CS81 Intrinsically Safe Low Pressure Transducer

FEATURES

- Pressures from 1 PSI up to 49 PSI
  See model CS80 for pressures 50 PSI & above
- Media isolated
- IP65 minimum rated
- Bi-directional pressure ranges available

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 3 for entity parameters.

COMMON APPLICATIONS

- External fuel tank level monitoring
- Vapor recovery
- Process controls

SPECIFICATIONS

Performance @ 25°C

Accuracy*	≤ ±0.25% BFSL ≤ ±0.5% BFSL (2 PSI & below)
Stability (1 Year)	≤ ±0.25% of FS
Pressure Cycles	100 million
Overpressure	2X minimum
Burst Pressure	5X or 245 PSI, whichever is less

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

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	10g, 20 to 2000Hz
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.*

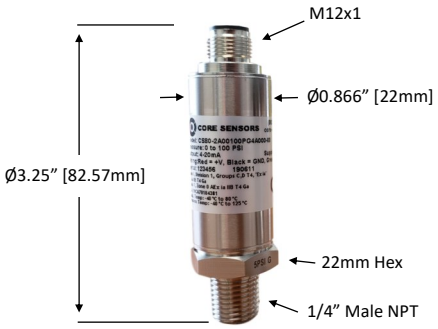
Electrical

	4-20mA	1-5V, 1-6V	0.5-4.5V ratiometric	0.5-2.5V non-ratiometric	10mV/V
Excitation	10-28VDC	10-28VDC	5VDC +/- 0.5V, regulated	3-5VDC, unregulated	5VDC, typical
Current Consumption	20mA, typical	<10mA	<10mA	≤3mA	<5mA
Output Load	0-800 Ohms @ 10-28VDC	5K Ohms, min	5K Ohms, min	5K Ohms, min	>1M Ohms
Frequency Response (min)	~250Hz	~1kHz	~1kHz	~1kHz	~5kHz
Zero Offset (of FS)	≤ ± 0.5% typical ± 1% max	≤ ± 0.5% typical ± 1% max	≤ ± 0.5% typical ± 1% max	≤ ± 0.5% typical ± 1% max	± 2% 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	± 2% max

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

DIMENSIONS

*Dimensions are for reference only



MODEL NUMBER CONFIGURATION

CS81	-	X	X	XXXXX	X	X	X	X	000	-	XX

Wetted Material
A = 316L SS
C = Hastelloy C276 (special order item)

Pressure Unit
P = PSI
B = Bar
W= Inches of H2O

Output
1 = 1-5V
2 = 0.5-4.5V ratiometric
3 = 1-6V
4 = 4-20mA
8 = 0.5-2.5V non-ratiometric
9 = 10mV/V

Options
000 = No special options

Process Connection
1 = 1/2" Male NPT
2 = 1/4" Male NPT
4 = 7/16-20 Male UNF
C = G1/4 Male, Form E

Pressure Range
Insert 5-digit pressure code, max 49 PSI
i.e. 00049 = 49 PSI

Pressure Reference
A = Absolute
B = Bi-directional (gauge)
G = Gauge
V = Vacuum (gauge)

Electrical
A = M12x1
B = Deutsch DT04-4P
C = Packard 3-Pin
D = Mini-DIN, Form C
E = Deutsch DT04-3P
F = DIN 43650, Form A
L = Cable (See "Cable Length")
Z = 1/2" MNPT conduit w/ strain relief (See "Cable Length")

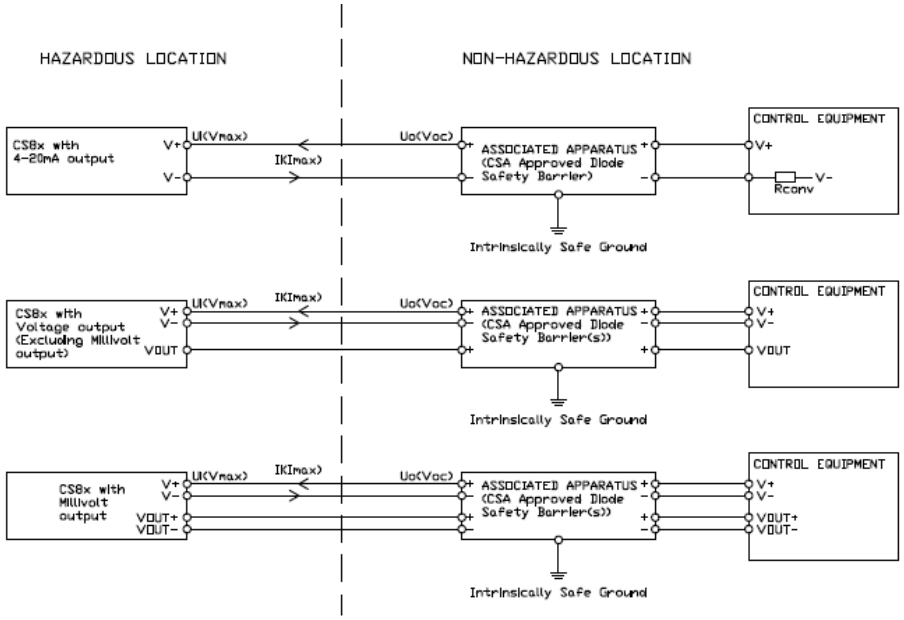
Cable Length (Meters)
00 = No cable
01 = 1 meter
02 = 2 meters
03 = 3 meters
* Longer lengths available

Ordering Example: CS81-2A00010PG4D000-00 (1/4" Male NPT, 316L SS, 0-10 PSI gauge, 4-20mA, Mini-DIN Form C)
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 CS81 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 CS81 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
Cl I Div 1, Grps C, D, "Ex ia" Cl 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	with Integral Connector
	Ui = 28V, Ii = 93mA, Pi = 650mW, Ci = 0.32uF, Li = 155 uH	with Cable, up to 1000 ft
Cl I Div 1, Grps C, D, "Ex ia" Cl I, Zn 0, AEx ia IIB Model CS8x with Voltage Output (Excludes 0-xV, Ratiometric, Millivolt)	Ui = 28V, Ii = 93mA, Pi = 650mW, Ci = 0.643uF, Li = 0 uH	with Integral Connector
	Ui = 28V, Ii = 93mA, Pi = 650mW, Ci = 0.649uF, Li = 23.30 uH	with Cable, up to 150 ft
Cl I Div 1, Grps C, D, "Ex ia" Cl I Zn 0, AEx ia IIB Model CS8x with 0-xV Output	Ui = 22 V Ii = 73mA, Pi = 400mW, Ci = 0.883uF, Li = 0 uH	with Integral Connector
	Ui = 22V, Ii = 73mA, Pi = 400mW, Ci = 0.889uF, Li = 23.25 uH	with Cable, up to 150 ft
Cl I Div 1, Grps C, D, "Ex ia" Cl I Zn 0, AEx ia IIB Model CS8x with Ratiometric Output	Ui = 4.94V, Ii = 504mA, Pi = 620mW, Ci = 0.258uF, Li = 0 uH	with Integral Connector
	Ui = 4.94V, Ii = 504mA, Pi = 620mW, Ci = 0.265uF, Li = 23.25 uH	with Cable, up to 150 ft
Cl I Div 1, Grps A, B, C, D, "Ex ia" Cl I Zn 0, AEx ia IIC Model CS8x with MilliVolt (unregulated) Output	Ui = 28V, Ii = 93mA, Pi = 650mW, Ci = 0.004uF, Li = 0 uH	with Integral Connector
	Ui = 28V, Ii = 93mA, Pi = 650mW, Ci = 0.01uF, Li = 23.25 uH	with Cable, up to 150 ft

NOTE:

1. 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.
2. Maximum non-hazardous location voltage supplied to the Associated Apparatus must not be more than 250 Vac or 250 Vdc.
3. Revisions to this drawing must be approved by CSA prior to release.
4. The Associated Apparatus must be a CSA certified barrier and must be installed according to the barrier's installation instructions.
5. The Associated Apparatus must meet all the following requirements:
   Uo(Voc) ≤ Ui(Vmax); Isc(Io) ≤ IKImax); Po ≤ Pi; Ca(Co) ≥ Ci + Ccable; La(Lo) ≥ Li + Lcable
6. Special Condition of Safe Use: Potential
   - 6.1. 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.
   - 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.