

CS84

Intrinsically Safe Differential Pressure Transducer



The CS84 wet/wet differential pressure transducer is a high strength sensor designed for differential pressure measurements of liquids and gases in intrinsically safe areas. The CS84 features an all welded stainless steel construction for a minimum IP65 rating. A 316L SS oil filled sensor element provides excellent stability over a wide operating temperature range while offering corrosion resistance against various liquids and gases. Differential pressure ranges up to 50 PSI are available with 1/4" MNPT or FNPT process connections. A wide range of configurable options make the CS84 a versatile pressure transducer that can be designed to operate in some the harshest conditions.

FEATURES

- Differential pressures up to 50 PSI
- Bi-directional ranges available
- 316L SS diaphragm / oil filled sensor element

APPLICATIONS

- Filtration
- External tank level 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*	≤ ±0.25% BFSL ≤ ±0.5% BFSL (2 PSI & below)
Stability (1 Year)	≤ ±0.25% of FS
Pressure Cycles	4 million
Max Line Pressure**	500 PSI
Max Differential Pressure	50 PSI
Overpressure***	2x or 500 PSI, whichever is less, rated differential pressure
Burst Pressure***	3X rated differential pressure

* Accuracy includes non-linearity, hysteresis and non-repeatability
 ** Max line pressure is the highest common mode pressure that can be applied to the sensor without damage.
 *** Overpressure and burst pressure are the maximum differential pressure that can be applied to the high or low side before damage to the sensor will occur.

Thermal

Operating Temperature	-40 to +80°C
Operating Temperature (Electrical connection "F", DIN 43650-A)	-20 to +80°C
Media Temperature	-40 to +125°C
Media Temperature (Electrical connection "F", DIN 43650-A)	-40 to +105°C
Compensated Temperature	0 to +55°C
Storage Temperature	-40 to +125°C
TC Zero	≤ ±1% of FS ≤ ±2% of FS (2 PSI & below)
TC Span	≤ ±1% of FS ≤ ±2% of FS (2 PSI & below)

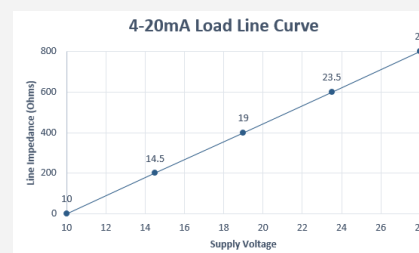
Environmental

EMI/RFI Protection	Yes
IP Rating*	IP65 minimum
Vibration	20g, 20 to 5000Hz
Shock	100g, 11msec, 1/2 sine

* IP rating is dependent on electrical termination selected. Contact factory for more information
 * IP rating applies when mating connector is attached with the appropriate ingress protection

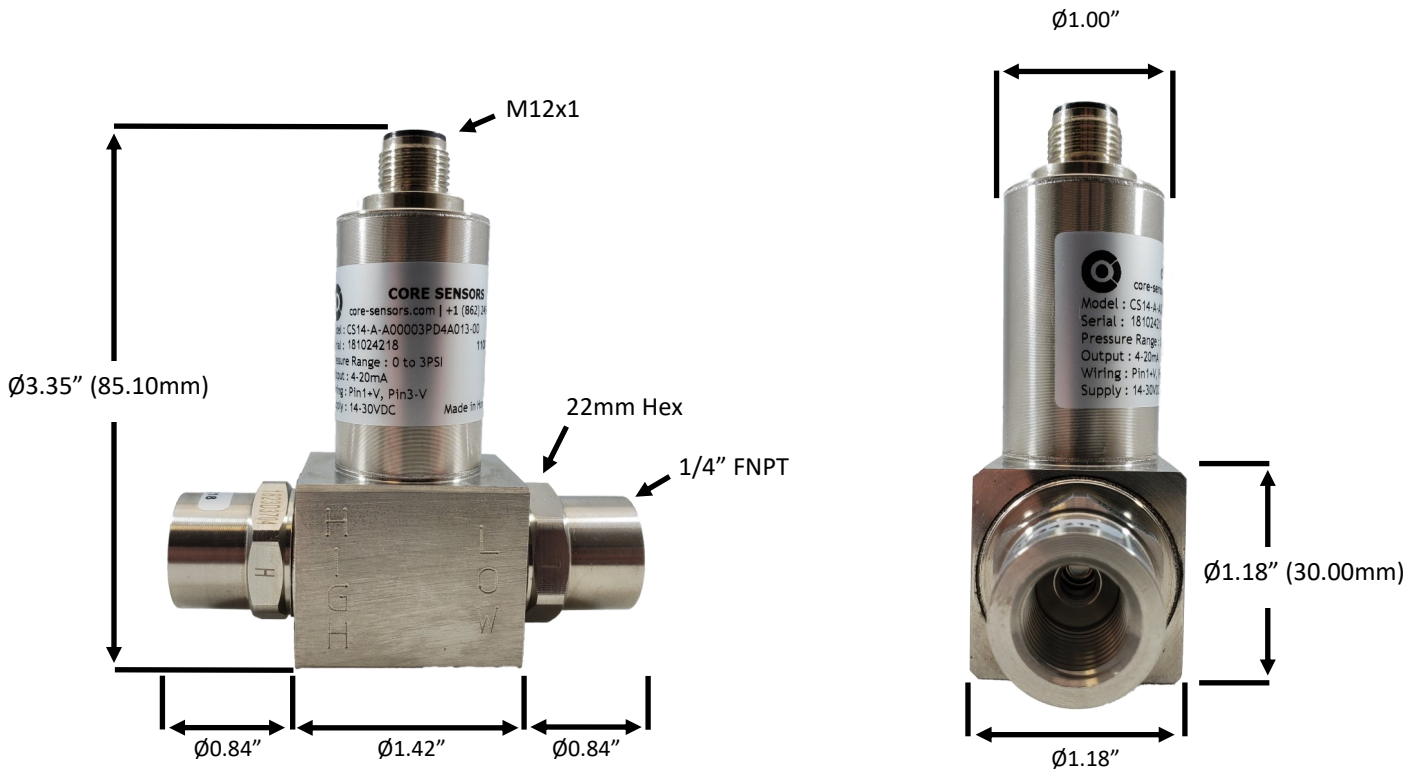
Electrical

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) ≤3mA (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)	≤ ± 0.5% typical; ± 1% max
Span Tolerance (of FS)	≤ ± 0.5% typical; ± 1% max



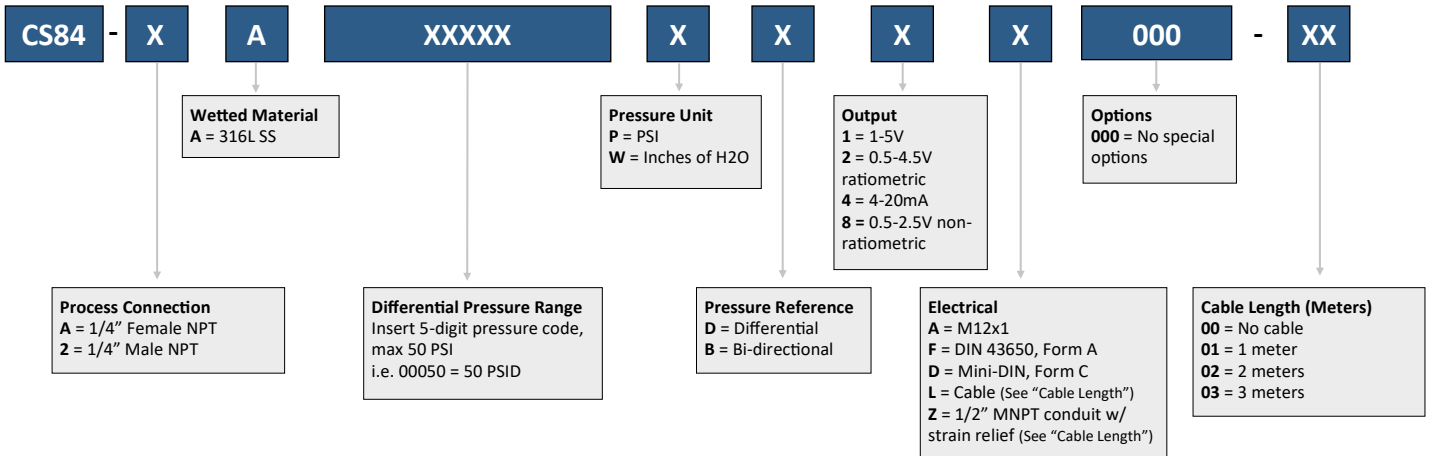
For wiring information, visit <https://www.core-sensors.com/wiring>

DIMENSIONS



*Dimensions are for reference only

MODEL NUMBER CONFIGURATION



Ordering Example: CS84-AA00010PD4A000-00 (1/4" Female NPT, 316L SS, 0-10 PSI differential, 4-20mA, M12x1)
 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 CS84 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 CS84 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 with Cable, up to 150 ft
		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.
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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. This shall be considered during installation and operation. 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.