Piezoelectric Accelerometer

ENDEVCO MODEL 7701A-50 -100

Model 7701A-50 and -100

- **To +550°F (+288°C), Temperature Compensated**
- **Hermetically Sealed**
- **Side-Connector, 5/8" Hex**

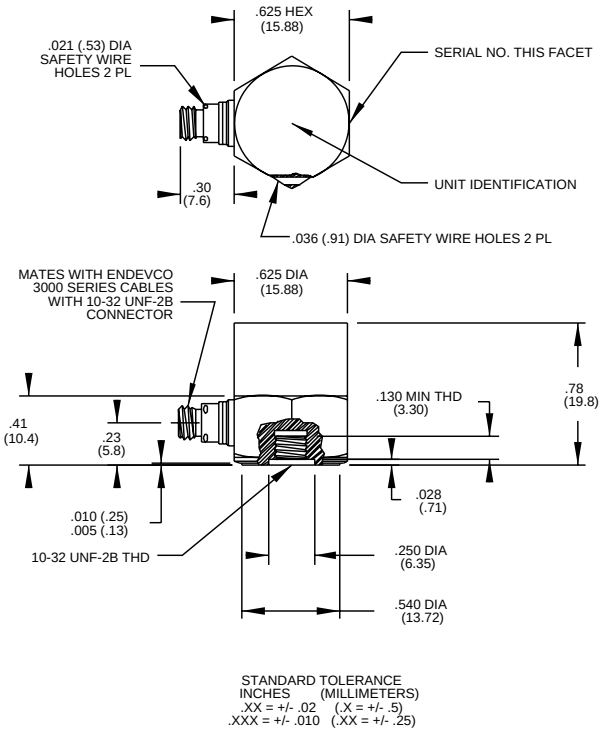
Actual size

DESCRIPTION

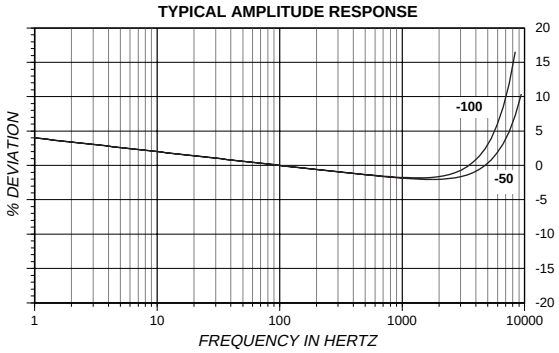
The ENDEVCO® Model 7701A-XXX stud mounted, ISOSHEAR piezoelectric accelerometer is designed for general vibration measurement on structures and objects. The ISOSHEAR design is extremely stable and virtually insensitive to such environmental inputs as base bending and thermal transients. This line of accelerometers has been tested in a radiation environment up to 1E8 rads without performance degradation, and they are also capable of accurate vibration measurement up to +550°F (+288°C). These units are hermetically sealed against external contamination. The accelerometer is a self-generating device that requires no external power source for operation.

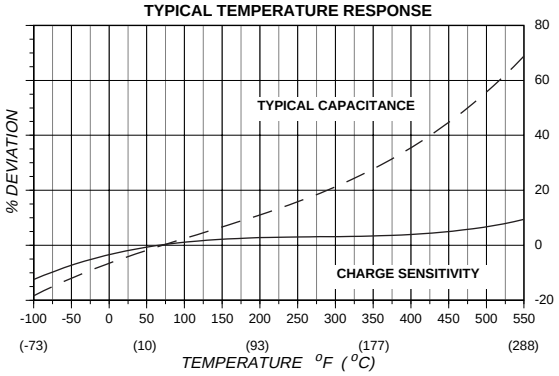
The Model 7701A-XXX features ENDEVCO's PIEZITE® Type P-8 crystal element, operating in shear mode, which exhibits low base strain sensitivity, high resonance frequency, and excellent output stability over time. Signal ground is connected to the outer case of the unit. When used with an isolated mounting stud, the accelerometer is electrically isolated from ground. The accelerometer features a 10-32 side-connector. A low-noise coaxial cable is supplied for error-free operation. The model number suffix indicates acceleration sensitivity in pC/g; i.e., 7701A-100 features output sensitivity of 100 pC/g.

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)





MEGGITT

CERTIFIED ISO 9001

APPLIES TO CALIFORNIA FACILITY

ENDEVCO

ENDEVCO
MODEL
7701A-50
-100

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	-50	-100
CHARGE SENSITIVITY			
TYPICAL	pC/g	50	100
MINIMUM	pC/g	45	90
FREQUENCY RESPONSE		See Typical Amplitude Response	
RESONANCE FREQUENCY	kHz	26	20
AMPLITUDE RESPONSE [1]			
±5%	Hz	1 to 6 k	1 to 5 k
±1dB	Hz	.5 to 8000	.5 to 7000
TEMPERATURE RESPONSE		See Typical Curve	
TRANSVERSE SENSITIVITY	%	≤ 3	
AMPLITUDE LINEARITY [2] Up to vibration limit	%	1/250 g	1/125 g

ELECTRICAL CHARACTERISTICS			
OUTPUT POLARITY		Acceleration directed into base of unit produces positive output at center socket of receptacle	
RESISTANCE	GΩ	≥ 10	
CAPACITANCE	pF	2800	
GROUNDING		Signal return connected to case	

ENVIRONMENTAL CHARACTERISTICS			
TEMPERATURE RANGE [3]		-67°F to +550°F (-55°C to +288°C)	
HUMIDITY		Hermetically sealed	
SINUSOIDAL VIBRATION LIMIT	g pk	2000	1000
SHOCK LIMIT	g pk	10 000	5000
BASE STRAIN SENSITIVITY	equiv. g pk/μ strain	0.0016	0.0008
ELECTROMAGNETIC SENSITIVITY	equiv. g rms/gauss	0.0002	0.0002
THERMAL TRANSIENT SENSITIVITY	equiv. g pk/°F (/°C)	0.004 (0.007)	0.003 (0.005)
RADIATION			
INTEGRATED GAMMA FLUX	rad	Up to 10^8	
INTEGRATED NEUTRON FLUX	N/cm^2	Up to 10^{10}	

PHYSICAL CHARACTERISTICS			
DIMENSIONS		See Outline Drawing	
WEIGHT	gm (oz)	25 (0.9)	29 (1.0)
CASE MATERIAL		Stainless Steel	
CONNECTOR		Coaxial receptacle with 10-32 UNF threads designed to mate with Endevco Model 3000 Series Cable	
MOUNTING TORQUE	lbf-in (Nm)	18 (2)	

CALIBRATION			
SUPPLIED:			
CHARGE FREQUENCY RESPONSE	%	20 to 6 kHz	20 to 5 kHz
	dB	6 kHz thru resonance	5 kHz thru resonance
CHARGE SENSITIVITY	pC/g		
MAXIMUM TRANSVERSE SENSITIVITY	%		
CAPACITANCE	pF		

ACCESSORIES

Model 3090C-120 (10 ft)	CABLE ASSEMBLY for use to +550°F (+288°C)
Model 2981-12	MOUNTING STUD, 10-32 to 10-32
P/N EHM464	HEX KEY, WRENCH

OPTIONAL ACCESSORIES

Model 3075M6-120 (10 ft)	CABLE ASSEMBLY for use above +500°F (+260°C)
Model 2981-4	MOUNTING STUD, 10-32 to M5
Model 2771AM3	IN-LINE CHARGE CONVERTOR FOR USE WITH CONSTANT CURRENT SOURCE
Model 2950	TRIAXIAL MOUNTING BLOCK

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. Send for TP290 for more details.
3. Charge output is temperature compensated.
4. 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.

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