X19D Silicon Piezoresistive Differential Pressure Sensor

Features

- Small range
- Constant current excitation
- Highly reliable imported pressure die
- Wide temperature range compensation
- Oil-free
- The compensated board with glue for moisture-proof protection
- Standard Φ19mm, customization for other diameter
- 316L material for all metal
- High performance, high reliability
- Steel mesh for impurity filtration
- 18 months guarantee

Applications

- Process control systems
- Pressure calibration instruments
- Refrigeration equipment and HVAC control
- Gas pressure measurement
- Biomedical instruments
- Pressure measuring instrument

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.



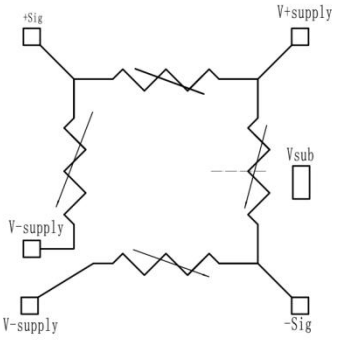
Product overview

The X19D silicon piezoresistive differential pressure sensor is a key component for pressure sensors and transmitters. With small range and high performance, it is easy for signal amplification and assembled into standard output transmitters.

Encapsulated with a diffused silicon chip in a 316L stainless steel housing, the core bears direct pressure on both sides of the chip. Its all-solid-state structure ensures accurate differential pressure measurement, suitable only for clean non-corrosive gas.

It adopts O-ring sealing for easy installation, with overall dimensions compatible with overseas products for good interchangeability.We also offer customization including diaphragm sensing structure, wide temperature compensation and high-reliability pressure sensors.

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	-10kPa～10kPa
Pressure reference	Different pressure
Excitation	1.5mA or 10V
Input impedance	2kΩ~5kΩ
Electrical connection	Silicon soft wire
Compensated temp.range	0ºC ~ 50ºC
Operating temp.	-20ºC ~ 85ºC
Storage temp.	-20ºC ~ 85ºC
Insulation resistance	≥200MΩ/250VDC
Response time	≤1ms (up to 90%F.S.)
Measured medium	Clean and non-corrosive gas
Mechanical vibration	20g(20～5000Hz)
Shock	100g/10ms
Service life	1×10^6 (cycles)
Structural performance parameters	
Housing material	316L
Sealing ring material	NBR

Basic parameters

Item	Condition	Min	Typical	Max	Unit	Note
Non-linearity		-2.0	±1	2.0	%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	100Pa 250Pa 500Pa Other range	7 10 10 20	15 30 20 35	25 50 35 70	mV	Excitation 1.5mA
Zero temp. drift	100Pa 250Pa 500Pa Other range	-10 -5 -3 -2	±5 ±3.5 ±2 ±1.5	+10 +5 +3 +2	%F.S.	Note (2)
Sensitivity temp. drift	＜1kPa Other range	-5 -2	±3.5 ±1.5	5 2	%F.S.	Note (2)
Long-term stability		-0.3	±0.2	0.3	%F.S./Year	

Notes:

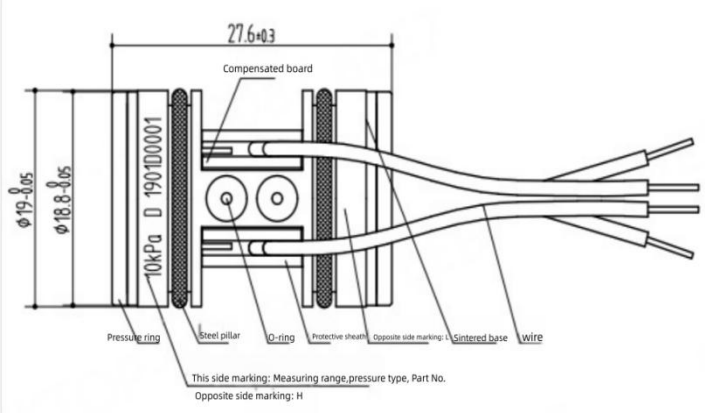
(1) Calculate according to BFSL least square method.

(2) Within the compensated temperature range 0ºC ~ 50ºC, the temperature is 30ºC for reference.

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

Structure and electrical connection (in mm)

Wire connection: 4 wires for constant current excitation and constant voltage excitation



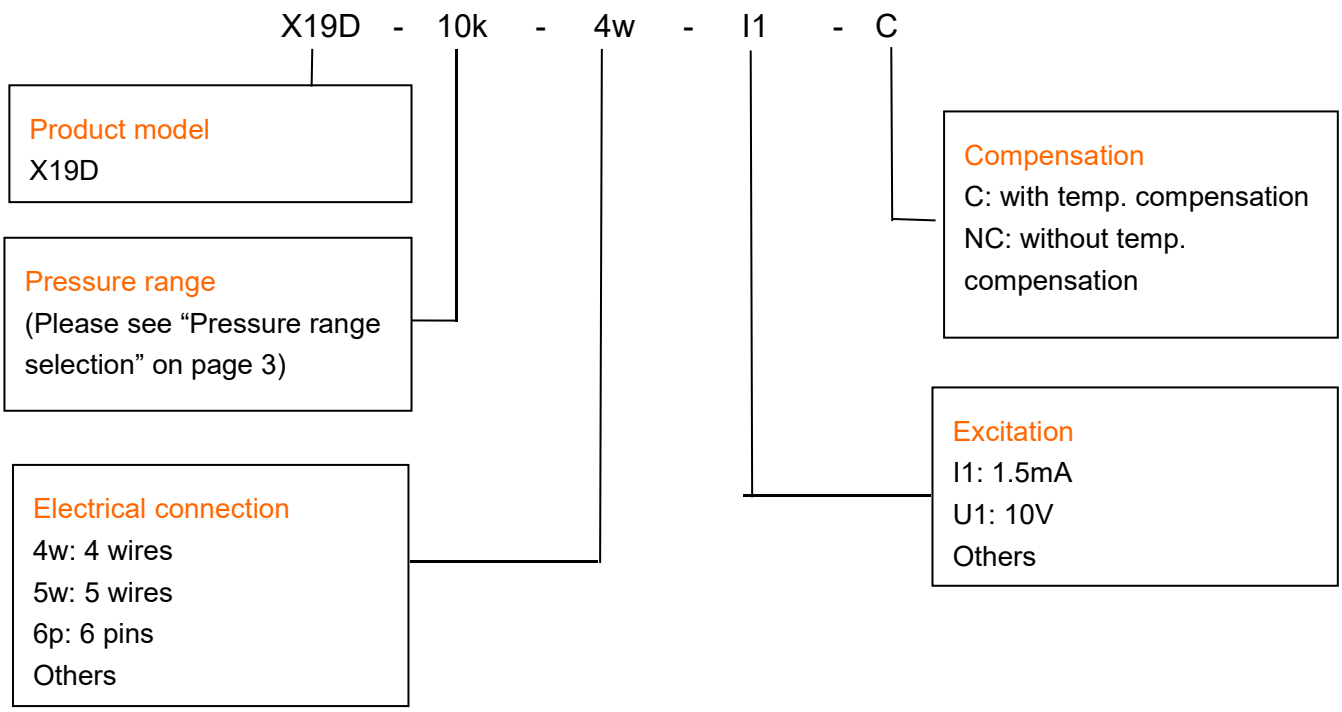
Wire color	Definition
Red	Excitation+(IN+)
Blue	Excitation-(IN-)
Yellow	Output+(OUT+)
White	Output-(OUT-)

Pressure range selection

Code	Pressure range	Overload pressure	Burst pressure	O-ring
100Pa	0～100Pa	150%F.S.	200%F.S.	NBR
250Pa	0～250Pa	150%F.S.	200%F.S.	NBR
500Pa	0～500Pa	150%F.S.	200%F.S.	NBR
1k	0～1kPa	150%F.S.	300%F.S.	NBR
2k	0～2kPa	150%F.S.	300%F.S.	NBR
5k	0～5kPa	150%F.S.	300%F.S.	NBR
10k	0～10kPa	150%F.S.	300%F.S.	NBR
±1k	-1kPa～1kPa	150%F.S.	300%F.S.	NBR
±2k	-2kPa～2kPa	150%F.S.	300%F.S.	NBR
±3k	-3kPa～3kPa	150%F.S.	300%F.S.	NBR
±5k	-5kPa～5kPa	150%F.S.	300%F.S.	NBR
±10k	-10kPa～10kPa	150%F.S.	300%F.S.	NBR

Note: The working temperature range of NBR O-rings is -40°C to 120°C. When the operating temperature of the sensing element is lower than -40°C, or when applied in harsh media environments, please contact our technical team for professional selection consultation.

Ordering information



Example of ordering information: X19D - 10k - 4w - I1 - C
Product model: X19D, 10k: pressure range 0 ~ 10kPa, 4w: 4 wires lead out, I1: 1.5mA excitation, C: with temperature compensation.

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Ordering tips:

1. Over-range or under-range use is allowed, recommended within ±30% F.S..
2. Pressure reference: differential pressure only.
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 service life or even damage the product.
4. 1.5mA constant current compensation is standard.
5. Negative pressure sensors differ completely in materials and processes from positive pressure sensors, so it cannot be replaced by standard gauge pressure sensors.
6. For customized requirements on product performance parameters and functions, please feel free to 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.

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