CUI DEVICES

SERIES: PS03 | DESCRIPTION: PRESSURE SENSOR

FEATURES

- temperature compensated
- multiple pressure range options
- absolute and sealed gauge pressure options
- stainless steel housing
- o-ring seal



RoHS

SPECIFICATIONS

parameter	conditions/description	min	typ	max	units
pressure range	see Pressure Specifications for more details	0		100	MPa
pressure reference	absolute pressure, sealed gauge pressure				
excitation	constant current models constant voltage models		1.5 10	2.5 15	mA V
input impedance	constant current models constant voltage models	2 3		5 18	kΩ kΩ
insulation resistance	at 250 Vdc	200			MΩ
response time	up to 90%FS			1	ms
vibration	20 G (20~5,000 Hz)				
shock	100 G for 10 ms				
compensated temperature	constant current models ≤35 kPa models all other models	0 -10		60 70	°C °C
	constant voltage models	-20		85	°C
operating temperature		-40		125	°C
storage temperature		-40		125	°C
life			1,000,000		cycles
RoHS	yes				

MECHANICAL

parameter	conditions/description	min	typ	max	units
measured medium	all 316L compatible liquids and gases				
housing/diaphragm	stainless steel 316L				
dimensions	Ø19 x 14				mm
weight			80		g

BASIC PARAMETERS

parameter	conditions/description	min	typ	max	units
nonlinearity[1]		-0.3	±0.2	0.3	%FS
hysteresis		-0.05	±0.03	0.05	%FS
repeatability		-0.05	±0.03	0.05	%FS
zero output		-2	±0.2	2	mV
full scale span output	constant current; ≤35 kPa models constant current; all other models constant voltage; ≤35 kPa models constant voltage; all other models	40 60 60 80	90 90 90 100	150 150 150 120	mV mV mV mV
zero temperature coefficient[2]	≤10 kPa models all other models	-2 -1.5	±1.5 ±0.75	2 1.5	%FS %FS
span temperature coefficient[2]		-1.5	±0.75	1.5	%FS
thermal hysteresis[3]		-0.075	±0.05	0.075	%FS
long term stability		-0.3	±0.2	0.3	%FS/year

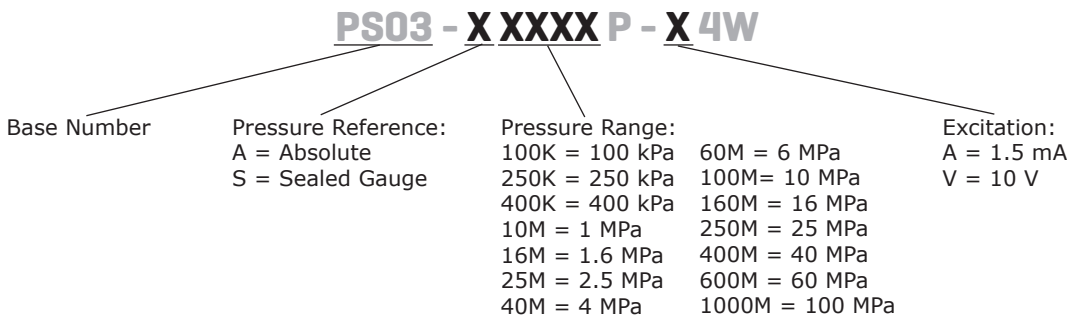
Note:
1. Calculated according to best fit straight line (BFSL) least square method.
2. In the compensated temperature range, refer to 30°C for constant current models, and refer to 32.5°C for constant voltage models.
3. After passing high and low temperature, return to the reference temperature.

PRESSURE SPECIFICATIONS

pressure range	pressure reference[4]	overload pressure	burst pressure
0~100 kPa	A	200%FS	500%FS
0~250 kPa	A	200%FS	500%FS
0~400 kPa	A	200%FS	500%FS
0~1.0 MPa	A	200%FS	500%FS
0~1.6 MPa	A, S	200%FS	500%FS
0~2.5 MPa	S	200%FS	500%FS
0~4.0 MPa	S	200%FS	400%FS
0~6.0 MPa	S	200%FS	400%FS
0~10 MPa	S	200%FS	400%FS
0~16 MPa	S	200%FS	400%FS
0~25 MPa	S	150%FS	400%FS
0~40 MPa	S	150%FS	300%FS
0~60 MPa	S	150%FS	300%FS
0~100 MPa	S	150%FS	300%FS

Note:
4. A=absolute pressure (vacuum is zero); S=sealed gauge pressure (calibrated atmospheric pressure is zero).

PART NUMBER KEY



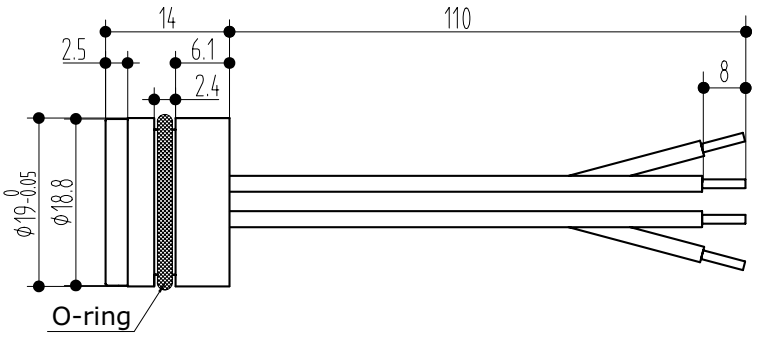
MECHANICAL DRAWING

units: mm
tolerance: ±0.1 mm
unless otherwise noted

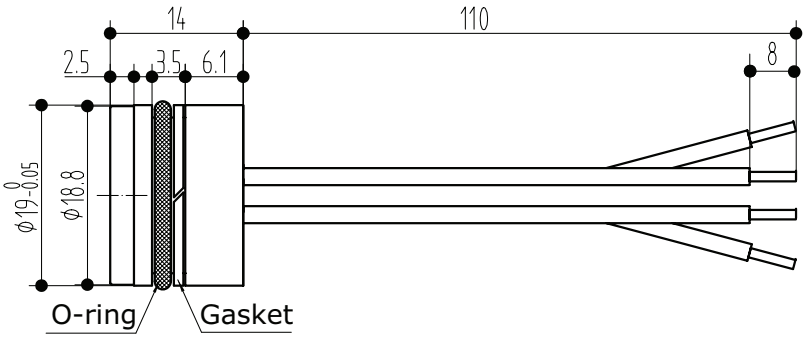
ITEM	DESCRIPTION	MATERIAL	PLATING/COLOR
A	housing	SS 316L	
B	diaphragm	SS 316L	
C	oil filling	silicon oil	
D	o-ring	NBR (≤4 Mpa models)	black
		fluorine rubber (>4 Mpa models)	brown
E	wires	silicon; OD: 1.4 mm; 0.15 mm²	

WIRE CONNECTIONS	
Wire Color	Function
Red	+IN
Blue	-IN
Yellow	+OUT
White	-OUT

Sealed Gauge Pressure or Absolute Pressure <16 MPa

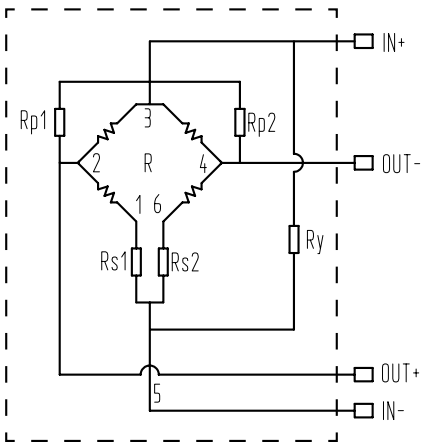


Sealed Gauge Pressure ≥16 MPa

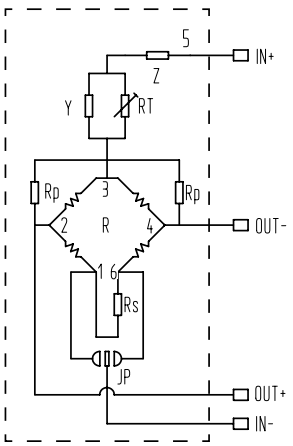


INTERFACE DIAGRAM

Constant Current Models



Constant Voltage Models



USAGE CONSIDERATIONS

1. Do not touch the diaphragm with hard objects, which may cause damage to the diaphragm.
2. Strictly follow the wiring method, otherwise it may cause product damage or other potential faults.
3. Misuse of the product may cause danger or personal injury.
4. Pressure range can be selected higher or lower than actual conditions, but should be within ±30%FS.
5. Pressure reference consists of gauge pressure, absolute pressure, and sealed gauge pressure.

   a. 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.

   b. Absolute pressure is based on vacuum.

   c. Sealed gauge pressure uses absolute pressure die for gauge pressure product based on the atmospheric pressure of production site.

6. 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.
7. 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 substitue of negative pressure sensors.

REVISION HISTORY

rev.	description	date
1.0	initial release	12/09/2021

The revision history provided is for informational purposes only and is believed to be accurate.

CUI DEVICES

CUI Devices offers a one (1) year limited warranty. Complete warranty information is listed on our website.

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