PC10D Piezoresistive Silicon Differential Pressure Sensor

Features

- With constant current Excitation
- Imported highly reliable pressure die
- Wide temperature compensation
- Resistive to high static pressure
- All 316L material
- High performance, all solid, high reliability
- 18 months warranty period

Applications

- Differential pressure detection
- Pressure calibration instruments
- Venturi and vortex flow meters
- Hydraulic systems and valves
- Level measurement
- Process control systems
- Ships and navigation
- Gas and fluid pressure measurement

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

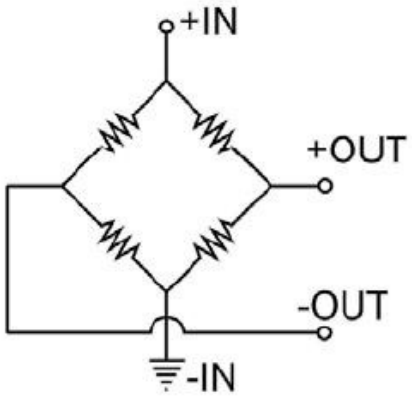
Product overview

PC10D piezoresistive silicon differential pressure sensor is the core component for the manufacture of pressure sensors and pressure transmitters. As high-performance pressure sensitive component, PC10D adopts the integrated structure and it's resistive to the high static pressure, and stable and reliable.

PC10D packages diffused silicon pressure sensitive die to 316L stainless steel housing. External pressure is transmitted to pressure sensitive die through stainless steel diaphragm and internally sealed silicon oil. Pressure sensitive die does not directly contact with measured medium, forming all solid structure of pressure measurement. So the product can be applied to a variety of occasions, including harsh corrosive medium environment.

PC10D uses O-ring for pressure seal, which is easy to install. The appearance and mounting dimensions are consistent to those of foreign general products and have good interchangeability.

Equivalent circuit



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.

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, ≤2mA
Input impedance	3KΩ～6KΩ
Electrical connection	Silicon soft wire
Compensation temp.	-10℃～70℃
Operating temp.	-20℃～80℃
Storage temp.	-40℃～125℃
Insulation resistance	≥250MΩ/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)
Service life	10×10^6 (cycles)
Structural performance parameters	
Diaphragm material	316L
Housing material	316L
Oil filling	Silicon oil
Sealing ring	NBR or fluorine rubber

Basic parameters

Item	Condition	Min	Nomin	Max	Unit	Note
Nonlinearity		±0.1	±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	55	85		mV	
Zero temp. coefficient	(1.5mA@-10～70℃ compensation)		1.2	1.5	%FS	Note (2)
Span temp. coefficient	(1.5mA@-10～70℃ compensation)		1.2	1.5	%FS	Note (2)
Thermal hysteresis		-0.075	±0.05	0.075	%FS	Note (3)

Long term stability			±0.2	±0.3	%FS/year	

Note:

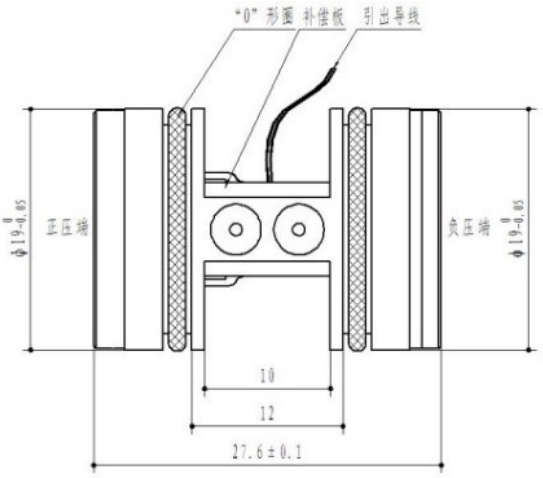
(1) Calculate according to BFSL least square method.

(2) In the compensation temperature range, refer to 30 ℃ for 0 ℃ ~ 60 and -10 ℃ ~ 70 ℃, and refer to 32.5 ℃ for -20 ℃ ~ 85 ℃.

(3) After passing high and low temperature, return to the reference temperature.

Structure and dimensions

In mm



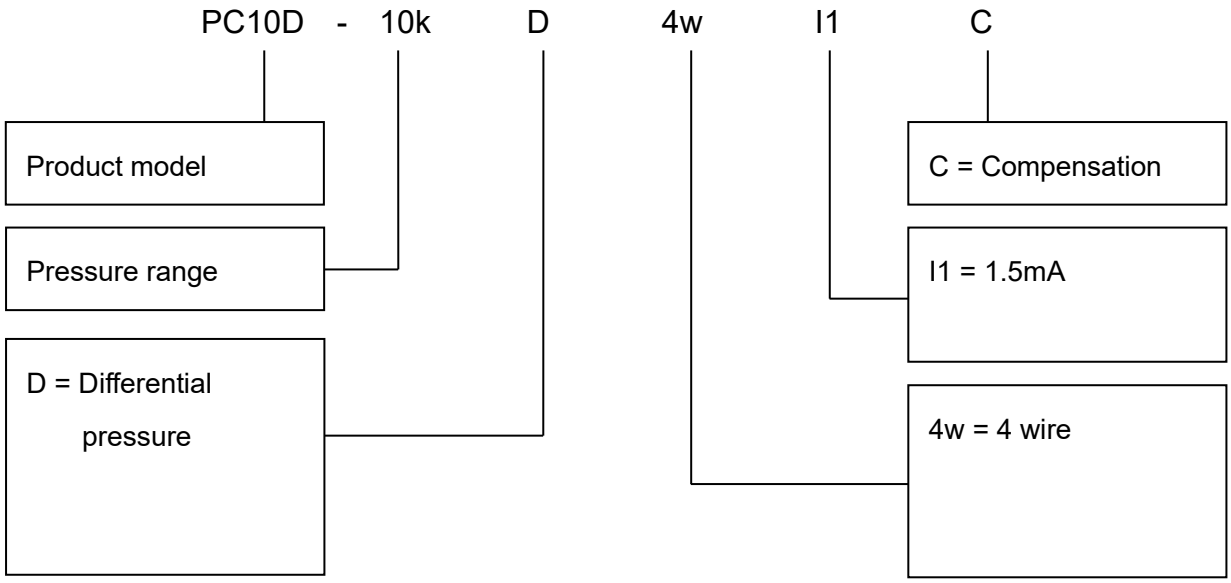
Color	Definition
Red	(IN+)
Blue	(IN-)
Yellow	(OUT+)
White	(OUT-)

Pressure range selection

Code	Pressure reference	Pressure range	Overpressure	Burst pressure	
PC10D-10kD4wI1C	D	0～10kPa	300%FS	600%FS	
PC10D-20kD4wI1C	D	0～20kPa	300%FS	600%FS	
PC10D-35kD4wI1C	D	0～35kPa	300%FS	600%FS	
PC10D-70kD4wI1C	D	0～70kPa	200%FS	600%FS	
PC10D-100kD4wI1C	D	0～100kPa	200%FS	500%FS	
PC10D-160kD4wI1C	D	0～160kPa	200%FS	500%FS	
PC10D-250kD4wI1C	D	0～250kPa	200%FS	500%FS	
PC10D-400kD4wI1C	D	0～400kPa	200%FS	500%FS	
PC10D-600kD4wI1C	D	0～0.6MPa	200%FS	500%FS	
PC10D-1MD4wI1C	D	0～1.0MPa	200%FS	300%FS	
PC10D-1.6MD4wI1	D	0～1.6MPa	200%FS	300%FS	
PC10D-2.5MD4wI1	D	0～2.5MPa	150%FS	300%FS	

Note: D: Differential pressure

How to order



Example: PC10D-10kG4wI1C

PC10D Differential pressure sensor, pressure range 10kPa, gauge pressure, 4 wire, 1.5mA excitation, 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, PC10 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 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.

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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