Piezoresistive Accelerometer

ENDEVCO MODEL 7267A

Model 7267A

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



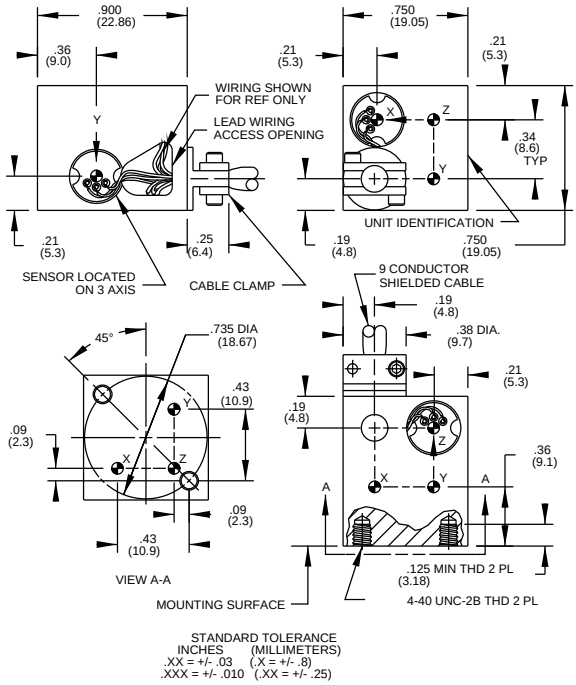
Actual size

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 Model 68207 BCAS™ Computer Controlled System are recommended as signal conditioner and power supply.

SPECIFICATIONS

PERFORMANCE CHARACTERISTICS: All values are typical at 75°F (+24°C) 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	0.15
	(Min)	(0.10)
FREQUENCY RESPONSE [1] [2]	Hz	0 to 2000 Z Axis
(±5% max, ref. 100 Hz)	Hz	0 to 1200 X and Y Axes
MOUNTED RESONANCE FREQUENCY [1]	Hz Typ	14 000
	(Min)	(10 000)
DAMPING RATIO		0.005
NON-LINEARITY AND HYSTERESIS		
(% of reading, to full range)	% Max	±2

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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	20 Hz to 2000 Hz, % deviation reference 100 Hz
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

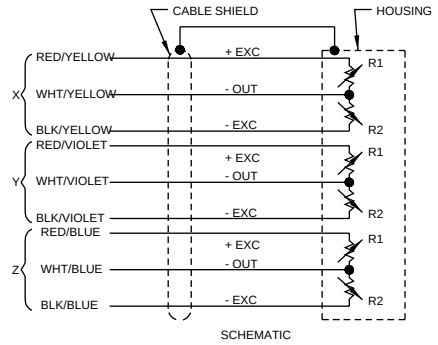
OPTIONAL ACCESSORIES

23937 HOUSING
24236 SENSOR (INCLUDES INSTALLATION HARDWARE KIT 24356)
2974M1 TRIAXIAL CALIBRATION FIXTURE

NOTES

1. In shock measurements, minimum pulse duration for half sine or triangular pulses should exceed 0.25 milliseconds to avoid excessive high frequency ringing.
2. 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.
3. Transverse sensitivity is factory adjusted to be less than 3% before shipment. Replacement sensors must be measured and adjusted to ensure comparable performance.
4. Thermal Zero Shift millivolts specified are at -10°F/+150°F (-23°C/+66°C), reference 75°F (24°C).
5. 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.
6. Other excitation voltages may be used to 15.0 Vdc. Specify at time of order to obtain a more accurate calibration.
7. 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.
8. Three pin solder terminations on each of three recessed surfaces. Cable entry holes for either side or top cable entry.

NOTE: Tighter specifications available on special order.



SCHEMATIC

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.

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