



SLICE6 AIR

**Miniature 6-Channel Networked Data Acquisition Unit
with Real-Time Streaming & Onboard Recording**

Overview

SLICE6 AIR is a complete data acquisition unit for measuring analog signals in extreme test environments. Optimized for size, weight, and power (SWaP), SLICE6 AIR is ideal for applications with tight size and mass constraints. Each module features a microprocessor, Ethernet switch, signal conditioning, and non-volatile memory. The versatile SLICE6 AIR 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 back-up of data on a single device.

SLICE6 AIR Applications include: In-Flight Testing, Rotors, Air Drop, Munitions, UAS/Counter-UAS, Launch Vehicles

Features

- 6-channel module, ultra-small (42 x 42 x 13 mm), low mass (50 grams)
- Designed to be positioned near the sensors, significantly reduces installation time and cost
- Universal analog sensor signal conditioning: Bridge, IEPE, Thermocouple, RTD, Voltage, etc.
- UART for RS232/422/485 serial data capture (TX available upon request)
- Module can be configured to function as UDP Ethernet recorder
- Real-Time Streaming (CH10, IENA or TmNS)
Onboard Recording (16 GB non-volatile memory)
- Time synchronization via IEEE 1588 PTPv2 with internal Real Time Clock
- Programmable sampling rates & anti-alias filters
Streaming: Max 20k sps on all channels
Onboard Recording: Max 400k sps

Interface

51-pin sensor input connector



25-pin system control connector

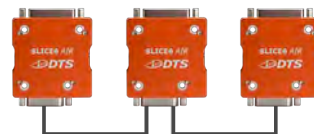


Configurations

Standalone



Networked



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

Centralized



Specifications

PHYSICAL		EXCITATION	
Size:	42 x 42 x 13 mm (1.65 x 1.65 x 0.51")	Type:	Independent regulator for each channel
Mass:	50 g (1.8 oz)	Bridge Voltage:	5.0 V regulated, up to 20 mA per channel
Connectors (Micro-D):	51-pin with 6 universal sensor inputs 25-pin for power, Ethernet (2-ports), and Control	IEPE Current:	5 mA per channel (24-volt source)
		Recovery:	Short circuit safe, recovers in <1 msec
ENVIRONMENTAL		FILTERS	
Operating Temp:	-40° to 80°C (-40° to 176°F)	Pre-ADC	
Humidity:	95% RH non-condensing	Fixed Low Pass:	4-pole Butterworth, standard knee at 50 kHz
Shock:	500 g, 4 msec half sine	Adjustable Low Pass:	5-pole Butterworth set by software from 1 Hz to 35 kHz (bypass-able for maximum bandwidth)
Vibration:	12 grms, 3 to 2k Hz	Factory Options:	Bessel configuration, custom bandwidths
IP Rating:	IP64	Post-ADC	
EMI/EMC:	Standard protection for EMI, RFI and ESD (8kV)	Adjustable Low Pass:	Two Stage 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.
Military Standard:	MIL-STD-810G, MIL-STD-461G		
DATA RECORDING		ANALOG-TO-DIGITAL CONVERSION	
Modes:	Recorder, Circular Buffer, Multiple Event	Type:	16-bit SAR (Successive Approximation Register) ADC, one per channel, simultaneous sampling of all channels in each module.
Memory:	16 GB non-volatile flash	Synchronization:	< 10 µsec, via IEEE 1588 PTPv2 or PPS (channel-to-channel entire system)
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		TRIGGERING	
Sampling Rate:	Programmable up to 20k sps	Hardware Trigger:	Contact closure & TTL logic-level (active low)
Format:	IRIG 106 Chapter 10, IENA or TmNS	Level Trigger:	Positive and/or negative level on any active sensor channel (first level crossing of any programmed sensor triggers system)
BRIDGE AND IEPE SIGNAL CONDITIONING		SOFTWARE	
Bridge Input Range:	0 to 5 volts (2.5 V center)	Control:	DataPRO, API, LabVIEW
IEPE Signal Range:	0.5 to 23.5V	Operating Systems:	Windows® 7/8/10/11 (32/64-bit), Linux
Bandwidth:	DC to 50 kHz	Communication:	100M bps Ethernet with built-in IEEE-1588 compliant switch
Gain Range:	1 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		CALIBRATION	
Supply Voltage:	9-30 VDC	Calibration Supplied:	NIST traceable
Current (Maximum):	< 3W with full sensor load	ISO 17025:	ISO 17025 (A2LA Accredited)
Protection:	Reverse current, ESD	Service Options:	Standard, On-site & Service Contracts available
		TIME SOURCE	
			IEEE 1588 PTPv2, IRIG-B122, and GPS RS232/422/485 & 1 PPS
		ACCESSORIES	
			See website for full line of accessories

Software

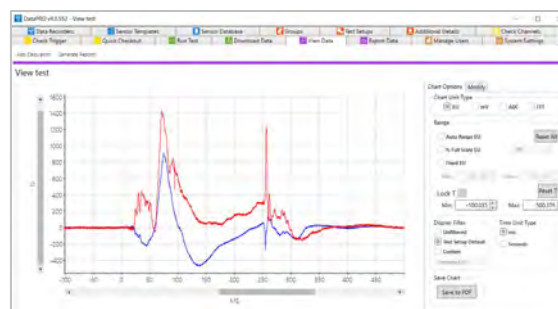
SLICE6 AIR configuration software options:

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 IRIG 106 compliant software for real-time data visualization



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