DTS

SLICE6 AIR

Networked Data Acquisition Unit
Real -Time Streaming & Onboard Recording

Overview

SLICE6 AIR is a complete data acquisition unit (DAU) for measuring analog signals in extreme test environments. Low size, weight and power (SWaP) optimized, SLICE6 AIR is designed for applications with space and mass constraints. Each module features a microprocessor, Ethernet switch, signal conditioning and flash memory. SLICE6 AIR can be used standalone, networked for high channel count tests or integrated into existing Ethernet-based flight test instrumentation. Added flexibility is supported with real-time streaming in IRIG formats (CH10 or TmNS) and/or onboard recording to flash memory.

SLICE6 AIR is designed and optimized for aerospace applications including: In-flight Testing, Ejection Seats, Biomechanics, Helicopter Rotors, Parachute Deployment, Munitions, Rockets, UAV/Drones, Space Capsules.

Features

- Six-channel module, standalone or networked

- Small (42 x 42 x 13 mm) and low mass (50 grams)

- Designed to be near sensors, which reduces installation time and eliminates long cable runs

- Universal analog sensor signal conditioning: Bridge, IEPE, Thermocouple, RTD, Voltage, etc.

- Streaming and Store-in-Place recording

- Programmable sampling rates & anti-alias filters: Streaming: Max 20k sps on all channels Onboard Recording: Max 400k sps

- 16 GB direct-write, non-volatile flash memory

- Multiple software control interface options

Interface

51-pin sensor input connector

25-pin system input connector

Configurations

Standalone

Networked

Centralized

Specifications

PHYSICAL

Size:	42 x 42 x 13 mm (1.65 x 1.65 x 0.51")
Mass:	50 g (1.8 oz)
Connectors (Micro-D):	51-pin with 6 universal sensor inputs
	25-pin for power, Ethernet (2-ports), and Control

ENVIRONMENTAL

Operating Temp:	-40° to 80°C (-40° to 176°F)
Humidity:	95% RH non-condensing
Shock:	500 g, 3 msec half sine
Vibration	12 grms, 3 to 2k Hz
IP Rating:	IP65
EMI/EMC:	Standard protection for EMI, RFI and ESD (8kV)
Military Standard:	MIL-STD-810G, MIL-STD-461G

DATA RECORDING

Modes:	Recorder, Circular Buffer, Multiple Event
Memory:	16 GB non-volatile flash
Sampling Rate:	Programmable up to 400k sps on all channels
Recording Time:	>50 minutes at max sample rate
Pre-Trigger Data	Any part of memory can be used for pre or post trigger data.

DATA STREAMING

Sampling Rate:	Programmable up to 20k sps
Format:	IRIG Chapter 10 or TmNS

BRIDGE AND IEPE SIGNAL CONDITIONING

Bridge Input Range:	0 to 5 volts (2.5 V center)
IEPE Signal Range:	0.5 to 23.5V
Bandwidth:	DC to 50 kHz
Gain Range:	1.0 to 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% typical

POWER

Supply Voltage:	9-36 VDC
Current (Maximum):	< 3W with full sensor load
Protection:	Reverse current, ESD

EXCITATION

Type:	Independent regulator for each channel
Bridge Voltage:	5.0 V regulated, up to 20 mA per channel
IEPE Current:	5 mA per channel (24-volt source)
Recovery:	Short circuit safe, recovers in <1 msec

PRE-A/D ANTI-ALIAS FILTERS

Fixed Low Pass:	4-pole Butterworth, standard knee at 50 kHz
Adjustable Low Pass:	5-pole Butterworth set by software from 1 Hz to 35 kHz
	(bypass-able for maximum bandwidth)
Factory Options:	Bessel configuration, custom bandwidths

ANALOG-TO-DIGITAL CONVERSION

Type:	16-bit SAR (Successive Approximation Register) ADC, one per channel, simultaneous sampling of all channels in each module.
Synchronization:	< 10 µsec, via IEEE 1588 PTPv2 or PPS (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, LabVIEW
Operating Systems:	Windows® 7/8/10 (32/64-bit), Linux
Communication:	100M bps Ethernet with built-in IEEE-1588 compliant switch

CALIBRATION

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

TIME SOURCE

IEEE 1588 PTPv2
IRIG-B122
GPS RS232/422/485 & 1 PPS

ACCESSORIES

See website for full line of accessories

Software

DTS offers multiple software control interface options:
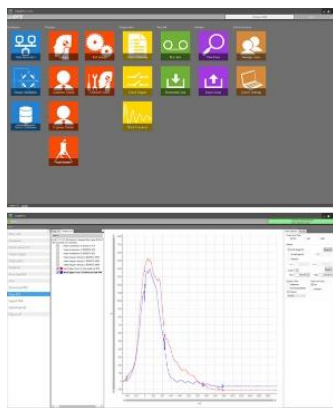
DTS DataPRO Software: Complete Windows application with sensor database, diagnostics, arming, downloading and data viewing

API: Application Programming Interface (API) for user-developed application support

LabVIEW: National Instruments LabVIEW driver for user-developed application support

IRIG Chapter 10/TmNS Streaming: Supports direct UDP streaming of data from SLICE6 AIR

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