

# Model 201 Accelerometer



MEMS DC Accelerometer  
Temperature Calibrated  
Robust Cable and Strain Relief  
Amplified Output

**The Model 201** is a rugged, low-profile MEMS accelerometer designed for both static and dynamic applications. The accelerometer is available in ranges from  $\pm 2$  to  $\pm 100g$  and offers a signal conditioned and amplified output. Featuring gas damped MEMS sensing element and a LP filtering circuit, the model 201 provides a flat frequency response to 100Hz over an operating temperature range of  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ .

## FEATURES

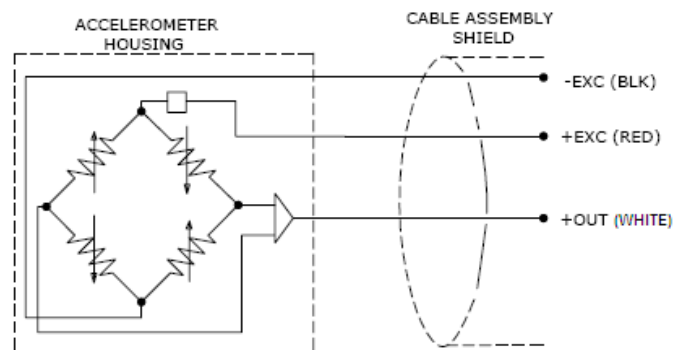
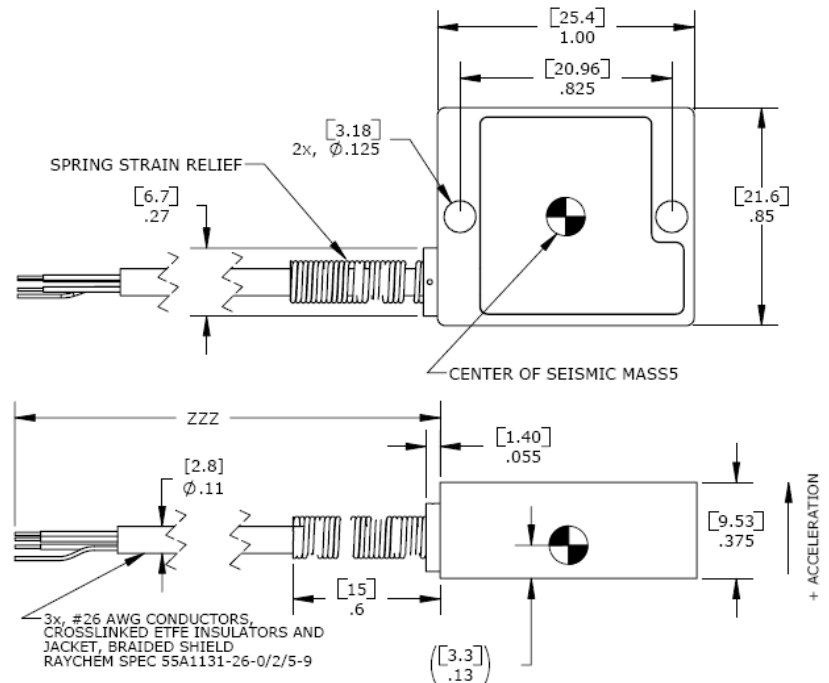
- $\pm 2g$  to  $\pm 100g$  Dynamic Range
- Amplified Output
- Low Power Consumption
- Gas Damping
- #26 AWG Rugged Cable
- DC, Low Frequency Response
- 5 to 30Vdc Excitation Voltage

## APPLICATIONS

- Transportation Measurements
- Vibration & Shock Monitoring
- Road Vehicle Testing
- Low Frequency Applications
- Motion Analysis



## dimensions



# Model 201 Accelerometer

## performance specifications

All values are typical at +24°C, 100Hz 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    | Notes      |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|---------|------------|
| Range (g)                               |         |         |         |         |         |         |         |            |
| Sensitivity (mV/g)                      | 1000    | 400     | 200     | 100     | 67      | 40      | 20      |            |
| -3dB Cutoff Frequency (Hz)              | 100 ±15 | 100 ±15 | 100 ±15 | 100 ±15 | 100 ±15 | 100 ±15 | 100 ±15 |            |
| Rolloff Above Cutoff Frequency (dB/dec) | -40     | -40     | -40     | -40     | -40     | -40     | -40     |            |
| Natural Frequency (Hz)                  | 700     | 800     | 1000    | 1500    | 1500    | 4000    | 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      | <2 Typical |
| Damping Ratio                           | 0.7     | 0.7     | 0.7     | 0.7     | 0.7     | 0.7     | 0.6     |            |
| Shock Limit (g)                         | 5000    | 5000    | 5000    | 5000    | 5000    | 5000    | 5000    |            |
| Residual Noise (µV RMS)                 | 80      | 50      | 50      | 60      | 50      | 60      | 60      | Passband   |
| Residual Noise (µg/√Hz RMS)             | 8       | 13      | 25      | 60      | 75      | 150     | 300     | Spectral   |

#### ELECTRICAL

|                                       |                                |         |
|---------------------------------------|--------------------------------|---------|
| Zero Acceleration Output (V)          | 2.5 ±0.1                       |         |
| Excitation Voltage (Vdc)              | 5 to 30                        |         |
| Excitation Current (mA)               | <5                             |         |
| Full Scale Output Voltage Swing (Vdc) | 0.5 to 4.5                     |         |
| Output Resistance (Ω)                 | <100                           |         |
| Insulation Resistance (MΩ)            | >100                           | @100Vdc |
| Turn On Time (msec)                   | <100                           |         |
| Ground Isolation                      | Isolated from Mounting Surface |         |

#### ENVIRONMENTAL

|                                  |                          |
|----------------------------------|--------------------------|
| Thermal Zero Shift (%FSO/°C)     | ±0.012                   |
| Thermal Sensitivity Shift (%/°C) | ±0.020                   |
| Operating Temperature (°C)       | -40 to 125               |
| Compensated Temperature (°C)     | 0 to 85                  |
| Storage Temperature (°C)         | -40 to 125               |
| Humidity                         | Epoxy Encapsulated, IP65 |

#### PHYSICAL

|                 |                                                               |
|-----------------|---------------------------------------------------------------|
| Case Material   | Anodized Aluminum                                             |
| Cable           | ETFE Insulated Leads, Braided Shield, Crosslinked ETFE Jacket |
| Weight (grams)  | 10                                                            |
| 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 100Hz

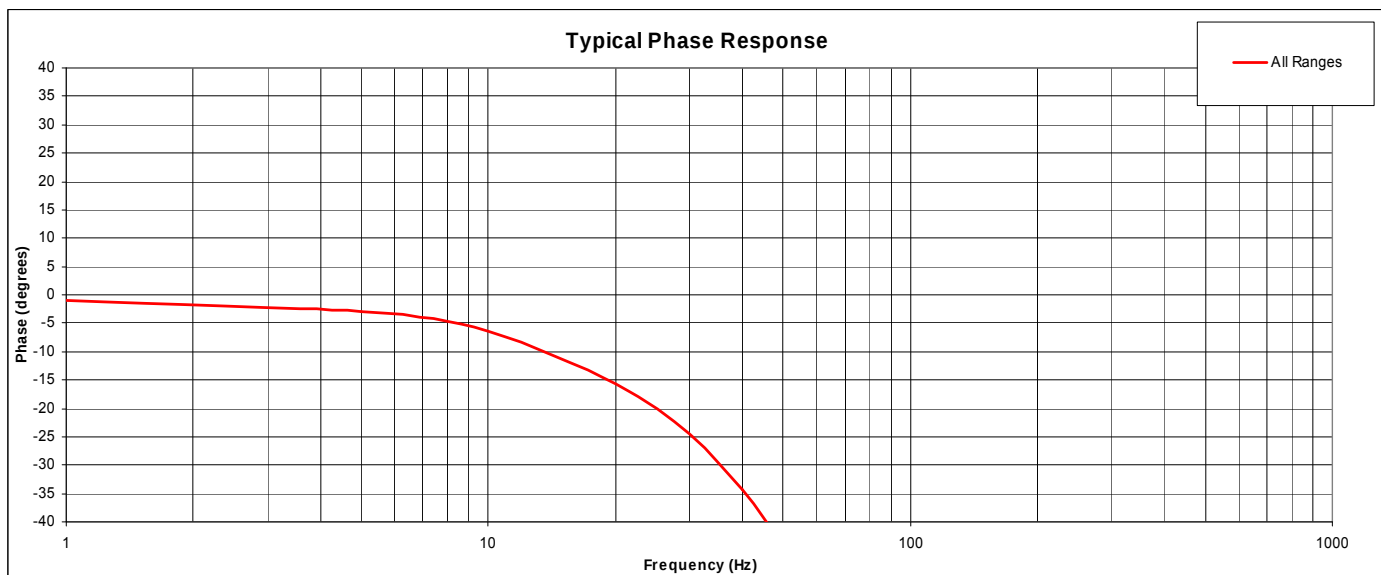
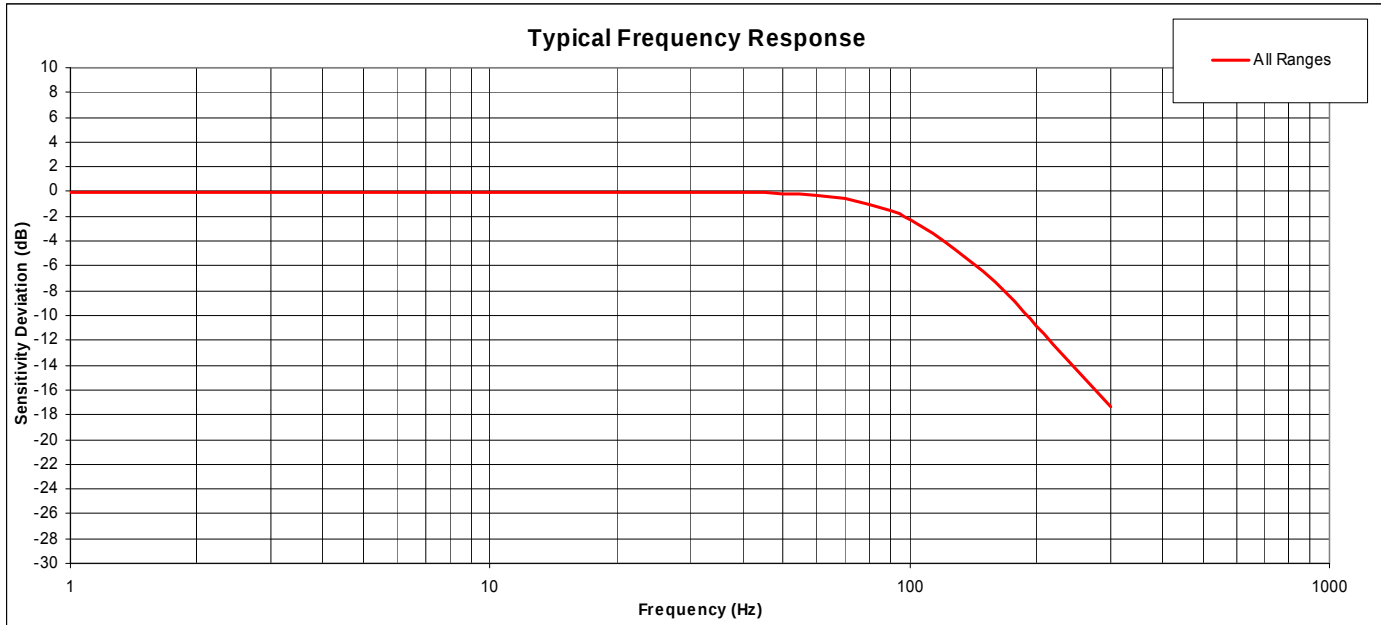
**Supplied accessories:** AC-A03654 2x #4-40 (1/2" length) Socket Head Cap Screw and Washer

**Optional accessories:** AC-D02669 101 Triaxial Mounting Block  
Three Channel DC Signal Conditioner Amplifier

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# Model 201 Accelerometer

## performance specifications



## ordering info

PART NUMBERING    Model Number+Range+Cable Length

201-XX-CCC

|                      |  
 |                      | Cable (060 is 60 inches)  
 |                      | Range (05 is  $\pm 5g$ , 100 is  $\pm 100g$ )

Example: 201-05-060  
Model 201, 5g, 60" (5ft) Cable