



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 4000Ω 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 ± 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) ¹	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				

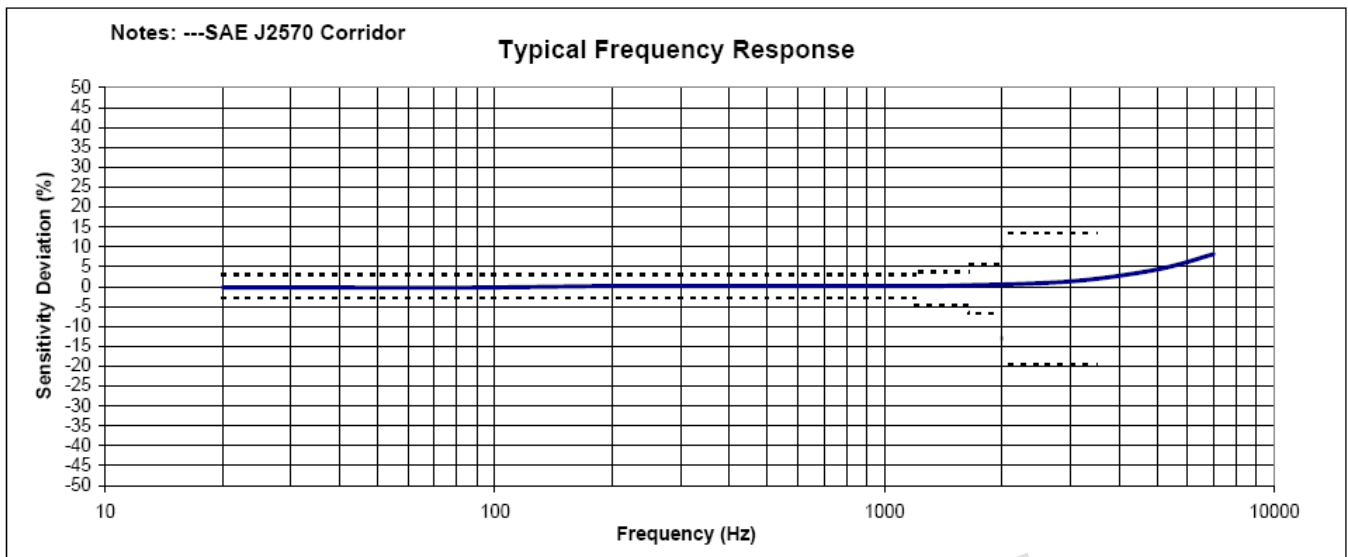
¹ Output is ratiometric to excitation voltage

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

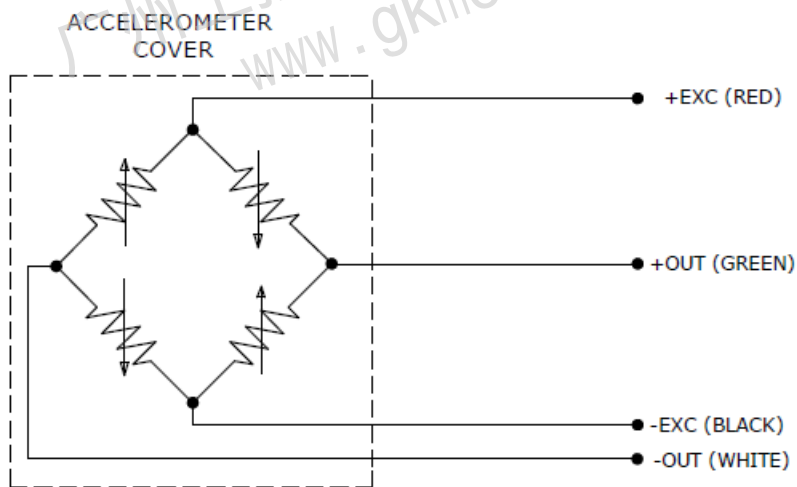
Optional accessories: 121 3-Channel Precision Low Noise DC Amplifier

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Typical Frequency Response

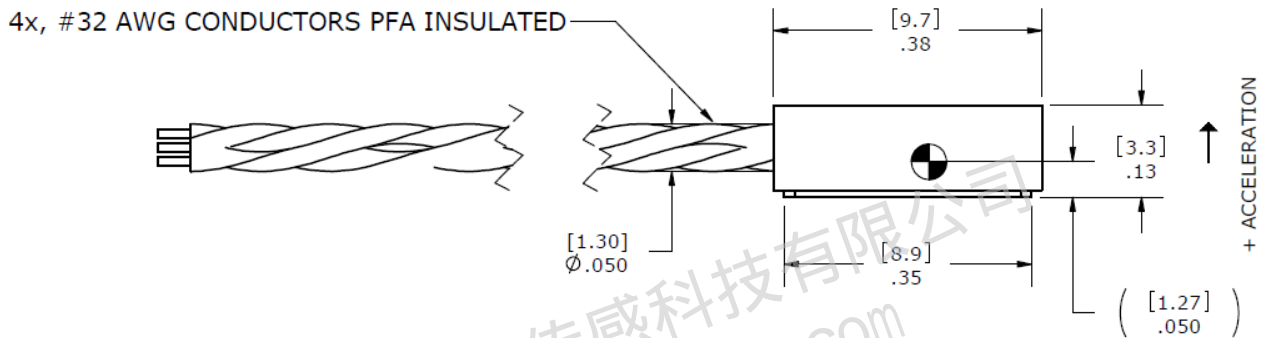
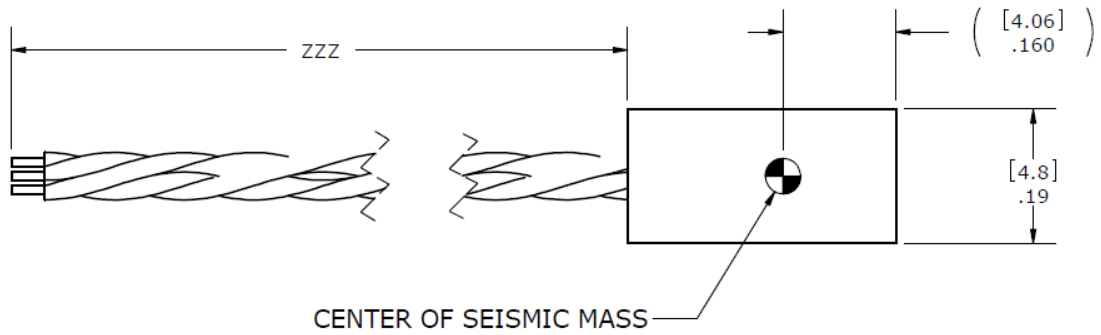


Schematic

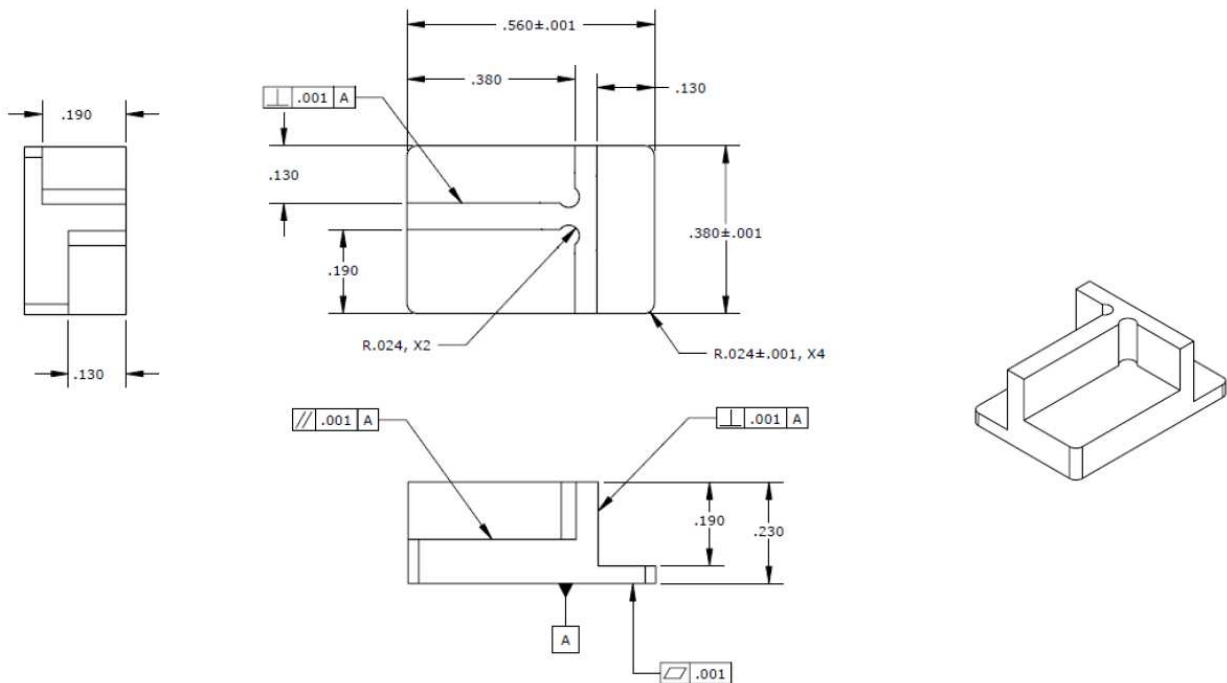


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Dimensions



Triaxial Mounting Block



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Ordering Information

52	GGGG	ZZZ	T	XX
Range 0050 = 50g 0200 = 200g 0500 = 500g 2000 = 2000g				
Cable length 360 = 360 inches, 30 feet				
Transverse Sensitivity Option Blank = <3%				
Calibration Voltage Option 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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