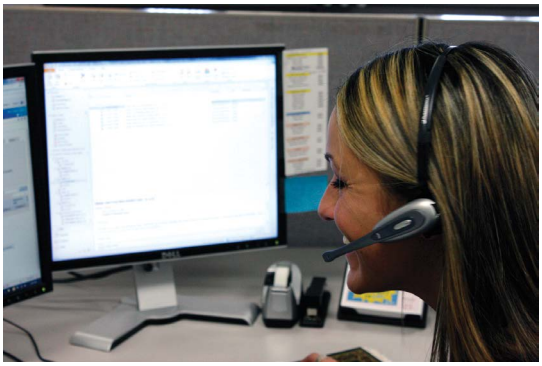
setra®

INDUSTRIAL

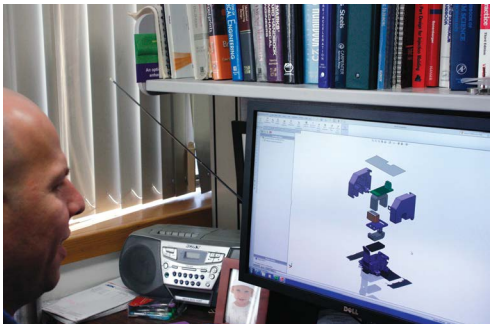
2014 PRODUCT CATALOG

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 knowledgable 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
or 978-263-1400

Mission Statement

To globally serve the sensing, display and control needs of the HVAC Building Automation market and Industrial OEM Pressure sensing segments, with an emphasis on solutions that provide energy cost savings and support the expansion of quality healthcare products and services

Our vision is to have a rich understanding of our served applications, local market requirements and the specific needs of our customers. We will utilize our design engineering core competency and open innovation to develop and deliver solutions that are driven by our DBS principles.

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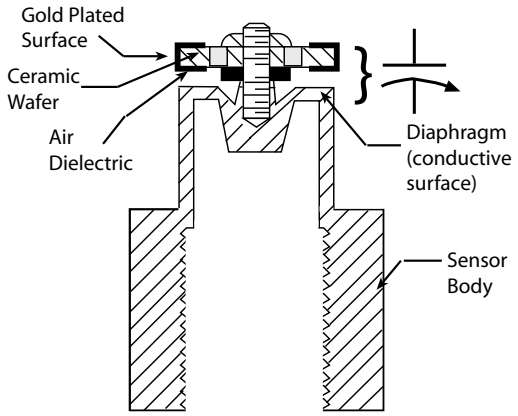
Capacitive Transducers

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.



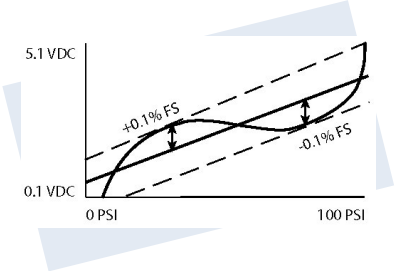
Typical capacitive pressure sensor, showing rugged construction. Materials are carefully selected for compatibility to minimize environmental effects. (Capacitance gap is accentuated for illustration.)

NON-LINEARITY

Relationship of a calibration curve to a specified straight line.

Best FIt Straight Line (BFSL) Method

Example: ±0.1% FS



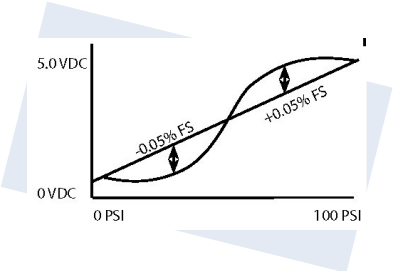
Used for non-linearity measurement on all Setra Pressure Transducers except
Models 270, 276, 370, and 470.

NON-LINEARITY

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

End Point Method

Example: ±0.05% FS



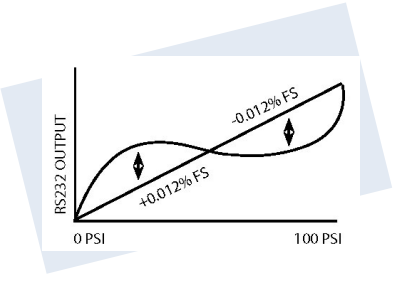
Used for non-linearity measurement on all Setra Pressure Transducers except
Models 270 and 276.

NON-LINEARITY

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

Terminal Method

Example: ±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 ± 100 $N/m^{2,}$ or 10 = dyn/cm^2.

Newton (N) — The unit of force in the International System of Units (SI); the force required to impart an acceleration of $1m/sec^2$ 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/m^2)

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 upond 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).

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GENERAL PURPOSE OEM

MODELS:

209	206	526
3100/3200	256	550
3550	210	280
205	CCM	

setra

Model 209
Pressure Transducers

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 209 pressure transducer is designed for industrial applications with demanding price and performance requirements. The 209 offers exceptional reliability in typical industrial grade environments. Standard features tailor the Model 209 for applications with more extreme environmental conditions or more stringent performance needs. The Model 209 offers unparalleled performance in a configurable transducer designed specifically for the budget conscious OEM.

Setra's proven center mount electrode configuration is the heart of this simple, yet industrialized design. A 17-4 Stainless steel sensor and a rigid stainless steel electrode form the variable capacitor.

The 209 transducer is packaged in a rugged stainless steel valox housing, which is small and lightweight for optimum compatibility with system designs. As a totally self-contained package, the 209 stainless steel capacitance sensing element, coupled with a high level output IC-based circuit, assures excellent accuracy and long term stability.

FEATURES

- High Over Pressure Option Available on Selected Ranges
- Rugged Design Withstands Harsh Environments
- Operates Over a Wide Temperature Band
- Compatible w/ Wide Range 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
- 3 to 5 Day Shipment for Small Quantities, Standard Configurations
- CE & RoHS Compliant

APPLICATIONS

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

GAUGE, COMPOUND & VACUUM PRESSURE RANGES

	STANDARD		OPTION	
Full Scale Range (PSI)	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	5000
100	200	1000	1000	5000
200	400	2000	1500	5000
250	500	2000	2000	8000
500	1000	3000	2500	10,000
1000	2000	5000	4000	10,000
1500	2500	6000	5000	12,000
2000	3000	6500	N/A	N/A
3000	4500	7500	N/A	N/A
5000	7500	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

*Also available in Bar ranges. Consult Factory.

Gauge Pressure: Pressure measured relative to ambient atmospheric pressure. Referred to as pounds per square inch (gauge) or psig.

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.

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SPECIFICATIONS

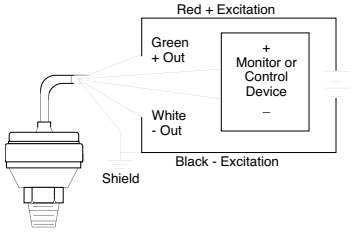
Performance Data		Environmental Data		Electrical Data (Voltage)	
Accuracy RSS[1] (at constant temp)	±0.25% FS	Operating[3] Temperature °F (°C)	-40 to + 185 (-40 to +85)	Circuit	3-Wire (COM, OUT, EXC)
Non-Linearity, BFSL	±0.22% FS	Storage Temperature °F (°C)	-40 to + 185 (-40 to +85)	Excitation	9 to 30 VDC
Hysteresis	0.10% FS	Shock[3]	200g operating	Output[6]	0.5 to 5.5 VDC[7]
Non-Repeatability	0.05% FS	Acceleration	10 g Maximum[5]	Output Impedance	10 ohms
Thermal Effects		Shock[3]	200g Operating	**Electrical Data (Current)**	
Compensated Range °F (°C)	-4 to +176 (-20 to +80)	Vibration[4]	20g	Circuit	2-Wire
Zero Shift %FS/100°F (%FS/50°C)	±2.0 (±1.8)	Environmental Protection	Weather Resistant	Output[8]	4 to 20mA[9]
Span Shift %FS/100°F (%FS/50°C)	±1.5 (±1.3)	**Physical Description**		External Load	0 to 800 ohms
Warm-up Shift	0.1% FS Total	Case	Stainless Steel & Valox	Minimum supply voltage (VDC)	9+ 0.02 x (Resistance of receiver plus line)
Response Time	5 milliseconds	Sensor	17-4 PH Stainless Steel	Maximum supply voltage (VDC)	30+ 0.004 x (Resistance of receiver plus line).
Long Term Stability	0.5% FS/1 YR	Electrical Connection	2 ft. multiconductor cable		
Pressure Media		Pressure Fitting[5]	1/4" -18 NPT external, 17-4 PH Stainless Steel		
Liquids and gases compatible with 17-4 PH Stainless Steel.[2]		Vent	Through cable		
		Weight (approx.)	2.3 ounces (65 grams)		

[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.

WIRING

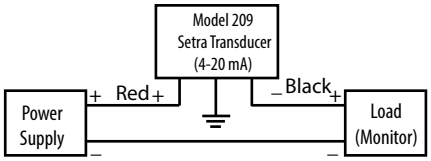
Voltage Output

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:



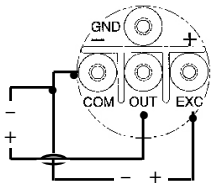
Current Output

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

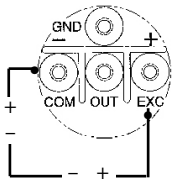


Conduit Version

Voltage

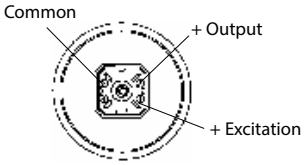


Current



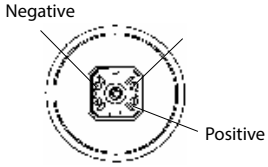
Hirschmann Connectors

Voltage



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

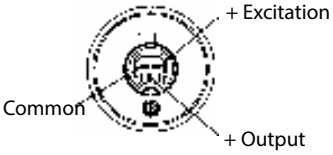
Current



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

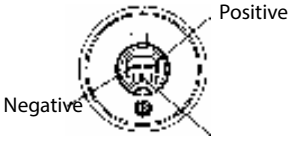
3-Pin Packard Connector

Voltage



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

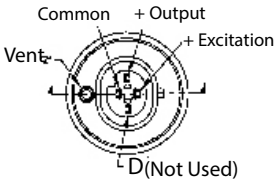
Current



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

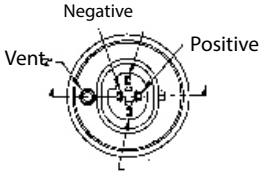
4-Pin Packard Connector

Voltage



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

Current

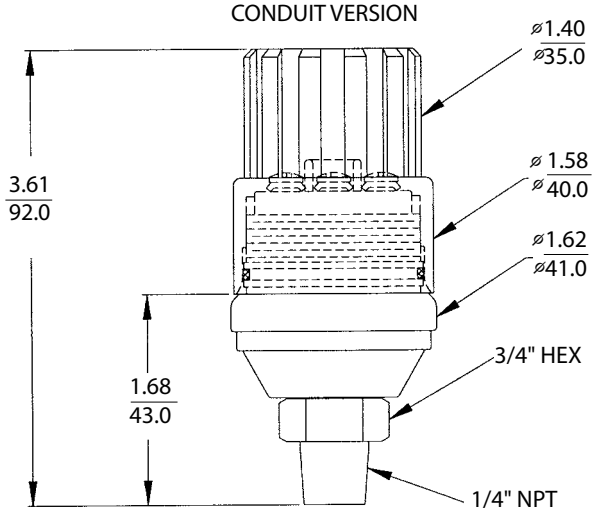


Top View: 4-Pin Packard Connector
Type: Metri-Pack 150

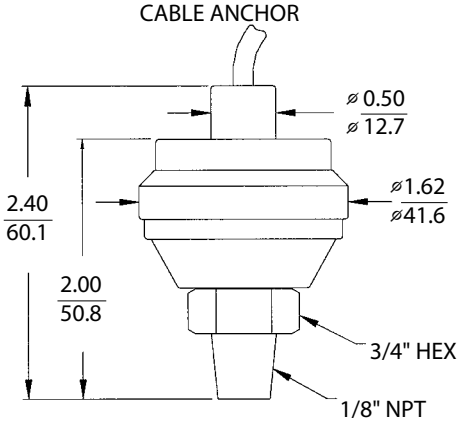
Model 209
Pressure Transducers

DIMENSIONS

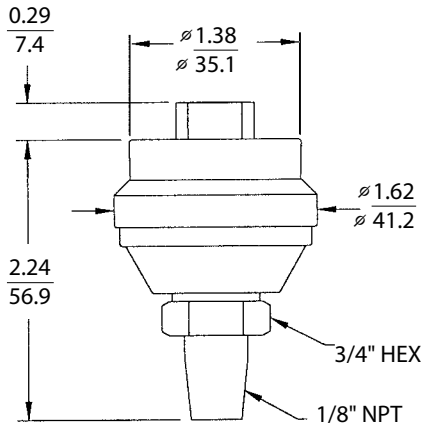
CONDUIT VERSION



CABLE ANCHOR

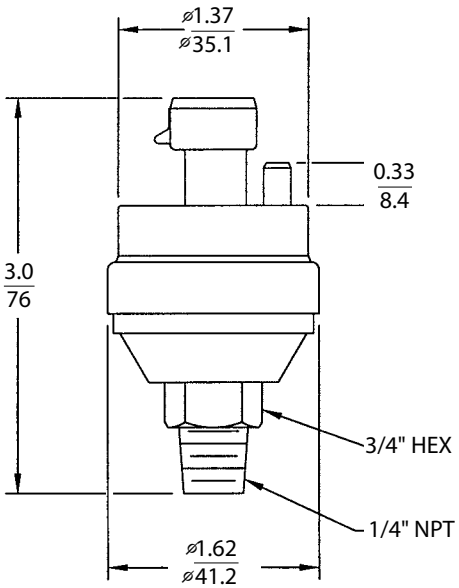


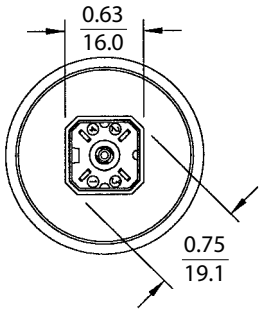
OPTIONAL HIRSCHMANN CONNECTOR
Type: G4A1M #931807-106



in.
mm

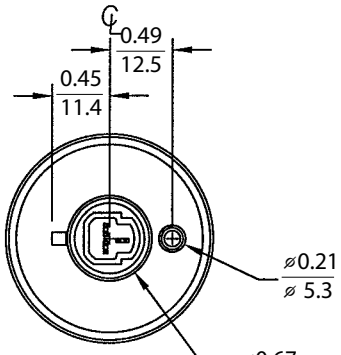
OPTIONAL 3-Pin PACKARD CONNECTOR
Type: P2S Series 150





Top View

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



Top View

Mating Packard Connectors available. See table below to order.

ORDERING INFORMATION

2 0 9 1 – [ ][ ][ ][ ] – [ ] – [ ][ ] – [ ][ ] – [ ][ ] – [ ]

Model	Range Code	Pressure Type		Pressure Fitting		Output		Elec. Termination		Options	
2091 = 209	See Table 1 Below	G	Gauge	2M	1/4" NPT Male	11	4-20 mA	XX	Cable length in feet[1]	H	High Overpressure Capability (Only available on 25 PSI up to 1500 PSI Pressure Ranges)
		C	Compound	J7	7/16" SAE Male	24	0.5 to 5.5 VDC	P1	Packard (3-Pin)[2]		
		S	Sealed*	1M	1/8" NPT Male	28	1 to 6 VDC	P3	Packard (4-Pin)[3]		
		V	Vacuum	L4	1/4 Female SAE	45	0.5 to 4.5 VDC	H2	Hirschmann, ("Mini")[4]		
				G4	1/2" A Male			A1	Terminal Block w/ Conduit Cover		
				P1	1/8" NPT Female Bulkhead (Available on Ranges > 50 PSI)						

[1] i.e., 2 feet = 02
[2] Order Setra Part #577 for Mating Connector
[3] Order Setra Part #857 for Mating Connector
[4] Order Setra Part #590 for Mating Connector

Table 1. Range Specification	
RANGE CODE	PSI
001P	0 to 1
002P	0 to 2
005P	0 to 5
010P	0 to 10
025P	0 to 25
050P	0 to 50
100P	0 to 100
200P	0 to 200
250P	0 to 250
500P	0 to 500
10CP	0 to 1000
15CP	0 to 1500
20CP	0 to 2000
30CP	0 to 3000
50CP	0 to 5000
10KP	0 to 10000
Z01P	0 to -14.7 PSI

Note: Order mating connectors direct from manufacturers:
Mfr. Part #12103881-L/#12065287/#1203-4413 = Setra's Part #577
Mfr. Part #12065298/#12066176/#12048086 = Setra Part #857
Mfr. Part #932157-106 = Setra Part #590

*Sealed Version Available on 200 PSI Range and Above)

NOTE: Standard configuration consists of: PSI Range, 1/4" NPT Fitting and 2 feet of cable (up to 25 feet of cable can be ordered) . (Minimum quantities apply for all other configurations. Consult a Setra Applications Engineer for assistance.

Ordering Example: 2091001PG2M1102 = Model 209, 0 to1 PSI Range, Gauge Pressure, 1/4" NPT Male Fitting, 4 to 20 mA Output, 2 ft. Cable.

Model 3100/3200

Standard & Heavy Duty OEM Pressure Transducers

DESCRIPTION

The 3100/3200 Series high-pressure OEM transducers feature a sputtered thin-film sensor to provide high levels of performance and stability for large volume OEM installations. A wide choice of outputs as well as electrical and pressure connections means that the unit is suitable for most applications without modification. In addition, the compact construction of the 3100/3200 Series makes it ideal for installations where space is at a premium.

The Model 3200 features a thicker diaphragm and a restrictor (optional) to handle environments where extreme positive or negative pressure spikes are a concern. Proof pressures on the Model 3200 are 3x full scale on 50 psi up to 10,000 psi pressure ranges.

PRINCIPLE OF OPERATION

Sputtered Thin Film Strain Gauge Pressure Sensors

Using the well proven Wheatstone Bridge principle, molecular layers are sputtered onto a 17-4 PH stainless steel diaphragm and the circuit is etched to provide excellent resistor definition and uniformity. Sputtered thin film technology allows the design of simple, highly accurate and compact strain gauges deposited onto the back of the sensing diaphragm, which is in direct contact with the media. This method virtually eliminates drift, while offering enhanced sensitivity.

FEATURES

- Low Cost for High Volume OEM Installations
- Thin Film Tech. Assures Long-Term Stability
- Wide Choice of Pressure Ranges from 50 PSI up to 32,000 PSI
- Long-Term Stability Better Than ±0.1% FS/Yr
- 0.25% Full Scale Accuracy
- Dual Temperature and Pressure Output on Voltage Units
- Small Footprint -Less than 1 inch Dia. (25 mm long)
- Choice of mA, Voltage, or Ratiometric Outputs
- Reverse Wiring Protected
- Accuracy Specified Over the Full Temperature Range of -40°F to +221°F (-40°C to +105°C)
- All Welded Stainless Steel Construction
- No Oil Fill to Cause Thermal Instability or Leakage
- No Internal Elastomers or O-Rings, no RTV's or Epoxies
- CE, RoHS Compliant & UL Approved

APPLICATIONS

- Medical
- Hydraulic Pressure
- HVAC/R Compressors
- Variable Speed Pumps
- Refrigeration
- Industrial/OEM
- Pumps

PRESSURE CAPABILITY

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.

The data in the tables is "times rate ranges" (xRR).

<table>
<tr><th rowspan="2">Pressure Range
PSI (BAR)</th><th colspan="2">Proof Pressure
(x Full Scale)</th><th colspan="2">Burst Pressure
(x Full Scale)</th></tr>
<tr><th>3100</th><th>3200</th><th>3100</th><th>3200</th></tr>
<tr><td>50-300 (3.5-25)</td><td>3.00 x FS</td><td rowspan="4">3.00 x FS</td><td>40 x FS</td><td>40 x FS</td></tr>
<tr><td>500-1,500 (3.5-25)</td><td rowspan="5">2.00 x FS</td><td>20 x FS</td><td>20 x FS</td></tr>
<tr><td>2,000-6,000 (160-400)</td><td>10 x FS</td><td>10 x FS</td></tr>
<tr><td>7,500-9,000 (600)</td><td rowspan="3">4 x FS</td><td>10 x FS</td></tr>
<tr><td>10,000 (700)</td><td rowspan="3">>60,000 PSI
(4,000 Bar)</td></tr>
<tr><td>15,000 (1,000)</td><td rowspan="2">2.50 x FS</td></tr>
<tr><td>25,000 (1,800)</td><td rowspan="2">1.40 x FS</td><td>1.8 x FS</td></tr>
<tr><td>30,000 (2,200)</td><td>—</td><td>1.5 x FS</td><td>—</td></tr>
</table>

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SPECIFICATIONS

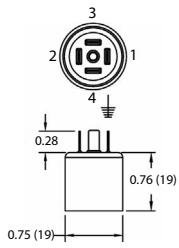
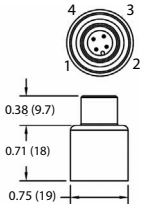
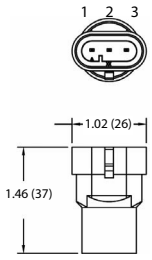
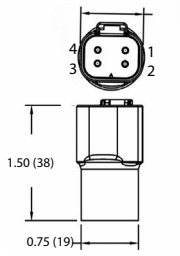
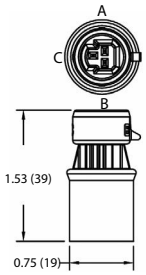
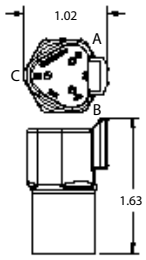
Performance Data		Physical Description	
Accuracy[1] Data		Pressure Port	See Ordering Instructions on page 4
Model 3100	±0.25% FS	Wetted Parts	17-4 PH Stainless Steel (Diaphragm) 304 Stainless Steel (Fittings)
Model 3200	±0.5% FS	Electrical Connections	See Ordering Instructions on page 4
Thermal Effects[2]		Enclosure	IP67 (IP65 for Electrical Code A)
Compensated Range °F (°C)	-40 to +221 (-40 to +105)	Vibration	40G Peak to Peak Sinusoidal to 2000 Hz (Random Vibration: 20 to 1000 Hz @ approx. 40G Peak per MIL-STD-810E
Zero/Span Shift %FS/100°F)%FS/100°C)		Shock	Withstands free fall to IEC 68-2-32 procedure 1
Model 3100	0.83 (1.5)	Weight	35 grams
Model 3200	0.94 (2.0) for <1000 PSI (60 BAR)	**Electrical Data (Voltage)[6]**	
Zero/Span Tolerance		Circuit	3-Wire (Exc, Out, Com)
Model 3100	±0.5% of Span	Output	1 to 6 VDC, 1 to 5 VDC, 0.5 to 4.5 VDC, 0 to 5 VDC, 0 to 10 VDC[7]
Model 3200	1% FS for <1000 PSI (60 BAR)	Excitation	2 Volts above Full Scale to max 30 Volts @ 4.5 mA (6.5mA Dual Output Version)
Response Time	1 ms	Source and Sinks	2 mA
Long Term Stability	±0.2% FS/YR Non-Cumulative	**Electrical Data (Ratiometric)**	
Proof/Burst Pressure	See Table on Page 1	Output	0.5 to 4.5 VDC @ 4 mA (6.5 mA on Dual Output Version)
Fatigue Life	Designed for more than 100 M cycles	Excitation	5 VDC ± 10%
Temperature Output Range °F° (C)[3,4,5]		**Electrical Data (Current)[7]**	
Series 3101/2301	-40 to +221 (-40 to +105)	Circuit	2-Wire
Series 3201/3202	+32 to +212 (0 to +100)	Output	4 to 20 mA
Series 3103/3203	+32 to +176 (0 to +80)	Excitation	8 to 30 VDC (24 VDC max. above 110°C applications)
Performance Data		Max. Loop Resistance	(Supply Voltage -8) x 50 ohms
Operating/Storage Temp. °F° (C)	-40 to +257 (-40 to +125)	**Options**	
Approvals		Miswire Protection (Option 1)	
CE	Conforms to European Pressure Directive	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.	
EMC	Radiated Immunity is 100V/m		
RoHS	Fully Compliant		
UL	E312651		

[1]RSS of Non-Linearity, Hysteresis, and Non-Repeatability .
[2]Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel.
[3]Temperature outputs are for voltage output pressure sensors only and limited to connections that have 4 pins (Electrical Codes -D, -E, -8).
[4]Requires additional 2 mA of power.
[5]For use with pull-down resistors, contact factory before ordering.
[6]Reverse Wiring Protected.
[7]Not available for pressure ranges lower than 100 PSI (7 BAR)

Model 3100/3200

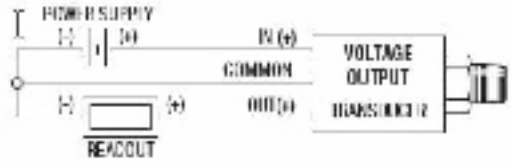
Standard & Heavy Duty OEM Pressure Transducers

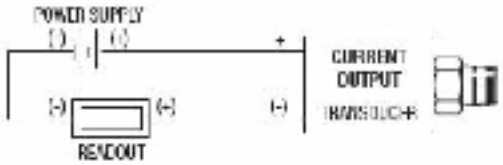
ELECTRICAL FITTINGS

	Din 9.4 mm	M12 x 1P	Amp Supeseal 1.5	Deutsch DT4-4P	Packard Metri Pack	3-Pin Deutsch
						
	Code B	Code E	Code 6	Code 8	Code 9	Code C

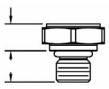
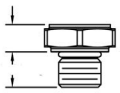
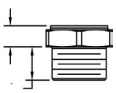
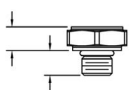
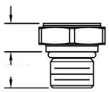
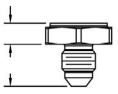
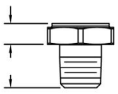
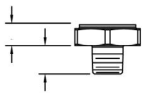
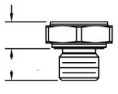
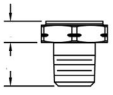
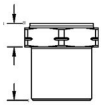
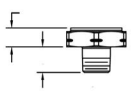
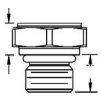
Pin #	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode		Current Mode	Voltage Mode	
1	$V_{out}1$ (pressure)	No Connect	V_{supply}	V_{supply}	$V_{out}1$ (pressure)	No Connect	Ground	Return	$V_{out}1$ (pressure)	No Connect	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	—	—		—	—	—

WIRING





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*	
					
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*	

Dimensions: in. (mm)

ORDERING INFORMATION

□□□□ – □ – □□□□ – □ – □□ – □ – □

Model	Output		Range Code	Pressure Type		Pressure Fittings	Electrical Conn.	Restrictor (3200 only)	
See Table 1	B	4-20 mA	See Table 2	C	Compound	See Table 3	See Table 4	O	No Restrictor
	C	1-6 VDC		G	Gauge			R	Restictor
	H	1-5 VDC		S	Sealed Gauge[2]				
	N	0.5-4.5 VDC							
	R	0-5 VDC							
	S	0-10 VDC							
	T	0.5-5.5 V Ratiometric							

Table 1. Model Specification

CODE	DESCRIPTION
3100 3200	Std. 3100 Std. 3200
Voltage Units w/Temp. Ouput	
3101[1]	Temp. Output Range: -40°C to +105°C
3102[1]	Temp. Output Range: -0°C to +100°C
3103[1]	Temp. Output Range: -0°C to +80°C
3201[1]	Temp. Output Range: -40°C to +105°C
3202[1]	Temp. Output Range: -0°C to +100°C
3203[1]	Temp. Output Range: -0°C to +80°C

Table 2. Range Specification

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 Specification

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
OE	Female 1/4-18NPT

Table 4. Fitting Specification

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

NOTES

1	Temperature outputs are for voltage output pressure sensors only (applies temperature span. Requires additional 2mA of power.
2	Sealed gauge not available on ranges ≤1500 psi (≤100 bar).
3	Ranges 1000 bar (15,000 psi) and above available with 2T pressure port only.
4	For use with pull-up or pull-down resistors, contact factory.
5	Pressure ports OE and 1G are NOT available with the Restrictor option.
6	0 to 50 PSI (4 bar) - Not available with 4 to 20 mA or 0 to 10 VDC outputs.
7	Temperature outputs not available with Option 1 Miswire Protection PCB Ratiometric output not available

ACCESSORIES - Mating Connectors

Part No.	Description	For Code	Part No.	Description	For Code
557230	Mini Din Connector, Strain Relief	B		Recommended Mating Parts (AMP p/n: Socket Conn. 1-967325-1,	6
557703-01M0	M12 Cord Set - 1 Meter (Red 1, Green 2, Blue 3, Yellow 4)	E		Consult AMP for Contacts, Wire Seal and Strain Relief options)	
557703-03M0	M12 Cord Set - 3 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E	210730	AMP 12" Flying Leads Cord Set	6
557703-04M0	M12 Cord Set - 4 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E		Recommended Mating Parts (Deutsch p/n: Housing	8
557703-05M0	M12 Cord Set - 5 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E		Plug DT064S-P012; Wedge W4S-P012; Sockets 4X 0462-201-1631)	
			224153	Deutsch Cord Set 3'Long (18 AWG PVC Cable - Black 1, Red 2, Green 3, White, 4	8
	Recommended Mating Parts (AMP p/n: Housing 282087-1;	6		Recommended Mating Parts (Delphi Packard MetriPack p/n: Body 12065268; Seal	9
	Contacts 3X 183025-1; Seal 281934-1; Boot 880811-2)			12052893; Consult Delphi for Contacts)	
557701 210729	AMP Superseal Mate Kit	6	577	Packard Mate Kit	9
	AMP 3.5'Cable Cord Set - Clear Pos 1, Black Pos 2, Red Pos 3	6	581	Packard Cord Set 3'Long	9
			582	Packard Cord Set 6'Long	9

Ordering Example: 3100B100PG08CO= Standard Model 3100,4 to 20 mA output, 100 psi, 1/8-27 NPT ext. fitting, 3-Pin Deutsch electrical connector, No Restrictor.

Model 3550

Compact Low Pressure OEM Pressure Transducers

FEATURES

- Low Cost for High Volume OEM Installations
- Pressure Ranges from 0-15 PSI to 0-250 PSI
- .25% Full Scale Accuracy
- Small Package Size
- 316L Stainless Steel Wetted Parts
- Absolute, Gauge, and Compound Pressure Ranges

APPLICATIONS

- Refrigeration Systems
- Medical
- Oil & Gas
- Industrial OEM
- Emissions Monitoring
- Harsh Chemical
- Transformer/Smart Grid Technology
- Automotive

DESCRIPTION

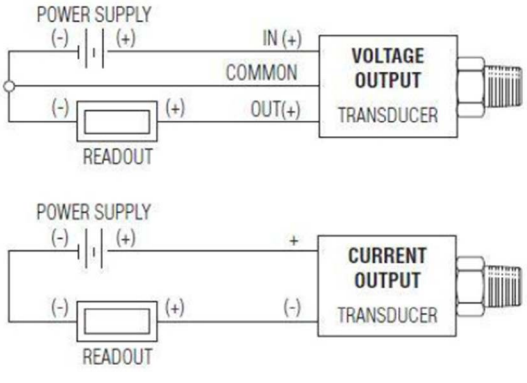
For OEMs that need consistent high levels of performance, reliability and stability the 3550 Series units offer a small package size with all 316 stainless steel wetted parts at an unbeatable price performance ratio. A wide choice of electrical outputs as well as both electrical and pressure connections means the unit is suitable for most applications without modifications. The compact construction of the 3550 Series makes it ideal for installation where space is at a premium.

SPECIFICATIONS

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

Input	
Pressure Range	0-250 psi (0-16 bar)
Proof Pressure	2x Nominal Range
Burst Pressure	3x Nominal Range

Wiring Diagram



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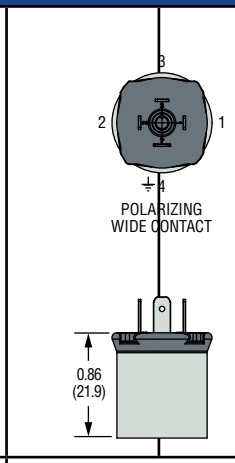
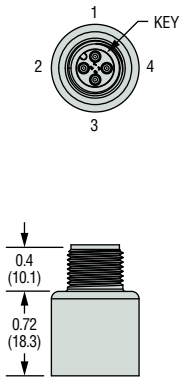
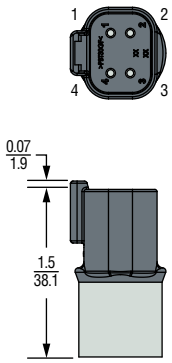
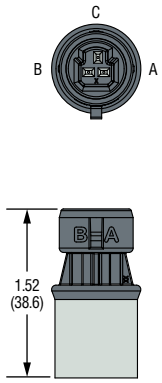
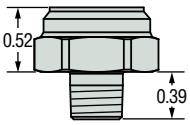
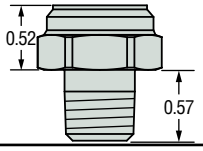
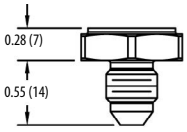
ELECTRICAL CONNECTOR

	DIN 9.4 mm	M12 x 1P	Deutsch DT04-4P	Packard MetriPack
inch (mm)				

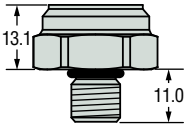
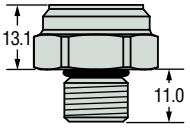
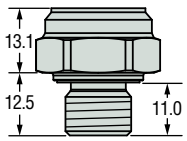
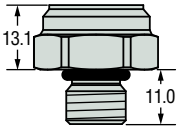
	Code B		Code E		Code 8			Code 9	
Pin #	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Pin ID	Voltage Mode	Note
1	V_{out} (pressure)	No Connect	V_{supply}	Supply	Ground	Return	C	V_{out} (pressure)	MetriPack connectors may be used with 0.5-4.5V Ratiometric Output only.
2	V_{supply}	Supply	V_{out} (pressure)	No Connect	V_{supply}	Supply	A	Ground	
3	No Connect	No Connect	Ground	Return	No Connect	No Connect	B	V_{supply}	
4	Ground	Return	No Connect	No Connect	V_{out} (pressure)	No Connect	—	—	

PRESSURE PORTS

SAE

	1/8″-27 NPT	1/4″-18 NPT	7/16″-20 UNF with 37° Flare
Dimensions in Inches			
Fitting Code	08	02	04
Torque	2-3 TFFT*	2-3 TFFT*	15-16 NM

BSP & Metric

	G1/8″ External	G1/4″-19 External w/O-Ring	G1/4″-19 A Integral Face Seal	M12 x 1.5 w/O-Ring
Dimensions in MM				
Fitting Code	OS	01	05	OL
Torque	22-25 NM	30-35 NM	30-35 NM	28-30 NM

* NPT Threads 2-3 turns from finger tight. Wrench tighten 2-3 turns.

General Notes:
1. The diameter of all cans is 19 mm (0.748″)
2. Hex is 22 mm (0.886″) Across Flats (A/F) for deep socket mounting

Model 3550

Compact Low Pressure OEM Pressure Transducers

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 Trasients
EN6100-4-6:2009	Conducted RF Immunity

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 DT064S-P012; Wedge W4S-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

ORDERING INFORMATION

3 5 5 0 - ☐ - ☐☐☐☐ - ☐ - ☐☐ - ☐ - ☐ - 0 0

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

1. Compound vacuum gauge only (eg. -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.

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

SS3550 Rev. A 3/17/14

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Model 206
Pressure Transducers

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 206 gauge pressure transducers are the most rugged and most reliable sensors available. Time afer time, these transducers prove to be superior to competitive brands and technologies in the most critical test of all—the field application test!

Setra's robust capacitive design is resistant to environmental effects such as shock, vibration, temperature and EMI/RFI. In addition, the 206 meets NEMA4 and IP65 environmental protection ratings.

Packaged in a welded stainless steel housing, the Model 206 accommodates a variety of pressure fittings and electrical connector options.

FEATURES

- Solid Stability for Confident Installations
- Exceptional EMI/RFI Performance Prevents False System Shutdown
- NEMA-4/IP-65 Certified (206) for Use in Harsh Environments (Cable Version Only)
- Reverse Wiring Protection
- Rugged Design Withstands High Shock/ Vibration Applications
- Versatile Package Design Provides JIT Delivery
- User Accessible Zero and Span Adjustment
- Meets CE Conformance Standards

APPLICATIONS

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

PRESSURE RANGES

PSIG Ranges		
Gauge Pressure	Proof Pressure	Burst Pressure
0-25	100	500
0-50	150	750
0-100	300	1000
0-250	500	2000
0-500	1000	3000
0-1000	2000	5000
0-3000	4500	7500
0-5000	7500	10,000
0-10,000	12,500	20,000

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	1350

Gauge Pressure: Pressure measured relative to ambient atmospheric pressure. Referred to as pounds per square inch (gauge) or psig.
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.

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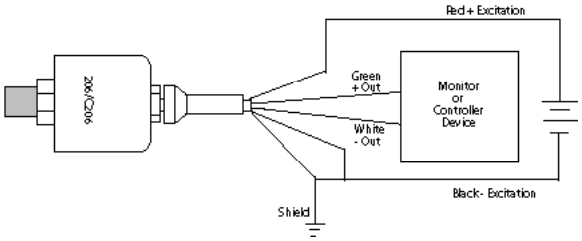
SPECIFICATIONS

Performance Data		Environmental Data		Electrical Data (Voltage)	
Accuracy RSS[1] (at constant temp)	±0.13% FS	Operating[3] Temperature °F (°C)	32 to + 120 (0 to +50)	Circuit	2-Wire
Non-Linearity, BFSL	±0.1% FS	Storage Temperature °F (°C)	-20 to +160 (-30 to +70)	Output[10]	4 to 20 mA[11]
25 psig Range[2]	±0.2%	Operating Humidity	5 to 95% RH (non-condensing)	External Load	0 to 800 ohms
Hysteresis	0.08% FS	Acceleration	10 g Maximum[5]	Minimum Supply Voltage (VDC)	9 + 0.02 x (Resistance of receiver plus line)
Non-Repeatability	0.02% FS	Shock[6]	200g Operating	Maximum Supply Voltage (VDC)	30 + 0.004 x (Resistance of receiver plus line)
Thermal Effects		Vibration[7]	20g 50-2000 Hz	**Electrical Data (Current)**	
Compensated Range °F (°C)	-4 to +176 (-20 to +80)	**Physical Description**		Circuit	2-Wire
Zero Shift %FS/100°F (%FS/50°C)	1.0 (0.9)	Case	Stainless Steel	Output[10]	4 to 20 mA[11]
Span Shift %FS/100°F (%FS/50°C)	1.5 (1.4)	Pressure Fittings 1/4"NPT external	G1/4A or M14 x 1.5 Optional	External Load	0 to 800 ohms
Warm-up Shift	0.1% FS Total	Vent	Through cable (Cable Version) Via Zero Screw (Terminal Block)	Minimum Supply Voltage (VDC)	9 + 0.02 x (Resistance of receiver plus line)
Response Time	5 Milliseconds	Electrical Connection	2 ft. Multiconductor Cable or 3 Screw Terminal Block	Maximum Supply Voltage (VDC)	30 + 0.004 x (Resistance of receiver plus line)
Long Term Stability	0.5% FS/1 YR	Zero/Span Adjustments	Top External Access	**Electrical Data (Current)**	
		Weight (approx.)	6 Ounces	Circuit	3- Wire (Exc, Out, Com)
				Excitation	12 to 18 VDC, Rever Excitation Protected
				Output[8]	0.1 to 5.1 VDC[9]
				Output Impedence	100 ohms
				Power Consumption	<0.15 watts (approx. 5mA @ 24 VDC)

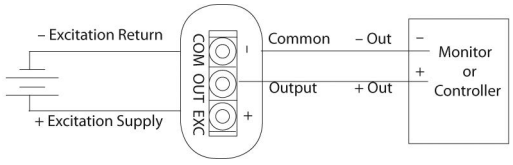
[1] RSS of Non-Linearity, Hysteresis, and Non-Repeatability.
[2] 25 psig range accuracy is ±0.22% of Full Scale output.
[3] Hydrogen not recommended for use with 17-4 PH Stainless Steel.
[4] The high temperature limit of the cable is 200°F (95°C).
[5] Shift in output reading <0.05 psi/g typical; pressure port axis only.
[6] Mil-Std. 202, Method 213B, Cond. C
[7] Mil-Std. 202, Method 204, Cond. C
[8] Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.
[9] Zero output factory set to within ±25mV. Span (Full Scale) output factory set to within ±50mV.
[10] Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.
[11] Zero output factory set to within ±0.08mA. Span (Full Scale) output factory set to within ±0.16mA.

Specifications subject to change without notice.

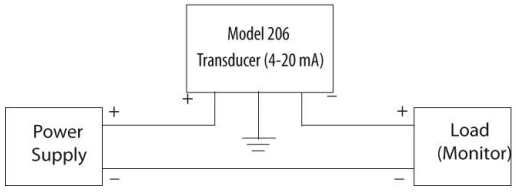
WIRING



Voltage Output
Cable



Voltage Output
Terminal Block



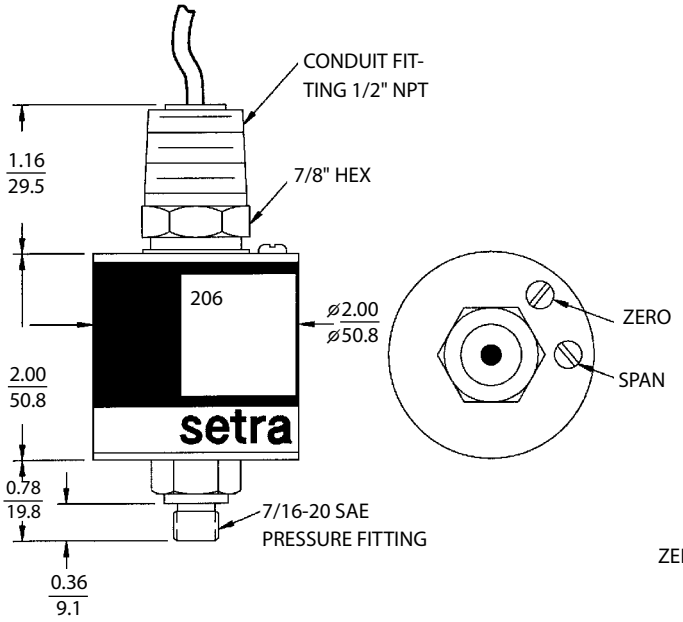
Current Output
Cable and Terminal Block

Model 206
Pressure Transducers

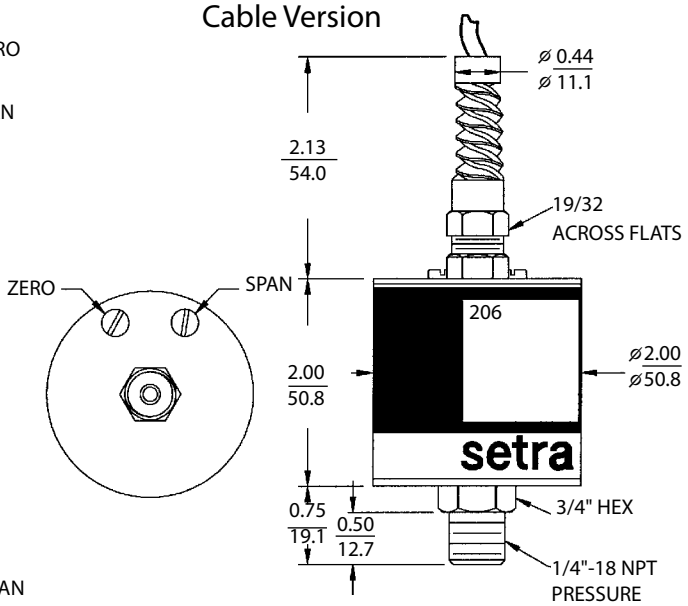
DIMENSIONS

Cable with Conduit Version

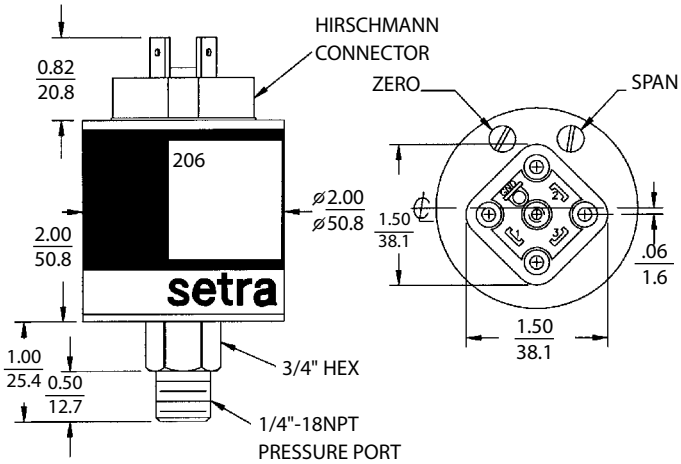
IN
MM



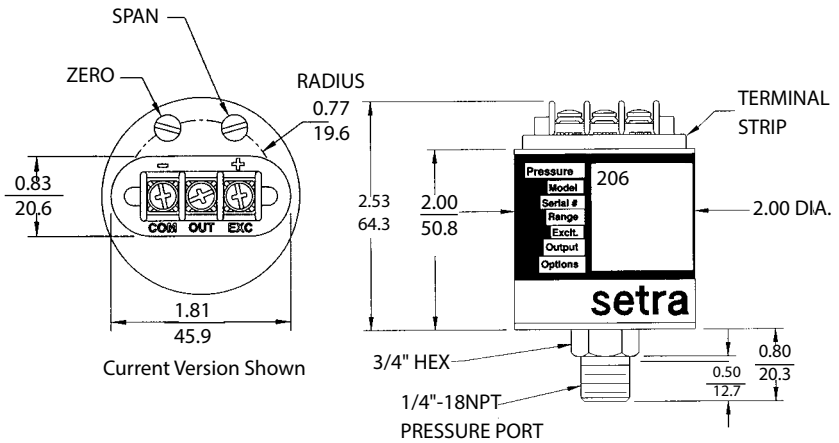
Cable Version



Hirschmann Connector



Terminal Version



Current Version Shown

ORDERING INFORMATION

2 0 6 1 – ☐☐☐☐ ☐ – ☐☐ – ☐☐ – ☐☐ – ☐ – ☐☐

Model	Range Code	Pressure Type		Fitting		Output		Termination		Accuracy		Options[2]	
2061 = 206	See Table 1 Below	G	Gauge	1M	1/4" NPT Male	11	4 to 20 mA	XX	Cable Length[1]	8	±0.13% FS	NN	None
		C	Com-pound	2M	1/8" NPT Male	22	0.1 to 5.1 VDC	H1	Hirschmann			A	Cleaning for Oxygen Service
		A	Absolute	1F	1/8" NPT Female	27	1 to 5 VDC	A1	1/2" Conduit			B	Mating Bayonet Connector
				2F	1/4" NPT Female	28	1 to 6 VDC	T1	Terminal Block			C	Cal Cert
				J7	7/16" SAE	2T	0.1 to 10.1 VDC					D	Mate with Datum
												L	Etched SS Tag
												F	NEMA 4 Enclosure
												G	Mating Hirschmann Connector

Table 1. Range Specification

RANGE CODE	PSI	RANGE CODE	BAR
025P	0 to 25	1R6B	0 to 1.6
050P	0 to 50	004B	0 to 4
100P	0 to 100	006B	0 to 6
250P	0 to 250	010B	0 to 10
500P	0 to 500	016B	0 to 16
10CP	0 to 1000	025B	0 to 25
30CP	0 to 3000	040B	0 to 40
50CP	0 to 5000	060B	0 to 60
10KP	0 to 10000	100B	0 to 100
		160B	0 to 60
		250B	0 to 250
		400B	0 to 400
		700B	0 to 700B

Notes:
1. 2 feet of cable is standard.
Ordering Example: 2 feet = 02
Up to 25 feet of cable can be ordered.
2. Both boxes must be filled in:
If No options: N + N
If 1 option: Option Code +N
If 2 options: Option Code + Option Code

Ordering Example: 2061025PG2M22028CN = Model 261, 0 to 25 PSI Range, Gauge Pressure, 1/4" NPT Male Fitting, 0.1 to 5.1 VDC Output, 2 ft. Cable, ±0.13 FS Accuracy, Calibration Certificate

Model 256

Pressure Transducers

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 NEMA4/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[5]	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 @ 24 VDC)
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]			
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		

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.

5. Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.
6. Zero output factory set to within ±25 mV.
Span (Full Scale) output factory set to within ±50 mV.
7. Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.
8. Zero output factory set to within ±0.08 mA
Span output factory set to within ±16 mA

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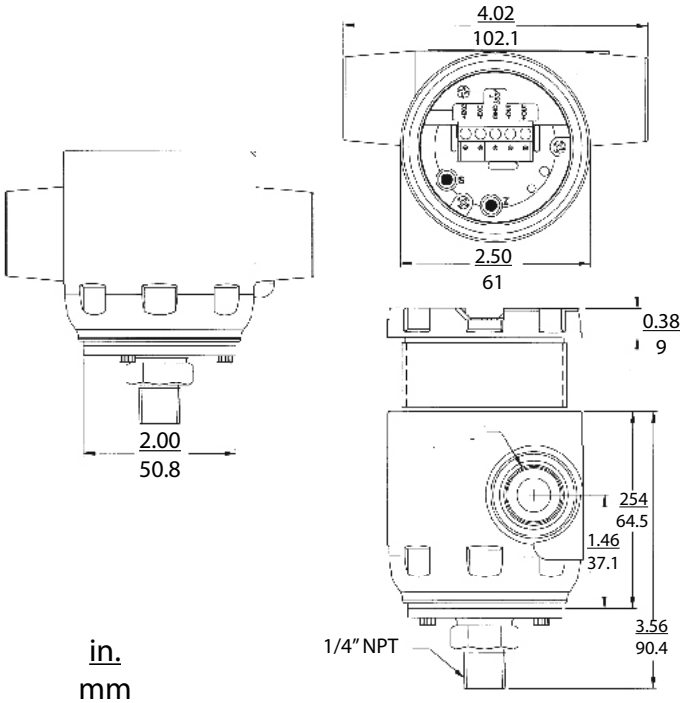
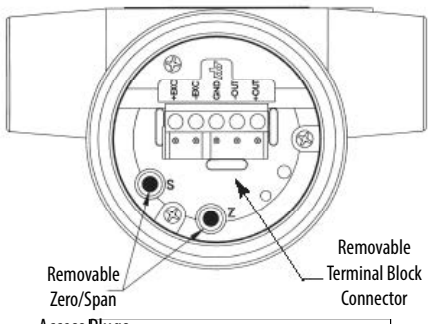
DIMENSIONS

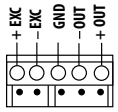


in.
mm

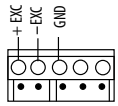
Wiring



Screw Terminal Designations



Voltage Connections



Current Connections

ORDERING INFORMATION

2 5 6 1 – [ ][ ][ ][ ] – [ ] – [ ][ ] – [ ][ ] – [ ]

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
				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)				

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		

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

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 Ration
- Meets CE Conformance Standards

APPLICATIONS

- Analytical Measurement and Control
- OEM Medical Systems

SPECIFICATIONS

Performance Data			
	Standard	Optional	
Accuracy RSS	±1.0% FS	±0.5% FS	±0.25% FS
Non-Linearity, (BFSL)	±0.98% FS	±0.48% FS	±0.22% FS
Hysteresis	0.20% FS	0.10% FS	0.10% FS
Non-Repeatability	0.05% FS	0.05% FS	0.05% FS

Thermal Effects	
Zero Shift %FS/°F (%FS/°C)	<±2.0 (<±1.8)
Span Shift %FS/°F (%FS/°C)	<±1.5 (<±1.4)
Long Term Stability	0.5% FS/YR

Pressure Media
Gases compatible with 304 SS, 17-7 PH Series Stainless Steel, Nylon, Polyester and Silicone.

Physical Description	
Case	Fire Retardant Glass-Filled Polyester
Sensor	17-7 Stainless Steel for Ranges ≥5 PSI. Other Ranges, 300 Series Stainless Steel
Pressure Fitting	3/16 O.D. Barbed Nylon Pressure Fitting for 1/8" I.D. Tubing
Electrical Connection	Solder Pins, 0.030" Roung on 0.2" Centers
Weight (approx)	0.5 ounces

Environmental Data	
Temperature	
Operating °F(°C) [4]	-4 to +176 (-20 to +80)
Storage °F(°C)	-40 to +185 (-40 to +85)
Humidity	
Operating	0 to 95% RH Non-Condensing
Storage	0 to 98% RH Non-Condensing
Vibration	5g Operating
Shock	<100g

Electrical Data (Voltage)	
Circuit	3-Wire (+In, +Out, Common)
Excitation	24 VDC (21.6 to 32) 12 VDC (10.8 to 18.4) 5 VDC (4.9 to 8.1)
Output*	1 to 6 VDC 0.5 to 4.5 VDC 0.5 to 5.5 VDC
Output Impedance	<100 Ohms
Response Time	10 Milliseconds

*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.

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, 6205861 B1.

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

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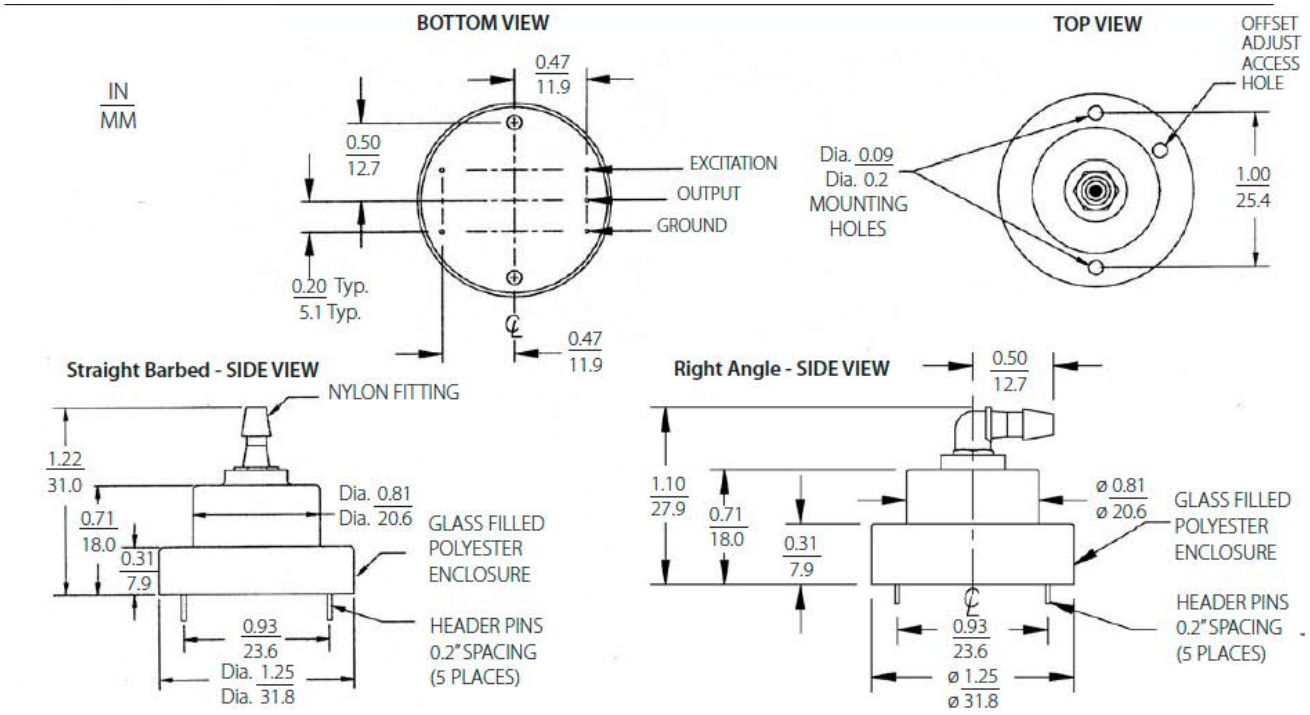
DRAWINGS & DIMENSIONS



ORDERING INFORMATION

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Model		Pressure Range		Pressure Type		Fitting		Output		Elec. Termination		Accuracy	
2101	210	001P	1 PSI	G	Gauge	1B	Straight Barbed	24	24 VDC/0.5-5.5 VDC	C1	PC Board Mountable Pins	Standard	
		002P	2 PSI			1D	Right Angle	25	24 VDC/0.5-4.5 VDC			C	±1.0% FS
		005P	5 PSI					28	24 VDC.1-6 VDC			Options (w Cal Cert)	
		010P	10 PSI					35	12 VDC/0.5-4.5 VDC			H	±0.5%
		015P	15 PSI					38	12 VDC/1-6 VDC			F	±0.25%
		025P	25 PSI					45	5 VDC/0.5-4.5 VDC				
		050P	50 PSI										
		100P	100 PSI										

Ordering Example: 2101001PG1B35C1C = 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%.

SSP210 Rev. G 06/14/2004

Model 526
Submersible Pressure Transducer

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.

FEATURES

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

APPLICATIONS

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

Principle of Operation:

Using the well proven Wheatstone Bridge Principle, a chemical vapor is deposited in thin layers or 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	
Accuracy RSS[1] (at constant temp)	±0.25% FS, ±0.15% FS Optional
Thermal Effect[2]	
Compensated Range F°(C°)	-5 to +180 (-20 to + 80)
Accuracy ±0.25% FS Zero/Span Shift %FS/100°F (%FS/50°C)	0.8 (1.5)
Accuracy ±0.15% FS Zero/Span Shift %FS/100°F (%FS/50°C)	0.5 (1.0)
Response Time	0.5 milliseconds
Long Term Stability	0.2% FS/year
Proof Pressure	2 x FS (<1.5 x FS for 400 BAR, >=5000 PSI)
Burst Pressure	>35 x FS<=100 PSI (6 BAR) >20 x FS<=1000 PSI (60 BAR) >5 x FS<=6000 PSI (400 BAR)
Pressure Media	
Liquids or gases compatible with 17-4 PH Stainless Steel Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel	

Environmental Data		
Operating and Storage Temperature[3] °F°C		
for Elec. Code E1	-40 to +260 (-40 to +125)	
for Elec. Code N1	-5 to +180 (-20 to +80)	
for Elec. Code NA	-5 to +125 (-20 to +50)	
Vibration	70g Peak to Peak Sinusoidal, 5 to 2000 Hz (Random)	
Acceleration	100g Stead Acceleration in any direction 0.32% F	
Shock	20g, 11ms per MIL-STD-810E; Method 516.4 Procedure	
Physical Description		
Case	316 Stainless Steel, 17-4 Stainless Steel	
Ratings	IP65 for Elec Codes B3, B1, E2; IP68 for Elec Code UA (Max. Depth 200 Meters H20	
Wetted Parts	17-4 PH Stainless Steel	
Weight	3.5 Oz (100g)	

Electrical Data (Voltage)	
Circuit	3-Wire (Exc, Out, Com)
Excitation	1.5 VDC Above Span to 35 VDC @ 6mA[4]
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
Current Consumption[6]	Approx. 6 mA @ 7.5 VDC output
Electrical Data (Millivolt)	
Circuit	4-Wire (+Exc, -Out, +Out, -Exc)
Excitation	10 VDC (15 VDC Max) Regulated
Output[7]	100 mV (10mV/V)
Bridge Resistance	2600-6000 Ohms
Electrical Data (Current)	
Circuit	2-Wire
Output[8]	4 to 20 mA[9]
Loop Supply Voltage	24 VDC, (7-35 VDC)
Maximum Loop Resistance	(Vs-7) x 50 Ohms

[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.

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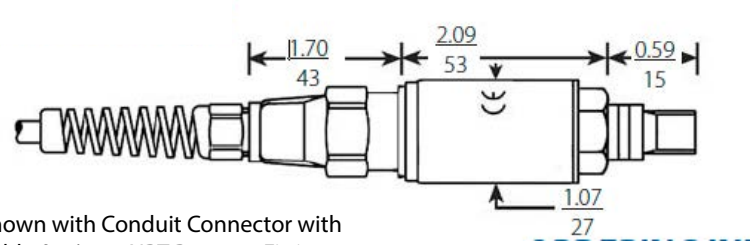
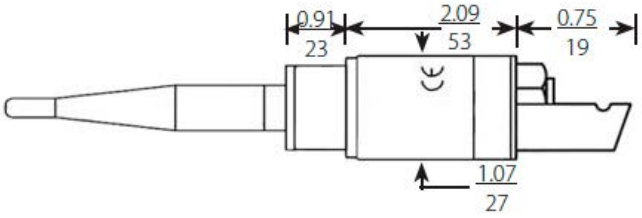
OUTLINE DRAWING



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

Shown with Molded Immersible Cable & Plastic Nose Cone



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ORDERING INFORMATION

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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 Baronet Connector	F	0.25% FS	A	Instrinsic Safe CSA
	030P	30 PSI	0R6B	1.6 BAR	C	Compound	1F	1/8-27 NPT Female	11	4-20 mA	UA	Molded Immersible Cable (up to 2000 meters (656 ft)	S	0.15% FS, Opt.	B	Intrinsic Safe ATEX
	060P	60 PSI	2R5B	2.5 BAR	A	Absolute	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	B1	8-4 Bayonet Conn.				
	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												
	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												

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

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.

FEATURES

- Superior Stability Avoid Down Time
- NEMA 4/IP65 and NEMA 6/IP68 Rated
- ±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

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)	±0.25% F	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	±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**	
				GA9 GA10 GA11 GA25	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

[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

Pressure Range	Proof Pressure	Burst Pressure
≤ 85 in. W.C.	803 in. W.C.	1219 in. W.C.
86 in W.C. to 140 in. W.C.	1607 in. W.C.	2410 in. W.C.
141 in. W.C. to 400 in. W.C.	2025 in. W.C.	4017 in. 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

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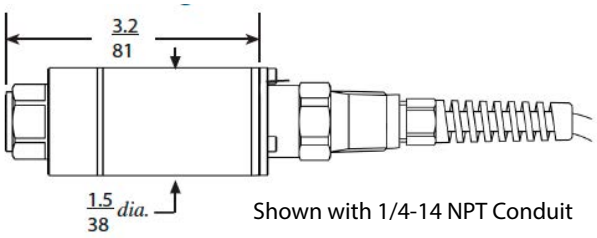
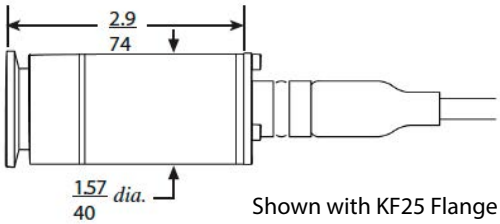
OUTLINE DRAWING



Shown with 1/4-14 NPT Conduit



Shown with KF25 Flange and Submersible Cable Assembly

ORDERING INFORMATION

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Model	Range				Pressure		Pressure Fitting		Output		Elec. Term.		Accuracy		Options	
5501 = 550	001P	1 PSI	010W	10 in 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	A	Instrinsic Safe CSA
	002P	2 PSI	015W	15 in W.C			2M	1/4-18 NPT Male	28	1-6 VDC, 3-Wire	UA	1M Molded Immersible Cable (up to 2000 meters (656 ft)	S	0.15% FS, Opt.	B	Intrinsic Safe ATEX
	003P	3 PSI	025W	25 in W.C			4M	1/2-14 NPT Male	2B	0-5VDC, 3-Wire						
	004P	4 PSI	050W	50 in W.C			G2	G 1/4 Male	24	0.5-5.5 VDC, 3-Wire						
	005P	5 PSI	100W	100 in W.C			N2	KF25 Flange	27	1-5 VDC, 3-Wire						
	007P	7 PSI	150W	150 in W.C						0.1-5-1 VDC, 3-Wire						
	010P	10 PSI	200W	200 in W.C												
	012P	12 PSI	250W	250 in W.C												
	015P	15 PSI	300W	300 in W.C												
			350W	350 in W.C												
			400W	400 in W.C												

Ordering example: Part No. 5501002PG211UAF - For a Model 550 Pressure Transducer, 2 PSI, G 1/4" Male Pressure Fitting, 4-20 mA Output, Molded Submersible Cable, and 0.25% Accuracy.

SSP550 Rev. C 12/27/2006

Model 280

Gauge, Compound and Absolute Pressure Transducer

BENEFITS

- Low Cost/High Performance
- 0.11% Full Scale Accuracy
- High Level Output: Voltage & Current
- One Piece Stainless Steel Sensor
- Small Size and Light Weight
- Temperature Compensated for Low Thermal Error

APPLICATIONS

- High Pressure
- General Purpose
- P/I Process Signals
- Hydraulics and Pneumatics

DESCRIPTION

Setra Systems Model 280 pressure transducer is intended for low to high pressure measurements of gases or liquids in applications requiring rugged packaging, high performance and affordability. The 17-4 PH stainless steel capacitance sensing element, coupled with a custom ASIC based circuit, assures excellent accuracy and long term stability.

The stable electronic circuit, combined with Setra's variable capacitance sensor, results in the ultimate in design simplicity. The sensor features a 17-4 PH stainless steel pressure sensor and an insulated electrode, which forms a variable capacitor. As the pressure increases, the capacitance decreases. The change in capacitance is detected and converted to a linear DC output signal.

The high level of voltage or current output signal requires no additional signal and conditioning and results in excellent stability, accuracy and fast dynamic response, making the 280 ideal for high performance applications.

SPECIFICATIONS

Performance Data		Physical Description		Electrical Data (Voltage)	
Accuracy RSS [1] (at constant temperature)	±0.11% FS	Case	Stainless Steel with O-Ring	Circuit	3-Wire (+In, +out, Com)
Non-Linearity, (BFSL)	±0.1% FS	Electrical Connection	1" Edge Card with Space Lugs and Dust Boot	Excitation	15 to 32 VDC
Hysteresis [2]	0.05% FS	Pressure Fitting	1/4" - 18 NPT Internal	Output [7]	0.03 to 5.03 VDC [8]
Non-Repeatability	0.02% FS	Pressure Cavity Volume	0.04 in.^{3}	Power Consumption	0.25 watts (approx. 10mA @ 24 VDC)
Thermal Effects [3]		Volume Increase	5 x 10^{-5} in.^{3}	Output Impedance	100 ohms
Compensated Range	+32 to +150°F (0 to +65°C)	Weight	5 oz	Output Noise	100 microvolts RMS (0 Hz to 10 KHz)
Zero/Span Shift %FS/100°F (%FS/50°C)	2.0 (1.8)	**Environmental Data**		**Electrical Data (Current)**	
Warm-Up Shift	0.5% FS (0.1% FS residual shift after 5 minutes)	Temperature		Circuit	2-Wire
Pressure Media		Operating [5]	0 to +175°F (-18 to +80°C)	Output [9]	4 to 20 mA [10]
Gases or liquids compatible with 17-4 PH Stainless Steel. [4]		Storage	-65 to +200°F (-54 to +93°C)	External Load	0 to 800 ohms
		Vibration	2g from 5 Hz to 500 Hz	Min. Supply Voltage (VDC) = 18 +0.02 x (Resistance of receiver plus line)	
		Acceleration	10g [6]	Max. Supply Voltage (VDC) = 32 + 0.004 x (Resistance of receiver plus line)	
		Shock	50g	Reverse Excitation Protected.	

[1] RSS of Non-Linearity, Hysteresis and Non-Repeatability.
[2] 0.1% FS for 10,000 psi range only.
[3] Units calibrated at nominal 70°F. Maximum thermal error is computed from this datum.
[4] Hydrogen not recommended for use with 17-4 PH Stainless Steel.
[5] Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.
[6] Shift in output reading of 0.05% FS/G typical, pressure port axis only.
[7] Calibrated into a 50K ohm load.
[8] Span (Full Scale) output factory set to within ±50mV.
[9] Calibrated at factory with 24 VDC loop supply voltage and a 250 ohm load.
[10] Zero output and Span FS factory set to within ±0.16mA. Span (Full Scale) output factory set to within ±0.16mA.

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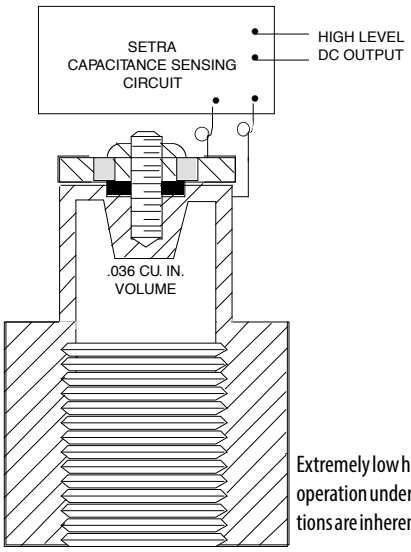
Model 280

Gauge, Compound and Absolute Pressure Transducer



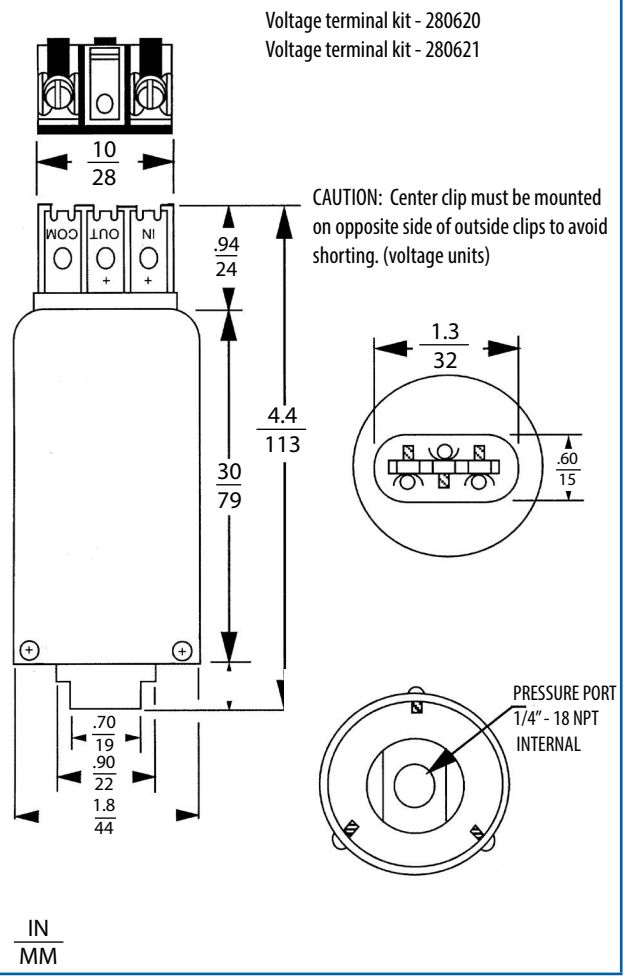
Extremely low hysteresis and very stable operation under extreme temperature conditions are inherent in this sensor design.

PRESSURE RATING (PSI)

Sensor Range	Proof Pressure	Burst Pressure
0-15	25	75
0-25	50	150
0-50	75	200
0-100	150	500
0-250	375	1000
0-500	750	1500
0-1000	1250	3000
0-3000	3750	45000
0-5000	6000	7500
0-10000	11000	12500
-14.7 to 35	75	200
-14.7 to 50	150	500
3-15	25	75

All other compound ranges have same rating as gauge ranges.

DRAWINGS & DIMENSIONS



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

ORDERING INFORMATION

2 8 0 1 – ☐☐☐ – ☐ – ☐ – ☐☐ – ☐☐ – ☐☐ – ☐ – ☐ ☐

Model		Pressure Range		Units		Pressure Type		Fitting		Output		Termination		Accuracy		Options	
2801	280	015	15	P	PSI	G	Gauge	2F	1/4" NPT Internal	11	4 to 20 mA	T1	Terminal Strip	W	±0.11% FS	NN	None
		025	25			C	Compound (Available 35 to 10,000 PSI Only)			2S	0.03 to 5.03 VDC (24 VDC EXC)			9[3]	±0.073%	C	11 Point Calibration Certification
		050	50			A	Absolute (Available 25-5,000 PSI Only)			3S	0.03 to 5.03 VDC (12 VDC EXC)					D	Mate with Datum
		100	100													F	NEMA 4 Enclosure
		250	250													L	Etched SS Tag
		500	500													Y	Clean for Oxygen SVC
		10C	1000														
		30C	3000														
		50C	5000														
		10K	10000														
		Z02	3 to 15[1]														
		035	-14.7 to 35[2]														

[3] Not available on 10K PS

[1] Only available with Type code "C"
[2] Only available with output code "11"

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

Ordering Example: 2801025PG2F11T1WCN - Model 280, 0 to 25 PSI, Gauge Pressure, 4-20 mA, Terminal Strip, ±0.11%, 11 Point Cal Certification

082SS

Model 205

Gauge & Absolute Pressure Transducer

BENEFITS

- Low Price
- 0.11% Full Scale Accuracy
- 5 VDC Output
- High Cycle Life
- Fast Response, 1 Millisecond
- Solid One-Piece Stainless Steel Sensor
- Fast Warm-Up

APPLICATIONS

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

DESCRIPTION

Setra Systems 205 pressure transducer is designed for accurate pressure measurement of gases or liquids compatible with stainless steel. The high level output signal requires no additional signal conditioning and results in excellent stability, accuracy, and fast dynamic response, making the 205 ideal for high performance applications. The stable electronic circuit, combined with Setra's patented variable capacitance sensor, results in the ultimate in design simplicity. The sensor features a one-piece 17-4 PH stainless steel pressure sensor and an insulated electrode, which forms a variable capacitor. As the pressure increases, the capacitance decreases. This change in capacitance is detected and converted to a linear DC electric signal.

SPECIFICATIONS

Performance Data		Physical Description		Electrical Data (Voltage)	
Accuracy RSS [1] (at constant temperature)	±0.11% FS	Case	Stainless Steel	Circuit	4-Wire (+Exc, -Exc, +Out, -Out)
Non-Linearity, (BFSL)	±0.10% FS	Electrical Connection	2ft. Multiconductor Cable (Std)	Excitation	18 to 30 VDC
Hysteresis	0.05% FS	Pressure Fitting	1/4" - 18 NPT Internal	Output [5]	0 to 5 VDC [6]
Non-Repeatability	0.02% FS	Weight	4 ounces	Output Impedance	400 ohms
Thermal Effects [2]		**Environmental Data**		Output Noise	100 Microvolts RMS (0 Hz to 10 KHz)
Compensated Range °F(°C)	+32 to +150 (0 to +65)	Temperature		[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 Stainless Steel. [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).	
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 psi/g	Accceleration	10g Maximum		
Pressure Media					
Gases or liquids compatible with 17-4 PH Stainless Steel. [3]					

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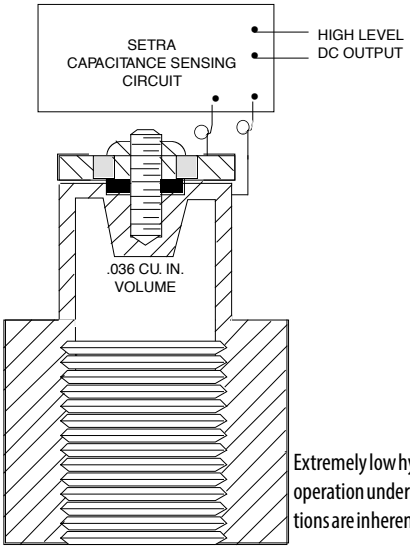
Model 205

Gauge & Absolute Pressure Transducer



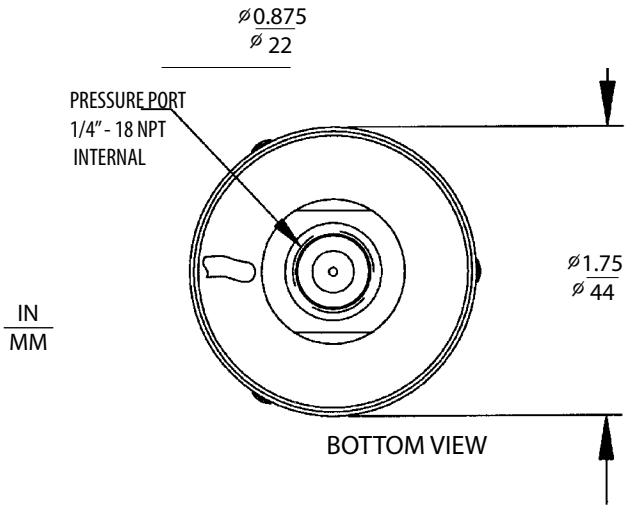
Extremely low hysteresis and very stable operation under extreme temperature conditions are inherent in this sensor design.

DRAWINGS & DIMENSIONS

2051100PG2F2B02WFN
1030725
0-100 PSIG
18-30 VDC
0-5 VDC

2.00 / 51

2.42 / 62



PSIG RANGES

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 is NIST traceable.

ORDERING INFORMATION

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Model		Pressure Range		Units		Pressure Type		Fitting		Output		Termination		Accuracy		Options	
2051	205	25	025	P	PSI	G	Gauge	2F	1/4" NPT Internal	2B	0 to 5 VDC	02	2' Cable	W	±0.11% FS	NN	None
		50	050			A	Absolute			27	1 to 5 VDC	10	10' Cable	9	±0.073%	C	11 PT Cal. Certificate
		100	100									25	25' Cable			D	Mate with Datum
		250	250									XX	Consult facotry for other lengths			F	Nema 4 Enclosure
		500	500													L	Etched SS Tag
		10C	1000													Y	Clean for Oxygen SVC
		30C	3000													3	-65 to 250 °F Compensated Range
		50C	5000														

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

Ordering Example: 2051100PG2F2B02WFN - Model 205, 0 to 100 PSIG, Gauge Pressure, 1/4" NPT Internal Fitting, 2' Cable ±0.11% FS, NEMA 4 Option

SSP205 Rev G

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Model CCM

Mini Current Switch

FEATURES

- Small Footprint
- Clamped/Split Core Design
- Under Current Sensing
- Integrated Mounting Flange with DIN-Rail Capability

BENEFITS

- Low Cost Solution
- Save Valuable Space in the Electrical Panel
- Simple Installation
- Accurate Fixed Set Point, No Guessing at Switchover Current

APPLICATIONS

- HVAC
- Refrigeration
- Pumps
- Small Industrial Motors
- Fans
- Lighting

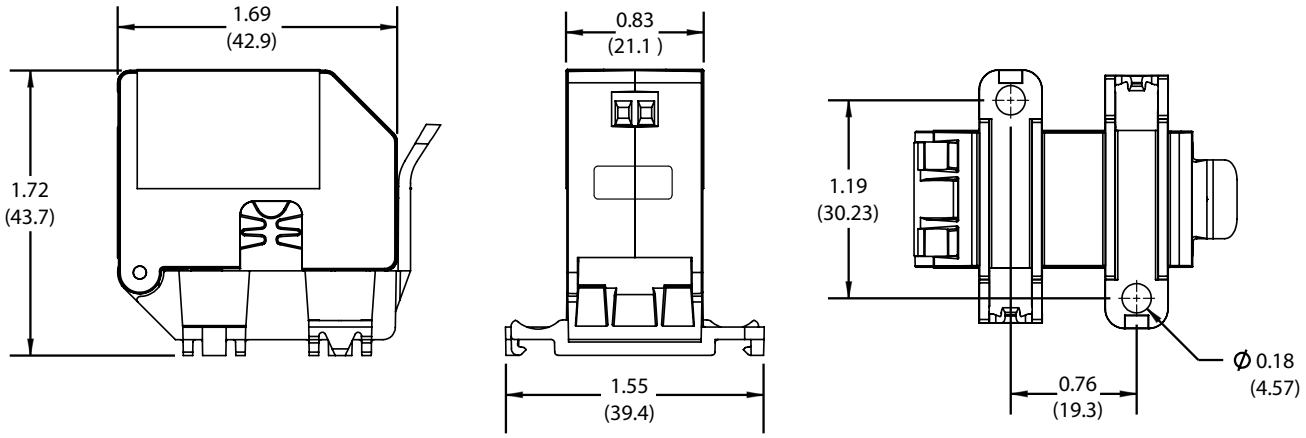
DESCRIPTION

The Mini Current Switch (Model CCM) is the industry's smallest split core current switch. It features an integrated mounting flange with DIN-rail capability and offers increased installation convenience at no additional cost to the end user. The Model CCM is a cost effective solution to monitoring light to medium current loads.

An increase or decrease in operating current may result in motor belt loss, slippage or mechanical failure, which could jeopardize the user's process. Designed to detect these changes in operating current, the Model CCM (Split Core Current Switch) can be easily clamped onto new or existing power cables or wires.

The Model CCM current switch has a fixed set point of 0.15 Amps.

DIMENSIONS



inches
(mm)

CAUTION, RISK of ELECTRIC SHOCK
Disconnect power supply before making electrical connections. contact with components carrying hazardous voltage can cause electrical shock and may result in severe personal injury or death.

Model CCM
Mini Current Switch

SPECIFICATIONS

MODEL	CCMF015
Amperage Range	0.15 to 60 A
Continuous Operating Current	60A, 300V AC
Current Set Point	Fixed
Switch LED Indication	No
Relay LED Indication	No
Trip Point Set Value	0.15A
Current Switching Mode	Under Current Sensing
Dimensions	1.57 H X 1.66 L X 1.52 W in. (39.9) x 42.2 L x 38.6 W mm)
Aperture Size	0.3 in. (7.6 mm) 6 AWG
Sensor Power Source	Induced from measured conductor No external source needed
Status Output	N.O.
Switch Load Capacity	1A @ 30V AC/DC
Isolation Voltage	300V AC rms.
Temperature Range	5 to 140°F (-15 to 60°C)
Frequency Range	50/60 Hz
Humidity Range	0 to 95% non-condensing
Agency Approvals/Compliance	UL/c-UL Listed: 508, IND. Cont. EQ: E317719/CE Compliant/RoHS Compliant

ORDERING INFORMATION

C	C	M	F	0	1	5

Model No.	Description
CCMF015	Mini Current Switch, Trip Point Set Value 0.15 A

SSP-CCM Rev A 06/2013

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TEST & MEASUREMENT

MODELS:

ASM	239	204
201	ASL	204D

AccuSense™ Model ASM

High Accuracy Pressure Transducer

AccuSense™ Model ASM with SecureCal™ Accessory

FEATURES

- High Accuracy: ±0.05% FS (End-Point)
- Low Thermal Error Over Wide Temperature
- Compact Design (1.3" Diameter)
- Optional Overpressure Protection up to 10x Proof Pressure
- Low Thermal Error
- Secure & Simple Field Calibration
- Rugged Stainless Steel Construction
- Multiple Configurations Available
- CE Mark & EU RoHS Compliant

APPLICATIONS

- Engine Test Stands
- Particle Test & Analysis
- Industrial (High Accuracy)
- Dynamometers
- Research & Development
- Refrigeration Testing

DESCRIPTION

The AccuSense™ Model ASM is a high performance pressure transducer designed for industrial applications requiring high accuracy. The all stainless steel construction, groove design, and hydrophobic porous plug protect the recessed air vent from contaminents in industrial environments. The patented resonant variable capacitance sensor is laser welded, providing high accuracy and stability.

The electronics platform enables outstanding performance over environmental temperature ranges.

As part of the AccuSense™ product family, Model ASM's zero and span settings are securely set through use of SecureCal™ accessory making for secure and stable calibration settings. Excellent stability, and secure calibration makes it ideal for high performance industrial, laboratory, and test cell applications.

SPECIFICATIONS

Performance Data		Physical Description		Electrical Data	
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	Excitation Range	9 to 30VDC (5VDC & 4-20 mA output) 15 to 30VDC (10VDC output)
Long-term Stability	<0.10% FS/Year, Typical	Dimensions	See reverse side	Current Consumption	<23 mA
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)	Warm-up, Environmental	Within ±0.02% FS after 15 min warm-up time
Unit factory calibrated in vertical position (pressure port downward)		Weight	9 oz. (254 g)	Miswiring	Reverse Excitation Protection
Environmental Data		Pressure Fittings	See Ordering Information	Signal Output Ranges	0 to 5 VDC, 0 to 10VDC (4-wire), 4-20mA (2-wire)
Temperature Calibrated °F (°C)	-4 to +140 (-20 to +60)	Case Materials	Stainless Steel	Regulatory Data	CE Compliant & RoHS Compliant
Operating	-40 to +185 (-40 to +85)	**Sensor Description**		**Pressure Media**	
Storage	-40 to +185 (-40 to +85)	Wetted Materials	17-4 PH Stainless Steel	Clean, dry gases compatible with17-4 pH stainless steel. Note: Hydrogen not recommended for use with 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).					

US Patents # 6,532,834; 6,718,827

Specifications subject to change without notice

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AccuSense™ Model ASM

High Accuracy Pressure Transducer

ORDERING INFORMATION

A S M 1 - □□□□ - □ - □□ - □□ - □□ - □ - □□

Model		Pressure Ranges				Type		Pressure Port		Output		Elec. Termination		Accuracy		Option	
ASM1	ASM	PSI		BAR		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 PSI	Z01B	-1 BAR	C	Compound	1M	1/8" NPT Male	2C	0 to 10 VDC	B3	Std 6-Pin Male Bayonet Connector, Std Wiring	B	<±0.10% Reading <0.25% TEB	01	High Overpressure (See Table)
		015P	0 to 15 PSI	001B	1 BAR	A	Absolute	2F	1/4" NPT Female	11	4 to 20 mA	B4 B5 B6 B7	6-Pin Male Bayonet Connector, Optional Wiring (See Wiring Code Table)	C	<±0.1% FS RSS <0.5% TEB		
		025P	0 to 25 PSI	002B	2 BAR	V	Vacuum*	2M	1/4" NPT Male					D	<±0.1% FS RSS <1.5% TEB		
		050P	0 to 50 PSI	005B	5 BAR	*Z01 Range Only		J7	7/16-20 SAE Male								
		100P	0 to 100 PSI	010B	10 BAR												
		150P	0 to 150 PSI	020B	20 BAR												
		250P	0 to 250 PSI	040B	40 BAR												
		300P	0 to 300 PSI	050B	50 BAR												
		500P	0 to 500 PSI	070B	70 BAR												
		750P	0 to 750 PSI														
		10CP	0 to 1000 PSI														

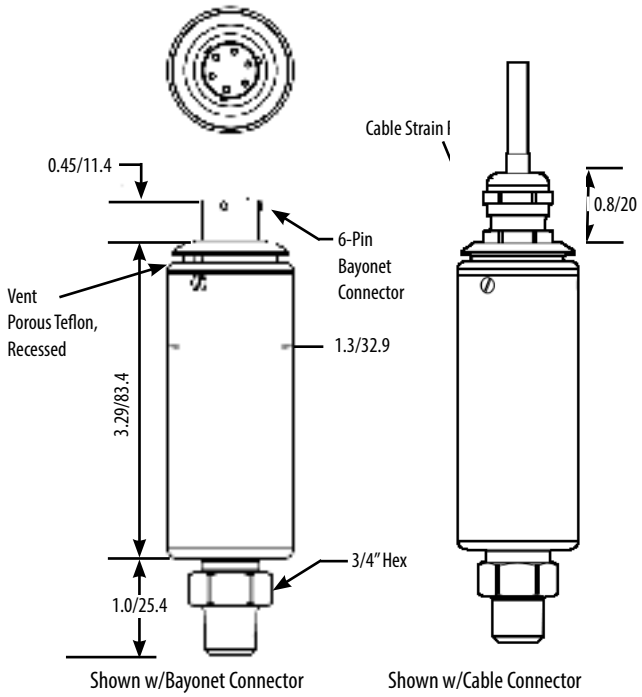
Example: Part No. ASM1015PG1F2B03A00= ASM Transducer, 0 to 15 PSI pressure range, Gauge, 1/8" NPT Female Pressure Port, 0 to 5 VDC Output, 3ft Cable, ±0.05% FS accuracy, No options

6-Pin Bayonet Connector Assembly w/Strain Relief
Order Separately:
Part No: 600751

ACCURACY DATA	Accuracy Code			
	A	B	C	D
Accuracy RSS*: End-Point Typ. (BFSL)	<±0.05% FS (<±0.04% FS)	<±0.1% Reading**	<±0.1% FS (<±0.07% FS)	
Non-Linearity: End-Point Typ. (BFSL)	<±0.025% FS (±0.015% FS)		<±0.05% FS (<±0.03% FS)	
Hysteresis	<0.03% FS Typ.		<±0.03% FS Typ.	
Non-Repeatability	<±0.02% FS Typ.		<±0.02% FS Typ.	
Span Setting Tol.	<±0.05% FS		<±0.01% FS	
Zero Offset Tol.	<±0.05% FS Typ.		<±0.01% FS	
Thermal Total Error Band (-20°C to 60°C)	<±0.25% FS Typ.		<±0.5% FS	<±1.5% FS

*RSS: Root Sum Square of endpoint linearity, Hysteresis and Non-repeatability at constant temperature.
** % of Reading accuracy achieved down to 20% of pressure range when zero offset is removed. Below 20% of pressure range uncertainty is ±0.03% FS.

DIMENSIONS



in./mm

WIRING CODES

Electrical Connection		Wire Color	Code B3* (Standard)	Code B4 Option	Code B5 Option	Code B6 Option	Code B7 Option
Current	Voltage		Bayonet Connector Pinout	Bayonet Connector Pinout	Bayonet Connector Pinout	Bayonet Connector Pinout	Bayonet Connector Pinout
+ EXC	+ EXC	Red	A	A	A	C	A
- EXC	- EXC	Black	D	B	B	D	C
NA	+ Sig Out	Green	B	C	D	A	F
NA	- Sig Out	White	C	D	C	B	E
Reserved for communication with SecureCal™ calibration module							
SecureCal™		Blue	E	E	E	E	B
SecureCal™		Brown	F	F	F	F	C

PRESSURE RANGES

Full Scale Range (PSI)	Burst Pressure* (PSI)	Std Proof Pressure* 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)

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

SSPASM RevD 5/2013

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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 [8]	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 Effects [2]		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** Liquids or Gases Compatible with Stainless Steel and Inconel **Reference Pressure Media** Clean Dry Air or Non-Corrosive G	
Span Shift %FS/°F (%FS/°C)	1.5 (1.4)	Temperature			
Warm-Up Shift	0.1% FS/15 Minutes	Operating °F(°C) [6]	-40 to +175 (-40 to +80)		
Response Time	20 Millisecond	Storage °F(°C)	-40 to +185 (-40 to +85)		
Proof Pressure [3]	45 PSI	Acceleration	10g Maximum		
Burst Pressure	100 PSI	Shock [7]	50g Operating		

[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] Proof Pressure: The maximum pressure that may be applied without changing performance beyond specifications (±0.5% FS zero shift)
[4] NEMA 4 Rated when A1 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

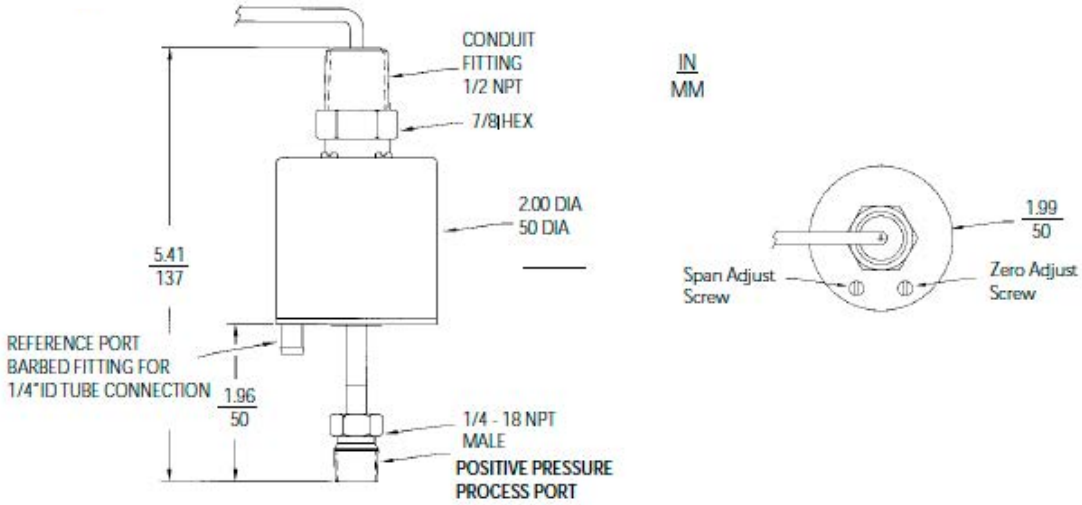
GAUGE PRESSURE RANGES

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

Model 201

Very Low Differential Gauge Pressure

DRAWINGS & DIMENSIONS



ORDERING INFORMATION

2 0 1 1 – ☐☐☐☐☐ – ☐☐ – ☐☐ – ☐☐ – ☐

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. 2011005WG2M1102H 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 239

High Accuracy, Low-Differential Pressure Transducer

FEATURES

- ±0.14% FS Accuracy
- Fast Warm-Up
- Low Thermal Effects
- Fast Response Time (<10ms)
- Withstands High Overpressure
- RoHS Compliant
- Meets CE Conformance Standards

APPLICATIONS

- HVAC Control
- Leak Detection
- Environmental Testing
- Medical Instrumentation
- Energy Management
- Clean Rooms

DESCRIPTION

The Model 239 Series pressure transducers are designed for very low pressure applications that require high accuracy.

The variable capacitance sensor is design to be simple and reliable. The stainless steel diaphragm and insulated electrode form a variable capacitor. As pressure increases or decreases, the capacitance changes. This change is detected and converted to a linear DC electric signal by Setra's unique electronic circuit.

The Model 239 series is available in a voltage or current output. High positive overpressure protection is achieved by the sensor electrode acting as a stop for the diaphragm. The high level output signals, excellent long term stability, and fast dynamic response make these transducers ideal for a wide range of industrial, laboratory and aerospace applications.

SPECIFICATIONS

Performance Data		Physical Description		Electrical Data (Voltage)	
Accuracy RSS at constant temp*	±0.14% FS	Pressure Fittings	1/8"- 27NPT internal	Circuit	4-Wire (+Exc, -Exc, +Out, -Out)
Non-Linearity, BFSL	±0.10% FS	Electrical Connection	2' Multiconductor Cable	Excitation*	22 to 30 VDC (reverse excitation protected)
Hysteresis	0.10% FS	Weight (approx)	8 oz	Output Impedance	<10 ohms
Non-Repeatability	0.02% FS	Vibration	2g from 5 Hz to 500 Hz	Output Noise	<200 microvolts RMS (in band, 0Hz to 10kHz)
Warm-Up Shift	<±0.1% FS residual shift after 5 minutes	Internal Volumes	Positive port 0.03 in^3 Reference port 0.1 in^3	Output**	See Ordering Information (for unidirectional ranges) ±2.5 VDC (for bidirectional ranges)
Settling Time	<100 ms	Max Volume Change at FS	0.001 in^3	*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. **Calibrated into 50K ohm load. Operable into 5000 ohms or greater. ***Zero output factory set to within ±20mV	
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	**Environmental Data**		**Electrical Data (Current)**	
Line Pressure Effect	2%/100 PSI	Temperature		Circuit	2-Wire
Thermal Effects**		Operating °F (°C)	0 to +175 (-18 to +80)	Output*	4 to 20 mA**
Compensated Range °F (°C)	+30 to +150 (-1 to +65)	Storage °F (°C)	-65 to +250 (-55 to +120)	External Load	0 to 1000 ohms
Zero Shift %FS/100°F(50°C)	<+1 (<±0.9)	**Pressure Media**		Min. Supply Voltage (VDC)	17 + 0.02 x (resistance of receiver plus line)
Span Shift %FS/100°F(50°C)	<+1 (<±0.9)	**Positive Pressure Media:** Gases compatible with stainless steel, hard anodized 6061 aluminum (Buna-N O-ring)		Max. Supply Voltage (VDC)	42 + 0.004 x (resistance of receiver plus line)
*RSS of Non-Linearity, Non-Repeatability and Hysteresis **Units calibrated at nominal 70°F. Maximum thermal error computed from this datum. x 2 for 0.5 and ±0.25 in. W.C. ranges.				Effect of Power Supply	
		Reference Pressure Media: Clean dry air or other gases (non-corrosive, non-condensable)		Variations	<0.003 mA/Volt
				Output Noise	<10 microamperes RMS (0Hz to 10kHz)

Specifications subject to change without notice

*Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.
** Zero output factory set to within ±0.07 mA. Span (FS) output factory set to within ±0.07 mA.

Model 239

High Accuracy, Low-Differential Pressure Transducer

ORDERING INFORMATION

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Model		Pressure Ranges				Pressure Fitting		Output		Termination		Accuracy		Options[4]	
2391	239	Unidirectional		Bidirectional		1F	1/8" NPT Female	11	4 to 20 mA	02	2' Cable 22 GA	W	±0.14% FS	N	None
		0R5WD	0 to 0.5 in. W.C.	R25WB	±0.25 in. W.C.			2S	±2.5 VDC[1]	10	10' Cable 22 GA	9	±0.073% FS	1	303SS Housing Positive Port
		001WD	0 to 1 in. W.C.	0R5WB	±0.5 in. W.C.			2B	0 to 5 VDC[2]	25	25' Cable 22 GA			3	Compensated Temp. Range (-65 to 250ºF)[6]
		2R5WD	0 to 2.5 in. W.C.	001WB	±1 in. W.C.			27	1 to 5 VDC	Y1	2' 30 GA 9-Conductor[3]			4	Viton O-Ring
		005WD	0 to 5 in. W.C.	2R5WB	±2.5 in. W.C.			28	1 to 6 VDC	Y3	5' 30 GA 9-Conductor[3]			D	Mate with Datum
		015WD	0 to 15 in. W.C.	005WB	±5 in. W.C.			2C	0 to 10 VDC	Y4	10' 30 GA 9-Conductor[3]			E	Special Excitation Voltage ±24 VDC
		030WD	0 to 30 in. W.C.	7R5WB	±7.5 in. W.C.			2T	0 TO 5 VDC[1]	Y6	25' 30 GA 9-Conductor[3]			G	Special Excitation Voltage ±15VDC
		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										
		10KLD	0 to 10 kPa	25CLB	±2500 Pa										
		15KLD	0 to 15 KPa	50CLB	±5000 Pa										
		35KLD	0 to 35 KPa	75CLB	±7500 Pa										
		70KLD	0 to 70 KPa	35KLB	±35 KPa										

[3] Y1-Y6 = Red Jacket Cable (previously the standard for voltage outputs.)

[1] 2S and 2T are for Bi-Directional Pressure Ranges Only

[2] 2B is for Uni-Directional Pressure Ranges Only

[4] Both boxes must filled in alphanumeric order:
- If No options: N + N
- If 1 option: Option Code + N
- If 2 options: Option Code + Option Code

[5] Options M, R & S are for voltage units and Y1-Y6 Termination Codes

[6] 2x Thermal Effects Specification

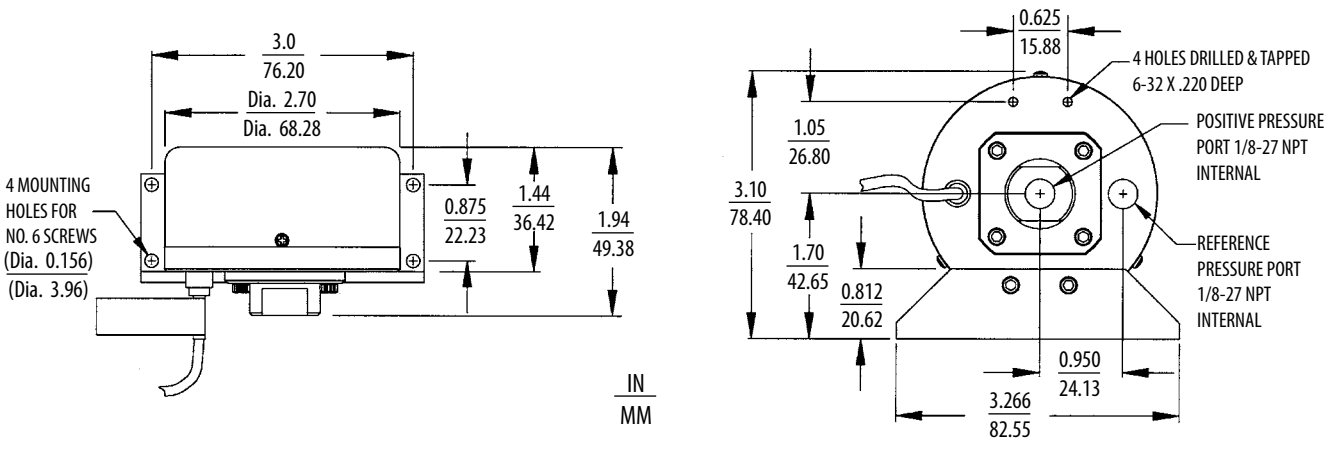
Example: Part No. 2391001WD1F1102WLN = Model 239, 0 to 1 in. W.C. pressure range, 1/8" NPT female fitting, 4 to 20 mA Output, 2' Cable Length, ±0.14% FS Accuracy, Etched SS Tags Option

PRESSURE RANGE		PROOF PRESSURE	
Unidirectional	Bidirectional	Positive	Negative
0 to 0.5 in. W.C.	±0.25 in. W.C.	5 PSI	2.5 in. W.C.
0 to 1 in. W.C.	±0.5 in. W.C.	7 PSI	5 in. W.C.
0 to 2.5 in. W.C.	±1 in. W.C.	10 PSI	12.5 in. W.C.
0 to 5 in. W.C.	±2.5 in. W.C.	20 PSI	25 in. W.C.
0 to 15 in. W.C.	±5 in. W.C.	50 PSI	75 in. W.C.
0 to 30 in. W.C.	0 to ±15 in. W.C.	50 PSI	150 in. W.C.
0 to 5 PSID	0 to ±2.5 PSID	75 PSI	25 PSI
0 to 10 PSID	0 to ±5 PSID	100 PSI	50 PSI

PRESSURE RANGE		PROOF PRESSURE	
Unidirectional	Bidirectional	Positive	Negative
0 to 250 Pa	±125 Pa	0.5 BAR	1250 Pa
0 to 500 Pa	±250 Pa	0.7 BAR	3000 Pa
0 to 1000 Pa	±500 Pa	1.25 BAR	6250 Pa
0 to 2000 Pa	±1000 Pa	3.5 BAR	18500 Pa
0 to 5000 Pa	±2500 Pa	3.5 BAR	37000 Pa
0 to 15 kPa	±7500 Pa	3.5 BAR	37000 Pa
0 to 35 kPa		5 BAR	1.75 BAR
0 to 70 kPa	±35 kPa	7 BAR	3.5 BAR

Proof Pressure: The maximum recoverable pressure that may be applied without changing performance beyond specifications ±0.5% Zero/Span shift.

DIMENSIONS



SSP239/C239 RevK 06/2013

AccuSense™ Model ASL

High Accuracy Differential Pressure Transducer

AccuSense™ Model ASL with SecureCal™ Calibration Key

DESCRIPTION

The AccuSense™ Model ASL is a high performance pressure transducer designed for low differential pressure measurements of air or other clean gases. Setra's variable capacitance technology is industry tested and preferred in applications that demand reliability, repeatability and accuracy.

Model ASL's exceptional linearity and thermal compensation is achieved through computerized factory calibration and curve fitting algorithm. The sensor's rugged construction and factory conditioning enable high overpressure capability and stability to ensure a highly robust and reliable measurement.

As part of AccuSense™ product family, Model ASL's zero and span settings are securely set through use of SecureCal accessory making for secure and stable calibration settings. Excellent stability, and secure calibration makes it ideal for high performance industrial, laboratory, and test cell applications.

FEATURES

- High Accuracy: ±0.07% FS
- Low Differential Pressure Ranges
- Unidirectional & Bidirectional Types
- High Over-Pressure Capability
- Low Thermal Error
- Excellent Stability
- Secure & Simple Field Calibration
- High Line Pressure Capability
- Rugged Stainless Steel Construction
- Multiple Configurations Available
- CE Mark & EU RoHS Compliant

APPLICATIONS

- Test Stands
- Wind Tunnels
- Leak Detection Systems
- Pharmaceutical
- Medical Instrumentation
- Energy Management
- Clean Rooms
- Industrial, High Accuracy
- Environmental Testing
- General R&D

SPECIFICATIONS

Performance Data		Physical Description		Electrical Data	
Internal Volumes	Positive Port 0.03 cu. in. Reference Port 0.75 cu. in.	Electrical Terminations	6-Conductor Cable, Pigtail 6-Pin Bayonet Connector	Excitation Range	9 to 30VDC (5VDC & 4-20 mA output) 15 to 30VDC (10VDC output)
Operable Line Pressure	Vacuum to 250 psi max	Dimensions	See reverse side	Current Consumption	<23 mA (5VDC & 10VDC Versions)
Maximum Volume Change at FS	0.002 cu. in.	Weight	13 oz. (360 g)	Miswiring	Reverse Excitation Protection
Long-term Stability	<0.15% FS/Year, Typical	Moisture/Splash Resistance	NEMA 4X (IP65)	Warm-up, Environmental	Within ±0.02% FS after 15 min warm-up time
Response Time to Pressure Input (From 100% to 10% of pressure range)	<10 ms for Voltage Output <100 ms for Current Output	Pressure Fittings	See Ordering Information	Signal Output Ranges	0 to 5 VDC, 0 to 10VDC (4-wire), 4-20mA (2-wire)
		Case Materials	Stainless Steel	Regulatory Data	CE Compliant & RoHS Compliant
Line Pressure Effect	2% FS/100 psig	**Environmental Data**		**Pressure Media**	
Zero Offset Position Effect	<0.1%/G	Temperature Calibrated	-4 to +140°F (-20 to +60°C)	Clean, dry gases compatible with 300 series stainless steel and 17-4 pH stainless steel	
Unit factory calibrated in vertical position (pressure port downward)		Operating	-40 to +185°F (-40 to +85°C)		
		Storage	-40 to +185°F (-40 to +85°C)		
US Patent # 6,789,429		Higher or lower limits available (consult factory)		Specifications subject to change without notice	

Phone: 800-257-3872 • Fax: 978-264-0292 • setra.com

AccuSense™ Model ASL

High Accuracy Differential Pressure Transducer

ORDERING INFORMATION

A S L 1 - □□□□□ - □□ - □□ - □□ - □ - □□

Model		Pressure Ranges*				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.	001WB	±1"W.C.	FF	1/8" NPT Female / 1/8" NPT Female	2C	0 to 10 VDC	B3	Std 6-Pin Male Bayonet Connector, Std Wiring			01	High Overpressure (See Table Below)
		2R5WD	0 to 2.5"W.C.	002WB	±2"W.C.	1M	1/8" NPT Male / Barb	11	4 to 20 mA						
		005WD	0 to 5"W.C.	005WB	±5"W.C.	J7	7/16-20 SAE Male / Barb								
		010WD	0 to 10"W.C.	015WB	±15"W.C.										
		030WD	0 to 30"W.C.	001PB	±1 PSID										
		040WD	0 to 40"W.C.	005MB	±5 mBar										
		001PD	0 to 1 PSID	010MB	±10 mBar										
		005MD	0 to 5 mBar	025MB	±25 mBar										
		010MD	0 to 10 mBar	050MB	±50 mBar										
		025MD	0 to 25 mBar												
		050MD	0 to 50 mBar												
		100MD	0 to 100 mBar												

*Other ranges and engineering units are available (ex: Pa, kPa)

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

* Burst Pressure: The maximum pressure that may be applied to the positive pressure port without rupturing the diaphragm or reference pressure containment.
** Proof Pressure: The maximum recoverable pressure that may be applied without changing performance beyond specification: ±0.5% Zero Shift, Typical

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 Options

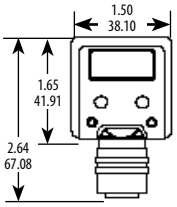
ACCURACY DATA

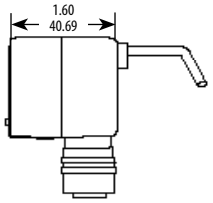
	Accuracy Code
	A
Accuracy	<±0.07% FS RSS*
Non-Linearity, End-Point	<±0.03% FS Typical
Hysteresis	<0.03% FS Typical
Non-Repeatability	<±0.02% FS Typical
Span Setting Tol.	<±0.1% FS
Zero Offset Tol.	<±0.1% FS Typical
Thermal Total Error Band	<±0.25% FS Typ. <±0.5% max (-20°C to 60°C)

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

ACCESSORIES

SecureCal™ Calibration Key





6-Pin Bayonet Connector Assembly w/Strain Relief
Order Separately:
Part No: 600751

S E C 1 - □ - □□□ - 0 3 R - 0 0

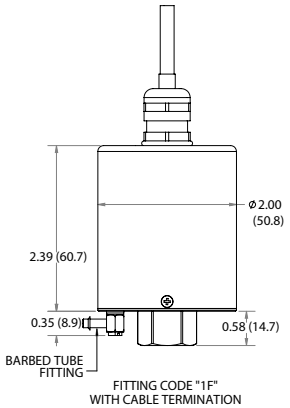
Model		Input		Connection to ASL		Connection to Power Supply		Options	
SEC1	SEC	V	Voltage (0-5VDC & 0-10VDC)	TBR	Removable Terminal Block, Rear	03R	3 ft (1m) Cable	00	None, Standard
		C	Current (4-20mA)	B3B	Std 6-Pin Bayonet, Female, B3 Wiring				

WIRING CODES

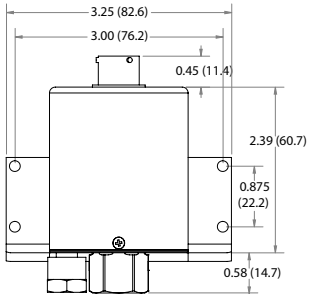
Electrical Connection	Wire Color	Code B3* (Standard) Bayonet Connector Pinout
+ EXC	Red	A
- EXC	Black	D
+ Sig Out	Green	B
- Sig Out	White	C
Reserved for communication with SecureCal™ calibration module		
SecureCal™	Blue	E
SecureCal™	Brown	F

*Other wiring options available

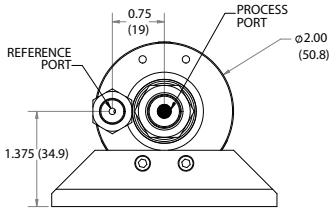
DIMENSIONS



FITTING CODE "1F"
WITH CABLE TERMINATION



FITTING CODE "FF"
WITH BAYONET CONNECTOR "B3"



FITTING CODE "FF"
WITH BAYONET CONNECTOR "B3"

inches (mm)

SSPASL RevA 07/2013

Model 204

High Accuracy Gauge & Absolute Pressure Transducers

DESCRIPTION

Setra's Model 204 pressure transducers are intended for accurate pressure measurements of gas or liquid media compatible with 17-4 PH stainless steel. The high level output signal and excellent stability, combined with fast dynamic response, make this unit ideal for industrial, laboratory and aerospace applications.

The exceptional accuracy is achieved by combining Setra's unique electronic circuitry with its field proven variable capacitance sensor. This unit is compensated for both zero and sensitivity shifts due to environmental temperature variations. The Model 204, with a high-level voltage outputor current output, require no additional signal conditioning. The sensor features a one-piece 17-4 PH stainless steel pressure sensor and an insulated electrode, which form a variable capacitor. As the pressure increases, the capacitance decreases. This change in capacitance is detected and converted to a linear DC electric signal. On absolute pressure units, the reference side of the diaphragm is sealed by electron beam welding under high vacuum.

FEATURES

- 0.11% FS Accuracy
- 0-5 VDC or 4-20mA Output
- Fast Response, Less than 1 MS
- Fast Warm-Up
- Excellent Thermal Effects
- 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

SPECIFICATIONS

Performance Data	
Accuracy RSS[1] (at constant temperature)	±0.11% FS ±0.14% for 10,000 PSIG
Non-Linearity (BFSL)	±0.07% FS
Hysteresis	0.08% FS 0.1% for 10,000 PSIG
Non-Repeatability	0.02% FS
Thermal Effects[2]	
Compensated Range °F(°C)	+30 to +150 (-1 to +65)
Zero Shift[3] %FS/100°F (%FS/50°C)	<±0.4 (<±0.36)
Span Shift %FS/100°F (%FS/50°C)	<±0.3(<±0.27)
Static Acceleration Effect	<0.05 PSI/G (Typ.) (Pressure Port Axis)
Volume Increase Due to FS Pressure	5 x 10-5 cu. in.
Warm-Up Shift	±0.5% Total (±0.1% Residual Shift after 5 Minutes)

[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 1.6 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.)

Physical Description	
Pressure Fitting	1/4" - 18 NPT Internal
Electrical Connection	2 ft. Multiconductor Cable
Weight	10 Ounces
Environmental Data	
Operating Temperature °F(°C)	0 to +175 (-18 to +80)
Storage Temperature °F(°C)	-65 to +250 (-55 to +120)
Vibration	2g from 5 Hz to 500 Hz
Shock	50g
Acceleration	10g Maximum
Ordering Information	

[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.

Electrical Data (Voltage Output)	
Circuit	4-Wire (+Exc, - Exc, + Out, - Out)
Excitation	22 to 30 VDC, 24 VDC (Normal) Reverse Excitation Protected
Output[4]	0 to 5 VDC[5] STD, see ordering information for more options
Power Consumption	10 mA (0.25 Watts)
Output Impedance	<10 Ohms
Output Noise	<100 Microvolts RMS (0 Hz to 10 KHz)
Electrical Data (Current Output)	
Circuit	2-Wire
Output[6]	4 to 20 mA[7]
External Load	0 to 1000 Ohms
Minimum Supply Voltage (VDC)	17 + 0.02 x (Resistance of receiver plus line)
Maximum Supply Voltage (VDC)	42 + 0.004 x (Resistance of receiver plus line)
Effect of Power Supply	
Variations Output Noise	<0.003mA/Volt <10 Microamperes RMS (0 HZ to 10 KHz)

Model 204

High Accuracy Gauge & Absolute Pressure Transducers

ORDERING INFORMATION

2 0 4 1 - □□□□□ - 2F - □□ - □□ - □ - □□

Model	Pressure Ranges		Pressure Fitting		Output		Electrical Termination		Accuracy*		Options	
Model 204	Gauge Pressure		2F	1/4" NPT Female	11	4-20 mA	02	2' Cable 22 AWG	W	±0.11% FS	3**	Compensated Temperature Range (-65 to 250°F)
	025PG	0-25 PSIG			2B	0-5 VDC	10	10' Cable 22 AWG	9	±0.073% FS	7	Clean for Oxygen
	050PG	0-50 PSIG			2Y	0-2.5 VDC	25	25' Cable 22 AWG			D	Mate with Datum
	100PG	0-100 PSIG			27	1-5 VDC	Y1	2' Red Cable 9-Conductor 30 AWG			E	Special Excitation Voltage ± -24 VDC
	250PG	0-250 PSIG			28	1-6 VDC					F	NEMA 4 Enclosure
	500PG	0-500 PSIG			2C	0-10 VDC					G	Special Excitation Voltage ± -15 VDC
	10CPG	0-1000 PSIG			2U	1-10 VDC					L	Etched SS Tags
	30CPG	0-3000 PSIG									M*	Remote Full Scale Sensitivity
	50CPG	0-5000 PSIG									N	None
	10KPG	0-10000 PSIG									R*	Remote Calibration (Adjustable)
	Z01PV	0-14.7 PSI (VACUUM)									S*	Remote Calibration Adjustment (Fixed)
	Absolute Pressure											
	025PA	0-25 PSIA										
	050PA	0-50 PSIA										
	100PA	0-100 PSIA										
	250PA	0-250 PSIA										
	500PA	0-500 PSIA										
	10CPA	0-1000 PSIA										
	30CPA	0-3000 PSIA										
	50CPA	0-5000 PSIA										

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

Note: Setra adheres to strict quality standards including ISO 9001 and ANSI-Z540-1. The calibration of this product is NIST traceable.

* Options M, R and S will have Y1 Cable as STD.
** 2x Thermal Effects Specificaltion

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

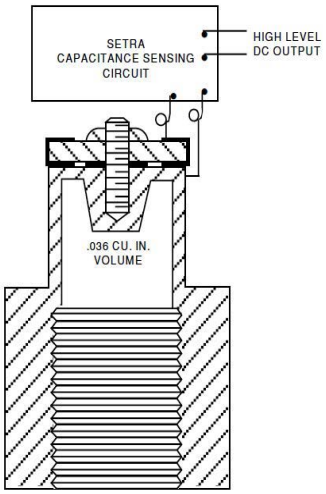
NOTE: Setra quality standards are based on ANSI-Z540-1. The calibration of this product is NIST traceable.

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

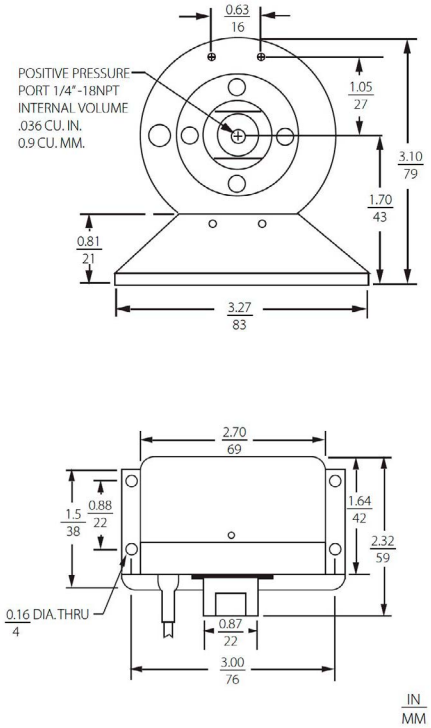
Example: Part No. 2041025PG2F110297N: 0 to 25 PSIG, 1/4" NPT Internal Fitting, 4 to 20 mA Output, 2' Cable (22 AWG), ±0.073% FS Accuracy, Clean for Oxygen Service

Note: For Differential Ranges please refer to Model 204D Datasheet

DIMENSIONS



Extremely low hysteresis and very stable operation under extreme temperature conditions are inherent in this sensor design.



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Model 204D

High Accuracy Differential Pressure

DESCRIPTION

Setra's Model 204 pressure transducer is intended for accurate differential pressure measurement of gas or liquid media compatible with 17-4 PH stainless steel. The high level output signal and excellent stability, combined with fast dynamic response, make this unit ideal for industrial, laboratory, and aerospace applications requiring the highest accuracy. The differential 204D is thermally compensated for both zero and span shifts due to environmental temperature variations. Setra's unique high output electric circuitry requires no additional signal conditioning.

Setra's variable capacitance sensor approaches the ultimate in design simplicity. It features a one-piece 17-4 PH stainless steel pressure sensor and an insulated electrode, which form a variable capacitor. As pressure increases, the capacitance decreases. The change in capacitance is detected and converted to a linear DC signal by Setra's electronic circuit.

FEATURES

- Instant Warm-Up
- High Output: 0-5 VDC
- ±0.11% FS Accuracy
- Low Thermal Effect
- Low Output Noise
- Fast Response, Less than 1 MS
- Stainless Steel Sensor
- Very Low Line Pressure Effect
- Meets CE Conformance Standards

APPLICATIONS

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

SPECIFICATIONS

Performance Data

	Uni & Bi Directional ±10, ±25, ±50 PSID	10,000 PSID Range
Accuracy RSS[1] (at constant temp)	±0.11% FS	±0.14% FS
Non Linearity, BFSL	±0.07% FS	±0.10% FS
Hysteresis	0.08% FS	0.10% FS
Non-Repeatability	0.02% FS	0.02% FS

Thermal Effects[2]

Compensated Range °F(°C)	+30 to +150 (-1 to +65)
Zero/Span Shift (%FS/50°C)	1.0 (.09)
Acceleration Response	<0.05 psi/g, pressure port axis only
Volume Increase Due to FS Pressure	5 x 10^{-5} cu. in.
Warm-Up Shift	0.5% Total; 0.1% Residual shift after 5 minutes at constant temperature
Line Pressure Effect	Zero Shift ±0.1% FS/100 psig of Reference Pressure

Physical Description

Electrical Connection	2 Foot Multiconductor Cable
Positive Pressure Fitting	1/4" - 18 NPT Internal
Reference Pressure Fitting	1/8" - 27 NPT Internal
Weight	10 Ounces

Pressure Media

Positive Pressure Media	Gas or liquid compatible with 17-4 PH stainless steel[3]
Reference Pressure Media	Clean dry air or non-corrosive gas (1000 psig maximum)

Environmental Data

Operating Temperature °F(°C)	0 to +175 (-18 to +79)
Storage Temperature °F(°C)	-65 to +250 (-55 to +121)
Vibration	2g from 5Hz to 500 Hz
Acceleration	10g
Shock	50g

Electrical Data

Circuit	4-Wire (+Exc, -Exc, +Out, -Out)
Excitation[4]	22 to 30 VDC
Output[5]	0 to 5 VDC[6]
Zero Adjustment	Accessible Inside of Case, or External Remote Adjustment (using customer supplied 10K ohms potentiometer to the remote zero lead of the transducer cable.
Span Adjustment	Accessible Inside of Case, or External Remote Adjustment (Options)
Output Impedance	10 ohms
Output Noise	<100 microvolts RMS (0 to 10K Hz)
Current Consumption	10 mA (0.25 Watts)

[1]RSS of Non-Linearity, Hysteresis and Non-Repeatability.
[2]Units calibrated at normal 70°F Maximum thermal error is computed from this datum.
[3]Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.
[4]Will operate at 28 VDC aircraft power per MIL-STD-704A and not be damaged by emergency power conditions. Nominal excitation is 24 VDC. Excitation variation effect is less than 0.2% FS output change.
[5]Calibrated into a 50K ohm load, operable into 5000 ohms or greater.
[6]Zero output factory set to within ±10mV.
[7]Span (Full Scale) output factory is set to within ±10mV. NOTE: Both output leads are nominally 4.7 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.)

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Model 204D
High Accuracy Differential Pressure

ORDERING INFORMATION

2041 - ☐☐☐☐☐ - 2F - ☐☐ - ☐☐ - ☐ - ☐☐

Model	Pressure Ranges		Pressure Fitting		Ouptut		Electrical Termination		Accuracy*		Options	
Model 204	Uni-Directional		2F	1/4" NPT Female	2B*	0-5 VDC	02	2' Grey Cable 22 AWG	W	± 0.11% FS	3	Compensated Temperature Range (-65 to 250°F)
	Differential Pressure				2Y	0-2.5 VDC	10	10' Grey Cable 22 AWG	9	± 0.073% FS	D	Mate with Datum
	025PD	0-25 PSID			27	1-5 VDC	25	25' Grey Cable 22 AWG			E	Special Excitation Voltage ± -24 VDC
	050PD	0-50 PSID			28	1-6 VDC	Y1	2' Red Cable 30 AWG 9-Conductor			G	Special Excitation Voltage ± -15 VDC
	100PD	0-100 PSID			2C	0-10 VDC					L	Etched SS Tags
	250PD	0-250 PSID			2U	1-10 VDC					M*	Remote Full Scale Sensitivity
	500PD	0-500 PSID									N	None
	10CPD	0-1000 PSID									R*	Remote Calibration (Adjustable)
	30CPD	0-3000 PSID									S*	Remote Calibration Adjustment (Fixed)
	50CPD	0-5000 PSID									7	Clean for Oxygen

*For Bi-Directional units please consult the factory

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

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

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

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

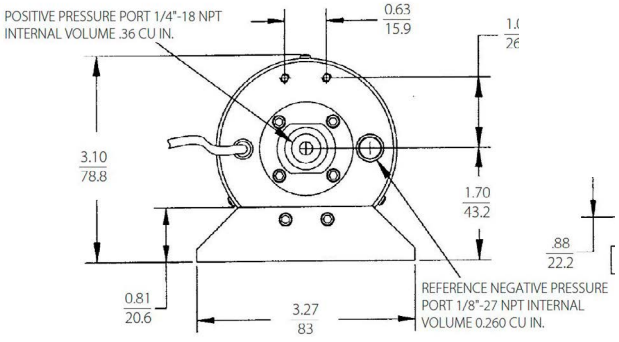
Pressure Range PSID	Proof Pressure* PSID		Burst Pressure*
0 to 25	±50		± 150 psid
0 to 50	±75		± 200 psid
0 to 100	±150		± 500 psid
0 to 250	±375		±1000 psid
0 to 500	±750	positive port	+1500 psid
0 to 1000	+1250	positive port	+3000 psid
	-1000	reference port	1000 psig
0 to 3000	+3750	positive port	+4500 psid
	-1000	reference port	1000 psig
0 to 5000	+6000	positive port	+7500 psid
	-1000	reference port	1000 psig

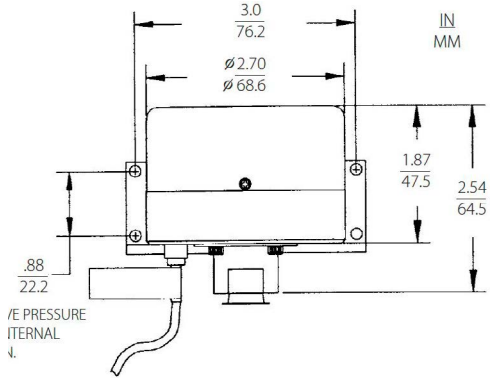
Example: Part No. 2041050PD2F2B02WLN: 0 to 50 PSID, 1/4" NPT Internal Fitting, 4 to 20 mA Output, 2' Cable (AWG), ±0.11% FS Accuracy, Etched SS Tags

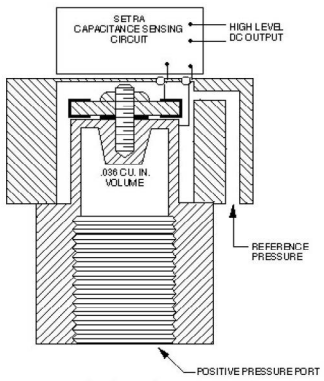
*Maximum pressure on reference port must not exceed 1000 psig.

Note: For Gauge and Absolute Ranges please refer to Model 204 Datasheet

DIMENSIONS







Extremely low hysteresis and very stable operation under extreme temperature conditions are inherent in this design.

SSP204D REV J 10/31/13

SANITARY PRESSURE

MODELS:

290
296

Model 290
Sanitary Pressure Transmitter

DESCRIPTION

The 290 design meets 3-A sanitary design standards and is fully sealed to withstand external high pressure washdown and CIP/SIP cycles. As a totally self-contained electronic package, the 290's capacitance sensing element, coupled with a signal conditioned IC-based circuit, assures excellent accuracy and long term stability.

The 290 pressure transmitter is intended for low to high pressure measurements of gases or liquids in sanitary applications. The 290 pressure transmitter, packaged in a rugged welded stainless steel housing, is exceptionally insensitive to vibration, shock and environmental extremes. Its small size, light weight, and tri-clover sanitary pressure fitting allows direct mounting in most CIP and SIP installations.

Unlike fluid-filled sensors, the 290 utilizes a rugged, non-filled capacitive sensor which enables low hysteresis and excellent performance during thermal transients.

FEATURES

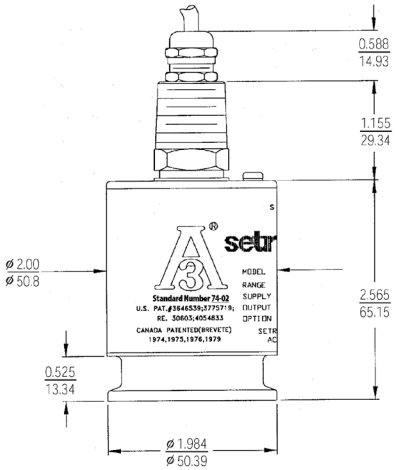
- Robust Non-Liquid Filled Capacitive Sensor
- Negligible Clamping Effect for Easy Installation
- Designed for Clean-In-Place (CIP) and Sterilize-In-Place (SIP) Installations
- Meets 3A Sanitary Standards
- 0.20% Full Scale Accuracy Improves System Performance
- High Overpressure Protection
- Insensitive to Thermal Shock
- Industrial Design and 316 Stainless Steel Permits Use in Harsh Environments
- Higher Accuracy Option Available
- Meets CE Conformance Standards

APPLICATIONS

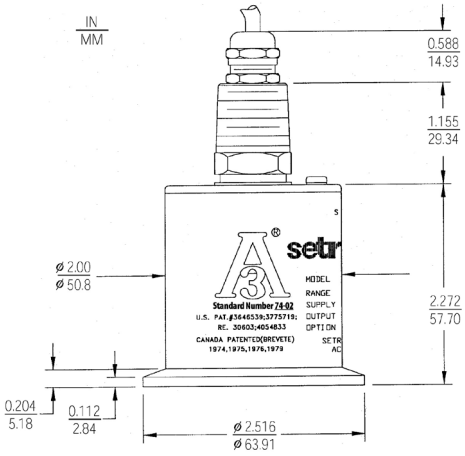
- Food Processing
- Dairy and Beverage Processing
- Pharmaceutical Processing
- Liquid Level Control
- Sanitary Pipelines

WIRING

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



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



Accesory

Model 299 Dri- Sense
Termination Enclosure

Features:

- Visible Desiccant Status Indicator
- Easily Replaceable Desiccating Covers
- Replaceable Terminal Interface Circuit Board
- Surge Suppression
- NEMA 4X Industrial Housing

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Model 290
Sanitary Pressure Transmitter

SPECIFICATIONS

Performance Data 2" Tri-Clover Sanitary Fitting	
Accuracy RSS[1] (at constant temp)	±0.20% FS
Non-Linearity (BFSL)	±0.17% FS
Hysteresis	0.10% FS
Non-Repeatability	0.025% FS
Thermal Effect[2]	
Compensated Range F°(C°)	+20 to +180 (-7 to +82)
Zero/Span Shift %FS/100°F (%FS/50°C)	2.0 (1.8)
Response Time	10 milliseconds
EMI/RFI Effect	< 1.0% output shift; 10V/M, 10-300 MHz
Clamping Effect, Zero/Span Shift	±0.15% FS
Maximum Vacuum (without affecting specifications)	Half on ranges ≤15 PSI

Physical Description	
Zero/Span Adjustments	Top Access Through Seal Screws
Case	Stainless Steel
Electrical Connection	1/2 NPT" Conduit Fitting & Strain Relief w/ 15' Shielded Cable
Pressure Fitting	2" or 1 1/2" Tri-Clover Sanitary Fitting
Sanitary	Meets 3-A Sanitary Standard (74-02)
Vent	Through Cable
Weight (Approx.)	8 Ounces

Performance Data 1.5" Tri-Clover Sanitary Fitting	
Accuracy RSS[1] (at constant temp)	±0.20% FS
Non-Linearity (BFSL)	±015% FS
Hysteresis	0.12% FS
Non-Repeatability	0.10% FS
Thermal Effect[2]	
Compensated Range F°(C°)	+20 to +180 (-7 to +82)
Zero/Span Shift %FS/100°F (%FS/50°C)	2.0 (1.8)
Response Time	10 milliseconds
EMI/RFI Effect	< 1.0% output shift; 10V/M, 10-300 MHz
Clamping Effect, Zero/Span Shift	±0.25% FS
Maximum Vacuum (without affecting specifications)	Full on ranges ≥ 30 PSI

[1] RSS of Non-Linearity, Non-Repeatability and Hysteresis.
[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.
[3] Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.
[4] Zero output factory set to within ±0.08mA.
[4] Span (Full Scale) output factory set to within ±0.16mA.
[5] Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.
[6] shift in output reading at <0.05% FS/g; pressure port axis only.

Electrical Data	
Circuit	2-Wire
Output[3]	4 to 20 mA[4]
Zero/Span, Adjustment	± 0.5 mA
External Load	0 to 800 ohms
Min. Supply Voltage (VDC)	12 + 0.02 x resistance of receiver plus line
Max. Supply Voltage (VDC)	30 + .004 x resistance of receiver plus line

Environmental Data	
Operating Temperature°F (°C)[5]	-40 to +260 (-40 to +125)
Storage Temperature°F (°C)	-65 to +260 (-55 to +125)
Vibration	10g, 50-1000Hz
Acceleration[6]	10g maximum
Shock	50g operating
Thermal Shock°F (°C)	0 to +257 (0 to +125) negligible shift

Accessories
Model 299 Dri-Sense Pressure Transducer
Termination Enclosure P/N: 2991G211

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

ORDERING INFORMATION

2 9 0 1 – [ ][ ][ ] – [ ] – [ ] – [ ][ ] – 1 1 – [ ][ ] – [ ] – [ ][ ]

Model	Range				Units		Pressure Type		Fitting		Output		Termination		Accuracy		Options[2]	
2901 = 290	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
	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																

** -14.7 to X psi, -1000 to XmBAR

[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

Pressure Ranges 2" Tri-Clover

psig	Range mb	in. H_2O	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

Ramge 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

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.

SSPC290 Rev. C 12/20/2014

Model 296
Industrial Sanitary Pressure Transmitter

FEATURES

- Robust Non-Liquid Filled Capacitive Sensor
- High Overpressure Protection
- All 316L Stainless Steel Wetted Surfaces
- Insensitive to Thermal Shock
- Designed for Clean-In-Place (CIP) and Sterilize-In-Place (SIP) Installations
- 0.20% Full Scale Accuracy Improves System Performance
- Lightweight
- Industrial Design and 316L Stainless Steel Permits Use in Harsh Environments
- Higher Accuracy Option Available
  20Ra Options on Surface Finish
- Meets CE Conformance Standards

APPLICATIONS

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

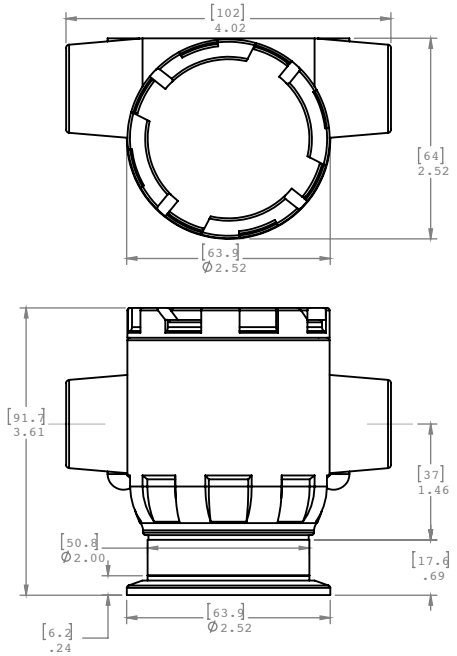
DESCRIPTION

The Model 296 is a highly reliable and rugged Industrial Sanitary Pressure Transducer which is fully sealed to withstand external high pressure wash-down and CIP/SIP cycles. As a totally self-contained electronic package, the 296's capacitance sensing element, coupled with a signal conditioned IC-based circuit, assures excellent accuracy and long term stability.

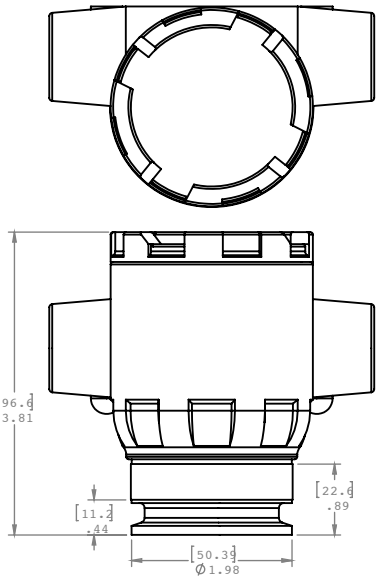
The 296 pressure transmitter is intended for low to high pressure measurements of gases or liquids in sanitary applications. The 296 pressure transmitter, packaged in a compact rugged aluminum housing, is exceptionally insensitive to vibration, shock and environmental extremes. Its small size, light weight, and tri-clover sanitary pressure fitting allows direct mounting in most CIP and SIP installations. The removable cover provides easy access internal terminal strip wiring and calibration adjustments.

Unlike fluid-filled sensors, the 296 utilizes an all 316L Stainless Steel rugged, non-filled capacitive sensor which enables low hysteresis and excellent performance during thermal transients and thermal gradients.

OUTLINE DRAWING



T6
2" TRICLOVER FITTING



T8
1 1/2" TRICLOVER FITTING

Model 296
Industrial Sanitary Pressure Transmitter

SPECIFICATIONS

Performance Data 2" Tri-Clover Sanitary Fitting	
Accuracy RSS[1] (at constant temp)	±0.20% FS
Non-Linearity (BFSL)	±0.17% FS
Hysteresis	0.10% FS
Non-Repeatability	0.025% FS
Thermal Effect[2]	
Compensated Range F°(C°)	+20 to +180 (-7 to +82)
Zero/Span Shift %FS/100°F (%FS/50°C)	2.0 (1.8)
Response Time	10 milliseconds
EMI/RFI Effect	< 1.0% output shift; 10V/M, 10-300 MHz
Clamping Effect, Zero/Span Shift	±0.15% FS
Maximum Vacuum (without affecting specifications)	Half on ranges ≤15 PSI

Physical Description	
Zero/Span Adjustments	Access Through Internal to Housing
Housing	Die Cut Aluminum and Stainless Steel
Electrical Connection	1/2 NPT" Conduit with Removable Internal Terminal Connector
Pressure Fitting	2" or 1 1/2" Tri-Clover Sanitary Fitting
Vent	Through Hydrophobic Teflon Plug
Weight (Approx.)	18 Ounces

Performance Data 1.5" Tri-Clover Sanitary Fitting	
Accuracy RSS[1] (at constant temp)	±0.20% FS
Non-Linearity (BFSL)	±015% FS
Hysteresis	0.12% FS
Non-Repeatability	0.10% FS
Thermal Effect[2]	
Compensated Range F°(C°)	+20 to +180 (-7 to +82)
Zero/Span Shift %FS/100°F (%FS/50°C)	2.0 (1.8)
Response Time	10 milliseconds
EMI/RFI Effect	< 1.0% output shift; 10V/M, 10-300 MHz
Clamping Effect, Zero/Span Shift	±0.25% FS
Maximum Vacuum (without affecting specifications)	Full on ranges ≥ 30 PSI

[1] RSS of Non-Linearity, Non-Repeatability and Hysteresis.
[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.
[3] Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.
[4] Zero output factory set to within ±0.08mA.
[4] Span (Full Scale) output factory set to within ±0.16mA.
[5] Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.
[6] shift in output reading at <0.05% FS/g; pressure port axis only.

Electrical Data	
Circuit	2-Wire
Output[3]	4 to 20 mA[4]
Zero/Span, Adjustment	± 0.5 mA
External Load	0 to 800 ohms
Min. Supply Voltage (VDC)	12 + 0.02 x resistance of receiver plus line
Max. Supply Voltage (VDC)	30 + .004 x resistance of receiver plus line

Environmental Data	
Operating Temperature°F (°C)[5]	-40 to +260 (-40 to +125)
Storage Temperature°F (°C)	-65 to +260 (-55 to +125)
Vibration	10g, 50-1000Hz
Acceleration[6]	10g maximum
Shock	50g operating
Thermal Shock°F (°C)	0 to +257 (0 to +125) negligible shift

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

ORDERING INFORMATION

2 9 6 1 – [ ][ ][ ] – [ ] – [ ] – [ ][ ] – 1 1 – [ ] – [ ] – [ ] [ ]

Model	Range				Units		Pressure Type		Fitting		Output		Termination		Accuracy		Options[2]	
2901 = 290	2" Tri-Clover (PSI)		1 1/2" Tri-Clover(PSI)		P	PSI	G	Gauge	T6	1 1/2" Tri-Clover	11	4-20 mA	T1	Terminal Block	3	± 0.2% FS	N	None
	001	0-1	030	0-30	M	mBAR	C**	Compound	T8	2" Tri-Clover					T	± 0.1% FS	R	20 Ra Sensor Finish
	002	0-2	045*	0-45														
	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																

** -14.7 to X psi, -1000 to XmBAR

[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

Pressure Ranges 2" Tri-Clover

psig	Range mb	in. H_2O	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

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. , 2961005PGT8113RN: 0 to 5 PSIG, 2" Tri-Clover Fitting, 4 to 20 mA Output, ±0.2% FS Accuracy, 20 Ra Sensor Finish

SSP296 Rev. 1

ACCELEROMETER

MODEL:

141

setra

Model 141

High Output Linear Accelerometer

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

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% full scale. 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.

SPECIFICATIONS

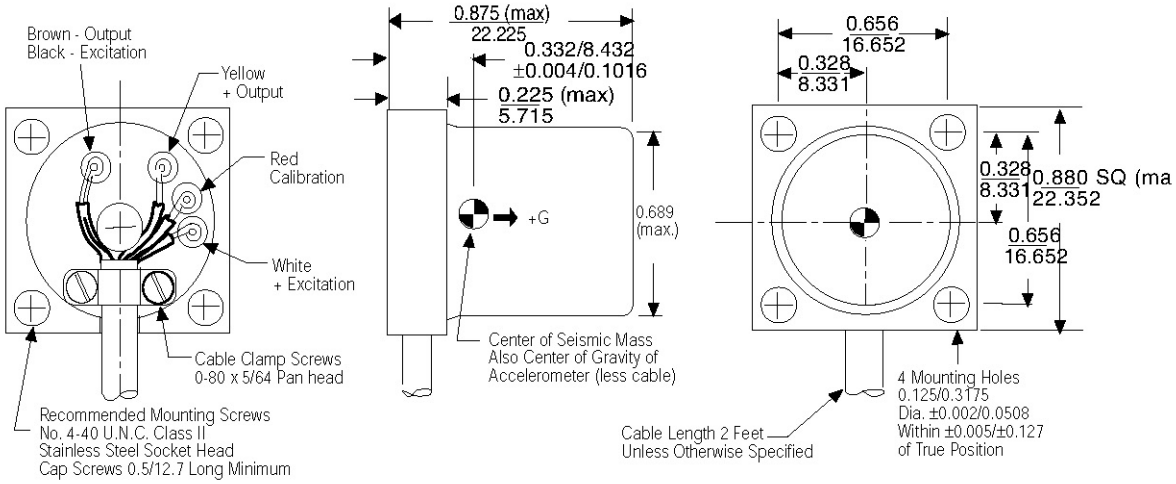
Performance Data		Thermal Effects		Electrical Data		
Non-Linearity (Best Fit Straight Line)	±1.0% FS	Operating Temperature °F(°C)	-10 to +150 (-23 to +65)	Electrical Circuit[1]	3-Wire (Com, -Exc, -Out)	
Hysteresis	0.10%	Zero Shift	<±0.02% Nominal Range/°F (<±0.36%/°C)	Isolation	100 M ohms	
Non-Repeatability	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	<±.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. [2] Typical performance for nominal g range: Output is proportional to excitation voltage. Output impedance 9k ohms (nominal). [3] Operable on 28 VDC aircracft 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.)		
Sensitivity	Reported at Nominal Range	Weight	30 grams (not including cable)			
Excitation Voltage	Model 141 calibrated at 10 VDC Or 24 VDC	Case	Stainless Steel, O-Ring			

Phone: 800-257-3872 • Fax: 978-264-0292 • setra.com

Model 141

High Output Linear Accelerometer

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

1 4 1 1 – [ ][ ][ ] – [ ] – [ ] – [ ][ ] – [ ][ ] – [ ] – [ ][ ]

Model		Range		Units		Type		Output		Termination		Accuracy		Options	
141	1411	002	±2g	A	G Force	B	Bi-Direction	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							25	25' Cable			7	EMI/RFI Filter
		015	±15g							XX	Consult facotry 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% Accuracy

SSP141 Rev. D

BAROMETRIC PRESSURE

MODELS:

276
278
270
370
470

Model 276

Low Cost Barometric Pressure Transducer

DESCRIPTION

Setra Systems has been a technology leader in Environmental Pressure Measurement for over three decades. The Model 276 is an extremely accurate and stable transducer based on the proven SETRACERAM™ sensing element. The glass fused ceramic capacitive sensing capsule is the heart of Setra's environmental pressure transducers because of its inherent thermal stability, low hysteresis and fundamentally simple design.

Another major feature of the 276 is Setra's custom Application Specific Integrated Circuit (ASIC). The ASIC works hand-in-hand with the SETRACERAM™ sensor to achieve long-term stability and high accuracy, unmatched by other manufacturers, even at a much higher cost. The ASIC circuit allows the 276 to operate with an excitation as low as 5 VDC for remote battery or solar powered applications.

The 276 is designed specifically to give maximum flexibility to system integrators and OEM's. The standard unit has a convenient mounting bracket and simple 1/8" tube fitting for quick installations. It's low cost, small in size and configurable to your applications.

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

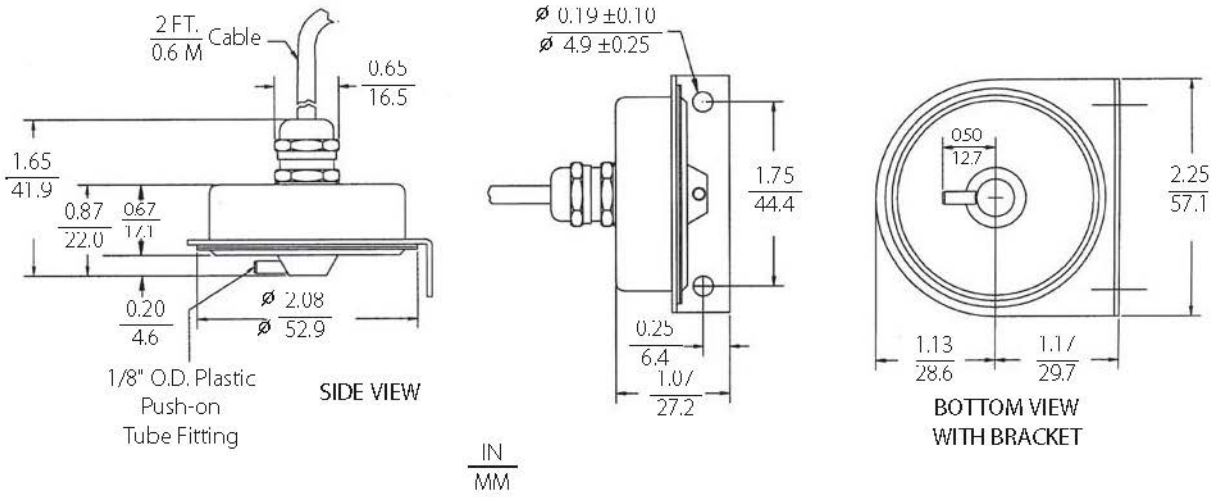
BENEFITS

- Proven SETRACERAM™ Sensor
- ±0.25% FS Accuracy
- Environmentally Rugged
- < ±0.25% FS, 6 Month Stability
- Compact Size (2" dia. x 1")
- Excellent Long-Term Stability
- Low Power Consumption
- Fast Response
- Meets CE Conformance Standards

APPLICATIONS

- Environmental Monitoring Systems
- Weather Measurement Systems
- Weather & Environmental Data Logging
- Barometric Pressure Compensation for Internal Combustion Engine Performance
- Cleanroom Barometric Pressure Compensation
- Automotive Emissions Test Equipment

DRAWINGS & DIMENSIONS



Model 276

Low Cost Barometric Pressure Transducer

SPECIFICATIONS

Performance Data	
Accuracy RSS [1] (at constant temp)	±0.25% FS [2]
Non-Linearity (BSFL)	±0.22% FS
Hysteresis	.05% FS
Non-Repeatability	.05% FS
Resolution	Infinite, limited only by output noise level (0.005% FS)
Thermal Effects [3]	
Compensated Range °F(°C)	+30 to +130 (0 to +55)
Zero/Span Shift %FS/°F (%FS/°C)	1% FS
Resolution	Infinite, limited only by output noise level (0.0005% FS)
Time Constant	10 milliseconds to reach 90% final output with step function pressure input
Long Term Stability	0.25% FS/6 months
Pressure Media	
Non-condensing air or gas compatible with stainles steel, alumina ceramics, gold and elastomer.	
Physical Description	
Case	Stainless Steel
Electrical Connection	2 ft. Multiconductor Cable
Pressure Fitting	1/8" Tube Fitting

Environmental Data	
Temperature	
Operating [4] °F(°C)	0 to +175 (-18 to +79)
Storage °F(°C)	-65 to +250 (-55 to +121)
Vibration	2g from 5Hz to 500 Hz
Acceleration	10g
Shock	50g Operating, 1/2 since 10ms
Electrical Data (Voltage)	
Circuit	3-Wire [5] (Exc, Out, Com)
Power Consumption	0.2 Watts (24 VDC)
Output Impedance	
Output Noise	<200 microvolts RMS (0 Hz to 100 Hz)

[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.

ORDERING INFORMATION

2 7 6 1 – [ ][ ][ ] – [ ] – [ ] – [ ][ ] – [ ][ ] – [ ][ ] – [ ] – [ ][ ]

Model		Pressure Range		Units		Pressure Type		Fitting		Output		Termination		Accuracy		Options	
276	2761	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%	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 facotry for other cable lengths			L	Etched SS Tag

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. , 2761800MA1B2202FCN: 800 to 1100 mb, 1/8" Push Tube Fitting, 0.1 to 5.1 VDC Output (24 VDC EXC), 2' Cable, ±0.25% FS Accuracy, 11 Point Cal Cert

Model 278

Barometric Pressure Transducer

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

BENEFITS

- Excellent Long-Term Stability
- Sleep Mode for Instant Startup (<1 sec)
- Low Power Consumption
- Calibration is NIST Traceable
- Removable Terminal Strip Module for Easy Wiring
- Footprint Configured for Easy Drop-In Replacement
- Meets CE Conformance Standards

APPLICATIONS

- Automated Weather Station (AWS)
- Data Buoys and Ships
- Agricultural Metrology System
- AWOS/ASOS Systems
- Laser Interferometer
- High Accuracy Barometric Pressure Measurement

DESCRIPTION

Setra's Model 278 barometric pressure transducer is designed for use in environmental applications that require excellent accuracy, fast dynamic response, and long-term stability and reliability.

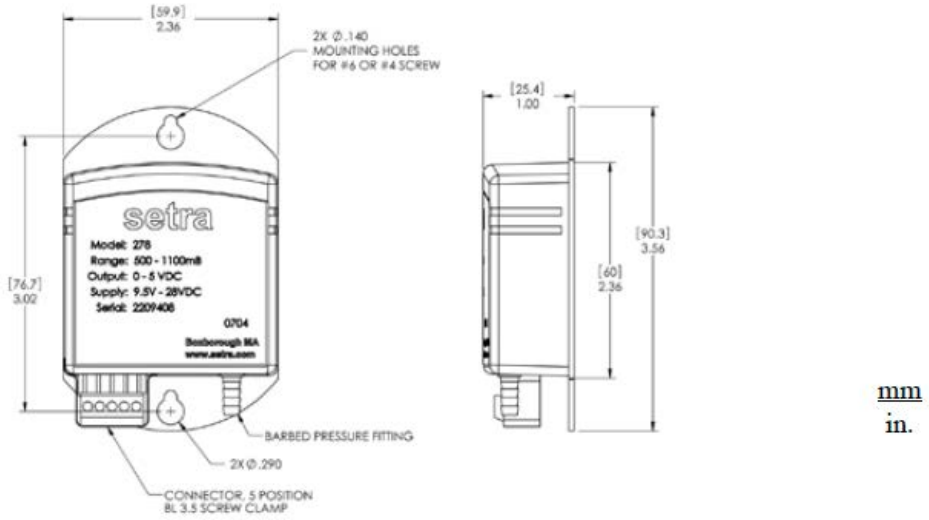
To withstand the environmental extremes typically found in Automated Weather Station (AWS) and environmental monitoring applications, the Model 278 housing is constructed of stainless steel and polyester. A removable 5-pin terminal strip module is provided for easy connection to data logger and signal connections, and a 1/8" Barbed fitting is used for pressure connection. The transducer's footprint (3.6" x 2.4" x 1.0") makes it ideal for use as a new or drop-in replacement to existing configurations.

The unit consumes low levels of power (3mA nominal) while in operation. Its sleep mode feature reduces power consumption to 1 µA, and provides instant startup for applications where pressure readings must be taken quickly.

Principle of Operation:

The Model 278 utilizes Setra's Setraceram™ capacitive sensor and proprietary custom IC analog circuit. This fundamentally simple design and thermally stable glass fused ceramic sensing capsule is coupled with Setra's sophisticated capacitance charge-balance IC circuit where accurate signal conditioning and environmental compensation is performed. The Setraceram™ sensor provides excellent thermal expansion coefficient and low mechanical hysteresis, which contributes to the long-term stability of the Model 278.

DRAWINGS & DIMENSIONS



mm
in.

Model 278

Barometric Pressure Transducer

SPECIFICATIONS

Performance Data				Environmental Data	
Pressure Range hPa/mb	500	600	800	Temperature	
Temperature at:	Accuracy (hpa/mb) [1]			Operating [4] °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.) Bardbed 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 ox (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]	0.2.5 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 Non Condensing Air or Gas.				Current Consumption	3mA Nominal (Operating Mode) 1uA (Sleep Mode)

[1] The root sum squared (RSS) of end point non-linearity, hysteresis, non-repeatability, and calibration uncertainty.
[2] Internal regulation minimizes effect of excitation variation, with <0.02 mb output change of 9.5 VDC to 28 VDC range.
[3] Zero output saturates at about 20 mV.

ORDERING INFORMATION

2781 – ☐☐☐☐ – A – 1B – ☐☐ – T1

Model		Pressure Range		Pressure Type		Pressure Conn.		Output/Exc.		Electrical Conn.	
278	2781	500M	500 to 1100 hPa/mb	A	Absolute	1B	1/8" Push Tube Fitting	2Y	0 to 2.5VDC/9.5 to 28	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.

SSP278 Rev B 03/11/11

Model 270

SETRACERAM™ for Barometric, Gauge or Absolute Pressure

BENEFITS

- SETRACERAM™ Sensor
- High Accuracy ±0.05% FS (end point method)
- ±0.03% FS Optional Accuracy
- High Cycle Life
- Repeatability Within 0.01% FS
- Excellent Long-Term Stability
- Low Power Consumption
- Instant Warm-Up
- Fast Response

APPLICATIONS

- High Accuracy Barometric Pressure Measurement
- Weather & Environmental Data
- Data Buoys & Remote Weather Stations
- Engine Test Cells
- High Accuracy Transfer Standard for Calibration
- Meets CE Conformance Standards

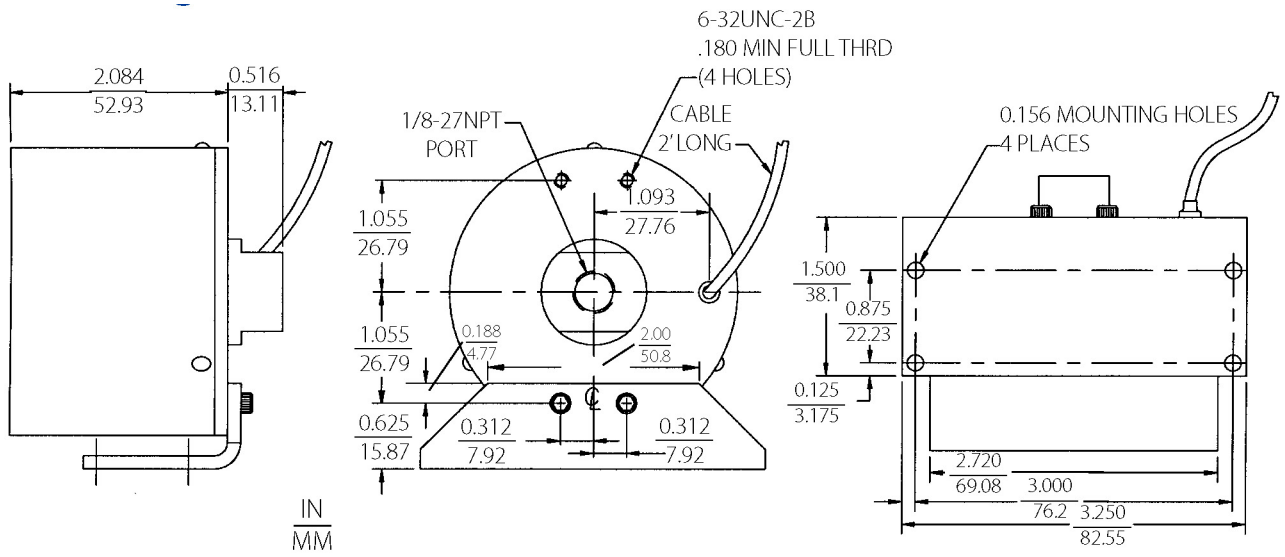
DESCRIPTION

For many years, high accuracy environmental and test and measurement applications around the world have relied on the consistent performance of the Setra Model 270 pressure transducer. Applications range from remote weather monitoring and avionics systems, endorsed by government agencies, to crucial compensation for barometric pressure variations in laser interferometers. Long-term reliability and stability in such demanding application environments are achieved in the 270 with the combination of the SETRACERAM™ capacitive sensor and Setra's proprietary custom IC analog circuit.

The fundamentally simple design and thermally stable glass fused ceramic sensing capsule is coupled with the sophisticated capacitance charge-balance IC circuit where accurate signal conditioning and environmental compensation is performed. Standard accuracy is 0.05% Full Scale, end point method. Higher accuracy and thermal specifications are also available.

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

DRAWINGS & DIMENSIONS



Model 270

SETRACERAM™ for Barometric, Gauge or Absolute Pressure

SPECIFICATIONS

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

[1] RSS of Non-Linearity, Hysteresis and Non-Repeatability. Higher accuracy units available on special order.
[2] Units calibrated at nominal 70°F. Maximum thermal error is computed from this datum.
[3] For best performance, either negative excitation or negative output should be connected to case (ground). Both leads cannot be connected to case (ground). Units calibrated at the factory with negative excitation connected to case.
[4] Internal regulation minimizes effect of excitation variation, with <±0.005% FS output change. Will operate at 28 VDC aircraft power per MIL-STD-704A and not be damaged by emergency power conditions.
[5] Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.
[6] Zero output factory set to within ±5mV. Span (Full Scale) output factory set to within ±5mV.

ORDERING INFORMATION

2 7 0 1 – ☐☐☐ – ☐ – ☐ – ☐☐ – ☐☐ – ☐☐ – ☐ – ☐ ☐

Model		Pressure Range		Units		Pressure Type		Fitting		Output		Termination		Accuracy		Options	
2701	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% **	C	11 PT Cal. Certificate
		*005	0-5	P	PSI							25	25' Cable			D	Mate with Datum
		010	0-10	P	PSI							XX	Consult facotry 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 **
		100	0-100	P	PSI												

** Accuracy "Y" and Option "2" cannot be combined.

*Available in Gauge Pressure Type Only

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. , 2701600MA1F2B02NCN: 600 to 1100 mb, 1/8" NPT Internal Fitting, 0 to 5 VDC Output (24 VDC EXC), 2' Cable, ±0.05% FS Accuracy, 11 Point Cal Cert

SSP2870 RevD

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 ±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

- ±0.02% Full Scale 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

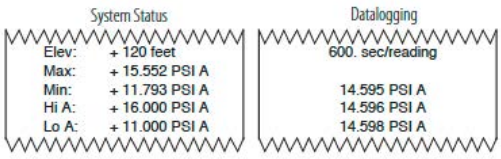
SPECIFICATIONS

Performance Data		Physical Description			
Accuracy[1]	±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, mmH20, in.H20, ft, m, units), HI/LO ALARM, pressure signal stability (O.K.) and barometric pressure corrected to sea level (SEA LEVEL).
Non-Linearity	±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 800 to 1100 mb/hPa	600.00 to 1100.00 800.00 to 1100.00	-1000 to 13,800 ft. -1000 to 6,400 ft.
Absolute	0 to 10 psia 0 to 20 psia 0 to 50 psia 0 to 100 psia	10.0000 20.0000 50.0000 100.000	10,300 to 100,000 ft. -1000 to 100,000 ft. -1000 to 100,000 ft. -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.



ISO 9001

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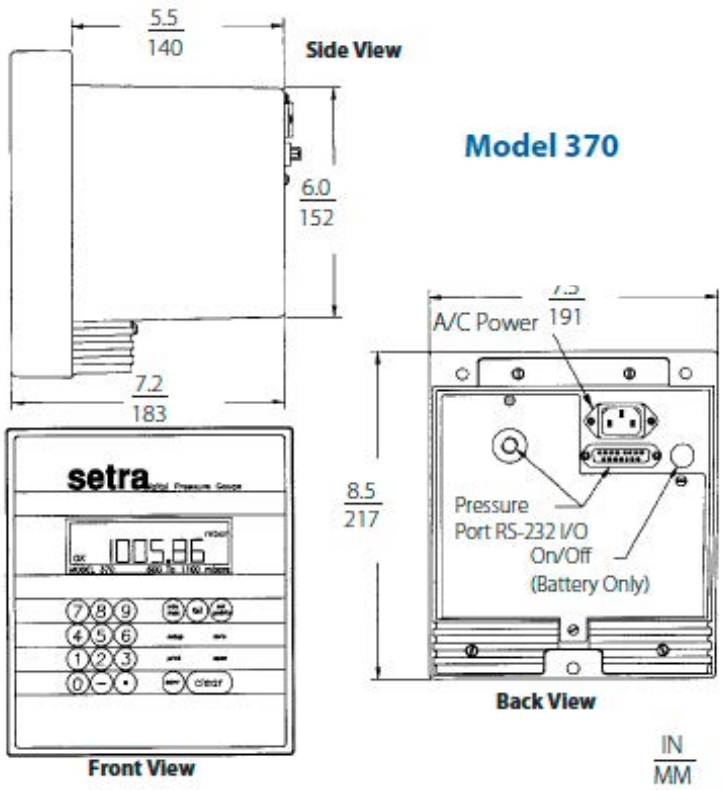
Model 370
Digital Pressure Gauge

DRAWINGS & DIMENSIONS



ORDERING INFORMATION

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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									5	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

SSP370 Rev. G

Model 470

Digital Pressure Transducer

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 ±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.

BENEFITS

- ±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

SPECIFICATIONS

Performance Data	
Accuracy[1]	±0.02% FS[2] at 70° F(21°C)
Non-Linearity	±0.012% FS (End Point)
Hysteresis	0.010% FS
Non-Repeatability	0.010% FS

Pressure Media

Clean dry air or other gases (non-condensable)

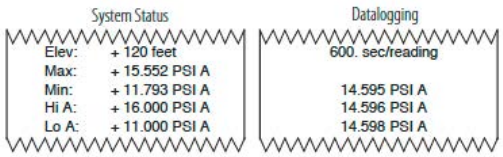
[1] RSS of Non-Linearity, Non-Repeatability and Hysteresis
[2] FS = 300 hPa/mb for 800-1100 hPa/mb range; 500 hPa/mb for 600-1100 hPa/mb range
[3] Unit calibrated at 70°F. Maximum thermal error is computed from this datum.

Physical Description	
Pressure Fitting	Barbed Fitting for 1/8" I.D. Tubing
Pressure Connection	10-32 Internal Thread
Excitation	DB-9S, (9 Pin D-Sub Female) Pin: 3 GRD, 9 + 5 VDC
Communications	DB-9S, (9 Pin D-Sub Male) Pin: 2 TXD, 3 RXD, 5GRD
Weight	Apprx. 2.4 lbs.

Thermal Effects [3]

Compensated Range °F(°C)	+32 to +110 (0 to +45)
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

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.
Operating Power	5 VDC ±1%, 70 mA max.
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:



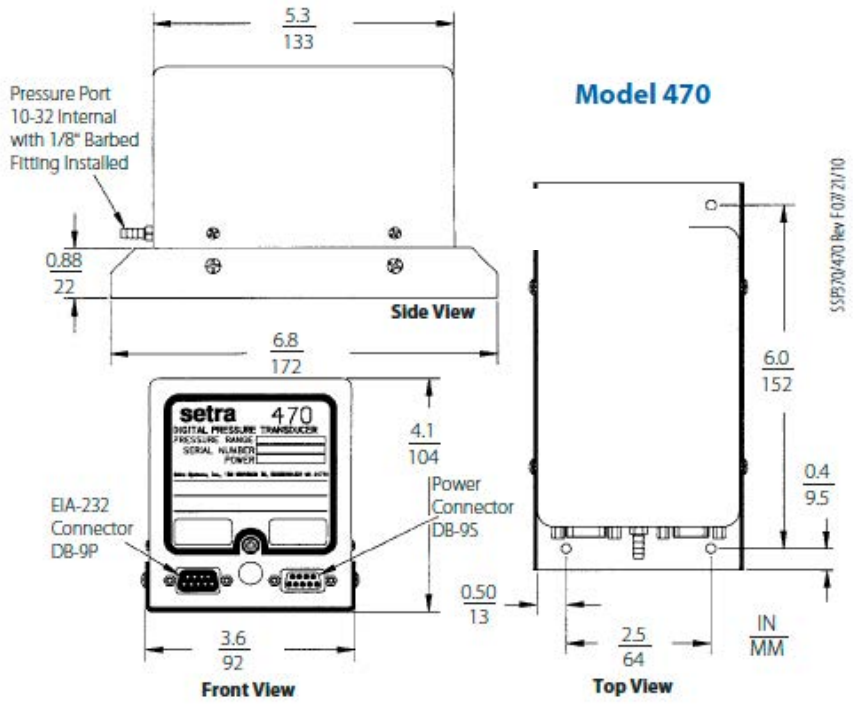
PRESSURE RANGES

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

Model 470
Digital Pressure Transducer

DRAWINGS & DIMENSIONS



ORDERING INFORMATION

4 7 0 1 – ☐☐☐ – ☐ – ☐ – ☐☐ – ☐☐ – ☐ – ☐☐

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-232/5 VDC	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. , 4701020PA1B4SD9: 0 to 20 PSIA, 1/8" Barbed Fitting, RS232 Output, 9-Pin D-Sub Electrical Connector

SSP470 Rev. G

LOW DIFFERENTIAL PRESSURE

MODELS:

264
265
267

setra

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 in. W.C. full scale to 100 in. W.C. full scale. Static standard accuracy is ±1.0% full scale 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			
	Standard	Optional	
Accuracy RSS[1] (at constant temp)	±1.0% FS	±0.4% FS	±0.25% FS
Non-Linearity, BFSL	±0.96% FS	±0.38% FS	±0.22% FS
Hysteresis	0.10% FS	0.10% FS	0.10% FS
Physical Description			
Compensated Range °F (°C)	0 to +150 (-18 to +65)		
Zero/ Span Shift %FS/100°F(50°C)	±0.033 (±0.06)		
Maximum Line Pressure	10 PSI		
Overpressure	Up to 10 PSI (Range Development)		
Long Term Stability	0.5% FS/1 YR		

Position Effect	Range	%FS/G
Unit is factory calibrated at 0g effect in the vertical position	0.1 in. WC	2.3
	0.25in. 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

Environmental Data	
Operating Temperature[3] °F (°C)	0 to +175 (-18 to +79)
Storage Temperature °F (°C)	-65 to +250 (-54 to +121)
Physical Description	
Case	Fire-Retardant Glass Filled Polyester (UL 94 V-0 Approved)
Electrical Connection	Screw Terminal Strip
Mounting	4 screw holes on removable zinc plated steel base (designed for 2.75" snap track)
Pressure Fittings	3/16" O.D. barbed brass for 1/4" pushon tubing
Zero and Span Adjustments	Accessible on top of case
Weight (approx.)	10 Ounces
Pressure Media	
Typically air or similar non-conducting gases.	

Electrical Data (Voltage)	
Circuit	3-Wire (Com, Out, Exc)
Excitation/ Output[4]	9 to 30 VDC / 0 to 5 VDC[5,6]
Output Impedance	100 ohms
Bidirectional output at zero pressure	2.5 VDC[5,6]
Electrical Data (Current)	
Circuit	2-Wire
Output[2]	4 to 20 mA[8,9]
External Load	0 to 800 ohms
Minimum Supply Voltage (VDC)	9 + 0.02 x (resistance of receiver plus line)
Maximum Supply Voltage (VDC)	30 + 0.004 x (resistance of receiver plus line)
Bidirectional output at zero pressure	12 mA[8,9]

[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 ±50mV (±25 mV for optional accuracies).
[6] Span (Full Scale) output factory set to within ±50mV. (±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 ±0.16mA (±0.08 mA for optional accuracies).
[9] Span (Full Scale) output factory set to within ±0.16mA (±0.08 mA for optional accuracies).
Specifications subject to change without notice.

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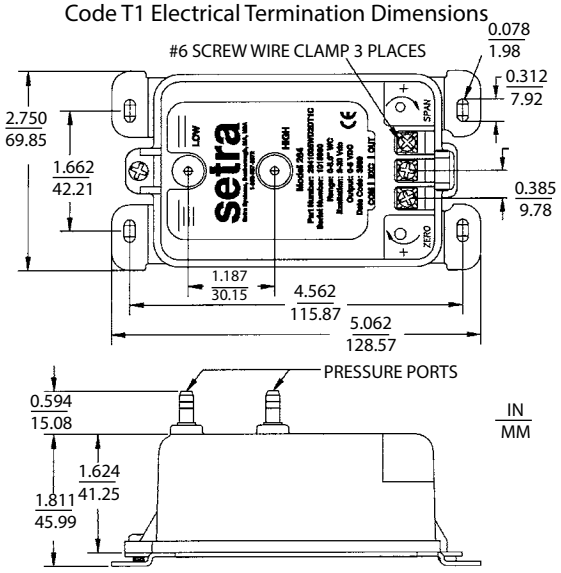
Model 264

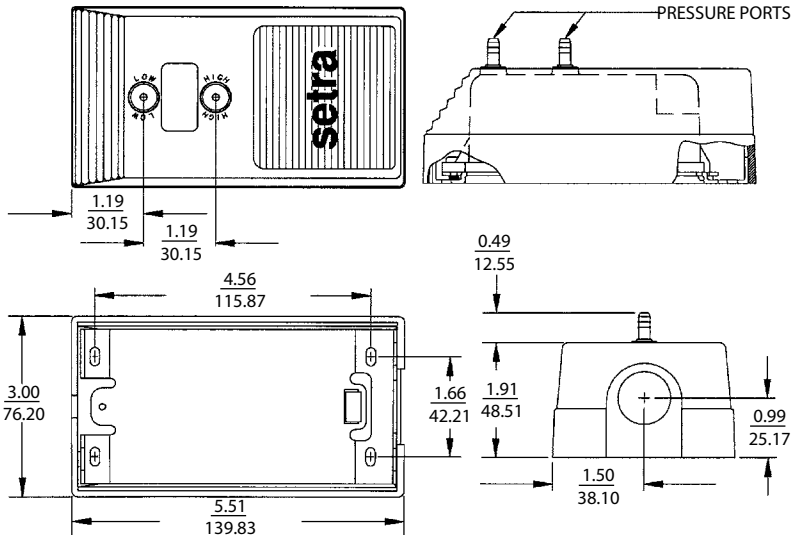
Very Low Differential Pressure Transducer

DIMENSIONS

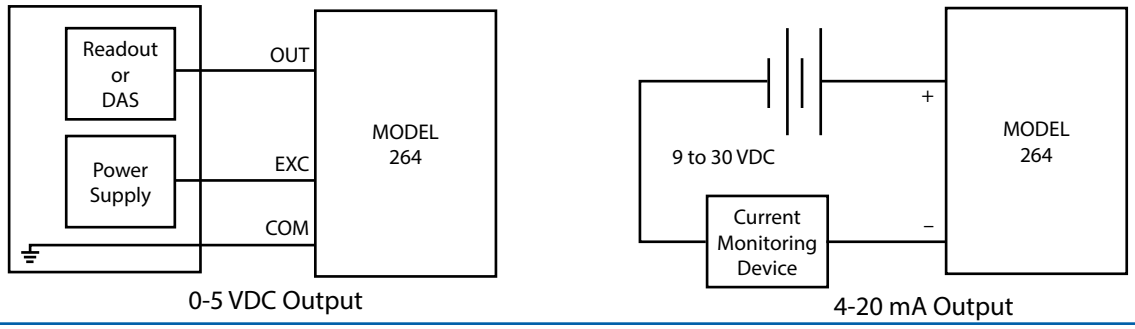
Code T1 Electrical Termination Dimensions



Optional 1/2" Conduit Electrical Enclosure 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
							Opt.	F	±0.25% FS
							Opt.	G	±1% FS

1. Optional Accuracies include Calibration Certificate

Table 1. Range Specification

RANGE CODE	DIFFERENTIAL in. W.C.	RANGE CODE	BIDIRECTIONAL in. 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		

Ordering Example: 26412R5WD11T1C= Model 265, 0 to 2.5 in. W.C. Range, 4 to 20 mA Output, Terminal Strip Electrical Connection, and ±1% Accuracy

SSP264 Rev.J 11/8/12

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% 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% full scale accuracy (optional ±0.4% and ±0.25%) , the Model 265 provides superior positive and negative pressure sensing required for high efficiency air control systems.

Its small footprint (189"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 the on the face of the unit, and a screw terminal strip for electrical termination.

SPECIFICATIONS

Performance Data

	Standard	Optional	
Accuracy RSS[1] (at constant temp)	±1.0% FS	±0.4% FS	±0.22% FS
Non-Linearity, BFSL	±0.98% FS	±0.38% FS	±0.22% FS
Hysteresis	0.10% FS	0.10% FS	0.10% FS
Non-Repeatability	0.05% FS	0.05% FS	0.05% FS

Thermal Effects[2]	
Compensated Range °F (°C)	0 to +150 (-18 to +65)
Zero Shift %FS/100°F(50°C)	±0.033 (±0.06)
Span Shift %FS/100°F(50°C)	±0.033 (±0.06)
Max. Line Pressure	10 PSI
Overpressure	Up to 10 PSI (range depedent)
Long Term Stability	0.5% FS/YR
Warm-Up Shift	±0.1% FS Total

[1] RSS of Non-Linearity, Non-Repeatability and Hysteresis
[2] Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.

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

Specifications subject to change without notice

Physical Description

Pressure Fittings	1/4" Fitting
Case	Fire Retardent Glass Filled Polyester (UL 94-V Approved)
Weight	3 oz
Elec. Connection	Screw Terminal Strip

Position Effect[3]	
Range	Zero Offset (%FS/G)
To 0.5 in. W.C.	0.60
To 1.0 in. W.C.	0.50
To 2.5 in. W.C.	0.22
To 5.0 in. W.C.	0.14

[3] Unit is factory calibrated at 0g effect of vertical position.

Pressure Media

Typically air or similar non-conducting gases.

U.S. Patent Nos. 5442962, 6019002, 6014800 and other Patents Pending.

Electrical Data (Voltage)

Circuit	3-Wire (Com, Out, Exc)
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]
Output Impedance	<100 ohms
Bidirectional output at zero pressure	2.5 VDC (±50 mV)

[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).

Electrical Data (Current)

Circuit	2-Wire
Output[6]	4 to 20 mA[7]
External Load	0 to 800 ohms
Min. Loop Supply Voltage (VDC)	9 + 0.02 x (resistance of receiver plus line)
Max. Loop Supply Voltage (VDC)	30 + 0.004 x (resistance of receiver plus line)
Bidirectional output at zero pressure	12 mA

[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.).

Environmental Data

Temperature	
Operating °F (°C)8	0 to +150 (-18 to +65)
Storage °F (°C)	-40 to +185 (-40 to +85)

[8] Operating temperature of the electronics only. Pressure media temperatures may be considerably higher or lower.

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Model 265

Very Low Differential Pressure Transducer

ORDERING INFORMATION

2 6 5 1 – [ ][ ][ ][ ][ ] – [ ][ ] – [ ][ ] – [ ]

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

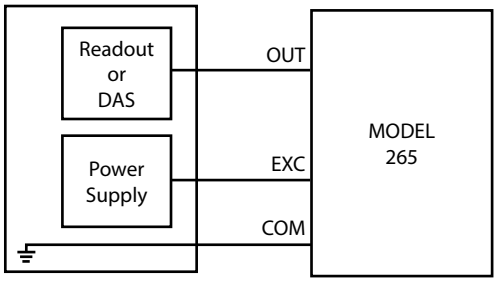
Table 1. Range Specification

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

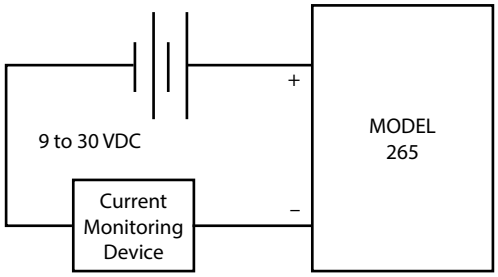
Ordering Example: 26512R5WD11T1C =
265 Transducer
0 to 25 in. WC Range
4 to 20 mA Output
Terminal Strip Electrical Connection
±1% Acuracy

Please contact factory for versions not shown.

WIRING



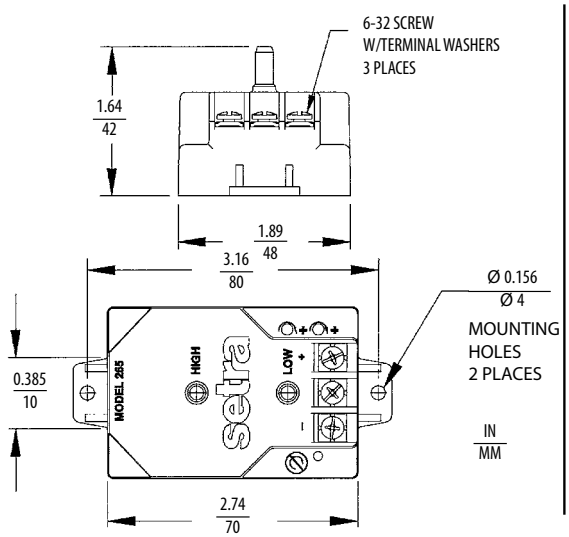
4-20 mA Output



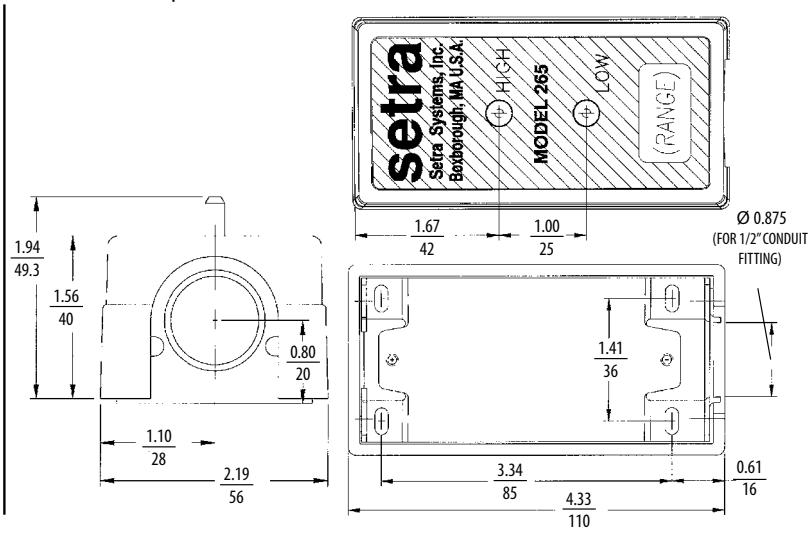
0-5 VDC Output

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"WC Full Scale up to 100"WC.

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.

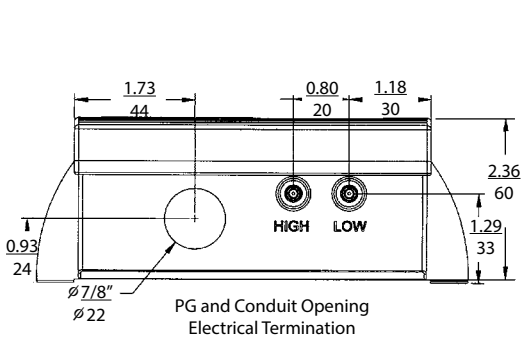
FEATURES

- 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 0.5% FS Standard Accuracy
- NEMA 4/IP65 Rated Housing
- Optional Accuracies as High as 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 in. W.C. (25 Pa)
- Meets CE Conformance Standards

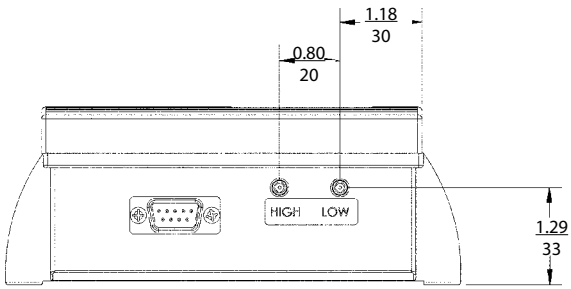
APPLICATIONS

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

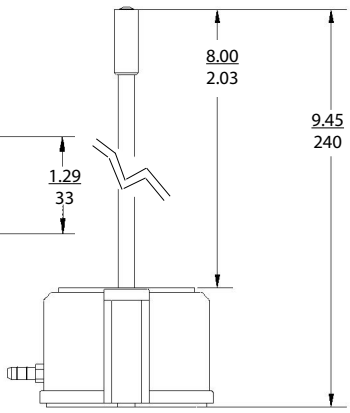
DIMENSIONS



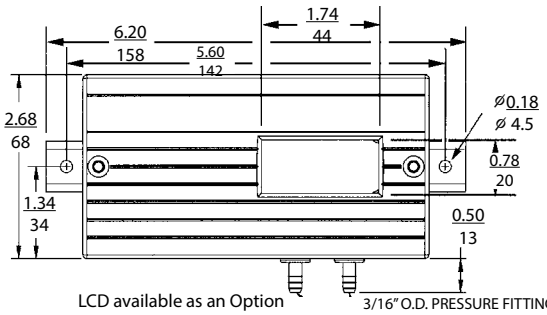
PG and Conduit Opening Electrical Termination



9 pin D-sub Connector Electrical Termination

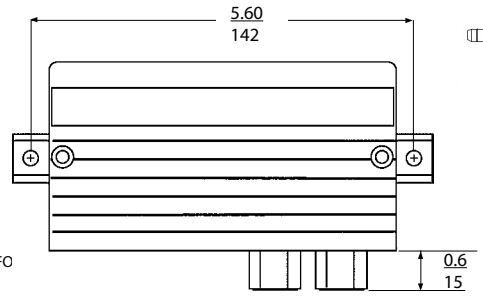


Static Duct Probe



LCD available as an Option on Model 267 only.

3/16" O.D. PRESSURE FITTING FO 1/4" PUSH-ON TUBING



1/4" NPT Brass Fitting

Model 267/267MR

Very Low Differential Pressure Transducer

SPECIFICATIONS

Performance Data

	Standard	Optional	
Accuracy RSS[1] (at constant temp)	±1.0% FS	±0.4% FS	±0.25% FS
Non-Linearity, BFSL	±0.98% FS	±0.38% FS	±0.22% FS
Hysteresis	±0.10% FS	±0.10% FS	±0.10% FS
Non-Repeatability	±0.5% FS	±0.5% FS	±0.5% FS

Position Effect

Range	Zero Offset (%FS/G)	
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	

Unit if factory calibrated at 0g effect in the vertical position

Pressure Media

Typically air or similar non-conducting gases.

Thermal Effects[2,3]

Compensated Range °F (°C)	+40 to +150 (+5 to +65)
Zero/Span Shift %FS/°F (°C)	±0.033 (±0.06)
Maximum Line Pressure	10 psi
Overpressure	Up to 10 psi (Range Dependant)
Long Term Stability	0.1% FS Total

Environmental Data

Operating[7] Temperature °F (°C)	0 to +150 (-18 to +65)
Storage Temperature °F (°C)	-65 to +180 (-54 to +82)

Physical Description

Case	IP65/NEMA 4 Plastic Glass-Filled Polycarbonate UL94V-O Case
Electrical Connection	Screw Terminal Strip Inside of Case
Electrical Terminations	PG-9/PG13.5 Strain Relief, 1/2" Conduit Opening, or 9 Pin D-Sub Connector*

*9 Pin D-Sub Connector is not suitable for NEMA4/IP-65 Environments

Zero and Span Adjustments	Accessible Inside of Case
Display (Optional on 267 only)	Accessible Inside of Case Display (1/74"W x 0.78"H)
Pressure Fittings	3/16" O.D. Barbed Brass for 1/4" Push-On Tubing (Standard) Static Pressure Probe (Optional 1/4" NPTF Brass (Optional)
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
Weight (approx.)	9.0 Ounces (255 grams) 9.5 Ounces (Duct Probe Assembly)

Electrical Data (Voltage)

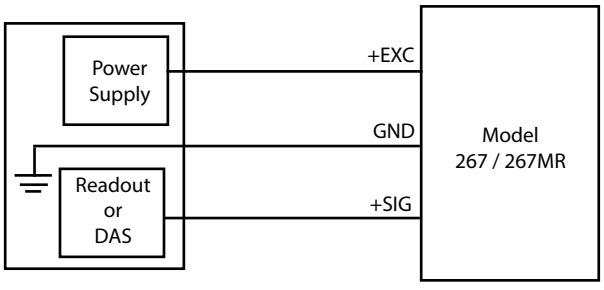
Circuit	3-Wire (Exc, Gnd, Sig), Protected from Miswiring
Excitation (for 0-5 VDC Output)	9 to 30 VAC /12 to 40 VDC
Excitation (for 0-10 VDC Output)	11 to 30 VAC /13 to 40 VDC
Model 267	
Output[3]	0 to 5 VDC[4] / 0 to 10 VDC[4]
Model 267MR	
Output (Field Selectable)	0 to 10 VDC[4]
Bidirectional Output at Zero	Mid-Range of Specified
Output Impedance	Ohms
Re-Ranging (267MR Only)	5 Position Dip Switches (Located Inside Case)

Electrical Data (Current)

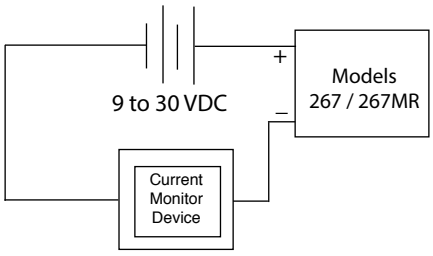
Circuit	2-Wire, Protected from Miswiring
Output[5]	4 to 20 mA[6]
Bidirectional Output at Zero	12 mA
Min. Loop Supply Voltage (VDC)	9 + 0.02 x (Resistance of Receiver plus line)
Max. Loop Supply Voltage (VDC)	30 + 0.004 x (Resistance of Receiver plus line)
Re-Ranging (267MR only)	4 Position Dip Switches (located inside case)

[1] RSS of Non-Linearity, Hysteresis, and Non-Repeatability.
[2] Units calibrated at nominal 70° F. Maximum thermal error computed from this datum.
[3] Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.
[4] Zero output factory set to within ±50mV (±25 mV for optional accuracies).
Span (Full Scale) output factory set to within ±50mV (±25 mV for optional accuracies
[5] Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.
[6] Zero output factory set to within ±0.16 mA (±0.08 mA for optional accuracies).
Span (Full Scale) output factoy set to within ±0.16 mA (±0.08mA for optional Accuracies.)
[7] Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher.

WIRING



Voltage Output

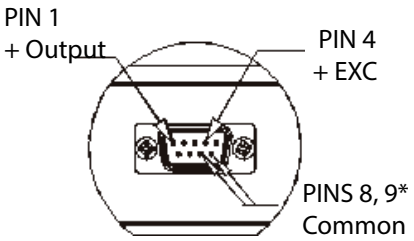


Current Output

Model 267/267MR

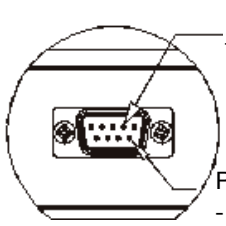
Very Low Differential Pressure Transducer

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)

2 6 7 1 – [ ][ ][ ][ ][ ] – [ ][ ] – [ ][ ] – [ ] – [ ]

Model	Range Code	Output		Pressure Fitting/Elec. Termination			Accuracy (Full Scale)			Display	
2671 = 267	See Table 1 Below	11	4-20 mA	3/16" Barbed Brass Fitting			Std.	C	±1%[3]	D	LCD[4]
		2D	0-5 VDC	Std.	G1	PG-13.5 Strain Relief	Opt.[1]	E	±0.4%	N	None
		2E	0-10 VDC	Std.	G2	PG9 Strain Relief	Opt. [1]	F	±0.25%		
				Std.	D9	9 pin D-Sub Conn.	Opt. [1]	G	±1%		
				Std.	A1	1/2" Conduit Opening	Opt.[1,2]	H	±0.5%		
				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. Optional accuracies include Calibration Certificate

2. ±0.5% FS (Code H) accuracy is standard when ordered with the LCD Display (Code D).

3. Not available with LCD Display (Code D)

4. ±0.5% FS (Code H) Accuracy is standard when ordered with LCD Display (Code D)

Table 1. Range Specification

RANGE CODE	UNIDIRECTIONAL "W.C.	RANGE CODE	BIDIRECTIONAL "W.C.	RANGE CODE	UNIDIRECTIONAL PASCALS	RANGE CODE	BIDIRECTIONAL PASCALS
0R1WD	0 to 0.1	0R1WB	±0.1	025LD	0 to 25	025LB	±25
R25WD	0 to 0.25	R25WB	±0.25	050LD	0 to 50	050LB	±50
0R5WD	0 to 0.5	0R5WB	±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)

2 6 7 1 – ☐☐☐☐☐ – ☐☐ – ☐☐ – ☐ ☐

Model	Range Code	Output		Pressure Fitting/Elec. Termination			Accuracy (Full Scale)			Display	
2671 = 267	See Table 1 Below	11	4-20 mA	3/16" Barbed Brass Fitting			Std.	C	±1%	N	None
		2D	0-5 VDC	Std.	G1	PG-13.5 Strain Relief	Opt.[1]	G	±1%		
		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% Acc. to include Calibration Certificate

Note: Opional higher accuracies are not avaialble on the 267MR.

Ranges are factory set for the highest range

Table 1. Range Specification

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

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

SSP267/267MR Rev.J11/8/12

POWER MONITORING

MODELS:

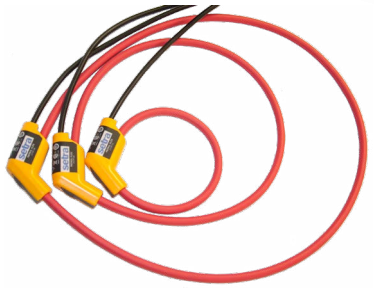
Power Patrol
Patrol Flex CT
Split Core Standard CT
Split Core Performance CT
Power Squad 24

Power Patrol

Advanced Power Meter

setra®

POWER PATROL



The **Setra Power Patrol** is every electrical contractor's dream. The 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 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.

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 voltages ranging from 80-600V (phase-to-phase). The Power Patrol has 3 LED indicators (Red/Green) which confirm proper CT-to-phase installation.

Field Selectable Communications (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).

Power Patrol Features:

- Configure & Power Through USB
- Rogowski Coil and 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
- Bi-Directional
- DIN- Mount

Applications:

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

5 Year Warranty

Phone: 800-257-3872 • Fax: 978-264-0292 • setra.com

Power Patrol

Advanced Power Meter

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 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-phase 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 Certified to CSA Std C22.2 No. 61010-1

Modbus Register/BACnet Object Descriptions (Partial 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)

Ordering Information

for Setra Power Patrol

S	P	P	–	☐	–	☐

SPP - Setra Power Patrol

Communication Port
E - Ethernet & Serial
S - Serial Only (RS-485)

Display
D - Display
N - No Display

Communication Accessories

Setra P/N	Description
900900-G	USB Communication Cable, Type A to B, Power Patrol
900901-G	USB Flash Drive, HeadStart Software, Power Patrol

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setra®
POWER SQUAD 24

The **Power Squad 24** is a versatile, multi-channel (CT) instrument. 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 Power Flex CTs and is capable of monitoring up to 8 three-phase or 24 single-phase electrical devices.

Versatility

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).

Power Squad 24 Features:

- Rogowski Coil and Split Core CT Compatible
- Broadband Power Supply (80-600V)
- Field Selectable BACnet/Modbus (4-in-1)
- Data Updates Occur Every 1 Second
- Bi-Directional

Applications:

- Measurement & Verification
- Energy Cost Allocation
- Equipment Efficiency Tracking
- Preventive Maintenance
- Data Center Monitoring

5 Year Warranty

Power Squad 24

Multi-Circuit Power Meter

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	1% (<0.5% typical) for V, A, kW, kVAR, kVA, PF.	**Weight**	without enclosure: 369g (13oz) with enclosure: 610g (21.5oz)
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")
LED Indicators	Bi-color LEDs (red and green): 1 LED to indicate communication, 3 LEDs for correct CT-to-phase installation (per meter element)	**Safety**	
Pulse Output	Open Collector, 75mA max current, 40V max open voltage	Power Patrol Serial and Ethernet	UL Listed and CE Mark, Conforms to UL Std 61010-1, Certified to CSA Std C22.2 No. 61010-1

Modbus Register/BACnet Object Descriptions (Partial 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)

Ordering Information
for Setra Power Patrol

S	P	S	2	4	–	☐	–	☐

SPS24 - Setra Power Squad 24

Communication Port
E - Ethernet
S - Serial

Enclosure
E - Enclosure
N - No Enclosure

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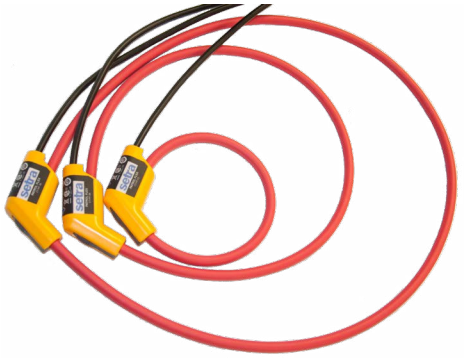
Patrol Flex

Rogowski Coil



DESCRIPTION

The Setra Patrol Flex is an AC current probe utilizing the Rogowski principle. The flexible and lightweight measuring head allows quick and easy installation in hard to reach areas, without batteries or an external power source.

Setra Patrol Flex is available as a 3-pack, perfect for use with 3-phase power applications. The Flex clamp fits around bus bars and large or hard-to-reach conductors.

SPECIFICATIONS

General Specifications		Specifications		Safety Specifications	
Probe and Cable Material	TPE rubber, reinforced insulation UL94 V-0, Colour: RED Munsell 7.5 R 1/14	Current Range	12" - 0-1500A 24" - 0-3000A 36" - 0-6000A	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 ACRMS or DC and frequencies below 1 kHz. -Please note that this probe is designed to work with Fluke 435, if used with other products safety rating for the output to earth is limited to 600V ACRMS or DC.
Couplings Material	Polypropylene, UL94 V-0	Voltage Output (@1000 ARMS, 50 Hz)	85 mV		
Probe Cable Length	610 mm	Accuracy	± 1% of reading (@ 25°C, 50 Hz)		
Probe Cable Diameter	12.4 mm	Linearity (10% to 100% of range)	± 0.2% of reading		
Probe Cable Bend Radius	40 mm	Noise (10 Hz - 7 Hz)	1.0 mV ACRMS		
Output Cable Length	2.5 meters RG58	Output Impedance	82 Ω min		
Output Connector	Unterminated	Load Impedance	50 kΩ		
Operating Range	-20° to +90° C	Internal Resistance per 100 mm probe length	10.5Ω ± 5%		
Storage Temperature	-40° to +105° C	Bandwidth (-3dB)	10 Hz to 7 kHz		
Operating Humidity	15% to 85% (non condensing)	Phase Error (45-65 Hz)	±1°		
Degree of Protection (Probe)	IP41	Position Sensitivity	± 2% of reading max.		
		Temperature Coefficient	± 0.08% max of reading per °C		
		Working Voltage (see Safety Standards section)	1000 V AC RMS or DC (head) 30 V max. (output)		

c UL us LISTED

ORDERING INFORMATION

C T – P F – [ ][ ]

Name		Probe Length	
PF	Patrol Flex	12	12"
		24	24"
		36	36"

Split Core Standard CT
Current Transformers

DESCRIPTION

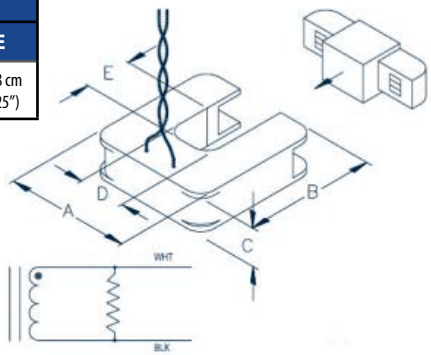
Split Core Standard CTs provide linear output voltage that is directly proportional to the input current. These current transformers are safely and easily installed over existing electrical power lines without disconnecting the lines or interrupting service.

Setra's energy monitoring components are used for a variety of applications including building automation, tenant submetering, performance verification, energy management, and new technology assessment.

SPECIFICATIONS				
	100A	**200A**	**400A**	**600A**
Window 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			

**IEEE C57.13 Certification available upon request*

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

C T – S C S – [ ] [ ] [ ]

Name		Amps	
SCS	Split Core Standard	100	100 Amps
		200	200 Amps
		400	400 Amps
		600	600 Amps

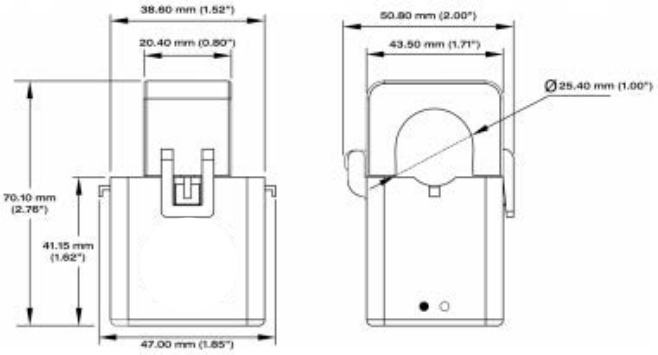
Split Core Performance CT

Current Transformers

DESCRIPTION

The hinged Split Core Performance CTs are small, low cost current transformers with high accuracy over a wide dynamic range with excellent phase shift. These CTs are ideal where space is limited such as when metering multiple loads within a panel board. Use for current measurement, energy metering, load surveys, demand metering, energy research, and submetering.

SPECIFICATIONS				
	20A	**50A**	**100A**	**200A**
Window 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			
Oreintation	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

C T – S C P – [ ] [ ] [ ]

Name		Amps	
SCP	Split Core Performance	020	20 Amps
		050	50 Amps
		100	100 Amps
		200	200 Amps

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 NO:2641 R25WD 2D A1 E = 2641R25WD2DA1E

TERMS

Net 30 days upon credit approval, otherwise payment must be received in advance of shipment.
Remit payment to:

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

F.I.D. #: 042432269

We also accept:

PRICES

All prices are U.S. funds, F.O.B. 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. Quantity discounts in the following table apply to identical items with the same range:

Discount Schedule

Quantity	% Discount
10-24	23%
25-49	5%
50-99	8%
100+	10%

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

Customer Service
Setra Systems, Inc.
159 Swanson Road. M/S P417
Boxborough, Massachusetts 01719

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

RETURNED PRODUCT POLICY

Authorization must be obtained from Setra prior to returning any product.* Products must be returned, freight prepaid, within 12 months of purchase date.

*Note: Returned products may be subject to a restocking charge.

LIMITED WARRANTY AND , LIMITATIONS OF LIABILITY

SETRA warrants its products to be free from defects in materials and workmanship, subject to the following terms and conditions. Without charge, SETRA will repair or replace products found to be defective in materials or workmanship within the warranty period; provided that:

a.) the product has not been subjected to abuse, neglect, accident, incorrect wiring not our own, improper installation or servicing, or use in violation of instructions furnished by SETRA;
b.) the product has not been repaired or altered by anyone except SETRA or its authorized service agencies;
c.) the serial number or date code has not been removed, defaced, or otherwise changed; and
d.) examination discloses, in the judgment of SETRA, the defect in materials or workmanship which developed under normal installation, use and service;
e.) SETRA is notified in advance of and the product is returned to SETRA transportation prepaid.

Unless otherwise specified in a manual or warranty card, or agreed to in writing signed by a SETRA officer, SETRA pressure and acceleration products shall be warranted for one year from date of sale.

The foregoing warranty is in lieu of all warranties, express, implied or statutory, including but not limited to, any implied warranty of merchantability, for a particular purpose.

Setra's liability for breach of warranty is limited to repair or replacement, or if the goods cannot be repaired or replaced, to a refund of the purchase price. Setra's liability for all other breaches is limited to a refund of the purchase price. In no instance shall SETRA be liable for incidental or consequential damages arising from a breach of warranty or from the use or installation of the products.

No representative or person is authorized to give any warranty other than as set out above or to assume for SETRA any other liability in connection with the sale of its products.

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