

CS82

Intrinsically Safe Submersible Pressure Transducer



The CS82 submersible pressure transducer is a high strength sensor designed for liquid level measurements in intrinsically safe areas. The CS82 features stainless steel (316L and 304) construction and an Extruded ETFE cable jacket for compatibility with a wide variety of liquids. Precision welds and a high strength Nylon strain relief prevent liquids from entering the electronics. A wide diameter vent tube quickly equalizes the barometric pressure within the sensor body to ensure accurate level measurements. The CS82 is available in various output signals including 4-20mA loop powered for long distance transmissions and voltage outputs for low power and low current consumption applications.

FEATURES

- Pressures from 1 PSI up to 50 PSI
- 316L SS diaphragm / oil filled sensor element
- ETFE cable jacket with wide diameter vent tube
- Nylon strain relief, Buna-N form seal, Viton o-ring

APPLICATIONS

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

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. View [page 3](#) of this datasheet for entity parameters.

www.core-sensors.com - (862) 245-2673

SPECIFICATIONS

Performance @ 25°C

Accuracy* $\leq \pm 0.25\%$ BFSL
 $\leq \pm 0.5\%$ BFSL (2 PSI & below)

Stability (1 Year) $\leq \pm 0.25\%$ of FS

Pressure Cycles 100 million

Overpressure (sensor) 2x minimum

Burst Pressure (sensor) 5X or 250 PSI, whichever is less

Max Submersion 50 PSI

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

Thermal

Operating Temperature -40 to +80°C

Compensated Temperature 0 to +55°C

Storage Temperature -40 to +125°C

TC Zero $\leq \pm 1\%$ of FS
 $\leq \pm 2\%$ of FS (2 PSI & below)

TC Span $\leq \pm 1\%$ of FS
 $\leq \pm 2\%$ of FS (2 PSI & below)

Environmental

EMI/RFI Protection Yes

IP Rating IP68

Vibration 10g, 20 to 2000Hz

Shock 100g, 11msec, 1/2 sine

Electrical

Excitation 10-28VDC (4-20mA, 1-5V)
 5VDC +/- 0.5V (0.5-4.5V ratiometric)
 3-5VDC unregulated (0.5-2.5V non-ratiometric)

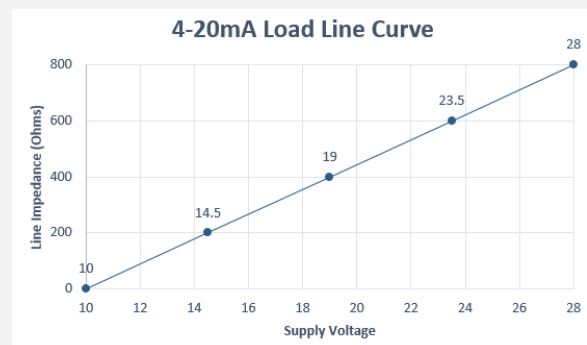
Current Consumption 20mA, typical (4-20mA)
 <10mA (voltage output)
 ≤ 3 mA (0.5-2.5V non-ratiometric)

Output Load See load line curve below (4-20mA)
 5K Ohms, min (voltage output)

Frequency Response (minimum) ~250Hz (4-20mA)
 ~1kHz (voltage output)

Zero Offset (of FS) $\leq \pm 0.5\%$ typical; $\pm 1\%$ max

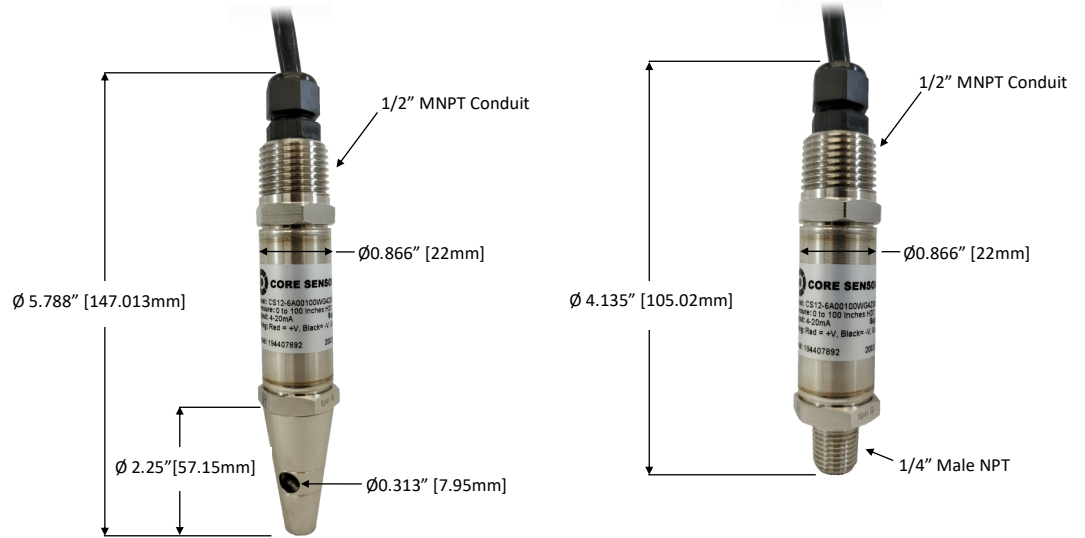
Span Tolerance (of FS) $\leq \pm 0.5\%$ typical; $\pm 1\%$ max



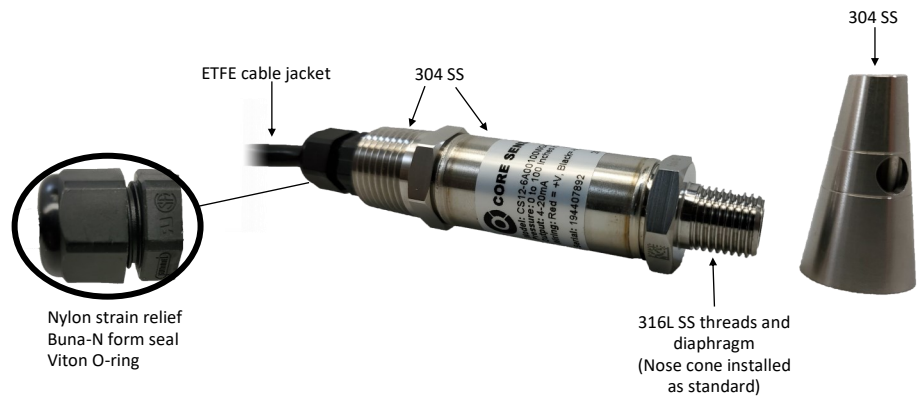
For wiring information, visit <https://www.core-sensors.com/wiring>

DIMENSIONS

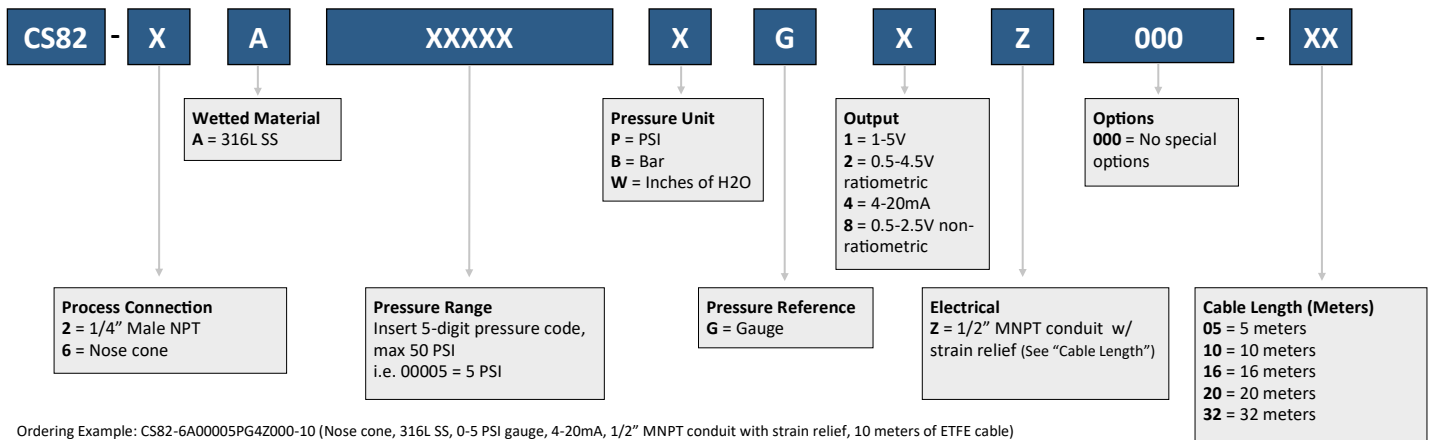
*Dimensions are for reference only



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.

Warranty information can be found online at www.core-sensors.com.



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. Instruction manuals and Certificates of Compliance can be downloaded from the CS82 product web page at www.core-sensors.com.

ENTITY PARAMETERS

HAZARDOUS LOCATION	NON-HAZARDOUS LOCATION	Applicable Markings for the Listed Models	IS Entity Parameters	Notes
		CI I Div 1, Grps C, D, *Ex Ia* CI I, Zn 0, AEx Ia IIB Model CSBx with 4-20mA or Millivolt (regulated) Output	UI = 28V, II = 93mA, PI = 650mW, CI = 0.27uF, LI = 0 uH UI = 28V, II = 93mA, PI = 650mW, CI = 0.32uF, LI = 155 uH	with Integral Connector with Cable, up to 1000 ft
		CI I Div 1, Grps C, D, *Ex Ia* CI I, Zn 0, AEx Ia IIB Model CSBx with Voltage Output (Excludes 0-xV, Ratiometric, Millivolt)	UI = 28V, II = 93mA, PI = 650mW, CI = 0.649uF, LI = 2330 uH UI = 22 V, II = 73mA, PI = 400mW, CI = 0.883uF, LI = 0 uH	with Cable, up to 150 ft with Integral Connector
		CI I Div 1, Grps A, B, C, D, *Ex Ia* CI I, Zn 0, AEx Ia IIC Model CSBx with Millivolt (unregulated) Output	UI = 4.94V, II = 504mA, PI = 620mW, CI = 0.258uF, LI = 0 uH UI = 4.94V, II = 504mA, PI = 620mW, CI = 0.263uF, LI = 2325 uH	with Integral Connector with Cable, up to 150 ft

NOTE:

- US Installations must be in accordance with National Electrical Code (ANSI/NFPA 70, Article 504 and 505) and ANSI/TIA 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 Vdc 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:
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- Under certain extreme circumstances, exposed plastic and unearthened metal parts of the enclosure of models CSBx 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.
- Because the enclosure of CSBx 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. Use care not to cause impacts or scrapes with other metal objects during installation.
- The final user shall ensure appropriate earthing of the metallic accessories upon installation.
- 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.
- 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.