Preliminary

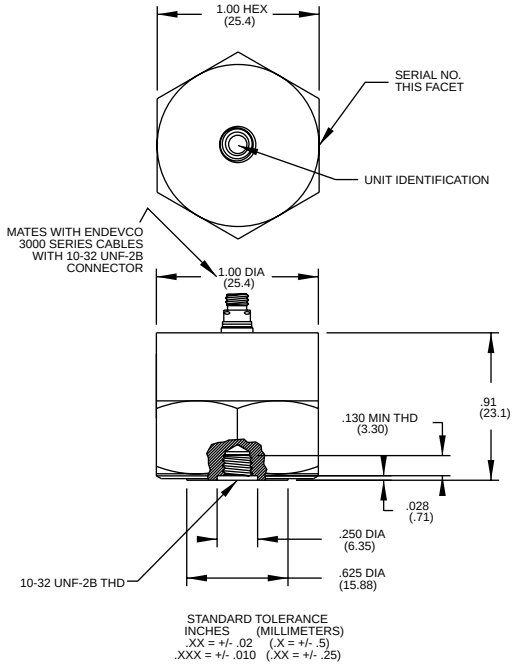
Piezoelectric Accelerometer

ENDEVCO MODEL 7702A-200 -300 -1000

Model 7702A-200, -300 and -1000

- **Requires No External Power**
- **ISOSHEAR®**
- **High Output/Modal Applications**
- **Top-Connector, 1" Hex**
- **To +550°F (+288°C), Temperature Compensated**
- **Hermetically Sealed**
- **Low Base Strain Sensitivity**

Actual size

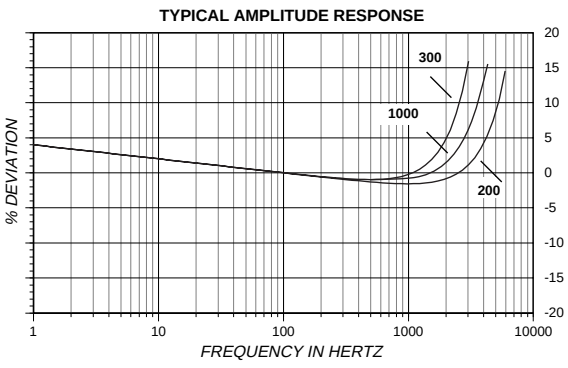


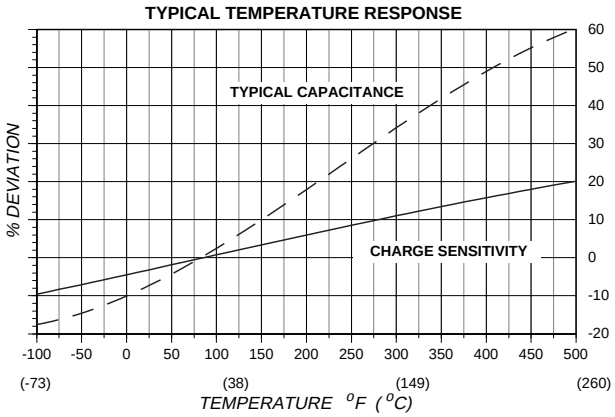
DESCRIPTION

The ENDEVCO® Model 7702A-XXXX stud mounted, ISOSHEAR piezoelectric accelerometer is designed for modal measurement on large 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 7702A-XXXX 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 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., 7702A-1000 features output sensitivity of 1000 pC/g.

ENDEVCO Signal Conditioner Models 133, 2775A or CCAS™ are recommended for use with this high impedance accelerometer.





MEGGITT

ENDEVCO

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ENDEVCO MODEL 7702A-200 -300 -1000

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	-200	-300	-1000
CHARGE SENSITIVITY				
TYPICAL	pC/g	200	300	1000
MINIMUM	pC/g	180	270	900
FREQUENCY RESPONSE		See Typical Amplitude Response		
RESONANCE FREQUENCY	kHz	17	13	8
AMPLITUDE RESPONSE [1] ±5%	Hz	1 to 4 k	1 to 3 k	1 to 2 k
TEMPERATURE RESPONSE		See Typical Curve		
TRANSVERSE SENSITIVITY	%		3	
AMPLITUDE LINEARITY [2] Up to vibration limit	%	1/125 g	1/85 g	1/25 g

ELECTRICAL CHARACTERISTICS				
OUTPUT POLARITY		Acceleration directed into base of unit produces positive output at center socket of receptacle		
RESISTANCE	GΩ		10	
CAPACITANCE	pF	5600	5600	5600
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	850	675	500
SHOCK LIMIT	g	2000	1600	1000
BASE STRAIN SENSITIVITY	equiv. g pk/μ strain	0.0004	.0001	0.00008
ELECTROMAGNETIC SENSITIVITY	equiv. g rms/gauss	0.0002	.0002	0.0001
THERMAL TRANSIENT SENSITIVITY	equiv. g pk/°F (/°C)	0.002 (0.004)	.001	0.001 (0.002)
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)	62 (2.2)	70	120 (4.2)
CASE MATERIAL		Stainless Steel		
CONNECTOR		Coaxial receptacle with 10-32 UNF thread designed to mate with Endevco Model 3000 Series Cable		
MOUNTING TORQUE	lbf-in (Nm)	18 (2)		

CALIBRATION				
SUPPLIED:				
CHARGE FREQUENCY RESPONSE	%	20 to 4 kHz	20 to 3 kHz	20 to 2 kHz
	dB	4 kHz thru resonance	3 kHz thru resonance	2 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 2981-3	MOUNTING STUD, 10-32 to 10-32

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

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.

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