SLICE6 AIR-BR

**Ultra-Small 6-Channel Ethernet-Based Data Acquisition Unit,
Strain-based Analog Sensor Support,
Real-Time Streaming and/or Onboard Recording**

Overview

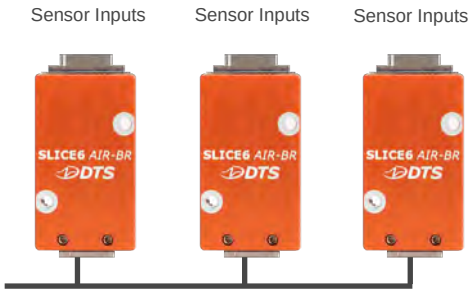
SLICE6 AIR-BR is an ultra-reliable onboard data acquisition unit built for demanding test environments, at a fraction of the volume of other DAQ units. Optimized for size, weight, and power (SWaP), it mounts directly on test articles–close to sensors–for precise measurements and minimal cabling. This embedded design enables rapid deployment, quick expansion of select data channels, and operation in hard-to-reach locations. SLICE6 AIR-BR operates standalone or networked and integrates into Ethernet-based flight test instrumentation. It supports real-time streaming in IRIG-106 formats and dual store-in-place recording for simultaneous live monitoring and redundant backup. DTS solutions allow engineers to improve performance, enhance safety, and validate designs under harsh conditions.

Applications: Flight Testing, Rotors, Parachute Deployment, UAS/Counter UAS, Launch Vehicles, Munitions

Features

- 6-channel module, ultra-small (24 x 49 x 12.5 mm), low mass (25 grams)
- Designed to be positioned near the sensors, significantly reduces installation time and cost.
- Select analog sensor signal conditioning: Bridge, MEMS, Voltage, Thermocouple, RTD, (excluding IEPE)
- Fixed 6-pole Butterworth AAF (factory set cutoff)
- Digital IIR real-time filter with adjustable parameters
- Real-Time Streaming (CH10, IENA, or TmNS)
  Onboard Recording (16 GB non-volatile memory)
- Programmable sampling rates:
  Streaming: Max 20k sps on all channels
  Onboard Recording: Max 400k sps
- Time synchronization via IEEE 1588 PTPv2 with internal Real Time Clock; 1PPS input/output

Configurations & Interface



Ethernet Networking and IEEE1588 Sync

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

Specifications

PHYSICAL	
Size:	24 x 49 x 12.5 mm (0.94 x 1.93 x 0.49 in)
Mass:	25 g (0.88 oz)
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:	>17 hours at 20k samples per second.
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 1,280 Hz (factory set, other bandwidths available)
Gain Range:	1.0 to 1,280, software programmable
Auto Offset Range:	100% of effective input range at gain > 2
Shunt Check:	Yes
Linearity (typical):	0.1% (gain 1 to 320), ≤0.2% (gain ≥640)
Accuracy:	0.1% typical
Signal to Noise Ratio:	>70 dB typical (i.e. strain gauge bridge, gain = 160)

POWER	
Supply Voltage:	9-30 VDC
Current (Maximum):	< 3W with full sensor load
Protection:	Reverse current, ESD

EXCITATION	
Type:	Independent regulator for each channel
Voltage Level:	5.0 V regulated (factory calibrated)
Maximum Current:	20 mA per channel with short circuit protection
Recovery:	Short circuit safe, recovers in <1 msec

PRE-A/D HARDWARE ANTI-ALIAS FILTERS	
Fixed Low Pass:	6-pole Butterworth, standard knee at 1.28 kHz (other filter options available, contact DTS for more information)

ANALOG-TO-DIGITAL CONVERSION (ADC)	
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

POST ADC REAL TIME DIGITAL FILTERS (STREAMING ONLY)	
Post ADC Digital:	6-pole IIR Butterworth with adjustable parameters. Other options available on request.

TRIGGERING	
Hardware Trigger:	Contact closure & TTL logic-level (active low)
Level Trigger:	Positive and/or negative level on any active sensor channel

SOFTWARE	
Control:	DataPRO, API, LabVIEW
Operating Systems:	Windows® 10/11 (32/64-bit), Linux
Communication:	100M bps Ethernet with built-in IEEE-1588 compliant switch

CALIBRATION	
Calibration Supplied:	ISO/IEC 17025 (Accredited), Measurements traceable to SI
Service Options:	OEM, On-site, and Service Contracts available

SYNCHRONIZATION METHODS	
Via Ethernet:	IEEE 1588 PTPv2
Via External Clock:	1PPS input/output

ACCESSORIES
See website for full line of accessories

Software

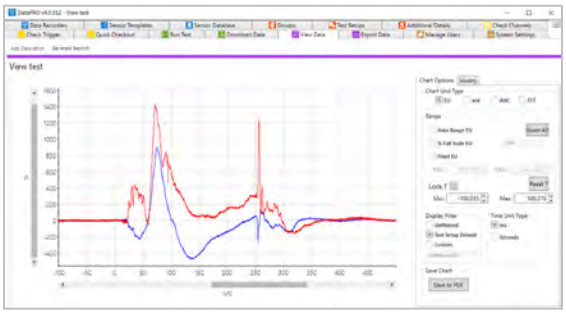
SLICE6 AIR-BR configuration software options:

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.

LabVIEW (Display Only): NI LabVIEW driver for real-time data visualization.

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



DataPRO Software

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