HIGH TEMPERATURE PIEZOELECTRIC ACCELEROMETER (HTPE)

Model 6233C-10/-50/-100

Product description

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. 6233C is designed for continuous operation to +900˚F with long Mean Time Between Failure (MTBF). The accelerometer is a self-generating device that requires no external power source for operation.

6233C incorporates Parker Meggitt's crystal material 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. 6233C provides a balanced differential output isolated from case ground. 6233C is available in standard ranges of 10, 50 and 100 pC/g and is designed for use with Model 6918M30 braided hardline cable or when temperature permits Model 2001 softline cable. The Model 1772M3-X remote charge converter is recommended for extended frequency range.

Model number definition:
6233C = basic model number
6233C-10 = sensitivity is 10 pC/g
6233C-50 = sensitivity is 50 pC/g
6233C-100 = sensitivity is 100 pC/g
6233C-XXX-US = Made in the USA

Key features and benefits

- 10, 50 or 100 pC/g sensitivity
- +900˚F (+482˚C) operation
- Ground isolated
- Balanced differential output
- RoHS complaint

Applications

- Gas turbine monitoring
- Test cell vibration measurements
- Nuclear applications

Parker Defense Systems

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Specifications

The following performance specifications are typical values, referenced at +75˚F (+24˚C) unless otherwise noted.

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
±10% (reference)	Hz	1 to 9000	1 to 4500	1 to 4000
±1dB (reference)	Hz	1 to 10,000	0.1 to 5000	0.1 to 4500
At 10,000 Hz (reference)	db	1.2	5	8
With 1773M3-1 RCC				
±5%	Hz	10 to 10,000		
±10% (reference)	Hz	6 to 13,000		
±1dB (reference)	Hz	6 to 13,500		
Temperature response		See typical curve		
-67˚F to +900˚F (-55˚C to +482˚C)	%	15% max over temperature range		
max/min	%	⩽ 5	⩽ 5	⩽ 5
Transverse sensitivity				
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		
Resistance (between pins)				
Room temperature (typical)	MΩ	⩾ 100	⩾ 100	⩾ 100
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
unbalance between pins	pF	⩽ 2	⩽ 2	⩽ 2
Grounding		Signal return isolated from case		

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Specifications

Environmental characteristics	**Units**	**-10**	**-50**	**-100**
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)
Radiation				
Integrated Gamma Flux, max	rad		6.2×10^{10}	
Integrated Neutron Flux, max	Neutron/cm2		3.7×10^{18}	
Physical characteristics				
Dimensions			See outline detail	
Weight	oz (gm)	⩽ 2.6 (75)	⩽ 3.8 (110)	⩽ 3.8 (110)
Case material			Inconel	
Connector		Two pin receptacle designed to mate with Parker Meggitts 6918M30 and 2001 cable assemblies when temperature permits.		
Mounting torque	lbf-in (Nm)	14 (1.6)	14 (1.6)	14 (1.6)

Accessories

Supplied: EH534 SOCKET HEAD CAP SCREW, 8-32 THD, QTY 3, EHM438 PROTECTIVE CAP
Optional: Model 2001-ZZZ Cable assembly, +393°F (200°C) / Model 6918M30-ZZZ Cable Assembly +900°F (482°C)
Optional: Model IPC707 Remote Charge Converter

Supplied calibration		
Charge frequency response		
6233C-10		
	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	

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. Parts made in the USA are marked with -US after the model number.

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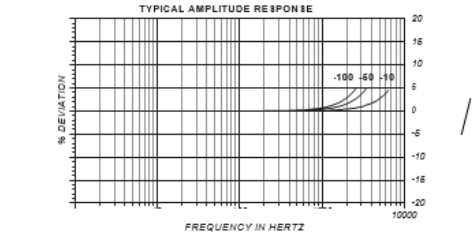

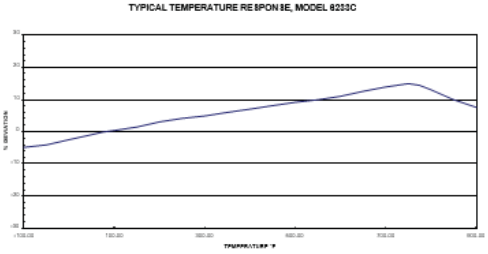

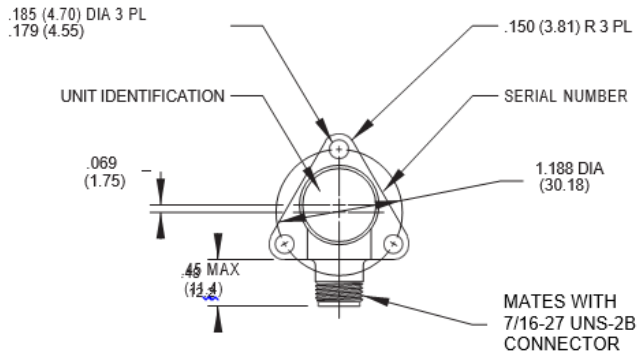

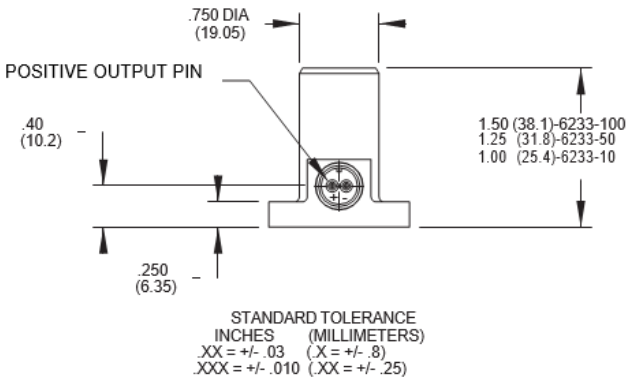

APPLIES TO CALIFORNIA FACILITY

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Note: Due to continuous process improvement, specifications are subject to change without notice. TCO Review # 332