

Piezoelectric Accelerometer

ENDEVCO
MODEL
23

Model 23

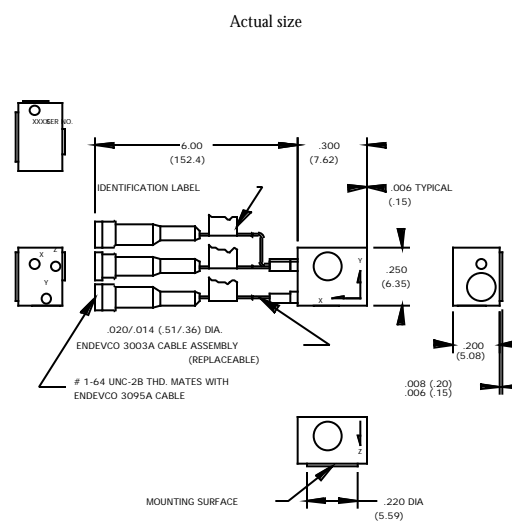
- Requires No External Power
- Radial Shear
- World's Smallest Triaxial
- Light Weight (0.85 gm)
- Ground Isolated
- Adhesive Mounting

DESCRIPTION

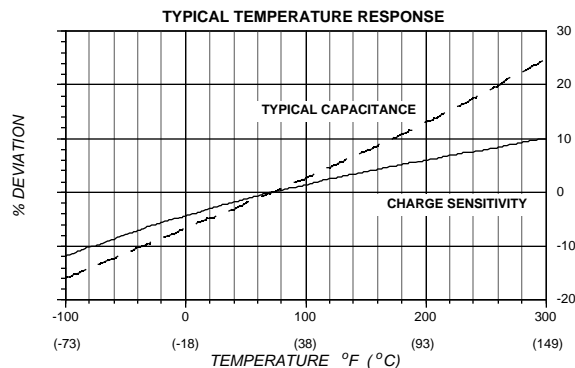
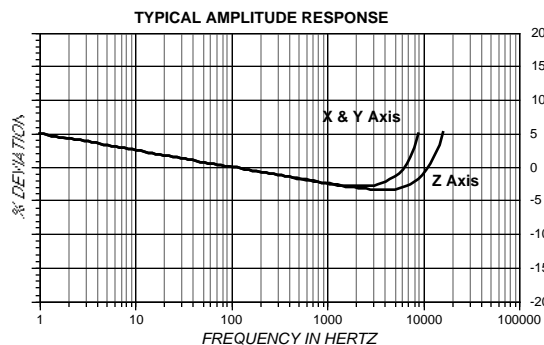
The ENDEVCO® Model 23 is the world's smallest triaxial piezoelectric accelerometer, designed specifically for vibration measurement in three orthogonal axes on small objects such as scaled models, circuit boards, and disk drives. Its light weight, 0.85 gm without the replaceable low-noise cables, effectively eliminates mass loading effects. All three low-noise cables exit from a single surface to allow mounting flexibility. The accelerometer is a self-generating device that requires no external power source for operation.

The Model 23 features ENDEVCO's PIEZITE® Type P-8 crystal elements, operating in radial shear mode, which exhibits excellent output sensitivity stability over time. Signal ground is isolated from the mounting surface of the unit by a hard anodized surfaces. Specially designed low-noise coaxial cables are supplied for error-free operation. A unit/cable removal tool is included in the package to ensure proper removal in the field.

ENDEVCO Signal Conditioner Models 133, 2775A or CCAS™ are recommended for use with this high impedance accelerometer.



STANDARD TOLERANCE
INCHES (MILLIMETERS)
.XX = +/- .02 (X = +/- .5)
.XXX = +/- .010 (XX = +/- .25)



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SPECIFICATIONS

The following performance specifications conform to ISA-RP-37.2 (1964) and are typical values, referenced at +75°F (+24°C) and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

DYNAMIC CHARACTERISTICS		Units
CHARGE SENSITIVITY		
TYPICAL	pC/g	0.40
MINIMUM	pC/g	0.30
FREQUENCY RESPONSE		
		See Typical Amplitude Response
RESONANCE FREQUENCY		
	kHz	50
AMPLITUDE RESPONSE [1]		
Z Axis: ±5%	Hz	1 to 10 000
X & Y Axis: + 10%, -5%	Hz	1 to 10 000
TEMPERATURE RESPONSE		
		See Typical Curve
TRANSVERSE SENSITIVITY		
	%	5
AMPLITUDE LINEARITY [3]		
	%	1
Per 250 g, 0 to 2000 g		

ELECTRICAL CHARACTERISTICS		
OUTPUT POLARITY		
		Acceleration applied in the direction of the arrow on the unit produces positive output
RESISTANCE		
	G	10
ISOLATION		
	G	1
CAPACITANCE		
	pF	230
Including 6 inch Model 3003 Cable Assy		

ENVIRONMENTAL CHARACTERISTICS		
TEMPERATURE RANGE		
		-100°F to +300°F (-73°C to +149°C)
HUMIDITY		
		Epoxy sealed, non-hermetic
SINUOSIDAL VIBRATION LIMIT		
	g pk	1000
SHOCK LIMIT [2]		
	g pk	10 000 in any axis
BASE STRAIN SENSITIVITY		
	equiv. g pk/μ strain	0.008
ELECTROMAGNETIC SENSITIVITY		
	equiv. g rms	0.09

PHYSICAL CHARACTERISTICS		
DIMENSIONS		
		See Outline Drawing
WEIGHT		
UNIT ONLY	gm (oz)	0.8 (0.03)
UNIT WITH CABLE	gm (oz)	1.7 (0.06)
CASE MATERIAL		
		Aluminum Alloy, hard anodized
CABLE DESCRIPTION [4]		
		Three 0.013 diameter TFE insulated coaxial cable, 0.003 diameter CRES center conductor, Teflon dielectric. CRES outer sheath
CABLE CAPACITANCE		
	pC	30
MOUNTING [5]		
		Adhesive

CALIBRATION		
SUPPLIED:		
SENSITIVITY		
Each Axis	pC/g	
CAPACITANCE		
Including 6 inch replaceable cable	pF	
TRANSVERSE SENSITIVITY		
	%	
CHARGE FREQUENCY RESPONSE		
	%	20 Hz to 10 kHz

ACCESSORIES	
P/N 18060	ACCELEROMETER AND CABLE REMOVAL WRENCH
Model 3095-120 (10 ft)	CABLE ASSEMBLY, Three each
P/N 16426	CAPSULE OF SILICONE COMPOUND
Model 3003A-6 (6 In.)	CABLE ASSEMBLY, Three each

NOTES

- Low-end response of the transducer is a function of its associated electronics.
- When exposed to high g, and large displacement, the cables must be tied down as close to the accelerometer as possible to prevent cable whip which will cause cable failure.

- Short duration shock pulses, such as those generated by metal-to-metal impacts, may excite transducer resonance and cause linearity errors. Send for TP290 for more details.
- See instruction manual before removing cable assemblies.
- Depending on the dynamic and environmental requirements, adhesives such as petro-wax, hot-melt glue, and cyanoacrylate epoxy (super glue) may be used to mount the accelerometer temporarily to the test structure. An adhesive mounting kit (P/N 31849) is available as an option from Endevco. When removing an epoxy-mounted accelerometer, first soften the epoxy with an appropriate solvent, then twist the unit off with the supplied removal tool. Failure to heed this caution may cause permanent damage to the transducer, which is not covered under warranty.