

SLICE6

Ultra-Small Data Acquisition System for Embedded Solutions

Global NCAP
IN-DUMMY DAS
THOR, WorldSID, Hybrid III, Q-Series



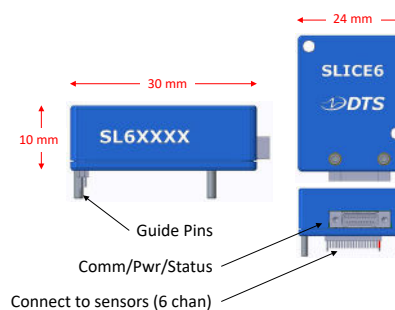
Overview

SLICE6 standalone DAS is designed for test applications where size and reliability are key requirements. The ultra-small form factor allows placement of SLICE6 directly at the sensor, minimizing cabling and connector size. SLICE6 features programmable signal conditioning and advanced diagnostic features that meet SAE J211 and ISO 6487 requirements, including Butterworth anti-alias filters and 16-bit ADC written directly to flash memory. SLICE6 supports the standard DTS Ethernet/power/status bus, plus is compatible with SLICE and TDAS systems.

Applications: In-dummy, Automotive Safety, Biomechanics, Embedded Monitoring, Helicopter & Aircraft, Impact Testing, Parachute Deployment, Pedestrian Head & Leg Form, Ride & Handling, Sound Measurement, Sports & Safety Equipment, Vibration Testing

Features

- SLICE6 is a 6-channel DAS module that can be networked to configure the exact features and channel count needed with reduced cabling requirements
- Ultra-small and lightweight: 10 x 24 x 30 mm and 28 g
- Variable sampling rates
Maximum 100k sps/ch (simultaneously sampled on all ch)
Records >200 minutes of data sampled at 100k sps
- One per channel, 16-bit ADC direct write to 16 GB flash memory
- 4-pole active Butterworth anti-alias filters
- Supports a variety of sensors, including full and half-bridge sensors, strain gauges, voltage input, thermocouples
- Two data recording modes: recorder and circular buffer
- Low power, less than 2.5 W with full sensor load
- Complies with ISO 6487 and SAE J211 recommended practices, as well as NHTSA and FAA requirements
- Ideal for integration in ATDs, including THOR 5th and 50th



SLICE6 is an ultra-small, 6-channel data acquisition system. Originally designed to be integrated into crash and blast test ATDs, SLICE6 is ideal for applications with tight space constraints. SLICE6 offers direct-mount sensor solutions and supports a variety of sensor types, including accelerometers, load cells, pressure sensors, IR-Tracc and potentiometers.



Modules can be daisy-chained to support hundreds of channels per test set-up. The distributed SLICE6 solution significantly reduces in-dummy cabling and connectors.

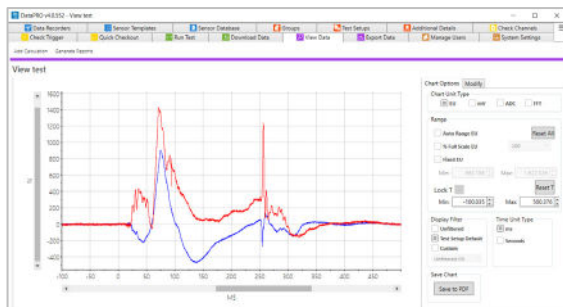
Specifications

PHYSICAL	
Size:	24 x 30 x 10 mm (0.94 x 1.18 x 0.39")
Mass:	28 g (0.99 oz)
Connectors:	Nano-Strip for 6 sensor inputs, NanoD for chain
ENVIRONMENTAL	
Operating Temp:	0 to 60 °C (32 to 140 °F)
Humidity:	95% RH, non-condensing
Shock:	500 g, 3 msec, half-sine
DATA RECORDING	
Modes:	Recorder and circular buffer
Memory:	16 GB non-volatile flash
Max Sample Rate:	100k sps programmable
Recording Time:	>200 minutes at max sample rate
Pre-Trigger Data:	Any part of memory can be used for pre or post trigger data
BRIDGE OR VOLTAGE SIGNAL CONDITIONING	
Input Range:	-2.4 V to +2.5 V (2.5 V center)
Bandwidth:	DC to 4 kHz
Gain Range:	1.0–1,280, software programmable
Auto Offset Range:	100% of effective input range at gain >2
Shunt Check:	Yes
Sensor ID:	Maxim Integrated (Dallas) silicon serial number
Linearity (typical):	0.1% (gain 1 to 320), ≤0.5% (gain ≥640)
Accuracy:	0.2% including reference uncertainty
POWER	
Supply Voltage:	9–15 VDC
Power Consumption:	< 2.5 W with full sensor load
Protection:	Reverse current, ESD

EXCITATION	
Type:	Independent regulator for each channel
Level:	5.0 V regulated, up to 20 mA per channel
Recovery:	Short circuit safe, recovers <1 msec
ANTI-ALIAS FILTER	
Fixed Low Pass:	4-pole Butterworth; standard knee frequency of 3 kHz.
Custom Options:	Contact DTS for other filter options or any special requirements
Overall Response:	System response complies with SAE J211 / ISO 6487 recommended practices
ANALOG-TO-DIGITAL CONVERSION	
Type:	16-bit SAR (Successive Approximation Register) ADC, one per channel, simultaneous sampling of all channels
TRIGGERING	
Hardware Trigger:	Contact closure and 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)
SOFTWARE	
Control:	DataPRO, API
Operating Systems:	Windows® 10/11 (32- and 64-bit)
Communication:	100 Mbps Ethernet (unit-to-unit)
CALIBRATION	
Calibration Supplied:	NIST-traceable
ISO 17025:	ISO 17025 (A2LA Accredited)
Service Options:	Standard, On-site & Service Contracts available
ACCESSORIES	
See website for full line of accessories	

Software

DTS DataPRO Software: DTS offers a powerful software option for SLICE6. DataPRO provides fast, easy tools for storing sensor information, performing data collection, viewing and exporting data. DataPRO is a fully-featured software with a comprehensive database and user interface for tracking sensor information, creating test objects and test setups, performing diagnostic routines, and conducting tests. Both software packages offer the most advanced self-diagnostics, plus support for EQX, ISO MME and many other data exchange file formats.

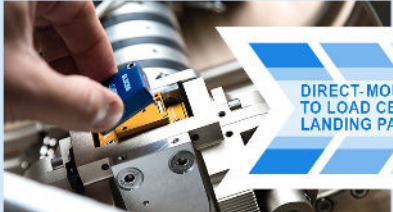


DataPRO Software

Sensor Connections

SLICE6 offers cable-free, direct-mount sensor options, plus supports a wide variety of traditional external cabled sensors.

SLICE6 SENSOR CONNECTION OPTIONS



**DIRECT-MOUNT
TO LOAD CELL
LANDING PAD**



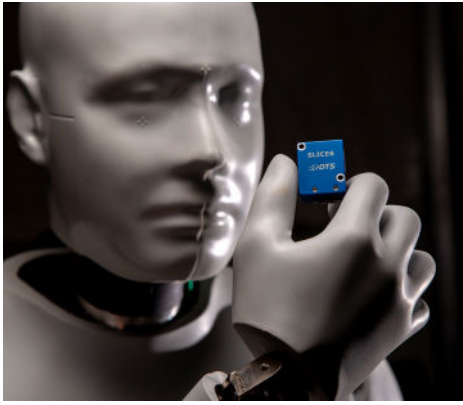
**DIRECT-MOUNT 6DX A2
SIX DEGREES OF
FREEDOM SENSOR**



**SENSOR INTERFACE
FOR CABLED
SENSORS**




 phone: +1 562-493-0158
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 www.dtswb.com



SLICE6 HB

Miniature, High Bandwidth Data Recorder with PTP Timing

Overview

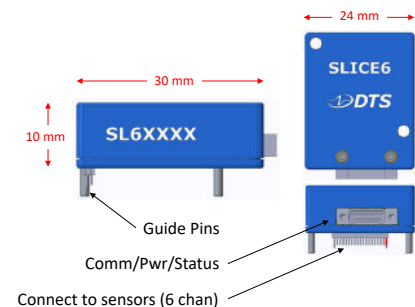
SLICE6 HB is a modular, high bandwidth data acquisition system featuring unmatched performance, flexibility and reliability in an ultra-small package. Each module contains a microprocessor, flash memory, control circuits and a sensor interface complete with excitation, variable gain, and 16-bit ADCs. A simple interface provides trigger and communication signals for chaining multiple modules. Designed for the U.S. Army WIAMan underbody blast manikin, SLICE6 HB is uniquely engineered for the WIAMan high shock environments that require maximum bandwidth and high sampling capabilities.

SLICE6 HB is an ultra-small 6-channel standalone data acquisition system designed for the U.S. Army WIAMan, which requires high-speed sampling with precision timing. An IEEE 1588 compliant Ethernet switch allows PTPv2 daisy-chaining of hundreds of channels per test setup.

Applications: WIAMan blast dummy NOTE: SLICE6 HB and associated instrumentation, wiring and distribution components to support blast site use are specifically designed for the U.S. Army WIAMan and are not offered for commercial sale. See SLICE6 datasheet for THOR and other ATD in-dummy DAS solutions, as well as additional SLICE6 applications.

Features

- SLICE6 HB is a 6-channel DAS module that can be networked to create the exact features and channel count needed with reduced cabling requirements
- Ultra-small and lightweight: 10 x 24 x 30 mm and 28 g
- Variable sampling rates
Maximum 400k sps/ch (simultaneously sampled on all ch)
Records >50 minutes of data sampled at 400k sps
- One per channel, 16-bit ADC direct write to 16 GB flash memory
- Supports a variety of sensors, including full and half-bridge sensors, strain gauges, voltage input, thermocouples
- Two data recording modes: recorder and circular buffer
- Complies with ISO 6487 and SAE J211 recommended practices, as well as NHTSA and FAA requirements
- Tested per IEEE 1057 requirements



SLICE6 HB supports a variety of sensors and writes data directly to flash memory.

Specifications

PHYSICAL

Size:	24 x 30 x 10 mm (0.94 x 1.18 x 0.39")
Mass:	28 g (0.99 oz)
Connectors:	Nano-Strip for 6 sensor inputs, NanoD for chain

ENVIRONMENTAL

Operating Temp:	-40 to 60 °C (-40 to 140 °F)
Humidity:	95% RH, non-condensing
Shock:	500 g, 3 msec, half-sine 2000 g, 0.8 msec half sine

DATA RECORDING

Modes:	Recorder and circular buffer
Memory:	16 GB non-volatile flash
Max Sample Rate:	400k sps programmable ****
Recording Time:	>50 minutes at max sample rate
Pre-Trigger Data:	Any part of memory can be used for pre or post trigger data

BRIDGE OR VOLTAGE SIGNAL CONDITIONING

Input Range:	-2.4 V to +2.5 V (2.5 V center)
Bandwidth:	DC to 20 kHz (up to 40 kHz, factory configurable*)
Gain Range:	1.0–1,280, software programmable
Auto Offset Range:	100% of effective input range at gain >2
Shunt Check:	Yes
Sensor ID:	Maxim Integrated (Dallas) silicon serial number
Linearity (typical):	0.1% (gain 1 to 320), ≤0.5% (gain ≥640)
Accuracy:	0.2% including reference uncertainty ***

POWER

Supply Voltage:	9–15 VDC
Power Consumption:	< 2.5 W with full sensor load
Protection:	Reverse current, ESD
Backup Power:	Optional Supercap Power Hub

* Validated according to IEEE 1057 Section 10.1

** Validated according to IEEE 1057 Section 4.7.1

*** Validated according to IEEE 1057 Section 4.2.3

**** Validated according to IEEE 1057 Section 12.1.1

EXCITATION

Type:	Independent regulator for each channel
Level:	5.0 V regulated, up to 20 mA per channel
Recovery:	Short circuit safe, recovers <1 msec

ANTI-ALIAS FILTER

Fixed Low Pass:	4-pole Butterworth, standard knee frequency at 20 kHz. -50 dB at 100k sps, -80 dB at 200k sps
Custom Options:	Contact DTS for other filter options or any special requirements
Overall Response:	System response complies with SAE J211 /ISO 6487 recommended practices

ANALOG-TO-DIGITAL CONVERSION

Type:	16-bit SAR (Successive Approximation Register) ADC, one per channel, simultaneous sampling of all channels
Synchronization:	<10 µsec, via IEEE 1588 PTPv2 (channel-to-channel entire system)

TRIGGERING

Hardware Trigger:	Contact closure and 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)

SOFTWARE

Control:	DataPRO, API
Operating Systems:	Windows® 10/11 (32- and 64-bit)
Communication:	100 Mbps Ethernet (unit-to-unit)

CALIBRATION

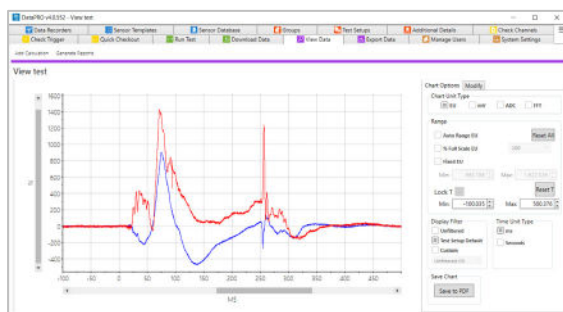
Calibration Supplied:	NIST-traceable
ISO 17025:	ISO 17025 (A2LA Accredited)
Service Options:	Standard, On-site & Service Contracts available

ACCESSORIES

See website for full line of accessories

Software

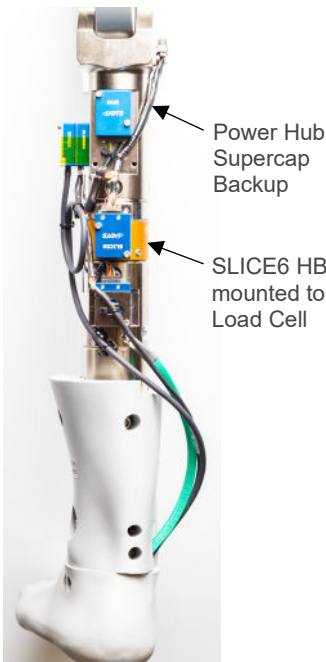
DTS DataPRO Software: DTS offers a powerful software option for SLICE6 HB. DataPRO provides fast, easy tools for storing sensor information, performing data collection, viewing and exporting data. DataPRO is a fully-featured software with a comprehensive database and user interface for tracking sensor information, creating test objects and test setups, performing diagnostic routines, and conducting tests. Both software packages offer the most advanced self-diagnostics, plus support for EQX, ISO MME and many other data exchange file formats.



DataPRO Software

ATD Integration

SLICE6 HB shown integrated into the WIAMan vertical load anthropomorphic test device (ATD).



WIAMan with 146 SLICE6 HB channels



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