

# Model 4002 Accelerometer

Signal Conditioned, Amplified Output  
Optimum Signal to Noise Ratio  
Temperature Compensated  
Micro-g Resolution

## Description

The model 4002 is a low frequency DC response accelerometer with exceptional resolution. The accelerometer is designed for optimum signal-to-noise ratio and offers an amplified signal conditioned output. Offered in ranges from  $\pm 2$  to  $\pm 200g$  the accelerometer is ideal for low frequency measurements in temperature ranges of  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ . The MEMS sensing element is gas damped with a broad and stable frequency response.



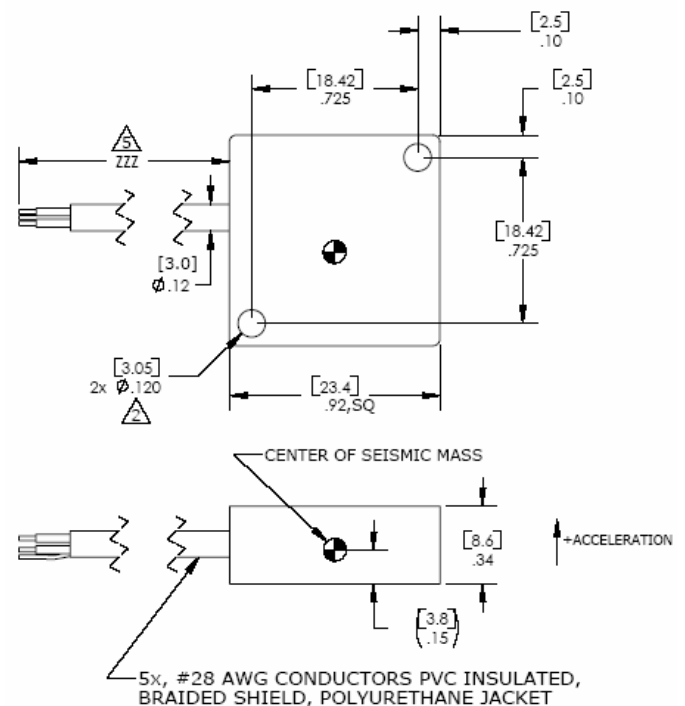
dimensions

## FEATURES

- $\pm 2g$  to  $\pm 200g$  Dynamic Range
- Amplified, Filtered Output
- 8 to 36Vdc Excitation
- Gas Damped MEMS Element
- Micro-g Resolution
- DC, Low Frequency Response

## APPLICATIONS

Low Frequency Testing  
Motion Control  
Tilt Measurements  
Test & Instrumentation  
Transportation Measurements



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## 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

|                                          |       |        |        |       |          |             |
|------------------------------------------|-------|--------|--------|-------|----------|-------------|
| Range                                    | ±2    | ±5     | ±10    | ±20   | Units    | Notes       |
| Sensitivity                              | 1000  | 400    | 200    | 100   | mV/g     | Typical     |
| Frequency Response                       | 0-200 | 0-300  | 0-350  | 0-600 | Hz       | ±5%         |
| Residual Noise                           | 120   | 100    | 80     | 80    | µV rms   |             |
| Range                                    | ±50   | ±100   | ±200   |       | Units    | Notes       |
| Sensitivity                              | 40    | 20     | 10     |       | mV/g     | Typical     |
| Frequency Response                       | 0-800 | 0-1300 | 0-1500 |       | Hz       | ±5%         |
| Residual Noise                           | 100   | 100    | 100    |       | µV rms   |             |
| Non-Linearity                            |       |        | ±0.5   |       | % FSO    |             |
| Transverse Sensitivity                   |       |        | ±3     |       | %        | ±1% Typical |
| Zero Acceleration Output                 |       |        | ±100   |       | mV       |             |
| Thermal Zero Shift (-20 to +85°C)        |       |        | ±.04   |       | % FSO/°C |             |
| Thermal Sensitivity Shift (-20 to +85°C) |       |        | ±.05   |       | %/°C     |             |
| Damping Ratio                            |       |        | 0.70   |       |          | Gas Damped  |

#### ELECTRICAL

|                                 |          |      |         |
|---------------------------------|----------|------|---------|
| Excitation Voltage              | 8 to 36  | Vdc  |         |
| Excitation Current              | 5.0      | mA   | Typical |
| Bias Voltage                    | 2.5      | Vdc  |         |
| Output Impedance                | 100      | Ohms | Maximum |
| Insulation Resistance (@ 50Vdc) | 100      | MΩ   | Minimum |
| Ground Isolation                | Isolated |      |         |

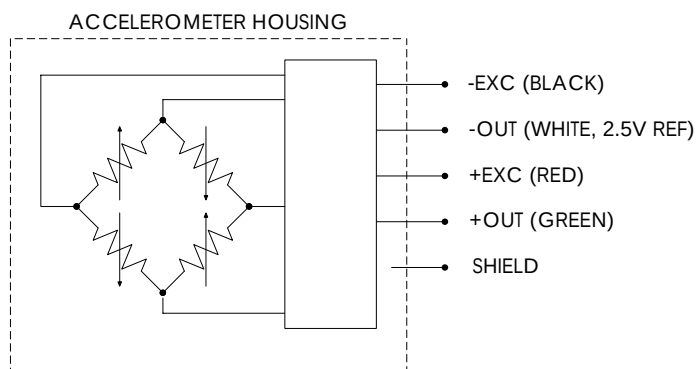
#### PHYSICAL

|                             |                       |       |                         |
|-----------------------------|-----------------------|-------|-------------------------|
| Housing                     | Aluminum              |       | Hard Anodized           |
| Weight (cable not included) | 7                     | grams |                         |
| Mounting                    | 2x #4 or 2x M3 Screws |       | 6 lb-in mounting torque |

#### ENVIRONMENTAL

|                       |              |     |
|-----------------------|--------------|-----|
| Shock Limit           | 5,000        | g's |
| Operating Temperature | -20 to +85   | °C  |
| Humidity              | Epoxy sealed |     |

## electrical schematic



## ordering information

**4002-002-060**

