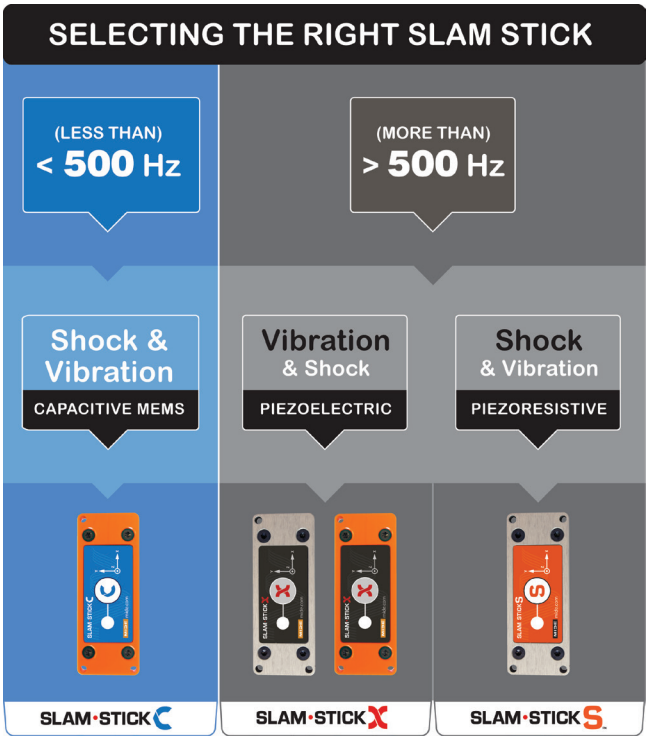
SLAM•STICK™

Shock & Vibration Data Loggers

FEATURES

- Triaxial Accelerometers
  - Piezoresistive (±100 / 500g)
  - 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



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 and piezoresistive accelerometers and up to 3.2 kHz on the DC response MEMS accelerometer).

Their lightweight design and large surface area minimize mass loading and enable two mounting options: adhesive mounting using the industrial strength double sided tape included with the product; or hard mounting, 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.

SLAM•STICK C™

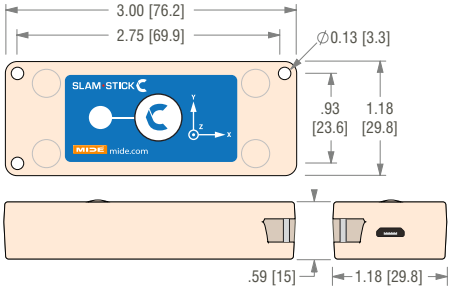
Sensors

- Triaxial Accelerometers
  - DC Response MEMS (±16 / 200g)
- Pressure
- Temperature

Applications

- General purpose testing
- Low frequency vibration

Dimensions



SLAM•STICK X™

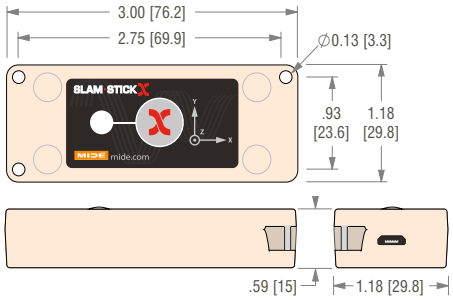
Sensors

- Triaxial Accelerometers
  - Piezoelectric (±25 / 100 / 500 / 2,000g)
  - Optional DC Response MEMS (±16 / 200g)
- Pressure
- Temperature

Applications

- Qualification tesing
- High frequency vibration

Dimensions



SLAM•STICK S™

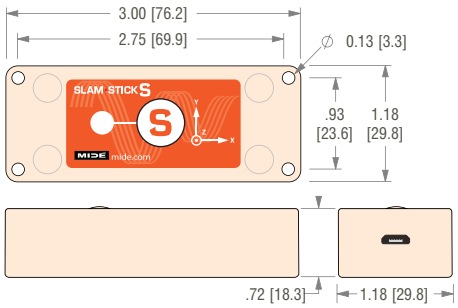
Sensors

- Triaxial Accelerometers
  - Piezoresistive (±100 / 500g)
  - DC Response MEMS (16 / 200g)
- Pressure
- Temperature

Applications

- Shock testing
- High end testing

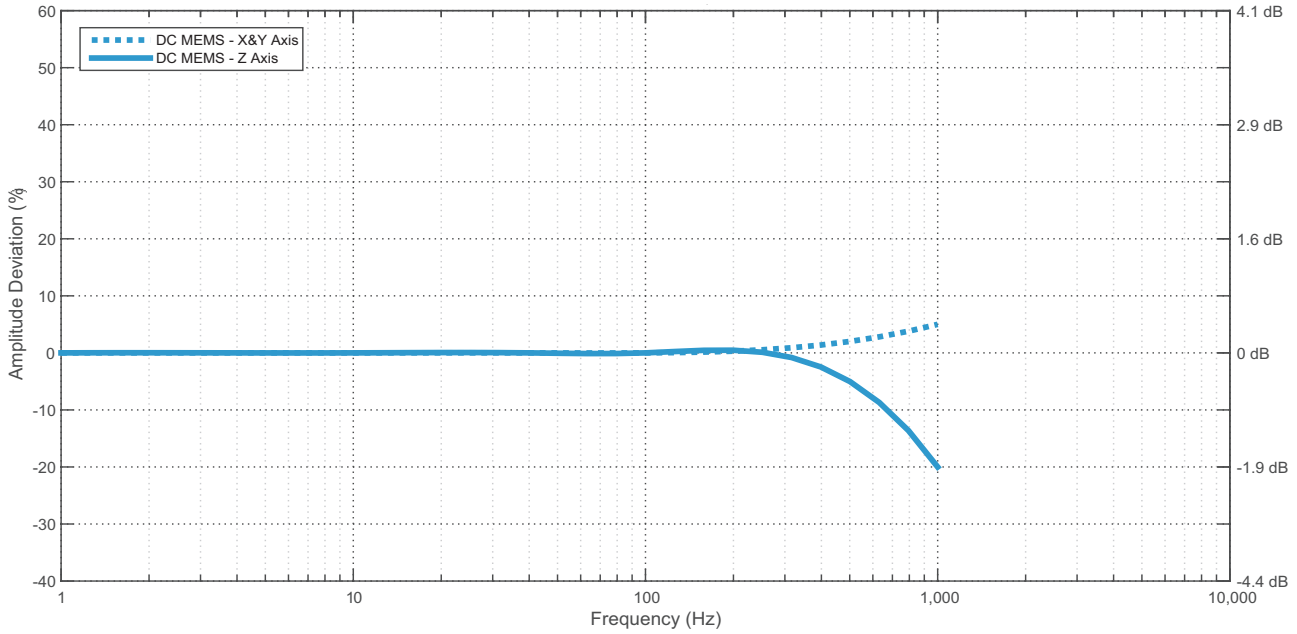
Dimensions



ACCELEROMETER DC MEMS

Triaxial DC MEMS Accelerometer			
Products	Comes standard in the Slam Stick C and S 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



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 accelerometer data was generated with the sample rate at 3.2 kHz, and the unit taped to the mounting fixture.

BATTERY & STORAGE CAPACITY

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

ACCELEROMETER OVERVIEW

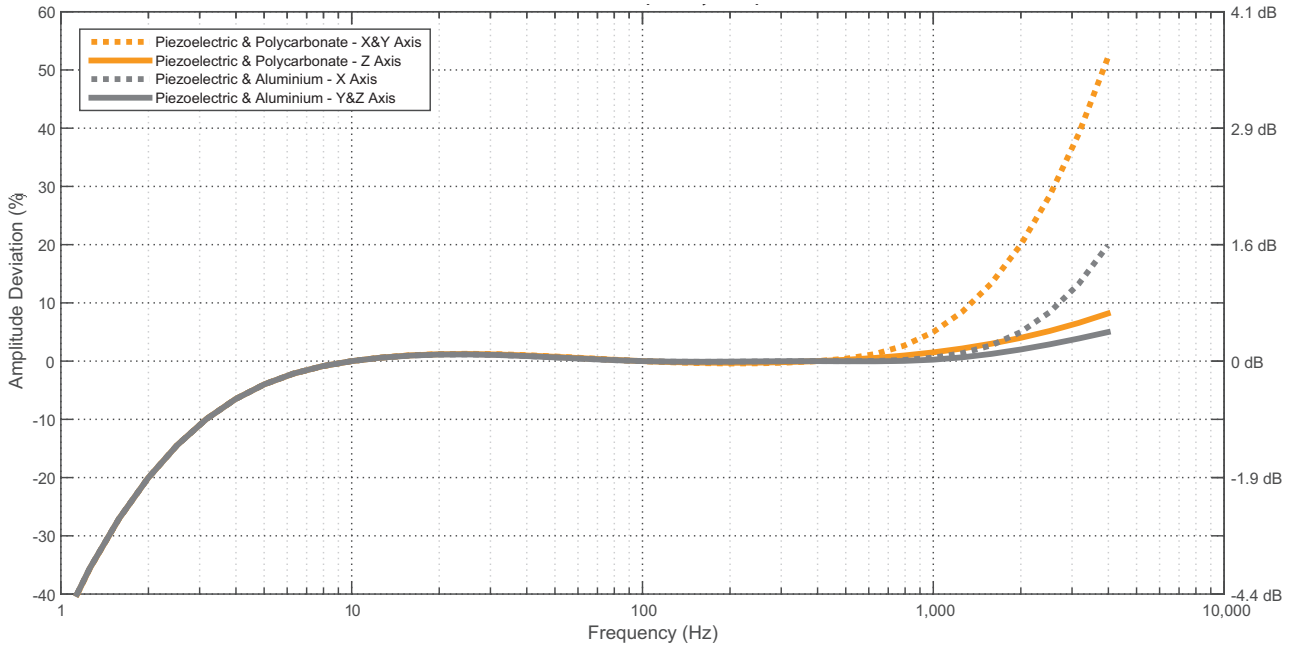
The triaxial capacitive MEMS accelerometer is great for general purpose testing; but it has some limitations. Its data quality may not be good enough for higher-end engineering applications. But these accelerometers are much lower cost than alternatives and so Midé is able to offer the Slam Stick C, which only has this type of accelerometer, at a much lower cost than the X and S.

See our blog on accelerometer selection.

ACCELEROMETER PIEZOELECTRIC

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.



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.

BATTERY & STORAGE CAPACITY

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

If the DC Accelerometer is on it will reduce battery life by approximately 10%. It also requires approximately 1GB storage for every 500 million samples.

ACCELEROMETER OVERVIEW

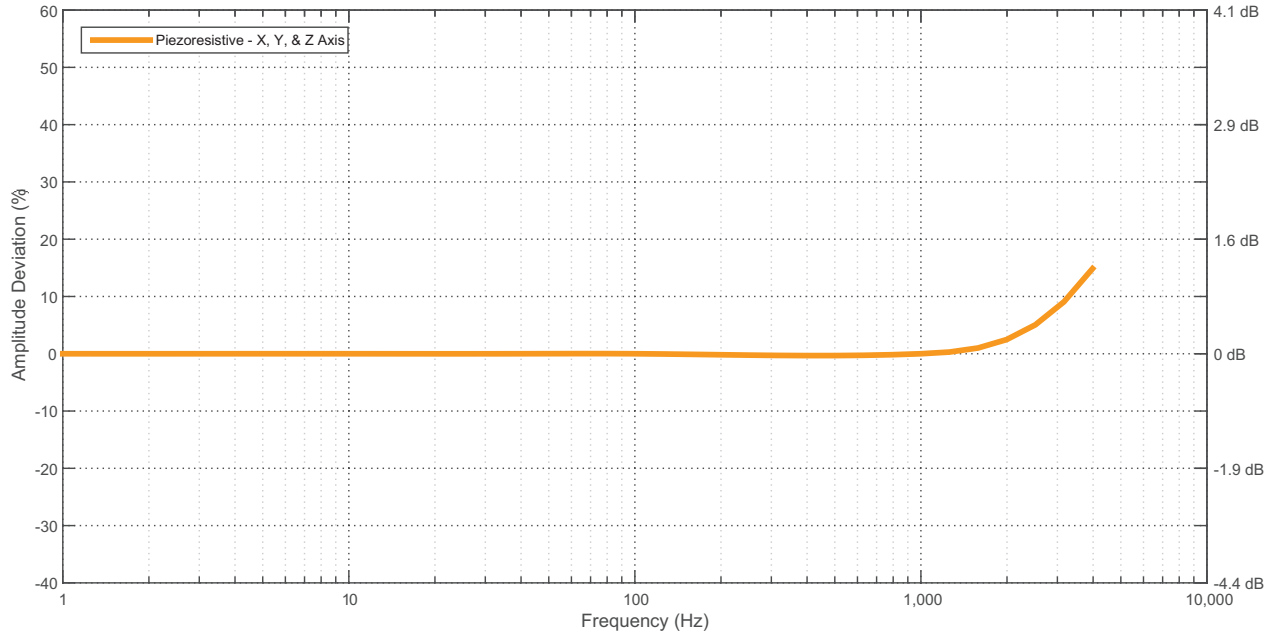
The triaxial piezoelectric accelerometer, when compared to the DC MEMS accelerometer, offers a higher data quality. Piezoelectric accelerometers are the most popular because of their versatility but they have two disadvantages: an AC coupling, and their charge amplifier can become saturated during high frequency and/or amplitude shock events.

See our blog on accelerometer selection.

ACCELEROMETER PIEZORESISTIVE

Triaxial Piezoresistive Accelerometer			
Products	Comes standard in the Slam Stick S		
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: 0 Hz to 2,000 Hz		See Frequency Response Plot
Transverse Sensitivity	<10 %		
Low-Pass Filter	5th Order Hardware Bessel (Linear Phase & Software Tunable)		
Measurement Range	±100 g	±500 g	
Broadband Noise[1]	< 0.08 g RMS	< 0.40 g RMS	
Resolution[2]	0.003 g	0.015 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.



Note that the Piezoresistive 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 piezoresistive accelerometer sampled at 20kHz with a 5 kHz filter. The unit was bolted down with a mounting torque of 100 in-oz.

BATTERY & STORAGE CAPACITY

Per Channel Sampling Frequency (Hz)	Time available for 2 GB (hours)	Battery Life (hours)
100	1000	14.0
1,000	100	13.5
5,000	20	11.0
20,000	5	3.5

If the DC Accelerometer is on it will reduce battery life by approximately 10%. It also requires approximately 1GB storage for every 500 million samples.

ACCELEROMETER OVERVIEW

The piezoresistive accelerometer offers similar advantages as the piezoelectric in terms of data quality. But they have the added benefit of being capable of measuring static accelerations and low frequency vibrations. They also have internal gas damping to widen the dynamic frequency range of the accelerometer. These accelerometers are increasingly becoming more popular for shock and vibration testing applications.

See our blog on accelerometer selection.

ADDITIONAL SPECIFICATIONS FOR ALL SLAM STICKS

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	
Dimesions	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

EXTENDING BATTERY & STORAGE

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 refer to component datasheet section in user manual (pdf).

SOFTWARE OVERVIEW & FEATURES

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

ORDERING INFORMATION

All products can be purchased online at mide.com. 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 C	LOG-0003	016G 200G	Included	1GB 8GB	PC = Polycarbonate
SLAM•STICK X	LOG-0002	025G 500G 100G 02KG	DC = Yes No DC = No	2GB 8GB	AL = Aluminum PC = Polycarbonate
SLAM•STICK S	LOG-0004	100G 500G	Included	2GB 8GB	AL = Aluminum

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
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 S Example:	LOG-0004-100G-DC-2GB-AL = **Slam Stick S**, ±**100G** Accelerometer, **2GB** Storage Capacity, **Aluminum** Enclosure LOG-0004-500G-DC-8GB-AL = **Slam Stick S**, ±**500G** Accelerometer, **8GB** Storage Capacity, **Aluminum** Enclosure

ADDITIONAL INFORMATION

LifeElectronics
Живое партнерство

ООО «ЛайфЭлектроникс» **“LifeElectronics” LLC**

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- *Конкурентоспособные цены и скидки постоянным клиентам.*
- *Специальные условия для постоянных клиентов.*
- *Подбор аналогов.*
- *Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.*

- *Приемлемые сроки поставки, возможна ускоренная поставка.*
- *Доставку товара в любую точку России и стран СНГ.*
- *Комплексную поставку.*
- *Работу по проектам и поставку образцов.*
- *Формирование склада под заказчика.*

- *Сертификаты соответствия на поставляемую продукцию (по желанию клиента).*
- *Тестирование поставляемой продукции.*
- *Поставку компонентов, требующих военную и космическую приемку.*
- *Входной контроль качества.*
- *Наличие сертификата ISO.*

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- *Регистрацию проекта у производителя компонентов.*
- *Техническую поддержку проекта.*
- *Защиту от снятия компонента с производства.*
- *Оценку стоимости проекта по компонентам.*
- *Изготовление тестовой платы монтаж и пусконаладочные работы.*

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