



4001A Connector  
Attachment



## MODEL 4000A & 4001A ACCELEROMETER

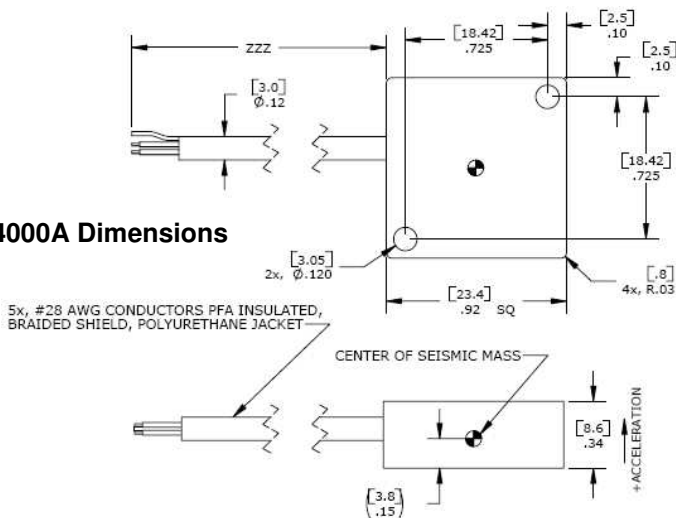
### SPECIFICATIONS

- ◆ **Silicone MEMS Accelerometer**
- ◆ **Signal Conditioned Output**
- ◆ **Temperature Calibrated**
- ◆ **Low Cost, Lightweight**

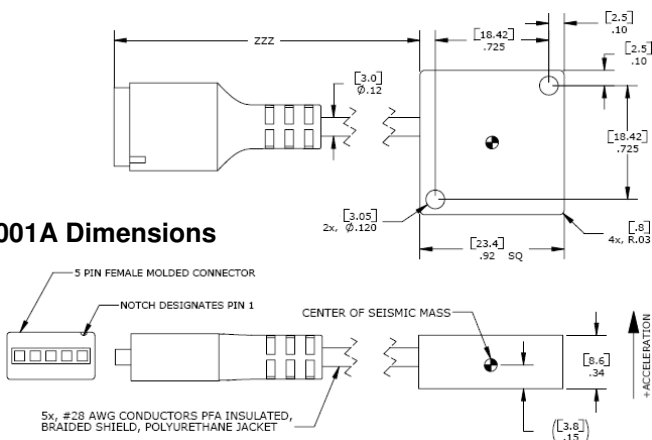
The Model 4000A & 4001A are economical signal conditioned accelerometers with integral temperature compensation. The accelerometers incorporate a 3rd generation silicon MEMS sensor providing outstanding performance. The accelerometers are packaged in a rugged aluminum housing ideal for transportation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

### 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

**PERFORMANCE SPECIFICATIONS**

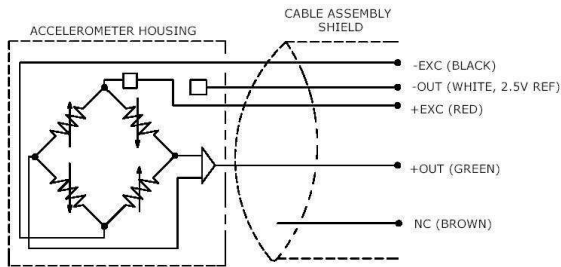
All values are typical at +24°C, 80Hz and 12Vdc excitation unless otherwise stated. Measurement Specialties reserves the right to update and change these specifications without notice.

| Parameters                       |  |  |         |         |         |         |         | Notes        |
|----------------------------------|--|--|---------|---------|---------|---------|---------|--------------|
| <b>DYNAMIC</b>                   |  |  |         |         |         |         |         |              |
| 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    |              |
| <b>ELECTRICAL</b>                |  |  |         |         |         |         |         |              |
| 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                 |  |         |         |         |         |         |              |
| <b>ENVIRONMENTAL</b>             |  |  |         |         |         |         |         |              |
| 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                                      |  |         |         |         |         |         |              |
| <b>PHYSICAL</b>                  |  |  |         |         |         |         |         |              |
| 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  |  |         |         |         |         |         |              |
| <b>Supplied accessories:</b>     | AC-D02295                                      | Mating Pins (for model 4001A)              |         |         |         |         |         |              |
| <b>Optional accessories:</b>     | AC-D02652                                      | Triaxial Mounting Block                    |         |         |         |         |         |              |
|                                  | 121  | 3-Channel Precision Low Noise DC Amplifier |         |         |         |         |         |              |

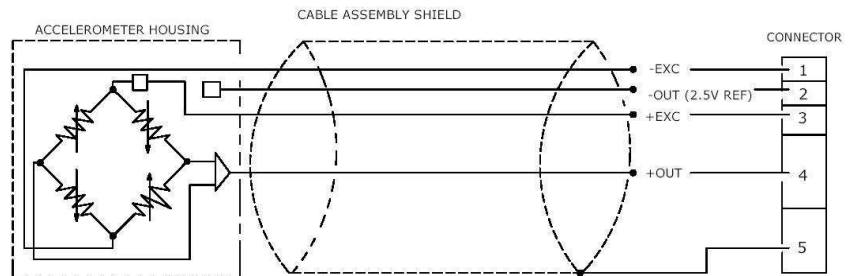
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**SCHEMATIC**

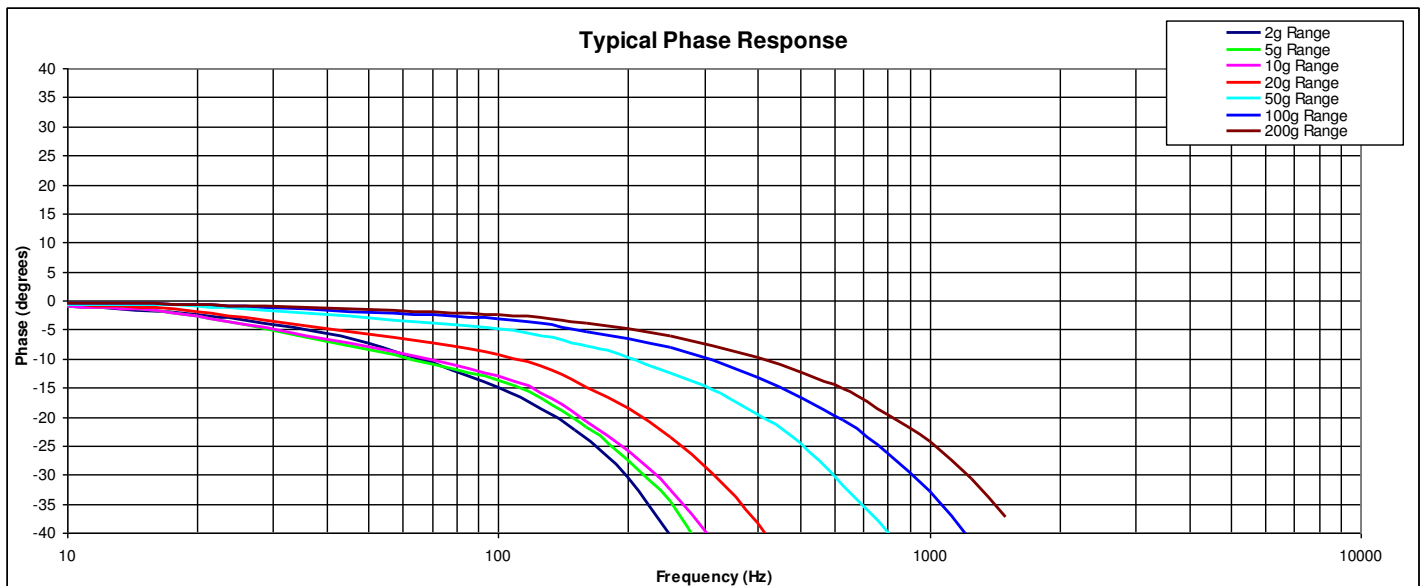
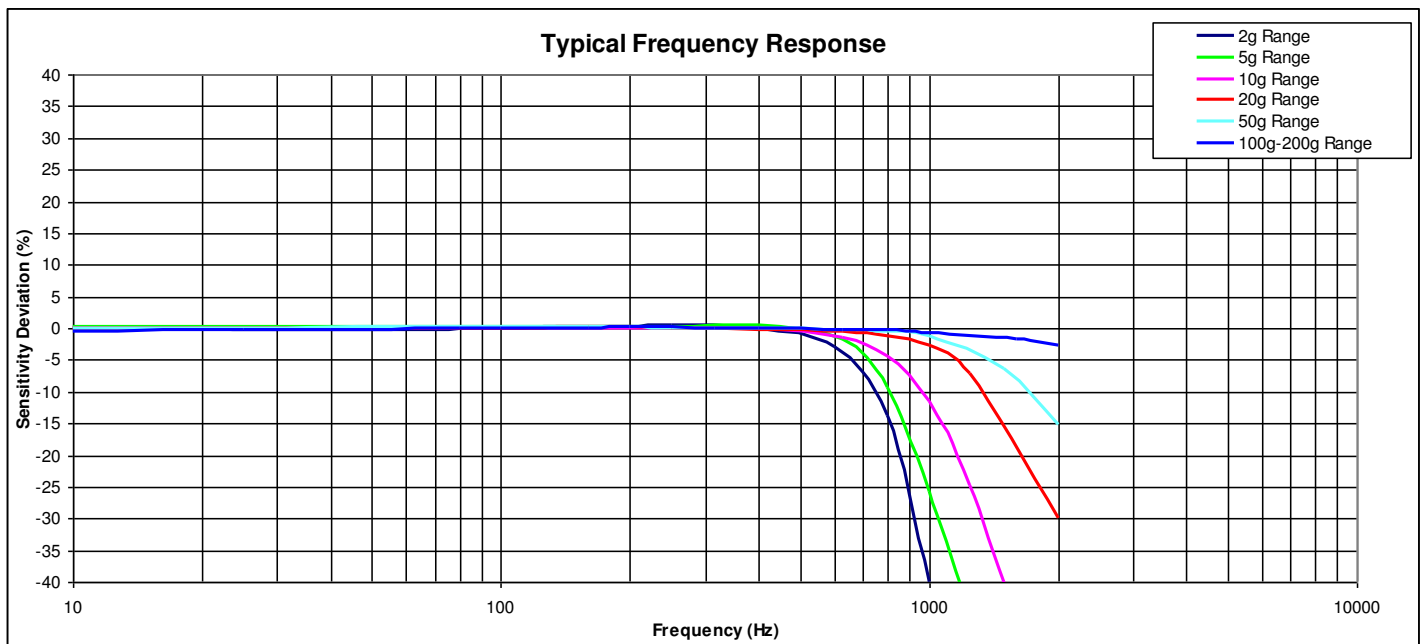
**4000A Schematic**



**4001A Schematic**



**PERFORMANCE SPECIFICATIONS**



## ORDERING INFORMATION

| 4000A & 4001A             | GGG | ZZZ |
|---------------------------|-----|-----|
| <b>Series Type</b>        |     |     |
| <b>Range</b>              |     |     |
| 002=2g                    |     |     |
| 005=5g                    |     |     |
| 010=10g                   |     |     |
| 020=20g                   |     |     |
| 050=50g                   |     |     |
| 100=100g                  |     |     |
| 200=200g                  |     |     |
| <b>Cable length</b>       |     |     |
| 060=60 inches             |     |     |
| 120=120 inches            |     |     |
| 180=180 inches            |     |     |
| 240=240 inches            |     |     |
| 300=300 inches            |     |     |
| 360=360 inches            |     |     |
| 480=480 inches            |     |     |
| 600=600 inches            |     |     |
| 197=197 inches, 5 meters  |     |     |
| 394=394 inches, 10 meters |     |     |

Example; 4000A-010-060  
Model 4000A, 10g range, 60inch cable length

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