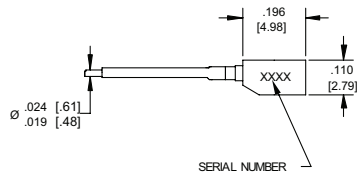
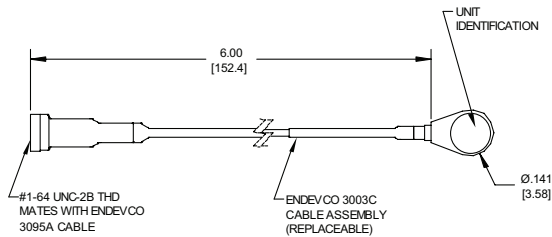
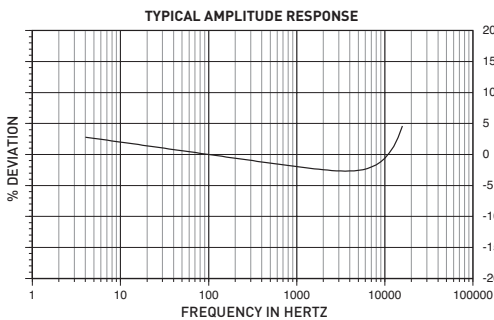
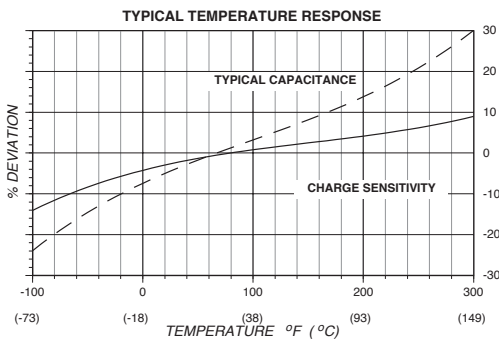
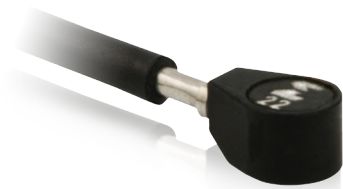


## Piezoelectric accelerometer Model 22



STANDARD TOLERANCE  
INCHES [MILLIMETERS]  
XX = ± .50 [X = ± 12.7]  
XXX = ± .010 [XX = ± .25]

### Key features

- 22-R available as replacement sensor
- World's smallest accelerometer
- Extremely light weight (0.14 gm)
- Adhesive mounting
- Ground isolated
- Scale model, circuit board, disk drive testing

The Endevco® model 22 Picomin™ is the world's smallest piezoelectric accelerometer, designed specifically for vibration measurement on small objects such as scaled models, circuit boards, and disk drives. Its light weight (0.14 gm) effectively eliminates mass loading effects. The transducer is designed to have reverse polarity with respect to acceleration going into the mounting base. The accelerometer is a self-generating device that requires no external power source for operation.

The model 22 features Endevco's Piezite® type P-8 crystal element, operating in radial shear mode, which exhibits excellent output sensitivity stability over time. Signal ground is isolated from the mounting surface of the unit by a hard anodized surface. Specially designed low-noise coaxial cable is supplied for error-free operation. A tool is included in the shipping case to ensure proper removal of the cable and transducer in the field.

Endevco signal conditioner models 133, 2775B or OASIS 2000 computer-controlled system are recommended for use with this high impedance accelerometer.

## Piezoelectric accelerometer

### Model 22

## 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	
<b>Charge sensitivity</b>		
Typical	pC/g	0.40
Minimum	pC/g	0.30
<b>Frequency response</b>		See typical amplitude response
<b>Resonance frequency</b>	kHz	54
<b>Amplitude response [1]</b>		
±5%	Hz	5 to 10 000
±1 dB	Hz	3 to 12 000
<b>Temperature response</b>		See typical curve
<b>Transverse sensitivity</b>	%	≤5
<b>Amplitude linearity</b>		
To 500g	%	1
500 g to 4000 g	% per 200 g	1

### Electrical characteristics

<b>Output polarity</b>		Acceleration directed into the base of the unit produces negative output
<b>Resistance</b>	GΩ	≥10
Resistance at 300°F	GΩ	≥1
<b>Isolation</b>	GΩ	≥1
<b>Capacitance</b>	pF	290
Including 6 inch model 3003C		
<b>Grounding</b>		Signal ground isolated from mounting surface

### Environmental characteristics

<b>Temperature range</b>		-100°F to +300°F (-73°C to +149°C)
<b>Humidity</b>		Epoxy sealed, non-hermetic
<b>Shock limit [2] [3]</b>	g pk	10 000
<b>Base strain sensitivity</b>	equiv. g/μ strain	0.008
<b>Electromagnetic sensitivity</b>	equiv. g rms/gauss	0.0009

### Physical characteristics

<b>Dimensions</b>		See outline drawing
<b>Weight</b>		
Unit only	gm (oz)	0.14 [0.005]
Unit with cable	gm (oz)	0.4 [0.014]
<b>Case material</b>		Aluminum alloy, hard anodized
<b>Cable description [4]</b>		0.019/.024 diameter PFA insulated coaxial cable, 0.003 diameter center conductor, Teflon PFA dielectric
<b>Mounting [5]</b>		Adhesive

### Calibration

<b>Supplied:</b>		
<b>Charge sensitivity</b>	pC/g	
<b>Capacitance including 6 inch replaceable cable</b>	pF	
<b>Capacitance cable</b>	pF	
<b>Transverse sensitivity</b>	%	
<b>Charge frequency response</b>	%	20 Hz to 10 kHz

## Piezoelectric accelerometer Model 22

Product	Description	22	22-R
32041	Removal wrench	Included	Optional
3095A-120	Cable assembly, 10 ft	Included	Optional
3003C	Cable assembly, attached	Included	Included
32279	Mounting wax	Included	Optional
133	Signal conditioner	Optional	Optional
2775B	Signal conditioner	Optional	Optional
4990A-1	OASIS 2000 computer-controlled system	Optional	Optional

### Notes:

1. Low-end response of the transducer is a function of its associated electronics.
2. When exposed to high g, and large displacement, the cables must be tied down as close to the accelerometer as possible to prevent cable whip and subsequent cable failure.
3. 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.
4. See instruction manual before removing cable assembly.
5. 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. Remove epoxy-mounted accelerometers by first softening the epoxy with an appropriate solvent, then twist the unit off with the supplied removal tool. Failure to heed this caution may cause permanent damage to the transducer, which is not covered under warranty.
6. 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.

### Contact

#### ENDEVCO

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