Triaxial piezoresistive accelerometer
Model 7274

The ENDEVCO® Model 7274 series is a family of rugged, undamped, piezoresistive triaxial accelerometers designed for high-acceleration shock measurements in three mutually perpendicular axes. This family uses three sensors that are packaged in a mutually orthogonal arrangement in a two bolt-mount housing which shares the same footprint and bolt pattern as ENDEVCO® Model 7270A. The housing boasts a robust eight conductor cable that can repeatedly withstand the high-acceleration shock environment.

The Model 7274 utilizes the same highly efficient sensing system as the Model 7270A. For each axis, the sensor is sculptured from a single chip of silicon, which includes the inertial mass and strain gages arranged in a four-active-arm Wheatstone bridge circuit. The Model 7274 is available in ranges from 2,000 g to 60,000 g, with all three axes having the same range. Selectable ranges per axis are available by special request.

60,000 g ranges are subject to International Traffic in Arms Regulations (ITAR), and as such a license is required for shipments outside the U.S. and other restrictions may apply.

Key features

- 2000, 6000, 20 000 and 60 000 g ranges
- High resonance frequency
- Rugged to 3X full scale range
- No damping for fast response time
- Minimal zero shift after shock
## Specifications

All specifications are referenced at +75°F (+24°C) and 5 Vdc, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

### Dynamic characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Units</th>
<th>2K</th>
<th>6K</th>
<th>20K</th>
<th>60K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear range</td>
<td>g</td>
<td>2,000</td>
<td>6,000</td>
<td>20,000</td>
<td>60,000</td>
</tr>
<tr>
<td>Sensitivity min/typ [1]</td>
<td>μV/g</td>
<td>25/50</td>
<td>7.5/15</td>
<td>2.5/5</td>
<td>.75/1.5</td>
</tr>
<tr>
<td>Natural frequency [typ]</td>
<td>kHz</td>
<td>90</td>
<td>180</td>
<td>350</td>
<td>700</td>
</tr>
<tr>
<td>Shock limit [max]</td>
<td>g</td>
<td>6,000</td>
<td>18,000</td>
<td>60,000</td>
<td>180,000</td>
</tr>
<tr>
<td>Zero measure and output [max]</td>
<td>mV</td>
<td>±50</td>
<td>±50</td>
<td>±50</td>
<td>±50</td>
</tr>
<tr>
<td>Transverse sensitivity [typ]</td>
<td>%</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Thermal zero shift [typ] [2]</td>
<td>mV</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>0°F to +150°F (-18°C to +66°C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal sensitivity shift [typ]</td>
<td>%/C</td>
<td>-0.12</td>
<td>-0.12</td>
<td>-0.12</td>
<td>-0.12</td>
</tr>
</tbody>
</table>

### Electrical characteristics

- Excitation: Vdc
- Resistance:
  - Input: Ω
  - Output: Ω
- Isolation resistance: 100 MΩ min at 50 VDC between cable leads and cable shield or case

### Physical characteristics

- Case material: 17-4 PH CRES
- Weight (excluding cable): 2.9 grams
- Cable weight: 10.2 grams/meter [0.11 ounces/foot]
- Cable: [8] 34 AWG SPC alloy conductors, with SPC braided shield and FEP jacket
- Mounting: 4-40 high strength screws (x2)
- Recommended mounting torque: 8 ± 2 lbf-in [0.9 N-m]

### Environmental

- Temperature:
  - Operating (3) (4): °C (°F) - 55 to +121 [-67 to +250]
  - Storage: °C (°F) - 55 to +121 [-67 to +250]

### Calibration data

Data for sensitivity, ZMO, input and output resistance are supplied on the calibration certificate. Unless specified by the customer at time of order, the default calibration will be performed at 5 Vdc excitation.
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Accessories

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>7274</th>
</tr>
</thead>
<tbody>
<tr>
<td>EH815</td>
<td>[2] 4-40 high strength screws</td>
<td>Included</td>
</tr>
<tr>
<td>EHW265</td>
<td>[2] No. 4 washers</td>
<td>Included</td>
</tr>
</tbody>
</table>

Notes

1. Sensitivity measured at 5,000g, except for 2,000g model measured at 2,000g.
2. Operating temperatures above 93K (200°F) result in unpredictable thermal zero shift. TZS should be monitored and/or managed by auto-zeroing to insure no loss in data due to signal saturation.
3. 150°F is the maximum recommended operating temperature with 10 Vdc excitation. In applications requiring higher operating temperatures, lower excitation voltage is recommended.
4. For the 7274-60K, the over range limit is reduced to 120,000 g when operating at temperatures above 60° C (150° F) and to 60,000 g when operating at temperature above 93° C (200° F).
5. Maintain high levels of precision and accuracy using Endevco’s factory calibration services. Call Endevco’s inside sales force at 866-ENDEVCO for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.
6. Model number definition:

   7274 - XXX - E - ZZZ

   - Cable length in inches (i.e., 7274-XXX-E-120 has a length of 120 inches)
   - If no dash number is specified the default is 48 inches
   - for lengths < 10 ft specify in 1 foot increments (60", 72", 84" … 120")
   - for lengths > 10 ft specify in 5 foot increments (180", 240", 300", etc.)
   - Excitation voltage option (omit dash number for default voltage of 5VDC)
   - Range
     - -2K = 2000 g
     - -6K = 6000 g
     - -20K = 20000 g
     - -60K = 60000 g

Basic Model Number