

Model 7251HT Isotron[®] accelerometer

Features

- Low impedance output
- 302°F (150°C) operation
- Hermetically sealed
- Wide bandwidth
- New low profile
- Aerospace, general purpose applications

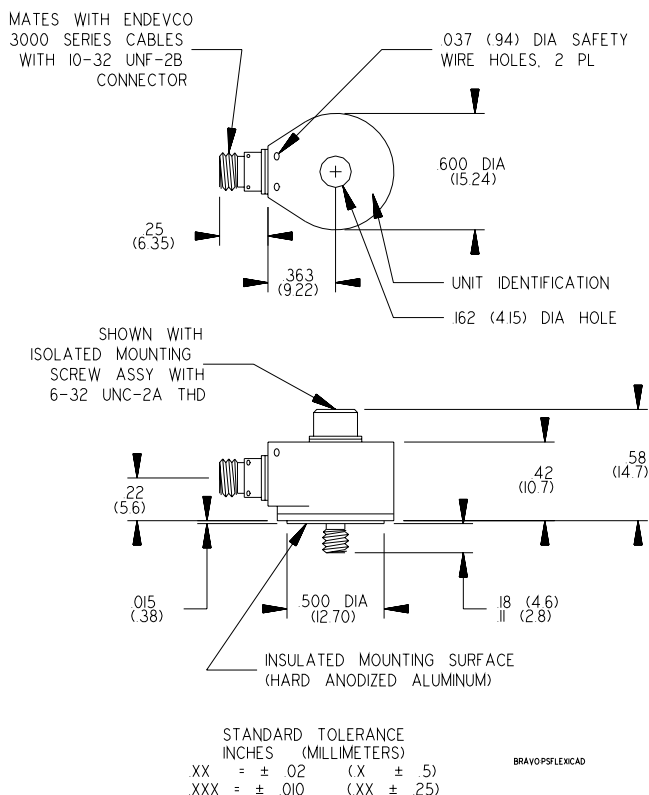


Description

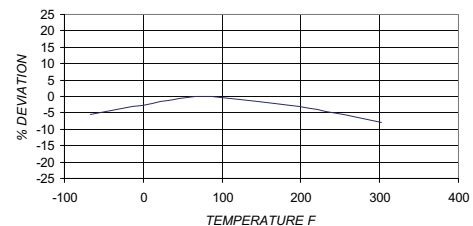
The Endevco[®] model 7251HT is a small piezoelectric accelerometer with integral electronics, designed specifically for measuring vibration on most structures, at moderate temperatures continuously up to +150°C. The unit is hermetically sealed against environmental contamination, offers high output sensitivity, and wide bandwidth. This new lightweight (14 gm) design effectively minimizes mass loading effects.

The model 7251HT features Endevco's Piezite[®] type P-8 crystal element, operating in annular shear mode, which exhibits low base-strain sensitivity and excellent output stability over time. This accelerometer incorporates an internal hybrid signal conditioner in a two-wire system, which transmits its low-impedance voltage output through the same cable that supplies the constant-current power. Signal ground is connected to the outer case of the unit and, when the unit is used with the supplied isolated mounting screw, it is electrically isolated from ground. The centrally located mounting bolt permits 360° cable orientation, a very desirable feature in many applications. A model number suffix indicates sensitivity in mV/g; i.e., 7251HT-100 features an output sensitivity of 100 mV/g.

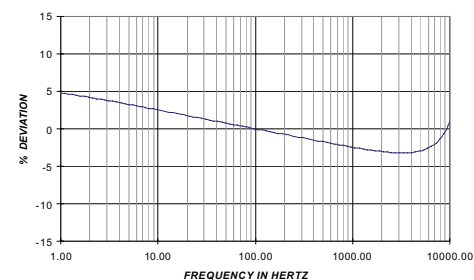
Endevco signal conditioner models 133, 4416B, 2793, 2775B, 4999, 6634C or Oasis 2000 computer-controlled system (4990A-X with cards 428 and/or 433) are recommended for use with this accelerometer.



TYPICAL TEMPERATURE RESPONSE



TYPICAL FREQUENCY RESPONSE, MODEL 7251HT



Model 7251HT Isotron® accelerometer

Endevco

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	-10	-100	500
Range	g	±500	±50	±10
Voltage sensitivity, ±10% [1]	mV/g	10	100	500
Frequency response				
Resonance frequency typical	kHz	30	30	30
Resonance frequency minimum	kHz	28	28	28
Amplitude response				
±5%	Hz	2 to 10 000	2 to 10 000	2 to 10 000
±10%	Hz	.2 to 12 000	.2 to 12 000	.2 to 12 000
Transverse sensitivity	%	< 5	< 5	< 5
Temperature response		●———— See typical curve ———●		
Amplitude linearity	%	≤ 2	≤ 2	≤ 2
Output characteristics				
Output polarity		Acceleration directed into base produces positive output		
DC output bias voltage [75°F] -67°F to +300°F [-55°C to +150°C]	Vdc	+12.7 to +13.7	+12.7 to +13.7	+12.7 to +13.7
at full range output voltage	5V pk	+7 to +16	+7 to +16	+7 to +16
at output voltage	0.5 V pk	+5 to +16	5 to +16	5 to +16
Output impedance	Ω	< 200	< 200	< 200
Full scale output voltage	V	±5	±5	±5
Residual noise	equiv. µg rms	300	120	120
Overload recovery (2X of full scale)	µs	< 10	< 10	< 10
Grounding		Signal ground connected to case and isolated from mounting surface		
Sensitivity vs current (2 to 10 mA)	%	±1	±1	±1
Power requirement				
Supply voltage	Vdc	+23 to +30	+23 to +30	+23 to +30
Supply current	mA	+2 to +10	+2 to +10	+2 to +10
Warm-up time [2]	sec	10	10	10
Environmental characteristics				
Temperature range		●—— -67°F to +302°F [-55°C to +150°C] ——●		
Humidity		●———— Hermetically sealed ———●		
Sinusoidal vibration limit	g pk	500	500	500
Shock limit [3]	g pk	5000	5000	5000
Base strain sensitivity	equiv. g pk/µ strain	0.025	0.01	0.01
Thermal transient sensitivity	equiv. g pk/°F	0.18	0.17	0.04
Electromagnetic sensitivity	equiv. g rms/gauss	0.002	0.0004	0.0003
Physical characteristics				
Dimensions		●———— See outline drawing ———●		
Weight	oz (gm)	0.49 (14)	0.49 (14)	0.49 (14)
Case material		●———— Stainless steel ———●		
Connector		10-32 receptacle, side mounted, mates with Endevco 3000 series cable		
Mounting torque	lbf-in (Nm)	10 (1.1)	10 (1.1)	10 (1.1)
Supplied calibration				
Voltage sensitivity	mV/g			
Maximum transverse sensitivity	%			
Frequency response		20 Hz to 10 kHz	20 Hz to 10 kHz	20 Hz to 10 kHz

Environmental characteristics

Temperature range		●—— -67°F to +302°F [-55°C to +150°C] ——●		
Humidity		●———— Hermetically sealed ———●		
Sinusoidal vibration limit	g pk	500	500	500
Shock limit [3]	g pk	5000	5000	5000
Base strain sensitivity	equiv. g pk/µ strain	0.025	0.01	0.01
Thermal transient sensitivity	equiv. g pk/°F	0.18	0.17	0.04
Electromagnetic sensitivity	equiv. g rms/gauss	0.002	0.0004	0.0003

Physical characteristics

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Supplied calibration

Voltage sensitivity	mV/g			
Maximum transverse sensitivity	%			
Frequency response		20 Hz to 10 kHz	20 Hz to 10 kHz	20 Hz to 10 kHz

Accessories

Product	Description	7251HT -10, -100, -500, -1000
26028	Isolated mounting screw assembly, 6-32	Included
EHM49	Allen wrench, 7/64	Included
3061A-120	Cable assembly, 10ft	Included
EH530	Screw, socket head, 6-32 x 5/8	Optional
EH612	Non-isolated mounting screw, metric 4mm	Optional
27309	Isolated mounting screw assembly, metric 4mm	Optional
133	Signal conditioner	Optional
2775B	Signal conditioner	Optional
2793	Isotron® signal conditioner	Optional
4416B	Signal conditioner	Optional
4999	Signal conditioner	Optional
6634C	Signal conditioner	Optional
4990A-X	Oasis 2000 computer-controlled system with cards 428 and/or 433	Optional

Notes:

- ±5% sensitivity on special order
- To meet all specs.
- 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.
- 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 turnaround time for these services as well as for quotations on our standard products. 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.



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.