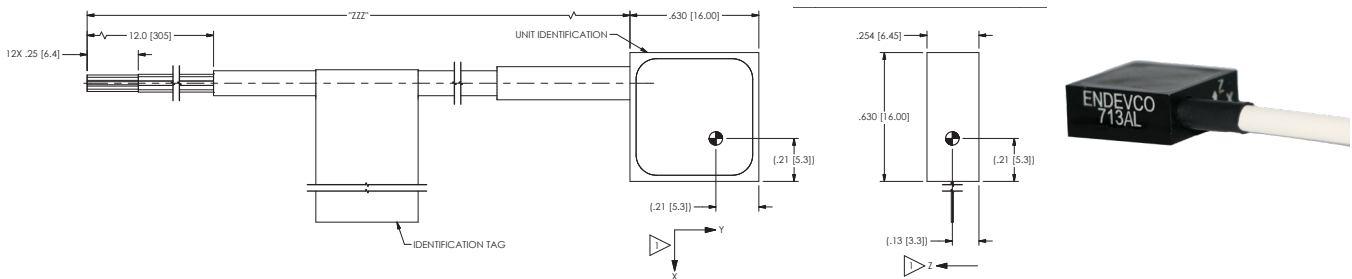
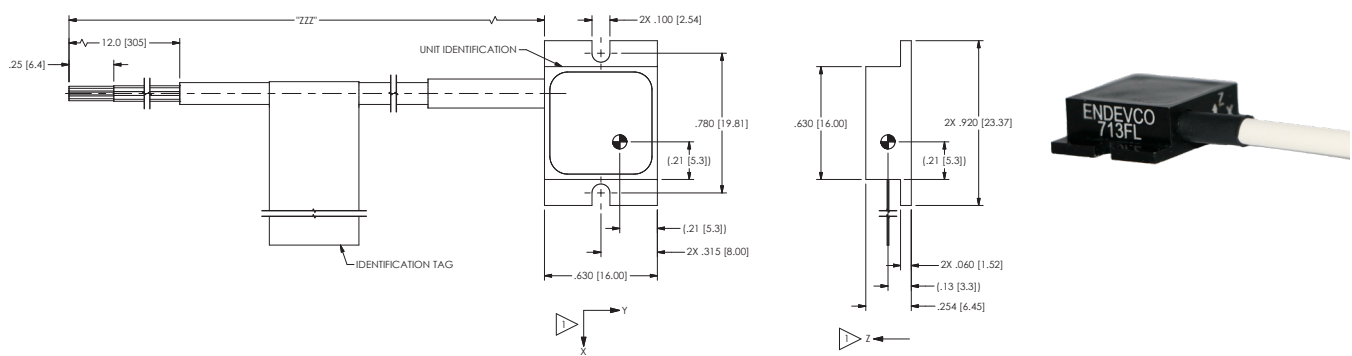


## ENDEVCO Triaxial piezoresistive accelerometer Model 713AL - 713FL

713AL



713FL



### Key Features

- 2000 g full scale range
- Multi-mode damping
- Meets SAEJ211/J2570 Frequency Response
- High output for excellent signal-to-noise ratio
- 713AL for adhesive mounting;  
713FL for screw mounting

### Description

The Endevco model 713AL and 713FL are an extremely small piezoresistive triaxial accelerometers designed for crash testing and similar applications that require minimal mass loading and a broad frequency response.

The 713AL and 713FL utilize three advanced micro machined, full-bridge sensors with gas damping and integral mechanical stops to ensure ruggedness, high output, high accuracy and high resonant frequency. Each accelerometer has full scale output of approximately  $\pm 600$  mV typical with a full scale acceleration of  $\pm 2000g$ , using 10 Vdc excitation. These models include multi-mode damping, producing excellent response over a broad frequency range. With a frequency response extending down to dc (steady state) acceleration, this accelerometer is ideal for measuring long duration transient shocks.

## ENDEVCO Triaxial piezoresistive accelerometer | Model 713AL - 713FL

All specifications assume +75°F (+24°C) and 10 Vdc excitation unless otherwise stated. Calibration data, traceable to the National Institute of Standards and Technology (NIST), is supplied..

| Specifications                       |  |   |
|--------------------------------------|--|---|
| Dynamic characteristics              | Units  | ±2000   |
| Sensitivity (100 Hz & 10g) [1]       |  |   |
| Typical                              | mV/g   | 0.30  |
| Minimum                              | mV/g   | 0.10  |
| Frequency response, all 3 axes [2]   |  |   |
| ± 5%                                 | Hz   | 0 to 3000                                     |
| Zero measurand output                | mV   | ±40 maximum                                   |
| Non-linearity [3]                    | %  | ±1 max to 1000g                               |
| Thermal zero shift (Typical)         |  |   |
| -40°F to +212°F                      | %FSO/°F  | ± 0.04  |
| (-40°C to +100°C)                    | %FSO/°C  | ± 0.02  |
| Thermal sensitivity shift (Typical)  |  |   |
| -40°F to +212°F                      | %/°F   | 0.1   |
| (-40°C to +100°C)                    | %/°C   | 0.2   |
| Transverse sensitivity               | %  | 3   |
| Electrical                           |  |   |
| Excitation voltage                   | Vdc  | 2.0 to 10.0                                   |
| Max exc. voltage without damage      | Vdc  | 12.0  |
| Resistance                           |  |   |
| Input (each axis)                    | Ω  | 3000 ± 1500                                   |
| Output (each axis)                   | Ω  | 3000 ±1500                                    |
| Insulation Resistance                | Ω  | 100M minimum @50Vdc (cable shield to housing) |
| Physical                             |  |   |
| Housing material                     | Hard anodized aluminum alloy housing with Stycast fill, color black  |   |
| Cable, integral                      | Integral 12 conductor No. 30 AWG, FEP insulated leads, braided shield, white polyurethane jacket, OD 0.122" (3mm)              |   |
| Weight (transducer, excluding cable) | 713AL: 3.5 grams<br>713FL: 4 grams   |   |
| Weight of cable                      | 18.9 grams/meter   |   |
| Mounting/torque                      | 713AL: Adhesive<br>713FL: 2x #2-56 socket head cap screws<br>3.5 in-lbf (0.40 N-m) recommended / 4.0 in-lbf (0.45 N-m) maximum |   |
| Environmental                        |  |   |
| Temperature                          |  |   |
| Operating                            | -40°F to +212°F (-40°C to +100°C)  |   |
| Storage                              | -40°F to +212°F (-40°C to +100°C)  |   |
| Acceleration limits (any direction)  |  |   |
| Shock                                | 10000 g  |   |
| Sealing, humidity                    | IP67   |   |
| Altitude                             | Unaffected   |   |
| Calibration data                     |  |   |
| Sensitivity                          | 10g, 100Hz at 5V and 10V   |   |
| ZMO                                  | at 5V and 10V  |   |
| Frequency Response                   | 20 to 3500 Hz, Ref 100 Hz  |   |
| Input and Output Resistance          |  |   |

| Accessories |   |       |          |
|-------------|---|-------|----------|
| Options     | Description   | 713AL | 713-FL   |
| EH136       | Screw, socket head, 2-56 x 1/4 alloy steel blk oxide (x2) | N/A   | Included |
| EHM178      | Hex wrench 5/64   | N/A   | Included |

**Notes**

1. Positive acceleration along axes X, Y and Z in the directions marked on the housing will cause positive charge in the output voltage.

2. Frequency response is tested as follows to ensure it meets SAE J211/J2570 corridor:

|                 |                |
|-----------------|----------------|
| +2.92%/-2.84%   | 0 to 1200Hz    |
| +3.75%/-4.72%   | 1200 to 1650Hz |
| +5.44%/-6.78%Hz | 1650 to 3500Hz |

3. Reported linearity was tested using pop shock calibration. Tested at low frequencies on a centrifuge, the sensor has 1% linearity to 2,000g. The sensitivity reported on the standard calibration certificate is performed at 10g's. If the application calls for a shock measurement between 1,000g and 2,000g an alternate amplitude linearity calibration is recommended (EACS-109T). For more information on damped sensors and calibration method, please refer to TP343.

Model number definition:

