

# AccuSense™ Model ASM

High Accuracy Pressure Transducer  
for Mid-Pressure Range Measurement  
Gauge and Absolute Pressures



Setra's Next Generation T&M pressure transducers are intended for very accurate pressure measurements of gas or liquid media compatible with 17-4 PH stainless steel. The high level output signal and excellent stability, combined with excellent thermal performance, make this unit ideal for industrial, laboratory and engine test cell applications.

The exceptional accuracy is achieved by combining Setra's patented variable capacitance resonant sensor with high performance digital circuitry. This unit is compensated for both zero and sensitivity shifts due to environmental temperature variations. The Next Generation T&M Model requires no additional signal conditioning and offers 0-5V DC, 0-10V DC, and 4-20mA output options. The sensor features a 17-4 PH stainless steel pressure sensing diaphragm and an insulated electrode, which form a variable capacitor. As the pressure increases, the capacitance decreases, causing its resonant frequency to increase. This change in frequency is a direct input to the digital circuit which provides complete digital signal conditioning and conversion to highly accurate and stable DC electric signal output. On absolute pressure units, the reference side of the diaphragm is sealed with a high vacuum reference. An option for high proof pressure and burst pressure is also available.

## PRESSURE RANGES

Full Scale Range (PSI)	STANDARD		HIGH OVERPRESSURE OPTION	
	Proof Pressure (PSI)	Burst Pressure (PSI)	High Proof Pressure (PSI)	High Burst Pressure (PSI)
15	30 (2x)	300	150 (10x)	1500
25	50 (2x)	500	250 (10x)	2000
50	100 (2x)	750	500 (10x)	8000
100	200 (2x)	1000	1000 (10x)	10,000
150	300 (2x)	2000	1500 (10x)	10,000
200	400 (2x)	2000	2000 (8x)	10,000
300	600 (2x)	2000	2000 (8x)	10,000
500	800 (1.5x)	3000	2500 (5x)	
750	1200 (1.5x)	4000	3000 (4x)	
1000	1500 (1.5x)	5000	4000 (4x)	

Proof Pressure: The maximum pressure that may be applied without changing performance beyond specifications ( $\pm 0.25\%$  FS zero shift).

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

US Patents: 6532834 and 6718827

## Applications

- High Accuracy General Purpose
- R&D Test and Measurement
- Vacuum Systems
- Dynamometers
- Engine Test Cells

## Features

- 0.05% FS Accuracy
- Very Low Thermal Error
- 0-5 VDC, 0-10 VDC or 4-20 mA Output
- Ranges: 15 to 1000 PSI
- Secure Field Calibration on Zero & Span
- High Overpressure Option - up to 10x Proof Pressure
- Fast Warm-Up
- Calibration Certificate
- Low Output Noise
- RoHS Compliant
- Meets CE Conformance Standards

**setra**  
ISO9001 Certified

# AccuSense™ Specifications

## Performance Data

	Accuracy Code			
	A	B	C	D
Accuracy	<±0.05% FS RSS*	<±0.1% Reading	<±0.1% FS RSS*	
Non-Linearity	<±0.025% FS End Point Typ.		<±0.05% FS End Point Typ.	
Hysteresis	<0.02% FS Typ.		<0.02% FS Typ.	
Non-Repeatability	<±0.02% FS Typ.		<±0.02% FS Typ.	
Offset Setting Tol.	<±0.05% Typ.		<±0.1% FS	
Span Setting Tol.	<±0.05% FS		<±0.1% FS	
Thermal Total Error Band	<±0.25% FS (-20°C to 60°C)	<±0.25% FS (-20°C to 60°C)	<±0.25% FS (-20°C to 60°C)	<±1.5% FS Typ. (-20°C to 60°C)

\*The root sum squared (RSS) of end-point based linearity, hysteresis, and non-repeatability

Zero Offset	<0.05%/g (Ranges ≥ 50 psi)
Position Effect	<0.1%/G (Ranges ≥ 100 psi)
Unit factory calibrated in vertical position (Pressure Port downward)	
Long-term Stability	<0.15%/Year
Response Time to Pressure Input	<15 ms for Voltage Output <80 ms for Current Output

## Environmental Data

Temperature Calibrated °F (°C)	-4 to 140 (-20 to 60)
Operating °F (°C)	-40 to +170 (-40 to +75)
Storage °F (°C)	-40 to +185 (-40 to +85)

## Pressure Media

Gases or liquids compatible with 17-4 PH stainless steel.  
Note: Hydrogen not recommended for use with 17-4 PH stainless steel.

## Physical Description

Height	3.5 in Max. (Body w/o Fittings/Conn)
Width	< 1.3 in. (dia.)
Weight	TBD
Case Materials	Stainless Steel
Moisture / Splash Resistance	NEMA 4X
Pressure Fittings	See Table Below

## Sensor Description

Proof Pressure	See Table on Front Page
Burst Pressure	See Table on Front Page
Wetted Materials	17-4 PH SS
Life Cycle Rating	>10 <sup>6</sup> Pressure Cycles
Position Effect	± 0.1%FS

## Electrical Data

Signal Output Ranges	0-5, 0-10VDC (4-wire), 4-20mA (2-Wire)
Nominal Excitation	24V DC
Excitation Range	9-30V DC (5V DC & 4-20mA output) 15-30V DC (10V DC Output)
Excitation Range Sensitivity	±0.02% Over Full Excitation Range
Current / Power Consumption	TBD (Voltage Version), <3.5mA (4-20mA Version)
Circuit Response Time	<10ms (Voltage Version), <80ms (4-20mA Version)
Warm-up, Environmental	Within +/- .02%FS after  15min Warm-up Time Reverse Excitation Protection
Miswiring	

## Configurations

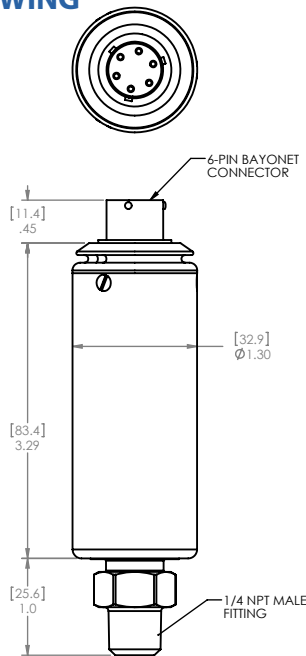
Electrical Terminations	6-Conductor Cable, Pigtail 6-Pin Bayonet Connector
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## Regulatory Data

RoHS Compliant  
CE Compliant

Specifications subject to change without notice.

## OUTLINE DRAWING



Wiring Diagram		Code B3 (Standard)	Code B4 Optional
Electrical Connection	Wire Color	Bayonet Connector Pinout	Bayonet Connector Pinout
+ EXC	Red	A	A
- EXC	Black	D	B
+ Sig Out	Green	B	C
- Sig Out	White	C	D
With Optional Secure-Cal Calibration Module			
Secure-Cal	Blue	E	E
Secure-Cal	Brown	F	F
Shield Drain Wire	Exposed	Case	Case

## ORDERING INFORMATION

Code all blocks in table.

Example: Part No. ASM050PG2M1103A for an ASM Transducer 0 to 50 PSIG Range, 1/4" NPT Male Pressure Fitting, 4 to 20 mA Output, 3 Feet of Cable, and <±0.05% FS RSS <0.25% TEB.

A	S	M	1						
<b>Model</b>	<b>Pressure Ranges</b>		<b>Type</b>	<b>Pressure Port</b>	<b>Output</b>	<b>Elec. Termination</b>	<b>Accuracy</b>	<b>Option</b>	
ASM1 = ASM	<b>PSI</b>	<b>BAR</b>	G = Gauge	IF = 1/8" NPT Female	2B = 0 to 5 VDC	03 = 3 ft., 1m Std Cable	A = <±0.05% FS RSS	H = High Overpressure Capability	
	Z01P = 0 to -14.7 PSI	Z01B = -1 BAR	A = Absolute	1M = 1/8" NPT Male	2C = 0 to 10 VDC	B3 = 6-PIN Male	<0.25% TEB	(See Table)	
	015P = 0 to 15 PSI	002B = 2 BAR	V = Vacuum	2F = 1/4" NPT Female	11 = 4 to 20 mA	Bayonet Connector, Standard Wiring	B = <±0.1 % Reading		
	025P = 0 to 25 PSI	005B = 5 BAR	Gauge*	2M = 1/4" NPT Male		B4 = 6 Pin Male Bayonet Connector, Optional Wiring	<0.25% TEB		
	050P = 0 to 50 PSI	010B = 10 BAR	*Z01 Range Code Only	J7 = 7/16"-20 SAE Male			C = <±0.1 FS RSS		
	100P = 0 to 100 PSI	020B = 20 BAR					<0.25% TEB		
	150P = 0 to 150 PSI	040B = 40 BAR					D = <± 0.1% FS RSS		
	200P = 0 to 250 PSI	050B = 50 BAR					<1.5% TEB		
	300P = 0 to 300 PSI	070B = 70 BAR							
	500P = 0 to 500 PSI								
	750P = 0 to 750 PSI								

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.