PC10D Differential Pressure Sensor

Features

- Constant current excitation
- High reliability imported pressure die
- Wide temperature compensation
- High static pressure resistance
- All 316L stainless steel material
- Small size
- High performance, diaphragm structure, high reliability
- 18 months guarantee

Applications

- Differential pressure detection
- Pressure calibrator
- Venturi & vortex flowmeter
- Hydraulic systems & pressure switches
- liquid level measurement
- Industrial process control
- 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 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.

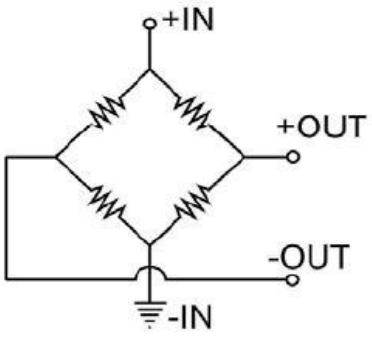
Product overview

The PC10D silicon piezoresistive differential pressure sensor serves as the core component of pressure transmitters. As a high-performance pressure sensing element, it features an integrated structure and delivers excellent over-pressure resistance, long-term stability and operational reliability.

PC10D encapsulates the diffused silicon sensing die in a 316L stainless steel housing. External pressure is transmitted to the die via the stainless steel diaphragm and internal sealed silicon oil. Isolated from the process medium, the die forms diaphragm sensing structure for precise differential pressure measurement. This product fits various differential pressure measurement applications, even under harsh corrosive media conditions.

PC10D adopts an O-ring for pressure sealing, allowing for easy installation. Its appearance and mounting dimensions conform to international standard specifications, so it is changeable.

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, ≤2mA
Input impedance	3KΩ~6KΩ
Electrical connection	Silicon soft wire
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 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 material	Silicon oil
Sealing ring material	NBR or fluororubber

Note: The temperature resistance range of NBR seals is -40ºC to 120ºC, and that of fluororubber seals is -20℃ to 200℃. If the working temperature of the sensing element exceeds the above limits or the element is applied in harsh media, please contact our technical team for consultation.

Basic parameters

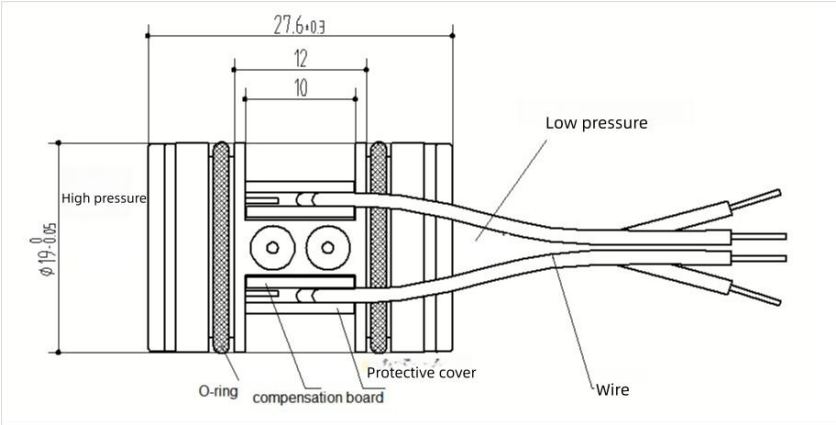
Item	Condition	Min	Typical	Max	Unit	Note
Non-linearity		±0.1	±0.2	±0.3	%F.S.	Note(1)
Hysteresis		-0.05	±0.03	0.05	%F.S.	
Repeatability		0.05	±0.03	0.05	%F.S.	
Zero output		-2	±1	2	mV	
Full scale output	1.5mA	55	85	100	mV	
Zero temp. drift	-10~70ºC compensation		1.2	1.5	%F.S.	Note(2)
Span temp. drift	-10~70ºC compensation		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 the BFSL least square method.

(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 dimension and electrical connection (in mm)



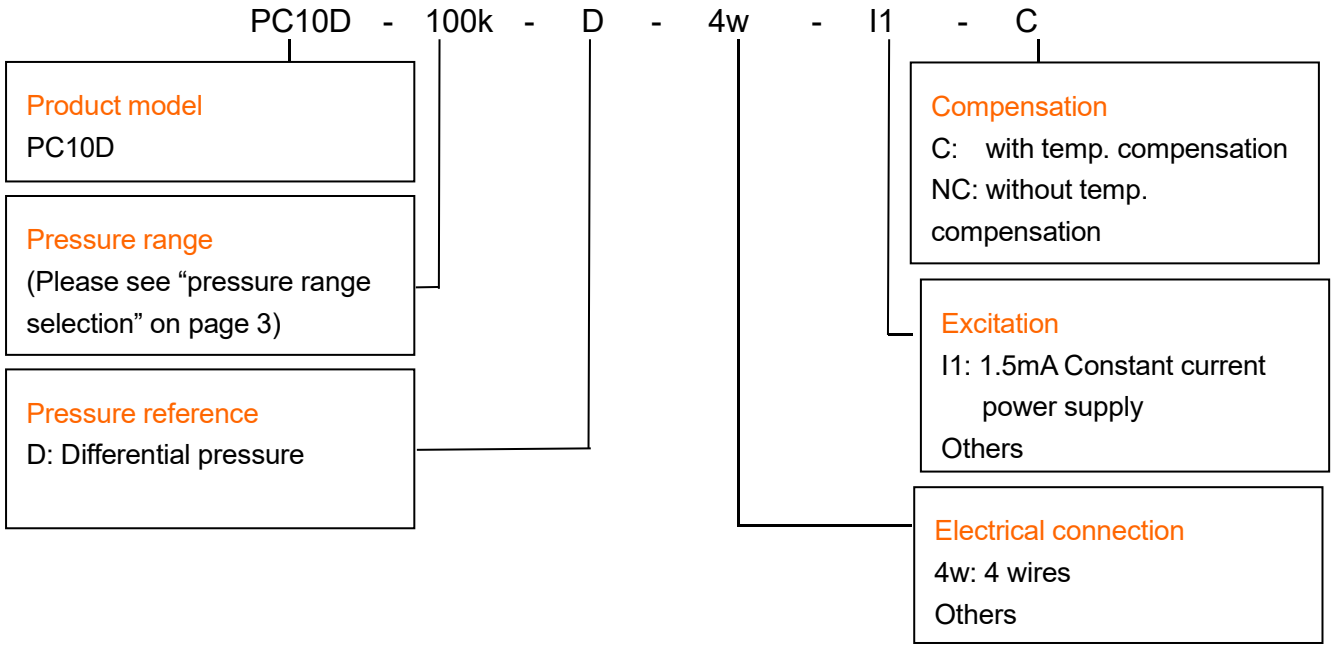
Wire color	Definition
Red	Excitation+(IN+)
Blue	Excitation-(IN-)
Yellow	Output+(OUT+)
White	Output-(OUT-)

Pressure range selection

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

Note: D: Differential pressure

Ordering information



Example of ordering information: PC10D - 100k - D - 4w - I1 - C

Product model: PC10D, 100k: pressure range 0~100kPa, D: differential pressure, 4w: electrical connection 4 wires, I1: 1.5mA excitation, C: temperature compensation.

Note:

1 The sensing element has a high-pressure side and a low-pressure side, which can be identified by the "+" and "-" markings on the element, or verified through testing.

2 In operation, the pressure at the high-pressure side shall never be lower than that at the low-pressure side.

Ordering tips:

1 Please confirm the measuring range when placing an order. As a general guideline, select a range in which the actual measured pressure accounts for about 80% of the full scale.

2 The standard fluororubber seal for differential pressure sensors features a temperature range of -20ºC to 200ºC. Please contact us if the working temperature is lower than -20ºC or the sensing element is applied in harsh media.

3 Please contact us for any special requirements on product performance parameters and functions.

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.

Contact us

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