

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)
- RTD: PT100 / PT1000
- Overload Pressure: 150%~300%
- Accuracy: 0.25%/FS(Pressure); 0.5%/FS(Temperature)
- Pressure Type: Gauge/Seal Gauge/Absolute
- Power Supply: 1.5mA/5V

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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
0~35K Pa	300%	55~80	70	G/A

Technical Parameters

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

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
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.

Repeatability	0.05	0.1	%FS
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

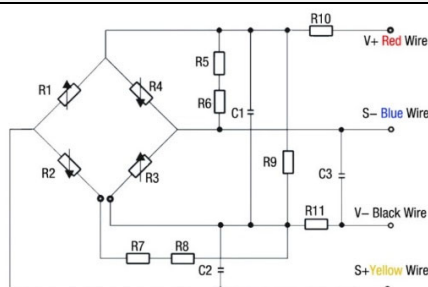
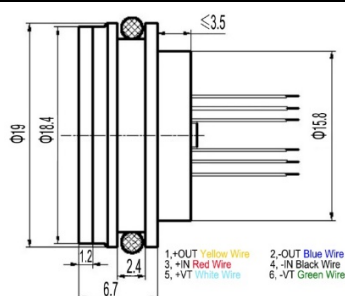
Storage Temp.: -40~+125°C

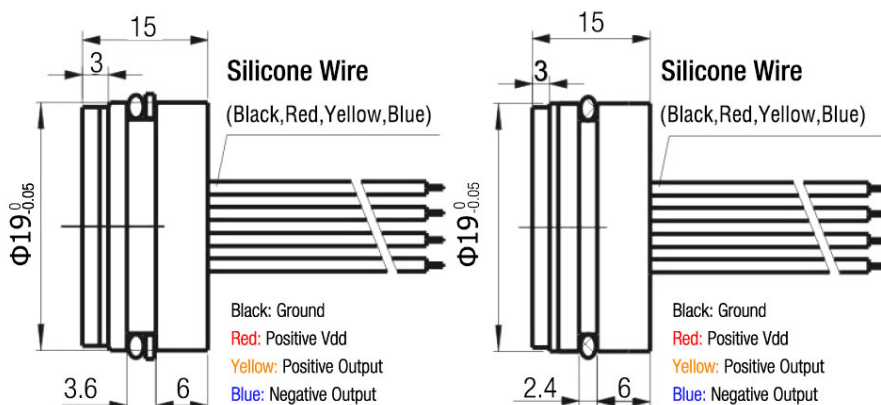
Operating Temp.: -40~+85°C

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												
			Code		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	RTD											
			RA	PT100											
			RB	PT1000											
			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	RA		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℃