

# EXTREME HIGH TEMPERATURE PIEZOELECTRIC ACCELEROMETER (EHTPE) Model 6243M3/6243M4



## Product description

Parker Meggitt's Models 6243M3 and 6243M4 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 +1200°F (+650°C) and intermittent operation up to +1400°F (+760°C). The small size and light weight of these accelerometers facilitate installation in cramped locations with minimal structural support.

6243M3 and 6243M4 incorporate Parker Meggitt's MC2 shear mode crystal. The 6243M3 has its sensitive axis located in line with the mounting screw. The 6243M4 has its sensitive axis located perpendicular to the mounting screw. The models 6243M3 and 6243M4 provide a balanced differential output which is isolated from case ground. The accelerometer features an integral hardline cable of customer specified length, in which the standard length is 120 inches. The 2-conductor Inconel jacketed mineral insulated cable terminates with a 7/16-27, 2 pin receptacle designed to operate up to +900°F (+482°C).

Model number definition:

6243MX-ZZZ

6243MX = basic model number

ZZZ = cable length in inches

## Key features and benefits

- +1200°F (+650°C) operation
- Integral hardline cable
- Hermetically sealed
- No pyroelectric or thermal velocity spiking
- Single bolt mount
- Balanced differential output
- RoHS compliant

## Applications

- Aircraft and gas turbine engine monitoring
- Test cell vibration measurements
- Nuclear applications



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# EXTREME HIGH TEMPERATURE PIEZOELECTRIC ACCELEROMETER (EHTPE)

## Model 6243M3/6243M4

### Specifications

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

Dynamic characteristics	Units	6243MX
Charge sensitivity		
Typical	pC/g	5.5
Tolerance pC/g $\pm 0.5$		
Frequency response		
Resonance frequency		
Typical	kHz	11
Minimum	kHz	9
Typical amplitude response [1][2]		
$\pm 5\%$	Hz	1 to 2000
$\pm 10\%$	Hz	1 to 3000
$\pm 3\text{dB}$	Hz	1 to 6000
Temperature response		See typical curve
+1200°F (650°C) max/min	%	$\pm 15$
Transverse sensitivity	%	$\leq 5$
Amplitude linearity per 500g, 0 to 2000 g	%	1
<b>Electrical characteristics</b>		
Output polarity		Acceleration in direction of arrow marked on unit produces positive output
Resistance		
Pin to pin at 1200°F [3]	k $\Omega$	$\geq 10$
Isolation, pin to case, at 1200°F	k $\Omega$	$\geq 500$
Hardline cable, two places at 1200°F (650°C) k $\Omega$ -ft		100
Capacitance		
Transducer, excluding hardline cable	pF	50
Hardline cable, center conductor to inner shield pF/ft (pF/m)	50 (164)	
Unbalance	max %	5
Dielectric strength	V	500
Grounding		Signal return isolated from case
<b>Environmental characteristics</b>		
Temperature range		
Transducer/hardline cable, continuous [4] °F (°C)		-65 to +1200 (-55 to +650)
Transducer/hardline cable, intermittent [5] °F (°C)		-65 to +1400 (-55 to +760)
Connector °F (°C)		-65 to +900 (-55 to +482)
Humidity		Hermetically sealed
Sinusoidal vibration limit	g	500
Shock limit	g	2000

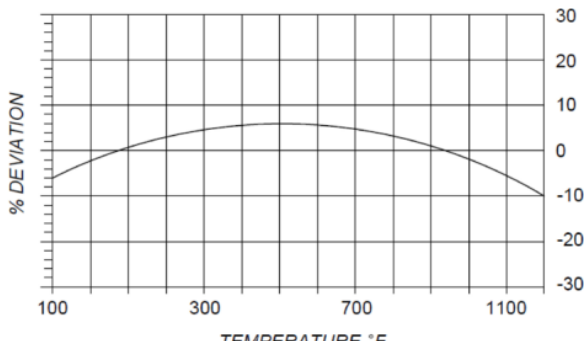
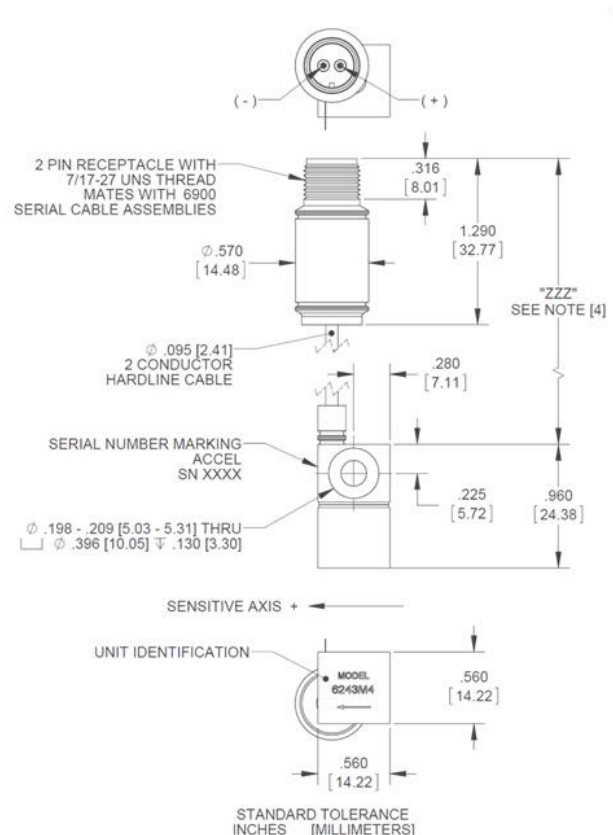
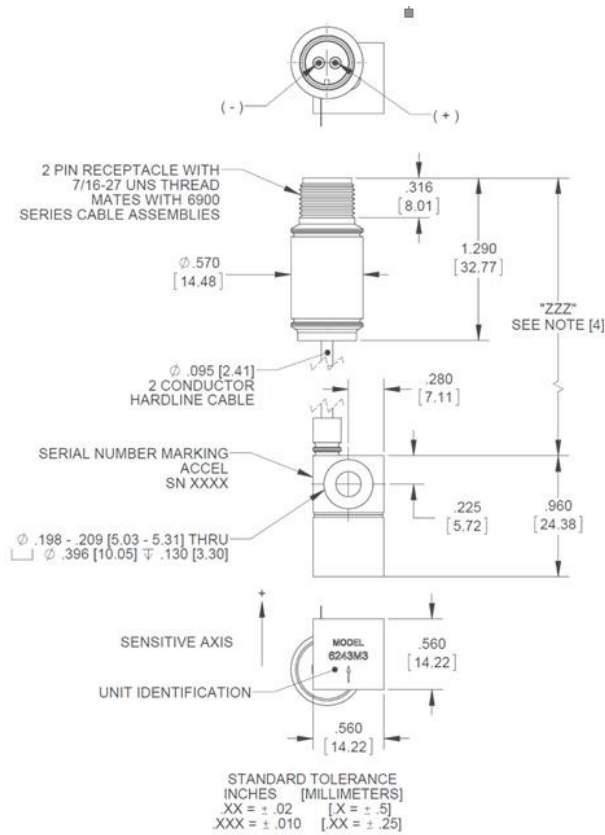
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## Model 6243M3/6243M4

<b>Physical characteristics</b>		
Dimensions		See outline detail
Weight	oz (gm)	1.1 (30) + 0.025 (0.7) per inch of cable
Case material		Inconel
Hardline cable [4]	2 conductor, 0.095 inch diameter, Inconel jacketed, mineral oxide insulated	
Cable minimum bend radius	Inches	0.25
Connector		7/16-27 two-pin connector
Mounting torque	lbf-in (Nm)	18 (2)
<b>Calibrations supplied</b>		
Charge sensitivity	pC/g	
Frequency response	%	50 Hz to 2000 Hz
Transverse sensitivity	%	
Capacitance	pF	
<b>Accessories</b>		
SUPPLIED: EH471 MOUNTING SCREW, 10-32 X .75 in, 12 PT		
OPTIONAL: Model 2001-ZZZ Cable assembly (radiation resistant), +392°F (200°C) /Model 6918M30-ZZZ [+900°F (+482°C) Hardline]		
OPTIONAL: Model IPC707 Differential remote charge converter		
OPTIONAL: Thermal Isolator Pad 47091, EH875 Mounting Screw [reduces temp 200°F (93°C) for approximately 30 minutes]		
<b>Notes</b>		
1. Frequency response is controlled by the resonance characteristics of the transducer. Estimated calibration errors are ±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 000Ω at +1200°F (+650°C).		
4. For cable lengths of less than 12 inches (0.30 m), the maximum operating temperature is +900°F (+482°C).		
5. Intermittent temperature is defined as 5 minutes over a 30 minute period.		

# EXTREME HIGH TEMPERATURE PIEZOELECTRIC ACCELEROMETER (EHTPE)

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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, the support of stringent Quality Control requirements, and compulsory corrective action procedures. 010121



Note: Due to continuous process improvement, specifications are subject to change without notice. TCO Review # 327