

CS84 Intrinsically Safe Differential Pressure Transducer



FEATURES

- Differential pressures up to 50 PSI
- Line pressures up to 500 PSI
- Bi-directional pressure ranges available
- Wet/Wet

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

- Filtration
- External fuel tank level measurement
- Compression systems



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 electrical connector is attached with the appropriate ingress protection.

SPECIFICATIONS continued...

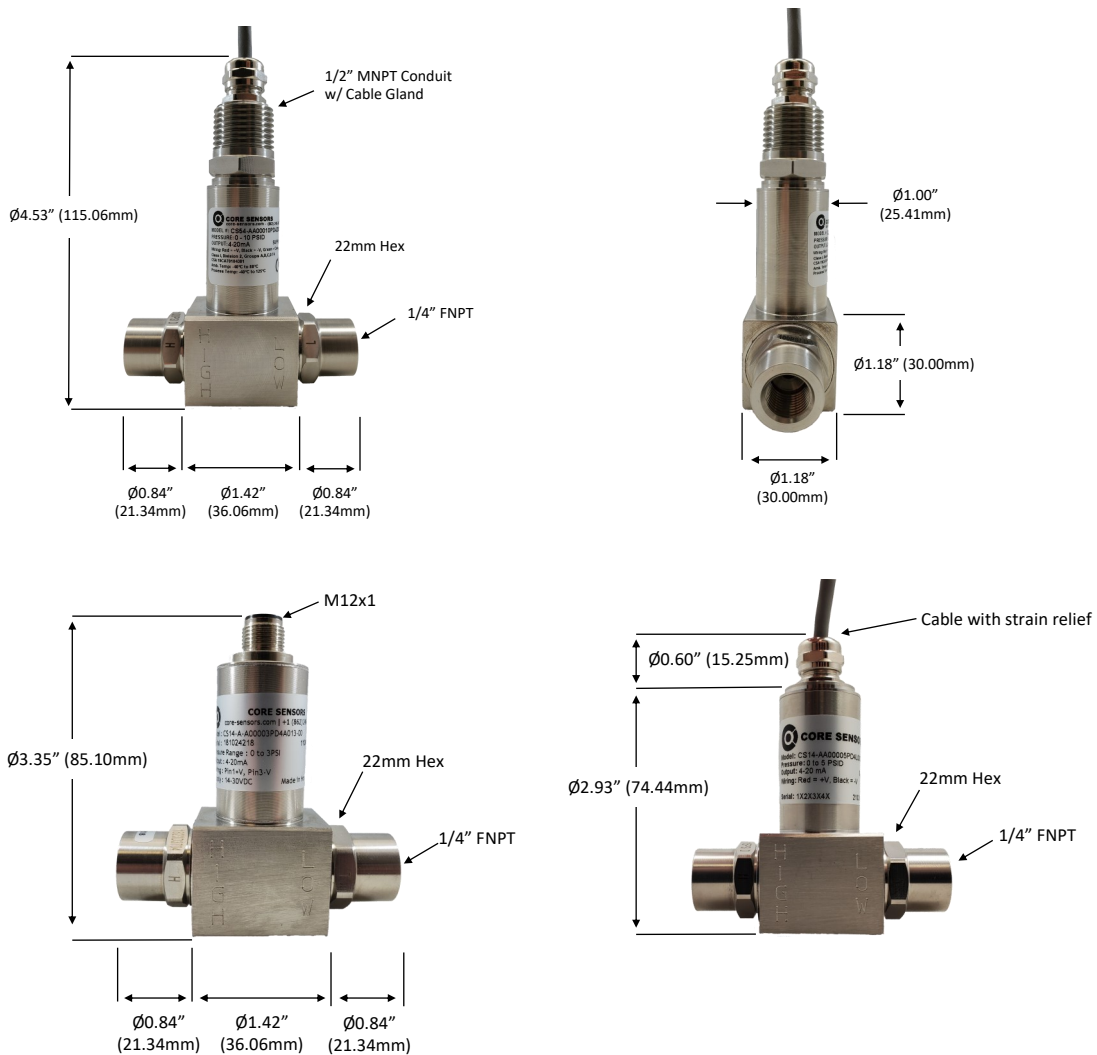
Electrical

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

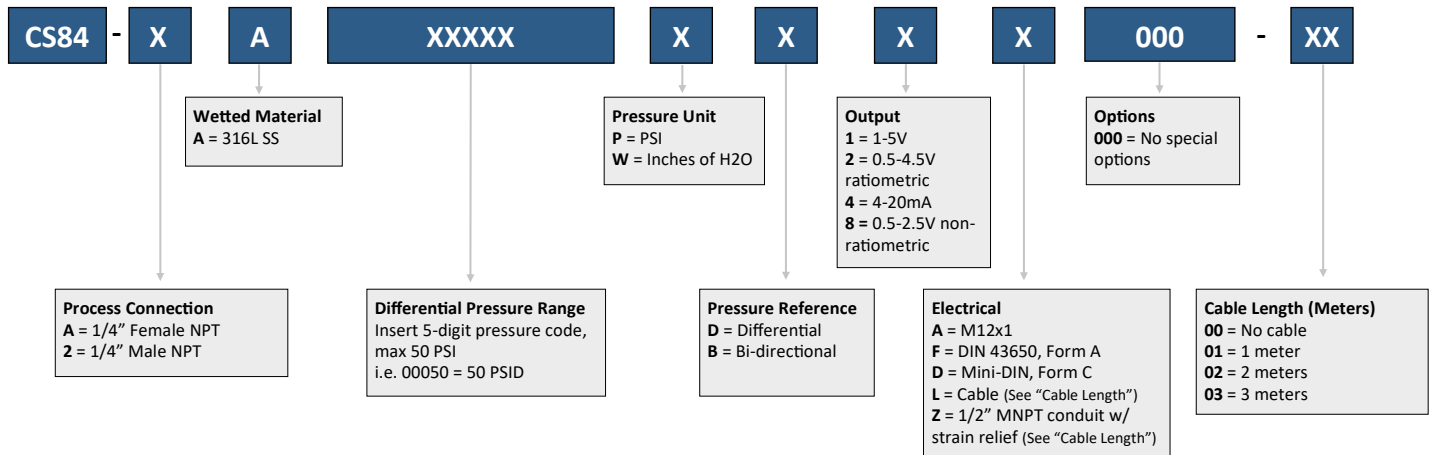
For wiring information, visit core-sensors.com/wiring

DIMENSIONS

*Dimensions are for reference only



MODEL NUMBER CONFIGURATION



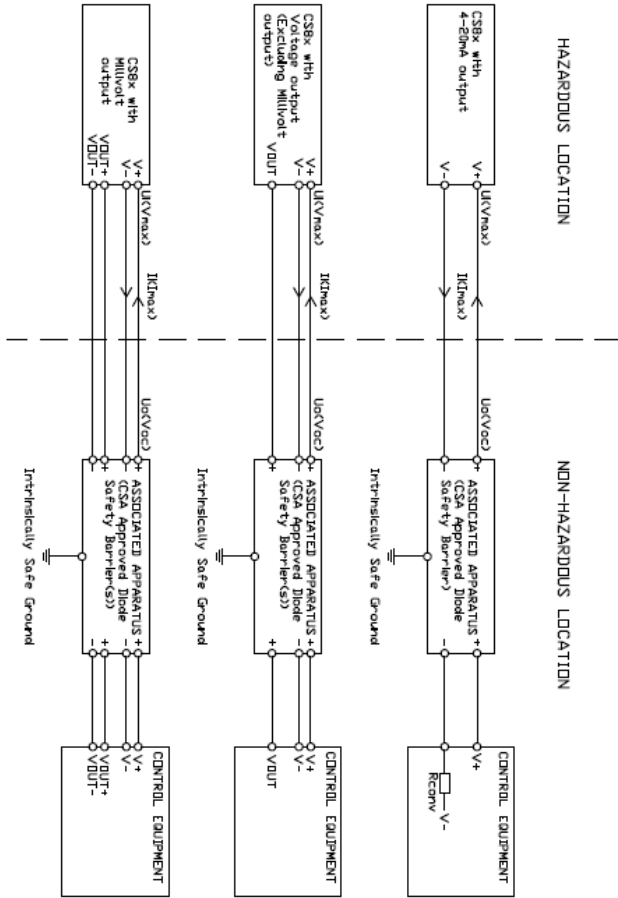
Ordering Example: CS84-AA00010PD4A000-00 (1/4" Female NPT, 316L SS, 0-10 PSI differential, 4-20mA, M12x1)
 Not all configurations are available. Our sales team can recommend the closest available configuration based on your requirements.
 Contact Core Sensors for configurations not shown.
 Visit our [How To Buy](#) page or [contact us](#) for a quote.



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. Operating Instructions and Certificates of Compliance can be downloaded from the CS84 product web page at core-sensors.com.

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

ENTITY PARAMETERS



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 CS8x 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 = 195 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 CS8x with Voltage Output (Excluded or Ratiometric, Millivolt)	UI = 28V, II = 93mA, PI = 650mW, CI = 0.645uF, LI = 0 uH UI = 28V, II = 93mA, PI = 650mW, CI = 0.645uF, LI = 23.50 uH	with Integral Connector with Cable up to 150 ft
CI I Div 1, Grps C, D, *Ex Ia* CI I, Zn 0, AEX Ia IIB Model CS8x with 0-xV Output	UI = 22V, II = 73mA, PI = 400mW, CI = 0.683uF, LI = 0 uH UI = 22V, II = 73mA, PI = 400mW, CI = 0.683uF, LI = 23.25 uH	with Integral Connector with Cable, up to 150 ft
CI I Div 1, Grps C, D, *Ex Ia* CI I, Zn 0, AEX Ia IIB Model CS8x with Ratiometric Output	UI = 4.94V, II = 504mA, PI = 620mW, CI = 0.258uF, LI = 0 uH UI = 4.94V, II = 504mA, PI = 620mW, CI = 0.265uF, LI = 23.25 uH	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 CS8x with Millivolt (unregulated) Output	UI = 28V, II = 93mA, PI = 650mW, CI = 0.004uF, LI = 0 uH UI = 28V, II = 93mA, PI = 650mW, CI = 0.01uF, LI = 23.25 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/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:
 UoCvdc ≤ UICVmax) Isc(Io) ≤ IICmax) Po ≤ PI, Ca(Co) ≥ CI + Ccable) La(Lo) ≥ LI + Lcable
 Special Condition of Safe User Potential
- Under certain extreme circumstances, exposed plastic and unearthed 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.
- 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.
- The end 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.