



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

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

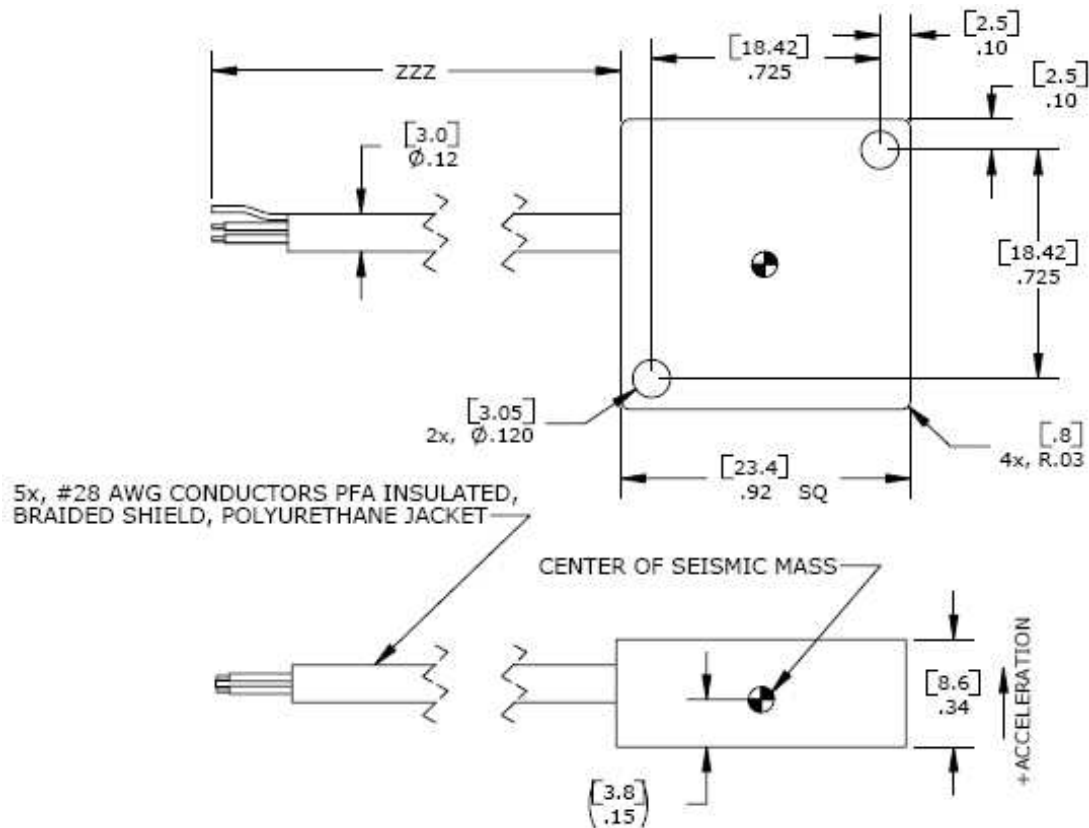
| | |
|-----------------|--|
| Case Material | Anodized Aluminum |
| Cable | PFA Insulated Leads, Braided Shield, PU Jacket |
| Weight (grams) | 7 |
| Mounting | 2x #4 or M3 Screws |
| Mounting Torque | 3 lb-in (0.3 N-m) |

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

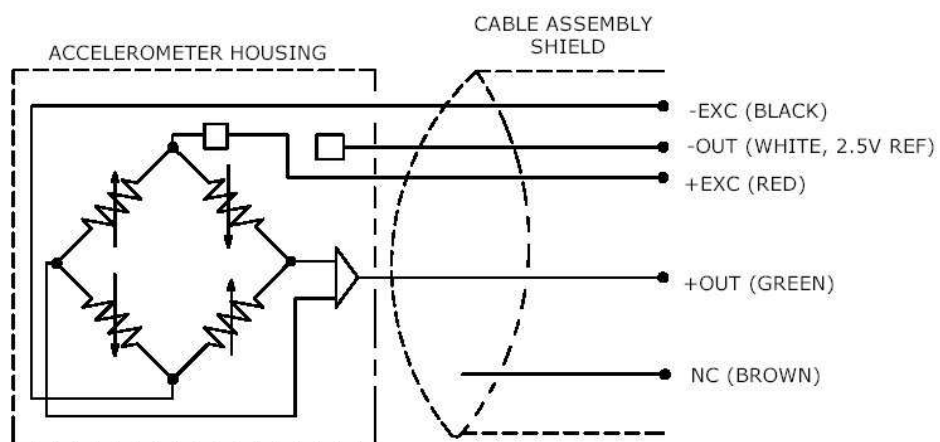
Optional accessories: AC-D02652 Triaxial Mounting Block
121 3-Channel Precision Low Noise DC Amplifier

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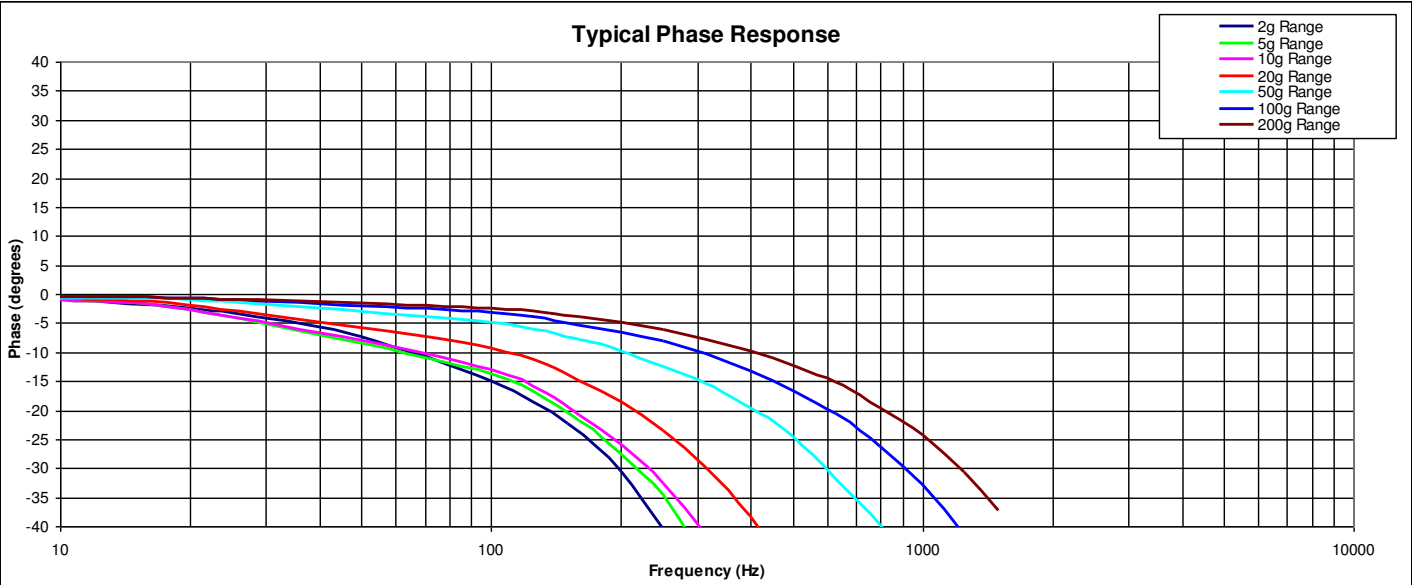
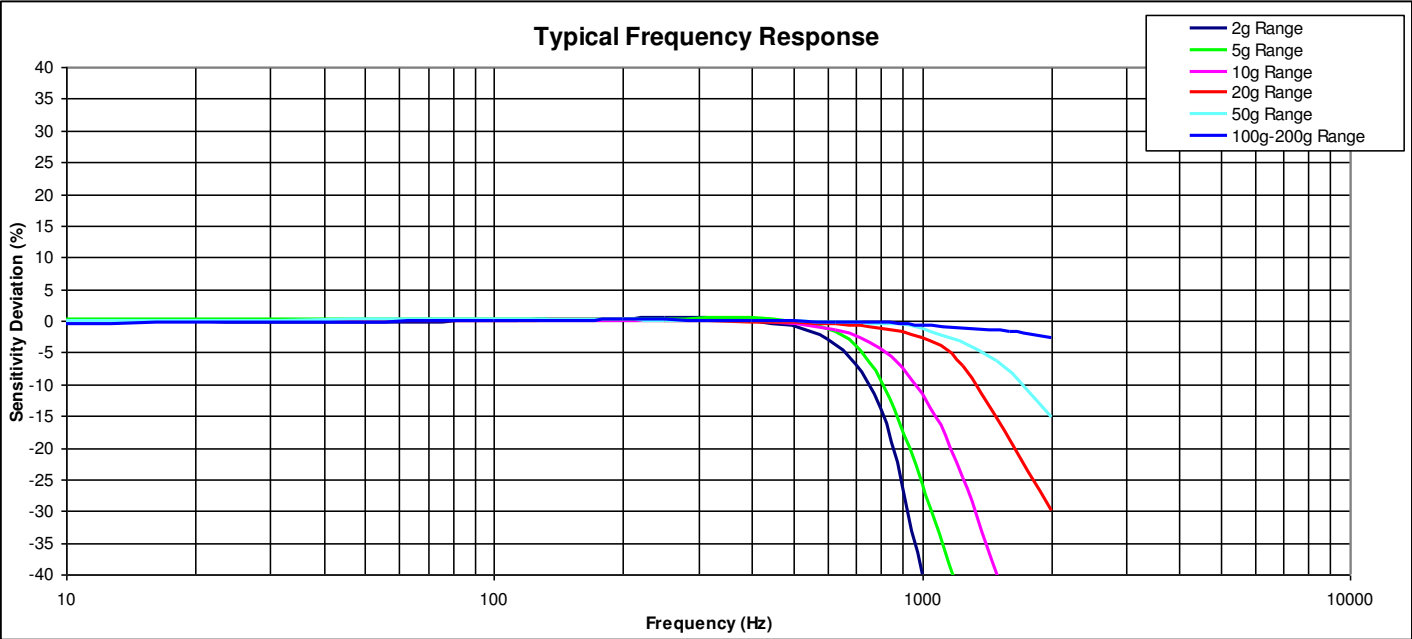
DIMENSIONS



SCHEMATIC



TYPICAL FREQUENCY AND PHASE RESPONSE



ORDERING INFORMATION

| 4000A | GGG | ZZZ |
|-----------------------------|-----|-----|
| Range | | |
| 002=2g | | |
| 005=5g | | |
| 010=10g | | |
| 020=20g | | |
| 050=50g | | |
| 100=100g | | |
| Cable length | | |
| 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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