

2013 CATALOG

# HVAC

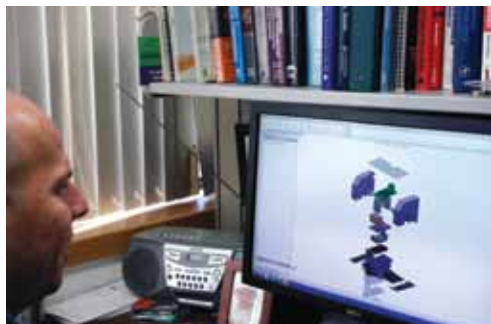


setra

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

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

## Research and Innovation



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

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

## Manufacturing

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

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



## Customer Support

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

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

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

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

**Visit our Website at [www.setra.com](http://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

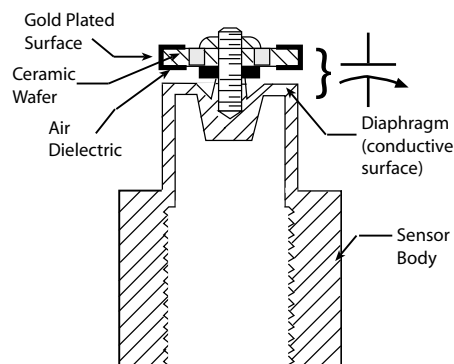
To globally serve the sensing, display and control needs of the HVAC Building Automation market and Industrial OEM Pressure sensing segments, with an emphasis on solutions that provide energy cost savings and support the expansion of quality healthcare products and services

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.

## Capacitive Transducers

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

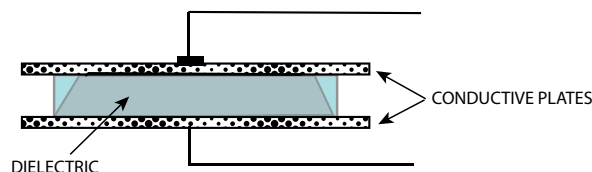
In a typical Setra configuration, a compact housing contains two closely spaced, parallel, electrically isolated metallic surfaces, one of which is essentially a diaphragm capable of slight flexing under pressure. The diaphragm is constructed of a low-hysteresis material such as 17-4 PH SS or a proprietary 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.)*

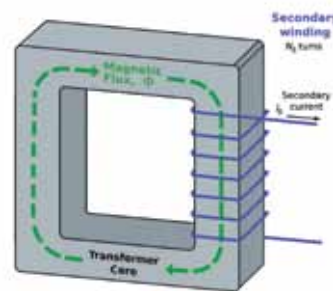
## Capacitive RH Sensors

Setra's Capacitive RH sensors consist of a ceramic substrate on which a thin film of polymer is deposited between two conductive electrodes. The sensing surface is coated with a micro-porous metal electrode, allowing the polymer to absorb moisture while protecting it from contamination and exposure to condensation. As the polymer absorbs water, the dielectric constant changes incrementally and is nearly directly proportional to the relative humidity of the surrounding environment. Thus, by monitoring the change in capacitance, relative humidity can be derived. Setra's patented charge balance ASIC measures the capacitance change and uses digital potentiometers to precisely calibrate the replaceable sensor tip.



## Inductive Current Sensors

Setra Current Switch and Transducers use inductive current transformers (CTs) to sense an AC current in a primary conductor. The CT generates a low level AC current which is proportional to the current flowing in the primary conductor. The resulting low level AC current is rectified and compared to either a factory set or field adjustable set point value. When the sensed current exceeds the set point value, the internal circuitry triggers the output switch to change state from open to short in a current switch. The current transducers provide a DC output with is linearly proportional to the sensed current.



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**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.

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

**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).

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

**Millibar (mbar)** — Unit of pressure generally used in barometric measurements: 1 mbar  $\pm$  100 N/m<sup>2</sup> or 10 = dyn/cm<sup>2</sup>.

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

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

**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.

**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).

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

**Relative Humidity Accuracy** — RH accuracy is the error between the actual RH and the RH indicated by the humidity sensor,

**Relative Humidity Repeatability** — Repeatability is the ability of the sensor to reproduce the output when moving in one direction, either from low to high RH or high to low.

**RH Sensor Interchangeability** — Interchangeability is the %RH error introduced when replacing a sensor tip with a new sensor tip.

**RH Long Term Stability** — Long term stability is the %RH error of the sensor over time.

**RH Sensor Recovery from Condensation** — Recovery after exposure to condensing conditions. Sensor should self-recover after the moisture on the surface evaporates.

**RH Sensor Recovery from Chemical and Physical Contaminants** — Sensing surface coated with a micro-porous metal electrode, allowing the polymer to absorb moisture while protecting it from contamination and exposure to condensation

**Current Sensor** — A Current Sensor is a device that detects electrical current (AC or DC) in a wire, and generates a signal proportional to it.



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# DIFFERENTIAL PRESSURE

## MODELS:

260	264	265
267267MR	269	230
231	231RS	239

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# Model 260

## Very Low Differential Multi-Configurable Pressure Transducer



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

U.S. Patent nos. 6019002; 6014800

### DESCRIPTION

Ideal for installers who are unsure of the exact job requirement, the Model 260 gives the installer the ability to "configure on the fly". The Model 260 offers user-selectable unidirectional and bidirectional pressure ranges and analog outputs, a standard LCD, and AC/DC excitation on voltage output operation. At a standard accuracy of 1% FS, the Model 260 provides fixed range performance for all selectable ranges. The 260 is ideal for HVAC Control, Static Room Pressure, Oven Pressurization, Furnace Draft Controls, HVAC Service and Retrofit, and Environmental Pollution Control.

### FEATURES

- Optional 4 Digit LCD
- Field Selectable Multi-Range
- Field Selectable Multi-Output
- Simple 5-Step Setup
- Field Accessible Push-Button Zero and Span
- Hinged Cover
- External Mounting Tabs
- Unregulated AC/DC Operation
- Microprocessor-Based Electronics - Guarantees Range to Range Performance
- NIST Traceable
- Fire Retardant Case (UL 94 V-0 Approved)
- Meets CE Conformance Standards

### TARGET USERS

- Service/Retrofit Friendly
- Small Users - Inventory & Installation Savings
- Sub-Contractors - Quick Installation
- Flexible for Building Specification Changes
- Service Technicians - Quick & Accurate Reconfigurations

### SPECIFICATIONS

#### Performance Data

	Standard
Accuracy <sup>1</sup> RSS (at constant temp)	±1.0% FS
Non-Linearity, BFS	±0.96% FS
Hysteresis	0.10% FS
Non-Repeatability	0.05% FS
Thermal Effects <sup>2</sup>	
Compensated Range °F (°C)	32 to 122°F (0 to 50°C)
Zero/Span Shift %FS/°F(°C)	0.03 (0.054)
Maximum Line Pressure	10 PSI
Overpressure	UP To 10 PSI (Range Dependent)
Long Term Stability (max)	2.0% FS/YR
Position Effect	
Zero Offset (%FS/G)	0.2%
(Unit is factory calibrated at 0g effect in the vertical position.)	

#### Environmental Data

Temperature	
Operating <sup>3</sup> °F (°C)	32 to 122°F (0 to 50°C)

#### Physical Description

Case	Fire-Retardant Glass Filled Polyester (UL 94 V-0 Approved) Hinged Lid
Mounting	Two External Screw Holes Vertical Position
Electrical Connection	Removable Screw Terminal Block
Pressure Fittings	3/16" O.D. Barbed Brass Pressure Fitting
Zero	Push Button
Span	Push Button
Weight (approx.)	8 Ounces

#### Pressure Media

Typically air or similar non-conducting gases.

#### Electrical Data (Voltage)

Circuit	3-Wire (Com, Exc, Out)
Excitation	13 - 30 VDC/18-24VAC
Field Selectable Output <sup>4</sup>	0 to 5 or 0 to 10 VDC <sup>5</sup>
Bidirectional Output at Zero Pressure	0 to 5 VDC = 2.5 VDC 0 to 10 VDC = 5 VDC
Output Impedance	300 ohms

#### Electrical Data (Current)

Circuit	2-Wire Reverse Wiring Protected
Excitation	24V (DC Only)
Field Selectable Output <sup>6</sup>	4 to 20mA <sup>7</sup>
Bidirectional Output at Zero Pressure:	12mA <sup>7</sup>
External Load	0 to 800 ohms
Minimum supply voltage (VDC)	= 13 Volts (at terminal)
Maximum supply voltage (VDC)	= 30 Volts (at terminal)

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

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

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

<sup>4</sup> Calibrated into a 50K ohm load, operable into a 10K ohm load or greater.

<sup>5</sup> Span (Full Scale) output factory set to within 1%.

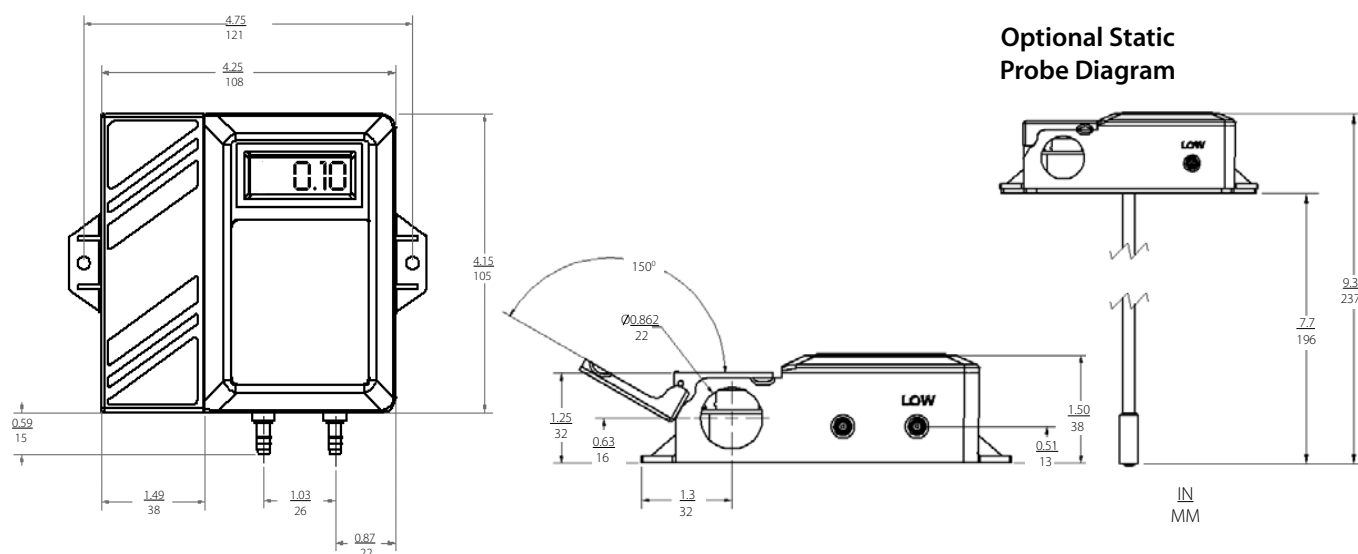
<sup>6</sup> Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.

<sup>7</sup> Span (Full Scale) output factory set to within ±0.16mA.

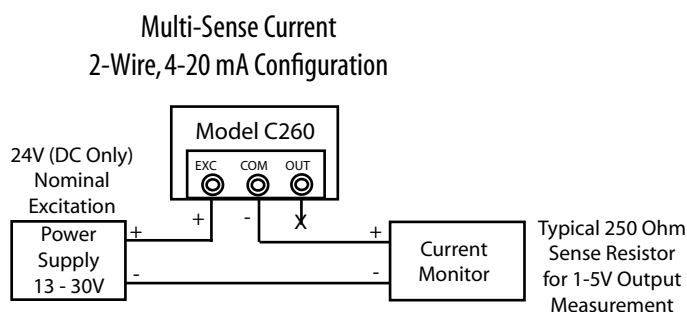
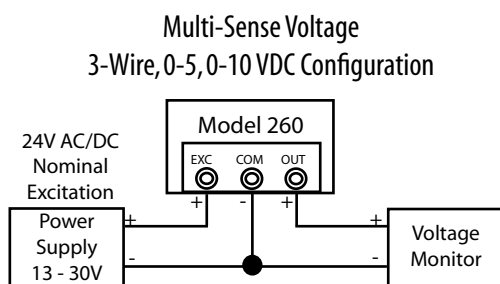
**Specifications subject to change without notice.**



### DIMENSIONS



### WIRING



### ORDERING INFORMATION

**2 6 0 1** -  -

Ordering Example: 2601MS1S = Model 260, 0 to 1.0 in. W.C. Range, with Static Pressure Probe

Model	Range Code	Options
2601 = 260	See Table 1 Below	S Static Pressure Probe
		N No Display
		Z Static Pressure Probe/No Display

Please contact factory for versions not shown.

**Table 1. Range Specification\***

RANGE CODE	UNIDIRECTIONAL PRESSURE RANGES	BIDIRECTIONAL PRESSURE RANGES
MS1	0.1, 0.25, 0.5, 1.0 in. WC FS	±0.1, 0.25, 0.5, 1.0 in. WC FS
MS2	1.0, 2.5, 5.0, 10 in. WC FS	±1.0, 2.5, 5.0, 10 in. WC FS
MS3	25, 50, 100, 250 Pa FS	±25, 50, 100, 250 Pa FS
MS4	0.25, 0.50, 1.00, 2.5 kPa FS	±0.25, 0.50, 1.00, 2.5 kPa FS

\*Note: Maximum line pressure is maximum range of pressure ordered.

# 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  $\pm 1.0\%$  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

	<u>Standard</u>	<u>Optional</u>	
Accuracy <sup>1</sup> RSS(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
Non-Repeatability	0.05% FS	0.05% FS	0.05% FS
<u>Thermal Effects<sup>2</sup></u>			
Compensated Range °F(°C)	0 to +150 (-18 to +65)		
Zero/Span Shift %FS/°F(°C)	0.033 (0.06)		
Maximum Line Pressure	10 psi		
Overpressure	Up to 10 psi (Range Dependent)		
Long Term Stability	0.5% FS/1 YR		
	Zero Offset		
<u>Position Effect</u>	<u>Range</u>	<u>(%FS/G)</u>	
(Unit is factory calibrated at 0g effect in the vertical position.)	0.1 in. WC	2.3	
	0.25 in. WC	1	
	0.5 in. WC	0.5	
	1.0 in. WC	0.3	
	2.5 in. WC	0.2	
	10 in. WC	0.15	

#### Environmental Data

Temperature	
Operating <sup>3</sup> °F (°C)	0 to +175 (-18 to +79)
Storage °F (°C)	-65 to +250 (-54 to +121)

#### Physical Description

Case	Fire-Retardant Glass Filled Polyester (UL 94 V-0 Approved)
Mounting	Four screw holes on removable zinc plated steel base (designed for 2.75" snap track)
Electrical Connection	Screw Terminal Strip
Pressure Fittings	3/16" O.D. barbed brass pressure fitting for 1/4" push-on 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, Exc, Out)
Excitation	9 to 30 VDC
Output <sup>4</sup>	0 to 5 VDC <sup>5,6</sup>
Bidirectional output at zero pressure:	2.5 VDC <sup>5,6</sup>
Output Impedance	100 ohms

#### Electrical Data (Current)

Circuit	2-Wire
Output <sup>7</sup>	4 to 20mA <sup>8,9</sup>
Bidirectional output at zero pressure:	12mA <sup>8,9</sup>
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).	

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

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

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

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

<sup>5</sup> Zero output factory set to within  $\pm 50$  mV ( $\pm 25$  mV for optional accuracies).

<sup>6</sup> Span (Full Scale) output factory set to within  $\pm 50$  mV ( $\pm 25$  mV for optional accuracies).

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

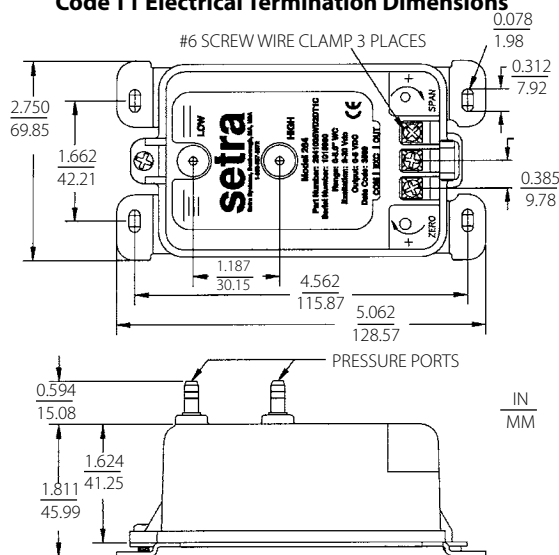
<sup>8</sup> Zero output factory set to within  $\pm 0.16$  mA ( $\pm 0.08$  mA for optional accuracies).

<sup>9</sup> Span (Full Scale) output factory set to within  $\pm 0.16$  mA ( $\pm 0.08$  mA for optional accuracies).

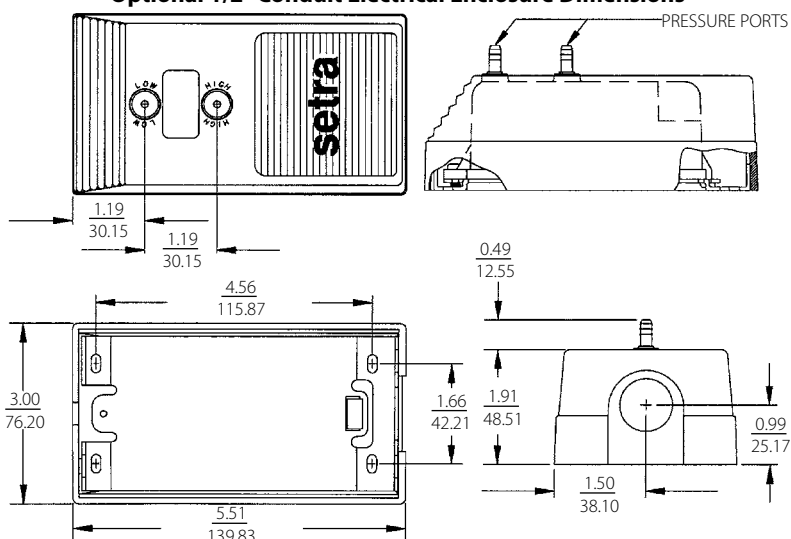
Specifications subject to change without notice.

### DIMENSIONS

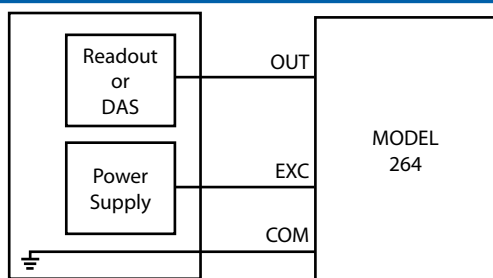
#### Code T1 Electrical Termination Dimensions



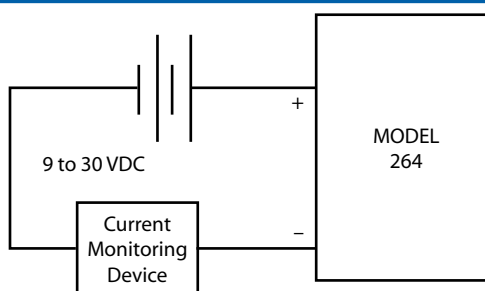
#### Optional 1/2" Conduit Electrical Enclosure Dimensions



### WIRING



0-5 VDC Output



4-20 mA Output

### ORDERING INFORMATION

**2 6 4 1** -  -  -  -

Model	Range Code	Output	Elec. Termination			Accuracy <sup>1</sup>		
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

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

**Table 1. Range Specification**

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

1. Optional Accuracies include Calibration Certificate

# Model 265

## Very Low Differential Pressure Transducer



Model 265 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. 5442962, 6019002, 6014800 and other Patents  
Pending.

### DESCRIPTION

The Model 265 is designed to reduce installation costs while increasing overall operating efficiency. At  $\pm 1\%$  full scale accuracy (optional  $\pm 0.5\%$ ,  $\pm 0.4\%$  and  $\pm 0.25\%$ ), the Model 265 provides superior positive and negative pressure sensing required for high efficiency air control systems.

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

### FEATURES

- Up to 10 PSI Overpressure (Range Dependent)
- 24 VDC or 24 VAC Excitation
- High Level 0 to 5 VDC, 0 to 10 VDC or 2-wire 4 to 20 mA Analog Outputs Are Compatible with All Energy Management Systems
- Full Protected Against Reverse Wiring
- 1% Accuracy Improves VAV Performance
- Optional Accuracies up to 0.25% FS
- 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
- Static Duct and Clean Room Pressures
- Oven Pressurization and Furnace Draft Controls

### SPECIFICATIONS

#### Performance Data

	Standard	Optional
Accuracy <sup>1</sup> RSS (at constant temp)	$\pm 1.0\%$ FS	$\pm 0.4\%$ FS $\pm 0.25\%$ FS
Non-Linearity, BFS	$\pm 0.98\%$ FS	$\pm 0.38\%$ FS $\pm 0.22\%$ FS
Hysteresis	0.10% FS	0.10% FS 0.10% FS
Non-Repeatability	0.05% FS	0.05% FS 0.05% FS

#### Thermal Effects<sup>2</sup>

Compensated Range °F(°C)	0 to +150 (-18 to +65)
Zero/Span Shift %FS/°F(°C)	0.033 (0.06)
Maximum Line Pressure	10 psi
Overpressure	Up to 10 psi (Range Dependent)
Long Term Stability	0.5% FS/1 YR
Warm-up Shift	$\pm 0.1\%$ FS Total

#### Position Effect

Range	(%FS/G)
(Unit is factory calibrated at 0g effect in the vertical position.)	
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

#### Environmental Data

Temperature	
Operating <sup>3</sup> °F (°C)	0 to +150 (-18 to +65)
Storage °F (°C)	-40 to +185 (-40 to +85)

#### Physical Description

Case	Fire-Retardant Glass Filled Polyester (UL 94 V-0 Approved)
Electrical Connection	Screw Terminal Strip
Pressure Fittings	1/4" Fitting
Weight (approx.)	3 ounces

#### Pressure Media

Typically air or similar non-conducting gases.

#### Electrical Data (Voltage)

Circuit	3-Wire (Com, Exc, Out)
Excitation/ Output <sup>4</sup>	9 to 30 VDC/ 0 to 5 VDC <sup>5</sup> 9 to 30 VAC/ 0 to 5 VDC 12 to 30 VAC/ 0 to 10VDC <sup>5</sup>

Bidirectional output at zero pressure:	2.5 VDC ( $\pm 50$ mV)
Output Impedance	100 ohms

#### Electrical Data (Current)

Circuit	2-Wire
Output <sup>6</sup>	4 to 20 mA <sup>7</sup>
Bidirectional output at zero pressure:	12 mA
External Load	0 to 800 ohms
Minimum loop supply voltage (VDC) = 9 + 0.02 x (Resistance of receiver plus line).	
Maximum loop supply voltage (VDC) = 30 + 0.004 x (Resistance of receiver plus line).	

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

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

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

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

<sup>5</sup> Zero output factory set to within  $\pm 50$  mV ( $\pm 25$  mV for optional accuracies).

Span (Full Scale) output factory set to within  $\pm 50$  mV ( $\pm 25$  mV for optional accuracies)

<sup>6</sup> Zero output factory set to within  $\pm 50$  mV ( $\pm 25$  mV for optional accuracies).

Span (Full Scale) output factory set to within  $\pm 50$  mV ( $\pm 25$  mV for optional accuracies)

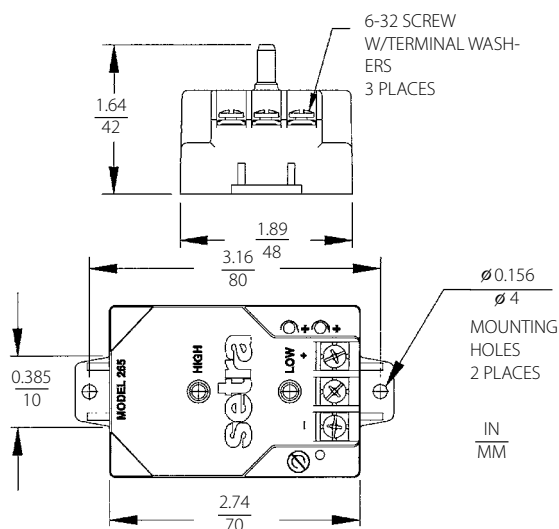
<sup>7</sup> Zero output factory set to within  $\pm 0.16$  mA ( $\pm 0.08$  mA for optional accuracies).

Span (Full Scale) output factory set to within  $\pm 0.16$  mA ( $\pm 0.08$  mA for optional accuracies).

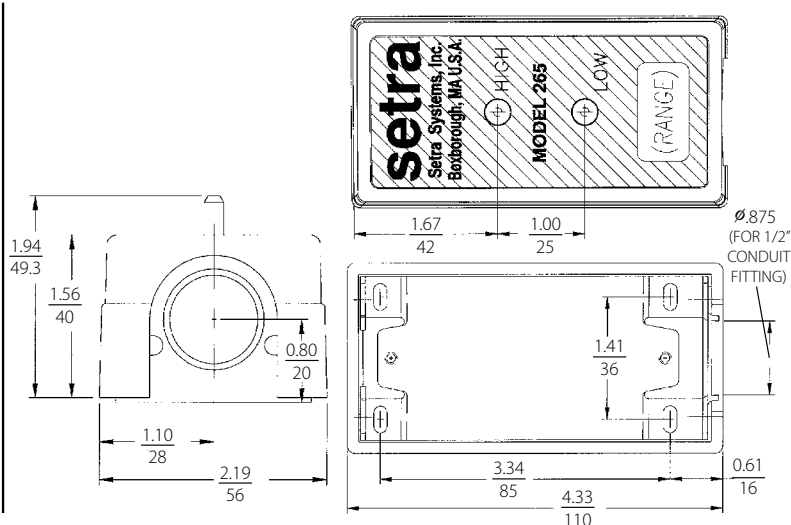
Specifications subject to change without notice.

### DIMENSIONS

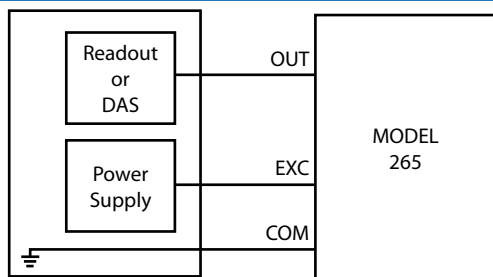
#### Code T1 Electrical Termination Dimensions



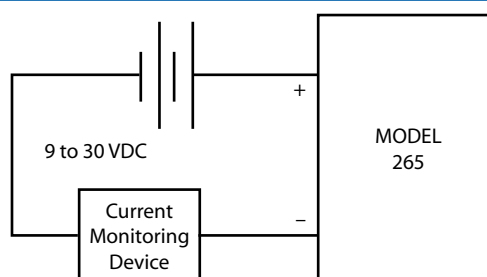
#### Optional A1 Conduit Electrical Enclosure Dimensions



### WIRING



4-20 mA Output



0-5 VDC Output

### 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

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

**Table 1. Range Specification**

RANGE CODE	DIFFERENTIAL	RANGE CODE	BIDIRECTIONAL
	"W.C."		"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

Please contact factory for  
versions not shown.

# 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.

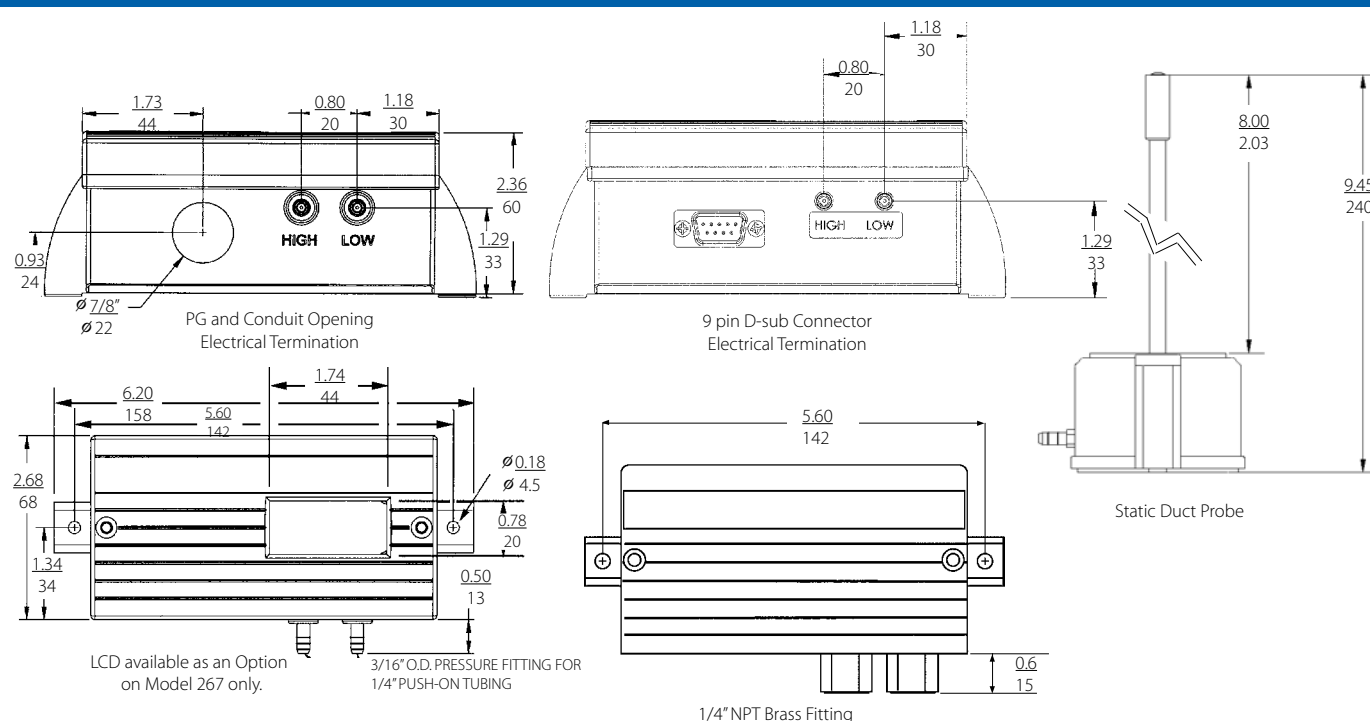
### FEATURES

- 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





### SPECIFICATIONS

#### Performance Data

	Standard	Optional	
Accuracy <sup>1</sup> RSS(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	0.05% FS	0.05% FS	0.05% FS

#### Thermal Effects<sup>2,3</sup>

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 Dependent)
Long Term Stability	0.1% FS Total

Position Effect	Range	Zero Offset (%FS/G)
(Unit is factory calibrated at 0g effect in the vertical position.)		
	0.1 in.WC	2.3
	0.25 in.WC	1
	0.5 in. WC	0.5
	1.0 in.WC	0.3
	2.5 in.WC	0.2
	10 in. WC	0.15

#### Physical Description

Case	IP65/NEMA 4 Plastic Glass-Filled Polycarbonate UL94V-0 Case
Electrical Connection	Screw Terminal Strip Inside of Case
Electrical Termination	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 Adjustment	Accessible Inside of Case
Display (Optional on 267 only)	3 1/2 Digit LCD Integral 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 7.8" 6061 Aluminum Alloy Probe and a Gasket to Seal Against the Duct
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 <sup>3</sup>	0 to 5 VDC <sup>4</sup> 0 to 10 VDC <sup>4</sup>
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#### Model 267MR

Output <sup>3</sup> (Field Selectable)	0 to 5 VDC <sup>4</sup> 0 to 10 VDC <sup>4</sup>
Bidirectional Output at Zero	Mid-Range of Specified Output
Output Impedance	100 Ohms
Re-Ranging (267MR only)	5 Position Dip Switches (Located Inside Case)

#### Electrical Data (Current)

Circuit	2-Wire Protected from Miswiring
Output <sup>5</sup>	4 to 20 mA <sup>6</sup>
Bidirectional Output at Zero	12 mA
External Load	0 to 800 Ohms
Minimum loop supply voltage (VDC)	= 9 + 0.02 x (Resistance of receiver plus line).
Maximum loop supply voltage (VDC)	= 30 + 0.004 x (Resistance of receiver plus line).
Re-Ranging (267MR only)	4 Position Dip Switches (located inside case)

#### Pressure Media

Typically Air or Similar Non-Conducting Gases.

#### Environmental Data

Temperature	
Operating <sup>7</sup> °F (°C)	0 to +150 (-18 to +65)
Storage °F (°C)	-65 to +180 (-54 to +82)

Specifications subject to change without notice.

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

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

<sup>3</sup> Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.

<sup>4</sup> Zero output factory set to within ±50mV (±25 mV for optional accuracies).

<sup>5</sup> Span (Full Scale) output factory set to within ±50mV (±25 mV for optional accuracies)

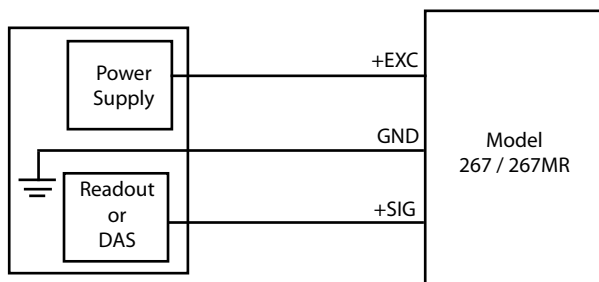
<sup>5</sup> Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.

<sup>6</sup> Zero output factory set to within ±0.16 mA (±0.08 mA for optional accuracies).

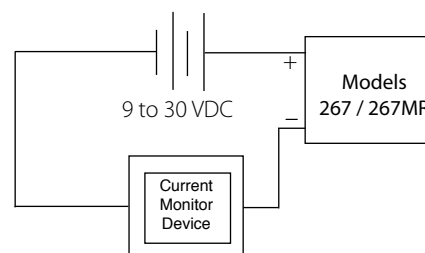
<sup>7</sup> Span (Full Scale) output factory set to within ±0.16 mA (±0.08 mA for optional accuracies).

<sup>7</sup> Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher.

### WIRING



Voltage Output



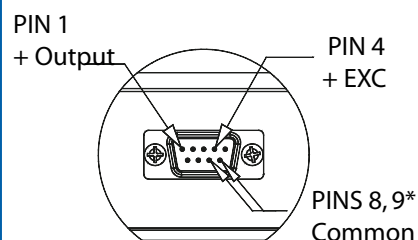
Current Output

# Model 267/267MR

## Very Low Differential Pressure Transducer

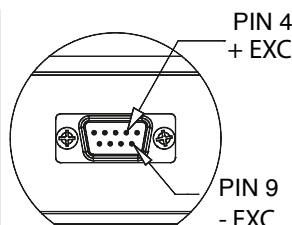


### D-SUB ELECTRICAL TERMINATION



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)

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

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%	D LCD
		2D 0-5 VDC	Std. G1 PG-13.5 Strain Relief	Opt. <sup>1</sup> E ±0.4%	N None
		2E 0-10 VDC	Std. G2 PG9 Strain Relief	Opt. <sup>1</sup> F ±0.25%	
			Std. D9 9 pin D-Sub Conn.	Opt. <sup>1</sup> G ±1%	
			Std. A1 1/2" Conduit Opening	Opt. <sup>1,2</sup> 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).

**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	025LD	±25
R25WD	0 to 0.25	R25WB	±0.25	050LD	0 to 50	050LD	±50
0R5WD	0 to 0.5	0R5WB	±0.5	100LD	0 to 100	100LD	±100
001WD	0 to 1	001WB	±1	250LD	0 to 250	250LD	±250
1RSWD	0 to 1.5	1RSWB	±1.5	500LD	0 to 500	500LD	±500
2R5WD	0 to 2.5	2R5WB	±2.5	10CLD	0 to 1000	10CLD	±1000
005WD	0 to 5	005WB	±5	25CLD	0 to 2500	25CLD	±2500
010WD	0 to 10	010WB	±10	40CLD	0 to 4000	40CLD	
025WD	0 to 25	025WB	±25	70CLD	0 to 7000	70CLD	
050WD	0 to 50	050WB	±50				
100WD	0 to 100	100WB					

### ORDERING INFORMATION (Model 267MR)

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

2	6	7	1	-					-			-			-		
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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. <sup>1</sup>	G	±1%		
		2E	0-10 VDC	Std.	G2	PG9 Strain Relief	1. Order Opt G tfor ±1% Acc. to include Calibration Certificate				
				Std.	D9	9 pin D-Sub Conn.					
				Std.	A1	1/2" Conduit Opening	Note: Optional higher accuracies are not available on the 267MR.				
				1/4"NPTF Brass Fitting							
				Opt.	1K	PG-9 Strain Relief	Ranges are factory set for the highest range				
				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					

**Table 1. Range Specification**

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

# Model 269

## Very Low Differential Pressure Transducer

**setra**


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 269 is a very low differential pressure transducer offering enhanced accuracies including non-linearity of 0.15% and 0.35% full scale, terminal-based for improved resolution in critical environments.

The ultimate solution for in-situ pressure calibration, the Model 269 is provided with a removable process head, allowing for field certification without disturbing the process tubing. Simply detach the header (no need to cut tubing), plug in the Calibration Security Key and verify the performance with its "snap-back" zero/span feature.

Installation is simplified with either the base mount or din rail easy mount design, and a removable electrical terminal strip that makes wiring a breeze.

### FEATURES

- Installation Time Minimized with DIN Rail Mounting and Easy-To-Access Pressure Ports and Electrical Connections
- Removable Process Head Eliminates the Need to Cut Tubes for Easy Installation
- Detachable Terminal Block so Field Wiring Can Remain In-Situ During Calibration
- Secure Calibration Key for Making Zero and Span Adjustments
- 2-wire 4 to 20 mA Analog Outputs 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)
- Calibration Certs. Available
- 2:1 Turndown Ratio Available
- Meets CE Conformance Standards

### APPLICATIONS

- Critical Environments
- Clean Rooms
- Isolation Rooms
- Room Pressure Monitoring
- Environmental Pollution Control

### SPECIFICATIONS

#### Performance Data

Accuracy Class (FS)	Code	V	E	G
(at constant temp)		±0.25%	±0.50%	±1.00%
Non-Linearity (Terminal)		±0.15%	±0.35%	±0.75%
(BFSL based)		±0.10%	±0.25%	±0.55%
Hysteresis		±0.05%	±0.05%	±0.10%
Non-Repeatability		±0.05%	±0.05%	±0.05%
Zero Setting Tolerance		±0.04mA	±0.08mA	±0.12mA
Span Setting Tolerance		16±0.04mA	16±0.08mA	16±0.12mA

#### Thermal Effects<sup>1</sup>

Compensated Range °F	20 to +140
Zero/Span Shift %FS/°F	0.01% 0.02% 0.02%
Maximum Line Pressure	10 psi
Overpressure	Up to 2 psi i(Range Dependent)
Long Term Stability	0.5% FS/1 YR

<sup>1</sup> Units calibrated at nominal 70 °F. Maximum thermal error computed from this datum.

#### Performance Data (Cont'd)

Zero Offset	
Position Effect	Range (%FS/G)
(Unit is factory calibrated at 0g effect in the vertical position.)	To 1.0 in. WC 2.50
	To 0.5 in. WC 1.00
	To 1.0 in. WC 0.50
	To 2.5 in. WC 0.22
	To 5.0 in. WC 0.14

#### Physical Description

Case	Fire-Retardant ABS
Mounting	Base Mount or 35mm DIN Rail
Electrical Connection	Detachable Screw Terminal Strip
Pressure Fittings	3/16" O.D. Barbed Brass Fittings on Removable Process Head
Zero and Span Adjustments	External Security Key

<sup>2</sup> Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.  
Specifications subject to change without notice.

#### Environmental Data

Temperature	
Operating °F (°C)	-20 to +160
Storage °F (°C)	-40 to +185

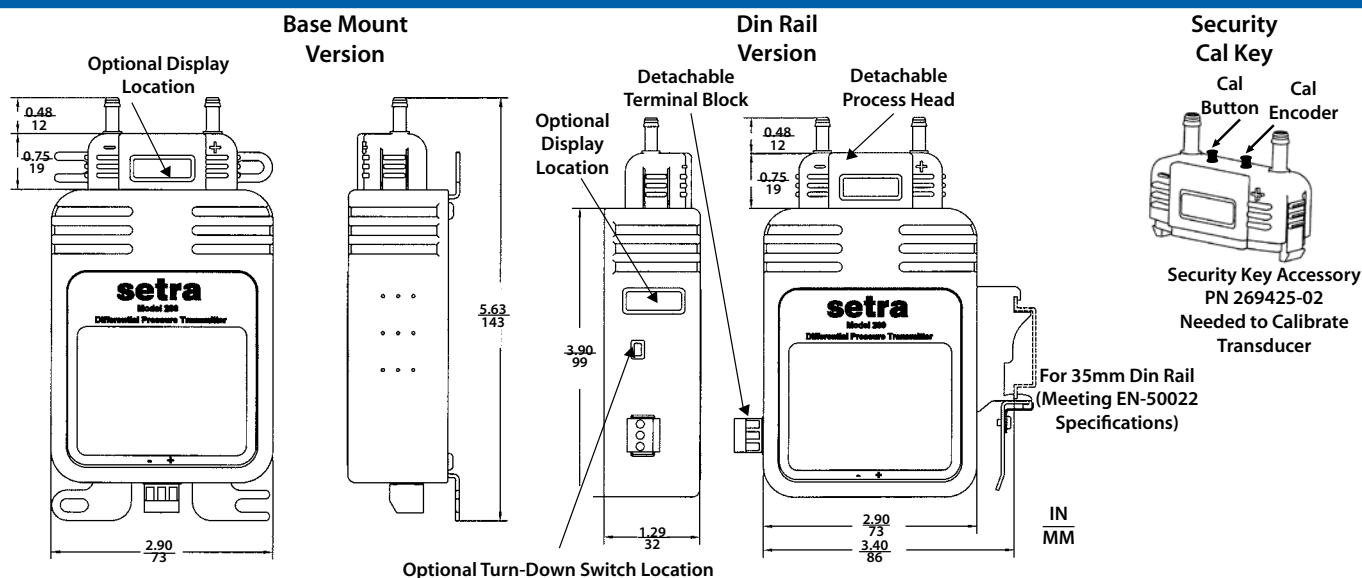
#### Electrical Data (Current)

Circuit	2-Wire
Output <sup>2</sup>	4 to 20mA
Bidirectional output at zero pressure:	12mA
External Load	0 to 800 ohms
Minimum supply voltage (VDC) = 13.5+ 0.02 x (Resistance of receiver plus line).	
Maximum supply voltage (VDC) = 30+ 0.004 x (Resistance of receiver plus line).	

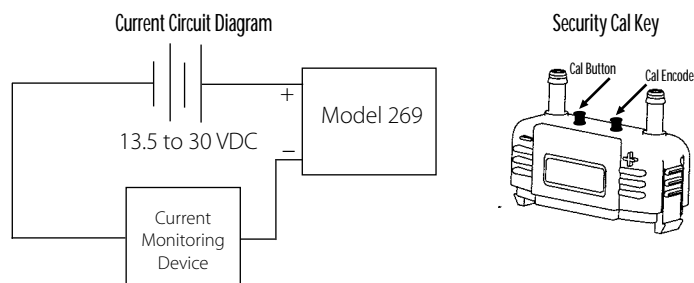
#### Pressure Media

Typically air or similar non-conducting gases

## DIMENSIONS



## WIRING



## ORDERING INFORMATION

<b>2</b>	<b>6</b>	<b>9</b>	<b>1</b>						-			-		-		-	
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Model	Range Code	Output		Mounting Config.		Display		Accuracy		Turndown	
2691 = 269	See Table 1 Below	11	4-20 mA	B	Base Mount	D	w/ Display	V	±0/25% FS	A	2X1
				D	DIN Rail	N	No Display	E	±0.50% FS	N	None
								G	±1.0% FS		

**Ordering Example:** Part NO. 26912R5WD11BNGN for a 269 transducer, 0 to 2.5 in. WC Range, 4 to 20 mA Output, Base Mount, No Display,  $\pm 1.0\%$  Accuracy with No Turndown.

### Table 1. Range Specification

RANGE CODE	DIFFERENTIAL	RANGE CODE	DIFFERENTIAL	RANGE CODE	BIDIRECTIONAL	RANGE CODE	BIDIRECTIONAL
	"W.C."		Pascals		"W.C."		Pascals
0R1WD	0 to 0.1	025LD	0 to 25	R05WB	±0.05	015LB	±15
R25WD	0 to 0.25	050LD	0 to 50	0R1WB	±0.1	025LB	±25
0R5WD	0 to 0.5	100LD	0 to 100	R25WB	±0.25	050LB	±50
001WD	0 to 1	250LD	0 to 250	0R5WB	±0.5	100LB	±100
2R5WD	0 to 2.5	500LD	0 to 500	001WB	±1	250LB	±250
003WD	0 to 3	001KD	0 to 1 kPa	1R5WB	±1.5	500LB	±500
005WD	0 to 5	2R5KD	0 to 2.5 kPa	2R5WB	±2.5	001KB	±1 kPa
010WD	0 to 10			005WB	±5		

# Model 230

## Wet-to-Wet Pressure Transducer



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

### DESCRIPTION

The Mode 230 is a high output low differential pressure transducer designed for wet-to-wet differential pressure measurements of liquids or gases. A fast-response capacitance sensor and signal conditioned electronic circuitry provide a highly accurate, linear analog output proportional to pressure. Both unidirectional and bidirectional ranges are available for applications with line pressure up to 350 psig.

Optional 3-valve or 5-valve manifold assemblies are available for ease of installation and maintenance. The manifolds are machined brass bodies requiring no internal pipe connections, thereby eliminating the risk of internal leaks. If the 230 is ordered with the manifold, the system is shipped completely assembled.

### FEATURES

- Ideal for Applications with Line Pressure up to 350 psig
- NEMA 4/IP65 Rating
- No Liquid Fill Diaphragm
- Available with 3-Valve or 5-Valve Manifold Assembly Option
- Low Line Pressure Effect
- Fast Response
- Gas and Liquid Compatible
- Low Differential Ranges
- Meets CE Conformance Standards

### APPLICATIONS

- Energy Management Systems
- Process Control Systems
- Flow Measurement of Various Gases or Liquids
- Liquid Level Measurement of Pressurized Vessels
- Pressure Drop Across Filters

### PRESSURE RANGES

UNIDIRECTIONAL		
Pressure Range PSID	Proof Pressure High Side* PSI	Proof Pressure Low Side* PSI
0 to 1.0	20	2.5
0 to 2.0	40	5
0 to 5.0	100	12.5
0 to 10.0	100	25
0 to 25.0	250	62.5
0 to 30.0	250	75
0 to 50.0	250	125
0 to 100.0	250	250

BIDIRECTIONAL		
Pressure Range PSID	Proof Pressure High Side* PSI	Proof Pressure Low Side* PSI
0 to $\pm 0.5$	20	1.25
0 to $\pm 1.0$	40	2.5
0 to $\pm 2.5$	100	6.35
0 to $\pm 5.0$	100	12.5
0 to $\pm 10.0$	200	25
0 to $\pm 25.0$	250	62.5
0 to $\pm 50.0$	250	125

\*The zero will shift slightly when high differential overpressure is applied. The shift may be as much as  $\pm 10\%$  FS with overpressure applied to the low pressure port. Other parameters (sensitivity, linearity, etc) will not shift. If the overpressure is normally only in one direction, the user may apply this overpressure to preset the sensor. Subsequent overload of less magnitude will not cause additional shift. The unit is pre-zeroed at the factory after application of maximum overload pressure to the high pressure port.



### SPECIFICATIONS

#### Performance Data

Accuracy RSS <sup>1</sup> (at constant temp)	±0.25% FS
Non-Linearity, BFSL	±0.20% FS
Hysteresis	0.10% FS
Non-Repeatability	0.05% FS

#### Thermal Effects<sup>2</sup>

Compensated Range °F(°C)	+30 to +150 (-1 to +65)
Zero Shift %FS/100°F(%FS/50°C)	2.0 (1.8)
Span Shift %FS/100°F(%FS/50°C)	2.0 (1.8)
Line Pressure Effect	Zero shift ±0.004% FS/psig line pressure

#### Resolution

Infinite, limited only by output noise level (0.02%FS)

#### Static Acceleration Effect

2%FS/g (most sensitive axis)

#### Natural Frequency

500 Hz (gaseous media)

#### Warm-up Shift

±0.1% FS total

#### Response Time

30 to 50 milliseconds

#### Long Term Stability

0.5%FS/1 YR

#### Maximum Line Pressure 350 psig

#### Environmental Data

##### Temperature

Operating <sup>3</sup> °F (°C)	0 to +175 (-18 to +80)
Storage °F (°C)	-65 to +250 (-54 to +121)

##### Vibration

5 g from 5 Hz to 500 Hz

##### Acceleration

10 g

##### Shock

50 g

#### Physical Description (Model 230)

Case	Stainless Steel/Aluminum
Electrical Connection	Barrier strip terminal block with conduit enclosure & 0.875 DIA conduit opening.

Pressure Fittings 1/4"-18 NPT internal

Weight (approx.) 14.4 oz

Sensor Cavity Volume 0.27 in<sup>3</sup> Positive Port, 0.08 in<sup>3</sup> Negative Port

(With 1/4"NPT external fittings installed - does not include cavity volume of 1/4"NPT external fittings.)

#### Physical Description (3-Valve Manifold Assembly)<sup>4</sup>

Manifold Block	Brass
Valves (3) <sup>5</sup>	V1 for Connection to + port V2 for Connection to - port V3 for Equalizing Pressure

##### Valve Type

90° On/Off

##### Process Connections

1/4"-18 NPT Internal Thread

##### Dimensions

7.05"W x 6.25"H x 2.16"D

##### Weight

<2.5 lbs.

#### Physical Description (5-Valve Manifold Assembly)<sup>6</sup>

Manifold Block	Brass
Valve (5) <sup>5</sup>	V1 for Connection to ± Port V2 for Connection to - Port V3 for Equalizing Pressure V4 & V5 for Connection to External Gauge or Alternate Plumbing Configuration

##### Process Connection

1/4"-18 NPT Internal Thread

##### Dimensions

7.05"W x 6.25"H x 2.16"D

##### Weight

<3.8 lbs.

#### Electrical Data (Voltage)

Circuit	3-Wire (Exc, Out, Com)
Excitation	9 to 30 VDC for 0-5 VDC Output 13 to 30 VDC for 0-10 VDC Output

Output<sup>7</sup> 0 to 5 VDC<sup>8</sup>  
0 to 10 VDC<sup>8</sup>

Output Impedance 100 ohms

#### Electrical Data (Current)

Circuit	2-Wire
Output <sup>9</sup>	4 to 20mA <sup>10</sup>
External Load	0 to 1000 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).	

#### Pressure Media

##### For the Model 230

Gases or liquids compatible with 17-4 PH Stainless Steel, 300 Series Stainless Steel, Viton and Silicone O-Rings.

Note: Hydrogen not recommended for use with 17-4 PH stainless steel.  
Optional Buna-N O-rings are recommended for hydrocarbon applications.

##### For the 3 & 5 Valve Manifold

Gases or liquids compatible with 360 brass, Copper 122, Acetal plug valves and Nitrile O-rings.

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

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

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

<sup>4</sup> Order assembled with the Model 230 (Code 3V) or separately as Option 891.

<sup>5</sup> Refer to drawings on page 16 and 17.

<sup>6</sup> Order assembled with the Model 230 (Code 5V)

<sup>7</sup> Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.

<sup>8</sup> Zero output factory set to within ±25mV (for 5 VDC output) or ±50mV (for 10 VDC output)

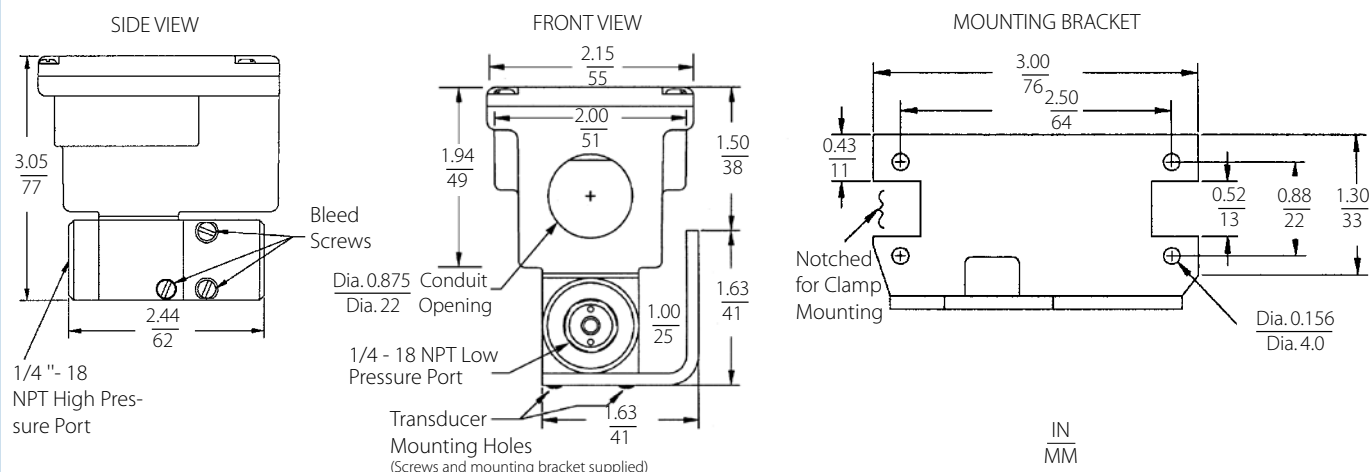
Span (Full Scale) output factory set to ±25 mV (for 5 VDC output) or ±50 mV (for 10 VDC output)

<sup>9</sup> Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.

<sup>10</sup> Zero output factory set to within ±0.16mA. Span factory set to within ±-.16 mA

Specifications subject to change without notice.

### DIMENSIONS (Model 230)



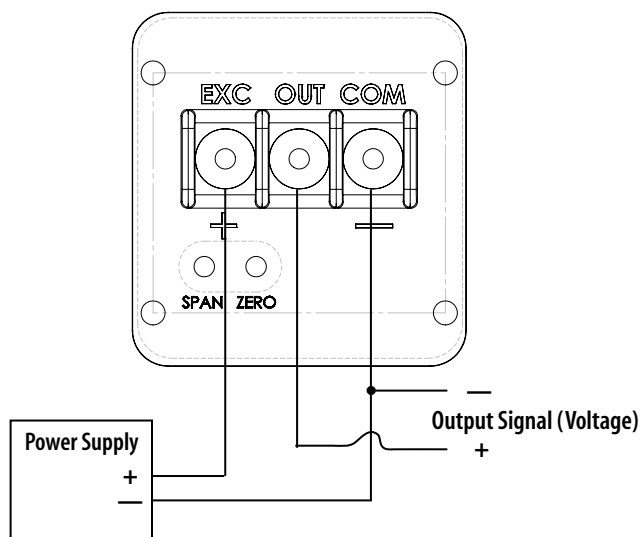
# Model 230

## Wet-to-Wet Pressure Transducer

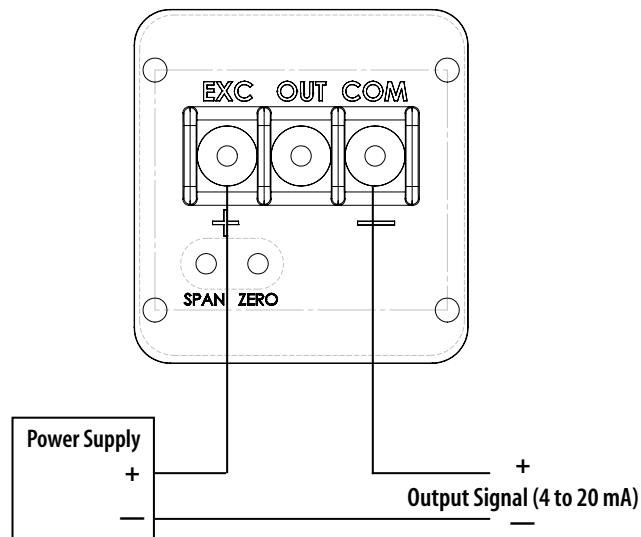


### WIRING

#### Voltage Transducer



#### Current Transmitter



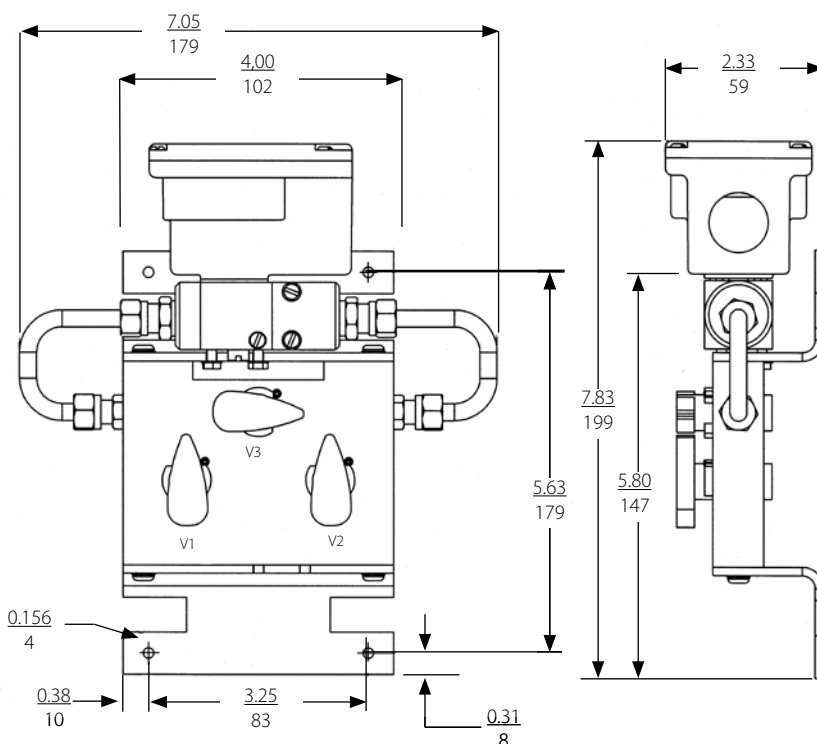
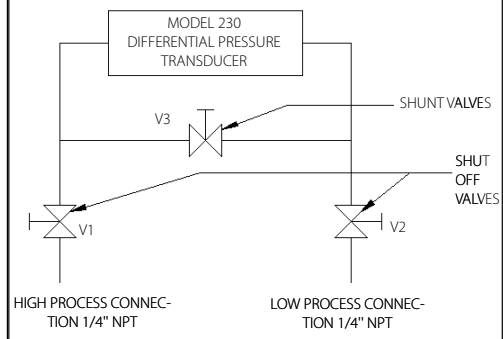
### DIMENSIONS (3-Valve Manifold Assembly)



#### 3-Valve Manifold Assembly Description

(Order as Pressure Code Fitting "3V".)

Manifold Block	Brass
Valves (3)	V1 for connection to +port V2 for connection to -port V3 for equalizing pressure
Valve type	90 Degree On/Off
Process Connections	1/4" -18 NPT Internal Thread



For differential pressure measurements at high line pressure (350 psig max), it is recommended that the pressure sensor be installed with a valve in each line, plus a shunt valve across the high and low (reference) pressure ports as shown.

## DIMENSIONS (5-Valve Manifold Assembly)



### 5-Valve Manifold Assembly

#### Description

(Order as Pressure Code Fitting "5V")

Manifold Block  
Valves (5)

Brass

V1 for connection to  $\pm$ port

V2 for connection to -port

V3 for equalizing pressure

V4 for connection to external

gauge or alternate plumbing

configuration

V5 for connection to external gauge or

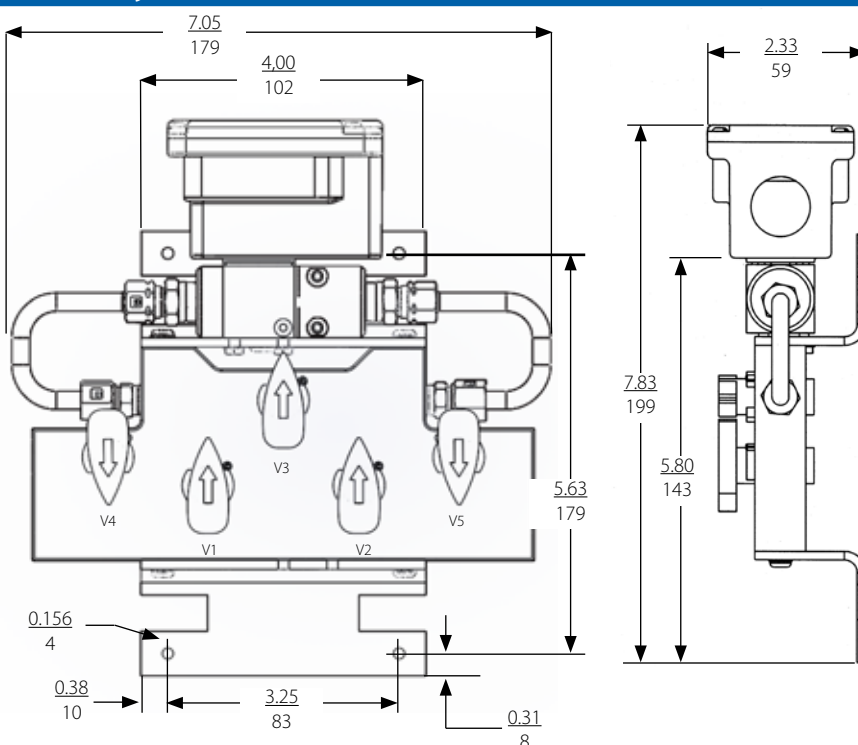
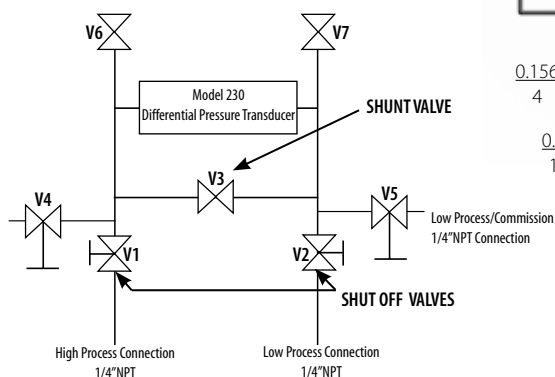
alternate plumbing configuration

Valve Type

90 Degree On/Off

Process Connection

1/4" -18 NPT Internal Thread



For differential pressure measurements at high line pressure (350 psig max), it is recommended that the pressure sensor be installed with a valve in each line, plus a shunt valve across the high and low (reference) pressure ports as shown.

Note: V6 and V7 bleed valves are not required when used with a Setra Model 230. Use the bleed screws on Model 230 to bleed the lines of air.

## ORDERING INFORMATION

2 3 0 1 - - - - -

Model	Range Code	Pressure Fitting	Output	Bleed Screw Seals	Optional
2301 = 230	See Table 1 Below	2F 1/4"NPT (F)	11 4-20 mA	Std. B Viton/Silicone	C Calibration Certificate
		3V 3-Valve Manifold*	2D 0-5 VDC	Opt. A Buna-N	
		5V 5-Valve Manifold*	2E 0-10VDC		

\*Order assembled with the Model 230 (Code 3V or 5V) or separately as Option 891. (Manifold can only be mated with Setra's Model 230.)

Ordering Example: 2301005PD2F11B = Model 230 0 to 5 psid unidirectional, 1/4-18 NPT Male fitting, 4 to 20 mA Output, and Viton/Silicone Seals.

2301005PD3V11B = Model 230, 0 to 5 psid unidirectional, 3-Valve Manifold, 4 to 20 mA, Output, and Viton/Silicone Seals (Assembled w/3- Valve Manifold).

Table 1. Range Specification

RANGE CODE	UNIDIRECTIONAL	RANGE CODE	BIDIRECTIONAL
	PSID		PSID
001PD	0 to 1.0	0R5PB	$\pm 0.5$
002PD	0 to 2.0	001PB	$\pm 1.0$
005PD	0 to 5.0	2R5PB	$\pm 2.5$
010PD	0 to 10.0	005PB	$\pm 5.0$
025PD	0 to 25.0	010PB	$\pm 10.0$
030PD	0 to 30.0	025PB	$\pm 25.0$
050PD	0 to 50.0	050PB	$\pm 50.0$
100PD	0 to 100.0		

Please contact factory for versions not shown.

# Multi-Sense® Model 231



## Wet-to-Wet, Differential, Multi-Configurable Pressure Transducer



NOTE: Setra quality standards are based on ANSI-Z540-1. The calibration of this product is NIST traceable. U.S. Patent nos. 6019002; 6014800

### DESCRIPTION

Setra's Model 231 Multi-Sense Wet-to-Wet differential pressure transducer all-inclusive design provides users with field accessible ranging, choice of output and field zeroing.

Choose from three configurable pressure transducers: 5 up to 50 psid, 10 up to 100 psid, or 25 up to 250 psid. Each Model 231 has 4 unidirectional and 4 bidirectional switch selectable pressure ranges and can be reconfigured in the field for 0-5 VDC, 1-5 VDC, -0-10 VDC, or 4 to 20 mA output. The Model 231 jumper selectable port swap feature eliminates costly replumbing if the pressure transducer is improperly installed or replaced. An optional LCD display is available for on-site indication of line and differential pressure.

### FEATURES

- Field Selectable Output - True 4 to 20 mA, 0 to 5, 1 to 5, and 0 to 10 VDC
- Field Selectable Pressure Ranges
- Field Accessible Push-Button Zero and Remote Zero
- Dual Sensors
- Optional 3- or 5-Valve Manifold
- Hinged Cover
- Field Selectable Port Swap
- Optional LCD Display
- All Cast Aluminum, NEMA4 Rated Housing
- CE and RoHS Compliant

### APPLICATIONS

- Energy Management Systems
- Process Control Systems
- Flow Measurement of Various Gases or Liquids
- Liquid Level Measurement of Pressurized Vessels
- Pressure Drop Across Filters

### SPECIFICATIONS

#### Performance Data

Accuracy RSS<sup>1</sup> (at constant temp.)

Pressure Ranges A, B, C	±1.0% FS
Pressure Range D	±2.0% FS

#### Pressure Ranges

	A	B	C	D	Max. Line Pressure
MS1	50	25	10	5	50
MS2	100	50	20	10	100
MS3	250	125	50	25	250

#### Thermal Effects<sup>2</sup>

Compensated Range °F (°C)	+32 to +130 (0 to +54)
Zero Shift %FS/100°F (50°C)	2.0 (1.8)
Span Shift %FS/100°F (50°C)	2.0 (1.8)
Warm-up Shift	<0.12% FS
Response Time	1 to 5 sec. (selectable)
Proof Pressure	2 x Full Scale
Burst Pressure	15 x Full Scale (50 psi) 10 X Full Scale (75 x 150 psi) 8 x Full Scale (250 psi)

#### Environmental Data

Temperature	
Operating <sup>3</sup> °F (°C)	-4 to +185 (-20 to +85)
Storage °F (°C)	-4 to +185 (-20 to +85)
Vibration	10g from 50 Hz to 2000 Hz
Shock	200g

#### Physical Description

Case	Die Cast Aluminum, Powder Coated
Pressure Fittings	1/8-18 NPT Internal
Electrical Connection	1/2 in. Conduit
Size	4.0 x 6 x 2 in. (102 x 152 x 51mm)
Weight	1.5 lb
Sensor Cavity Volume	0.2 cc

#### Pressure Media

Liquids or Gases Compatible with 17-4 PH Stainless Steel  
Note: Hydrogen not recommended for use with 17-4 PH stainless steel.

#### Electrical Data (Voltage)

Circuit	3-Wire
Excitation	15 to 30 VDC/18 to 30 VAC (Reverse Excitation Protected)
Output <sup>4</sup>	0 to 5 VDC 0 to 10 VDC 1 to 5 VDC
Output Impedance	30 Ohms
Current Consumption	8 mA (typ.) at 5 VDC 8 mA (typ.) at 10 VDC 40 mA (typ.) at 18-30 VAC

#### Electrical Data (Current)

Circuit	2-Wire (Reverse Excitation Protected)
Output <sup>5</sup>	4 to 20 mA
External Load	0 to 250 Ohms
Minimum supply voltage (VDC) =	15 + 0.02 x (Resistance of receiver plus line).
Maximum supply voltage (VDC) =	30 + 0.004 x (Resistance of receiver plus line).

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

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

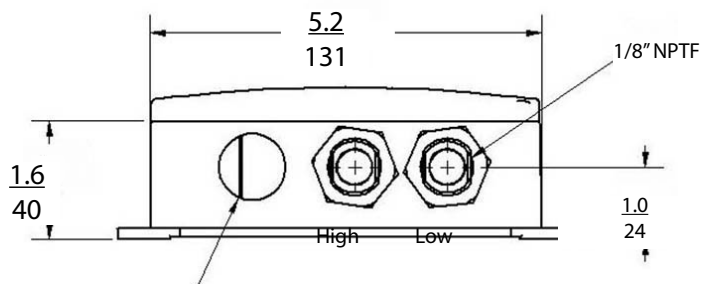
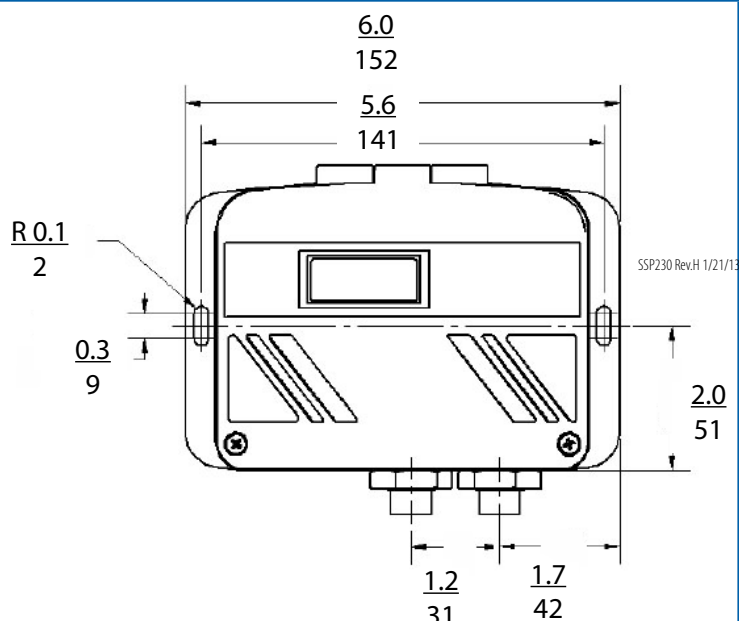
<sup>3</sup> Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.

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

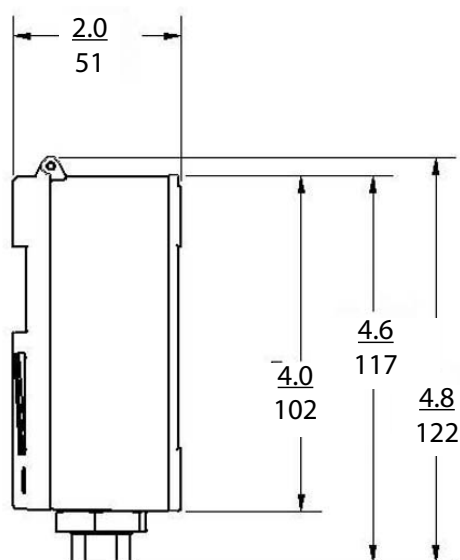
<sup>5</sup> Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.

**Specifications subject to change without notice.**

### DIMENSIONS

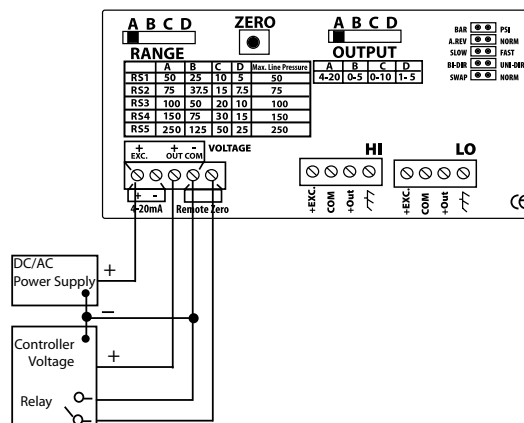


1/2" Conduit Opening



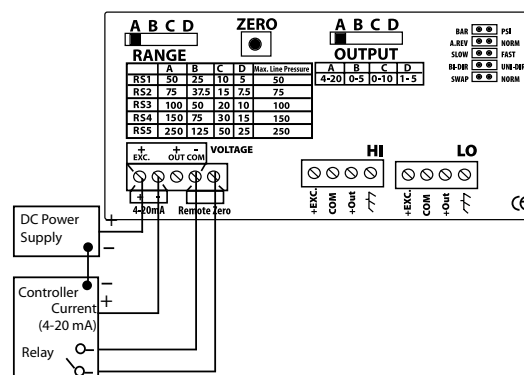
IN  
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### WIRING



#### 3-Wire - Voltage Output

0 to 5 VDC  
0 to 10 VDC  
1 to 5 VDC  
Remote Zero



#### 2-Wire - Current Output

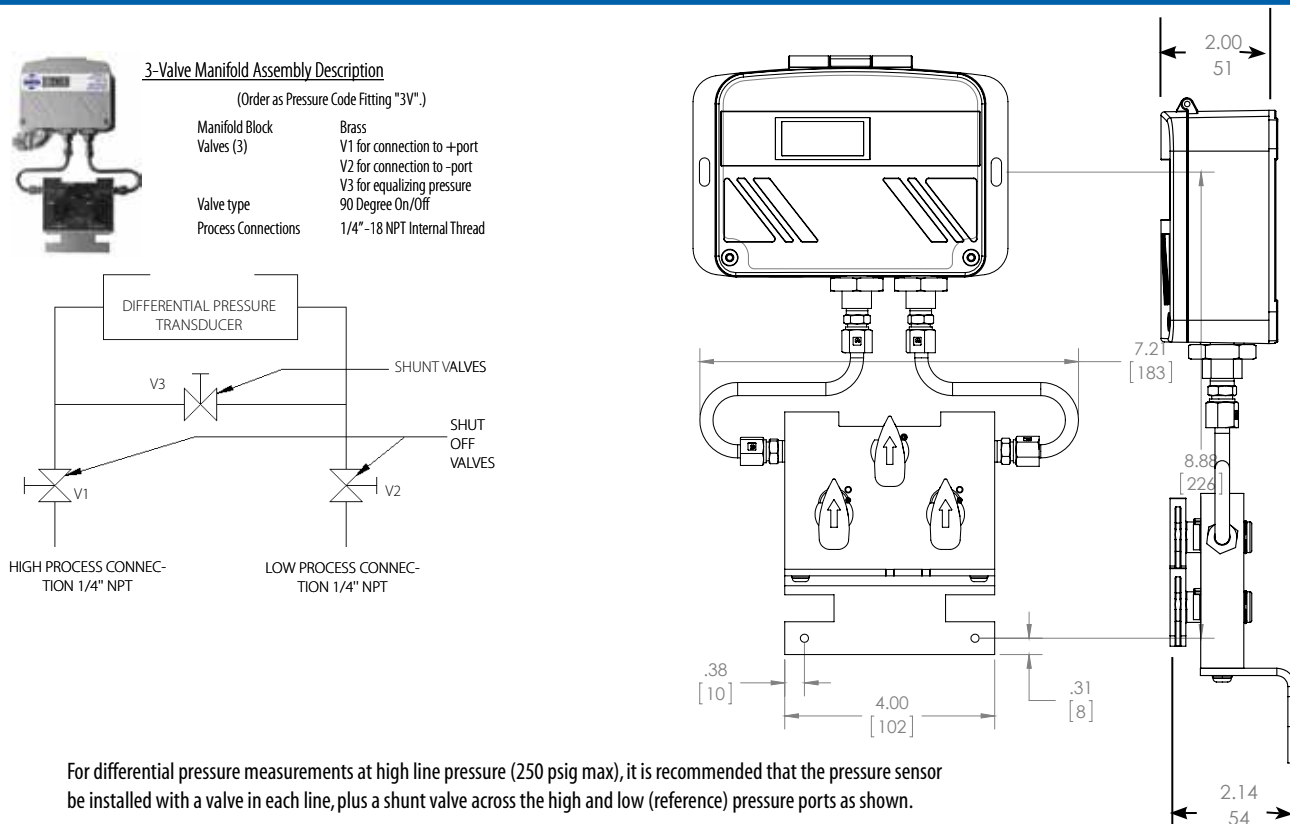
4 to 20 mA  
Remote Zero

# Multi-Sense® Model 231

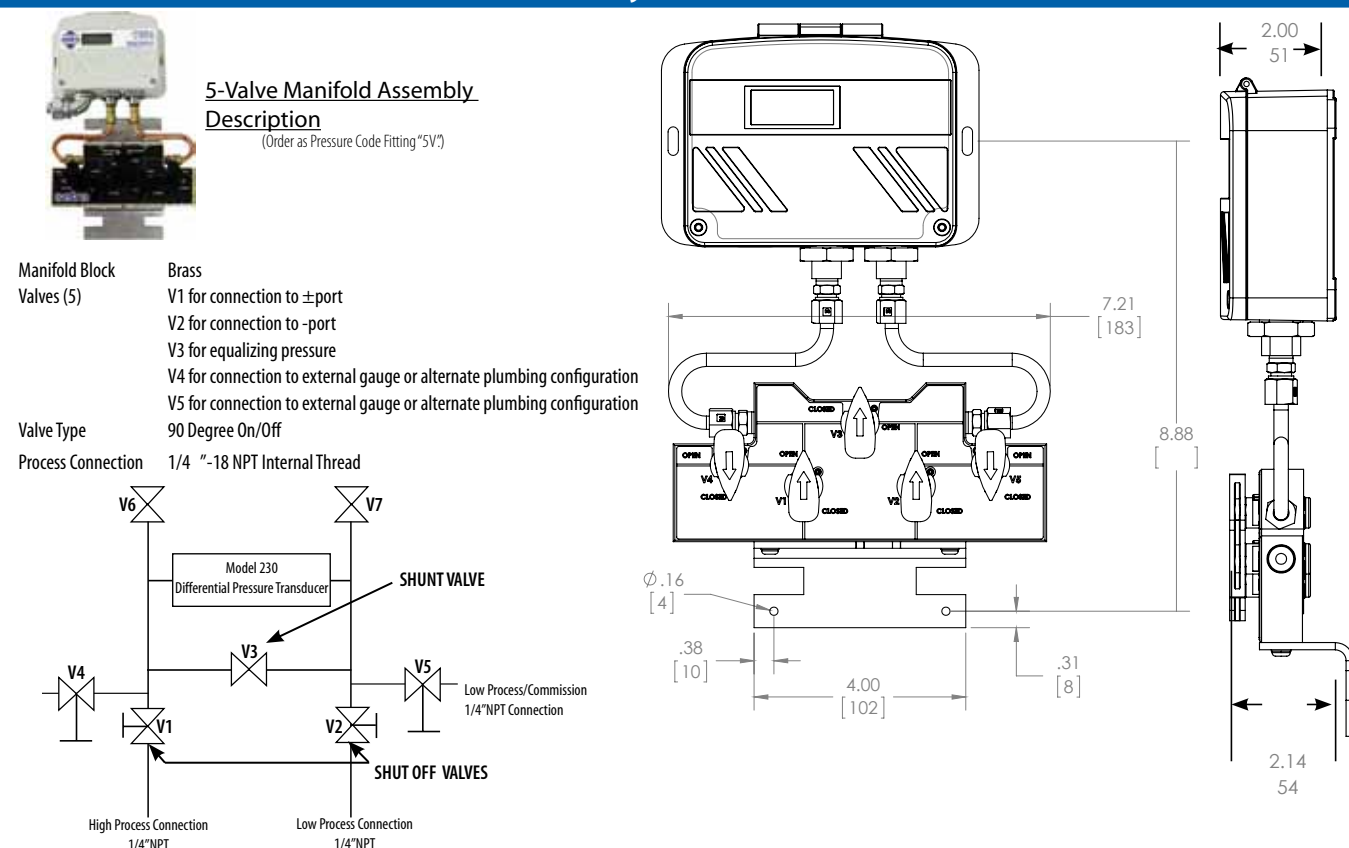


## Wet-to-Wet, Differential, Multi-Configurable Pressure Transducer

### DIMENSIONS (3-Valve Manifold Assembly)

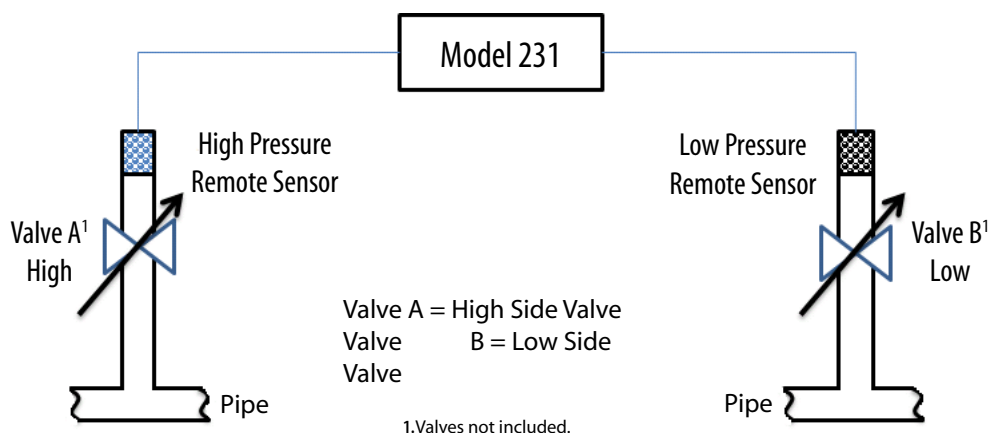


### DIMENSIONS (5-Valve Manifold Assembly)





### INSTALLATION



Line Pressure  
Determines  
Selection of Range  
Code

### PRESSURE RANGE CODE SELECTOR (IMPORTANT: READ BEFORE ORDERING)

Examine the pressure application and determine what is the Highest System Line Pressure.  
Determine what is the Differential Pressure being measured.  
Find the MAX. Line Pressure in the table on the right that is  $\geq$  to your Highest System Line Pressure.  
Verify that your DP falls within the selectable ranges in that row.  
Follow that row to the left and select that range code.

Range Code	A	B	C	D	Max. Line Pressure
MS1	50	25	10	5	50
MS2	100	50	20	10	100
MS3	250	125	50	25	250

**Example:** Highest System Line Pressure: 125 psig  
Differential Pressure Measured: 50 psid  
"Max Line Pressure"  $\geq$  to System Line Pressure: 250 psid (50 psid DP falls within ranges in this row)  
Select Range Code: MS3

### ORDERING INFORMATION

**2 3 1 G** - - -

Model	Range Code	Pressure Connection			Display		
231G = 231G	See Table 1 Below	Std.	2F	1/8-18 NPT female (Standard) Sensor (Conduit Version)	Std.	N	No Display
		Opt.	3V	3-V Manifold assembled w/ Model 231	Opt.	D	LCD Display
		Opt.	5V	5-V Manifold assembled w/ Model 231			

Ordering Example: 231GMS12FD = Model 231, 5 PSID up to 50 PSID, 1/8"NPT Female Fitting, and LCD Display  
231GMS13VN= Model 231, 0 to 5 psid up to 50 PSI, 3-Valve Manifold, and No LCD Display

Please contact factory for versions not shown.

**Table 1. Range Specification\***

RANGE CODE	UNIDIRECTIONAL PRESSURE RANGES	BIDIRECTIONAL PRESSURE RANGES
MS1	5, 10, 25, 50 psid	$\pm 5, \pm 10, \pm 25, \pm 50$ psid
MS2	10, 20, 50, 100 psid	$\pm 10, \pm 20, \pm 50, \pm 100$ psid
MS3	25, 50, 125, 250 psid	$\pm 25, \pm 50, \pm 125, \pm 250$ psid

\*Note: Maximum line pressure is maximum range of pressure ordered.

# Multi-Sense® Model 231RS



## Wet-to-Wet, Differential, Multi-Configurable Pressure Transducer



### Industry First Wet-to-Wet Remote Sensor Design

#### DESCRIPTION

The Model 231RS with remote sensors reduces labor, materials, and time. The sensors are installed directly into the pipe and electrical connection is made between the remote sensors and the Model 231RS via cables or conduit, reducing labor cost by one-third and the cost of copper to connect the pressure transducer to the pipe. Startup time is reduced since purging air out of the lines is not necessary.

The Multi-Sense® Model 231 Wet-to-Wet differential pressure transducer's all inclusive design provides users with field accessible ranging, choice of output and field zeroing.

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

#### FEATURES

- Wet-to-Wet Transducer w/ Remote Sensors
- Conduit and Cable Versions
- Field Selectable Output - True 4 to 20 mA, 0 to 5, 1 to 5, and 0 to 10 VDC
- Each Unit Provides 4 Unidirectional and 4 Bidirectional Switch Selectable Pressure Ranges
- Field Accessible Push-Button Zero and Remote Zero
- Jumper Selectable Port Swap
- Optional LCD
- All Cast Aluminum, NEMA4 Rated Housing
- CE and RoHS Compliant

#### APPLICATIONS

- Energy Management Systems
- Process Control Systems
- Flow Measurement of Various Gases or Liquids
- Liquid Level Measurement of Pressurized Vessels

### SPECIFICATIONS

#### Performance Data

Accuracy RSS<sup>1</sup> (at constant temp.)

Pressure Ranges A,B,C ±1.0% FS  
Pressure Range D ±2.0% FS

#### Pressure Ranges (Selection Example, Pg.4)

Range Code	A	B	C	D	Max. Line Pressure
RS1	50	25	10	5	50
RS2	75	37.5	15	7.5	75
RS3	100	50	20	10	100
RS4	150	75	30	15	150
RS5	250	125	50	25	250

#### Thermal Effects<sup>2</sup>

Compensated Range °F (°C) +32 to +130 (0 to +54)  
Zero Shift %FS/100°F (50°C) 2.0 (1.8)  
Span Shift %FS/100°F (50°C) 2.0 (1.8)  
Warm-up Shift <0.12% FS  
Response Time 1 to 5 sec. (selectable)  
Proof Pressure 2 x Full Scale  
Burst Pressure 15 x Full Scale (50 psi)  
10 X Full Scale (75 x 150 psi)  
8 x Full Scale (250 psi)

#### Environmental Data

Temperature  
Operating<sup>3</sup> °F (°C) -4 to +185 (-20 to +85)  
Storage °F (°C) -4 to +185 (-20 to +85)  
Vibration 10g from 50 Hz to 2000 Hz  
Shock 200g

#### Physical Description

Case Die Cast Aluminum, Powder Coated  
Pressure Fittings 1/4-18 NPT Male  
Electrical Connection 1/2 in. Conduit  
Size 4.0 x 6 x 2 in. (102 x 152 x 51mm)  
Weight 1.3 lb (Case Only)

#### Pressure Media

Liquids or Gases Compatible with 17-4 PH Stainless Steel  
Note: Hydrogen not recommended for use with 17-4 PH stainless steel.

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

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

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

#### Electrical Data (Voltage)

Circuit 3-Wire  
Excitation 15 to 30 VDC/18 to 30 VAC (Reverse Excitation Protected)  
Output<sup>4</sup> 0 to 5 VDC  
0 to 10 VDC  
1 to 5 VDC  
Output Impedance 30 Ohms  
Current Consumption 8 mA (typ.) at 5 VDC  
8 mA (typ.) at 10 VDC  
40 mA (typ.) at 18-30 VAC

#### Electrical Data (Current)

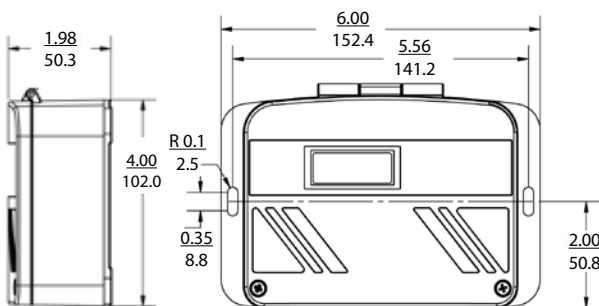
Circuit 2-Wire (Reverse Excitation Protected)  
Output<sup>5</sup> 4 to 20 mA  
External Load 0 to 250 Ohms  
Minimum supply voltage (VDC) = 15 + 0.02 x (Resistance of receiver plus line).  
Maximum supply voltage (VDC) = 30 + 0.004 x (Resistance of receiver plus line).

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

<sup>5</sup> Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.

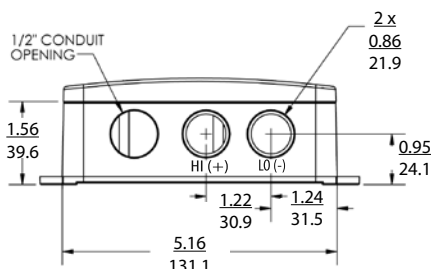
**Specifications subject to change without notice.**

### DIMENSIONS



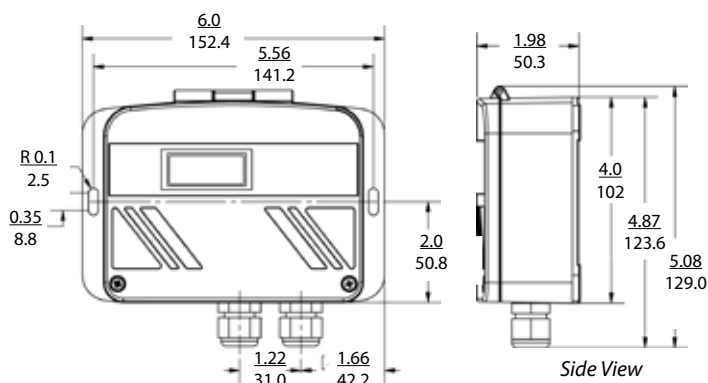
Side View

Front View



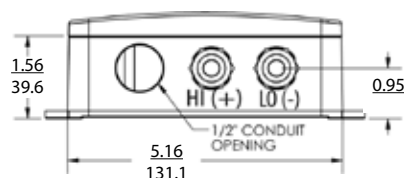
Bottom View

### Conduit Version



Front View

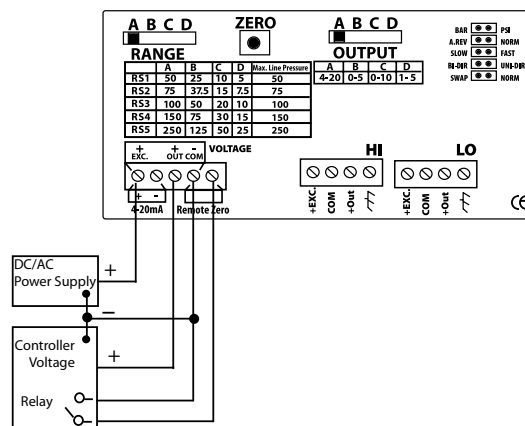
Side View



Bottom View

### Cable Version

### WIRING



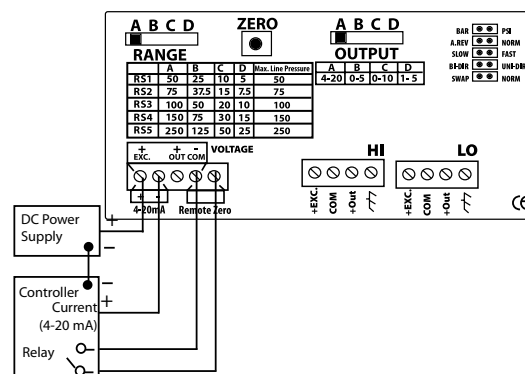
### 3-Wire - Voltage Output

0 to 5 VDC

0 to 10 VDC

1 to 5 VDC

Remote Zero



### 2-Wire - Current Output

4 to 20 mA

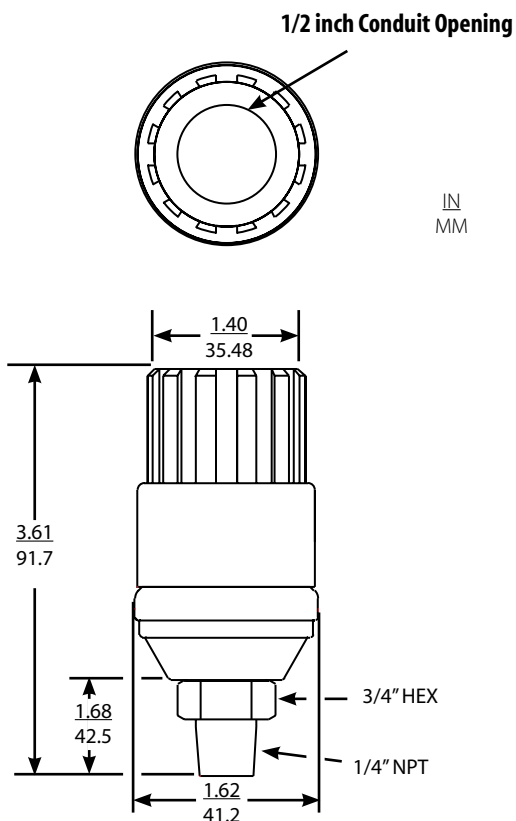
Remote Zero

# Multi-Sense® Model 231RS

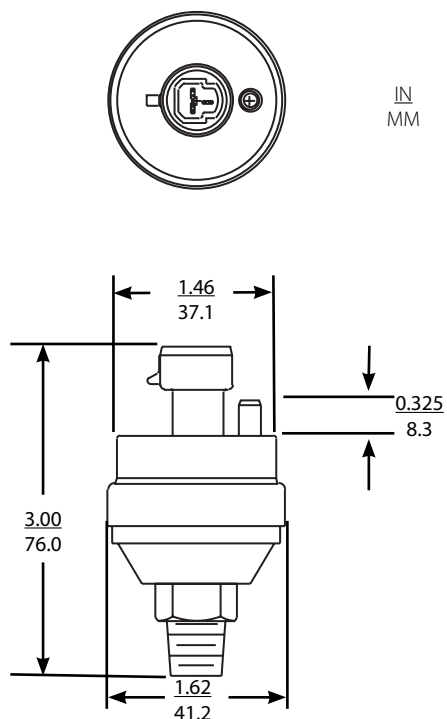


Wet-to-Wet, Differential, Multi-Configurable Pressure Transducer

## DIMENSIONS

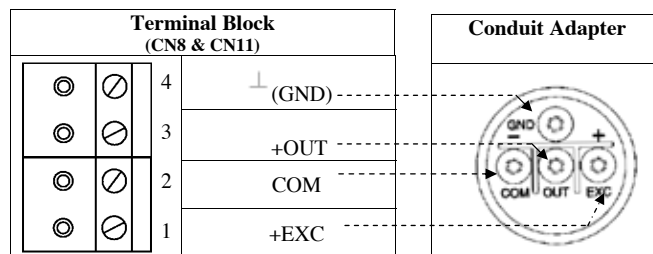


Transducer w/Conduit

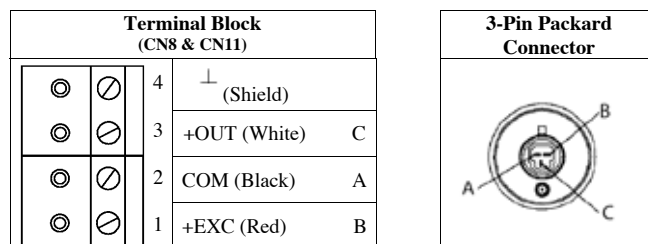


Transducer w/Packard Connector

## WIRING

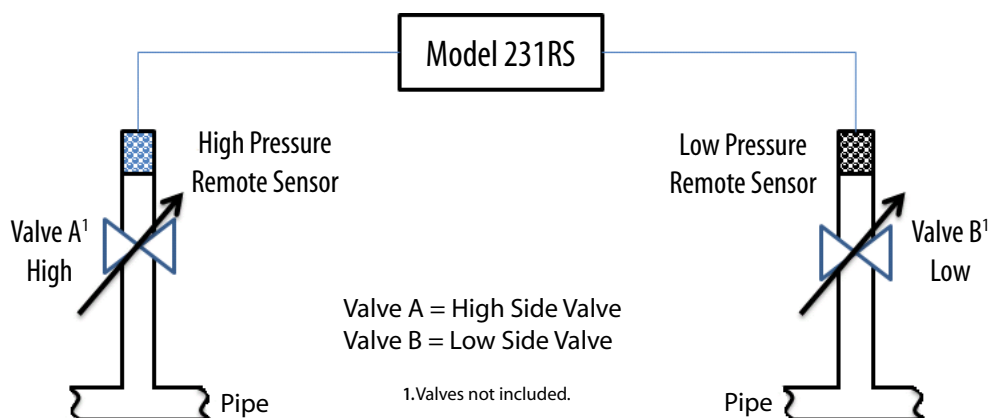


Transducer w/Conduit



Transducer w/Packard Connector

### INSTALLATION



### PRESSURE RANGE CODE SELECTOR (IMPORTANT: READ BEFORE ORDERING)

Examine the pressure application and determine what is the Highest System Line Pressure.  
Determine what is the Differential Pressure being measured.  
Find the MAX. Line Pressure in the table on the right that is  $\geq$  to your Highest System Line Pressure.  
Verify that your DP falls within the selectable ranges in that row.  
Follow that row to the left and select that range code.

Line Pressure  
Determines  
Selection of Range  
Code

Range Code	A	B	C	D	Max. Line Pressure
RS1	50	25	10	5	50
RS2	75	37.5	15	7.5	75
RS3	100	50	20	10	100
RS4	150	75	30	15	150
RS5	250	125	50	25	250

**Example:** Highest System Line Pressure: 125 psig  
Differential Pressure Measured: 75 psid  
"Max Line Pressure"  $\geq$  to System Line Pressure: 150 psid (75 psid DP falls within ranges in this row)  
Select Range Code: RS4

### ORDERING INFORMATION

**2 3 1 G** -    -   -   -

Model	Range Code	Pressure Connection	Display	Cable <sup>1</sup>
231G = 231RS	See Table 1 Below	3M 1/4-18 NPT Male Remote Sensor (Conduit Version)	Std. N No Display	Std. 10 10ft
		4M 1/4-18 NPT Male Remote Sensor (Cable Version)	Opt. D LCD Display	Opt. 20 20ft
				Opt. 30 30ft

**Ordering Example:** 231GRS44MN10 = Model 231RS w/Range Code RS4, 1/4-18 NPT Male Remote Sensor (Cable Version), No Display, 10ft. Cable

**Table 1. Range Specification**

RANGE CODE <sup>2</sup>	UNIDIRECTIONAL PRESSURE RANGES	BIDIRECTIONAL PRESSURE RANGES
RS1	5, 10, 25, 50 psid	$\pm 5, \pm 10, \pm 25, \pm 50$ psid
RS2	7.5, 15, 37.5, 75 psid	$\pm 7.5, \pm 15, \pm 37.5, \pm 75$ psid
RS3	10, 20, 50, 100 psid	$\pm 10, \pm 20, \pm 50, \pm 100$ psid
RS4	15, 30, 75, 150 psid	$\pm 15, \pm 30, \pm 75, \pm 150$ psid
RS5	25, 50, 125, 250 psid	$\pm 25, \pm 50, \pm 125, \pm 250$ psid

1. Cable lengths only available with Pressure Connection Code 4M. 2. For higher ranges contact factory.

# Model 239/C239

## High Accuracy/Low Range Pressure Transducer



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

U.S. Patent nos. 4093915

### DESCRIPTION

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

Setra's variable capacitance sensor is designed to be simple and reliable. A stainless steel diaphragm and an insulated electrode form a variable capacitor. As pressure increases or decreases, the capacitance changes. This change in capacitance is detected and converted to a linear D.C. electric signal by Setra's unique electronic circuit. The Model 239 provides a high level voltage output. The C239 provides a 4-20 mA 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.

### FEATURES

- $\pm 0.14\%$  FS Accuracy
- Fast Warm-up
- Low Thermal Effects
- Fast Response <10 milliseconds
- Withstands High Overpressure
- RoHS Compliant
- Meets CE Conformance Standards

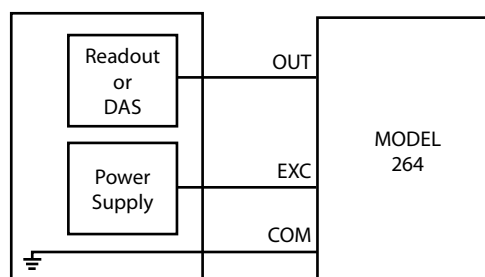
### APPLICATIONS

- Heating, Ventilating and Air Conditioning (HVAC)
- Leak Detection
- Environmental Testing
- Medical Instrumentation
- Energy Management
- Clean Rooms

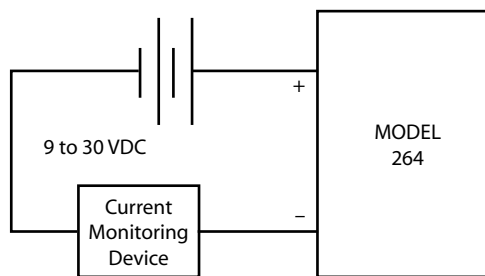
### PRESSURE RANGES

UNIDIRECTIONAL		
Pressure Range	Proof Pressure Positive	Proof Pressure Negative
0 to 0.5 in. WC	5 PSI	2.5 in. WC
0 to 1.0 in. WC	7 PSI	5 in. WC
0 to 2.5 in. WC	10 PSI	12.5 in. WC
0 to 5.0 in. WC	20 PSI	25 in. WC
0 to 15.0 in. WC	50 PSI	75 in. WC
0 to 30.0 in. WC	50 PSI	150 in. WC
0 to 5.0 PSID	75 PSI	25 PSI
0 to 10.0 PSID	100 PSI	50 PSI
BIDIRECTIONAL		
Pressure Range	Proof Pressure Positive	Proof Pressure Negative
0 to $\pm 0.25$ in. WC	5 PSI	2.5 in. WC
0 to $\pm 0.5$ in. WC	7 PSI	5 in. WC
0 to $\pm 1.0$ in. WC	10 PSI	12.5 in. WC
0 to $\pm 2.5$ in. WC	20 PSI	25 in. WC
0 to $\pm 7.5$ in. WC	50 PSI	75 in. WC
0 to $\pm 15.0$ in. WC	50 PSI	150 in. WC
0 to $\pm 2.5$ PSID	75 PSI	25 PSI
0 to $\pm 5$ PSID	100 PSI	50 PSI

### WIRING



4-20 mA Output



0-5 VDC Output



### SPECIFICATIONS

#### Performance Data

Accuracy <sup>1</sup> RSS(constant temp)	±0.14% FS
Non-Linearity, BFSI	±0.10% FS
Hysteresis	0.10% FS
Non-Repeatability	0.02% FS
Thermal Effects <sup>2</sup>	
Compensated Range °F (°C)	30 to 150 (-1 to +65)
Zero shift %FS/100°F(50°C)	<±1 (<±0.9)
Span Shift %FS/100°F(50°C)	<±1 (<±0.9)
Acceleration Response	<0.0002 psi/g
Natural Frequency	2000 Hz nominal
Settling Time	<100 milliseconds
Warm-up Shift	< ±0.1% FS total
Operable Line Pressure	Vacuum to maximum 250 psig
Line Pressure Effect	2%/100 PSI
Proof Pressure	Listed on front page
Internal Volumes	Positive port 0.03 cu.in. Reference port 0.1 cu.in.
Maximum Volume Change at FS	0.001 cu.in.

#### Environmental Data

Temperature	
Operating <sup>3</sup> °F (°C)	0 to +175 (-18 to +80)
Storage °F (°C)	-65 to +250 (-55 to +120)
Vibration	2g from 5 Hz to 500 Hz
Acceleration	10g Maximum
Shock	50g Operating
Pressure Fittings	1/8"–27 NPT internal
Electrical Connection	2-foot Multiconductor Cable
Weight (approx.)	8 ounces

#### Electrical Data (Model 239)

Circuit	4-Wire (+Exc, -Exc, +Out, -Out)
Excitation <sup>4</sup>	22 to 30VDC Reverse Excitation Protected
Output <sup>5</sup>	0–5VDC <sup>6</sup> (for unidirectional ranges) ±2.5VDC (for bidirectional ranges)
Output Impedance	< 10 ohms
Output Noise	< 200 microvolts RMS (in band, 0 Hz to 10 kHz)

#### Electrical Data (Model C239)

Circuit	2-Wire
Output <sup>7</sup>	4 to 20 mA <sup>8</sup>
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	< 0.003 mA/Volt
Output Noise	< 10 microamperes RMS (0 Hz to 10 kHz)

#### Pressure Media

Positive Pressure Media	Gases compatible with stainless steel, hard anodized 6061 aluminum (Buna-N® ring)
Reference Pressure Media	Clean dry air or other gases (Non-corrosive, Non-condensable)

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

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

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

<sup>4</sup> Internal regulation minimizes effect of excitation variation, with < ± 0.005% FS output change.

Will operate on 28 VDC aircraft power per MIL-STD-704A and not be damaged by emergency power conditions.

<sup>5</sup> Calibrated into a 50K ohm load, operable into a 10K ohm load or greater.

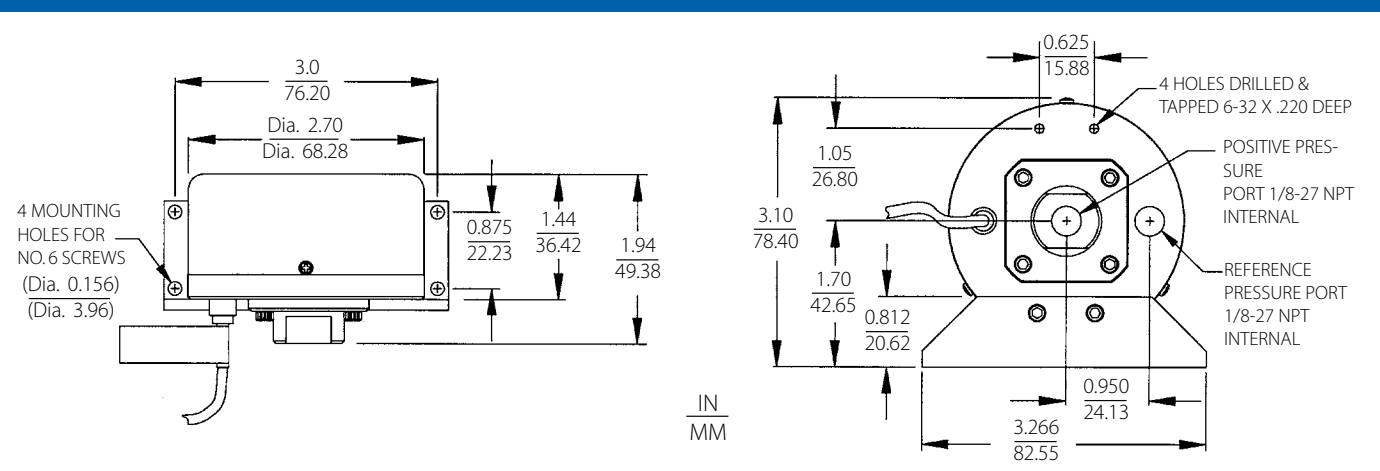
<sup>6</sup> Zero output factory set to within ±5 mV. Span (Full Scale) output factory set to within ±5 mV.

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

<sup>8</sup> Zero output factory set to within ±0.07 mA. Span (FS) output factory set to within ±0.07 mA.

**Specifications subject to change without notice.**

### DIMENSIONS



### ORDERING INFORMATION

Please contact factory when ordering



# ROOM PRESSURE MONITORS

## MODELS:

MRMS

SRCM

SRPM

SRMD

setra

# Model MRMS

## Multi-Room Monitoring Station



### DESCRIPTION

The MRMS (Multi-Room Monitoring Station) is designed for installation in a central location, such as a nurses station or main control room. It is designed to be flush mounted to provide remote viewing and alarm monitoring for up to 8 rooms or critical spaces equipped with Setra's Pressure and Room Condition Monitors, such as the Model SRPM or SRCM. The built-in Auto-Discover feature will automatically search and connect to other SRPM and SRCM units through BACnet® MS/TP and import all MAC addresses, BACnet objects, naming conventions and other setup parameters. A built-in audible and visual alarm and high definition color display alerts users to room status and room condition, while allowing for easy alert of a change in room condition.

### FEATURES

- Remotely Monitor up to 8 Rooms
- Auto-Discover
- Built-in Audible & Visual Alarm
- Display Room Status and Room Condition
- Flush Mount Design
- Easy Installation
- Reduce Total Installation Cost
- BACnet® MS/TP Protocol
- High Definition Color (TFT) Touchscreen Display
- Meets CE Conformance Standards

### APPLICATIONS

- Nurses Station
- Surgical Suites
- Intensive Care Isolation Rooms
- Pharmacology
- Research Laboratories
- Pharmaceutical Manufacturing
- Clean Rooms
- Biological Safety Lab
- Animal Research - Vivarium
- Organic Laboratory

### SPECIFICATIONS

#### Physical Description

Case	Fire Retardant Plastic UL94V-0
Dimensions	5.84" H x 7.45" W x 0.38" D
Electrical Connection	Removable Terminal Block
Weight	1 lb. 2 oz. (482 grams)
Mounting	Standard Triple Gang Double-Deep-Electrical Box

#### Environmental Data

Temperature	
Operating °F (°C)	32 to +120 (0 to +50)
Storage °F (°C)	-20 to +160 (-30 to +170)
Operating Humidity	5 to 95% RH (Non-condensing)

#### Communications

BACnet®	MS/TP ASC
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#### Display

Touchscreen LCD 4.3" TFT, 480 x 272

#### Electrical Data (Voltage)

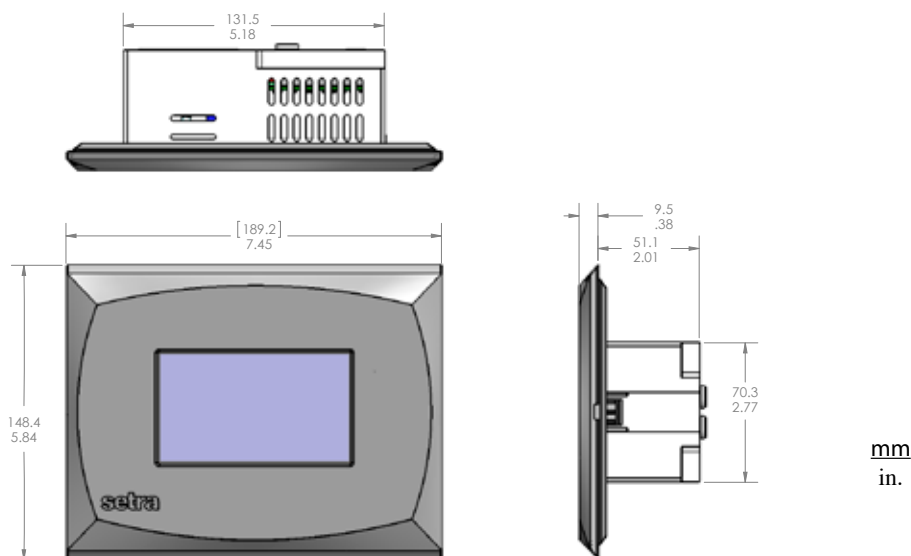
Power Input	18-32 VAC, 50-60HZ 2-Wire (Exc, Com)
Power Consumption	10 W

#### Certifications

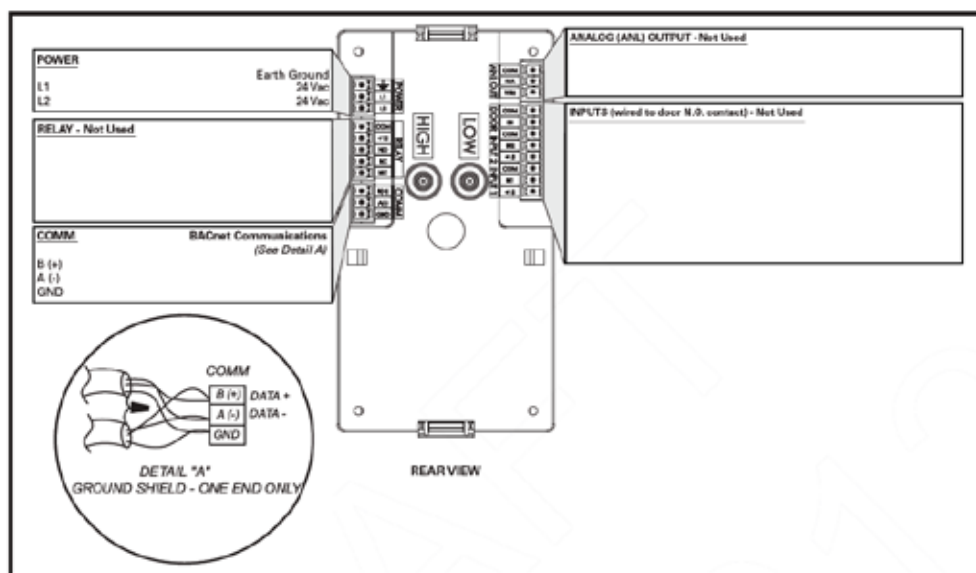
CE	Conforms to European Pressure Directive
CSA	C22.2 No. 61010-1-04

Specifications subject to change without notice.

## DIMENSIONS



## WIRING



## ORDERING INFORMATION

**M R M S** - ☐

Model	Face Plate Logo		
MRMS = MRMS	Std.	S	Setra
	Opt.	B	Blank/No Logo

**Ordering Example:** MRMS = Model MRMS with Setra logo on Face Plate.



# Model SRPM

## Room Pressure Monitor



### DESCRIPTION

Setra SRPM Room Pressure Monitor is designed for critical low differential pressure applications that require stringent pressure monitoring and alarming. The SRPM can be configured to monitor positive, negative or neutral pressure in protected environments and hospital isolation rooms per CDC guidelines. The SRPM is a complete system that includes a backlit RGB LCD display with a graphic user interface, which enables access to pressure, security, calibration, and alarm setup. The touch-screen displays menus that guide the user through setup, as well as setting up password protection. Red and green LED's and a local audible alarm (with time delay feature) alert personnel to system status. The SRPM has a NEMA 1(IP20) rated fire retardant plastic housing for indoor applications. True differential pressure is displayed with a resolution of .0001". Setra's patented very low pressure capacitance sensor is dead ended and avoids the potential for cross contamination of the room and reference space as well as eliminating drift that results from fouling of flow based sensors, which by nature have a flow path connecting the protected and reference spaces. Additionally there are 2 levels of password protection available as well as optional BACnet MSTP communications.

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

- Touch Screen Display
- BACnet® Option
- Password Enabled
- Local Audible Alarm
- Visual Red and Green Room Status Displays
- SPST Alarm Relay
- Door Status Monitor
- Variable Alarm Delay
- Positive and Negative Pressure Monitoring
- Bar Graph Display
- CE and RoHS Compliant

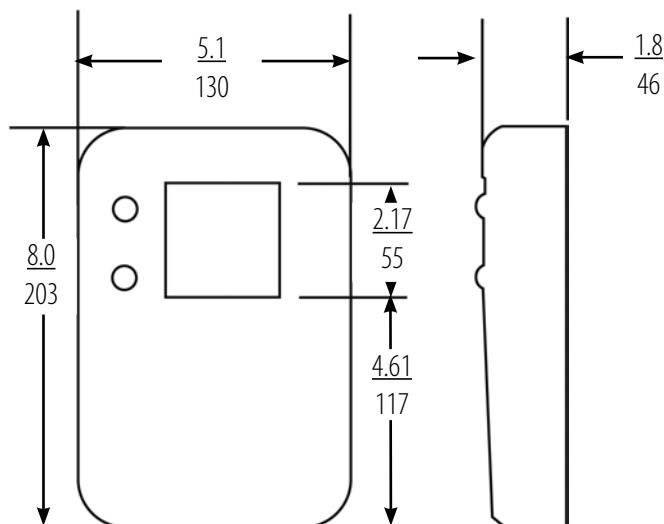
### BENEFITS

- Easy to Install, Set-up, and Calibrate
- Fingertip Operation
- Password Security
- Local Display of Room

### APPLICATIONS

- Hospital Patient Isolation Wards
- Pharmaceutical Manufacturing
- Semiconductor Fabs
- Cleanrooms
- Research Laboratories
- Animal Resource Facilities

### DIMENSIONS



in.  
mm



### SPECIFICATIONS

#### Performance Data

	Code F	Code H
Accuracy RSS <sup>1</sup> (at constant temp)	±0.25%	±0.5%
Non-Linearity (BFSL Based)	±0.24%	±0.49%
Hysteresis	±0.05%	±0.05%
Non-Repeatability	±0.05%	±0.05%
Zero Setting Tolerance	±0.5% FS	±0.5% FS
Span Setting Tolerance	±0.5% FS	±0.5% FS

#### Thermal Effects<sup>2</sup>

Compensated Range °F(°C)	±0.03% FS(±0.05% FS)
Overpressure	±15"W.C.

#### Pressure Media

Air or Non-conductive, Non-explosive Gases.

#### Certifications

CSA Standard C22.2 No 0-M 91	- General Requirements - Canadian Electrical, Part 1
CAN/CSA C22.2 No. 0.4-04	- Bonding of Electrical Equipment
CAN/CSA-C22.2 No. 61010-1-04	- Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use Part-1: General Requirements
ANSI/UL61010-1 (Second Edition)	- Safety Requirements for Electrical Equipment for Measurement, Control

#### Environmental Data

Temperature	
Operating <sup>3</sup> °F (°C)	32 to +120 (0 to +50)
Storage °F (°C)	-20 to +160 (-30 to +70)
Operating Humidity	5 to 95% RH (Non-condensing)

#### Physical Description

Case	Fire Retardant Plastic (NEMA 1, IP20 Rated for Indoor Applications)
Dimensions	8"H x 5.1"W x 1.8"D (203 x 130 x 46 mm)
Electrical Connection	Removable Terminal Block
Pressure Fittings	Barbed Fittings for 1/4" O.D. Tubing
Weight (approx.)	1.5 lbs (680g)
Mounting	2-Gang Plaster Ring (Mounts to 2-gang electrical box.)

#### Communications Option

BACnet®	MS/TP ASC
Display	
LCD	128 x 128 RGB Backlit
Status Indicators	Greeb LED, Normal Red LED, Alarm Backlit LCD

#### Electrical Data (Voltage)

Circuit	3-Wire (Exc., Out, Com)
Output <sup>4</sup>	0 to 5 VDC 0 to 10 VDC
Excitation	
Code V1	85-265 VAC, 50-60 Hz
Code A1	18-32 VAC, 50-60 HZ
Code V2	85-265 VAC, BACnet®
Code A2	18-32 VAC, BACnet®
Power Consumption	5 W
Alarm Output	SPDT Relay: 1A @ 24 VDC 1A @ 120 VDC

#### Electrical Data (Current)

Circuit	2-Wire
Output	4 to 20mA
External Load	0 to 510 ohms
Excitation	
Code V1	85-265 VAC, 50-60 Hz
Code A1	18-32 VAC, 50-60 HZ

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

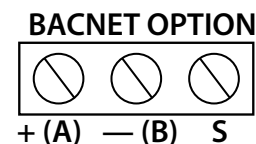
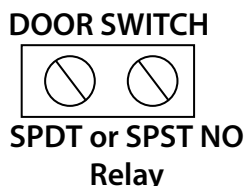
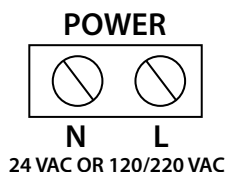
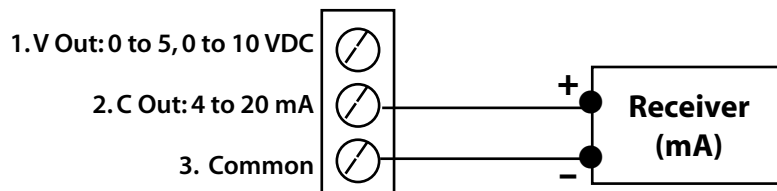
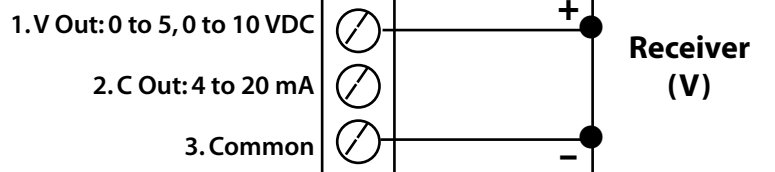
<sup>2</sup> Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.

<sup>3</sup> Operating Temperature limits of the electronics only.

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

**Specifications subject to change without notice.**

### WIRING

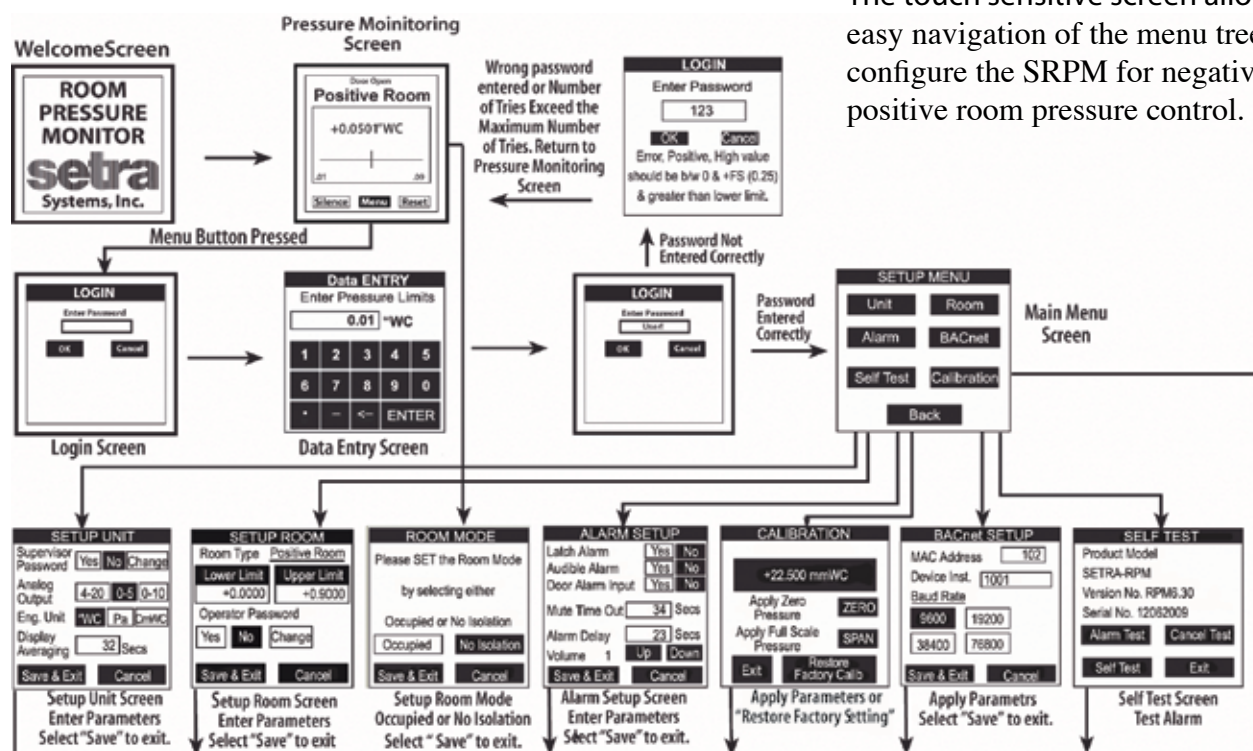


# Model SRPM

## Room Pressure Monitor

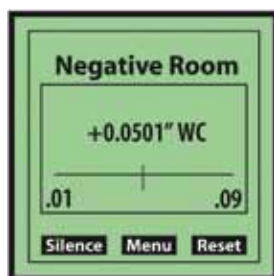


### SRPM MENU TREE



### Touch-Sense Screen

The touch sensitive screen allows easy navigation of the menu tree to configure the SRPM for negative or positive room pressure control.



If pressure is Normal,  
the screen is Green



If pressure is Normal, and Door is  
open, the screen is Yellow



If pressure falls outside of preset limits  
(Alarmed State), the screen is Red

### ORDERING INFORMATION

Ordering Example: Part No. SRPM005WBA1E for a SRPM,  $\pm 5$  in. W.C. Range, 24 VAC EXC. with 4 to 20 mA output, and  $\pm 0.5\%$  FS Accuracy.

<b>S</b>	<b>R</b>	<b>P</b>	<b>M</b>	-						-			
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Model	Range Code	Excitation/Output		Accuracy	
SRPM = SRPM	See Table 1 Below	A1	24 VAC/4-20 mA or 0-5 and 0-10 VDC	E	$\pm 0.5\%$ FS
		V1	120/240 VAC/4-20 mA or 0-5 and 0-10 VDC	V	$\pm 0.25\%$ FS

**Table 1. Range Specification**

RANGE CODE	INCHES W.C.
005WB	$\pm 5$
2R5WB	$\pm 2.5$
001WB	$\pm 1.0$
0R5WB	$\pm 0.5$
R25WB	$\pm 0.25$
0R1WB	$\pm 0.1$
R05WB	$\pm 0.05$

A2	24 VAC w/ BACnet®
V2	120/240VAC BACnet®



Please contact factory for versions not shown.

### ACCESSORIES

#### Model SRAN

##### Remote Annunciator



Green LED, Normal Indication  
Red LED, Alarm Indication  
Buzzer, Audio Alarm, ADJ. from SRPM Acknowledge Switch

Order Part Number:

**S R A N**

#### Model RPS

##### Room Pressure Snubber (Wall Mount Pressure Taps)



The RPS is a stainless steel room static pressure sensor that has the same footprint (2.75" W X 4.5" H) as your standard electrical wall plate.

Order Part Number:

**R P S**

# Model SRCM

## Room Condition Monitor

setra



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

In a hospital, laboratory or animal research facility, the integrity of the ventilation control system is at the heart of a contaminant free environment. Whether a room is to be maintained at a negative pressure to prevent contaminants from escaping into adjacent areas or positive pressure to protect patients with compromised immune systems, the proper pressurization of the room is essential. To assure proper pressurization is maintained in these critical environments, a room pressure monitor is employed to measure and alert staff and personnel of any change in pressure—no matter how small. A fail-safe solution to monitoring these very low pressure changes is Setra's Model SRCM room pressure monitor, which utilizes highly accurate capacitance sensing technology to measure and display true low pressure differential.



"BACnet" is a registered trademark of ASHRAE

### FEATURES

#### ■ True Pressure Measurement

- High accuracy Setra low differential technology
- Dead ended solution —no contamination or clogging
- Standard on-board sensor and optional remote sensor

#### ■ Display 4 Ambient Parameters

- Pressure, Temperature, Humidity, User-Defined (ex., CO2, LUX)

#### ■ Flush Mount Design

- No visible mounting fasteners
- Snap-in flush bezel
- Face is sealed for cleaning or wipe-down

#### ■ Full Banner Feature

- Utilize same monitor for room condition
- Clearly display condition with facility specific nomenclature

#### ■ Clone Feature

- Display rotates up for access to USB port
- On-board USB port—cloning of configurations for multiple unit installation



#### ■ BACnet® Communications

- Installed or field upgrade for in-situ installation
- BACnet• MSTP/ASC
- All setups configurable through touch screen display

#### ■ Alarm Capabilities

- Local Audible and Visual alarming
- Remote annunciator alarming capability
- Alarm delay feature—prevent nuisance alarms

#### ■ Ease of Installation

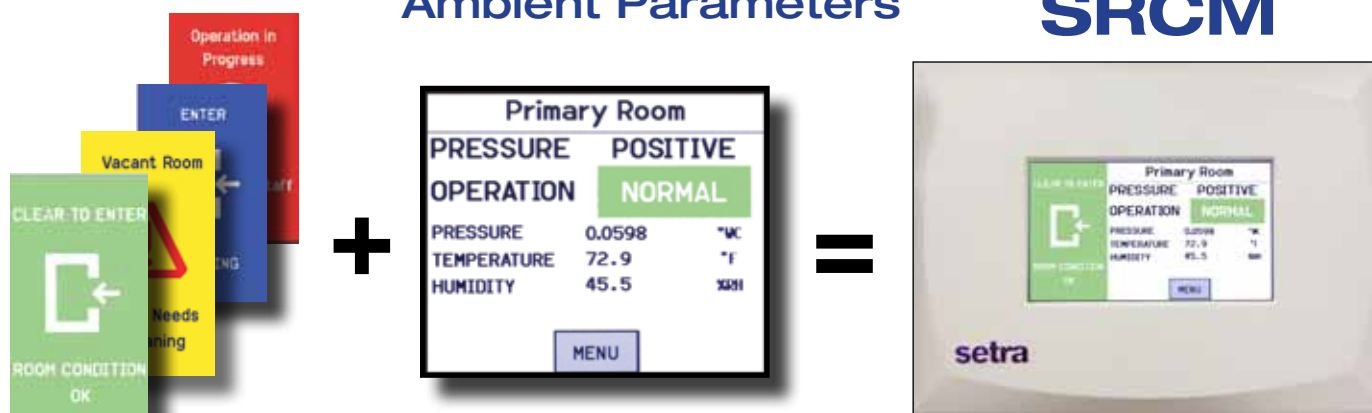
- Mounts in off-the-shelf electrical gang box
- 4-screw self leveling mount

## Setra's "2 in 1" Solution

*The Environment is Critical, the Control is Easy*

Ambient Parameters

SRCM



### Attractive, Intuitive, and Configurable Design

*Simultaneously Monitor and Display 4 Parameters Per Room (up to 2 rooms)*

**Selectable Room Condition Banners**  
1/3 Screen Banners

**Full Screen Banners** ★ NEW

**Display 4 Ambient Parameters (slide bar off)** ★ NEW  
Pressure, Temperature, Humidity, and User-Defined Parameter

**Room I.D.**  
Customer Configurable Feature - Customize Room Name

**Room Pressure Mode**  
Display Positive, Negative, or Neutral Mode of Room

**Room Pressure Status**  
Visual Indication of Normal, Warning, and Alarm Condition

**Displayed Pressure**  
Displays Room Pressure in User Selectable Units

**Pressure Slide Bar On**  
Graphic Display of Pressure Reading Relative to Alarm Setpoints

**Setup Menu**  
Password Protected Entry to Menu Structure

### Fingertip Access for Easy Setup

#### Setup Display Banner

- User Defined Text: Free form data entry for room name
- Room Status: Change room from Isolation to No Isolation

#### Setup Display Advanced

- Display Contrast: Change brightness of display
- Display Averaging: Improve display resolution in unstable ambient pressure environments
- Display Ambient Parameters: Display primary and secondary rooms or toggle between 2 rooms
- Enable Password: Administrator and Supervisor

#### Setup Unit Operation

- Setup primary and secondary room
- Change analog output
- Free form data entry for room name

# Model SRCM

## Room Condition Monitor



### SPECIFICATIONS

#### Performance Data

	Code F	Code H
Accuracy RSS <sup>1</sup> (at constant temp)	±0.25%	±0.5%
Non-Linearity (BFSL Based)	±0.24%	±0.49%
Hysteresis	±0.05%	±0.05%
Non-Repeatability	±0.05%	±0.05%
Zero Setting Tolerance	±0.5% FS	±0.5% FS
Span Setting Tolerance	±0.5% FS	±0.5% FS
<b>Thermal Effects<sup>2</sup></b>		
Compensated Range °F(°C)	±0.03% FS(±0.05% FS)	
Overpressure	±1 PSI (15"W.C. for ≤ 0.10"W.C.F.S.)	

#### Pressure Media

Air or Non-conductive, Non-explosive Gases.

#### Inputs

- 1 Internal Pressure Sensor
- 2 A/D's inputs for remote pressure sensors
- 1 Digital Input

#### Certifications

CE Electro-Magnetic Compatibility Directive 2004/108 EC  
CSA C22.2 No. 6110-1-04

#### Environmental Data

Temperature	
Operating <sup>3</sup> °F (°C)	32 to +120 (0 to +50)
Storage °F (°C)	-20 to +160 (-30 to +70)
Operating Humidity	5 to 95% RH (Non-condensing)

#### Physical Description

Case	Fire Retardant Plastic UL94 V-0
Dimensions	5.84"H x 7.45"W x 0.38"D (14.84 x 18.92 x 0.95 cm)
Electrical Connection	Removable Terminal Block
Pressure Fittings	Barbed Fittings for 1/4" O.D. Tubing
Weight (approx.)	1lb 3.2oz (554 grams)
Mounting	Mounts to triple gang double-deep electrical box.
<b>Communications Option</b>	
BACnet®	MS/TP ASC
<b>Display</b>	
LCD	4.3" TFT, 480 x 272, Dimmable

#### Electrical Data (Voltage)

Circuit	3-Wire (Exc., Out, Com)
Output <sup>4</sup>	0 to 5 VDC 0 to 10 VDC
Excitation	18-32 VAC, 50-60 HZ
Power Consumption	10 W max., 3 W typ.
Alarm Output	SPDT Relay: 0.6A @ 120 VAC 2A @ 30 VDC

#### Electrical Data (Current)

Circuit	2-Wire
Output	4 to 20mA
External Load	0 to 510 ohms
Excitation	18-32 VAC

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

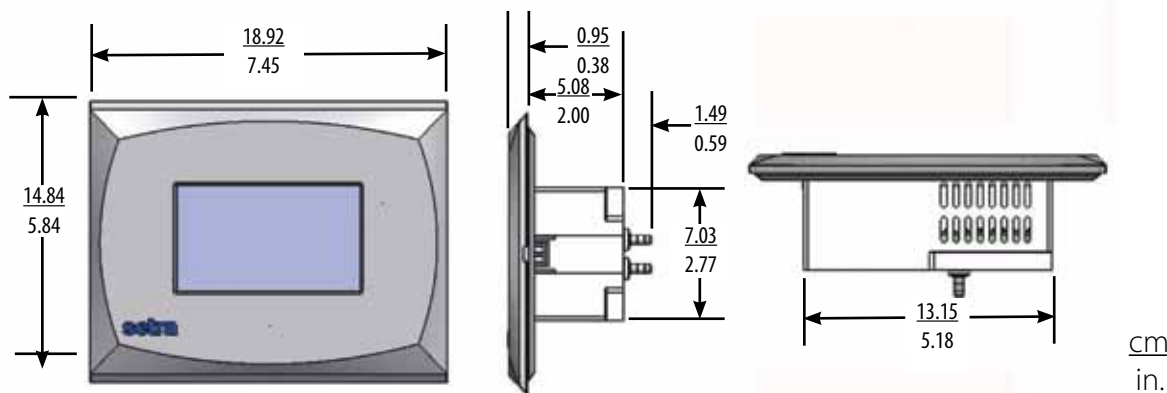
<sup>2</sup> Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.

<sup>3</sup> Operating Temperature limits of the electronics only.

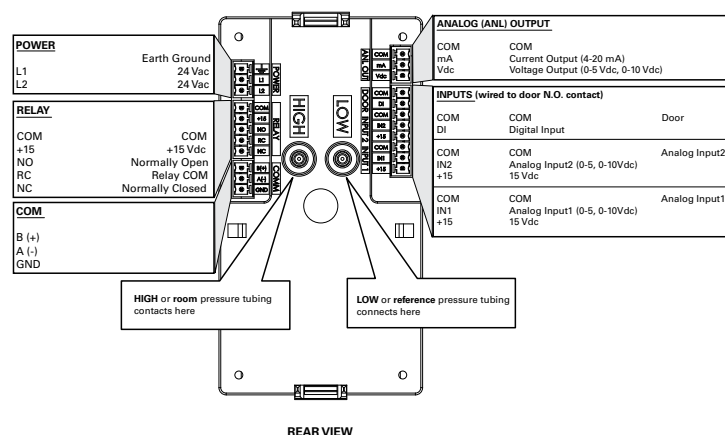
<sup>4</sup> Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.

**Specifications subject to change without notice.**

### DIMENSIONS



### WIRING





## ORDERING INFORMATION

Ordering Example: Part No. SRCMR05WBA1HNS for A SRCM,  $\pm 0.05"$  WC Range, 24VAC/4-20 mA, 0.5% Full Scale Accuracy, NO Pressure Snubber

S	R	C	M	-						-			-	
---	---	---	---	---	--	--	--	--	--	---	--	--	---	--

Model	Range Code	Excitation/Output		Accuracy		Pressure Snubber	
SRCM = SRCM	See Table 1 Below	A1	24 VAC/4-20 mA or 0-5 and 0-10 VDC	H	±0.5% FS	N	0
		A2	24 VAC w/ BACnet®	F	±0.25% FS	1	1
						2	2

### Table 1. Range Specification

RANGE CODE	INCHES W.C.	RANGE CODE	PASCALS
R05WB	±0.05	Z02LB	±12.5
0R1WB	±0.10	025LB	±25
R25WB	±0.25	050LB	±50
0R5WB	±0.50	100LB	±100
001WB	±1.00	250LB	±250
2R5WB	±2.50	500LB	±500
005WB	±5.00	10CLB	±1000



## ACCESSORIES

### Model SRAN

## Remote Annunciator



Green LED, Normal Indication  
Red LED, Alarm Indication  
Buzzer, Audio Alarm, ADJ. from SRPM Acknowledge Switch

**Order Part Number:**

S	R	A	N
---	---	---	---

## Pressure Snubber

## Room Pressure Snubber (Wall Mount Pressure Taps)



The RPS is a stainless steel room static pressure sensor that has the same footprint (2.75" W X 4.5" H) as your standard electrical wall plate.

## Setra Room Monitoring Display



Dual Display



Single Display

**DESCRIPTION**

The Model SRMD is a bright, attractive LCD display that provides a clear and remote view of real-time "at a glance" room conditions, ensuring effective environment control management.

CE-compliant, the SRMD accepts 0 to 5 and 0 to 10 VDC analog signals from virtually any sensing technology including temperature, humidity, CO<sub>2</sub>, pressure, and others. Adjustable zero and span capabilities make it easy for the user to calibrate readings. Units are available with either a single or dual 1-inch, 3.5 digit LCD display and choice of red, blue or green backlight for easy viewing from across a room. These units are also wipedown capable requiring no special maintenance. The SRMD is easy to install, only requiring a standard 4-11/16 electrical box.

This unit is also designed for direct compatibility with Setra's Relative Humidity (SRH) sensors with temperature output. Units may be ordered and shipped as a factory calibrated bundle along with the SRMD for faster installation and commissioning.

**FEATURES**

- Highly Visible 1" LCD Display
- Single LCD Display or Dual LCD Display Model
- Flush Mount Design
- Wipe Down Capable
- Available in Red, Green or Blue LCD Backlight
- Mount in Standard 4-11/16" sq. Electrical Box
- Compatible with Any Analog Sensor with 0-5VDC or 0-10VDC output
- CE Compliant

**Applications**

- Surgical Suites
- Intensive Care Isolation Rooms
- Pharmacology
- Research Laboratories
- Pharmaceutical Manufacturing
- Clean Rooms
- Biological Safety Lab
- Animal Research - Vivarium
- Organic Laboratory

**SPECIFICATIONS****Physical Description**

Flush Mount Bezel	Fire Retardant Plastic UL94V-0
Bezel Dimensions	Single Display Model - 5.9"H x 5.9"W Dual Display Model - 5.9"H x 5.9"W
LCD Assembly Dimension	1.89"H x 3.78"W x 1.5"D
Shipping Weight (Approx.)	Single Display Model - 10 oz. (554 g) Dual Display Model - 13oz (369 g)
Mounting	Standard 4-11/16 Double Gang Electrical Box

**Environmental Data**

Temperature	
Operating °F (°C)	14 to +122 °F (-10 to +50°C)
Storage °F (°C)	-40 to +167 °F (-40 to +75°C)
Operating Humidity	5 to 95% RH (Non-condensing)

**Certifications**

CE	Conforms to European Directive
----	--------------------------------

**Display**

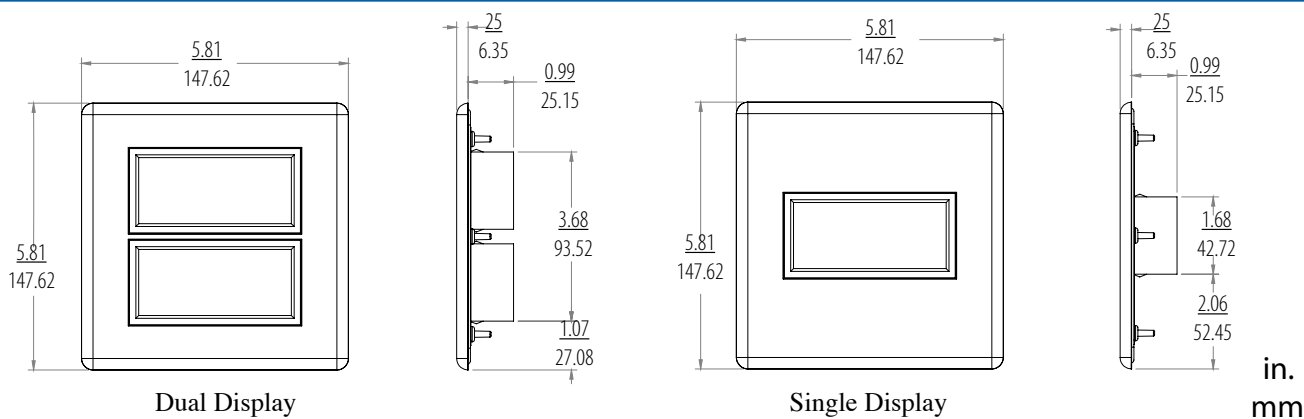
LCD	Available in Red, Green or Blue Backlight 1" high 3.5 digit (±1999 counts)
Engineering Unit Labels	Jumper Selectable °F, °C, %, PSI, PPM, "WC
Decimal Point	Jumper Selectable

**Electrical Data (Voltage)**

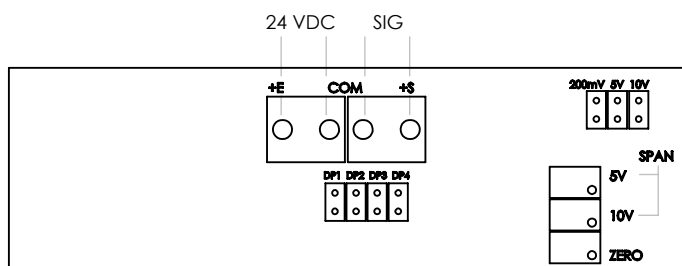
Power Input	15-32VDC or 24VAC
Current Consumption	50mA max (per display)
Analog Signal Input	Jumper Selectable 0-5 VDC or 0-10 VDC
Adjustments	Wide Adjustable Zero and Span by 25-Turn Pots.
Accuracy	+/-1% FS +/- 2 Counts
Input Impedance	Greater than 300K ohms
Sampling Rate	3 Readings per Second
Connection	Screw Terminals

Specifications subject to change without notice.

## DIMENSIONS



## WIRING



### Wiring

- +E** DC Power Supply or one of the AC Power Supply wires
- COM** DC Power Supply Common or one of the AC Power Supply wires
- +S** Signal input Positive from Sensor
- COM** Signal input Common from sensor

Note: 4 - 11/16" sq. standard electrical box required for installation, not included.

### Calibration

1. Set voltage input full-scale range jumper in 5V or 10V position (200 mV is not used)
2. Set decimal point location jumper as required (default DP1 has jumper for one decimal point)
3. Apply "zero" signal and adjust ZERO pot for desired "ZERO" display reading
4. Apply "full scale" signal and adjust 5V or 10V SPAN pot for desired "Full-Scale" display reading

## ORDERING INFORMATION

**S R M D** - **SW** - **R** - **N** - **N**

**Single Display** Example: SRMDSWRTWNN = SRMD single display, white bezel, red display, temperature, with SRH wall mount sensor.

Model	Display Bezel Color	Display Color	Measurement Parameter	Sensor Option
SRMD=SRMD	SW White Bezel	R Red	N None	N None
	SM Metallic Bezel	G Green	T Temp. (14 to 140°F)	W SRH Wall Mount <sup>1</sup> SRH12PW2CT5N
		B Blue	H Humidity (0.0 to 100.0% RH)	D SRH Duct Mount <sup>1</sup> SRH12PD2CT5N

1. Both the SRH Wall Mount (W) and Duct Mount (D) relative humidity sensors are available as an option when selecting either option T (Temperature) or H (Humidity).  
Note: Setra's SRH relative humidity sensors contain a humidity and temperature output.

2. Dual display units configured with a SRH humidity / temperature sensor cannot be ordered with temperature on top and bottom (Code TT) or with humidity on top and bottom (Code HH).

**S R M D** - **DW** - **R** - **N** - **N**

**Dual Display** Example: SRMDDWRTWGH = SRMD dual display, white bezel, red display w/ temperature on top, SRH Wall Mount Sensor green display w/ humidity on bottom

Model	Display Bezel Color	Display Color (Top)	Measurement Parameter (Top Display)	Sensor Option	Display Color (Bottom)	Measurement Parameter (Bottom Display)
SRMD=SRMD	DW White Bezel	R Red	N None	N None	R Red	N None
	DM Metallic Bezel	G Green	T Temp. (14 to 140°F) <sup>2</sup>	W SRH Wall Mount <sup>1</sup> SRH12PW2CT5N	G Green	T Temp. (14 to 140°F) <sup>2</sup>
		B Blue	H Humidity (0.0 to 100.0% RH) <sup>2</sup>	D SRH Duct Mount <sup>1</sup> SRH12PD2CT5N	B Blue	H Humidity (0.0 to 100.0% RH) <sup>2</sup>



# GAUGE PRESSURE

## MODELS:

206

3100

209

3200

256

setra

# 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 after 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
- 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 ( $\pm 0.5\%$  FS zero shift).

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



### SPECIFICATIONS

#### Performance Data

Accuracy <sup>1</sup> RSS (constant temp)	±0.13% FS
Non-Linearity, BFSL	±0.1% FS
25 psig Range <sup>2</sup>	±0.2%
Hysteresis	0.08% FS
Non-Repeatability	0.02% FS

#### Thermal Effects

Compensated Range °F (°C)	-4 to +176 (-20 to +80)
Zero Shift %FS/100°F (%FS/50°C)	1.0 (0.9)
Span Shift %FS/100°F (%FS/50°C)	1.5 (1.4)
Warm-up Shift	0.1% FS Total
Response Time	5 Milliseconds
Long Term Stability	0.5% FS/1 YR

#### Environmental Data

Temperature	
Operating <sup>4</sup> °F (°C)	-40 to +185 (-40 to +85)
Storage °F (°C)	-40 to +185 (-40 to +85)
Acceleration	10 g Maximum <sup>5</sup>
Shock <sup>6</sup>	200g Operating
Vibration <sup>7</sup>	20g 50 - 2000 Hz

Liquids and gases compatible with 17-4 PH Stainless Steel.<sup>3</sup>

#### Physical Description

Case	Stainless Steel
Pressure Fitting	1/4" NPT external
	G1/4A or M14 x 1.5 Optional
Vent	Through cable (Cable Version)
	Via Zero Screw (Terminal Block)
Electrical Connection	2 ft. Multiconductor Cable or
	3 Screw Terminal Block
Zero/Span Adjustments	Top External Access
Weight (approx.)	6 ounces

#### Electrical Data (Voltage)

Circuit	3-Wire (Exc, Out, Com)
Excitation	12 to 28 VDC, Reverse Excitation Protected
Output <sup>8</sup>	0.1 to 5.1 VDC <sup>9</sup>
Output Impedance	100 ohms
Power Consumption	<0.15 watts (approx. 5mA @ 24 VDC)

#### Electrical Data (Current)

Circuit	2-Wire
Output <sup>10</sup>	4 to 20mA <sup>11</sup>
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).	

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

<sup>2</sup> 25 psig range accuracy is ±0.22% of Full Scale output.

<sup>3</sup> Hydrogen not recommended for use with 17-4 PH Stainless Steel.

<sup>4</sup> The high temperature limit of the cable is 200°F (95°C).

<sup>5</sup> Shift in output reading <0.05 psi/g typical; pressure port axis only.

<sup>6</sup> Mil-Std. 202, Method 213B, Cond. C

<sup>7</sup> Mil-Std. 202, Method 204, Cond. C

<sup>8</sup> Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.

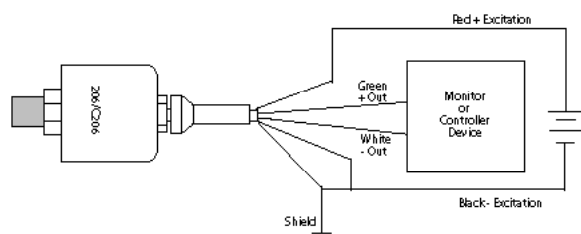
<sup>9</sup> Zero output factory set to within ±25mV. Span (Full Scale) output factory set to within ±50mV.

<sup>10</sup> Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.

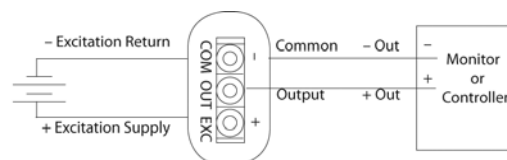
<sup>11</sup> Zero output factory set to within ±0.08mA. Span (Full Scale) output factory set to within ±0.16mA.

Specifications subject to change without notice.

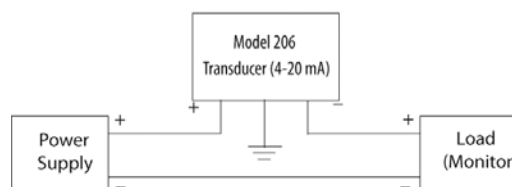
### WIRING



**Voltage Output Cable**



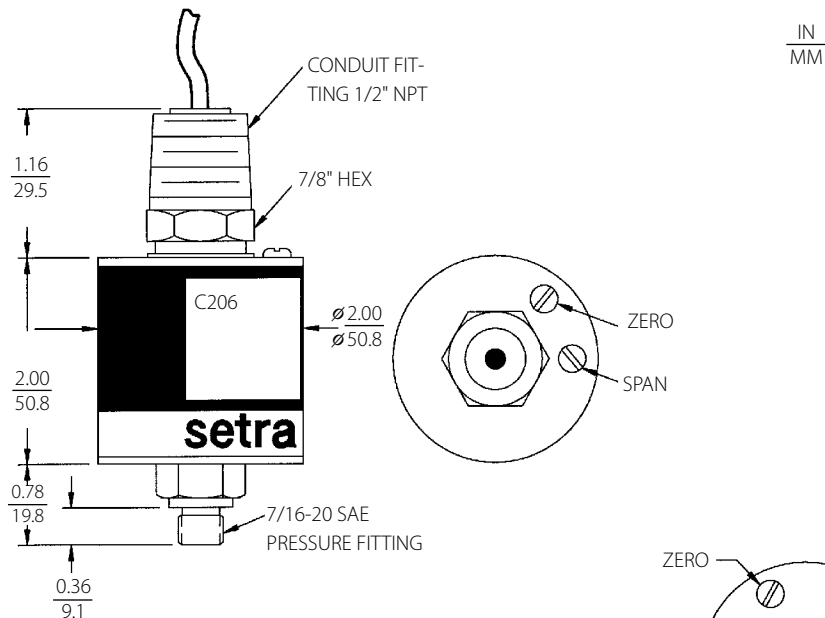
**Voltage Output Terminal Block**



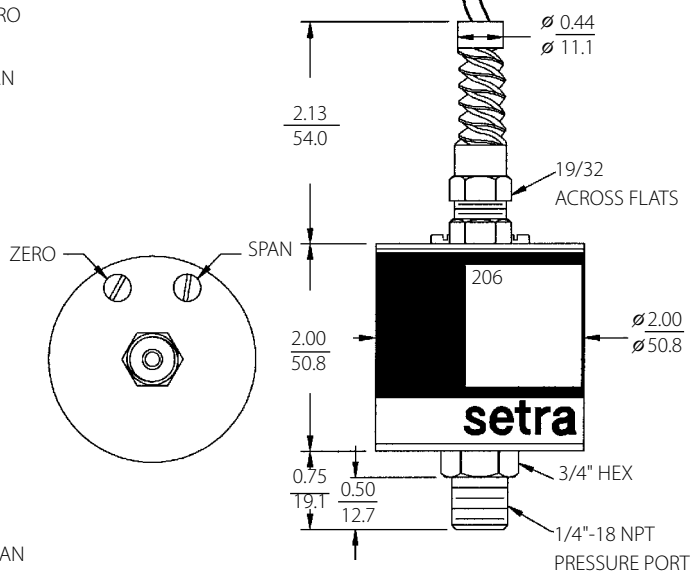
**Current Output Cable and Terminal Block**

### DIMENSIONS

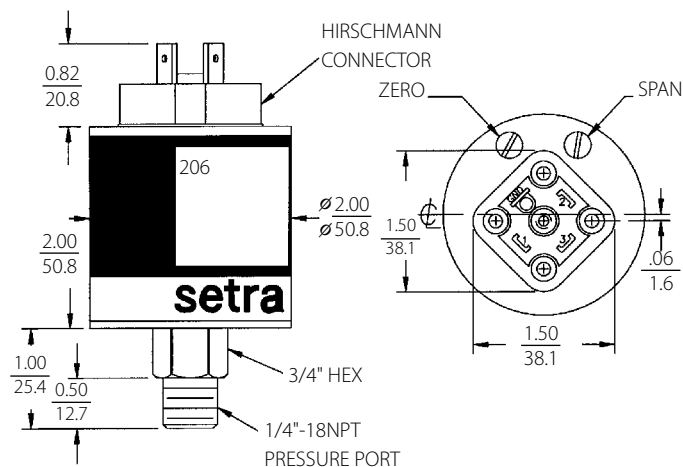
#### Cable with Conduit Version



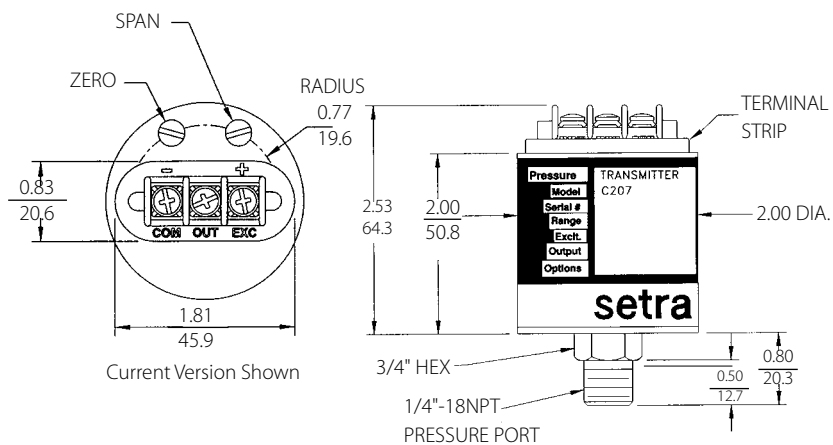
#### Cable Version



#### Hirschmann Connector



#### Terminal Version



### ORDERING INFORMATION

Ordering Example: 2061G1M22XX8C = Model 261, 0 to 25 PSI Range, Gauge Pressure, 1/4" NPT Male Fitting, 0.1 to 5.1 VDC Output, 2 ft. Cable,  $\pm 0.13$  FS Accuracy, Calibration Certificate

2	0	6	1	-					-			-			-			-		
---	---	---	---	---	--	--	--	--	---	--	--	---	--	--	---	--	--	---	--	--

Model	Range Code	Pressure Type		Fitting		Output		Termination		Accuracy		Options <sup>2</sup>	
2061 = 206	See Table 1 Below	G	Gauge	1M	1/4" NPT Male	11	4 to 20 mA	XX	Cable Length <sup>1</sup>	8	$\pm 0.13\%$ FS	NN	None
		C	Compound	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

**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

**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

# 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

Full Scale Range (PSI)	STANDARD		OPTION	
	Proof Pressure (PSI)	Burst Pressure (PSI)	High Proof Pressure (PSI)	High Burst Pressure (PSI)
1	2	250	N/A	N/A
2	4	250	N/A	N/A
5	10	250	N/A	N/A
10	20	500	N/A	N/A
25	50	500	N/A	N/A
50	100	750	800	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 ( $\pm 0.5\%$  FS zero shift).

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

### SPECIFICATIONS

#### Performance Data

Accuracy <sup>1</sup> RSS(constant temp)	±0.25% FS
Non-Linearity, BFL	±0.22% FS
Hysteresis	0.10% FS
Non-Repeatability	0.05% FS

#### Thermal Effects

Compensated Range °F (°C)	-4 to +176 (-20 to +80)
Zero Shift %FS/100°F (%FS/50°C)	±2.0 (±1.8)
Span Shift %FS/100°F (%FS/50°C)	±1.5 (±1.3)
Warm-up Shift	0.1% FS Total
Response Time	5 milliseconds
Long Term Stability	0.5% FS/1 YR

#### Pressure Media

Liquids and gases compatible with 17-4 PH Stainless Steel.<sup>2</sup>

#### Environmental Data

Temperature	
Operating °F (°C)	-40 to +185 (-40 to +85)
Storage °F (°C)	-40 to +185 (-40 to +85)
Shock <sup>3</sup>	200g operating
Vibration <sup>4</sup>	20g
Environmental Protection	Weather Resistant

#### Physical Description

Case	Stainless Steel & Valox
Sensor	17-4 PH Stainless Steel
Electrical Connection	2 ft. multiconductor cable
Pressure Fitting <sup>5</sup>	1/4" -18 NPT external, 17-4 PH Stainless Steel
Vent	Through cable
Weight (approx.)	2.3 ounces (65 grams)

#### Electrical Data (Voltage)

Circuit	3-Wire (COM, OUT, EXC)
Excitation	9 to 30 VDC
Output <sup>6</sup>	0.5 to 5.5 VDC <sup>7</sup>
Output Impedance	10 ohms

#### Electrical Data (Current)

Circuit	2-Wire
Output <sup>8</sup>	4 to 20mA <sup>9</sup>
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).

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

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

<sup>3</sup> Mil-Std. 202, Method 213B, Cond. C

<sup>4</sup> Mil-Std. 202, Method 204, Cond. C

<sup>5</sup> See ordering information for other fittings available (minimum quantities apply).

<sup>6</sup> Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.

<sup>7</sup> Zero output factory set to within ±50mV. Span (Full Scale) output factory set to within ±50mV.

<sup>8</sup> Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.

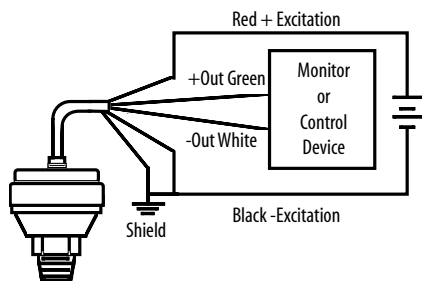
<sup>9</sup> Zero output factory set to within ±0.16mA. Span (Full Scale) output factory set to within ±0.16mA.

**Specifications subject to change without notice.**

### WIRING

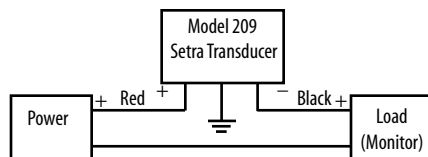
#### Voltage Output

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:



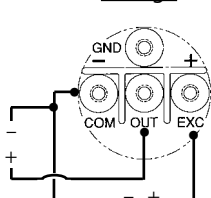
#### Current Output

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

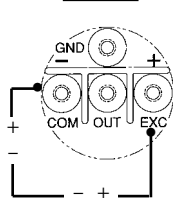


#### Conduit Version

##### Voltage

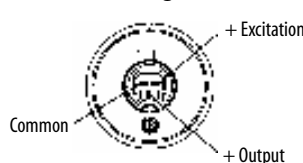


##### Current



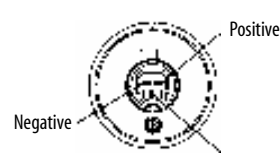
#### Hirschmann Connectors

##### Voltage



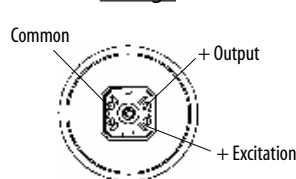
Top View: 3-Pin Packard Connector  
Type: P2S Series 150

##### Current



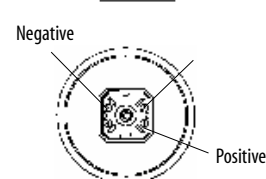
Top View: 3-Pin Packard Connector  
Type: P2S Series 150

##### Voltage



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

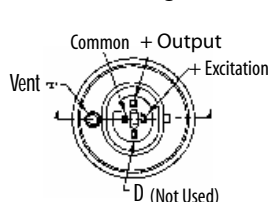
##### Current



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

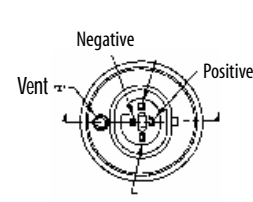
#### 4-Pin Packard Connector

##### Voltage



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

##### Current



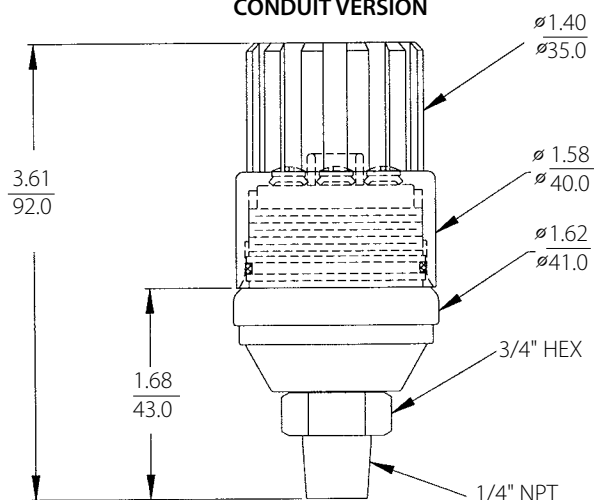
Top View: 4-Pin Packard Connector  
Type: Metri-Pack 150

# Model 209

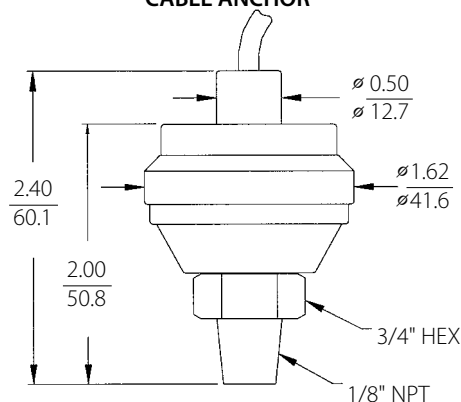
## Pressure Transducers

### DIMENSIONS

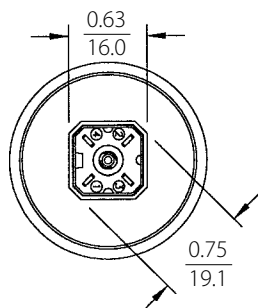
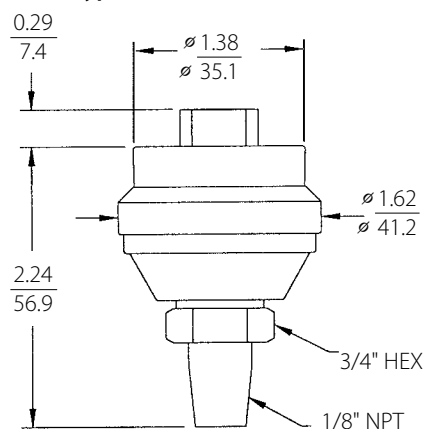
CONDUIT VERSION



CABLE ANCHOR



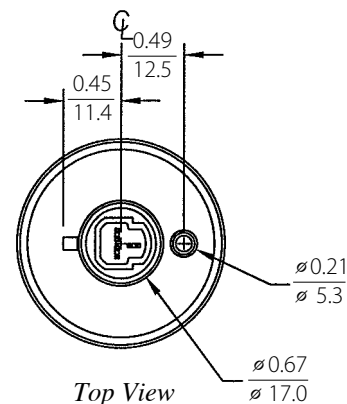
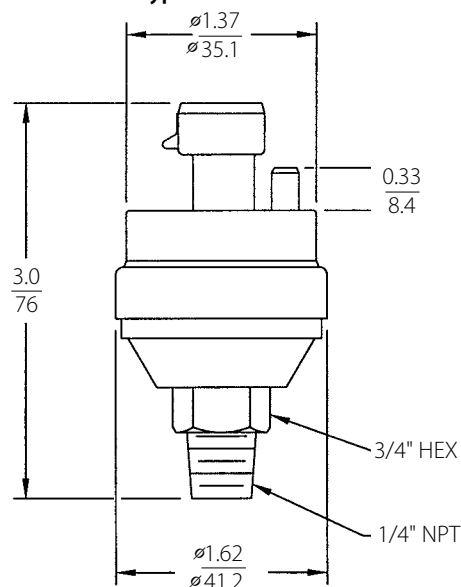
OPTIONAL HIRSCHMANN CONNECTOR  
Type: G4A1M #931807-106



Top View

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

OPTIONAL 3-Pin PACKARD CONNECTOR  
Type: P2S Series 150



Top View

Mating Packard Connectors available. See table below to order.

in.  
mm



## ORDERING INFORMATION

**Ordering Example: 2091001PG2M11XX = Model 209, 0 to 1 PSI Range, Gauge Pressure, 1/4" NPT Male Fitting, 4 to 20 mA Output, 2 ft. Cable.**

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 <sup>1</sup>	H	High Overpressure Capability (Only available on 50 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) <sup>2</sup>		
				S	Sealed	1M	1/8"NPT Male	28	1 to 6 VDC	P3	Packard (4-Pin) <sup>3</sup>		
				V	Vacuum	L4	1/4 Female SAE	45	0.5 to 4.5 VDC	H2	Hirschmann, ("Mini") <sup>4</sup>		
						G4	1/2" A Male			A1	Terminal Block w/ Conduit Cover		
						P1	1/8"NPT Female Bulkhead						

Table 1. Range Specification

RANGE CODE	PSI
001P	0 to 1
002P	0 to 2
005P	0 to 5

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

<sup>1</sup> i.e., 2 feet = 02<sup>2</sup> Order Setra Part #577 for Mating Connector

<sup>3</sup> Order Setra Part #857 for Mating Connector

<sup>4</sup> Order Setra Part #590 for Mating Connector

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

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.

# Model 256

## Pressure Transducers

setra



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

	Ranges 25 PSI and Higher	Ranges Less Than 25 PSI
Accuracy <sup>1</sup> RSS (constant temp) <sup>2</sup>	±0.13% FS	±0.25% FS
Non-Linearity, BFSL	±0.10% FS	±0.22% FS
Hysteresis	0.08% FS	0.10% FS
Non-Repeatability	0.02% FS	0.05% FS
<u>Thermal Effects</u>		
Compensated Range °C	-4 to +176	-4 to 176
Compensated Range °C	-20 to 80	-20 to ±80
Zero Shift %FS/100°F	1.0	±2.0
Zero Shift %FS/100°C	±0.9	±1.8
Span Shift %FS/100°F	1.5	±1.5
Span Shift %FS/100°C	1.4	±1.4
Long Term Stability	0.5% FS/YR	0.5% FS/YR
Warm-up Shift	0.1% FS Total	0.1% FS Total

#### Environmental Data

Temperature	
Operating <sup>3</sup> °F (°C)	-40 to +185 (-40 to +85)
Storage °F (°C)	-40 to +185 (-40 to +85)
Shock <sup>6</sup>	200g
Vibration <sup>7</sup>	20g
Environmental Protection	NEMA 4/IP65

#### Physical Description

Case	Die Cast Aluminum
Electrical Connections	Two 1/2" Internal Conduit Ports
Pressure Fitting	1/4" NPT External
Weight	13.4 ounces

#### Pressure Media

Liquids and gases compatible with 17-4 PH Stainless Steel.<sup>4</sup>

#### Electrical Data (Voltage)

Circuit	3-Wire (Exc, Out, Com)
Excitation	9 to 30 VDC
Output <sup>5</sup>	0.1 to 5.1 VDC for Ranges ≥ 25 PSI <sup>6</sup>
Output Impedance	100 ohms
Power Consumption	<0.15 watts (approx. 5mA @ 24 VDC)

#### Electrical Data (Current)

Circuit	2-Wire
Output <sup>7</sup>	4 to 20mA <sup>8</sup> for All Ranges
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).

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.

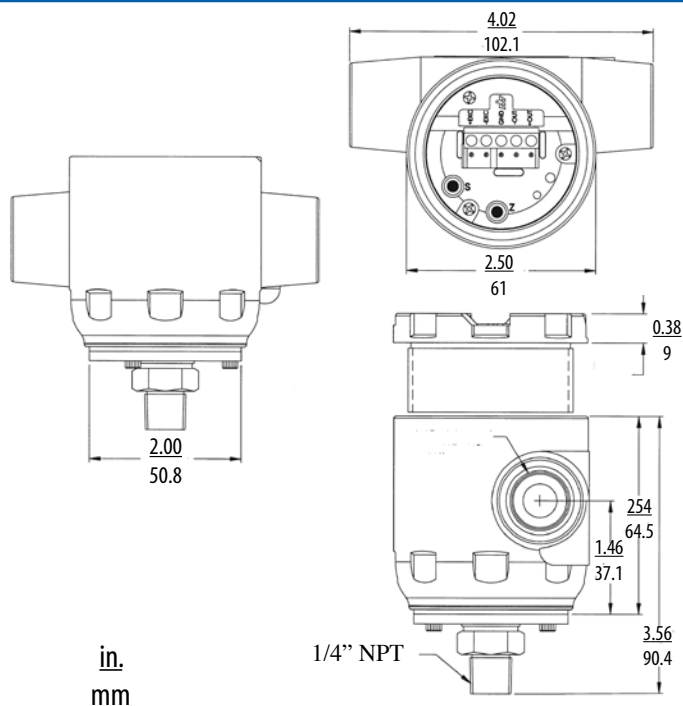
Span (Full Scale) output factory set to within ±50 mV.

7. Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.

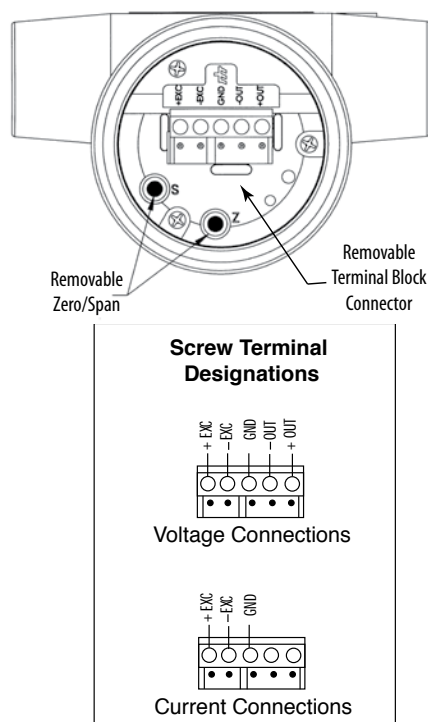
8. Zero output factory set to within ±0.08 mA

Span output factory set to within ±16 mA

## DIMENSIONS



## Wiring



## ORDERING INFORMATION

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

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

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

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

# Model 3100/3200



## Standard & Heavy Duty OEM Pressure Transducers



### 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  $\pm 0.1\%$  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  $-40^{\circ}\text{F}$  to  $+221^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$ )
- 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

### 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.

### APPLICATIONS

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

### 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).

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

### SPECIFICATIONS

#### Performance Data

Accuracy<sup>1</sup> RSS

Model 3100	±0.25% FS
Model 3200	±0.25% FS

Thermal Effects<sup>2</sup>

Compensated Range °F (°C)	-40 to +221 (-40 to +105)
Model 3100	
Zero/Span Shift %FS/100°F (%FS/100°C)	0.83 (1.5)
Model 3200	
Zero/Span Shift %FS/100°F (%FS/100°C)	0.94 (2.0)
	for <1000 PSI (60 Bar)

Zero Tolerance

Model 3100	±0.5% of Span
Model 3200	1% FS for <1000 PSI (60 Bar)

Span Tolerance

Model 3100	±0.5% of Span
Model 3200	1% FS for <1000 PSI (60 Bar)

Response Time 1ms

Long Term Stability ±0.2% FS/YR Non-Cumulative

Proof Pressure See Table Below

Burst Pressure See Table Below

Fatigue Life Designed for more than 100 M cycles

#### Temperature Output<sup>3,4,5</sup>

Range °F (°C)

Series 3101/3201	-40 to +221 (-40 to +105)
Series 3102/3202	+32 to +212 (0 to +100)
Series 3103/3203	+32 to +176 (0 to +80)

Performance

Accuracy 3.5% of Temperature Span

#### Environmental Data

Temperature

Operating °F (°C)	-40 to +221 (-40 TO +105)
Storage °F (°C)	-40 to +221 (-40 TO +105)

Approvals

CE	Conforms to European Pressure Directive
EMC	Radiated Immunity is 100V/m
RoHS	Fully Compliant
UL	E312651

**Specifications subject to change without notice.**

#### Physical Description

Pressure Port	See Ordering Instructions, Back Page
Wetted Parts	17-4 PH Stainless Steel (Diaphragm) 304 Stainless Steel (Fittings)
Electrical Connections	See Ordering Instructions, Back Page
Enclosure	IP67 (IP65 for Electrical Code A)
Vibration	40G Peak to Peak Sinusoidal to 2000 Hz (Random Vibration: 20 to 1000 Hz @ approx. 40G Peak per MIL-STD-810E)
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Weight	35 grams

#### Electrical Data (Voltage)<sup>6</sup>

Circuit	3-Wire (Exc, Out, Com)
Output	1 to 6 VDC 1 to 5 VDC 0.5 to 4.5 VDC 0 to 5 VDC 0 to 10 VDC
Excitation	2 Volts above Full Scale to max 30 Volts @ 4.5 mA (6.5 mA on Dual Output Version.)
Source and Sinks	2 mA

#### Electrical Data (Ratiometric)

Output	0.4 to 4.5 VDC @ 4 mA (6.5 mA on Dual Output Version.)
Excitation	5 VDC ±10%

#### Electrical Data (Current)

Circuit	2-Wire
Output	4 to 20 mA
Excitation	8 to 30 VDC (24 VDC max. above 110°C applications)
Max. Loop Resistance	(Supply voltage -8)x 50 ohms

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

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

<sup>3</sup> Temperature outputs are for voltage output pressure sensors only and limited to connections that have 4 pins (Electrical Codes -B, -E, -7, and -8). Requires additional 2 mA of power.

<sup>4</sup> For use with pull-down resistors, contact factory before ordering.

<sup>5</sup> Pressure Ranges 10,000 psi (1000 bar) and above available with 2T pressure port only.

<sup>6</sup> Reverse Wiring Protected

## Model 3100/3200

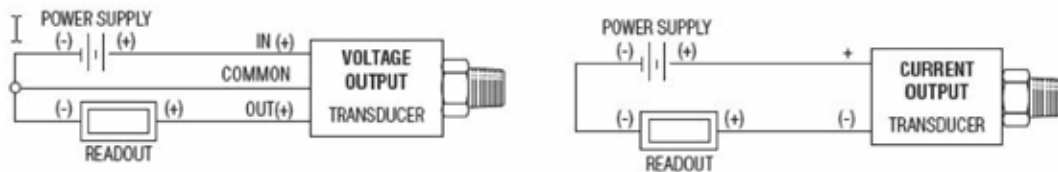
## Standard &amp; Heavy Duty OEM Pressure Transducers



## 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
1	$V_{out1}$ (pressure)	No Connect	$V_{supply}$	$V_{supply}$	$V_{out1}$ (pressure)	No Connect
2	$V_{supply}$	$V_{supply}$	$V_{out1}$ (pressure)	No Connect	Ground	Return
3	$V_{out2}$ (temp)	No Connect	Ground	Return	$V_{supply}$	$V_{supply}$
4	Ground	Return	$V_{out2}$ (temp)	No Connect	—	—

## WIRING



## PRESSURE FITTINGS

SAE Dimensions in Inches					
Fitting Code	01 = 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	

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	Restrictor								
	H	1-5 VDC		S	Sealed Gauge <sup>2</sup>												
	N	0.5-4.5 VDC															
	R	0-5 VDC															
	S	0-10 VDC															
	T	0.5-5.5 V Ratiometric															
Ordering Example: 3100B050PG08C0= Standard Model 3100, 4 to 20 mA output, 50 psi, 1/8-27 NPT ext. fitting, 3-Pin Deutsch electrical connector, No Restrictor.																	

Ordering Example: 3100B050PG08C0= Standard Model 3100, 4 to 20 mA output, 50 psi, 1/8-27 NPT ext. fitting, 3-Pin Deutsch electrical connector, No Restrictor.

Table 1. Model Specification	
CODE	DESCRIPTION
3100	Std. 3100
3200	Std. 3200
Voltage Units w/Temp. Output	
3101 <sup>1</sup>	Temp. Output Range: -40°C to +105°C
3102 <sup>1</sup>	Temp. Output Range: -0°C to +100°C
3103 <sup>1</sup>	Temp. Output Range: -0°C to +80°C
3201 <sup>1</sup>	Temp. Output Range: -40°C to +105°C
3202 <sup>1</sup>	Temp. Output Range: -0°C to +100°C
3203 <sup>1</sup>	Temp. Output Range: -0°C to +80°C

Table 2. Range Specification			
RANGE CODE	PSI	RANGE CODE	BAR
050P <sup>2,6</sup>	50	0004 <sup>2,6</sup>	4
075P <sup>2</sup>	75	0005 <sup>2</sup>	5
100P <sup>2</sup>	100	0007 <sup>2</sup>	7
150P <sup>2</sup>	150	0010 <sup>2</sup>	10
230P <sup>2</sup>	230	0016 <sup>2</sup>	16
300P <sup>2</sup>	300	0020 <sup>2</sup>	20
500P <sup>2</sup>	500	0035 <sup>2</sup>	35
10CP <sup>2</sup>	1000	0070 <sup>2</sup>	70
15CP <sup>2</sup>	1500	0100 <sup>2</sup>	100
23CP	2300	0160	160
36CP	3600	0250	250
60CP	6000	0400	400
10KP	10000	0700	700
15KP <sup>3</sup>	15000	1000 <sup>3</sup>	1000
26KP <sup>3</sup>	26000	1800 <sup>3</sup>	1800
32KP <sup>3,5</sup>	32000	2200 <sup>3</sup>	2200

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 <sup>5</sup>	1/4 -SAE Female 7/16 UNF w/Schraed- er 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 <sup>3</sup>	M12 x 1.5 (6g) (≥1000 bar, ≥15,000 psi)
0K	M14 x 1.5 Straight

Table 4. Fitting Specification	
CODE	DESCRIPTION
B	Industrial DIN (mating connector not supplied)
C	3-Pin Deutsch
E	M12xP4-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 0E 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.

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



# HUMIDITY TRANSMITTERS

**MODEL SRH:**  
Wall Mount  
Duct Mount  
Outside Air

**setra**

# Model SRH

## Relative Humidity Sensor



### DESCRIPTION

The Model SRH Humidity Series include wall mount, duct mount and outside air configurations in 2%, 3%, and 5% RH accuracy. The SRH Series offers optional active temperature with choice of 4 to 20 mA or user-selectable 0 to 5 and 0 to 10 VDC output, and passive temperature with choice of thermistor or RDT output. Humidity transmitters configured with active temperature option feature jumper selectable Tspan ranges of 40°C, 50°C, and 60°C. All models feature a removable sensor tip, NIST traceability, and a durable capacitive sensor capable of full scale 0 to 100% RH measurement. All model can withstand 100% saturation without losing performance.

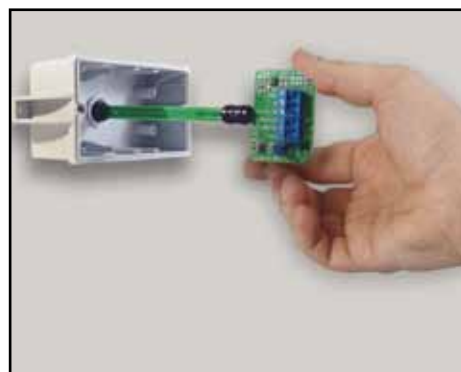
Replacing the removable sensor tip requires no special training and can be easily replaced by the end user. No calibration is needed because each new sensor module is factory calibrated before shipping, reducing downtime during service intervals. As an example, the duct mount probe is easily accessed by taking off the front cover, pulling out the probe and replacing the sensor tip. This same procedure can be performed on the wall mount and outside air models. An additional benefit for duct and outside air applications is the sensor module can be replaced without having to remove the unit and disconnect the wiring conduit.

### FEATURES

- Key part of comprehensive HVAC solution package (i.e. humidity, pressure and current)
- Active Temperature with Jumper Selectable Tspan Ranges of 40°C, 50°C, and 60°C
- Three Levels of RH Accuracy: 2%, 3%, and 5%
- Excellent Reliability via Unique, Proven, and Established ASIC Technology
- Robust, Proven Capacitive Sensor Technology
- Easy Field Serviceability
- Low Cost of Ownership
- High Aesthetic/ Low Profile Wall-Mount Enclosure
- Quick mount, 2 Screw Install with Plug-in Terminal Wiring
- 5 Year Warranty on Electronics; 2 Year Warranty on Sensor Module
- CE and RoHS Compliant

### APPLICATIONS

- HVAC/R Control
- Indoor Air Quality (IAQ)
- Laboratories
- Antiquities Preservation



### SPECIFICATIONS

#### RH Performance Data

Sensing Element	Capacitive Polymer
Humidity Operating Range	0 to 99% RH (non-condensing)
Accuracy @ 68°F (20°C)	2%, 3%, 5% <sup>1</sup>
Non-Repeatability	0.05% FS
Long Term Stability	<1%/Year @ 68°F (20°C), 50% RH

#### RH Performance Data

Signal Outputs	
Current (2-Wire)	4 to 20 mA
Field-Selectable Voltage (3-Wire)	0 to 5 VDC, 0 to 10 VDC
Excitation	13.5 to 30 VDC (10 VDC Output) 12 to 30 VDC (4 to 20 mA, 5 VDC Output)
Maximum Load (Current Only)	= (Supply - 10) -0.02
Electrical Termination	Pluggable Terminal Block (5mm Pitch)
Wiring Protection	Reverse Excitation
CE Compliance	EMC Directive 2004/108/EC

#### Temperature Sensing Options (Passive)

T1: Thermistor	NTC 10K @ 77°F/25°C (Direct Connect) Type II
T2: RTD Output	1000 @ 32°F/0°C (Direct Connect) 385 Platinum Curve

#### Temperature Sensing Options (Active)

T3: Ranges °F (°C)	-58 to 140 (-50 to 60)
Accuracy @ 68°F (20°C) Typ. @ 50%	±1.1 (±0.6) <sup>2</sup>
T5: °F (°C)	+14 to 140 (-10 to 60) <sup>2</sup>
Accuracy @ 68°F (20°C) Typ. @ 50%	±0.8 (±0.4)
Signal Output Options (includes humidity output)	
Current	4 to 20mA
Field-Selectable Voltage	0 to 5 VDC, 0 to 10 VDC

#### Environmental Data

Operating Temperature °F (°C)	-40 to 140 (-40 to 60)
Storage Temperature °F (°C)	-40 to 158 (-40 to 70)
Moisture Resistance	IP65, NEMA-4 (Duct & Outside Air)
Solar	UV Resistant (Outside Air)
Flammability Rating	94-V0
Compliance	RoHS Compliant, CE Compliant

#### Physical Description

Enclosure Materials	
Wall Mount	VA 94-V0
Duct & Outside Air	Polycarbonate 94-V0
Probe (Duct & Outside Air)	Aluminum
Weather Shield	Porous Polyethylene
Sensor Tip Filter	70 Micron Polypropylene
Dimensions	See Dimensions Drawings

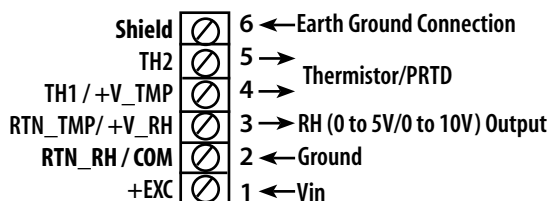
<sup>1</sup> 5% units available only with passive temperature option.

<sup>2</sup> Excitation 24 VDC ±10%

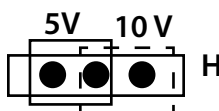
Specifications subject to change without notice.

### WIRING

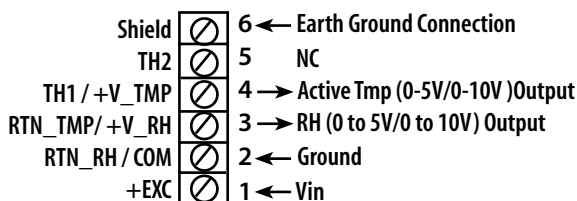
#### Wiring 0-5 V/0-10 V Output Units (3-wire / T0, T1 & T2)



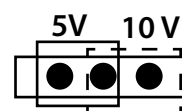
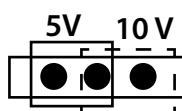
#### Selectable Outputs



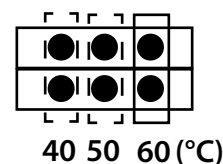
#### Wiring 0-5 V/0-10 V Output Units (4-wire / T3 & T5)



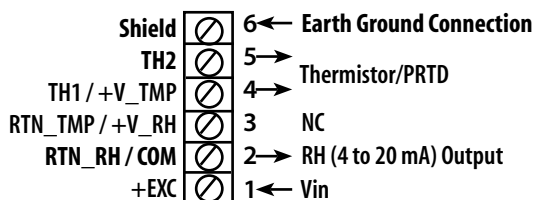
#### Selectable Outputs



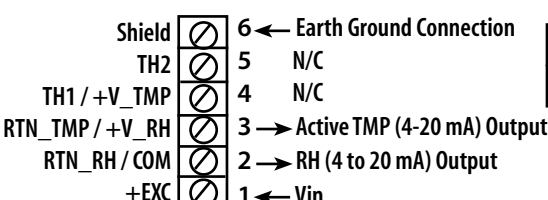
#### Selectable Tspan



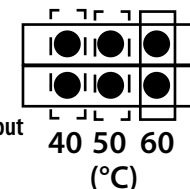
#### Wiring 4 to 20 mA Output Units (2-wire / T0, T1 & T2)



#### Wiring 4 to 20 mA Output Units (3-wire / T3, T5)



#### Selectable Tspan



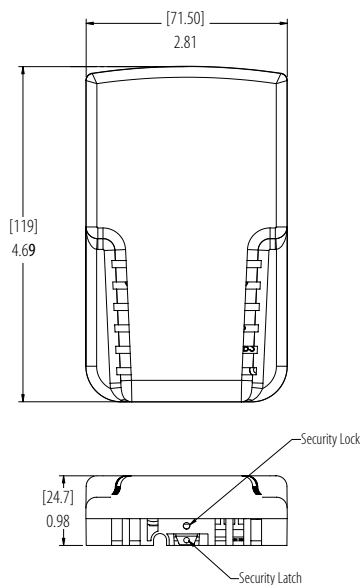
# Model SRH

## Relative Humidity Sensor

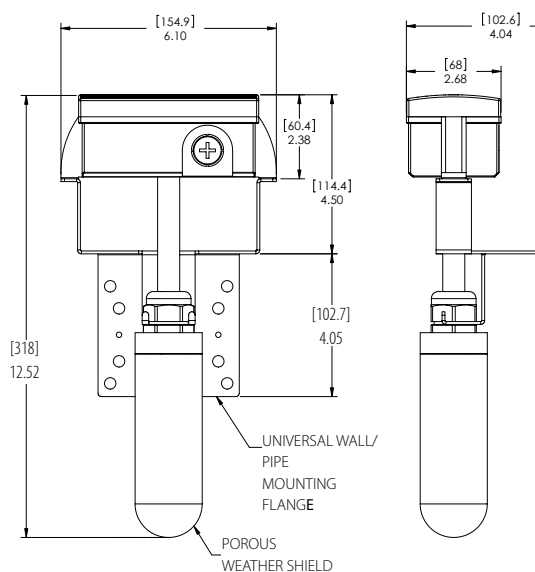


### DIMENSIONS

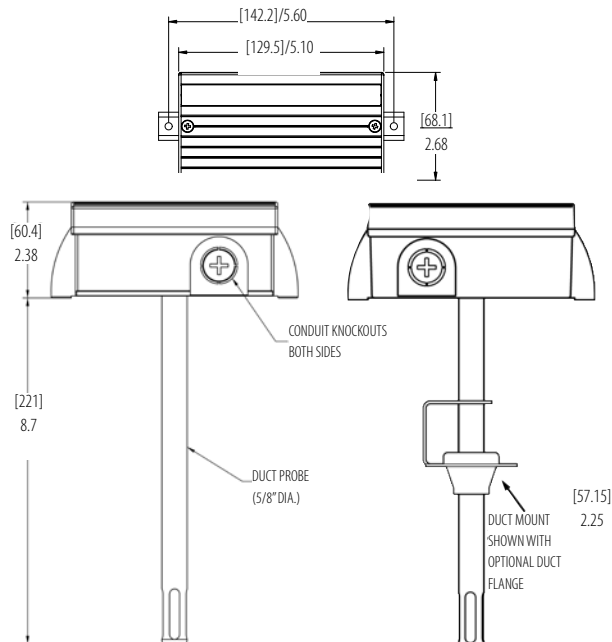
#### Wall Mount



#### Outside Air

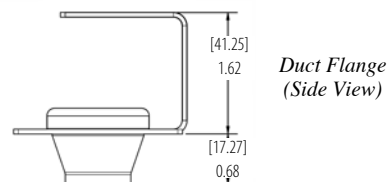


#### Duct Mount

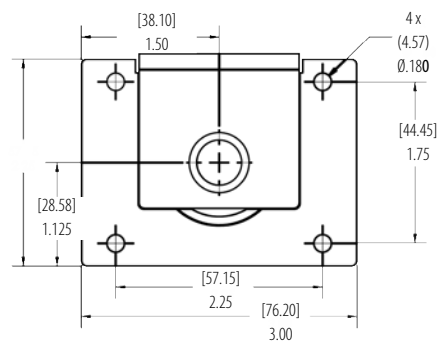


#### Optional Duct Flange

Mates with Duct Mount Unit



Duct Flange  
(Side View)



Duct Flange  
(Top View)

Measurements are in [mm] & inches.



### ORDERING INFORMATION

Ordering Example: SRH12PW11T0NC = Model SRH, 2% Accuracy, Wall Mount, 4 to 20 mA Output, RH only, No Display, NIST Certificate of Conformance

S	R	H	1	-			-			-			-	N	-	
Model		Accuracy		Configuration		Outputs		Temperature Outputs		Display <sup>3</sup>		Options				
SRH1 = SRH		2P	2%	W	Wall	11	4 - 20 mA	T0	None (RH only)	N	None	C	NIST Certificate of Performance			
		3P	3%	D	Duct	2C	0 -5 or 0-10 VDC <sup>1</sup> (user-selectable)	T1	10K Thermistor ( Passive)							
		5P	5%	O	Outside Air			T2	1000 RTD (Passive)							
								T3	-58 to 140°F (-50 to 60°C [Active]) <sup>2,4</sup>							
								T5	+14 to 14-°F (-10 to 60°C[Active]) <sup>2,4</sup>							

Replacement Sensor Assembly Ordering Example: SRH32PT0 = 2% Accuracy, RH only.

<b>S</b>	<b>R</b>	<b>H</b>	<b>1</b>	-			-			-	<b>N</b>	-	
Model		Accuracy		Temperature Outputs		Display		Options					
SRH3 = SRH		2P	2%	T0	None (RH only)		N	None	C	NIST Certificate of Performance			
		3P	3%	T1	10K Thermistor ( Passive)								
		5P	5%	T2	1000 RTD (Passive)								
				T3	-58 to 140°F (-50 to 60°C [Active]) <sup>4</sup>								
				T5	+14 to 14-°F (-10 to 60°C[Active]) <sup>4</sup>								

Notes:  
1 Voltage outputs

#### Notes:

1. Voltage outputs (2C) are factory configured for 0 to 5 VDC operation. User-selectable jumper for 0 to 10 VDC operation.
2. Tspan jumper factory configured for 60°C. User-selectable Tspan for 40°C and 50°C option provided.
3. Display option available Only in Wall mount configuration.
4. SRH1 units originally ordered with either a T3 or 5T temperature option Must be replaced with the same T(x) version.



# CURRENT SENSORS

## MODELS:

CSS Series

CTC Series

CCM Mini

CSC Series

Sure Set

setra

# Model CSS Series

## Solid Core Current Switches



### DESCRIPTION

The CSS models are ideal for new installations and provide the greatest savings opportunity. Ideal for direct drive units, small exhaust fans, and other fixed loads, these solid state switches have accurate, very low fixed or user adjustable setpoints, which are activated when the desired amperage is reached. The adjustable CSSGA2100NN and CSSGA2100R1 units have LED's, which indicate switch status. (User can also adjust the setpoint for over or under loads.) Excitation is magnetically induced from current carrying conductor (wire or cable), making these units completely self-powered.

The CSS Series, solid core, current switch's convenient wide orifice allows easy pass through of the conductor, and is bundled with a mounting bracket and hardware, making installation easy.

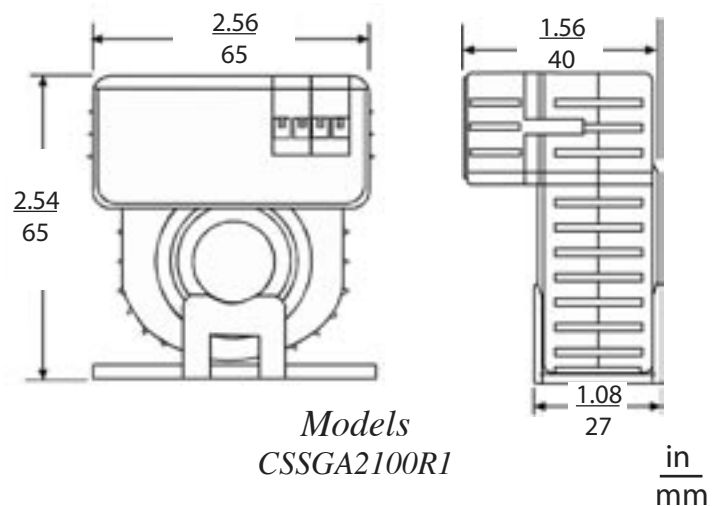
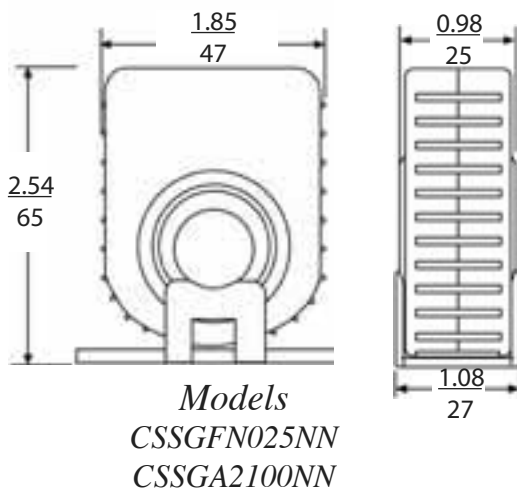
### FEATURES

- Solid Core Design
- Adjustable Switch Setpoints
- Switch LED Indication
- Relay LED Indication
- Over/Under Current Sensing
- Snap-On Power Relay
- Low Cost Solution
- Self-Powered
- Simple Installation
- Accurate Fixed Setpoint Models, No Guessing at Switchover Current

### APPLICATIONS

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

### DIMENSIONS



#### 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.

## SPECIFICATIONS

MODEL	CSSGFN025NN	CSSGA2100NN	CSSGA2100R1 w/snap-on relay
Amperage Range	0.25 to 200 A	1.00 to 135 A	1.00 to 135 A
Continuous Operating Current	200 A, 600 V AC	125 A, 600 V AC	135 A, 600 V AC
Switch Setpoint	Fixed	Adjustable	Adjustable
Output Relay	No	No	SPST, NO. 10 A @ 260 V AC, 5 A @ 30 V DC
Actuation Coil	No	No	24 V AC/DC
Switch LED Indication	No	Yes	Yes
Relay LED Indication	No	No	Yes
Trip Setpoint Value	0.25 A	1.00 to 135 A	1.00 to 135 A
Current Switching Mode	Under Current Sensing	Over/Under Current Sensing	Over/Under current Sensing
Dimensions	2.54 x 1.85 x 0.98 in. (65 x 47 x 25 mm)	2.54 x 1.85 x 0.98 in. (65 x 47 x 25 mm)	2.54 x 2.56 x 1.56 in. (65 x 65 x 40 mm)
Aperture (Sensing Hole Size)	0.71 in. Dia. (18 mm Dia.)		
Sensor Supply Voltage	Induced from power conductor cable		
Status Output	Switch normally open		
Switch Load Capacity	1 A @ 30 V AC/DC max.		
Isolation Voltage	600 V 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	CE Compliant, RoHS Compliant, c-UL Listed: 508, IND. Cont. EQ: E317719		

## ORDERING INFORMATION

[illegible]

Model	Description
CSSGFN025NN	Model CSS, Fixed Setpoint, No LED, 0.25 A Setpoint, No Snap-on Power Relay
CSSGA2100NN	Model CSS, Adjustable Setpoint, with LED, 1.00 A Setpoint, No Snap-on Power Relay
CSSGA2100R1	Model CSS, Adjustable Setpoint, with LED, 1.00 A Setpoint, with Snap-on Power Relay

# Model CSC Series

## Split Core Current Switches



### DESCRIPTION

A significant increase or decrease in operating current may result in motor belt loss, slippage, or mechanical failure, which could jeopardize the user's process. The split core design of the Model CSC is an ideal solution, as it can easily be clamped onto existing power cables or wires. These units are offered with industry standard 135 Amp or 200 Amp output and very low fixed or adjustable setpoints, which are activated when the desired amperage is reached. Model CSCGA2125NN and CSCGA2125R1 include LEDs for indication of switch status. (Setpoint can be adjusted for over or under loads.)

Model CSCGFN150R1 and CSCGA2125R1 are equipped with a snap-on power relay for remote motor startup.

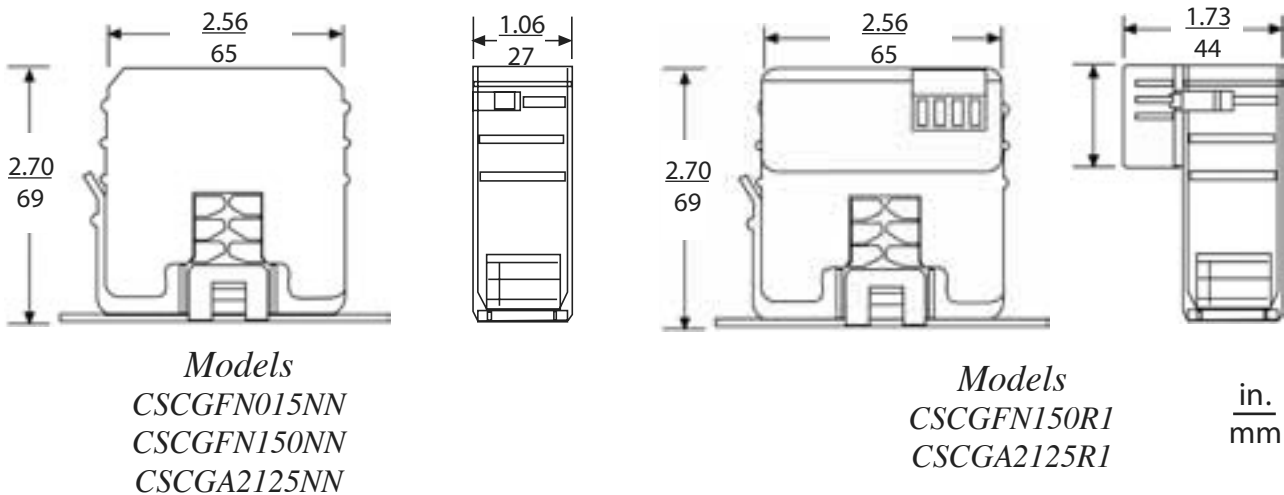
### FEATURES

- Clamped/Split Core Design
- Adjustable Switch Setpoints
- Switch LED Indication
- Relay LED Indication
- Over/Under Current Sensing
- Snap-On Power Relay
- Low Cost Solution
- Self-Powered
- Simple Installation
- Accurate Fixed Setpoint Models, No Guessing at Switchover Current

### APPLICATIONS

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

### DIMENSIONS



#### 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.

### SPECIFICATIONS

MODEL	CSCGFN015NN CSCGFN150NN	CSCGA2125NN	CSCGFN150R1 w/snap-on relay	CSCGA2125R1 w/snap-on relay
Amperage Range	0.15 to 200 A/ 1.5 to 200 A	1.25 to 135 A	1.5 to 200 A	1.25 to 135 A
Continuous Operating Current	200 A, 600 V AC/ 200 A, 600 V AC	135 A, 600 V AC	200 A, 600 V AC	135 A, 600 V AC
Switch Setpoint	Fixed	Adjustable	Fixed	Adjustable
Output Relay	No	No	SPST. NO 10 A @ 260 V AC, 5 A @ 30 VDC	SPST. NO. 10 A @ 260 V AC, 5 A @ 30 V DC
Actuation Coil	No	No	24 V AC/DC	24 V AC/DC
Switch LED Indication	No	Yes	No	Yes
Relay LED Indication	No	No	Yes	Yes
Trip Setpoint Value	0.15 A/1.5 A	1.25 to 135 A	1.5 A	1.25 to 135 A
Current Switching Mode	Under Current Sensing	Over/Under Current Sensing	Under Current Sensing	Over/Under Current Sensing
Dimensions	2.7 x 2.56 x 1.08 in. (69 x 65 x 27 mm)	2.7 x 2.56 x 1.08 in. (69 x 65 x 27 mm)	2.7 x 2.56 x 1.73 in. (69 x 65 x 44 mm)	2.7 x 2.56 x 1.73 in. (69 x 65 x 44 mm)
Aperture (Sensing Hole Size)	0.72 x 0.78 in. (18 x 20 mm)			
Sensor Supply Voltage	Induced from power conductor cable			
Status Output	Switch normally open			
Switch Load Capacity	1 A @ 30 V AC/DC max.			
Isolation Voltage	600 V 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	CE Compliant, RoHS Compliant, c-UL Listed: 508, IND. Cont. EQ: E317719			

### ORDERING INFORMATION

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Model	Description
CSCGFN015NN	Model CSC, Fixed Setpoint, No LED, 0.15 A Setpoint, No Snap-on Power Relay
CSCGFN150NN	Model CSC, Fixed Setpoint, No LED, 1.50 A Setpoint, No Snap-on Power Relay
CSCGA2125NN	Model CSC, Adjustable Setpoint, with LED, 1.25 A Setpoint, No Snap-on Power Relay
CSCGFN150R1	Model CSC, Fixed Setpoint, No LED, 1.5 A Setpoint, with Snap-on Power Relay
CSCGA2125R1	Model CSC, Adjustable Setpoint, with LED, 1.25 A Setpoint, with Snap-on Power Relay

SSP-CSC Rev B 03/02/2010



# Model CTC Series

## Split Core Current Transducers



### DESCRIPTION

CTC Series Split Core Current Transducers combine accurate magnetic current sensing with signal conditioning electronics. They are available in either 24 VDC loop power or self-powered, which means they are easy to install and put into operation. Their self-gripping, compact split core design makes it easy to retrofit into existing equipment.

Each unit has a three position slide switch to select the most suitable range for the application. The 0 to 5V and 4 to 20 mA output units have 30/60/120 Amp sensing ranges. The 0 to 10 V output units have a 20/100/150 Amp sensing range.

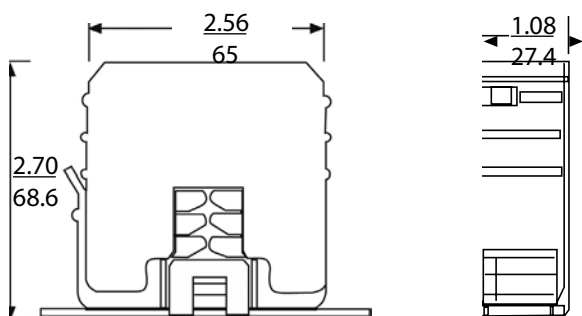
### FEATURES

- Clamped/Split Core Design
- Slide Switch, Selectable Amperage Ranges
- Snap-On Power Relay
- Relay LED Indication on CTC when Used with Optional CCR-24 or CCR-12 Command Relay
- Low Cost Solution
- 24 VDC Loop Power or Self-Powered
- Simple Installation

### APPLICATIONS

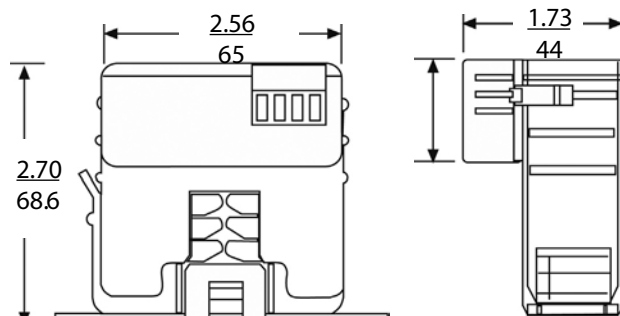
- HVAC
- Refrigeration
- Pumps
- Small Industrial Motors
- Fans
- Lighting

### DIMENSIONS



*Models*  
*CTCG420NN, CTCGV05NN,*  
*CTCGV10NN*

in.  
mm



*Models*  
*CTC Models w/Optional*  
*CCR-24 /CCR-12 Command Relay*



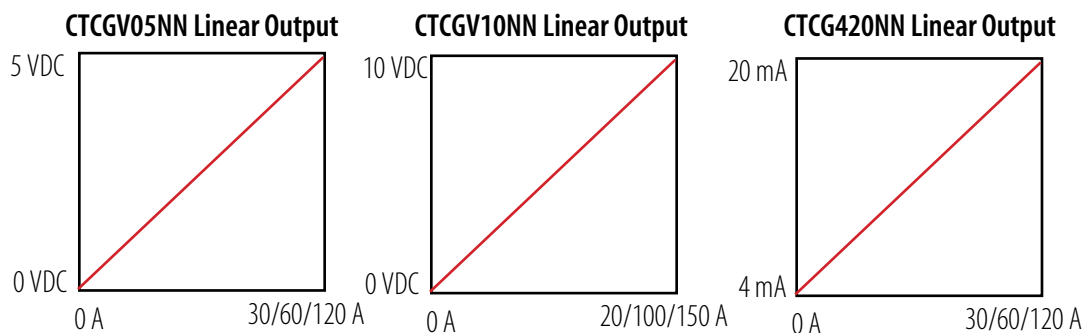
#### CAUTION, RISK of ELECTRIC SHOCK

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.

### SPECIFICATIONS

MODEL	CTCG420NN	CTCGV05NN	CTCGV10NN
Multi-Range	30/60/120 A	30/60/120 A	20/100/150 A
Continuous Operating Current	120 A Max.	120 A Max.	150 A Max.
Output	4-20 mA	0-5 VDC	0-10 VDC
Accuracy (≥ 10% FS)	±2% of Selected Ranges		
Response Time	2 Seconds		
Output Relay	No	No	No
Actuation Coil	Use optional CCR-24 or CCR-12 Com- mand Relay Module (sold separately)	Use optional CCR-24 or CCR-12 Com- mand Relay Module (sold separately)	Use optional CCR-24 or CCR-12 Com- mand Relay Module (sold separately)
Dimensions	2.7 x 2.56 x 1.08 in. (68.6 x 65 x 27.4 mm)	2.7 x 2.56 x 1.08 in. (68.6 x 65 x 27.4 mm)	2.7 x 2.56 x 1.08 in. (68.6 x 65 x 27.4 mm)
Aperture Size	0.72 x 0.78 in. (18 x 20 mm)		
Sensor Supply Voltage	24 VDC Loop Power	Self-Powered	
Isolation Voltage	600 V AC rms		
Temperature Range	5 to 140°F (-15 to 60°C)		
Frequency Range	50/60 Hz		
Humidity Range	0 to 95% non-condensing		

### Output



### ORDERING INFORMATION

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Model	Description
CTCG420NN	Model CTC, Output 4 to 20 mA
CTCGV05NN	Model CTC, Output 0 to 5 VDC
CTCGV10NN	Model CTC, Output 0 to 10 VDC

*Note: Contact factory to order power relay separately*

***Eliminate Arc Flash Hazard*****DESCRIPTION**

The Sure-Set Model SSC Split Core Current Switch provides a unique approach to calibration and installing current sensors that eliminates exposure to Arc Flash hazards while providing a low cost, fast and accurate method of setting the proper current set point for the application. By eliminating the need to work on a live electrical enclosure, the Sure-Set Current Switch allows installation without the need for Arc Flash Personal Protective Equipment reducing install time. Using the 9 position Sure-Set Selector and the scale rated in motor HP, the installer simply sets the selector to the rated motor HP prior to opening the electrical enclosure. The installer powers down the electrical enclosure, snaps the Sure-Set onto the sensed conductor, connects the signal leads, closes the enclosure and powers up the system. No further calibration is required! In fact, the engineer or installer can pre-set all the Sure Set current switches used in a system prior to arriving at the job site, making the on-site install time for the current switches even shorter.

Offered in standard and high HP ranges with 9 HP settings per range, the Sure Set has the derating from Full Load Amps (FLA) already designed into the product. Simply set the Sure-Set 9 position selector switch to the rated motor HP and install. The Sure-Set, like other members of Setra's Current Switch family, are completely self-powered from the sensed conductor. 600V AC isolation is standard and the Sure-Set is agency listed with UL/cUL and is CE and RoHS compliant.

**FEATURES**

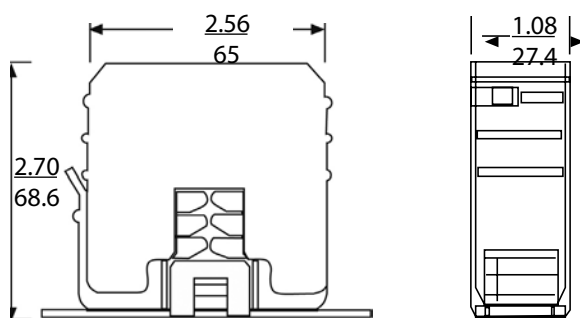
- Sure-Set Scaled in Motor Hp, Allowing User to Preset Unit Prior to Installation
- Standard and High Motor HP Ranges - 9 Motor HP Settings Per Model
- De-rating Built-In from Full Load Amps to Detect Belt Loss or other Mechanical Load
- Snap-on Power Relay Option

**BENEFITS**

- ***Eliminates Exposure to Arc Flash - No Personal Protective Equipment Required***
- **No Live Calibration Required - Save Time and Labor**
- **Accurate Fixed Setpoint Models, No Guessing at Switchover Current**

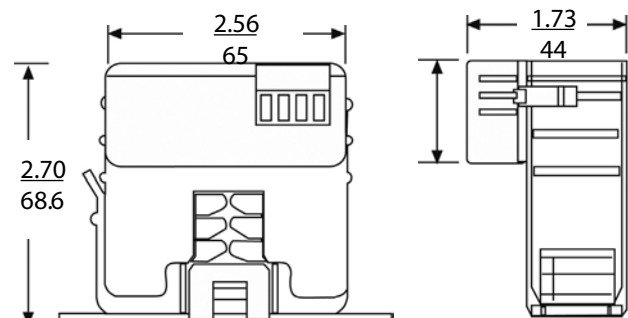
**APPLICATIONS**

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

**DIMENSIONS**

**Model**  
**SSC-2S**  
**SSC-4S**  
**SSC-2H**  
**SSC-4H**

in.  
mm



**Shown with**  
**Optional CCRXX**  
**Snap-on Power**  
**Relay**

**Patent Pending**

**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.

SPECIFICATIONS				
MODEL	SSC-2S	SSC-4S	SSC-2H	SSC-4H
Motor Hp Range	1,2,3,5,7.5,10,15,20,25	2,3,5,7.5,10,15,20,25,30	5,7.5,10,15,20,25,30,40,50	15,20,25,30,40,50,60,75,100
Continuous Operating Current	135A, 600V AC			
Switch Setpoint	Adjustable, 9 position selector switch			
Output Relay Contacts	Optional. Output contacts rated 10A @ 260V AC, 5A @ 30V DC			
Output Relay Coil Voltage	12V AC/DC or 24V AC/DC			
Switch LED Indication	No	No	No	No
Relay LED Indication	Yes	Yes	Yes	Yes
Trip Point Set Value	35% below FLA @ selected Hp value			
Current Switching Mode	Under Current Sensing			
Dimensions	2.7 x 2.56 x 1.08 in. (69 x 65 x 27 mm)	2.7 x 2.56 x 1.08 in. (69 x 65 x 27 mm)	2.7 x 2.56 x 1.73 in. (69 x 65 x 44 mm)	2.7 x 2.56 x 1.73 in. (69 x 65 x 44 mm)
Aperture Size	0.72 x 0.78 in. (18 x 20 mm)			
Sensor Power Source	Induced from power conductor cable			
Status Output	Switch normally open			
Switch Load Capacity	1A @ 30V AC/DC max.			
Isolation Voltage	600V 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	CE Compliant, RoHS Compliant, c-UL Listed: 508, IND. Cont. EQ: E317719			

ORDERING INFORMATION		
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Model	Motor HP Range Code	Motor HP Ranges
SSC	2S	1, 2, 3, 5, 7.5, 10, 15, 20, 25 9 position set point for 230V AC Motor Application
SSC	4S	2,3,5,7.5,10,15,20,25,30 9 position set point for 480V AC Motor Application
SSC	2H	5,7.5,10,15,20,25,30,40,50 9 Position set point for 230V AC Motor Application
SSC	4H	15,20,25,30,40,50,60,75,100 9 Position set point for 480V AC Motor Application
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Optional Snap on Power Relay		
Model	Voltage	Description
CCR	12	AC/DC
CCR	24	AC/DC

# CCM MINI

## Current Clamped Mini



### DESCRIPTION

The CCM Mini 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 Mini (Current Split Core) can be easily clamped onto new or existing power cables or wires.

The CCM Mini can be set to the appropriate from 0.25 to 60 Amps V

### FEATURES

- Clamped/Split Core Design
- Under Current Sensing
- Integral Mounting Flange with DIN-Rail Capability

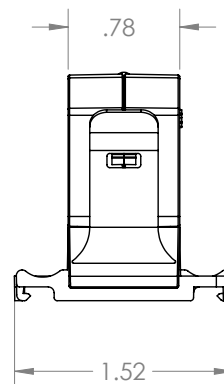
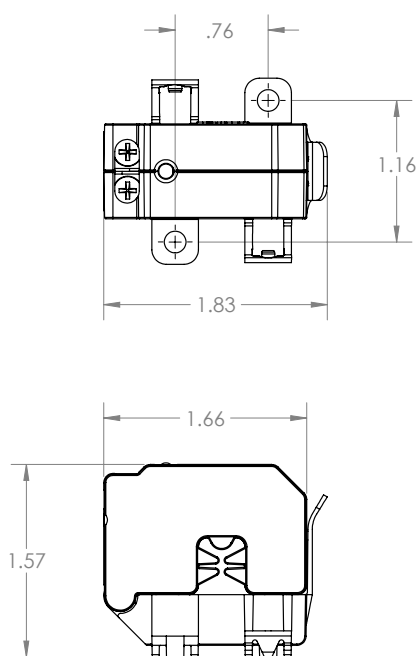
### BENEFITS

- Low Cost Solution
- Self-Powered
- Simple Installation
- Accurate Fixed Setpoint,  
No Guessing at Switchover Current

### APPLICATIONS

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

### DIMENSIONS



Dimensions are in inches.



#### 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

SPECIFICATIONS	
MODEL	CCM015NN
Amperage Range	0.25 to 60 A
Continuous Operating Current	60A, 600V AC
Current Set Point	Fixed
Switch LED Indication	No
Relay LED Indication	Yes
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	600V 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	Pending UL/c-UL Listed: 508, IND. Cont. EQ: E317719/CE Compliant/RoHS Compliant

## ORDERING INFORMATION

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### Model No. Description

**CCM015NN** Model CCM MINI, Fixed Setpoint, Trip Point Set Value 0.15 A, No LED,





# Very Low Pressure Calibrators

**MODELS:**

**869**

**869XP**

**setra**

# Model 869/869XP

## Ultra-Low Pressure Generating and Documenting Calibrator



Model 869

Model 869XP

### DESCRIPTION

The Model 869 and 869XP are designed for use in critical environments that require portability, high accuracy, and periodic low pressure sensor calibration and documentation to certify regulated processes.

Designed to perform calibration checks on installed pressure transducers, pressure switches, and gauges, the 869 and 869XP offers users selectable automated pressure generation profiles with up to 101 calibration points. This NASA patented low pressure generating technology achieves  $\pm 0.0002$  in. W.C. low pressure regulation with micro in. of W.C. per step resolution.

True differential pressure is generated with both high and low pressure ports connected to the unit under test, providing isolation from process background disturbances. High and low pressure ports are shorted to produce stable, noise-free zero pressure input, outperforming competitive active zero pressure systems.

The Model 869XP offers fully automated, hands-off calibration. Its easy-to-use SMART communications software provides transducer detection and automated calibration of Setra's Model 269 digital transducer and Model SRPM room pressure monitor. An Electropneumatic Interface Cable (EPIC) allows the 869XP to simultaneously pressurize the 269 or SRPM under test and automatically transmit ID and calibration data between the two units.

### FEATURES

- Easy Step-by-Step User Interface Process
- Designed with Built-in Leak Test Function
- Provides Accuracy and Stability Plots
- Handles Multiple Engineering Units
- Both Pressure Generation and Monitoring Modes to Verify System Performance
- Highest Accuracy to Support Certification of all Low DP Critical Process Pressure Sensors
- True Low Range Dual Reference Pressure Sensors with NIST Traceability
- Dual Reference Design Provides Maximum Accuracy, Repeatability and Resolution

### Calibration Capabilities

- Analog Pressure Transducers
- Pressure Switches
- Analog Dial Gauges
- Setra Digital Auto-Cal™ Products 269 & RPM

## Simple Pocket PC User Interface

### Calibration Management database

- Store and retrieve transducer profiles
- Generate as found and as left calibration data
- Print calibration certificates

#### Step 1 UUT (Unit Under Test) Setup

- Select transducer profile
- Select accuracy specification
- Select output (VDC or mA)



#### Step 2 Real Time

- View current pressure and output for testing and calibration
- Apply selected pressure to perform adjustment (zero, span or linearity)



#### Step 3 Test Unit

- Return to screen to perform calibration test sequence
- Review and record results
- Copy and save data into your calibration database



## Portability & Versatility

- AC or battery operation - eight hours of operation on full battery
- Rugged, compact carrying case - great for cramped and remote locations
- Calibrate difficult-to-reach devices in-situ (ceilings, ducts, etc) with electro-pneumatic harness assembly - for analog transducers, 2, 3 and 4-wire, configurable length



## Ultra-Low Pressure Generating and Documenting Calibrator

## SPECIFICATIONS

## Measurement

Accuracy	±0.04% FS
Precision	0.0002"W.C.
Calibration Stability (Pressure Span)	0.2% Rdg./yr
Calibration Stability (mA and Voltage)	0.01% FS/yr
Calibration Adjustment	Zero Tare
Compensated Temperature Range	40°F to 120°F
Storage Temperature Range	40°F to 160°F
Temperature Effect (Zero)	None, Zero, Tare
Temperature Effect (Span)	0.01%°F
Certification	NIST

## Control

Controlled Pressure Stability	0.0002"W.C., Typical
Minimum Controlled Pressure	0.00005"W.C.
Dual Reference Pressure Ranges	See Order Info.
Pressure Types	Gauge and Differential
Overpressure Limit	5 Psid
Control Time	User Selectable

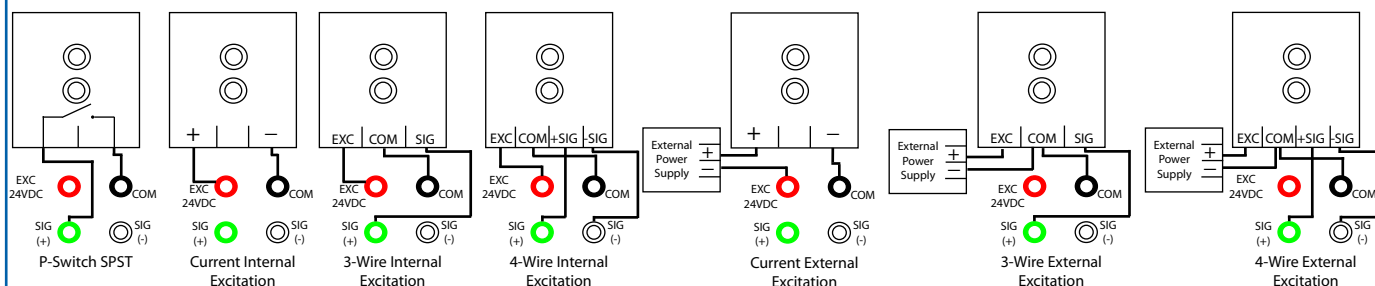
## General Specifications

Pressure Units (Selectable)	in.W.C., PA, kPa, mbar, cm W.C.
Warmup	1 Hour
Reading Rate	20 Readings/Seconds, Typical
Gravity/Orientation	Negligible
Shock and Vibration	5g, Maximum
Communications	RS 232
Display	3.5"Transflective Type TFT Color, QVGA, 64-k Color
Keypad	Pocket PC Touch Pad
Size:	11" x 14" x 6" (27.9 cm x 35.6 cm x 15.2 cm)
Weight	16 lbs. (8.2 kg)
Pressure Media	Clean, Dry, Non-Corrosive Gases
Power	120/240 AC, 50/60 Hz, Battery Li Ion - 8 Hours Operation, Integrated Charger

## Pressure Transducer

Pressure Fittings	Barbed, Plug-in O-ring Quick Connects
Electrical	Banana Plug Jacks
Voltage Meter	$\pm 0.005\%$ FSO at $\pm 10.5$ VDC
Current Meter	$\pm 0.005\%$ FSO at 4 to 20 mA
Excitation	24 VDC Nominal for 4 to 20 mA Output, Adjustable to 5 to 24 VDC for Voltage Output

## Electrical Connections



## ORDERING INFORMATION

**Ordering Example:** 86910R5WD015WDPN = 869 Calibrator, 0 to 5 in. WC (Range One) to 0 to 15 in. WC (Range Two), PDA Included with a Standard Pharmaceutical Interface.

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Model	Range One		Range Two		PDA		User Interface	
8691 = 869	Inches.W.C.		Pascal		P	Includes PDA	N	Standard User Interface
	0R5WD	0 to 0.5	050LB	±50			E	Expert System
	001WD	0 to 1	100LD	0 to 100				
	005WD	0 to 5	100LB	±100				
	2R5WD	0 to 2.5	250LD	0 to 250				
	015WD	0 to 15	250LB	±250				
	R25WB	±0.25	500LD	0 to 500				
	0R5WB	±0.5	500LB	±500				
	001WB	±1	10CLD	0 to 1000				
	2R5WB	±2.5	10CLB	±1000				
	005WB	±5	35CLD	0 to 3500				
	015WB	±15	35CLB	±3500				

**For calibrating hard to reach ana-log transducers, a 2-wire and 4-wire configurable length electropneumatic assembly is available from 6 to 15 feet.**

**For calibrating hard to reach analog transducers, a 2-wire and 4-wire configurable length electropneumatic assembly is available from 6 to 15 feet.**



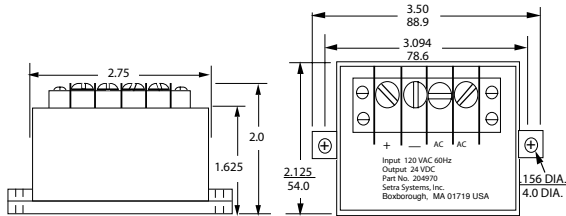
# Accessories

Power Supplies  
Room Pressure Status  
Pressure Tips and Tubing  
299 Dri-Sense PT

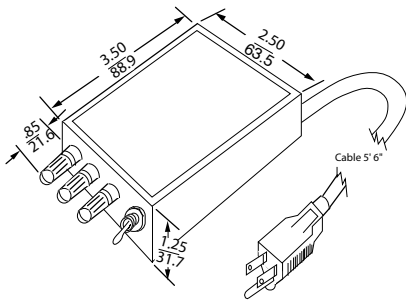
setra

**24 VDC Power Supplies****Models 867/867 30 V and Model 864**

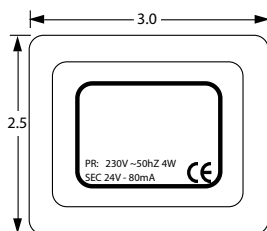
The Models 867 and 874 are low cost power supplies that have the advantage of being able to withstand a momentary short circuit without failure. Mounting holes are located on both sides of the unit for easy panel installation

**Model 868**

The Model 868 modular 100% encapsulated package offers the advantage of compact size, ruggedness, long life and environmental immunity. Packaging features such as #4-40 threaded inserts for mounting. AC power cord, banana jacks and on/off toggle switch facilitate its use as a stand alone unit or integral part of a pressure measurement system

**Model 890**

The Model 890 offers an enclosure for applications where exposed terminal strips are not allowed. The input cord has the standard European two prong adaptor and is 6 feet long. The output cord is 6 feet long #8 gauge wire.

**FEATURES****Model 867 & Model 867 30V**

- Small Size
- Light Weight
- Integral Barrier Strip Terminal for Input and Output Wiring
- Convenient Mounting Holes
- Withstands Momentary Short Circuit without Failure
- 24 or 30 VDC Excitation

**Model 868**

- Low Output Ripple
- Excellent Line & Load Regulation
- Short-Circuit Current Limiting
- 100% Encapsulated Package
- 24 VDC Excitation

**Model 874**

- Small Size
- Light Weight
- Integral Barrier Strip Terminal for Input and Output Wiring
- Convenient Mounting Holes
- Withstands Momentary Short Circuit without Failure
- 24 VDC Excitation from 220 to 240 VAC Input

**Model 874**

- Standard European Style Adaptor
- No Exposed Terminal

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

### SPECIFICATIONS MODELS 867/867 30V/ 874

<b>Output</b>	
Model 867	24 VDC unregulated filtered
	<29 VDC with no load, >21 VDC at 100 mA No more than 0,7 pk - pk ripple
Model 867 30V	30 VDC unregulated filtered
Model 874	24 VDC @ 80 mA <29 VDC with no Load
<b>Input</b>	
Model 867 & 867 30V	120 VAC, 60Hz
Model 874	220-240 VAC, 50/60 Hz

### SPECIFICATIONS MODEL 868

Input Voltages	105 to 125 VAC
Input Frequency	50 to 440 Hz
Output Voltage	Isolated $\pm 12$ VDC 100 mA (Use as 24 VDC w/Setra transducers). Some require 12 VDC Excitation
Line Regulation	0.05% LL-HL
Load Regulation	0.1%NL-FL
Ripple	<1 mV RMS
I/O Isolation	50 megohms Min.
Short Circuit Protection	Current Limiting (140%)
Storage Temperature	-55°C to $\pm 85^\circ$
Operating Temperature	-25°C to $\pm 71^\circ\text{C}$
Temperature Coefficient	0.02%/°C (typical)
Wiring Instructions	Red: +Out; White: common; Black - Out

### SPECIFICATIONS MODEL 890

Input Voltage	220 to 240 VAC
Input Frequency	50/60 HZ
Output Voltages	24 VDC @ 80 mA





### Applications

- Hospital Patient Isolation Wards
- Pharmaceutical
- Semiconductor Fabs
- Cleanrooms
- Research Laboratories
- Animal Resource Facilities

### Model SRAN - Remote Annunciator

Setra's Remote Annunciator (SRAN) allows remote indication of room pressure status at monitoring/nurses station. A Green LED indicates Normal room condition, a Red LED and Audible Alarm signal a breach in room pressure status.

The SRAN is the same size as a standard electrical wall plate (2.75"W x 4.5"H) and fits flush to the wall. It can be mounted to the wall using a standard electrical box.

Under normal conditions the Green LED remains. When an alarmed condition occurs (i.e., room pressure falls outside preset range) a signal is triggered by the SRPM, the Green LED shuts off, the Red LED flashes and the Audible Alarm sounds. The acknowledge button can be pressed to momentarily turn-off the Audible Alarm and the Red LED will continue to flash until the alarmed condition is corrected. When the alarmed condition is corrected the annunciator will reset itself. The Green LED will turn-on, the Red LED and Audible alarm will shut off.

### SPECIFICATIONS

Enclosure	2.75"W x 4.5"H aluminum wall cover plugs
Display Panel	Red and Green LED Indicators, Acknowledgement Switch
External Power Supply	15 VDC, 50 mA Max.
Audible Alarm	0 dBA - 85 dBA measured 4 inches from Annunciator
Time Delay	Adjust at (SRPM) Room Pressure Monitor
Note: The SRAN operates with the SRPM and SRCM or with any dry contact and an external power supply	



### Model RPS - Room Pressure Snubber








The RPS is a stainless steel room static pressure sensor that has the same footprint (2.75"W x 4.5"H) as your standard electrical wall plate. It can be mounted to the wall using a standard electrical box.

### ORDERING INFORMATION

Model	Part Number
SRAN	S R A N
RPS	R P S

**The Stainless Steel Static Pressure Tips** are used to measure static pressure in ducts or rooms. They are to be connected to differential pressure switches and transmitters. Two static pressure sensors are used in applications where differential pressure is required across a filter or coil. These sensors include a mounting flange with integral rubber gasket and two screws for simplifying mounting on a duct.

**Brass Static Pressure Tips:** These sensors are for use with manometers, Magnahelic gages, pressure switches and other controllers to pick-up or sense static pressure drop across air filters and cooling coils, blower input and discharge pressure, etc. The angles tips shown have 4" insertion depth. Each has four radially drilled 0.040" sensing holes. No. 242904 and 242905 are suitable for use in low velocity systems or where the need for accuracy is less critical.

ORDERING INFORMATION	PART NUMBER	DESCRIPTION
	242901-04	Static Pressure Sensor, 4" straight static pressure tip with flange
	242901-06	Static Pressure Sensor, 6" straight static pressure tip with flange
	242901-08	Static Pressure Sensor, 8" straight static pressure tip with flange
	242902-04	Static Pressure Tip for 1/4" metal tubing connection
	242902-06	Static Pressure Tip, with 6" insertion depth
	242902-08	Static Pressure Tip, with 8" insertion depth
	242902-12	Static Pressure Tip, with 12" insertion depth
	242903-04	Static Pressure Tip for 3/16" and 1/8" I.D. plastic or rubber tubing
	242903-06	Static Pressure Tip with 6" insertion depth
	242904	Static Pressure Fitting for 1/4" metal tubing connection
	242905	Static Pressure Tip for 3/16" and 1/8" I.D. plastic or rubber tubing

# Model 299 Dri-Sense



## FEATURES

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

## Description

The NEMA 4X rated Model 299 Dri-Sense pressure transducer enclosure is designed for field termination of pressure transducers.

Desiccant material contained within the cover captures and condenses moisture through surface adsorption, providing an effective barrier against the ingress of humidity into the pressure transducer's sensor. When replacement is necessary the user is alerted through the clearly visible desiccant status window, which changes from blue (dry) to pink (saturated).

With a life expectancy of 6 months, the desiccant can be regenerated by removing the cover and baking it in a 200°F oven for 3 to 4 hours or until it returns to its dry status (blue). To ensure uninterrupted system operation, replacement desiccating covers are available.

The Model 299's case is constructed of sturdy plastic glass-filled polycarbonate (U94AB-0) and is designed with easy access to terminal connections. NEMA 4X (IP65) rated for indoor and outdoor installations. The Model 299 includes integral surge protection to protect the circuit board from a voltage surge up to 2000 volts.

## SPECIFICATIONS

Electrical (Current)	
Input	4 to 20 mA
Excitation	5 to 33 VDC
Electrical (Voltage)	
Input	0 to 6 VDC
Excitation	5 to 33 VDC
Electrical Termination	PG9 Strain Relief
Surge Suppression	Up to 2000 Voltage

## 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 or C.O.D. (For international customers, separate payment terms apply.)

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. factory, Boxborough, Massachusetts, USA. 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
1 to 4	0
5 to 9	2 1/2%
10 to 14	5%
15 to 19	7 1/2%
20 to 29	10%
30 to 49	12 1/2%
50 up	On Request

## SHIPPING

Prices include packaging for normal transportation via UPS, Mail, or Airfreight. USA shipments via UPS unless ordered otherwise. Shipping charges are prepaid and added to invoice.

## MAIL, FAX, TELEPHONE, OR EMAIL ORDER 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](mailto:orders@setra.com)

## RETURNED PRODUCT POLICY

Authorization must be obtained from Setra prior to returning new, unused product.\* Products must be returned, freight prepaid, within 6 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:

- 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;
- the product has not been repaired or altered by anyone except SETRA or its authorized service agencies;
- the serial number or date code has not been removed, defaced, or otherwise changed; and
- examination discloses, in the judgment of SETRA, the defect in materials or workmanship which developed under normal installation, use and service;
- 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.







**Setra Systems, Inc.**

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