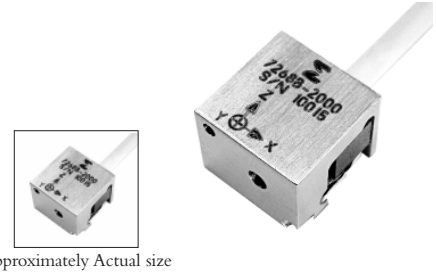
Piezoresistive Accelerometer

ENDEVCO MODEL 7268B

Model 7268B

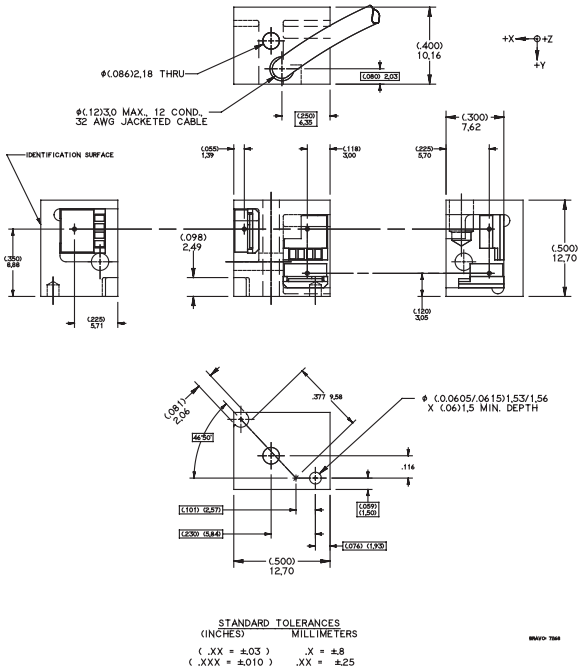
- **Small Size**
- **Mechanical Overtravel Stops**
- **12 Wire Integral Cable**
- **DC Response**
- **Built-In Bridge Completion Resistors**



Approximately Actual size

DESCRIPTION

The ENDEVCO“ Model 7268B is a miniature triaxial accelerometer designed for crash testing, flutter testing and other applications that require minimal mass loading and a broad frequency response. This accelerometer meets SAE J211 specifications for anthromorphic dummy instrumentation. It is available in two acceleration ranges, 500g and 2000g full scale. The M1 option provides a cover to protect the accelerometer's interior components.



The 7268B uses three advanced micromachined sensors with integral mechanical stops for ruggedness and years of reliable service. Endevco's proprietary sensor design features both high output and a high resonance frequency. The 7268B has two active arms and two internal precision fixed resistors to provide for shunt calibration. Internal diodes provide electrostatic discharge protection. A single integral cable carries the 12 wires to the sensor modules. Since the 7268B is undamped, negligible phase shift is present over the specified frequency range. With a frequency response extending down to DC (steady state) acceleration, this accelerometer is ideal for measuring long duration transients as well as short duration shocks.

U.S. Patents: 4,498,229 and 4,605,519

SPECIFICATIONS

CERTIFIED PERFORMANCE: All specifications assume 75°F (24°C) and 10 Vdc excitation unless otherwise specified. Calibration data traceable to the National Institute of Standards and Technology (NIST), is supplied.

	Units	7268B-500	7268B-2000
RANGE	g	±500	±2000
	km/s^2	±5	±20
SENSITIVITY (at 100 Hz & 10g) [1]	mV/g (Typical)	0.80	0.20
	MV/km/s^2 (Typical)	82	20
Minimum	mV/g	0.50	0.15
Minimum	MV/km/s^2	51	15
FREQUENCY RESPONSE [2]			
(±5% max, ref. 100 Hz) (Z axis)	Hz	0 to 3000	
X & Y axes		0 to 2000	
±1dB	Hz	0 to 4000	
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	

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Piezoresistive Accelerometer

SPECIFICATIONS—continued

PERFORMANCE CHARACTERISTICS—continued

	Units	7268B-500	7268B-2000
TRANSVERSE SENSITIVITY [3]	% Max	3	
Available as T option	% Max	1	
ZERO MEASURAND OUTPUT	mV Max	±100	
Available as Z option	mV Max	±50	
THERMAL ZERO SHIFT			
0°F to +150°F, ref +75°F	mV	±10 typical	
18°C to + 66°C, ref +24°C	mV	±25 maximum	
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	
(BASE STRAIN SENSITIVITY)			
(Per ISA 37.2 @ 250 µ strain)	Equiv. g's	0.1	
MECHANICAL OVERTRAVEL STOPS	g	1500 typical, 750 minimum	5000 typical, 2500 minimum

ELECTRICAL

EXCITATION VOLTAGE [4]	10.0 Vdc
INPUT RESISTANCE [5]	450 to 960 ohms
OUTPUT RESISTANCE [5]	450 to 960 ohms
INSULATION RESISTANCE	100 megohms minimum, leads to substrate

PHYSICAL

BASE, MATERIAL	Stainless Steel
COVER MATERIAL	Plastic
MOUNTING	One M2 screw, supplied for mounting. Alignment holes provided, see IM7268B
WEIGHT	8 gm (cable weighs 14 gm)

ENVIRONMENTAL

ACCELERATION LIMITS (any direction)			
Static	g	5000 g	10 000 g
Sinusoidal Vibration	g	1000 g	1000 g
Shock (half-sine pulse duration)	µg	300 µg	200 µg
Operating Temperature		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 3000 Hz, % deviation reference 100 Hz; dB plot continued from 3000 to 30 000 Hz
ZERO MEASURAND OUTPUT	mV	
MAXIMUM TRANSVERSE SENSITIVITY	% of sensitivity	
INPUT AND OUTPUT RESISTANCE	Ohms	

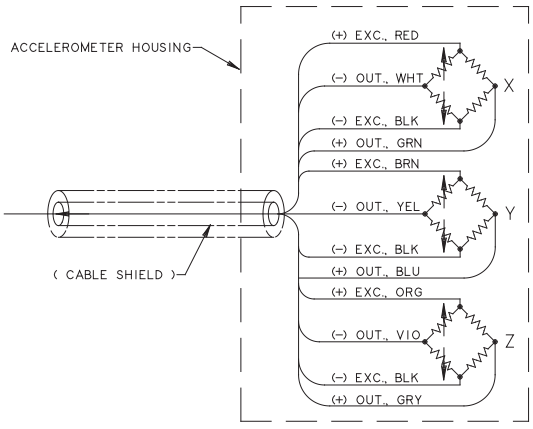
ACCESSORIES (Supplied)

EH750 Screw, Pan Head, M2 x 16MM
EHW200 Flat Washer, #2 CRES

OPTIONAL ACCESSORIES

M1 Option Protective cover

1. Positive acceleration along x, y and z axes (in the directions engraved on the cover) will cause positive change in output voltage for each sensor
2. A linear frequency response plot is supplied from 20 Hz to the specified ±5% maximum deviation frequency.
3. Measurements performed at Endevco are made with reference to directions carefully aligned with the substrate using alignment pins specified in the instruction manual
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 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 turnaround time for these services as well as for quotations on our standard products.



WIRING 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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