Multi-Axial Accelerometers

**DESCRIPTION**
Series 3001 Multi-Axial accelerometers are hermetically sealed instruments for simultaneous measurement of acceleration on one, two, or three axes: vertical, longitudinal, and lateral.

These accelerometers consist of up to three separate, rugged seismic sensors responding to forces along each axis. Each sensor consists of a bending beam, with strain-gages forming a full Wheatstone Bridge, and a mass. An advanced solid-state electronic signal conditioning package compliments the mechanical configuration.

These units are designed for use in military and commercial aircraft which utilize digital flight data acquisition and recording systems. Each of the accelerometers meets the mandatory requirements of FAA and other worldwide regulatory agencies. They are designed to ARINC specifications 573 and 717, and tested to TSO C51a and RTCA DO-160. They are directly interchangeable with any accelerometer now in service and are compatible with any digital flight data recording system.

**OPTIONS**
- Multiple (1-3) axes
- Special Ranges
- Special Output

**APPROVALS**
- TSO C51a
- CAA Appliance Registration Reference AR-361

**APPLICATIONS**
- Digital flight data recording per ARINC 542, 573, and 717

**FEATURES**
- **Range**
  - Vertical: +6G to -3G
  - Longitudinal: ±1G
  - Lateral: ±1G
- **Tested To**
  - TSO C51a
  - RTCA DO-160 ENV CAT D2AJER/XHXXKX/XFXABBAB
- **Compliance**
  - ARINC 573
  - ARINC 717
  - ARINC 542A
- **Certification**
  - With flight data recorder system or STC
- **Compact Sizes**
  - 4 in. x 2.5 in. x 3 in.
  - 3.25 in. x 3.25 in. x 3.5 in.
  - 4 in. x 2.5 in. x 2.55 in.
- **Light Weight**
  - 16-24 oz.
## Specifications

### Electrical Characteristics
Range:

<table>
<thead>
<tr>
<th>Axis</th>
<th>Range</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up</td>
<td>+6G</td>
<td>5000 mV</td>
</tr>
<tr>
<td>Down</td>
<td>-3G</td>
<td>200 mV</td>
</tr>
<tr>
<td>Forward</td>
<td>+1G</td>
<td>5000 mV</td>
</tr>
<tr>
<td>Aft</td>
<td>-1G</td>
<td>200 mV</td>
</tr>
<tr>
<td>Right</td>
<td>+1G</td>
<td>5000 mV</td>
</tr>
<tr>
<td>Left</td>
<td>-1G</td>
<td>200 mV</td>
</tr>
</tbody>
</table>

Axial Null:
Vertical=1800 mV; Longitudinal=2600 mV; Lateral=2600 mV
Excitation: 21-32 VDC (28 VDC nominal)
Output: 6.5 VDC maximum
Accuracy to: 0.75% FSO
Resolution: Infinite
Supply Current: Less than 75 mA 32 VDC excitation

### Environmental Characteristics
Temperature Operating Range: -65° to 185°F (-54° to 85°C)
Compensated Range: -65° to 160°F (-54° to 71°C)
Thermal Effect on Zero: ±0.01% FSO/°F
Thermal Effect on Sensitivity: ±0.01% FSO/°F
Vibration: 5-2000 Hz, 10G maximum at one octave/minute sweep rate
Shock: Peak acceleration of 6G minimum for duration of 11 milliseconds at 1/2 sine wave
Insulation Resistance: 100 Mohms minimum at 50 VDC

### Mechanical Characteristics
Hermetically Sealed Connector: MS 3113 H12C10P typical
MS 3113 H12C8P for single and dual axis ARINC 542A mtg. base
Weight: 24 oz. maximum

### Pin Configuration
**MS 3113 H12C10P**
- Excitation: A, B
- Vertical: C, D
- Lateral Right: E, F
- Longitudinal Forward: G, H
- Case Ground: J, K

**MS 3113 H12C8P**
- Vertical: A, B
- Signal Ground: C, D
- Excitation: E, F
- Spare: G, H

**Ordering Information**

```
3 0 0 1 - 0 1 - X X X -
```

Suffix: Used only for special applications.
- Longitudinal: 1 = ±1G (Standard)
- Lateral: 1 = ±1G (Standard)
- Vertical: 1 = ±6G to ±3G (Standard)

Basic Model

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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Longitudinal</td>
<td>±1G (Standard)</td>
<td></td>
</tr>
<tr>
<td>Lateral</td>
<td>±1G (Standard)</td>
<td></td>
</tr>
<tr>
<td>Vertical</td>
<td>±6G to ±3G (Standard)</td>
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<thead>
<tr>
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<tbody>
<tr>
<td>X</td>
<td>O=Not Installed</td>
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<tr>
<td>X</td>
<td>O=Not Installed</td>
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<tr>
<td>X</td>
<td>O=Not Installed</td>
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