General Instruction and Datasheet

Measuring your business

ESS319-7 GID-3-EV03.2

0-7Kpa Range Pressure Sensor

■ Range: 0～7KPa ■ Overload Pressure: 150%~300% ■ Accuracy: 0.2%/FS ■ Φ19mm Standard OEM Pressure Sensor

Description

ESS319-7 is the minimal range pressure sensor that can measure the range of 0-7kpa, it's been designed and manufactured by principle of silicone piezo-resistance and 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.

ESS319-7 Pressure Sensor is available pressure ranges from 0 to 7Kpa.

Key Features & Benefits

- Pressure range 0～7KPa
- Gauge type pressure only
- Constant current/Voltage power supply
- Isolated construction, measure various media
- Φ19mm OEM Pressure Sensor
- Full Stainless Steel 316
- Wide temperature compensation 0℃～50℃
- 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

Parameters	Typ.	Max.	Unit	Pressure
Zero Output	±1	±2	mV	G
FS Output	65	80	mV	G
Nonlinearity	0.2	0.5	%FS	G
Hysteresis	0.05	0.08	%FS	G
Repeatability	0.05	0.08	%FS	G
Input/Output impedance	2.6	6.0	kΩ	G
Zero Temperature Drift	±0.5	±1.0	%FS,@25℃	G
Sensitivity Drift	±0.5	±1.0	%FS,@25℃	G

Technical Parameters

Parameters	Data	Unit
Excitation	1.5mA | 5V| 10V	mA/V
Insulation Impedance	500	MΩ@100VDC
Working Temp.	-40~+125	℃
Storage Temp.	-40~+125	℃
Compensation Temp.	0~50	℃
Response Time	≤1	Ms
Humidity	50%±10%	RH
Environment Pressure	86~106	Kpa

Long-term Stability	0.1	0.2	%FS/year	G
Constant Acceleration	100		g@11ms	G
MOC of housing	SS316			G
MOC of Diaphragm	SS316			G
MOC of Leading Tube	Gold-plated kovar			G
O-Ring Material	nitrile rubber or viton			G
O-Ring Size	Φ16*1.8mm			G
Media	Compatible with SS316L			G
Fluid Filled	Silicone Oil			G
Life time	1*100 million			G

Shock& Vibration	10	gRMS

- *Suspended the O-Ring of sensor with inner case.*
- *Keep sensor vertically when install into case*
- *The recommended tolerance should be +0.02~+0.05 for inner case build.*
- *0.01uF ceramic type capacitance has been embedded to improve the ability of anti-interference, if customer need sensor more fast response ability, please contact when order.*
- *Ensure to keep senso away from shock& vibration*

Construction Performance

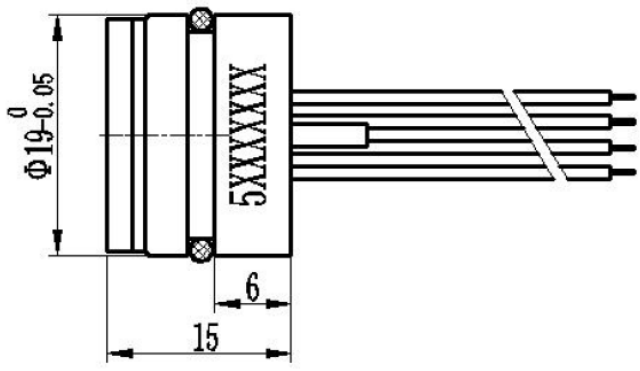
Diaphragm: Stainless Steel 316L
Housing: Stainless Steel 316L
Pressure leading tube: Stainless Steel 316L
O Ring: Φ16*1.8mm (nitrile rubber or viton)
Measuring Medium: Which is compatible with SS316L, viton, nitrile rubber
Packing Medium: Silicon Oil
Net weight: 23g

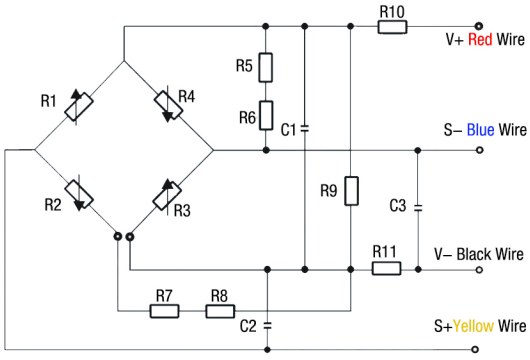
Electric & Environment Performance

Power supply: 1.5mA/5V (Max input voltage is 10VDC)
Insulation Resistance: 500MΩ@100VDC
Overpressure: 1.5~3 times FS
Vibration (20~2000Hz): 10gRMS
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℃;
Constant Acceleration: 100g,11ms

Drawing

ESS319-7 Pressure Sensor Range: 0Kpa~7Kpa





C1, C2,C3 are 0.01uF ceramic type capacitance (103), user looking for sensor quick response performance or with battery excitation can make declaration to remove C1,C2,C3

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
19-7	7Kpa Pressure Sensor

Cod	Span	Code	Span	Code	Span
R00	0-7Kpa				
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
A	Absolute
S	Sealed Gauge

Code	Power Supply
M	1.5mA
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	19-7	R00	G	M	0	2

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