



**Medel Cadena, S. A.**

MEDIDAS ELECTRONICAS



## CAPTADORES DE PRESIÓN UHP



Modelos:

223

224

225

227



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## Model 223

### Ultra High Purity Flow-Through Pressure Transducers

#### Features

- 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

#### Applications

- High purity gas delivery systems
- Semiconductor process tools
- Pharmaceutical & biotech process
- Gas cabinets

Setra's model 223 ultra-high purity pressure transducer is designed for the most damaging 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 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.

#### Setra's variable capacitance

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 Ra (7 Ra max) finish, which eliminated 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 instillation and high tolerance of system torsion and welding effects, providing confident installations.

Model 223 transducers are able to endure bake out to 185°F (85°C), without affecting calibration. Every sensor is mass spectrometer helium leak tested to  $1 \times 10^{-9}$  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.



## Specifications

### Electrical data (voltage)

Circuit	3-Wire
Excitation	10 to 30 VDC for 5V FSO 13 to 30 VDC for 10 VFO
Output <sup>3</sup>	0-5 VDC or 0.2-5.2 VDC <sup>4</sup> 0-10 VDC or 0.2-10.2 VDC <sup>4</sup>
Current consumption	<8mA

### Electrical data (current)

Circuit	2-Wire
Output <sup>5</sup>	4-20 mA <sup>6</sup>
External load	0 to 800 ohms
Min. supply voltage (VDC)	10 + 0.02x (resistance of receiver plus line)
Max. supply voltage (VDC)	30 + 0.004x (resistance of receiver plus line)

### Approvals

Non-Incendive	Certified for use in potentially hazardous locations
North America	Optional ETL certified as conforming to UL 121201 available for units ordered with 4 to 20 mA current output (select N1 option)
Europe	Optional ATEX 2014/34/EU approval available for units ordered with 4 to 20 mA current output (select N1 option)

### Pressure media

Gases or liquids compatible with 316L stainless steel.

<sup>1</sup>RSS of non-linearity, non-repeatability and hysteresis  
<sup>2</sup>Operating temperature limits of the electronics only. Pressure media temperature may be considerably higher or lower.  
<sup>3</sup>Calibrated into a 50K ohm load, operable into 5000 ohm load or greater  
<sup>4</sup>zero output factory set to with  $\pm 25\text{mV}$  (for 5 VDC output) or  $\pm 50\text{mV}$  (for 10 VDC output).

Specifications subject to change without notice

## Pressure ranges

0 psig or -14.7 psig to:	0 bar or -1 bar to:	Proof pressure (psig)	Design pressure* (psig)	Burst pressure (psig)
25	1.7	50	180	1500
50	3.4	75	365	3000
100	7.0	150	365	3000
250	17	350	600	5000
500	35	650	900	7500
1000	70	1250	1500	7500
3000	200	3500	3000	10,000
-14.7 to 85.3	---	150	365	3000
-14.7 to 235.3	---	350	600	5000
-14.7 to 985.3	---	1250	1500	7500
-14.7 to 2985.3	---	3500	3000	10,000

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

**Proof Pressure:** The maximum pressure that may be applied without changing performance beyond specifications ( $\pm 1\%$  FS zero shift).  
**Burst Pressure:** The maximum pressure that may be applied to the positive pressure port without rupturing the sensing element.  
**Design Pressure** calculated per ASME BPVC.IV-2015 HG-502.3

### Environmental data

Operating temperature <sup>2</sup>	-40° to +185°F (-40° to +85°C)
Storage temperature	-40° to +185°F (-40° to +85°C)

### Current unit ordered w/option N1

Operating temperature	-22 to +176°F (-30 to +80°C)
Storage temperature	-22 to +176°F (-30 to +80°C)

### Thermal effects

Compensated range	+15° to +150 °F(-9° to +65°C)
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

### Physical description

Case	Stainless steel
Electrical connection	6ft. multi-conductor cable, bayonet, 9-pin or 15-pin D-sub connector
Pressure fittings	See ordering information
Zero/span adjustments	Side access
Weight (approx.)	5.6 ounces (160 grams)

### Performance data

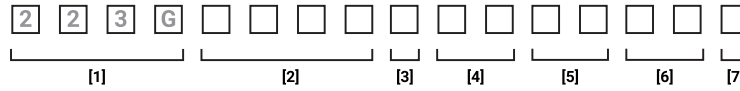
Accuracy RSS <sup>1</sup> (at constant temp)	$\pm 0.25\%$ FS or $\pm 1.0\%$ of reading
Non-linearity, (BFSL)	$\pm 0.15\%$ FS
Hysteresis	0.20% FS
Non-repeatability	0.02% FS

<sup>4</sup>Span (full scale) output factory set within  $\pm 25\text{mV}$  (for 5VDC output) or  $\pm 50\text{mV}$  (for 10 VDC output)  
<sup>5</sup>Calibrated at the factory set to with a 24VDC loop supply voltage and a 250 ohm load.  
<sup>6</sup>Zero output factory set to within  $\pm 0.08\text{mA}$ . Span (full scale) output factory set to within  $\pm 0.16\text{mA}$ .

## Ordering information

Example part number: 223G30CPGAA11B1J

Model 223 with a Pressure Range of 0 to 3000 PSI, #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



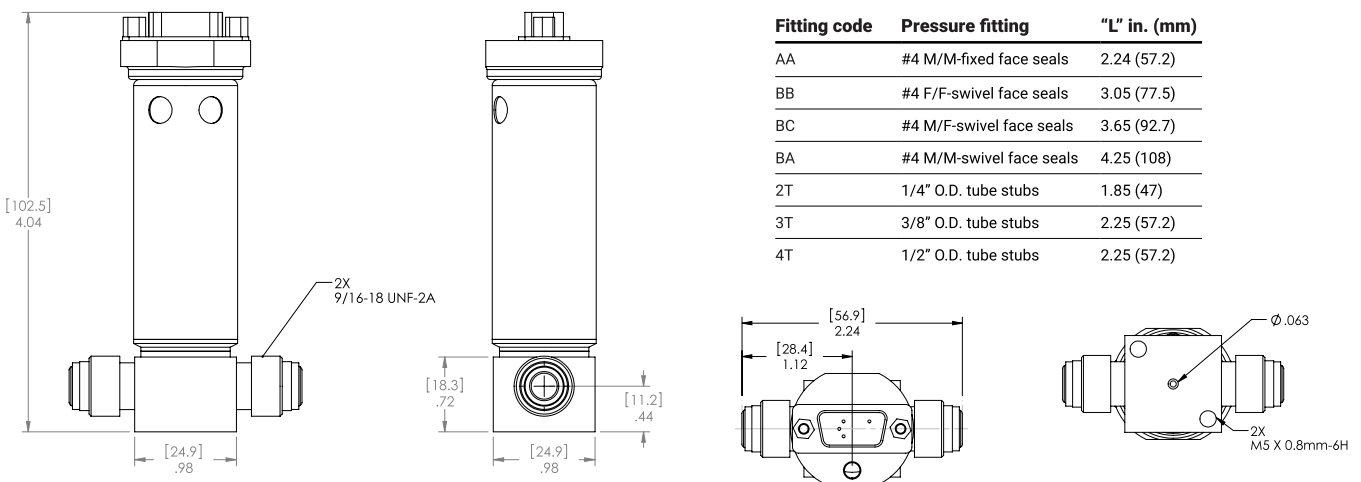
[1]	[2]	[3]	[4]	[5]	[6]	[7]
Model	Pressure range	Pressure type	Fitting	Output	Elec. termination	Accuracy
<b>223G</b>   Model 223	<b>025P</b> 25 PSI <b>050P</b> 50 PSI <b>100P</b> 100 PSI <b>250P</b> 250 PSI <b>500P</b> 500 PSI <b>10CP</b> 1000 PSI <b>30CP</b> 3000 PSI <b>Z01P</b> -14.7 to 85.3 PSI <b>Z02P</b> -14.7 to 235.3 PSI <b>Z03P</b> -14.7 to 985.3 PSI <b>Z05P</b> -14.7 to 2985.3 PSI <b>1R7B</b> 1.7 BAR <b>3R4B</b> 3.4 BAR <b>007B</b> 7 BAR <b>017B</b> 17 BAR <b>035B</b> 35 BAR <b>070B</b> 70 BAR <b>200B</b> 200 BAR	<b>A</b> Absolute <b>C</b> Compound <b>G</b> Gauge	<b>AA</b> #4 M/M fixed face seals (2.24" end to end) <b>BB</b> #4 F/F swivel face seals (3.65" end to end) <b>BC</b> #4 M/F swivel face seals (4.25" end to end) <b>BA</b> #4 M/M swivel face seals (4.25" end to end) <b>2T</b> 1/4" tube stub (1.85" end to end) <b>3T</b> 3/8" tube stubs (2.25" end to end) <b>4T</b> 1/2" tube stubs (2.25" end to end)	<b>11</b> 4-20mA <b>2B</b> 0-5 VDC <b>2C</b> 0-10 VDC <b>33</b> 0.2-5.2 VDC <b>59</b> 0.2-10.2 VDC <b>N1</b> 4-20 mA <sup>1</sup>	<b>B1</b> 4 pin bayonet connector <b>06</b> 6 ft. multi-conductor cable <b>D1</b> 15-pin D-sub <b>D9</b> 9-pin D-sub	<b>F</b> ±0.25% FS w/cal. cert. <b>J</b> ±1.0% of reading w/ cal. cert

<sup>1</sup>ETL certified as conforming to UL 121201 for Class 1, groups A, B, C, D, Division 2  
ATEX approved to EN60079-0 and EN60079-15 II 3 G  
Ex nA IIC T4 Gc X -30°C <Ta<+80°C

See Setra's model 224 with top access zero and span potentiometers, and additional electrical connectors

Please contact factory for configurations not shown.

## Dimensions



Inches  
(mm)

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)



## Model 224

### Ultra High Purity Flow-Through Pressure Transducer

#### Features

- 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
- Virtually insensitive to thermal transients in flow stream
- Optional ETL certified as conforming to UL 121201 and ATEX 2014/34/EU approval available for 4 to 20 mA output units
- CE and RoHS compliant

#### Applications

- High purity gas delivery
- Semiconductor process tools
- Pharmaceutical & biotech process
- Gas cabinets

Setra's Model 224 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 224 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.

#### Variable capacitance

This superior mechanical and thermal stability is achieved through Setra's patented variable capacitance sensor. Its fundamentally simple design features VAR 316L SS wetted parts, passivated to 5 Ra (7 Ra max) finish for system continuity, and an insulated electrode plate fastened to the center of the sensor diaphragm, which forms a variable capacitor. As pressure increases 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 224 transducers are able to endure bake out to 185°F (85°C), without affecting calibration. Every sensor is mass spectrometer helium leak tested to  $1 \times 10^{-9}$  ATM CC/sec. This ultra-high purity series is based on Setra's proven capacitive sensing technology and highly accurate and stable voltage or current output signals are virtually EMI/RFI immune.



## Specifications

### Performance data

Accuracy	±0.25% FS ±1.0% of reading
Non-linearity, (BFSL)	±0.15% FS
Hysteresis	±0.20% FS
Non-repeatability	±0.02% FS

### Thermal effects

Compensated range	+15° to +150°F (-9° to +65°C)
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

### Electrical data (current)

Circuit	2-Wire
Output <sup>5</sup>	<sup>6,7,4</sup> -20 mA
External load	0-800 Ω
Minimum supply voltage	(VDC)=10+0.02x //(resistance of receiver plus line)
Maximum supply voltage	(VDC)=30+0.004x //(resistance of receiver plus line)

### Electrical data (voltage)

Circuit	3-Wire
Excitation	10 to 30 VDC fo 5V FSO
Output <sup>2</sup>	<sup>3,4</sup> 0-5 VDC or 0.2-5.2 VDC <sup>3,4</sup> 0-10 VDC or 0.2-20.2 VDC
Current consumption	<8 mA

### Physical description

Case	Stainless steel
Electrical connection	6ft. multiconductor cable, bayonet connector or D-sub connectors
Pressure fittings	See ordering information
Zero/Span adjustments	Top access
Weight	6 ounces (170 grams)

### Environmental data

Operating temperature <sup>1</sup>	-40 to +185 (-40 to +85)
Storage temperature	-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)

### Approvals

Non-incendive	Certified for use in potentially hazardous locations
North America	ETL certified as conforming to UL 121201 available for units ordered with 4 to 20 mA current output (Select N1 option)
Europe	Optional ATEX 2014/34/EU approval available for units ordered with 4 to 20 mA current output (Select N1 option)

### Pressure media

Gases or liquids compatible with 316L stainless steel.

<sup>1</sup>Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.  
<sup>2</sup>Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.  
<sup>3</sup>Zero output factory set to within ±25mV (for 5 VDC output) or ±50mV (for 10 VDC output).  
<sup>4</sup>Span (Full Scale) output factory set to within ±25mV (for 5 VDC output) or ±50mV (for 10 VDC output).  
<sup>5</sup>Calibrated at factory with 24 VDC loop supply voltage and s 250 ohm load  
<sup>6</sup>Zero output factory set to within ±.08mA  
<sup>7</sup>Span (full scale) output factory set to within ±.08mA

## Pressure ranges

0 psia or -14.7 psig to:	0 bar or -1 bar to:	Proof pressure (psig)	Burst pressure (psig)	Design Pressure (psig)
25	1.7	50	1500	180
50	3.4	75	3000	365
100	7.0	150	3000	365
250	17	350	5000	600
500	35	650	7500	900
1000	70	1250	7500	1500
3000	200	3500	10,000	3000
-14.7 to 85.3	----	150	3000	365
-14.7 to 235.3	----	350	5000	600
-14.7 to 985.3	----	1250	7500	1500
-14.7 to 2985.3	----	3500	10,000	3000

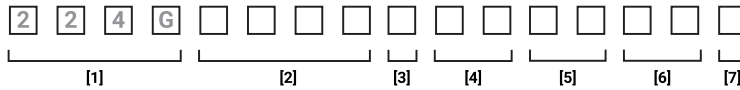
**NOTE:** setra quality standards are based on ansi-z540-. The calibration of this product is NIST traceable.

**Proof Pressure:** The maximum pressure that may be applied without changing performance beyond specifications (±1% FS zero shift).  
**Burst Pressure:** The maximum pressure that may be applied to the positive pressure port without rupturing the sensing element.  
**Design Pressure** calculated per ASME BPVC.IV-2015 HG-502.3

## Ordering information

Example part number: 224G30CPGAA11B1

Model 224, 3000 PSIG range, #4M/M fixed face seals, 4 to 20 mA output, 4 pin bayonet connector, and ±0.25% FS accuracy.



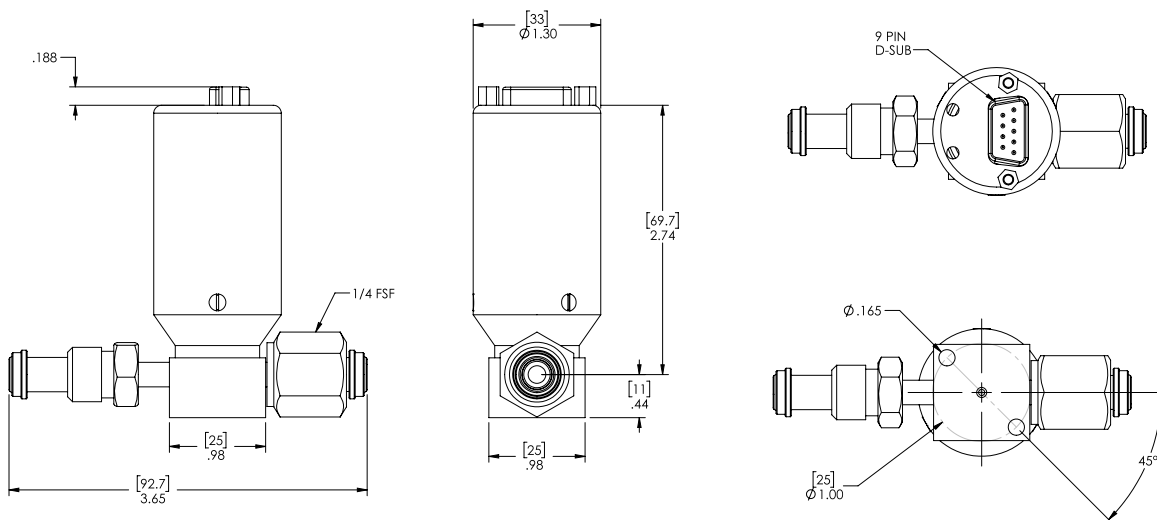
[1]	[2]	[3]	[4]	[5]	[6]	[7]
<b>Model</b>	<b>Pressure range</b>	<b>Pressure type</b>	<b>Fitting</b>	<b>Output</b>	<b>Termination</b>	<b>Accuracy</b>
<b>224G</b> Model 224	<b>025P</b> 25 PSI <b>050P</b> 50 PSI <b>100P</b> 100 PSI <b>250P</b> 250 PSI <b>500P</b> 500 PSI <b>10CP</b> 1000 PSI <b>30CP</b> 3000 PSI <b>Z01</b> -14.7 to 85.3 PSI <b>Z02</b> -14.7 to 235.3 PSI <b>Z03</b> -14.7 to 985.3 PSI <b>Z05</b> -14.7 to 2985.3 PSI <b>1R7</b> 1.7 BAR <b>3R4</b> 3.5 BAR <b>007B</b> 7 BAR <b>017B</b> 17 BAR <b>035B</b> 35 BAR <b>070B</b> 70 BAR <b>200B</b> 200 BAR	<b>A</b> Absolute <b>C</b> Compound <b>G</b> Gauge	<b>AA</b> #4 M/M fixed face seals (2.24" end to end) <b>BB</b> #4 F/F swivel face seals (3.05" end to end) <b>BC</b> #4 M/F swivel face seals (3.65" end to end) <b>BA</b> #4 M/M swivel face seals (4.25" end to end) <b>2T</b> 1/4" tube stubs (1.85" end to end) <b>3T</b> 3/8" tube stubs (2.25" end to end) <b>4T</b> 1/2" tube stubs (2.25" end to end)	<b>11</b> 4-20mA <b>2B</b> 0-5 VDC <b>2C</b> 0-10 VDC <b>33</b> 0.2-5.2 VDC <b>56</b> 0.2-10.2 VDC <b>N1</b> 4-20 mA <sup>1</sup>	<b>06</b> 6 ft. multiconductor cable <b>B1</b> 4 pin bayonet connector <b>D1</b> 15 pin D-sub connector <b>D9</b> 9 pin D-sub connector <b>M1<sup>2</sup></b> 5 pin mini DIN	<b>F</b> ±0.25% FS w/cal. cert. <b>J</b> ±1.0% of reading w/cal. cert.

<sup>1</sup>(ETL certified as conforming to UL 121201 for Class 1, Groups A, B, C, D, Division 2 Locations and ATEX approved to EN60079-0 and EN60079-15 II 3 G Ex nA IIC T4 Gc X -30°C<Ta<+80°C

<sup>2</sup>Note: Unit is not certified for UL 121201 or ATEX for use in hazardous locations when ordered with Option M1.

Please contact factory for configurations not shown.

## Dimensions







## Model 225

Ultra High Purity  
Pressure Transducers

### Features

- Superior stability avoids downtime
- EMI/RFI immunity
- Sturdy design allows trouble free installation
- Optional ETL certified as conforming to UL-1604 and ATEX 94/9/EC approval available for 4 to 20 mA output units
- CE & RoHS compliant

### Applications

- Gas cabinets
- High purity gas delivery systems
- Semiconductor process tools

Setra's Model 225 is ideally suited for high-purity gas delivery systems, semiconductor processes and control applications that require ultra-clean operation, high throughput performance, and exceptional long-term stability.

Designed with a low cavity volume of 0.11 in<sup>3</sup>, virtually eliminating particle entrapment, the 225 can be easily purged. All wetted parts are 316L VIM/VAR stainless steel passivated to 5RA (7Ra max) finish, which eliminates surface irregularities and provides the proper surface chemistry for corrosion resistance, assuring contaminant free gas distribution. Every sensor is mass spectrometer helium leak tested 1 x 10<sup>-9</sup> ATMCC/sec.

The model 225 series comes with a rotating cover easy access to 12-turn potentiometers for fine zero and span adjustment. Standard swivel male or female face seal pressure fittings meet the semiconductor industry requirements. In addition several other fitting styles are available.

### Accurate variable capacitance

The Model 225 is offered with a 5 VDC, 10 VDC, or 4-20 mA output. A six-foot multiconductor cable or bayonet connector is provided for electrical termination. Setra's patented variable capacitance sensor features a VIM/VAR 316L stainless steel diaphragm and an insulated electrode plate. An increase in pressure causes a slight rounding of the diaphragm, which decrease the capacitance. The capacitance change is detected and converted to a highly accurate linear DC electric signal. Setra's unique custom integrated circuit, utilizes a patented charge balance principle and is 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.





## Specifications

### Environmental data

Operating temperature	-40° to +185°F (-40° to +85°C)
Storage temperature	-40° to +185°F (-40° to +85°C)

### Current unit ordered w/option N1

Operating temperature <sup>3</sup> °F (°C)	-22 to +176 (-30 to +80)
Storage temperature °F (°C)	-22 to +176 (-30 to +80)

### Electrical data (voltage)

Circuit	3-Wire
Excitation	10 to 30 VDC for 5V FSO 13 to 30 VDC for 10 VFO
Output <sup>4</sup>	0-5 VDC or 0.2-5.2 VDC <sup>5</sup> 0-10 VDC or 0.2-10.2 VDC <sup>5</sup>
Power consumption	0.03 watts
Output impedance	100 Ω
Warm-up shift	±0.1% FS total

### Electrical data (current)

Circuit	2-Wire
Output <sup>4</sup>	4-20 mA <sup>7</sup>
External load	0 to 800 ohms
Min. supply voltage (VDC)	10 + 0.02x (resistance of receiver plus line)
Max. supply voltage (VDC)	30 + 0.004x (resistance of receiver plus line)
Power consumption	<0.9 watts

### Pressure media

Gases or liquids compatible with 316L stainless steel.

<sup>1</sup>RSS of non-linearity, non-repeatability, and hysteresis

<sup>2</sup>Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.

<sup>3</sup>Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.

<sup>4</sup>Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.

Specifications subject to change without notice

### Performance data

Accuracy RSS <sup>1</sup> (at constant temp)	±0.25% FS
Non-l inearity, (BFSL)	±0.15% FS
Hysteresis	±0.20% FS

### Thermal effects<sup>2</sup>

Compensated range	+15° to +150 °F(-9° to +65°C)
Zero shift %FS/100°F(%FS/50°C)	2.0 (1.8)
Span shift %FS/100°F(%FS/50°C)	2.0 (1.8)

### Physical description

Case	Stainless steel
Electrical connection	See ordering information
Pressure fittings	See ordering information
Vent	Through cover
Internal cavity volume	0.11 in. <sup>3</sup>
Wetted material	VAR 316L SS electropolished to 7RA (10max) finish
Weight (approx.)	4 ounces (113 grams)

### Approvals

Non-Incentive	Certified for use in potentially hazardous locations
North America	Optional ETL certified as conforming to UL 1604 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)
RoHS	

<sup>5</sup>zero output factory set to with ±25mV (for 5 VDC output) or ±50mV (for 10 VDC output).

<sup>6</sup>Span (full scale) output factory set within ±25mV (for 5VDC output) or ±50mV (for 10 VDC output)

<sup>7</sup>Calibrated at the factory set to with a 24VDC loop supply voltage and a 250 ohm load.

<sup>8</sup>Zero output factory set to within ±0.08mA. Span (full scale) output factory set to within ±0.16mA.

## Pressure ranges

0 psig or -14.7 psig to:	0 psia to:	0 bar or -1 bar to:	Proof pressure (psig)	Burst pressure (psig)	Design Pressure (psig)
25	25	1.7	50	1500	180
50	50	3.4	75	3000	365
100	100	7.0	150	3000	365
250	250	17	350	5000	600
500	500	35	650	7500	900
1000	1000	70	1250	7500	1500
3000	3000	200	3500	10,000	3000
-14.7 to 85.3	----	----	150	3000	365
-14.7 to 235.3	----	----	350	5000	600
-14.7 to 985.3	----	----	1250	7500	1500
-14.7 to 2985.3	----	----	3500	10,000	3000

Note: Setra quality standards are based on ANSI-Z540-1.

The calibration of the product is NIST traceable.

U.S. Patent nos. 3859575, 4054833

**Proof Pressure:** The maximum pressure that may be applied without changing performance beyond specifications (±1% FS zero shift).

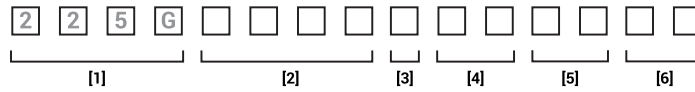
**Burst Pressure:** The maximum pressure that may be applied to the positive pressure port without rupturing the sensing element.

**Design Pressure** calculated per ASME BPVC.IV-2015 HG-502.3

## Ordering information

Example part number: 225G30CPGCA411B1

Model 225 with a Pressure Range of 3000 PSI, Gauge Pressure, #4 Face Seal Swivel, 4-20 mA Output and a 4-Pin Bayonet Connector.

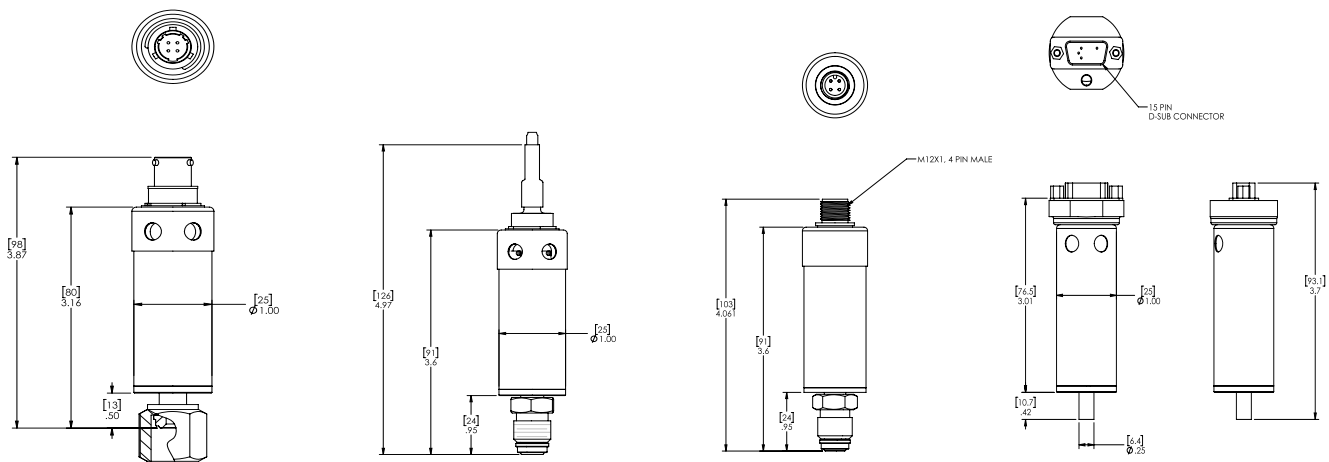


[1]	[2]	[3]	[4]	[5]	[6]
Model	Pressure range	Pressure type	Fitting	Output	Elec. termination
<b>225G</b> Model 225	<b>025P</b> 25 PSI	<b>A</b> Absolute	<b>C4</b> #4 male face seal swivel	<b>11</b> 4-20mA	<b>06</b> 6 ft. Multiconductor Cable
	<b>050P</b> 50 PSI	<b>C</b> Compound	<b>D4</b> #4 female face seal swivel	<b>2B</b> 0-5 VDC	<b>B1</b> 4 pin bayonet connector
	<b>100P</b> 100 PSI	<b>G</b> Gauge	<b>2M</b> 1/4" NPT male	<b>2C</b> 0-10 VDC	<b>D1</b> 15-pin D-sub
	<b>250P</b> 250 PSI		<b>2T</b> 1/4" tube stub	<b>33</b> 0.2-5.2 VDC	<b>M4</b> 4 pin M12x1
	<b>500P</b> 500 PSI			<b>59</b> 0.2-10.2 VDC	
	<b>10CP</b> 1000 PSI			<b>N1</b> 4-20 mA <sup>1</sup>	
	<b>30CP</b> 3000 PSI				
	<b>Z01P</b> -14.7 to 85.3 PSI				
	<b>Z02P</b> -14.7 to 235.3 PSI				
	<b>Z03P</b> -14.7 to 985.3 PSI				
	<b>Z05P</b> -14.7 to 2985.3 PSI				
	<b>1R7B</b> 1.7 BAR				
	<b>3R4B</b> 3.4 BAR				
	<b>007B</b> 7 BAR				
	<b>017B</b> 17 BAR				
	<b>035B</b> 35 BAR				
	<b>070B</b> 70 BAR				
	<b>200B</b> 200 BAR				

<sup>1</sup>ETL certified as conforming to ANSI/ISA 12.12.01-2011 for Class 1, groups A, B, C, D, Division 2  
Locations ATEX approved for EN60079-15:2005  
Ex nA IICT4X-30°C < Ta < +80° C

Please contact factory for configurations not shown.

## Dimensions



Fitting code "D4"  
elec. termination code "B1"

Fitting code "C4"  
elec. termination code "06"

Fitting code "C4"  
elec. termination code "B1"

Fitting code "2T"  
elec. termination code "06"



# Model 227

## Ultra-High Purity Pressure Transducer

### Features

- Variable capacitance technology
- High resolution & longterm stability
- Small cavity, efficient purge cycles
- Semi F19/F20 compliant 316L VIM/VAR wetted materials
- EMI/RFI immunity prevents false shutdown
- Optimal non-incendive approval for use in potentially hazardous locations available for 4-20mA output units
- CE & RoHS compliant

### Applications

- Modular 1-1/8" surface mount gas sticks and panels
- High purity gas delivery systems
- Semiconductor process tools

Setra's Model 227 transducer is designed for high density, surface mount gas sticks and panels, required for today's 300 mm tools. The Mode 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.

### 316L VIM/VAR stainless steel wetted materials

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.

### Versatile configuration options

Available with 5 VDC, 10 VDC, or 4 to 20mA output, the Model 227 offers +\_0.25% Full Scale or 1.0% of Reading accuracy. The Model 227 comes with a industry standard 1-1/8" C-Seal surface mount 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 328 1-1/8" rotatable display, this package provides the ultimate in pressure measurement and local readout.

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.



## Specifications

### Performance data

<b>Accuracy RSS<sup>1</sup> (at constant temp)</b>	±1.0% Reading ; ±0.25% FS
<b>Non-linearity, BFSL</b>	±0.15% FS
<b>Hysteresis</b>	0.20% FS
<b>Non-repeatability</b>	0.02% FS
<b>Thermal effects<sup>2</sup></b>	
Compensated range °F(°C)	+15 to +150 (-9 to +65)
Zero/Span Shift %FS/100°F(°C)	2.0 (1.8)

### Environmental data

<b>Operating/storage<sup>3</sup> temperature °F (°C)</b>	-40 to +185 (-40 to +85)
<b>Current unit ordered w/ option "N1" Operating limit °F (°C)</b>	-22 to +176 (-30 to +80)

### Pressure media

Liquid or gases compatible with 316L stainless steel.

### Approvals

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

North America: Optional listed to ANSI/ISA - 12.2.2011 standards for Class 1, Division 2, Group A,B,C,D Hazardous Locations

ATEX 94/9/EC Zone 2 Approval to EN60079-0:2012 and EN60079-15:2010 II 3G Ex nA IIC Gc -30°C<Ta<+80°C

<sup>1</sup>RSS of Non-Linearity, Non-Repeatability, and Hysteresis

<sup>2</sup>Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.

<sup>3</sup>Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.

<sup>4</sup>Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.

<sup>5</sup>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)

<sup>6</sup>Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.

<sup>7</sup>Zero output factory set withing ±0.08 mA. Span (Full Scale) output factory set to within ±0.08 mA.

Specifications subject to change without notice.

### Physical description

<b>Electrical connection</b>	6ft. multiconductor cable, bayonet, connector or D-SUB connector
<b>Case</b>	Stainless steel
<b>Pressure fitting</b>	Down mount "C" seal
<b>Vent</b>	Through zero/span access holes
<b>Weight</b>	6.5 oz (184g)

### Electrical data (voltage)

<b>Excitation</b>	10 to 30 VDC for 5V FSO 13 to 30 VDC for 10V FSO
<b>Circuit</b>	3-Wire (Exc, Out, Com)
<b>Current consumption</b>	<8mA
<b>Output<sup>4</sup></b>	0 to 5 VDC or 0.2 to 5.2VDC <sup>5</sup> 0 to 10VDC or 0.2 to 10.2VDC <sup>5</sup>

### Electrical Data (Current)

<b>Circuit</b>	2-Wire
<b>Output<sup>6</sup></b>	4 to 20mA <sup>7</sup>
<b>External load</b>	0 to 800 ohms
<b>Maximum supply voltage (VDC)</b>	30 + 0.04 x (Resistance of receiver plus line)
<b>Minimum supply voltage (VDC)</b>	10 + 0.02 x (Resistance of receiver plus line)

## Overpressure capability

Full scale range (or equivalent)	Minimum proof pressure PSIG	Design pressure PSIG	Minimum burst pressure PSIG
25	40	180	1500
50	75	365	3000
100	150	365	3000
250	350	600	5000
500	650	900	7500
1000	1250	1500	7500
3000	3500	3000	10,000

Design Pressure calculated per ASME BPVC.IV-2015 HG-502.3

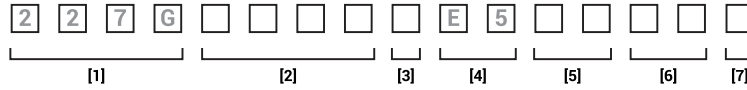
**Proof Pressure:** The maximum pressure that may be applied without changing performance beyond specifications (±1% FS zero shift).

**Burst Pressure:** The maximum pressure that may be applied to the positive pressure port without rupturing the sensing element.

## Ordering information

Example part number: 227G100PGE511D1F;

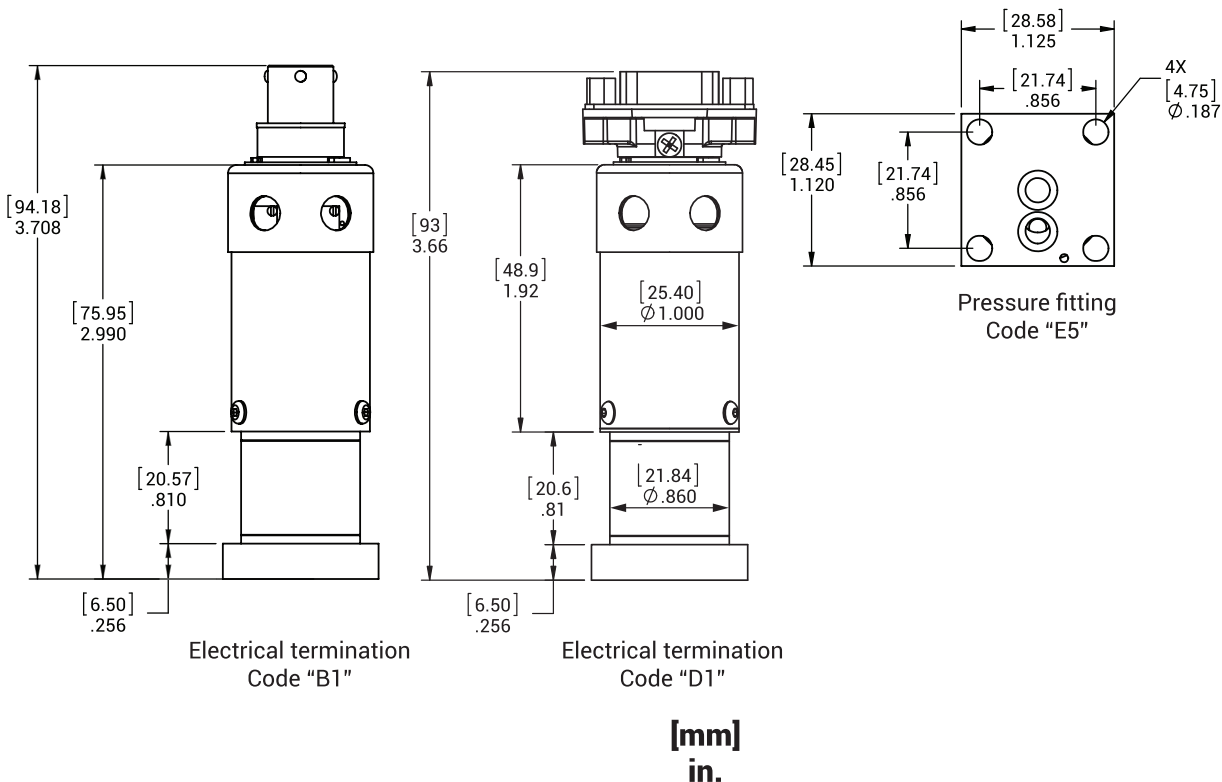
227 Transducer, 0 to 100 PSIG, Down Mount "C" Seal Flange, 4-20mA Output, 15 pin D-sub Connector and ±0.25% FS Accuracy.



[1]	[2]	[3]	[4]	[5]	[6]	[7]
<b>Model</b>	<b>Pressure ranges</b>	<b>Pressure type</b>	<b>Pressure fitting</b>	<b>Output</b>	<b>Electrical termination</b>	<b>Accuracy</b>
<b>227G</b> Model 227	<b>025P</b> 0 to 25 PSI <b>050P</b> 0 to 50 PSI <b>100P</b> 0 to 100 PSI <b>250P</b> 0 to 250 PSI <b>500P</b> 0 to 500 PSI <b>10CP</b> 0 to 1000 PSI <b>30CP</b> 0 to 3000 PSI <b>1R7B</b> 0 to 1.7 Bar <b>3R4B</b> 0 to 3.4 Bar <b>007B</b> 0 to 7 Bar <b>017B</b> 0 to 17 Bar <b>035B</b> 0 to 35 Bar <b>070B</b> 0 to 70 Bar <b>200B</b> 0 to 200 Bar <b>10CT</b> 1000 Torr <sup>1</sup> <b>15CT</b> 1500 Torr <sup>1</sup> <b>Z01P</b> -14.7 to 85.3 PSI <sup>2</sup> <b>Z02P</b> -14.7 to 235.3 PSI <sup>2</sup> <b>Z03P</b> -14.7 to 985.3 PSI <sup>2</sup> <b>Z05P</b> -14.7 to 2985.3 PSI <sup>2</sup>	<b>A</b> Absolute <b>C</b> Compound <b>G</b> Gauge	<b>E5</b> Down mount "C" seal (1.125" Base)	<b>11</b> 4-20mA <b>2B</b> 0-5 VDC <b>2C</b> 0-10 VDC <b>33</b> 0.2-5.2 VDC <b>59</b> 0.2-10.2 VDC <b>N1</b> 4-20 mA <sup>3</sup>	<b>06</b> 6ft. multiconductor cable <b>B1</b> 4 pin bayonet connector <b>D1</b> 15 pin, high density D-sub connector <sup>4</sup> <b>D9</b> 9 pin, D-sub connector <sup>4</sup>	<b>F</b> ±0.25% FS (w/ cal. cert) <b>J</b> ±1.0% reading (w/ cal. cert)

<sup>1</sup> Absolute ranges only. Only available with pressure type code "A".  
<sup>2</sup> Compound ranges only. Only available with pressure type code "C".  
<sup>3</sup> With Hazardous Location Approvals  
<sup>4</sup> Not Available with N1 Output Option

## Dimensions



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Para cualquier ampliación de información no duden en contactar con nosotros en:



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