

## ESS331 High Temperature Pressure Sensor



Range: 0.035~10MPa ■ Overload Pressure: 150%~300% ■ Stability: 0.2 ■ Excitation: 1.5mA ■ Working Temperature:-40-150°C

### Description

ESS331 High Temperature Pressure Sensor uses radiator to resist 150°C temperature, the element use 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.

ESS331 High Temperature Pressure Sensor is available pressure ranges from 35Kpa to 10MPa.

### Key Features & Benefits

- Pressure range 0.035Mpa~10MPa
- Gauge, Absolute, Sealed gauge
- Constant Current/Voltage power supply
- Isolated construction, measure various media
- High working Temperature: -40-150°C
- Full Stainless Steel 316
- Wide temperature compensation -10°C~80°C
- Long-term stability  $\pm 0.2\%$ 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
0~20KPa	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
0~600KPa	200%	90~120	100	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	$\pm 1$	$\pm 2$	mV DC
FS Output	100		mV DC
Input/ Output Impedance	2.8	5.0	k $\Omega$
Zero Temp. Drift*	$\pm 0.4$	$\pm 0.8$	%FS, @25°C
Sensitivity Temp. Drift*	$\pm 0.4$	$\pm 0.8$	%FS, @25°C

## ESS331 GID-3-EV03.0

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.

Long-term Stability	0.2	%FS/year
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Range -100kPa~100MPa

\*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



## Construction Performance

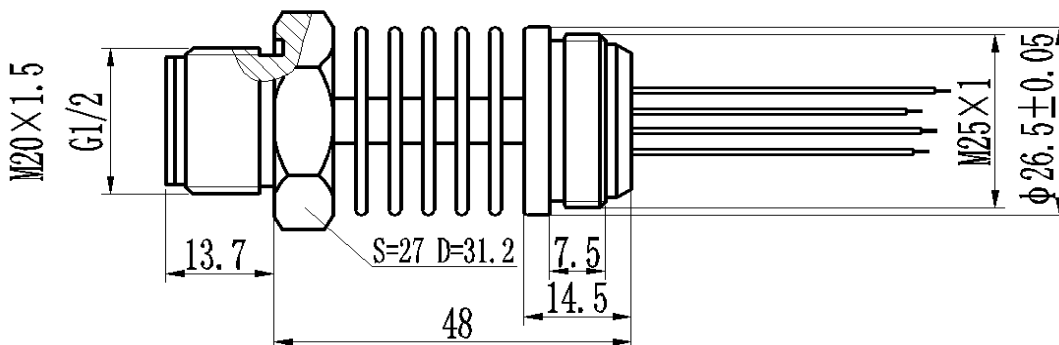
**Diaphragm:** Stainless Steel 316L  
**Housing:** Stainless Steel 316L  
**Pressure leading tube:** Stainless Steel 316L  
**O Ring:** 18.5\*23.9\*1.5-90° (nitrile rubber or viton)  
**Measuring Medium:** Which is compatible with SS316L, viton, nitrile rubber  
**Packing Medium:** Silicon Oil  
**Net weight:** 80g

## Electric & Environment Performance

**Power supply:** 1.5Ma/5V  
**Insulation Resistance:** 500MΩ@500VDC  
**Overpressure:** 1.5~3 times FS  
**Vibration (20~500Hz):** 20G  
**Useful Time (25°C):** >1\*100 Million Times @Pressure Circulation(80%FS)  
**Response Time:** ≤1ms  
**Storage Temp.:** -40~+125°C  
**Operating Temp.:** -40~+150°C  
**Compensation Temp.:** 0~50°C @ Current, ≤ 250Kpa,; -10~80°C @ Current, >250Kpa

## Drawing

ESS331 High Temperature Pressure Sensor Range: 35Kpa~10Mpa



Red Wire	Black Wire	Blue Wire	Yellow Wire
+IN	-IN	-OUT	+OUT

## Ordering Procedure

ESS3	High Temperature Pressure Sensor						
	Code	Model					
	31	High Temperature Pressure Sensor					
		Cod	Span	Code	Span	Code	Span
		R03	0~35KPa	R09	0~1.0 MPa		
		R04	0~70KPa	R10	0~1.6 MPa		
		R05	0~100KPa	R11	0~2.0 MPa		
		R06	0~200KPa	R12	0~3.5 MPa		
		R07	0~400KPa	R13	0~7.0 MPa		
		R08	0~600KPa	R14	0~10 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	31	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 °C