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MEGGiTT

DATA SHEET

High Temperature Piezoelectric Accelerometer (HTPE)

Model 2276

01 Description

The Meggitt Model 2276 is a precision piezoelectric accelerometer for shock and vibration measurement of structures subjected to very high temperatures. It is capable of operation in nuclear environments during the presence of Gamma and Neutron radiation. This accelerometer features a side mounted 10-32 receptacle and hex base construction with a 10-32 or M5 centerstud mount. The accelerometer is a self-generating device that requires no external power sourcefor operation.

The 2276 features Meggitt's piezoelectric crystal elements in the compression mode. The unit is designed with mechanical isolation that provides extremely low strain sensitivity (base strain). The unit has special processing to assure accurate data over the temperature range of -65°F to +900°F.The unit is constructed using Inconel, and provides hermeticity through welding and glass-to-metal fusion at the connector. Signal return is connected to case.

Model number definition:
2276 = basic model number
2276-R = replacement sensor, no accessories

02 Key features and benefits

- High temperature operation, +900°F (+482°C)
- Radiation hardened
- Inconel construction
- Requires no external power

03 Applications

- Test cell vibration measurements
- Nuclear and high temperature applications

04 Contact

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HIGH TEMPERATURE PE ACCELEROMETER, Model 2276

05 Specifications

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

Dynamic characteristics	**Units**	
Charge sensitivity		
Typical	pC/g	10.0
Minimum	pC/g	9.0
Frequency response		See typical amplitude response
Resonance frequency	kHz	27
Amplitude response [1]		
±5 %	Hz	1 to 5000
±1 dB	Hz	1 to 7000
Temperature response		See typical curve
Transverse sensitivity	%	≤ 3
Amplitude linearity	%	1
Per 1000 g, 0 to 3000 g		
Electrical characteristics		
Output polarity	Acceleration directed into the base of unit produces positive	
output		
Resistance		
Room temperature (typical)	GΩ	1
at +900˚F (+482˚C) [2]	KΩ	≥ 100
Capacitance	pF	660
Grounding		Signal return connected to case
Environmental characteristics		
Temperature range		-67˚F to +900˚F (-55˚C to +482˚C)
Humidity		Hermetically sealed
Sinusoidal vibration limit	g pk	500
Shock limit [3]	g pk	3000
Base strain sensitivity	equiv. g pk/µ strain	0.002
Radiation		
Integrated gamma flux	rad	up to 6.2×10^{10}
Integrated neutron flux	N/cm2	up to 3.7×10^{18}
Physical characteristics		
Dimensions		See outline detail
Weight	gm (oz)	30 (1.1)
Case material		Inconel
Connector [4]		10-32 coaxial connector
Mounting torque	lbf-in (Nm)	18 (2)
Calibrations supplied		
Frequency response	%	20 Hz to 5000 Hz
	dB	5000 Hz through resonance
Sensitivity	pC/g	
Maximum transverse sensitivity	%	
Mounted resonance frequency	kHz	
Capacitance	pF	

Accessories:

SUPPLIED: Model 50001 Mounting stud (hex ID)10-32 to 10-32 / Model 3075M6-ZZZ Cable assembly +900°F (482°C), Hardline/EHM464 Hex key wrench
OPTIONAL: Model 1001-ZZZ Cable assembly, +550˚F (288°C) / Model 3076-ZZZ Cable Assembly +1000°F (538°C), Flexible
OPTIONAL: Model 50003 Mounting stud 10-32 to M5/Model 50002 Mounting stud, 10-32 to 10-32/Model 70019 Mounting Stud 10-32 to ¼-28

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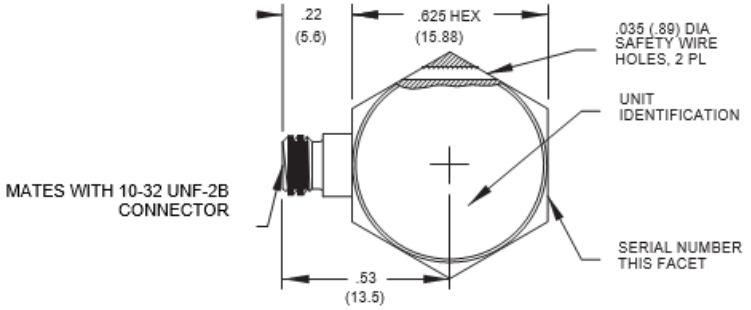
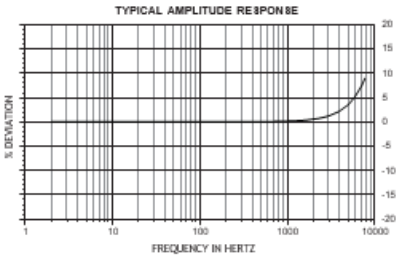
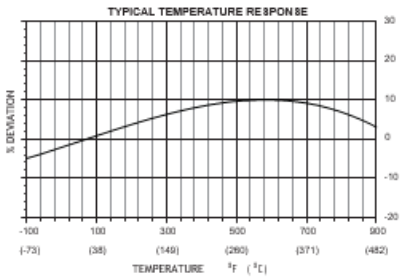
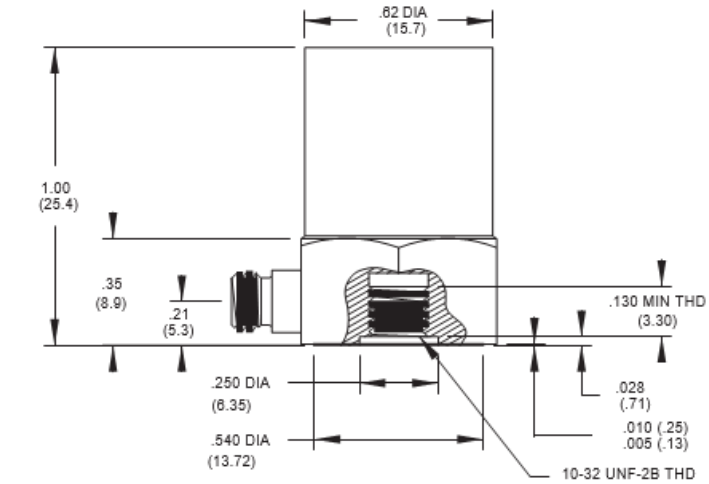
HIGH TEMPERATURE PE ACCELEROMETER, Model 2276

06 Outline details









NOTE: IF ALTERNATE STUD IS USED, THE LENGTH OF STUD FROM MOUNTING SURFACE MUST BE .155/.135 (3.94/3.43)

STANDARD TOLERANCE
INCHES (MILLIMETERS)
.XX = +/- .02 (.X = +/- .5)
.XXX = +/- .010 (.XX = +/- .25)

Notes:

1. Low-end response of the transducer is a function of its associated electronics.
2. The electrical resistance of piezoelectric materials decreases with an increase in temperature but remains above 100 KΩ at +900°F (+482°C).
3. Short duration shock pulses, such as those generated by metal-to-metal impacts, may excite transducer resonance and cause linearity errors.
4. Repeated insertion of mating cable may result in a loss of pin retention and intermittent output. Use 30846 pin retention alignment kit to bring socket to original shape

APPLIES TO CALIFORNIA FACILITY