PC16D Silicon Piezoresistive Differential Pressure Sensor

Features

- Constant current excitation and constant voltage excitation
- Highly reliable imported pressure die
- Wide temperature range compensation
- Normalized output is optional
- The compensated board with glue for moisture-proof protection
- Standard Φ15.8mm, customization for other diameter
- All SS316L material
- High performance, high reliability
- 18 months guarantee

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

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.



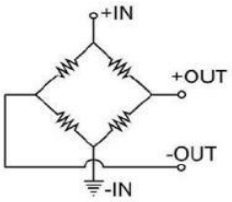
Product overview

PC16D silicon piezoresistive differential pressure sensor is a key component for pressure sensors and transmitters, featuring integrated structure, high static pressure resistance, stable and reliable performance.

It encapsulates a diffused silicon die in a 316L stainless steel housing. Pressure is transmitted through the diaphragm and sealed silicone oil, keeping the die isolated from measured media to ensure accurate differential pressure measurement, suitable for corrosive working conditions.

With O-ring sealing for easy installation, it matches overseas products in outline and mounting size with excellent interchangeability.

Equivalent circuit



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	0～10kPa…2.5MPa
Pressure reference	Differential Pressure
Excitation	Constant current power supply ≤2mA
Input impedance	3kΩ~6kΩ
Electrical connection	Silicon soft wires
Compensated temp. range	-10ºC ~ 70ºC
Operating temp.	-40ºC ~ 125ºC
Storage temp.	-40ºC ~ 125ºC
Insulation resistance	≥200MΩ/250VDC
Response time	≤1ms (up to 90%F.S.)
Measured medium	All the liquids and gases which are compatible with stainless steel and fluororubber.
Mechanical vibration	20g (20~5000Hz)
Shock	100g (10ms)
Service life	1×10^6 (cycles)

Structural performance parameters	
Diaphragm material	SS316L
Housing material	SS316L
Oil filling	Silicon oil
Sealing ring material	NBR or FKM

Note: The temperature range of NBR seal is -40ºC~120ºC, and FKM seal is -20ºC~120ºC. Please contact our company if the sensing element operates beyond the above temperature range or is used in harsh media environments.

Basic parameters

Item	Condition	Min	Typical	Max	Unit	Note
Non-linearity		±0.1	±0.2	±0.3	%F.S.	Note(1)
Hysteresis		-0.05	±0.03	0.05	%F.S.	
Repeatability		0.05	±0.03	0.05	%F.S.	
Zero output		-2	±1	2	mV	
Full scale output	1.5mA	55	85	100	mV	
Zero temp. drift	-10ºC~70ºC compensated		1.2	1.5	%F.S.	Note(2)
Sensitivity temp. drift	-10ºC~70ºC compensated		1.2	1.5	%F.S.	Note(2)
Thermal hysteresis		-0.075	±0.05	0.075	%F.S.	Note(3)
Long-term stability			±0.2	±0.3	%F.S./Year	

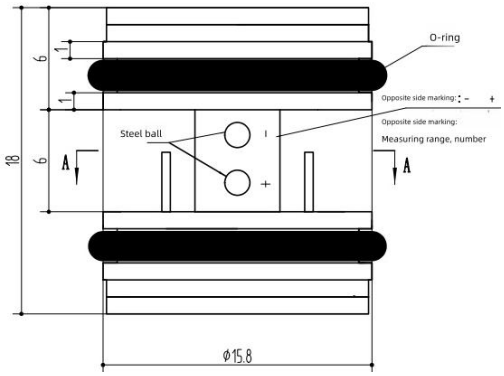
Note: (1) Calculate according to BFSL least square method. Negative pressure range is calculated in

segments.

(2) Within the compensated temperature range -10ºC ~ 70ºC , the middle point temperature is 30ºC for reference.

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

Structure & dimensions (in mm) and Electrical connection



Note: Lead wires can be customized.

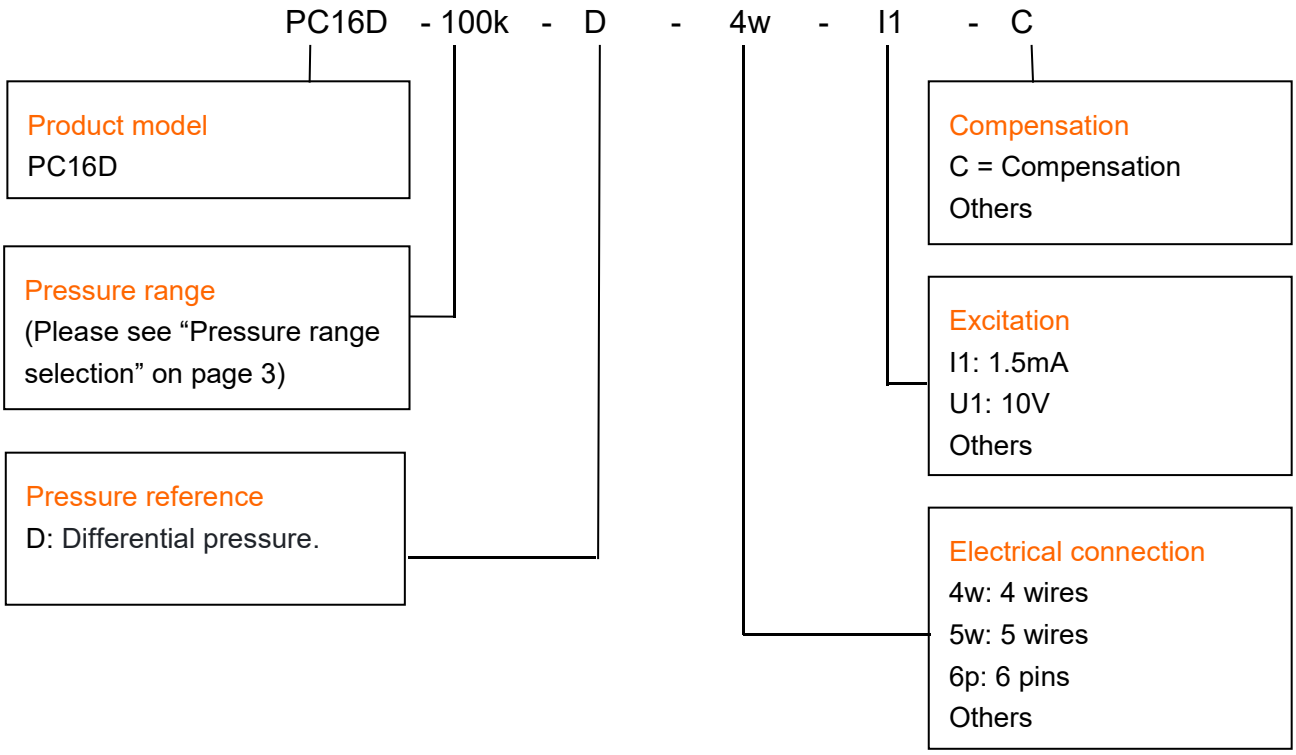
Pin No.	Definition
3	Excitation+(IN+)
1.5	Excitation-(IN-)
2	Output+(OUT+)
4	Output-(OUT-)

Pressure range selection

Code	Pressure reference	Pressure range	Overload pressure	Burst pressure	O-ring
10k	D	0～10kPa	300%F.S.	600%F.S.	NBR
20k	D	0～20kPa	300%F.S.	600%F.S.	NBR
35k	D	0～35kPa	300%F.S.	600%F.S.	NBR
70k	D	0～70kPa	200%F.S.	600%F.S.	NBR
100k	D	0～100kPa	200%F.S.	500%F.S.	NBR
160k	D	0～160kPa	200%F.S.	500%F.S.	NBR
250k	D	0～250kPa	200%F.S.	500%F.S.	NBR
400k	D	0～400kPa	200%F.S.	500%F.S.	NBR
600k	D	0～0.6MPa	200%F.S.	500%F.S.	NBR
1M	D	0～1.0MPa	200%F.S.	300%F.S.	NBR
1.6M	D	0～1.6MPa	200%F.S.	300%F.S.	NBR
2.5M	D	0～2.5MPa	150%F.S.	300%F.S.	NBR

Note: D: Differential pressure.

Ordering information



Example of ordering information: PC16D - 100k - D - 4w - I1 - C

Product model: PC16D, 100k: pressure range 0~100kPa, D: differential pressure, 4w: 4 wires lead out, I1: 1.5mA excitation, C: with temperature compensation.

Precautions:

1. The sensing element has a high-pressure side and a low-pressure side, marked with "+" and "-". The two sides can be identified by the marks or verified by testing.
2. During operation, the pressure on the high-pressure side shall not be lower than that on the low-pressure side.

Ordering tips:

1. Confirm the measuring range when placing an order. Normally, select the range with the actual working pressure accounting for about 80% of the full scale.
2. The standard FKM seal of the differential pressure core features a temperature range of -20℃~250℃. Please contact our company if the operating temperature is below -20℃ or the element is applied in harsh media.
3. Custom requirements on product performance parameters and functions are welcome for consultation.

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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