

SP19FR Flush Diaphragm Piezoresistive Monosilicon Pressure Sensor

SP19FR flush diaphragm monosilicon pressure sensor is double diaphragm overload protection structure can easily cope with high overload test, isolated air cavity design to prevent condensation and avoid pollution to the media.

The SP19FR is capable of all the industries which need CIP / SIP cleaning, such as food, pharmacy, drink and so on.

1. Parameters

Measuring range: 0~100kPa...35MPa.

Power supply: $\leq 2.0\text{mA DC}$ (10VDC@5K ohm)

Electrical connection: $\varnothing 0.5\text{mm}$ gold-plated kovar pins or silicone rubber soft wire

Common-mode Voltage Output: 50% of the input (typical)

Input Impedance: $3\text{k}\Omega \sim 8\text{k}\Omega$

Output Impedance: $3\text{k}\Omega \sim 8\text{k}\Omega$

Respond Time(10%~90%): $< 10\text{ms}$ (at media temperatures below -22°F (-30°C) for ranges $< 300\text{ PSI}$)

Insulation Resistance: $100\text{M}\Omega, 100\text{V DC}$

Overload: 1.5 times all span

2. Structure

Diaphragm Material: Stainless Steel 316L

Housing Material: Stainless Steel 316L

O-ring: FKM

3. Environmental

Position Influence: Deviation 90° at any direction, zero variation $\leq 0.05\% \text{FS}$

Vibration Dynamic: No change under the condition of 10Grms, (20~2000)Hz

Anti-impact: 100g, 11ms

Medium Compatibility: For fluids compatible of structural materials and FKM

4. Basic conditions

Medium temperature: $(22 \pm 2)^\circ\text{C}$

Ambient temperature: $(22 \pm 2)^\circ\text{C}$

Vibration: 0.1g (1m/s/s) Max

Humidity: $50\% \pm 10\% \text{RH}$

Atmospheric pressure: 86~106 kPa

Power supply: 5VDC $\pm 0.25\text{V}$

5. Basic specifications

Item*	Typical		Max	Unit(standard)
Nonlinearity **	±0.15		±0.25	%FS,BFSL
Repeatability **	±0.05		±0.075	%FS
Hysteresis **	±0.05		±0.075	%FS
Zero point output	±1		±2	MVDC
Full-scale output***	100		—	MVDC
Zero temperature error	±0.75		±2.0	%F.S., reference 22°C
Full temperature error	±0.75		±2.0	%F.S., reference 22°C
Compensation temperature range	-10~80		—	°C
Operation temperature range	-20~85		—	°C
Storage temperature range	-40~125		—	°C
Long-term stability	±0.2		±0.3	%F.S./year

* Test under the base condition (piezoresistive sensor signal output type only)

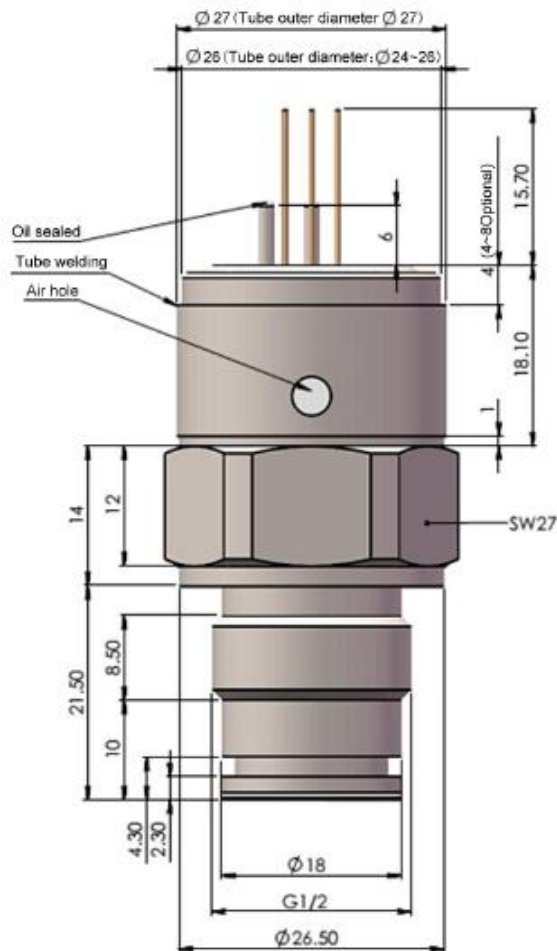
** Accuracy includes these 3 items which are nonlinearity, repeatability and hysteresis, reference standard IEC 61298-2.

***According to the requirements of the orders, the sensor can be customized within a certain range, related to sensor, specific need to check with the factory.

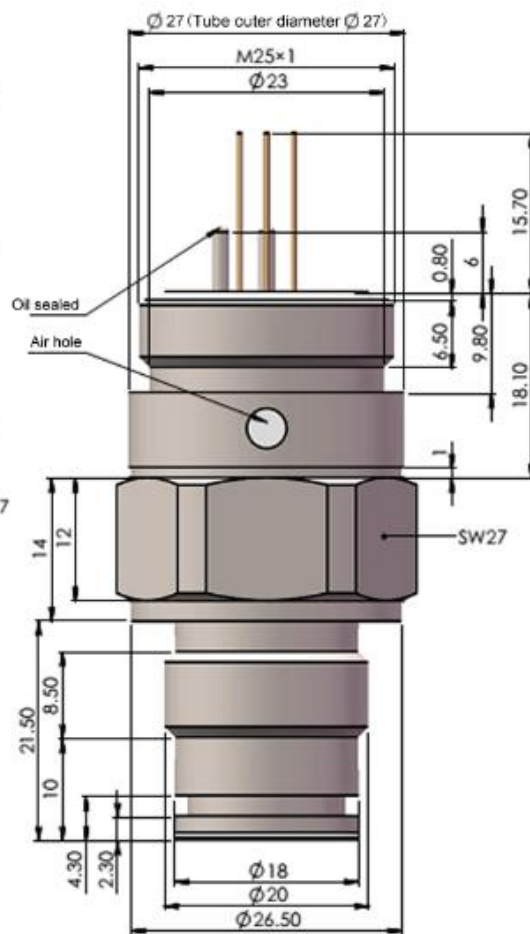
6. Configuration (unit: mm)

Order code: process connection-body connection:

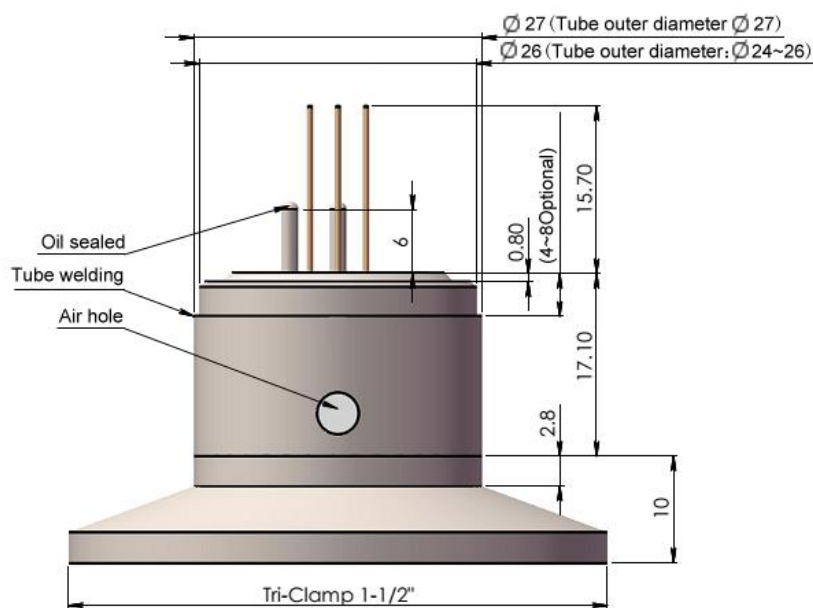
G01NT-D



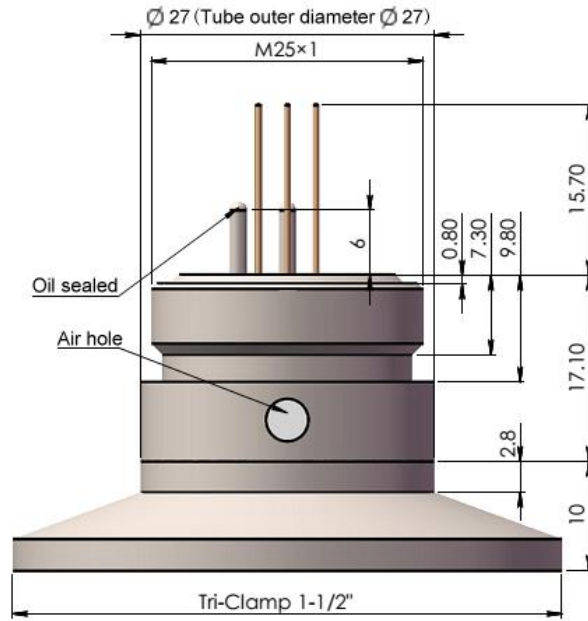
G01NT-M



K01NT-D

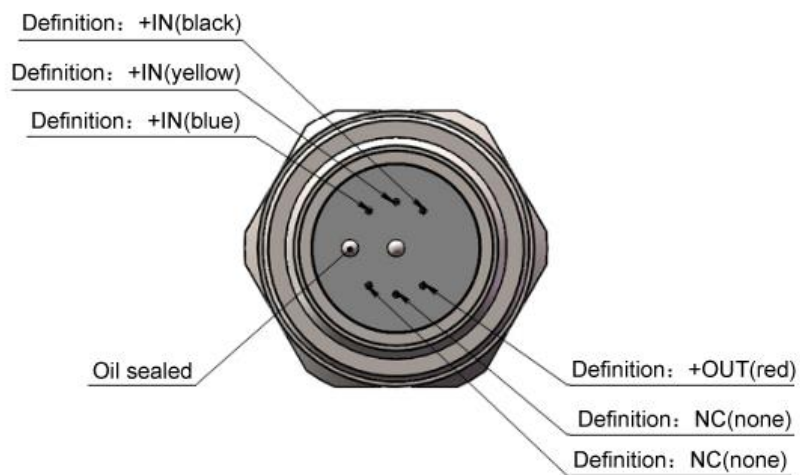


K01NT-M



7. Electrical Connection

SCV, SN8



8. Ordering Chapter

Item	Parameter	Code	Description
	Model number	SP19FR	Flush Diaphragm Piezoresistive Monosilicon Pressure Sensor
Sensor	Separator	-	Detailed specifications as following
	Structure	S	Standard
	Pressure range Code	403	Nominal Range 40kPa
		254	Nominal Range 250kPa
		105	Nominal Range 1000kPa
		305	Nominal Range 3MPa
		106	Nominal Range 10MPa
	Pressure type	406	Nominal Range 40MPa
		G	Gauge
		A	Absolute (40kPa-1MPa)
Process connection	Separator	-	Detailed specifications as following
	Specification	G01	G1/2 (M), flush diaphragm, EN837
		K01	Tri-Clamp 1-1/2", flush diaphragm
	Connection type	NT	Standard connection, medium temperature: -20~85℃
		HT	Cooling element connector, medium temperature: -40~150℃
Body connection	Separator	-	Detailed specifications as following
	Connection type	D	26.5mm outer diameter (Standard)
		M	M25*1(M)
Output	Separator	-	Detailed specifications as following
	Output signal	SCV	Gold-plated kovar pins, pressure resistance signal output (standard) 100mV@1mA stimulate
		SN8	100mm silicone rubber soft wire pressure resistance signal output(standard) 100mV@1mA stimulate
Selection sample: SP19FR-L355G-G01NT-D-SCV Specification: 3.5MPa gage pressure, G1/2 thread without cooling element, welded body, kovar pins, piezoresistance output signal .			

*	mV output will be different with different ranges and different excitation current.
**	Only suitable for process connection “G01”
***	Will affect temperature, index and respond time, contact us for details.
****	Only G01, K01 process connection are available now.

Selection Hints:

1. Avoid diaphragm connect with the seals during the process of assembling sensors, in case of affecting the measurement accuracy
2. Please pay attention to protect the pressure sensitive element front-end isolation diaphragm and back-end compensation circuit board in order to avoid the influence of performance of the pressure sensitive element or bruised caused by the damage of pressure sensitive element.
3. The temperature range of the standard fluorine rubber seal for the sensor is - 20℃ ~ 250℃ . If the working temperature is below -20℃ , or using for harsh medium application, please contact with our company for more advise or information.

Shanghai LEEG Instruments Co., Ltd.

Tel: +86 21-31261976

Fax: +86 21-31261975

Email: info@leeg.cn

Add: No. 100 Duhui Road, Minhang district, Shanghai China

www.leegsensor.com