

PERFORMANCE SPECIFICATION
TRIAxIAL ACCELEROMETER
Model (713FL-XXX-ZZZ)

Document Number	Rev	Date	Entered by	Description of Change	Change Accountable Engineer	ECO
78075	NR	7/27/23	NAD	Initial Release of Performance Specification of Accelerometer Model 713FL-XXX-ZZZ	JKN	54035

1.0 DESCRIPTION

The ENDEVCO® Model 713FL is an extremely small piezoresistive triaxial accelerometer designed for crash testing and similar applications that require minimal mass loading and a broad frequency response.

The Model 713FL utilizes 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 ± 600 mV typical with a full scale acceleration of $\pm 2000g$, using 10 Vdc excitation. The Model 713FL includes multi-mode damping, producing excellent response over a broad frequency range. With a frequency response extending down to dc (that is, steady state) acceleration, this accelerometer is ideal for measuring long duration transient shocks.

2.0 CERTIFIED PERFORMANCE

All specifications assume +75°F (+24°C) and 10 volts excitation, unless otherwise specified.

	<u>Units</u>	<u>-2K</u>
2.1 RANGE	g	± 2000
2.2 SENSITIVITY (100 Hz & 10g) [1]		
Typical	mV/g	0.30
Minimum	mV/g	0.10
2.3 FREQUENCY RESPONSE, ALL 3 AXES (Referenced to 100 Hz)		
		+2.92%/-2.84% 0-1200 Hz
		+3.75%/-4.72% 1200-1650 Hz
		+5.44%/-6.78% 1650-3500 Hz
Frequency response plots for each axis are supplied with each unit, with linear (percent) scale from 20 Hz to 3500 Hz.		
2.4 ZERO MEASURAND OUTPUT	mV	± 40
2.5 RESISTANCE		
Input, each axis	Ω	3000 ± 1500
Output, each axis	Ω	3000 ± 1500

	<u>Units</u>	<u>-2K</u>
3.0	<u>TYPICAL PERFORMANCE CHARACTERISTICS</u>	
	The following parameters are established from testing of sample units and are not 100% tested:	
3.1	NON-LINEARITY & HYSTERESIS [2] (% of reading, to full range)	%
		±1
3.2	THERMAL ZERO SHIFT (Typical) -40°F to +212°F, ref. +75°F (-40°C to +100°C, ref. +24°C)	%FSO/°F %FSO/°C
		±0.02 ±0.04
3.3	THERMAL SENSITIVITY SHIFT (Typical) -40°F to +212°F, ref. +75°F (-40°C to +100°C, ref. +24°C)	%/°F %/°C
		0.1 0.2
3.4	TRANSVERSE SENSITIVITY	%
		3
4.0	<u>ELECTRICAL</u>	
4.1	EXCITATION VOLTAGE	Vdc
	MAX. EXC. VOLTAGE WITHOUT DAMAGE	Vdc
		2.0 to 10.0 12.0
4.2	RESISTANCE Isolation (leads to cable shield, or case to cable shield)	Ω
		100M minimum @50Vdc
5.0	<u>PHYSICAL</u>	
5.1	HOUSING MATERIAL	Hard anodized aluminum alloy housing with Stycast fill, color black
5.2	CABLE, INTEGRAL	Integral 12 conductor No. 30 AWG, FEP insulated leads, braided shield, white polyurethane jacket. Specify desired cable length at time of order. [1]
5.3	WEIGHT (transducer, excluding cable)	0.14 oz (4.0 gm) typical
5.4	WEIGHT OF CABLE	0.20 oz/ft (18.9 gm/m) typical
5.5	MOUNTING	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

6.0 ENVIRONMENTAL

6.1 TEMPERATURE
Operating -40°F to +212°F (-40°C to +100°C)
Storage -40°F to +212°F (-40°C to +100°C)

6.2 ACCELERATION LIMITS (any direction)
Shock 10,000 g

6.3 SEALING, HUMIDITY Sealed by epoxy, IP65 compliant

6.4 ALTITUDE Unaffected

6.5 ESD SENSITIVITY Class 3B (>8000V) per Section 5.2 of MIL-STD-1686C.

7.0 CALIBRATION DATA

Sensitivity (10g, 100 Hz at 5V and 10V)
ZMO (at 5V and 10V)
Frequency Response (20 to 3500 Hz, Ref 100 Hz)
Input and Output Resistance

8.0 ACCESSORIES

8.1 SUPPLIED
EDVEH136 Screw, Socket Hd 2-56 x 1/4 Alloy Steel Blk Oxide, 2X
EDVEHM178 Allen Wrench, 5/64, 1X

9.0 NOTES

- [1] Positive acceleration along Axes X, Y, & Z (in the directions marked on the housing) will cause positive change in the output voltage for each of the sensors.
- [2] Linearity specification is based on centrifuge testing.

3 Model Number Definition:

