

# X19 Micro-Pressure Sensor

## Features

- Small range
- constant current excitation
- Imported highly reliable pressure die
- Temperature compensation
- Normalized output available
- Compensation board filled with glue for protection against moisture
- $\Phi 19$  mm standard OEM
- All 316L material
- High performance, all solid, high reliability
- 18 months warranty period

## Applications

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



## Product overview

X19 Industrial Pressure Sensor is the core component for the manufacture of pressure sensors and pressure transmitters. As high-performance pressure sensitive component, X19 can be easily amplified and assembled into the pressure transmitters with standard signal output.

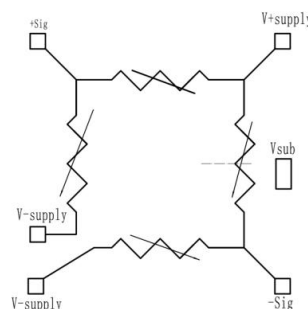
X19 packages diffused silicon pressure sensitive die to 316L stainless steel housing. The external pressure is applied directly to the sensor chip, and the back of the sensor chip is compressed to form an all-solid structure for pressure measurement, so the product can only be used to measure clean, non-corrosive gases.

X19 uses O-ring adopts pressure seal, which is easy to install.

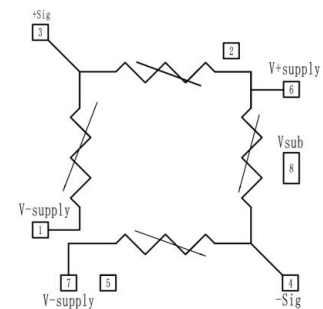
Our company can also undertake special customization based on the needs of users, such as pressure sensors of all welded structure, wide temperature compensation, high reliability sensors.

## Equivalent circuit

(1)  $< 35\text{kPa}$



(2)  $> 35\text{kPa}$



### 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 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	Gauge pressure
Excitation	1.5mA
Input impedance	2kΩ~5kΩ
Electrical connection	Silicon soft wire
Compensated temp.	0℃~50℃
Operating temp.	-20℃~85℃
Storage temp.	-20℃~85℃
Insulation resistance	≥200MΩ/250VDC
Response time	≤1ms (up to 90%FS)
Measured medium	Clean and non-corrosive gas
Mechanical vibration	20g(20~5000Hz)
Shock	100g/10ms
Durability	10 <sup>6</sup> pressure cycles

### Structural performance parameters

Housing material	316L
Sealing O-ring	NBR

### Basic parameters

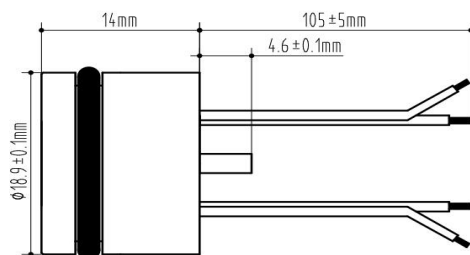
Item	Condition	Min	Nominal	Max	Unit	Note
Non-linearity		-2.0	±1	2.0	%FS	Note (1)
Hysteresis		-0.05	±0.03	0.05	%FS	
Repeatability		-0.05	±0.03	0.05	%FS	
Zero output		-2	±1	2	mV	
Full scale span output	≤2kPa other	10 30		30 100	mV	Excitation 1.5mA
Zero temp. coefficient		-2	±1.5	+2	%FS	Note (2)
Span temp. coefficient		-1.5	±0.75	1.5	%FS	Note (2)
Thermal hysteresis		-0.075	±0.05	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 compensated temperature range, 0℃~50℃, reference temperature 30℃.
- (3) After passing high and low temperature, return to the reference temperature.

### Structure and electrical connection (in mm)

4 wires



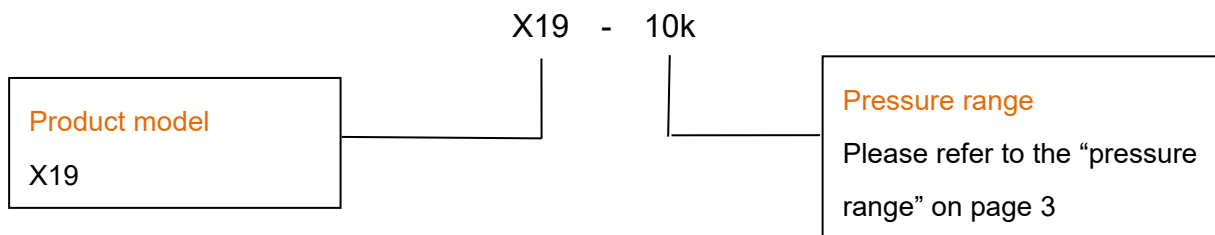
Wire color	Definition
Red	Excitation+(IN+)
Blue	Excitation-(IN-)
Yellow	Output+(OUT+)
White	Output-(OUT-)

### Pressure range selection

Code	Pressure range	Overload pressure	Burst pressure	O-ring
250Pa	0~250Pa	150%FS	200%FS	NBR
1k	0~1kPa	150%FS	300%FS	NBR
2k	0~2kPa	150%FS	300%FS	NBR
5k	0~5kPa	150%FS	300%FS	NBR
7k	0~7kPa	150%FS	300%FS	NBR
10k	0~10kPa	150%FS	300%FS	NBR
±1k	-1kPa~1kPa	150%FS	300%FS	NBR
±2k	-2kPa~2kPa	150%FS	300%FS	NBR
±3k	-3kPa~3kPa	150%FS	300%FS	NBR
±10k	-10kPa~10kPa	150%FS	300%FS	NBR

Note: The temperature endurance of NBR O-ring is  $-40^{\circ}\text{C} \sim 120^{\circ}\text{C}$ . When the operating temperature of the sensitive element is below  $-40^{\circ}\text{C}$  or the sensitive element is used in harsh media, please contact the company.

### How to order



**Example:** X19 - 10k

The product model is X19, 10k: pressure range 0~10kPa, Gauge pressure, 4 wire lead, 1.5mA excitation, current compensation

### Ordering tips:

1. Pressure range can be selected higher or lower than actual conditions but should be within  $\pm 30\%$ FS.
2. Pressure reference is gauge 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 life or even damage the product.
4. The common compensation mode of the product is 1.5mA constant current compensation.
5. The material and process for manufacturing negative pressure sensors are different from those of positive pressure sensors. So gauge pressure sensors cannot be used as substitute of negative 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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