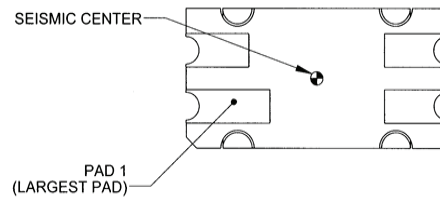
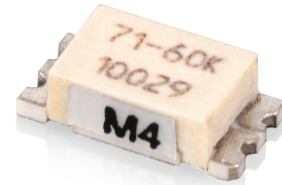
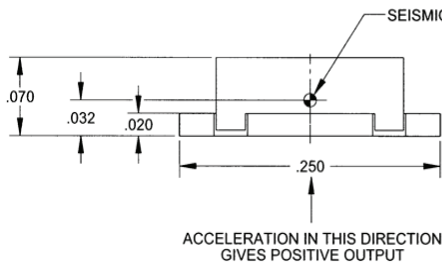
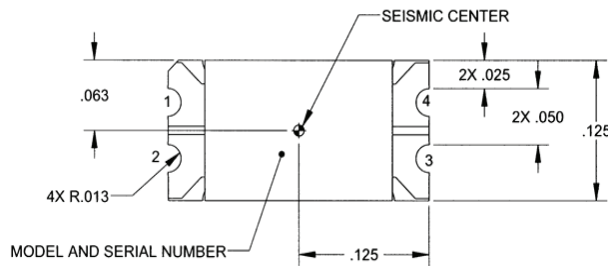


Piezoresistive accelerometer

Model 71M series



STANDARD TOLERANCE
 INCHES [MILLIMETERS]
 .XX = ± .02 [X = ± .5]
 XXX = ± .005 [XX = ± .13]

Key features

- 2000 to 60 000 g full range
- High resonant frequency
- DC response
- 200 mV full scale output
- Negligible zero shift after shock
- 0.06 gram weight

Description

The Endevco® model 71M series of subminiature SMT piezoresistive accelerometers are rugged undamped accelerometers designed for shock measurements.

Endevco micro-machines the sensing system of the 71M from a single piece of silicon. This etched silicon chip includes the inertial mass and strain gages arranged in an active four-arm Wheatstone bridge circuit complete with a novel on-chip zero balance network.

The low mass, extremely small size and unique construction of the element blends an exceptionally high resonant frequency with characteristics such as low output impedance, 3x overrange, and zero damping for no phase shift. The high resonant frequency of these sensors permits their survival in the presence of the high frequency components in a shock pulse that could shatter the seismic system of accelerometers having lower resonance.

High resonant frequencies and zero damping also allow the accelerometers to respond accurately to fast rise time, short duration shock motion. With a frequency response extending down to dc (steady state accelerations) these transducers are ideal for measurement of long duration transients, and permit integration of the acceleration data to obtain velocity and displacement.

U.S. Patents 4,498, 229, 4,605,919 and 4,689,600 apply to this unit.

Piezoresistive accelerometer | Model 71M series

All specifications are referenced at +75°F (+24°C) and 10 Vdc, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

| Specifications | | | | | |
|--|---------|--|-------------|-------------|--------------|
| Dynamic characteristics | Units | 2K | 6K | 20K | 60K |
| Linear range | g | 2,000 | 6,000 | 20,000 | 60,000 |
| Sensitivity min/typ | µV/g | 50/100 | 15/30 | 5/10 | 1.5/3 |
| Frequency response +/-5% | Hz | 0 to 10,000 | 0 to 20,000 | 0 to 50,000 | 0 to 100,000 |
| Natural frequency (typ) | kHz | 90 | 180 | 350 | 700 |
| Shock limit [max] | g | 10,000 | 18,000 | 60,000 | 180,000 |
| Zero measure and output (max at 10V) | mV | +/-100 | +/-100 | +/-100 | +/-100 |
| Transverse sensitivity (max) | % | 5 | 5 | 5 | 5 |
| Thermal zero shift | mV | <10 | <10 | <10 | <10 |
| -18°C to +66°C (0°F to +150°F) | %/C | -0.12 | -0.12 | -0.12 | -0.12 |
| Thermal sensitivity shift | %/C | -0.12 | -0.12 | -0.12 | -0.12 |
| Electrical characteristics | | | | | |
| Excitation | Vdc | 2 to 12 (10 standard) | | | |
| Resistance | | | | | |
| input | Ω | 650 ± 300 | | | |
| output | Ω | 650 ± 300 | | | |
| Physical characteristics | | | | | |
| Case material | | Alumina substrate with plastic cover | | | |
| Weight (excluding cable) | grams | 0.06 | | | |
| Mounting | | Recommended mounting is with structural epoxy across the entire surface of the alumina substrate, with electrical connections made via solder or conductive epoxy to the metalized castellations. If electrical contact is made to the mounting surface, epoxy underfill is required to enable the unit to withstand high g shocks. Refer to instruction manual IM71 for detailed mounting instructions. | | | |
| Environmental | | | | | |
| Temperature | | | | | |
| Operating | °C (F°) | -54 to 121°C (-65 to +250°F) | | | |
| Storage | °C (F°) | -54 to 149°C (-65 to +300°F) | | | |
| Humidity | | epoxy sealed | | | |
| ESD | | susceptible to ESD damage; handle using ESD precautions | | | |
| Calibration data | | | | | |
| Data for sensitivity, ZMO, input and output resistance are supplied on the calibration. Sensitivity is measured at 2000 g for 2K and 5000 g for 6K, 20K and 60K. | | | | | |

Piezoresistive accelerometer | Model 71M series

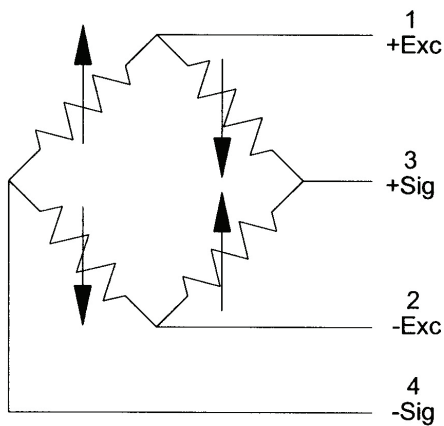
| Options | |
|---------|--|
| Options | Description |
| 71M1 | Un-tinned for conductive epoxy or wire bonding or resistance welding, 5V excitation |
| 71M4 | Un-tinned for conductive epoxy or wire bonding or resistance welding, 10V excitation |
| 71M5 | Pre-tinned for hand solder reflow, 5V excitation |
| 71M10 | Pre-tinned for hand solder reflow, 10V excitation |

| Accessories | | |
|-------------|----------------------------------|----------|
| Options | Description | |
| 136 | DC amplifier, 3 channel benchtop | Optional |

Notes

1. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 866-ENDEVCO for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

2. Model number definition:



10869 NC Highway 903, Halifax, NC 27839 USA

endevco.com | sales@endevco.com | 866 363 3826

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