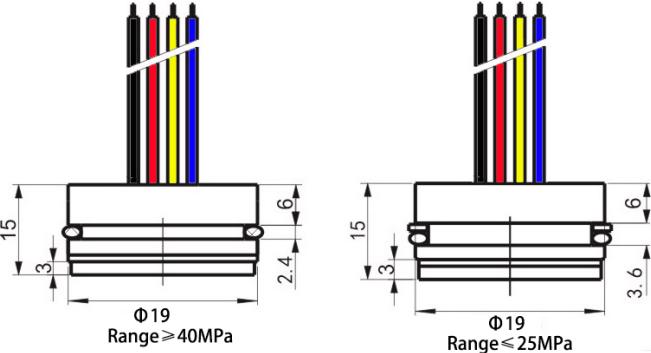


General Instruction and Datasheet

ESS3 GID-3-EV02

Measuring your business

ESS3 High Stable OEM Piezoresistive Pressure Sensor



Range: 0~100MPa ■ Overload Pressure: 150%~300% ■ Accuracy: 0.1%/FS ■ Φ11mm~19mm Standard OEM Pressure Sensor

Description

ESS3 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.

ESS3 Series OEM Pressure Sensor is available all pressure ranges from -100KPa to 100MPa. Also the different dimension can be chosen: diameter from 11 mm to 19 mm, height from 5 mm to 15 mm. Pressure type including Gauge, Differential, Absolute and Sealed Gauge are all available.

Key Features & Benefits

- Pressure range -100kPa~10kPa...100MPa
- Gauge, Differential, Absolute, Sealed gauge
- Constant Current/Voltage power supply
- Isolated construction, measure various media
- Φ11~Φ19mm OEM Pressure Sensor
- Full Stainless Steel 316
- Wide temperature compensation -10°C~80°C
- 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 & 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
0~20KPa	300%	70~110	90	G/A
0~35KPa	300%	55~80	70	G/A/D
0~70KPa	300%	55~80	60	G/A/D
0~100KPa	300%	60~85	75	G/A/D
0~200KPa	300%	60~85	75	G/A/D
0~400KPa	300%	60~80	70	G/A/D

Technical Parameters

Parameters	Typ.	Max.	Unit
Nonlinearity	0.2	0.5	%FS
Hysteresis	0.05	0.1	%FS
Repeatability	0.05	0.1	%FS
Zero Output	±1	±2	mV DC
FS Output	100		mV DC
Input/ Output Impedance	2.6	3.8	kΩ
Zero Temp. Drift*	±0.15	±0.8	%FS,@25°C

General Instruction and Datasheet

ESS3 GID-3-EV02

Measuring your business

0~600kPa	200%	90~120	100	G/A/D
0~1.0 MPa	200%	125~185	150	G/A/D
0~1.6 MPa	200%	80~120	100	G/A/D
0~2.0 MPa	200%	50~70	60	G/A/D
0~3.5 MPa	200%	100~120	110	G/A/D
0~7.0 MPa	200%	120~150	135	G/A
0~10 MPa	200%	180~230	200	G/A
0~25 MPa	150%	140~170	150	S
0~40 MPa	150%	230~280	250	S
0~60 MPa	150%	100~160	130	S
0~100 MPa	150%	100~150	120	S

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

Sensitivity Temp. Drift*	± 0.2	± 0.7	%FS,@25°C
Long-term Stability	0.1		%FS/year
<i>Range -100kPa~100MPa</i>			
<i>*The typical value of 0~10kPa and 0~20kPa's zero temperature drift and sensitivity temperature drift is 0.4%FS@25°C, max value is 1.6%FS@25°C</i>			



Construction Performance

Diaphragm: Stainless Steel 316L

Housing: Stainless Steel 316L

Pressure leading tube: Stainless Steel 316L

O Ring: $\Phi 16 \times 1.8\text{mm}$ (nitrile rubber or viton)

Measuring Medium: Which is compatible with SS316L, viton, nitrile rubber

Packing Medium: Silicon Oil

Net weight: 15~45g

Electric & Environment Performance

Power supply: 1.5mA (Max input voltage is 10VDC)

Insulation Resistance: $500\Omega @ 500\text{VDC}$

Overpressure: 1.5~3 times FS

Vibration (20~500Hz): 20G

Useful Time (25°C): >1*100 Million Times

@Pressure Circulation(80%FS)

Response Time: $\leq 1\text{ms}$

Storage Temp.: -40~+125°C

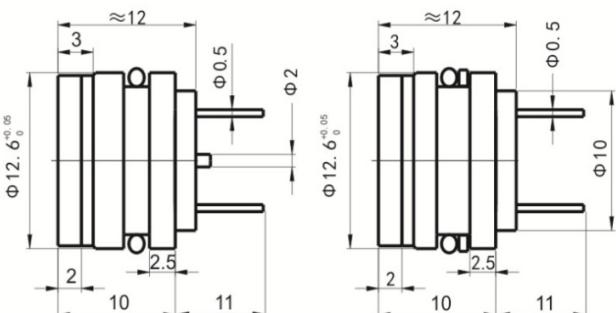
Operating Temp.: -40~+85°C

Compensation Temp.: 0~50°C; -10~80°C

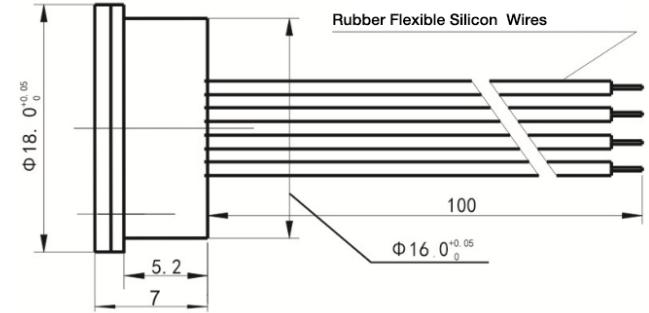
@ 0~70 (7kPa, 20 kPa, 35 kPa)

ES3 Series Portfolio

ESS312 Compact Size $\Phi 12$ Piezoresistive OEM Sensor
Range: 1Mpa~100Mpa

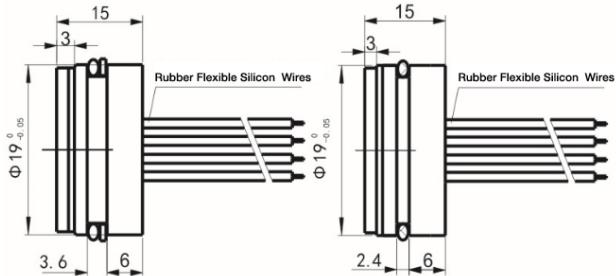


ESS318 Low Range Piezoresistive OEM Sensor
Range: 1Kpa~±10Kpa

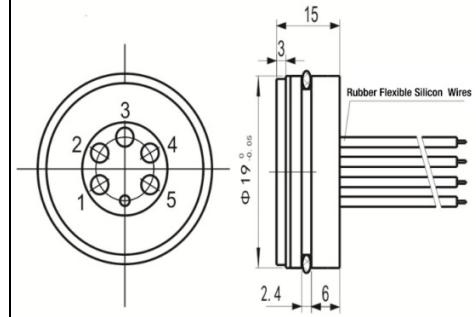


ESS3 GID-3-EV02

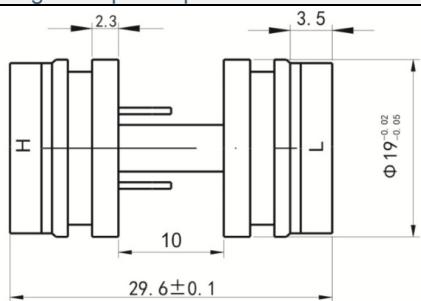
ESS319 High Stable Universal Piezoresistive OEM Sensor Range: -100Kpa~10Kpa~100Mpa



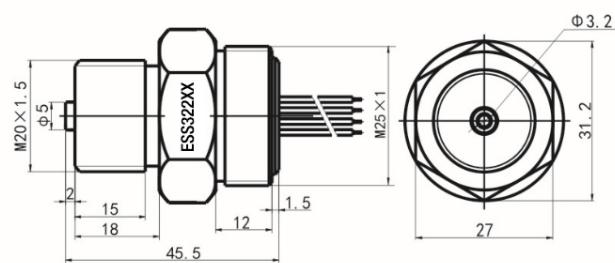
ESS319P Flush Diaphragm Piezoresistive Pressure Sensor Range: -100Kpa~10Kpa~3.5Mpa



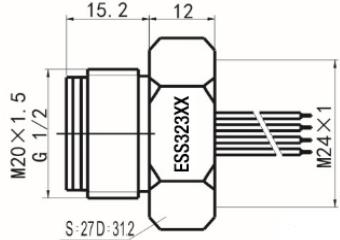
ESS320 Piezoresistive OEM Differential Pressure Sensor Range: 10Kpa~3Mpa



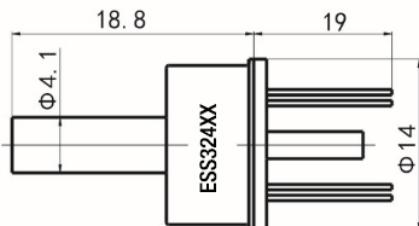
ESS322 Welded Piezoresistive Pressure Sensor Range: -100Kpa~10Kpa~100Mpa



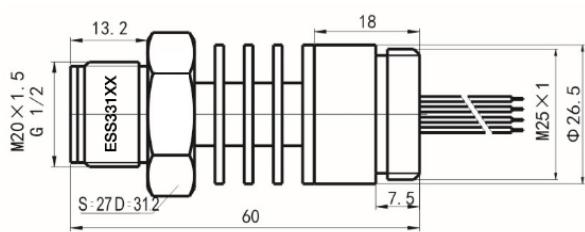
ESS323 Welded Flush Diaphragm Piezoresistive Sensor Range: -100Kpa~10Kpa~10Mpa



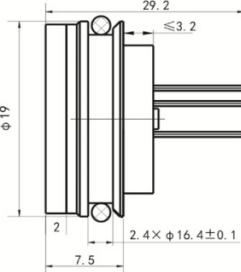
ESS324 TO-8 Housing Piezoresistive Pressure Sensor Range: 5Kpa~600Kpa

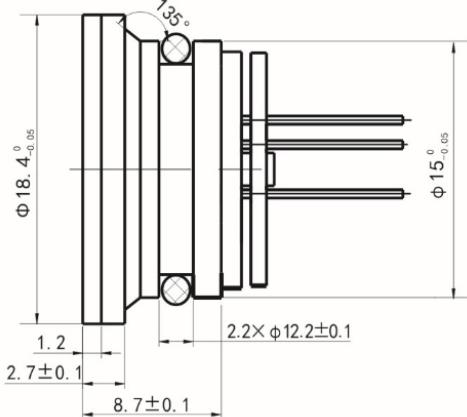
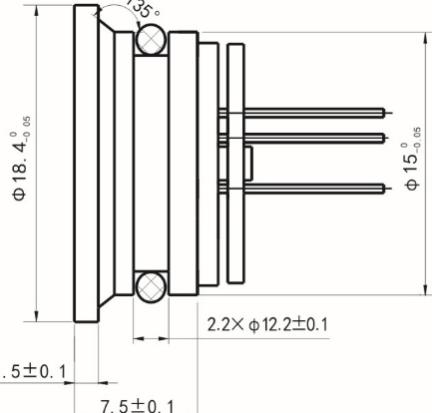


ESS331 High Temperature Piezoresistive Pressure Sensor Range: 500Kpa~10Mpa



ESS332 Welded Flat Base Piezoresistive Pressure Sensor Range: -100Kpa~10Kpa~3.5Mpa



ESS333 Flush Diaphragm Flat Base Piezoresistive Sensor
Range: -100Kpa~10Kpa~10Mpa

ESS333P Flush Diaphragm Flat Base Piezoresistive Sensor
Range: -100Kpa~10Kpa~10Mpa


Ordering Procedure

ESS3		High Stable OEM Piezoresistive Sensor																	
		Code Model																	
12		Compact Size Φ12 Piezoresistive OEM Sensor																	
18		Low Range Piezoresistive OEM Sensor																	
19		High Stable Universal Piezoresistive OEM Sensor																	
19P		Flush Diaphragm Piezoresistive Pressure Sensor																	
20		Piezoresistive OEM Differential Pressure Sensor																	
22		Welded Piezoresistive Pressure Sensor																	
23		Welded Flush Diaphragm Piezoresistive Sensor																	
24		TO-8 Housing Piezoresistive Pressure Sensor																	
31		High Temperature Piezoresistive Pressure Sensor																	
32		Welded Flat Base Piezoresistive Pressure Sensor																	
33		Flush Diaphragm Flat Base Piezoresistive Sensor																	
		Cod Span		Code Span		Code Span													
		R01 0~10KPa		R07 0~400KPa		R13 0~7.0 MPa													
		R02 0~20KPa		R08 0~600KPa		R14 0~10 MPa													
		R03 0~35KPa		R09 0~1.0 MPa		R15 0~25 MPa													
		R04 0~70KPa		R10 0~1.6 MPa		R16 0~40 MPa													
		R05 0~100KPa		R11 0~2.0 MPa		R17 0~60 MPa													
		R06 0~200KPa		R12 0~3.5 MPa		R18 0~100 MPa													
		Code		Pressure Type															
		G Gauge																	
		D Differential																	
		A Absolute																	
		S Sealed Gauge																	
		Code		Pressure connection															
		0 O-ring																	
		Code		Electric connection															
		1 Kovar pin																	
		2 Rubber flexible silicon wires																	
ESS3	19	R10	G	0	2														

Note: ① Extremely attention must be paid to sensor installation process to avoid any miss conduction that affect the sensor performance,
② please protect the diaphragm and the compensated board carefully to prevent any damage. ③ Please contact us if your requested working temperature lower than -20°C