MPa~4MPa	PC10AU Sealed gauge pressure 1MPa~16MPa	PC30AU Sealed gauge pressure ≥16MPa

Electrical connection

1. 6 pin (6p)



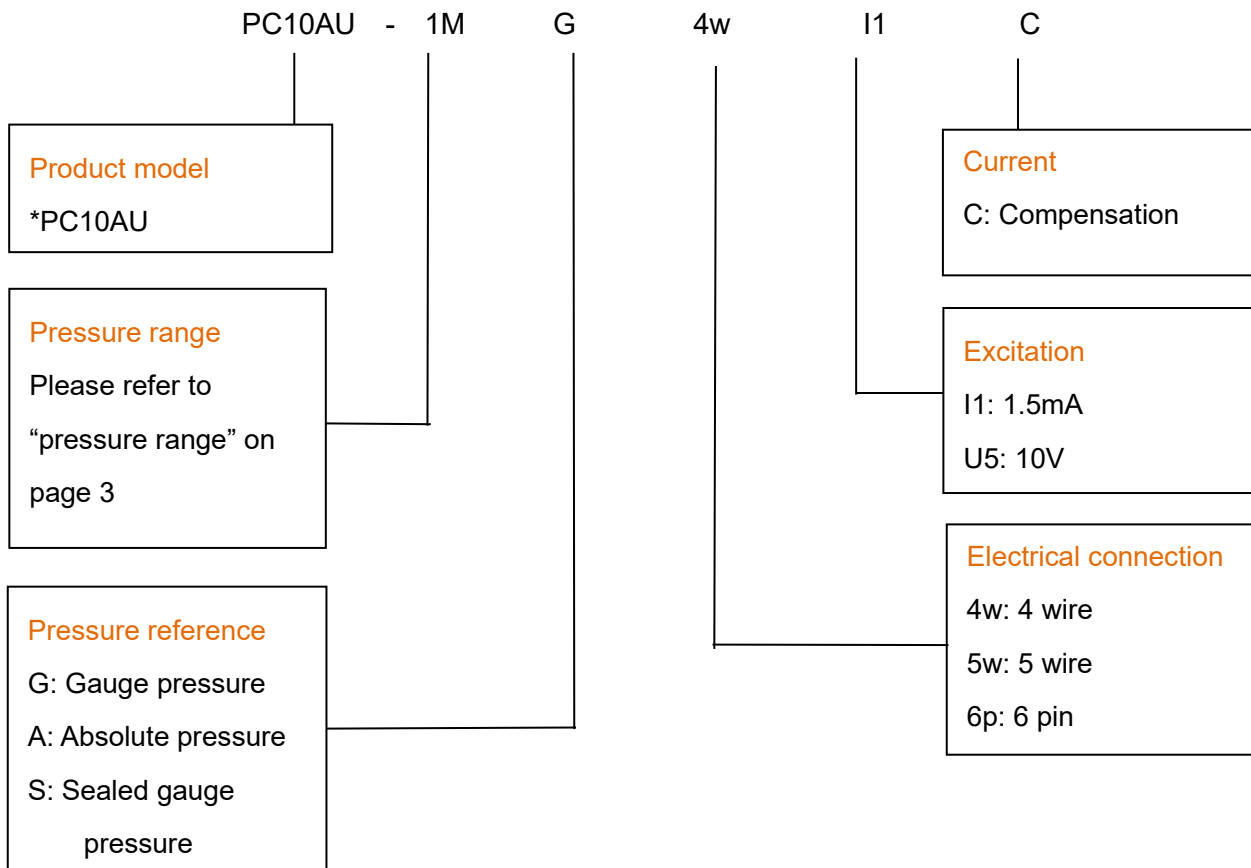
Pin	Definition
3	Excitation+(IN+)
5	Excitation-(IN-)
2	Output+(OUT+)
4	Output-(OUT-)
1	Die-
6	Die-

Pressure range selection

Code	Pressure reference	Pressure range	Overload pressure	Burst pressure	
100k	G	0~100kPa	0~100kPa	500%FS	
1M	G、S	0~1MPa	0~1MPa	500%FS	
2.5M	G、S	0~2.5MPa	0~2.5MPa	500%FS	
4M	G、S	0~4MPa	0~4MPa	500%FS	
10M	S	0~10MPa	0~10MPa	400%FS	
16M	S	0~16MPa	0~16MPa	400%FS	
25M	S	0~25MPa	0~25MPa	400%FS	
40M	S	0~40MPa	0~40MPa	400%FS	

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

Please contact our salesman if need absolute pressure.



* PC10AU pressure range <16MPa (Gauge pressure 0.1MPa~4MPa; Sealed gauge pressure 1MPa~16MPa), please refer to the picture in the section of structure and dimension on the page 3.
 PC30AU pressure range ≥16MPa (Sealed gauge pressure ≥16MPa), please refer to the picture in the section of structure and dimension on the page 3.

Example: PC10AU-1MG4wI1C

The product model is PC10AU,1M: pressure range, G: pressure reference, 4w: electrical connection 4 wires, I1: 1.5mA excitation, C: 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.
 - (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) As for sealed gauge pressure, PC10AU uses absolute pressure die for gauge pressure product based on the atmospheric pressure of production site. For pressure range above 6MPa, 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 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. Please contact us if need special requirements on performance parameters and functions of the product.

Wotian reserves the right to make any change in this publication without notice. The information provided is believed to be accurate and reliable as of this product sheet.

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