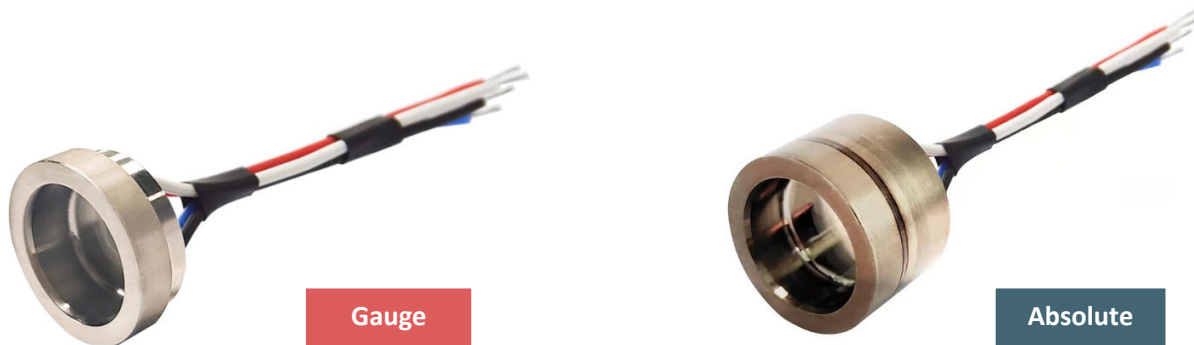


ESS01 MCS Pressure Sensor

Measure High Pressure under High Temperature with High Accuracy



| | |
|--|--|
| <ul style="list-style-type: none">• Range: 0-0.2-2200bar (Standard type)• Range: 0-1-4700bar (Customization)• Media Temperature: -60°C +175°C• Ambient Temperature: -60°C +175°C• Temperature Compensation: -50 +150°C• Overload Pressure: 150%~200%• Burst Pressure: 2000% | <ul style="list-style-type: none">• Long-term Stability at Zero Point: 0.05%FS/Y, 0.1%FS/Y• Long-term Stability Full-scale: 0.05%FS/Y, 0.1%FS/Y• Output sensitivity: 1.5mV/V• Zero Output: ±0.4mV/V• Repeatability: ±0.01%/FS, ±0.02%/FS, ±0.05%/FS,• Hysteresis: ±0.02%/FS, ±0.05%/FS, ±0.1%/FS,• Non-linearity: ±0.1%/FS, ±0.2%/FS, ±0.4%/FS, |
|--|--|

Description

ESS01 Pressure Sensor adopt the technology of Metals Coalesce System which combine kind of material together, choose the best characterizes of each material, adjust the thermal coefficient of expansion and stability in long terms, coalesce and melt the Elastomer steel plate and foil material for certain while under high temperature, high pressure, and true vacuum.

The thickness and diameter size, also the inner structure of sensing diaphragm can be highly customized as per different pressure range, especially when it comes to high pressure more than 1000bar to 4700bar.

By a serial of processes including photoetching, developing, and etching, welding, sealing, ESS01 pressure sensor can be well calibrated to achieve the perfect performance, even under harsh environment.

ESS01 can be ideally installed at many critical sites under extreme harsh condition, for example, aviation engine, aerospace, navigation, downhole, coal mine, petrochemical industry, and high-speed railway.



68000psi | 175°C | 0.05%/F.S | TCZ(TCS)<5ppm

Technical Parameters

| Parameters | Typ. | Unit | Pressure |
|----------------------|-------------|-----------|----------|
| Pressure Range | 0~0.2...220 | MPa | G/A/S |
| Pressure Range | 0-0.1...470 | MPa | G/A/S |
| Operating voltage | 2.5-10 | vDC | G/A/S |
| Output sensitivity | 1.5 | mV/V | G/A/S |
| Zero output | ±0.4 | mV/V | G/A/S |
| Media temperature | -60~+175 | °C | G/A/S |
| Ambient temperature | -60~+175 | °C | G/A/S |
| Temperature | -50~+150 | °C | G/A/S |
| Insulation impedance | ≥20 | MΩ@250VDC | G/A/S |
| Electrical strength | 500 | VAC | G/A/S |
| Response frequency | 1 | KHZ | G/A/S |
| Acceleration | 50 | g | G/A/S |

| Parameters | Typ. | Max. | Unit |
|---|------|------|------|
| Repeatability | 0.01 | 0.05 | %FS |
| Hysteresis | 0.02 | 0.05 | %FS |
| Nonlinearity | 0.1 | 0.2 | %FS |
| Zero Output | 0.3 | 0.4 | mV/V |
| Long term Stability (0) | 0.05 | 0.1 | FS/Y |
| Long term Stability (F.S) | 0.05 | 0.1 | FS/Y |
| Therma Temperature. Coefficient (0 point) | 25 | 50 | ppm |
| Therma Temperature. Coefficient (F.S) | 50 | 100 | ppm |
| Input impedance | 480 | 2500 | Ω |
| Output impedance | 480 | 2500 | Ω |

Notes: G for Gauge pressure; A for Absolute pressure; S for Sealed gauge

Zero/Full Temperature Drift Test Data-

| SN | T _{em} | 0bar ↑ (mV/V) | 12bar ↑ (mV/V) | 24bar(mV/V) | 12bar ↓ (mV/V) | 0bar ↓ (mV/V) | Zero(mV/V) | F.S(mV/V) | Vout(mV/V) |
|-------------|-----------------|------------------|-------------------|-------------|-------------------|------------------|------------|-----------|------------|
| ESS01-13(1) | 25°C | -0.06044 | 0.62921 | 1.30517 | 0.63003 | -0.06028 | -0.06036 | 1.30517 | 1.36553 |
| | -40°C | -0.06263 | 0.62754 | 1.30463 | 0.62869 | -0.06251 | -0.06257 | 1.30463 | 1.3672 |
| | 25°C | -0.06085 | 0.62876 | 1.30475 | 0.62965 | -0.06067 | -0.06076 | 1.30475 | 1.36551 |
| | 125°C | -0.04797 | 0.63705 | 1.30774 | 0.63798 | -0.04726 | -0.04762 | 1.30774 | 1.35536 |
| | 150°C | -0.04418 | 0.63926 | 1.30806 | 0.64008 | -0.04384 | -0.04401 | 1.30806 | 1.35207 |
| | 25°C | -0.06265 | 0.62715 | 1.30325 | 0.62810 | -0.06228 | -0.06247 | 1.30325 | 1.36572 |
| ESS01-20(6) | 25°C | -0.28681 | 0.47437 | 1.22278 | 0.47524 | -0.28664 | -0.28673 | 1.22278 | 1.50951 |
| | -40°C | -0.29276 | 0.47061 | 1.22111 | 0.47162 | -0.29258 | -0.29267 | 1.22111 | 1.51378 |
| | 25°C | -0.28723 | 0.47407 | 1.22233 | 0.47460 | -0.28745 | -0.28734 | 1.22233 | 1.50967 |
| | 125°C | -0.26472 | 0.49010 | 1.23177 | 0.49132 | -0.26349 | -0.26411 | 1.23177 | 1.49588 |
| | 150°C | -0.25732 | 0.49556 | 1.23496 | 0.49653 | -0.25655 | -0.25694 | 1.23496 | 1.49190 |
| | 25°C | -0.28963 | 0.47166 | 1.21984 | 0.47218 | -0.28981 | -0.28972 | 1.21984 | 1.50956 |

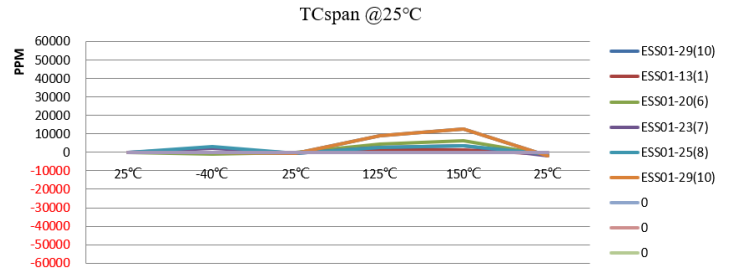
Construction Performance

| | Gauge type | Absolute type |
|-----------|------------|---------------|
| Dimension | Ø19xH8 | Ø19xH13 |
| Weight | 10g | 15g |



Time Drift - Temperature Repeatability - Consistency Analysis

| Tcspan for 25°C | | | | | | | |
|-----------------|------|-------|------|-------|-------|-------|--------|
| | 25°C | -40°C | 25°C | 125°C | 150°C | 25°C | ppm/°C |
| ESS01-13(1) | 0 | -270 | -210 | 1285 | 1445 | -960 | 12.85 |
| ESS01-20(6) | 0 | -835 | -225 | 4495 | 6090 | -1470 | 48.72 |
| ESS01-23(7) | 0 | 2140 | -305 | 2630 | 3490 | -1835 | 32.92 |
| ESS01-25(8) | 0 | 3165 | -390 | 2620 | 3635 | -845 | 48.69 |
| ESS01-29(10) | 0 | -285 | -310 | 8935 | 12420 | -1950 | 99.36 |



Drawing

