Model 65M1
Isotron® accelerometer

Features

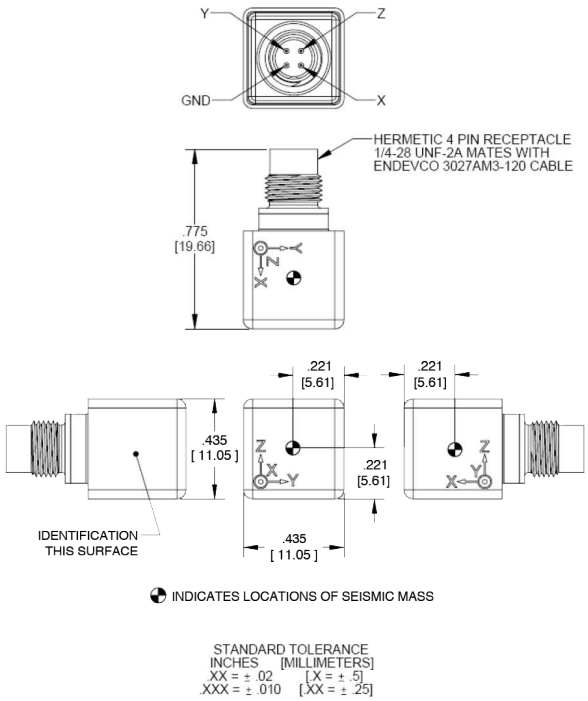
- NEW! 65M1-10-R and 65M1-100-R available as replacement sensors
- Triaxial, low-impedance output
- Small size (11.2-mm cube, 5 gram)
- Ideal for structural analysis, laboratory testing and modal analysis data acquisition
- Shock-proof, overload-protected

Description

The high sensitivity and high performance of Endevco's model 65M1 distinguish this triaxial accelerometer from comparable products. The Endevco® model 65M1 is an 11.2-mm cube of welded titanium construction encapsulated in an anodized aluminum isolation jacket to provide electrical isolation from the mounting surface. Interface to the model 65M1 is via a Microtech 4-pin connector. Temporary petro-wax adhesive and a ten-foot cable assembly with BNC connectors are provided as standard accessories.

The model 65M1's excellent frequency response, both amplitude and phase, provide the user with a triaxial accelerometer ideally suited for structural and component testing, drop tests and general laboratory vibration work. The reduced size of this accelerometer enables the test engineer or technician to measure the accelerations of three orthogonal axes of vibration simultaneously on lightweight structures.

Endevco signal conditioner models 133, 2793, 4416B or Oasis 2000 are recommended for use with this accelerometer.



Model 65M1
Isotron® 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	-10	-100
Range	g (m/s^2)	±500 (4900)	±50 (490)
Voltage sensitivity	mV/g (mV / m/s^2)	10 (1.02)	100 (10.2)
Amplitude response			
±1 dB	Hz	0.4 to 4000	1.5 to 4000
±3 dB	Hz	0.2 to 8000	0.7 to 8000
Phase response, ±5°	Hz	3 to 1500	10 to 1500
Resonance frequency	Hz	50 000	42 000
Transverse sensitivity	%	< 5	< 5
Temperature response			
Sensitivity deviation, ±5%		+30°F to +104°F (0°C to +40°C)	
Sensitivity deviation, ±10%		-4°F to +185°F (-20°C to +85°C)	
Amplitude non-linearity	%	< 1	< 1
Output characteristics			
Output polarity		See arrows on outline drawing	
DC output bias voltage [1]	Vdc	+12.3 to +13.5	
Output impedance			
2 mA to 3 mA	Ω	< 300	< 300
3 mA to 20 mA	Ω	< 100	< 100
Full scale output voltage	Vpk	±5	±5
Residual noise			
Broadband (2Hz to 10kHz)	µg rms	800	400
Spectral			
1Hz	µg/√Hz	500	300
10Hz	µg/√Hz	80	50
100Hz	µg/√Hz	15	10
1kHz	µg/√Hz	6	4
Grounding		Signal ground connected to case and isolated from the mounting surface	
Power requirement			
Compliance voltage	Vdc	+23 to +30	
Supply current	mA	+2 to +20	
Warm-up time (to reach 90% of final bias)	sec	< 20	< 20
Environmental characteristics			
Temperature range		-67°F to 257°F (-55°C to +125°C)	
Humidity		Welded construction	
Sinusoidal vibration limit	g pk	±500	±200
Shock limit [2]	g pk	10 000	10 000
Base strain sensitivity at 250 µstrain	eq. g/µstrain	0.0007	0.0006
Thermal transient sensitivity	eq. g/°F	0.006	0.004
Physical characteristics			
Dimensions		See outline drawing	
Weight	oz (gm)	0.17 (5)	0.17 (5)
Case material, inner		Titanium, commercially pure	
Case material, outer		Anodized aluminum	
Connector [3]		4 pin Microtech style side mounted	
Mounting [4]		Adhesive	
Calibration			
Supplied, each axis:			
Voltage sensitivity	mV/g		
Maximum transverse sensitivity	%		
Frequency response	%	20 to 6000	

Model 65M1
Isotron® accelerometer

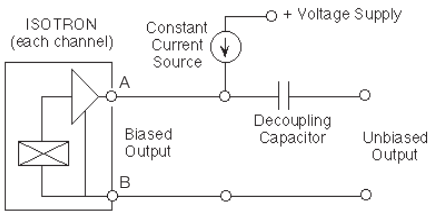
Accessories

Product	Description	65M1-XXX	65M1-XXX-R
3027AM3-120	Triaxial cable, 85° C, 3 BNC's at instrumentation end	Included	Optional
32279	Mounting wax	Included	Optional
3027A-120	Cable assembly, silicone jacket, 125°C **[5]**	Optional	Optional
3027AVM13-120	Triaxial cable, 200°C (transducer extension cable, mates with model 3027AM3) **[7] [6]**	Optional	Optional
133	Signal conditioner	Optional	Optional
2793	Isotron signal conditioner	Optional	Optional
4416B	Battery powered Isotron conditioner	Optional	Optional
4990A-1	OASIS 2000 computer controlled system	Optional	Optional

Notes:

1. +22 Vdc minimum must be available to the accelerometer to ensure full-scale operation at the temperature extremes.
2. Shock pulses of short duration may excite transducer resonance.
3. Microtech DR-4S-4 receptacle mates with Endevco model 3027AM3 cables.
4. Be careful not to apply abusive forces when removing the accelerometer from a structure.
5. The 3027A cable assembly should be used in applications where the accelerometer is used near its upper temperature range extreme, 257°F (125°C). The included cable assembly, 3027AM3-120, is only rated for use up to only 185°F (85°C).
6. The 3027AVM13-XXX cable assembly should be used as a 257°F (125°C) extension cable for model 3027AM3-120. Cable length, in inches, is specified by the model number suffix.
7. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at +1 (866) 363-3826 for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

Model 133
3-channel
signal conditioner



APPLIES TO CALIFORNIA FACILITY

Continued product improvement necessitates that Endevco reserve the right to modify thesespecifications without notice. Endevco maintains a program of con-stant 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.