



## MODEL 4000A MEMS DC ACCELEROMETER

### SPECIFICATIONS

- MEMS DC Accelerometer
- DC to 1300Hz Frequency Response
- Amplified Output, Signal Conditioned
- Temperature Compensated
- Economical, Light Weight

### FEATURES

- $\pm 2g$  to  $\pm 100g$  Dynamic Range
- High Over-Range Protection
- Gas Damped MEMS Sensors
- Low Power Consumption
- Screw Mounting
- 8 to 36Vdc Excitation Voltage

### APPLICATIONS

- Low Frequency Monitoring
- Transportation
- Vibration Sensing
- Test & Instrumentation
- Machine Control
- Motion Analysis

The Model 4000A is an economical signal conditioned MEMS DC accelerometer packaged in an anodized Aluminum housing. The accelerometer is available in ranges from  $\pm 2$  to  $\pm 100g$  with a wide bandwidth from DC to 1300Hz. The model 4000A accelerometers incorporate gas damped MEMS sensing elements that provide outstanding performance over an operating temperature range of  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ .

The accelerometer is designed for 8 to 36Vdc excitation voltage and the signal conditioned output incorporates a 2.5V reference that offers the user an optional differential or single-ended output.

For a triaxial version, TE Connectivity also offers the model 4030 and 4630 accelerometers.

**PERFORMANCE SPECIFICATIONS**

All values are typical at +24°C, 80Hz and 12Vdc excitation unless otherwise stated. TE Connectivity reserves the right to update and change these specifications without notice.

**Parameters**

**DYNAMIC**

	±2	±5	±10	±20	±50	±100	<b>Notes</b>
Range (g)							
Sensitivity, Differential (mV/g)	1000	400	200	100	40	20	±10%
Frequency Response (Hz)	0-200	0-300	0-350	0-600	0-800	0-1300	±5%
Natural Frequency (Hz)	700	800	1000	1500	4000	6000	
Non-Linearity (%FSO)	±1	±1	±1	±1	±1	±1	
Transverse Sensitivity (%)	<3	<3	<3	<3	<3	<3	<1 Typical
Damping Ratio	0.7	0.7	0.7	0.7	0.6	0.5	
Shock Limit (g)	5000	5000	5000	5000	5000	5000	
Residual Noise (µV RMS)	500	300	300	350	400	350	Passband
Spectral Noise (µg/√Hz)	35	38	75	132	316	516	Passband

**ELECTRICAL**

Zero Acceleration Output (mV)	±100						Differential
Excitation Voltage (Vdc)	8 to 36						
Excitation Current (mA)	<5						
Bias Voltage (Vdc)	2.5						
Full Scale Output (differential)	±2 Vpk						
Full Scale Output (single-ended)	+0.5 to 4.5 Vpk						
Output Resistance (Ω)	<100						
Insulation Resistance (MΩ)	>100						@100Vdc
Turn On Time (msec)	<100						
Ground Isolation	Isolated from Mounting Surface						

**ENVIRONMENTAL**

Thermal Zero Shift (%FSO/°C)	±0.014						Typical
Thermal Sensitivity Shift (%/°C)	±0.028						Typical
Operating Temperature (°C)	-20 to 85						
Storage Temperature (°C)	-20 to 85						
Humidity	Epoxy Sealed						

**PHYSICAL**

Case Material	Anodized Aluminum
Cable	PFA Insulated Leads, Braided Shield, PU Jacket
Weight (grams)	7
Mounting	2x #4 or M3 Screws
Mounting Torque	3 lb-in (0.3 N-m)

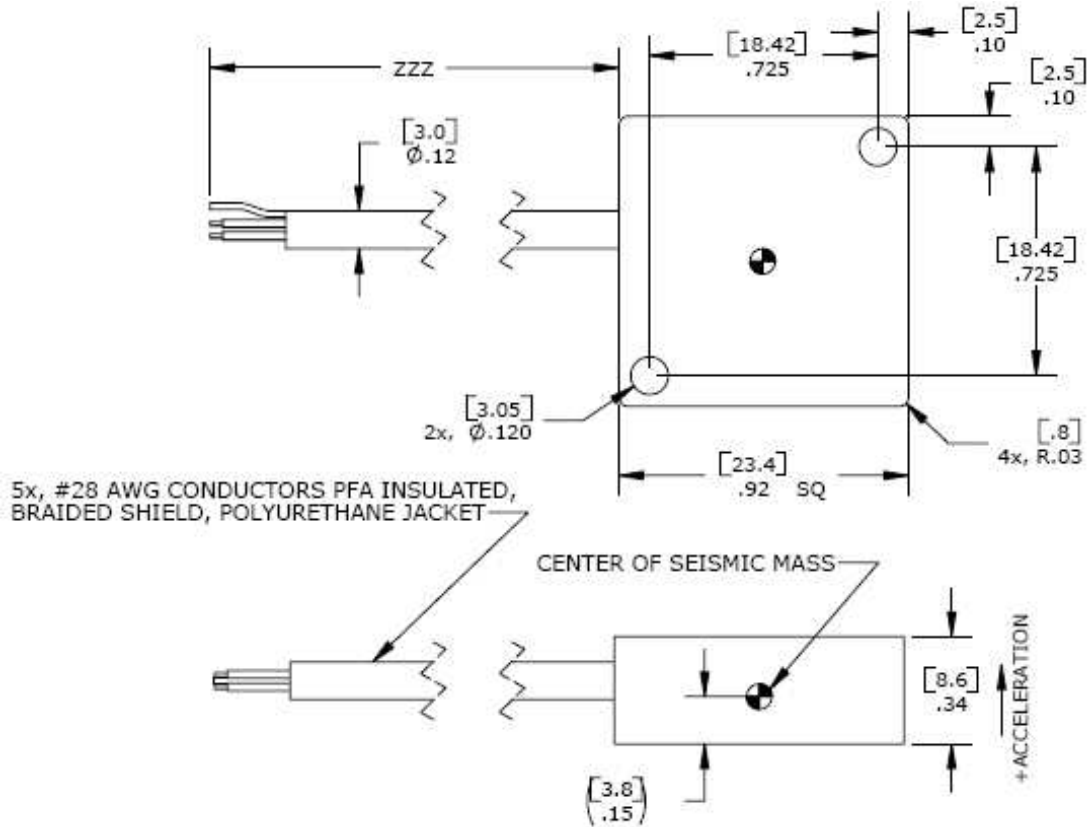
**Calibration supplied:** CS-FREQ-0100 NIST Traceable Amplitude Calibration from 20Hz to ±5% Frequency Response Limit

**Optional accessories:** AC-D02652 Triaxial Mounting Block  
121 3-Channel Precision Low Noise DC Amplifier

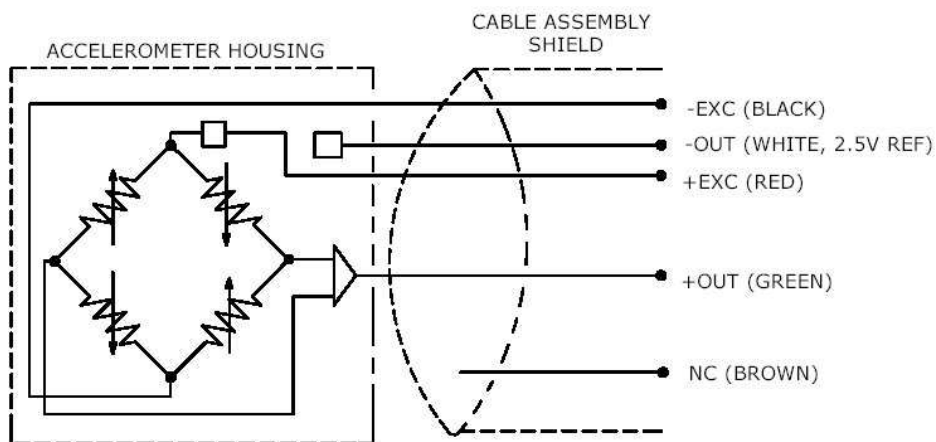
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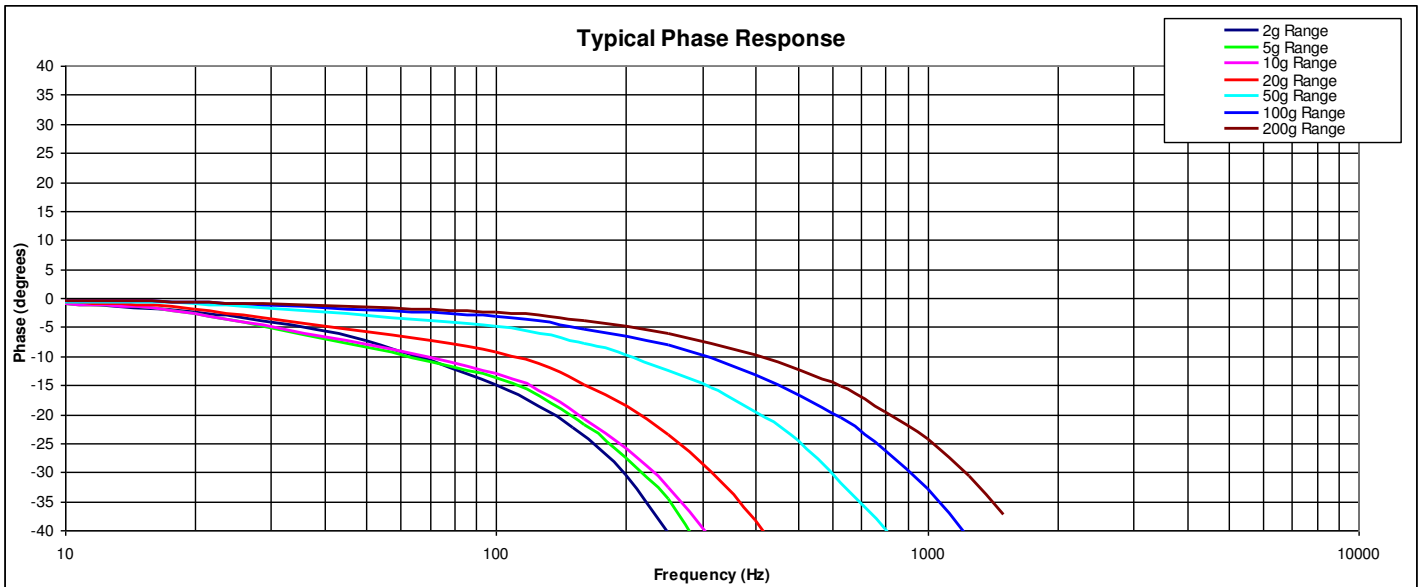
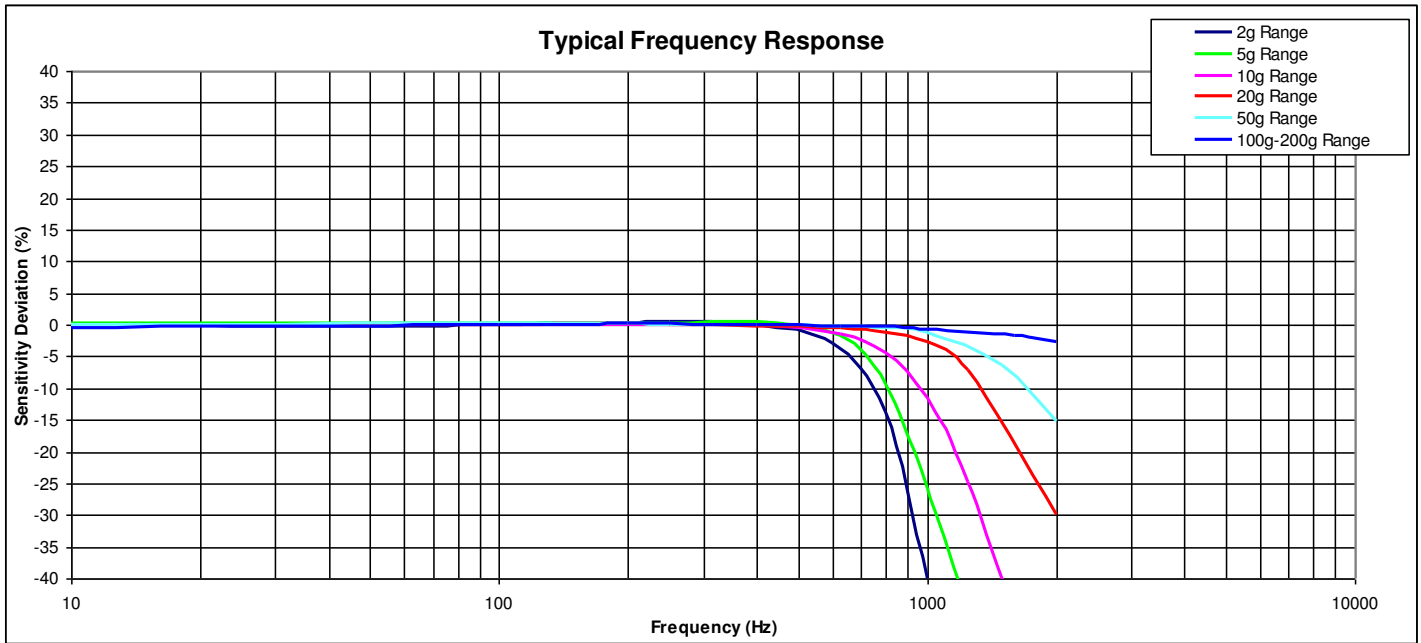
## DIMENSIONS



## SCHEMATIC



TYPICAL FREQUENCY AND PHASE RESPONSE



## ORDERING INFORMATION

4000A	GGG	ZZZ
<b>Range</b>		
002=2g		
005=5g		
010=10g		
020=20g		
050=50g		
100=100g		
<b>Cable length</b>		
060 = 60 inches, 5 feet		
120 = 120 inches, 10 feet		
240 = 240 inches, 20 feet		
197 = 197 inches, 5 meters		
394 = 394 inches, 10 meters		

Example;           4000A-002-060  
                          Model 4000A, 2g range, 60inch (5ft) cable length

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