

Variable Capacitance Accelerometer

ENDEVCO
MODEL
7593A

Model 7593A

- 2 g Full Scale
- DC Response
- Low Noise
- Amplified Output

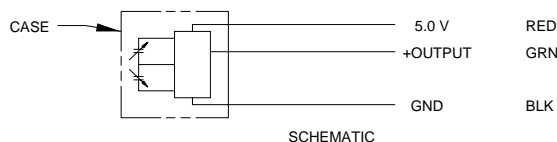
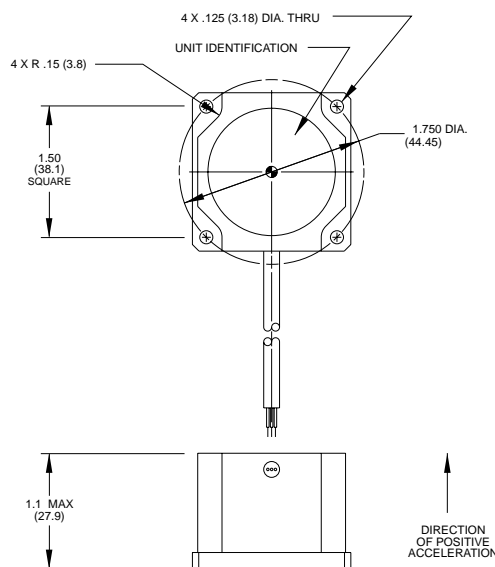
DESCRIPTION

The Endevco Model 7593A is an economical variable capacitance accelerometer with built-in signal conditioning. It is ideal for measuring low level, low frequency vibrations in commercial, industrial, and civil engineering applications. The accelerometer's shape and size make it convenient to mount on large structures.

The 7593A has a full-scale range of ± 2 g with a frequency response from 0 to 50 Hz. The sensitivity is 1 volt per g with 5 Vdc excitation. Low milli-g noise performance provides high measurement resolution. It features a rugged thermoplastic case with an integral cable and operates over a temperature range of -40°F to $+257^{\circ}\text{F}$ (-40°C to $+125^{\circ}\text{C}$).

This accelerometer is ideal for measuring very low frequency vibration on buildings, bridges and other large structures. It can be used in industrial applications to measure rates of acceleration and deceleration. Other applications include precision tilt measurements and ground transportation control applications.

The Endevco Voltage Amplifier Model 136, 4430 Bridge Conditioner or the OASIS Computer-Controlled System are recommended signal conditioners and power supplies for the 7593A.



SPECIFICATIONS

PERFORMANCE CHARACTERISTICS: All values are typical at $+75^{\circ}\text{F}$ ($+24^{\circ}\text{C}$) and 5 Vdc excitation unless otherwise stated.

	Model	7593A
	Units	
RANGE		± 2
SENSITIVITY at 5.0 Volts DC Excitation	V/g	1.0 ± 0.03
ZERO MEASURAND OUTPUT	Vdc	2.5 ± 0.1
FREQUENCY RESPONSE	Hz	
($\pm 5\%$ ret to 5 Hz)		DC to 20
(-3 dB, ret to 5 Hz)		DC to 50
TRANSVERSE SENSITIVITY	% Max	3.0
	% Typ	1.5
NON-LINEARITY AND HYSTERESIS	% FSO	± 0.5

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SPECIFICATIONS—continued

PERFORMANCE CHARACTERISTICS—continued

	Units	Model 7593A
THERMAL ZERO SHIFT	mV/°C	1.0 (typical)
THERMAL SENSITIVITY SHIFT	ppm/°C	500 (typical)

ELECTRICAL

EXCITATION (RATIOMETRIC OUTPUT)	4.0 to 8.5 Vdc, 5.0 Vdc nominal
CURRENT DRAIN	4 mA Typ, 7 mA Max at 5 Vdc, (mA typ, 14 ma max@8.5 Vdc)
NOISE	0.2 mg rms typ, 2.0 mg rms max (0 to 50 Hz)
NOISE DENSITY	30 ug/root Hz (2 to 100 Hz)
OVERVOLTAGE PROTECTION	±10 volts
LOAD IMPEDANCE	
Resistance	10k Ω minimum
Capacitance (parallel)	0.1 uF maximum

PHYSICAL

CASE, MATERIAL	Thermoplastic
ELECTRICAL, CONNECTIONS	(3) Conductor Cable, Unshielded Red =+ Excitation Green = Signal Black = Ground
MOUNTING	Holes for (4) #4-40 or M3 mounting screws
WEIGHT	50 grams (typ.)

ENVIRONMENTAL

ACCELERATION LIMITS (in any direction)	
Static	400 g
Shock (340 micro-sec, half-sine pulse)	400 g
TEMPERATURE	
Operating and Storage	(-40°F to +250°F) -40°C to +125°C

CALIBRATION DATA SUPPLIED

SENSITIVITY	V/g with 5 Vdc excitation
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NOTES

1. 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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