



## MODEL 52F CRASH TEST ACCELEROMETER

### Specifications

- Small Size, Ideal for Side Impact Testing
- Next Generation Piezoresistive MEMS Sensor
- $\pm 50g$  to  $\pm 6000g$  Dynamic Ranges
- Compliant to SAE J211/J2570
- Compliant to ISO 6487
- High Ove Range Protection

### Features

- Weight <1.0 grams
- Linearity <1%
- 10,000g Shock Protection
- 2-10Vdc Excitation
- IP66 Environmentally Sealed
- Optimum Gas Damping
- Low Noise, Durable Cable

### Applications

- Crush Zone Testing
- Side Impact Testing
- Auto Safety Testing Applications
- Biomechanical Studies
- Transient Drop Testing
- Helmet Impact Testing

The TE Connectivity model 52F Accelerometer has recently been upgraded to incorporate the most advanced piezoresistive MEMS sensor on the market. The accelerometer features the next generation of the reliable TE Connectivity piezoresistive chip with superior stability and measurement accuracy. The model 52F accelerometer is available in ranges from  $\pm 50g$  to  $\pm 6000g$  and features a full-bridge configuration with a nominal  $4000\Omega$  impedance that offers quick warm-up time and minimal drift, unlike lower impedance designs on the market.

The accelerometer is packaged in a low-profile Aluminum housing with a shielded low-noise cable specifically designed ideal for tight and challenging installations. The model 52F has an ideal amount of internal gas damping which provides outstanding shock survivability and a flat amplitude and phase response up to 8000Hz.

The model 52F accelerometer is fully encapsulated in Stycast for IP66 protection over the full operating temperature range of  $-40^{\circ}\text{C}$  to  $+90^{\circ}\text{C}$ . TE Connectivity also supplies the calibration data in a user friendly excel format which enables high volume users to quickly upload the calibration information for each sensor installed.

[CLICK HERE >](#)  
**CONNECT WITH A SPECIALIST**

## MODEL 52F ACCELEROMETER

### 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	±100	±200	±500	±2000	±6000	
Sensitivity (mV/g) <sup>1</sup>	1.2-3.0	0.6-1.2	0.6-1.2	0.3-0.6	0.12-0.3	0.05-0.2	@10Vdc Excitation
Frequency Response (Hz)	0-1000	0-1200	0-1400	0-2000	0-4500	0-5000	±5%
	0-1400	0-1600	0-1900	0-2800	0-6000	0-8000	±1dB
Natural Frequency (Hz)	4000	6000	8000	15000	26000	28000	
Transverse Sensitivity (%)	<3	<3	<3	<3	<3	<3	<1% on 'T' Option
Non-Linearity (%FSO)	±1	±1	±1	±1	±1	±1	
Damping Ratio	0.5	0.5	0.5	0.3	0.15	0.10	
Shock Limit (g)	10000	10000	10000	10000	10000	10000	

#### ELECTRICAL

Zero Acceleration Output (mV)	<±25	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 (°C)	-40 to +90	
Storage Temperature (°C)	-40 to +90	
Humidity	Epoxy Sealed, IP66	

#### PHYSICAL

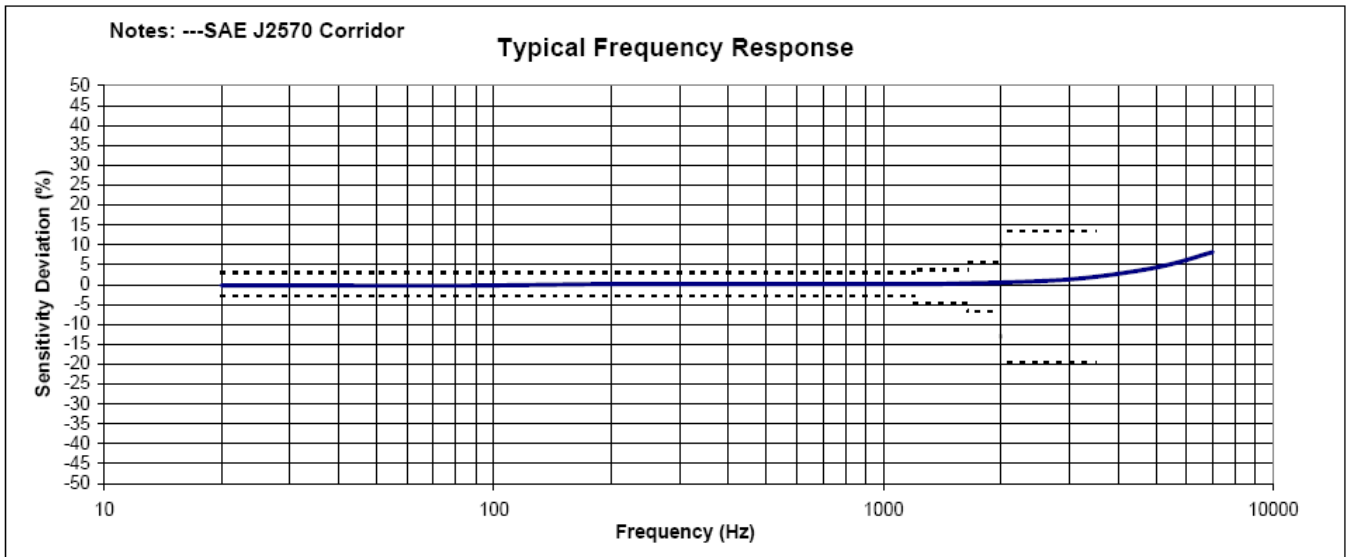
Case Material	Anodized Aluminum, Black	
Cable	4x #32 AWG Leads, PFA Insulated, Braided Shield, Polyurethane Jacket	
Weight (grams)	1.0	Cable not included
Mounting	2x #0-80 x 1/4" Socket Head Cap Screws	

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

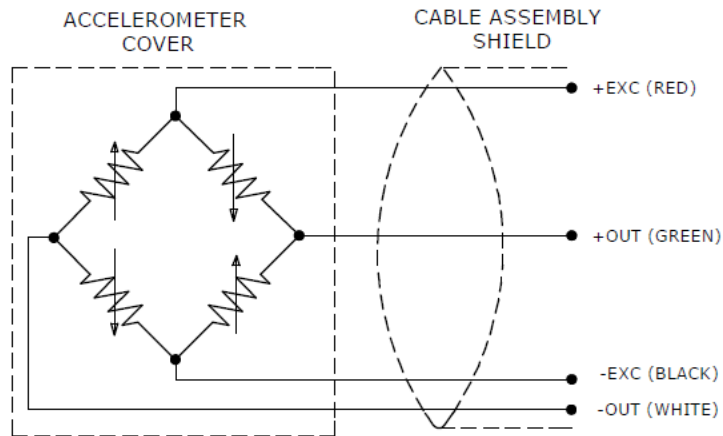
<b>Calibration supplied:</b>	CS-FREQ-0100	NIST Traceable Amplitude Calibration from 20Hz to ±1dB Frequency Limit
<b>Optional accessories:</b>	MTG-E4 121	Triaxial Mounting Block 3-Channel Precision Low Noise DC Amplifier

# MODEL 52F ACCELEROMETER

## Typical Frequency Response

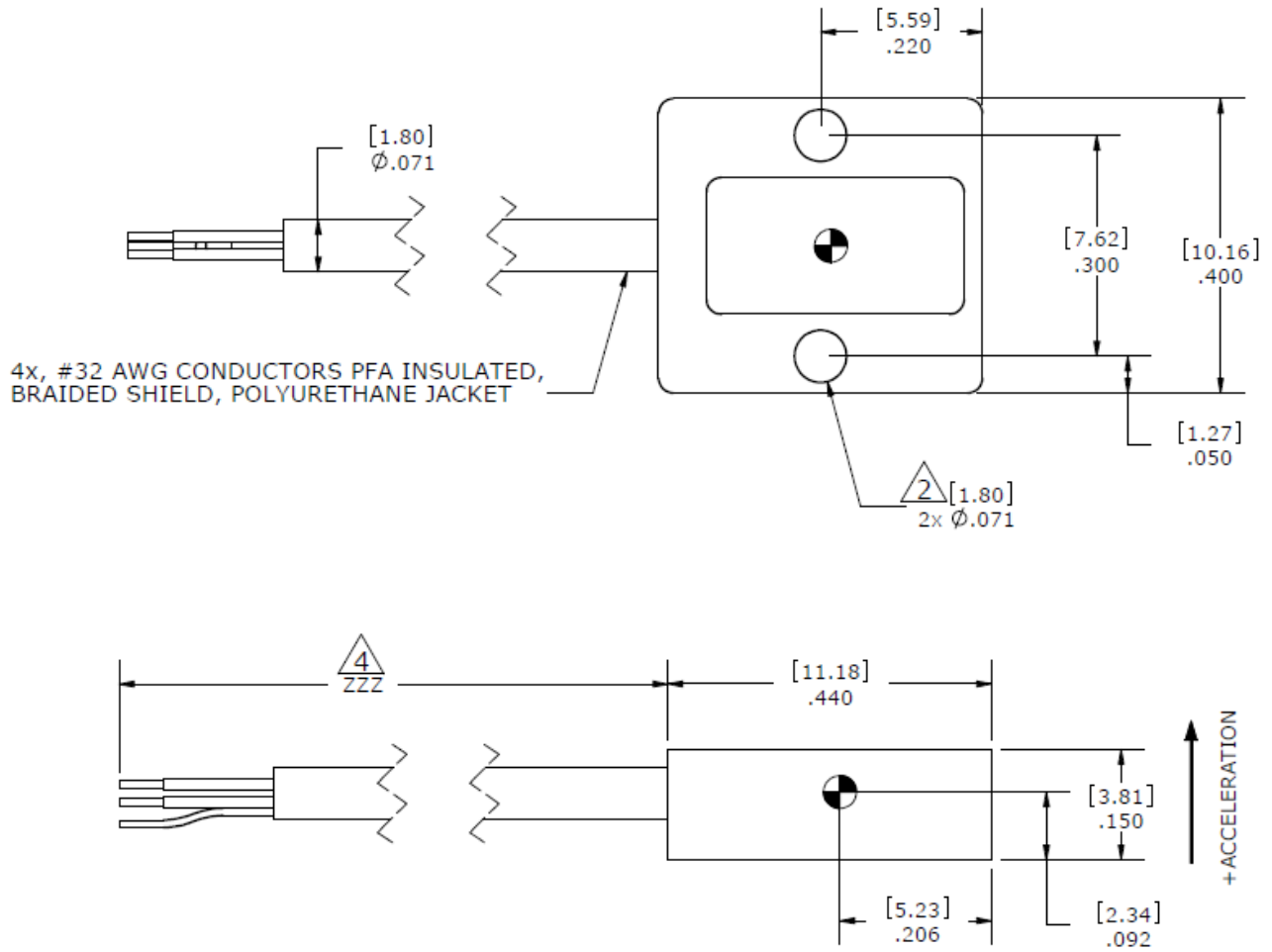


## Schematic



# MODEL 52F ACCELEROMETER

## Dimensions



## MODEL 52F ACCELEROMETER

### Ordering Information

<b>52F</b>	<b>GGGG</b>	<b>ZZZ</b>	<b>T</b>	<b>XXX</b>
<b>Range</b> 0050 = 50g 0100 = 100g 0200 = 200g 0500 = 500g 2000 = 2000g 6000 = 6000g				
<b>Cable length</b> 240 = 240 inches, 20 feet 300 = 300 inches, 25 feet 360 = 360 inches, 30 feet				
<b>Transverse Sensitivity Option</b> Blank = <3% T = <1%				
<b>Excitation Voltage Option</b> Blank = 10Vdc 001 = 5Vdc 002 = 2Vdc				

Example;52F-2000-300  
Model 52F, 2000g range, 300inch (25ft) cable length

Example;52F-0500-360T-001  
Model 52F, 500g range, 360inch (30ft) cable length, <1% transverse sensitivity option, 5V calibration

CLICK HERE ›  
**CONNECT WITH A SPECIALIST**

#### NORTH AMERICA

Measurement Specialties, Inc.,  
a TE Connectivity Company  
Tel: 800-522-6752  
[customercare.hmpt@te.com](mailto:customercare.hmpt@te.com)

#### EUROPE

MEAS France SAS  
a TE Connectivity Company  
Tel: +31 73 624 6999  
[customercare.lcsb@te.com](mailto:customercare.lcsb@te.com)

#### ASIA

Measurement Specialties (China), Ltd.,  
a TE Connectivity Company  
Tel: 0400-820-6015  
[customercare.shzn@te.com](mailto:customercare.shzn@te.com)

### te.com

TE Connectivity, TE, TE Connectivity (logo) and Every Connection Counts are trademarks. All other logos, products and/or company names referred to herein might be trademarks of their respective owners

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2019 TE Connectivity Corporation. All Rights Reserved.

Version # 10/2020

