General Instruction and Datasheet

ESS319T GID-3-EV03.1

Measuring your business

ESS319T Pressure & Temperature Sensor

■ Range: 10KPa～3MPa(Pressure); -40ºC~85ºC(Temperature) ■ Overload Pressure: 150%~300% ■ Accuracy: 0.25%/FS(Pressure); 0.5%/FS(Temperature) ■ Pressure Type: Gauge/Seal Gauge/Absolute ■ Power Supply: 1.5mA/5V

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 to100MPa for pressure and -40℃ to 85℃ for temperature.

Key Features & Benefits

- Pressure range 10Kpa-3Mpa
- Temperature range: -40℃ to 85℃
- 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 ±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

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 (typ)	150	mV DC
1.5mA, 10Kpa	30 (min)	150	mV DC

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.*

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℃
Sensitivity Temp. Drift*	±0.2	±0.7	%FS,@25℃
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℃, max value is 1.6%FS@25℃*

Construction Performance

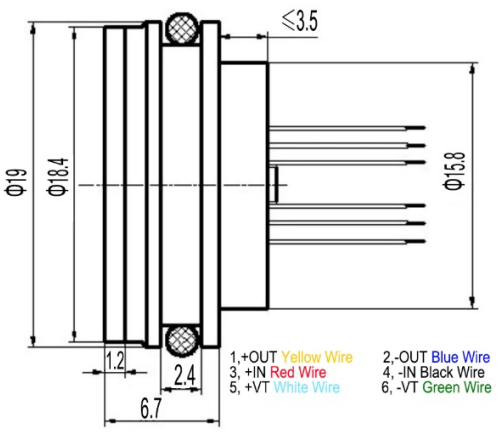
Diaphragm: Stainless Steel 316L
Housing: Stainless Steel 316L
Pressure leading tube: Stainless Steel 316L
O Ring: Φ16*1.8mm (nitrile rubber or viton)
Measuring Medium: Which is compatible with SS316L, viton, nitrile rubber
Packing Medium: Silicon Oil
Net weight: 120g

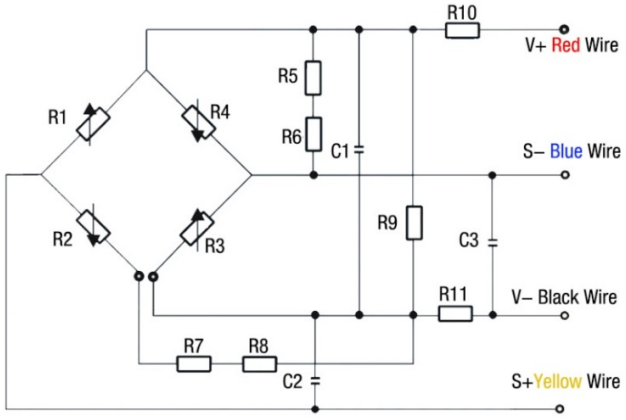
Electric & Environment Performance

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℃): >1*100 Million Times @Pressure Circulation(80%FS)
Response Time: ≤1ms
Storage Temp.: -40~+125℃
Operating Temp.: -40~+85℃
Compensation Temp.: 0~60℃(1.5Ma, ≤70Kpa); -10~70℃(1.5Ma, >70Kpa); -20~85℃(5V/10V)

Drawing & Electrical Connection

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





Ordering Procedure

ESS3	High Stable OEM Piezoresistive Sensor					
Code	Model					
19T	Pressure & Temperature Sensor					
Cod	Span	Code	Span	Code	Span	
R01	0~10KPa	R07	0~400KPa			
R02	0~20KPa	R08	0~600KPa			
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			

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	19T	R10	A	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℃*