SLAM•STICK™

Shock & Vibration Data Loggers

FEATURES

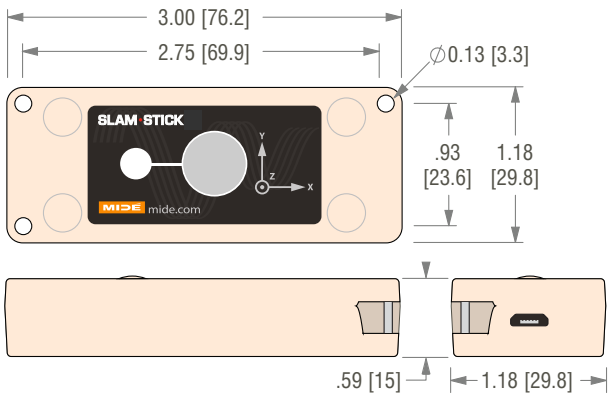
- Triaxial Accelerometers
  - Piezoelectric (±25 / 100 / 500 / 2,000g)
  - DC Response MEMS (16 / 200g)
- Configurable Sampling Rate up to 20 kHz
- Up To 4 Billion Data Points Onboard Memory
- Temperature & Pressure Sensors
- Time Stamped Data with Local Calendar Time
- Manual & Automatic Start/Trigger Modes
- Rechargeable Battery Life (>12hrs)
- Lightweight
- Micro-USB Interface for Set-Up & Data Download
- Free Analysis Software (Slam Stick Lab)
- EMI Qualified (MIL-STD-461F)
- 5th Order Hardware Low-Pass Filter

APPLICATIONS

- Vibration, Impact, and Shock Detection
- Aviation and Aerospace
- Mining Equipment Testing and Monitoring
- Structural Analysis and Health Monitoring
- Equipment Testing and Evaluation
- Determine Mechanical Resonances

PRODUCT DIMENSIONS

Dimensions are in inches and [millimeters]
Download CAD file for more detail



DESCRIPTION

The Slam Stick data loggers are capable of measuring acceleration in all three axes while also measuring temperature and pressure. The recorders are available with two enclosure options (aluminum or polycarbonate), different measurement ranges (±16g to ±2,000g), and an industry leading high sample rate (up to 20 kHz on the piezoelectric accelerometer and up to 3.2 kHz on the DC response MEMS accelerometer).

Its lightweight design and large surface area (3.5 in^2) minimize mass loading and enable two mounting options: adhesive mounting using the industrial strength double sided tape included with the product; or hard mounting, via the 3 bolt holes, for an even higher frequency response. Its rugged enclosure and wide temperature operating range (-40°C to 80°C) enable the Slam Stick to perform in many harsh environments.

A micro-USB receptacle allows for quick and easy connection to a computer where data can be analyzed with Midé's provided software package - Slam Stick Lab. The software also enables configuration of the device to meet a variety of customer needs. Triggers include time delays, calendar date/time wake up and acceleration, temperature and/or pressure triggers.

Midé includes a N.I.S.T. traceable calibration certification.

ACCELEROMETER SPECIFICATIONS

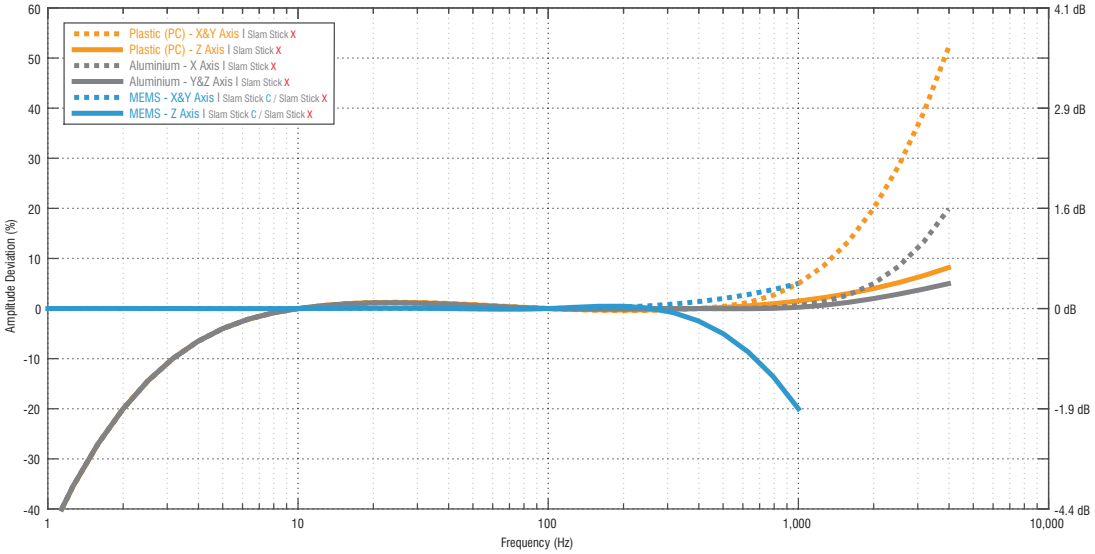
Triaxial Piezoelectric Accelerometer					
Products	Comes standard in the Slam Stick X				
Sampling Rate Per Channel:	User Selectable from 100 Hz to 20 kHz				Selectable with Provided Software
Frequency Response Within ±5% Accuracy (X, Y & Z Axis)	Aluminum Enclosure: 5 Hz to > 2,000 Hz Polycarbonate Enclosure: 5 Hz to > 1,000 Hz				See Frequency Response Plot
Transverse Sensitivity	<10 %				
Low-Pass Filter	5th Order Hardware Butterworth (Linear Phase & Software Tunable)				
Measurement Range	±25 g	±100 g	±500 g	±2,000 g	
Broadband Noise[1]	< 0.01 g RMS	< 0.04 g RMS	< 0.20 g RMS	< 0.80g RMS	
Resolution[2]	0.0008 g	0.003 g	0.015 g	0.06 g	16-bit

[1]Tested with a 20 kHz sampling rate and with a 5 kHz filter frequency. Noise levels will be lower with slower sampling rate and/or lower filter frequency.
[2]Resolution depends on sampling rate; 16-bit < 8.5 kHz. 15-bit < 16 kHz. 14-bit > 16 kHz.

Triaxial MEMS Accelerometer			
Products	Comes standard in the Slam Stick C and add on option in the Slam Stick X		
Sampling Rate Per Channel:	User Selectable from 12.5 Hz to 3.2 kHz		Selectable with Provided Software
Frequency Response Within ±5% Accuracy	X and Y Axis: 0 Hz to > 1,000 Hz Z Axis: 0 Hz to > 500 Hz		See Frequency Response Plot
Transverse Sensitivity	<10 %		
Low-Pass Filter	2nd Order (Filter Frequency is 1/2 Sample Frequency)		
Measurement Range	±16 g	±200 g	
Broadband Noise	< 0.01 g RMS	< 0.14 g RMS	Reduces with slower sample rates
Resolution[1]	0.004 g	0.05 g	13-bit

[1]Resolution at a sample rate of 1,600 Hz or greater is reduced to 12-bit

FREQUENCY RESPONSE



Note that the MEMS accelerometer has a DC response (can measure down to 0 hertz). The plot only goes to 1 Hz because it is on a logarithmic scale. The DC accelerometer data was generated with the sample rate at 3.2 kHz, and the unit taped to the mounting fixture.

The piezoelectric accelerometer sampled at 20kHz with a 5 kHz filter. Adequate compression of the tape was achieved by first bolting the unit to allow the tape to set, then removing the bolts. The mounting torque of these bolts was 70 in-oz.

ADDITIONAL SPECIFICATIONS

Temperature and Pressure Sensors		
Sampling Rate	1 Hz	
Temperature Accuracy	±1.0°C	-30°C to +80°C
Temperature Resolution	0.0625°C	12-bit
Pressure Relative Accuracy	±0.1 kPa	-10°C to +50°C
Pressure Resolution	1.5 Pa	20-bit

Environmental		
Operating Temperature	-40°C to 80°C (-40°F to 176°F)[3]	
Calibrated Temperature	-20°C to 60°C (-4°F to 140°F)	Accelerometer Accuracy is Within ±5%
Recommended Storage Temperature	15°C to 30°C (59°F to 86°F)	Recharging Temperature 0°C to 45°C (32°F to 113°F)
Humidity	0 to 95 %RH	Non-Condensing
Pressure	20 kPa to 110 kPa (2.9 psi to 16.0 psi)	Absolute Pressure
Shock Limit	>3,000 g	Refer to Shock Report (PDF)
No Electric Field Susceptibility	2 MHz to 18 GHz @ 200 V/m	Refer to EMI Test Report (PDF)
No Magnetic Field Susceptibility	30 Hz to 100 kHz	Refer to EMI Test Report (PDF)

Physical	Aluminum (-AL)	Polycarbonate (-PC)	
Mass	65 grams	40 grams	
Dimensions	0.50" x 1.18" x 3.00"	0.50" x 1.18" x 3.00"	Download CAD file for more detail
Case Material	Aluminum 7075 T6	Polycarbonate/ABS	Aluminum Enclosure has a Clear Anodized Coat
Mounting Torque (4-40 Bolt)	100 in-oz	70 in-oz	Mounting with Double-Sided Tape is Optional

BATTERY & STORAGE CAPACITY

Slam Stick C

Per Channel Frequency (Hz)	Time available for 1 GB (hours)	Battery Life (hours)
12.5	4000	22.0
100	500	20.0
1600	31	18.0
3200	16	14.5

Slam Stick X

Per Channel Sampling Frequency (Hz)	Time available for 2 GB (hours)	Battery Life (hours)
100	1000	15.5
1,000	100	15.0
5,000	20	13.0
20,000	5	5.5

Slam Stick X: If the DC Accelerometer option is selected it will reduce battery life by approximately 10%. It also requires approximately 1GB storage for every 500 million samples.

The Slam Stick can record data even while plugged into power. External power supplies, such as standard portable phone chargers work well. When plugged into an external power source, the Slam Stick will record until it runs out of storage. An upgrade to a 8GB storage card is available. Note that a single recording file size is limited to 4 GB.

Utilize triggering configurations to further increase battery and storage capacity.

The rechargable battery has a lifetime of 3 years and needs to be charged at least twice a year. For more info see datasheet (pdf).

SOFTWARE OVERVIEW & FEATURES

- Configure Slam Stick X & C data loggers
- Import and display data
- Vibration analysis - FFT, PSD and spectrogram
- Calibration editing
- Comprehensive unit conversion
- Export data to .CSV (Excel readable)
- Split large .IDE files
- Convert .IDE files to MATLAB files

ORDERING INFORMATION

All product pricing information can be found on Mide's website where it is available for purchase directly here. Additional shipping and ordering information is available here.

Included with each purchase:
Slam Stick Lab analysis software; 6ft micro-USB cable; Mounting tape; Mounting bolts; User Manual and Quick Start Guide; N.I.S.T. Calibration Certification.

	Product	Measurement Range	DC Option	Storage Capacity	Enclosure Material
SLAM•STICK X	LOG-0002	025G 100G 500G 02KG	DC = Yes No DC = No	2GB 8GB	AL = Aluminum PC = Polycarbonate
SLAM•STICK C	LOG-0003	016G 200G	Included	1GB 8GB	PC = Polycarbonate

Slam Stick X Example:	LOG-0002-025G-2GB-PC = **Slam Stick X**, ±**025G** Accelerometer, **2GB** Storage Capacity, **Polycarbonate** Enclosure LOG-0002-02KG-DC-8GB-AL = **Slam Stick X**, ±**2,000G** Accelerometer, added **DC MEMS** Accelerometer, **8GB** Storage Capacity, **Aluminum** Enclosure
Slam Stick C Example:	LOG-0003-016G-1GB-PC = **Slam Stick C**, ±**016G** Accelerometer, **1GB** Storage Capacity, **Polycarbonate** Enclosure LOG-0003-200G-8GB-PC = **Slam Stick C**, ±**200G** Accelerometer, **8GB** Storage Capacity, **Polycarbonate** Enclosure

ADDITIONAL INFORMATION

Software: Click here
FAQ's: Click here
How-To Videos: Click here
User Manual: Click here
Contact Us: Click here
Example Recordings: Click here