

# CS82 Intrinsically Safe Submersible Pressure Transducer



## FEATURES

- Pressures from 1 PSI up to 50 PSI
- Removable nose cone
- ETFE cable jacket
- 316L and 304 SS construction
- Low power options available for remote telemetry applications!

## APPROVALS / CERTIFICATIONS

- ✓ CSA Class I, Division 1, Groups C, D T4
- ✓ Class I, Zone 0 AEx ia IIB T4 Ga (Ex ia IIB T4 Ga)
- ✓ ABS (American Bureau of Shipping)
- ✓ CE

*NOTE: Must use an approved barrier to maintain listed certifications. See [page 4](#) for entity parameters.*

## COMMON APPLICATIONS

- Fuel tank level measurement
- Measurement in flood prone areas
- Ballast tanks



## SPECIFICATIONS

### Performance @ 25°C

<b>Accuracy*</b>	≤ ±0.25% BFSL ≤ ±0.5% BFSL (2 PSI & below)
<b>Stability (1 Year)</b>	≤ ±0.25% of FS
<b>Pressure Cycles</b>	50 million
<b>Overpressure</b>	2X minimum
<b>Burst Pressure</b>	5X or 250 PSI, whichever is less
<b>Max Submersion</b>	50 PSI

*\*Accuracy includes non-linearity, hysteresis and non-repeatability*

### Environmental

<b>EMI/RFI Protection</b>	Yes
<b>IP Rating</b>	IP68
<b>Vibration</b>	10g, 20 to 2000Hz
<b>Shock</b>	100g, 11msec, 1/2 sine

### Thermal

<b>Operating Temperature</b>	-40 to +80°C
<b>Compensated Temperature</b>	0 to +55°C
<b>Storage Temperature</b>	-40 to +125°C
<b>TC Zero</b>	≤ ±1% of FS ≤ ±2% of FS (2 PSI & below)
<b>TC Span</b>	≤ ±1% of FS ≤ ±2% of FS (2 PSI & below)

### Physical

<b>Weight (excluding cable)</b>	~ 0.50 lb.
<b>Wetted Material</b>	<b>Housing:</b> 304SS <b>1/2" MNPT Conduit:</b> 304SS <b>Nose Cone:</b> 304SS <b>Diaphragm:</b> 316L SS <b>Strain Relief:</b> Nylon <b>Form Seal:</b> Buna-N <b>O-Ring:</b> Viton <b>Cable Jacket:</b> ETFE
<b>Cable Conductors</b>	22 AWG
<b>Cable Pull Strength</b>	150 lb.

**SPECIFICATIONS...continued**

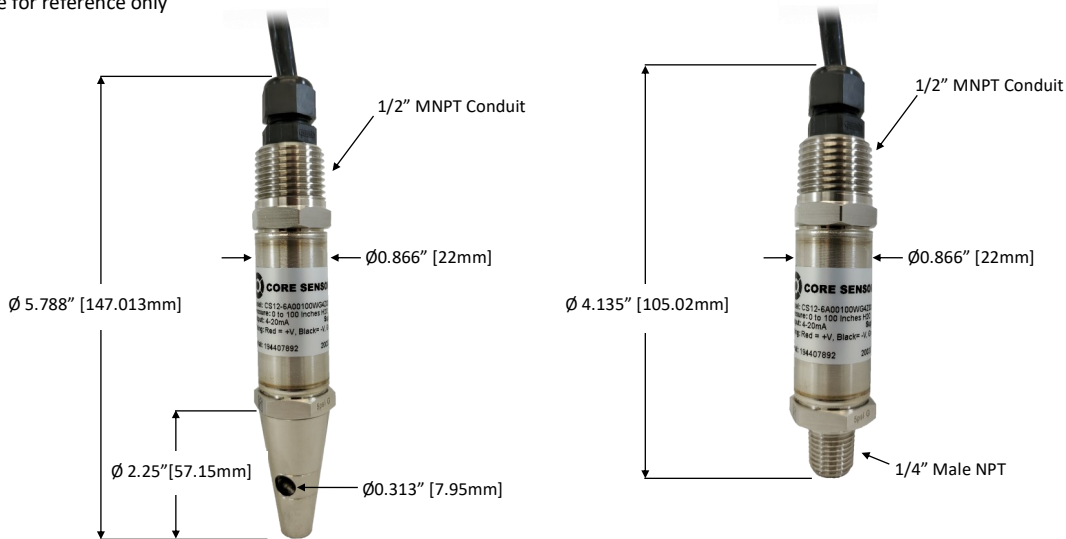
**Electrical**

	4-20mA	1-5V	0.5-4.5V ratiometric	0.5-2.5V non-ratiometric
<b>Excitation</b>	10-28VDC	10-28VDC	5VDC +/- 0.5V, regulated	3-5VDC, unregulated
<b>Current Consumption</b>	20mA, typical	<10mA	<10mA	≤3mA
<b>Output Load</b>	0-800 Ohms @ 10-28VDC	5K Ohms, min	5K Ohms, min	5K Ohms, min
<b>Frequency Response (min)</b>	~250Hz	~1kHz	~1kHz	~1kHz
<b>Zero Offset (of FS)</b>	≤ ± 0.5% typical ± 1% max	≤ ± 0.5% typical ± 1% max	≤ ± 0.5% typical ± 1% max	≤ ± 0.5% typical ± 1% max
<b>Span Tolerance (of FS)</b>	≤ ± 0.5% typical ± 1% max	≤ ± 0.5% typical ± 1% max	≤ ± 0.5% typical ± 1% max	≤ ± 0.5% typical ± 1% max

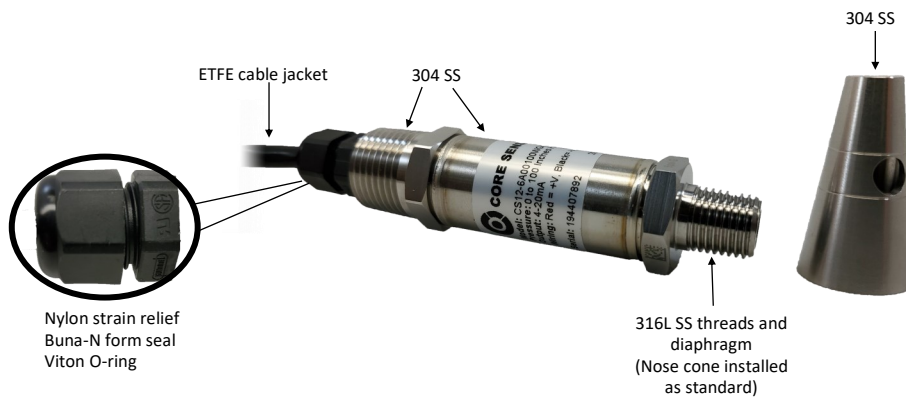
For wiring information, visit [core-sensors.com/wiring](http://core-sensors.com/wiring)

**DIMENSIONS**

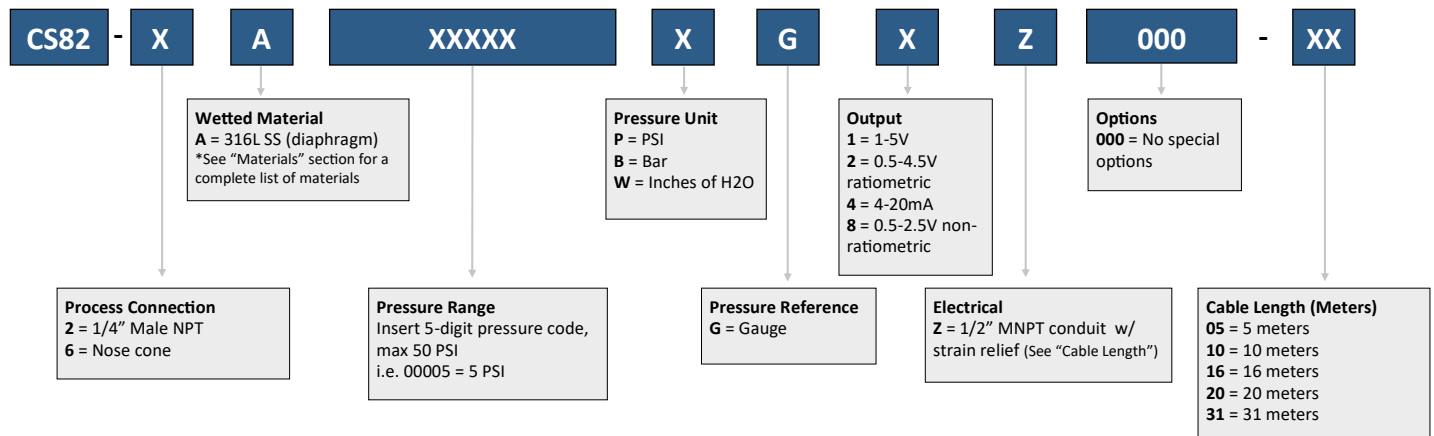
\*Dimensions are for reference only



**MATERIALS**



**MODEL NUMBER CONFIGURATION**



Ordering Example: CS82-6A00005PG4Z000-10 (Nose cone, 316L SS, 0-5 PSI gauge, 4-20mA, 1/2" MNPT conduit with strain relief, 10 meters of ETFE cable)  
 Not all configurations are available. Our sales team can recommend the closest available configuration based on your requirements.  
 Contact Core Sensors for configurations not shown.  
 Visit our [How To Buy](#) page or [contact us](#) for a quote.



Caution must be taken when installing and operating the CS82 in known Class I, Division 1 hazardous locations. **Please review the Intrinsically Safe Operating Instructions prior to installation. Call Core Sensors at (862) 245-2673** if you are unsure about any of the instructions or to request a copy. Operating Instructions and Certificates of Compliance can be downloaded from the CS82 product web page at [core-sensors.com](http://core-sensors.com).

Warranty information can be found online at [core-sensors.com](http://core-sensors.com).

### ENTITY PARAMETERS

HAZARDOUS LOCATION	NON-HAZARDOUS LOCATION	Applicable Markings for the Listed Models	IS Entity Parameters	Notes
		<p>CI 1 Div 1, Grps C, D, 'Ex' Ia<sup>a</sup>                      CI 1, Zn 0, AEx Ia IIB                      Model CS8x with 4-20mA or Millivolt (regulated) Output</p>	<p>UI = 28V, II = 93mA, PI = 650mW,                      CI = 0.27uF, LI = 0 uH</p> <p>UI = 28V, II = 93mA, PI = 650mW,                      CI = 0.32uF, LI = 155 uH</p>	<p>with Integral Connector</p> <p>with Cable, up to 1000 ft</p>
		<p>CI 1 Div 1, Grps C, D, 'Ex' Ia<sup>a</sup>                      CI 1 Zn 0, AEx Ia IIB                      Model CS8x with 0-5V Output</p>	<p>UI = 22V, II = 73mA, PI = 400mW,                      CI = 0.889uF, LI = 0 uH</p> <p>UI = 22V, II = 73mA, PI = 400mW,                      CI = 0.889uF, LI = 23.63 uH</p>	<p>with Integral Connector</p> <p>with Cable, up to 150 ft</p>
		<p>CI 1 Div 1, Grps A, B, C, D, 'Ex' Ia<sup>a</sup>                      CI 1 Zn 0, AEx Ia IIC                      Model CS8x with Millivolt (unregulated) Output</p>	<p>UI = 4.94V, II = 504mA, PI = 620mW,                      CI = 0.265uF, LI = 23.25 uH</p> <p>UI = 28V, II = 93mA, PI = 650mW,                      CI = 0.004uF, LI = 0 uH</p> <p>UI = 28V, II = 93mA, PI = 650mW,                      CI = 0.01uF, LI = 23.25 uH</p>	<p>with Cable, up to 150 ft</p> <p>with Integral Connector</p> <p>with Cable, up to 150 ft</p>

#### NOTE

- US installations must be in accordance with National Electrical Code (ANSI/NFPA 70, Article 504 and 505) and ANSI/ISA RP12.6 'Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations', Canadian Installations must be in accordance with Canadian Electrical Code Part I.
- Maximum non-hazardous location voltage supplied to the Associated Apparatus must not be more than 250 Vac or 250 Vdc.
- Revisions to this drawing must be approved by CSA prior to release.
- The Associated Apparatus must be a CSA certified barrier and must be installed according to the barrier's installation instructions.
- The Associated Apparatus must meet all the following requirements:  
 Uo(Voc) ≤ U(Vmax); Isc(Io) ≤ I(IImax); Po ≤ Pij Cat(Co) ≥ Ci + Ccable; La(Lo) ≥ Li + Lcable  
 Special Condition of Safe Use: Potential
- Under certain extreme circumstances, exposed plastic and unearthened metal parts of the enclosure of models CS8x may store an ignition capable of an electrostatic charge. Therefore, the user/installer shall implement provisions to prevent the buildup of electrostatic charge, i.e. locate the equipment where a charge-generating mechanism is unlikely to be present, and clean with a damp cloth.  
 6.2 Because the enclosure of CS8x is made from light metal, in rare cases, ignition sources due to impact and friction sparks could occur. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during installation and operation. Use care not to cause impacts or scrapes with other metal objects during installation.  
 6.3 The end user shall ensure appropriate earthing of the metallic accessories upon installation.  
 6.4 The final installation of the device in Hazardous area shall meet the requirements of CEC (For Canada) and NEC (For USA) for wiring method that is subject to acceptance of local authority having jurisdiction.  
 6.5 The equipment is for use under atmospheric conditions only, the permissible pressure range is 0.8 to 1.1 bar (80 to 110 kPa) and the permissible normal oxygen content is typically 21 % v/v.