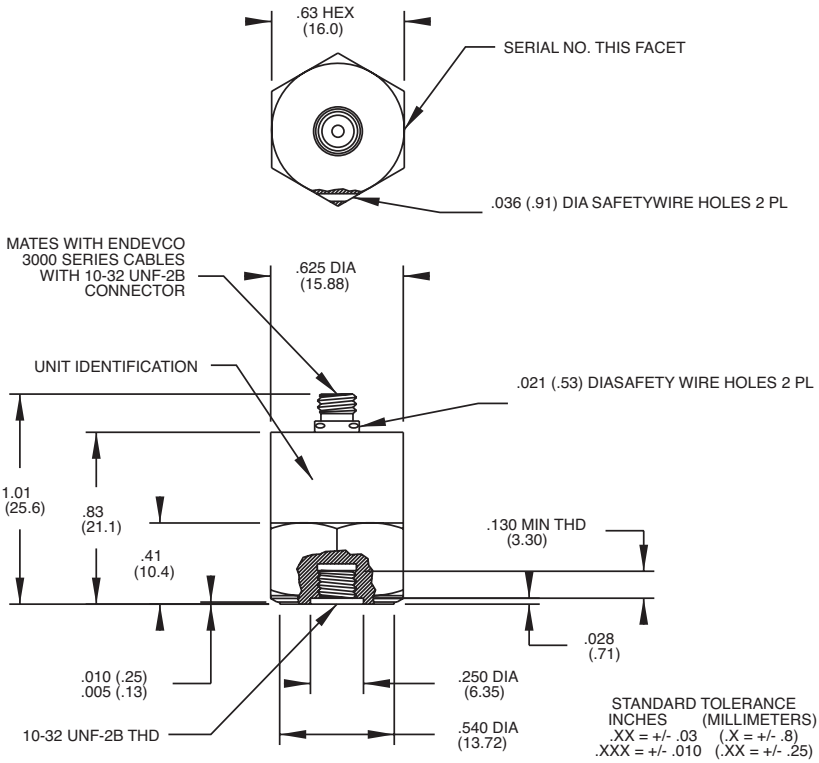
ENDEVCO
AN AMPHENOL COMPANY

Piezoelectric accelerometer

Model 7704A



Key features

- High temperature operation up to +550°F (+288°C)
- Hermetically sealed
- Ground isolated
- Top connector
- Radiation tested to 10^8 rads

Description

Model 7704A-XXXX Isoshear piezoelectric accelerometer is designed for general vibration measurement on structures and objects. The Isoshear design is extremely stable and insensitive to such environmental inputs as base bending and thermal transients. This accelerometer has been tested in a radiation environment up to 108 rads without performance degradation. It is also capable of accurate vibration measurement up to +550°F (+288°C). This unit is hermetically sealed against external contamination. The accelerometer is a self-generating device that requires no external power source for operation.

7704A-XXXX features Endevco's Piezite® Type P-8 crystal element, operating in shear mode. Signal ground is isolated from the outer case of the unit. The accelerometer features a 10-32 top-connector. A low-noise coaxial cable is supplied for error-free operation. The model number suffix indicates acceleration sensitivity in pC/g; i.e., 7704A-100 features output sensitivity of 100 pC/g.

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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.

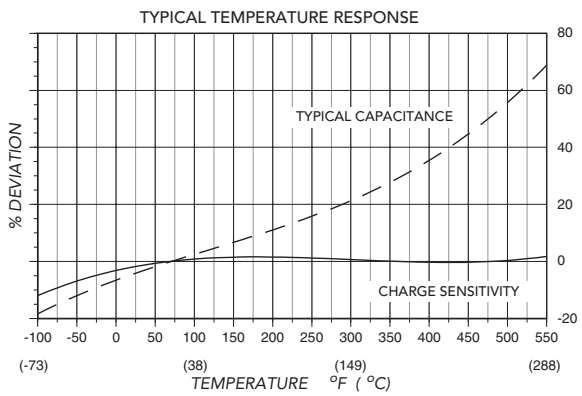
Specifications

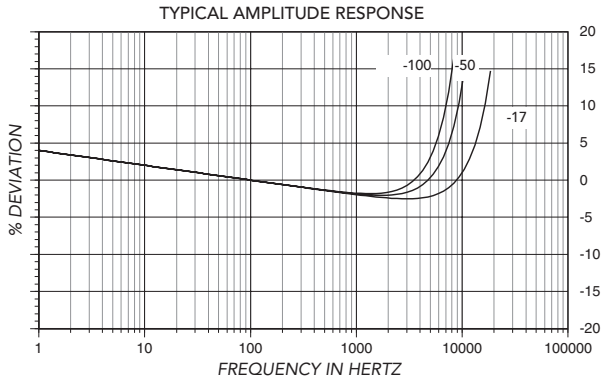
Dynamic characteristics	Units	-50	-100
Charge sensitivity			
Typical	pC/g	50	100
Minimum	pC/g	45	90
Frequency response [4]		See typical amplitude response	
Resonance frequency	kHz	26	20
Amplitude response			
±5%	Hz	1 to 6,000	1 to 5,000
±1 dB (ref.)	Hz	1 to 9,000	1 to 8,000
Temperature response		See typical curve	
Transverse sensitivity	%	< 3	
Amplitude linearity	%	1/250 g	1/125 g
Up to vibration limit			
Ouput characteristics			
Output polarity		Acceleration directed into base of unit generates positive output at the center socket of receptacle	
Resistance [2]	GΩ	< 10	
Isolation	GΩ	< 1	
Capacitance	pF	2800	
Grounding		Signal return isolated from case	
Environmental characteristics			
Temperature range		-67˚F to +550˚F (-55˚C to +288˚C)	
Humidity		Hermetically sealed	
Sinusoidal vibration	g pk	2,000	1,000
Shock limit [3]	g pk	10,000	5,000
Base strain sensitivity at 250 µstrain	eq. g pk/µstrain	0.0016	0.0008
Electromagnetic sensitivity	eq. g rms/gauss	0.0002	0.0002
Thermal transient sensitivity	eq. g/˚F (/ ˚C)	0.004	0.003
Radiation			
Integrated Gamma Flux	rad	Up to 10^8	
Thermal transient sensitivity	N/cm^2	Up to 10^{10}	
Physical characteristics			
Dimensions		See outline drawing	
Weight	oz (gm)	0.9 (25)	1.0 (29)
Case material		Stainless steel	
Connector		Coaxial receptacle with 10-32 UNF threads esigned to mate with Endevco model 3000 series cable	
Mounting Torque	lbf-in (Nm)	18 (2)	
Calibration data			
Supplied			
Charge sensitivity	pC/g		
Capacitance	pF		
Maximum travsverse sensitivity	%		
Charge frequency response	%	20 Hz to 6 kHz	20 Hz to 5 kHz
	dB	6 kHz thru resonance	5 kHz thru resonance

Accessories		
Product	**Description**	**7704A**
3090C-120	Cable assembly, 10 ft	Included
2981-12	Mounting stud, 10-32 to 10-32	Included
EM464	Hex key wrench	Included
3076M6-120	Cable assembly, for use above +500° F, 10 ft	Optional
2981-4	Mounting stud, 10-32 to m5	Optional
2981-3	Mounting stud, 10-32 to 10-32	Optional
2771C	In-line charge converter	Optional
2950	Triaxial mounting block	Optional

Notes

1. Low-end response of the transducer is a function of its associated electronics.
2. Prolonged exposure at maximum temperature may decrease the return to room temperature resistance to as low as 25 MΩ but will not degrade the overall performance of the unit. All units are processed to initially meet 10 GΩ at room temperature.
3. 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.
4. 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.





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