

P20 Monocrystalline Silicon Pressure Sensor

Features

- MEMS monocrystalline silicon pressure chip imported from Germany
- High accuracy and excellent overload resistance
- High performance, all solid, and high reliability
- 316L stainless steel fully-welded integrated structure
- Gauge pressure sensors can be used for negative pressure measurement



Applications

- Provide OEM parts for industrial pressure transmitter manufacturers

Product overview

The P20 monocrystalline silicon pressure sensor adopts the MEMS monocrystalline silicon pressure chip imported from Germany. It achieves international leading overpressure performance and ensures excellent signal stability. It is assembled with an all-welded sealing structure and filled with silicone oil under high vacuum. Diaphragms made of different materials isolate the pressure die from the measured medium, enabling the sensor to deliver long-term reliable measurement of differential pressure signals from various highly corrosive media.

This product allows measured pressure to be directly applied to the sensor's diaphragm, causing the diaphragm to undergo a microdisplacement proportional to the pressure. The integrated electronic circuit can detect this change and convert the signal into a standard measurement signal corresponding to the applied pressure.

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.

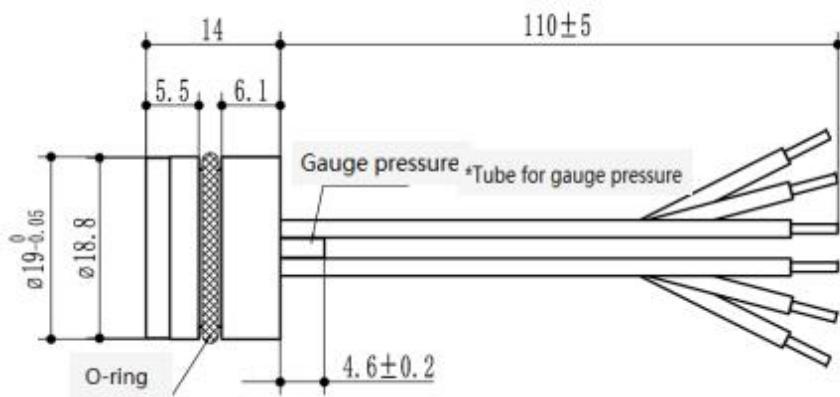
Notes:

- 1 Do not misuse the 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.

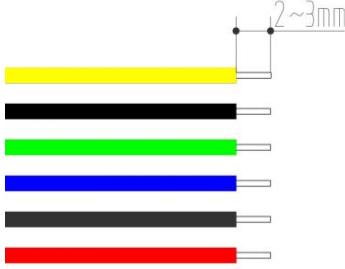
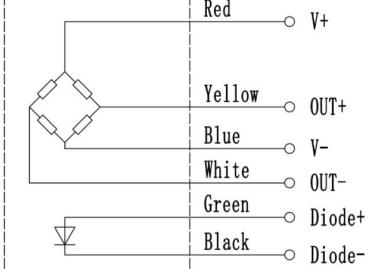
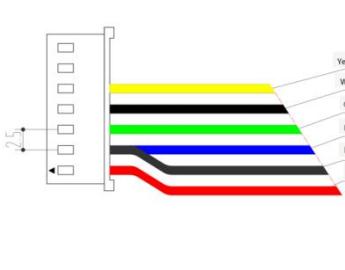
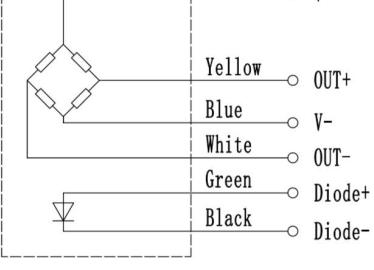
Performance parameters

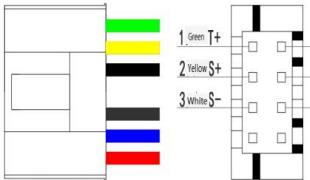
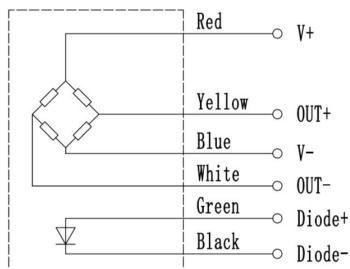
| | |
|------------------------|--|
| Excitation | 5V constant voltage |
| Operating temp. | -40~125°C |
| Storage temp. | -40~125°C |
| Output signal | 200~300mV (@10MPa A); 60~140 mV (other ranges) |
| Zero temp. coefficient | ±0.1%FS /°C |
| Temperature hysteresis | ±0.1%FS (pressure range≥100kPa) |
| Pressure hysteresis | ±0.05%FS |
| Long-term drift | ±0.05%FS /year |
| Nonlinearity | ±0.5%FS (pressure range≥100kPa) |
| Diaphragm material | 316L, Hastelloy C |

Structure and dimension (in mm)



Electrical connection

| 6 wires | Electrical schematic diagram | Wire color | Definitions |
|---|---|--|--|
|  |  | Red Blue Yellow White Green Black | Excitation+ (IN+) Excitation- (IN-) Output+ (OUT+) Output- (OUT-) Temperature+ (Diode+) Temperature- (Diode-) |
| 1 × 7P terminal | Electrical schematic diagram | Wire color | Wiring definitions |
|  |  | Red Blue Yellow White Green Black | Excitation+ (IN+) Excitation- (IN-) Output+ (OUT+) Output- (OUT-) Temperature+ (Diode+) Temperature- (Diode-) |

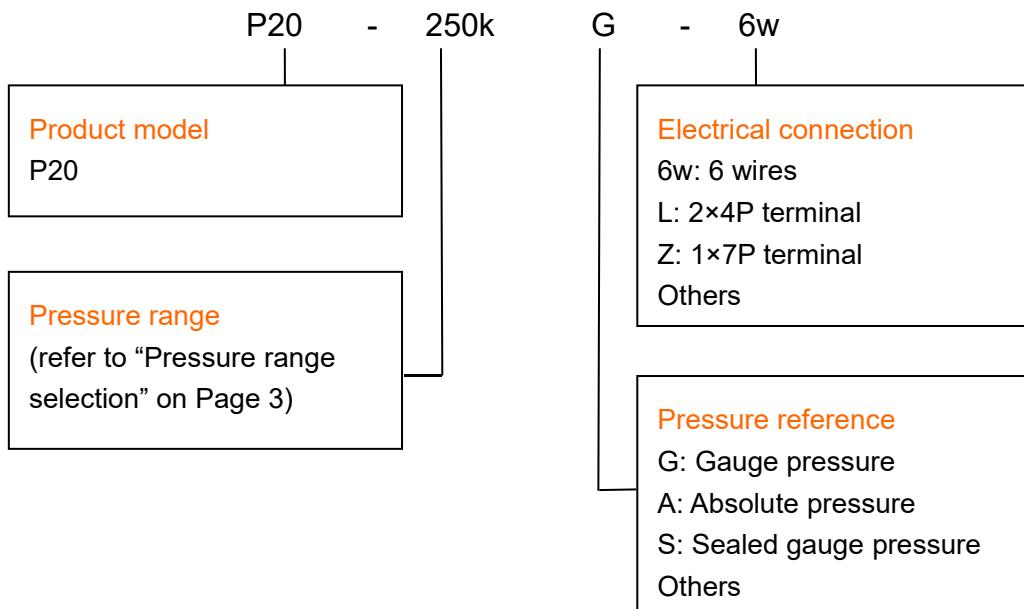
| 2x4P | Electrical schematic diagram | Wire color | Wiring definitions |
|--|--|--|--|
|   1. Green T+ 4. Black T- 2. Yellow S+ 5. Blue V- 3. White S- 6. Red V+ |  Red → V+ Blue → V- Yellow → OUT+ Blue → OUT- White → Diode+ Green → Diode- Black → Diode- | Red Blue Yellow White Green Black | Excitation+ (IN+) Excitation- (IN-) Output+ (OUT+) Output- (OUT-) Temperature+ (Diode+) Temperature- (Diode-) |

Pressure range selection

| Code | Pressure reference | Pressure range | Overload pressure | O-ring |
|------|--------------------|----------------|-------------------|--------|
| 100k | G | -100~100kPa | 1MPa | NBR |
| 100k | A | 0~100kPa | 1MPa | NBR |
| 250k | G | -100~250kPa | 2MPa | NBR |
| 250k | A | 0~250kPa | 2MPa | NBR |
| 1M | G | -0.1~1MPa | 6MPa | NBR |
| 3M | G | -0.1~3MPa | 15MPa | NBR |
| 10M | A | 0~10MPa | 20MPa | NBR |
| 20M | A | 0~20MPa | 60MPa | NBR |
| 40M | A | 0~40MPa | 80MPa | NBR |

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

How to order



Example: P20-250kG-6w

Product model: P20, pressure range: -100~250kPa, gauge pressure, electrical connection 6 wires.



Ordering tips

- 1 It can be used over-range or down-range, and the amplitude is controlled within 30% FS.
- 2 Pressure reference consists of gauge pressure, absolute pressure, and sealed gauge pressure.
 - (1) Gauge pressure refers to measurements based on the current atmospheric pressure and generally refers to pressures higher than the current atmospheric pressure. Negative pressure is a special case of gauge pressure, referring to working conditions lower than the current atmospheric pressure.
 - (2) Absolute pressure is based on a vacuum.
- 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 excitation for the product is 5V constant voltage excitation, which is recommended as the primary choice.
- 5 The materials and processes for manufacturing negative pressure sensors are different from those of positive pressure, so the 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.

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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