

ESS319T Pressure & Temperature Sensor



- Range: 10KPa~3MPa(Pressure); -40°C~85°C(Temperature)
- Temperature Compensation: 0-50 °C(<400kpa)
- Temperature Compensation: -100-80 °C(>400kpa)
- Overload Pressure: 150%~300%
- Accuracy: 0.25%/FS(Pressure); 0.5%/FS(Temperature)
- Pressure Type: Gauge/Seal Gauge/Absolute
- Power Supply: 1.5mA/5V

- Range: -100KPa~70MPa(Pressure); -40°C~85°C(Temperature)
- Temperature Compensation: 0-50 °C(<400kpa)
- Temperature Compensation: -100-80 °C(>400kpa)
- Overload Pressure: 150%~300%
- Accuracy: 0.25%/FS(Pressure); 0.5%/FS(Temperature)
- Pressure Type: Gauge/Seal Gauge/Absolute
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Description

ESS319T Pressure & Temperature sensor is made from high-sensitivity piezoresistive silicon chip. Both the pressure sensor and temperature sensor have been packed in fluid-filled cylindrical cavity and isolated from measured media by SS diaphragm seal. ESS319T can measure pressure and temperature at the same time.

ESS319T Pressure & Temperature Sensor is available all pressure ranges from -100kpa to 70MPa for pressure and -40°C to 85°C for temperature.

Key Features & Benefits

- Pressure range 10Kpa-3Mpa;-100kpa-70Mpa
- Temperature range: -40°C to 85°C
- Gauge, Absolute, Sealed gauge
- Constant Current: 1.5mA
- Voltage power supply: 5V/10V
- Isolated construction, measure various media
- Full Stainless Steel 316
- 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

Technical Parameters

Parameters	Typ.	Max.	Unit
Nonlinearity	0.2	0.5	%FS
Hysteresis	0.05	0.1	%FS
Repeatability	0.05	0.1	%FS

ESS319T GID-3-EV03.2

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
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.

Zero Output	±1	±2	mV DC
FS Output	100 (typ)	150	mV DC
1.5mA, 10Kpa	30 (min)	150	mV DC
1.5mA, other range	60(min)	150	mV DC
10V, 10Kpa	60(min)	150	mV DC
10V, other range	98(min)	102	mV DC
Input/ Output Impedance	2.6	3.8	KΩ (1.5mA)
	3	18	KΩ(10V)
Zero Temp. Drift*	±0.15	±0.8	%FS, @25°C
Sensitivity Temp. Drift*	±0.2	±0.7	%FS, @25°C
Long-term Stability	0.1		%FS/year

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:** Φ16*1.8mm (nitrile rubber or viton)
- Measuring Medium:** Which is compatible with SS316L, viton, nitrile rubber
- Packing Medium:** Silicon Oil
- Net weight:** 120g

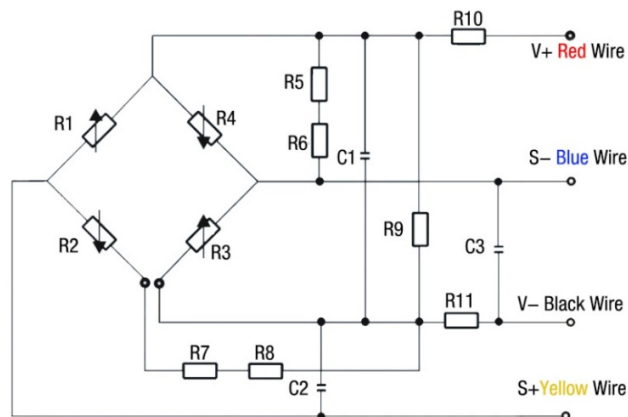
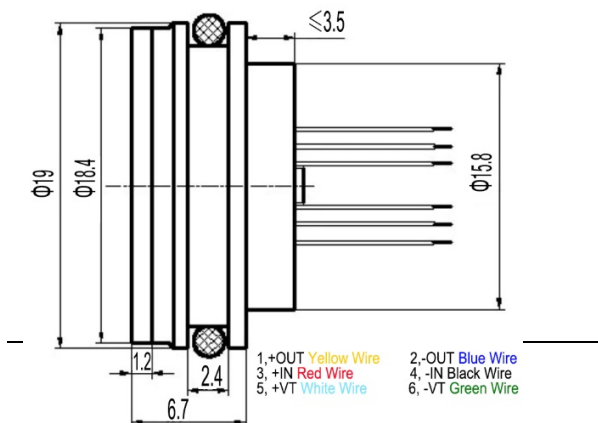


Electric & Environment Performance

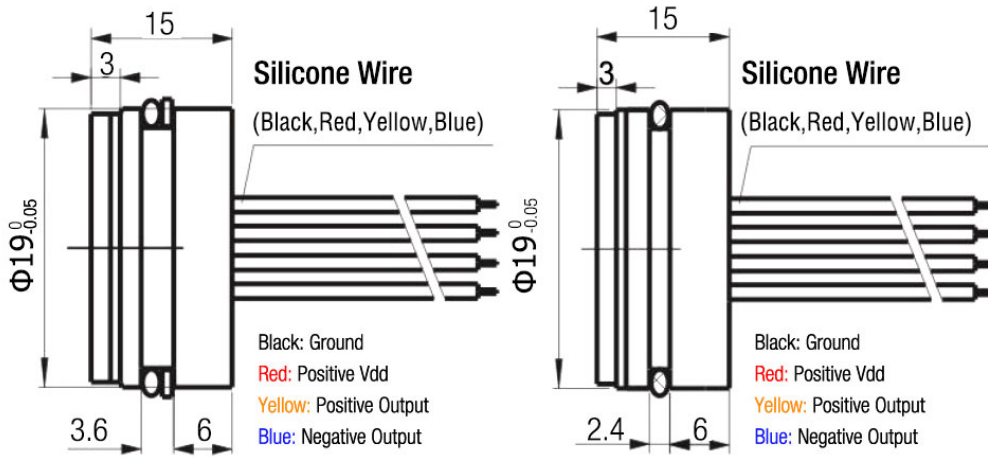
- Power supply:** 1.5mA/5V(optional) (Max input voltage is 10VDC)
- Insulation Resistance:** ≥200MΩ@250VDC
- Overpressure:** 1.5~3 times FS
- Vibration (20~500Hz):** 20g(20-5000HZ)
- Useful Time (25°C):** >1*100 Million Times @Pressure Circulation(80%FS)
- Response Time:** ≤1ms
- Storage Temp.:** -40~+125°C
- Operating Temp.:** -40~+85°C
- Compensation Temp.:** 0~60°C (1.5Ma, ≤70Kpa); -10~70°C (1.5Ma, >70Kpa); -20~85°C (5V/10V)

Drawing & Electrical Connection

ESS319T Pressure & Temperature Sensor Range: 10KPa~3MPa



ESS319T Pressure & Temperature Sensor Range: -100KPa~70MPa



Ordering Procedure

ESS319T	Pressure & Temperature OEM Piezoresistive Sensor					
	Code	Size				
	H	19mm*6.7mm				
	S	19mm*15mm				
	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		
	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)				
ESS319T	S	R10	G	M	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