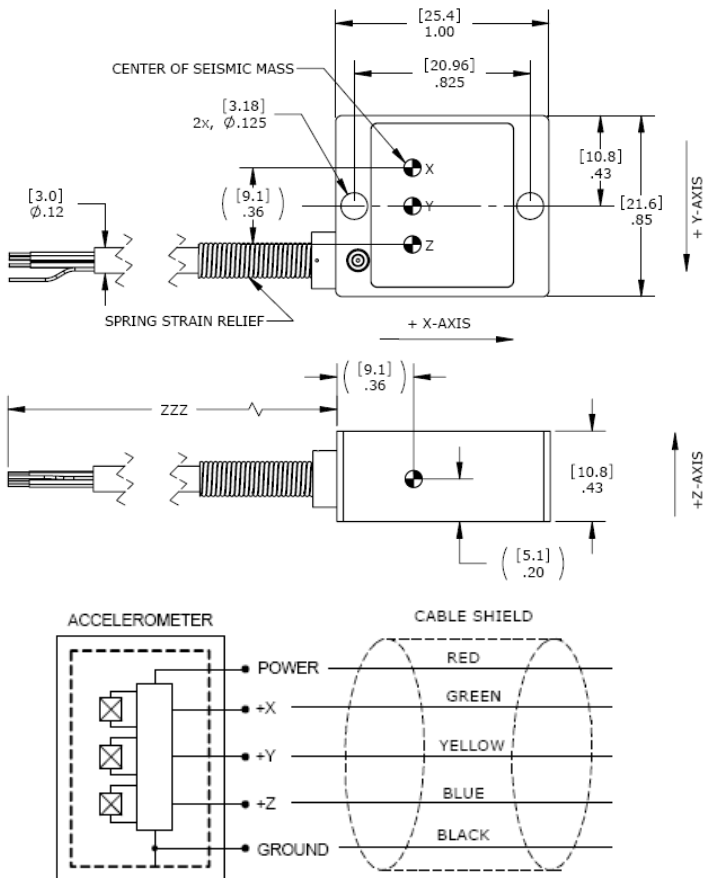


# MODEL 8102 ACCELEROMETER



## DIMENSIONS

8102A Pictured



## SPECIFICATIONS

- ◆ Triaxial Piezoelectric Accelerometer
- ◆  $<22\mu\text{A}$  Current Consumption
- ◆ Low Excitation Voltage
- ◆ Great Value

The Model 8102 is a low cost, plug & play triaxial accelerometer. Featuring stable piezo-ceramic crystals, the accelerometer incorporates full power and signal conditioning with a maximum current consumption of only 22 micro-amps. The model 8102 is available from  $\pm 25\text{g}$  to  $\pm 6000\text{g}$  ranges and provides a flat frequency response up to 6kHz. The housing provides two holes for screw mounting and is offered in anodized Aluminum or Stainless Steel options.

## FEATURES

- ◆  $\pm 25\text{g}$  to  $\pm 6000\text{g}$  Full Scale Ranges
- ◆ Low Cost Triaxial
- ◆ Potted Construction
- ◆ Piezo-Ceramic Shear Design
- ◆  $-40^\circ$  to  $+125^\circ\text{C}$
- ◆ Integral Cable for Plug & Play

## APPLICATIONS

- ◆ Asset Monitoring
- ◆ Data Loggers
- ◆ Impact Monitoring
- ◆ Machine Health Monitoring
- ◆ System Wake-Up Switch
- ◆ Product R&D

**PERFORMANCE SPECIFICATIONS**

All values are typical at +24°C, 80Hz and 3.3Vdc excitation unless otherwise stated. Measurement Specialties reserves the right to update and change these specifications without notice.

| Parameters                            |  |        |        |        |        |        |        | Notes        |
|---------------------------------------|--|--------|--------|--------|--------|--------|--------|--------------|
| <b>DYNAMIC</b>                        |  |        |        |        |        |        |        |              |
| Range (g)                             | ±25  | ±50    | ±100   | ±200   | ±500   | ±2000  | ±6000  |              |
| Sensitivity (mV/g)                    | 50.0   | 25.0   | 12.5   | 6.25   | 2.5    | 0.62   | 0.20   | ±30%         |
| Frequency Response (Hz)               | 2-6000   | 2-6000 | 2-6000 | 2-6000 | 2-6000 | 2-6000 | 2-6000 | ±2dB         |
| Natural Frequency (Hz)                | >10000   | >10000 | >10000 | >10000 | >10000 | >30000 | >30000 |              |
| Non-Linearity (%FSO)                  | ±2   | ±2     | ±2     | ±2     | ±2     | ±2     | ±2     |              |
| Transverse Sensitivity (%)            | <10  | <10    | <10    | <10    | <10    | <10    | <10    |              |
| Shock Limit (g)                       | 5000   | 5000   | 5000   | 5000   | 5000   | 10000  | 10000  |              |
| Residual Noise (g RMS)                | 0.008  | 0.008  | 0.010  | 0.020  | 0.048  | 0.350  | 0.520  | 2Hz to 10kHz |
| Spectral Noise, 10Hz (mg√Hz)          | 0.80   | 0.80   | 0.80   | 1.6    | 3.2    | 26     | 32     |              |
| Spectral Noise, 100Hz (mg√Hz)         | 0.16   | 0.16   | 0.16   | 0.64   | 1.0    | 6.2    | 10     |              |
| Spectral Noise, 1kHz (mg√Hz)          | 0.07   | 0.07   | 0.07   | 0.26   | 0.64   | 3.2    | 8      |              |
| <b>ELECTRICAL</b>                     |  |        |        |        |        |        |        |              |
| Bias Voltage (Vdc)                    | Exc Volt / 2   |        |        |        |        |        |        |              |
| Total Supply Current (µA)             | <22  |        |        |        |        |        |        |              |
| Excitation Voltage (Vdc) <sup>1</sup> | 3.0 to 5.5   |        |        |        |        |        |        |              |
| Output Impedance (Ω)                  | <100   |        |        |        |        |        |        |              |
| Insulation Resistance (MΩ)            | >100   |        |        |        |        |        |        |              |
| Shielding                             | 100%   |        |        |        |        |        |        |              |
| Ground Isolation                      | Isolated from Mounting Surface   |        |        |        |        |        |        |              |
| <b>ENVIRONMENTAL</b>                  |  |        |        |        |        |        |        |              |
| Temperature Response (%)              | -20/+30 from -40°C to +125°C   |        |        |        |        |        |        |              |
| Operating Temperature (°C)            | -40 to +125  |        |        |        |        |        |        |              |
| Storage Temperature (°C)              | -40 to +125  |        |        |        |        |        |        |              |
| Humidity                              | Epoxy Sealed, IP65   |        |        |        |        |        |        |              |
| <b>PHYSICAL</b>                       |  |        |        |        |        |        |        |              |
| Case Material                         | Anodized Aluminum or Stainless Steel   |        |        |        |        |        |        |              |
| Cable                                 | 5x #26 AWG Conductors ETFE Insulated, Braided Shield, Cross-linked ETFE Jacket |        |        |        |        |        |        |              |
| Weight (grams)                        | 14   |        |        |        |        |        |        |              |
| Mounting                              | 2x #4 or M3 Screws   |        |        |        |        |        |        |              |
| Mounting Torque                       | 6 lb-in (0.7 N-m)  |        |        |        |        |        |        |              |

<sup>1</sup> The model 8102 can be operated with 2.8V excitation but the full-scale range will be limited.

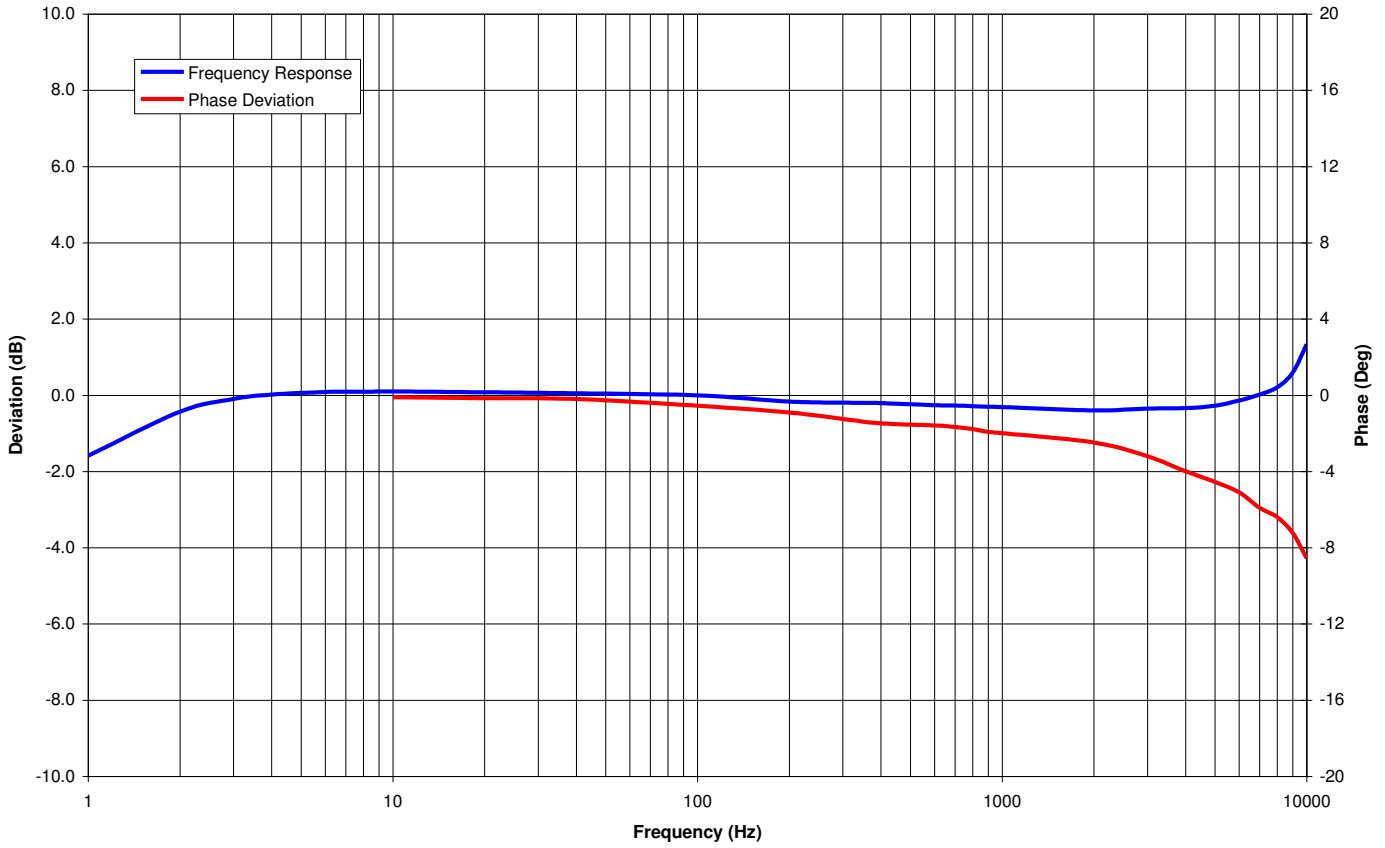
**Calibration supplied:** CS-SENS-0100 NIST Traceable Amplitude Calibration at 80Hz

**Supplied accessories:** 2x #4-40 (1/2" length) Socket Head Cap Screw and Washer

**Optional accessories:** CS-FREQ-0100 NIST Traceable Amplitude Calibration from 20Hz to ±2dB Frequency Response Limit

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Typical Frequency Response & Phase Deviation



**ORDERING INFORMATION**

**PART NUMBERING**    Model Number+Range+Cable Length

8102A-GGGG-CCC-XY

|   |   |   |   \_\_\_\_\_ Connector Options (Contact Factory, otherwise leave blank)  
|   |   |   |   \_\_\_\_\_ Cable (060 is 60 inches)  
|   |   \_\_\_\_\_ Range (0200 is 200g)  
|   \_\_\_\_\_ Housing Configuration (A is Anodized Aluminum, B is Stainless Steel)

Example: 8102A-0200-060  
          Model 8102A, 200g, 60" (5ft) Cable, No Connector Options

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