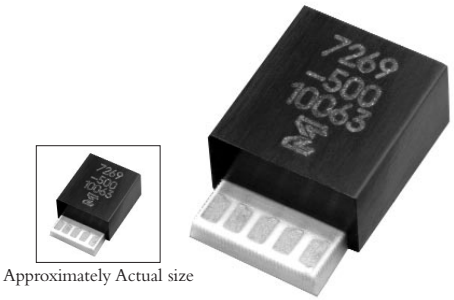
Piezoresistive Accelerometer

ENDEVCO MODEL 7269

Model 7269

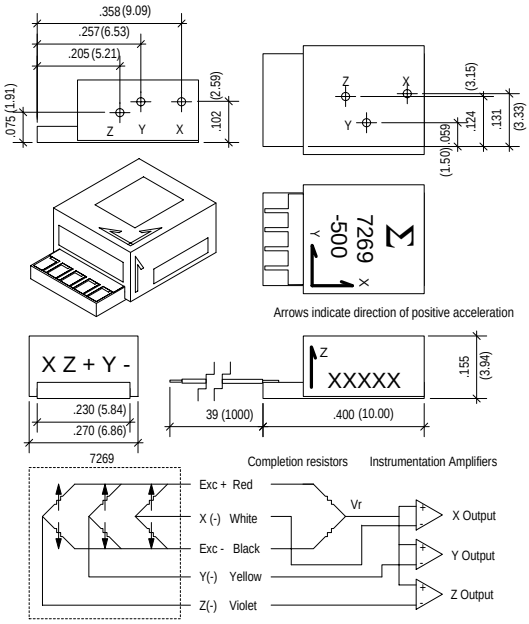
- **Miniature, Triaxial**
- **Lightweight (0.4gm)**
- **DC Response**
- **Rugged, Undamped**
- **Mechanical Overtravel Stops**



Approximately Actual size

DESCRIPTION

The ENDEVCO® 7269 is a miniature, triaxial accelerometer for measuring three orthogonal axes simultaneously. Because of the small size and lightweight, the 7269 is ideal for biomechanics research such as the study of head injuries. Applications include testing of ejection seats, heads-up displays and sports helmets. Weighing only 0.4 grams, they can be used for making measurements on light structures with a minimum of mass loading. The extremely small size allows for installation in hard to access areas or on small electronic assemblies.



The 7269 utilizes three advanced micromachined sensors designed for ruggedness, high output and a high resonance frequency. The sensors include integral mechanical stops and internal diodes are provided for electrostatic discharge protection. Each accelerometer has a full scale output of 400 mV using 10 Vdc excitation. The accelerometer has minimum damping, thereby producing negligible phase shift over the specified frequency range. The frequency response extends down to DC (steady state) acceleration, making it ideal for measuring long duration transient shocks.

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

SPECIFICATIONS

CERTIFIED PERFORMANCE: 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	7269-500	7269-2000
RANGE	g	±500	±2000
	km/s^2	±5	±20
SENSITIVITY (at 100 Hz & 10g)	mV/g (Typical)	0.80	0.20
	(Min)	(0.50)	(0.15)
FREQUENCY RESPONSE	Hz		
(±5% max, ref. 100 Hz)		0 to 3000	0 to 5000
±1dB	Hz	0 to 4000	0 to 7000
MOUNTED RESONANCE FREQUENCY	Hz	17 000	26 000
DAMPING RATIO		0.05	
NON-LINEARITY & HYSTERESIS			
(Maximum % of reading, to full range)	% Max	±1	
ZERO REPEATABILITY			
(after full scale shock)	equiv. g	±0.2	

ENDEVCO MODEL 7269

Piezoresistive Accelerometer

SPECIFICATIONS—continued

PERFORMANCE CHARACTERISTICS—continued

	Units	7269-500	7269-2000
TRANSVERSE SENSITIVITY [1]	% Max	5	
ZERO MEASURAND OUTPUT [2] [3]	mV Max	±100	
THERMAL ZERO SHIFT			
0°F to +150°F, ref +75°F	mV	±10 typical	
18°C to + 66°C, ref +24°C		±25 maximum	
+65°F to +85°F, ref +75°F	mV	± 3 typical	
18°C to + 29°C, ref +24°C			
THERMAL SENSITIVITY SHIFT (Typical)			
0°F to +150°F, ref +75°F	%/°F	- 0.06	
18°C to + 66°C, ref +24°C	%/°C	- 0.1	
+65°F/ to +85°F, ref +75°F	%	+1.0	
WARM-UP TIME			
(Maximum, to 1% accuracy	s	1	
(BASE STRAIN SENSITIVITY)			
(Per ISA 37.2 @ 250 µ strain)	Equiv. g's	0.1	< 0.1
MECHANICAL OVERTRAVEL STOPS	g	1500 typical, 750 minimum	5000 typical, 2500 minimum

ELECTRICAL

EXCITATION VOLTAGE [4]	10.0 Vdc
INPUT RESISTANCE (3 axes in Parallel)	150 to 320 ohms
OUTPUT RESISTANCE	450 to 960 ohms
INSULATION RESISTANCE	100 megohms minimum, leads to substrate

PHYSICAL

(CASE, MATERIAL) BASE MATERIAL	(Diallyl phthalate) Alumina
ELECTRICAL, CONNECTIONS	Solder tabs with wires installed. User replaceable
WEIGHT (transducer, excluding wires)	0.015 oz (0.4 gm) typical

ENVIRONMENTAL

ACCELERATION LIMITS (any direction)		
Static	5000 g	10 000 g
Sinusoidal Vibration	1000 g below 3kHz	1000 g below 5kHz
Shock (half-sine pulse duration)	5000 g (300 µ sec)	10 000 g (200 µ sec)
Operating	0°F to +150°F (-18°C to +66°C)	
Storage	-65°F to +250°F (-54°C to +121°C)	
HUMIDITY	Unit is epoxy sealed	
ALTITUDE	Unaffected	

CALIBRATION DATA SUPPLIED

SENSITIVITY (at 100 Hz and 10 g pk)	mV/g
FREQUENCY RESPONSE	20 Hz to 5000 Hz, % deviation reference 100 Hz; dB plot continued from 5000 to 30 000 Hz
ZERO MEASURAND OUTPUT	mV
MAXIMUM TRANSVERSE SENSITIVITY	% of sensitivity
INPUT RESISTANCE	Ohms

ACCESSORIES

32279	(1) MOUNTING WAX
34065	(2) REMOVAL TOOL

1. 1% transverse sensitivity available as "T" option.
2. ±50 mV zero measurand output available as “Z” option
3. For a half bridge sensor, ZMO=Vr-Vo, where Vr is the voltage at the midpoint of a pair of precision (0.01%) completion resistors and Vo is the voltage on the output lead of the sensor: X(-), Y(-), or Z(-).
4. Lower excitation voltages may be used but should be specified at time of order to obtain best calibration.
5. Measured at approximately 1 Vdc. Bridge resistance increases with applied voltage due to heat dissipation in the strain gage elements.
6. 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.

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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