



## 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

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

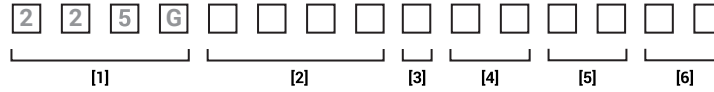
**Burst Pressure:** The maximum pressure that may be applied to the positive pressure port without rupturing the sensing element.

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.

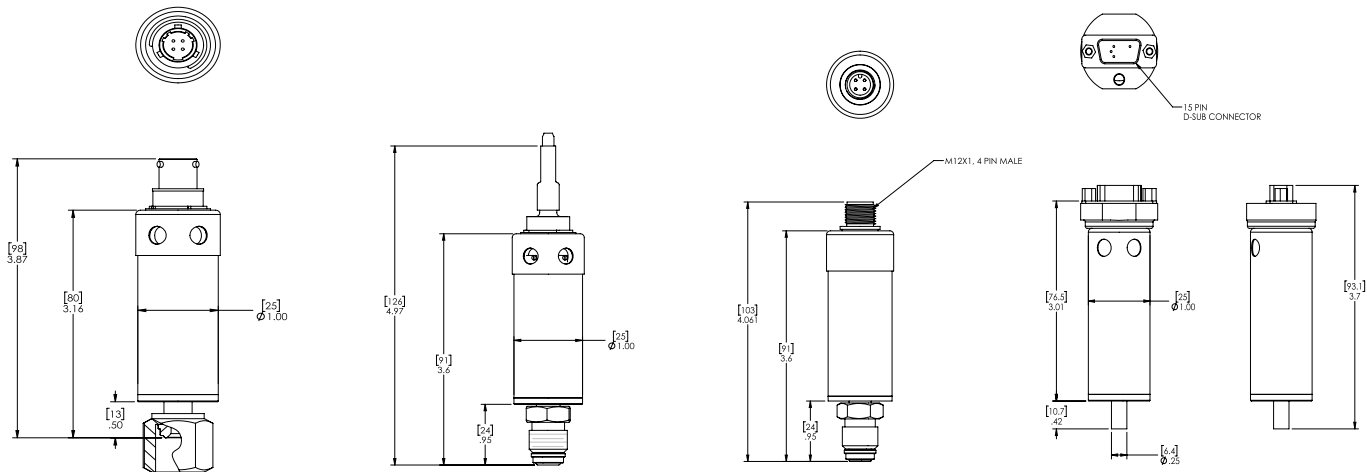


[1]	[2]	[3]	[4]	[5]	[6]
<b>Model</b>	<b>Pressure range</b>	<b>Pressure type</b>	<b>Fitting</b>	<b>Output</b>	<b>Elec. termination</b>
<b>225G</b> Model 225	<b>025P</b> 25 PSI	<b>A</b> Absolute	<b>C4</b> #4 male face seal swivel	<b>11</b> 4-20mA	<b>06</b> 6 ft. Multiconductor Cable
	<b>050P</b> 50 PSI	<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 IIC T4X-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"

SSP-225 RevC 10/2019