

Piezoresistive Accelerometer

**ENDEVCO
MODEL
7267A**

Model 7267A

- Triaxial Accelerometer
- DC Response
- 1500 g Full Scale
- Replaceable Sensors
- Undamped



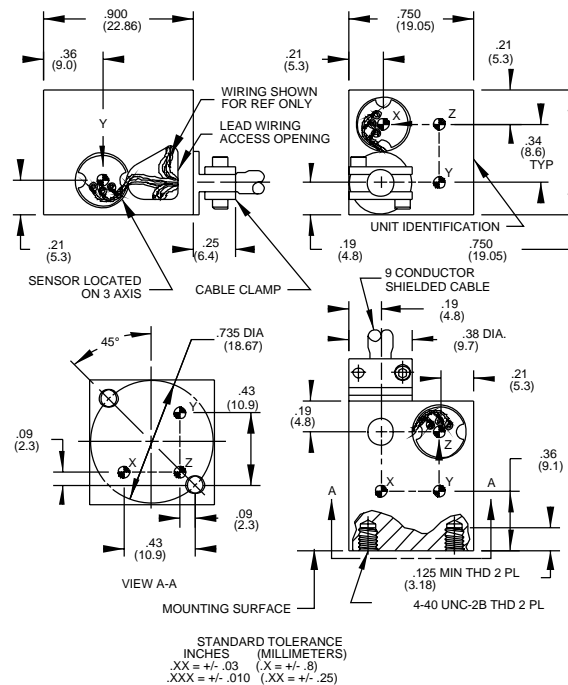
Actual size

DESCRIPTION

The ENDEVCO® Model 7267A is a replaceable-element triaxial accelerometer designed to measure acceleration in three mutually-perpendicular axes. Although designed for installation in anthropomorphic test dummies used in automotive crash studies, it has application wherever triaxial accelerometers are used for steady state or long duration pulse measurements. The Model 7267A uses ENDEVCO's PIEZITE® piezoresistive elements in half-bridge configuration and meets SAEJ211 specifications for anthropomorphic dummy instrumentation.

The three sensors are mutually perpendicular and are positioned so that theoretical lines drawn through the centers of the seismic masses intersect at a single point.

Each sensor is replaceable. It is held in place by a single screw for easy installation or removal by the user. Solder pins are provided for electrical connection of an easily replaced nine-conductor cable. Both side and top cable entry holes are provided. Accessories include a 10 ft. (3.05 m) cable and a mounting base. Sensors, housing and cable clamp are available as replacement components.



ENDEVCO Model 136 Three-Channel System, Model 4430A or OASIS 2000 Computer-Controlled System are recommended as signal conditioner and power supply.

SPECIFICATIONS

PERFORMANCE CHARACTERISTICS: All values are typical at 75°F (+24°C), 100 Hz and 10 Vdc excitation unless otherwise specified. Calibration data, traceable to the National Institute of Standards (NIST), is supplied.

	Units	7267A
RANGE	g pk	±1500
SENSITIVITY (at 100 Hz)	mV/g Typ (Min)	0.15 (0.10)
AMPLITUDE RESPONSE [1] [2]		
±5% (X and Y Axis)	Hz	0 to 1200
±5% (Z Axis)	Hz	0 to 2000
±1dB (X and Y Axis)	Hz	0 to 1600
±1dB (Z Axis)	Hz	0 to 2700
MOUNTED RESONANCE FREQUENCY [1]	Hz Typ (Min)	14 000 (10 000)
DAMPING RATIO		0.005
NON-LINEARITY AND HYSTERESIS (% of reading, to full range)	% Max	±2

Piezoresistive Accelerometer

SPECIFICATIONS—continued

PERFORMANCE CHARACTERISTICS—continued	Units	7267A
TRANSVERSE SENSITIVITY [3]	% Max	3
ZERO MEASURAND OUTPUT	mV Max	±25
THERMAL ZERO SHIFT [4]		
From -10°F to +150°F (-23°C to +66°C)	mV Max	±15
THERMAL SENSITIVITY SHIFT		
At -10°F and +150°F (-23°C and +66°C)	% Typ	± 3
WARM-UP TIME	Minutes Max	2

ELECTRICAL

EXCITATION [5] [6]	10.0 Vdc, 15 Vdc maximum
INPUT RESISTANCE [5] [7]	1000 ohms
INSULATION RESISTANCE	100 megohms minimum at 100 Vdc; pin to case

PHYSICAL

CASE, MATERIAL	Stainless Steel
ELECTRICAL, CONNECTIONS [8]	Integral cable, nine conductor No. 32 AWG, Teflon® insulated leads, braided shield, silicone rubber jacket
IDENTIFICATION	Manufacturer's logo, model number and serial number
MOUNTING/TORQUE	Holes for two 4-40 mounting screws/6 lbf-in (0.7 Nm)
WEIGHT	50 grams

ENVIRONMENTAL

ACCELERATION LIMITS (in any direction)	
Static	4000 g
Sinusoidal Vibration	1000 g pk below 2000 Hz
Shock (half-sine pulse) [1]	4000 g, 500 µsec or longer
TEMPERATURE	
Operating	-10°F to +150°F (-23°C to +66°C)
Storage	-100°F to +300°F (-73°C to +149°C)
HUMIDITY	Unaffected. Individual sensors are hermetically sealed.
ALTITUDE	Unaffected

CALIBRATION DATA SUPPLIED (X, Y and Z axes)

SENSITIVITY (at 100 Hz and 10 g pk)	mV/g
FREQUENCY RESPONSE	100-2000 Hz, Z axis, 100-1200 Hz, X & Y axis
ZERO MEASURAND OUTPUT	mV
MAXIMUM TRANSVERSE SENSITIVITY	% of sensitivity
INPUT RESISTANCE	Ohms

ACCESSORIES

23699	CABLE, 10 FT. (3.0 M). CABLE IS FACTORY-INSTALLED THROUGH TOP ENTRY. SIDE ENTRY ON SPECIAL ORDER.
23700	CABLE CLAMP
23898	MOUNTING BASE

OPTIONAL ACCESSORIES

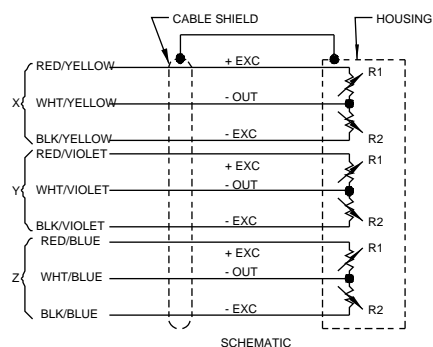
23937	HOUSING
24236	SENSOR (INCLUDES INSTALLATION HARDWARE KIT 24356)
2974M1	TRIAxIAL CALIBRATION FIXTURE X-Y AXIS
2974M2	TRIAxIAL CALIBRATION FIXTURE Z AXIS ONLY

NOTES

- In shock measurements, minimum pulse duration for half sine or triangular pulses should exceed 0.25 milliseconds to avoid excessive high frequency ringing.
- Mounting is in the Z axis. It is normal for accelerometers with multi-axes to have reduced frequency response performance in the axes perpendicular to the mounting.
- Transverse sensitivity is factory adjusted to be less than 3% before shipment. Replacement sensors must be measured and adjusted to ensure comparable performance.
- Thermal Zero Shift millivolts specified are at -10°F/+150°F (-23°C/+66°C), reference 75°F (24°C).
- Rated excitation is 10.0 Vdc. The strain gage elements have a positive temperature coefficient of resistance of approximately 0.5% per °F. Power supply current regulation capability should be carefully considered when operating at low temperature extremes.
- Other excitation voltages may be used to 15.0 Vdc. Specify at time of order to obtain a more accurate calibration.

- Half-bridge input resistance measured across the excitation leads. It does not include external bridge completion resistance. Measured at approximately 1 Vdc. Bridge resistance increases with applied voltage due to heat dissipation in the strain gage elements.
- Three pin solder terminations on each of three recessed surfaces. Cable entry holes for either side or top cable entry.
- Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 800-982-6732 for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

NOTE: Tighter specifications available on special order.



Continued product improvement necessitates that Endevco reserve the right to modify these specifications without notice. Endevco maintains a program of constant surveillance over all products to ensure a high level of reliability. This program includes attention to reliability factors during product design, the support of stringent Quality Control requirements, and compulsory corrective action procedures. These measures, together with conservative specifications have made the name Endevco synonymous with reliability.