General Instruction and Datasheet

ESS319 GID-3-EV03.3.1

Measuring your business

ESS319 High Stable OEM Piezoresistive Pressure Sensor

■ Range: 0～100MPa ■ Overload Pressure: 150%~300% ■ Accuracy: 0.2%/FS ■ Φ19mm Standard OEM Pressure Sensor

Description

ESS319 Series OEM Pressure Sensor uses a high-sensitivity piezoresistive silicon die as sensing component, which is protected against ambient influences by SS316 housing sealed with a concentrically corrugated diaphragm. Inside the housing, the filled silicone oil assures the measured pressure can be transmitted onto silicon die and then transform the pressure to electric signal.

ESS319 Series OEM Pressure Sensor is available all pressure ranges from 0 to 100MPa.

Key Features & Benefits

- Pressure range 0～100MPa
- Gauge, Absolute, Sealed gauge
- Constant current/Voltage power supply
- Isolated construction, measure various media
- Φ19mm OEM Pressure Sensor
- Full Stainless Steel 316
- Wide temperature compensation -10℃～70℃
- Long-term stability ±0.2%FS/year

Application

- Industrial process control
- Level measurement
- Gas, liquid pressure measurement
- Pressure checking meter
- Pressure calibrator
- Liquid pressure system and switch
- Cooling equipment & A/C system
- Aviation and navigation inspection
- Pneumatics and hydraulics systems

Standard Range

Range	Overload	Output/F.S (mV)	Typical Value(mV)	Pressure Type
0~10KPa	300%	35~60	45	G
0~35K Pa	300%	55~80	70	G/A
0~70K Pa	300%	55~80	60	G/A
0~100 KPa	300%	60~85	75	G/A
0~200 KPa	300%	65~85	75	G/A
0~400 KPa	300%	60~80	70	G/A
0~1.0 MPa	300%	80~120	100	G/A
0~2.0 MPa	200%	50~70	60	G/A
0~3.5 MPa	200%	100~120	110	G/S/A

Technical Parameters

Parameters	Typ.	Max.	Unit
Nonlinearity	0.2	0.5	%FS
Hysteresis	0.05	0.08	%FS
Repeatability	0.05	0.08	%FS
Zero Output	±1	±2	mV DC
FS Output	100	250	mV DC
Input/ Output Impedance	2.6	5.0	kΩ
Zero Temp. Drift*	±0.4	±1.0	%FS,@25℃
Sensitivity Temp. Drift*	±0.4	±1.0	%FS,@25℃
Long-term Stability	0.2	0.3	%FS/year

0~7.0 MPa	200%	120~150	135	S/A
0~10 MPa	200%	180~230	200	S/A
0~25 MPa	200%	140~170	150	S/A
0~40 MPa	200%	230~280	250	S/A
0~60 MPa	200%	100~160	130	S/A
0~100 MPa	150%	100~150	120	S/A

Notes: *G for Gauge pressure; A for Absolute pressure; D for Differential pressure; S for Sealed gauge.*

**The typical value of 0~10kPa of zero temperature drift and sensitivity temperature drift is 0.5%FS@25℃, max value is 1.2%FS@25℃*

Construction Performance

Diaphragm: Stainless Steel 316L
Housing: Stainless Steel 316L
Pressure leading tube: Stainless Steel 316L
O Ring: Φ16*1.8mm (Nitrile rubber or Viton)
Working temperature for Viton of O-Ring is -20℃~200 ℃

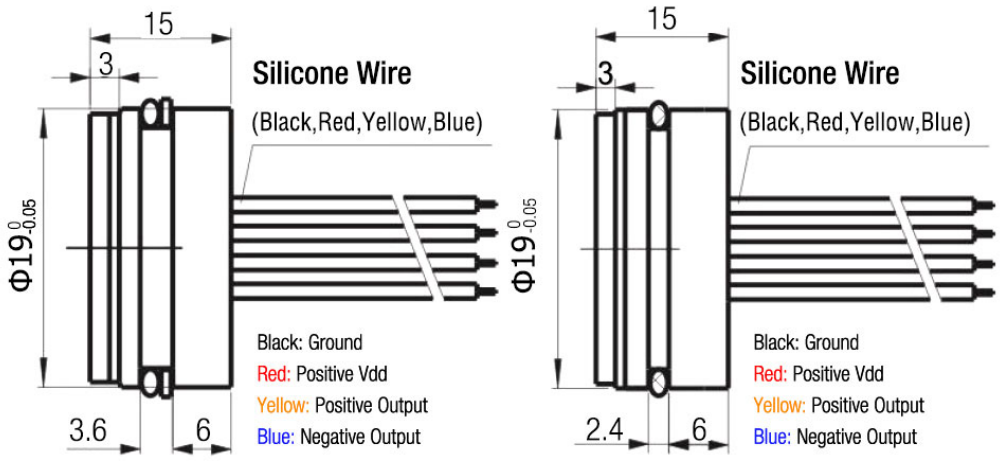
Measuring Medium: Which is compatible with SS316L, Viton, Nitrile rubber
Packing Medium: Silicon Oil
Net weight: 20-30g

Electric & Environment Performance

Power supply: 1.5mA/5V/3.3V/10V (Max input voltage is 10VDC)
Insulation Resistance: 500MΩ@100VDC
Overpressure: 1.5~3 times FS
Vibration (20~500Hz): 20G
Useful Time (25℃): >1*100 Million Times @Pressure Circulation(80%FS)
Response Time: ≤1ms
Storage Temp.: -40~+125℃
Operating Temp.: -40~+85℃
Compensation Temp.: 0~50℃@<400kpa; -10~70℃@>=400kpa;

Drawing

ESS319 High Stable Universal Piezoresistive OEM Sensor Range: 0Kpa~100Mpa



Ordering Procedure

ESS3	High Stable OEM Piezoresistive Sensor									
	Code	Model								
	19	High Stable Universal Piezoresistive OEM Sensor								
	19P	Flush Diaphragm Piezoresistive Pressure Sensor								
	19T	Pressure & Temperature Sensor								
	19-I2C	Digital Pressure Sensor								
	19I	Pressure Sensor with Analog Output								
		Cod	Span		Code	Span		Code	Span	
		R01	0~10KPa		R07	0~1.0MPa		R13	0~40 MPa	
		R02	0~35KPa		R08	0~2.0Mpa		R14	0~60 MPa	
		R03	0~70KPa		R09	0~3.5 MPa		R15	0~100 MPa	
		R04	0~100KPa		R10	0~7.0 MPa				
		R05	0~200KPa		R11	0~10.0 MPa				
		R06	0~400KPa		R12	0~25 MPa				
			Code	Pressure Type						
			G	Gauge						
			A	Absolute						
			S	Sealed Gauge						
				Code	Power Supply					
				M	1.5mA					
				V3.3	3.3V					
				V5	5V					
				V10	10V					
					Code	Pressure connection				
					0	O-ring -NBR				
					1	O-ring -Viton				
						Code	Electric connection			
						1	Kovar pin			
						2	Rubber flexible silicon wires (10cm)			
ESS3	19	R10	G	M	0	2				

Note: ❶*Extremely attention must be paid to sensor installation process to avoid any miss conduction that affect the sensor performance,* ❷*please protect the diaphragm and the compensated board carefully to prevent any damage.*❸ *Please contact us if your requested working temperature lower than -20℃*