
# MODEL 4610 ACCELEROMETER

## SPECIFICATIONS

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

**The Model 4610** is an ultra-stable MEMS accelerometer ideal for static and dynamic applications. The accelerometer offers integral temperature compensation with dynamic range from ±2 to ±200g. **The model 4610** incorporates a gas damped MEMS element with mechanical overload stops that provide shock protection to 5,000g. The accelerometer has an operating temperature range of -55°C to +125°C.

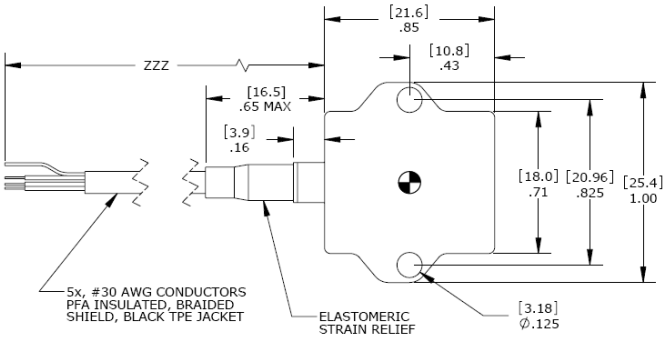
## FEATURES

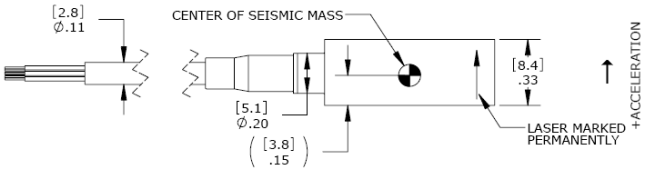
- ±2g to ±200g Dynamic Range
- 5000g Shock Protection
- -55°C to +125°C Operating Range
- 8 to 36Vdc Excitation Voltage
- Gas Damping, DC Response
- Integral Cable
- Temperature Compensated

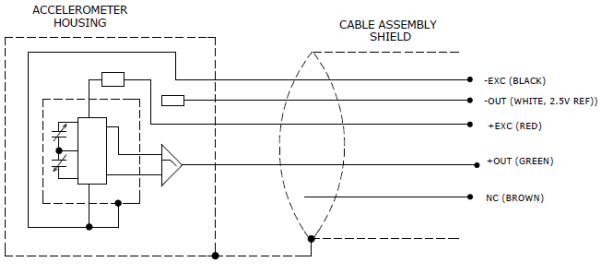
## APPLICATIONS

- Low Frequency Monitoring
- Transportation
- Test & Instrumentation
- Machine Control
- Road Vehicle Testing

## DIMENSIONS



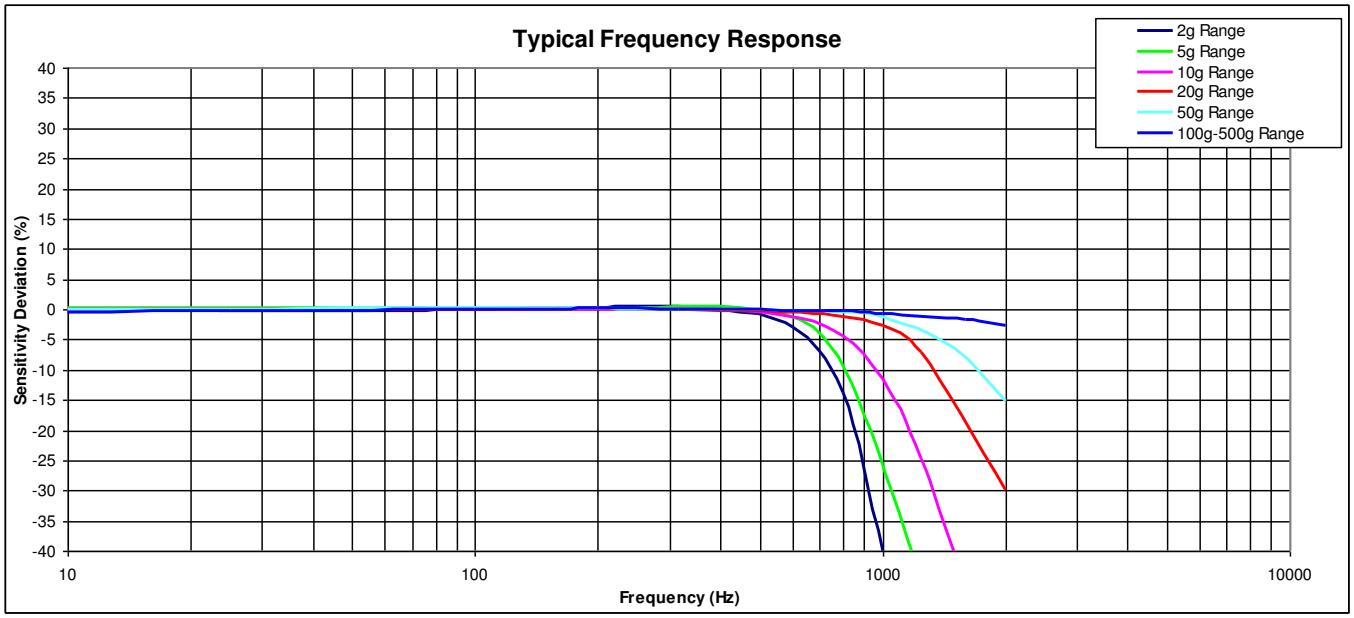
## PERFORMANCE SPECIFICATIONS

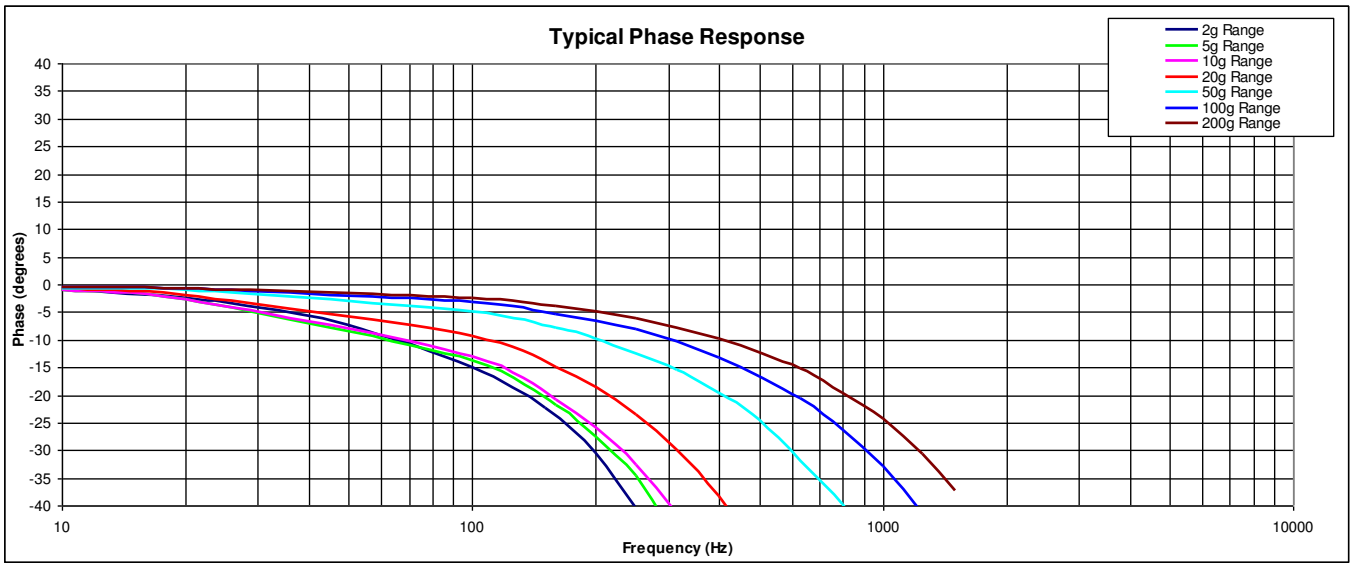
All values are typical at +24°C, 80Hz and 12Vdc excitation unless otherwise stated. Measurement Specialties reserves the right to update and change these specifications without notice.

| Parameters | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **DYNAMIC** | | | | | | | | **Notes** |
| Range (g) | ±2 | ±5 | ±10 | ±20 | ±50 | ±100 | ±200 | |
| Sensitivity (mV/g) | 1000 | 400 | 200 | 100 | 40 | 20 | 10 | |
| Frequency Response (Hz) | 0-250 | 0-700 | 0-1000 | 0-1000 | 0-1000 | 0-1000 | 0-1000 | ±5%[1] |
| 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 | 0.7 | |
| Shock Limit (g) | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | |
| Residual Noise (µV RMS) | 600 | 750 | 800 | 1200 | 800 | 800 | 800 | Passband |
| Spectral Noise (µg/√Hz) | 38 | 71 | 126 | 379 | 632 | 1265 | 2530 | Passband |

| | | |
|---|---|---|
| **ELECTRICAL** | | |
| Zero Acceleration Output (mV) | ±50 | Differential |
| Excitation Voltage (Vdc) | 8 to 36 | |
| Excitation Current (mA) | <5 | |
| 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 | 5x #30 AWG Conductors PFA Insulated Leads, Braided Shield, TPE Jacket | |
| Weight (grams) | 6 (cable not included) | |
| 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 [1] |
| **Supplied accessories:** | AC-A02285 | 2x #4-40 (7/16 length) Socket Head Cap Screw and Washer |
| **Optional accessories:** | AC-D02669 | Triaxial Mounting Block |
| | 121 | 3-Channel Precision Low Noise DC Amplifier |


Typical Frequency Response
2g Range
5g Range
10g Range
20g Range
50g Range
100g-500g Range
Sensitivity Deviation (%)
40
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
-40
10
100
1000
10000
Frequency (Hz)


Typical Phase Response
2g Range
5g Range
10g Range
20g Range
50g Range
100g Range
200g Range
Phase (degrees)
40
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
-40
10
100
1000
10000
Frequency (Hz)

## ORDERING INFORMATION

PART NUMBERING  Model Number+Range+Cable Length

4610-GGG-ZZZ-C
I  I
I  I_____Cable (060 is 60 inches)
I_____Range (020 is 20g)

Example: 4610-020-060-C
Model 4610, 20g, 60” (5ft) Cable

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