AUTHORIZED DISTRIBUTOR

MODEL 52F CRASH TEST ACCELEROMETER

SPECIFICATIONS

- **Small Size, Ideal for Side Impact Testing**
- **Next Generation Piezoresistive MEMS Sensor**
- **±50g to ±6000g Ranges**
- **Compliant to SAE-J211/J2570**
- **Compliant to ISO-6487**
- **High Over Range Protection**

FEATURES

- Weight <1.0 grams
- Linearity <1%
- 10,000g Shock Protection
- 2-10Vdc Excitation
- IP65 Environmentally Sealed
- Optimum Gas Damping
- 28kHz Resonant Frequency

APPLICATIONS

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

The 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 ±50g to ±6000g and features a full-bridge configuration with a nominal 4000Ω 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 IP65 protection over the full operating temperature range of -40°C to +90°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.

ALTHEN SENSORS & CONTROLS
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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	±100	±200	±500	±2000	±6000	
Sensitivity (mV/g)[1]	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 0-1400	0-1200 0-1600	0-1400 0-1900	0-2000 0-2800	0-4500 0-6000	0-5000 0-8000	±5% ±1dB
Natural Frequency (Hz)	4000	6000	8000	11000	28000	28000	
Transverse Sensitivity (%)	<3	<3	<3	<3	<3	<3	<1% on 'T' Option
Non-Linearity (% of reading)	±1	±1	±1	±1	±1	±1	
Damping Ratio	0.5	0.5	0.5	0.3	0.15	0.15	
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	<30 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, IP65	

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	

[1] Output is ratiometric to excitation voltage

Calibration supplied:	CS-FREQ-0100	NIST Traceable Amplitude Calibration from 20Hz to ±1/2dB Frequency Limit
Optional accessories:	121	3-Channel Precision Low Noise DC Amplifier
	140A	Auto-Zero Inline Amplifier

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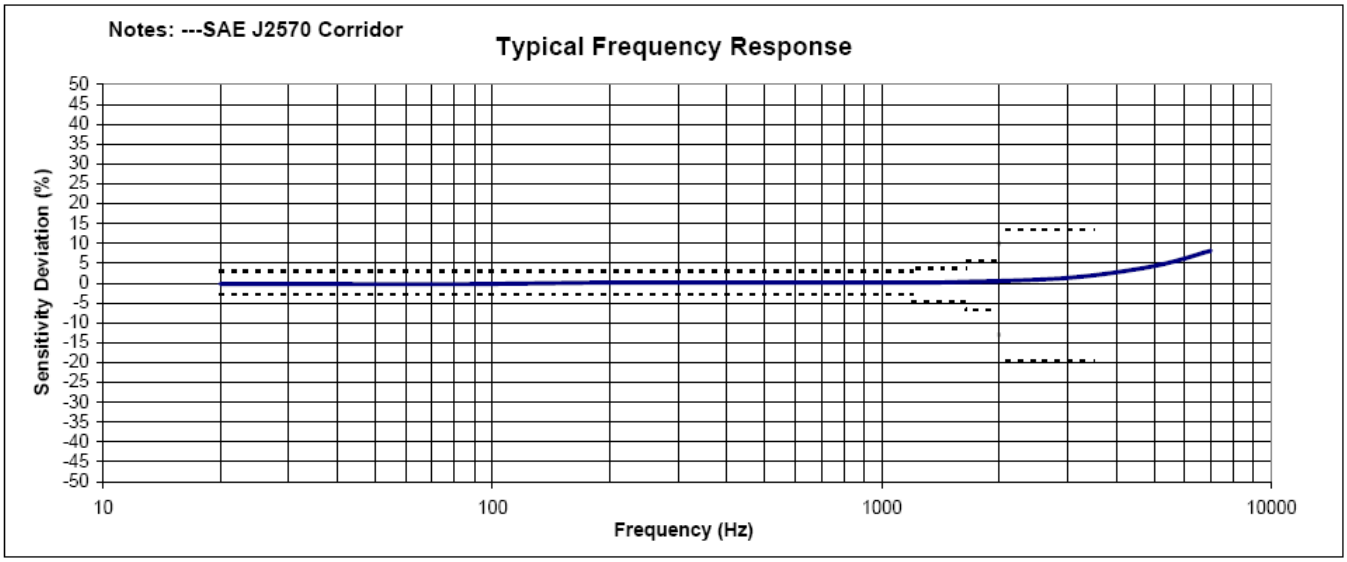
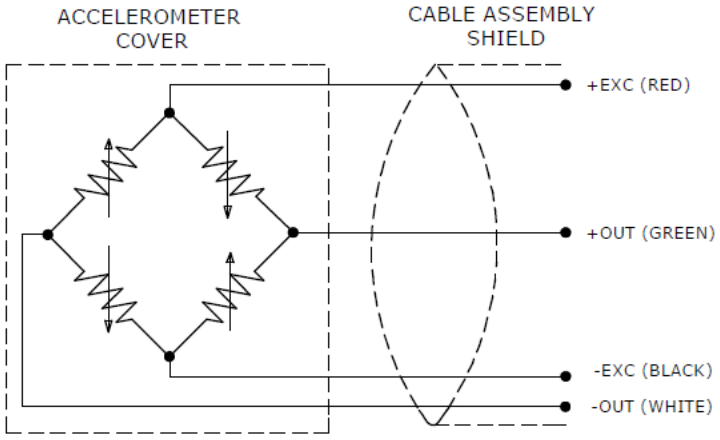
TYPICAL FREQUENCY RESPONSE



SCHEMATIC



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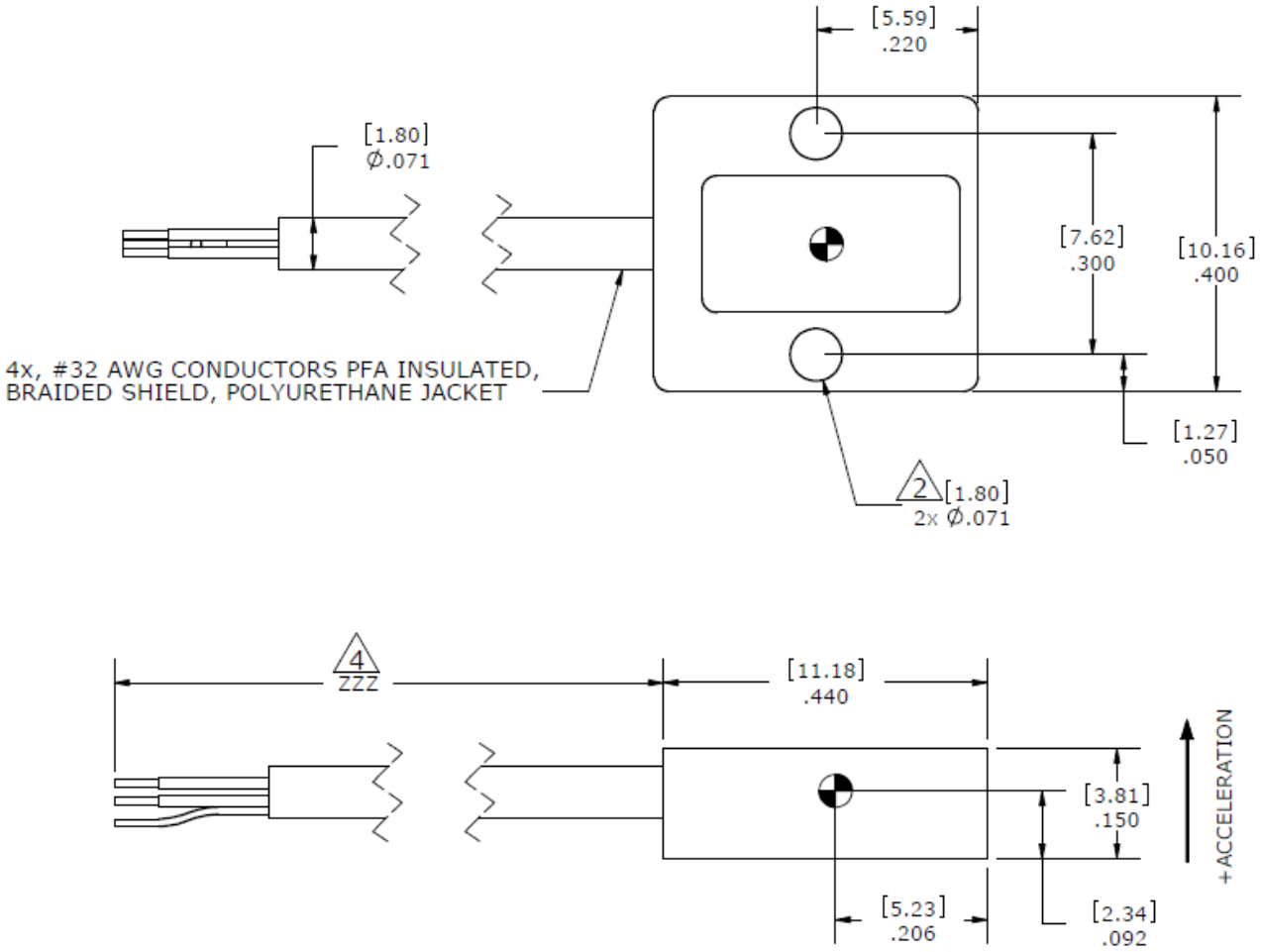
DIMENSIONS



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ORDERING INFORMATION

52F	GGGG	ZZZ	T	XX

Range
0050 = 50g
0100 = 100g
0200 = 200g
0500 = 500g
2000 = 2000g
6000 = 6000g

Cable length
120 = 120 inches, 10ft
240 = 240 inches, 20ft
360 = 360 inches, 30ft

197 = 197 inches, 5 meters
276 = 276 inches, 7 meters
394 = 394 inches, 10 meters

Transverse Sensitivity Option
Blank = <3%
T = <1%

Excitation Voltage Option
Blank = 10Vdc
001 = 5Vdc
002 = 2Vdc

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

Example; 52F-0500-276T-005
Model 52F, 500g range, 276inch (7m) cable length, <1% transverse sensitivity option, 5V calibration

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