**GENERAL**
Micron’s (DBST) Dual Bridge Stress and Temperature Sensor is a miniature dual measurement 17-4 CRES sensor that uses Wheatstone bridges with Micron’s semiconductor strain gages to measure stress or load, and a single semiconductor crystal to accurately measure temperature - all in a miniature package. Keeping the sensor small minimizes perturbations in the normal stress field. The DBST’s high spring constant allows measurement of stress in viscoelastic materials. It’s high frequency and over-range capability allows the 100 psi sensor to work up to 3000 psi.

For ease of installation, the electrical cable is a miniature flex 0.137 wide by 0.010 thick. The bridge completion housing is optionally integrated into the connector. Miniature cable options are also available, as seen in the picture on the right, below.

The sensor can be bonded to a shim to provide a flat surface when mounting the sensor on curved areas. All of this keeps the adhesive compliance to a minimum and optimizes the measurement accuracy.

Thermal hysteresis analysis and long-term stability data are available as options.

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**APPLICATIONS**
- Prognostic Health Monitoring
- Industrial Control
- Robotics
- Buildings, bridges and tunnels

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**MECHANICAL**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
</table>
| Standard Pressure Ranges             | 100 psi (G-Gaged or R-Sealed Reference) (7.03 kg/cm²)
|                                      | 200 psi (G-Gaged or R-Sealed Reference) (14.06 kg/cm²) |
| Over Pressure (No change in performance) | 4.0x Range                        |
| Maximum Over Range Without Failure  | 30x Range (140820)                  |

**PERFORMANCE (STRESS)**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance (Zero) Output @ STP Conditions</td>
<td>0.0 ± 2.0 mV</td>
</tr>
<tr>
<td>Full Scale Sensitivity</td>
<td>20 ± 1.0 mV</td>
</tr>
<tr>
<td>Static Error Band (Max)</td>
<td>± 0.25% FS *BFSL (*Best Fit Straight Line)</td>
</tr>
<tr>
<td>Operational Temperature Range</td>
<td>-100 to 325 °F</td>
</tr>
<tr>
<td>Compensated Temperature Range</td>
<td>-50 to 150 °F</td>
</tr>
<tr>
<td>Balance TC (Max)</td>
<td>&lt; ± 0.06 % FS / °F (0.04 % FS / °C)</td>
</tr>
<tr>
<td>Sensitivity TC (Max)</td>
<td>&lt; ± 0.02 % FS / °F (0.009 % FS / °C)</td>
</tr>
</tbody>
</table>

**PERFORMANCE (TEMPERATURE)**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output (Max)</td>
<td>0 ± 4 mV at 0°F</td>
</tr>
<tr>
<td></td>
<td>150 ± 4 mV at 150°F</td>
</tr>
<tr>
<td></td>
<td>Centigrade Calibration Consult Factory</td>
</tr>
</tbody>
</table>

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4509 Runway Street ● Simi Valley, California 93063 ● Phone: (805) 522-4676 ● Fax: (805) 522-4982

sensors@microninstruments.com ● www.microninstruments.com
**Environmental**

- **Storage and Operating Temperature**: -100°F to 325°F ( -73°C to +162°C )
- **Compensated Temperature Range**: -50°F to +150°F ( -46°C to +66°C )
- **Acceleration**: 100g’s Any Axis
- **Other Temperature Compensated Ranges**: Consult Factory

**Electrical**

- **Input (Constant Current)**: 4.0 mA
- **Input Impedance (Nominal) (75°F/24°C)**: 500 ± 100 Ω
- **Output Resistance (Nominal) (75°F/24°C)**
  - Stress Sensor: 450 ± 50 Ω
  - Temperature Sensor: 300 ± 500 Ω
- **Insulation Resistance Minimum**: 50 MΩ @ 50 VDC

**Ordering Guidelines**

**Example**

- **Model Number**: 140820
- **B. Pressure Range 100 PSI**
- **C. PSI Options**
  - R - PSIR  R = Sealed Reference
  - G - PSIG  G = Gaged
- **E. Cable length**
  - (12 foot Standard)
- **F. Options**
  - A = Thermal Hysteresis Data
  - B = <1% FS/yr. Long Term Stability
  - C = <0.5% FS/yr. Long Term Stability
  - D = Long Term Stability Data
  - E = Custom applications - Call for Details

Model 140820 is a 100 PSI R Sealed Reference Sensor with 12 feet of cable and Options A, C, D.

A = Thermal Hysteresis Data
C = <0.5% FS/yr. Long Term Stability
D = Long Term Stability Data

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**SCHEMATIC**

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