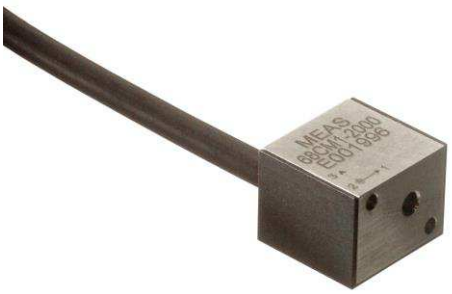
te.com



MODEL 68CM1 WORLDSID TRIAXIAL ACCELEROMETER

Specifications

- Triaxial MEMS DC Accelerometer for ATD
- WorldSID Approved
- Excellent Accuracy in Crash Testing
- Compliant to SAE J211/J2570
- Compliant to ISO 6487
- ±50g to ±2000g Dynamic Range
- Mechanical Over Range Stops

Features

- <1% Transverse Sensitivity Option
- 0-4000Hz Bandwidth, All Axes
- Standard <25mV ZMO
- Linearity <1%
- 10,000g Shock Protection
- 2-10Vdc Excitation
- Optimum Gas Damping
- <10sec Warm-Up Time

Applications

- WorldSID Dummy
- Anthropomorphic Dummy Instrumentation
- Ejection Seat Testing
- Auto Safety Testing Applications
- Shock and Impact Testing
- Transient Drop Testing

The TE Connectivity model 68CM1 Triaxial Crash Test Accelerometer offers exceptional performance for ATD dummy instrumentation with best in class frequency response, linearity, transverse sensitivity and long-term drift. The triaxial accelerometer features the next generation of the reliable TE Connectivity piezoresistive chip with superior stability and measurement accuracy. The model 68CM1 accelerometer is available in ranges from ±50g to ±2000g 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 model 68CM1 accelerometer is approved for WorldSID anthropomorphic dummy instrumentation and meets all requirements of SAE-J211 & SAE-J2570, including the <1% transverse sensitivity making this model the only triaxial crash accel on market with a <1% transverse specification.

The 68CM1 features a compact Stainless Steel housing with individual protected sensor sub-assemblies that provide outstanding shock survivability and a flat frequency response up to 4000Hz. This accelerometer has the same wide frequency response on all three axes.

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	
Sensitivity (mV/g)[1]	1.2-3.0	0.6-1.2	0.6-1.2	0.3-0.6	0.12-0.3	@10Vdc Excitation
Frequency Response (Hz)	0-1000	0-1200	0-1200	0-2000	0-4000	±5%, All Axes
Natural Frequency (Hz)	4000	6000	8000	15000	26000	
Transverse Sensitivity (%)	<3	<3	<3	<3	<3	<1% on 'T' Option
Non-Linearity (%FSO)	±1	±1	±1	±1	±1	
Damping Ratio	0.5	0.5	0.5	0.3	0.15	
Shock Limit (g)	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

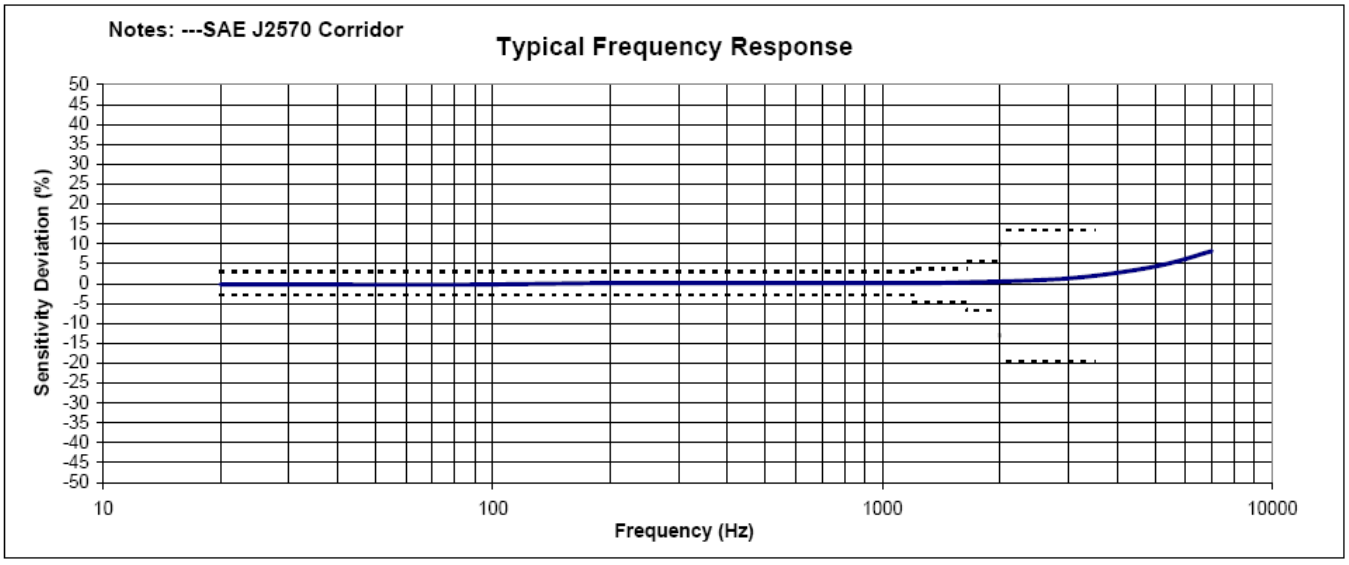
ENVIRONMENTAL		
Thermal Zero Shift (%FSO/°C)	±0.04	From 0 to +50°C
Thermal Sensitivity Shift (%/°C)	-0.20 ±0.05	From 0 to +50°C
Operating Temperature (°C)	-40 to +90	
Storage Temperature (°C)	-40 to +90	
Humidity	Epoxy Sealed, IP61	

PHYSICAL		
Case Material	Stainless Steel, Passivated, Anodized Aluminum Cover	
Cable	12x #30 AWG Conductors PFA Insulated, Braided Shield, PU Jacket	
Weight (grams)	9.0	Cable not included
Mounting	M2 x 0.4, 16mm Length, Supplied	Torque 3 lb-in

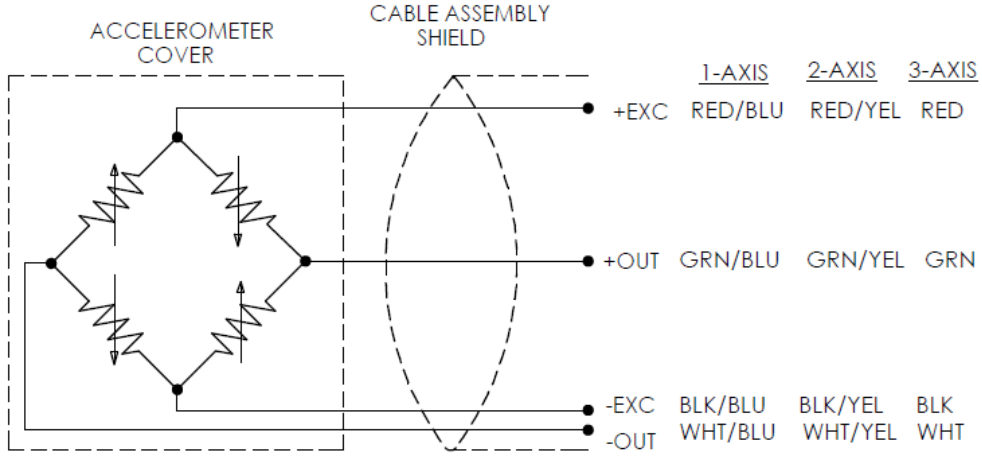
[1] Output is ratiometric to excitation voltage

Calibration supplied:	CS-FREQ-0100	NIST Traceable Amplitude Calibration from 20Hz to 4000Hz
Supplied accessories:	AC-A02591	1x M2 x 0.4 (16mm length) Phillips Pan Head Screw & Washer
Optional accessories:	121	3-Channel Precision Low Noise DC Amplifier
	140A	Auto-Zero Inline Amplifier

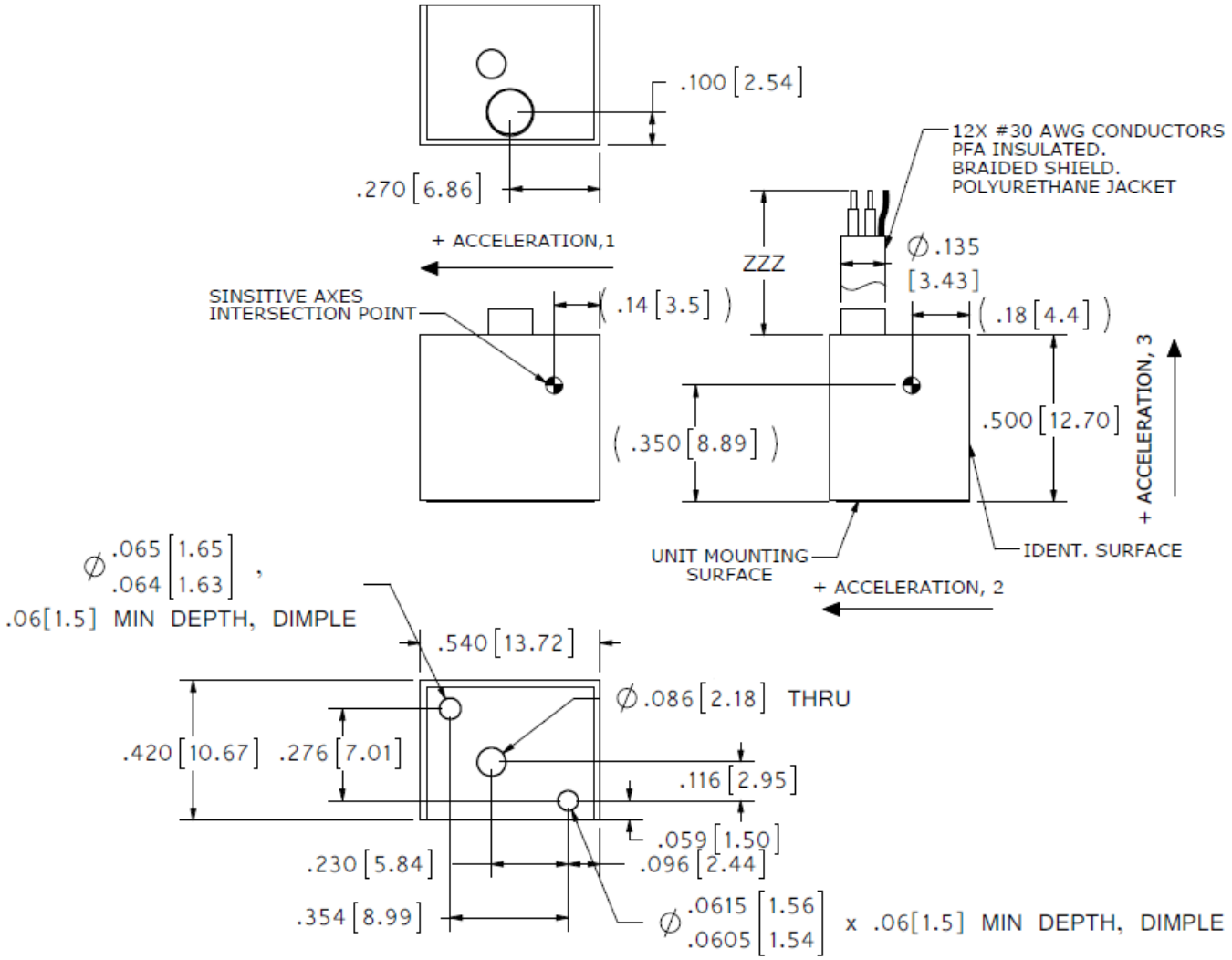
Typical Frequency Response



Schematic



Dimensions


.100 [2.54]
.270 [6.86]
12X #30 AWG CONDUCTORS
PFA INSULATED.
BRAIDED SHIELD.
POLYURETHANE JACKET
+ ACCELERATION,1
ZZZ
Ø.135
[3.43]
SINSITIVE AXES
INTERSECTION POINT
(.14 [3.5])
(.18 [4.4])
(.350 [8.89])
.500 [12.70]
+ ACCELERATION, 3
Ø.065 [1.65]
.064 [1.63]
.06[1.5] MIN DEPTH, DIMPLE
UNIT MOUNTING
SURFACE
IDENT. SURFACE
+ ACCELERATION, 2
.540 [13.72]
Ø.086 [2.18] THRU
.420 [10.67]
.276 [7.01]
.116 [2.95]
.059 [1.50]
.230 [5.84]
.096 [2.44]
.354 [8.99]
Ø.0615 [1.56]
.0605 [1.54]
x .06[1.5] MIN DEPTH, DIMPLE

Ordering Information

68CM1	GGGG	ZZZ	T	XX

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

Cable length
240 = 240 inches
360 = 360 inches

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

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

Excitation Voltage Option
Blank = 10Vdc
01 = 5Vdc
03 = 3.3Vdc

Example;68CM1-2000-360
Model 68CM1, 2000g range, 360inch (30ft) cable length

Example;68CM1-0500-276T-01
Model 68CM1, 500g range, 276inch (7m) cable length, <1% transverse sensitivity option, 5V calibration

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