

Model 7240C Piezoelectric accelerometer

Features

- Light weight (4.8 gm)
- Hermetically sealed
- High frequency measurement
- High temperature operation (+260°C)
- Wide bandwidth (flat to 30 kHz)

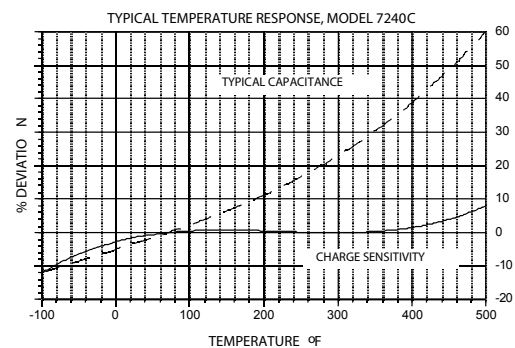
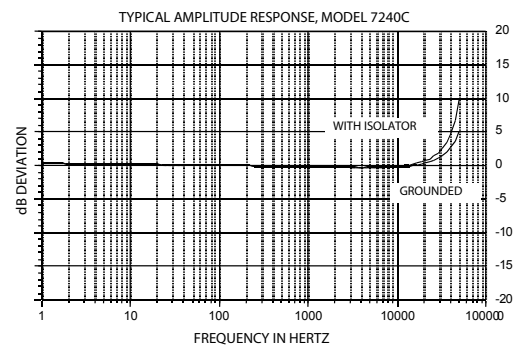
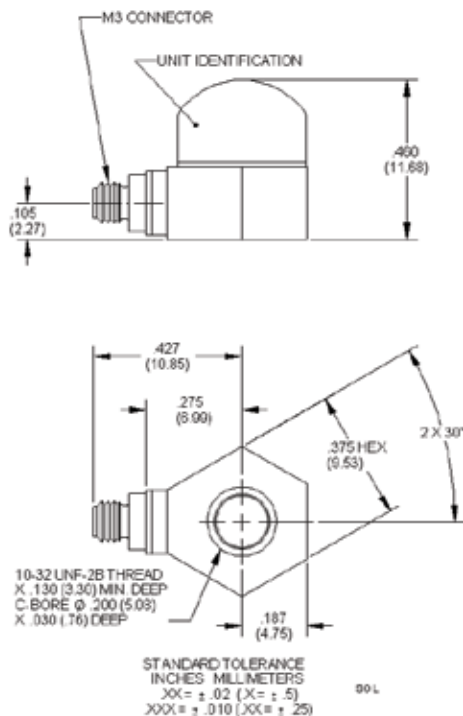


Description

The Endevco® model 7240C is a miniature, light-weight piezoelectric accelerometer designed specifically for high frequency vibration measurement. 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 eliminates mass loading. The accelerometer is a self-generating device that requires no external power source for operation.

The model 7240C 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 specially designed low-noise coaxial cable is supplied for error-free operation.

Endevco signal conditioner models 133, 2775B, 2771C, 6634C or Oasis 2000 (4990A-X with cards 428 and/or 433) computer-controlled system are recommended for use with this high-impedance accelerometer.



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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
Minimum	pC/g	2.3
Frequency response		See typical amplitude response
Resonance frequency (typical)	kHz	90
Minimum	kHz	80
Amplitude response [1]		
±1 dB	Hz	1 to 20 000
±5%	Hz	1 to 10 000
Temperature response (from -67°F[-55°C] to +500°F[+260°C])		See typical curve
Transverse sensitivity	%	≤ 5
Amplitude linearity per 500 g, 0 to 5000 g	%	1

Electrical characteristics

Output polarity		Acceleration directed into base of accelerometer produces positive output
Resistance	GΩ	≥ 10
Capacitance	pF	615–925
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 [2]	g pk	5000
Base strain sensitivity		
with 2980M12 & 2980M13 (mounting stud)	eq. g pk/μ strain	0.0005
with 2981-11 (mounting stud)	eq. 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, M3 x 0.5 6H thread, mates with Endevco 3053 cables
Mounting torque with 2981-11 (mounting stud)	lbf-in (Nm)	18 [2]

Calibration

Supplied:		
Charge sensitivity	pC/g	
Capacitance	pF	
Transverse sensitivity	%	
Frequency response	dB	50 Hz to 50 kHz

Accessories

Product	Description	7240C
2980M12	10-32 to 10-32 isolated mounting stud	Included
2980M13	Isolated adhesive mounting adapter, 1X	Included
2981-11	10-32 to 10-32 mounting stud	Included
3053V-120	VersaFlex cable assembly with M3 connector, 10 ft	Included
3053VM1-120	VersaFlex cable assembly with BNC connector, 10 ft	Optional
133	Signal conditioner	Optional
2771C	In-line charge convertor IEPE powered	Optional
2775B	Signal conditioner	Optional
6634C	Signal conditioner - does not support iTEDS	Optional
4990A-X	OASIS 2000 computer-controlled system with 428 and/or 433	Optional



Model 133 signal conditioner

Notes:

1. Low-end response of the transducer is a function of its associated electronics.
2. Short duration shock pulses, such as those generated by metal-to-metal impacts, may excite transducer resonance and cause linearity errors.
3. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at +1 (866) 363-3826 for recommended intervals, pricing and turnaround time for these services as well as for quotations on our standard products.



Continued product improvement necessitates that Endevco reserve the right to modify these specifications without notice. Endevco maintains a program of con-stant 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.