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SPT81 Piezoresistive Pressure Sensor

Features

- Pressure range:-1...0 ~ 0.1...1000bar
- Gauge, absolute, sealed gauge
- Constant current power supply
- Isolated construction, enable to measure various media
- Φ19mm standard OEM pressure sensor
- Full stainless steel 316L
- Wider temperature compensation -10℃ ~ +80℃
- Long-term stability 0.1%FS/year

Application

- Industrial process control
- Level measurement
- Gas, liquid pressure measurement
- Pressure checking meter
- Pressure calibrator
- Liquid pressure system and switch
- Cooling equipment and air conditioning system
- Aviation and navigation inspection

Introduction

SPT81 high stable OEM sensor is the piezoresistive pressure sensor with isolated construction and precise compensation. It uses high stable silicon die. Stainless steel 316L housing with diameter Φ19mm. Wider temperature compensation and zero correction are calibrated by laser trimming technics. The measured pressure is transmitted onto silicon die through 316L diaphragm and inner media, to transform the pressure to electric signal. SPT81 piezoresistive pressure sensor is inspected and screened on automatic production line, testing and checking time after time strictly. It is widely used for various pressure measurement fields.

Electric Specification

- Power supply: ≤2.0mADC
- Electric connection: Kovar pin or 100mm silicon rubber flexible wires
- Common mode voltage output: 50% input (typ.)
- Input impedance: 3kΩ～6kΩ
- Output impedance: 3kΩ～6kΩ
- Response (10%～90%): <1ms
- Insulation resistor: 100MΩ, 100VDC
- Overpressure: 2 times FS

Construction

- Diaphragm: stainless steel 316L
- Housing: stainless steel 316L
- Pin: Kovar or silicon rubber flexible wires
- O-ring: NBR
- Net weight: ~16g

Environment Condition

- Position effect: deviate 90° from any orientation, zero change ≤±0.05%FS
- Shock: no change at 10gRMS,（20～2000）Hz
- Impact: 100g，11ms
- Media compatibility: the gas or liquid which is compatible with stainless steel and NBR

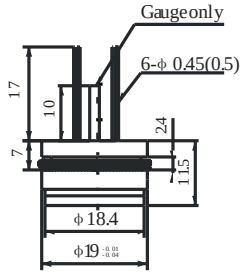
Basic Condition

- Media temperature: （25±1）℃
- Environment temperature: （25±1）℃
- Humidity: （50%±10%）RH
- Local air pressure: （0.86～1.06）bar
- Power supply: （1.5±0.0015）mADC

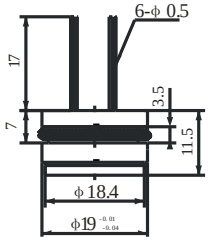
Basic Specification

Specification*	Min.	Typ.	Max.	Units
Linearity		±0.1	±0.2	%FS,BFSL
Repeatability		±0.05	±0.075	%FS
Hysteresis		±0.05	±0.075	%FS
Zero output			±2	mVDC
FS output	45	130		mVDC
Zero thermal error		±0.75	±1.0	%FS,@35℃
Span thermal error		±0.75	±1.0	%FS,@35℃
Compensated temp. range	-10 ~ 80 0 ~ 70（0.1bar,0.2bar, 3.5bar）			℃
Working temp. range	-40 ~ 125			℃
Storage temp. range	-55 ~ 125			℃
Stability error		±0.1	±0.2	%FS/year
*testing at basic condition				

Outline Construction (Units: mm)



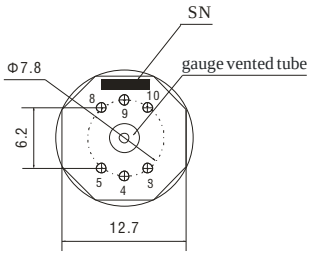
≤35bar



≥70bar

The suggested installation dimension is $\Phi 19^{+0.05}_{+0.02}$ mm.

Electric Connection



Pin	Electric connection	Wire color
9	+OUT	Red
3	+IN	Black
10	-IN	yellow(white)
4	-OUT	Blue

Order Guide

SPT81	Piezoresistive Pressure Sensor					
	Range code	Pressure range (bar)	Ref.	Range code	Pressure range (bar)	Ref.
	0C	0 ~ 0.1	G	12	0 ~ 20	G.A
	0B	0 ~ 0.2	G	13	0~35	G.A
	0A	0 ~ 0.35	G	14	0 ~ 70	A.S
	02	0 ~ 0.7	G	15	0 ~ 150	A.S
	03	0 ~ 1	G.A	17	0 ~ 200	A.S
	07	0~2	G.A	18	0 ~ 350	A.S
	08	0 ~ 3.5	G.A	19	0 ~ 700	A.S
	09	0 ~ 7	G.A	20	0 ~ 1000	A.S
	10	0 ~ 10	G.A			

Code	Pressure type
G	Gauge
A	Absolute
S	Sealed gauge

Code	Electric connection
1	Φ0.5mm Kovar pins
2	4-color 100mm flexible rubber wire

Code	Special measurement
Y	Gauge sensor to measure vacuum

SPT81	07	G	1	Y	the whole spec

Order Note:

1. We suggest you to use Floating construction when you install the sensor to prevent affecting sensor stability;

2. Please pay attention to protect sensor isolated diaphragm and ceramic compensated board, to avoid damaging sensor and affecting the performance;

3. When the temperature exceeds viton working temperature, or the user needs to use sensor at rugged environment, please contact our company freely.