Model 239/C239
High Accuracy/Low Range Pressure
Differential Pressure: 0 - ±0.25 in. W.C. to 0 -10 psid
Pressure Media Air or Other Gases

Setra's 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.

Full Scale Ranges

Pressure Range	Proof Pressure	
Unidirectional Pressure	Positive	Negative
0 to 0.5 in. WC	5 PSI	2.5 in. WC
0 to 1 in. WC	7 PSI	5 in. WC
0 to 2.5 in. WC	10 PSI	12.5 in. WC
0 to 5 in. WC	20 PSI	25 in. WC
0 to 15 in. WC	50 PSI	75 in. WC
0 to 30 in. WC	50 PSI	150 in. WC
0 to 5 PSID	75 PSI	25 PSI
0 to 10 PSID	100 PSI	50 PSI
Bidirectional Pressure		
0 to ± 0.25 in. WC	5 PSI	2.5 in. WC
0 to ± 0.5 in. WC	7 PSI	5 in. WC
0 to ± 1 in. WC	10 PSI	12.5 in. WC
0 to ± 2.5 in. WC	20 PSI	25 in. WC
0 to ± 7.5 in. WC	50 PSI	75 in. WC
0 to ± 15 in. WC	50 PSI	150 in. WC
0 to ± 2.5 PSID	75 PSI	25 PSI
0 to ± 5 PSID	100 PSI	50 PSI
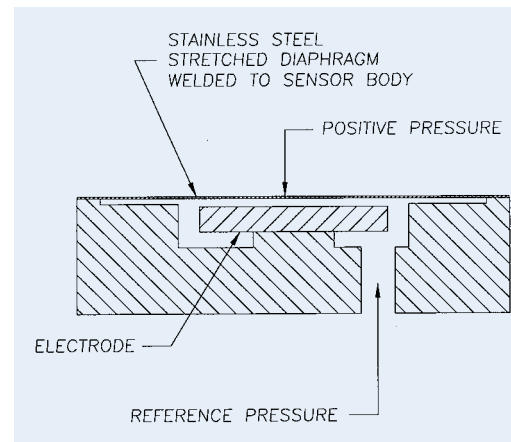
NOTE: Setra adheres to strict quality standards including ISO 9001 and ANSI-Z540-1. The calibration of this product is NIST traceable.

U.S. Patent nos. 4093915

When it comes to a product to rely on - choose the Model 239. When it comes to a company to trust- choose Setra.

setra
ISO-9001 Certified

800-257-3872
Visit Setra Online:
http://www.setra.com

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Model 239/C239 Specifications

Performance Data

Accuracy RSS at constant temp.*	±0.14% FS
Non-Linearity, BFSL	±0.10% FS
Hysteresis	0.10% FS
Non-Repeatability	0.02% FS
Thermal Effects**	
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.

*RSS of Non-Linearity, Non-Repeatability and Hysteresis
**Units calibrated at nominal 70°F. Maximum thermal error computed from this datum. x 2 for 0.5 and ±0.25 in. WC ranges.

Environmental Data

Temperature	
Operating °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

Pressure Media

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

Electrical Data (Model 239)

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

*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.
**Calibrated into 50K ohm load. Operable into 5000 ohms or greater.
*** Zero output factory set to within ±5 mV.
    Span (Full Scale) output factory set to within ±5 mV.

Electrical Data (Model C239)

Circuit	2-Wire
Output*	4 to 20 mA **
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)

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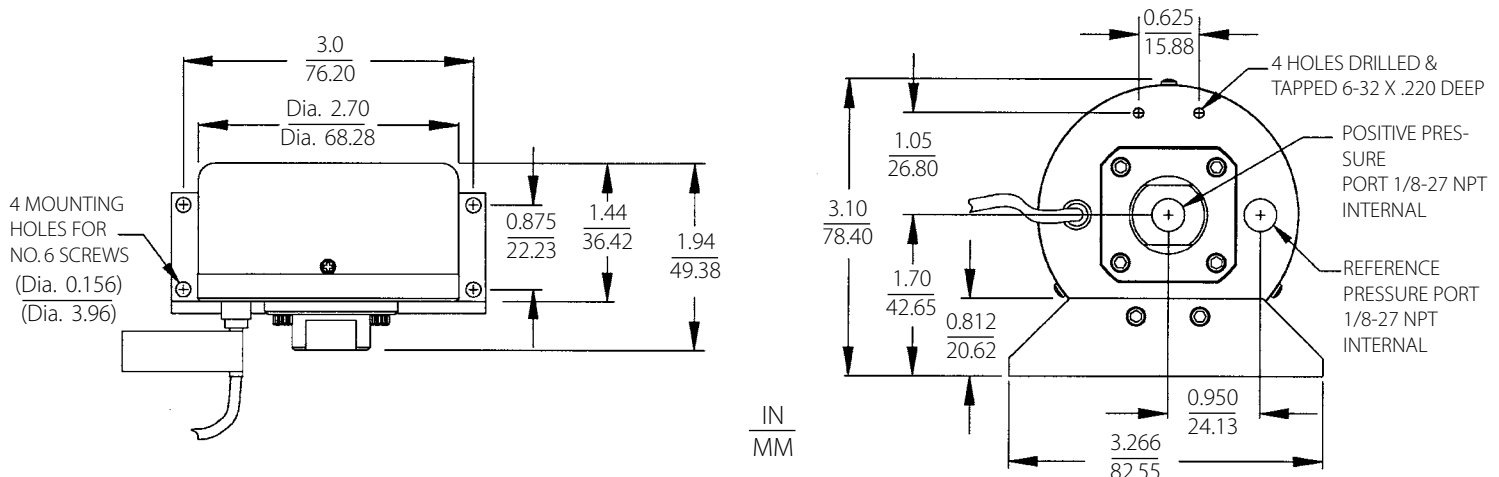
Options

Model 239

602	Special Output 1 to 5 VDC
603	Special Output 1 to 6 VDC
604	Special Output 0 to 10 VDC
607	Special Output 0 to 5 VDC (bi-directional ranges)
621	Special Excitation ±24 VDC
622	Special Excitation ±15 VDC
642	Remote Full Scale Sensitivity
643	Remote Calibration (Adjustable)
644	Remote Calibration (Fixed)

Models 239/C239

702	Compensated Temperature -65° to +250°F; (double the standard thermal effect specification).
710	±0.073% FS Accuracy (RSS)
803–825	Up to 25 ft. of cable can be supplied on your order; please specify cable length when ordering (eg. 805 for 5 ft. cable). Consult factory for cables longer than 25 ft.
860	303SS Pressure Housing on Positive Port
904	Cleaning for Oxygen Service
911	Etched metal stainless steel tags
SR	Special Pressure Range

Note: Application of some available options may impact standard specifications.

Ordering Information

Order as Model 239 pressure transducer or Model C239 pressure transmitter. Specify pressure range, desired electrical output, and options.

Specifications subject to change without notice.

Outline Drawings

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