

DATA SHEET

Extreme+ High Temperature Piezoelectric Accelerometer (E+HTPE)

Model 6245



01 Description

Meggitt Model 6245 piezoelectric accelerometers are designed specifically for use in extremely high temperature environments such as aircraft and ground-based gas turbines. These accelerometers are designed for continuous operation at +1500°F (+815°C) and intermittent. The small size and light weight of these accelerometers facilitate installation in cramped locations with minimal structural support.

Frequency bandwidth extended from 3 kHz to 7 kHz at level $\pm 5\%$ and from 6 kHz to 12 kHz at level of ± 3 dB when 6245 is combined with remote charge converter (RCC) 1772-3.

The 6245 incorporates Meggitt's MC2 shear mode crystal. The 6245 has its sensitive axis located in line with the mounting screw. The sensing elements and integral shield are isolated from the case. The accelerometer features an integral hardline cable of customer specified length, in which the standard length is 120 inches. The cable is triaxial with the termination of the signal positive and negative leads through a 10-32 coaxial receptacle. The connector is designed to operate in an environment up to +900°F (+482°C).

Model number definition:
6245-ZZZ
6245 = basic model number
ZZZ = cable length in inches

02 Key features and benefits

- +1500°F (+815°C) operation
- Integral hardline cable
- Hermetically sealed
- No pyroelectric or thermal velocity spiking
- Single bolt mount
- Ground isolated
- RoHS compliant
- Increased bandwidth with patented remote charge converter

03 Applications

- Aircraft and gas turbine engine monitoring
- Gas turbine vibration measurements
- Nuclear applications
- Hypersonic systems and satellites
- Oil and gas and other geothermal applications
- Automotive

04 Contact

1-833-HITEMP1
TMCSR.MSSOC@meggitt.com

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EXTREME+ HIGH TEMPERATURE PE ACCELEROMETER, Model 6245

05 Specifications

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

Dynamic characteristics	Units	6245	
Charge sensitivity			
Typical	pC/g	3	
Tolerance	pC/g	±0.5	
Frequency response			
Resonance frequency			
Typical	kHz	11	
Minimum	kHz	9	
Typical amplitude response [1][2]			<u>With 1772-3</u>
±5%	Hz	1 to 3000	≤13 to 7000
±10%	Hz	1 to 4000	≤8 to 10000
±3dB	Hz	1 to 6000	≤3.5 to 12000
Temperature response			See typical curve
+1500°F (815°C) max/min	%	±15	
Transverse sensitivity	%	≤5	
Amplitude linearity per 500g, 0 to 2000 g	%	1	

Electrical characteristics

Output polarity	Acceleration in direction of arrow marked on unit has positive output		
Resistance			
Pin to pin at 1500°F [3]	kΩ	≥10	
Isolation, pin to case, at 1500°F	kΩ	≥500	
Hardline cable, two places at 1500°F (815°C)	kΩ-ft	100	
Capacitance			
Transducer, excluding hardline cable	pF	50	
Hardline cable, center conductor to inner shield	pF/ft (pF/m)	100 (328)	
Dielectric strength	V	500	
Grounding			Signal return isolated from case

Environmental characteristics

Temperature range			
Transducer/hardline cable [4]	°F (°C)	+1500°F (+815°C)	
Connector	°F (°C)	-65°F to +900°F (-55°C to +482°C)	
Humidity			Hermetically sealed
Sinusoidal vibration limit	g	500	
Shock limit	g	2000	

Physical characteristics

Dimensions		See outline detail
Weight	grams (oz)	30 (1.1)+ 0.025 (0.7) per inch of cable
Case material		Inconel
Hardline cable		Triaxial, 0.095 inch (2.41 mm) diameter, mineral insulated hardline
Cable minimum bend radius	Inches	0.25
Connector		10-32 coaxial
Mounting torque	lbf-in (Nm)	18 (2)

Calibrations Supplied

Charge sensitivity	pC/g	
Frequency response	%	50 to 3000 Hz
Transverse sensitivity	%	
Capacitance	pF	

Accessories:

SUPPLIED: EH874 MOUNTING SCREW, INCONEL, 10-32 X .75 in, 12 PT

OPTIONAL: Model 1001-ZZZ Cable assembly, +550°F (288°C) /Model 3075M6-ZZZ /3075M6-ZZZ-US [+900°F (+482°C) Hardline]

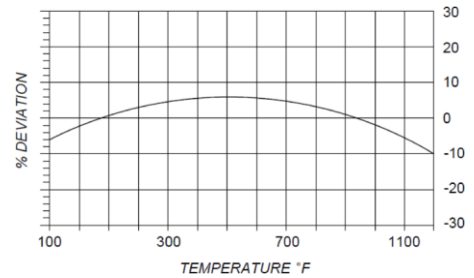
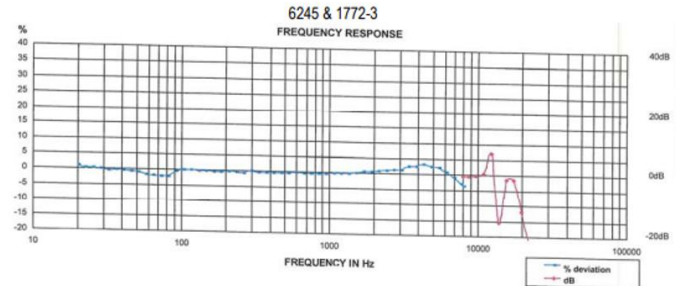
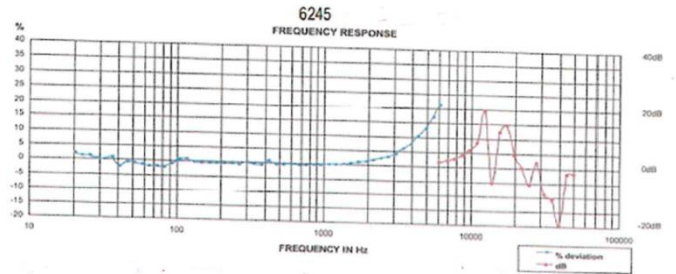
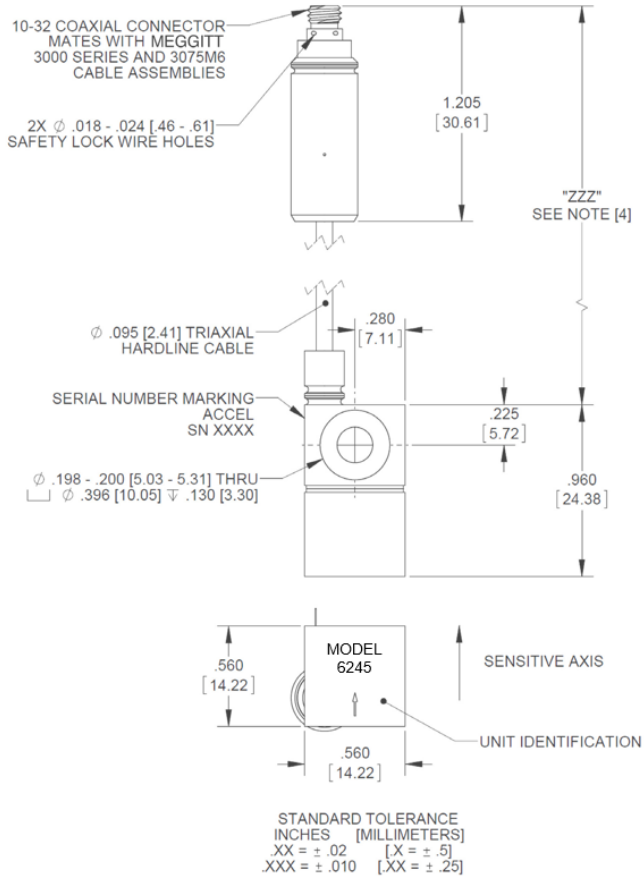
OPTIONAL: Model 1772-3 Remote charge converter (RCC)

OPTIONAL: Isolator Pad 47091, EH875 Mounting Screw [keeps unit 200 °F cooler for 30 minutes]

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06 Outline details



Typical Charge Deviation over temperature

Note:

1. Frequency response of the 6245 is controlled by the resonance characteristics of the transducer.
Estimated calibration errors are $\pm 1.5\%$ to 900 Hz and 2.5% from 900 Hz to 5000 Hz.
2. Low-end response of the transducer is a function of its associated electronics.
3. The electrical resistance of piezoelectric materials decreases with an increase in temperature and can approach $10\,000\Omega$ at $+1200^\circ\text{F}$ ($+650^\circ\text{C}$).
4. For cable lengths of less than 12 inches (0.30 m), the maximum operating temperature is $+900^\circ\text{F}$ ($+482^\circ\text{C}$).



Continued product improvement necessitates that MEGGITT reserve the right to modify these specifications without notice. MEGGITT 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, support of stringent Quality Control requirements, and compulsory corrective action procedures. 061124

Note: Due to continuous process improvement, specifications are subject to change without notice. TCO Review #329