

## MODEL 1201 & 1201F CRASH TEST ACCELEROMETER

### Specifications

- DC Response Crash Test Accelerometer
- Next Generation Piezoresistive MEMS Sensor
- $\pm 50g$  to  $\pm 2000g$  Ranges
- Designed for Demanding Crush Zone Testing
- Compliant to SAE-J211

The Model 1201 & 1201F Series Accelerometers are some of the most popular auto safety test accelerometers used in crush zone installations. The accelerometers feature the next evolution of the reliable TE Connectivity piezoresistive MEMS sensor, with optimum amount of internal gas damping for outstanding shock survivability and a flat amplitude response up to frequencies greater than 6000Hz (1000g & 2000g ranges).

The model 1201 & 1201F accelerometers are available in ranges from  $\pm 50g$  to  $\pm 2000g$  and feature a full-bridge configuration with a nominal  $4000\Omega$  impedance that offers quick warm-up time and minimal drift, far superior to competitive sensors in market.

The accelerometers are packaged in a rugged housing with a shielded low-noise cable specifically designed for crush zone testing. The model 1201 is design for adhesive mounting while the 1201F has an integral flange for screw mounting with supplied #2-56 socket head cap screws.

The model 1201 & 1201F series accelerometers are fully encapsulated in Stycast for IP65 protection over the full operating temperature range of  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ . 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.

### Features

- Standard  $<40\text{mV ZMO}$
- Linearity  $<1\%$
- 10,000g Shock Protection
- 2-10Vdc Excitation
- IP65 Environmentally Sealed
- Optimum Gas Damping
- Low Noise, Durable Cable

### Applications

- Crush Zone Testing
- Auto Safety Testing Applications
- Shock and Impact Testing
- Transient Drop Testing
- Helmet Impact Testing

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## MODEL 1201 & 1201F CRASH TEST 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    | ±1000    | ±2000    |                   |
| 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 | 0.12-0.3 | @10Vdc Excitation |
| Frequency Response (Hz)         | 0-800   | 0-1000  | 0-1400  | 0-2000  | 0-4000   | 0-4000   | ±5%               |
|                                 | 0-1200  | 0-1600  | 0-1800  | 0-2700  | 0-6000   | 0-6000   | ±1dB              |
| Natural Frequency (Hz)          | 4000    | 6000    | 8000    | 11000   | 28000    | 28000    |                   |
| Transverse Sensitivity (%)      | <3      | <3      | <3      | <3      | <3       | <3       |                   |
| Non-Linearity (%FSO)            | ±1      | ±1      | ±1      | ±1      | ±1       | ±1       |                   |
| Damping Ratio                   | 0.5     | 0.5     | 0.5     | 0.3     | 0.15     | 0.15     |                   |
| Shock Limit (g)                 | 5000    | 5000    | 5000    | 10000   | 10000    | 10000    |                   |

#### ELECTRICAL

|                               |                                |                   |
|-------------------------------|--------------------------------|-------------------|
| Zero Acceleration Output (mV) | <±40                           | 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)       | -20 to +85         |                 |
| Storage Temperature (°C)         | -20 to +85         |                 |
| Humidity                         | Epoxy Sealed, IP65 |                 |

#### PHYSICAL

|                |  |                    |
|----------------|--|--------------------|
| Case Material  | Anodized Aluminum, Black                                   |                    |
| Cable          | 4x #28 AWG Leads, PFA Insulated, Braided Shield, PU Jacket |                    |
| Weight (grams) | 2.0  | Cable not included |
| Mounting       | Adhesive mount for 1201, Screw mount for 1201F,            |                    |

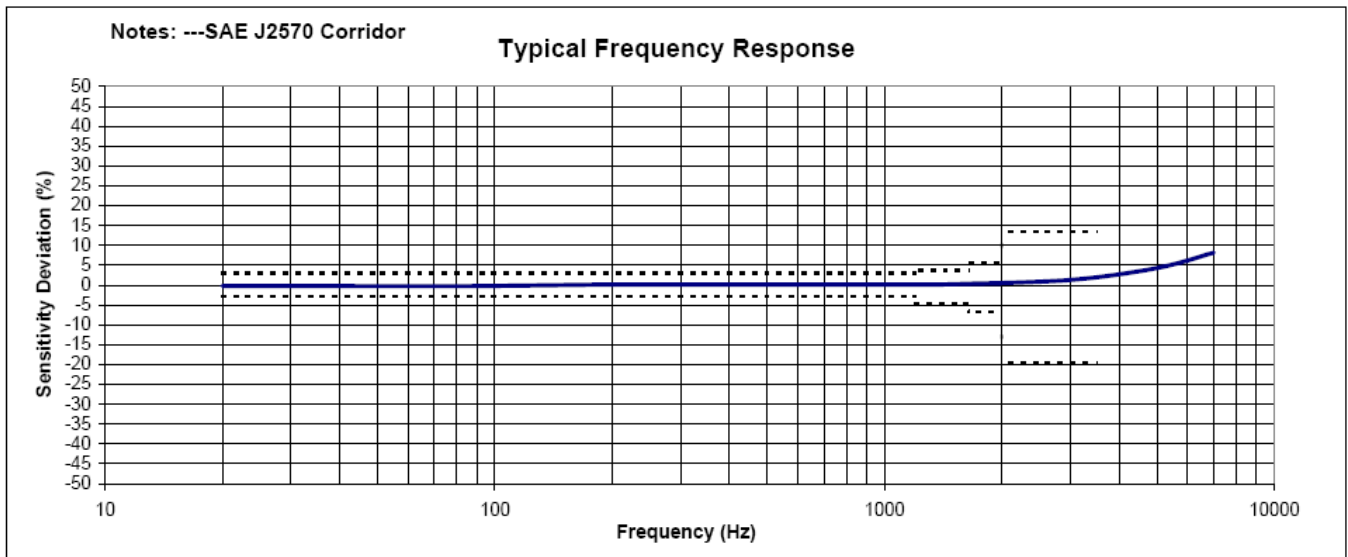
<sup>1</sup> Output is ratiometric to excitation voltage

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

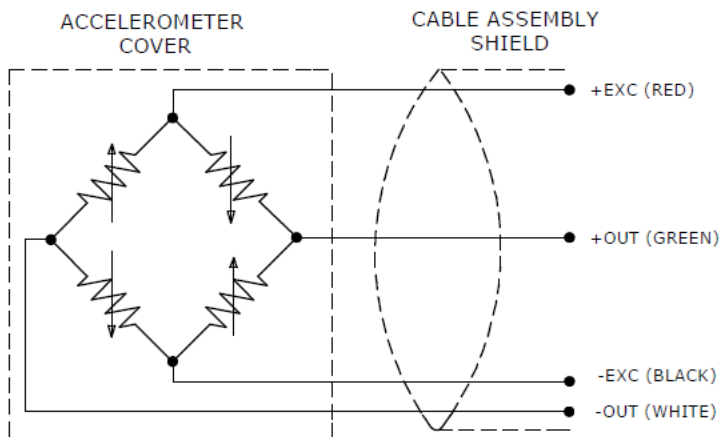
**Optional accessories:** 121 3-Channel Precision Low Noise DC Amplifier

# MODEL 1201 & 1201F CRASH TEST ACCELEROMETER

## TYPICAL FREQUENCY RESPONSE

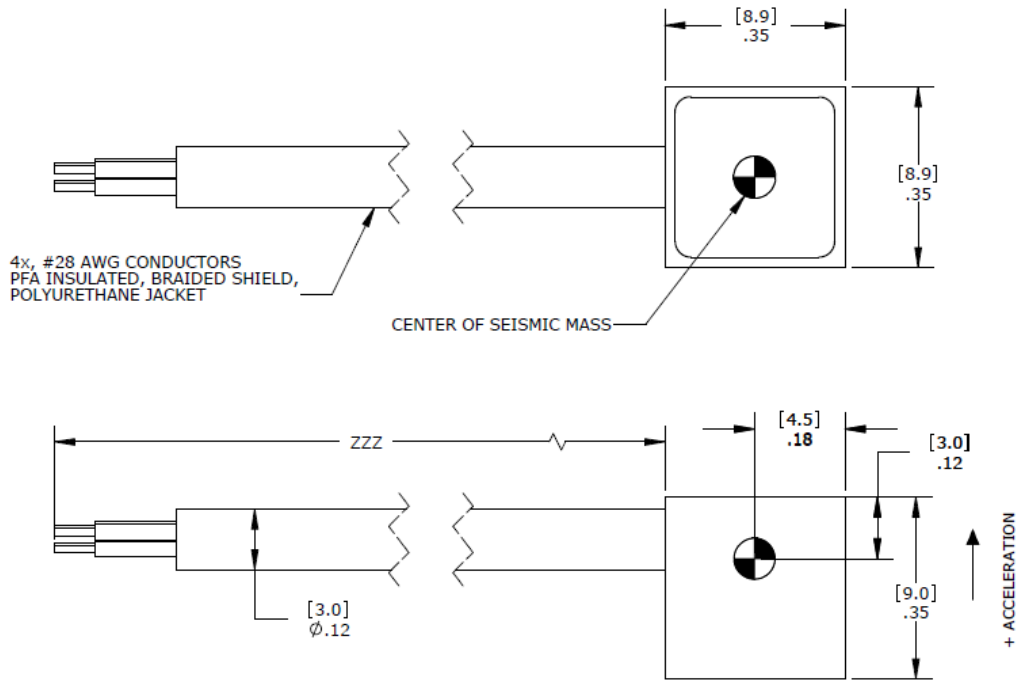


## SCHEMATIC

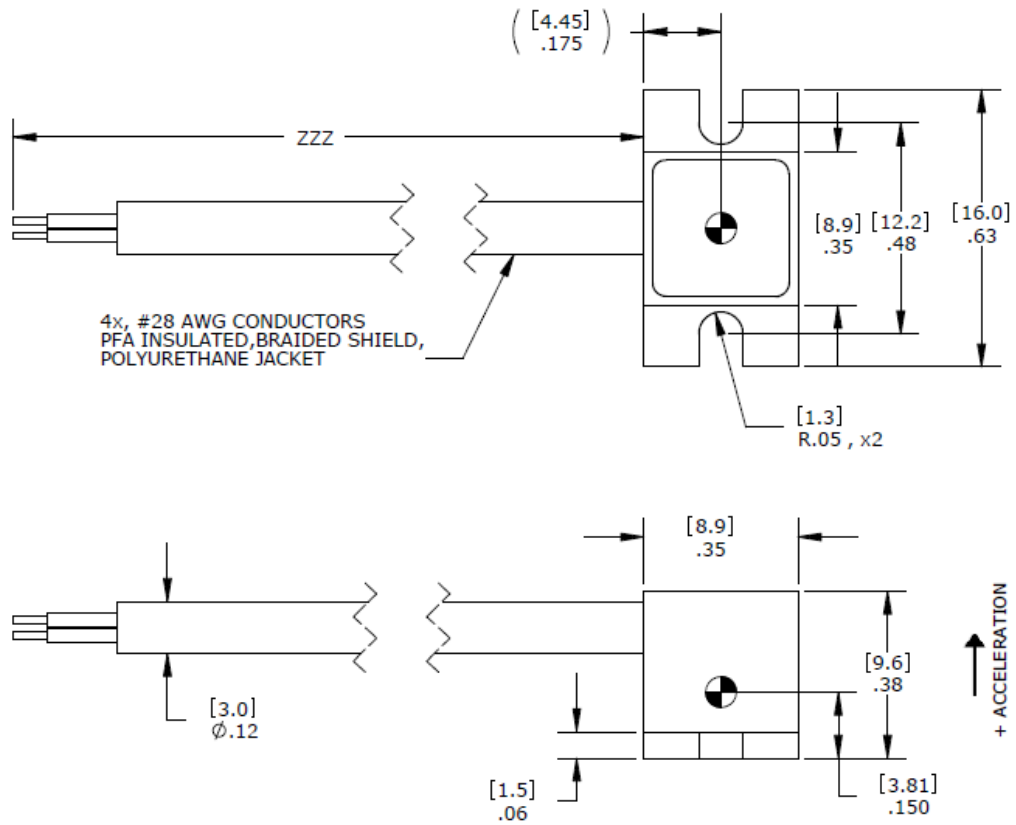


# MODEL 1201 & 1201F CRASH TEST ACCELEROMETER

## DIMENSIONS, MODEL 1201



## DIMENSIONS, MODEL 1201F



## MODEL 1201 & 1201F CRASH TEST ACCELEROMETER

### ORDERING INFORMATION

|   |             |            |            |
|---|-------------|------------|------------|
| <b>1201 (adhesive mount)<br/>1201F (screw mount)</b>  | <b>GGGG</b> | <b>ZZZ</b> | <b>XXX</b> |
| <b>Range</b><br>0050 = 50g<br>0100 = 100g<br>0200 = 200g<br>0500 = 500g<br>1000 = 1000g<br>2000 = 2000g     |             |            |            |
| <b>Cable length</b><br>240 = 240 inches, 20 feet<br>360 = 360 inches, 30 feet<br>276 = 276 inches, 7 meters |             |            |            |
| <b>Excitation Voltage Option</b><br>Blank = 10Vdc<br>001 = 5Vdc<br>002 = 2Vdc                               |             |            |            |

Example;1201-1000-360  
Model 1201 (adhesive mount), 1000g range, 360inch (30ft) cable length

Example;1201F-0500-276-001  
Model 1201F (screw mount), 500g range, 276inch (7m) cable length, 5V excitation at calibration test

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