PRODUCT DATASHEET

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.

With BASE+

Key features include twice the memory, higher throughput, lower power consumption & up to 10x faster sampling rates

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.

SLICE makes it easy to build systems in 3-channel increments by stacking layers with different channel and sensor input configurations. The BASE SLICE is the foundation of the system with the microprocessor, memory and control circuits. A simple interface provides power, trigger and communication signals for chaining multiple SLICE stacks and connecting to a PC.

SLICE MICRO IEPE shown in a 6-channel configuration

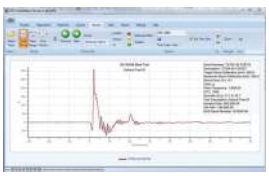
SLICE NANO IEPE also available

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

Software

DTS offers two powerful software options for SLICE. SLICEWare set-up and control software provides fast, easy-to-use tools for storing sensor information and performing data collection. DataPRO is a more robust and fully-featured software package with a comprehensive 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, plus support for EQX and numerous data exchange file formats.



DTS

www.dtsweb.com

Specifications

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 the one required BASE+ SLICE per stack

SERVICES

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

TECH CENTERS

Michigan, United States
United Kingdom
France
Japan
Asia Pacific

HEADQUARTERS

Seal Beach, California USA

CONTACT US

Phone: +1 562 493 0158
Email: sales@dtsweb.com

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 will 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 Onsite, Service Contracts available

ARS SLICE (MICRO only)

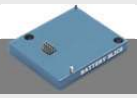
Built-in triaxial angular rate sensor

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:	0–400 Hz (±25, ±100 g), 0–5,000 Hz (±500 g)
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 >11 VDC
Charge Time:	~15 min. from complete discharge to full charge (100 mA at input connector on Base)
Discharge Rate:	~5 seconds with 18 channels (1 Base + 6 Bridges)

ACCESSORIES

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

DTS

www.dtsweb.com