

Model 4000A & 4001A Accelerometer



Silicon MEMS Accelerometer
Signal Conditioned Output
Temperature Calibrated
Low Cost, Lightweight

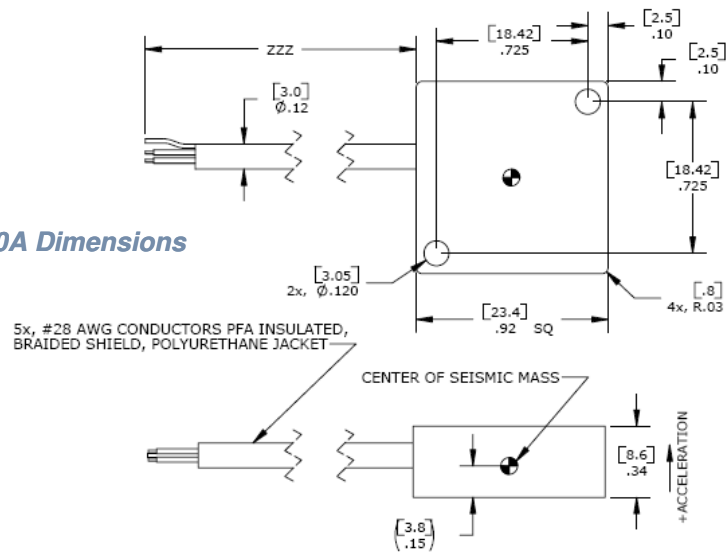
The Model 4000A & 4001A are economical signal conditioned accelerometers with integral temperature compensation. The accelerometers incorporate a 3rd generation silicon MEMS sensor providing outstanding performance. The accelerometers are packaged in a rugged aluminum housing ideal for transportation and instrumentation testing. The signal conditioned output incorporates a 2.5V reference that offers the user a differential or single-ended output.



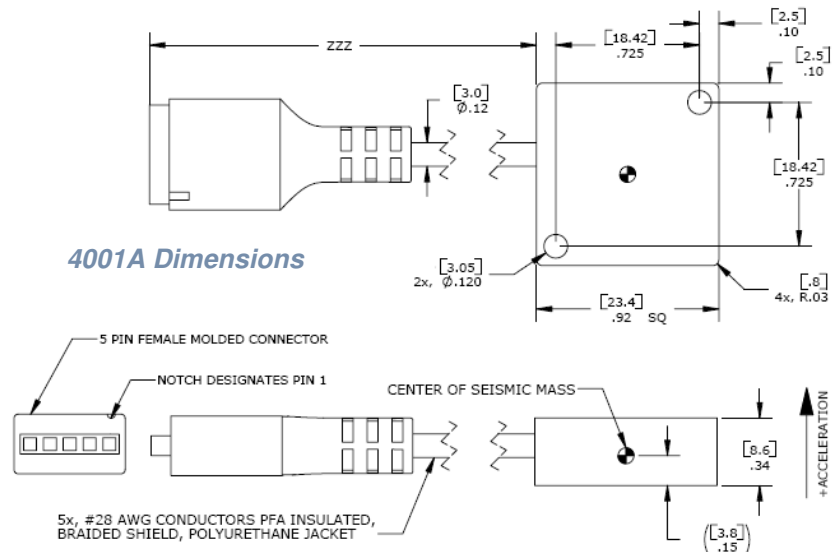
4001A Connector Attachment

dimensions

4000A Dimensions



4001A Dimensions



FEATURES

- $\pm 2g$ to $\pm 200g$ Dynamic Range
- High Over-Range Protection
- Signal Conditioned Output
- Low Power Consumption
- Lightweight
- Gas Damping
- 8 to 36Vdc Excitation Voltage

APPLICATIONS

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

Model 4000A & 4001A Accelerometer

performance specifications

All values are typical at +24°C, 100Hz and 12Vdc excitation unless otherwise stated. Measurement Specialties reserves the right to update and change these specifications without notice.

Parameters

DYNAMIC

| | ±2 | ±5 | ±10 | ±20 | ±50 | ±100 | ±200 | Notes |
|----------------------------|-------|-------|-------|-------|-------|--------|--------|------------|
| Range (g) | ±2 | ±5 | ±10 | ±20 | ±50 | ±100 | ±200 | |
| Sensitivity (mV/g) | 1000 | 400 | 200 | 100 | 40 | 20 | 10 | |
| Frequency Response (Hz) | 0-200 | 0-300 | 0-350 | 0-600 | 0-800 | 0-1300 | 0-1500 | ±5% |
| Natural Frequency (Hz) | 700 | 800 | 1000 | 1500 | 4000 | 6000 | 8000 | |
| Non-Linearity (%FSO) | ±0.5 | ±0.5 | ±0.5 | ±0.5 | ±0.5 | ±0.5 | ±0.5 | |
| Transverse Sensitivity (%) | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <1 Typical |
| Damping Ratio | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | |
| Shock Limit (g) | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | |

ELECTRICAL

| | | | | | | | | |
|-------------------------------|--------------------------------|---------|---------|---------|---------|---------|---------|--------------|
| Zero Acceleration Output (mV) | ±100 | ±100 | ±100 | ±100 | ±100 | ±100 | ±100 | Differential |
| Excitation Voltage (Vdc) | 8 to 36 | 8 to 36 | 8 to 36 | 8 to 36 | 8 to 36 | 8 to 36 | 8 to 36 | |
| Excitation Current (mA) | <5 | <5 | <5 | <5 | <5 | <5 | <5 | |
| Bias Voltage (Vdc) | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | |
| Output Resistance (Ω) | <100 | <100 | <100 | <100 | <100 | <100 | <100 | |
| Insulation Resistance (MΩ) | >100 | >100 | >100 | >100 | >100 | >100 | >100 | @100Vdc |
| Turn On Time (msec) | <100 | <100 | <100 | <100 | <100 | <100 | <100 | |
| Residual Noise (μV RMS) | 500 | 300 | 300 | 350 | 400 | 350 | 400 | Passband |
| Spectral Noise (μg/√Hz) | 35 | 38 | 75 | 132 | 316 | 516 | 1033 | Passband |
| Ground Isolation | Isolated from Mounting Surface | | | | | | | |

ENVIRONMENTAL

| | | | | | | | | |
|----------------------------------|-----------|--------|--------|--------|--------|--------|--------|---------|
| Thermal Zero Shift (%FSO/°C) | ±0.014 | ±0.014 | ±0.014 | ±0.014 | ±0.014 | ±0.014 | ±0.014 | Typical |
| Thermal Sensitivity Shift (%/°C) | ±0.028 | ±0.028 | ±0.028 | ±0.028 | ±0.028 | ±0.028 | ±0.028 | Typical |
| Operating Temperature (°C) | -20 to 85 | | | | | | | |
| Compensated Temperature (°C) | -20 to 85 | | | | | | | |
| Storage Temperature (°C) | -40 to 90 | | | | | | | |

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) |
| AWG | #28 |

Wiring color code:
 4000A: +Excitation = Red; -Excitation = Black; +Output = Green; -Output = White; Programming = Brown
 (brown wire is used for programming and is not to be connected)
 4001A: +Excitation = Pin 3; -Excitation = Pin 1; +Output = Pin 4; -Output = Pin 2;

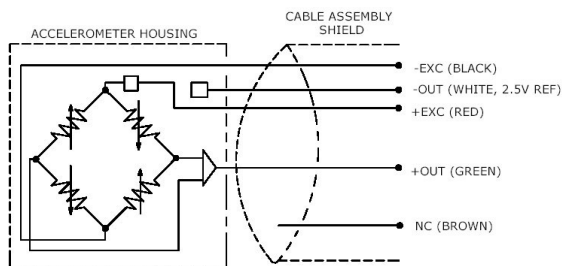
Supplied accessories: AC-D02295 Mating Pins (for model 4001A)

Optional accessories: AC-D02652 Triaxial Mounting Block
 101 Three Channel DC Signal Conditioner Amplifier

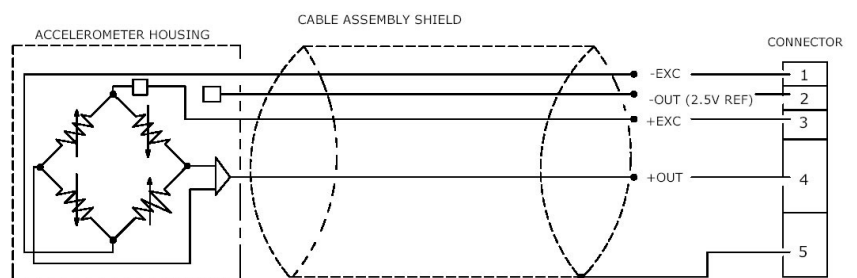
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schematic

4000A Schematic

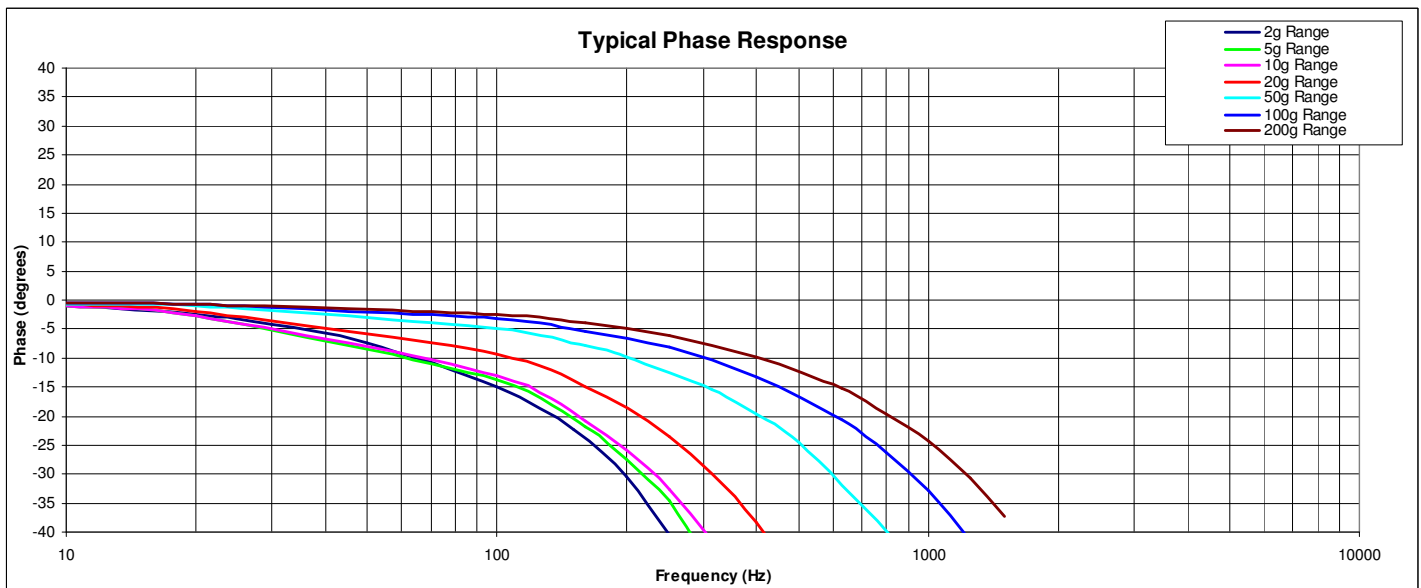
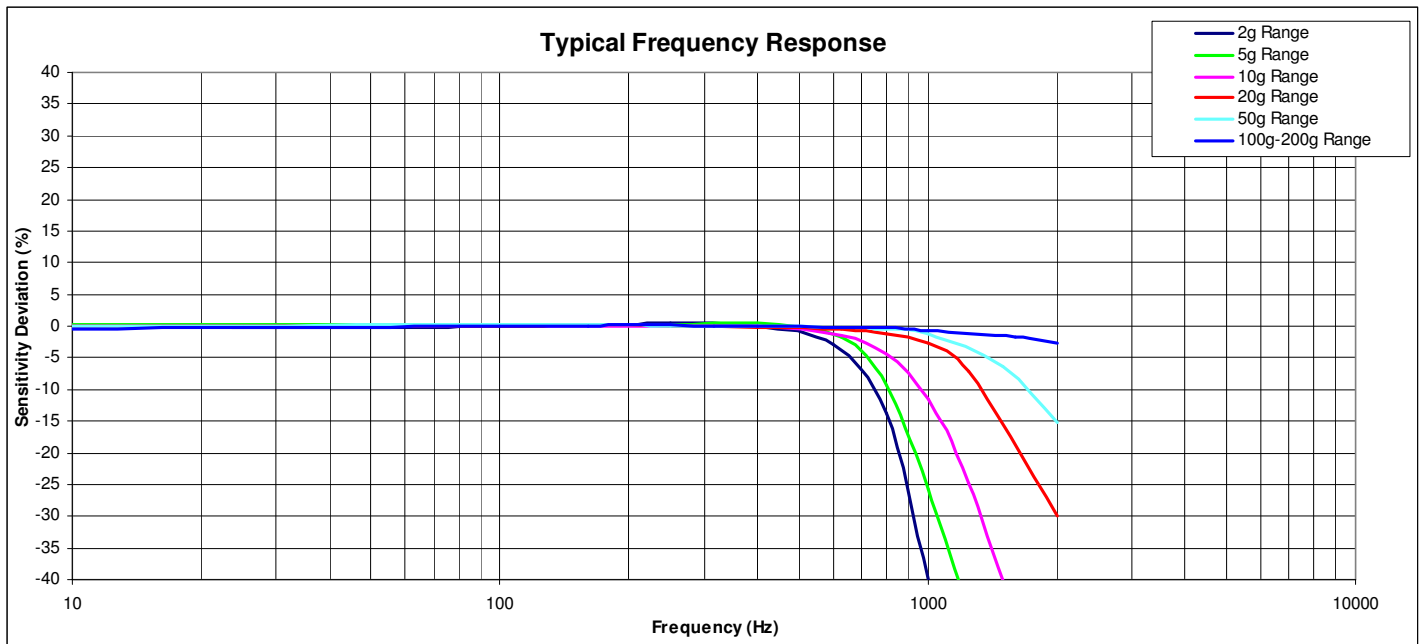


4001A Schematic



Model 4000A & 4001A Accelerometer

performance specifications



ordering info

PART NUMBERING Model Number+Range+ Cable Length

4000A-GGG-CCC

| | Cable (060 is 60 inches)
 | | Range (020 is 20g)

Example: 4000A-020-060
Model 4000A, 20g, 60" (5ft) Cable

4001A-GGG-CCC

| | Cable (014 is 14 inches)
 | | Range (020 is 20g)

Example: 4001A-020-014
Model 4001A, 20G, 14" Cable

CONTATO

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