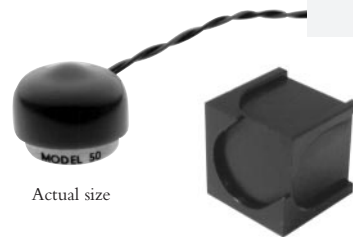


# ISOTRON® Accelerometer

**ENDEVCO  
MODEL  
50/50M1**

## Model 50/50M1

- **Low-Cost Vibration Sensor**
- **Lightweight (3.8 gm)**
- **Milli-g's Resolution**
- **Easily Mounted**
- **Ideal for R&D Lab Tests or Full-Scale Modal Testing**



Actual size

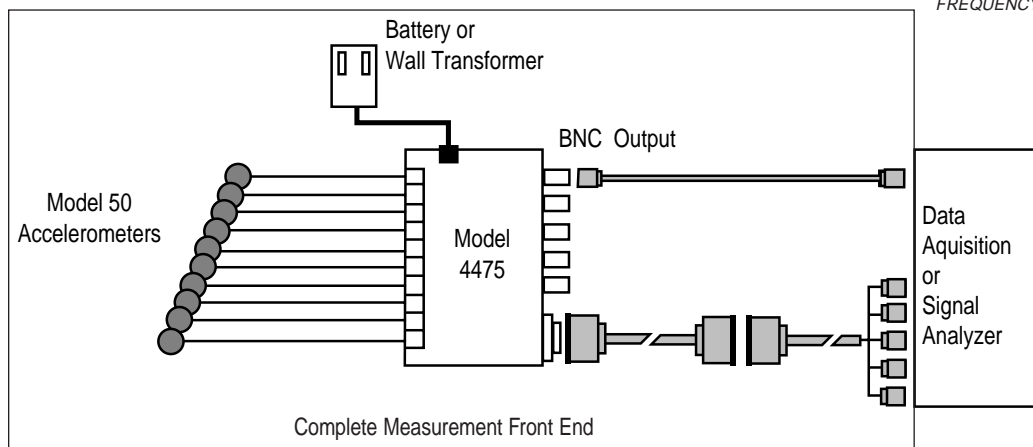
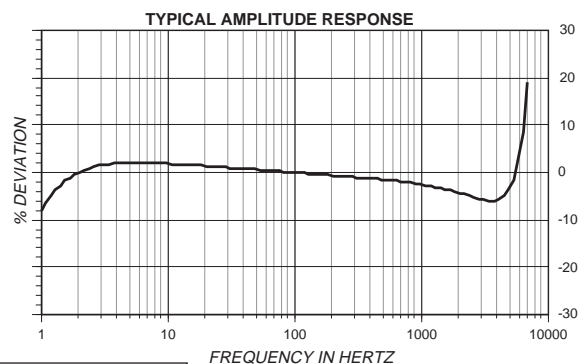
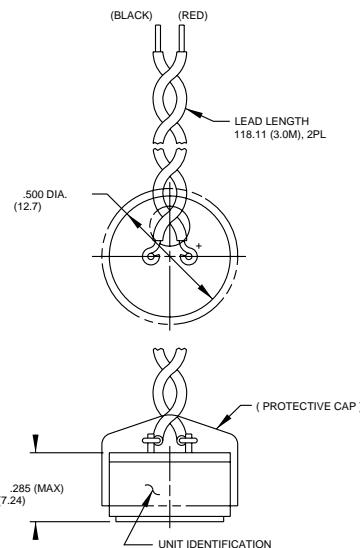
Optional Triaxial Mounting Block

### DESCRIPTION

The ENDEVCO® Model 50 and 50M1 are small piezoelectric accelerometers with integral amplifiers, developed specifically for modal measurements or OEM vibration applications. In addition to having minimum unit-to-unit phase deviations, the built-in microcircuit has been configured to work in a

constant current mode with a supply voltage as low as +12 Vdc, as with a car battery. The units are designed to be mounted with our adhesive or integral high strength magnet (50M1). A dielectric layer on the base isolates the case ground from the mounting surface to eliminate the potential ground loops. These accelerometers are hermetically sealed to provide long-term reliability even in harsh environments, and their light weight (3.8 gm) effectively minimizes mass loading effects. The inside of the protective vinyl cap can be filled with RTV to further improve resistance to moisture at the connection junctions.

For your convenience, the Model 50 and 50M1 come with a 3-meter pair of output wires attached, ready to be used right out of the box. A matching low-cost, 10-channel power supply (Model 4475) is also available. Other ENDEVCO ISOTRON signal conditioners, such as Model 133, 2792B, 2793 or 4416B, can also be used with this unit.



# ISOTRON® Accelerometer

## SPECIFICATIONS

The following performance specifications conform to ISA-RP-37.2 (1964) and are typical values, referenced at +75°F (+24°C), 4 mA, and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

DYNAMIC CHARACTERISTICS	Units	
RANGE	g	± 40
VOLTAGE SENSITIVITY		
±10 % typical	mV/g	50
FREQUENCY RESPONSE		See Typical Amplitude Response
RESONANCE FREQUENCY	kHz	10
AMPLITUDE RESPONSE		
± 5%	Hz	2 to 4 000
± 1dB	Hz	1 to 5 000
TEMPERATURE RESPONSE	± 5%	See Typical Curve
TRANSVERSE SENSITIVITY	%	≤ 5
AMPLITUDE LINEARITY	%	< 1 to Full Scale

## OUTPUT CHARACTERISTICS

OUTPUT POLARITY		Acceleration directed into the base of the unit produces positive output
DC OUTPUT BIAS VOLTAGE	Vdc	+ 6.8 typical
OUTPUT IMPEDANCE	Ω	≤ 150
FULL SCALE OUTPUT VOLTAGE	V	± 2.0
RESOLUTION 1-5 kHz	equiv. g rms	≤ 0.001
GROUNDING		Signal ground isolated from mounting surface

## POWER REQUIREMENT

SUPPLY CURRENT	mA	+ 2.0 to + 10.0
VOLTAGE [1]	Vdc	+ 9 to + 24
WARM-UP TIME	sec	< 3

## ENVIRONMENTAL CHARACTERISTICS

TEMPERATURE RANGE		- 4°F to + 185°F (-20°C to + 85°C)
HUMIDITY		Hermetically Sealed
SINUSOIDAL VIBRATION LIMIT	g pk	40
SHOCK LIMIT [2]	g pk	2000
BASE STRAIN SENSITIVITY	equiv. g pk/μ strain	0.015
ELECTROMAGNETIC SENSITIVITY	equiv. g rms/gauss	0.0003

## PHYSICAL CHARACTERISTICS

DIMENSIONS		See Outline Drawing
WEIGHT	gm (oz)	3.8 (.14)
Without cable		
CASE MATERIAL		Stainless Steel
MOUNTING [3]		Adhesive or Integral Magnet (50M1)

## CALIBRATION

SUPPLIED:		
SENSITIVITY		mV/g @ 100Hz

## ACCESSORIES

24 AWG OUTPUT WIRES (3 METERS) SOLDERED TO TERMINALS

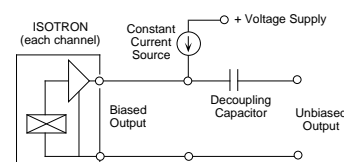
### OPTIONAL ACCESSORIES

Model 2950M24	TRIAxIAL MOUNTING BLOCK
3024-120	CABLE ASSEMBLY
P/N 31849	ADHESIVE MOUNTING KIT
Model 4475	10 CHANNEL ISOTRON SIGNAL CONDITIONER

### NOTES:

- Compliance voltage as low as +9Vdc may be used in conjunction with a constant current source to provide power to the accelerometer. However, the dynamic range may be limited to a maximum of ±35 g's.
- Built-in mechanical stops inside the piezoelectric sensor greatly increases the shock survivability of the accelerometer.
- Depending on the dynamic and environmental requirements, adhesives such as petro-wax, hot-melt glue, and cyanoacrylate epoxy (super glue) may be used to mount the accelerometer temporarily to the test structure. An adhesive mounting kit (P/N 31849) is available as an option from Endevco.

- 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.



Model 4475  
Signal Conditioner



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.