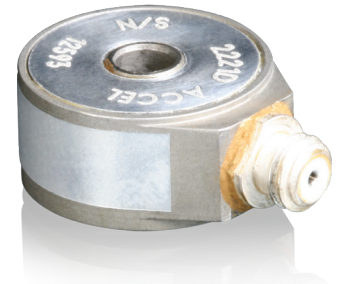
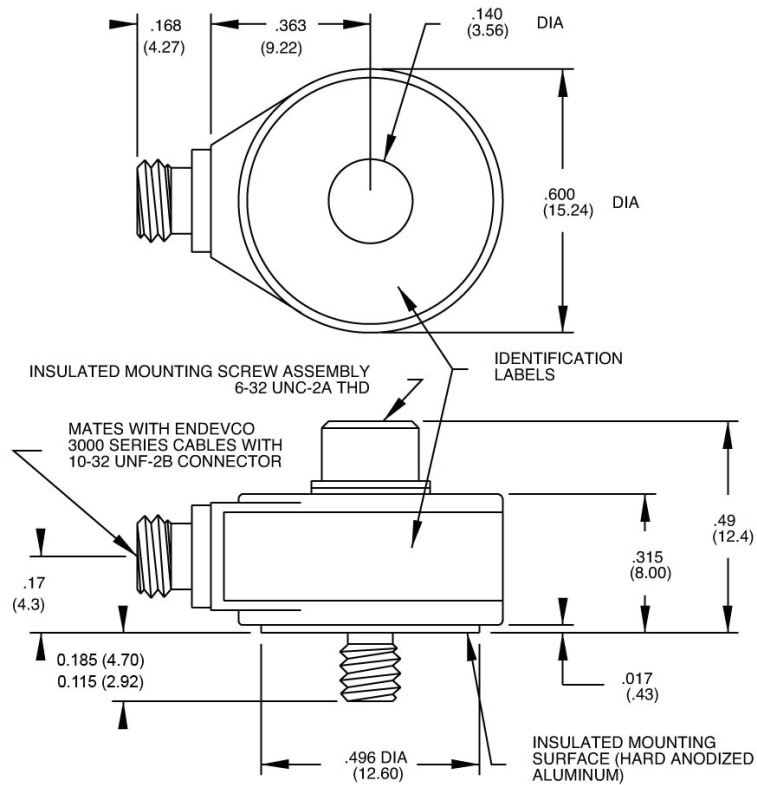


# Piezoelectric accelerometer

## Model 2221D



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

### Key features

- High output, 17 pC/g
- Light weight (12 gm)
- 360° cable orientation
- Low profile
- Vibration measurement on small structures

### Description

The Endevco® model 2221D is a piezoelectric accelerometer designed specifically for vibration measurement on small structures and objects. The unit is epoxy sealed and it is ideal for use in a controlled environment. Its light weight (12 gm) effectively minimizes mass loading. The accelerometer is a self-generating device that requires no external power source for operation.

The model 2221D features Endevco's Piezite® type P-8 crystal element operating in annular shear mode. This device exhibits excellent output sensitivity stability over time. Signal ground is connected to the outer case of the unit. When used with an isolated mounting screw, the accelerometer is electrically isolated from ground. A low-noise coaxial cable is supplied for error-free operation. The transducer has a centrally located thru bolt, allowing for 360° cable orientation. The unit may also be adhesive mounted if the application permits.

## Piezoelectric accelerometer | Model 2221D

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.

| Specifications                 |                    |   |
|--------------------------------|--------------------|---|
| Dynamic characteristics        | Units              | Value   |
| Charge Sensitivity             |                    |   |
| Typical                        | pC/g               | 17.0  |
| Minimum                        | pC/g               | 13.5  |
| Frequency response             |                    | See typical amplitude response  |
| Resonance frequency (typical)  | kHz                | 32  |
| Amplitude response (1)         |                    |   |
| ±5%                            | Hz                 | 10 to 6000  |
| ±1 dB (typical)                | Hz                 | 5 to 10000  |
| Temperature response           |                    | See typical curve   |
| -67°F (-55°C) max/min          | %                  | -17 / 3   |
| -350°F (+177°C) max/min        | %                  | +19 / -1  |
| Transverse sensitivity         | %                  | ≤ 3   |
| Amplitude linearity            | %                  | 1   |
| Per 250 g, 0 to 2500 g         |                    |   |
| Electrical characteristics     |                    |   |
| Output polarity                |                    | Acceleration into the base of the unit produces positive output                                     |
| Resistance                     | GΩ                 | ≥ 10  |
| +350°F (+177°C)                | GΩ                 | ≥ 1   |
| Isolation                      | MΩ                 | 10  |
| Capacitance                    | pF                 | 900   |
| Grounding                      |                    | Signal return connected to case.<br>Case isolated from mounting surface by insulated screw assembly |
| Environmental characteristics  |                    |   |
| Temperature range              |                    | -67°F to +350°F (-55°C to +177°C)   |
| Humidity                       |                    | Epoxy sealed, non-hermetic  |
| Sinusoidal vibration limit     | g pk               | 1000  |
| Shock limit [2]                | g pk               | 5000  |
| Base strain sensitivity        | eq. g/μ strain     | 0.01  |
| Thermal transient sensitivity  | eq. g pk/°F (/ °C) | 0.004 (0.007)   |
| Acoustic sensitivity 140db SPL | g                  | 0.007   |
| Physical characteristics       |                    |   |
| Dimensions                     |                    | See outline drawing   |
| Weight                         | gm (oz)            | 12 (0.42)   |
| Case material                  |                    | Stainless Steel   |
| Connector                      |                    | Coaxial 10-32 thread  |
| Mounting torque                | lbf-in (Nm)        | 8 (1)   |
| Calibration data               |                    |   |
| Supplied:                      |                    |   |
| Charge sensitivity             | pC/g               |   |
| Maximum transverse sensitivity | %                  |   |
| Capacitance                    | pF                 |   |
| Frequency response             | %                  | 20 Hz to 8000 kHz   |
|                                | db                 | 8000 Hz to 40 kHz   |

# Piezoelectric accelerometer | Model 2221D

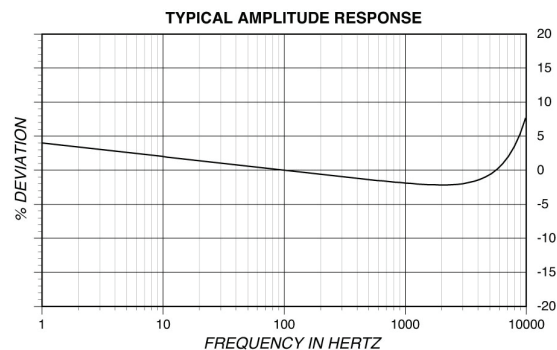
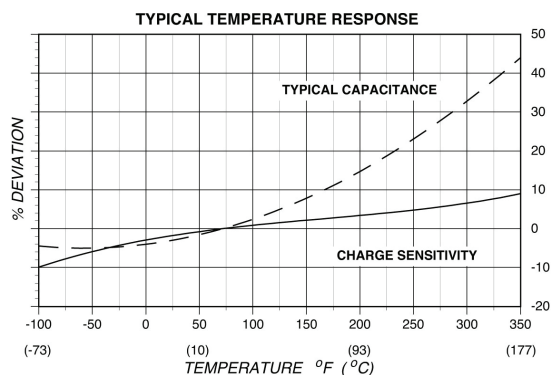
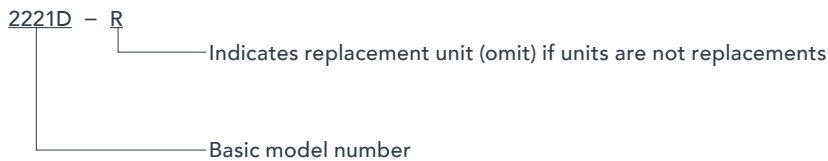
| Accessories |                              |          |          |
|-------------|------------------------------|----------|----------|
| Product     | Description                  | 2221D    | 2221D-R  |
| 3090C-120   | Cable assembly, 10 ft        | Included | Optional |
| EHM49       | Allen wrench 7/64 inch       | Included | Optional |
| 2987        | Cementing stud               | Included | Optional |
| 10207       | Mounting screw assembly      | Included | Included |
| 2984M3      | Adapter stud 10-32           | Optional | Optional |
| 2984M4      | Insulated adapter stud 10-32 | Optional | Optional |
| 2771C       | In-line charge converter     | Optional | Optional |
| 133         | Signal conditioner           | Optional | Optional |

## Ordering information

- 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.

## 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 impact, may excite transducer resonance and cause linearity errors. Read TP290 for more details.
- Model number definition:



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EDV-DS-2221D-1120



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