SLICE6 HB

Miniature, High Bandwidth Data Recorder with PTP Timing
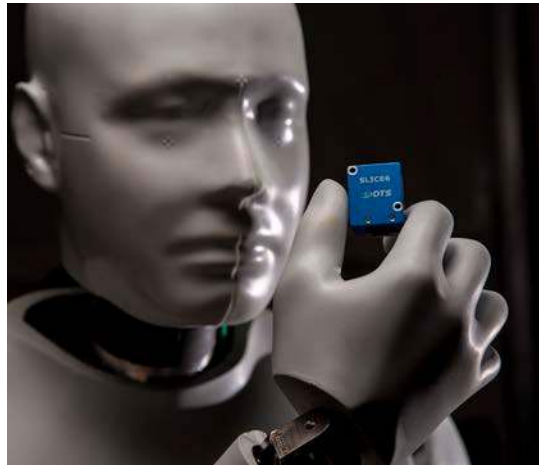
APPLICATIONS

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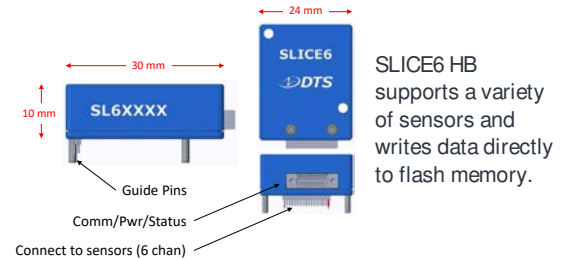
SLICE6 HB supports a variety of sensors and writes data directly to flash memory.
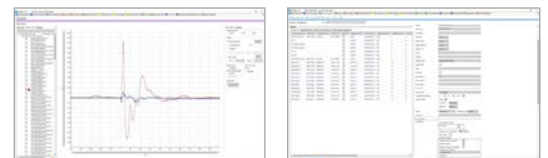
Features

- 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 µsec 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

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.

PRODUCTS

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

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:	-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 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 & 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

ATD Integration

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

Power Hub Supercap Backup

SLICE6 HB mounted to Load Cell
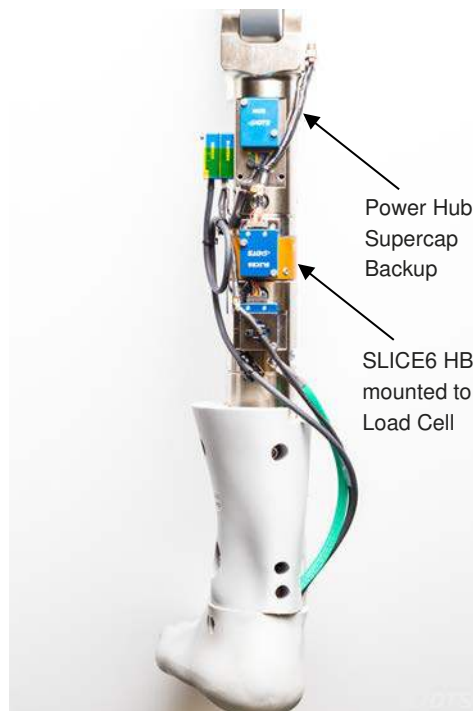
WIAMan with 146 SLICE6 HB channels

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