PC20B Temperature and Pressure Integrated 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
- Φ19mm 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.

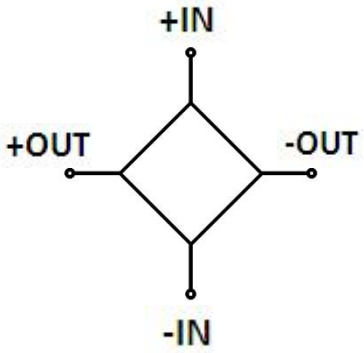
4 Misuse of the product may cause danger or personal injury.

Product overview

The PC20B temperature and pressure integrated sensor is optimized based on the PC20. It has a built-in temperature measuring element in silicone oil, which achieves synchronous measurement of pressure and temperature and improves the sensitivity of temperature measurement. It also meets the need for further temperature compensation of the sensor.

Equivalent circuit

(1) Pressure output (2) Temperature output



PT100
PT1000
Temperature diode

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	0~35kPa…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	Silicon soft wires
Compensation temp.	0℃~60℃ (≤70kPa); -10℃~70℃ (other ranges)
Operating temp.	-40℃~120℃
Storage temp.	-40℃~120℃
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)
Temperature measuring element	PT100/PT1000/Diode
Durability	1×10^6 (cycles)

Structural performance parameters	
Diaphragm material	316L
Housing material	316L
Oil filling	Silicon oil
Sealing ring	NBR or fluorine rubber

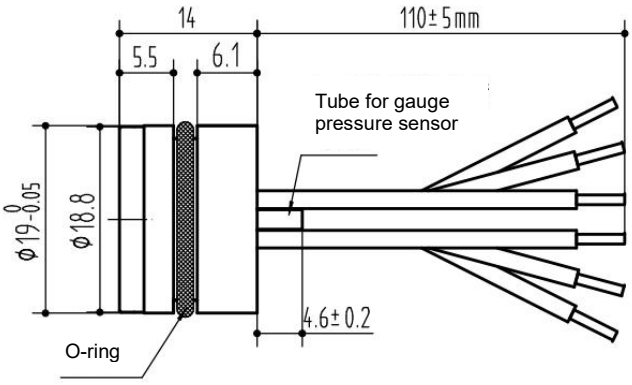
Basic parameters						
Item	**Condition**	**Min**	**Typical**	**Max**	**Unit**	**Note**
Nonlinearity		-0.3	±0.2	0.3	%FS	Note(1)
Hysteresis		-0.05	±0.03	0.05	%FS	
Repeatability		-0.05	±0.03	0.05	%FS	
Output signal under zero pressure		-2	±1	2	mV	
Output signal under full-scale span pressure	1.5mA, 10kPa 1.5mA, other ranges 10V, 10kPa 10V, other ranges	30 60 60 98	 90 100	 150 102	mV	
Temp.effect on offset	10kPa other ranges	-2 -1.5	±1.5 ±0.1	2 1.5	%FS	Note(2)
Sensitivity temp. drift		-1.5	±0.1	1.5	%FS	Note(2)
Thermal hysteresis		-0.075	±0.1	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, refer to 30℃ for 0℃~60℃ and -10℃~70℃.

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

Structure and dimensions



Wire color	Definition
Red	Excitation+(IN+)
Blue	Excitation-(IN-)
Yellow	Output+(OUT+)
White	Output-(OUT-)
Green	Temp. output
Black	Temp. output

(Note: PT100/PT1000 has no polarity.

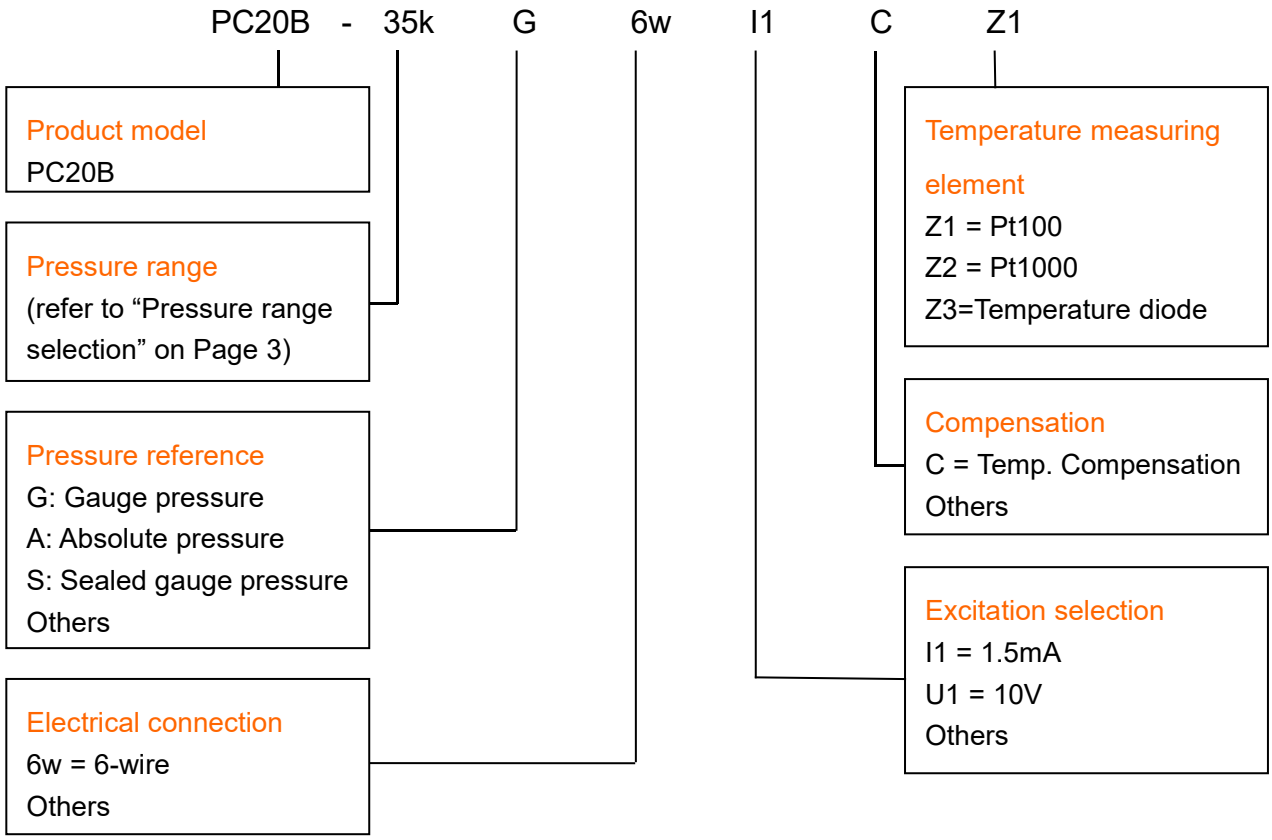
Temperature diode wire definition: green T+ black T-)

Pressure range selection

Code	Pressure reference	Pressure range	Overpressure	Burst pressure	O-ring
35k	G	0~35kPa	300%FS	600%FS	NBR
70k	G	0~70kPa	300%FS	600%FS	NBR
100k	G, A	0~100kPa	200%FS	500%FS	NBR
250k	G, A	0~250kPa	200%FS	500%FS	NBR
600k	G, A	0~600kPa	200%FS	500%FS	NBR
1M	G, A	0~1MPa	200%FS	500%FS	NBR
1.6M	G, A, S	0~1.6MPa	200%FS	500%FS	NBR
2.5M	G, A, S	0~2.5MPa	200%FS	500%FS	NBR
4M	S	0~4MPa	200%FS	400%FS	NBR
6M	S	0~6MPa	200%FS	400%FS	Fluorine rubber
10M	S	0~10MPa	200%FS	400%FS	Fluorine rubber
16M	S	0~16MPa	200%FS	400%FS	Fluorine rubber
25M	S	0~25MPa	150%FS	400%FS	Fluorine rubber
40M	S	0~40MPa	150%FS	300%FS	Fluorine rubber

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

How to order



Example: PC20B-35kG6wI1CZ1

The product model is PC20B, pressure range: 0~35kPa, gauge pressure, electrical connection: 6-wire, excitation: 1.5mA, with temperature compensation. The temperature measuring element is Pt100.

Ordering tips:

1 It can be selected for over range or down range, with amplitude controlled within ± 30% FS.

2 The pressure methods include gauge pressure, absolute pressure, and sealed pressure.

(1) Gauge pressure refers to a measurement based on the current atmospheric pressure, generally greater than the current atmospheric pressure. Negative pressure is a special case of gauge pressure, referring to the conditions at the workplace that are lower than the current atmospheric pressure.

(2) Absolute pressure is based on a vacuum.

(3) As for sealed gauge pressure, PC20B uses an absolute pressure die for the gauge pressure product based on the atmospheric pressure of the production site. For pressure range above 6MPa, gauge pressure cannot be selected, but only sealed gauge pressure.

3 Confirm the maximum overload of the system. The maximum overload of the system should be less than

the overload protection limit of the sensor; otherwise, it may affect the product's durability or even damage the product.

4 The commonly used compensation method for the product is 1.5mA constant current compensation, and it is recommended to choose it first.

5 The materials and processes used to manufacture negative pressure sensors are different from those used to manufacture positive pressure sensors. Negative pressure sensors cannot be replaced by gauge pressure sensors.

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

Contact us

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