SLICE6 AIR-BR

Networked Data Acquisition Unit
Real-Time Streaming & Onboard Recording

Overview

SLICE6 AIR-BR is a complete data acquisition unit for measuring analog signals in extreme test environments. Optimized for size, weight and power (SWaP), SLICE6 AIR-BR is ideal for applications with size and mass constraints. Each module features a microprocessor, Ethernet switch, signal conditioning and memory. SLICE6 AIR-BR can be used standalone, networked for high channel count tests or integrated into existing Ethernet-based flight test instrumentation. Real-time streaming in IRIG formats and dual store-in-place recording enables both real-time monitoring and redundant backup of data on a single device.

SLICE6 AIR-BR applications include: In-Flight Testing, Ejection Seats, Helicopter Rotors, Parachute Deployment, UAV/Drones, Munitions, Launch Vehicles, Space Capsules and more

Features

- 6-channel module, standalone or networked

- Ultra-small (24 x 42 x 12.5 mm), low mass (25 grams)

- Designed to be positioned near the sensors, significantly reduces installation time and cost

- Supports a variety of sensors, including full and half-bridge sensors, strain gauges, voltage input, thermocouples

- Real-Time Streaming (CH10, IENA or TmNS) Onboard Recording (16 GB non-volatile memory)

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

- Time synchronization via IEEE 1588 PTPv2 with internal Real Time Clock

Configurations & Interface

Sensor Inputs   Sensor Inputs   Sensor Inputs

Ethernet Networking and 1588 Sync

A 2-port 10/100Mbit Ethernet switch allows up to 10x modules (60ch) in daisy-chain configuration

Specifications

PHYSICAL

Size:	24 x 42 x 12.5 mm
Mass:	25 g
Connectors (Nano-D):	37-pin for sensor inputs
	21-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, 4 msec half sine
Vibration	12 grms, 3 to 2k Hz
IP Rating:	IP64
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 106 Chapter 10, IENA or TmNS

SIGNAL CONDITIONING

Bridge Input Range:	0 to 5 volts (2.5 V center)
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:	9-30 VDC
Current (Maximum):	< 3W 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 in <1 msec

PRE-A/D ANTI-ALIAS FILTERS

Fixed Low Pass:	6-pole Butterworth, standard knee at 1.28 kHz (other filter options available, contact DTS for more information)
Post ADC Digital:	Stage 1: 45-tap FIR with adjustable parameters, Stage 2: either 65-tap FIR or 6-pole IIR Butterworth with adjustable parameters. Other options available on request

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

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

### ACCESSORIES

See website for full line of accessories

Software

SLICE6 AIR-BR configuration software options:

DTS DataPRO Software: Complete Windows application with sensor database, diagnostics, configuring streaming mode, arming, downloading, and data viewing

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

IRIG Chapter 10/IENA/TmNS Streaming: Requires 3rd party IRIG106 compliant software for real-time data visualization

DataPRO Software

DTS
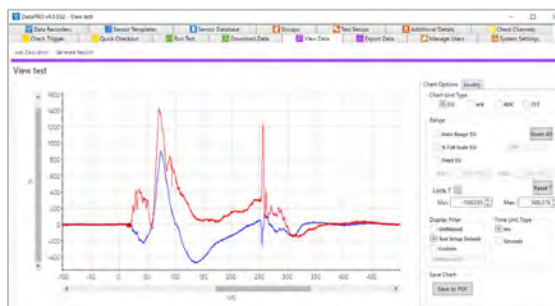
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