Piezoelectric Accelerometer

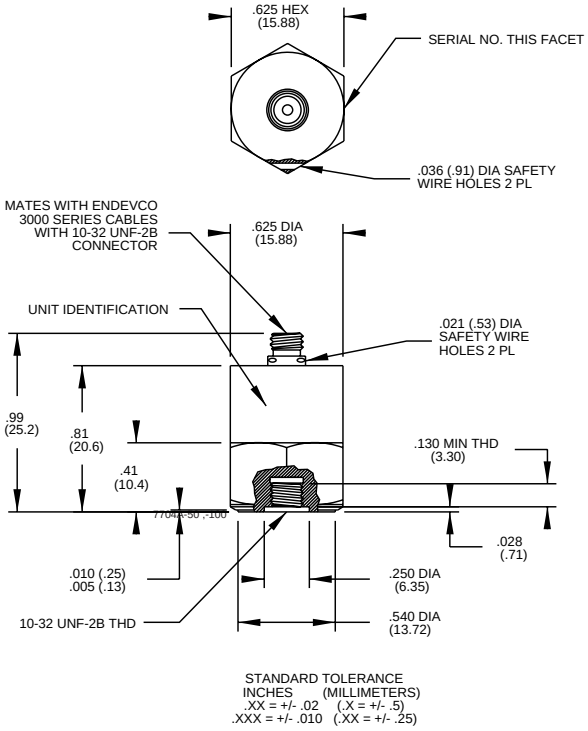
ENDEVCO MODEL 7704A -17 -50

Model 7704A-17 and -50

- **Requires No External Power**
- **ISOSHEAR®**
- **MIL-STD 740-2 Applications**
- **Top Connector, 5/8" and 3/4" Hex**
- **To +550°F (+288°C), Temperature Compensated**
- **Hermetically Sealed**
- **Low Base Strain Sensitivity**
- **Ground Isolated**



Actual size

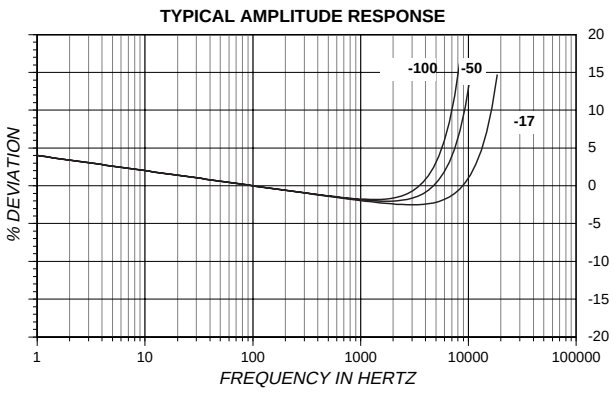


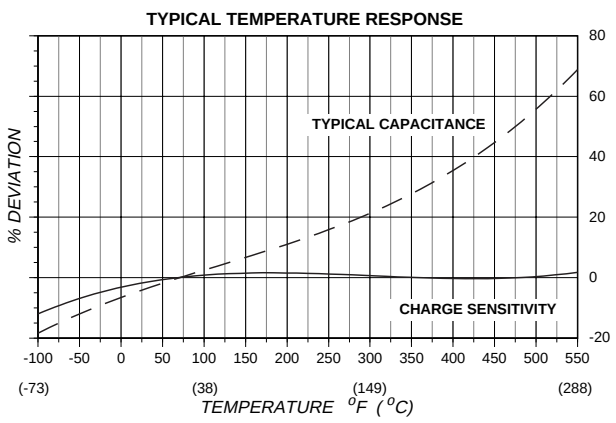
DESCRIPTION

The ENDEVCO® Model 7704A-XXXX 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 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.

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





MEGGITT

ENDEVCO

ENDEVCO MODEL 7704A -17 -50

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	-17	-50
CHARGE SENSITIVITY			
TYPICAL	pC/g	17	50
MINIMUM	pC/g	15	45
FREQUENCY RESPONSE		See Typical Amplitude Response	
RESONANCE FREQUENCY	kHz	45	26
AMPLITUDE RESPONSE [1] ±5%	Hz	1 to 10 k	1 to 6 k
TEMPERATURE RESPONSE		See Typical Curve	
TRANSVERSE SENSITIVITY	%	≤ 3	
AMPLITUDE LINEARITY [2] Up to vibration limit	%	1/625 g	1/250 g

ELECTRICAL CHARACTERISTICS			
OUTPUT POLARITY		Acceleration directed into base of unit produces positive output at center socket of receptacle	
RESISTANCE	GΩ	≥ 10	
ISOLATION	GΩ	≥ 1	
CAPACITANCE	pF	2800	
GROUNDING		Signal return isolated from case	

ENVIRONMENTAL CHARACTERISTICS			
TEMPERATURE RANGE [3]		-67°F to +550°F (-55°C to +288°C)	
HUMIDITY		Hermetically sealed	
SINUSOIDAL VIBRATION LIMIT	g pk	2500	2000
SHOCK LIMIT	g pk	12 000	10 000
BASE STRAIN SENSITIVITY	equiv. g pk/μ strain	0.004	0.0016
ELECTROMAGNETIC SENSITIVITY	equiv. g rms/gauss	0.0002	0.0002
THERMAL TRANSIENT SENSITIVITY	equiv. g pk/°F (/°C)	0.01 (0.018)	0.004 (0.007)
RADIATION			
INTEGRATED GAMMA FLUX	rad	Up to 10^8	
INTEGRATED NEUTRON FLUX	N/cm^2	Up to 10^{10}	

PHYSICAL CHARACTERISTICS			
DIMENSIONS		-17: .75" Hex, 1.0" Height,	-50: See Outline Drawing
WEIGHT	gm (oz)	25 (0.9)	25 (0.9)
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	% dB	20 to 10 kHz 10 kHz thru resonance	20 to 6 kHz 6 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
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.

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

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