



SLICE6 AIR

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

Overview

SLICE6 AIR is an ultra-reliable, onboard data acquisition unit built for demanding test environments. 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 data channels, and operation in hard-to-reach locations. SLICE6 AIR 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, Airdrop Testing, Munitions, UAS/Counter-UAS, Launch Vehicles, Hypersonics, Space Capsules, Autonomous Systems

Features

- 6-channel module, small (42 x 52 x 13 mm), low mass (50 grams)
- Designed to be positioned near the sensors, significantly reducing installation time and cost
- Universal analog sensor signal conditioning: Bridge, MEMS, Voltage, Thermocouple, RTD, IEPE, etc.
- UART for RS232/422/485 serial data capture
- Configurable to function as a UDP Ethernet recorder
- 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, IRIG-B, GPS/PPS with internal real-time clock; 1PPS input/output

Interface

51-pin sensor input connector



25-pin system control connector



Configurations

Standalone



Networked



2-port 10/100 Mbps Ethernet switch supports up to 10 modules (60 channels) in a daisy-chain configuration

Centralized



Specifications

PHYSICAL		EXCITATION	
Size:	42 x 52 x 13 mm (1.65 x 2.05 x 0.51 in)	Type:	Independent regulator for each channel
Mass:	50 g (1.8 oz)	Voltage Level:	5.0 V regulated(factory calibrated)
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 5,000 g option available	Adjustable Low Pass:	5-pole Butterworth set by software from 1 Hz to 35 kHz (bypassable for maximum bandwidth)
Vibration:	12 grms, 3 to 2kHz	Factory Options:	Bessel configuration, custom bandwidths
IP Rating:	IP64	Post-ADC	
EMI/EMC:	Standard protection for EMI, RFI and ESD (8 kV)	Adjustable Low Pass:	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 (ADC)	
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:	>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		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
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 23.5 V	Operating Systems:	Windows® 10/11 (32/64-bit), Linux
Bandwidth:	DC to 50 kHz	Communication:	100 Mbps 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:	ISO/IEC 17025 (Accredited), Measurements traceable to SI
Current (Maximum):	< 3 W with full sensor load	Service Options:	OEM, On-site, and Service Contracts available
Protection:	Reverse current, ESD		
		SYNCHRONIZATION METHODS	
		Via Ethernet:	IEEE 1588 PTPv2
		Via External Clock:	IRIG-B122, GPS RS232/422/485, and 1PPS input/output
		ACCESSORIES	
		See website for a full line of accessories	

Software

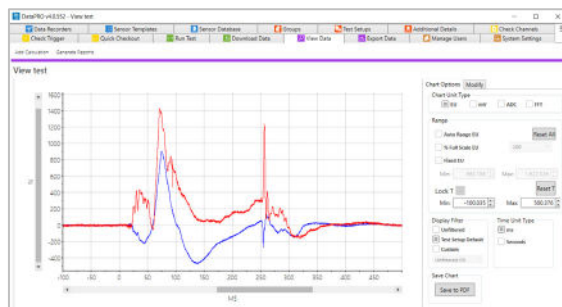
SLICE6 AIR configuration software options:

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 third-party IRIG 106-compliant software for real-time data visualization.



DataPRO Software



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