

PC20B Temperature and Pressure Integrated Sensor

Features

- With constant current and constant voltage excitation options
- Imported highly reliable pressure die
- Wide temperature compensation
- Can do normalized output
- Compensation board filled with glue for protection against moisture
- Φ19mm standard OEM
- All 316L material
- High performance, all solid, 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.



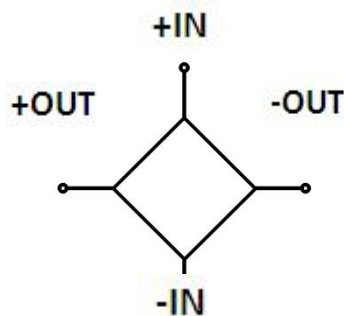
Product overview

The PC20B temperature and pressure integrated sensor is optimized based on PC20, with built-in temperature measuring elements in silicone oil, achieving synchronous measurement of pressure and temperature while improving temperature sensitivity, and meeting 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 wire
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
Service life	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

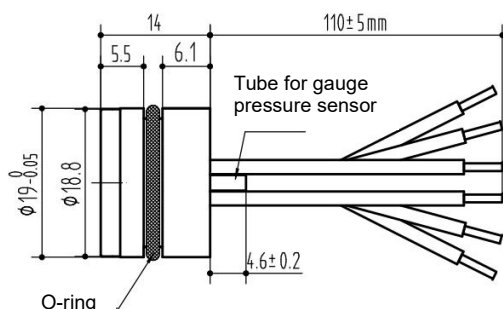
Item	Condition	Min	Nominal	Max	Unit	Note
Nonlinearity		-0.3	±0.2	0.3	%FS	Note (1)
Hysteresis		-0.05	±0.03	0.05	%FS	
Repeatability		-0.05	±0.03	0.05	%FS	
Zero output		-2	±1	2	mV	
Full scale span output	1.5mA, 10kPa	30			mV	
	1.5mA, other ranges	60	90	150		
	10V, 10kPa	60				
	10V, other ranges	98	100	102		
Zero temp. coefficient	10kPa	-2	±1.5	2	%FS	Note (2)
	other ranges	-1.5	±0.1	1.5		
Span temp. coefficient		-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°C for 0°C~60°C and -10°C~70°C.
- (3) After passing high and low temperature, return to the reference 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

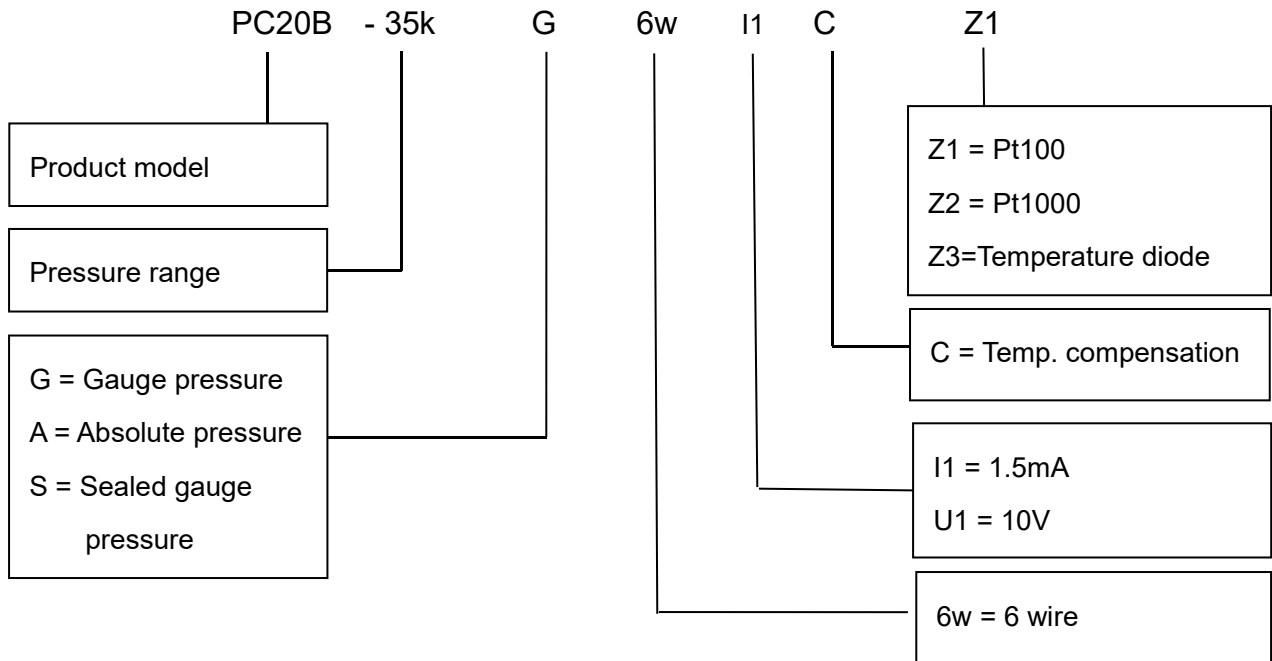
(Note: PT100/PT1000 has no polarity)
Temperature diode wire definition: green T+ black T-)

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, with a range of 35kPa. The pressure method is gauge pressure, and the electrical connection is a 6-wire lead out. The excitation is 1.5mA, with temperature compensation. The temperature measuring element is Pt100.

Ordering tips:

- 1 Pressure range can be selected higher or lower than actual conditions but should be within $\pm 30\%$ 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) Sealing pressure is the absolute pressure used as gauge pressure, but the benchmark is the production site air pressure; There is no gauge pressure above 6MPa, only sealing 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 materials, processes, and positive pressure used to manufacture negative pressure cores are not the same, and gauge pressure cores cannot be used to replace negative pressure cores.

6. If you have special requirements for product performance parameters and functions, please feel free to negotiate with our company.

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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