

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

## SLICE6

### Ultra-Small Data Acquisition System for Embedded Solutions



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.

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.



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.

## 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

NOTE: See SLICE6 HB datasheet for in-dummy DAS solutions for the U.S. Army WIAMan underbody blast manikin.

## PRODUCTS

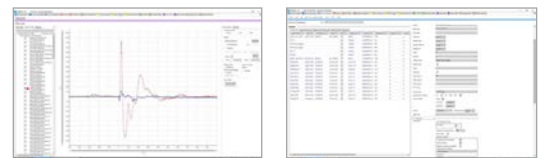
Diversified Technical Systems designs and manufactures data acquisition systems and sensors for experienced test professionals.

## 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 grams)
- 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 5<sup>th</sup> and 50<sup>th</sup>

## 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.



[www.dtsweb.com](http://www.dtsweb.com)

DSH-029 (Rev 06-2023)

## 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
Current (Maximum):	< 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 at 3 kHz.
Custom Options:	Contact DTS for other filter options or any special requirements
Overall Response:	System response complies with SAE J2111/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 & 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® 7/8/10 (32- and 64-bit)
Communication:	100M bps 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	

## SERVICES

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

## WORLDWIDE SUPPORT

HELP CENTER (24/7/365 Access)  
DTS Technical Centers  
Global Sales Partners

## HEADQUARTERS

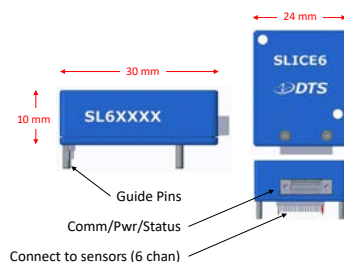
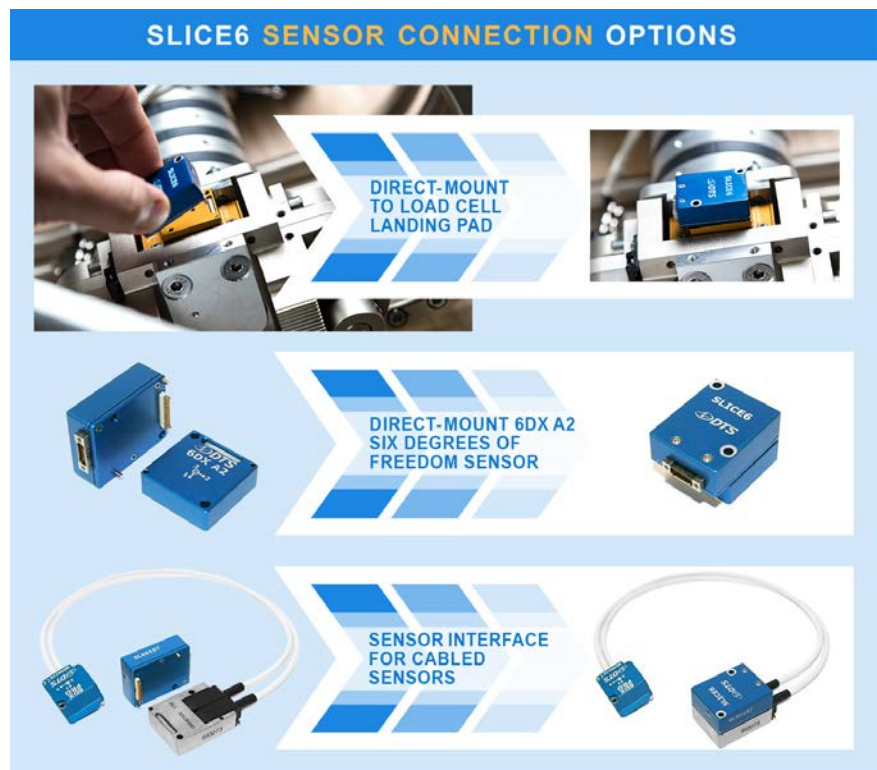
Seal Beach, California USA

## CONTACT US

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Email: sales@dtsweb.com  
Web: www.dtsweb.com

## Sensor Connections

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



**DTS**  
www.dtsweb.com

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# SLICE6 HB

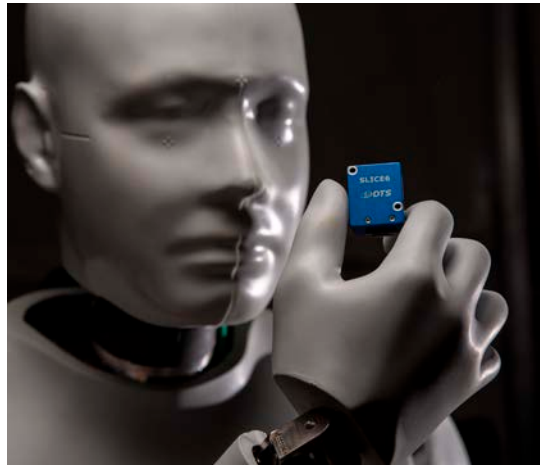
## Miniature, High Bandwidth Data Recorder with PTP Timing

### APPLICATIONS

- WIAMan blast dummy

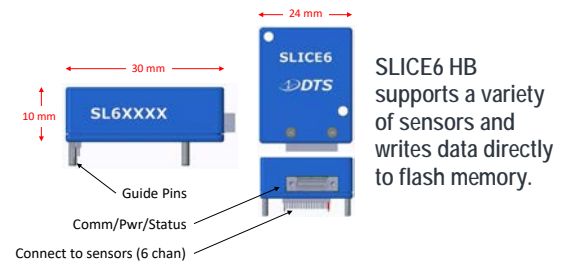
**NOTE:** SLICE6 HB and associated instrumentation, wiring and distribution components to support blast site use are specifically designed for the U.S. Army WIAMan and are not offered for commercial sale.

See SLICE6 datasheet for THOR and other ATD in-dummy DAS solutions, as well as additional SLICE6 applications.



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.

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.

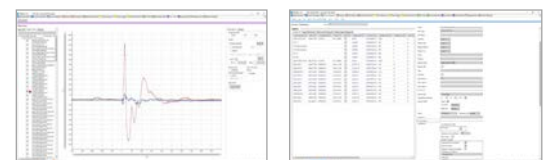


### Features

- 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 grams)
- 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
- IEEE 1588 compliant Ethernet switch in each module allows PTPv2 daisy-chain of SLICE6 HB modules. Sampling sync <10  $\mu$ sec throughout system of hundreds of channels.
- 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

### Software

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### PRODUCTS

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Connectors:	Nano-Strip for 6 sensor inputs, NanoD for chain
ENVIRONMENTAL	
Operating Temp:	-40° to 60°C (-40° to 140°F)
Humidity, Moisture:	95% RH non-condensing, IP51
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
Current (Maximum):	< 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 J2111/ 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 & 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® 7/8/10 (32- and 64-bit)
Communication:	100M bps Ethernet (unit-to-unit)
CALIBRATION	
Calibration Supplied:	NIST traceable
ISO 17025:	ISO 17025 (A2LA Accredited)
Service Options:	Standard, On-site & Service Contracts available
ACCESSORIES	
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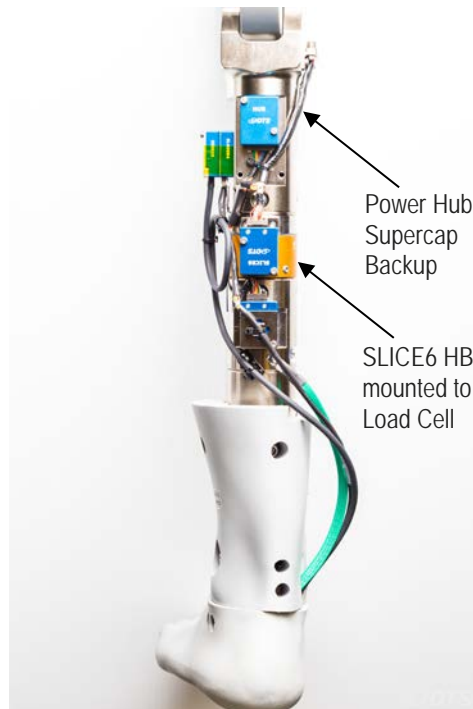
Seal Beach, California USA

## CONTACT US

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## 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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## SLICE6 DAS QUICK REFERENCE CHART

	SLICE6	SLICE6 HB
6 analog input channels	√	√
Piezo-resistive and voltage sensor support	√	√
100 g shock rated	√	√
Store-in-place data recording	√	√
Daisy-chain for higher channel count tests	√	√
Configurable for on-board and in-dummy applications	√	√
In-dummy DAS for THOR frontal impact ATD	√	
In-dummy DAS for U.S. Army WIAMan blast ATD*		√
High bandwidth and high sampling		√
Local Supercap emergency power backup		√
500 g shock rated		√
Shielding for EMP, RFI, blast environment		√
IEEE 1588 PTP timing		√
IP51 rated		√

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