

Model 1210F Accelerometer



MEMS DC Response
Durable Cable, Integral Relief
Temperature Compensation
Reliable Performance



The **Model 1210F** accelerometer is a small, compact uniaxial MEMS accelerometer designed for vehicle impact and road testing. Its mechanical overload stops provide high shock protection in rugged applications. Featuring ranges from 2g to 200g and frequency response to 2000 Hz, this sensor is easily mounted in hard to get places on vehicles under test.

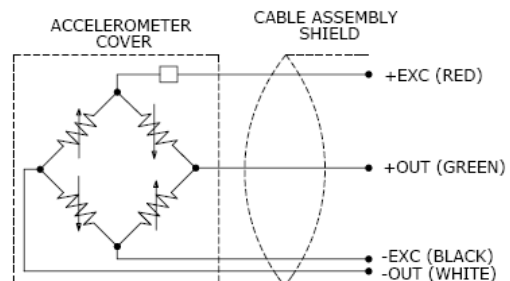
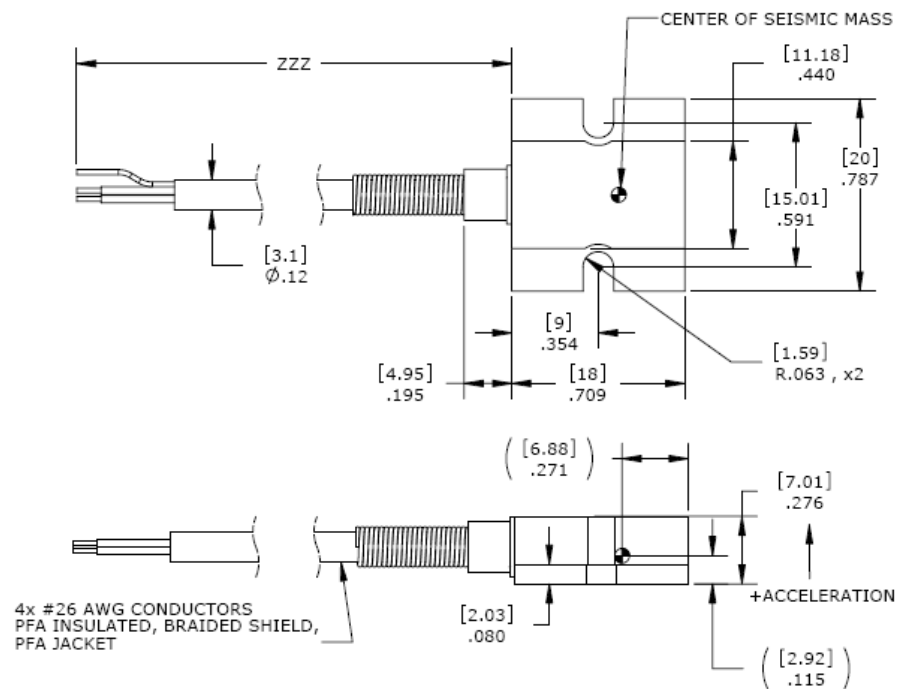
FEATURES

- $\pm 2g$ to $\pm 200g$ Dynamic Range
- Environmentally Sealed
- -40°C to $+125^{\circ}\text{C}$ Operating Range
- Rugged Strain Relief
- Mechanical Overload Stops
- Gas Damping
- mV Output
- Bolt Mounted

APPLICATIONS

- Crash Testing
- Impact testing
- Off-Road Testing
- Vehicle Testing

dimensions



Model 1210F Accelerometer

performance specifications

All values are typical at +24°C, 100Hz and 10Vdc 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 | ±50 | ±100 | ±200 | Notes |
|----------------------------|-------|-------|-------|-------|--------|--------|--------|-------------------|
| Range (g) | ±2 | ±5 | ±10 | ±20 | ±50 | ±100 | ±200 | |
| Sensitivity (mV/g) | 12 | 9 | 6 | 3 | 1.5 | 0.7 | 0.7 | @10Vdc Excitation |
| Frequency Response (Hz) | 0-100 | 0-200 | 0-300 | 0-400 | 0-800 | 0-1300 | 0-1500 | ±5% ¹ |
| Frequency Response (Hz) | 0-200 | 0-300 | 0-400 | 0-500 | 0-1000 | 0-1500 | 0-1800 | ±1dB |
| Phase Response | 0-20 | 0-30 | 0-40 | 0-50 | 0-100 | 0-200 | 0-250 | ±5° |
| Natural Frequency (Hz) | 300 | 400 | 500 | 1000 | 3000 | 5000 | 6000 | |
| 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 | |
| Damping Ratio | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 | 0.5 | |
| Shock Limit (g) | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | |

ELECTRICAL

| | | | | | | | | |
|-------------------------------|--------------------------------|------------|------------|------------|------------|------------|------------|--------------|
| Zero Acceleration Output (mV) | ±25 | ±25 | ±25 | ±25 | ±25 | ±25 | ±25 | Differential |
| Excitation Voltage (Vdc) | 5 to 10 | 5 to 10 | 5 to 10 | 5 to 10 | 5 to 10 | 5 to 10 | 5 to 10 | |
| Input Resistance (kΩ) | 4 to 10 | 4 to 10 | 4 to 10 | 4 to 10 | 4 to 10 | 4 to 10 | 4 to 10 | |
| Output Resistance (kΩ) | 2.4 to 4.8 | 2.4 to 4.8 | 2.4 to 4.8 | 2.4 to 4.8 | 2.4 to 4.8 | 2.4 to 4.8 | 2.4 to 4.8 | |
| Insulation Resistance (MΩ) | >100 | >100 | >100 | >100 | >100 | >100 | >100 | @100Vdc |
| Residual Noise (µV RMS) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | Maximum |
| Ground Isolation | Isolated from Mounting Surface | | | | | | | |

ENVIRONMENTAL

| | | | | | | | | |
|----------------------------------|-------------|-------|-------|-------|-------|-------|-------|--|
| Thermal Zero Shift (%FSO/°C) | ±0.04 | ±0.04 | ±0.04 | ±0.04 | ±0.04 | ±0.04 | ±0.04 | |
| Thermal Sensitivity Shift (%/°C) | ±0.05 | ±0.05 | ±0.05 | ±0.05 | ±0.05 | ±0.05 | ±0.05 | |
| Operating Temperature (°C) | -40 to +125 | | | | | | | |
| Compensated Temperature (°C) | -20 to +85 | | | | | | | |
| Storage Temperature (°C) | -40 to +125 | | | | | | | |

PHYSICAL

| | |
|-----------------|--|
| Case Material | Anodized Aluminum |
| Cable | PFA Insulated Leads, Braided Shield, Polyurethane Jacket |
| Weight (grams) | 3.5 |
| Mounting | 2x #4 or M3 Screws |
| Mounting Torque | 4.0 lb-in (0.5 N-m) |
| AWG | #28 |

Wiring color code: +Excitation = Red; -Excitation = Black; +Output = Green; -Output = White;

Calibration supplied: CS-FREQ-0100 NIST Traceable Amplitude Calibration from 20Hz to ±5% Frequency Response Limit¹

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

Optional accessories: 101 Three Channel DC Signal Conditioner Amplifier

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ordering info

PART NUMBERING Model Number+Range+Cable Length

1210F-XXXX-ZZZ

| |
 | | Cable (360 is 360 inches)
 | Range (0050 is 50g)

Example: 1210F-0050-360

Model 1210F, 50g, 360" (30ft) Cable