

# **SENSONETICS**

## **SEN-500 SUBMERSIBLE PRESSURE TRANSDUCER or PRESSURE TRANSMITTER**



Manufactured in the USA

### **Features:**

- Silicon on Sapphire Diaphragm
- Fast Response Time <100 microseconds
- Infinite Cycle Life @ rated FSPR
- Stainless Steel or Hastelloy construction
- Shock and Vibration Proof
- No Signal Decay No Hysteresis
- EMI/RFI protected
- NEMA 4 and 4X enclosures

### **Options:**

- Small Bore Available
- RS232 Interface
- Differential or Absolute Pressure Reference
- Subsea Blowout Prevention

### **Application**

- Subsea Trees
- MUX Control Systems
- Drilling Mud Measurements
- Wellhead Measurements
- Towed Arrays

## SEN-500 SERIES SUBMERSIBLE PRESSURE TRANSDUCER or PRESSURE TRANSMITTER

State-of-the-art Silicon-on-Sapphire pressure transmitters have a proven track record in the aerospace, flight testing, plastic melt, oil and gas markets. Piezoresistive silicon islands are epitaxially grown onto a single-crystal radiation-hardened sapphire structure. Sapphire is a perfect electrical insulator that does not require a diode isolation junction as on a diffused semiconductor pressure transmitter. Sapphire is chemically inert allowing compatibility with virtually all media.

A Silicon-on-Sapphire pressure transducer or pressure transmitter offers a significant improvement in performance over bonded foil strain gauge and diffused semiconductor technologies at competitive prices. These sensor products are perfect for high volume OEM applications on liquid level, gas pipelines, submersible and any other applications where a precision pressure measurement is required.

A SEN-500 Pressure Transmitter is designed for use in deep-water applications such as MUX control systems, subsea blowout prevention and wellhead measurements. A Silicon-on-Sapphire sensor can provide accuracy to 0.1% FSO with effectively no hysteresis. Long term drift of less than 0.5% FSO and burst pressures greater than 5X the rated line pressure are additional features of these sensors.

Electron beam welded 316 stainless steel construction compliant with MRO-175 for corrosive service and ratings for a depth of 6000 meters (20,000 ft) are standard features.

The SEN-500 is also available with a variety of pressure ports and electrical connections. Custom packaging and high volume OEM applications are available. Compensated temperature ranges above foil strain gage and other technologies are available up to 250°F. Higher temperatures are available upon request.

The all welded construction inherently protects from shock and vibration limits equivalent to or exceeding military standard specification Mil-STD 167-2 and exceeding Nav-Sea standards for shipboard shock.

If accuracy, stability and price are important to you, then a Sensonetics 500 Series Silicon-on-Sapphire Pressure Transmitter or Pressure Transducer is perfect for your pressure measurement requirements.

**PRODUCT SPECIFICATIONS**

<b>ACCURACY:</b>	± 0.25% of FSO (BFSL)
<b>REPEATABILITY:</b>	± 0.1% of FSO
<b>OPERATING TEMPERATURE:</b>	-65°F TO +250°F
<b>COMPENSATED TEMPERATURE:</b>	-65°F TO +250°F
<b>THERMAL ZERO SHIFT:</b>	± 0.01% FSO/°F
<b>THERMAL SPAN SHIFT:</b>	± 0.01% FSO/°F
<b>INPUT VOLTAGE:</b>	14-36 VDC for 0-5 VDC output (12 VDC available) 14-36 VDC for 0-10 VDC output (12 VDC available) 14-24 VDC for 4-20 mA output
<b>OUTPUT SIGNAL FOR TRANSDUCER:</b> (final test data is sent with each device)	1-6 mV/V ± 10% (diaphragm and pressure dependant)
<b>OUTPUT SIGNAL FOR TRANSMITTER:</b> (board is attached with flying leads)	4-20 mA 0-5 VDC 0-10 VDC
<b>ENCLOSURE:</b>	NEMA 4 or 4X
<b>INSULATION RESISTANCE:</b>	50 MEGAOHMS @ 100 VDC
<b>DIELECTRIC STRENGTH:</b>	500 VAC at 50-60 Hz, 5 mA max at 1 minute
<b>RFI/EMI IMMUNITY:</b>	Meets Mil-Std-461 at 100 VAC up to 1.0 GHz
<b>DIAPHRAGHM MATERIAL:</b>	Sapphire or SS (17-4PH)
<b>OPERATING PRESSURE RANGES:</b>	30 PSI to 20.000 PSI
<b>OVER PRESSURE:</b>	1.5 times rated pressure
<b>BURST PRESSURE:</b>	2.0 times rated pressure
<b>VIBRATION:</b>	15 g's at 10-2000 Hz
<b>SHOCK:</b>	100 g's for 11 milliseconds, Half-sine

**PART NUMBER BREAKDOWN**

5\*\*\_\*\*\*\_\*\_\*\*\_\*\*\*\_\*

**MODEL:** \_\_\_\_\_

5 = SUBMERSIBLE

**OUTPUT:** \_\_\_\_\_

0 = 1-6 mV/V FOR TRANSDUCER (10 VDC TYP INPUT)  
1 = 0-5 VDC FOR TRANSMITTER (14-36 VDC INPUT)  
2 = 4-20 mA VDC FOR TRANSMITTER (14-24 VDC INPUT)  
3 = 0-10 VDC FOR TRANSMITTER (14-36 VDC INPUT)

**OUTPUT:** \_\_\_\_\_

1 = PRESSURE ONLY  
2 = PRESSURE AND TEMPERATURE

**PRESSURE RANGE:** \_\_\_\_\_

EXAMPLES –      030 = 30 PSI    5C = 500 PSI  
                     5M = 5000 PSI    20M = 20000 PSI

**REFERENCE PRESSURE:** \_\_\_\_\_

A = ABSOLUTE      D = DIFFERENTIAL      S = SEALED

**PRESSURE FITTINGS:** \_\_\_\_\_

F1 = MS33656-E4  
F2 = 1/4" NPTM  
F3 = 1/4" NPTF  
F4 = 1/8" NPTF  
F5 = 3/8" NPTF  
F6 = 1/4" TUBE SWAGelok  
F7 = 9/16" SNO-TRIK  
F8 = 1/8" NPTM  
F11 = 1/2" NPTM

**ELECTRICAL CONNECTION:** \_\_\_\_\_

C6 = 6 PIN CONNECTOR  
C8 = 8 PIN CONNECTOR  
CD = CONDUIT 1/2" NPT  
CU = 3H SERIES CONNECTOR W/O BREATHER TUBE  
CUB = 3H SERIES CONNECTOR WITH BREATHER TUBE  
SE = SEACON AWL-2P-BC CONNECTOR  
ML = MOLDED TO CASE CABLE CONNECTOR

**SPECIAL CONFIGURATIONS:** \_\_\_\_\_

S = SPECIAL OPTIONS SUCH AS ZERO ADJUST PIN OR PRECISION ADJUSTMENTS