

# Piezoelectric Accelerometer

**ENDEVCO  
MODEL  
7240B**



## Model 7240B

- High Temperature Operation (+260°C)
- Wide Bandwidth (Flat to 30 kHz)
- Light Weight (4.8 gm)
- Hermetically Sealed
- High Frequency Measurement



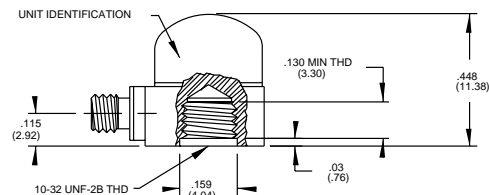
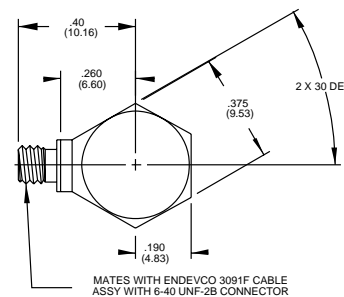
Actual size

### DESCRIPTION

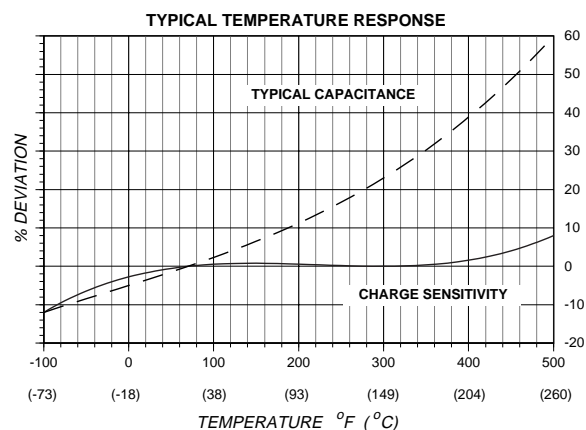
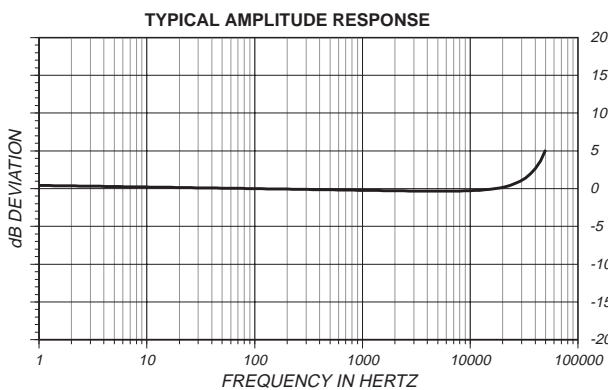
The ENDEVCO® Model 7240B is a miniature, light weight piezoelectric accelerometer designed specifically for high frequency vibration measurement on structures and objects. Its unique sensor design allows high seismic resonance and ruggedness in the same package. The unit is hermetically sealed against environmental contamination and its light weight (4.8 gm) effectively minimizes mass loading. The accelerometer is a self-generating device that requires no external power source for operation.

The Model 7240B features ENDEVCO's PIEZITE® Type P-8 crystal element, operating in annular shear mode. This device exhibits low base strain sensitivity, wide bandwidth, and excellent output stability over time. Signal ground is connected to the outer case of the unit. When used with one of the supplied isolated mounting studs, the accelerometer is electrically isolated from ground. A specifically designed low-noise coaxial cable is supplied for error-free operation.

ENDEVCO Signal Conditioner Models 133, 2775A or OASIS 2000 Computer-Controlled System are recommended for use with this high impedance accelerometer.



STANDARD TOLERANCE  
INCHES (MILLIMETERS)  
XX = +/- .02 (X = +/- .5)  
.XXX = +/- .010 (.XX = +/- .25)



CERTIFIED  
ISO 9001



APPLIES TO CALIFORNIA FACILITY

# Piezoelectric Accelerometer

## SPECIFICATIONS

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

| DYNAMIC CHARACTERISTICS | Units |                                |
|-------------------------|-------|--------------------------------|
| CHARGE SENSITIVITY      |       |                                |
| TYPICAL                 | pC/g  | 3.0                            |
|                         | pC/g  | 2.3                            |
| FREQUENCY RESPONSE      |       | See Typical Amplitude Response |
| RESONANCE FREQUENCY     | kHz   | 90                             |
| AMPLITUDE RESPONSE [1]  |       |                                |
| ±1 dB                   | Hz    | 1 to 20 000                    |
| TEMPERATURE RESPONSE    |       | See Typical Curve              |
| TRANSVERSE SENSITIVITY  | %     | ≤ 5                            |
| AMPLITUDE LINEARITY [2] | %     | 1                              |
| Per 500 g, 0 to 5000 g  |       |                                |

## ELECTRICAL CHARACTERISTICS

|                 |    |   |
|-----------------|----|---|
| OUTPUT POLARITY |    | Acceleration directed into base of accelerometer produces positive output |
| RESISTANCE      | GΩ | ≥ 10  |
| CAPACITANCE     | pF | 650   |
| GROUNDING       |    | Signal ground connected to case   |

## ENVIRONMENTAL CHARACTERISTICS

|                            |                      |                                   |
|----------------------------|----------------------|-----------------------------------|
| TEMPERATURE RANGE          |                      | -67°F to +500°F (-55°C to +260°C) |
| HUMIDITY                   |                      | Hermetically sealed               |
| SINUSOIDAL VIBRATION LIMIT | g pk                 | 1000                              |
| SHOCK LIMIT                | g pk                 | 5000                              |
| BASE STRAIN SENSITIVITY    |                      |                                   |
| WITH 2980M12 & 2980M13     | equiv. g pk/μ strain | 0.0005                            |
| WITH 2981-11               | equiv. g pk/μ strain | 0.005                             |

## PHYSICAL CHARACTERISTICS

|                 |             |                            |
|-----------------|-------------|----------------------------|
| DIMENSIONS      |             | See Outline Drawing        |
| WEIGHT          | gm (oz)     | 4.8 (0.17)                 |
| CASE MATERIAL   |             | Stainless Steel            |
| CONNECTOR       |             | Coaxial, 6-40 NF-2A thread |
| MOUNTING TORQUE | lbf-in (Nm) | 18 (2)                     |
| With 2981-11    |             |                            |

## CALIBRATION

|                        |      |                 |
|------------------------|------|-----------------|
| SUPPLIED:              |      |                 |
| CHARGE SENSITIVITY     | pC/g |                 |
| CAPACITANCE            | pF   |                 |
| TRANSVERSE SENSITIVITY | %    |                 |
| FREQUENCY RESPONSE     | dB   | 50 Hz to 50 kHz |

## ACCESSORIES

|                         |                                       |
|-------------------------|---------------------------------------|
| Model 2980M12           | 10-32 to 10-32 ISOLATED-MOUNTING STUD |
| Model 2981-11           | 10-32 TO 10-32 MOUNTING STUD          |
| Model 3091F-120 (10 ft) | CABLE ASSEMBLY                        |
| Model 2980M13           | ISOLATED INSERT                       |

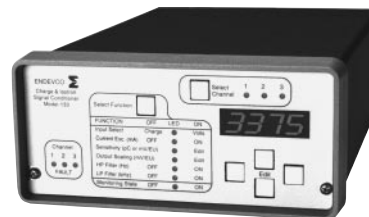
## OPTIONAL ACCESSORIES

|               |   |
|---------------|---|
| Model 2771AM3 | IN-LINE CHARGE CONVERTOR FOR USE WITH CONSTANT CURRENT SOURCE |
|---------------|---|

## NOTES

- Low-end response of the transducer is a function of its associated electronics.
- Short duration shock pulses, such as those generated by metal-to-metal impacts, may excite transducer resonance and cause linearity errors. Send for TP290 for more details.

- 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 133

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.