Model 230
True Wet-to-Wet Differential Pressure Transducer

The Model 230 is Setra's highest accuracy solution for monitoring differential pressure in wet-to-wet applications. Its single diaphragm design enables a true wet-to-wet differential pressure measurement with superior ±0.25% FS accuracy compared to competitive units which calculate differential pressure using two single point pressure sensors. The stainless steel capacitive sensor provides a highly accurate, linear analog output proportional to the pressure over a wide temperature range. The 230 is offered with an optional 3 or 5 valve machined brass manifold for ease of installation and maintenance.

Avoid Line Pressure w/ Single Diaphragm Sensor
Unlike the competition, the 230 is a true wet-to-wet sensor with a single diaphragm construction. The differential pressure range of a single diaphragm is not impacted by line pressure whereas dual differential pressure sensors require the individual sensors to measure gauge pressure, comparing the outputs to determine the differential pressure.

Increase the Sensors Response Time
The 230 utilizes an all stainless steel capacitive sensor which responds 20x faster than oil filled sensors and provides conditioned electronic circuitry with a highly accurate, linear analog output proportional to the pressure over a wide temperature range.

Save Time on Money & Installation
When time and project costs are a priority, the 230 is offered with an optional 3 or 5 valve machined brass manifold for ease of installation and maintenance. The brass body has no internal process connections, therefore eliminating the risk of internal leaks.

Model 230 Features:
- Only true wet-to-wet differential pressure transducer on the market
- ±0.25% FS Accuracy
- Available to 1 PSID with 350 PSI Line Pressure
- No Liquid Fill Diaphragm
- NEMA 4 Rated Housing
- Low Line Pressure Effect
- Fast Response Time
- Gas & Liquid Compatible
- CE & RoHS Compliant

Applications:
- Energy Management Systems
- Process Control Systems
- Flow Measurement of Various Gases or Liquids
- Liquid Level Measurement or Pressurized Vessels
- Pressure Drop Across Filters
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True Wet-to-Wet Differential Pressure Transducer

**GENERAL SPECIFICATIONS**

### Bidirectional

<table>
<thead>
<tr>
<th>Pressure Range (PSI)</th>
<th>Proof Pressure High Side PSI</th>
<th>Proof Pressure Low Side PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to ±0.5</td>
<td>50</td>
<td>2.5</td>
</tr>
<tr>
<td>0 to ±1.0</td>
<td>50</td>
<td>2.5</td>
</tr>
<tr>
<td>0 to ±2.5</td>
<td>100</td>
<td>6.35</td>
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<tr>
<td>0 to ±5.0</td>
<td>100</td>
<td>12.5</td>
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<tr>
<td>0 to ±10.0</td>
<td>200</td>
<td>25</td>
</tr>
<tr>
<td>0 to ±25.0</td>
<td>350</td>
<td>62.5</td>
</tr>
<tr>
<td>0 to ±50.0</td>
<td>350</td>
<td>125</td>
</tr>
</tbody>
</table>

### Unidirectional

<table>
<thead>
<tr>
<th>Pressure Range (PSI)</th>
<th>Proof Pressure High Side PSI</th>
<th>Proof Pressure Low Side PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 1.0</td>
<td>50</td>
<td>2.5</td>
</tr>
<tr>
<td>0 to 2.0</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>0 to 5.0</td>
<td>100</td>
<td>12.5</td>
</tr>
<tr>
<td>0 to 10.0</td>
<td>100</td>
<td>25</td>
</tr>
<tr>
<td>0 to 25.0</td>
<td>350</td>
<td>62.5</td>
</tr>
<tr>
<td>0 to 30.0</td>
<td>350</td>
<td>75</td>
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<tr>
<td>0 to 50.0</td>
<td>350</td>
<td>125</td>
</tr>
<tr>
<td>0 to 100.0</td>
<td>350</td>
<td>250</td>
</tr>
</tbody>
</table>

### Environmental Data

- Operating Temperature °F (°C): 0 to +175 (-18 to +80)
- Storage Temperature °F (°C): -65 to +250 (-54 to +121)
- Vibration: 5 g from 5 Hz to 500 Hz
- Acceleration: 10g
- Shock: 50g

### Pressure Media

- Model 230
  - Gases or liquids compatible with 17-4 PH Stainless Steel, 300 Series Viton O-Rings. Note: Hydrogen not recommended for use with 17-4 PH stainless steel. Optional Buna-N O-rings are recommended for hydrocarbon applications.

### Electrical Data (Voltage)

#### Circuit
- 3-Wire (Exc, Out, Com)
- Model 230
  - Excitation: 9 to 30 VDC for 0-5 VDC Output, 13 to 30 VDC for 0-10 VDC Output
  - Output: 0 to 5 VDC, 0 to 10 VDC
  - Output Impedance: 100 ohms

### Environmental Data (5-Valve Manifold Assembly)

- Manifold Block: Brass
- Valve Type: 3-way
- Process Connection: 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

### Physical Description (Model 230)

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

### Performance Data

- Accuracy RSS (at constant temp): ±0.20% FS
- 3% of Non-Linear, BFSL: ±0.20% FS
- Hysteresis: ±0.10% FS
- Non-Repeatability: ±0.05% FS

### Pressure Fittings

- 1/4"-18 NPT Internal Thread

### Zero Shift

- ±0.004% FS/PSIG line pressure
- Zero output factory set to ±0.06 mA

### Span Shift

- ±0.20% FS
- ±0.25% FS

### Celsius to Fahrenheit Conversion

- Maximum pressure range: 0 to ±175 °C (0 to ±347 °F)
- Pressure media: Gases or liquids compatible with 17-4 PH Stainless Steel, 300 Series Viton O-Rings. Optional Buna-N O-rings are recommended for hydrocarbon applications.

### Specifications

- Specifications subject to change without notice.
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MODEL 230 DIMENSIONS

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.
**Model 230**

True Wet-to-Wet Differential Pressure Transducer

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
<th>Pressure Fitting</th>
<th>Output</th>
<th>Bleed Screw Seals</th>
<th>Optional</th>
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<tbody>
<tr>
<td>2301  = 230</td>
<td>Unidirectional</td>
<td>Bidirectional</td>
<td>2F</td>
<td>1/4&quot; NPT (F)</td>
<td>11 4-20 mA</td>
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<tr>
<td>001PD</td>
<td>0 to 1 PSID</td>
<td>0RSPB</td>
<td>±0.5 PSID</td>
<td>3V 3-Valve Manifold</td>
<td>2D 0.05-5.05 VDC</td>
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<tr>
<td>002PD</td>
<td>0 to 2 PSID</td>
<td>001PB</td>
<td>±1 PSID</td>
<td>5V 5-Valve Manifold</td>
<td>2E 0.05-10.05 VDC</td>
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<td>005PD</td>
<td>0 to 5 PSID</td>
<td>2RSPB</td>
<td>±2.5 PSID</td>
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<tr>
<td>010PD</td>
<td>0 to 10 PSID</td>
<td>005PB</td>
<td>±5 PSID</td>
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<td>025PD</td>
<td>0 to 25 PSID</td>
<td>010PB</td>
<td>±10 PSID</td>
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<td>030PD</td>
<td>0 to 30 PSID</td>
<td>025PB</td>
<td>±25 PSID</td>
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<td>050PD</td>
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<td>050PB</td>
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<tr>
<td>100PD</td>
<td>0 to 100 PSID</td>
<td></td>
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</tr>
</tbody>
</table>

Please contact factory for versions not shown.

Ordering Example: 2301005PD2F11B = Model 230 0 to 5 PSID unidirectional, 1/4-18 NPT Ext. 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).

**DIMENSIONS W/ 5-VALVE MANIFOLD ASSEMBLY**

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.