

# Model 832M1 Accelerometer



Triaxial Piezoelectric Accelerometer  
 <math><22\mu\text{A}</math> Current Consumption  
 Wide Bandwidth to 6kHz  
 Circuit Board Mountable



**The Model 832M1** is a low cost, board mountable triaxial accelerometer. Featuring stable piezo-ceramic crystals, the accelerometer incorporates full power and signal conditioning with a maximum current consumption of 22 micro-amps. The model 832M1 is available in  $\pm 25\text{g}$  to  $\pm 500\text{g}$  ranges and provides a flat frequency response up to greater than 6kHz. The standard model 832 offers the same envelope with a lower maximum current consumption of 4 micro-amps.

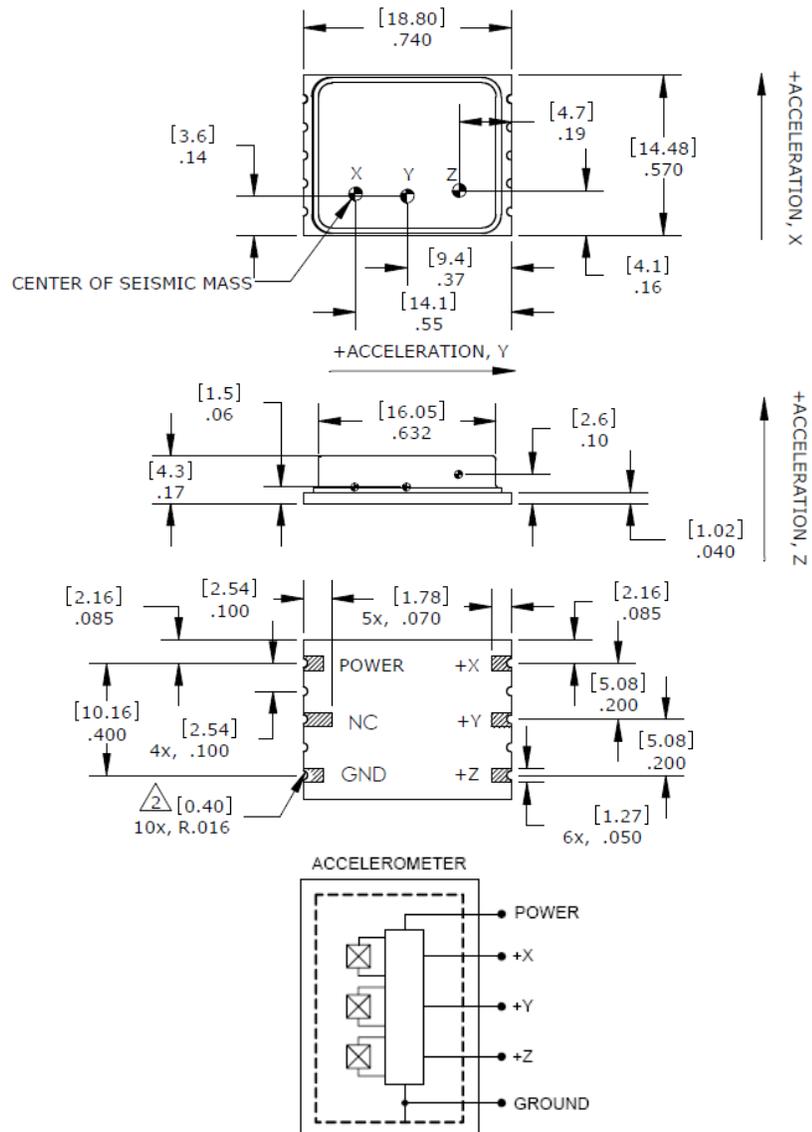
## FEATURES

- $\pm 25\text{g}$  to  $\pm 500\text{g}$  Dynamic Range
- Low Cost Triaxial
- Hermetically Sealed
- Piezo-ceramic Crystals
- $-40^\circ$  to  $+125^\circ\text{C}$  Operating Range
- Single Axis Configurations Available

## APPLICATIONS

- Asset Monitoring
- Data Loggers
- Impact Monitoring
- Machine Health Monitoring
- System Wake-Up Switch
- Embedded Applications

## dimensions



# Model 832M1 Accelerometer

## performance specifications

All values are typical at +24°C, 100Hz and 3.3Vdc excitation unless otherwise stated. Measurement Specialties reserves the right to update and change these specifications without notice. Standard product parameters are described in PSC-1001 for Embedded AC Accelerometers.

| Parameters                             |                                   |                 |                 |                 |                 | Notes     |
|--|-----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------|
| <b>DYNAMIC</b>                         |                                   |                 |                 |                 |                 |           |
| Range (g)                              | ±25                               | ±50             | ±100            | ±200            | ±500            |           |
| Sensitivity (mV/g)                     | 50.0                              | 25.0            | 12.5            | 6.25            | 2.5             | ±30%      |
| Frequency Response (Hz)                | 2-6000                            | 2-6000          | 2-6000          | 2-6000          | 2-6000          | ±2dB      |
| Natural Frequency (Hz)                 | >10000                            | >10000          | >10000          | >10000          | >10000          |           |
| Non-Linearity (%FSO)                   | ±2                                | ±2              | ±2              | ±2              | ±2              |           |
| Transverse Sensitivity (%)             | <10                               | <10             | <10             | <10             | <10             |           |
| Shock Limit (g)                        | 5000                              | 5000            | 5000            | 5000            | 5000            |           |
| <b>ELECTRICAL</b>                      |                                   |                 |                 |                 |                 |           |
| Bias Voltage (Vdc)                     | Exc Voltage / 2                   | Exc Voltage / 2 | Exc Voltage / 2 | Exc Voltage / 2 | Exc Voltage / 2 |           |
| Total Supply Current (µA) <sup>1</sup> | <22                               | <22             | <22             | <22             | <22             |           |
| Excitation Voltage (Vdc) <sup>3</sup>  | 3.3 to 5.5                        | 3.3 to 5.5      | 3.3 to 5.5      | 3.3 to 5.5      | 3.3 to 5.5      |           |
| Output Impedance (Ω)                   | <100                              | <100            | <100            | <100            | <100            |           |
| Insulation Resistance (MΩ)             | >100                              | >100            | >100            | >100            | >100            | @100Vdc   |
| Broadband Noise (µV)                   | 110                               | 90              | 50              | 40              | 50              | 2Hz-10kHz |
| Spectral Noise (µg/√Hz)                | 120                               | 160             | 160             | 160             | 600             | @ 10Hz    |
| Spectral Noise (µg/√Hz)                | 40                                | 40              | 40              | 40              | 160             | @ 100Hz   |
| Spectral Noise (µg/√Hz)                | 20                                | 16              | 16              | 16              | 80              | @ 1000Hz  |
| Warm-Up Time (msec)                    | 30                                |                 |                 |                 |                 |           |
| 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                       |                 |                 |                 |                 |           |
| <b>PHYSICAL</b>                        |                                   |                 |                 |                 |                 |           |
| Sensing Element                        | Ceramic (shear mode)              |                 |                 |                 |                 |           |
| Case Material                          | Ceramic Base, Nickel Silver Cover |                 |                 |                 |                 |           |
| Weight (grams)                         | 3.0                               |                 |                 |                 |                 |           |

<sup>1</sup> A lower current consumption of 4 micro-amps is available on model 832.

<sup>2</sup> The model 832M1 is not to be reflow soldered at high temperature, manual soldering is recommended. See application note.

<sup>3</sup> The model 832M1 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 100Hz

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## ordering info

PART NUMBERING Model Number+Range

832M1-GGGG

|  
| \_\_\_\_\_ Range (0200 is 200g)

Example: 832M1-0200  
Model 832M1, 200g