

Model 223

Ultra High Purity Flow-Through Pressure Transducers

Gauge, Compound and Absolute PSI and Bar Ranges



Setra's Model 223 ultra-high purity pressure transducer is designed for the most demanding specialty gas monitoring and control applications, where construction integrity, purity and performance cannot be sacrificed.

The 223 has a small, streamlined sensor chamber for easy purgeability. The sensor is designed to provide superior mechanical and thermal stability, especially in transient temperature conditions resulting from flowing gases. Isolation of the sensing element from the pressure fitting virtually eliminates any torque effect.

This superior mechanical and thermal stability is achieved through Setra's patented variable

capacitance sensor. Its fundamentally simple design features a 316L VIM/VAR stainless steel sensor passivated to 5 Ra (7 Ra. max.) finish, which eliminates surface irregularities and provides the proper surface chemistry for corrosion resistance, and an insulated electrode plate fastened to the center of the sensor diaphragm, forming a variable capacitor. As pressure increase or decreases the capacitance changes. This change in capacitance is detected and converted to a linear analog signal by Setra's unique electronic circuit. Various tube diameters are available with optional face seal fittings. Sturdy construction allows for trouble-free installation and high tolerance of system torsion and welding effects, providing confident installations.

Model 223 transducers are able to endure bakeout to 185°F (85°C), without affecting calibration. Every sensor is mass spectrometer helium leak tested to 1×10^{-9} ATM.CC/sec.

This ultra-high purity series is based on Setra's proven capacitive sensing technology and the highly accurate and stable voltage or current output signals are virtually EMI/RFI immune.

After manufacture and assembly, Setra's Ultra-High Purity pressure transducers are flushed with deionized water, purged with high-purity heated nitrogen, baked, double bagged, backfilled with nitrogen and sealed, prior to shipping.

NOTE: Setra quality standards are based on ANSI-Z540-1. The calibration of this product is NIST traceable.

Pressure Ranges

0 psig, 0 psia or -14.7 psig to:	Bar Ranges -1 or 0 to:	Proof Pressure (psi)	Burst Pressure (psi)
25	1.7	40	1500
50	3.4	75	3000
100	7	150	3000
250	17	350	5000
500	35	650	7500
1000	70	1250	7500
3000	200	3500	10,000
-14.7 to 85.3	----	150	3000
-14.7 to 235.3	----	350	5000
-14.7 to 985.3	----	1250	7500
-14.7 to 2985.3	----	3500	10,000

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Applications

- High Purity Gas Delivery Systems
- Semiconductor Process Tools
- Pharmaceutical & Biotech Process
- Gas Cabinets

Benefits

- Superior Stability Avoids Downtime
- EMI/RFI Immunity Prevents False Shutdown
- Sturdy Design Allows Trouble-Free Installations
- Minimal Torque Effect
- High Burst Pressure Ratings
- Easy Purgeability
- CE and RoHS Compliant

When it comes to a product to rely on - choose the Model 223. When it comes to a company to trust - choose Setra .

setra
ISO-9001 Certified

800-257-3872

Visit Setra Online:
<http://www.setra.com>

Model 223 Specifications

Performance Data

Accuracy RSS* (at constant temp)	±0.25% FS or ±1.0% of Reading
Non-Linearity, (BFSL)	±0.15% FS
Hysteresis	0.20% FS
Non-Repeatability	0.02% FS

Thermal Effects

Compensated Range °F(°C)	+15 to +150 (-9 to +65)
Zero Shift %FS/100°F(%FS/50°C)	2.0 (1.8)
Span Shift %FS/100°F(%FS/50°C)	2.0 (1.8)
Warm-up Shift	0.1% FS Total

* RSS of Non-Linearity, Non-Repeatability and Hysteresis.

Environmental Data

Temperature	
Operating* °F (°C)	-40 to +185 (-40 to +85)
Storage °F (°C)	-40 to +185 (-40 to +85)
Current Unit Ordered w/Option N1	
Operating °F (°C)	-22 to +176 (-30 to +80)
Storage °F (°C)	-22 to +176 (-30 to +80)

*Operating temperature limits of the electronics only.

Pressure media temperature may be considerably higher or lower.

Physical Description

Case	Stainless Steel
Electrical Connection	6ft. Multiconductor Cable, Bayonet, 9-Pin or 15-Pin D-Sub Connector
Pressure Fittings	See Ordering Matrix Below
Zero/Span Adjustments	Side Access
Weight (Approx.)	5.6 ounces (160 grams)

Electrical Data (Voltage)

Circuit	3-Wire (Exc, Out, Com)
Excitation	10 to 30 VDC for 5V FSO 13 to 30 VDC for 10V FSO
Output*	0 to 5VDC or 0.2 to 5.2 VDC** 0 to 10VDC or 0.2 to 10.2 VDC**
Current Consumption	<8 mA

*Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.

**Zero output factory set to within ±25mV (for 5 VDC output) or ±50mV (for 10 VDC output).

**Span (Full Scale) output factory set to within ±25mV (for 5 VDC output) or ±50mV (for 10 VDC output).

Specifications subject to change without notice.

Electrical Data (Current)

Circuit	2-Wire
Output*	4 to 20 mA**
External Load	0 to 800 ohms
Minimum supply voltage (VDC) = 10 + 0.02 x (Resistance of receiver plus line).	
Maximum supply voltage (VDC) = 30 + 0.004 x (Resistance of receiver plus line).	
*Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.	
**Zero output factory set to within ±0.08mA.	
**Span (Full Scale) output factory set to within ±0.08mA.	

Pressure Media

Liquids or gases compatible with 316L Stainless Steel.

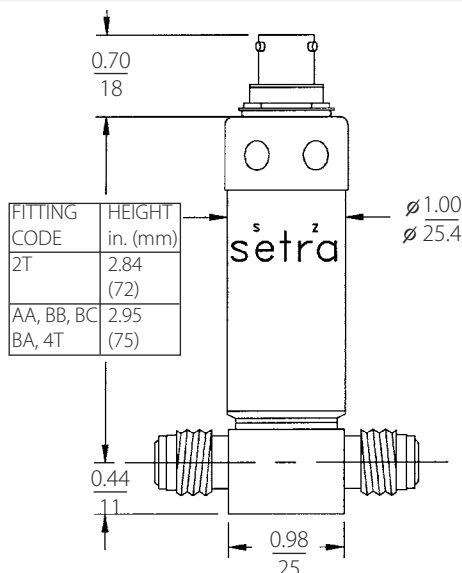
Approvals

Non-Incendive: Certified for use in potentially hazardous locations:

North America: Optional ETL certified as conforming to UL1604 available for units ordered with 4 to 20 mA current output (Select N1 Option)

Europe: Optional ATEX 94/9/EC approval available for units ordered with 4 to 20 mA current output. (Select N1 Option)

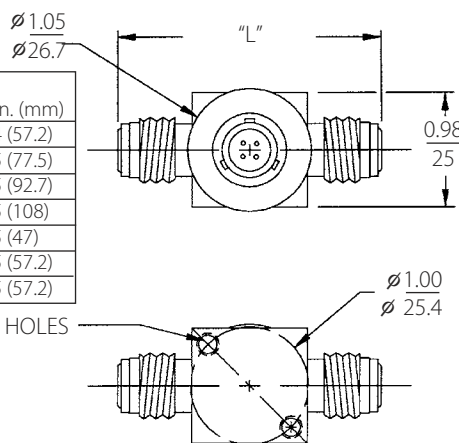
Outline Drawings



FITTING CODE	PRESSURE FITTING	"L" in. (mm)
AA	#4 M/M-FIXED FACE SEALS	2.24 (57.2)
BB	#4 F/F-SWIVEL FACE SEALS	3.05 (77.5)
BC	#4 M/F-SWIVEL FACE SEALS	3.65 (92.7)
BA	#4 M/M-SWIVEL FACE SEALS	4.25 (108)
2T	1/4" O.D. TUBE STUBS	1.85 (47)
3T	3/8" O.D. TUBE STUBS	2.25 (57.2)
4T	1/2" O.D. TUBE STUBS	2.25 (57.2)

IN
MM

MOUNTING HOLES
10-32 UNC
M5X.8mm



ORDERING INFORMATION

Code all blocks in table.

Example: Part No. 223G30CPGAA11B1J for a 223 Transducer 0 to 3000 PSIG, #4 M/M Fixed Face Seals, 4 to 20 mA Output, 4 pin Bayonet Connector, and Accuracy ±1.0% of Reading with a Calibration Certificate.

Model	Range	Pressure	Pressure Fittings	Output	Elec. Termination	Accuracy
223G = 223	025P = 25 PSI 050P = 50 PSI 100P = 100 PSI 250P = 250 PSI 500P = 500 PSI 10CP = 1000 PSI 30CP = 3000 PSI Z01P = -14.7 to 85.3 PSI Z02P = -14.7 to 235.3 PSI Z03P = -14.7 to 985.3 PSI Z05P = -14.7 to 2985.3 PSI	1R7B = 1.7 BAR 3R4B = 3.4 BAR 007B = 7 BAR 017B = 17 BAR 035B = 35 BAR 070B = 70 BAR 200B = 200 BAR	A = Absolute C = Compound G = Gauge AA = #4 M/M Fixed Face Seals (2.24" end to end) BB = #4 F/F Swivel Face Seals (3.05" end to end) BC = #4 M/F Swivel Face Seals (3.65" end to end) BA = #4 M/M Swivel Face Seals (4.25" end to end) 2T = 1/4" Tube stubs (1.85" end to end) 3T = 3/8" Tube stubs (2.25" end to end) 4T = 1/2" Tube stubs (2.25" end to end)	11 = 4-20mA 2B = 0-5 VDC 2C = 0-10VDC 33 = 0.2-5.2VDC 59 = 0.2-10.2VDC N1 = 4-20 mA* (*ETL certified as conforming to UL-1604 for Class 1, Groups A, B, C, D, Division 2 Locations and ATEX approved for EN50021 Ex nA IICT4X-30°C < Ta < +80°C)	B1 = 4 pin Bayonet Connector 06 = 6 ft. Multi-conductor Cable D1 = 15-Pin D-Sub D9 = 9-Pin D-Sub	F = ±0.25% FS w/Cal. Cert. J = ±1.0% of Reading w/Cal. Cert.

See Setra's Model 224 with top access zero and span potentiometers, and additional electrical connectors.
Please contact factory for configurations not shown.

While we provide application assistance on all Setra products both personally and through our literature, it is the customer's responsibility to determine the suitability of the product in the application.

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