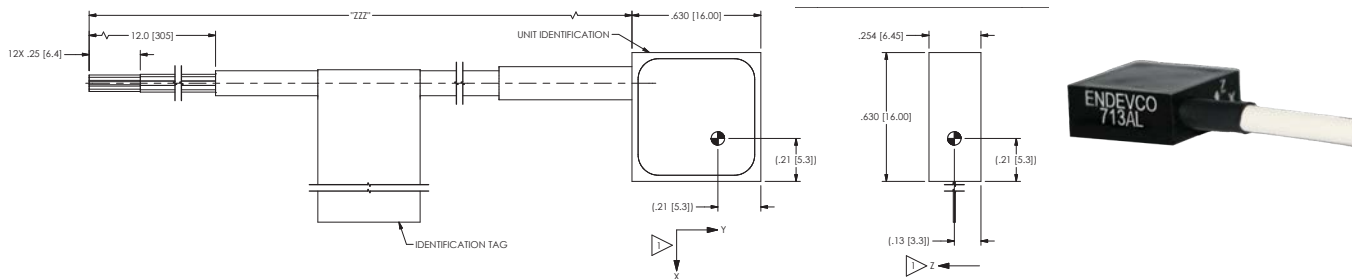
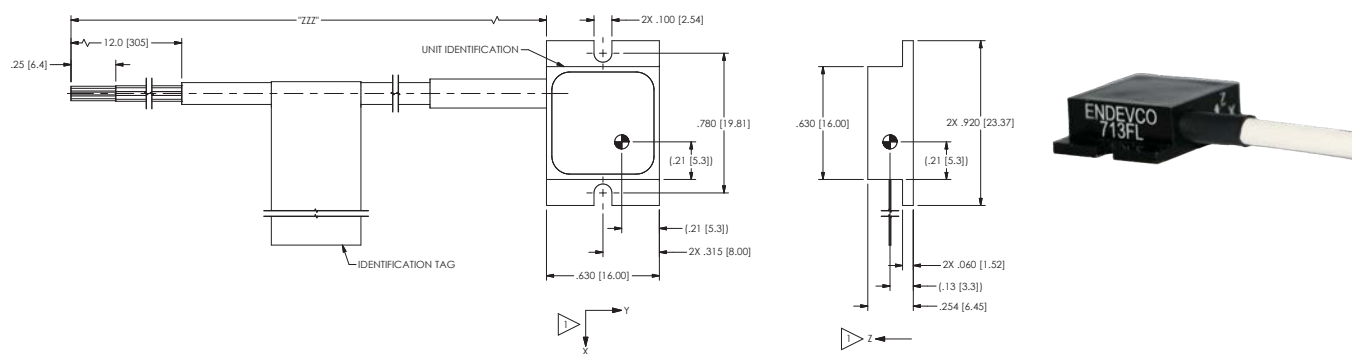


# Triaxial piezoresistive accelerometer

## 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.

## 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		
Max exc. voltage without damage	Vdc	2.0 to 10.0
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		
Cable, integral	Hard anodized aluminum alloy housing with Stycast fill, color black 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 713FL: 4 grams	
Weight of cable		
	18.9 grams/meter	
Mounting/torque		
	713AL: Adhesive 713FL: 2x #2-56 socket head cap screws 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		
Altitude	Sealed by epoxy, IP65 compliant Unaffected	
Calibration data		
Sensitivity		
ZMO	10g, 100Hz at 5V and 10V at 5V and 10V	
Frequency Response		
Input and Output Resistance	20 to 3500 Hz, Ref 100 Hz	

# Triaxial piezoresistive accelerometer | Model 713AL - 713FL

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

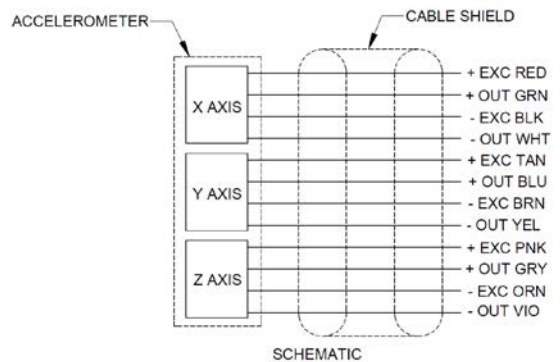
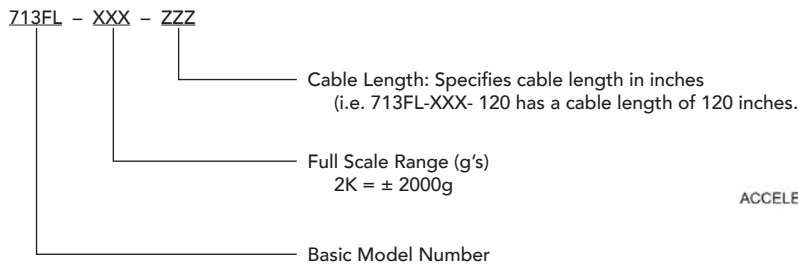
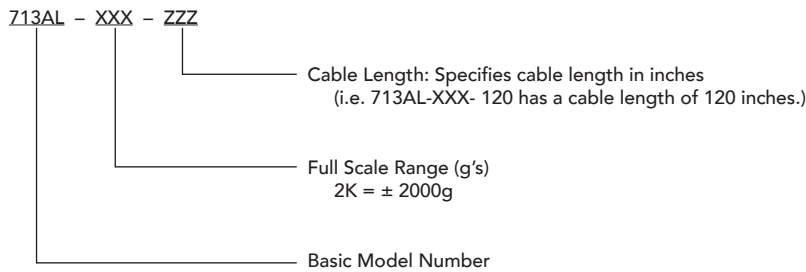
## Notes

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



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