

ESS319I Analog Output Pressure Sensor



■ Range: 0~1000bar ■ Overload Pressure: 150%~300% ■ Accuracy: 0.25%/FS ■ Power Supply: 10-30Vdc (24Vdc default)

Description

ESS319I Analog output pressure sensor can produce 4-20mA or 0-5V analog output signal, based on Series ESS319 OEM Pressure Sensor, ESS319I also 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.

ESS319I Analog output pressure sensor is available all pressure ranges from 0 to 1000barg.

Key Features & Benefits

- Pressure range 0~100MPa
- Pressure Type: G/A/S
- Constant current/Voltage power supply
- Isolated construction, measure various media
- Φ19mm OEM Pressure Sensor
- Full Stainless Steel 316
- Wide temperature compensation -10°C~80°C
- Long-term stability ±0.25%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 |
| 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 |

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 | | mV DC |
| Input/ Output Impedance | 2.6 | 3.8 | kΩ |
| Zero Temp. Drift* | ±0.15 | ±0.8 | %FS, @25°C |
| Sensitivity Temp. Drift* | ±0.2 | ±0.7 | %FS, @25°C |

ESS319I GID-3-EV03.3.1

| | | | | |
|-----------|------|---------|-----|-------|
| 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.

| | | |
|---------------------|-----|----------|
| 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



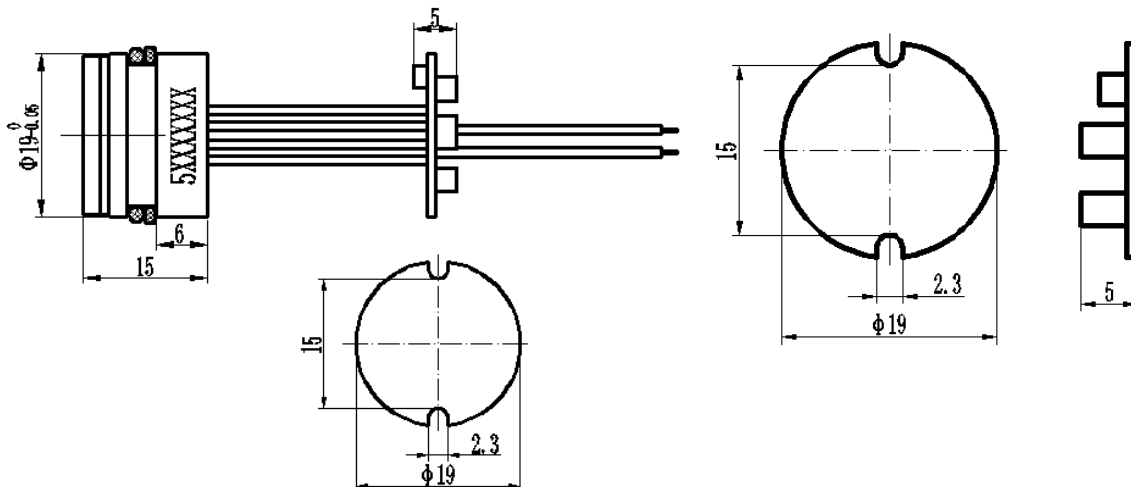
Diaphragm: Stainless Steel 316L
Housing: Stainless Steel 316L
Pressure leading tube: Stainless Steel 316L
O Ring: $\Phi 16 \times 1.8\text{mm}$ (nitrile rubber or viton)
Measuring Medium: Which is compatible with SS316L, viton, nitrile rubber
Packing Medium: Silicon Oil
Net weight: 50g

Electric & Environment Performance

Power supply: 10-30Vdc (24Vdc default)
Output: 4-20mA or 0-5V or 0.5-4.5V (ratio)
Load Resistance: $\leq (U-12) / 0.02 \Omega$
Overpressure: 1.5~3 times FS
Vibration (20~500Hz): 20G
Useful Time (25°C): >1*100 Million Times
 @ Pressure Circulation(80%FS)
Response Time: $\leq 1\text{ms}$
Storage Temp.: -40~+125°C
Operating Temp.: -40~+85°C
Compensation Temp.: 0~50°C; -10~80°C
 @ 0~70 (7kPa, 20 kPa, 35 kPa)

Drawing

ESS319I Analog Output Pressure Sensor Range: 0Kpa~25Mpa



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 | | | | | | |
| | | Code | Span | Cod | Span | Cod | 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 | | | | | |
| | | V5 | 5V | | | | | |
| | | V13 | 10-30V | | | | | |
| | | V24 | 24V | | | | | |
| | | Cod | Output | | | | | |
| | | O1 | 0.5-4.5V | | | | | |
| | | O2 | 0-5V | | | | | |
| | | O3 | 0-10V | | | | | |
| | | O4 | 4-20mA | | | | | |
| | | Code | PCB Shape | | | | | |
| | | RD | Roundness | | | | | |
| | | RT | Rectangular | | | | | |
| | | Code | Pressure connection | | | | | |
| | | 0 | O-ring -NBR | | | | | |
| | | 1 | O-ring -Viton | | | | | |
| | | Code | Electric connection | | | | | |
| | | 1 | Kovar pin | | | | | |
| | | 2 | Rubber flexible silicon wires | | | | | |
| ESS3 | 19I | R10 | G | V5 | O1 | RD | 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