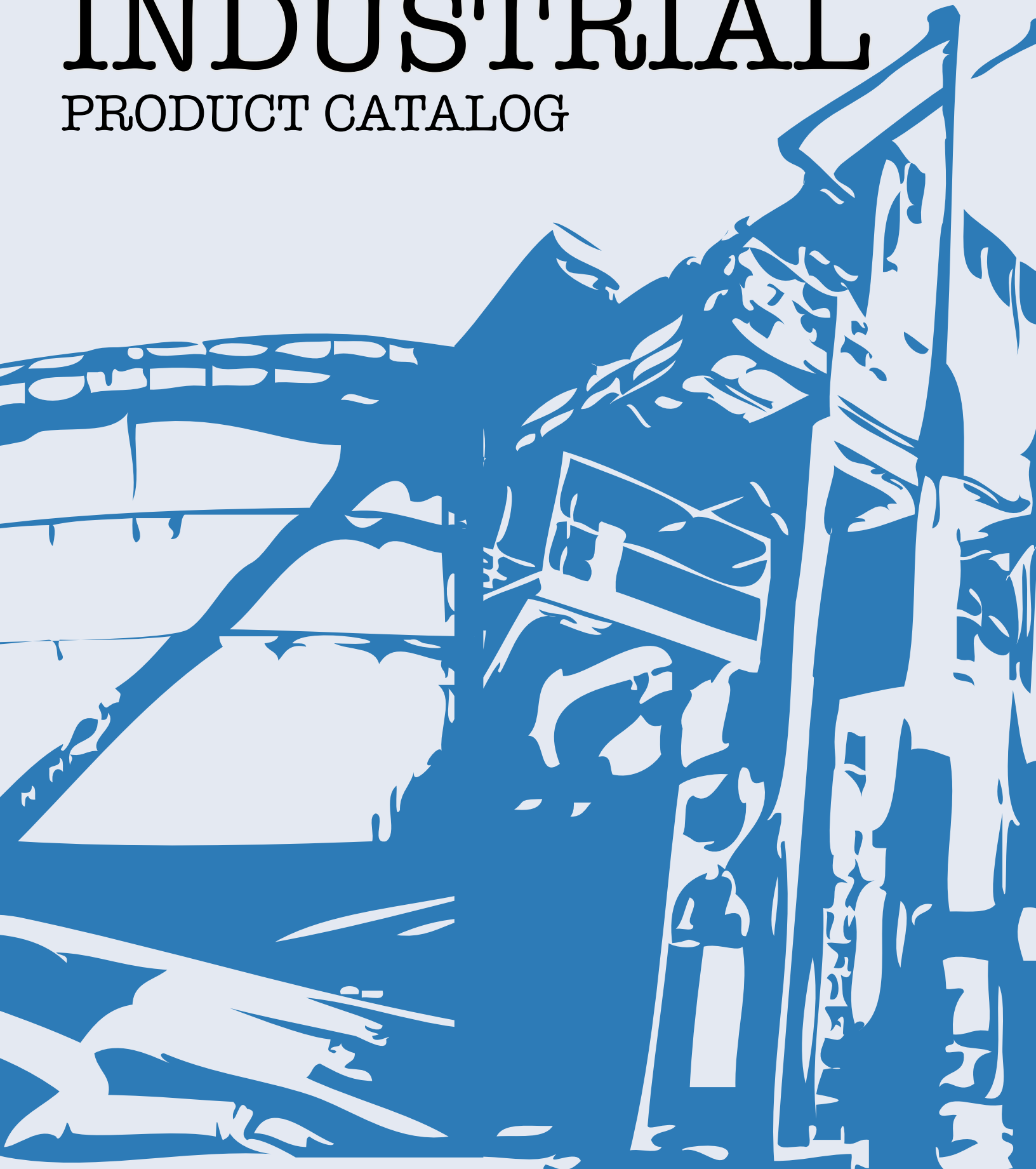




INDUSTRIAL

PRODUCT CATALOG

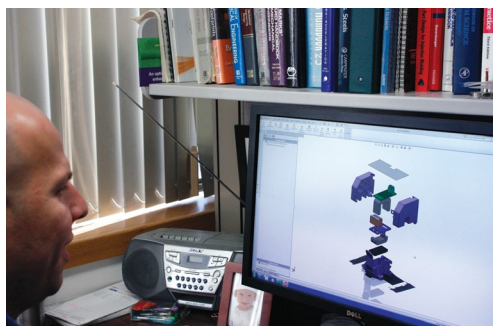




Setra is a leading manufacturer of a broad portfolio of pressure transducers, humidity transmitters, current switches and current transducers.

The company was founded in 1967 by Dr. S.Y. Lee and Dr. Y.T. Li, former Professors of Engineering at the Massachusetts Institute of Technology. Their philosophy, which is still carried on today and expressed in our mission statement, is that whether you require low price, ruggedness and accuracy for OEM use; or the highest possible accuracy for critical test, quality control or manufacturing applications, Setra's products should offer you significant improvement in measurement accuracy.

Research and Innovation



Setra's multi-disciplinary engineering department has decades of experience in designing high precision pressure, humidity, and current sensing instruments. The design group includes senior electrical, mechanical, and software engineers in an organization that fosters creativity and innovation in design.

Setra's engineers have a close working relationship with many customers. As a result, they have been able to apply Setra's advanced technologies to solving customer application challenges.

Manufacturing

Dedicated tools and processes eliminate product and process variation at every stage of manufacturing including:

- Design Failure Model Effect Analysis (DFMEA)
- Process Failure Model Effect Analysis (PFMEA)
- Process Capabilities Studies
- Design Verification and Validation
- Corrective and Preventative Action (CAPA)
- Lean Tools



Customer Support

Setra provides customer support through its knowledgeable staff of customer service representatives and applications engineers.

Our customer service representatives are available to process and assist with expediting and delivery of your order.

Our staff of application engineers are ready to discuss your system requirements, provide solutions to your applications, answer technical questions, and assist with installation and wiring.

A complete library of our products is maintained on our website, including product specifications, installation and operating instructions as well as our newest feature — online ordering.

Visit our Website at www.setra.com

Inside this catalog is a comprehensive selection of sensors and transducers designed for the HVAC/Building Automation industry. If you don't see exactly what is needed for your specific application give us a call.

Call us today — 800-257-3872

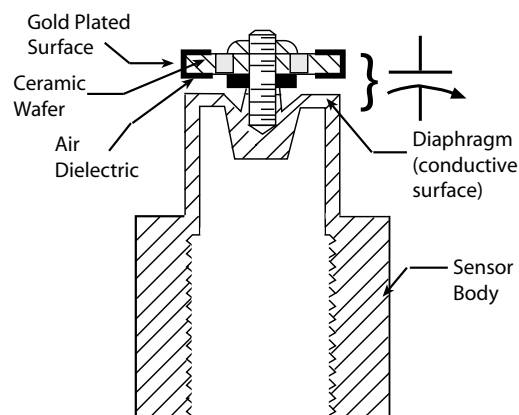
Mission Statement

Setra will partner with its customers to deliver premium sensing solutions that enhance building efficiency, maximize HVAC installer productivity and enable industrial equipment design engineers to solve their most demanding application problems.

Capacitive Transducers

Setra's capacitive pressure transducers are expertly designed adaptations of a simple, durable and fundamentally stable device...the electrical capacitor.

In a typical Setra configuration, a compact housing contains two closely spaced, parallel, electrically isolated metallic surfaces, one of which is essentially a diaphragm capable of slight flexing under pressure. The diaphragm is constructed of a low-hysteresis material such as 17-4 PH SS or a proprietary compound of fused glass and ceramic (Setraceram). These firmly secured surfaces (or plates) are mounted so that a slight mechanical flexing of the assembly, caused by a minute change in applied pressure, alters the gap between them (creating, in effect, a variable capacitor). The resulting change in capacitance is detected by a sensitive linear comparator circuit (employing proprietary custom designed ASICs), which amplifies and outputs a proportional, high level signal.



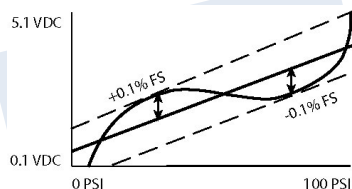
Typical capacitive pressure sensor, showing rugged construction. Materials are carefully selected for compatibility to minimize environmental effects. (Capacitance gap is accentuated for illustration.)

NON-LINEARITY

Relationship of a calibration curve to a specified straight line.

Best Fit Straight Line (BFSL) Method

Example: $\pm 0.1\%$ FS



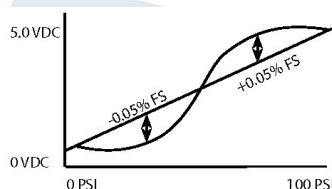
Used for non-linearity measurement on all Setra Pressure Transducers except Models 270, 276, 370, and 470.

NON-LINEARITY

Relationship of a calibration curve to a specified straight line through its end points.

End Point Method

Example: $\pm 0.05\%$ FS



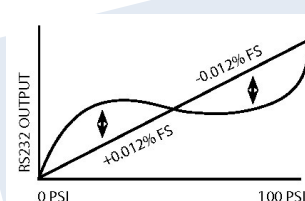
Used for non-linearity measurement on all Setra Pressure Transducers except Models 270 and 276.

NON-LINEARITY

Relationship of a calibration curve to a specified straight line with end points at zero and full scale.

Terminal Method

Example: $\pm 0.012\%$ FS



Absolute Pressure — Pressure measured relative to full vacuum. Referred to as pounds per square inch absolute (PSIA).

Atmospheric Pressure — Pressure of the atmosphere at the earth's surface NIST standard atmospheric pressure = 1.01325 bar.

BAR — Unit of pressure (or stress). 1 bar = 750.07 mm of mercury at 0°C, at 45°.

Barometric Pressure — Atmospheric pressure, often measured in millibars, in Hg (inches of mercury), or hectopascals.

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

Capacitive Sensing — Detection and measurement of pressure through the change in voltage across a capacitor, one plate of which is a diaphragm which deflects slightly with changes in applied pressure.

Compound Pressure — Pressure measured from full vacuum (-14.7 PSIV) to gauge pressure, referencing atmosphere.

Demand (active, real or true power)— The power which is actually consumed by the load. The measurement takes the power factor into account.

Differential Pressure — Pressure measured relative to a reference pressure. Referred to as pounds per square inch differential (PSID).

Frequency— The number of complete cycles of AC voltage which occurs during one second (Hz).

FS (Full Span or Full Scale) — The range of measured values over which a transducer is intended to measure, specified by the upper and lower limits. EX: 0 to 100 PSIG, FS is 100 PSIG/0 to 5 VDC, FS is 5 VDC, 800-100 MB FS is 300 MB.

Gauge Pressure — Pressure measured relative to ambient atmospheric pressure. Quantified in pounds per square inch gauge (PSIG).

Harmonics — Current or voltages which have frequencies that are integer multiples of the fundamental power frequency; common and sometimes dangerous in nonlinear loads.

Manometer — An early instrument for measuring pressure; originally, a U-shaped tube containing liquid (water, oil, or mercury), one limb opening to the gas volume to be measured, the other closed or connected to a registering or recording instrument. Modern versions utilize diaphragms, bellows or other devices for sensing relative pressures.

Millibar (mbar) — Unit of pressure generally used in barometric measurements: 1 mbar \pm 100 N/m² or 10 = dyn/cm².

Newton (N) — The unit of force in the International System of Units (SI); the force required to impart an acceleration of 1m/sec² to a mass of 1 kg.

Pascal (Pa) — The standard unit of pressure (or stress) in the SI system; equal to 1 newton per square meter (1 N/m²)

Peak Demand (maximum RMS power) — The highest average load during a specified time interval (kW).

P/I — Term common to process industries meaning pressure-in/current-out. (3-15 PSIG Input to 4 to 20 mA DC Output).

Potential Transformer — An instrument transformer used to step down high voltage potentials to lower levels acceptable for the input of electrical test instruments.

Pressure Transducer — An electromechanical device for translating fluid pressure values into voltages across a high-impedance (5k ohms or greater) load.

Pressure Transmitter — An electromechanical device for translating fluid pressure values into currents (generally 4 to 20 mA) into a low-impedance load.

Proof Pressure — The maximum pressure that may be applied without changing performance beyond specifications (typically, 0.5% FS zero shift).

PSIA — Pounds per square inch absolute.

PSIV — Pounds per square inch vacuum.

Range — The spread between the maximum and minimum pressures between which the transducer has been designed to operate.

Ratchet Demand — Determining the billing demand based upon a pre-established peak average demand (usually at 75%, 80% or 100% of the pre-established peak).

Relative Humidity — Relative humidity is a measurement of water in the air at a given temperature.

Span — The algebraic difference between the limits of the range. Ex: 0.1 to 5.1 Volts DC; span is 5 VDC. Sometimes used to designate full scale output; i.e. 5 VDC.

Vacuum — Generally refers to pressures between 0 and atmospheric; often measured in 0-30 in Hg Vacuum. Referred to as pounds per square inch vacuum (PSIV).

INTRODUCTION		
INTRODUCTION	2	
TECHNOLOGIES		
TECHNOLOGIES	3	
TERMINOLOGY & DEFINITIONS		
TERMINOLOGY & DEFINITIONS	4	
PRODUCT SECTION 1.1 General Purpose OEM		
Model 205	8	
Model 206	10	
Model 209	12	
Model 210	16	
Model 256	18	
Model 526	20	
Model 550	22	
Model 3100	24	
Model 3200	28	
Model 31CS	32	
Model 31IS	36	
Model 32CS	40	
Model 32IS	44	
Model 3550	48	
PRODUCT SECTION 2.1 Test & Measurement		
Model ASL	52	
Model ASM	54	
Model 201	56	
Model 204	58	
Model 239	60	
PRODUCT SECTION 3.1 Sanitary Pressure		
Model 290	64	
PRODUCT SECTION 4.1 Accelerometer		
Model 141	68	
PRODUCT SECTION 5.1 Barometric Pressure		
Model 270	72	
Model 276	74	
Model 278	76	
Model 370	78	
Model 470	80	
PRODUCT SECTION 6.1 Very Low Differential Pressure		
Model MRG	84	
Model 264	86	
Model 265	88	
Model 267/267MR	90	
PRODUCT SECTION 7.1 Power Monitoring		
Patrol Flex	96	
Power Patrol	98	
Patrol Squad 24	100	
Split-Core Performance CT	102	
Split-Core Standard CT	103	
ORDERING INFORMATION		

205

206

209

210

256

526

550

3100

3200

31CS

31IS

32CS

32IS

3550

GENERAL PURPOSE OEM

PRODUCT SECTION 1.1

setra

Model 205

Gauge & Absolute Pressure Transducer

Setra's Model 205 is a high accuracy transducer for measuring gauge, absolute and compound pressure offering superior performance at an affordable price. Its single piece machined capacitance sensor enables accuracies up to $\pm 0.073\%$ FS giving the 205 superior linearity to competitive sensors that use two-piece welded sensing elements. The 205's compact design offers customers a space saving solution for measuring pressure in Test and Measurement applications. The 205 has standard pressure ranges from 25 PSI to 5,000 PSI to cover the most common pressure sensing applications.

High Accuracy For Demanding Applications

The Model 205 pressure transducer's variable capacitance design uses a single piece machined sensor, eliminating failures from insufficient welds. The sensor is linearized and thermally compensated during manufacturing to optimize the sensor's linearity for maximum accuracy in demanding Test & Measurement and OEM applications.

Small Footprint

The Model 205's design offers high performance in a small package. The sensor is only 1.75" wide by 2" tall, allowing OEMs and test stand engineers to reduce the overall design footprint of the end product.

High Performance Sensor

The Model 205 offers high price-to-performance sensor for measuring absolute pressure. The simple configurable design enables the transducer to be configured for an absolute reference by adding a hermetically sealed pressure reference cap to the existing sensor design, allowing the price to remain affordable without sacrificing quality.



- High Price-to-Performance Ratio
- Fast Dynamic Response
- Excellent Stability

Model 205 Features:

- $\pm 0.073\%$ FS Accuracy
- 5 VDC Output
- High Cycle Life
- Fast Response, Less than 1 ms
- Solid One-Piece Stainless Steel Sensor
- Fast Warm-Up
- Meets CE Conformance Standards

Applications:

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

ORDERING INFORMATION

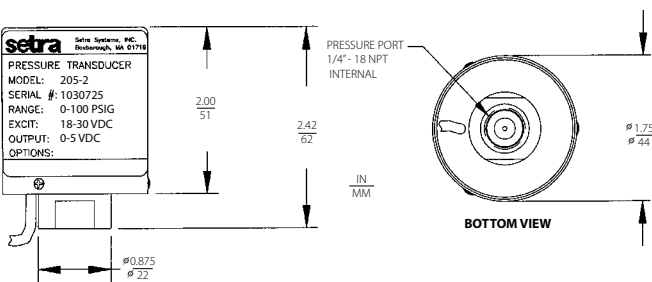
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Model	Pressure Range	Units	Pressure Type	Fitting	Output	Termination	Accuracy	Options ²
2051=Model 205	025 25 PSI	P PSI	G Gauge	2F 1/4" NPT Internal	2B 0 to 5 VDC	02 2' Cable	W ±0.11% FS	NN None
	050 50 PSI		A Absolute		27 1 to 5 VDC	10 10' Cable	9 ¹ ±0.073% FS	C 11 PT Cal. Certificate
	100 100 PSI					25 25' Cable		D Mate with Datum
	250 250 PSI					XX Consult factory for other lengths		F Nema 4 Enclosure
	500 500 PSI							L Etched SS Tag
	10C 1,000 PSI							Y Clean for Oxygen SVC
	30C 3,000 PSI							3 -65 to 250 °F Compensated Range
	50C 5,000 PSI							

Ordering Example: 2051025PG2F2B02WNN - Model 205, 0 to 25 PSI, Gauge pressure, 1/4" NPT Internal fitting, 0 to 5 VDC output, 2' Cable Length, ±0.11% FS Accuracy, no options.

¹Option 710
²Both boxes must be filled in alphabetical order:
 • If No options: N + N
 • If 1 option: Option Code + N
 • If 2 options: Option Code + Option Code

DIMENSIONS



GENERAL SPECIFICATIONS

Performance Data		Physical Description	
Accuracy RSS ¹ (at constant temperature)	±0.11% FS	Case	Stainless Steel
Non-Linearity, (BFSL)	±0.10% FS	Electrical Connection	2ft. Multiconductor Cable
Hysteresis	0.05% FS	Pressure Fitting	1/4" - 18 NPT Internal
Non-Repeatability	0.02% FS	Weight	4 ounces
Thermal Effects ²		Environmental Data	
Compensated Range °F(°C)	+32 to +150 (0 to +650)	Temperature	
Zero Shift %FS/°F (%FS/°C)	±0.02 (±0.036)	Operating °F(°C) ⁴	0 to +175 (-18 to +79)
Span Shift %FS/°F (%FS/°C)	±0.015 (±0.027)	Storage °F(°C)	-65 to +250 (-54 to +121)
Warm-Up Shift	0.5% FS (0.1% FS residual shift after 5 minutes)	Vibration	2g from 5 Hz to 500 Hz
Response Time	1 Millisecond	Shock	50g
Static Acceleration Effect	0.05 psig	Acceleration	10g Maximum
Pressure Media		Available Options	
Gases or liquids compatible with 17-4 PH and 15-5 PH Stainless Steel. ³		Electrical Options	
Electrical Data (Voltage)		Option #602	Special Output 1-5 VDC
Circuit	4-Wire (+Exc, -Exc, +Out, -Out)	Performance Options	
Excitation	18 to 30 VDC	Option #702	Extended Compensated Temperature -65°F to +250°F (-55°C to +121°C). Results in 2x the standard thermal effect error.
Output ⁵	0 to 5 VDC ⁶		
Output Impedance	400 ohms	Mechanical Options	
Output Noise	100 Microvolts RMS (0 Hz to 10 KHz)	Option #803-#825	Up to 25 ft. of cable can be supplied. Specify cable length when ordering (i.e. 805 for 5 ft. cable). Consult factory for cable lengths longer than 25 ft.
¹ RSS of Non-Linearity, Hysteresis and Non-Repeatability. ² Units calibrated at nominal 70°F. Maximum thermal error is computed from this datum. ³ Hydrogen not recommended for use with 17-4 PH or 15-5 PH Stainless Steels. ⁴ Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower. ⁵ Calibrated into a 50K ohm load. ⁶ Zero output factory set to within ±50mV. Span (Full Scale) output factory set to within ±50mV. NOTE: Both output leads are nominally 1.6 VDC above the negative excitation lead at zero pressure. Either negative excitation or negative output should be connected to case (ground). But both leads cannot be connected to case (ground). Unit is calibrated at the factory with the negative excitation connected to case (ground).		Option #865	NEMA4 Weatherproof Enclosure
		Calibration Certificate Option	
		Option #901	11-Point Calibration Certificate

PROOF PRESSURE

Standard Pressure Ranges (PSI)	Proof Pressure (PSI)	Burst Pressure Rating (PSI)	Approx. Natural Frequency
0-25	50	150	2.0
0-50	75	200	2.5
0-100	150	500	3.5
0-250	375	1000	5.0
0-500	750	1500	8.0
0-1000	1250	3000	11.0
0-3000	3750	4500	15.0
0-5000	6000	7500	25.0

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

Model 206

Industrial Pressure Transducer

The Model 206 pressure sensor is designed for Industrial and OEM customers who require high performance, reliability and versatility at an affordable price. It offers exceptional $\pm 0.13\%$ FS accuracy for pressure ranges as low as 25 PSI up to 10,000 PSI to meet a multitude of demanding applications. The Model 206 features all stainless steel wetted materials and offers many pressure and electrical connections to satisfy challenging installation requirements. The Model 206 also features field accessible zero and span potentiometers allowing the unit to be calibrated in the field.

Rugged Stainless Steel Design

The Model 206's rugged stainless steel design is built to withstand the rigors of the most difficult industrial applications. The unit is designed to meet NEMA 4 and IP65 environmental ratings, preventing unwanted moisture ingress.

High Performance at an Affordable Price

The Model 206's capacitive sensor design offers Test & Measurement grade accuracy at a low price point. The sensor comes standard with $\pm 0.13\%$ FS accuracy in ranges from 25 PSI to 10,000 PSI, exceeding most competitive products.

Flexibility & Serviceability

The transducer's pressure and electrical fittings cover many installation configurations, allowing it to fit into most applications. The Model 206 is equipped with zero and span potentiometers, allowing the user to maintain the high performance over the life of the sensor.



- High Accuracy Sensor
- NEMA 4/IP65 Design
- Configurable Design

Model 206 Features:

- Long-Term Stability: $< 0.5\%$ /Year
- Exceptional EMI/RFI
- Rugged Design Withstands High Shock & Vibration
- User Accessible Zero/Span
- Calibration NIST Traceable
- Wide Operating Voltage 12 VDC to 28 VDC
- Meets CE Conformance Standards
- Reverse Wire Protection

Applications:

- Industrial OEM Equipment
- Hydraulic Systems
- Compressor Control
- HVAC/R Equipment
- Industrial Engines

ORDERING INFORMATION

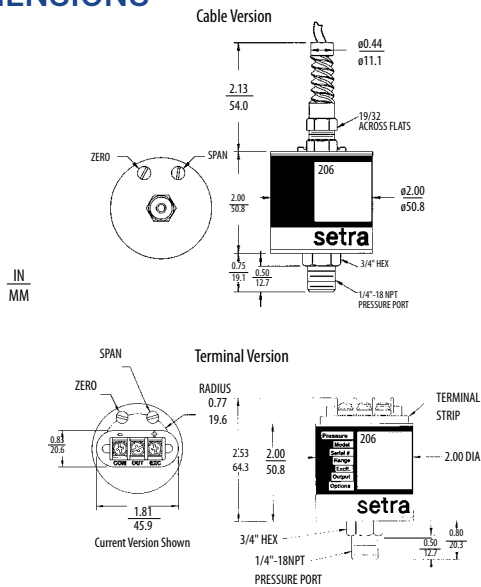
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Model	Pressure Range	Pressure Type	Fitting	Output	Termination	Accuracy	Options ²
2061= Model 206	025P 0 to 25 PSI 1R6B 0 to 1.6 Bar	G Gauge	2M 1/4" NPT Male	11 4 to 20 mA	XX Cable Length (02-25')	8 ±0.13% FS	NN None
	050P 0 to 50 PSI 004B 0 to 4 Bar	C Compound	1M 1/8" NPT Male	22 0.1 - 5.1 VDC	H1 Hirshmann		C 11 Point Cal Cert
	100P 0 to 100 PSI 006B 0 to 6 Bar		J7 7/16" SAE	27 1 to 5 VDC	A3 1/2" Conduit w/ 2' Cable		D Mate with Datum
	200P 0 to 200 PSI 010B 0 to 10 Bar			28 1 to 6 VDC	AD 1/2" Conduit w/ 6' Cable		F Nema 4 Enclosure ³
	250P 0 to 250 PSI 016B 0 to 16 Bar			2T 0.1 to 10.1 VDC	AE 1/2" Conduit w/ 10' Cable		G Mating Hirshmann Con.
	500P 0 to 500 PSI 025B 0 to 25 Bar				AF 1/2" Conduit w/ 20' Cable		L Etched SS Tags
	10CP 0 to 1,000 PSI 040B 0 to 40 Bar				AG 1/2" Conduit w/ 25' Cable		Y Clean For Oxygen
	30CP 0 to 3,000 PSI 060B 0 to 60 Bar				T1 Terminal Strip ⁴		
	50CP 0 to 5,000 PSI 100B 0 to 100 Bar						
	10KP ¹ 0 to 10,000 PSI 160B 0 to 160 Bar						
		250B 0 to 250 Bar					
		400B 0 to 400 Bar					
	700B ¹ 0 to 700 Bar						

¹Units higher than 5k PSI are only available with a 1/4" NPT male fitting
²Both boxes must be filled in alphabetical order:
 • If No options: N + N
 • If 1 option: Option Code + N
 • If 2 options: Option Code + Option Code
³Only available with T1 termination
⁴Formerly Model 207

Ordering Example: 2061025PG2M11048CN - Model 206, 0 to 25 PSIG, Gauge pressure, 1/4" NPT Male fitting, 4 to 20 mA output, 4' Cable Length, ±0.13% FS Accuracy, 11 Point Cal Cert Option.

DIMENSIONS



GENERAL SPECIFICATIONS

Performance Data		Physical Description	
Accuracy RSS ¹ (at constant temperature)	±0.13% FS	Pressure Fittings	See Ordering Information
Non-Linearity, (BFSL) 25 psig range ²	±0.1% FS ±0.2% FS	Vent	Through cable or terminal
Hysteresis	0.08% FS	Electrical Connection	2 ft. multiconductor cable
Non-Repeatability	0.02% FS	Case	Stainless Steel
Response Time	5 milliseconds	Zero/Span Adjustments	Top External Access
Long Term Stability	0.5% FS/1 YR	Weight (approx.)	6 oz
Thermal Effects		Electrical Data (Voltage)	
Compensated Range	-4 to +176°F (-20 to +80°C)	Excitation/Output	12 to 28 VDC Reverse Excitation Protected
Zero Shift	1.0 (0.9)	Power Consumption	<0.15 watts (approx. 5mA @24VDC)
Span Shift	1.5 (1.4)	Output ⁸	0.1 to 5.1 VDC ⁹
Pressure Media		Output Impedance	100 ohms
Gases or liquids compatible with 17-4 PH Stainless Steel. ³		Circuit	200g Operating
Environmental Data		Vibration ¹¹	3-Wire (Exc, Out, Com)
Temperature		Electrical Data (Current)	
Operating ⁴	-40 to +185°F (-40 to +85°C)	Circuit	2-Wire
Storage	-40 to +185°F (-40 to +85°C)	Output ¹⁰	4 to 20 mA ¹¹
Acceleration	10g Maximum ⁵	External Load	0 to 800 ohms
Shock ⁶	200g Operating	Min. Supply Voltage (VDC) = 9 + 0.02 x (Resistance of receiver plus line)	
Vibration ⁷	20g 50-2000 Hz	Max. Supply Voltage (VDC) = 30 + 0.004 x (Resistance of receiver plus line)	

PROOF PRESSURE

BAR RANGES		
Gauge Pressure	Proof Pressure	Burst Pressure
1.6	6	32
4.0	10	50
6.0	18	60
10	30	80
16	32	130
25	50	170
40	80	240
60	120	300
100	200	400
160	250	500
250	380	550
400	600	800
700	800	1,350

PSIG RANGES		
Gauge Pressure	Proof Pressure	Burst Pressure
0-25	100	500
0-50	150	750
0-100	300	1,000
0-250	500	2,000
0-500	1,000	3,000
0-1,000	2,000	5,000
0-3,000	4,500	7,500
0-5,000	7,500	10,000
0-10,000	12,500	20,000

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

¹RSS of Non-Linearity, Non-Repeatability and Hysteresis
²25 psig range accuracy is ±0.22% of Full Scale output
³Hydrogen not recommended for use with 17-4 PH stainless steel.
⁴The high temperature limit of the cable is 200°F (95°C)
⁵Shift in output reading <0.05 psi/g typical; pressure port axis only
⁶Mil-Std. 202, Method 213B, Cond. C
⁷Mil-Std. 202, Method 204, Cond. C
⁸Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater
⁹Zero output factory set to w/in ±25mV. Span (FS) output factory set to w/in ±50mV.
¹⁰Calibrated at factory with a 24VDC loop supply voltage and 250ohm load.
¹¹Zero output factory set to w/in ±0.08mA. Span (FS) output factory set to w/in ±0.16mA.

Specifications subject to change without notice.

Model 209

OEM Pressure Transducer

The Model 209 pressure sensor is designed for Industrial and OEM customers who require high performance, reliability and versatility at an affordable price. It offers exceptional $\pm 0.25\%$ FS accuracy with pressure ranges from 1 PSI up to 10,000 PSI to meet a multitude of demanding applications. The 209 features all stainless steel wetted materials and offers many pressure and electrical connections to satisfy challenging installation requirements. The 209 features a patented overpressure stop to protect the sensor against unexpected spikes or in high pulsation applications.

True Low Range Sensor

The Model 209's capacitive transducer is designed for industrial applications with demanding price and performance requirements. The Model 209 offers exceptional reliability in typical industrial grade environments. The true low range sensor design offers high performance with no additional amplification required to meet range requirements down to 1 PSI.

Flexibility for Many Applications

The 209 transducer offers many pressure and electrical fittings covering many installation configurations. It minimizes additional engineering time to accommodate the sensor, allowing for earlier project completion and quicker time to market.

Robust Design & Construction for Reliable Service

The Model 209 is designed and built to withstand demanding applications. The industrial construction, with optional positive overpressure stop, enables the sensor to withstand overpressure conditions up to 16x the rated range.



- **Rugged For Demanding Applications**
- **Full Span Ranges Down to 1 PSI**
- **Highly Configurable Design**

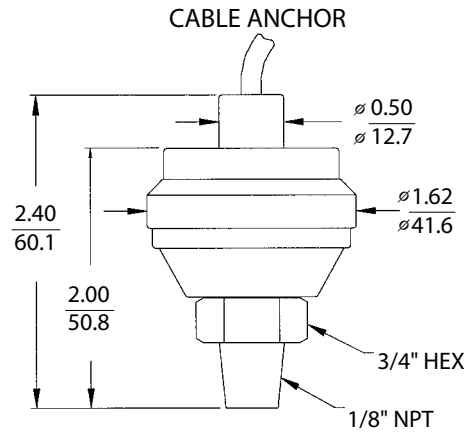
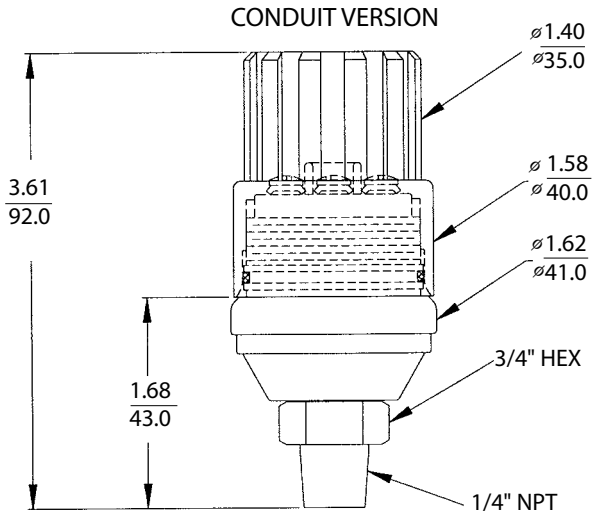
Model 209 Features:

- High Overpressure Option Available on Select Ranges
- Operates Over a Wide Temperature Band
- Compatible w/ a Variety of Gases & Liquids
- Operates on Low Cost Unregulated DC Power
- Suitable For High Shock & Vibration Applications
- No Seals or O-Rings to Cause Leakage
- No Brazed Joints Susceptible to Corrosion Problems
- CE & RoHS Compliant

Applications:

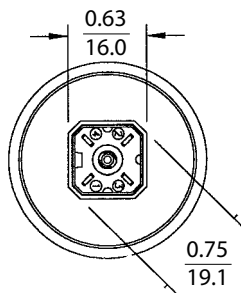
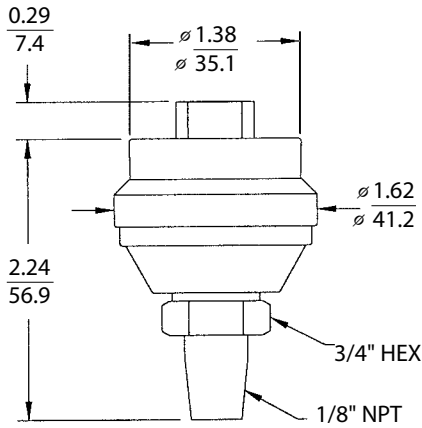
- Industrial OEM Equipment
- Hydraulic Systems
- Compressor Control
- HVAC/R Equipment
- Industrial Engines

DIMENSIONS



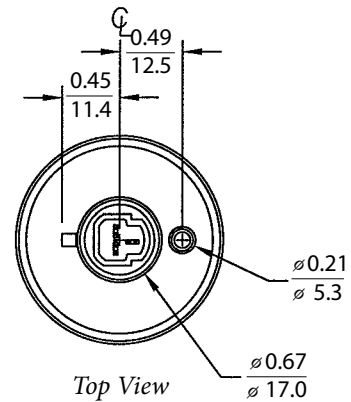
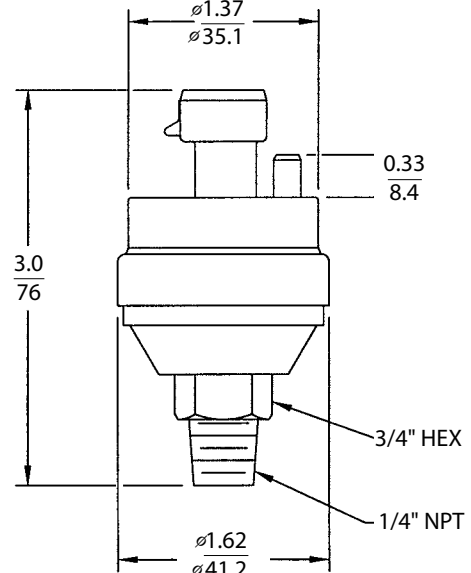
OPTIONAL 3-Pin Packard Connector
Type: P2S Series 150

OPTIONAL HIRSCHMANN CONNECTOR
Type: G4A1M #931807-106



Top View

Mating Hirschmann Connector G4WIF available. See table below to order.



Top View

Mating Packard Connectors available. See table below to order.

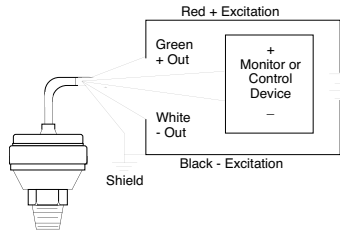
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WIRING

CABLE ANCHOR

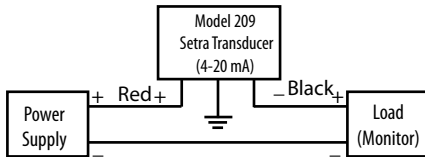
Voltage Output

The Model 209 voltage output is a 3-wire circuit. If the 209 is supplied with 2 feet of cable, the electrical connection is as follows:



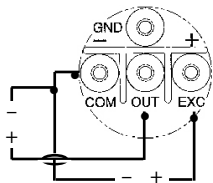
Current Output

The Model 209 True 2-wire device. If the 209 is supplied with 2 feet of cable, the electrical connection is as follows:

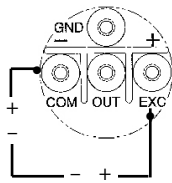


CONDUIT VERSION

Voltage

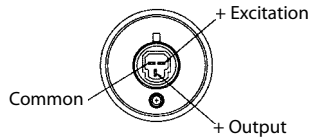


Current



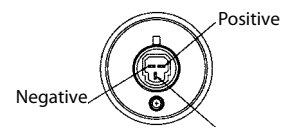
3-PIN PACKARD CONNECTOR

Voltage



Top View: 3-Pin Packard Connector
Type: P2S Series 150

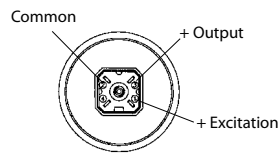
Current



Top View: 3-Pin Packard Connector
Type: P2S Series 150

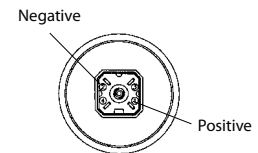
HIRSCHMANN CONNECTOR

Voltage



Top View: Hirschmann Connector
Type: G4A1M#931807-106

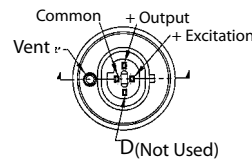
Current



Top View: Hirschmann Connector
Type: G4A1M#931807-106

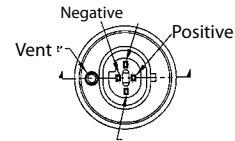
4-PIN PACKARD CONNECTOR

Voltage



Top View: 4-Pin Packard Connector
Type: Metri-Pack 150

Current



Top View: 4-Pin Packard Connector
Type: Metri-Pack 150

ORDERING INFORMATION

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Model	Range Code				Pressure Type		Pressure Fitting		Output ²		Elec. Termination		Options
2091 = Model 209	Range Code	PSI	Range Code	PSI	G	Gauge	2M	1/4" NPT Male	11	4-20 mA	XX	Cable length in feet	H High Overpressure Capability (Only available on 25 PSI up to 1500 PSI Pressure Ranges)
	001P	0 to 1	500P	0 to 500	C	Compound	J7	7/16" SAE Male	24	0.5 to 5.5 VDC	P1	Packard (3-Pin) ²	
	002P	0 to 2	10CP	0 to 1,000	S	Sealed ¹	1M	1/8" NPT Male	27	1 to 5 VDC	P3	Packard (4-Pin) ²	
	005P	0 to 5	15CP	0 to 1,500	V	Vacuum	L4	1/4 Female SAE	28	1 to 6 VDC	H2	Hirschmann, ("Mini") ⁴	
	010P	0 to 10	20CP	0 to 2,000			G4	1/2" A Male	45	0.5 to 4.5 VDC	A1	Terminal Block w/ Conduit Cover	
	025P	0 to 25	30CP	0 to 3,000			P1	1/8" NPT Female Bulkhead (Available on Ranges > 50 PSI)					
	050P	0 to 50	50CP	0 to 5,000									
	100P	0 to 100	10KP	0 to 10,000									
	200P	0 to 200	Z01P	0 to -14.7									
	250P	0 to 250											

Ordering Example: 2091001PG2M1102 = Model 209, 0 to 1 PSI Range, Gauge Pressure, 1/4" NPT Male Fitting, 4 to 20 mA Output, 2 ft. Cable.

¹ Sealed version available on 200 PSI range and above
² Consult factory for other output options

ACCESSORIES

577	3-Pin Mating Packard Kit
581	3 Ft Mating Cable Accessories
582	6 Ft Mating Cable Accessories
590	Mating Hirschmann Kit
857	4-Pin Mating Packard Kit

PROOF PRESSURE

Full Scale Range (PSI)	Standard		Option	
	Proof Pressure (PSI)	Burst Pressure (PSI)	High Proof Pressure (PSI)	High Burst Pressure (PSI)
1	2	250	N/A	N/A
2	4	250	N/A	N/A
5	10	250	N/A	N/A
10	20	500	N/A	N/A
25	50	500	N/A	N/A
50	100	750	800	5,000
100	200	1,000	1,000	5,000
200	400	2,000	1,500	5,000
250	500	2,000	2,000	8,000
500	1,000	3,000	2,500	10,000
1,000	2,000	5,000	4,000	10,000
1,500	2,500	6,000	5,000	12,000
2,000	3,000	6,500	N/A	N/A
3,000	4,500	7,500	N/A	N/A
5,000	7,500	10,000	N/A	N/A
10,000	12,500	20,000	N/A	N/A
-14.7 (Vacuum)	10	15	N/A	N/A

GENERAL SPECIFICATIONS

Performance Data		Environmental Data	
Accuracy RSS ¹ (at constant temp)	±0.25% FS	Operating ³ Temperature °F (°C)	-40 to +185 (-40 to +85)
Non-Linearity, BFSL	±0.22% FS	Storage Temperature °F (°C)	-40 to +185 (-40 to +85)
Hysteresis	0.10% FS	Shock ²	200g operating
Non-Repeatability	0.05% FS	Acceleration	10g Maximum ⁵
Thermal Effects		Shock ²	200g Operating
Compensated Range °F (°C)	-4 to +176 (-20 to +80)	Vibration ⁴	20g
Zero Shift %FS/100°F (%FS/50°C)	±2.0 (±1.8)	Environmental Protection	Weather Resistant
Span Shift %FS/100°F (%FS/50°C)	±1.5 (±1.3)	Electrical Data (Voltage)	
Warm-up Shift	0.1% FS Total	Circuit	3-Wire (COM, OUT, EXC)
Response Time	5 milliseconds	Excitation	9 to 30 VDC
Long Term Stability	0.5% FS/1 YR	Output ⁶	0.5 to 5.5 VDC ⁷
Pressure Media		Output Impedance	10 ohms
Liquids and gases compatible with 17-4 PH Stainless Steel. ²		Electrical Data (Current)	
Physical Description		Circuit	2-Wire
Case	Stainless Steel & Valox	Output ⁸	4 to 20mA ⁹
Wetted Material	17-4 PH Stainless Steel	External Load	0 to 800 ohms
Electrical Connection	2 ft. multiconductor cable	Minimum supply voltage (VDC)	9+ 0.02 x (Resistance of receiver plus line)
Pressure Fitting ⁵	1/4"-18 NPT external, 17-4 PH Stainless Steel	Maximum supply voltage (VDC)	30+ 0.004 x (Resistance of receiver plus line).
Vent	Through cable	<small>¹ RSS of Non-Linearity, Hysteresis, and Non-Repeatability. ² Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel. ³ Mil-Std. 202, Method 213B, Cond. C ⁴ Mil-Std. 202, Method 204, Cond. C ⁵ See ordering information for other fittings available (minimum quantities apply). ⁶ Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater. ⁷ Zero output factory set to within ±50mV. Span (Full Scale) output factory set to within ±50mV. ⁸ Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load. ⁹ Zero output factory set to within ±0.16mA. Span (Full Scale) output factory set to within ±0.16mA. Specifications subject to change without notice.</small>	
Weight (approx.)	2.3 ounces (65 grams)		

Model 210

Circuit Board-Mountable Pressure Transducer



DESCRIPTION

Setra Systems 210 is the ultimate in circuit board-mountable pressure transducers. In addition to the convenience of quick PCB installations, the 210 offers wide media compatibility with its stainless steel sensor construction. The calibrated high level output eliminates the need for additional circuit and calibration labor costs.

Packaged in a compact plastic enclosure (1.25" diameter footprint), the Model 210 incorporates Setra's unique capacitance technology, known worldwide for its solid stability, accuracy, and thermal performance. With the custom ASIC circuit and capacitive sensor, the Model 210 performs with reliability and EMI/RFI immunity. The Model 210 can be customized to accommodate various package and performance requirements, and is designed for OEM applications.

BENEFITS

- Fully Signal Conditioned
- High Level Output
- Excellent Long-Term Stability
- EMI/RFI Immunity
- Easily Customized Package
- Optional Excitations, Outputs and Accuracies
- Wide Operating Temperature Range
- High Signal to Noise Ratio
- Meets CE Conformance Standards

APPLICATIONS

- Analytical Measurement and Control
- OEM Medical Systems

SPECIFICATIONS

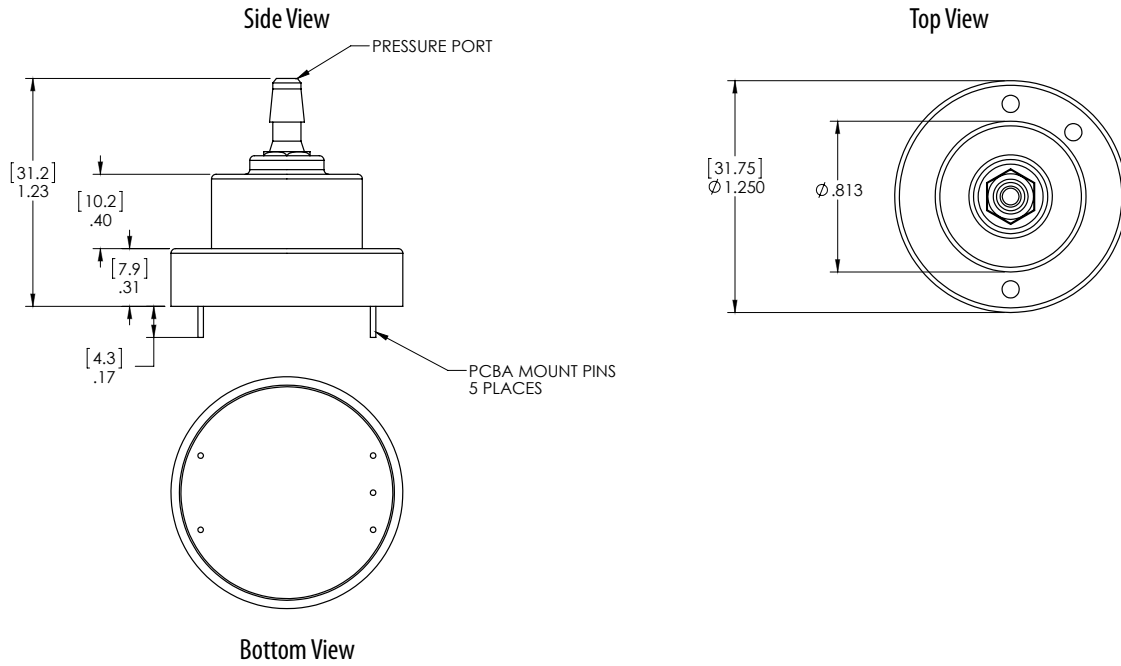
Performance Data				Physical Description		Electrical Data (Voltage)	
	Standard	Optional		Case	Fire Retardant Glass-Filled Polyester	Circuit	3-Wire (+In, +Out, Common)
Accuracy RSS	±1.0% FS	±0.5% FS	±0.25% FS	Sensor	17-7 Stainless Steel for Ranges ≥5 PSI. Other Ranges, 300 Series Stainless Steel	Excitation	24 VDC (21.6 to 32) 12 VDC (10.8 to 18.4) 5 VDC (4.9 to 8.1)
Non-Linearity, (BFSL)	±0.98% FS	±0.48% FS	±0.22% FS	Pressure Fitting	3/16 O.D. Barbed Nylon Pressure Fitting for 1/8" I.D. Tubing	Output*	1 to 6 VDC 0.5 to 4.5 VDC 0.5 to 5.5 VDC
Hysteresis	0.20% FS	0.10% FS	0.10% FS	Electrical Connection	Solder Pins, 0.030" Round on 0.2" Centers	Output Impedance	<100 Ohms
Non-Repeatability	0.05% FS	0.05% FS	0.05% FS	Weight (approx)	0.5 ounces	Response Time	10 Milliseconds
Thermal Effects				Environmental Data		*Calibrated into a 50K ohm load or greater. Zero output factory set to within ±25 mV. Span (Full Scale) output factory set to within 50 mV.	
Zero Shift %FS/°F (%FS/°C)	<±2.0 (<±1.8)			Temperature			
Span Shift %FS/°F (%FS/°C)	<±1.5 (<±1.4)			Operating °F(°C) ⁴	-4 to +176 (-20 to +80)		
Long Term Stability	0.5% FS/YR			Storage °F(°C)	-40 to +185 (-40 to +85)		
Pressure Media				Humidity			
Gases compatible with 304 SS, 17-7 PH Series Stainless Steel, Nylon, Polyester and Silicone.				Operating		0 to 95% RH Non-Condensing	
				Storage		0 to 98% RH Non-Condensing	
				Vibration		5g Operating	
				Shock		<100g	

PRESSURE RANGES

0 PSIG to:	Proof Pressure (PSIG)	Burst Pressure (PSIG)
1	2	250
2	4	250
5	10	500
10	20	500
15	30	500
25	50	500
50	100	500
100	200	500

NOTE: Our pressure sensor products are not necessarily designed or manufactured for use as a "critical component" in a "critical device", as those terms are defined in the Medical Devices Subchapter contained in the Food and Drug Administration Rules, 21CFR800.
NOTE: Setra adheres to strict quality standards including ISO 9001 and ANSI-Z540-1. The calibration of this product is NIST traceable. U.S. Patent Nos. 4054833, 5442962, 6205861B1.

DRAWINGS & DIMENSIONS



ORDERING INFORMATION

2 1 0 1 - [] [] [] [] - [] - [] [] - [] [] - [] [] - []

Model	Pressure Range	Pressure Type	Fitting	Output	Elec. Termination	Accuracy							
2101	210	001P	1 PSI	G	Gauge	1B	Straight Barbed	45	5 VDC/0.5-4.5 VDC	C1	PC Board Mountable Pins	Standard	
		002P	2 PSI			2D	Right Angle					G	±1.0% FS
		005P	5 PSI										Options (w Cal Cert)
		010P	10 PSI									D	±0.5%
		015P	15 PSI										
		025P	25 PSI										
		050P	50 PSI										
		100P	100 PSI										

Ordering Example: 2101001PG1B45C1G = 210 Transducer, 0 to 1 PSIG range, Barbed fitting, 12 VDC excitation, 0.5 to 4.5 VDC output with PC board mountable pins and an accuracy of ±10%.

Model 256

Pressure Transducer



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

U.S. Patent nos. 6019002; 6014800

DESCRIPTION

The Model 256 is one of the most rugged and reliable sensors available. Specifically designed for NEMA 4/IP65 service, the 256 is packaged in a die-cast aluminum enclosure and includes Setra's robust capacitive design, making it resistant to environmental effects such as shock, vibration, temperature and EMI/RFI.

Available in a wide variety of gauge pressure ranges, the 256 features adjustable potentiometers for zero and span settings.

Only 3.6" high x 4.0" wide, the Model 256 is designed for compact installations. The removable cover provides easy access to the internal terminal strip for wiring. Installation is quick and easy with 1/2 inch internal threaded conduit ports for electrical termination.

BENEFITS

- Low Cost
- High Accuracy
- NEMA 4/IP-65
- Wide Operating Temperature Range
- Compatible with a Wide Range of Gases or Liquids
- Corrosive Resistant All Stainless Steel Wetted Parts
- Choice of Voltage or Current Output
- Operates on Low Cost Unregulated Power Supply
- Meets CE Conformance Standards

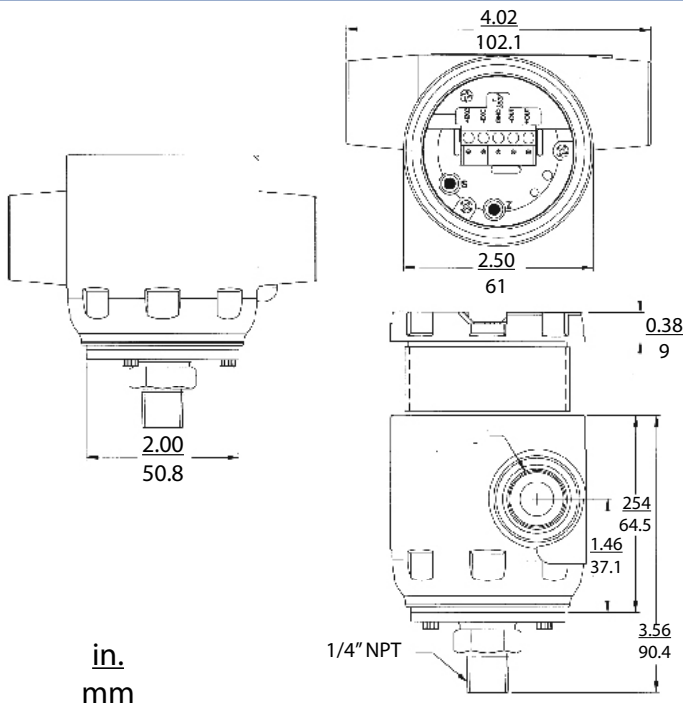
APPLICATIONS

- Process Control
- Chemical Processing
- Agricultural Irrigation Systems
- Natural Gas Pipeline Monitoring
- Grain Processing
- Industrial Pressure Monitoring

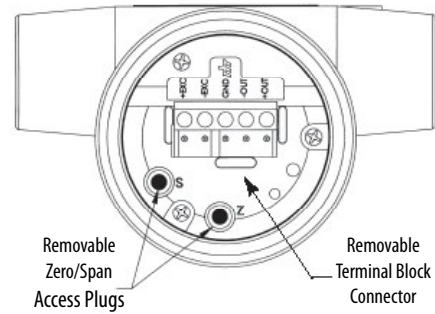
SPECIFICATIONS

Performance Data			Environmental Data		Electrical Data (Voltage)	
	Ranges	Ranges	Operating ³ Temperature °F (°C)	-40 to + 185 (-40 to +85)	Circuit	3-Wire (Exc, Out, Com)
	25 PSI & Higher	Less than 25 PSI	Storage Temperature °F (°C)	-40 to + 185 (-40 to +85)	Excitation	9 to 30 VDC
Accuracy RSS ¹ (at constant temp) ²	±0.13% FS	±0.25% FS	Shock ⁶	200g	Output ³	0.1 to 5.1 VDC for Ranges ≥ 25 PSI ⁶
Non-Linearity, BFSL	±0.10% FS	±0.22% FS	Vibration ⁷	20g	Output Impedance	100 ohms
Hysteresis	0.08% FS	0.10% FS	Environmental Protection	NEMA 4/IP65	Power Consumption	<0.15 watts (approx. 5mA @ 24VDC)
Non-Repeatability	0.02% FS	0.05% FS	Physical Description		Electrical Data (Current)	
Thermal Effects			Case	Die Cast Aluminum	Circuit	2-Wire
Compensated Range °F	-4 to +176	-4 to 176	Electrical Connections	Two 1/2" Internal Conduit Ports	Output ⁷	4 to 20mA ⁸ for All Ranges
Compensated Range °C	-20 to 80	-20 to ±80	Pressure Fittings	1/4" NPT External	External Load	0 to 800 ohms
Zero Shift %FS/100°F	1.0	1.0	Weight (approx.)	13.4 Ounces	Minimum supply voltage (VDC)	9 + 0.02 x (Resistance of receiver plus line).
Zero Shift %FS/100°C	±0.9	±1.8	Pressure Media		Maximum supply voltage (VDC)	30 + 0.004 x (Resistance of receiver plus line).
Span Shift %FS/100°F	1.5	±1.5	Liquids and gases compatible with 17-4 PH Stainless Steel. ⁴		¹ RSS of Non-Linearity, Hysteresis, and Non-Repeatability. ² Units calibrated at nominal 70°F. Maximum thermal error computed from this datum. ³ Operating temperature limits of the electronics only. Pressure media temperature may be considerably higher or lower. ⁴ Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel. Specifications subject to change without notice.	
Span Shift %FS/100°C	1.4	±1.4	Environmental Protection	Weather Resistant		
Long Term Stability	0.5% FS/YR	0.5% FS/YR	Physical Description			
Warm-up Shift	0.1% FS Total	0.1% FS Total	Case	Stainless Steel & Valox	⁵ Calibrated into a 50k ohm load, operable into a 5000 ohm load or greater. ⁶ Zero output factory set to within ±25 mV. ⁷ Span (Full Scale) output factory set to within ±50 mV. ⁸ Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load. Zero output factory set to within ±0.08 mA Span output factory set to within ±16 mA	

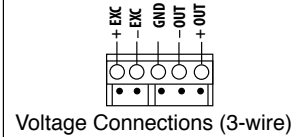
DIMENSIONS



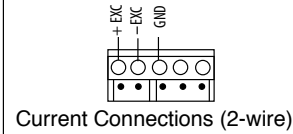
Wiring



Screw Terminal Designations

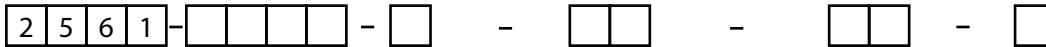


Voltage Connections (3-wire)



Current Connections (2-wire)

ORDERING INFORMATION



Model	Range Code	Pressure Type		Pressure Fitting	Output	Options	
2561 = 256	See Table 1 Below	G	Gauge	Ranges <25 PSI	Ranges <25 PSI	C	Calibration Certificate

Table 1. Range Specification

RANGE CODE	PSI	RANGE CODE	BAR
001P	0 to 1	1R6B	0 to 1.6
002P	0 to 2	004B	0 to 4
005P	0 to 5	006B	0 to 6
010P	0 to 10	010B	0 to 8
015P	0 to 15	016B	0 to 16
025P	0 to 25	025B	0 to 25
050P	0 to 50	040B	0 to 40
100P	0 to 100	060B	0 to 60
150P	0 to 150	100B	0 to 100
200P	0 to 200	160B	0 to 160
250P	0 to 250	250B	0 to 250
500P	0 to 500	400B	0 to 400
600P	0 to 600	700B	0 to 700
10CP	0 to 1000		
30CP	0 to 3000		
50CP	0 to 5000		
10KP	0 to 10000		

2M	1/4" NPT Male	11	4-20 mA
1M	1/8" NPT Male	Ranges ≥25 PSI	
Ranges ≥ 25 PSI		11	4-20 mA
2M	1/4" NPT Male	22	0.1 - 5.1 VDC
4M	1/2" NPT (Male)		
2F	1/4" NPT (Female)		

Ordering Example: 2561001PG2M11C = Model 256, 0 to 1PSI, Gauge Pressure, 1/4" NPT Pressure Fitting, 4 to 20 MA Output, Calibration Certificate

Model 526

Submersible Pressure Transducer



FEATURES

- Superior Stability Avoid Down Time
- IP30, IP65, IP68 Rated
- $\pm 0.25\%$ FS Accuracy, Optional $\pm 0.15\%$ FS
- High Shock and Vibration Resistance
- Meets CE Conformance Standards

APPLICATIONS

- General Purpose
- Off-Highway Vehicles
- Natural Gas Equipment
- Power Plants
- HVAC Compressors
- Refrigeration
- Robotics

DESCRIPTION

Setra's Model 526 pressure transducer is designed with a thicker diaphragm for robust industrial and submersible applications that require exceptional stability and high accuracy.

Depending upon the electrical connection selected, when coupled with the Model 526 enclosure, which is fabricated in 316 SS/17-4 PH SS, this unit is rated for IP30, IP65, IP68 operation.

The Model 526's modular design is offered in a wide choice of millivolt, voltage or current outputs over almost any pressure range, and a variety of pressure and electrical connections, enabling this unit to be custom configured for an OEM application.

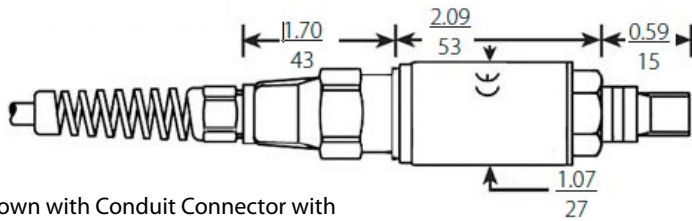
Principle of Operation:

Using the well proven Wheatstone Bridge Principle, a chemical vapor is deposited in thin layers of silicon and silicon dioxide onto a stainless steel sensor to form a very sensitive and accurate polysilicon strain gauge. The elements of the strain gauge are fused together at the atomic level, assuring the strength and integrity of the bond, which exceeds the adhesives used in common bonded strain gauge pressure sensors. A custom designed ASIC performs signal amplification and temperature compensation. This technology offers the user the option of configurable output and pressure ranges, sets the zero and span tolerance, and ensures interchangeability from unit to unit.

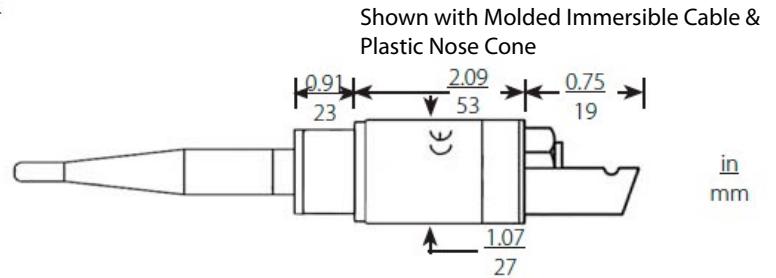
SPECIFICATIONS

Performance Data		Environmental Data		Electrical Data (Voltage)	
Accuracy RSS ¹ (at constant temp)	$\pm 0.25\%$ FS, $\pm 0.15\%$ FS Optional	Operating and Storage Temperature ³ °F/°C		Circuit	3-Wire (Exc, Out, Com)
Thermal Effect ²		for Elec. Code E1	-40 to +260 (-40 to +125)	Excitation	1.5 VDC Above Span to 35 VDC @ 6mA ⁴
Compensated Range F°(C°)	-5 to +180 (-20 to +80)	for Elec. Code N1	-5 to +180 (-20 to +80)	Output ⁵	0 to 5VDC, 0 to 10VDC, 0.5 to 5.5 VDC, 1 to 5 VDC, 1 to 6 VDC, 1 to 11 VDC
Accuracy $\pm 0.25\%$ FS Zero/Span Shift %FS/100°F (%FS/50°C)	0.8 (1.5)	for Elec. Code NA	-5 to +125 (-20 to +50)	Current Consumption ⁶	Approx. 6 mA @ 7.5 VDC output
Accuracy $\pm 0.15\%$ FS Zero/Span Shift %FS/100°F (%FS/50°C)	0.5 (1.0)	Vibration	70g Peak to Peak Sinusoidal, 5 to 2000 Hz (Random)	Electrical Data (Millivolt)	
Response Time	0.5 milliseconds	Acceleration	100g Stead Acceleration in any direction 0.32% F	Circuit	4-Wire (+Exc, -Out, +Out, -Exc)
Long Term Stability	0.2% FS/year	Shock	20g, 11ms per MIL-STD-810E; Method 516.4 Procedure	Excitation	10 VDC (15 VDC Max) Regulated
Proof Pressure	2 x FS (<1.5 x FS for 400 BAR, >=5000 PSI)	Physical Description		Output ⁷	100 mV (10mV/V)
Burst Pressure	>35 x FS <= 100 PSI (6 BAR) >20 x FS <= 1000 PSI (60 BAR) >5 x FS <= 6000 PSI (400 BAR)	Case	316 Stainless Steel, 17-4 Stainless Steel	Bridge Resistance	2600-6000 Ohms
		Ratings	IP65 for Elec Codes B3, B1, E2; IP68 for Elec Code UA (Max. Depth 200 Meters H ₂ O)	Electrical Data (Current)	
Pressure Media		Wetted Parts	17-4 PH Stainless Steel	Circuit	2-Wire
Liquids or gases compatible with 17-4 PH Stainless Steel Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel		Weight	3.5 Oz (100g)	Output ⁸	4 to 20 mA ⁹
¹ RSS of Non-Linearity, Non-Repeatability and Hysteresis. ² Units calibrated at nominal 70°F. Maximum thermal error is computed from this datum. ³ Operating/Storage temperature limits of the connector only. ⁴ Zero/Span output factory set to <1.0% Full Scale ⁵ Temperatures >100°C/212°C is limited to 24 VDC.		⁶ Minimum Load Resistance: (FS output/2)/Kohms. ⁷ Zero/Span output factory set to 1.0% Full Scale ⁸ Zero/Span output factory set within ± 0.16 mA ⁹ Temperatures >100°C/212°C is limited to 24 VDC.		Loop Supply Voltage	24 VDC, (7-35 VDC)
				Maximum Loop Resistance	(V _s -7) x 50 Ohms

OUTLINE DRAWING



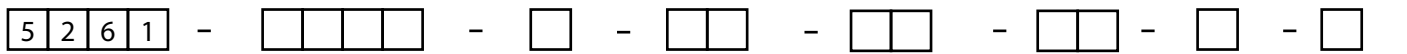
Shown with Conduit Connector with Cable & 1/8-27 NPT Pressure Fitting



Shown with Molded Immersible Cable & Plastic Nose Cone

in
mm

ORDERING INFORMATION



Model	Range				Pressure		Pressure Fitting		Output		Elec. Term.		Accuracy		Options	
5261 = 526	015P	15 PSI	001B	1 BAR	G	Gauge	1M	1/8-27 NPT Male	BP	100 mV	B3	10-6 Bayonet Connector	F	±0.25% FS	B	Intrinsic Safe ATEX
	030P	30 PSI	1R6B	1.6 BAR	C	Compound ¹	1F	1/8-27 NPT Female	11	4-20 mA	UA	Molded Immersible Cable (up to 200 meters (656 ft))	S	±0.15% FS		
	060P	60 PSI	2R5B	2.5 BAR	A	Absolute ¹	2M	1/4-18 NPT Male	28	1-6 VDC						
	100P	100 PSI	004B	4 BAR			J7	7/16-20 UNF Male SAE#4 (J1926-2)	2R	1-11 VDC						
	150P	150 PSI	006B	6 BAR			G2	G 1/4 Male	27	1-5 VDC	A2	1/2" Conduit Conn. w/ 1 Meter (3.28ft) flying leads				
	200P	200 PSI	010B	10 BAR			G3	G 1/4 Female	24	0.5-5.5 VDC						
	300P	300 PSI	016B	16 BAR			Submersible Units		2B	0-5 VDC	E2	Large DIN 43650 Conn w. Mating Plug				
	500P	500 PSI	025B	25 BAR			W1	Plastic Nose Cone	2C	0-10 VDC						
	600P	600 PSI	040B	40 BAR			W2	Stainless Steel Sink Weight Nose Cone	29	0.2-10.2 VDC						
	10CP	1000 PSI	060B	60 BAR					22	0.1-5.1 VDC						
	15CP	1500 PSI	100B	100 BAR												
	20CP	2000 PSI	160B	160 BAR												
	30CP	3000 PSI	250B	250 BAR												
	40CP	4000 PSI	400B	400 BAR												
	50CP	5000 PSI	600B	600 BAR												
	60CP	6000 PSI														
	000P	-14.7 TO 0 PSI	135P	-14.7 TO 135 PSI												
	015P	-14.7 TO 15 PSI	185P	-14.7 TO 185 PSI												
	045P	-14.7 TO 45 PSI	285P	-14.7 TO 285 PSI												

¹Only Available up to 300 PSI

Ordering example: Part No. 5261030PG1M11E2F - For a Model 526 Pressure Transducer, 30 PSI, Gauge Pressure, 1/8-27 NPT Male Pressure Fitting, 4-20 mA Output, Large Din Plug w/ Mate, 0.25% Accuracy.

SSP526 Rev A.4/16/03

Model 550

Low Pressure Transducer



FEATURES

- Superior Stability Avoid Down Time
- NEMA 4/IP65 and NEMA 6/IP68 Rated
- $\pm 0.25\%$ FS High Accuracy
- 3:1 Range Turndown
- Meets CE Conformance Standards

APPLICATIONS

- Tank Level
- Reservoir Level
- River Level
- Hydro-Power
- Open Channel Flow
- Flood Warning
- Waste Water

DESCRIPTION

Setra's Model 550 low pressure transducer features 3:1 range turndown for field adjustment from 110% to 32% of the nominal range, making this unit well suited for applications that are subject to overpressure. Adjustment is made via the switch and potentiometer conveniently located on the top of the transducer housing.

The Model 550 is packaged in a rugged 316 stainless steel housing for use in general purpose and submersible applications. A male or female threaded pressure fitting is offered for general purpose applications, and an open face style with a KF25 flange is offered for submersible applications.

The Model 550 circuit is RFI/lightning protected, virtually eliminating costly field replacement.

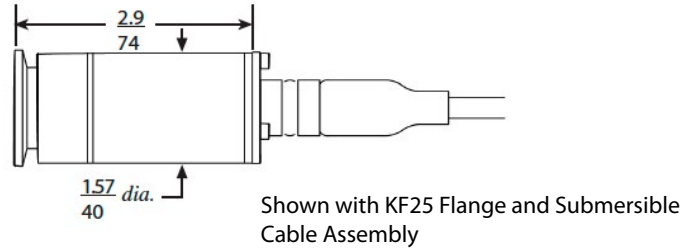
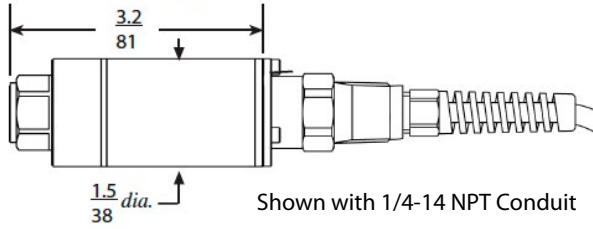
Principle of Operation:

The capacitive sensor is constructed of an electrically isolated stainless steel electrode and ceramic diaphragm, mounted closely and in parallel to each other. The diaphragm is capable of slight flexing under applied pressure. A minute change in applied pressure alters the gap between the electrode and diaphragm. This change is detected by a custom designed ASIC, amplified and converted to high-level linear output signal that is proportional to applied pressure.

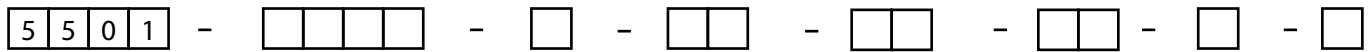
SPECIFICATIONS

Performance Data		Environmental Data		Electrical Data (Voltage)		
Accuracy RSS ¹ (at constant temp)	$\pm 0.25\%$ FS	Operating and Storage Temperature ³ °F/°C		Circuit	3-Wire	
Thermal Effect ²		for Elec. Codes E2	+15 to +185 (+25 to +85)	Excitation	7.5 to 35 VDC (8-35 VDC, 1-6 VDC output)	
Compensated Range F°(C°)	-5 to +140 (-20 to + 60)	for Elec. Codes UA	-5 to +120 (-20 to +50)	Output ⁴	0.5 to 5.5 VDC, 1 to 6 VDC, 0 to 5 VDC, 0.1 to 5.1 VDC, 1 to 5 VDC	
Zero/Span Shift %FS/100°F (%FS/50°C)	1.0 (2.0)	w/ Process Media	-40 to +212 (-40 to +100)	Electrical Data (Millivolt)		
Zero/Span Adjustment	$\pm 10\%$ (by Potentiometer)	Physical Description		Circuit	2-Wire	
Response Time	0.5 milliseconds	Case Rating	318 Stainless Steel IP68 (NEMA) Submersible G IP65	Excitation	9 to 35 VDC	
Long Term Stability	0.2% FS/1 year	Wetted Parts	Inconel, Ceramic & Nitrile	Output ⁵	4 to 20 mA	
Pressure Media		Weight	11.6 oz. (330g)	Maximum Loop Resistance	(Vs-9) x 50 Ohms	
Water of Viscous Fluids Compatible with 316 SS, Ceramic and Nitrile		Diameter	38.1 mm w/o K2 flange, 40.0 mm w K2 flange	Accessories		
¹ RSS of Non-Linearity, Non-Repeatability and Hysteresis. ² Units calibrated at nominal 70°F. Maximum thermal error is computed from this datum. ³ Operating/Storage temperature limits of the cable or process media. ⁴ Zero/Span output factory set to <1.0% Full Scale ⁵ Zero/Span output factory set within ± 0.16 mA.		Pressure Ranges			GA9	Large Din, 4365-A, Strain Relief Large Din, 4365-A, 1/2" Conduit 6-Pin Dendix to 125°C Plastic Nose Cone w/ G 1/4 Port
		Pressure Range	Proof Pressure	Burst Pressure	GA10	
		≤ 85 "W.C.	803"W.C.	1219"W.C.	GA11	
		86"W.C. to 140"W.C.	1607"W.C.	2410"W.C.	GA25	
		141"W.C. to 400"W.C.	2025"W.C.	4017"W.C.		
		≤ 3 PSI	29 PSI	44 PSI		
		3.1 to 5 PSI	58 PSI	87 PSI		
5.1 to 15 PSI	102 PSI	145 PSI				

OUTLINE DRAWING



ORDERING INFORMATION



Model	Range	Pressure	Pressure Fitting	Output	Elec. Term.	Accuracy	Options
5501 = 550	001P 1 PSI 010W 10"W.C.	G Gauge	G3 G 1/4 Female	11 4-20 mA, 2-Wire	E2 Large DIN 43650 Conn w. Mating Plug	F ±0.25% FS	G Intrinsic Safe Galvanic
	002P 2 PSI 015W 15"W.C.		2M 1/4-18 NPT Male	28 1-6 VDC, 3-Wire	UA 1M Molded Immersible Cable up to 200 m (656 ft)		
	003P 3 PSI 025W 25"W.C.		4M 1/2-14 NPT Male	2B 0-5VDC, 3-Wire			
	004P 4 PSI 050W 50"W.C.		G2 G 1/4 Male	24 0.5-5.5VDC, 3-Wire			
	005P 5 PSI 100W 100"W.C.		N2 KF25 Flange	27 1-5 VDC, 3-Wire			
	007P 7 PSI 150W 150"W.C.			22 0.1-5.1VDC, 3-Wire			
	010P 10 PSI 200W 200"W.C.						
	012P 12 PSI 250W 250"W.C.						
	015P 15 PSI 300W 300"W.C.						
	350W 350"W.C.						
	400W 400"W.C.						

Ordering example: Part No. 5501002P2M11UAF - For a Model 550 Pressure Transducer, 2 PSIG, 1/4" Male Pressure Fitting, 4-20 mA Output, 1 Meter Molded Submersible Cable, and ±0.25% FS Accuracy.

Model 3100

OEM Industrial Pressure Transducer

The Model 3100 sputtered thin film pressure sensor is designed for OEMs who require top of the line performance, reliability, and stability at an affordable price. The Model 3100 offers exceptional $\pm 0.25\%$ FS accuracy in pressure ranges from 75 PSI to 32,000 PSI; features an all welded stainless steel construction for a robust design and IP67 seal for moisture and humidity protection. The Model 3100 offers a variety of different outputs, pressure connectors, and electrical connectors to satisfy the most challenging application requirements. In addition, voltage units are available with a dual pressure/temperature output.

Best in Class Price-to-Performance

Strain Gauge technology provides a very linear and predictable output signal over a wide temperature range, which enables Setra to provide an inherently stable and accurate sensor element in high volumes and at low cost. The Model 3100 sensor is constructed using a highly sophisticated automation process, where the sensors are manufactured in a Class 100 clean room. To ensure best in class accuracy and long term stability, each sensing element is thermally compensated to an accuracy of less than $0.005\%^\circ\text{C}$ prior to leaving the clean room for final assembly. Thermally compensating the unit ensures improved accuracy and simplified conditioning of electronics, while eliminating the need for calibration over elevated temperatures as a transducer.

Unrivaled Quality

Setra understands the importance of quality in OEM applications, which is why we are always looking for ways to improve the quality rating of our products. Over the last two years, the Model 3100 failure rate is less than 0.1%, a quality rating unmatched by the competition. The worst thing that could happen to an engineer is to shut down their work because of quality issues. Setra takes this seriously, which is why we have worked hard to ensure that product quality issues will never be a concern for our customers.

Rugged Design

The Model 3100's compact welded stainless steel design is constructed to protect the sensor in demanding industrial environments. The electrical connectors are tested to an environmental protection specification of IP67, and a robust internal design ensures that the transducers can survive high levels of vibration. A high level of EMC protection allows the transmitters to perform to the most stringent of industrial standards, and all devices are RoHS compliant.



- Premium Price-to-Performance
- High Quality: $<0.1\%$ Failure Rate
- Long Term Stability ($<0.1\%$ FS/YR)

Model 3100 Features:

- No Oil Fill - Prevents Thermal Instability & Leakage
- Wide Choice of Pressure Ranges: 75 PSI-32,000 PSI
- $\pm 0.25\%$ FS Accuracy
- Dual Temperature and Pressure Output
- Small Footprint - Less than 1" Diameter
- Choice of Current, Voltage, or Ratiometric Outputs
- Reverse Wiring Protection
- Accuracy Specified Over Full Temperature Range
- All Welded Stainless Steel Construction
- CE & UL Approved, RoHS Compliant
- IP67 Rated
- 40x FS Burst Pressure*

*Range Dependent

Applications:

- Power Generation
- Hydraulic Systems
- Booster Pump Systems
- Irrigation Systems
- Off Highway Vehicles

GENERAL SPECIFICATIONS

PRESSURE CAPABILITY

Pressure Range PSI (BAR)	Proof Pressure (x Full Scale)	Burst Pressure (x Full Scale)
50-300 (3.5-25)	3.00 x FS	40 x FS
500-1,500 (35-100)	2.00 x FS	20 x FS
2,000-6,000 (160-400)		8 x FS
7,500-9,000 (600)		4 x FS
10,000 (700)		
15,000 (1,000)	1.40 x FS	2.2 x FS
25,000 (1,600)		1.8 x FS
30,000 (2,200)		

The data in this table is "times rate ranges" (xRR)

Application pressure should be restricted to the rated-range of the transducer. The maximum overpressure is the pressure limit at which the transducer will not show significant offset shift. The minimum burst pressure is the test-rating for fluid containment.

Performance Data		Physical Description	
Accuracy ¹	±0.25% FS	Pressure Port	See Ordering Instructions
Thermal Effects ²		Enclosure	IP67 (IP65 for Electrical Code A)
Compensated Range °F(°C)	-40 to +221 (-40 to +125)	Elec. Connections	See Ordering Instructions
Zero/Span Shift %FS/100°F (%FS/100°C)	0.83 (1.5)	Wetted Parts	17-4PH SS (Diaphragm), 304 SS Fittings
Zero/Span Tolerance	±0.5% of Span	Vibration	40G Peak to Peak Sinusoidal to 2000Hz (Random Vibration: 20 to 1000Hz @ approx. 40G Peak per MIL-STD-810E
Response Time	1ms		
Long Term Stability	±0.2% FS for <1000 PSI (60 BAR)	Shock	Withstand free fall to IEC 68-2-32 procedure 1
Proof/Burst Pressure	See Table	Weight	35 Grams
Fatigue Life	Designed for more than 100M cycles	Electrical Data (Voltage) ⁶	
Temp. Output Range °F(°C) ^{3,4,5}	-40 to +221 (-40 to +125)	Circuit	3-Wire (Exc, Out, Com)
Operating/Storage Temp °F(°C) ^{3,4,5}	-40 to +221 (-40 to +125)	Output	1 to 6 VDC, 1 to 5 VDC, 0.5 to 4.5 VDC, 0 to 5 VDC, 0 to 10 VDC ⁷
Electrical Data (Ratiometric)		Excitation	2 Volts above FS to max 30 Volts @ 4.5 mA (6.5mA Dual Output Version)
Output	0.5 to 4.5 VDC @ 4mA (6.5 mA on Dual Output Version)		
Excitation	5VDC ± 10%	Source & Sinks	2mA
Options		Electrical Data (Current)	
Full miswire protection between all signal and power lines (any combination) Full short-circuit protection for Vout1 to 0V or Vout1 connected to supply, indefinitely. Ratiometric output not available Supply Voltage must be 4V above the maximum Vout1 output. This also accounts for worse-case customer output leads.		Circuit	2-Wire
		Output	4 to 20mA
		Excitation	8 to 30 VDC (24VDC max. above 110° applications)
		Max. Loop Resistance	(Supply Voltage-8) x50 ohms

¹RSS of Non-Linearity, Hysteresis, and Non-Repeatability.

²Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel.

³Temperature outputs are for voltage output pressure sensors only and limited to connections that have 4 pins (Electrical Codes -D, -E, -8).

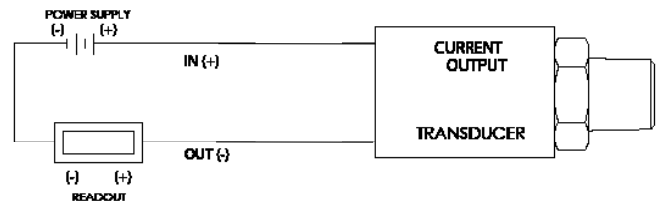
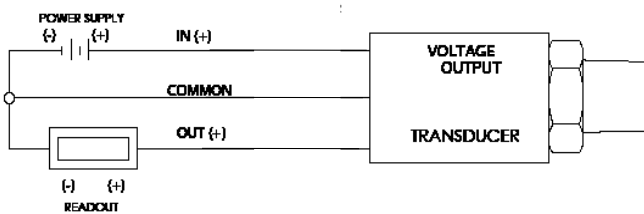
⁴Requires additional 2 mA of power.

⁵For use with pull-down resistors, contact factory before ordering.

⁶Reverse Wiring Protected.

⁷Not available for pressure ranges lower than 100 PSI (7 BAR)

WIRING



Model 3100

OEM Industrial Pressure Transducer



ELECTRICAL FITTINGS

	Din 9.4 mm	M12 x 1P	Amp Superseal 1.5	Deutsch DT4-4P	Packard Metri Pack	3-Pin Deutsch								
	Code B		Code E		Code 6		Code 8		Code 9		Code C			
Pin #	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode		Current Mode	Voltage Mode	
1	V _{out 1} (pressure)	No Connect	V _{supply}	V _{supply}	V _{out 1} (pressure)	No Connect	Ground	Return	V _{out 1} (pressure)	No Connect	C	V _{supply}	V _{supply}	A
2	V _{supply}	V _{supply}	V _{out 1} (pressure)	No Connect	Ground	Return	V _{supply}	V _{supply}	Ground	Return	A	Ground	Ground	B
3	V _{out 2} (temp)	No Connect	Ground	Return	V _{supply}	V _{supply}	V _{out 2} (temp)	No Connect	V _{supply}	V _{supply}	B	No Connect	V _{out 1} (pressure)	C
4	Ground	Return	V _{out 2} (temp)	No Connect	—	—	V _{out 1} (pressure)	No Connect	—	—		—	—	—

PRESSURE FITTINGS

SAE Dimensions in Inches					
Fitting Code	0L = M12 x 1.5	01 = G1/4 Ext.	1G = 1/4-SAE Female 7/16 UNF w/Schraeder	1J = 7/16-20Ext.(SAE#4, J1926-2)w/O-Ring	1P = SAE6 (9/16-18UNF 2A)
Torque	28-30 NM	30-35 NM	18-20 NM	18-20 NM	18-20 NM
Fitting Code	2T = M12 x 1.5	04 = 7/16-20 Ext. (SAE #4, J514 w/37°Flare)	4C = 1/4NPTF Dryseal EXT.	4D = 1/8NPTF Dryseal EXT.	05 = G 1/4 Ext. Face Seal
Torque	30-35 NM	15-16 NM	2-3 TFFT*	2-3 TFFT*	Dimensions: in. (mm)
Fitting Code	02 = 1/4-18 PT Ext.	0E = Female 1/4-18NPT	08 = 1/8-27 NPT Ext.	0K = M14 x 1.5 Straight	
Torque	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	

ORDERING INFORMATION

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Model	Output	Range Code	Pressure Type	Pressure Fitting	Elec. Connection	Restrictor	Option
See Table 1	B 4-20 mA	See Table 2	C Compound	See Table 3	See Table 4	0 No Restrictor	1 Miswire Protection
	C 1-6 VDC		G Gauge				None
	H 1-5 VDC		S Sealed Gauge ²				
	N 0.5-4.5 VDC						
	R 0-5 VDC						
	S 0-10 VDC						
	T 0.5-4.5 Ratiometric						

TABLE 1: MODEL SPEC

CODE	DESCRIPTION
3100	Std. 3100
Voltage Units w/Temp. Output	
3101 ¹	Temp. Output Range: -40°C to +125°C
3102 ¹	Temp. Output Range: -0°C to +100°C
3103 ¹	Temp. Output Range: -0°C to +80°C

TABLE 2: RANGE SPEC

RANGE CODE	PSI	RANGE CODE	BAR
050P ^{2,6}	50	0004 ^{2,6}	4
075P ²	75	0005 ²	5
100P ²	100	0007 ²	7
150P ²	150	0010 ²	10
230P ²	230	0016 ²	16
250P	250	0020 ²	20
300P ²	300	0035 ²	35
500P ²	500	0070 ²	70
10CP ²	1000	0100 ²	100
15CP ²	1500	0160	160
23CP	2300	0250	250
36CP	3600	0400	400
60CP	6000	0700	700
10KP	10000	1000 ³	1000
15KP ³	15000	1800 ³	1800
25KP ³	25000	1600 ³	1600
32KP ^{3,5}	32000		

TABLE 3: FITTING SPEC

CODE	DESCRIPTION
08	1/8-27 NPT Ext.
02	1/4-18 NPT Ext.
4C	1/4 NPTF Dryseal Ext.
4D	1/8 NPTF Dryseal Ext.
04	7/16-20 Ext. (SAE #4, J514) w/37° Flare
1J	7/16-20 Ext. (SAE #4, J1926-2) w/O-Ring
1G ⁵	1/4 -SAE Female 7/16 UNF w/ Schraeder Deflater/European Threads
1P	SAE6 (9/16-18UNF 2A)
01	G 1/4 Ext.
05	G 1/4 Ext. Face Seal
0L	M12 x 1.5 (<1000 bar, <15,000 PSI)
2T ³	M12 x 1.5 (6g) (≥1000 bar, ≥15,000 PSI)
OK	M14 x 1.5 Straight
0E	Female 1/4-18NPT

NOTES

¹Temperature outputs are for voltage output pressure sensors only (applies temperature span. Requires additional 2mA of power).

²Sealed gauge not available on ranges ≤1500 PSI (≤100 bar).

³Ranges 1000 bar (15,000 PSI) and above available with 2T pressure port only. Ranges above 1,000 BAR are not UL Labeled.

⁴For use with pull-up or pull-down resistors, contact factory.

⁵Pressure ports 0E and 1G are NOT available with the Restrictor option.

⁶0 to 50 PSI (4 bar) - Not available with 4 to 20 mA or 0 to 10 VDC outputs.

⁷Temperature outputs not available with Option 1 Miswire Protection PCB Ratiometric output not available

TABLE 4: ELEC. SPEC

CODE	DESCRIPTION
B	Industrial DIN
C	3-Pin Deutsch (Sealed Only)
E	M12xP,4-Pin
6	AMP Superseal 1.5 Series
8	Deutsch DT04-4P
9	Packard Metri Pack

ACCESSORIES - MATING CONNECTORS

ACCESSORIES - Mating Connectors					
Part No.	Description	Code	Part No.	Description	Code
557230	Mini Din Connector, Strain Relief	B		Recommended Mating Parts (AMP p/n: Socket Conn. 1-967325-1, Consult AMP for Contacts, Wire Seal and Strain Relief options)	6
557703-01M0	M12 Cord Set - 1 Meter (Red 1, Green 2, Blue 3, Yellow 4)	E	210730	AMP 12" Flying Leads Cord Set	6
557703-03M0	M12 Cord Set - 3 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E		Recommended Mating Parts (Deutsch p/n: Housing Plug DT064S-P012; Wedge W4S-P012; Sockets 4X 0462-201-1631)	8
557703-04M0	M12 Cord Set - 4 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E		Deutsch Cord Set 3' Long (18 AWG PVC Cable - Black 1, Red 2, Green 3, White, 4)	8
557703-05M0	M12 Cord Set - 5 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E		Recommended Mating Parts (Delphi Packard MetriPack p/n: Body 12065268; Seal 12052893; Consult Delphi for Contacts)	9
557701 210729	Recommended Mating Parts (AMP p/n: Housing 282087-1; Contacts 3X 183025-1; Seal 281934-1; Boot 880811-2)	6		Packard Mate Kit	9
	AMP Superseal Mate Kit	6	577	Packard Cord Set 3' Long	9
	AMP 3.5' Cable Cord Set - Clear Pos 1, Black Pos 2, Red Pos 3	6	581	Packard Cord Set 6' Long	9
			582		

Model 3200

Heavy Duty OEM Industrial Pressure Transducer

The Model 3200 sputtered thin film pressure sensor is designed for OEMs who require top of the line performance, reliability, stability and maximum durability at an affordable price. The Model 3200 is ideal for the most heavy duty industrial applications by providing the maximum performance to durability ratio available. The Model 3200 offers exceptional $\pm 0.5\%$ FS accuracy in pressure ranges from 75 PSI to 32,000 PSI; features an all welded stainless steel construction for a robust design, and IP67 seal for moisture and humidity protection. The Model 3200 offers a variety of different outputs, pressure connectors and electrical connectors, to satisfy the most challenging application requirements.

Built to Last

The Model 3200 is a heavy duty pressure device with long term stability, product reliability and accuracy built in. The compact welded stainless steel design is constructed to protect the sensor in the most demanding of industrial environments. The Model 3200 provides a 3x overpressure (0 to 10k PSI) and a 2.5x overpressure (10k to 14.5 PSI) rating, ensuring that the sensor does not fail during unexpected pressure spikes. The electrical connectors are tested to an environmental protection specification of IP67, and a robust internal design ensures that the transducers can survive high levels of vibration.

Best in Class Price-to-Performance

Strain Gauge technology provides a very linear and predictable output signal over a wide temperature range, which enables Setra to provide an inherently stable and accurate sensor element in high volumes and at low cost. To ensure best in class accuracy and long term stability, each sensing element is thermally compensated to an accuracy of less than $0.005\%^\circ\text{C}$ prior to leaving the clean room for final assembly. Thermally compensating the unit ensures improved accuracy and simplified conditioning electronics, while eliminating the need for calibration over elevated temperatures as a transducer.

Unrivaled Quality

Setra understands the importance of quality in OEM applications, which is why we are always looking for ways to improve the quality rating of our products. Over the last two years, the Model 3200 failure rate is less than 0.1%, a quality rating unmatched by the competition. The worst thing that could happen to an engineer is to shut down their work because of quality issues, Setra takes this seriously which is why we have worked hard to ensure that product quality issues will never be a concern for our customers.



- **>2.5x FS Proof Pressure**
- **High Quality: <0.1% Failure Rate**
- **Long Term Stability (<0.1%FS/YR)**

Model 3200 Features:

- No Oil Fill - Prevents Thermal Instability & Leakage
- Wide Choice of Pressure Ranges: 75 PSI-32,000 PSI
- $\pm 0.5\%$ FS Accuracy
- Dual Temperature and Pressure Output
- Small Footprint - Less than 1" Diameter
- Choice of Current, Voltage or Ratiometric Outputs
- Reverse Wiring Protection
- Accuracy Specified Over Full Temperature Range
- All Welded Stainless Steel Construction
- CE & UL Approved, RoHS Compliant
- IP67 Rated
- 40x FS Burst Pressure*

*Range Dependent

Applications:

- Power Generation
- Hydraulic Systems
- Booster Pump Systems
- Irrigation Systems
- Off Highway Vehicles

GENERAL SPECIFICATIONS

PRESSURE CAPABILITY

Pressure Range PSI (BAR)	Proof Pressure (x Full Scale)	Burst Pressure (x Full Scale)
50-300 (3.5-25)	3.00 x FS	40 x FS
500-1,500 (35-100)		20 x FS
2,000-6,000 (160-400)		10 x FS
7,500-9,000 (600)		
10,000 (700)	2.50 x FS	>60,000 PSI (4,000 Bar)
15,000 (1,000)		
25,000 (1,600)		

The data in this table is "times rate ranges" (xRR)

Application pressure should be restricted to the rated-range of the transducer. The maximum overpressure is the pressure limit at which the transducer will not show significant offset shift. The minimum burst pressure is the test-rating for fluid containment.

Performance Data		Physical Description	
Accuracy ¹	±0.5% FS	Pressure Port	See Ordering Instructions
Thermal Effects ²		Enclosure	IP67 (IP65 for Electrical Code A)
Compensated Range °F(°C)	-40 to +221 (-40 to +125)	Elec. Connections	See Ordering Instructions
Zero/Span Shift %FS/100°F (%FS/100°C)	0.94 (2.0) for <1000 PSI (60 BAR)	Wetted Parts	17-4PH SS (Diaphragm), 304 SS Fittings
Zero/Span Tolerance	1% FS for <1000 PSI (60 BAR)	Vibration	40G Peak to Peak Sinusoidal to 2000Hz (Random Vibration: 20 to 1000Hz @ approx. 40G Peak per MIL-STD-810E
Response Time	1ms	Shock	Withstand free fall to IEC 68-2-32 procedure 1
Long Term Stability	±0.2% FS for <1000 PSI (60 BAR)	Weight	35 Grams
Proof/Burst Pressure	See Table	Electrical Data (Voltage)⁶	
Fatigue Life	Designed for more than 100M cycles	Circuit	3-Wire (Exc, Out, Com)
Temp. Output Range °F(°C) ^{3,4,5}	-40 to +221 (-40 to +125)	Output	1 to 6 VDC, 1 to 5 VDC, 0.5 to 4.5 VDC, 0 to 5 VDC, 0 to 10 VDC ⁷
Operating/Storage Temp °F(°C) ^{3,4,5}	-40 to +221 (-40 to +125)	Excitation	2 Volts above FS to max 30 Volts @ 4.5 mA (6.5mA Dual Output Version)
Electrical Data (Ratiometric)		Excitation	2 Volts above FS to max 30 Volts @ 4.5 mA (6.5mA Dual Output Version)
Output	0.5 to 4.5 VDC @ 4mA (6.5 mA on Dual Output Version)	Source & Sinks	2mA
Excitation	5VDC ± 10%	Electrical Data (Current)	
Options		Circuit	2-Wire
Full miswire protection between all signal and power lines (any combination)		Output	4 to 20mA
Full short-circuit protection for Vout1 to 0V or Vout1 connected to supply, indefinitely.		Excitation	8 to 30 VDC (24 VDC max. above 110° applications)
Ratiometric output not available		Max. Loop Resistance	(Supply Voltage-8) x 50 ohms
Supply Voltage must be 4V above the maximum Vout1 output. This also accounts for worse-case customer output leads.			

¹RSS of Non-Linearity, Hysteresis, and Non-Repeatability.

²Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel.

³Temperature outputs are for voltage output pressure sensors only and limited to connections that have 4 pins (Electrical Codes -D, -E, -8).

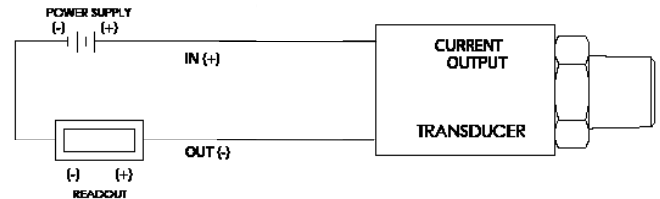
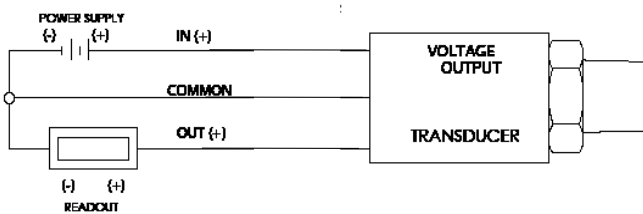
⁴Requires additional 2 mA of power.

⁵For use with pull-down resistors, contact factory before ordering.

⁶Reverse Wiring Protected.

⁷Not available for pressure ranges lower than 100 PSI (7 BAR)

WIRING



Model 3200

Heavy Duty OEM Industrial Pressure Transducer



ELECTRICAL FITTINGS

	Din 9.4 mm		M12 x 1P		Amp Superseal 1.5		Deutsch DT4-4P		Packard Metri Pack		3-Pin Deutsch			
	Code B		Code E		Code 6		Code 8		Code 9		Code C			
Pin #	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode		Current Mode	Voltage Mode	
1	V _{out1} (pressure)	No Connect	V _{supply}	V _{supply}	V _{out1} (pressure)	No Connect	Ground	Return	V _{out1} (pressure)	No Connect	C	V _{supply}	V _{supply}	A
2	V _{supply}	V _{supply}	V _{out1} (pressure)	No Connect	Ground	Return	V _{supply}	V _{supply}	Ground	Return	A	Ground	Ground	B
3	V _{out2} (temp)	No Connect	Ground	Return	V _{supply}	V _{supply}	V _{out2} (temp)	No Connect	V _{supply}	V _{supply}	B	No Connect	V _{out1} (pressure)	C
4	Ground	Return	V _{out2} (temp)	No Connect	—	—	V _{out1} (pressure)	No Connect	—	—		—	—	—

PRESSURE FITTINGS

SAE Dimensions in Inches					
Fitting Code	0L = M12 x 1.5	01 = G1/4 Ext.	1G = 1/4- SAE Female 7/16 UNF w/Schraeder	1J = 7/16-20Ext. (SAE#4, J1926-2)w/O-Ring	1P = SAE6 (9/16-18UNF 2A)
Torque	28-30 NM	30-35 NM	18-20 NM	18-20 NM	18-20 NM
Fitting Code	2T = M12 x 1.5	04 = 7/16-20 Ext. (SAE #4, JS14 w/37°Flare)	4C = 1/4NPTF Dryseal EXT.	4D = 1/8NPTF Dryseal EXT.	05 = G 1/4 Ext. Face Seal
Torque	30-35 NM	15-16 NM	2-3 TFFT*	2-3 TFFT*	Dimensions: in. (mm)
Fitting Code	02 = 1/4-18 PT Ext.	0E = Female 1/4-18NPT	08 = 1/8-27 NPT Ext.	0K = M14 x 1.5 Straight	
Torque	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	

ORDERING INFORMATION

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Model	Output	Range Code	Pressure Type	Pressure Fitting	Elec. Connection	Restrictor	Option
See Table 1	B 4-20 mA	See Table 2	C Compound	See Table 3	See Table 4	0 No Restrictor	1 Miswire Protection
	C 1-6 VDC		G Gauge				None
	H 1-5 VDC		S Sealed Gauge ²				
	N 0.5-4.5 VDC						
	R 0-5 VDC						
	S 0-10 VDC						
	T 0.5-4.5 Ratiometric						

TABLE 1: MODEL SPEC

CODE	DESCRIPTION
3200	Std. 3200
Voltage Units w/Temp. Output	
3201 ¹	Temp. Output Range: -40°C to +125°C
3202 ¹	Temp. Output Range: -0°C to +100°C
3203 ¹	Temp. Output Range: -0°C to +80°C

TABLE 2: RANGE SPEC

RANGE CODE	PSI	RANGE CODE	BAR
050P ^{2,6}	50	0004 ^{2,6}	4
075P ²	75	0005 ²	5
100P ²	100	0007 ²	7
150P ²	150	0010 ²	10
230P ²	230	0016 ²	16
250P	250	0020 ²	20
300P ²	300	0035 ²	35
500P ²	500	0070 ²	70
10CP ²	1000	0100 ²	100
15CP ²	1500	0160	160
23CP	2300	0250	250
36CP	3600	0400	400
60CP	6000	0700	700
10KP	10000	1000 ³	1000
15KP ³	15000	1800 ³	1800
25KP ³	25000	1600 ³	1600
32KP ^{3,5}	32000		

TABLE 3: FITTING SPEC

CODE	DESCRIPTION
08	1/8-27 NPT Ext.
02	1/4-18 NPT Ext.
4C	1/4 NPTF Dryseal Ext.
4D	1/8 NPTF Dryseal Ext.
04	7/16-20 Ext. (SAE #4, J514) w/37° Flare
1J	7/16-20 Ext. (SAE #4, J1926-2) w/O-Ring
1G ⁵	1/4 -SAE Female 7/16 UNF w/ Schraeder Deflater/European Threads
1P	SAE6 (9/16-18UNF 2A
01	G 1/4 Ext.
05	G 1/4 Ext. Face Seal
0L	M12 x 1.5 (<1000 bar, <15,000 PSI)
2T ³	M12 x 1.5 (6g) (≥1000 bar, ≥15,000 PSI)
OK	M14 x 1.5 Straight
0E	Female 1/4-18NPT

NOTES

¹Temperature outputs are for voltage output pressure sensors only (applies temperature span. Requires additional 2mA of power).

²Sealed gauge not available on ranges ≤1500 PSI (≤100 bar).

³Ranges 1000 bar (15,000 PSI) and above available with 2T pressure port only. Ranges above 1,000 BAR are not UL Labeled.

⁴For use with pull-up or pull-down resistors, contact factory.

⁵Pressure ports 0E and 1G are NOT available with the Restrictor option.

⁶0 to 50 PSI (4 bar) - Not available with 4 to 20 mA or 0 to 10 VDC outputs.

⁷Temperature outputs not available with Option 1 Miswire Protection PCB Ratiometric output not available

TABLE 4: ELEC. SPEC

CODE	DESCRIPTION
B	Industrial DIN
C	3-Pin Deutsch (Sealed Only)
E	M12xP,4-Pin
6	AMP Superseal 1.5 Series
8	Deutsch DT04-4P
9	Packard Metri Pack

ACCESSORIES - MATING CONNECTORS

ACCESSORIES - Mating Connectors					
Part No.	Description	Code	Part No.	Description	Code
557230	Mini Din Connector, Strain Relief	B		Recommended Mating Parts (AMP p/n: Socket Conn. 1-967325-1, Consult AMP for Contacts, Wire Seal and Strain Relief options)	6
557703-01M0	M12 Cord Set - 1 Meter (Red 1, Green 2, Blue 3, Yellow 4)	E	210730	AMP 12" Flying Leads Cord Set	6
557703-03M0	M12 Cord Set - 3 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E		Recommended Mating Parts (Deutsch p/n: Housing Plug DT064S-P012; Wedge W4S-P012; Sockets 4X 0462-201-1631)	8
557703-04M0	M12 Cord Set - 4 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E		Deutsch Cord Set 3' Long (18 AWG PVC Cable - Black 1, Red 2, Green 3, White, 4)	8
557703-05M0	M12 Cord Set - 5 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E		Recommended Mating Parts (Delphi Packard MetriPack p/n: Body 12065268; Seal 12052893; Consult Delphi for Contacts)	9
557701 210729	Recommended Mating Parts (AMP p/n: Housing 282087-1; Contacts 3X 183025-1; Seal 281934-1; Boot 880811-2)	6		Packard Mate Kit	9
	AMP Superseal Mate Kit	6	577	Packard Cord Set 3' Long	9
	AMP 3.5' Cable Cord Set - Clear Pos 1, Black Pos 2, Red Pos 3	6	581	Packard Cord Set 6' Long	9
			582		

Model 31CS

Standard Duty

Intrinsically Safe CSA Rated Pressure Transducer

The Model 31CS is designed for hazardous locations requiring intrinsic safety, top of the line performance, reliability, and stability at an affordable price. The Model 31CS offers exceptional $\pm 0.25\%$ FS accuracy in pressure ranges from 75 PSI to 32,000 PSI and features an all welded stainless steel construction for a robust design and IP67 seal for moisture and humidity protection. The Model 31CS offers a variety of different outputs, pressure connectors, and electrical connectors to satisfy the most challenging application requirements. In addition, voltage units are available with a dual pressure/temperature output. For ATEX/IECEx intrinsically safe pressure transducers, refer to Setra's 31IS and 32IS.

Best in Class Price-to-Performance

Strain Gauge technology provides a very linear and predictable output signal over a wide temperature range, which enables Setra to provide an inherently stable and accurate sensor element in high volumes and at low cost. The Model 31CS sensor is constructed using a highly sophisticated automation process, where the sensors are manufactured in a Class 100 clean room. To ensure best in class accuracy and long term stability, each sensing element is thermally compensated to an accuracy of less than $0.005\%^\circ\text{C}$ prior to leaving the clean room for final assembly. Thermally compensating the unit ensures improved accuracy and simplified conditioning of electronics, while eliminating the need for calibration over elevated temperatures as a transducer.

Unrivalled Quality

Setra understands the importance of quality in OEM applications, which is why we are always looking for ways to improve the quality rating of our products. Over the last two years, the Model 31CS failure rate is less than 0.1%, a quality rating unmatched by the competition. The worst thing that could happen to an engineer is to shut down their work because of quality issues. Setra takes this seriously, which is why we have worked hard to ensure that product quality issues will never be a concern for our customers.

Rugged Design

The Model 31CS's compact welded stainless steel design is constructed to protect the sensor in demanding industrial environments. The electrical connectors are tested to an environmental protection specification of IP67, and a robust internal design ensures that the transducers can survive high levels of vibration. A high level of EMC protection allows the transmitters to perform to the most stringent of industrial standards, and all devices are RoHS compliant.



- Premium Price-to-Performance
- High Quality: <math><0.1\%</math> Failure Rate
- Long Term Stability (<math><0.1\%</math>FS/YR)

Model 31CS Features:

- Class I, Division 1, Groups C & D
- Class I, Zone 0 Ex ia IIB T4 Ga
- Class I, Zone 0 AEx ia IIB T4 Ga
- No Oil Fill - Prevents Thermal Instability & Leakage
- Wide Choice of Pressure Ranges: 75 PSI-32,000 PSI
- $\pm 0.25\%$ FS Accuracy
- Dual Temperature and Pressure Output
- Small Footprint - Less than 1" Diameter
- Reverse Wiring Protection
- All Welded Stainless Steel Construction
- CE & UL Approved, RoHS Compliant
- IP67 Rated
- 40x FS Burst Pressure*

*Range Dependent

Applications:

- Industrial Processes
- Chemical
- HVAC/R Equipment
- Water Management

GENERAL SPECIFICATIONS

Performance		Electrical Data	
Accuracy ¹ RSS	±0.25% FS	Voltage ³	
Long Term Drift	0.2% FS/YR (non-cumulative)	Output (3-Wire)	0V min to 10V max.
Thermal Error		Supply Voltage	1 Volt above full scale with min supply of 8V; max 30V at 4.5mA
31CS	±1.5% max, ±1% typical/212°F (100°C)	Source & Sinks	2 mA
Compensated Range	-4 to +176°F (-20 to +80°C)	Current ³	
Operating Temp	-40 to +176°F (-40 to +80°C)	Output (2-Wire)	4-20 mA
Zero Tolerance Max.	0.5% of Span	Supply Voltage	8-24 Volts measured at the input to the transducer terminals
Span Tolerance Max.	0.5% of Span	Max Loop Resistance	(Supply Voltage - 8) x 50 ohms. See Graph Below
Fatigue Life	Designed for more than 100M cycles	Ratiometric Output	
Physical Description		Output	0.5 to 4.5V (Source & Sink 2 mA)
Pressure Port	See Ordering Information	Supply Voltage	5 VDC ±10% at 4.5 mA
Wetted Parts ²	17-4 PH Stainless Steel (Diaphragm)	EMC Specifications	
Electrical Connection	See Ordering Information	Emission Tests:	EN61326-1:2006 and EN61326-2-3:2006
Enclosure	IP67 (IP65 for Electrical Code A)	EN55011:2007	Radiated Emissions 30-230MHz 30dB µV/M @10M 230-1000MHz 37dB µV/M @10M
Vibration	BSEN 60068-2-6 (FC) Sine (20G) BSEN 60068-2-64 (FH) Random (14.1 Grms)	Immunity Tests:	EN61326-1:2006 and EN61326-2-3:2006
Shock	BSEN 60068-2-27 (Ea) (50G, 11ms)	EN61000-4-2:2009	Electrostatic Discharge: ±4Kv contact ±8Kv air
Weight (Configuration dependant.)	1.8 to 5.3 oz (50-150 grams).	EN61000-4-3:2006	Radiated Immunity: 10V/M 80-1000MHz 3V/M 1400-2000MHz 1V/M 2000-2700MHz
Zener Barrier & Entity Parameters		EN61000-4-4:2004	Fast Transients: ±0.25, 0.5, 1Kv
Zener Barrier Parameters		EN61000-4-6:2007	Conducted Immunity: 3V 0.15 to 80MHz 80% 1KHz modulation
Voltage	Ui = 30VDC		
Current	Li = 100mA		
Power	Pi = 0.7W		
Entity Parameters			
Signal Current	In = 4 to 20mA		
Effective Internal Capacitance	Ci = 323n		
Effective Internal Inductance	Li = 9µh		
Values to be added when supplied with integrated cable:			
Cable Capacitance	Ci = 300pF / m (max) Wire-to-Wire or Wire-to-Shield		
Cable Capacitance	Li = 2µH / m (max) Wire-to-Wire		

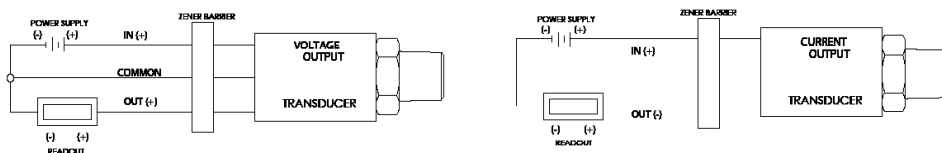
OVERPRESSURE CAPABILITY

Pressure Range PSI (BAR)	Proof Pressure (x Full Scale)	Burst Pressure (x Full Scale)
75-300 (4-20)	3.00 x FS	40 x FS
500-1,500 (40-100)	2.00 x FS	20 x FS
2,000-6,000 (140-400)		10 x FS
10,000 (700)		>60,000 PSI (4,000 Bar)
15,000 (1,000)		
25,000 (1,800)		
30,000 (2,200)	1.40 x FS	

The data in this table is "times rated ranges" (xRR)

Application pressure should be restricted to the rated-range of the transducer. The maximum overpressure is the pressure limit at which the transducer will not show significant offset shift. The minimum burst pressure is the test-rating for fluid containment.

WIRING



Model 31CS

Standard Duty Intrinsically Safe
CSA Rated Pressure Transducer



ELECTRICAL FITTINGS

M12			Deutsch DT01-4P		Industry Standard Form C		EN175301-803 (DIN 43650 A)		AMP Superseal 1,5 Series			METRIPACK T (150 SERIES)		
Code E			Code 8		Code R		Code G		Code 6			Code 9		
Pin #	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current	Pin #	Voltage	Current	Pin #	Voltage	Current
1	+IN	+IN	0V	0V	+IN	+IN	+IN	+IN	1	+OP	DNC	A	0V	0V
2	+OP	DNC	+IN	+IN	0V	0V	0V	0V	2	0V	0V	B	+IN	+IN
3	0V	0V	NC	NC	+OP	DNC	+OP	DNC	3	+IN	+IN	C	+OP	DNC
4	NC	NC	+OP	DNC	NC	NC	NC	NC	Recommended Mating Connector: 282087-1 as housing, 183025-1 as contact (x3), 281934-3 as wire seal (x3), 880811-2 as protective boot (strain relief)			Recommended Mating Connector: 12065286 as connector body, 12052893 as con- nector seal. Consult Delphi Packard for appropriate contacts and wire seals.		
Recommended Mating Connector: To IEC 61076-2-101 Hirschmann, Brad Harrison, Lumberg			Recommended Mating Connector: DT0645-P012 as connector plug, W45-P012 as wedge, 0462-201-1631 as gold socket (x4)		Recommended Mating Connector: Hirschmann GDS 307 Part Number 933 024-100 or equivalent		Recommended Mating Connector: Molex/Brad/mPm Series 121201 (C28300N05) or equivalent							
Integrated Cable			<p>NOTES: DNC: Do Not Connect (Leave Floating). NC: Not Connected at Transducer End Alternative pin-outs are not available.</p> <p>The integrated cable is shielded. For compliance with EN 61000-4-5, shielded cable should be used on all transducers.</p> <p>WARNING: Substitution of Components May Impair Suitability For Intrinsic Safety</p>											
Code F														
Color	Voltage	Current												
Red	+IN	+IN												
Black	0V	0V												
White	+OP													

PRESSURE FITTINGS

SAE	1/8" - 27 NPT*	1/8" - 27 NPTF Dryseal	1/4" - 18 NPT	1/4" - 18 NPT Internal	1/4" - 18 NPTF Dryseal
Dimensions in Inches					
Fitting Code	08	4D	02	0E	4C
Torque	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*
	SAE J1926/2:3/8-24 w/o O-Ring*	7/16" - 20 UNF w/ O-Ring*	7/16"-20 UNF w/37° Flare	SAE 4 Female 7/16" Schraeder	9/16"-18 "Heavy Duty" w/ O-Ring
Dimensions in Inches					
Fitting Code	4N	1J	04	1G	1P
Torque	18-20 NM	18-20 NM	15-16 NM	18-20 NM	18-20 NM
BSP & Metric	G1/4" - 19 External w/ O-Ring*	G1/4"-19 A Integral Face Seal*	M12 x 1.5 w/ O-Ring*	M12 x 1.5 HP Metal Washer Seal*	G1/4" A Integral Face Seal
Dimensions in Inches					
Fitting Code	01	05	0L	2T	05
Torque	30-35 NM	30-35 NM	28-30 NM	30-35 NM	

*O-Rings are not supplied with pressure fittings.

NOTE: Not all available pressure connectors are shown. Please consult the factory for additional configurations.

ORDERING INFORMATION

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Model	Output	Pressure Range	Pressure Port	Connector	Pressure Restrictor	Cable Length
31CS=Standard Duty	See Table 1	See Table 2	See Table 3	6 Amp Superseal 1/5 Series	R Restrictor	00 Not Fitted
				8 Deutsch DT04-4P	0 No Restrictor	01 1 meter
				9 Metripack T (150 Series)		02 2 meter
				E M12 x P, 4-Pin		03 3 meter
				G ⁵ EN175301 (DIN43650 A)		05 5 meter
				R Industry Standard Form C		10 10 meter
				F Integrated Cable		

Table 1. Output

CODE	Output
B ¹	4-20 mA
C	1-6 V
F	0.1-5.1 V
G ¹	0.2-10.2V
H	1-5 V
N	0.5-4.5 V Non Ratio-metric
P ¹	1-10 V
R	0-5 V
S ¹	0-10 V
T	0.5-4.5 V Ratio-metric
V	0.5-4 V

Table 2. Pressure Range

CODE	BAR	CODE	PSI	CODE	BAR	CODE	PSI
GAUGE				SEALED			
0004G	4	075PG	75	0100S	100	15CPS	1,500
0006G	6	100PG	100	0160S	160	20CPS	2,000
0010G	10	150PG	150	0250S	250	35CPS	3,500
0016G	16	200PG	200	0400S	400	50CPS	5,000
0025G	25	300PG	300	0600S ³	600	10KPS	10,000
0040G	40	500PG	500	1000S ³	1,000	15KPS ³	15,000
0060G	60	10CPG	1,000	1600S ³	1,600	20KPS ³	20,000
				2200S ^{2,3}	2,200	25KPS ³	25,000
						30KPS ^{2,3}	30,000
						32KPS ^{2,3}	32,000

Table 3. Pressure Port

CODE	DESCRIPTION	CODE	DESCRIPTION
0H	1/2" NPT	1J	7/16" - 20 UNF 2A SA1926/2 O'RING
02	1/4" - 18 NPT	1P	9/16" - 18UNF 22 A/F
0E ⁴	1/4" - 18 NPT Female	4P	G1/2" A 27A/F
4C	1/4" - 18 NPTF Dryseal	05	G1/4" A Integral Face Seal
0A	1/4" - 19 PT (JIS) or 1/4" - 19 BSPT	01	G1/4" A Stud (BS 5380 Port)
4B	1/4" Female (7/16UN with Shraeder Deflator)	0S	G1/8" A Stud (BS 5380 Port)
08	1/8" - 27 NPT	2T	M12x1.5 (6g) High Pressure (Washer Seal)
4D	1/8" - 27 NPTF Dryseal	0L	M12x1.5P (6g) O'Ring to ISO 6149-2
4N	3/8" - 24 UNF Union	1G ⁴	Schraeder 7-16" - 20 UN 2B Female
04	7/16" 20 (37FLARE SAE J514 SIZE 4)		

¹Output codes B, G, P, S not available below 100 PSI (7 BAR)

²Ranges above 25 KPS and 1600 BAR only available with 31CS

³ Ranges 1000 Bar (15,000 PSI) and above in 31CS and 700 BAR (10,000 PSI)

and above in 32CS available with 2T pressure port only

⁴Pressure ports 0E and 1G not available with restrictor option

⁵Vented only (no connector)

Model 31IS

Standard Duty Intrinsically Safe ATEX/IECEX Certified Pressure Transducer

The Model 31IS is designed for hazardous locations requiring intrinsic safety, top of the line performance, reliability, and stability at an affordable price. The Model 31IS offers exceptional $\pm 0.25\%$ FS accuracy in pressure ranges from 75 PSI to 32,000 PSI and features an all welded stainless steel construction for a robust design and IP67 seal for moisture and humidity protection. The Model 31IS offers a variety of different outputs, pressure connectors, and electrical connectors to satisfy the most challenging application requirements. In addition, voltage units are available with a dual pressure/temperature output. For CSA intrinsically safe pressure transducers, refer to Setra's 31CS and 32CS.

Best in Class Price-to-Performance

Strain Gauge technology provides a very linear and predictable output signal over a wide temperature range, which enables Setra to provide an inherently stable and accurate sensor element in high volumes and at low cost. The Model 31IS sensor is constructed using a highly sophisticated automation process, where the sensors are manufactured in a Class 100 clean room. To ensure best in class accuracy and long term stability, each sensing element is thermally compensated to an accuracy of less than $0.005\%^\circ\text{C}$ prior to leaving the clean room for final assembly. Thermally compensating the unit ensures improved accuracy and simplified conditioning of electronics, while eliminating the need for calibration over elevated temperatures as a transducer.

Unrivaled Quality

Setra understands the importance of quality in OEM applications, which is why we are always looking for ways to improve the quality rating of our products. Over the last two years, the Model 31IS failure rate is less than 0.1%, a quality rating unmatched by the competition. The worst thing that could happen to an engineer is to shut down their work because of quality issues. Setra takes this seriously, which is why we have worked hard to ensure that product quality issues will never be a concern for our customers.

Rugged Design

The Model 31IS's compact welded stainless steel design is constructed to protect the sensor in demanding industrial environments. The electrical connectors are tested to an environmental protection specification of IP67, and a robust internal design ensures that the transducers can survive high levels of vibration. A high level of EMC protection allows the transmitters to perform to the most stringent of industrial standards, and all devices are RoHS compliant.



- Premium Price-to-Performance
- High Quality: <math>< 0.1\%</math> Failure Rate
- Long Term Stability (<math>< 0.1\%</math>FS/YR)

Model 31IS Features:

- II 1G Ex ia T4 Ga ($-40^\circ\text{C} < T_a < +80^\circ\text{C}$)
- No Oil Fill - Prevents Thermal Instability & Leakage
- Wide Choice of Pressure Ranges: 75 PSI-32,000 PSI
- $\pm 0.25\%$ FS Accuracy
- Dual Temperature and Pressure Output
- Small Footprint - Less than 1" Diameter
- Reverse Wiring Protection
- All Welded Stainless Steel Construction
- CE & UL Approved, RoHS Compliant
- IP67 Rated
- 40x FS Burst Pressure*

*Range Dependent

Applications:

- Industrial Processes
- Chemical
- HVAC/R Equipment
- Water Management

GENERAL SPECIFICATIONS

Performance		Electrical Data	
Accuracy ¹ RSS	±0.25% FS	Voltage ³	
Long Term Drift	0.2% FS/YR (non-cumulative)	Output (3-Wire)	0V min to 10V max.
Thermal Error		Supply Voltage	1 Volt above full scale with min supply of 8V; max 30V at 4.5mA
31IS	±1.5% max, ±1% typical/212°F (100°C)	Source & Sinks	2 mA
Compensated Range	-4 to +176°F (-20 to +80°C)	Current ²	
Operating Temp	-40 to +176°F (-40 to +80°C)	Output (2-Wire)	4-20 mA
Zero Tolerance Max.	0.5% of Span	Supply Voltage	8-24 Volts measured at the input to the transducer terminals
Span Tolerance Max.	0.5% of Span	Max Loop Resistance	(Supply Voltage - 8) x 50 ohms. See Graph Below
Fatigue Life	Designed for more than 100M cycles	Ratiometric Output	
Physcial Description		Output	0.5 to 4.5V (Source & Sink 2 mA)
Pressure Port	See Ordering Information	Supply Voltage	5 VDC ±10% at 4.5 mA
Wetted Parts ²	17-4 PH Stainless Steel (Diaphragm)	EMC Specifications	
Electrical Connection	See Ordering Information	Emission Tests:	EN61326-1:2006 and EN61326-2-3:2006
Enclosure	IP67 (IP65 for Electrical Code A)	EN55011:2007	Radiated Emissions: 30-230MHz 30dB µV/M @10M 230-1000MHz 37dB µV/M @10M
Vibration	BSEN 60068-2-6 (FC) Sine (20G) BSEN 60068-2-64 (FH) Random (14.1 Grms)	Immunity Tests:	EN61326-1:2006 and EN61326-2-3:2006
Shock	BSEN 60068-2-27 (Ea) (50G, 11ms)	EN61000-4-2:2009	Electrostatic Discharge: ±4Kv contact ±8Kv air
Weight (Configuration dependant.)	1.8 to 5.3 oz (50-150 grams).	EN61000-4-3:2006	Radiated Immunity: 10V/M 80-1000MHz 3V/M 1400-2000MHz 1V/M 2000-2700MHz
Zener Barrier & Entity Parameters		EN61000-4-4:2004	Fast Transients: ±0.25, 0.5, 1Kv
Zener Barrier Parameters		EN61000-4-6:2007	Conducted Immunity: 3V 0.15 to 80MHz 80% 1KHz modulation
Voltage	Ui = 30VDC		
Current	Li = 100mA		
Power	Pi = 0.7W		
Entity Parameters			
Signal Current	In = 4 to 20mA		
Effective Internal Capacitance	Ci = 323n		
Effective Internal Inductance	Li = 9µh		
Values to be added when supplied with integrated cable:			
Cable Capacitance	Ci = 300pF / m (max) Wire-to-Wire or Wire-to-Shield		
Cable Capacitance	Li = 2µH / m (max) Wire-to-Wire		

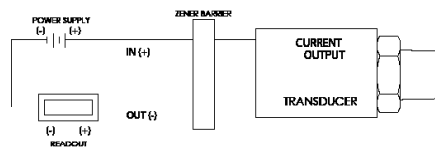
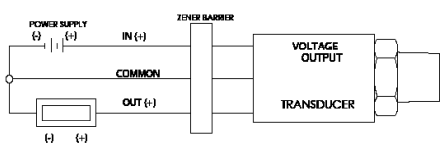
OVERPRESSURE CAPABILITY

Pressure Range PSI (BAR)	Proof Pressure (x Full Scale)	Burst Pressure (x Full Scale)
75-300 (4-20)	3.00 x FS	40 x FS
500-1,500 (40-100)	2.00 x FS	20 x FS
2,000-6,000 (140-400)		10 x FS
10,000 (700)		>60,000 PSI (4,000 Bar)
15,000 (1,000)		
25,000 (1,800)	1.40 x FS	
30,000 (2,200)		

The data in this table is "times rated ranges" (xRR)

Application pressure should be restricted to the rated-range of the transducer. The maximum overpressure is the pressure limit at which the transducer will not show significant offset shift. The minimum burst pressure is the test-rating for fluid containment.

WIRING



Model 31IS

Standard Duty Intrinsically Safe
ATEX/IECEX Certified Pressure Transducer



ELECTRICAL FITTINGS

M12			Deutsch DT01-4P		Industry Standard Form C		EN175301-803 (DIN 43650 A)		AMP Superseal 1,5 Series			METRIPACK T (150 SERIES)		
Code E			Code 8		Code R		Code G		Code 6			Code 9		
Pin #	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current	Pin #	Voltage	Current	Pin #	Voltage	Current
1	+IN	+IN	0V	0V	+IN	+IN	+IN	+IN	1	+OP	DNC	A	0V	0V
2	+OP	DNC	+IN	+IN	0V	0V	0V	0V	2	0V	0V	B	+IN	+IN
3	0V	0V	NC	NC	+OP	DNC	+OP	DNC	3	+IN	+IN	C	+OP	DNC
4	NC	NC	+OP	DNC	NC	NC	NC	NC	Recommended Mating Connector: 282087-1 as housing, 183025-1 as contact (x3), 281934-3 as wire seal (x3), 880811-2 as protective boot (strain relief)			Recommended Mating Connector: 12065286 as connector body, 12052893 as con- nector seal. Consult Delphi Packard for appropriate contacts and wire seals.		
Recommended Mating Connector: To IEC 61076-2-101 Hirschmann, Brad Harrison, Lumberg			Recommended Mating Connector: DT0645-P012 as connector plug, W45-P012 as wedge, 0462-201-1631 as gold socket (x4)		Recommended Mating Connector: Hirschmann GDS 307 Part Number 933 024-100 or equivalent		Recommended Mating Connector: Molex/Brad/mPm Series 121201 (C28300N05) or equivalent							
Integrated Cable			NOTES: DNC: Do Not Connect (Leave Floating). NC: Not Connected at Transducer End Alternative pin-outs are not available.											
Code F			The integrated cable is shielded. For compliance with EN 61000-4-5, shielded cable should be used on all transducers.											
Color	Voltage	Current	WARNING: Substitution of Components May Impair Suitability For Intrinsic Safety											
Red	+IN	+IN												
Black	0V	0V												
White	+OP													

PRESSURE FITTINGS

SAE	1/8" - 27 NPT*	1/8" - 27 NPTF Dryseal	1/4" - 18 NPT	1/4" - 18 NPT Internal	1/4" - 18 NPTF Dryseal
Dimensions in Inches					
Fitting Code	08	4D	02	0E	4C
Torque	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*
	SAE J1926/2:3/8-24 w/o O-Ring*	7/16" - 20 UNF w/ O-Ring*	7/16"-20 UNF w/37° Flare	SAE 4 Female 7/16" Schraeder	9/16"-18 "Heavy Duty" w/ O-Ring
Dimensions in Inches					
Fitting Code	4N	1J	04	1G	1P
Torque	18-20 NM	18-20 NM	15-16 NM	18-20 NM	18-20 NM
BSP & Metric	G1/4" - 19 External w/ O-Ring*	G1/4"-19 A Integral Face Seal*	M12 x 1.5 w/ O-Ring*	M12 x 1.5 HP Metal Washer Seal*	G1/4" A Integral Face Seal
Dimensions in Inches					
Fitting Code	01	05	0L	2T	05
Torque	30-35 NM	30-35 NM	28-30 NM	30-35 NM	

*O-Rings are not supplied with pressure fittings.

NOTE: Not all available pressure connectors are shown. Please consult the factory for additional configurations.

ORDERING INFORMATION

3 1 I S - [] - [] [] [] [] [] - [] [] - [] - [] []

Model	Output	Pressure Range	Pressure Port	Connector	Pressure Restrictor	Cable Length
31IS=Standard Duty	See Table 1	See Table 2	See Table 3	6 Amp Superseal 1/5 Series	R Restrictor	00 Not Fitted
				8 Deutsch DT04-4P	0 No Restrictor	01 1 meter
				9 Metripack T (150 Series)		02 2 meter
				E M12 x P, 4-Pin		03 3 meter
				G ² EN175301 (DIN43650 A)		05 5 meter
				R Industry Standard Form C		10 10 meter
				F Integrated Cable		

Table 1. Output

CODE	Output
B ¹	4-20 mA
C	1-6 V
F	0.1-5.1 V
G ¹	0.2-10.2V
H	1-5 V
N	0.5-4.5 V Non Ratio-metric
P ¹	1-10 V
R	0-5 V
S ¹	0-10 V
T	0.5-4.5 V Ratio-metric
V	0.5-4 V

Table 2. Pressure Range

CODE	BAR	CODE	PSI	CODE	BAR	CODE	PSI
GAUGE				SEALED			
0004G	4	075PG	75	0100S	100	15CPS	1,500
0006G	6	100PG	100	0160S	160	20CPS	2,000
0010G	10	150PG	150	0250S	250	35CPS	3,500
0016G	16	200PG	200	0400S	400	50CPS	5,000
0025G	25	300PG	300	0600S ³	600	10KPS	10,000
0040G	40	500PG	500	1000S ³	1,000	15KPS ³	15,000
0060G	60	10CPG	1,000	1600S ³	1,600	20KPS ³	20,000
				2200S ^{2,3}	2,200	25KPS ³	25,000
						30KPS ^{2,3}	30,000
						32KPS ^{2,3}	32,000

Table 3. Pressure Port

CODE	DESCRIPTION	CODE	DESCRIPTION
0H	1/2" NPT	1J	7/16" - 20 UNF 2A SA1926/2 O'RING
02	1/4" - 18 NPT	1P	9/16" - 18UNF 22 A/F
0E ⁴	1/4" - 18 NPT Female	4P	G1/2" A 27A/F
4C	1/4" - 18 NPTF Dryseal	05	G1/4" A Integral Face Seal
0A	1/4" - 19 PT (JIS) or 1/4" - 19 BSPT	01	G1/4" A Stud (BS 5380 Port)
4B	1/4" Female (7/16UN with Shraeder Deflator)	0S	G1/8" A Stud (BS 5380 Port)
08	1/8" - 27 NPT	2T	M12x1.5 (6g) High Pressure (Washer Seal)
4D	1/8" - 27 NPTF Dryseal	0L	M12x1.5P (6g) O'Ring to ISO 6149-2
4N	3/8" - 24 UNF Union	1G ⁴	Schraeder 7-16" - 20 UN 2B Female
04	7/16" 20 (37FLARE SAE J514 SIZE 4)		

¹Output codes B, G, P, S not available below 100 PSI (7 BAR)

²Ranges above 25 KPS and 1600 BAR only available with 31IS

³Ranges 1000 Bar (15,000 PSI) and above in 31IS and 700 BAR (10,000 PSI)

and above in 32CS available with 2T pressure port only

⁴Pressure ports 0E and 1G not available with restrictor option

⁵Vented only (no connector)

Model 32CS

Heavy Duty Intrinsically Safe CSA Rated Pressure Transducer

The Model 32CS is designed for heavy duty applications in hazardous locations requiring intrinsic safety, top of the line performance, reliability, and stability at an affordable price. The Model 32CS offers exceptional $\pm 0.5\%$ FS accuracy in pressure ranges from 75 PSI to 32,000 PSI; features an all welded stainless steel construction for a robust design and IP67 seal for moisture and humidity protection. The Model 32CS offers a variety of different outputs, pressure connectors, and electrical connectors to satisfy the most challenging application requirements. In addition, voltage units are available with a dual pressure/temperature output. For ATEX/IECEx intrinsically safe pressure transducers, refer to Setra's 31IS and 32IS.

Built to Last

The Model 32CS is a heavy duty pressure device with long term stability, product reliability and accuracy built in. The compact welded stainless steel design is constructed to protect the sensor in the most demanding of industrial environments. The Model 32CS provides a 3X overpressure (0 to 10k PSI) and a 2.5x overpressure (10k to 14.5k PSI) rating, ensuring that the sensor does not fail during unexpected pressure spikes. The electrical connectors are tested to an environmental protection specification of IP67, and a robust internal design ensures that the transducers can survive high levels of vibration.

Best in Class Price-to-Performance

Strain Gauge technology provides a very linear and predictable output signal over a wide temperature range, which enables Setra to provide an inherently stable and accurate sensor element in high volumes and at low cost. The Model 32CS sensor is constructed using a highly sophisticated automation process, where the sensors are manufactured in a Class 100 clean room. To ensure best in class accuracy and long term stability, each sensing element is thermally compensated to an accuracy of less than $0.005\%^\circ\text{C}$ prior to leaving the clean room for final assembly. Thermally compensating the unit ensures improved accuracy and simplified conditioning of electronics, while eliminating the need for calibration over elevated temperatures as a transducer.

Unrivalled Quality

Setra understands the importance of quality in OEM applications, which is why we are always looking for ways to improve the quality rating of our products. Over the last two years, the Model 32CS failure rate is less than 0.1%, a quality rating unmatched by the competition. The worst thing that could happen to an engineer is to shut down their work because of quality issues. Setra takes this seriously, which is why we have worked hard to ensure that product quality issues will never be a concern for our customers.



- Premium Price-to-Performance
- High Quality: <math><0.1\%</math> Failure Rate
- Long Term Stability (<math><0.1\%</math>FS/YR)

Model 32CS Features:

- Class I, Division 1, Groups C & D
- Class I, Zone 0 Ex ia IIB T4 Ga
- Class I, Zone 0 AEx ia IIB T4 Ga
- No Oil Fill - Prevents Thermal Instability & Leakage
- Wide Choice of Pressure Ranges: 75 PSI-32,000 PSI
- $\pm 0.5\%$ FS Accuracy
- Dual Temperature and Pressure Output
- Small Footprint - Less than 1" Diameter
- Reverse Wiring Protection
- All Welded Stainless Steel Construction
- CE & UL Approved, RoHS Compliant
- IP67 Rated
- 40x FS Burst Pressure*

*Range Dependent

Applications:

- Natural Gas Test Equipment
- Gas Bottle Filling Plants
- Petroleum Processing
- Oil & Gas Drilling

GENERAL SPECIFICATIONS

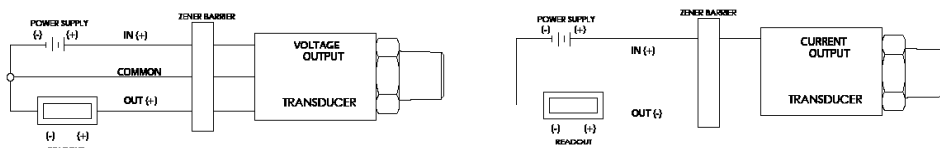
Performance		Electrical Data	
Accuracy ¹ RSS	±0.5% FS	Voltage ³	
Long Term Drift	0.2% FS/YR (non-cumulative)	Output (3-Wire)	0V min to 10V max.
Thermal Error		Supply Voltage	1 Volt above full scale with min supply of 8V; max 30V at 4.5mA
32CS	±2% max	Source & Sinks	2 mA
Compensated Range	-4 to +176°F (-20 to +80°C)	Current ³	
Operating Temp	-40 to +176°F (-40 to +80°C)	Output (2-Wire)	4-20 mA
Zero Tolerance Max.	0.5% of Span	Supply Voltage	8-24 Volts measured at the input to the transducer terminals
Span Tolerance Max.	0.5% of Span	Max Loop Resistance	(Supply Voltage - 8) x 50 ohms. See Graph Below
Fatigue Life	Designed for more than 100M cycles	Ratiometric Output	
Physial Description		Output	0.5 to 4.5V (Source & Sink 2 mA)
Pressure Port	See Ordering Information	Supply Voltage	5 VDC ±10% at 4.5 mA
Wetted Parts ²	17-4 PH Stainless Steel (Diaphragm)	EMC Specifications	
Electrical Connection	See Ordering Information	Emission Tests:	EN61326-1:2006 and EN61326-2-3:2006
Enclosure	IP67 (IP65 for Electrical Code A)	EN55011:2007	Radiated Emissions: 30-230MHz 30dB µV/M @10M 230-1000MHz 37dB µV/M @10M
Vibration	BSEN 60068-2-6 (FC) Sine (20G) BSEN 60068-2-64 (FH) Random (14.1 Grms)	Immunity Tests:	EN61326-1:2006 and EN61326-2-3:2006
Shock	BSEN 60068-2-27 (Ea) (50G, 11ms)	EN61000-4-2:2009	Electrostatic Discharge: ±4Kv contact ±8Kv air
Weight (Configuration dependant.)	1.8 to 5.3 oz (50-150 grams).	EN61000-4-3:2006	Radiated Immunity: 10V/M 80-1000MHz 3V/M 1400-2000MHz 1V/M 2000-2700MHz
Zener Barrier & Entity Parameters		EN61000-4-4:2004	Fast Transients: ±0.25, 0.5, 1Kv
Zener Barrier Parameters		EN61000-4-6:2007	Conducted Immunity: 3V 0.15 to 80MHz 80% 1KHz modulation
Voltage	Ui = 30VDC		
Current	Li = 100mA		
Power	Pi = 0.7W		
Entity Parameters			
Signal Current	In = 4 to 20mA		
Effective Internal Capacitance	Ci = 323n		
Effective Internal Inductance	Li = 9µh		
Values to be added when supplied with integrated cable:			
Cable Capacitance	Ci = 300pF / m (max) Wire-to-Wire or Wire-to-Shield		
Cable Capacitance	Li = 2µH / m (max) Wire-to-Wire		

OVERPRESSURE CAPABILITY

Pressure Range PSI (BAR)	Proof Pressure (x Full Scale)	Burst Pressure (x Full Scale)
75-300 (4-20)	3.00 x FS	40 x FS
500-1,500 (40-100)		20 x FS
2,000-6,000 (140-400)		10 x FS
10,000 (700)	2.50 x FS	>60,000 PSI (4,000 Bar)
15,000 (1,000)		
25,000 (1,800)		

¹ RSS of Non-Linearity, Hysteresis, and Non-Repeatability.
² Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel.
³ Reverse Wiring Protected
 Specifications subject to change without notice.

WIRING



The data in this table is "times rated ranges" (xRRR)

Application pressure should be restricted to the rated-range of the transducer. The maximum overpressure is the pressure limit at which the transducer will not show significant offset shift. The minimum burst pressure is the test-rating for fluid containment.

Model 32CS

Heavy Duty Intrinsically Safe
CSA Rated Pressure Transducer



ELECTRICAL FITTINGS

M12			Deutsch DT01-4P		Industry Standard Form C		EN175301-803 (DIN 43650 A)		AMP Superseal 1,5 Series			METRIPACK T (150 SERIES)		
Code E			Code 8		Code R		Code G		Code 6			Code 9		
Pin #	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current	Pin #	Voltage	Current	Pin #	Voltage	Current
1	+IN	+IN	0V	0V	+IN	+IN	+IN	+IN	1	+OP	DNC	A	0V	0V
2	+OP	DNC	+IN	+IN	0V	0V	0V	0V	2	0V	0V	B	+IN	+IN
3	0V	0V	NC	NC	+OP	DNC	+OP	DNC	3	+IN	+IN	C	+OP	DNC
4	NC	NC	+OP	DNC	NC	NC	NC	NC	Recommended Mating Connector: 282087-1 as housing, 183025-1 as contact (x3), 281934-3 as wire seal (x3), 880811-2 as protective boot (strain relief)			Recommended Mating Connector: 12065286 as connector body, 12052893 as con- nector seal. Consult Delphi Packard for appropriate contacts and wire seals.		
Recommended Mating Connector: To IEC 61076-2-101 Hirschmann, Brad Harrison, Lumberg			Recommended Mating Connector: DT0645-P012 as connector plug, W45-P012 as wedge, 0462-201-1631 as gold socket (x4)		Recommended Mating Connector: Hirschmann GDS 307 Part Number 933 024-100 or equivalent		Recommended Mating Connector: Molex/Brad/mPm Series 121201 (C28300N0S) or equivalent							
Integrated Cable			<p>NOTES: DNC: Do Not Connect (Leave Floating). NC: Not Connected at Transducer End Alternative pin-outs are not available.</p> <p>The integrated cable is shielded. For compliance with EN 61000-4-5, shielded cable should be used on all transducers.</p> <p>WARNING: Substitution of Components May Impair Suitability For Intrinsic Safety</p>											
Code F														
Color	Voltage	Current												
Red	+IN	+IN												
Black	0V	0V												
White	+OP													

PRESSURE FITTINGS

SAE	1/8" - 27 NPT*	1/8" - 27 NPTF Dryseal	1/4" - 18 NPT	1/4" - 18 NPT Internal	1/4" - 18 NPTF Dryseal
Dimensions in Inches					
Fitting Code	08	4D	02	0E	4C
Torque	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*
	SAE J1926/2:3/8-24 w/o O-Ring*	7/16" - 20 UNF w/ O-Ring*	7/16"-20 UNF w/37° Flare	SAE 4 Female 7/16" Schraeder	9/16"-18 "Heavy Duty" w/ O-Ring
Dimensions in Inches					
Fitting Code	4N	1J	04	1G	1P
Torque	18-20 NM	18-20 NM	15-16 NM	18-20 NM	18-20 NM
BSP & Metric	G1/4" - 19 External w/ O-Ring*	G1/4"-19 A Integral Face Seal*	M12 x 1.5 w/ O-Ring*	M12 x 1.5 HP Metal Washer Seal*	G1/4" A Integral Face Seal
Dimensions in Inches					
Fitting Code	01	05	0L	2T	05
Torque	30-35 NM	30-35 NM	28-30 NM	30-35 NM	

*O-Rings are not supplied with pressure fittings.

NOTE: Not all available pressure connectors are shown. Please consult the factory for additional configurations.

ORDERING INFORMATION

3 2 C S - [] - [] [] [] [] [] - [] [] - [] [] - [] []

Model	Output	Pressure Range	Pressure Port	Connector	Pressure Restrictor	Cable Length
32CS=Heavy Duty	See Table 1	See Table 2	See Table 3	6 Amp Superseal 1/5 Series	R Restrictor	00 Not Fitted
				8 Deutsch DT04-4P	0 No Restrictor	01 1 meter
				9 Metripack T (150 Series)		02 2 meter
				E M12 x P, 4-Pin		03 3 meter
				G ⁵ EN175301 (DIN43650 A)		05 5 meter
				R Industry Standard Form C		10 10 meter
				F Integrated Cable		

Table 1. Output

CODE	Output
B ¹	4-20 mA
C	1-6 V
F	0.1-5.1 V
G ¹	0.2-10.2V
H	1-5 V
N	0.5-4.5 V Non Ratio-metric
P ¹	1-10 V
R	0-5 V
S ¹	0-10 V
T	0.5-4.5 V Ratio-metric
V	0.5-4 V

Table 2. Pressure Range

CODE	BAR	CODE	PSI	CODE	BAR	CODE	PSI
GAUGE				SEALED			
0004G	4	075PG	75	0100S	100	15CPS	1,500
0006G	6	100PG	100	0160S	160	20CPS	2,000
0010G	10	150PG	150	0250S	250	35CPS	3,500
0016G	16	200PG	200	0400S	400	50CPS	5,000
0025G	25	300PG	300	0600S ³	600	10KPS	10,000
0040G	40	500PG	500	1000S ³	1,000	15KPS ³	15,000
0060G	60	10CPG	1,000	1600S ³	1,600	20KPS ³	20,000
				2200S ^{2,3}	2,200	25KPS ³	25,000
						30KPS ^{2,3}	30,000
						32KPS ^{2,3}	32,000

Table 3. Pressure Port

CODE	DESCRIPTION	CODE	DESCRIPTION
0H	1/2" NPT	1J	7/16" - 20 UNF 2A SA1926/2 O'RING
02	1/4" - 18 NPT	1P	9/16" - 18UNF 22 A/F
0E ⁴	1/4" - 18 NPT Female	4P	G1/2" A 27A/F
4C	1/4" - 18 NPTF Dryseal	05	G1/4" A Integral Face Seal
0A	1/4" - 19 PT (JIS) or 1/4" - 19 BSPT	01	G1/4" A Stud (BS 5380 Port)
4B	1/4" Female (7/16UN with Shraeder Deflator)	0S	G1/8" A Stud (BS 5380 Port)
08	1/8" - 27 NPT	2T	M12x1.5 (6g) High Pressure (Washer Seal)
4D	1/8" - 27 NPTF Dryseal	0L	M12x1.5P (6g) O'Ring to ISO 6149-2
4N	3/8" - 24 UNF Union	1G ⁴	Schraeder 7-16" - 20 UN 2B Female
04	7/16" 20 (37FLARE SAE J514 SIZE 4)		

¹Output codes B, G, P, S not available below 100 PSI (7 BAR)

²Ranges above 25 KPS and 1600 BAR only available with 32CS

³ Ranges 1000 Bar (15,000 PSI) and above in 32CS and 700 BAR (10,000 PSI) and above in 32CS available with 2T pressure port only

⁴Pressure ports 0E and 1G not available with restrictor option

⁵Vented only (no connector)

Model 32IS

Heavy Duty Intrinsically Safe ATEX/IECEX Certified Pressure Transducer

The Model 32IS is designed for heavy duty applications in hazardous locations requiring intrinsic safety, top of the line performance, reliability, and stability at an affordable price. The Model 32IS offers exceptional $\pm 0.5\%$ FS accuracy in pressure ranges from 75 PSI to 32,000 PSI and features an all welded stainless steel construction for a robust design and IP67 seal for moisture and humidity protection. The Model 32IS offers a variety of different outputs, pressure connectors, and electrical connectors to satisfy the most challenging application requirements. In addition, voltage units are available with a dual pressure/temperature output. For CSA intrinsically safe pressure transducers, refer to Setra's 31CS and 32CS.

Built to Last

The Model 32IS is a heavy duty pressure device with long term stability, product reliability and accuracy built in. The compact welded stainless steel design is constructed to protect the sensor in the most demanding of industrial environments. The Model 32IS provides a 3x overpressure (0 to 10k PSI) and a 2.5x overpressure (10k to 14.7k PSI) rating, ensuring that the sensor does not fail during unexpected pressure spikes. The electrical connectors are tested to an environmental protection specification of IP67, and a robust internal design ensures that the transducers can survive high levels of vibration.

Best in Class Price-to-Performance

Strain Gauge technology provides a very linear and predictable output signal over a wide temperature range, which enables Setra to provide an inherently stable and accurate sensor element in high volumes and at low cost. The Model 32IS sensor is constructed using a highly sophisticated automation process, where the sensors are manufactured in a Class 100 clean room. To ensure best in class accuracy and long term stability, each sensing element is thermally compensated to an accuracy of less than $0.005\%^\circ\text{C}$ prior to leaving the clean room for final assembly. Thermally compensating the unit ensures improved accuracy and simplified conditioning of electronics, while eliminating the need for calibration over elevated temperatures as a transducer.

Unrivaled Quality

Setra understands the importance of quality in OEM applications, which is why we are always looking for ways to improve the quality rating of our products. Over the last two years, the Model 32IS failure rate is less than 0.1%, a quality rating unmatched by the competition. The worst thing that could happen to an engineer is to shut down their work because of quality issues. Setra takes this seriously, which is why we have worked hard to ensure that product quality issues will never be a concern for our customers.



- Premium Price-to-Performance
- High Quality: <0.1% Failure Rate
- Long Term Stability (<0.1%FS/YR)

Model 32IS Features:

- Ex II 1G Ex ia T4 Ga ($-40^\circ\text{C} < T_a < +80^\circ\text{C}$)
- No Oil Fill - Prevents Thermal Instability & Leakage
- Wide Choice of Pressure Ranges: 75 PSI-32,000 PSI
- $\pm 0.5\%$ FS Accuracy
- Dual Temperature and Pressure Output
- Small Footprint - Less than 1" Diameter
- Reverse Wiring Protection
- All Welded Stainless Steel Construction
- CE & UL Approved, RoHS Compliant
- IP67 Rated
- 40x FS Burst Pressure*

*Range Dependent

Applications:

- Natural Gas Test Equipment
- Gas Bottle Filling Plants
- Petroleum Processing
- Oil and Gas Drilling

GENERAL SPECIFICATIONS

Performance		Electrical Data	
Accuracy ¹ RSS	±0.5% FS	Voltage ³	
Long Term Drift	0.2% FS/YR (non-cumulative)	Output (3-Wire)	0V min to 10V max.
Thermal Error		Supply Voltage	1 Volt above full scale with min supply of 8V; max 30V at 4.5mA
32IS	±2% max	Source & Sinks	2 mA
Compensated Range	-4 to +176°F (-20 to +80°C)	Current ³	
Operating Temp	-40 to +176°F (-40 to +80°C)	Output (2-Wire)	4-20 mA
Zero Tolerance Max.	0.5% of Span	Supply Voltage	8-24 Volts measured at the input to the transducer terminals
Span Tolerance Max.	0.5% of Span	Max Loop Resistance	(Supply Voltage - 8) x 50 ohms. See Graph Below
Fatigue Life	Designed for more than 100M cycles	Ratiometric Output	
Physical Description		Output	0.5 to 4.5V (Source & Sink 2 mA)
Pressure Port	See Ordering Information	Supply Voltage	5 VDC ±10% at 4.5 mA
Wetted Parts ²	17-4 PH Stainless Steel (Diaphragm)	EMC Specifications	
Electrical Connection	See Ordering Information	Emission Tests:	EN61326-1:2006 and EN61326-2-3:2006
Enclosure	IP67 (IP65 for Electrical Code A)	EN55011:2007	Radiated Emissions: 30-230MHz 30dB µV/M @10M 230-1000MHz 37dB µV/M @10M
Vibration	BSEN 60068-2-6 (FC) Sine (20G) BSEN 60068-2-64 (FH) Random (14.1 Grms)	Immunity Tests:	EN61326-1:2006 and EN61326-2-3:2006
Shock	BSEN 60068-2-27 (Ea) (50G, 11ms)	EN61000-4-2:2009	Electrostatic Discharge: ±4Kv contact ±8Kv air
Weight (Configuration dependant.)	1.8 to 5.3 oz (50-150 grams).	EN61000-4-3:2006	Radiated Immunity: 10V/M 80-1000MHz 3V/M 1400-2000MHz 1V/M 2000-2700MHz
Zener Barrier & Entity Parameters		EN61000-4-4:2004	Fast Transients: ±0.25, 0.5, 1Kv
Zener Barrier Parameters		EN61000-4-6:2007	Conducted Immunity: 3V 0.15 to 80MHz 80% 1KHz modulation
Voltage	Ui = 30VDC	Entity Parameters	
Current	Li = 100mA	Signal Current	In = 4 to 20mA
Power	Pi = 0.7W	Effective Internal Capacitance	Ci = 323n
Entity Parameters		Effective Internal Inductance	Li = 9µh
Values to be added when supplied with integrated cable:			
Cable Capacitance	Ci = 300pF / m (max) Wire-to-Wire or Wire-to-Shield		
Cable Capacitance	Li = 2µH / m (max) Wire-to-Wire		

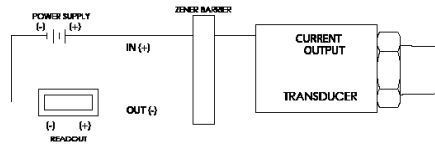
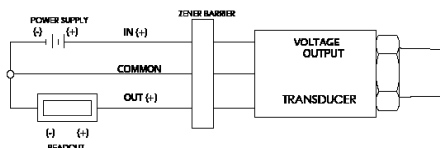
OVERPRESSURE CAPABILITY

Pressure Range PSI (BAR)	Proof Pressure (x Full Scale)	Burst Pressure (x Full Scale)
75-300 (4-20)	3.00 x FS	40 x FS
500-1,500 (40-100)		20 x FS
2,000-6,000 (140-400)		10 x FS
10,000 (700)	2.5 x FS	>60,000 PSI (4,000 Bar)
15,000 (1,000)		
25,000 (1,800)		

The data in this table is "times rated ranges" (xRR)

Application pressure should be restricted to the rated-range of the transducer. The maximum overpressure is the pressure limit at which the transducer will not show significant offset shift. The minimum burst pressure is the test-rating for fluid containment.

WIRING



¹ RSS of Non-Linearity, Hysteresis, and Non-Repeatability.
² Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel.
³ Reverse Wiring Protected
 Specifications subject to change without notice.

Model 32IS

Heavy Duty Intrinsically Safe
ATEX/IECEX Certified Pressure Transducer



ELECTRICAL FITTINGS

M12			Deutsch DT01-4P		Industry Standard Form C		EN175301-803 (DIN 43650 A)		AMP Superseal 1,5 Series			METRIPACK T (150 SERIES)		
Code E			Code 8		Code R		Code G		Code 6			Code 9		
Pin #	Voltage	Current	Voltage	Current	Voltage	Current	Voltage	Current	Pin #	Voltage	Current	Pin #	Voltage	Current
1	+IN	+IN	0V	0V	+IN	+IN	+IN	+IN	1	+OP	DNC	A	0V	0V
2	+OP	DNC	+IN	+IN	0V	0V	0V	0V	2	0V	0V	B	+IN	+IN
3	0V	0V	NC	NC	+OP	DNC	+OP	DNC	3	+IN	+IN	C	+OP	DNC
4	NC	NC	+OP	DNC	NC	NC	NC	NC	Recommended Mating Connector: 282087-1 as housing, 183025-1 as contact (x3), 281934-3 as wire seal (x3), 880811-2 as protective boot (strain relief)			Recommended Mating Connector: 12065286 as connector body, 12052893 as con- nector seal. Consult Delphi Packard for appropriate contacts and wire seals.		
Recommended Mating Connector: To IEC 61076-2-101 Hirschmann, Brad Harrison, Lumberg			Recommended Mating Connector: DT0645-P012 as connector plug, W45-P012 as wedge, 0462-201-1631 as gold socket (x4)		Recommended Mating Connector: Hirschmann GDS 307 Part Number 933 024-100 or equivalent		Recommended Mating Connector: Molex/Brad/mPm Series 121201 (C28300N05) or equivalent							
Integrated Cable			<p>Code F</p> <p>Color Voltage Current</p> <p>Red +IN +IN</p> <p>Black 0V 0V</p> <p>White +OP</p>											
			<p>NOTES:</p> <p>DNC: Do Not Connect (Leave Floating). NC: Not Connected at Transducer End Alternative pin-outs are not available.</p> <p>The integrated cable is shielded. For compliance with EN 61000-4-5, shielded cable should be used on all transducers.</p> <p>WARNING: Substitution of Components May Impair Suitability For Intrinsic Safety</p>											

PRESSURE FITTINGS

SAE	1/8" - 27 NPT*	1/8" - 27 NPTF Dryseal	1/4" - 18 NPT	1/4" - 18 NPT Internal	1/4" - 18 NPTF Dryseal
Dimensions in Inches					
Fitting Code	08	4D	02	0E	4C
Torque	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*
	SAE J1926/2:3/8-24 w/o O-Ring*	7/16" - 20 UNF w/ O-Ring*	7/16"-20 UNF w/37° Flare	SAE 4 Female 7/16" Schraeder	9/16"-18 "Heavy Duty" w/ O-Ring
Dimensions in Inches					
Fitting Code	4N	1J	04	1G	1P
Torque	18-20 NM	18-20 NM	15-16 NM	18-20 NM	18-20 NM
BSP & Metric	G1/4" - 19 External w/ O-Ring*	G1/4"-19 A Integral Face Seal*	M12 x 1.5 w/ O-Ring*	M12 x 1.5 HP Metal Washer Seal*	G1/4" A Integral Face Seal
Dimensions in Inches					
Fitting Code	01	05	0L	2T	05
Torque	30-35 NM	30-35 NM	28-30 NM	30-35 NM	

*O-Rings are not supplied with pressure fittings.

NOTE: Not all available pressure connectors are shown. Please consult the factory for additional configurations.

ORDERING INFORMATION

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Model	Output	Pressure Range	Pressure Port	Connector	Pressure Restrictor	Cable Length
32IS=Heavy Duty	See Table 1	See Table 2	See Table 3	6 Amp Superseal 1/5 Series	R Restrictor	00 Not Fitted
				8 Deutsch DT04-4P	0 No Restrictor	01 1 meter
				9 Metripack T (150 Series)		02 2 meter
				E M12 x P, 4-Pin		03 3 meter
				G ⁵ EN175301 (DIN43650 A)		05 5 meter
				R Industry Standard Form C		10 10 meter
				F Integrated Cable		

Table 1. Output

CODE	Output
B ¹	4-20 mA
C	1-6 V
F	0.1-5.1 V
G ¹	0.2-10.2V
H	1-5 V
N	0.5-4.5 V Non Ratio-metric
P ¹	1-10 V
R	0-5 V
S ¹	0-10 V
T	0.5-4.5 V Ratio-metric
V	0.5-4 V

Table 2. Pressure Range

CODE	BAR	CODE	PSI	CODE	BAR	CODE	PSI
GAUGE				SEALED			
0004G	4	075PG	75	0100S	100	15CPS	1,500
0006G	6	100PG	100	0160S	160	20CPS	2,000
0010G	10	150PG	150	0250S	250	35CPS	3,500
0016G	16	200PG	200	0400S	400	50CPS	5,000
0025G	25	300PG	300	0600S ³	600	10KPS	10,000
0040G	40	500PG	500	1000S ³	1,000	15KPS ³	15,000
0060G	60	10CPG	1,000	1600S ³	1,600	20KPS ³	20,000
				2200S ^{2,3}	2,200	25KPS ³	25,000
						30KPS ^{2,3}	30,000
						32KPS ^{2,3}	32,000

Table 3. Pressure Port

CODE	DESCRIPTION	CODE	DESCRIPTION
0H	1/2" NPT	1J	7/16" - 20 UNF 2A SA1926/2 O'RING
02	1/4" - 18 NPT	1P	9/16" - 18UNF 22 A/F
0E ⁴	1/4" - 18 NPT Female	4P	G1/2" A 27A/F
4C	1/4" - 18 NPTF Dryseal	05	G1/4" A Integral Face Seal
0A	1/4" - 19 PT (JIS) or 1/4" - 19 BSPT	01	G1/4" A Stud (BS 5380 Port)
4B	1/4" Female (7/16UN with Shraeder Deflator)	0S	G1/8" A Stud (BS 5380 Port)
08	1/8" - 27 NPT	2T	M12x1.5 (6g) High Pressure (Washer Seal)
4D	1/8" - 27 NPTF Dryseal	0L	M12x1.5P (6g) O'Ring to ISO 6149-2
4N	3/8" - 24 UNF Union	1G ⁴	Schraeder 7-16" - 20 UN 2B Female
04	7/16" 20 (37FLARE SAE J514 SIZE 4)		

¹Output codes B, G, P, S not available below 100 PSI (7 BAR)

²Ranges above 25 KPS and 1600 BAR only available with 32IS

³Ranges 1000 Bar (15,000 PSI) and above in 32IS and 700 BAR (10,000 PSI) and above in 32CS available with 2T pressure port only

⁴Pressure ports 0E and 1G not available with restrictor option

⁵Vented only (no connector)

Model 3550

Compact Low Pressure OEM Pressure Transducer

Setra's Model 3550 MEMS pressure sensor is designed for OEMs who require high performance, reliability and stability for absolute, gauge and compound measurements at an affordable price. The 3550 offers exceptional $\pm 0.25\%$ FS accuracy in pressure ranges from 15 PSI to 250 PSI in a small, 316L stainless steel package designed for harsh environments. The Model 3550 offers a variety of different outputs, pressure connectors and electrical connectors to satisfy the most challenging application requirements.

316L SS Design

The sensor and all wetted materials are manufactured using 316L stainless steel. The design of the sensor gives the 3550 high corrosion resistance for the harsh conditions of the alternative fuels market. The unit is calibrated to an accuracy of $\pm 0.25\%$ FS across the entire pressure range offering.

Pressure Flexibility

The Model 3550 design incorporates gauge, absolute and compound pressure datums all in the same package. Pressure ranges available from 15 PSI to 250 PSI, making it ideal for OEM applications of all types.

Flexibility for Many Applications

The 3550 transducer offers many pressure and electrical fittings covering many installation configurations, minimizing additional engineering time to accommodate the sensor, leading to quicker project completion and faster time to market.



- 316L SS Wetted Parts
- Small Footprint
- High Price-to-Performance Ratio

Model 3550 Features:

- $\pm 0.25\%$ FS Accuracy
- Pressure Ranges from 0-15 PSI to 0-250 PSI
- Low Cost For High Volume OEM Installers
- Absolute, Gauge and Compound Pressure Ranges
- Corrosion Resistant Etched Label
- Many Electrical and Mechanical Options

Applications:

- Oil and Gas
- Medical
- Emissions Monitoring
- Harsh Chemical
- Transformer/Smart Grid Technology

ORDERING INFORMATION

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Model	Output	Pressure Range			Pressure Datum		Pressure Port		Electrical Conn.		Optional Restrictor		
3550=Model 3550	B 4-20 Ma	0000	0 bar ¹	000P	0 PSI ¹	G	Gauge	01	G1/4" External	B	Industrial DIN 9.4mm	R	Restrictor
	N 0.5-4.5 V	0001	1 bar	015P	15 PSI	A	Absolute	02	1/4"-18 NPT External	E	M12 x 1	0	No Restrictor
	S 0-10V	01B6	1.6 bar	030P	30 PSI	C	Compound ²	04	7/16-20 UNF w/ 37° Flare	8	Deutsch DT04-4P		
	C 1-6 V	02B5	2.5 bar	050P	50 PSI			05	G1/4" A Integral Face Seal	9	Packard MetriPack ³		
	P 1-10V	0004	4 bar	100P	100 PSI			08	1/8"-27 NPT External				
	T 0.5-4.5 V Ratiometric	0006	6 bar	150P	150 PSI			0L	M12 x 1.5 - 6g				
	H 1-5 V	0010	10 bar	200P	200 PSI			0S	G1/8"-27 External				
	R 0-5 V	0016	16 bar	250P	250 PSI								

Ordering Example: 3550B015PA02ER00 = Model 3550, 4-20mA Output, 0-15 psia, 1/4 NPT Fitting, M12 x 1 Electrical Connector with Restrictor Installed in Pressure Port

1. Compound vacuum gauge only (eq. -15 to 0 PSIG or -1 to 0 barG)
2. Compound versions extend the pressure range on the low end to -15 PSIG or -1 barG respectively. Compound versions measure Gauge pressure only. (eg. -15 to 100 PSIG)
3. Compatible with Ratiometric Output Only; Code T.

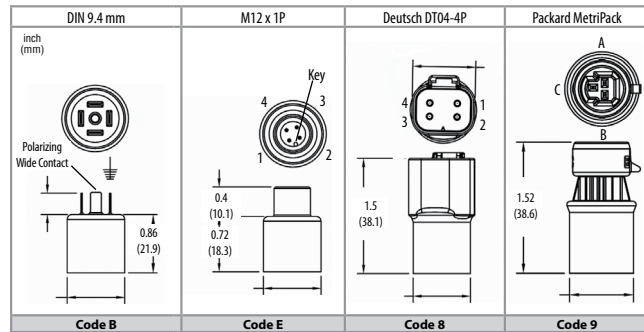
EMC SPECIFICATIONS

Emissions Tests: EN61326-1:2006 and EN61326-2-3:2006	
Test Standard	Test
EN55011:2009 + A1	Radiated Emissions
Immunity Tests: EN61326-1:2006 and EN61326-2-3:2006	
Test Standard	Test
EN6100-4-2:2009	Electrostatic Discharge
EN6100-4-3:2006 + A2	Radiated Immunity
EN6100-4-4:2012	Fast Burst Transients
EN6100-4-6:2009	Conducted RF Immunity

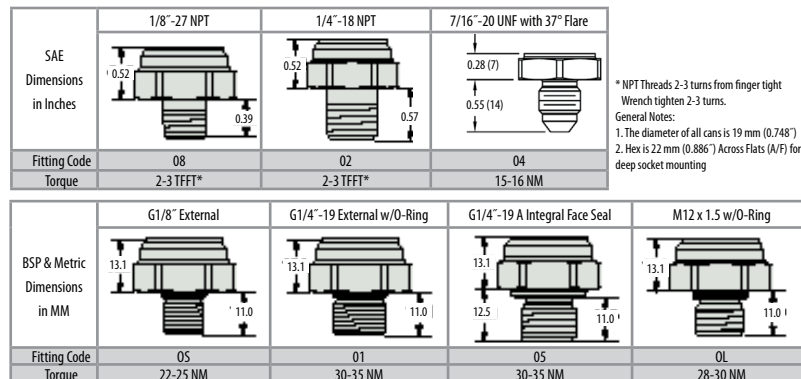
GENERAL SPECIFICATIONS

Performance Data		Mechanical Configuration	
Long Term Drift	< 0.2% FS/YR	Pressure Port	See under "How to Order"
Accuracy (BSFL)	0.25% FS	Wetted Parts	316L Stainless Steel
Thermal Error, Max.	±1% max./176°F (80°C)	Electrical Conn.	See under "How to Order"
Compensated Temp.	-4°F to +212°F (-20°C to +100°C)	Enclosure	IP67 (IP65 for electrical codes B)
Operating Temp.	-40°F to +257°F (-40°C to +125°C)	Vibration	BSEN 60068-2-6 (FC) BSEN 60068-2-64 (FH)
Zero Tolerance, Max.	±0.5% of span max.	Shock	BSEN 60068-2-27 (Ea)
Span Tolerance, Max.	±1% of span max.	Approvals	CE, PED, RoHS
Fatigue Life	Designed for more than 100M Cycles	Weight	1.23 to 1.9 ounce (35 to 52 grams) Configuration dependent.
Input		Voltage Output Units	
Pressure Range	0-250 psi (0-16 bar)	Output	0 V min. to 10V max. See under "How to Order"
Proof Pressure	2x Nominal Range	Supply Voltage (Vs)	2 Volts above full scale to 30 VDC (24 VDC max. above 230°F (110°C) applications). Source and Sinks 8mA
Burst Pressure	3x Nominal Range	Current Output Units	
Ratiometric Output Units		Output	4-20 mA
Output	0.5 to 4.5 VDC	Supply Voltage (Vs)	10-30 VDC (24 VDC max. above 230°F (110°C) applications)
Supply Voltage (Vs)	5 VDC ±10%	Max. Load Resistance	(Supply Voltage - 10) x 50 ohms

ELECTRICAL FITTINGS



PRESSURE FITTINGS



MATING ELECTRICAL CONNECTORS

Part Number	Description	For Use on Elect. Code #
557230	MINI DIN Connector, Strain Relief (with drive screw & gasket)	B
557703-01M0	M12 Cord Set - 1 Meter (Red 1, Green 2, Blue 3, Yellow 4)	E
557703-03M0	M12 Cord Set - 3 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E
557703-04M0	M12 Cord Set - 4 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E
557703-05M0	M12 Cord Set - 5 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E
	Recommended Mating Parts (Deutsch p/n: Housing Plug DT0645-P012; Wedge W45-P012; Sockets 4X 0462-201-1631)	8
224153	Deutsch Cord Set 3' Long (18 AWG PVC Cable - Black 1, Red 2, Green 3, White 4)	8
	Recommended Mating Parts (Delphi Packard MetriPack p/n: Body 12065286; Seal 12052893; Consult Delphi for Contacts)	9
557	Packard Mate Kit	9
581	Packard Cord Set 3' Long (24 AWG PVC Cable - White 1, Black 2, Red 3)	9
582	Packard Cord Set 63' Long (24 AWG PVC Cable - White 1, Black 2, Red 3)	9

ASL

ASM

201

204

239

TEST & MEASUREMENT

PRODUCT SECTION 2.1

setra[®]

AccuSense™ Model ASL

High Accuracy Low Differential Pressure Transducer

Setra's Model ASL is the highest accuracy transducer for measuring low differential pressure in the AccuSense™ product line. Its $\pm 0.07\%$ FS accuracy is calibrated using the "End Point Method" which improves linearity when compared to competitive transducers, which use the "Best Fit Straight Line Method" of calibration. The ASL's calibration is tamper proof by utilizing a SecureCal™ calibration key which eliminates inadvertent adjustments, while allowing authorized users to adjust the sensor's calibration coefficients for a true sensor calibration. The design of the ASL offers class leading overpressure capability and multiple pressure and electrical fittings to accommodate a wide range of applications.

High Accuracy For Demanding Applications

The Model ASL differential pressure transducer uses a resonant variable capacitance sensor. This sensor is linearized and thermally compensated through a computerized curve fitting algorithm that optimizes the sensor's linearity for maximum accuracy in demanding applications.

Robust Design & Construction for Reliable Service

The Model ASL is designed and built to withstand demanding applications. The laser welded sensor construction, designed with positive and negative overpressure stops, enables the sensor to resist overpressure conditions up to 100X in all pressure ranges.

Secure and Fast Calibration & Service

The Model ASL is ideal for the Test & Measurement industry because it adheres to the stringent accuracy requirements. In order to make adjustments, the ASL utilizes the SecureCal™ calibration key, providing secure calibration. The SecureCal™ provides the ability to calibrate zero and span coefficients through a simple push button and rotary adjustment dial. The SecureCal™ also offers the option to restore factory defaults for fail-safe sensor calibration.



- **Reliable Testing Data**
- **Minimize Downtime**
- **Reduce Calibration Time**

Model ASL Features:

- High Accuracy: $\pm 0.07\%$ FS
- End Point Method Linearity
- High Overpressure Capability: >100X Range
- Low Thermal Error
- Excellent Stability: <0.15% FS/YR
- Calibrate Using SecureCal™ Calibration Key
- High Line Pressure Capability
- Unidirectional & Bidirectional Models Available

Applications:

- Filter Pressure
- Leak Detection Systems
- Exhaust Pressure
- Medical Instrumentation
- Part Integrity Testing

ORDERING INFORMATION

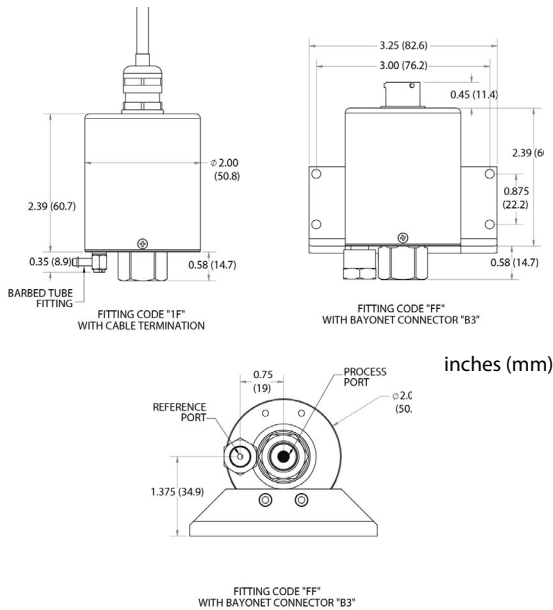
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Model	Pressure Ranges ¹						Process/Reference Port		Output		Elec. Termination		Accuracy	Option			
ASL1 = ASL	Differential			Bidirectional/Differential			1F	1/8" NPT Female/Barb	2B	0 to 5 VDC	03	3 ft, 1m Std Cable	A	<±0.07% FS RSS	00	None, Standard	
	002WD	0 to 2"W.C.	001PD	0 to 1 PSID	001WB	±1"W.C.	005MB	±5 mBar	FF	1/8" NPT Female/ 1/8" NPT Female	2C	0 to 10 VDC	B3	Std 6-Pin Male Bayonet Connect, Std Wiring	01	High Overpressure (See table below)	
	2R5WD	0 to 2.5"W.C.	005MD	0 to 5 mBar	002WB	±2"W.C.	010MB	±10 mBar	1M	1/8" NPT Male/Barb	11	4 to 20 mA					
	005WD	0 to 5"W.C.	010MD	0 to 10 mBar	005WB	±5"W.C.	025MB	±25 mBar	J7	7/16-20 SAE Male/Barb							
	010WD	0 to 10"W.C.	025MD	0 to 25 mBar	015WB	±15"W.C.	050MB	±50 mBar									
	030WD	0 to 30"W.C.	050MD	0 to 50 mBar	001PB	±1 PSID											
	040WD	0 to 40"W.C.	100MD	0 to 100 mBar													

¹Other ranges and engineering units are available (ex: Pa, kPa)
Example: Part No. ASL1001WB1F2B03A00= ASL Transducer, ±1"W.C. Pressure Range, 1/8" NPT Female Reference Port, 0 to 5 VDC Output, 3 Foot Cable, <±0.07% FS RSS Accuracy, No Option

See data sheet for more information on Setra's SecureCal™ Calibration Key.

DIMENSIONS



GENERAL SPECIFICATIONS

Performance Data		Environmental Data	
Internal Volumes	Positive Port 0.03 cu. in. Reference Port 0.75 cu. in.	Temperature Calibrated °F (°C)	-4 to +140 (-20 to +60)
Operable Line Pressure	Vacuum to 250 PSI max	Operating Temp. ¹ °F (°C)	-40 to +124 (-40 to +85)
Maximum Volume Change at FS	0.002 cu. in.	Storage Temp. °F (°C)	-40 to +185 (-40 to +85)
Long-term Stability	<0.15% FS/Year, Typical	Higher or lower limits available (consult factory)	
Response time to Pressure Input (From 100% to 10% of pressure range)	<10 ms for Voltage Output <100 ms for Current Output	Electrical Data	
Line Pressure Effect	2% FS/100 PSIG	Excitation Range	9 to 30VDC (5VDC & 4-20 mA output) 15 to 30VDC (10 VDC output)
Zero Offset Positive Effect	<0.1%/G	Current Consumption	<23 mA (5VDC & 10VDC Versions)
Unit factory calibrated in vertical position (pressure port download)		Miswiring	Reverse Excitation Protection
Physical Description		Warm-up, Environmental	Within ±0.02% FS after 15 min warm-up time
Electrical Terminations	6-Conductor Cable, Pigtail 6-Pin Bayonet Connector	Signal Output Ranges	0 to 5 VDC, 0 to 10 VDC (4-wire), 4-20mA (2-wire)
Dimensions	See reverse side	Accuracy Data	
Weight	13 oz. (360 g)	Accuracy Code A	
Moisture/Splash Resistance	NEMA 4X (IP65)	Accuracy	<±0.07% FS RSS ³
Pressure Fittings	See Ordering Information	Non-Linearity, End point	<±0.03% FS Typical
Case Materials	Stainless Steel	Hysteresis	<±0.03% FS Typical
Pressure Media		Non-repeatability	<±0.02% FS Typical
Clean, dry gases compatible with 300 series stainless steel and 17-4 pH stainless steel.		Span Setting Tol.	<±0.1% FS
Approvals		Zero Offset Told	<±0.1% FS Typical
CE, RoHS		Thermal Total Error Band	<±0.25% FS Typical <±0.05% max (-20°C to 60°C)

PROOF PRESSURE

Pressure Ranges	Burst Pressure ¹	Standard Proof Pressure ² Option Code "00"	High Proof Pressure ² Option Code "01"
0 to 2.5"W.C., 5 mBar	200 PSI, 15 Bar	±10 PSI, ±700 mBar	±75 PSI, ±5 Bar
0 to 5"W.C., 10 mBar	300 PSI, 20 Bar	±20 PSI, ±1 Bar	±100 PSI, ±7 Bar
0 to 10"W.C., 25 mBar	300 PSI, 20 Bar	±30 PSI, ±2 Bar	±150 PSI, ±10 Bar
0 to 30"W.C., 1 PSI, 100 mBar	300 PSI, 20 Bar	±50 PSI, ±4 Bar	±150 PSI, ±10 Bar

¹Burst Pressure: The maximum pressure that may be applied to the positive pressure port without rupturing the diaphragm or reference pressure containment.

²Proof Pressure: The maximum recoverable pressure that may be applied without changing performance beyond specification: ±0.5% Zero Shift, Typical.

³RSS: Root Sum Square of endpoint linearity, Hysteresis and Non-repeatability at constant temperature.

US Patent # 6,789,429

AccuSense™ Model ASM

High Accuracy Pressure Transducer

Setra's Model ASM is the highest accuracy transducer for measuring gauge, absolute, compound and vacuum pressure in the AccuSense™ product line. Its $\pm 0.05\%$ FS accuracy is calibrated using the "End Point Method", which improves linearity when compared to competitive transducers which use the "Best Fit Straight Line Method" of calibration. The ASM's calibration is tamper proof by utilizing a SecureCal™ calibration key, which eliminates inadvertent adjustments, while allowing authorized users to adjust the sensor's calibration coefficients for a true sensor calibration. The design of the ASM offers class leading overpressure capability and multiple pressure and electrical fittings for a wide range of applications.

High Accuracy For Demanding Applications

The Model ASM pressure transducer uses a resonant variable capacitance sensor. This sensor is linearized and thermally compensated through a computerized curve fitting algorithm that optimizes the sensor's linearity for maximum accuracy in demanding applications.

Robust Design & Construction for Reliable Service

The Model ASM is designed and built to withstand demanding applications. The laser welded sensor construction, designed with a positive overpressure stop, enables the sensor to resist overpressure conditions up to 10X in all pressure ranges.

Secure and Fast Calibration & Service

The Model ASM is ideal for the Test & Measurement industry because it adheres to the stringent accuracy requirements. In order to make adjustments, the ASM utilizes the SecureCal™ calibration key, providing secure calibration. The SecureCal™ provides the ability to calibrate zero and span coefficients through a simple push button and rotary adjustment dial. The SecureCal™ also offers the option to restore factory defaults for fail-safe sensor calibration.



- **Reliable Testing Data**
- **Minimize Downtime**
- **Reduce Calibration Time**

Model ASM Features:

- High Accuracy: $\pm 0.05\%$ FS
- End Point Method Linearity
- Low Differential Pressure Ranges
- High Overpressure Capability: >10X Range
- Low Thermal Error
- Excellent Stability: <0.15% FS/YR
- Calibrate Using SecureCal™ Calibration Key
- High Line Pressure Capability
- Unidirectional & Bidirectional Models Available

Applications:

- Engine Test Stands
- Particle Test & Analysis
- Industrial (High Accuracy)
- Manifold Pressure
- Refrigeration Testing

ORDERING INFORMATION

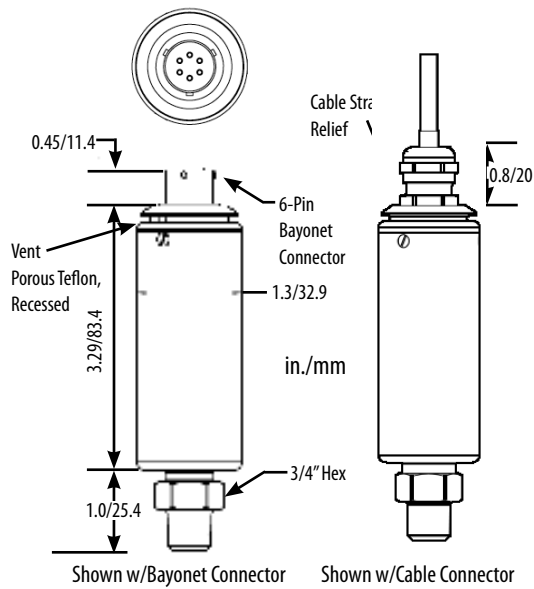
ASM1 - [] - [] - [] - [] - [] - [] - []

Model	Pressure Ranges		Type	Pressure Port		Output		Elec. Termination		Accuracy		Option			
	PSI	BAR													
ASM1=ASM			G	Gauge	1F	1/8" NPT Female	2B	0 to 5 VDC	03	3 ft, 1m Std Cable	A	<±0.05% FS RSS <0.25% TEB	00	None, Standard	
	Z01P	0 to -14.7	Z01B	-1	C	Compound	1M	1/8" NPT Male	2C	0 to 10 VDC	B3	B	<±0.10% Reading <0.25% TEB	01	High Overpressure (See Table)
	015P	0 to 15	001B	1	A	Absolute	2F	1/4" NPT Female	11	4 to 20 mA		C	<±0.1% FS RSS <0.5% TEB		
	025P	0 to 25	002B	2	V	Vacuum ¹	2M	1/4" NPT Male			B4 B5 B6 B7 (See Wiring Code Table)	D	<±0.1% FS RSS <1.5% TEB		
	050P	0 to 50	003B	3	Z01 Range Only		J7	7/16-20 SAE Male							
	100P	0 to 100	005B	5											
	250P	0 to 250	010B	10											
	500P	0 to 500	040B	40											
	10CP	0 to 1,000	070B	70											

Example: Part No. ASM1015PG1F2B03A00= ASM Transducer, 0 to 15 PSI pressure range, Gauge, 1/8" NPT Female Pressure Port, 0 to 5VDC Output, 3ft Cable, ±0.05% FS accuracy, No options

See data sheet for more information on Setra's SecureCal™ Calibration Key .

DIMENSIONS



GENERAL SPECIFICATIONS

Performance Data		Physical Description	
Zero Offset Position Effect	<0.05%/G (Ranges ≥100 psi) <0.1%/G (Ranges ≤50 psi)	Electrical Terminations	6-Conductor Cable, Pigtail 6-Pin Bayonet Connector
Long-term Stability	<0.10% FS/Year, Typical	Dimensions	See reverse side
Response Time to Pressure Input (From 100% to 10% of pressure range)	<10 ms for Voltage Output <80 ms for Current Output	Moisture/Splash Resistance	NEMA 4X (IP65)
Unit factory calibrated in vertical position (pressure port downward)		Weight	9 oz. (254 g)
Environmental Data		Pressure Fittings	See Ordering Information
Temperature Calibrated °F (°C)	-4 to +140 (-20 to +60)	Case Materials	Stainless Steel
Operating	-40 to +185 (-40 to +85)	Sensor Description	
Storage	-40 to +185 (-40 to +85)	Wetted Materials	17-4 PH Stainless Steel
Vibration	10g from 1 kHz to 2kHz	Life Cycle Rating	>10 ⁶ Pressure Cycles
Higher or lower limits available (consult factory).		Pressure Media	
Electrical Data		Gases or liquids compatible with 17-4 pH stainless steel. Note: Hydrogen not recommended for use with 17-4 PH stainless steel.	
Excitation Range	9 to 30VDC (5VDC & 4-20 mA output) 15 to 30VDC (10VDC output)	Accuracy Data	
Current Consumption	<23 mA		
Warm-up, Environmental	Within ±0.02% FS after 15 min warm-up time	Accuracy RSS*: End-Point Typ. (BFSL)	A
Miswiring	Reverse Excitation Protection	Non-Linearity: End-Point Typ. (BFSL)	B
Signal Output Ranges	0 to 5 VDC, 0 to 10VDC (4-wire), 4-20mA (2-wire)	Hysteresis	C
Regulatory Data	CE Compliant & RoHS Compliant	Non-Repeatability	D
Approvals		Span Setting Tol.	<±0.05% FS
CE, RoHS		Zero Offset Tol.	<±0.05% FS Typ.

PROOF PRESSURE

Full Scale Range (PSI)	Burst Pressure ¹ (PSI)	Std Proof Pressure ² Option Code "00"	High Proof Pressure Option Code "01"
0 to 15	3,000	30 (2x)	150 (10x)
0 to 25	3,000	50 (2x)	250 (10x)
0 to 50	8,000	100 (2x)	500 (10x)
0 to 100	10,000	200 (2x)	1,000 (10x)
0 to 150	10,000	300 (2x)	1,200 (8x)
0 to 200	10,000	400 (2x)	1,200 (6x)
0 to 300	10,000	600 (2x)	1,500 (5x)
0 to 500	10,000	800 (1.5x)	2,000 (4x)
0 to 750	10,000	1,200 (1.5x)	2,250 (3x)
0 to 1000	10,000	1,500 (1.5x)	3,000 (3x)

¹ Burst Pressure: The maximum pressure that may be applied to the positive pressure port without rupturing the sensing element.
² Proof Pressure: The maximum recoverable pressure that may be applied without changing performance beyond specification:
 ±0.5% Zero Shift, Typical

*RSS of Non-Linearity, Hysteresis, and Non-Repeatability.
¹Units calibrated at nominal 70°F. Max thermal error computer from this datum.
²Operating temperature limits of the electronics only.
³Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater
 Specifications subject to change.
 US Patents # 6,532,834; 6,718,827

Model 201

Very Low Differential Gauge Pressure



DESCRIPTION

Setra's Model 201 is an accurate, low cost pressure transducer for measuring very low differential of gauge pressure. The 201's all-welded no o-ring construction results in a leak-free design, ideal for the most critical low range applications. The 201 process connection is designed to be used with pressure media compatible with stainless steel and 600 Series Inconel.

Setra's patented variable capacitance sensor design combines the ultimate in simplicity, with high accuracy and superior thermal stability. It features an Inconel diaphragm and an insulated electrode. As pressure increases or decreases, the capacitance changes. This change in capacitance is detected and converted to a fully conditioned linear current output signal.

It's rugged design, 45 PSI high overpressure capability, and wide operating temperature make the Model 201 ideal for the most demanding applications.

BENEFITS

- Low Full Scale Range
- All-Welded Construction
- No O-Rings
- Wide Compensated Operating Temp.
- High Overpressure of 45 PSI
- Can be used for Gauge or Differential Pressure Measurements
- Meets CE Conformance Standards

APPLICATIONS

- Vapor Recovery Systems
- Exhaust Gas Control Systems
- Industrial Scrubbers

SPECIFICATIONS

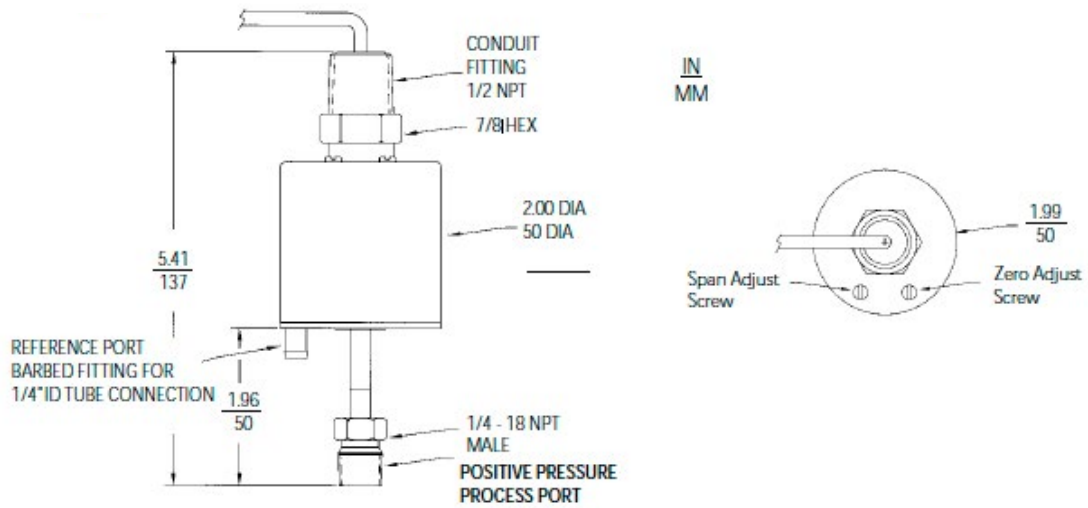
Performance Data		Physical Description		Electrical Data (Voltage)	
Accuracy RSS ¹ (at constant temperature)	±0.5% FS	Case ⁴	Stainless Steel	Circuit	2-Wire
Non-Linearity, (BFSL)	±0.45% FS	Electrical Connection	2ft. Multiconductor Cable (Std), 3 Screw Terminal Block	Output ⁶	4 to 20 mA ⁹
Hysteresis	0.25% FS	Pressure Fitting	1/4" NPT Internal	External Load	0 to 800 Ohms
Non-Repeatability	0.25% FS	Weight	6 ounces	Minimum Supply Voltage (VDC)	12 + 0.02 x (Resistance of receiver plus line)
Thermal Effects²		Vent ⁵	Through Cable	Maximum Supply Voltage (VDC)	30 + 0.004 x (Resistance of receiver plus line)
Compensated Range °F(°C)	-25 to +175 (-33 to +80)	Zero/Span Adjustment	Top External Access	Pressure Media	
Zero Shift %FS/°F (%FS/°C)	2.0 (1.8)	Environmental Data		Positive Pressure Media	
Span Shift %FS/°F (%FS/°C)	1.5 (1.4)	Temperature		Liquids or Gases Compatible with Stainless Steel and Inconel	
Warm-Up Shift	0.1% FS/15 Minutes	Operating °F(°C) ⁶	-40 to +175 (-40 to +80)	Reference Pressure Media	
Response Time	20 Millisecond	Storage °F(°C)	-40 to +185 (-40 to +85)	Clean Dry Air or Non-Corrosive G	
Proof Pressure ³	10 PSI (Ranges 0-2 PSI) 45 PSI (Ranges 0-20 PSI)	Acceleration	10g Maximum	¹ RSS of Non-Linearity, Hysteresis and Non-Repeatability.	
Burst Pressure	100 PSI	Shock ⁷	50g Operating	² Units calibrated at nominal 70°F. Maximum thermal error is computed from this datum.	

³ Proof Pressure: The maximum pressure that may be applied without changing performance beyond specifications (±0.5% FS zero shift)
⁴ NEMA 4 Rated when AT electrical termination is ordered
⁵ When T1 terminal strip is ordered, venting is through zero or span screw.
⁶ Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.
⁷ Mil-Std. 202F, Method 213D, Cond. C
⁸ Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.
⁹ Zero output factory set to within ±.08mA. Span (Full Scale) output factory set to within ±.08mA

GAUGE PRESSURE RANGES

0 to 2 PSI	0 to 5" W.C.	0 to 10 mbar	0 to 1 kPa
0 to 20 PSI	0 to 10" W.C.	0 to 20 mbar	0 to 2 kPa
0 to ±1 PSI	0 to 50" W.C.	0 to 100 mbar	0 to 10 kPa
0 to ±2 PSI	0 to ±2.5" W.C.	0 to ±5 mbar	0 to ±0.5 kPa
	0 to ±5" W.C.	0 to ±10 mbar	0 to ±1 kPa
	0 to ±25" W.C.	0 to ±20 mbar	0 to ±5 kPa

DRAWINGS & DIMENSIONS



ORDERING INFORMATION

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Model		Pressure Range				Fitting		Output		Termination		Accuracy	
2011	201	005WD	5 in. W.C.	001KD	1 kPa	2M	1/4" 18 NPT Male	11	4 to 20 mA	A1	Conduit	H	±0.5% FS
		010WD	10 in. W.C.	002KD	2 kPa	2T	1/4" Tube Stub			02	2 ft. of Cable	F	±0.25% FS
		050WD	50 in. W.C.	010KD	10 kPa	2F	1/4"-18 NPT Female			T1	Terminal Strip		
		2R5WB	±2.5 in. W.C.	0R5KB	±0.5 kPa	J7	7/16" SAE 37° Flare						
		005WB	±5 in. W.C.	001KB	±1 kPa								
		025WB	±25 in. W.C.	005KB	±5 kPa								
		002PD	2 PSI	010MD	10 Millibar								
		020PD	20 PSI	020MD	20 Millibar								
		001PB	±1 PSI	100MD	100 Millibar								
		002PB	±2 PSI	005MB	±5 Millibar								
				010MB	±10 Millibar								
				050MB	±50 Millibar								

Ordering Example: Part No. 2011005WD2M1102H is a Model 201, 0 to 5 in. W.C., 1/4 NPT Fitting, 4 to 20 mA Output, 2 ft. of Cable and 0.5% FS Accuracy.

Model 204

High Accuracy Gauge & Absolute Pressure Transducer

Setra's Model 204 is the "standard" for measuring gauge and absolute pressure in the Test and Measurement industry. Decades worth of installations have helped the 204 build a reputation of reliability and remains the trusted choice for critical installations. The 204 delivers a high performance $\pm 0.073\%$ FS accuracy over a wide temperature range which outperforms competitive transducers in the mid to high pressure market. The 204 offers multiple options to meet both simple and demanding application requirements that are not provided on competitive transducers.

Long-Term Reliability

The Model 204 pressure transducer uses a simple and reliable variable capacitance sensor design. The 204 provides repeatable and dependable readings in rugged applications through its efficient sensor design.

Accuracy & Performance

The Model 204 is a Test and Measurement grade transducer for mid to high pressure ranges. The 204 covers a large selection of pressure ranges with $\pm 0.073\%$ FS accuracy over a wide temperature range. The Model 204 provides response time of < 1 ms, exceeding the performance of many competitors.

Customization is Standard

Unlike many competitors, the 204 offers many mechanical and electrical options that can be integrated into existing system designs. These options reduce engineering design time, allowing for earlier project completion and quicker time to market.



- Ideal for High Accuracy Applications
- Excellent Thermal Effects
- Highly Configurable Design

Model 204 Features:

- $\pm 0.073\%$ FS Accuracy
- 0-5 VDC or 4-20 mA Output
- Fast Response, Less than 1 ms
- Low Output Noise
- Solid One-Piece Stainless Steel Sensor
- Meets CE Conformance Standards

Applications:

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

ORDERING INFORMATION

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Model	Pressure Ranges		Pressure Fitting		Output		Electrical Termination		Accuracy ¹	Options ²	
2041=Model 204	Gauge Pressure	Absolute Pressure	2F	1/4" NPT Female	11 ¹	4-20 mA	02	2' Cable	W	± 0.11% FS	3 ³ Compensated Temperature Range (-65 to 250°F)
	025PG 0-25 PSIG	02SPA 0-25 PSIA			2B ²	0-5 VDC	10	10' Cable	9	± 0.073% FS	Y Clean for Oxygen
	050PG 0-50 PSIG	050PA 0-50 PSIA			2Y	0-2.5 VDC	25	25' Cable			D Mate with Datum
	100PG 0-100 PSIG	100PA 0-100 PSIA			27	1-5 VDC	Y1	2' Red Cable 9-Conductor 30 AWG			E Special Excitation Voltage ±24 VDC
	250PG 0-250 PSIG	250PA 0-250 PSIA			28	1-6 VDC					F NEMA4 Enclosure
	500PG 0-500 PSIG	500PA 0-500 PSIA			2C	0-10 VDC					G Special Excitation Voltage ±15 VDC
	10CPG 0-1000 PSIG	10CPA 0-1000 PSIA			2U	1-10 VDC					L Etched SS Tags
	30CPG 0-3000 PSIG	30CPA 0-3000 PSIA									M ⁴ Remote Full Scale Sensitivity
	50CPG 0-5000 PSIG	50CPA 0-5000 PSIA									N None
	10KPG 0-10000 PSIG										R ⁴ Remote Calibration (Adjustable)
	201PV 0-14.7 PSI (VACUUM)										S ⁴ Remote Calibration Adjustable (Fixed)

¹Units with pressure range > 5,000 psi have accuracy of ±0.14% FS only.

²Both boxes must be filled in alphanumeric order.

-If No options: N + N

-If 1 option: Option Code + N

-If 2 options: Option Code + Option Code

³x Thermal Effects Specification

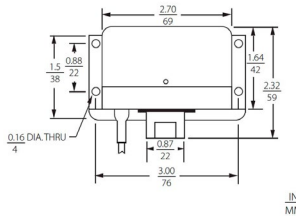
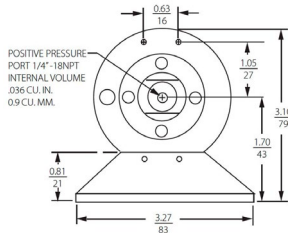
⁴Options M, R and S will have Y1 Cable as STD.

Note: Setra adheres to strict quality standards including

ISO 9001 and ANSI-Z540-1. The calibration of this product is NIST traceable.

Ordering Example: 2041025PG2F1102WNN, Model 204, Ranges 0-25 PSIG, 1/4" NPT Female, 4-20 mA, 2' Cable, ±0.14% FS Accuracy.

DIMENSIONS



PROOF PRESSURE

Pressure Ranges 0 PSIA or 0 PSIG to:	Proof Pressure (PSI)	Burst Pressure Rating (PSI)	Approx. Natural Frequency (KHz)
25	50	150	2.0
50	75	200	2.5
100	150	500	3.5
250	375	1000	5.0
500	750	1500	8.0
1000	1250	3000	11.0
3000	3750	4500	15.0
5000	6000	7500	25.0
10,000 PSIG only	11,000	12,500	30.0
0-14.7 PSI vac	50	150	2.0

GENERAL SPECIFICATIONS

Performance Data		Physical Description	
Accuracy RSS ¹ (at constant temperature)	±0.11% FS ±0.14% for 10,000 PSIG	Pressure Fitting	1/4" - 18 NPT Internal
Non-Linearity (BFSL)	±0.07% FS	Excitation	22 to 30 VDC, 24 VDC (Normal) Reverse Excitation Protected
Hysteresis	0.08% FS 0.1% for 10,000 PSIG	Output ⁴	0 to 5 VDC ⁵
Non-Repeatability	0.02% FS	Power Consumption	10 mA (0.25 Watts)
Thermal Effects ²		Output Impedance	<10 ohms
Zero Shift ³ %FS/100°F (%FS/50°C)	<±0.4 (<±0.36)	Output Noise	<100 Microvolts RMS (0 Hz to 10 KHz)
Span Shift ³ %FS/100°F (%FS/50°C)	<±0.3 (<±0.27)	Electrical Data (Current Output)	
Static Acceleration Effect	<0.05 PSI/G (Typ.) (Pressure Port Axis)	Circuit	2-Wire
Volume Increase Due to FS Pressure	5 x 10 ⁻⁵ cu. in.	Output ⁶	4 to 20 mA ⁷
Warm-Up Shift	±0.5% Total (±0.1% Residual Shift after 5 Minutes)	External Load	0 to 1000 ohms
Environmental Data		Minimum Supply Voltage (VDC)	17 + 0.02x (Resistance of receiver plus line)
Operating Temperature °F(°C)	0 to +175 (-18 to +80)	Maximum Supply Voltage (VDC)	42 + 0.004x (Resistance of receiver plus line)
Storage Temperature °F(°C)	-65 to +250 (-55 to +120)	Effect of Power Supply	
Vibration	2g from 5 Hz to 500 Hz	Variations	<0.003mA/Volt
Shock	50g	Output Noise	<10 Microamperes RMS (0 HZ to 10 KHz)
Acceleration	10g Maximum	¹ RSS of Non-Linearity, Hysteresis and Non-Repeatability ² Units calibrated at nominal 70°F ³ Approximately 50% higher for 0-14.7 psiv range ⁴ Calibrated into 50k ohm load. Operable into 5000 ohms or greater. ⁵ Zero output factory set to within ±10mV. Span (Full Span) output factory set to within ±10mV. Note: Both output leads are normally 1.6VDC above the negative excitation lead at zero pressure. Either negative excitation or negative output should be connected to case (ground). But both leads cannot be connected to case (ground). Unit is calibrated at the factory with the negative excitation connected to case (ground). ⁶ Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load. ⁷ Zero output factory set within ±0.03mA. Span (Full Span) output factory set to within ±0.03mA. Specifications subject to change without notice.	

Model 239

High Accuracy Low Differential Pressure Transducer

Setra's Model 239 is the "standard" for measuring low differential pressure in the Test & Measurement industry. Decades worth of installations have helped the 239 build a reputation of reliability and remains the trusted choice for critical installations. The 239 delivers a high performance 0.073% FS accuracy over a wide temperature range which outperforms competitive transducers in the low pressure market. The 239 offers multiple options to meet both simple and demanding application requirements that are not provided on competitive transducers.

Long-Term Reliability

The Model 239 differential pressure transducer uses a simple and reliable variable capacitance sensor design. The 239 provides repeatable and dependable readings in rugged applications through its efficient sensor design.

Accuracy & Performance For Low Pressure Ranges

The Model 239 is a Test & Measurement grade transducer for extremely low pressure ranges. The 239 covers a large selection of pressure ranges with $\pm 0.073\%$ FS accuracy over a wide temperature range. The Model 239 provides the fastest response time compared to its competitors.

Customization is Standard

Unlike many competitors, the 239 offers many mechanical and electrical options that can be integrated into existing system designs. These options reduce engineering design time, allowing for earlier project completion and quicker time to market.



- Industry Standard For Accuracy
- Captures Dynamic Pressure Changes
- Small Footprint

Model 239 Features:

- High Accuracy: $\pm 0.073\%$ FS
- Fast Response Time: <10ms
- Fast Warm-Up: <0.1% over 5 min.
- Low Thermal Error
- Meets CE Conformance Standards

Applications

- Exhaust Pressure
- Leak Detection Systems
- Filter Pressure
- Medical Instrumentation
- Part Integrity Testing
- Cleanrooms

ORDERING INFORMATION

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Model	Pressure Ranges		Pressure Fitting		Output		Termination		Accuracy		Options ⁴			
	Unidirectional		Bidirectional		1F	1/8" NPT Female	11	4 to 20 mA	02	2' Cable 22 GA	W	±0.14% FS	N	None
2391=239	0R5WD	0 to 0.5 "W.C.	R25WB	±0.25"W.C.			25	±2.5 VDC ¹	10	10' Cable 22 GA	9	±0.073% FS	1	303SS Housing Positive Port
	001WD	0 to 1"W.C.	0R5WB	±0.5"W.C.			2B	0 to 5 VDC ²	25	25' Cable 22 GA			3	Compensated Temp. Range (-65 to 250°F) ⁶
	2R5WD	0 to 2.5"W.C.	001WB	±1"W.C.			27	1 to 5 VDC	Y1	2'30 GA 9-Conductor ³			4	Viton O-Ring
	005WD	0 to 5"W.C.	2R5WB	±2.5"W.C.			28	1 to 6 VDC	Y3	5'30 GA 9-Conductor ³			D	Mate with Datum
	015WD	0 to 15"W.C.	005WB	±5"W.C.			2C	0 to 10 VDC	Y4	10'30 GA 9-Conductor ³			E	Special Excitation Voltage ±24 VDC
	030WD	0 to 30"W.C.	7R5WB	±7.5"W.C.			2T	0 to 5 VDC ¹	Y6	25'30 GA 9-Conductor ³			G	Special Excitation Voltage ±15 VDC
	005PD	0 to 5 PSID	015WB	±15 in. W.C.									L	Etched SS Tags
	010PD	0 to 10 PSID	2R5PB	±2.5 PSID									M	Remote Full Scale Sensitivity ⁵
	250LD	0 to 250 Pa	005PB	±5 PSID									R	Remote Calibration (Adjustable) ⁵
	500LD	0 to 500 Pa	125LB	±125 Pa									S	Remote Calibration Adjustment (Fixed) ⁵
	10CLD	0 to 1000 Pa	250LB	±250 Pa									Y	Clean for Oxygen
	20CLD	0 to 2000 Pa	500LB	±500 Pa										
	50CLD	0 to 5000 Pa	10CLB	±1000 Pa										
	010KD	0 to 10 kPa	25CLB	±2500 Pa										
	015KD	0 to 15 kPa	50CLB	±5000 Pa										
	035KD	0 to 35 kPa	75CLB	±7500 Pa										
	070KD	0 to 70 kPa	035KB	±35 kPa										

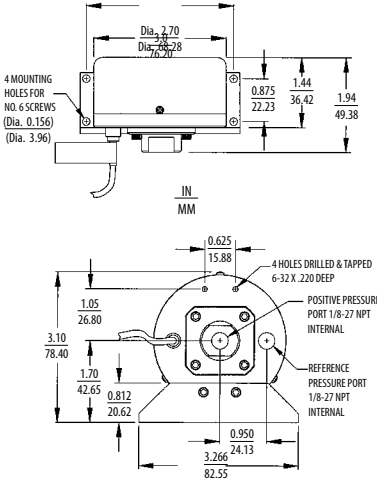
¹25 and 2T are for Bidirectional Pressure Ranges Only
²2B is for Unidirectional Pressure Ranges Only
³Y1-Y6 = Red Jacket Cable (Previously the standard for voltage outputs.)
⁴Both boxes must be filled in alphanumeric order:
 • If No options: N + N
 • If 1 option: Option Code + N
 • If 2 options: Option Code + Option Code
⁵Options M, R & S are for voltage units and Y1-Y6
 Termination Codes
⁶2x Thermal Effects Specification

Example: Part No. 2391001WD1F1102WLN = Model 239, 0 to 1 in. W.C. pressure range, 1/8" NPT female fitting, 4 to 20 mA Output, 2' Cable Length, ±0.14% FS Accuracy, Etched SS Tags Option

GENERAL SPECIFICATIONS

Performance Data		Physical Description	
Accuracy RSS ¹ at constant temp	±0.14% FS	Pressure Fittings	1/8" -27NPT internal
Non-Linearity (BFSL)	±0.10% FS	Electrical Connection	2' Multiconductor cable
Hysteresis	0.10% FS	Weight (approx)	8 oz
Non-Repeatability	0.02% FS	Vibration	2g from 5 Hz to 500 Hz
Warm-up Shift	<±0.1% FS residual shift after 5 minutes	Internal Volumes	Positive port 0.03 in ³ Negative port 0.1 in ³
Setting Time	<100ms	Max Volume Change at FS	0.001 in ³
Acceleration Response	<0.0002 PSI/G	Acceleration	10g Max
Natural Frequency	2000 Hz nominal	Shock	50g Operating
Operable Line Pressure	Vacuum to Max 250 PSIG	Electrical Data (Current)	
Line Pressure Effect	2%/100 PSI	Circuit	2-Wire
Thermal Effects ²		Output ³	0 to 20 mA ⁴
Compensated Range °F(°C)	+30 to +150 (-1 to -65)	External Load	0 to 1000 ohms
Zero/Span Shift %FS/100°F(50°C)	<+1 (<±0.9)/<+1 (<±0.9)	Min. Supply Voltage (VDC)	17 + 0.02 x (resistance of receiver plus line)
Max. Supply Voltage (VDC)	42 + 0.004 x (resistance of receiver plus line)	Environmental Data	
Operating Temp. ³ °F (°C)	0 to +175 (0-18 to +80)	Effect of Power Supply	
Storage Temp. °F (°C)	-65 to +250 (-55 to +120)	Variations	<0.003 mA/Volt
Pressure Media		Output Noise	<10 microamperes RMS (0Hz to 10kHz)
Positive Pressure Media: Gases compatible with stainless steel, hard anodized 6061 aluminum (Buna-N O-ring)		Power Consumption	10W max, 3W typ.
Reference Pressure Media: Clean dry air or other gases (non-corrosive, non-condensable)		Excitation	18-32 VAC, 50-60 Hz
Approvals		Electrical Data (Voltage)	
CE, RoHS		Circuit	4-Wire (+Exc, -Exc, +Out, -Opt)
¹ RSS of Non-Linearity, Hysteresis, and Non-Repeatability. ² Units calibrated at nominal 70°F. Max thermal error computer from this datum. x 2 for 0.5 and ±0.25 in W.C. changes. ³ Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load. ⁴ Zero output factory set to within ±0.07 mA. Span (FS) output factory set to within ±0.07 mA. ⁵ Internal regulation minimizes effect of excitation variation, with <±0.005% FS output change. Will operate on 28VDC aircraft power per MIL-STD-704A & not be damaged by emergency power conditions. ⁶ Calibrated into 50k ohm load. Operable into 5000 ohms or greater. Zero output factory set to within ±20mV.		Excitation ⁵	22 to 30 VDC (reverse excitation protected)
		Output Impedance	<10 ohms
		Output Noise	<200 microvolts RMS (in band, 0Hz to 10kHz)
		Output ⁶	See ordering information (for unidirectional ranges) ±2.5 VDC (for bidirectional ranges)

DIMENSIONS



PROOF PRESSURE

Pressure Range		Proof Pressure		Pressure Range		Proof Pressure	
Unidirectional	Bidirectional	Positive	Negative	Unidirectional	Bidirectional	Positive	Negative
0 to 0.5 "W.C.	±0.25 "W.C.	5 PSI	2.5 "W.C.	0 to 250 Pa	±125 Pa	0.5 BAR	1250 Pa
0 to 1 "W.C.	±0.5 "W.C.	7 PSI	5 "W.C.	0 to 500 Pa	±250 Pa	0.7 BAR	3000 Pa
0 to 2.5 "W.C.	±1 "W.C.	10 PSI	12.5 "W.C.	0 to 1000 Pa	±500 Pa	1.25 BAR	6250 Pa
0 to 5 "W.C.	±2.5 "W.C.	20 PSI	25 "W.C.	0 to 2000 Pa	±1000 Pa	3.5 BAR	18500 Pa
0 to 15 "W.C.	±5 "W.C.	50 PSI	75 "W.C.	0 to 5000 Pa	±2500 Pa	3.5 BAR	37000 Pa
0 to 30 "W.C.	0 to ±1 "W.C.	50 PSI	150 "W.C.	0 to 15 kPa	±7500 Pa	3.5 BAR	37000 Pa
0 to 5 PSID	0 to ±2.5 PSID	75 PSI	25 PSI	0 to 35 kPa		5 BAR	1.75 BAR
0 to 10 PSID	0 to ±5 PSID	100 PSI	50 PSI	0 to 70 kPa	±35 kPa	7 BAR	3.5 BAR

290

SANITARY PRESSURE

PRODUCT SECTION 3.1

setra

Model 290

Sanitary Pressure Transducer

The Model 290 is Setra's highest accuracy solution for measuring gauge and compound pressure ranges in sanitary processing applications. Unlike competitive transducers which use an oil filled design, the 316L stainless steel sensor is designed to operate without the need for an intermediary liquid within the sensor. The design of the 290 negates clamp effect making installation and service faster and easier than the competition. Its small footprint and accuracy ($\pm 0.2\%$ FS) covers a wide range of pressure ranges that meet both 3A certification and withstand CIP/SIP environmental conditions, making it ideal for a variety of applications.

Robust Non-Liquid Filled Sensor

The Model 290 sanitary pressure transducer uses an air variable capacitance sensor. This sensor design eliminates chance of "product" contamination, position effect and thermal transients when compared to liquid filled sensors. The diaphragm is able to withstand pressure down to full vacuum for worry free operation during tank and piping evacuation cycles.

Negligible Clamping Effect

The process interface of the 290 negates the effect of clamping pressure on the output signal of the sensor. This design allows the sensor to be delivered in a small footprint with the diaphragm closely mounted to the process media which ensures the most accurate measurements.

Flexibility in Application

The Model 290 is the most versatile sanitary pressure transducer on the market. Its design allows full scale tank level measurements as low as 27.7" WC with an accuracy of 0.027" and up to 1,000 PSI for process lines. The 316L wetted components meet 3A requirements for food and beverage industry applications; its optional 20Ra finish make it the ideal solution for use in Biotech applications.



- Eliminates Process Contamination Risk
- 316L SS For Harsh Environments
- Meets 3A Sanitary Standards

Model 290 Features:

- High Accuracy: $\pm 0.2\%$ FS
- Robust Non-Liquid Filled Capacitive Sensor
- Negligible Clamping Effect for Easy Installation
- Designed for Clean-In-Place (CIP) and Sterilize-In-Place (SIP) Installations
- 1.5" and 2" Tri-Clover Fittings
- High Overpressure Protection
- Not Sensitive to Thermal Shock

Applications:

- Food Processing
- Dairy and Beverage Processing
- Pharmaceutical Processing
- Liquid Level Control
- Sanitary Pipelines

ORDERING INFORMATION

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Model	Range				Units		Pressure Type		Fitting		Output		Termination		Accuracy		Options ²		
	2" Tri-Clover (PSI)		1 1/2" Tri-Clover (PSI)		p	PSI	G	Gauge	T6	1 1/2" Tri-Clover	11	4-20 mA	15	15' Cable	3	± 0.2% FS	N	None	
2901 = 290	001	0-1	030	0-30	M	mBAR	C'	Compound	T8	2" Tri-Clover			25	25' Cable	T	± 0.1% FS	L	Etched SS Tags	
	002	0-2	045*	0-45									30	30' Cable			R	20 Ra Sensor Finish	
	005	0-5	060	0-60															
	010	0-10	100	0-100															
	015	0-15	150	0-150															
	030	0-30	300	0-300															
	060	0-60	500	0-500															
	100	0-100	10C	0-1000															
	150	0-150																	

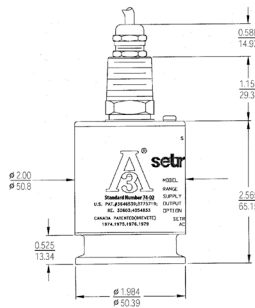
¹-14.7 to X psi, -1000 to X mBAR
² Both boxes must be filled in alphabetical order:
 - If No options: N + N
 - If 1 option: Option Code + N
 - If 2 options: Option Code + Option Code

Proof Pressure: The maximum pressure that may be applied without changing performance beyond specifications (<±0.5% FS zero shift).
Burst Pressure: The maximum pressure that may be applied to the positive pressure port without rupturing the sensing element.

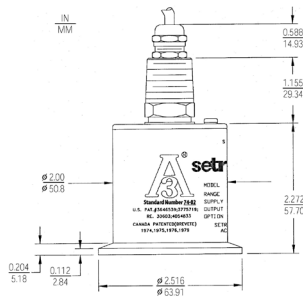
Example: Part No. 2901001PGT811153N = Model 290, 2" Tri-Clover 0 to 1 PSI, Gauge Pressure, 2" Tri-Clover Fitting, 4 to 20 mA Output, 15' Cable Termination, ± 0.2% FS Accuracy.

DIMENSIONS

1 1/2" Tri-Clover Sanitary Fitting
Diaphragm Material: 316SS



2" Tri-Clover Sanitary Fitting
Diaphragm Material: 316LSS



PROOF PRESSURE

Pressure Ranges 2" Tri-Clover				
PSIG	Range mb	in. H ₂ O	Proof PSIG	Burst PSIG
1	100	27.7	50	100
2	160	55.4	75	150
5	400	138.4	150	200
10	600	276.8	150	200
15	1000	415.2	150	200
30		830.4	150	300
60		1660.8	180	400
100		2768	200	400
150		4152	225	400
-14.7 to 15		-407 to 415	150	300

Pressure Ranges 1 1/2" Tri-Clover		
Range PSIG	Proof PSIG	Burst PSIG
30	1000	1200
60	1000	1200
100	1000	1200
150	1000	1200
300	1000	1200
500	1000	1500
1000	1250	2400
-14.7 to 15	1000	1200
-14.7 to 45	1000	1200

GENERAL SPECIFICATIONS

Performance Data			Electrical Data	
	2" Tri-Clover Sanitary Fitting	1.5" Tri-Clover Sanitary Fitting	Circuit	2-Wire
Accuracy RSS ¹ (at constant temp)	±0.20% FS	±0.20% FS	Output ³	4 to 20 mA ⁴
Non-Linearity (BFSL)	±0.17% FS	±0.15% FS	Zero/Span, Adjustment	± 0.5 mA
Hysteresis	0.10% FS	0.12% FS	External Load	0 to 800 ohms
Non-Repeatability	0.025% FS	0.10% FS	Min. Supply Voltage (VDC)	12 + 0.02 x resistance of receiver plus line
Thermal Effect ²			Max. Supply Voltage (VDC)	30 + .004 x resistance of receiver plus line
Compensated Range F ^o (°C)	+20 to +180 (-7 to +82)	+20 to +180 (-7 to +82)	Environmental Data	
Zero/Span Shift %FS/100°F (%FS/50°C)	2.0 (1.8)	2.0 (1.8)	Operating Temperature ⁵ F (°C) ³	-40 to +260 (-40 to +125)
Response Time	10 milliseconds	10 milliseconds	Storage Temperature ⁶ F (°C)	-65 to +260 (-55 to +125)
EMI/RFI Effect	< 1.0% output shift; 10V/M, 10-300 MHz	< 1.0% output shift; 10V/M, 10-300 MHz	Vibration	10g, 50-1000Hz
Clamping Effect, Zero/Span Shift	±0.15% FS	±0.25% FS	Acceleration ⁶	10g maximum
Maximum Vacuum (without affecting specifications)	Half on ranges ≤ 15 PSI	Full on ranges ≥ 30 PSI	Shock	50g operating
Physical Description			Thermal Shock ⁶ F (°C)	0 to +257 (0 to +125) negligible shift
Zero/Span Adjustments	Top Access Through Seal Screws		Approvals	
Case	Stainless Steel		CE	
Electrical Connection	1/2 NPT" Conduit Fitting & Strain Relief w/ 15' Shielded Cable		Note: Setra quality standards are based on ANSI-Z540-1. The calibration of this product is NIST traceable.	
Pressure Fitting	2" or 1 1/2" Tri-Clover Sanitary Fitting		¹ RSS of Non-Linearity, Non-Repeatability and Hysteresis.	
Sanitary	Meets 3-A Sanitary Standard (74-02)		² Units calibrated at nominal 70°F. Maximum thermal error is computed from this datum. Variations in the power supply voltage cause less than 0.005 mA change in the transmitter's current output, per volt change in the power supply. Reverse excitation will not damage circuit.	
Vent	Through Cable		³ Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.	
Weight (Approx.)	8 Ounces		⁴ Zero output factory set to within ±0.08mA.	
			⁵ Span (Full Scale) output factory set to within ±0.16mA.	
			⁶ Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.	
			⁷ shift in output reading at <0.05% FS/g; pressure port axis only.	

141

ACCELEROMETER

PRODUCT SECTION 4.1

setra

Model 141

High Output Linear Accelerometer



DESCRIPTION

The Model 141 is a linear accelerometer that produces high level instantaneous DC output signal proportional to sensed accelerations (ranging from static acceleration up to 3000 Hz as indicated below). Setra accelerometers are unique in their ability to withstand exceedingly high g overload without damage. The Model 141 incorporates the super-rugged Setra capacitance-type sensor and a miniaturized electronic circuit.

Its excellent dynamic response is maintained by air damping, which varies with temperature approximately one-tenth as much as the best fluid damping. The electrical characteristics are compatible with conventional strain-gauge type signal conditioning, including the use of shunt R_{cal} over any selected range up to 100% FS. The stainless steel case is O-Ring sealed, has a well-defined base plane and is quite insensitive to mounting strain.

Cross axis interface is exceedingly low. The external easy-to-replace cable attachment facilitates installation and service.

BENEFITS

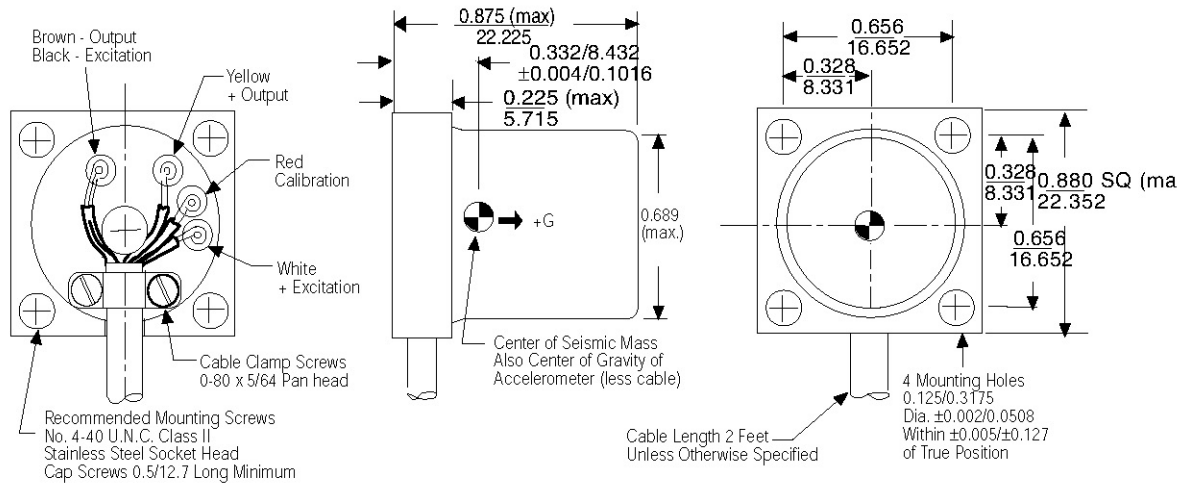
- Excellent Static and Dynamic Response
- Temperature-Insensitive Gas Damping (0.7 Critical)
- High Output Signal
- High Overload Capability, 2000g static
- Low Transverse Sensitivity (0.012 g/g)
- Wide-Range R_{cal} Type Calibration
- Easy-to-Replace Cable Attachment
- Compact and Lightweight
- Optional EMI Filter Upgrade



SPECIFICATIONS

Performance Data		Thermal Effects		Electrical Data		
Non-Linearity (Best Fit Straight Line)	±1.0% FS	Operating Temperature °F(°C)	-10 to +150 (-23 to +65)	Electrical Circuit ¹	3-Wire (Com, -Exc, -Out)	
Hysteresis	0.10%	Zero Shift	<±0.02% Nominal Range/°F (<±0.36%/°C)	Isolation	100 M ohms	
Non-Repeatability	0.05%	Sensitivity Shift	<±0.02% Nominal Range/°F (<±0.36%/°C) Slightly higher thermal effects when 141A is operated at excitation voltage below 10 VDC	Internal Frequency	20 MHz approx.	
Transverse Acceleration Response	<±0.012 g/g	Zero G Output	<±25 mV (factory calibrated at 10 VDC or 24 VDC excitation)	Calibration Signal (R_{cal})	Available up to 100% Nominal Range by shunting external calibration resistor from calibration lead to -signal lead.	
Damping	Approx. second order system with 0.7 critical damping (Gas Squeeze-Film 0.7 ±0.2 of critical at 77°F [25°C]). Damping ratio increases approx. 0.15%/°F.	FS G Output	<±25% of Nominal Output	Excitation/Output ² Code	BT	2S
				Excitation Range	5-15 VDC	10-28 VDC ³
Frequency Band	Flat from static to approx. 60% of natural frequency (all ranges)	Noise Level	<±0.01% Nominal Range (RMS, in-band)	Calibrated Excitation Voltage	10 VDC	24 VDC
				Excitation Current	5 mA	10 mA
Resolution	Infinite, limited only by output noise level	Physical Description		Nominal Output (open circuit)	±500 mV @ 10 VDC	±1000 mV @ 24 VDC
Calibration Data	Each unit is supplied with a computer generated plot of output vs. acceleration (centrifuge) at the specified excitation voltage.	Electrical Connection	2 foot multiconductor cable	¹ Circuit is capacitively isolated from case. Power applied to output, or shorted output, will not damage unit. No reverse excitation protection.		
Sensitivity	Reported at Nominal Range	Weight	30 grams (not including cable)	² Typical performance for nominal g range: Output is proportional to excitation voltage. Output impedance 9k ohms (nominal).		
Excitation Voltage	Model 141 calibrated at 10 VDC Or 24 VDC	Case	Stainless Steel, O-Ring	³ Operable on 28 VDC aircraft power. (Recommend high voltage transient protection to prevent damage by emergency power conditions as defined in MIL-STD-704A, and voltage regulation to attain highest accuracy.)		

DRAWINGS & DIMENSIONS



FULL SCALE RANGES

For each of the available g ranges, the linearity is characterized by this range chart: (Non-linearity is % full range, best fit straight line)

Nominal Range	Natural Frequency (Nominal)	Flat Response (±3 db) 0 Hz to:
±2g	300Hz	200Hz
±4g	440Hz	260Hz
±8g	570Hz	300Hz
±15g	840Hz	400Hz
±30g	1200Hz	700Hz
±60g	1560Hz	1000Hz
±150g	2600Hz	1600Hz
±600g	5000Hz	3000Hz

NOTE: Setra adheres to strict quality standards including ISO 9001 and ANSI-Z540. The calibration of this product is NIST traceable.

ORDERING INFORMATION

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Model	Range	Units	Type	Output	Termination	Accuracy	Options
141 1411	002 ±2g	A G Force	B Bidirection	BT ±500 mV (10VDC EXC)	02 2' Cable	G ± 1.0% FS	NN None
	004 ±4g			2S ±1000 mV (24VDC EXC)	10 10' Cable		6 Calibration Special EXC
	007 ±8g				2S 2S' Cable		7 EMV/RFI Filter
	015 ±15g				XX Consult factory for other lengths		3 Wide Oper. Temp. -65 to 220°F
	030 ±30g						
	060 ±60g						
	150 ±150g						
	600 ±600g						

Both boxes must be filled in alphanumeric order:
 • If No options: N + N
 • If 1 option: Option Code + N
 • If 2 options: Option Code + Option Code

Example: Part No. , 1411002ABB10GNN: ±2g, ±500mV Output, 10' Cable, ±1% FS Accuracy

270

276

278

370

470

BAROMETRIC PRESSURE

PRODUCT SECTION 5.1

setra

Model 270

SETRACERAM™ for Barometric, Gauge or Absolute Pressure

The Model 270 is Setra's highest performing analog sensor for barometric, absolute and gauge pressure measurements. Its decades worth of installations have built a reputation of reliability and remains the trusted choice for critical installations. The ceramic sensor on the 270 delivers high performance; its $\pm 0.03\%$ FS accuracy over a wide temperature range outperforms competitive transducers in the environmental sensing market. The 270 offers multiple options to fit the needs of difficult applications, making it easier to install and gather higher quality data for your project.

High Accuracy For Demanding Applications

The Model 270 pressure transducer is the most accurate analog sensor Setra manufactures. The available 0.03% FS accuracy is perfect for vital installations where precise measurements determine success or failure of the application.

Improved Performance With Ceramic Sensor

The 270 utilizes a variable capacitance sensor that is made using ceramic material fused together with glass and gold to form the SETRACERAM™ pressure element. This stable material and design offers class leading thermal performance and low hysteresis, allowing integration into demanding installations. The ceramic sensor enables improved performance compared to other stainless steel sensors, enabling the 270 to give accurate measurements and better test results.

Flexibility in Installation

The 270 offers mechanical and electrical options that can be installed into existing applications. These options reduce engineering design time, allowing for earlier project completion.



- Highest Accuracy Analog Sensor
- Captures Dynamic Pressure Changes
- Robust For Severe Weather Detection

Model 270 Features:

- High Optional Accuracy: $\pm 0.03\%$ FS
- Stable Ceramic Sensor
- Repeatability Within 0.01% FS
- Excellent Long-Term Stability: 0.1% FS/YR
- Low Power Consumption
- Instant Warm-Up
- Fast Response Time

Applications:

- High Accuracy Barometric Pressure Measurement
- Weather and Environmental Data
- Data Buoys and Remote Weather Stations
- Engine Test Cells

ORDERING INFORMATION

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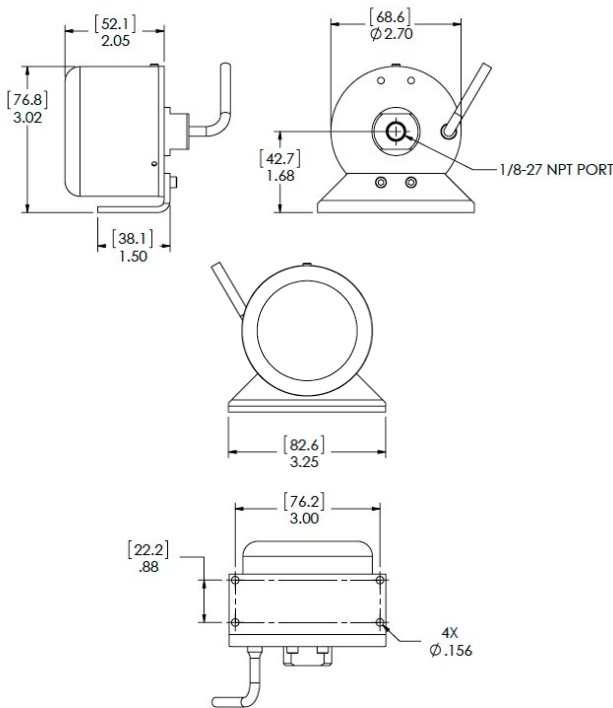
Model	Pressure Range		Units	Pressure Type		Fitting		Output		Termination		Accuracy		Options		
2701 = Model 270	600	600-1100	M	mb/hPa	A	Absolute	1F	1/8" NPT Internal	2B	0 to 5 VDC (24 VDC EXC)	02	2' Cable	N	±0.05% FS	NN	None
	800	800-1100	M	mb/hPa	G	Gauge (PSI units only)			3B	0 to 5 VDC (12 VDC EXC)	10	10' Cable	Y	±0.03% ² FS	C	11 PT Cal. Certificate
	005 ¹	0-5	P	PSI							25	25' Cable			D	Mate with Datum
	010	0-10	P	PSI							XX	Consult factory for other cable lengths			F	Nema 4 Enclosure
	020	0-20	P	PSI											L	Etched SS Tag
	050	0-50	P	PSI											2	-13 to -150°F Compensated Range ²
	100	0-100	P	PSI												

Example: Part No. 2701800MA1F2B02YNN = Model 270, 800-1100 mb/hPa pressure range, Absolute, 1/8" NPT internal fitting, 0 to 5VDC Output, 2' Cable Length, ±0.03% FS Accuracy.

¹Available in Gauge Pressure Type Only
²Accuracy "Y" and Option "2" cannot be combined

Both boxes must be filled in alphanumeric order:
 • If No options: N + N
 • If 1 option: Option Code + N
 • If 2 options: Option Code + Option Code

DIMENSIONS



PROOF PRESSURE

Type of Pressure	Pressure Range	Maximum Pressure
Barometric	600 to 1100 hPa/mb 800 to 1100 hPa/mb	20 PSIA
Absolute	0 to 10, 20, 50, 100 PSIA	1.5 x rated
Gauge	0 to 5, 10, 20, 50, 100 PSIG	1.5 x rated

GENERAL SPECIFICATIONS

Performance Data		Environmental Data	
Accuracy RSS ¹ (at constant temp)	±0.05% FS	Temperature	
Non-Linearity		Operating °F(°C)	0 to +175 (-18 to +80)
End Point	±0.05% FS	Storage °F(°C)	-65 to +250 (-54 to +120)
Best Fit Straight Line	±0.03% FS	Vibration	2g from 5Hz to 500 Hz
Hysteresis	<0.01% FS (TYP)	Acceleration	10g
Resolution	Infinite, limited only by output noise level (0.005% FS)	Shock	50g Operating, 1/2 sine 10ms
Thermal Effects ²		Pressure Fitting	1/8"-27 NPT Internal
Compensated Range °F(°C)	+30 to +120 (-1 to +49)	Electrical Connection	2' Multiconductor Cable
Thermal Zero Shift %FS/100°F (%FS/50°C)		Weight (approx.)	9 ounces (0.25 Kgm)
Barometric	±0.2 (±0.18)	Electrical Data	
Other Ranges	±0.1 (±0.09)	Electrical Circuit ³	4-Wire (+Exc, -Exc, _Out, -Out)
Thermal Coefficient Sensitivity	±0.1 (±0.09)	Excitation ⁴	24 VDC (22-32 VDC) 12VDC (11-15 VDC) Reverse Wiring Protection
Long Term Stability	< ±0.1% FS/YR	Output ⁵	0 to 5 VDC ⁶
Warm-Up	< ±0.04% FS shift after 20 minutes at constant temp.	Isolation	The insulation resistance between all signals leads tied together and case ground is 100 ohms minimum at 25 VDC
Time Constant	<10 milliseconds to reach 90% final output with step function pressure input	Output Impedance	<5 ohms
Pressure Media	Non-condensing air or gas compatible with hard anodized aluminum, alumina ceramics, gold, fluorocarbon elastomer sealant & Buna-N O-Ring.	Output Noise	<200 microvolts RMS (0 Hz to 100 Hz)
		Current Consumption	8 mA (0.2 Watts)
Approvals			
CE			

Model 276

Low Cost Barometric Pressure Transducer

The Model 276 barometric and absolute transducer is designed specifically for OEM applications and system integrators. The 276 brings value to the end customer through its small footprint and stable SETRACERAM™ ceramic sensor. These features enable the 276 to outperform the competition in the price sensitive OEM market. The 276 offers flexibility for designers with multiple electrical and mechanical options, helping reduce costs and deliver projects on time.

Flexible Design For OEM Applications

The Model 276 pressure transducer is ideal for OEMs and system integrators in the environmental pressure measurement market. The 276 offers multiple options to customize which allows designers to seamlessly integrate the 276 into new or existing hardware and software interfaces.

Improved Performance With Ceramic Sensor

The 276 utilizes a variable capacitance sensor that is made using ceramic material fused together with glass and gold to form the SETRACERAM™ pressure element. This stable material and design offers class leading thermal performance and low hysteresis, allowing it to be integrated into demanding installations. The ceramic sensor enables improved performance compared to other stainless steel sensors, enabling the 276 to give accurate measurements and better test results.



- Reduce System Enclosure Size
- Multiple Power Options
- Low Power Consumption

Model 276 Features:

- High Accuracy: $\pm 0.25\%$ FS
- Stable Ceramic Sensor
- Environmentally Rugged
- Compact Size: 2" dia. x 1" wide
- Excellent Long-Term Stability: 0.25% FS/6 mo.
- Fast Response Time

Applications

- Environmental Monitoring Systems
- Wind Measurement Systems
- Weather & Environmental Data Logging
- Cleanroom Barometric Pressure Compensation
- Automotive Emissions Test Equipment

ORDERING INFORMATION

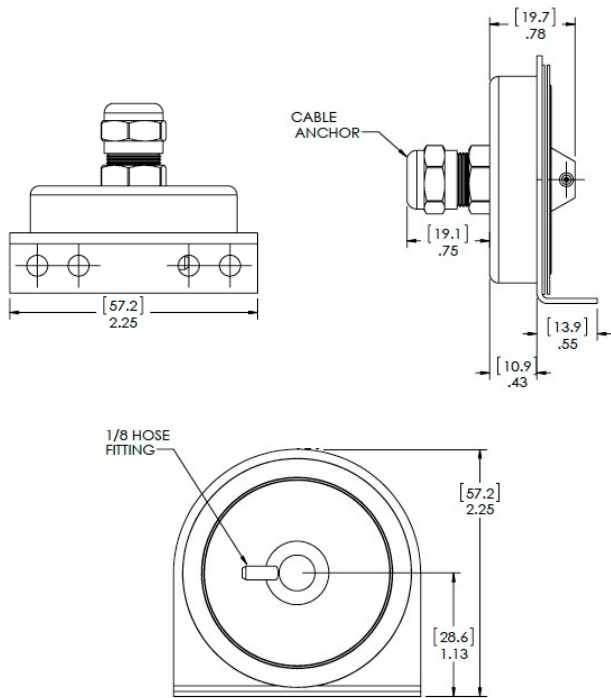
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Model	Pressure Range		Units	Pressure Type		Fitting		Output		Termination		Accuracy		Options		
2761 = 276	600	600-1100	M	mb/hPa	A	Absolute	1B	1/8" Push Tube Fitting	22	0.1 to 5.1 VDC (24 VDC EXC)	02	2' Cable	F	±0.25% FS	NN	None
	800	800-1100	M	mb/hPa			1M	1/8" NPT External	32	0.1 to 5.1 VDC (12 VDC EXC)	10	10' Cable	T	±0.1% FS	C	11 PT Cal. Certificate
	020	20	P	PSI					45	0.5 to 4.5 VDC (5 VDC EXC)	25	25' Cable			D	Mate with Datum
											XX	Consult factory for other cable lengths			L	Etched SS Tag

Example: Part No. 2761600MA1B2202FNN = Model 276, 600 to 1100 mb/hPa, Absolute Pressure, 1/8" Push Tube Fitting, 0.1 to 5.1 VDC Output, 2' Cable Termination, ±0.25% FS Accuracy.

Both boxes must be filled in alphanumeric order:
 • If No options: N + N
 • If 1 option: Option Code + N
 • If 2 options: Option Code + Option Code

DIMENSIONS



PROOF PRESSURE

Type of Pressure	Pressure Range	Maximum Pressure
Barometric	600 to 1100 mb/hPa	20 PSIA
	800 to 1100 mb/hPa	20 PSIA
Absolute	0-20 PSIA	30 PSIA

GENERAL SPECIFICATIONS

Performance Data		Environmental Data	
Accuracy RSS ¹ (at constant temp)	±0.25% FS ²	Temperature	
Non-Linearity (BSFL)	±0.22% FS	Operating ⁴ °F(°C)	0 to +175 (-18 to +79)
Hysteresis	.05% FS	Storage °F(°C)	-65 to +250 (-55 to +121)
Non-Repeatability	.05% FS	Vibration	2g from 5Hz to 500 Hz
Resolution	Infinite, limited only by output noise level (0.005% FS)	Acceleration	10g
Thermal Effects ³		Shock	50g Operating, 1/2 since 10ms
Compensated Range °F(°C)	+30 to +130 (0 to +55)	Electrical Data (Voltage)	
Zero/Span Shift %FS/°F (%FS/°C)	1% FS	Circuit	3-Wire ⁵ (Exc, Out, Com)
Resolution	Infinite, limited only by output noise level (0.0005% FS)	Power Consumption	0.2 Watts (24 VDC)
Time Constant	10 milliseconds to reach 90% final output with step function pressure input	Output Impedance	
Long Term Stability	0.25% FS/6 months	Output Noise	<200 microvolts RMS (0 Hz to 100 Hz)

Pressure Media
 Non-condensing air or gas compatible with stainless steel, alumina ceramics, gold and elastomer.

Physical Description

Case	Stainless Steel
Electrical Connection	2 ft. Multiconductor Cable
Pressure Fitting	1/8" Tube Fitting

Approvals

CE, RoHS

¹ RSS of Non-Linearity, Hysteresis and Non-Repeatability. Higher accuracy units available on special order.
² FS = 300mb for 800-1100 range; 500 for 600-1100 mb range; and 20 PSI for 0 to 20 PSIA.
³ Units calibrated at a nominal 70° F. Maximum thermal error computed from this datum.
⁴ Operating temperature limits of the electronics only. Pressure media temperatures may be considerable higher or lower.
⁵ The separate leads for +Exc, -Exc, +Out, -Out are commoned internally. The shield is connected to the case. For best performance, either the -Exc or -Out should be connected to the case. Unit is calibrated at the factory with -Exc connected to the case. The insulation resistance between all signal leads are tied together and case ground is 100 ohms minimum at 25 VDC.
⁶ Zero and Full Scale Outputs are factory set to within ±0.25% Full Scale.

Model 278

Barometric Pressure Transducer

Setra's Model 278 is the ideal solution for measuring barometric pressure for remote environmental applications. The 278 is designed using the SETRACERAM™ ceramic sensor, enabling it to meet stringent accuracy requirements over wide operating temperatures in remote applications. The small footprint and removable terminal block on the 278 makes installation fast and easy. The 278 is ideal for solar powered applications because of its low power consumption and sleep mode feature. Under normal operation, this feature minimizes current draw when readings are not being taken.

Designed For Remote Sensing Applications

The Model 278 pressure transducer is designed to be used in remote applications that require low power consumption. Its sleep mode feature allows for instant startup and fast readings.

Improved Performance With Ceramic Sensor

The 278 utilizes a variable capacitance sensor that is made using ceramic material fused together with glass and gold to form the SETRACERAM™ pressure element. This stable material and design offers class leading thermal performance and low hysteresis, allowing it to be integrated into demanding installations. The ceramic sensor enables improved performance compared to other stainless steel sensors, enabling the 278 to give accurate measurements and better test results.

Flexibility in Installation

The Model 278 is designed with a compact footprint for quick installation. The removable terminal block provides easy wiring. Its mounting holes are designed to fit industry standard grid systems to maximize the use of panel space while minimizing your time at the job site.



- Ideal For Automated Weather Stations
- Low Power Consumption
- Relied On For Severe Weather Detection

Model 278 Features:

- Long-Term Stability: 0.1 hPa/mB Per Year
- Sleep Mode for Instant Startup
- Removable Terminal Strip Module for Easy Wiring
- Footprint Configured for Easy Drop-In Replacement
- Calibration NIST Traceable
- Wide Operating Voltage 9.5 to 28 VDC
- Meets CE Conformance Standards

Applications:

- Automated Weather Stations (AWS)
- Data Buoys and Ships
- Agriculture Metrology System
- AWOS/ASOS Systems
- High Accuracy Barometric Pressure Measurement

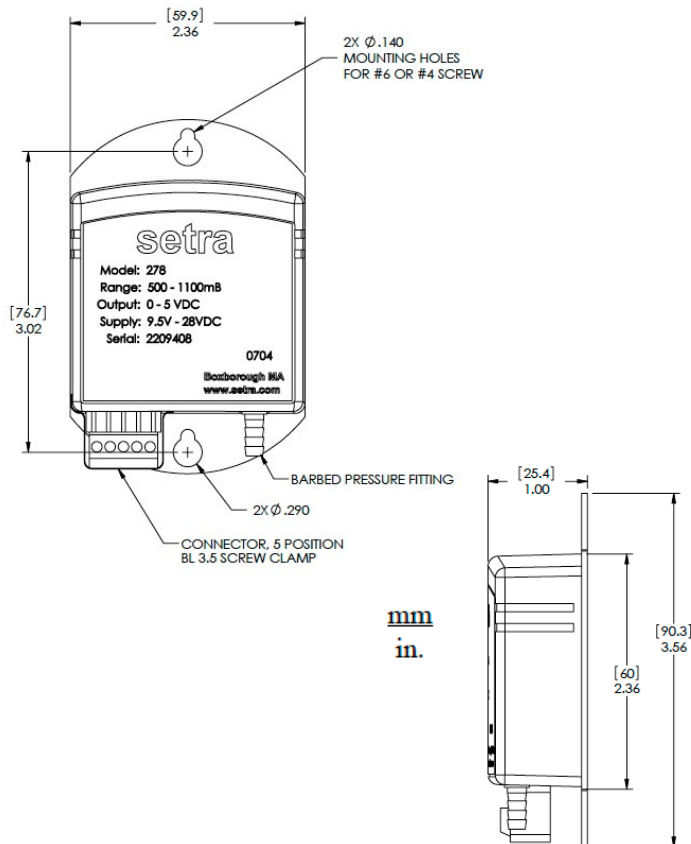
ORDERING INFORMATION

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Model	Pressure Range	Pressure Type	Pressure Conn.	Output/Exc.	Electrical Conn.
2781= Model 278	500M 500 to 1100 hPa/mb	A Absolute	1B 1/8" Push Tube Fitting	2Y 0 to 2.5VDC/9.5 to 28 VDC	T1 5-Pin Terminal Block
	600M 600 to 1100 hPa/mb			2B 0 to 5 VDC/9.5 to 28 VDC	
	800M 800 to 1100 hPa/mb				

Example: Part No. 2781600MA1B2BT1 for a 278 Pressure Transducer 600 to 1100 hPa, mb, Absolute Pressure, 1/8" Barbed Fitting, 0 to 5 VDC Output, 5-Pin Terminal Block.

DIMENSIONS



GENERAL SPECIFICATIONS

Performance Data				Environmental Data	
Pressure Range hPa/mb	500	600	800	Temperature	
Temperature at:	Accuracy (hpa/mb) ¹			Operating °C(°F)	-40 to +60 (-40 to +140)
20°C (+68°F)	±0.6	±0.5	±0.3	Storage °C(°F)	-60 to +120 (-76 to +248)
0 to 40°C (+23° to +104°F)	±1.2	±1.0	±0.6	Physical Description	
20 to 50°C (-4° to +122°F)	±2.0	±1.5	±1	Case	Stainless Steel and Polyester
-40 to 60°C (-40° to +140°F)	±2.5	±2.0	±1.5	Pressure Fitting	1/8" (ID dia.) Barbed Fitting
Non-Linearity	±0.5	±0.4	±0.25	Electrical Connection	5-Pin Terminal Block
Hysteresis	±0.06	±0.05	±0.03	Dimensions	3.6" x 2.4" x 1.0"
Non-Repeatability	±0.04	±0.03	±0.02	Weight	4.8 oz (135g)
Resolution	0.01 mB			Electrical Data	
Long Term Stability	0.1 mB/yr			Circuit	3 or 4-Wire
Warm-Up Downshift	<1 Sec. from Shut-Mode (Warm-Up <0.1 mb Max.)			Output ²	0.25 VDC 0.5 VDC
Response Time	<100 mSec			Excitation ³	9.5 to 28 VDC
Proof Pressure	1500 hPa			Output Impedance	<10 Ohms
Burst Pressure	2000 hPa			Output Noise	<50 Microvolts
Pressure Media				Current Consumption	3mA Nominal (Operating Mode) 1uA (Sleep Mode)
Non Condensing Air or Gas.				¹ The root sum squared (RSS) of end point non-linearity, hysteresis, non-repeatability, and calibration uncertainty.	
Approvals				² Internal regulation minimizes effect of excitation variation, with <0.02 mb output change of 9.5 VDC to 28 VDC range.	
CE, RoHS				³ Zero output saturates at about 20 mV.	

Model 370

Digital Pressure Gauge



DESCRIPTION

Setra Systems Model 370 offers extremely high accuracy and unmatched stability in a digital output configuration. Environmental monitoring and test & measurement systems around the world rely on Setra's experience in barometric pressure measurement instrumentation, as well as high accuracy measurements of higher pressures. The 370 utilizes Setra's unique SETRACERAM™ sensor, which is combined with advanced microprocessor based circuitry and sophisticated firmware to provide system accuracy to better than $\pm 0.02\%$ FS.

The Model 370 Digital Pressure Gauge is an extremely versatile instrument. Pressure and altitude data is displayed on a 6 digit LCD and is also accessible through a bidirectional RS-232 port. A numeric keypad is provided for easy access to engineering unit conversions, min/max tracking, entry of Hi/Lo alarm setpoints and calibration procedures. The 370 is also available with an optional rechargeable battery pack to bring lab accuracy to the field.

BENEFITS

- $\pm 0.02\%$ FS Accuracy
- High Resolution 6 Digit LCD Display for Pressure or Altitude Monitoring
- Bidirectional RS-232 Digital Communications I/O Port
- Engineering Unit Conversions for Pressure and Altitude
- Digital Altimeter Setting Indicator (DASI) and Corrected Altimeter Mode
- Programmable Non-Linear Functions

APPLICATIONS

- Automatic Weather Reporting Systems
- Pressure Transfer Standard
- Altimeter Calibration Recertification
- Lab or Production Process Monitoring
- Altitude Chambers

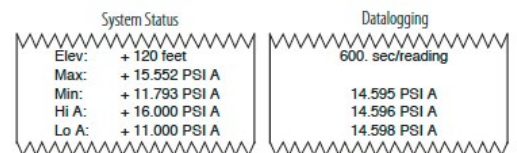
SPECIFICATIONS

Performance Data		Physical Description			
Accuracy ¹	$\pm 0.02\%$ FS ² at 70° F(21°C)	Pressure Fitting	1/8" - 27 NPT Internal	Display	6 digit Liquid Crystal Display (LCD) with annunciators for pressure/altitude engineering units (PSI, mbar, hPa, mmHg, in.Hg, mmH2O, in.H2O, ft, m, units), HI/LO ALARM, pressure signal stability (O.K.) and barometric pressure corrected to sea level (SEA LEVEL).
Non-Linearity	$\pm 0.012\%$ FS (End Point)	Power Cord	5 Ft. Length, 3-Prong		
Hysteresis	0.010% FS	Weight	12 lbs. (with Battery Pack)		
Non-Repeatability	0.010% FS	Thermal Effects ³		Digital Output	Bidirectional RS-232 interface. All display data can be transmitted on the interface and all keyboard functions and commands can be duplicated using a remote terminal or keyboard.
Pressure Media		Compensated Range °F(°C)	+32 to +110 (0 to +45)		
Clean dry air or other gases (non-condensable)		Zero Shift %FS/°F (%FS/°C)	0.002 (0.004)		
		Span Shift %FS/°F (%FS/°C)	0.001 (0.002)	Operating Power	110/220 VAC (-10% to +20%), 50/60 Hz., optional 12 VDC internal rechargeable battery pack (approx. 8 hours between charges). Approximately 4 watts power consumption.
¹ RSS of Non-Linearity, Non-Repeatability and Hysteresis ² FS = 300 hPa/mb for 800-1100 hPa/mb range; 500 hPa/mb for 600-1100 hPa/mb range ³ Unit calibrated at 70°F. Maximum thermal error is computed from this datum.		Altitude Resolution	1 ft. (4 ft. for 100 PSIA range)		
		Stability	0.005% FS, 24 hours 0.02% FS, 30 days 0.05% FS, 1 year	Digital Interface	Bidirectional RS-232 interface. Access data, functions and commands via an RS-232 compatible remote terminal, data acquisition system or data storage device. 300, 600, 1200, 2400, 4800, 9600 Baud Rate, adjustable. Typical data printouts below:

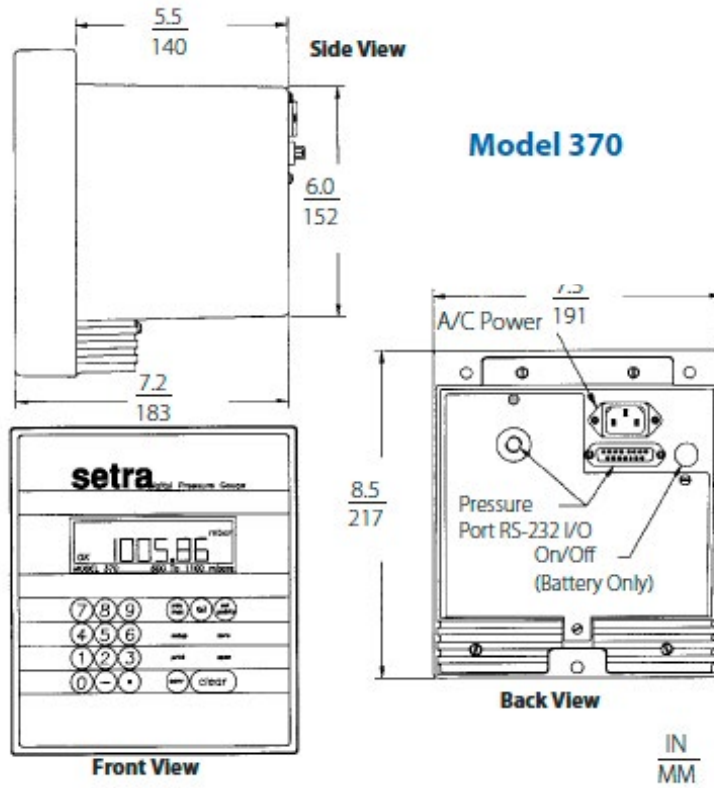
PRESSURE RANGES

Type of Pressure	Pressure Range	Readout or Report	Altitude Range ¹
Barometric	600 to 1100 mb/hPa	600.00 to 1100.00	-1000 to 13,800 ft.
	800 to 1100 mb/hPa	800.00 to 1100.00	-1000 to 6,400 ft.
Absolute	0 to 10 PSIA	10.0000	10,300 to 100,000 ft.
	0 to 20 PSIA	20.0000	-1000 to 100,000 ft.
	0 to 50 PSIA	50.0000	-1000 to 100,000 ft.
	0 to 100 PSIA	100.0000	-1000 to 100,000 ft.

¹Altitude is calculated using a pol Smithsonian Meteorological Tables, Vol. 114"
Ranges greater than 20 psia not recommended for altimeter recertification.
Proof Pressure: 150% of full scale pressure range.



DRAWINGS & DIMENSIONS



ORDERING INFORMATION

3 7 0 1 - [] [] [] - [] - [] - [] [] - [] [] - [] - [] []

Model	Pressure Range	Units	Pressure Type	Fitting	Output	Accuracy	Options								
3701	370	600	600-1100	M	mb/hPa	A	Absolute	1F	1/8" NPT Internal	VT	RS-232/6 Digit LCD/120 VAC	Y	±0.02% FS	NN	None
		800	800-1100	M	mb/hPa									L	Etched SS Tag
		010	0-10	P	PSI									S	Installed Battery Pack
		020	0-20	P	PSI										
		050	0-50	P	PSI										
		100	0-100	P	PSI										

Both boxes must be filled in alphanumeric order:
 • If No options: N + N
 • If 1 option: Option Code + N
 • If 2 options: Option Code + Option Code

Example: Part No., 3701020PA1FVTY5N: 0 to 20 PSIA, 1/8" NPT Internal Fitting, RS232/6 Digit LCD Output, Installed Battery Pack

Model 470

Digital Pressure Transducer



BENEFITS

- $\pm 0.02\%$ Full Scale Accuracy
- Bidirectional RS-232 Digital Communications I/O Port
- Engineering Unit Conversions for Pressure and Altitude
- Digital Altimeter Setting Indicator (DASI) and Corrected Altimeter Mode
- ProgramMable Non-Linear Functions

APPLICATIONS

- Automatic Weather Reporting Systems
- Pressure Transfer Standard
- Altimeter Calibration Recertification
- Lab or Production Process Monitoring
- Altitude Chambers

DESCRIPTION

Setra Systems Model 470 offers extremely high accuracy and unmatched stability in a digital output configuration. Environmental monitoring and test & measurement systems around the world rely on Setra's experience in barometric pressure measurement instrumentation, as well as high accuracy measurements of higher pressures. The 470 utilizes Setra's unique SETRACERAM™ sensor, which is combined with advanced microprocessor based circuitry and sophisticated firmware to provide system accuracy to better than $\pm 0.02\%$ FS.

The Model 470 is intended for applications which do not require local display of pressure or key pad access to commands. The 470's solid stability, reliability and versatility make it the first choice for weather observation systems worldwide. It is programmable for continuous, interval or on-demand printing at an adjustable (300-9600) Baud rate.

SPECIFICATIONS

Performance Data		Physical Description			
Accuracy ¹	$\pm 0.02\%$ FS ² at 70° F (21°C)	Pressure Fitting	Barbed Fitting for 1/8" I.D. Tubing	Digital Output	Pressure data is accessible through the Bidirectional RS-232 I/O port, which is user programmable for continuous, interval or on-demand printing at an adjustable (300-9600) baud rate. The data is reported in a simple string of ASCII characters in response to a command consisting of an ASCII character, for example, P (for PRINT) instructs the device to report a pressure reading.
Non-Linearity	$\pm 0.012\%$ FS (End Point)	Pressure Connection	10-32 Internal Thread		
Hysteresis	0.010% FS	Excitation	DB-9S, (9 Pin D-Sub Female) Pin: 3 GRD, 9 + 5 VDC		
Non-Repeatability	0.010% FS	Communications	DB-9S, (9 Pin D-Sub Male) Pin: 2 TXD, 3 RXD, 5GRD	Operating Power	5 VDC $\pm 1\%$, 70 mA max.
Pressure Media		Weight	Apprx. 2.4 lbs.	Digital Interface	Bidirectional RS-232 interface. Access data, functions and commands via an RS-232 compatible remote terminal, data acquisition system or data storage device. 300, 600, 1200, 2400, 4800, 9600 Baud Rate, adjustable. Typical data printouts below:
Clean dry air or other gases (non-condensable)		Thermal Effects ³			
¹ RSS of Non-Linearity, Non-Repeatability and Hysteresis ² FS = 300 hPa/mb for 800-1100 hPa/mb range; 500 hPa/mb for 600-1100 hPa/mb range ³ Unit calibrated at 70°F. Maximum thermal error is computed from this datum.		Compensated Range °F(°C)	+32 to +110 (0 to +45)	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px dashed black; padding: 5px;"> <p style="text-align: center;">System Status</p> <p>Elev: +120 feet</p> <p>Max: +15.552 PSI A</p> <p>Min: +11.793 PSI A</p> <p>Hi A: +16.000 PSI A</p> <p>Lo A: +11.000 PSI A</p> </div> <div style="border: 1px dashed black; padding: 5px;"> <p style="text-align: center;">Datalogging</p> <p style="text-align: center;">600. sec/reading</p> <p style="text-align: center;">14.595 PSI A</p> <p style="text-align: center;">14.596 PSI A</p> <p style="text-align: center;">14.598 PSI A</p> </div> </div>	
		Zero Shift %FS/°F (%FS/°C)	0.002 (0.004)		
		Span Shift %FS/°F (%FS/°C)	0.001 (0.002)		
		Altitude Resolution	1 ft. (4 ft. for 100 PSIA range)		
Stability	0.005% FS, 24 hours 0.02% FS, 30 days 0.05% FS, 1 year				

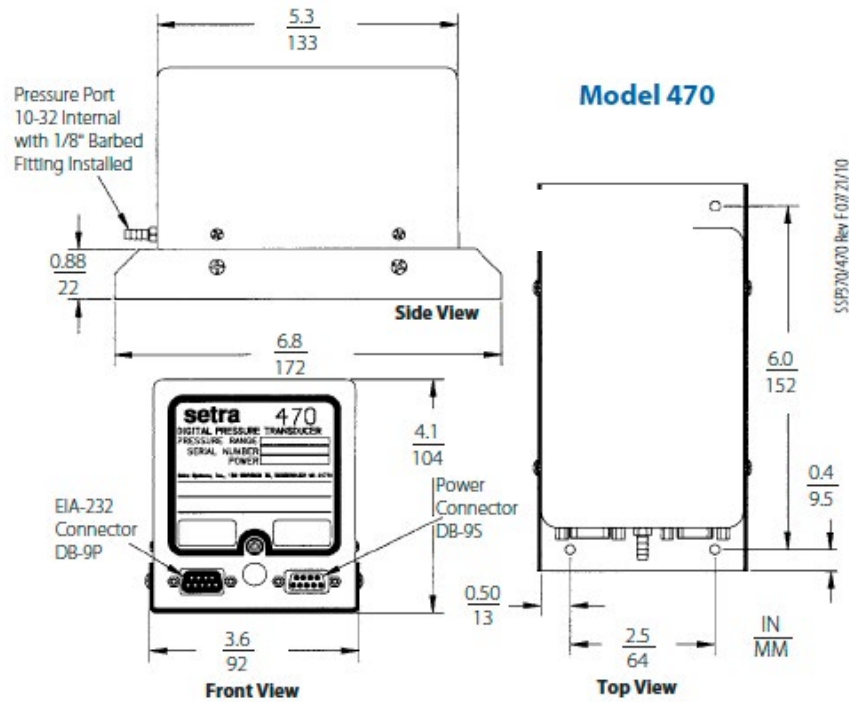
PRESSURE RANGES

Type of Pressure	Pressure Range	Readout or Report	Altitude Range ¹
Barometric	600 to 1100mb/ hPa	600.00 to 1100.00	-1000 to 13,800 ft.
	800 to 1100 mn/hPa	800.00 to 1100.00	-1000 to 6,400 ft.
Absolute	0 to 10 PSIA	10.0000	10,300 to 100,000 ft.
	0 to 20 PSIA	20.0000	-1000 to 100,000 ft.
	0 to 50 PSIA	50.0000	-1000 to 100,000 ft.
	0 to 100 PSIA	100.000	-1000 to 100,000 ft.



¹ Altitude is calculated using a pol Smithsonian Meteorological Tables, Vol. 114"
 Ranges greater than 20 psia not recommended for altimeter recertification.
 Proof Pressure: 150% of full scale pressure range.

DRAWINGS & DIMENSIONS



ORDERING INFORMATION

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Model	Pressure Range	Units	Pressure Type	Fitting	Output	Accuracy	Options
4701 470	600 600-1100	M mb/hPa	A Absolute	1B 1/8" Barb	4T RS-232/5VDC	Y ±0.02% FS	NN None
	800 800-1100	M mb/hPa					L Etched SS Tag
	010 0-10	P PSI					
	020 0-20	P PSI					
	050 0-50	P PSI					
	100 0-100	P PSI					

Both boxes must be filled in alphanumeric order:

- If No options: N + N
- If 1 option: Option Code + N
- If 2 options: Option Code + Option Code

Example: Part No., 4701020PA1B4TYNN: 0 to 20 PSIA, 1/8" Barbed Fitting, RS232 Output, 9-Pin D-Sub Electrical Connector, ±0.02% FS Accuracy

MRG

264

265

267/267MR

LOW DIFFERENTIAL PRESSURE

PRODUCT SECTION 6.1



Model MRG

Multi-Range General Pressure Transducer

The Setra Model MRG is Setra's newest differential pressure transducer. The Setra MRG is the ideal product for any contractor, combining the flexibility of a multi-range with the performance of a single range transducer. The MRG has 8 selectable ranges and 3 selectable outputs, easily adjustable on the job with a flip of a switch or jumper. The MRG uses an IP67 rated housing and has a conduit fitting for easy wiring, making the MRG an ideal solution for any general HVAC application.

Universal Design

The Setra MRG utilizes a universal design that gives the user total flexibility to make changes on the job site. The user has the option to choose the field configurable range, mounting (DIN Rail, wall mount and duct mount), output (mA or Volt) and engineering unit (W.C. or Pascals). This flexibility means that the contractor can use the MRG for all of their needs.

8 Field Selectable Ranges

The Setra MRG provides 8 field selectable ranges (0.5, 1.0, 2.5 and 5.0"W.C.). These ranges can be selected on site by flipping to the desired range.

IP67 Rated Housing

The MRG housing is a robust IP67 rated design and is sealed with a gasket to make it wash-down capable for difficult applications. The MRG also has a conduit fitting that make installation and wiring easier.

Capacitive Sensing Technology

Only Setra can claim ownership to the stainless steel capacitive design used in all of our HVAC/R sensors. Our advanced capacitive element provides excellent stability and linearity, while standing above the competitors in our ability to measure low pressure (<0.001"W.C.) at high accuracy. Our technology has been used in over 8 million installations and has the highest field acceptance rate in the industry.



- **Universal Design**
- **IP67 Rated Housing**
- **Field Selectable**

Model MRG Features:

- Field Configurable Duct Probe
- 4 Digit LCD
- Field Selectable Range
- Field Selectable Output
- Simple 5-Step Setup
- Field Accessible Push-Button Zero & Span
- External Mounting Tabs & Optional DIN Rail
- Unregulated AC/DC Operation

Target Uses:

- Sub-Contractors- Quick Installation
- Flexible for Building Specification Changes
- Service/Retrofit Friendly
- Service Technicians- Quick & Accurate Reconfiguration

ORDERING INFORMATION

M R - G - -

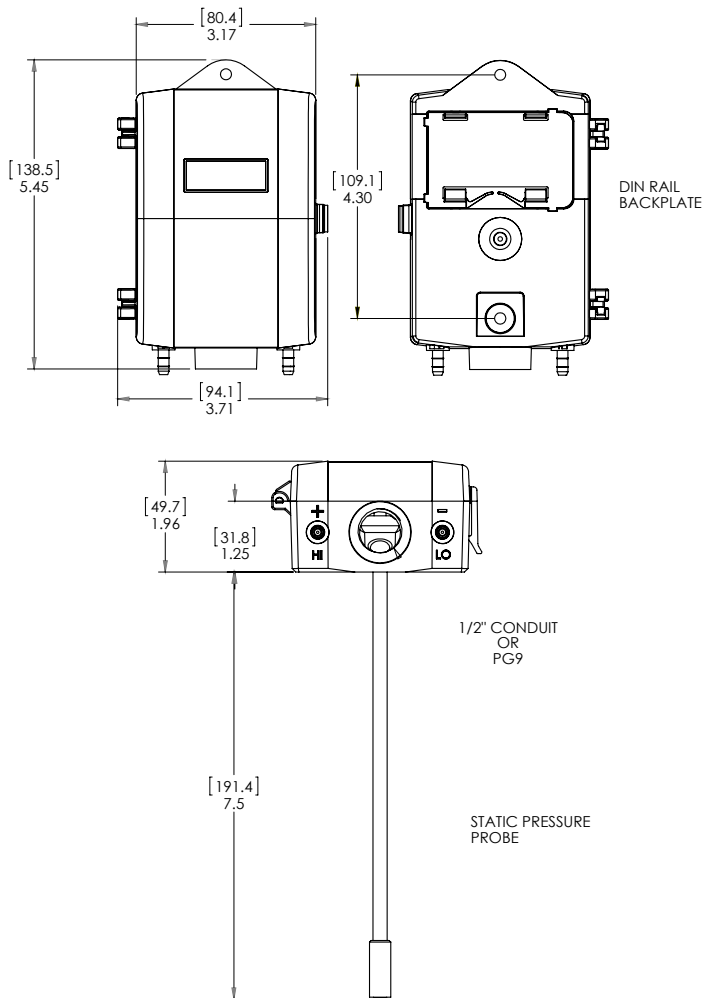
Model	Field Selectable Ranges				Configuration		Electrical Fittings	
MRG	Unidirectional Pressure Ranges		Bidirectional Pressure Ranges		S	Standard (Base Mount)	A	1/2" Conduit
	0.5"W.C.	100 Pa	±0.5"W.C.	±100Pa	U	Universal ¹	P	PG9
	1.0"W.C.	250 Pa	±1.0"W.C.	±250 Pa	D	DIN Rail	C	1/2" Conduit W/ Cal Certification ²
	2.5"W.C.	500 Pa	±2.5"W.C.	±500Pa	P	Duct Probe	D	PG9 W/ Cal Certification ²
	5.0"W.C.	1,000 Pa	±5.0"W.C.	±1,000Pa				

¹Code U, Universal unit includes Duct Probe and DIN Rail options.

²Calibration is performed at highest range.

Ordering Example: MRGSA = Model MRG, Standard Configuration, with 1/2" Conduit.

DIMENSIONS



GENERAL SPECIFICATIONS

Performance Data		Environmental Data	
	Standard	Operating Temperature ³	32 to 122°F (0 to 50°C)
Accuracy RSS ¹ (at constant temp)	±1.0% FS	Electrical Data	
Compensated Range °F (°C)	32 to 122°F (0 to 50°C)	Excitation Range	13 to 30 VDC/18 to 24 VAC (Voltage Output) 13 to 30 VDC (4 to 20mA output at terminals)
Thermal Effects ² %FS/°F(°C)	0.03 (0.054)	Current Consumption	30mA (max)
Maximum Line Pressure	10 PSI	Mis-Wiring	Reverse Excitation Protection
Overpressure	Up to 10 PSI (range dependent)	Field Selectable Output ⁴	0 to 5 V, 0 to 10V (3-wire), 4 to 20mA (2-wire)
Long Term Stability (max.)	2.0% FS/YR	Output Resistance (Voltage Output)	10 Ohms (max)
Position Effect		Load Resistance (Voltage Output)	10 K-Ohms (min)
Zero Offset %FS/G	0.5%	Loop Resistance (4-20mA)	0 to 800 Ohms
(Unit is factory calibrated at 0g effect in the vertical position)		Approval	CE & RoHS Compliant
Physical Description		Pressure Media	
Case	Fire-Retardant Polycarbonate (UL 94 V-0 Approved), Hinged Lid	Typically air or similar non-conducting gases.	
Mounting	Two Screw Holes Vertical Position	¹ RSS of Non-Linearity, Hysteresis, and Non-Repeatability.	
Electrical Connection Block	Removable Screw Terminal	² Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.	
Pressure Fitting	3/16" O.D. Barbed Brass	³ Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher.	
Zero	Push Button	⁴ Calibrated into a 50K ohm load, operable into a 10K ohm load or greater.	
Span	Push Button	⁵ Span (Full Scale) output factory set to within 1%.	
Weight (approx.)	8 Ounces	⁶ Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.	
		⁷ Span (Full Scale) output factory set to within ±0.16mA.	
		Specifications subject to change without notice.	

Model 264

Very Low Differential Pressure Transducer



Model 264
w/ Conduit Cover Option



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

U.S. Patent nos. 6019002; 6014800

FEATURES

- Up to 10 PSI Overpressure (Range Dependent)
- Installation Time Minimized with Snap Track Mounting and Easy-To-Access Pressure Ports and Electrical Connections
- 0 to 5 VDC or 2-wire 4 to 20 mA Analog Outputs Are Compatible with Energy Management Systems
- Reverse Wiring Protection
- Internal Regulation Permits Use with Unregulated DC Power Supplies
- Fire Retardant Case (UL 94 V-0 Approved)
- Meets CE Conformance Standards

APPLICATIONS

- Heating, Ventilating and Air Conditioning (HVAC)
- Energy Management Systems
- Variable Air Volume and Fan Control (VAV)
- Environmental Pollution Control
- Lab and Fume Hood Control
- Oven Pressurization and Furnace Draft Controls

DESCRIPTION

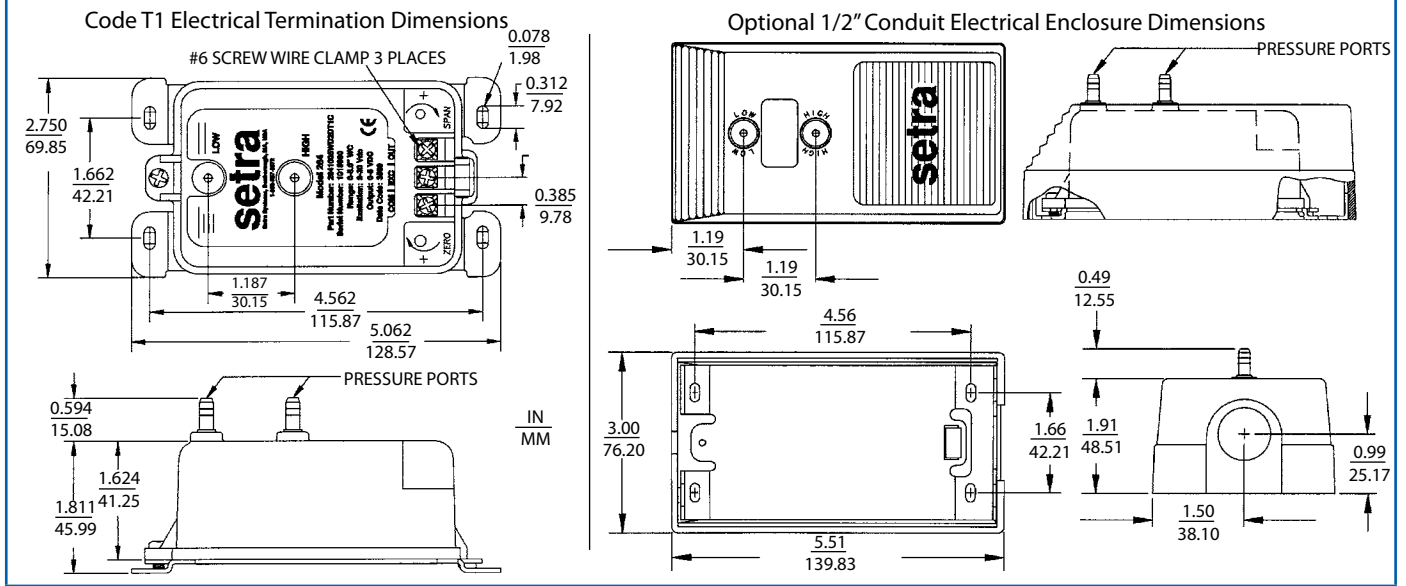
Used in Building Energy Management Systems, the Model 264 measures pressures and flows with the accuracy necessary for proper management of building pressurization and air flow control.

The 264 is available in air pressure ranges as low as 0.1"W.C. FS to 100"W.C. FS. Static standard accuracy is $\pm 1.0\%$ FS in normal ambient temperature environments. The units are temperature compensated to 0.033% FS/°F thermal error over the temperature range of 0°F to +150°F.

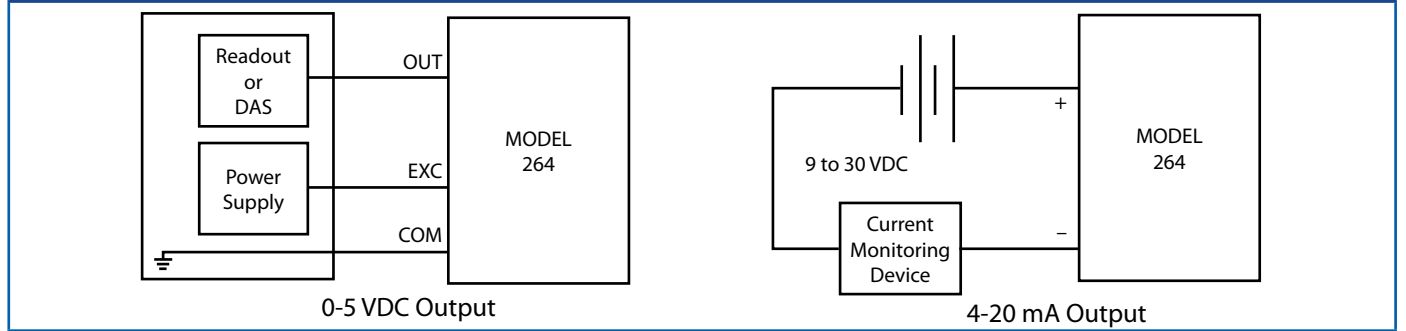
SPECIFICATIONS

Performance Data			Environmental Data		Electrical Data (Voltage)	
	Standard	Optional	Operating Temperature ¹ (°C)	0 to +175 (-18 to +79)	Circuit	3-Wire (Com, Out, Exc)
Accuracy RSS ¹ (at constant temp)	$\pm 1.0\%$ FS	$\pm 0.4\%$ FS $\pm 0.25\%$ FS	Storage Temperature °F (°C)	-65 to +250 (-54 to +121)	Excitation/ Output ⁴	9 to 30 VDC / 0 to 5 VDC ^{5,6}
Non-Linearity, BFSL	$\pm 0.96\%$ FS	$\pm 0.38\%$ FS $\pm 0.22\%$ FS	Physical Description		Output Impedance	100 ohms
Hysteresis	0.10% FS	0.10% FS 0.10% FS	Case	Fire-Retardant Glass Filled Polyester (UL 94 V-0 Approved)	Bidirectional output at zero pressure	2.5 VDC ^{5,6}
Physical Description			Electrical Connection	Screw Terminal Strip	Electrical Data (Current)	
Compensated Range °F (°C)	0 to +150 (-18 to +65)		Mounting	4 screw holes on removable zinc plated steel base (designed for 2.75" snap track)	Circuit	2-Wire
Zero/ Span Shift %FS/100°F(50°C)	± 0.033 (± 0.06)		Pressure Fittings	3/16" O.D. barbed brass for 1/4" push on tubing	Output ²	4 to 20 mA ^{8,9}
Maximum Line Pressure	10 PSI		Zero and Span Adjustments	Accessible on top of case	External Load	0 to 800 ohms
Overpressure	Up to 10 PSI (Range Development)		Weight (approx.)	10 Ounces	Minimum Supply Voltage (VDC)	9 + 0.02 x (resistance of receiver plus line)
Long Term Stability	0.5% FS/1 YR		Pressure Media		Maximum Supply Voltage (VDC)	30 + 0.004 x (resistance of receiver plus line)
			Typically air or similar non-conducting gases.		Bidirectional output at zero pressure	12 mA ^{8,9}
Position Effect	Range	%FS/G	¹ RSS of Non-Linearity, Hysteresis, and Non-Repeatability. ² Units calibrated at nominal 70°F. Maximum thermal error computed from this datum. ³ Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher. ⁴ Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater. ⁵ Zero output factory set to within ± 50 mV (± 25 mV for optional accuracies). ⁶ Span (Full Scale) output factory set to within ± 50 mV. (± 25 mV for optional accuracies). ⁷ Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load. ⁸ Zero output factory set to within ± 0.16 mA (± 0.08 mA for optional accuracies). ⁹ Span (Full Scale) output factory set to within ± 0.16 mA (± 0.08 mA for optional accuracies). Specifications subject to change without notice.			
Unit is factory calibrated at 0g effect in the vertical position	0.1 in. WC	2.3				
	0.25 in. WC	1				
	0.5 in. WC	0.5				
	1.0 in. WC	0.3				
	2.5 in. WC	0.2				
	10 in. WC	0.15				

DIMENSIONS



WIRING



ORDERING INFORMATION

2 6 4 1 - - - - -

Model	Range Code	Output	Elec. Termination	Accuracy ¹
2641 = 264	See Table 1 Below	11 4-20 mA	Std. T1 Terminal Strip	Std. C ±1% FS
		2D 0-5 VDC	Opt. A1 1/2 in. Conduit Enc.	Opt. E ±0.4% FS

RANGE CODE	UNIDIRECTIONAL	RANGE CODE	BIDIRECTIONAL
	"W.C.		"W.C.
0R1WD	0 to 0.1	R05WB	±0.05
R25WD	0 to 0.25	0R1WB	±0.1
0R5WD	0 to 0.5	R25WB	±0.25
001WD	0 to 1	0R5WB	±0.5
1R5WD	0 to 1.5	001WB	±1
2R5WD	0 to 2.5	1R5WB	±1.5
003WD	0 to 3	2R5WB	±2.5
005WD	0 to 5	005WB	±5
010WD	0 to 10	7R5WB	±7.5
015WD	0 to 15	010WB	±10
025WD	0 to 25	025WB	±25
050WD	0 to 50	050WB	±50
100WD	0 to 100		

1. Optional Accuracies include Calibration Certificate

Ordering Example: 26412R5WD11T1C= Model 264, 0 to 2.5 in. W.C. Range, 4 to 20 mA Output, Terminal Strip Electrical Connection, and ±1% Accuracy

Model 265

Very Low Differential Pressure Transducer



Model 265 with Conduit Cover Option



FEATURES

- Up to 10 PSI Overpressure
- 24 VDC or 24 VAC Excitation
- Voltage or Analog Outputs
- Reverse Wiring Protection
- ±1.0% FS Accuracy (optional ±0.25% FS)
- Internal Regulation
- Fire Retardent Case (UL 94 V-0 Approved)
- Meets CE Conformance Standards

APPLICATIONS

- Heating, Ventilation & Air Conditioning
- Energy Management Systems
- Variable Air Volume & Fan Control (VAV)
- Environmental Pollution Control
- Static Dust & Clean Room Pressures
- Oven Pressurization & Furnace Draft Controls

DESCRIPTION

The Model 265 is designed to reduce installation costs while increasing overall operating efficiency. At ±1% FS accuracy (optional ±0.4% FS and ±0.25% FS), the Model 265 provides superior positive and negative pressure sensing required for high efficiency air control systems.

Its small footprint (1.89"W x 2.74"L x 1.64"H) is an ideal fit for the tightest matrix. Installation is easy with an integral mounting bracket, 1/4" O.D. tube pressure connections conveniently located on the face of the unit, and a screw terminal strip for electrical termination.

SPECIFICATIONS

Performance Data			Physical Description		Electrical Data (Voltage)	
	Standard	Optional	Pressure Fittings	1/4" Fitting	Circuit	3-Wire (Com, Out, Exc)
Accuracy RSS ¹ (at constant temp)	±1.0% FS	±0.4% FS ±0.22% FS	Case	Fire Retardant Glass Filled Polyester (UL 94-V Approved)	Excitation/Output ⁴	9 to 30 VDC / 0 to 5 VDC ⁵ 9 to 30 VAC / 0 to 5 VDC 12 to 30 VAC / 0 to 10 VDC ⁵
Non-Linearity, BFSL	±0.98% FS	±0.38% FS ±0.22% FS	Weight	3 oz	Output Impedance	<100 ohms
Hysteresis	0.10% FS	0.10% FS 0.10% FS	Elec. Connection	Screw Terminal Strip	Bidirectional output at zero pressure	2.5 VDC (±50 mV)
Non-Repeatability	0.05% FS	0.05% FS 0.05% FS			⁴ Calibrated into 50K ohm load. Operable into 5000 ohms or greater. ⁵ Zero & Span (FS) output factory set to within ±50mV (±25 mV for optional accuracies).	
Thermal Effects ²			Position Effect ³		Electrical Data (Current)	
Compensated Range °F (°C)	0 to +150 (-18 to +65)		Range	Zero Offset (%FS/G)	Circuit	2-Wire
Zero Shift %FS/100°F(50°C)	±0.033 (±0.06)		To 0.5"W.C.	0.60	Output ⁶	4 to 20 mA ⁷
Span Shift %FS/100°F(50°C)	±0.033 (±0.06)		To 1.0"W.C.	0.50	External Load	0 to 800 ohms
Max. Line Pressure	10 PSI		To 2.5"W.C.	0.22	Min. Loop Supply Voltage (VDC)	9 + 0.02 x (resistance of receiver plus line)
Overpressure	Up to 10 PSI (range dependent)		To 5.0"W.C.	0.14	Max. Loop Supply Voltage (VDC)	30 + 0.004 x (resistance of receiver plus line)
Long Term Stability	0.5% FS/YR		³ Unit is factory calibrated at 0g effect of vertical position.		Bidirectional output at zero pressure	12 mA
Warm-Up Shift	±0.1% FS Total				⁶ Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load. ⁷ Zero & Span (FS) output factory set to within ±0.16 mA (±0.08 mA for optional accuracies.).	
¹ RSS of Non-Linearity, Non-Repeatability and Hysteresis ² Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.			Pressure Media		Environmental Data	
NOTE: Setra quality standards are based on ANSI-Z540-1. The calibration of this product is NIST traceable. Specifications subject to change without notice			Typically air or similar non-conducting gases.		Temperature	
					Operating °F (°C) ⁸	0 to +150 (-18 to +65)
					Storage °F (°C)	-40 to +185 (-40 to +85)
			U.S. Patent Nos. 5442962, 6019002, 6014800 and other Patents Pending.		⁸ Operating temperature of the electronics only. Pressure media temperatures may be considerably higher or lower.	

ORDERING INFORMATION

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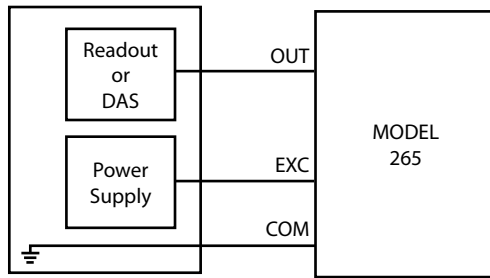
Model	Range Code	Excitation/Output	Elec. Termination			Accuracy		
2651 = 265	See Table 1 Below	11 24VDC/ 4-20 mA	Std.	T1	Terminal Strip	Std.	C	±1% FS
		2B 24VDC/ 0-5 VDC	Opt.	A1	1/2" Conduit Enc.	Opt.	E	±0.4% FS
		AB 24VAC/ 0-5 VDC				Opt.	F	±0.25% FS
		AC 24VAC/ 0-10 VDC				Opt.	G	±1% FS

RANGE CODE	UNIDIRECTIONAL	RANGE CODE	BIDIRECTIONAL
	"W.C.		"W.C.
R25WD	0 to 0.25	0R1WB	±0.1
0R5WD	0 to 0.5	R25WB	±0.25
001WD	0 to 1	0R5WB	±0.5
2R5WD	0 to 2.5	001WB	±1
005WD	0 to 5	2R5WB	±2.5
010WD	0 to 10	005WB	±5
025WD	0 to 25	010WB	±10
050WD	0 to 50	025WB	±25
100WD	0 to 100	050WB	±50

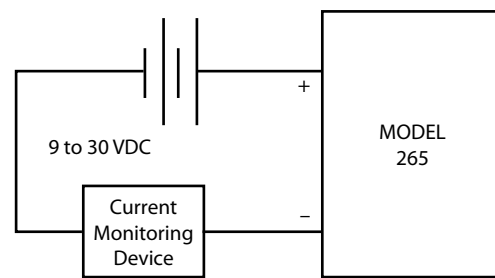
Ordering Example: 26512R5WD11T1C =
 265 Transducer
 0 to 25 in. WC Range
 4 to 20 mA Output
 Terminal Strip Electrical Connection
 ±1% Accuracy

Please contact factory for versions not shown.

WIRING



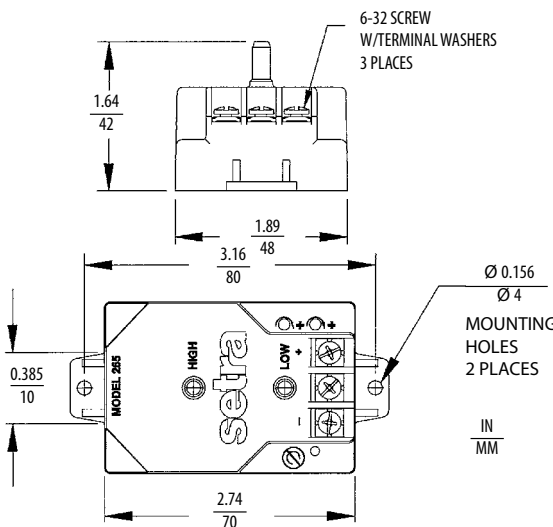
4-20 mA Output



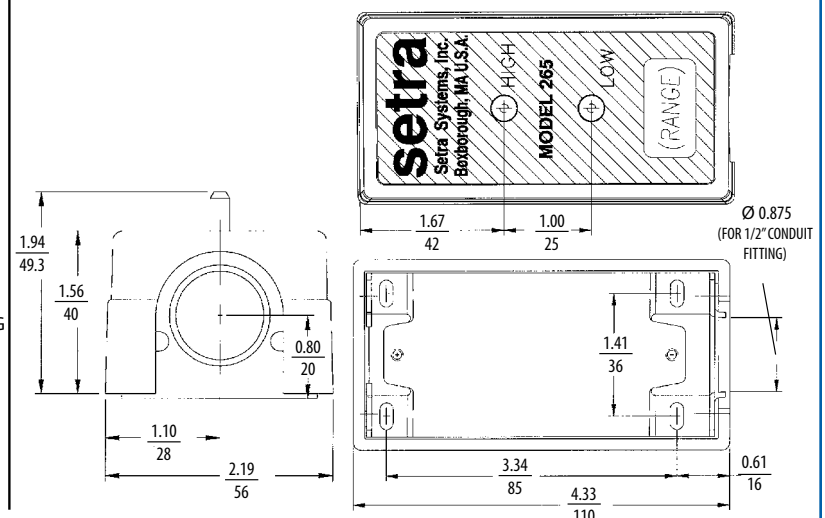
0-5 VDC Output

DIMENSIONS

Code T1 Electrical Termination Dimensions



Optional A1 Conduit Electrical Enclosure Dimensions



SSP265 RevE 04/24/2013

Model 267/267MR

Very Low Differential Pressure Transducer



Model 267MR - Multi-Range



Model 267 w/ Display Option

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

U.S. Patent nos. 6019002; 6014800

DESCRIPTION

Setra's Model 267 and 267MR pressure transducers sense gauge (static) or differential pressure in air pressure ranges as low as 0.1"W.C. FS up to 100"W.C. FS.

The Model 267 gauge pressure transducer is offered in a high level voltage or 4 to 20 mA output and is available with a static pressure probe for installation directly onto the duct. The 0.25" diameter pressure probe is made of sturdy extruded aluminum and is designed with baffles to prevent velocity pressure errors. This unit is also available with an LCD display.

The 267MR multi-range transducer offers 6 field selectable pressure ranges (bidirectional and unidirectional), and field configurable outputs of 0 to 5 VDC, 0 to 10 VDC, and 4 to 20 mA. With the flip of a switch the user can field calibrate the unit and be assured of optimum performance.

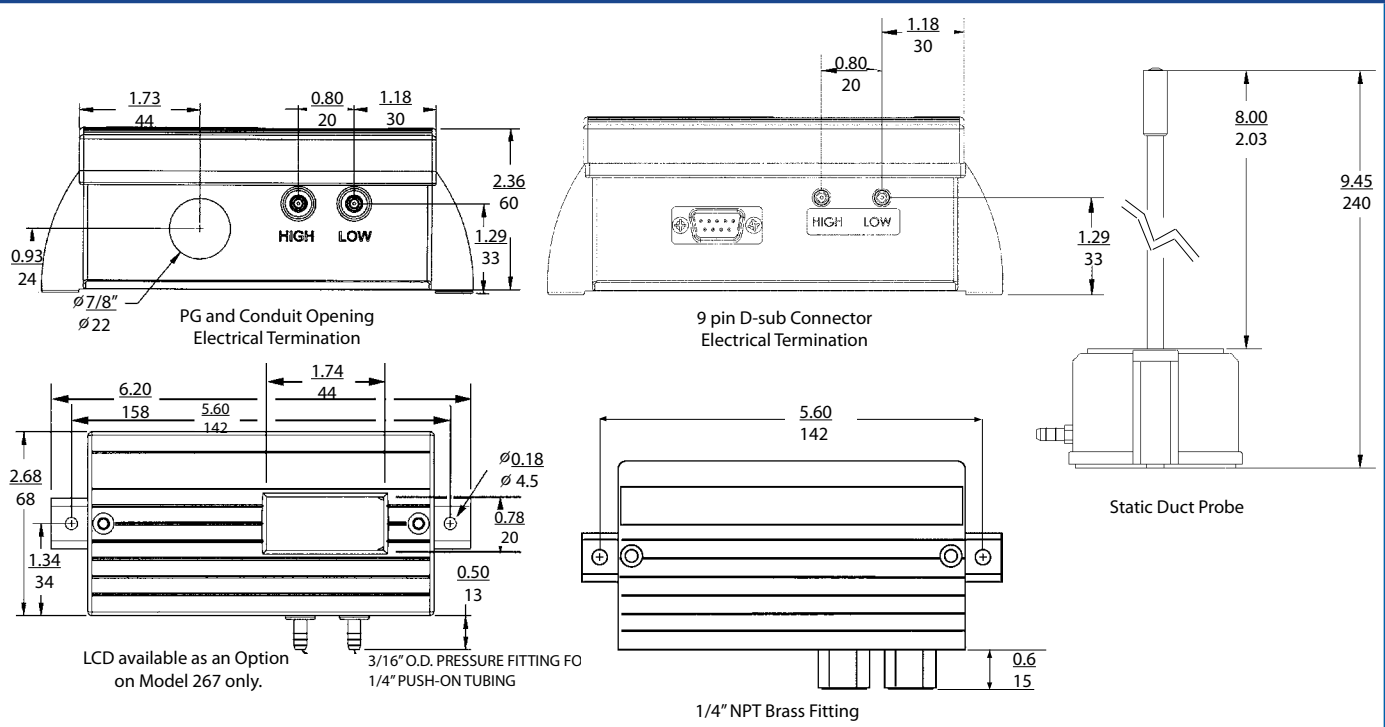
FEATURES

- Model 267MR Offers Multi-Range Capability, 6 Field Selectable Ranges via Dip Switches, and Field Selectable 0-5 or 0-10 VDC Output
- Model 267 Offers an Optional 3 1/2 Digit LCD Display with a $\pm 0.5\%$ FS Standard Accuracy
- NEMA 4/IP65 Rated Housing
- Optional Accuracies as High as $\pm 0.25\%$ FS
- 24 VAC or 24 VDC Excitation
- PG-9, PG13.5 or Conduit Electrical Termination
- Integral Static Pressure Probe
- Ranges as low as 0.1"W.C. (25 Pa)
- Meets CE Conformance Standards

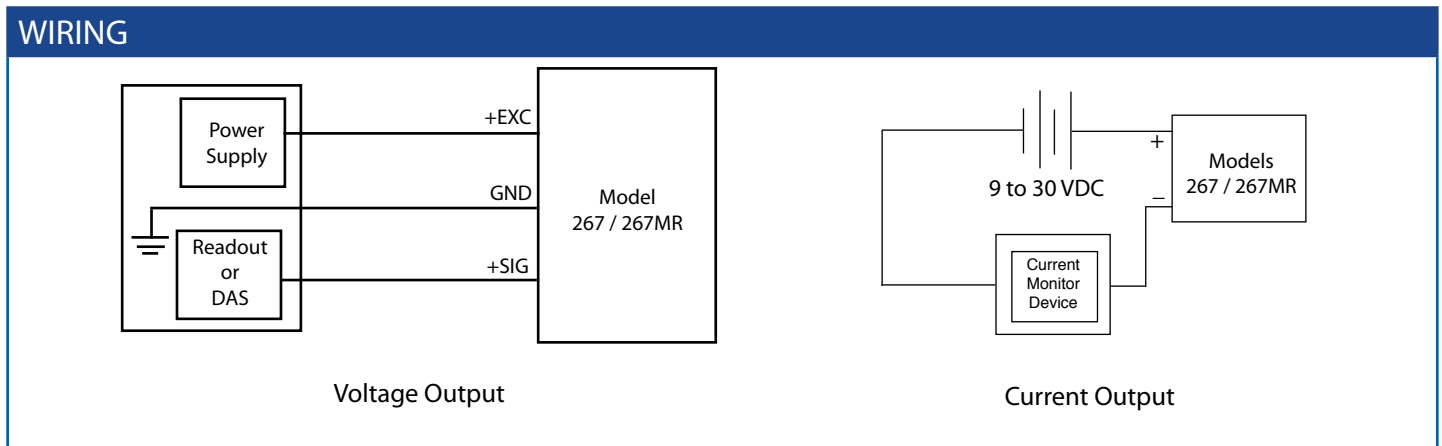
APPLICATIONS

- Heating, Ventilating and Air Conditioning (HVAC)
- Energy Management Systems
- Static Duct Pressure
- Clean Room Pressure
- Oven Pressurization and Furnace Draft Controls

DIMENSIONS



SPECIFICATIONS								
Performance Data			Environmental Data		Electrical Data (Voltage)			
	Standard	Optional		Operating Temperature °F (°C)	0 to +150 (-18 to +65)	Circuit	3-Wire (Exc, Gnd, Sig), Protected from Miswiring	
Accuracy RSS ¹ (at constant temp)	±1.0% FS	±0.4% FS	±0.25% FS	Storage Temperature °F (°C)	-65 to +180 (-54 to +82)	Excitation (for 0-5 VDC Output)	9 to 30 VAC /12 to 40 VDC	
Non-Linearity, BFSL	±0.98% FS	±0.38% FS	±0.22% FS	Physical Description		Excitation (for 0-10 VDC Output)	11 to 30 VAC /13 to 40 VDC	
Hysteresis	±0.10% FS	±0.10% FS	±0.10% FS	Case	IP65/NEMA 4 Plastic Glass-Filled Polycarbonate UL94V-0 Case	Model 267		
Non-Repeatability	±0.5% FS	±0.5% FS	±0.5% FS	Electrical Connection	Screw Terminal Strip Inside of Case	Output ³	0 to 5 VDC ⁴ / 0 to 10 VDC ⁴	
Position Effect				Electrical Terminations	PG-9/PG13.5 Strain Relief, 1/2" Conduit Opening, or 9 Pin D-Sub Connector*	Model 267MR		
Unit if factory calibrated at 0g effect in the vertical position	Range	Zero Offset (%FS/G)		*9 Pin D-Sub Connector is not suitable for NEMA4/IP-65 Environments		Output (Field Selectable)	0 to 10 VDC ⁴	
	0.1"WC	2.3		Zero and Span Adjustments	Accessible Inside of Case	Bidirectional Output at Zero	Mid-Range of Specified	
	0.25"WC	1		Display (Optional on 267 only)	Accessible Inside of Case Display (1.74"W x 0.78"H)	Output Impedance	Ohms	
	0.5"WC	0.5		Pressure Fittings	3/16" O.D. Barbed Brass for 1/4" Push-On Tubing (Standard) Static Pressure Probe (Optional) 1/4" NPTF Brass (Optional)	Re-Ranging (267MR Only)	5 Position Dip Switches (Located Inside Case)	
	1.0"WC	0.3				Electrical Data (Current)		
	2.5"WC	0.2				Circuit	2-Wire, Protected from Miswiring	
10"WC	0.15		Mounting	2 Mounting Tabs with 0.18" Holes Pressure Probe Assembly is Supplied with a 6061 Aluminum Alloy Probe and a Gasket Against the Duct 7.8" to Seal	Output ⁵	4 to 20 mA ⁶		
Pressure Media				Weight (approx.)	9.0 Ounces (255 grams) 9.5 Ounces (Duct Probe Assembly)	Bidirectional Output at Zero	12 mA	
Typically air or similar non-conducting gases.						Max. Loop Supply Voltage (VDC)	30 + 0.004 x (Resistance of Receiver plus line)	
Thermal Effects^{2,3}						Re-Ranging (267MR only)	4 Position Dip Switches (located inside case)	
Compensated Range °F (°C)	+40 to +150 (+5 to +65)			¹ RSS of Non-Linearity, Hysteresis, and Non-Repeatability.				
Zero/Span Shift %FS/°F (°C)	±0.033 (±0.06)			² Units calibrated at nominal 70° F. Maximum thermal error computed from this datum.				
Maximum Line Pressure	10 PSI			³ Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.				
Overpressure	Up to 10 PSI (Range Dependant)			⁴ Zero output factory set to within ±50mV (±25 mV for optional accuracies).				
Long Term Stability	±0.1% FS Total			⁵ Span (Full Scale) output factory set to within ±50mV (±25 mV for optional accuracies)				
				⁶ Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.				
				⁷ Zero output factory set to within ±0.16 mA (±0.08 mA for optional accuracies).				
				⁸ Span (Full Scale) output factory set to within ±0.16 mA (±0.08mA for optional Accuracies.)				
				⁹ Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher.				

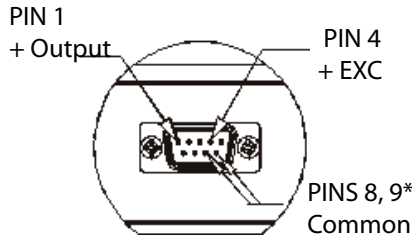


Model 267/267MR

Very Low Differential Pressure Transducer

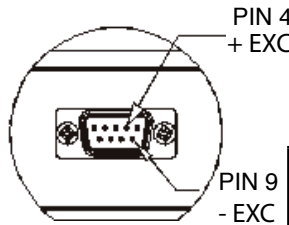


D-SUB ELECTRICAL TERMINATION



CONNECTION	9 PIN D-SUB CONNECTOR
+ Excitation	4
+ Output	1
Common	8, 9
Excitation 9 to 30 VAC/ 11.5 to 42 VDC 12 to 30 VAC/ 13 to 42 VDC	Output 0 to 5 VDC 0 to 10 VDC

Voltage Output



CONNECTION	9 PIN D-SUB CONNECTOR
+ Excitation	4
- Excitation	9

Current Output

ORDERING INFORMATION (Model 267)

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Model	Range Code	Output	Pressure Fitting/Elec. Termination			Accuracy			Display	
2671 = 267	See Table 1 Below	11 4-20 mA	3/16" Barbed Brass Fitting			Std.	C	±1% FS ³	D	LCD ⁴
		2D 0-5 VDC	Std.	G1	PG-13.5 Strain Relief	Opt. ¹	E	±0.4% FS	N	None
		2E 0-10 VDC	Std.	G2	PG9 Strain Relief	Opt. ¹	F	±0.25% FS		
			Std.	D9	9 pin D-Sub Conn.	Opt. ¹	G	±1% FS		
			Std.	A1	1/2" Conduit Opening	Opt. ^{1,2}	H	±0.5% FS		
			1/4"NPTF Brass Fitting			1. Optional accuracies include Calibration Certificate				
			Opt.	1K	PG-9 Strain Relief	2. ±0.5% FS (Code H) accuracy is standard when ordered with the LCD Display (Code D).				
			Opt.	2K	PG-13.5 Strain Relief	3. Not available with LCD Display (Code D)				
			Opt.	9K	9 Pin D-Sub Conn.	4. ±0.5% FS (Code H) Accuracy is standard when ordered with LCD Display (Code D)				
			Opt.	AK	1/2" Conduit Opening					
			Static Duct Probe							
			Opt.	1P	PG-9 Strain Relief					
			Opt.	2P	PG-13.5 Strain Relief					
			Opt.	9P	9 Pin D-Sub Conn..					
			Opt.	Ap	1/2" Conduit Opening					

Table 1. Range Specification

RANGE CODE	UNIDIRECTIONAL	RANGE CODE	BIDIRECTIONAL	RANGE CODE	UNIDIRECTIONAL	RANGE CODE	BIDIRECTIONAL
	"W.C.		"W.C.		PASCALS		PASCALS
OR1WD	0 to 0.1	OR1WB	±0.1	025LD	0 to 25	025LB	±25
R25WD	0 to 0.25	R25WB	±0.25	050LD	0 to 50	050LB	±50
OR5WD	0 to 0.5	OR5WB	±0.5	100LD	0 to 100	100LB	±100
001WD	0 to 1	001WB	±1	250LD	0 to 250	250LB	±250
1RSWD	0 to 1.5	1RSWB	±1.5	500LD	0 to 500	500LB	±500
2R5WD	0 to 2.5	2R5WB	±2.5	10CLD	0 to 1000	10CLB	±1000
005WD	0 to 5	005WB	±5	25CLD	0 to 2500	25CLB	±2500
010WD	0 to 10	010WB	±10	40CLD	0 to 4000	40CLB	
025WD	0 to 25	025WB	±25	70CLD	0 to 7000	70CLB	
050WD	0 to 50	050WB	±50				
100WD	0 to 100	100WB					

Ordering Example: Part No. 2671R25WD11G2CD for a 0 to .25 in. WC Unidirectional Range, 4-20 mA Output, 3/16" Barbed Brass Fitting, PG-9 Electrical Termination, 1% Accuracy with LCD Display

ORDERING INFORMATION (Model 267MR)

Model	Range Code	Output	Pressure Fitting/Elec. Termination	Accuracy	Display
2671 = 267	See Table 1 Below	11 4-20 mA	3/16" Barbed Brass Fitting	Std. C ±1% FS	N None
		2D 0-5 VDC	Std. G1 PG-13.5 Strain Relief	Opt. ¹ G ±1% FS	
		2E 0-10 VDC	Std. G2 PG9 Strain Relief		
			Std. D9 9 pin D-Sub Conn.		
			Std. A1 1/2" Conduit Opening		
			1/4"NPTF Brass Fitting		
			Opt. 1K PG-9 Strain Relief		
			Opt. 2K PG-13.5 Strain Relief		
			Opt. 9K 9 Pin D-Sub Conn.		
			Opt. AK 1/2" Conduit Opening		
			Static Duct Probe		
			Opt. 1P PG-9 Strain Relief		
			Opt. 2P PG-13.5 Strain Relief		
			Opt. 9P 9 Pin D-Sub Conn..		
			Opt. Ap 1/2" Conduit Opening		

1. Order Opt G for ±1% FS Accuracy to include Calibration Certificate

Note: Optional higher accuracies are not available on the 267MR.

Ranges are factory set for the highest range

RANGE CODE	DIFFERENTIAL		RANGE CODE	DIFFERENTIAL	
	"W.C.			PASCALS	
MR1WD	0 to 0.1	±0.05	MR5LD	0 to 25	±12.5
MR2WD	0 to 0.25	±0.125	MR6LD	0 to 50	±25
	0 to 0.5	±0.25		0 to 100	±50
	0 to 1	±0.5		0 to 200	±100
MR3WD	0 to 1.25	±0.625	MR7LD	0 to 250	±125
	0 to 2.5	±1.25		0 to 500	±250
	0 to 5.0	±2.5		0 to 1000	±500
MR4WD	0 to 7.5	±3.75	MR8LD	0 to 625	±312
	0 to 15	±7.5		0 to 1250	±625
	0 to 30	±15		0 to 2500	±1250
			MR9LD	0 to 1875	±937
				0 to 3750	±1875
				0 to 7000	±3750

Ordering Example: Part No. 2671MR1WD11G1CN = 267MR Transducer, 0.01, ±0.05"WC, Differential, 4-20 mA Output, 3/16" Barbed Brass Fitting, PG-13.5 Strain Relief Electrical Termination, ±1% FS Accuracy with No Display

SSP267/267MR Rev.11/08/12

Power Flex

Power Patrol

Patrol Squad
24

Split-Core
Performance
CT

Split-Core
Standard CT

POWER MONITORING

PRODUCT SECTION 7.1

setra

Patrol Flex

Rogowski Coil

Offered in 12", 24" and 36" lengths, the Patrol Flex is the most accurate Rogowski Coil in submetering. Rogowski Coils offer significant installation advantages over split-core CT's because of their light weight, wide current range (10-4000+ Amps), mechanical flexibility for mounting in tight quarters and easy placement around cable bundles or large busbars. The Patrol Flex leads can be extended up to 300 feet without degrading the accuracy of the unit.

±0.5% FS Revenue Grade Accuracy

Setra partnered with Fluke to deliver the Patrol Flex CT; the highest performance Rogowski coil in submetering. The Patrol Flex Rogowski Coil is calibrated to better than ±0.5% FS accuracy for use in revenue grade (tenant billing) applications.

Save Money on Installation

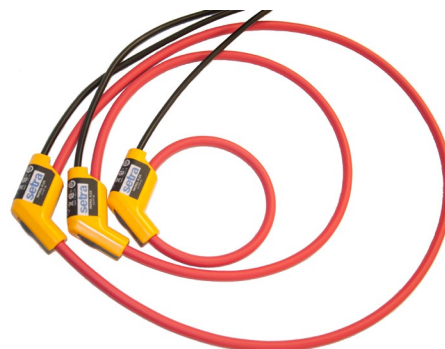
Installers can save significant time and labor using the Patrol Flex due to its flexibility and ease of surrounding conductors of all sizes. Selecting a Rogowski Coil instead of a conventional split-core CT can save the installer over two hours per meter point in a challenging installation, which could be the difference between making and losing money on a job.

Wide Current Range = Reduced Shipping Costs

A typical 100A CT weighs 2 lbs, however as the current range expands to 3,000A the average weight can increase from 2lbs to 20 lbs. Considering three CT's are required to monitor a 3-phase motor, certain applications could require up to 65lbs of shipping weight per meter point; a serious waste of shipping dollars. The Patrol Flex Rogowski Coil has a current range of 5-4,000A and up, yet weighs less than 1/2 lb, drastically reducing freight costs.

Best in Class Linearity

Conventional CT's are wound over a magnetic iron core, which makes them more susceptible to saturation leading to linearity error. Engineers and contractors must adjust the phase shift of the meter to compensate in order to achieve an accurate reading. Rogowski Coils are wound over a non-magnetic core, giving them perfect linearity and improved accuracy over wide current ranges.



- Revenue Grade Accuracy ±0.5% FS
- Best In Class Linearity
- No External Power Required

Patrol Flex Features:

- High Accuracy: ±0.5% FS
- Lightweight: <0.5 lb
- Best in Class Position Sensitivity
- Extend up to 300 ft With No Impact to Accuracy
- Minimal Linearity Effect ±0.2%

Applications

- Measurement & Verification
- Demand Response
- Energy Cost Allocation
- Equipment Efficiency Tracking
- Preventative Maintenance
- Tenant Submetering
- Net Metering

ORDERING INFORMATION

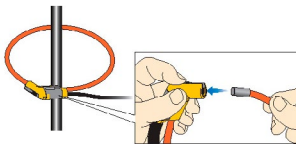
CT - PF - [] []

Model	Probe Length	
PF=Patrol Flex	12	12" (≈3.5" inner diameter)
	24	24" (≈ 7.5" inner diameter)
	36	36" (≈ 11.5" inner diameter)

Example: Part No. CTPF12 = Model Patrol Flex, 12" Probe Length.

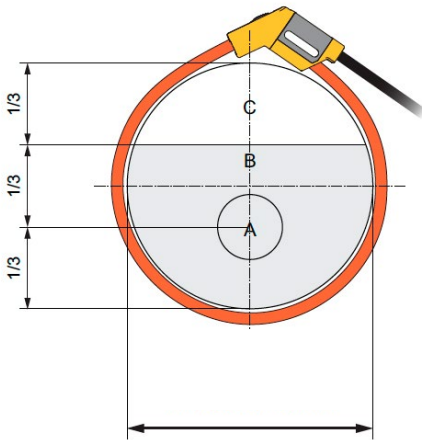
OPERATING INSTRUCTIONS

1. Connect the Probe to the product terminal block.
2. Wear protective gloves or de-energize the circuit and place the coil around the conductor under test. Re-energize circuit.



Locking the Coil

3. Positive output indicates that the current flow is in the direction shown by the arrow on the Probe. (arrow toward electrical load)



	Patrol Flex 12", 24", 36"
Probe Window A	± (0.5% of reading + 0.02% of range)
Probe Window B	± (0.75% of reading + 0.02% of range)
Probe Window C	± (1.25% of reading + 0.02% of range)

GENERAL SPECIFICATIONS

General Specifications		Specifications	
Probe and Cable Material	TPE rubber, reinforced insulation UL94 V-0, Color: RED Munsell 7.5 R 1/14	Voltage Output (@1000 ARMS, 60 Hz)	108 mV
Couplings Material	Polypropylene, UL94 V-0	Current Range ¹	5-4,000+ A AC RMS
Probe Cable Length	610 mm	Accuracy	± 0.5% of reading (@ 25°C, 60 Hz)
Probe Cable Diameter	12.4 mm	Linearity (10% to 100% of range)	± 0.2% of reading
Probe Cable Bend Radius	40 mm	Working Voltage (see Safety Standards section)	1000 V AC RMS or DC (head) 30 V max. (output)
Output Cable Length	2 meters shielded 2-wire cable	Safety Specifications	
Output Connector	Unterminated	Safety Standards	-BS EN 61010-1 2001 -BS EN 61010-2-032 2002 -BS EN 61010-031 2002, 1000 VRMS, Category III, Pollution Degree 2 -Use of the probe on uninsulated conductors is limited to 1000 V AC RMS or DC and frequencies below 1 kHz.
Operating Range	-20° to +70° C		
Storage Temperature	-40° to +80° C		
Operating Humidity	15% to 85% (non condensing)		
Degree of Protection (Probe)	IP40		

¹When used with Setra Power Patrol (Ranges vary when used with other meters)



POWER PATROL

Revenue Grade Power Meter

The Setra Power Patrol is every electrical contractor's dream. The Revenue Grade networked 3-phase power meter works with Rogowski Coils and has a small enough form factor to be mounted inside or outside of the panel using either mounting tabs or the DINrail clip making it the easiest installation in the industry.

Rogowski and CT Compatible

The Power Patrol works with either Rogowski Coil "flex" CTs or conventional split-core CTs. The ability to have interchangeable CTs gives added flexibility for last minute changes at the job site. The Power Patrol is embedded with the necessary amplifier/integrator circuitry for the Rogowski coil CTs--eliminating the need to provide external power.

Easy USB Configuration

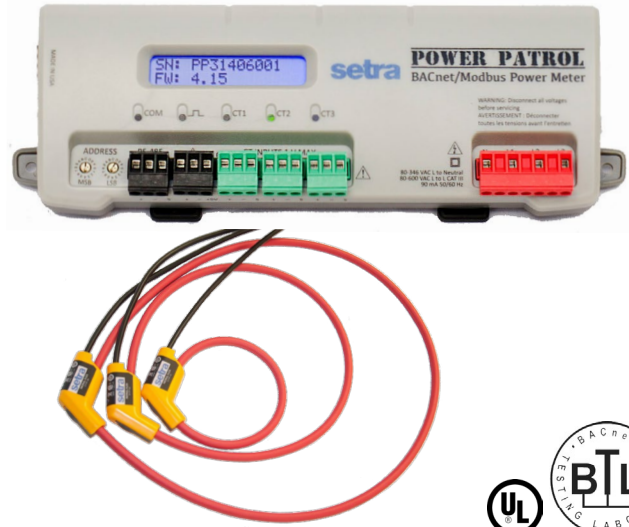
Using the Power Patrol HeadStart software, power and configure the meter through your computer's USB port. While other meter's require configuration in a live enclosure, the Power Patrol can be easily configured outside of the panel, eliminating the risk of arc flash. HeadStart can save meter settings, allowing the installer to clone meter profiles quickly and easily.

Field Selectable Communication (4-in-1)

Each Power Patrol comes with a field selectable Modbus or BACnet communication. Communications interface to the Power Patrol is through either an RS-485 serial connection (BACnet MS/TP / Modbus) or over Ethernet (BACnet IP / Modbus TCP).

Line Powered From 80-600V

The Power Patrol series instruments are line-powered and do not require external power. Its power supply can accommodate service voltage ranging from 80-600V (phase-to-phase). The Power Patrol has 3 LED indicators (Red/Green) which confirm proper CT-to-phase installation.



- **Configure & Power Through USB**
- **Field Selectable BACnet/Modbus (4-in-1)**
- **5 Year Warranty**

Power Patrol Features:

- Revenue Grade Approved by NRTL
- Configure & Power Through USB
- Eliminate Setup Within Live Enclosure
- UL 610 Rated & BTL Certified
- Phase-Check LED's Confirm Wiring
- Rogowski Coil & Split-Core CT Compatible
- Field Selectable BACnet/Modbus (4-in-1)
- Broadband Power Supply (80-600V)
- Optional Display For Setup and Monitoring
- ANSI C12.20-2010 Class 0.2
- Bidirectional
- DINrail Mount
- Digital Pulse Output

Applications:

- Measurement & Verification
- Demand Response
- Energy Cost Allocation
- Equipment Efficiency Tracking
- Preventative Maintenance

ORDERING INFORMATION

S	P	P	-		-	
Model	Communication Port		Display			
SPP= Setra Power Patrol	E	Ethernet & Serial	D	Display		
	S	Serial Only (RS-485)	N	No Display		

ACCESSORIES

900900-G	USB Communication Cable, Type A to B, Power Patrol
900901-G	USB Flash Drive, HeadStart Software, Power Patrol
SPP-ACC-ENC1	Enclosure Kit
SPP-ACC-LEADS-208	Voltage Leads 208 VAC
SPP-ACC-LEADS-480	Voltage Leads 480 VAC
SPP-ACC-FUSE-208	Fuse Leads 208 VAC
SPP-ACC-FUSE-480	Fuse Leads 480 VAC

MODBUS REGISTER/BACNET OBJECT DESCRIPTION LIST

System True Energy (kWh)	Individual Phase to Phase Voltages
Instantaneous Total True Power (kW)	Line Frequency (Hz)
Peak Demand (Adjustable Window) (kW)	Individual Phases True Energy (kWh)
Maximum Instantaneous Power (kW)	Individual Phases True Power (kW)
System Reactive Energy (kVARh)	Individual Phases Reactive Energy (kVARh)
System Apparent Energy (kVAh)	Individual Phases Reactive Power (kVAR)
System Apparent Power (kVA)	Individual Phases Apparent Energy (kVAh)
System Displacement Power Factor (dPF)	Individual Phases Apparent Power (kVA)
System Apparent Power Factor (aPF)	Individual Phases Apparent Power Factor (aPF)
Average Current (Amps)	Individual Phases Displacement Power Factor (dPF)
Average Line to Line Voltage (Volts)	Individual Phases Current (Amps)
Average Line to Neutral Voltage (Volts)	Individual Phases Line to Neutral Voltages (Volts)
Multiple Meters External Data Synchronization	Individual Phases Line to Line Voltages (Volts)
Refer to Operating Manual For Complete List	

GENERAL SPECIFICATIONS

Technical		Communications	
Service Type	Single Phase, Three Phase-Four Wire (WYE), Three Phase-Three Wire (Delta)	Direct	BACnet IP, BACnet MS/TP, Modbus TCP, Modbus RTU
Power	From L1 Phase to L2 Phase. 80-600VAC CAT III 50/60Hz, 70 mA Max. Non-user replaceable .5 Amp internal fuse protection	Max Distance	1200 meters with data rate of 100K bits.second of less
Voltage Channels	80-346 Volts AC Line-to-Neutral, 600V Phase-to-Phase, CAT III	Baud Rate	9600 (Modbus default), 19200, 38400, 57600, 76800 (BACnet default), 11200
Current Channels	3 Channels, 0.67 VAC max, 333 mV CTs, 0-4,700 Amps depending on CT	Data Bits	8
Maximum Current Input	200% of current transducer rating (mV CTs) Measure up to 5000A with Patrol Flex	Parity	None, Even, Odd
Measurement Type	True RMS using high-speed digital signal processing (DSP)	Stop Bit	2, 1
Line Frequency	50/60	Data Formats	Modbus or BACnet
Waveform Sampling	12 kHz	Mechanical	
Parameter Update Rate	.5 seconds	Operating Temperature	-7° to 60° C (-20° to 140° F)
Measurements	Volts, Amps, kW, kWh, kVAR, kVARh, kVA, aPF, dPF (Partial List)	Humidity	5% to 95% non-condensing
Accuracy	0.2% (<0.1% typical) ANSI C12.20-2010 Class 0.2	Enclosure	ABS Plastic, 94-V0 flammability rating
Resolution	0.01 Amp, 0.1 Volt, 0.01 watt, 0.01 VAR, 0.01 VA, 0.01 Power Factor depending on scalar setting	Weight	340 g (12 ounces, exclusive of CTs)
LED Indicators	Bi-color LEDs (red and green): 1 LED to indicate communication, 2 LEDs for correct CT-to-phrase installation (per meter element), 1 LED for pulse	Dimensions	23.0 x 9.0 x 4.0 cm, (9.0" x 3.5" x 1.5")
Pulse Output	Open Collector, 5mA max current, 30V max open voltage	Safety	
		Power Patrol Serial and Ethernet	UL Listed and CE Mark, Conforms to UL Std 61010-1



POWER SQUAD 24

Multi-Circuit Power Meter

The Power Squad 24 is a versatile, multi-channel (CT) power meter designed to significantly reduce overall installation cost. The modular design allows it to be configured for monitoring multiple electrical circuits (sharing a common voltage source) or for current-only monitoring of branch circuits. It can be supplied with virtually any combination of Setra's internally-shunted split-core or Patrol Flex CTs and is capable of monitoring up to 8 three-phase or 24 single-phase electrical devices.

Application Flexibility

The Power Squad 24 works with either Rogowski Coil "flex" CTs or conventional split-core CTs. The ability to have interchangeable CTs gives added flexibility for last minute changes at the job site. All Setra CTs are internally shunted and carry either UL or ETL certification as well as the CE Mark. Every Power Squad 24 is embedded with the necessary amplifier/integrator circuitry for Rogowski coil CTs—eliminating the need to provide external power to these flexible CTs.

Easy Installation

The Power Squad 24 series instruments are line-powered and do not require external power. Its power supply can accommodate service voltages ranging from 80-600V (phase-to-phase). The Power Squad 24's flexibility, and ease-of-use make it the ideal solution for commercial, industrial, government, and retail applications.

Field Selectable Communications

Each Power Squad 24 comes with a field selectable Modbus or BACnet communication. Communications interface to the Power Squad 24 is through either an RS-485 serial connection (BACnet MS/TP / Modbus) or over Ethernet (BACnet IP / Modbus TCP).



- **Configure & Power Through USB**
- **Field Selectable BACnet/Modbus (4-in-1)**
- **5 Year Warranty**

Power Squad Features:

- Revenue Grade Approved by NRTL
- Configure & Power Through USB
- Monitors 8 Three-Phase or 24 Single-Phase Devices
- UL 610 Rated & BTL Certified
- Phase-Check LED's Confirm Wiring
- Rogowski Coil & Split-Core CT Compatible
- Field Selectable BACnet/Modbus (4-in-1)
- Broadband Power Supply (80-600V)
- Bidirectional
- Digital Pulse Input & Output
- ANSI C12.20-2010 Class 0.2

Applications:

- Measurement & Verification
- Healthcare Facilities
- Energy Cost Allocation
- High Density Electrical Distribution Panels
- LEED Projects

ORDERING INFORMATION

S	P	S	2	4	-	<input type="checkbox"/>	-	<input type="checkbox"/>
Model		Enclosure		Communication Port				
SPS24= Setra Power Squad 24		D	Enclosure	E	Ethernet			
		N	None	S	Serial			

ACCESSORIES

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>
900900-G	USB Communication Cable, Type A to B, Power Patrol						
900901-G	USB Flash Drive, HeadStart Software, Power Patrol						

MODBUS REGISTER/BACNET OBJECT DESCRIPTION LIST

System True Energy (kWh)	Individual Phase to Phase Voltages
Instantaneous Total True Power (kW)	Line Frequency (Hz)
Peak Demand (Adjustable Window) (kW)	Individual Phases True Energy (kWh)
Maximum Instantaneous Power (kW)	Individual Phases True Power (kW)
System Reactive Energy (kVARh)	Individual Phases Reactive Energy (kVARh)
System Apparent Energy (kVAh)	Individual Phases Reactive Power (kVAR)
System Apparent Power (kVA)	Individual Phases Apparent Energy (kVAh)
System Displacement Power Factor (dPF)	Individual Phases Apparent Power (kVA)
System Apparent Power Factor (aPF)	Individual Phases Apparent Power Factor (aPF)
Average Current (Amps)	Individual Phases Displacement Power Factor (dPF)
Average Line to Line Voltage (Volts)	Individual Phases Current (Amps)
Average Line to Neutral Voltage (Volts)	Individual Phases Line to Neutral Voltages (Volts)
Multiple Meters External Data Synchronization	Individual Phases Line to Line Voltages (Volts)
Refer to Operating Manual For Complete List	

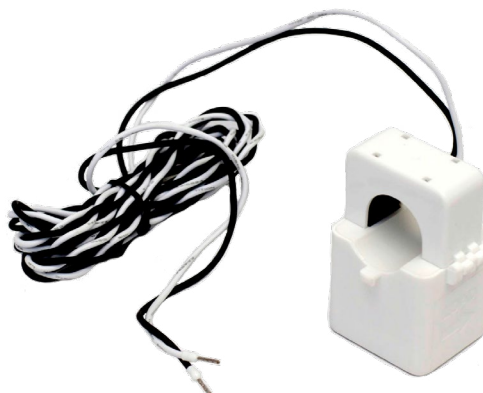
GENERAL SPECIFICATIONS

Technical		Communications	
Service Type	Single Phase, Three Phase-Four Wire (WYE), Three Phase-Three Wire (Delta)	Direct	BACnet IP, BACnet MS/TP, Modbus TCP, Modbus RTU
Power	From L1 Phase to L2 Phase. 80-600VAC CAT III 50/60Hz, 70 mA Max. Non-user replaceable .5 Amp internal fuse protection	Max Distance	1200 meters with data rate of 100K bits.second of less
Power Out	Unregulated 5VDC output, 500 mA Max	Baud Rate	9600 (Modbus default), 19200, 38400, 57600, 76800 (BACnet default), 11200
Voltage Channels	80-346 Volts AC Line-to-Neutral, 600V Phase-to-Phase, CAT III	Data Bits	8
Current Channels	3 or 24 Channels, 0.67 VAC max, 333 mV CTs, 0-5,000 Amps depending on CT	Parity	None, Even, Odd
Maximum Current Input	200% of current transducer rating (mV CTs) Measure up to 5000A with Patrol Flex	Stop Bit	2, 1
Measurement Type	True RMS using high-speed digital signal processing (DSP)	Data Formats	Modbus or BACnet
Line Frequency	50/60 or 400Hz	Mechanical	
Waveform Sampling	12 kHz	Operating Temperature	-7° to 60° C (-20° to 140° F)
Parameter Update Rate	1 second	Humidity	5% to 95% non-condensing
Measurements	Volts, Amps, kW, kWh, kVAR, kVARh, kVA, aPF, dPF.	Enclosure	(optional) PC UL 94 5V
Accuracy	0.5% ANSI C12.20-2010 Class 0.5 for V, A, kW, kVAR, kVA, PF.	Weight	without enclosure: 454g (16oz) with enclosure: 1361g (48oz)
Resolution	0.01 Amp, 0.1 Volt, 0.01 watt, 0.01 VAR, 0.01 VA, 0.01 Power Factor depending on scalar setting	Dimensions	without enclosure: 25.5 x 16.5 x 3.2 cm (10.0" x 6.5" x 1.3") with enclosure: 27.8 x 18.8 x 13.0 cm (10.9" x 7.4" x 5.1")
Pulse Output	Open Collector, 75mA max current, 40V max open voltage, 8 outputs	Safety	
Pulse Input	Open Collector, 75mA max current, 40V max open voltage, 2 inputs	Power Squad Serial and Ethernet	UL Listed and CE Mark, Conforms to UL Std 61010-1

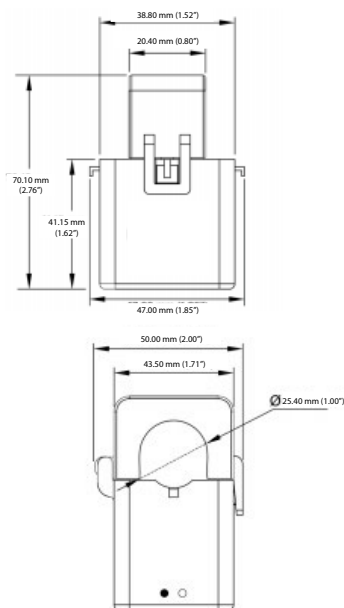
Split-Core Performance CT

Current Transformer

Setra's Split-Core Performance current transformer provides a high accuracy current measurement over a wide dynamic sensing range for power metering applications. Unlike the competition, Setra offers "Safe CT's" which provide a millivolt output directly proportional to the input current. These current transformers are safely and easily installed on existing power lines without disconnecting the lines and interrupting service. These CT's are available from 20A to 200A and when used with Setra's Power Patrol (SPP) or Power Squad (SPS24) provide a complete metering solution for demanding applications.



DIMENSIONS



GENERAL SPECIFICATIONS

Nominal Rating	20A	50A	100A	200A
Aperture Size	0.4" (10mm)	0.4" (10mm)	1.0" (25mm)	1.0" (25mm)
Current Range	0.25-40A AC	0.25-80A AC	1-200A AC	1-300A AC
Output	333 mV @ 20A AC, 16.65 mV/A AC	333 mV @ 50A AC, 6.66 mV/A AC	333 mV @ 100A AC, 3.33 mV/A AC	333 mV @ 200A AC, 1.67 mV/A AC
Ratio Error	<0.5% from 0.25 to 40A AC (typical)	<0.5% from 0.25 to 80A AC (typical)	<0.3% from 1.0A to 200A AC (typical)	<1.0% from 1.0A to 300A AC (typical)
Phase Error	<1.5° from 1A to 80A AC <2° from 0.25 to 1A AC	<1.5° from 1A to 40A AC <2° from 0.25 to 1A AC	<0.5° from 1.0A to 200A AC	<0.5° from 1.0A to 300A AC
Electrical				
Wire Polarity	White = Hi, positive (+) Black = Low, negative (-)			
Phasing	Arrow on Case Points			
Orientation	Toward Load			
Frequency Range	50 to 400 Hz			
Mechanical				
Case Material	White Nylon, UL 94 V-0			
Leads	2.4 M (8'), 600V, 20 gage		2.4 M (8'), 600V, 22 gage	
Operating Temp.	-15 to 60°C (5 to 140°F)			
Storage Temp.	-20 to 85°C (-4 to 185°F)			
Safety				
Working Voltage	600 VAC, Category III			
Dielectric Strength	3525 VAC for 1 Minute		5200 VAC for 1 Minute	
Certifications	UL STD 61010-1 Certified to: CAN/CSA STD 22.2 NO. 61010-1			

ORDERING INFORMATION

CT - SCP - [] [] [] []

Model	Amps
SCP Split-Core Performance	020 20 Amps
	050 50 Amps
	100 100 Amps
	200 200 Amps

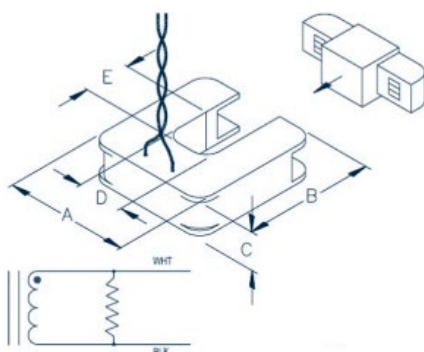
Split-Core Standard CT

Current Transformer

Setra's Split-Core Standard current transformer provides a high accuracy current measurement over a wide dynamic sensing range for power metering applications. Unlike the competition, Setra offers "Safe CT's", which provide a millivolt output directly proportional to the input current. These current transformers are safely and easily installed on existing power lines without disconnecting the lines and interrupting service. The CT's are available from 100A to 600A and when used with Setra's Power Patrol (SPP) or Power Squad (SPS24) provide a complete metering solution for demanding applications



DIMENSIONS



A	B	C	D	E
8.26 cm (3.25")	8.51 cm (3.35")	2.54 cm (1.00")	3.18 cm (1.25")	3.18 cm (1.25")

ORDERING INFORMATION

CT - SCM - [] [] []

Model		Amps	
SCM	Split-Core Medium	100	100 Amps
		200	200 Amps
		400	400 Amps
		600	600 Amps

GENERAL SPECIFICATIONS

Nominal Rating	100A	200A	400A	600A
Aperture Size	1.25" (3.20 cm)			
Current Range	5-130A AC	4-260A AC	8-520A AC	12-780A AC
Output	333 mV @ rated current			
Ratio Error	<1% at rated current (typical)			
Phase Error	<2° at rated current (typical)			
Electrical				
Wire Polarity	White = Hi, positive (+) Black = Low, negative (-)			
Frequency Range	50 to 400 Hz			
Mechanical				
Case Material	Epoxy Encapsulated Housing			
Leads	2.7 M (8'), twisted pair, 20 AWG			
Operating Temp.	Maximum 105°C (220°F)			
Safety				
Working Voltage	600 VAC, Category III			
Dielectric Strength	5000 VAC around case, 600V rated leads			
Certifications	UL STD 61010-1, EN 60044-1:1999 Certified to: CAN/CSA STD 22.2 NO. 61010-1			

ORDERING INFORMATION

ORDER USING SETRA'S CONFIGURABLE PART NUMBER

Our products feature configurable part numbers. Configurable part numbers are designed to simplify and expedite the ordering process as well as provide you with a convenient reference number for inventory control. Individual part numbers identify the product and its unique specifications. The following is an example of how to order using Setra's configurable part numbers:

Example: Order a Model 264 (2641), with a range of 0.25 in.WC (R25WD), 0-5 VDC output (2D), Housing w/1/2" conduit opening (A1), 0.4% Accuracy (E).

Part Number :2641R25WD2DA1E

TERMS

Setra accepts net 30 days upon credit approval, credit card payments, otherwise prepayment must be received in advance of manufacturing.

Remit payment to:

Bank of America Lockbox Services
12003 Collections Center Drive
Chicago, IL 60693

F.I.D. #: 042432269

Credit cards accepted:



PRICES

All prices are in U.S. Dollars, F.O.B. origin. Prices do not include federal, state or local sales, use, excise or similar taxes that may be in effect, or shipping charges. All prices are subject to change without notice.

MAIL, FAX, TELEPHONE, OR EMAIL ORDER INQUIRIES TO:

Customer Care Group
Setra Systems, Inc.
159 Swanson Road
Boxborough, Massachusetts 01719

Telephone: 1 (800) 257-3872
Email: orders@setra.com
Fax: (978) 264-0292

RETURNS AND SERVICE

Repairs:

When returning a product to Setra please call 1 (800) 257-3872 or email orders@setra.com to obtain an RMA number before sending units back to us. Once an RMA number has been assigned to you, please send the package back to the below address.

Setra Systems, Inc.
159 Swanson Road
Boxborough, MA 01719
Attn: RMA#

To download return form, please visit www.setra.com/support/service.

To assure prompt handling, please make sure the RMA number is on the outside of the box and a copy of the service request is included in the shipment. If applicable, include a copy of the PO for the return shipment.

Calibration Services:

Setra maintains a complete calibration facility that is traceable to the National Institute of Standards & Technology (NIST). If you would like to recalibrate or recertify your Setra pressure transducers or transmitters, please call our Customer Care Department at 1 (800) 257-3872 or via email at orders@setra.com.

SETRA TERMS AND CONDITIONS APPLY

For a copy of our Terms and Conditions please visit:
www.setra.com/terms-and-conditions

