Model 522
Industrial OEM Pressure Transducers

DESCRIPTION
Setra’s Model 522 General Purpose pressure transducer is designed for OEM industrial applications that require exceptional stability and high accuracy. The Model 522’s CVD strain gauge design is resistant to aging and virtually insensitive to thermal transients and pressure cycling. The stability of this technology assures the user of high reliability with less than 0.2% drift per year.

All wetted parts are constructed of corrosion-resistant 17-4 PH stainless steel, which makes this unit ideal for use when corrosive media.

The Model 522 offers 0.25% FS accuracy (optional 0.15% FS), compensated temperature range of -5°F to 180°F (-20°C to 80°C), gauge, absolute, and compound pressure ranges from -14>7 psi up to 6000 psi.

The Model 522’s modular design is offered in a wide choice of millivolt, voltage or current outputs over almost any pressure range, and a variety of pressure and electrical connections, enabling this unit to be custom configured for your OEM application.

Depending upon the electrical connection selected, when coupled with the Model 522 enclosure, which is fabricated in 316 SS/17-4 PH SS, this unit is rated for IP65 or IP67 operation.

Principle of Operation:
Using the well proven Wheatstone Bridge Principle, a chemical vapor is deposited in thin layers or silicon and silicon dioxide onto a stainless steel sensor to form a very sensitive and accurate polysilicon strain gauge. The elements of the strain gauge are fused together at the atomic level, assuring the strength and integrity of the bond, which exceeds the adhesives used in common bonded strain gauge pressure sensors. A custom designed ASIC performs signal amplification and temperature compensation. This technology offers the user the option of configurable output and pressure ranges, sets the zero and span tolerance, and ensures interchangeability from unit to unit.

FEATURES
- General Purpose
- Off-Highway Vehicles
- Industrial OEM Equipment
- Hydraulic Systems
- Pumps and Compressors
- Industrial Engines
- Process Applications

APPLICATIONS
- Superior Stability Avoids Down Time
- ±0.25% FS Accuracy (Optional ±0.15%)
- Millivolt, Voltage, or Current Outputs
- IP65 and IP67 Rated
- Meets CE Conformance Standards

OUTLINE DRAWING

Shown w/4-Pin MINI DIN Connector and Mate and 1/4-18 NPT Male Pressure Fitting

Shown with IP67 Weatherproof Cable and 7/16-20 UNF Male SAE #4 Pressure Fitting

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# SPECIFICATIONS

<table>
<thead>
<tr>
<th>Performance Data</th>
<th>Environmental Data</th>
<th>Electrical Data (Voltage)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accuracy RSS(^1) (at constant temp)</strong></td>
<td>±0.25% FS</td>
<td></td>
</tr>
<tr>
<td>±0.15% FS, Optional</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Thermal Effects(^2)</strong></td>
<td>Operating(^\d) °F (C)</td>
<td></td>
</tr>
<tr>
<td>for Elec. Code E1</td>
<td>-40 to +260 (-40 to +125)</td>
<td></td>
</tr>
<tr>
<td>for Elec. Code N1</td>
<td>-5 to +180 (-20 to +80)</td>
<td></td>
</tr>
<tr>
<td>for Elec. Code NA</td>
<td>-5 to +125 (-20 to +50)</td>
<td></td>
</tr>
<tr>
<td><strong>Compensated Range (\d) °F (C)</strong></td>
<td>-5 to +180 (-20 to +80)</td>
<td></td>
</tr>
<tr>
<td>Storage(^\d) °F (C)</td>
<td>for Elec. Code E1</td>
<td>-40 to +260 (-40 to +125)</td>
</tr>
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<td></td>
</tr>
<tr>
<td><strong>Accuracy (\d)% FS</strong></td>
<td>±0.25% FS</td>
<td></td>
</tr>
<tr>
<td>Zero/Span Shift %FS/100°F (100°C)</td>
<td>0.8 (1.5)</td>
<td></td>
</tr>
</tbody>
</table>

## Electrical Data (Voltage)

### Output\(^6\)
- 0 to 5VDC, 0 to 10VDC, 0.5 to 5.5 VDC, 1 to 5 VDC, 1 to 6 VDC, 1 to 11 VDC
- 0.1 to 5.1 VDC, 0.2 to 10.2 VDC

### Current Composition\(^7\)
- Approx. 6mA @ 7.5 VDC output

### Current Composition\(^8\)
- 0-5V, 0-10V

### Electrical Data (Current)

### Output\(^9\)
- 4 to 20 mA

### Electrical Data (Millivolt)

### Output\(^10\)
- 100mV (10mV/V)

### Bridge Resistance
- 2500-6000 Ohms

## Physical Description
- Units of calibrated at normal 70°F. Maximum thermal error computed from this datum.
- Units of calibrated at normal 70°F. Maximum thermal error computed from this datum. Operating/Storage temperature limits of the corrector only.
- Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel.

### Pressure Media
- Liquids or gases compatible with 17-4 PH Stainless Steel
- Hydrogen not recommended for use with 17-4 PH Stainless Steel

### Long-Term Stability
- 0.2% FS/year

### Shock
- 20g, 11 ms, per MIL-STD-810E Method 516.4 Procedure

### Compensated Range
- -5 to +180 (-20 to +80) °F (°C)

### Storage Range
- -5 to +125 (-20 to +50) °F (°C)

### Operating Range
- -5 to +125 (-20 to +50) °F (°C)

### Response Time
- 0.5 ms

### Proof Pressure
- 2 x FS (1.5 x FS for 400 bar, >= 5000 Psi)

## Environmental Data

### Temperature
- Circuit
- 3-Wire (Exc, Out, Com)

### Excitation
- 1.5 VDC Above Span to 35 VDC

### Compensation Range
- 0.8 (1.5) °F (°C)

### Zero/Span Shift %FS/100°F (100°C)
- 0.5 (1.0) °F (°C)

### Acceleration
- 100g (3g) ±10g (10g) ±4g (4g) 

### Vibration
- 70g Peak to Peak Sinusoidal, 5 to 2000 Hz (Random)

### Response Time
- 0.5 ms

### Temperature
- Operating/Storage temperature limits of the corrector only.

### Relaxation
- 0.2% FS/year

### Shock
- 20g, 11 ms, per MIL-STD-810E Method 516.4 Procedure

### Compensation Range
- -5 to +180 (-20 to +80) °F (°C)

### Storage Range
- -5 to +125 (-20 to +50) °F (°C)

### Operating Range
- -5 to +125 (-20 to +50) °F (°C)

### Response Time
- 0.5 ms

### Proof Pressure
- 2 x FS (1.5 x FS for 400 bar, >= 5000 Psi)

## Ordering Information

### Model Range

### Pressure Fitting

### Output

### Electric Term.

### Accuracy

### Options

### Notes:
- Compound and absolute ranges available through 300 psi only.
- Available w/ intrinsic safe option.
- I.T. approved for Class 1, Div. 1, Groups C & D, hazardous areas.
- ETL approved for Class 1, Div. 1, Groups C & D, hazardous areas.
- Equipment certified to CE, Intrinsic Safe P1, and FCC Part 15 B, Class B.

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