

SLICE MICRO & SLICE NANO Miniature Data Recorders

APPLICATIONS

- Aerospace analysis
- Amusement ride testing
- Automotive safety
- Biomechanics
- Blast dynamics
- Embedded monitoring
- Helicopter & aircraft
- Impact testing
- In-dummy
- Injury investigation
- Parachute deployment
- Package testing: truck, air, ship & rail
- Pedestrian head & leg form
- Ride & handling
- Sound measurement
- Sports & safety equipment
- Vibration testing

PRODUCTS

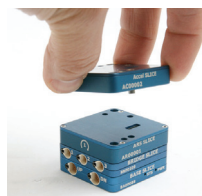
Diversified Technical Systems designs and manufactures data acquisition systems, sensors, and software for beginning and advanced test professionals.



SLICE MICRO and SLICE NANO are standalone data acquisition systems that are modular, rugged and user-configurable. SLICE supports a variety of sensors to accurately measure acceleration, strain, voltage and temperature.

Features

- SLICE modules easily configure to create the exact features and channel count needed. Stack up to 24 channels per base and daisy-chain up to hundreds of channels per test.
- Intuitive, easy-to-use software
- Lightweight & extremely small
- 16 GB direct-write flash memory
- Expanded sampling ranges:
Minimum 10 sps per channel
Up to 200k sps on ≤24 channels per stack
Up to 500k sps on ≤3 channels per stack
- Meets MIL-STD-810E for temperature, altitude and vibration
- Supports a variety of sensors, including full and half-bridge sensors, strain gauges, IEPE, voltage input, thermocouples
- SLICE MICRO offers built-in triaxial accelerometers, angular rate sensors, and external IEPE (piezo-electric) sensor inputs
- Complies with ISO 6487 and SAE J211 recommended practices, as well as NHTSA and FAA requirements



Now with BASE+

New features include twice the memory, longer battery life, lower power, higher throughput & up to 10x faster sampling

SLICE is a modular data acquisition system featuring unmatched flexibility, technology and reliability in an ultra-small size. Available in two form factors, both SLICE MICRO and SLICE NANO are ideal for a variety of critical test applications.

The foundation of the system is the BASE SLICE that contains the microprocessor, memory and all control circuits for managing multiple 3-channel SLICES that can be stacked in different channel count and sensor input configurations. A simple interface provides power, trigger and communication signals for chaining multiple SLICE stacks and connecting to your PC.

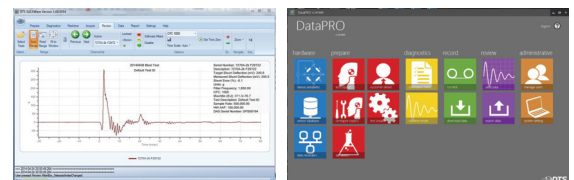
SLICE MICRO IEPE shown in a 6-channel configuration

NEW!
SLICE NANO IEPE now available



Software

DTS offers two great software options for SLICE products. SLICEWare offers fast, easy tools for storing sensor information and performing data collection. DataPRO offers a full-featured database and user interface for tracking sensor information, creating test objects and test setups, performing diagnostic routines and running tests. Both software options feature the most advanced self-diagnostics available plus support for EQX and numerous data exchange file formats.



Specifications



BASE+ SLICE (NANO & MICRO)

One (1) required per stack – system microprocessor & memory

Size: MICRO 42 x 42 x 8 mm (1.65 x 1.65 x 0.32")
NANO 26 x 31 x 6.5 mm (1.02 x 1.22 x 0.26")
Mass: MICRO 28 g (0.99 oz), NANO 14.2 g (0.50 oz)
Connectors: Omnetics, circular locking, 12-pin
MICRO integrated, NANO cable assembly
Compatibility: BASE+ works with all legacy NANO & MICRO

ENVIRONMENTAL

Military Standard: MIL-STD-810E
Operating Temp: -40° to 60°C (-40° to 140°F) (Method 501,502)
Altitude: -40°C @ 15240 m (50000 ft) (Method 500)
Vibration (Random): Exceeds 810-E vibration (Method 514)
Humidity: 95% RH non-condensing
Shock: 500 g, 4 msec half sine
5000 g option (SLICE NANO only)

DATA RECORDING

Modes: Recorder, circular buffer, multiple event, arm on power-up, and other modes available
Memory: 16 GB non-volatile flash per SLICE stack
Sample Rate: Minimum 10 sps per channel
<See Chart for Max.: Up to 200k sps on ≤24 channels per stack
Up to 500k sps on ≤3 channels per stack

TRIGGERING

Hardware Trigger: Contact closure & TTL logic-level (active low)
Level Trigger: Positive and/or negative level on any active sensor channel (first level crossing of any programmed sensor triggers system)

POWER

Supply Voltage: 9-15 VDC; >11 VDC when using Battery SLICE (NANO)
Current (Maximum): 70 mA @ 12 V plus sensor input SLICES
Power Control: Remote power control input for on/off
Protection: Reverse current, ESD

SOFTWARE

Control: SLICEWare, DataPRO, API
Operating Systems: Windows® Vista/7/8 (32/64-bit)
Communication: USB; Ethernet available via SLICE Distributor



BRIDGE SLICE (NANO & MICRO)

Three (3) inputs for external sensors

Size: MICRO 42 x 42 x 7 mm (1.65 x 1.65 x 0.32")
NANO 26 x 31 x 5.5 mm (1.02 x 1.22 x 0.22")
Mass: MICRO 25 g (0.88 oz), NANO 13.8 g (0.49 oz)
Connectors: Omnetics, circular locking; 3 single-channel
7-pin or 1 three-channel 16-pin

SIGNAL CONDITIONING

Number of Channels: 3 differential, programmable
Input Range: ±2.4 V (2.5 V center)
Bandwidth: DC to 40 kHz, programmable
Gain Range: 1.0-1280, programmable
Auto Offset Range: 100% of effective input range
Bridge Support: Software controlled half-bridge completion
Shunt Check: Emulation method, automatically calculated
Sensor ID: Maxim Integrated (Dallas) silicon serial number
Linearity (typical): ≤0.2% (gain 1 to 320), ≤0.5% (gain >320)
Accuracy: 0.5% including reference uncertainty

ANALOG-TO-DIGITAL CONVERSION

Type: 16-bit SAR (Successive Approximation Register) ADC, one per channel, simultaneous sample of all channels.

EXCITATION

Method: Independent regulator for each channel
Voltage: 5.0 V, up to 20 mA, short circuit safe
Power Management: Shutdown when not armed or recording

POWER

Voltage: Supplied via BASE SLICE
Current (Maximum): 110 mA with 350 ohm bridges all channels
Power varies significantly with sensor load

ANTI-ALIAS FILTER

Fixed Low Pass: 4-pole Butterworth, standard knee frequency at 40 kHz
Adjustable Low Pass: 5-pole Butterworth set by software from 1 Hz to 40 kHz
Response: Meets SAE J211/ISO6487 response corridors

IEPE SLICE (NANO & MICRO)

Three (3) inputs for external sensors

Size: MICRO 42 x 42 x 7 mm (1.65 x 1.65 x 0.28")
NANO 26 x 46 x 7 mm (1.02 x 1.81 x 0.28")
Mass: MICRO 28 g (0.99 oz), NANO 23 g (0.81 oz)
Connectors: 10-32 coaxial (Microdot-compatible)

SIGNAL CONDITIONING

Number of Channels: 3
Input Range: 0.5-23.5 V (12 V center)
Bandwidth: DC to 40 kHz, programmable
Gain Options: 1 or 10, user programmable
Auto Offset Range: 100% of effective input range at gain of 1
Sensor ID: Works with EID or "TEDS" equipped sensors

ANALOG-TO-DIGITAL CONVERSION

Type: 16-bit SAR (Successive Approximation Register) ADC, one per channel, simultaneous sample of all channels.

EXCITATION

Current/Voltage: 2.2 mA constant current with 25 V source.
Contact DTS for other options if needed.
On/Off Control: Shutdown when not armed or recording

POWER

Voltage: Supplied via BASE SLICE
Current (Maximum): 85 mA with sensors connected to all channels

ANTI-ALIAS FILTER

Fixed Low Pass: 4-pole Butterworth, standard knee frequency at 40 kHz
Adjustable Low Pass: 5-pole Butterworth set by software from 1 Hz to 40 kHz
Response: Meets SAE J211/ISO6487 response corridors

CALIBRATION

Calibration Supplied: NIST traceable
ISO 17025: ISO 17025 (A2LA Accredited) available
Service Options: Factory or On-Site, Service Contracts available

ARS SLICE (MICRO only)

Built-in triaxial angular rate sensor

Size: MICRO 42 x 42 x 9 mm (1.65 x 1.65 x 0.35")
Mass: 30 g (1.06 oz)
Number of Channels: 3 orthogonal axes
Range Options: ±300, 1500, 8k deg/sec
Bandwidth: 0 – 2,000 Hz
Current (Maximum): 75 mA (power supplied via BASE SLICE)



ACCEL SLICE (MICRO only)

Built-in triaxial accelerometer

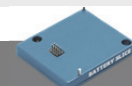
Size: MICRO 42 x 42 x 9 mm (1.65 x 1.65 x 0.35")
Mass: 30 g (1.06 oz)
Number of Channels: 3 orthogonal axes
Range Options: ±25, 100, 500 g
Bandwidth: See calibration sheet
Current (Maximum): 65 mA (power supplied via BASE SLICE)



BATTERY SLICE (NANO only)

Optional back-up battery

Size: NANO 26 x 31 x 4 mm (1.65 x 1.65 x 0.16")
Mass: 7 g (0.25 oz)
Charge Status: Backup battery charges when input voltage to BASE SLICE is greater than 11 VDC
Charge Time: ~15 min. from complete discharge to full charge (100 mA at input connector on Base)
Discharge Rate: ~16 seconds at 1 A; ~2 minutes at 400 mA



ACCESSORIES

See website for full line of SLICE NANO & SLICE MICRO accessories

Number of SLICES Per Stack*	Total Channel Count	Maximum Sampling Rate SPS/Channel
1	3 ch	500000
2	6 ch	400000
3	9 ch	300000
4	12 ch	200000
5	15 ch	200000
6	18 ch	200000
7	21 ch	200000
8	24 ch	200000

*Not including required BASE+ SLICE

SERVICES

24/7 Worldwide Tech Support
ISO 17025 (A2LA) Calibration
Onsite Calibration & Training
Application Consulting
Software Integration
OEM/Embedded Applications

TECH CENTERS

Novi, Michigan USA
Tokyo, Japan
Sydney, Australia
Lincoln, United Kingdom

HEADQUARTERS

Seal Beach, California USA

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