

# Model 52 Accelerometer



DC Response Accelerometer  
Low Cost, Miniature Package  
Gas Damped MEMS  
Reliable Performance



## The Model 52 Accelerometer

is based on an advanced piezoresistive MEMS sensing element which offers exceptional dynamic range and stability. This unit features a full bridge output configuration with an operating temperature range from -40 to +90°C. A slight amount of internal gas damping provides outstanding shock survivability and a flat frequency response up to 7kHz.

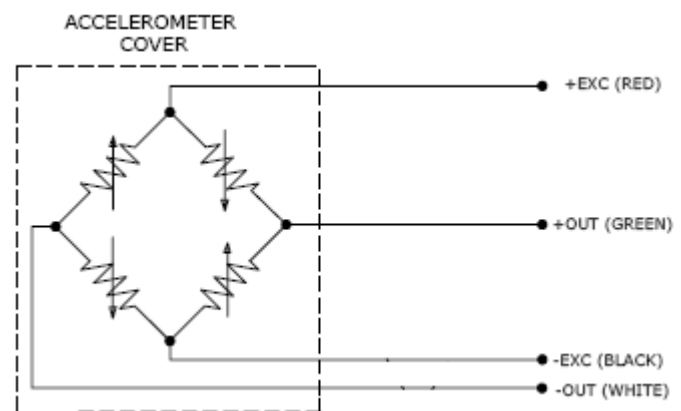
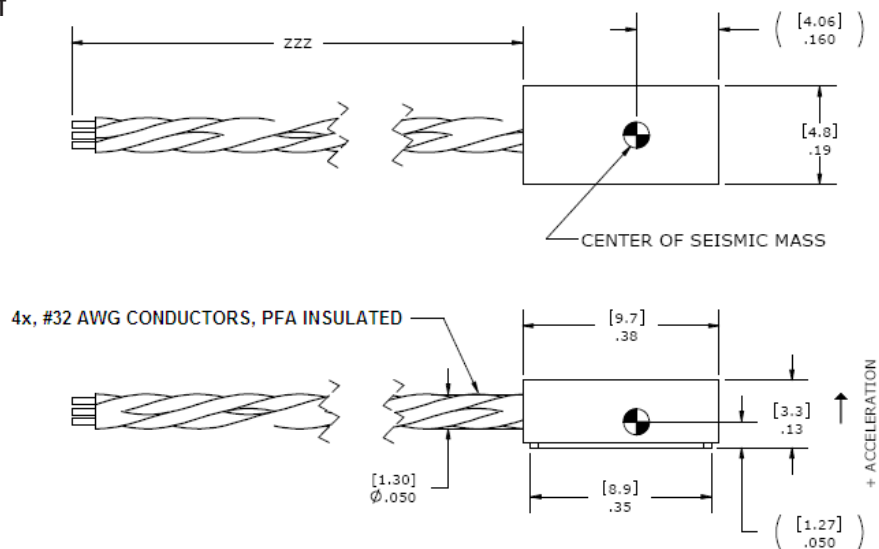
## FEATURES

- Piezoresistive MEMS Sensor
- ±50g to ±2,000g Ranges
- 2-10 Vdc Excitation
- <± 50 mV Zero Offset
- -40 to +90 °C Temperature Range
- Linearity ±1%

## APPLICATIONS

- Safety Impact Testing
  - Auto
  - Truck
  - Recreational Vehicles
- Shock Testing

## dimensions



# Model 52 Accelerometer

## performance specifications

All values are typical at  $\pm 24^{\circ}\text{C}$ , 100 Hz and 10 Vdc 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

	$\pm 50$	$\pm 200$	$\pm 500$	$\pm 2000$	Notes
Range(g)	$\pm 50$	$\pm 200$	$\pm 500$	$\pm 2000$	
Sensitivity (mV/g) <sup>1</sup>	2	0.9	0.4	0.15	
Frequency Response (Hz)	0-400	0-600	0-800	0-2000	$\pm 2\%$
	0-1000	0-1400	0-2000	0-5000	$\pm 5\%$
	0-1400	0-1900	0-2800	0-7000	$\pm 1\text{dB}$
Resonant Frequency (Hz)	4000	8000	15000	26000	
Non-Linearity (% FSO)	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$	
Transverse Sensitivity (%)	<3	<3	<3	<3	
Shock Limit (g)	5000	5000	5000	5000	

#### ELECTRICAL

Zero Acceleration Output (mV)	< $\pm 50$				
Excitation (Vdc)	2 to 10				
Input Resistance	2400-6000				
Output Resistance ( $\Omega$ )	2400-6000				
Insulation Resistance ( $\text{M}\Omega$ )	>100				@100Vdc
Ground Isolation	Isolated from mounting surface				

#### ENVIRONMENTAL

Thermal Zero Shift (%FSO/ $^{\circ}\text{C}$ (%FSO/ $^{\circ}\text{F}$ ))*	$\pm 0.05$ ( $\pm 0.03$ )				$0^{\circ}\text{C}$ to $+50^{\circ}\text{C}$
Thermal Sensitivity Shift (%/ $^{\circ}\text{C}$ (%/F))*	$-0.20 \pm 0.05$ ( $-0.11 \pm 0.03$ )				$0^{\circ}\text{C}$ to $+50^{\circ}\text{C}$
Operating Temperature ( $^{\circ}\text{C}$ )	-40 to +90				
Storage Temperature ( $^{\circ}\text{C}$ )	-40 to +90				
Humidity	Epoxy Sealed, IP61				

#### PHYSICAL

Case Material	Plastic				
Cable (Integral 30 Foot Cable)	4x #32 AWG Conductors PFA Insulated				Cable not included
Weight (grams)	0.5				
Mounting	Adhesive				

<sup>1</sup> Output is ratiometric to excitation voltage

**Calibration supplied:** CS-SENS-0100 NIST Traceable Amplitude Calibration at 100Hz

**Optional accessories:** 101 Three Channel DC Signal Conditioner Amplifier  
140 Auto-zero Inline Amplifier

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## ordering info

PART NUMBERING Model Number+Range+Excitation+Cable Length+Options

52-GGGG-VV-CCC-XY

| | | | Options  
 | | | Cable (360 is 360 inches)  
 | | Excitation (10 is 10 Vdc)  
 | Range (0500 is 500 g)

Example: 52-2000-10-360-XY

Model 52, Standard Configuration: 2000g, 10V Excitation, 360" (30ft.) Cable, No Options