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extreme environments

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Model 6233C -10, -50, -100 Piezoelectric accelerometer

Features

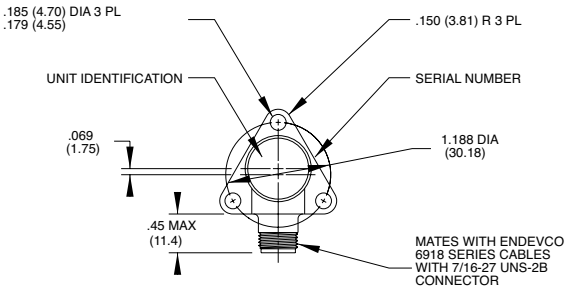
- Requires no external power
- 10, 50 or 100 pC/g sensitivity
- +900°F (+482°C) operation
- Gas turbine monitoring
- Ground isolated
- Balanced differential output

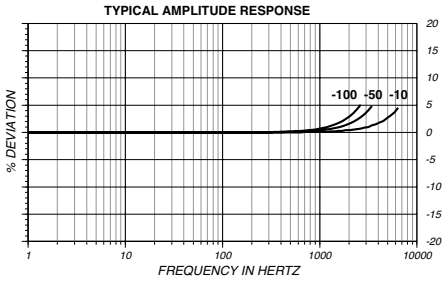
Description

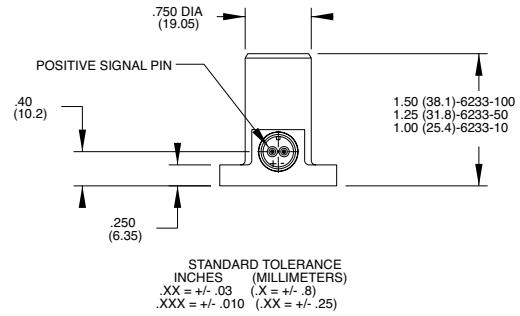
The Endevco® model 6233C series piezoelectric accelerometers are designed for high temperature vibration measurement of gas turbine engines. The unit features high sensitivity, ruggedized connector, and ARINC 3 point mounting. The 6233C is designed for continuous operation to +900°F with long Mean Time Between Failure (MTBF). The accelerometer is a self-gengenerating device that requires no external power source for operation.

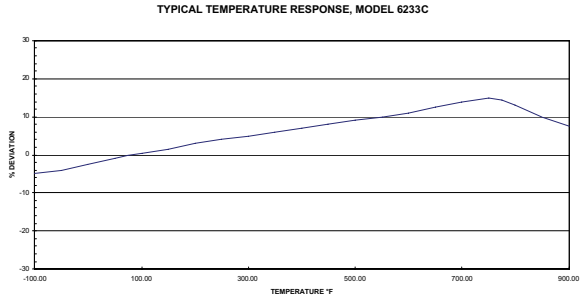
The 6233C incorporates Endevco's Piezite® type P-14 sensing element to provide high output, excellent temperature stability, and wide operational bandwidth. With such high temperatures involved, this accelerometer requires the use of a charge amplifier or remote charge convertor which is designed to accept a 100 kΩ source resistance. The 6233C provides a balanced differential output isolated from case ground. The 6233C is available in standard ranges of 10, 50 and 100 pC/g. The 6233C is designed for use with Endevco's models 6918M30 shielded hardline cable or, when temperature permits, with our 6917B/D softline cable assembly.

Endevco signal conditioner models 2777A, 6634C are recommended for use with this high impedance accelerometer.









Model 6233C -10, -50, -100
Piezoelectric accelerometer

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Specifications

The following performance specifications conform to ISA-RP-37.2 (1964) and are typical values, referenced at +75°F (+24°C), 24 Vdc supply, 4 mA, and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

Dynamic characteristics	Units	-10	-50	-100
Charge sensitivity (typical)	pC/g	10	50	100
minimum	pC/g	9.5	47.5	95
maximum	pC/g	10.5	52.5	105
Frequency response		• See typical amplitude response •		
Resonance frequency [1] (typical)	kHz	31	16	12
minimum	kHz	28	14	10
Amplitude response [2]				
±5%	Hz	10 to 5000	10 to 2500	10 to 2000
±1dB (reference)	Hz	1 to 8000	0.1 to 5000	0.1 to 3000
Temperature response		• See typical curve •		
-67°F to +900°F (-55°C to +482°C) max/min	%	• 15% max over temperature range •		
Transverse sensitivity	%	≤ 5	≤ 5	≤ 5
Amplitude linearity (up to vibration limit)	%	1/500 g	1/500 g	1/250 g

Electrical characteristics				
Output polarity		Acceleration directed into base of unit produces positive output at left receptacle pin (looking into receptacle)		
Resistance (between pins)	GΩ	≥ 1	≥ 1	≥ 1
at +900˚F (+482˚C)	KΩ	≥ 100	≥ 100	≥ 100
Isolation (pin to case)	MΩ	≥ 100	≥ 100	≥ 100
at +900˚F (+482˚C)	MΩ	≥ 10	≥ 10	≥ 10
Capacitance	pF	725	1350	2300
signal pin to case	pF	≤ 10	≤ 10	≤ 10
unbalance between pins	pF	≥ 2	≥ 2	≥ 2
Grounding		• Signal return isolated from case •		

Environmental characteristics				
Temperature range		• -67°F to +900°F (-55°C to +482°C) •		
Humidity		• Hermetically sealed •		
Sinusoidal vibration limit	g pk	1000	1000	500
Shock limit	g pk	2000	2000	1000
Base strain sensitivity	equiv. g pk /µ strain	0.002	0.0024	0.002
Thermal transient sensitivity [3]	equiv. g pk /°F (/°C)	0.10 (0.18)	0.05 (0.09)	0.03 (0.05)

Physical characteristics				
Dimensions		• See outline drawing •		
Weight	oz (gm)	≤ 2.6 (75)	≤ 3.8 (110)	≤ 3.8 (110)
Case material		• Inconel •		
Connector		Two pin receptacle designed to mate with Endevco 6918M30 and 6917B/D cable assemblies when temperature permits.		
Mounting torque	lbf-in (Nm)	14 (1.6)	14 (1.6)	14 (1.6)

Supplied calibration				
Charge frequency response				
6233C-10	%	• 50 to 4000 Hz •		
	dB	• 4000 Hz through resonance •		
6233C-50	%	• 50 to 2500 Hz •		
	dB	• 2500 Hz through resonance •		
6233C-100	%	• 50 to 2000 Hz •		
	dB	• 2000 Hz through resonance •		
Charge sensitivity	pC/g			
Maximum transverse sensitivity	%			
Capacitance	pF			

Accessories:

Product	Description	6233C-10, -50, -100
EH534	Screw, Soc cap, 8-32 x 1/2	Included
EHM438	Cap, protective	Included
6918M30-XXX	Cable assembly (+900°F)	Optional
6917B-XXX	Cable assembly (500°F)	Optional
6917D-XXX	Cable assembly (550°F)	Optional
2777A	Signal conditioner	Optional
6634C [4]	Signal conditioner	Optional

Notes:

1. On the -10, there is a cover resonance at ~21 kHz.
2. Low-end response of the transducer is a function of the associated electronics.
3. With 1-Hz high-pass filter.
4. Input resistance at high temperature may not be sufficient when using this signal conditioner.
5. 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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