High Temperature, Radiation Hardened, Charge Output Accelerometer

- +900 °F (+482 °C) Temperature Range
- 10 pC/g Sensitivity
- 24 kHz Resonant Frequency
- Survives Integrated Gamma Flux to $10^8$ Rads
- Survives Integrated Neutron Flux to $10^{10}$ N/cm²
- Measures Vibration on Turbines, Engines, Exhaust Systems

**Model 357B61** high temperature accelerometer offers operation to temperatures that are well beyond the capability of most conventional piezoelectric vibration sensors. The unit is well-suited for vibration studies on turbomachinery, power generation equipment, exhaust systems, and in extreme, high-temperature ambient environments. Additional features include a robust, all-welded, hermetically sealed, Inconel® housing and a supplied 10 ft (3 m) hardline cable.

The unit conveniently operates with PCB's specially designed in-line charge converters and ICP® sensor signal conditioners, which serve to condition the output signal for recording or analysis. Alternatively, this accelerometer can be used with laboratory-style charge amplifiers — as long as the input resistance capability of the charge amplifier is known to accommodate the lower resistance values that can occur with accelerometers operating above +500 °F (+260 °C).

As with all PCB® instrumentation, this sensor is complemented with toll-free applications assistance, 24-hour customer service, and is backed by a no-risk policy that guarantees satisfaction or your money refunded.
**Specifications**

### Model 357B61

#### Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>357B61</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>± 10%</td>
</tr>
<tr>
<td>Measurement Range</td>
<td>± 3000 pC</td>
</tr>
<tr>
<td>Frequency Range</td>
<td>± 5% Hz</td>
</tr>
<tr>
<td>Resonant Frequency</td>
<td>≥ 24 kHz</td>
</tr>
<tr>
<td>Non-Linear</td>
<td>≤ 1%</td>
</tr>
<tr>
<td>Transverse Sensitivity</td>
<td>≤ 3%</td>
</tr>
</tbody>
</table>

#### Dimensions

- High Temperature, Charge Output Accelerometer
- Dimensions shown are in inches (millimeters)

#### Environmental

- Overload Limit (axial direction): ± 5000 g ± 49,050 mV/s²
- Temperature Range: -65 to +900 °F (-54 to +482 °C)
- Integrated Gamma Flux: ≤ 10⁶ rad
- Integrated Neutron Flux: ≤ 10¹⁰ N/cm²

#### Electrical

- Polarity: Acceleration directed from Negative mount surface into base
- Capacitance: 550 pF
- Insulation Resistance (at 70 °F): ≥ 10⁸ ohm
- Insulation Resistance (at 900 °F): ≥ 10⁵ ohm
- Capacitance: 550 pF
- Insulation Resistance (at 70 °F): ≥ 10⁸ ohm
- Insulation Resistance (at 900 °F): ≥ 10⁵ ohm

#### Physical

- Sensing Element: Ceramic
- Sensing Geometry: Compression
- Housing Material: Inconel®
- Sealing (welded): Hermetic
- Size (hex x height): 5/8 in x 1.0 in
- Weight: 1.1 oz
- Electrical Connector (side): 10-32 coaxial
- Mounting Thread: 10-32 female

#### Supplied Accessories

- Model 081B05 Mounting Stud, 10-32 to 10-32 thread
- Model M081B05 mounting stud, 10-32 to M6 x 0.75 thread
- Model 023A10 Hardline Cable, 10 ft (3 m) length, 10-32 plug to 10-32 jack
- NIST Traceable Calibration Certificate

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### In-line charge converters

In-line charge converters are powered from conventional ICP® sensor signal conditioners and serve to condition the charge-output accelerometer signal into a usable voltage signal for readout, recording, or analysis. Models 422E35 and 422E36 charge converters maintain operation at lower source resistances encountered when operating sensors at temperatures >500° F (260° C). Models 422E65/A and 422E66/A are Rad Hard and maintain operation at lower source resistances encountered when operating sensors at temperatures >500° F (260° C). Request data sheet for full specifications.

<table>
<thead>
<tr>
<th>Model</th>
<th>Charge Conversion</th>
<th>Integrated Gamma Flux</th>
<th>Integrated Neutron Flux</th>
</tr>
</thead>
<tbody>
<tr>
<td>422E35</td>
<td>1 mV/pC</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>422E36</td>
<td>10 mV/pC</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>422E65/A</td>
<td>1 mV/pC ≤ 10⁶ Rads</td>
<td>N/A</td>
<td>≤ 10¹⁰ N/cm²</td>
</tr>
<tr>
<td>422E66/A</td>
<td>10 mV/pC ≤ 10⁶ Rads</td>
<td>N/A</td>
<td>≤ 10¹⁰ N/cm²</td>
</tr>
</tbody>
</table>

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### Radiation Environment

- Safe Zone: ≤ 900 °F (482 °C) ≤ 250 °F (121 °C)
- Radiation Environment: A B1 or B2 C D E F G

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**Recommended Components for a Typical Installation**

- **A** High temperature, radiation hardened accelerometer.
- **B1** Series 023 hardline cable, (for up to +900 °F [+482 °C]).
- **B2** Series 025JGxxxJG cable assembly, 10-32 plug each end (for up to +390 °F [+199 °C], specify xxx length in feet).
- **C** In-line charge converter, Model 422E65/A or 422E66/A.
- **D** Series 025JGxxAC cable assembly, 10-32 plug to BNC plug.
- **E** ICP® sensor signal conditioner.
- **F** Model 012A03 output cable, BNC plug each end.
- **G** Readout, recording, or data acquisition device.

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**The Vibration Division of PCB® Piezotronics, Inc. specializes in the development, application, and support of shock and vibration sensors, microphones, impact hammers, piezoelectric actuators, and dynamic strain sensors for acceleration measurements, acoustic testing, and structural testing requirements. This product focus, coupled with the strengths and resources of PCB, permits the Vibration Division to offer exceptional customer service, 24-hour technical assistance, and a Total Customer Satisfaction guarantee.**

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