# MODEL 3801A MEMS DC ACCELEROMETER


## SPECIFICATIONS

- **Gas Damped, DC Response**
- **Hermetically Sealed**
- **mV Output, Silicon MEMS**
- **10,000g Over-Range Protection**

The Model 3801A is a mV output piezoresistive MEMS accelerometer in a rugged welded hermetic package. The accelerometer incorporates mechanical stops for over-range protection up to greater than 10,000g. The model 3801A is offered in ranges from ±50g to ±2000g and is gas damped to provide a wide frequency response with optimum high frequency attenuation. The accelerometer is temperature compensated to provide a stable output over the operating environment.

For a triaxial package, TE Connectivity also offers the model 3803A accelerometer and for low-g ranges the model 4801A DC accelerometer is offered.

## APPLICATIONS

- Aerospace Testing
- Impact Testing
- Structural Testing
- Test and Instrumentation
- Environmental Testing
- Vehicle Testing

## FEATURES

- ±50g to ±2000g Dynamic Range
- 10,000g Shock Protection
- Hermetically Sealed
- Gas Damping
- mV Output, DC Response
- Stud Mounting

## 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) | 1.0-2.2 | 0.49-1.0 | 0.49-1.0 | 0.22-0.48 | 0.07-0.22 | @10Vdc Exc. |
| Frequency Response (Hz) | 0-800 | 0-1200 | 0-1300 | 0-1800 | 0-4000 | ±5% |
| Frequency Response (Hz) | 0-1000 | 0-1500 | 0-1600 | 0-2300 | 0-5000 | ±1dB |
| Natural Frequency (Hz) | 4000 | 6000 | 7000 | 8000 | 10000 | |
| Non-Linearity (%FSO) | ±1.0 | ±1.0 | ±1.0 | ±1.0 | ±1.0 | |
| Transverse Sensitivity (%) | <3 | <3 | <3 | <3 | <3 | <1.5% Option |
| Damping Ratio | 0.7 | 0.7 | 0.6 | 0.5 | 0.15 | |
| Shock Limit (g) | 10000 | 10000 | 10000 | 10000 | 10000 | |

| | | |
|---|---|---|
| **ELECTRICAL** | | |
| Zero Acceleration Output (mV) | ±25 | Differential |
| Excitation Voltage (Vdc) | 5 to 10 | |
| Input Resistance (kΩ) | 4 to 10 | |
| Output Resistance (kΩ) | 2.4 to 4.8 | |
| Insulation Resistance (MΩ) | >100 | @100Vdc |
| Residual Noise (µV RMS) | 10 | Maximum |
| Ground Isolation | Isolated from Mounting Surface | |

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|---|---|
| **ENVIRONMENTAL** | |
| Thermal Zero Shift (%FSO/°C) | ±0.04 |
| Thermal Sensitivity Shift (%/°C) | ±0.05 |
| Operating Temperature (°C) | -55 to +125 |
| Compensated Temperature (°C) | -20 to +85 |
| Storage Temperature (°C) | -55 to +125 |
| Humidity | Hermetically Sealed, IP67 |

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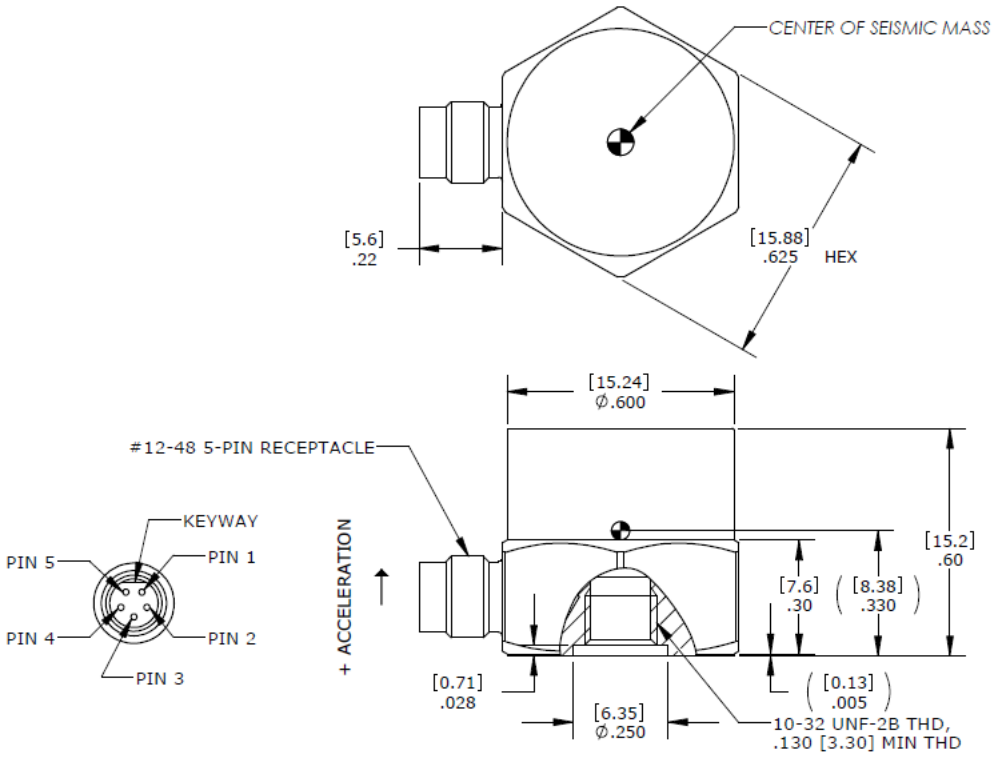
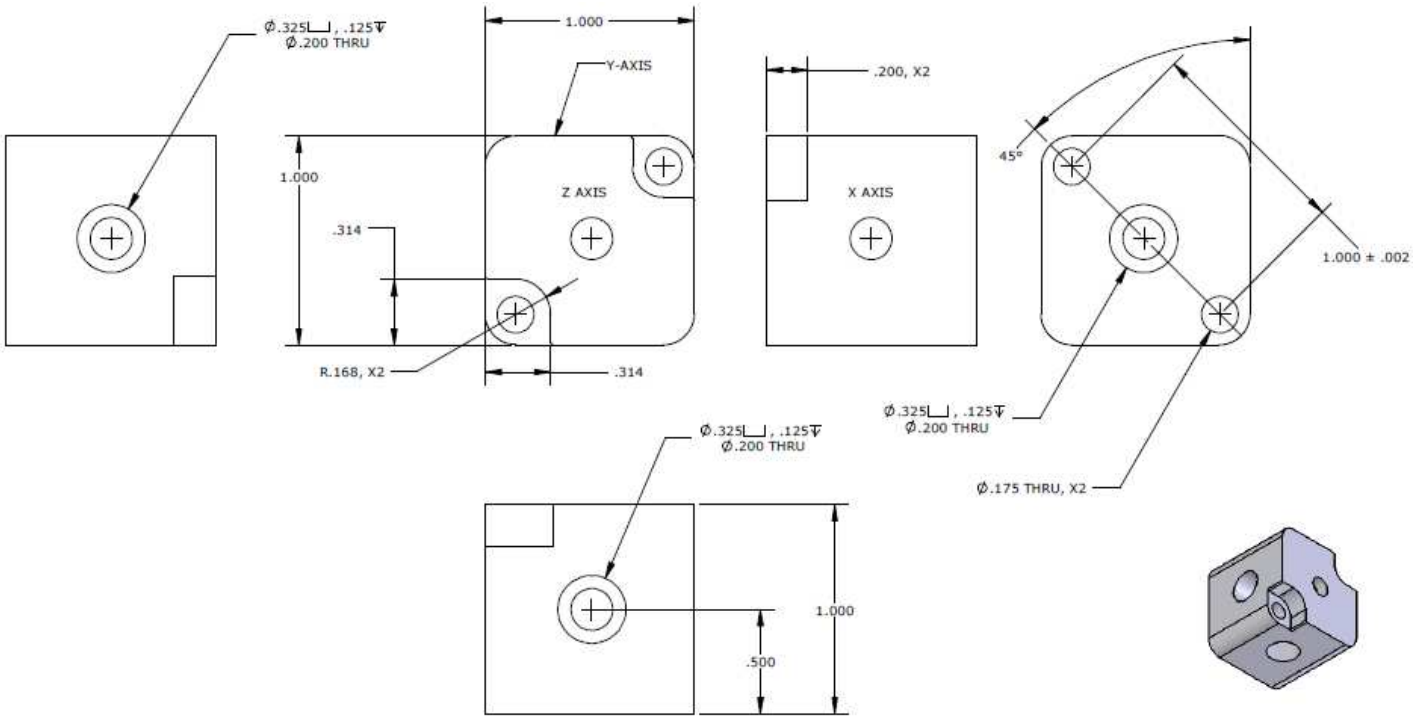
|---|---|
| **PHYSICAL** | |
| Case Material | Stainless Steel |
| Weight (grams) | 20 |
| Mounting | #10-32 to #10-32 Mounting Stud (included) |
| Mounting Torque | 18 lb-in (2.0 N-m) |

| | | |
|---|---|---|
| **Calibration supplied:** | CS-FREQ-0100 | NIST Traceable Amplitude Calibration from 20Hz to ±5% Frequency Response Limit |
| **Supplied accessories:** | AC-D02298 | 10-32 to 10-32 mounting stud |
| **Optional accessories:** | 340A-060 | Cable Assembly, #28 AWG, 5ft |
| | 340A-120 | Cable Assembly, #28 AWG, 10ft |
| | AC-A04773 | Triaxial Mounting Block |
| | 121 | 3-Channel Precision Low Noise DC Amplifier |
| | 140A | Auto-zero Inline Amplifier |

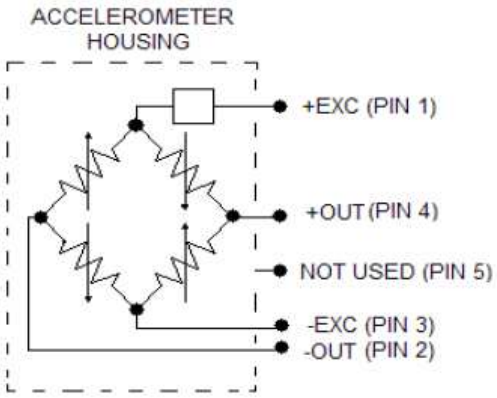
## DIMENSIONS




## TRIAXIAL MOUNTING BLOCK (PN AC-A04773)



## SCHEMATIC




## ORDERING INFORMATION

| 3801A | GGGG | XX |
|---|---|---|
| **Range**<br>0050=50g<br>0100=100g<br>0200=200g<br>0500=500g<br>1000=1000g<br>2000=2000g | | |
| **Excitation Voltage Option**<br>Blank=10Vdc<br>01=5Vdc | | |

Example; 3801A-0100
Model 3801A, 100g range, no options

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