

# Model 239

## High Accuracy Low Differential Pressure Transducer

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

### Long-Term Reliability

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

### Accuracy & Performance For Low Pressure Ranges

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

### Customization is Standard

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



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

### Model 239 Features:

- Optional High Accuracy: 0.073% FS
- Fast Response Time: <10ms
- Fast Warm-Up: <0.1% over 5 min.
- Low Thermal Error
- CE & RoHS Compliant

### Applications

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

# Model 239

## High Accuracy Low Differential Pressure Transducer



### ORDERING INFORMATION

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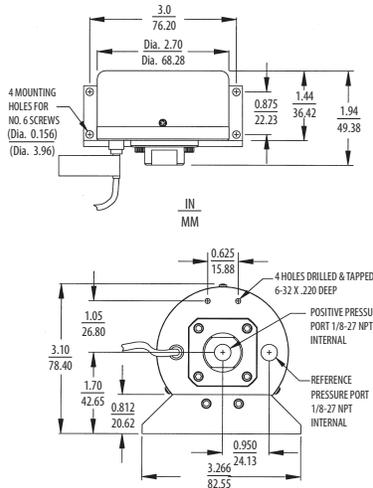
Model	Pressure Ranges		Pressure Fitting	Output	Termination	Accuracy	Options <sup>4</sup>
2391=239	Unidirectional	Bidirectional	1F 1/8" NPT Int.	2S ±2.5 VDC <sup>1</sup>	02 2' Cable 22 GA	W ±0.14% FS	N None
	0R5WD 0 to 0.5 in. W.C.	R25WB ±0.25 in. W.C.		2B 0 to 5 VDC <sup>2</sup>	10 10' Cable 22 GA	9 ±0.073% FS	1 3035S Housing Positive Port
	001WD 0 to 1 in. W.C.	0R5WB ±0.5 in. W.C.		27 1 to 5 VDC	25 25' Cable 22 GA		3 Compensated Temp. Range (-65 to 250°F) <sup>6</sup>
	2R5WD 0 to 2.5 in. W.C.	001WB ±1 in. W.C.		28 1 to 6 VDC	Y1 2' 30 GA 9-Conductor <sup>3</sup>		4 Viton O-Ring
	005WD 0 to 5 in. W.C.	2R5WB ±2.5 in. W.C.		2C 0 to 10 VDC	Y3 5' 30 GA 9-Conductor <sup>3</sup>		D Mate with Datum
	015WD 0 to 15 in. W.C.	005WB ±5 in. W.C.		2T 0 TO 5 VDC <sup>1</sup>	Y4 10' 30 GA 9-Conductor <sup>3</sup>		E Special Excitation Voltage ±24 VDC
	030WD 0 to 30 in. W.C.	7R5WB ±7.5 in. W.C.			Y6 25' 30 GA 9-Conductor <sup>3</sup>		G Special Excitation Voltage ±15VDC
	005PD 0 to 5 PSID	015WB ±15 in. W.C.					L Etched SS Tags
	010PD 0 to 10 PSID	2R5PB ±2.5 PSID					M Remote Full Scale Sensitivity <sup>5</sup>
	250LD 0 to 250 Pa	005PB ±5 PSID					R Remote Calibration (Adjustable) <sup>5</sup>
	500LD 0 to 500 Pa	125LB ±125 Pa					S Remote Calibration Adjustment (Fixed) <sup>5</sup>
	10CLD 0 to 1000 Pa	250LB ±250 Pa					Y Clean for Oxygen
	20CLD 0 to 2000 Pa	500LB ±500 Pa					
	50CLD 0 to 5000 Pa	10CLB ±1000 Pa					
	010KD 0 to 10 kPa	25CLB ±2500 Pa					
	015KD 0 to 15 kPa	50CLB ±5000 Pa					
	035KD 0 to 35 kPa	75CLB ±7500 Pa					
	070KD 0 to 70 kPa	035KB ±35 kPa					

<sup>1</sup>2S and 2T are for Bidirectional Pressure Ranges Only  
<sup>2</sup>2B is for Unidirectional Pressure Ranges Only  
<sup>3</sup>Y1-Y6 = Red Jacket Cable (Previously the standard for voltage outputs.)  
<sup>4</sup>Both boxes must filled in alphanumeric order:  
 • If No options: N + N  
 • If 1 option: Option Code + N  
 • If 2 options: Option Code + Option Code  
<sup>5</sup>Options M, R & S are for voltage units and Y1-Y6 Termination Codes  
<sup>6</sup>2x Thermal Effects Specification  
 Specifications subject to change without notice.

Example: Part No. 2391005PB1F2502WNN = Model 239, ±5 PSID pressure range, 1/8" NPT int. fitting, ±2.5 VDC, 2' Cable Length, ±0.14% FS Accuracy, No Options.

### GENERAL SPECIFICATIONS

### DIMENSIONS



### PROOF PRESSURE

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

Performance Data		Physical Description	
Accuracy RSS <sup>1</sup> at constant temp	±0.14% FS	Pressure Fittings	1/8" -27NPT internal
Non-Linearity (BFSL)	±0.10% FS	Electrical Connection	2' Multiconductor cable
Hysteresis	0.10%FS	Weight (approx)	8 oz
Non-Repeatability	0.02% FS	Vibration	2g from 5 Hz to 500 Hz
Warm-up Shift	<±0.1% FS residual shift after 5 minutes	Internal Volumes	Positive port 0.03 in <sup>3</sup> Negative port 0.1 in <sup>3</sup>
Setting Time	<100ms	Max Volume Change at FS	0.001 in <sup>3</sup>
Acceleration Response	<0.0002 PSIG	Acceleration	10g Max
Natural Frequency	2000 Hz nominal	Shock	50g Operating
Operable Line Pressure	Vacuum to Max 250 PSIG	Electrical Data (Voltage)	
Line Pressure Effect	2%/100 PSI	Circuit	4-Wire (+Exc, -Exc, +Out, -Opt)
Thermal Effects <sup>2</sup>		Excitation <sup>5</sup>	22 to 30 VDC (reverse excitation protected)
Compensated Range °F(°C)	+30 to +150 (-1 to -65)	Output Impedance	<10 ohms
Zero/Span Shift %FS/100°F(50°C)	<+1 (<±0.9)/<+1(<±0.9)	Output Noise	<200 microvolts RMS (in band, 0Hz to 10kHz)
<b>Environmental Data</b>		Output <sup>6</sup>	See ordering information (for unidirectional ranges) ±2.5 VDC (for bidirectional ranges)
Operating Temp. <sup>3</sup> °F (°C)	0 to +175 (0-18 to +80)		
Storage Temp. °F (°C)	-65 to +250 (-55 to +120)		
<b>Pressure Media</b>			
<b>Positive Pressure Media:</b> Gases compatible with stainless steel, hard anodized 6061 aluminum (Buna-N O-ring)			
<b>Reference Pressure Media:</b> Clean dry air or other gases (non-corrosive, non-condensable)			
<b>Approvals</b>			
CE, RoHS			