

## MODEL 52 CRASH TEST ACCELEROMETER

### Specifications

- Advanced Piezoresistive MEMS Sensor
- Small Form Factor for Side Impact Crash Testing
- Compliant to SAE J211/J2570
- $\pm 50g$  to  $\pm 2000g$  Dynamic Range
- Light Weight, Adhesive Mounting
- Door Panel Mounting

### Features

- Standard  $<3\%$  Transverse Sensitivity
- Wide bandwidth to  $>7kHz$
- Linearity  $<1\%$
- 5000g Shock Protection
- 2-10Vdc Excitation Voltage
- Optimum Gas Damping
- Triaxial Mounting Block Option

### Applications

- Automotive Crash Testing
- Side Impact Testing
- Shock and Impact Testing
- Transient Drop Testing
- Biomedical Studies

The TE Connectivity model 52 accelerometers are designed for size constrained installations where miniature form factor is critical such as side impact crash test installations. The accelerometers feature a full  $4000\Omega$  bridge output configuration with ideal gas damping tailored for outstanding shock survivability and superior long-term stability compared to half bridge designs with impedance mismatch.

The model 52 crash test accelerometer is offered in ranges from  $\pm 50$  to  $\pm 2000g$  and is designed for adhesive mounting. For a screw mounting option, TE Connectivity also offers customers the model 52F flange mount accelerometer. For triaxial configurations the model 53 and 53A are recommended options.

The crash test accelerometer has a standard operating temperature range of  $-40^{\circ}C$  to  $+121^{\circ}C$  and includes four individual leads for maximum flexibility and minimum bend radius. An optional triaxial mounting block is also offered for multi-axis measurement test applications.

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### Performance Specifications

All values are typical at +24°C, 80Hz and 10Vdc excitation unless otherwise stated. TE Connectivity reserves the right to update and change these specifications without notice.

#### PARAMETERS

DYNAMIC					NOTES
Range (g)	±50	±200	±500	±2000	
Sensitivity (mV/g) <sup>1</sup>	1.2-3.0	0.6-1.2	0.3-0.6	0.12-0.3	@10Vdc Excitation
Frequency Response (Hz)	0-1000	0-1400	0-2000	0-5000	±5%
	0-1400	0-1900	0-2800	0-7000	±1dB
Natural Frequency (Hz)	4000	8000	15000	26000	
Transverse Sensitivity (%)	<3	<3	<3	<3	
Non-Linearity (%FSO)	±1	±1	±1	±1	
Damping Ratio	0.5	0.5	0.3	0.15	
Shock Limit (g)	5000	5000	5000	5000	

#### ELECTRICAL

Zero Acceleration Output (mV)	<±50				Differential
Excitation Voltage (Vdc)	2 to 10				
Input Resistance (Ω)	3500-4500				
Output Resistance (Ω)	3500-4500				
Insulation Resistance (MΩ)	>100				@100Vdc
Residual Noise (µV RMS)	<10				
Ground Isolation	Isolated from mounting surface				
Warm-up Time	<10 seconds				@10Vdc Excitation

#### ENVIRONMENTAL

Thermal Zero Shift (%FSO/°C)	±0.04				From 0 to +50°C
Thermal Sensitivity Shift (%/°C)	-0.20 ±0.05				From 0 to +50°C
Operating Temperature	-40 to +121°C (-40 to +250°F)				
Storage Temperature	-40 to +121°C (-40 to +250°F)				
Humidity	Epoxy Sealed, IP61				

#### PHYSICAL

Material	Ceramic Mounting Base, Anodized Aluminum Cover				
Cable	4x #32 AWG Leads, PFA Insulated				
Weight (grams)	0.5				Cable not included
Mounting	Adhesive				

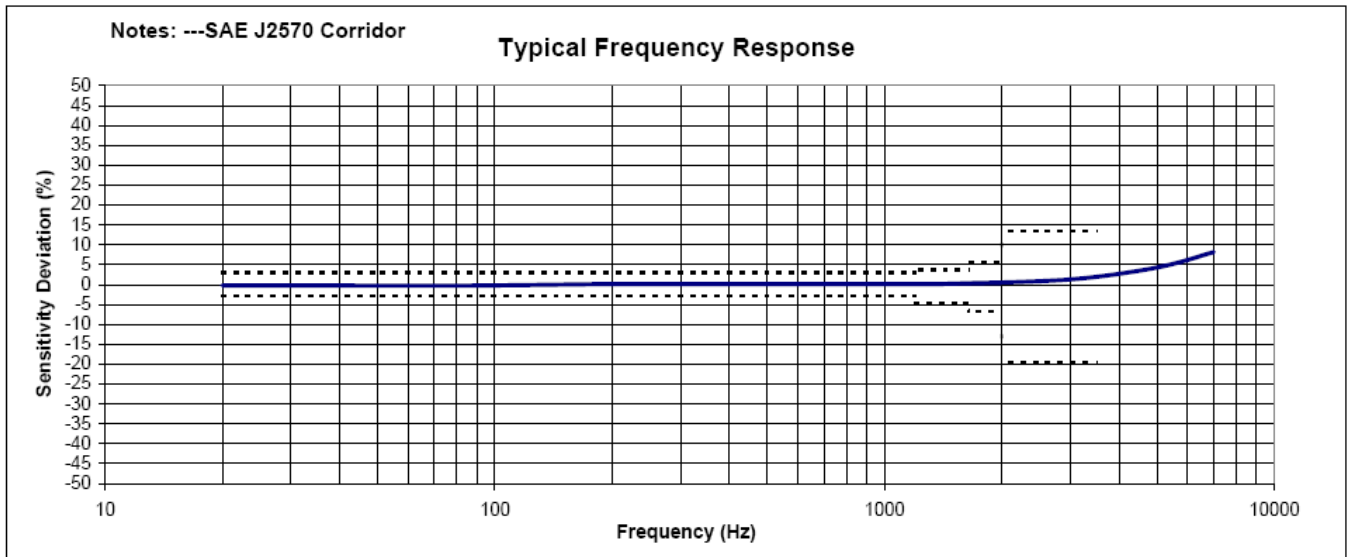
<sup>1</sup> Output is ratiometric to excitation voltage

**Calibration supplied:** CS-FREQ-0100      NIST Traceable Amplitude Calibration from 20Hz to ±5% Frequency Limit  
**Optional accessories:** 121      3-Channel Precision Low Noise DC Amplifier

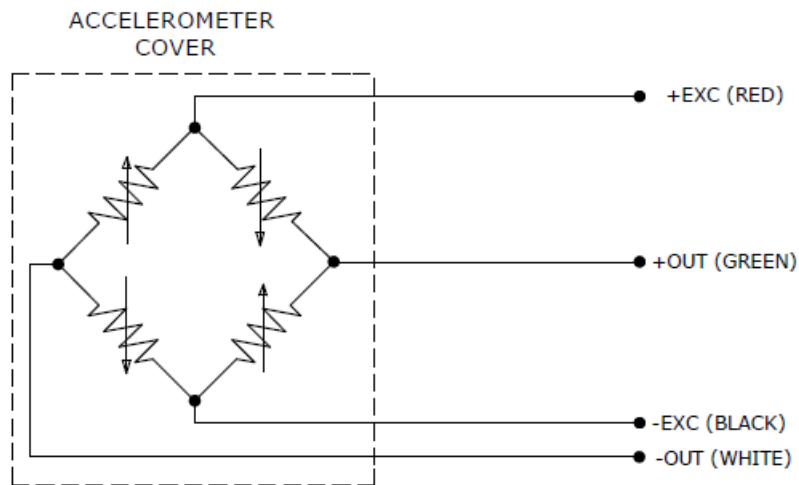


# MODEL 52 ACCELEROMETER

## Typical Frequency Response

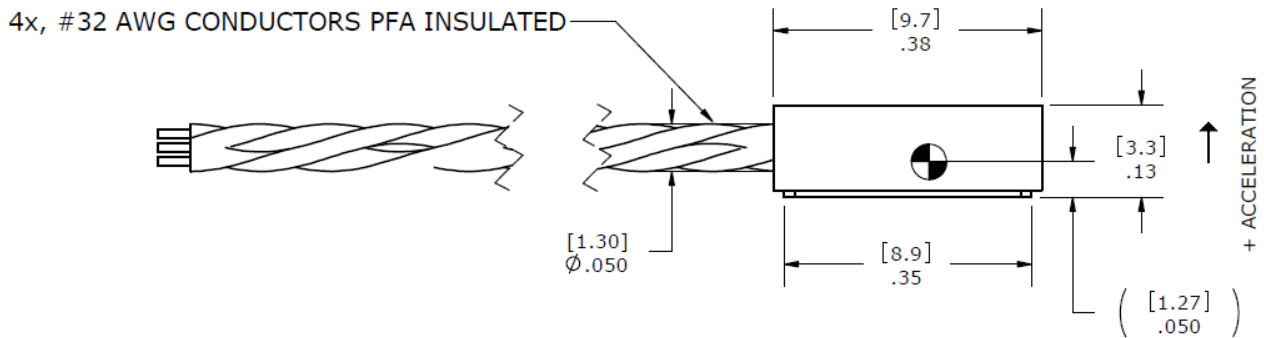
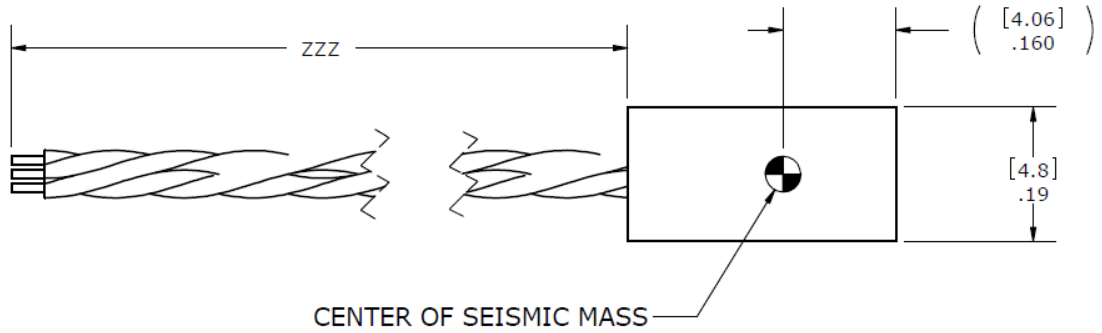


## Schematic

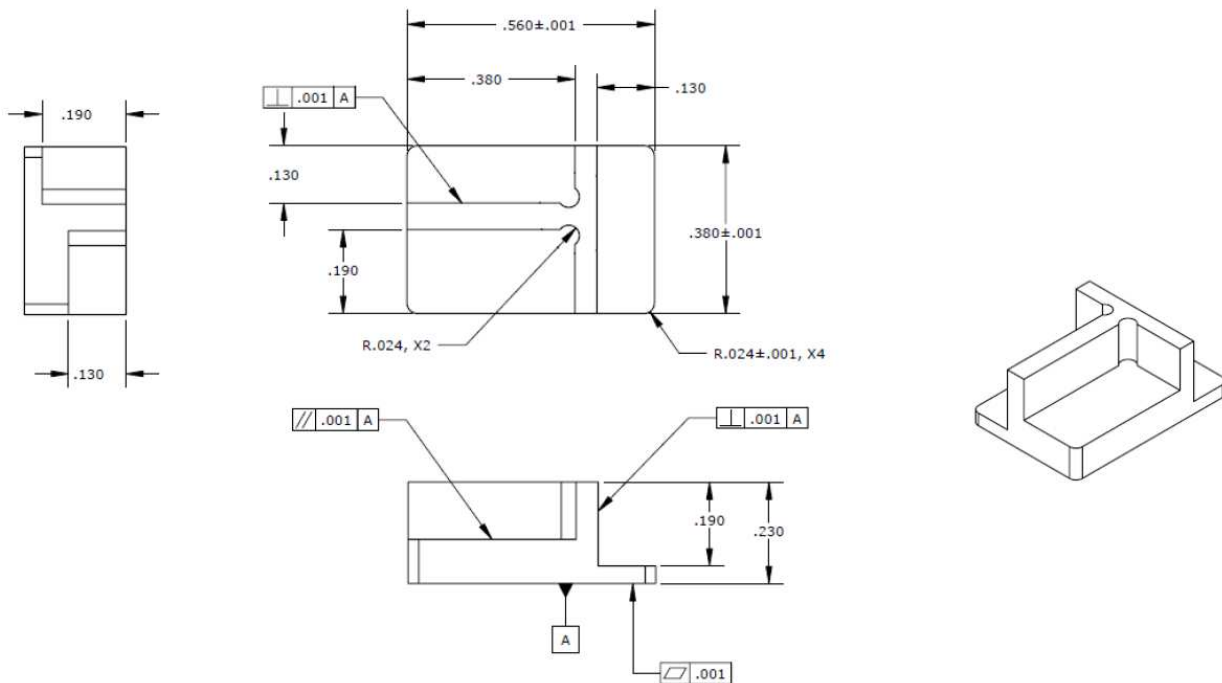


# MODEL 52 ACCELEROMETER

## Dimensions



## Triaxial Mounting Block



## MODEL 52 ACCELEROMETER

### Ordering Information

<b>52</b>	<b>GGGG</b>	<b>ZZZ</b>	<b>T</b>	<b>XX</b>
<b>Range</b> 0050 = 50g 0200 = 200g 0500 = 500g 2000 = 2000g				
<b>Cable length</b> 360 = 360 inches, 30 feet				
<b>Transverse Sensitivity Option</b> Blank = <3%				
<b>Calibration Voltage Option</b> Blank = 10Vdc 01 = 5Vdc 05 = 2Vdc				

Example; 52-2000-360  
Model 52, 2000g range, 360inch (30ft) cable length

Example; 52-0500-360-01  
Model 52, 500g range, 360inch (30ft) cable length, 5Vdc Calibration Voltage

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