

SP200 Series Silicon-On-Sapphire Pressure Transducers

FOR AUTOMOTIVE, INDUSTRIAL, FOOD AND CHEMICAL PROCESSING,
WASTE TREATMENT AND OTHER APPLICATIONS



PRESSURE TRANSMITTER

AMETEK SP200 Series Transducers feature Silicon-on-Sapphire (SOS) sensing technology, long considered one of the most promising pressure sensing technologies. SOS technology produces highly accurate sensors with static accuracy of 0.10% of Full Scale. Extremely low error statistics are possible because the sensor is designed to take full advantage of the material's characteristics. Sensors manufactured with SOS technology are highly stable.

Utilizing Silicon-on-Sapphire sensing technology results in excellent long-term stability of <math><0.2\%</math> of full scale. SOS technology also gives the SP Series a major advantage over non-SOS bonded silicon sensors. The silicon Wheatstone bridge formed during the manufacturing of the SP Series transducers is free from any residual stresses that may add to hysteresis and non-repeatability errors, which decrease long-term stability. There are no bonding agents between the sensing element and sapphire substrate that may age and cause instability.

The changes in operating characteristics over six months are less than typical calibration equipment error ($\pm 0.02\%$ - $\pm 0.05\%$). Long-term stability errors may be introduced in other sensor designs when epoxy used in manufacturing cures, when elastomers used in a design "age" or when thermal and pressure cycling causes changes in the mechanical characteristics of a diaphragm.



FEATURES AND BENEFITS

- High accuracy ($\pm 0.2\%$ includes linearity, hysteresis, repeatability)
- Excellent long-term stability
- Rugged stainless steel and titanium construction
- High overpressure limit
- Low hysteresis
- Minimal power consumption
- Compact lightweight design
- All welded construction

AMETEK[®]

**POWER
INSTRUMENTS**

Experience the Power[™]

SPECIFICATIONS FUNCTIONAL

Standard Pressure Ranges (PSI Unit)

SP200 SERIES

0-15 (SPL)	0-300
0-20 (SPL)	0-500
0-30 (SPL)	0-1,000
0-50 (SPL)	0-2,000
0-100	0-3,000
0-150	0-5,000
0-200	0-10,000

Service

- Gas, liquid or vapor

Output

- 10 mV/V FS $\pm 1\%$

Overpressure

- 200% FS

Burst Pressure

- 4 x FS for 15-5,000 psi
- 2 x FS for 10,000-30,000 psi

Temperature Limits

Operating Range

- -65° to +250°F (-54° to +121°C)

Compensated Range

- -40° to +175°F (-40° to +81°C)

- Other temperature ranges available, consult factory.

PERFORMANCE

Static Accuracy

- $\pm 0.2\%$ (includes non-linearity, hysteresis, and repeatability)
- Consult factory for other options

Shock

- 20 Gs 1/2 sine wave for 11 msec.

Vibration

- 10 Gs pk to pk
- Sinusoidal, 2-2000Hz

Natural Frequency

- 35 kHz diaphragm only

Excitation

- 10 to 15 VDC

Zero Balance

- $\pm 2\%$ FS,
- $\pm 1\%$ FS option available

Output Impedance

- $\leq 3000\Omega$

Input Impedance

- $\geq 2000\Omega$

Insulation Resistance

- ≥ 100 M ohms minimum at 500 VDC, 68°F (20°C), 80% RH

Current Drain

- 5 mA nominal

Response Time

- 0.5 msec. to reach 63% of full scale output

APPROVALS

CE Mark

PHYSICAL MATERIALS

Materials

Case

- CRES 316

Diaphragm

- Titanium Alloy

Pressure Fittings

- 1/4 inch-18 NPT male (STD)
- Consult factory for other options

Pressure Cavity Volume

- 0.1 cubic inch nominal volume

Weight

- 4.0 oz. maximum

ELECTRICAL TERMINATIONS

Connector

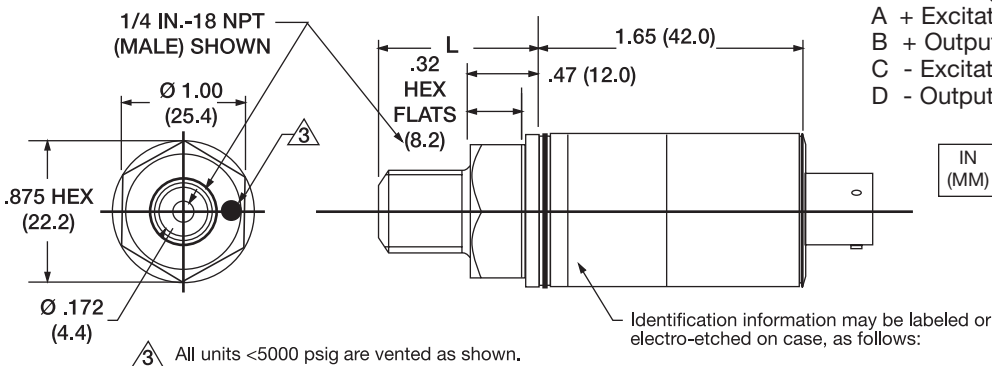
- 4-pin MS3113 H8-4P
- Consult factory for other options

Calibration

- Transmitters are factory calibrated from zero to the maximum range unless specified otherwise at time of order entry.

PIN Configurations

- A + Excitation
- B + Output
- C - Excitation
- D - Output



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