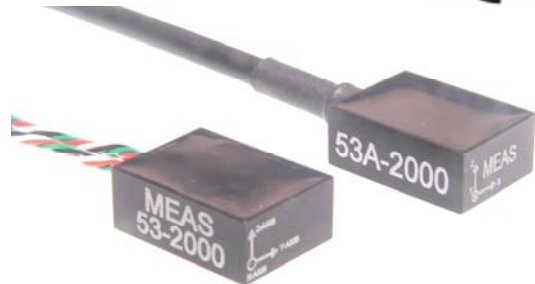


# Model 53 & 53A Accelerometer

Triaxial DC Accelerometer  
Low Cost, High Performance  
 $\pm 50g$  to  $\pm 2000g$  Range  
Low Profile

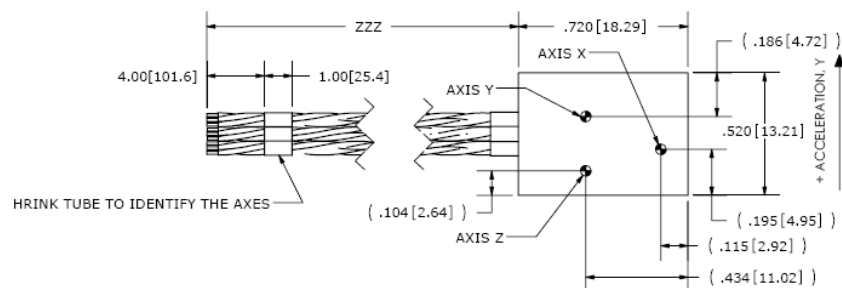


## The Model 53 Accelerometer

is a small, compact triaxial device designed for vehicle impact and road testing. The accelerometer incorporates gas-damped MEMS sensing elements with mechanical stops for high overload protection. Featuring ranges from  $\pm 50g$  to  $\pm 2000g$  and frequency response to 5000Hz, this sensor is easily mounted in hard to reach places on vehicles under test.

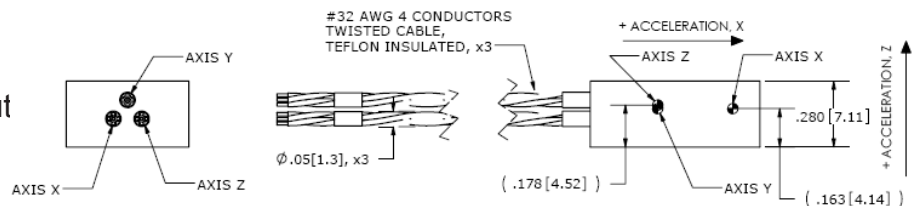
## dimensions

### 53 Dimensions

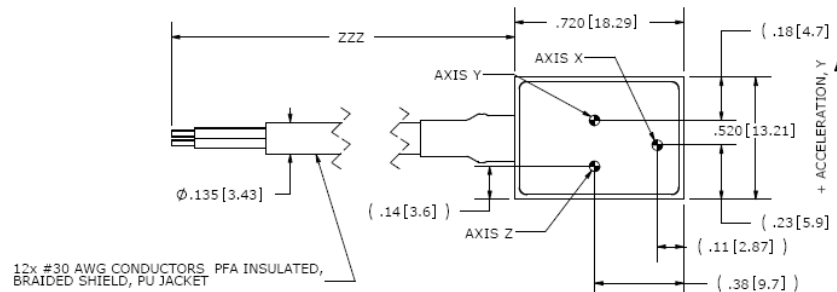


## FEATURES

- -20 to +85°C Operating Range
- 2-10 Vdc Excitation
- $\pm 50$  mV Zero Measurand Output
- Gas Damping
- Mechanical Overload Stops
- Designed for Adhesive Mounting



### 53A Dimensions



## APPLICATIONS

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

# Model 53 & 53A Accelerometer

## performance specifications

### Parameters

#### DYNAMIC

	±50	±200	±500	±2000	Notes
Range(g)	±50	±200	±500	±2000	
Sensitivity (mV/g)	2	0.9	0.4	0.15	Ratiometric to Exc Voltage
Frequency Response, Z Axis (Hz)	0-1000	0-2000	0-3000	0-4500	±1dB
Frequency Response, X & Y Axis (Hz)	0-500	0-1000	0-1500	0-2500	±1dB
Resonant Frequency (Hz)	4000	8000	15000	26000	
Damping Ratio	0.5	0.5	0.3	0.05	Typical
Shock Limit (g)	5000	5000	5000	5000	
Non-Linearity (% FSO)	±1	±1	±1	±1	Of Reading
Transverse Sensitivity (%)	<3	<3	<3	<3	

#### ELECTRICAL

Zero Acceleration Output (mV)	<±50	<±50	<±50	<±50
Excitation (Vdc)	2 to 10	2 to 10	2 to 10	2 to 10
Input Resistance (Ω)	2400-6000	2400-6000	2400-6000	2400-6000
Output Resistance (Ω)	2400-6000	2400-6000	2400-6000	2400-6000
Insulation Resistance (MΩ)	>100	>100	>100	>100
Residual Noise (μV RMS)	<10	<10	<10	<10
Ground Isolation	Isolated from Mounting Surface			

#### ENVIRONMENTAL

Thermal Zero Shift (%FSO/°C (%FSO/°F))	±0.05 (±0.03)	From 0 to +50°C
Thermal Sensitivity Shift (%/°C (%/°F))	-0.20 ±0.05 (-0.11 ±0.03)	From 0 to +50°C
Operating Temperature (°C (°F))	-20 to +85 (-4 to +185)	
Storage Temperature (°C (°F))	-40 to +90 (-40 to +194)	
Humidity	Epoxy Sealed, IP65	

#### PHYSICAL

Case Material	Anodized Aluminum	
Cable, Model 53	#32 AWG Twisted Conductors, Teflon Insulated	
Cable, Model 53A	#30 AWG Conductors PFA Insulated, Braided Shield, PU Jacket	
Weight (grams)	3.5	Without cable
Mounting	Adhesive	

**Calibration supplied:** CS-FREQ-0100 NIST Traceable Amplitude Calibration from 20Hz to ±1dB Frequency Response Limit

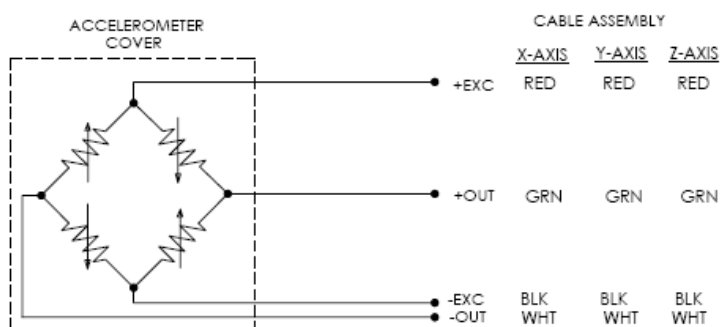
**Optional accessories:** 101 Three Channel DC Signal Conditioner Amplifier

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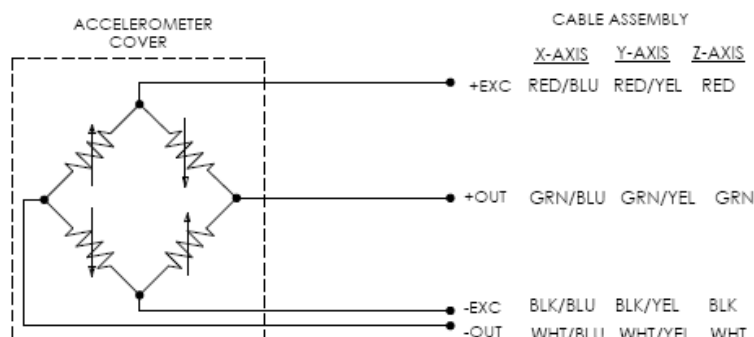
# Model 53 & 53A Accelerometer

## schematic

### 53 Schematic



### 53A Schematic



## ordering info

PART NUMBERING Model Number+Range+Cable Length

53-GGGG-CCC-XX

Options (leave blank otherwise)  
Cable (360 is 360 inches)  
Range (0500 is 500g)

Example: 53-0500-360

Model 53, 500g, 360" (30ft) Cable

53A-GGGG-CCC-XX

Options (leave blank otherwise)  
Cable (360 is 360 inches)  
Range (0500 is 500g)

Example: 53A-0500-360

Model 53A, 500g, 360" (30ft) Cable