

## Model 227

### Ultra-High Purity Pressure Transducers - 1 1/8" Downmount

Gauge, Compound and Absolute PSI and Bar Ranges



Setra's Model 227 transducer is designed for high density, modular block gas sticks and panels required for today's 300 mm tools. The Model 227's 1-1/8" footprint optimizes valuable space, and its rugged design makes it ideal for pressure measurements that require long-term stability, high accuracy and exceptional insensitivity to environmental extremes.

Unlike many other designs with large dead-ended cavity volume, the 227 has a small swept sensor chamber for easy purgeability. All wetted parts are 316L VIM/VAR stainless steel passivated to 5 Ra (7 Ra max.) finish, which eliminates surface irregularities and provides the proper surface chemistry for corrosion resistance, assuring contaminant-free gas distribution.

Available with 5 VDC, 10 VDC, or 4 to 20 mA output, the Model 227 offers  $\pm 0.25\%$  Full Scale or  $\pm 1.0\%$  of Reading accuracy. The Model 227 comes with a space-saving 1-1/8" C-Seal downmount interfacing base with choice of a multiconductor cable, 4-pin bayonet connector, and 9 or 15 pin D-sub connector for electrical termination. When coupled with the Model 327 1-1/8" rotatable display, this package provides the ultimate in pressure measurement and display.

Side access to the zero and span adjustments beneath the rotating protective cover, and choice of absolute, gauge or compound pressure ranges complete this unique design.

#### Principle of Operation

Setra's patented variable capacitance sensor features a 316L stainless steel diaphragm and an insulated electrode plate. A variable capacitor is formed between the sensor body and the electrode plate. An increase in pressure causes a slight rounding of the diaphragm, which decreases the capacitance. The capacitance change is detected and converted to a highly accurate linear DC electric signal by Setra's unique custom integrated circuit, utilizing a patented charge balance principle.

Setra's entire Ultra-High Purity series is based on Setra's proven capacitive sensing technology with highly accurate and stable voltage or current output signals that are virtually EMI/RFI immune.

#### 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
2000	138	2500	8000
3000	200	3500	10,000

## Applications

- Modular 1-1/8" Block Gas Sticks and Panels
- High Purity Gas Delivery Systems
- Semiconductor Process Tools

## Benefits

- Superior Stability Avoids Down Time
- EMI/RFI Immunity Prevents False Shutdown
- Optional UL 1604 and ATEX 94/9/EC Approval Available for 4 to 20 mA Output Units
- Meets CE and RoHS Compliant

When it comes to a product to rely on - choose the Model 227. When it comes to a company to trust - choose Setra.

**setra**  
ISO-9001 Certified

**800-257-3872**

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<http://www.setra.com>

# Model 227 Specifications

## Performance Data

Accuracy RSS* (at constant temp)	±1.0% Reading
	± 0.25% FS
Non-Linearity, BFS	±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 (50°C)	2.0 (1.8)
Span Shift %FS/100°F (50°C)	2.0 (1.8)

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

\*\*Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.

## 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 temperatures may be considerably higher or lower.

## Physical Description

Case	Stainless Steel
Electrical Connection	6ft. Multiconductor Cable, Bayonet, Mini-Din or D-sub Connector
Pressure Fitting	Down Mount "C" Seal
Vent	Through Zero and Span Access Holes
Weight	6.5 oz (184g)

## 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).

## 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

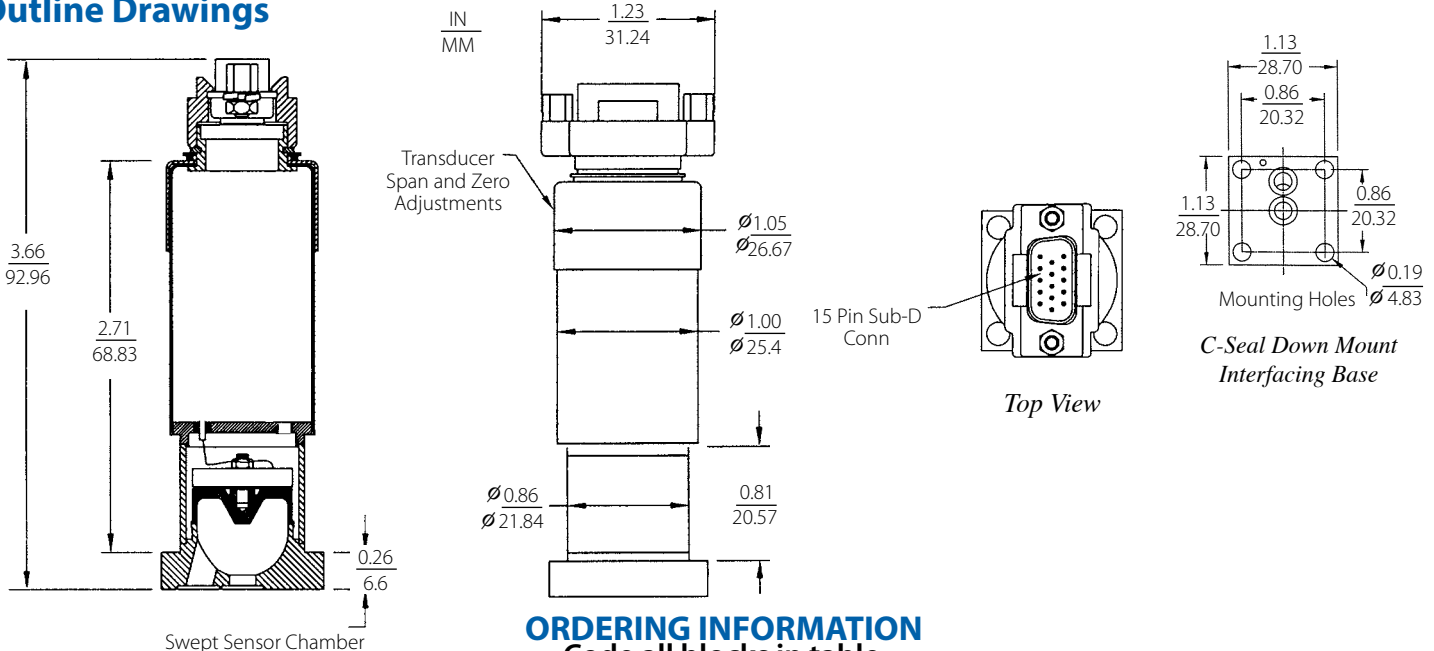
**Non-Incendive:** Certified for use in potentially hazardous locations:

North America: Optional ETL certified as conforming to UL1604

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

*Specifications subject to change without notice.*

## Outline Drawings



## ORDERING INFORMATION

Code all blocks in table.

Example: Part No. 227G100PGE511D1F for a 217 Transducer 0 to 100 PSIG, Down Mount "C" Seal Flange, 4-20 mA Output, 15 pin D-sub Connector and ±0.25% FS Accuracy.

Model	Range	Pressure	Pressure Fitting	Output	Elec. Termination	Accuracy
227G = 227	010P = 10 PSI 025P = 25 PSI 050P = 50 PSI 100P = 100 PSI 250P = 250 PSI 500P = 500 PSI 10CP = 1000 PSI 20CP = 2000 PSI 30CP = 3000 PSI 15CT = 1500 Torr	007B = 7 BAR 017B = 17 BAR 035B = 35 BAR 070B = 70 BAR 200B = 200 BAR	G = Gauge C = Compound A = Absolute E5 = Down Mount "C" Seal (1.125" Base)	11 = 4-20mA 2B = 0-5 VDC 2C = 0-10 VDC 33 = 0.2-5.2 VDC 59 = 0.2-10.2 VDC N1 = 4-20 mA* (*UL1604 approved for Class 1, Groups A, B, C, D, Division 2 Locations and ATEX approved for EN50021 EEx nL IICT4X-30°C < Ta < +80°C)	06 = 6 ft. Multiconductor Cable B1 = 4 pin Bayonet Connector D9 = 9 pin, D-sub Connector D1 = 15 pin, D-sub Connector M1 = 5 pin, Mini DIN Connector	F = ±0.25% FS (w/Calibration Certificate) J = ±1.0% Reading (w/Calibration Certificate)

Please contact factory for configurations not shown.