P19 High Performance Pressure Sensor

Features

- With constant current excitation
- Highly reliable imported pressure die
- Wide temperature compensation
- Ceramic compensation board
- φ19mm standard OEM
- All 316L material
- High performance, all solid, high reliability
- 18 months warranty period

Applications and industries

- 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

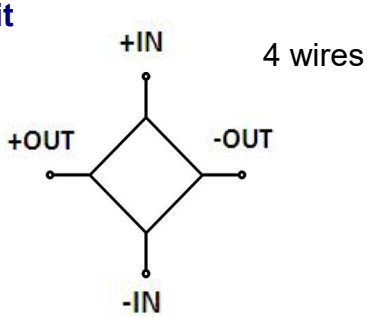
The P19 High Performance Pressure Sensor is the core component for producing pressure sensors and pressure transmitters. As a high-performance pressure sensitive component, it can amplify signals and be assembled into pressure transmitters with standard signal output.

The P19 High Performance Pressure Sensor packages highly reliable pressure die into 316L stainless steel housing; the external pressure is transmitted to the sensitive die through the stainless steel diaphragm and internally sealed silicon oil; the pressure die does not directly contact the measured medium, forming a all-solid structure of pressure measurement, so this product can be applied to a variety of occasions, including harsh corrosive medium environments.

P19 adopts the O-ring for pressure sealing, making installation easy.

Our company can also undertake special customizations according to users' needs, such as pressure sensors with a fully welded structure, wide temperature compensation, high reliability, strong shock resistance, and vibration resistance, which are more suitable for replacing imported products.

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	0~7kPa…70MPa
Pressure reference	Gauge pressure, Absolute pressure, Sealed gauge pressure
Excitation	1.5mA recommended for constant current
Input impedance	3kΩ~8kΩ
Electrical connection	Silicon soft wire
Compensated temp.	Constant current: 0℃~70℃ (≤35kPa), -10℃~80℃ (other ranges)
Operating temp.	-40℃~125℃
Storage temp.	-40℃~125℃
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)
Durability	1×10^6 (cycles)

Structural performance parameters	
Diaphragm material	316L
Housing material	316L
Oil filling	Silicon oil
Sealing ring	Fluorine rubber

Basic parameters						
Item	**Condition**	**Min**	**Typical**	**Max**	**Unit**	**Note**
Nonlinearity		-0.2	±0.15	0.2	%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	50			mV	
Temp.effect on offset	≤35kPa Others	-1.5 -1	±1.2 ±0.75	1.5 1	%FS	Note(2)
Sensitivity temp. drift		-1	±0.75	1	%FS	Note(2)
Thermal hysteresis		-0.075	±0.05	0.075	%FS	Note(3)
Long-term stability		-0.2	±0.1	0.2	%FS/year	

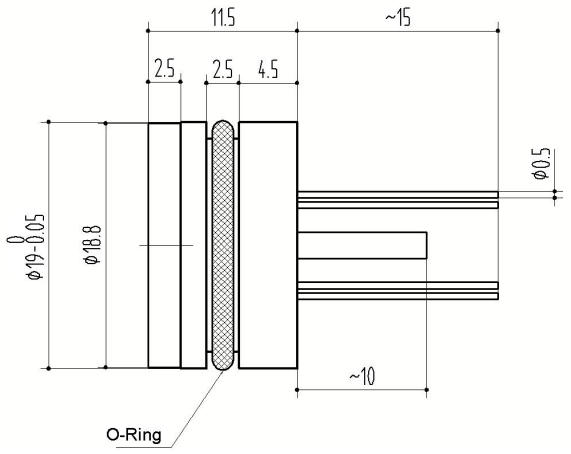
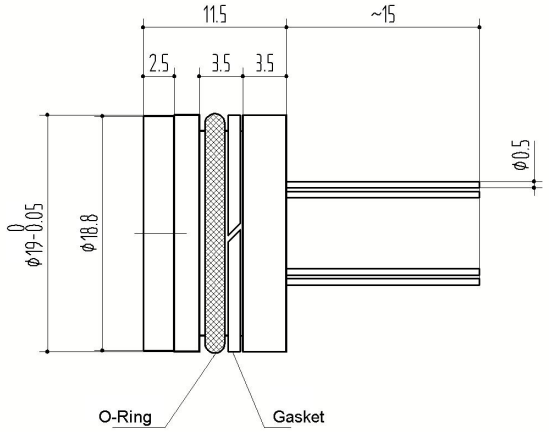
Note: (1) Calculated based on BFSL least squares method.

(2) Pressure range ≤35kPa, compensation temperature range 0℃~70℃; other compensation temperature ranges -10℃~80℃, refer to 35℃.

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

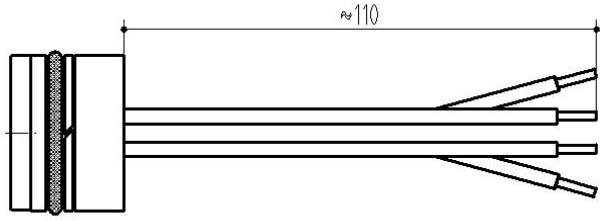
Structure and dimensions

Tolerance unless otherwise specified: ±0.1mm

Range ≤ 7MPa	Range > 7MPa
	

Electrical Connection

4 wires (4w)



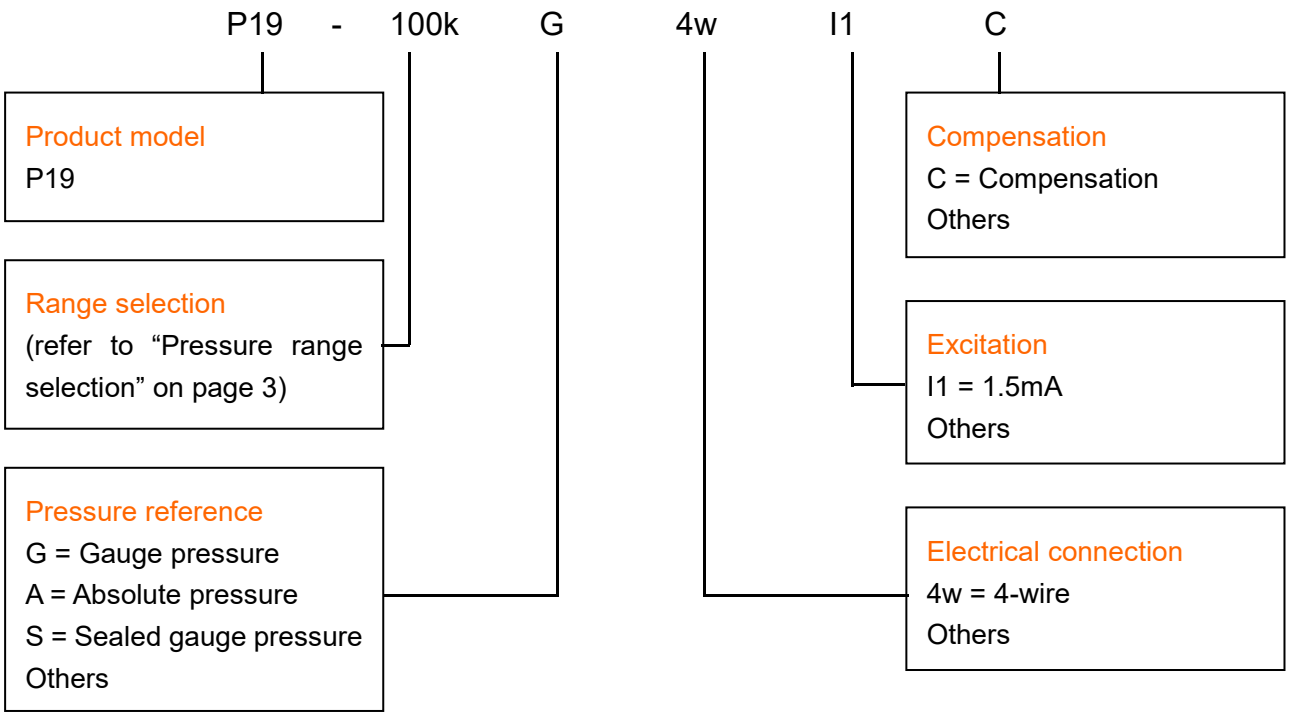
Wire color	Definition
Red	Excitation+(IN+)
Blue	Excitation-(IN-)
Yellow	Output+(OUT+)
White	Output-(OUT-)

Pressure range selection

Range code	Pressure reference	Pressure range	Overload pressure	Burst pressure	O-ring
7k	G	0~7kPa	300%FS	600%FS	Fluorine rubber
14k	G	0~14kPa	300%FS	600%FS	Fluorine rubber
35k	G	0~35kPa	300%FS	600%FS	Fluorine rubber
100k	A, G	0~100kPa	200%FS	500%FS	Fluorine rubber
210k	G	0~210kPa	200%FS	500%FS	Fluorine rubber
700k	G	0~700kPa	200%FS	500%FS	Fluorine rubber
1.4M	G, S	0~1.4MPa	200%FS	500%FS	Fluorine rubber
3.5M	S	0~3.5MPa	200%FS	400%FS	Fluorine rubber
7M	S	0~7MPa	200%FS	400%FS	Fluorine rubber
14M	S	0~14MPa	200%FS	400%FS	Fluorine rubber
21M	S	0~21MPa	150%FS	300%FS	Fluorine rubber
35M	S	0~35MPa	150%FS	300%FS	Fluorine rubber
70M	S	0~70MPa	150%FS	300%FS	Fluorine rubber

Note: G gauge pressure, A absolute pressure, S sealed gauge pressure

How to order



Example: P19-100kG4wI1C

P19 pressure sensor, pressure range: 0~100kPa, gauge pressure, electrical connection: 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 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 working conditions at the workplace that are lower than the current atmospheric pressure.

(2) Absolute pressure is referenced against a vacuum.

(3) As for sealed gauge pressure, P19 uses the absolute pressure die for the gauge pressure product based on the atmospheric pressure of the production site. There is no gauge pressure above 6MPa, 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's durability or even damage the product.

4 The commonly used compensation of the product is 1.5mA constant current compensation. Suggest

selecting this option with priority.

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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