

# Model 4630 Accelerometer



MEMS Triaxial Accelerometer  
DC Response, Ultra-Stable  
Accurate Temp Compensation  
Signal Conditioned Output  
5,000g Over-Range Protection



The **Model 4630** is an ultra-stable triaxial accelerometer offering both static and dynamic response. The silicon MEMS accelerometer incorporates integral temperature compensation that provides a stable output over a wide operating range. The three independent circuit assemblies have independent signal conditioning and can operate on common or separate power supplies. The advanced MEMS sensing elements are gas damped in order to provide a wide stable frequency response.

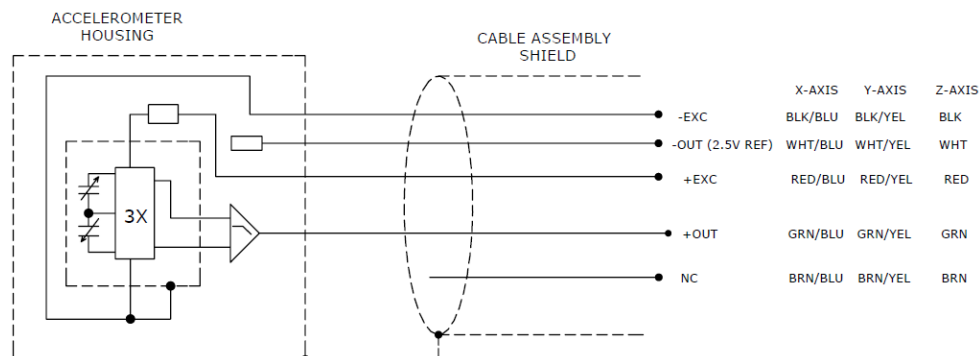
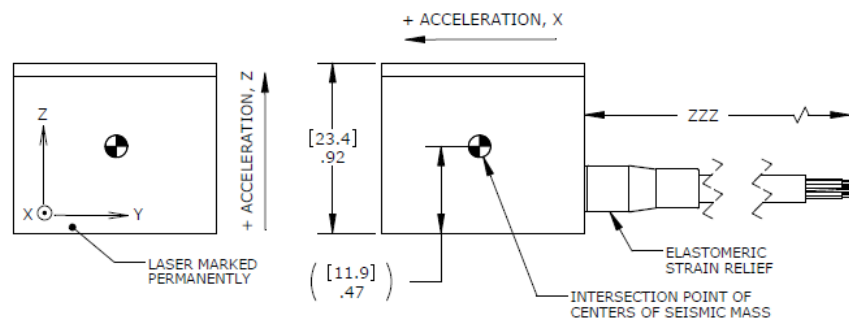
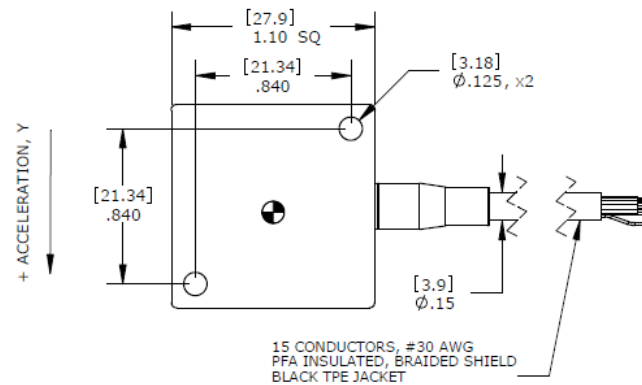
## FEATURES

- Three Independent Circuits
- Low Current Consumption
- Ranges:  $\pm 2g$  to  $\pm 200g$
- Gas Damped, DC Response
- High Over-Range Protection
- $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  Operating Range
- Low Transverse Sensitivity

## APPLICATIONS

- Transportation
- Vibration/Shock Monitoring
- Road Vehicle Testing
- Low Frequency Applications
- Modal Analyses

## dimensions



# Model 4630 Accelerometer

## 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. Standard product parameters are described in PSC-1004 for Plug & Play DC Accelerometers.

### Parameters

#### DYNAMIC

|                            | ±2    | ±5    | ±10   | ±20   | ±30   | ±50   | ±100   | ±200   | Notes            |
|----------------------------|-------|-------|-------|-------|-------|-------|--------|--------|------------------|
| Range (g)                  |       |       |       |       |       |       |        |        |                  |
| Sensitivity (mV/g)         | 1000  | 400   | 200   | 100   | 67    | 40    | 20     | 10     |                  |
| Frequency Response (Hz)    | 0-200 | 0-600 | 0-800 | 0-800 | 0-800 | 0-800 | 0-1000 | 0-1000 | ±5% <sup>1</sup> |
| Natural Frequency (Hz)     | 700   | 800   | 1000  | 1500  | 1500  | 4000  | 6000   | 8000   |                  |
| Non-Linearity (%FSO)       | ±0.5  | ±0.5  | ±0.5  | ±0.5  | ±0.5  | ±0.5  | ±0.5   | ±0.5   |                  |
| Transverse Sensitivity (%) | <3    | <3    | <3    | <3    | <3    | <3    | <3     | <3     | <1 Typical       |
| Damping Ratio              | 0.7   | 0.7   | 0.7   | 0.7   | 0.7   | 0.7   | 0.7    | 0.6    |                  |
| Shock Limit (g)            | 2000  | 5000  | 5000  | 5000  | 5000  | 5000  | 5000   | 5000   |                  |
| Residual Noise (µV RMS)    | 550   | 700   | 750   | 1100  | 750   | 750   | 800    | 800    | Passband         |
| Spectral Noise (µg/√Hz)    | 38    | 71    | 126   | 379   | 378   | 632   | 1265   | 2530   | Passband         |

#### ELECTRICAL

|                               |                                |  |  |  |  |  |  |  |              |
|-------------------------------|--------------------------------|--|--|--|--|--|--|--|--------------|
| Zero Acceleration Output (mV) | ±50                            |  |  |  |  |  |  |  | Differential |
| Excitation Voltage (Vdc)      | 8 to 36                        |  |  |  |  |  |  |  |              |
| Excitation Current (mA)       | <15 (<5 per channel)           |  |  |  |  |  |  |  |              |
| Bias Voltage (Vdc)            | 2.5                            |  |  |  |  |  |  |  |              |
| Output Resistance (Ω)         | <100                           |  |  |  |  |  |  |  |              |
| Full Scale Output Voltage (V) | ±2                             |  |  |  |  |  |  |  |              |
| Insulation Resistance (MΩ)    | >100                           |  |  |  |  |  |  |  | @100Vdc      |
| Turn On Time (msec)           | <100                           |  |  |  |  |  |  |  |              |
| Ground Isolation              | Isolated from Mounting Surface |  |  |  |  |  |  |  |              |

#### ENVIRONMENTAL

|  |                      |  |  |  |  |  |  |  |         |
|--|----------------------|--|--|--|--|--|--|--|---------|
| Thermal Zero Shift (%FSO/°C)           | ±0.004               |  |  |  |  |  |  |  | Typical |
| Thermal Sensitivity Shift (%/°C)       | ±0.010               |  |  |  |  |  |  |  | Typical |
| Operating Temperature (°C)             | -55 to 125           |  |  |  |  |  |  |  |         |
| Storage Temperature (°C)               | -55 to 125           |  |  |  |  |  |  |  |         |
| Housing (Active Element & Electronics) | Hermetic Solder Seal |  |  |  |  |  |  |  |         |
| Humidity (Housing)                     | Epoxy Seal, IP65     |  |  |  |  |  |  |  |         |

#### PHYSICAL

|                 |  |
|-----------------|--|
| Case Material   | Anodized Aluminum  |
| Cable           | 15x #30 AWG Conductors PFA Insulated Leads, Braided Shield, TPE Jacket |
| Weight (grams)  | 40   |
| Mounting        | 2x #4 or M3 Screws   |
| Mounting Torque | 6 lb-in (0.7 N-m)  |

**Calibration supplied:** CS-FREQ-0100 NIST Traceable Amplitude Calibration from 20Hz to ±5% Frequency Response Limit <sup>1</sup>

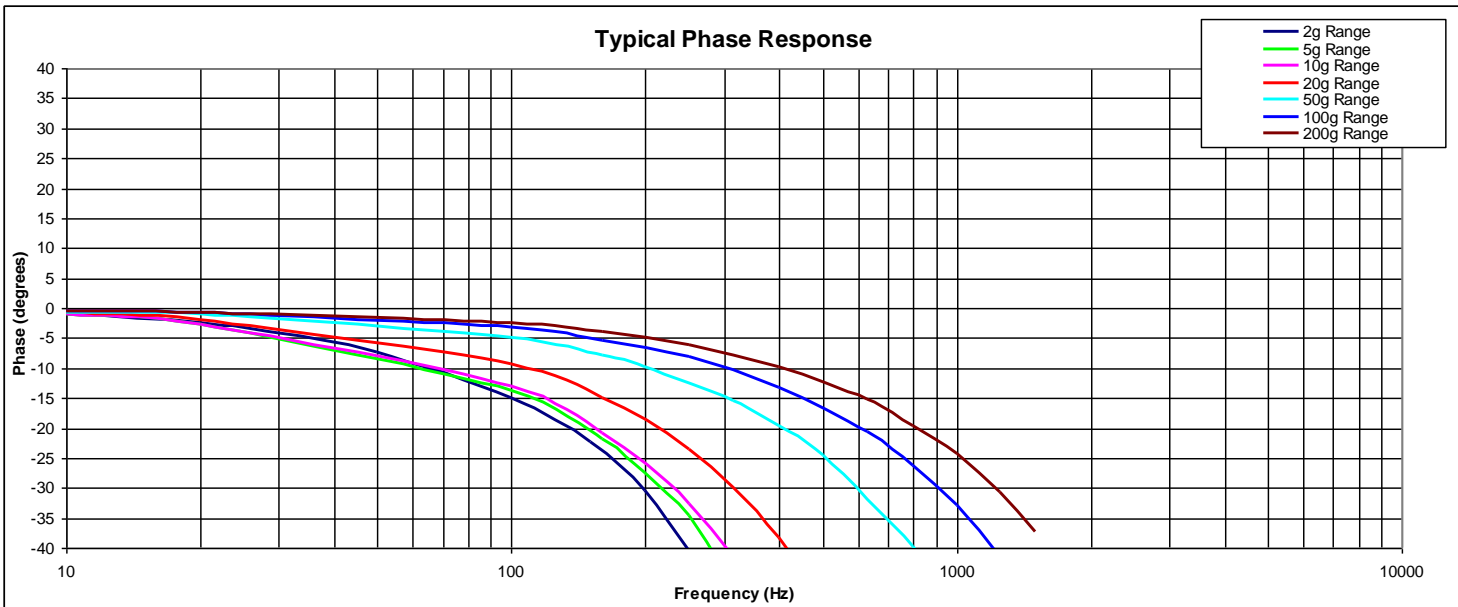
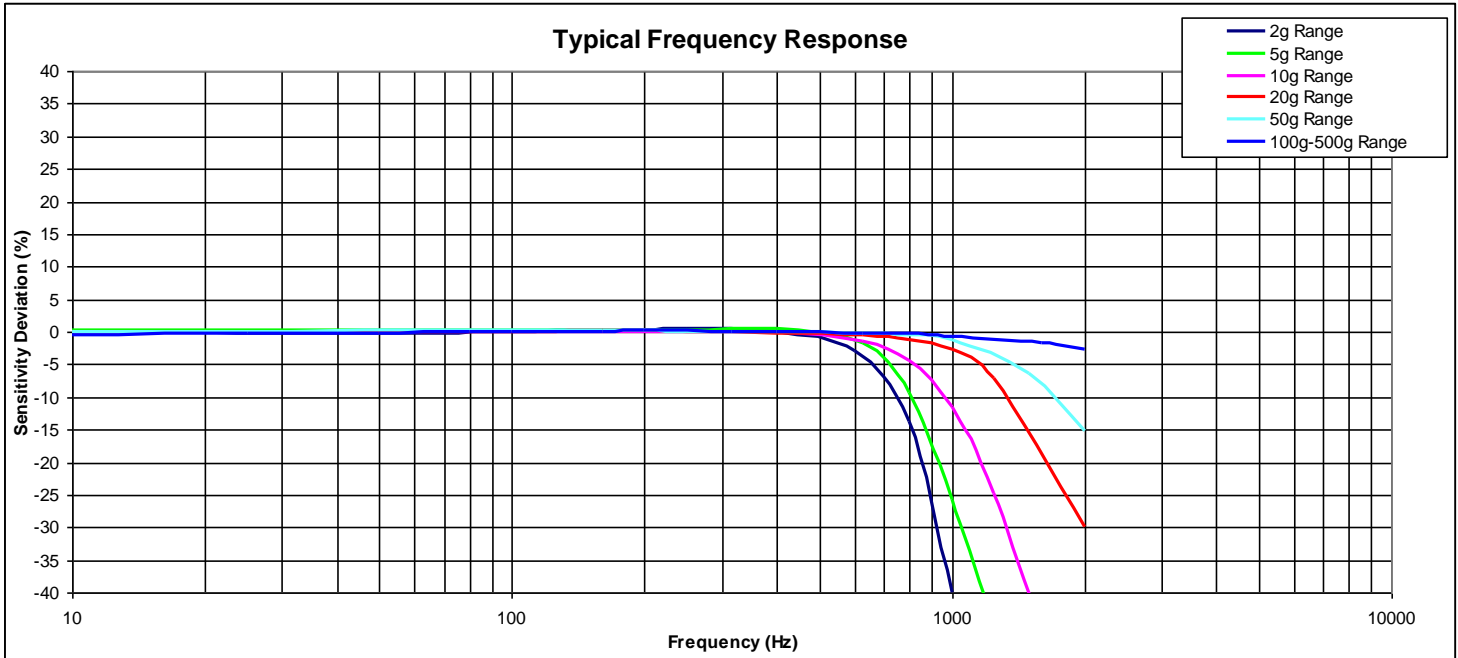
**Supplied accessories:** AC-D02855 2x #4-40 (1<sup>1/8</sup> length) Socket Head Cap Screw and Washer

**Optional accessories:** 121 3-Channel Precision Low Noise DC Amplifier

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# Model 4630 Accelerometer

## performance specifications



## ordering info

PART NUMBERING Model Number+Range+Cable Length

4630-GGG-ZZZ-C

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

Example: 4630-020-060-C  
Model 4630, 20g, 60" (5ft) Cable