



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, Air Drop, Munitions, UAS/Counter-UAS, Launch Vehicles, Munitions, 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 reduces 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 10/100Mbit Ethernet switch supports up to 10x modules (60ch) in daisy-chain configuration

Centralized



SLICE6 AIR DS-4 Rack

Specifications

PHYSICAL	
Size:	42 x 52 x 13 mm (1.65 x 2.05 x 0.51 in)
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, 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
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 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
Voltage Level:	5.0 V regulated(factory calibrated)
IEPE Current:	5 mA per channel (24-volt source)
Recovery:	Short circuit safe, recovers in <1 msec
FILTERS	
Pre-ADC	
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
Post-ADC	
Adjustable Low Pass:	Either 65-tap FIR or 6-pole IIR Butterworth with adjustable parameters. Other options available on request.
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 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
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:	IRIG-B122, GPS RS232/422/485, and 1PPS input/output
ACCESSORIES	
See website for full line of accessories	

Software

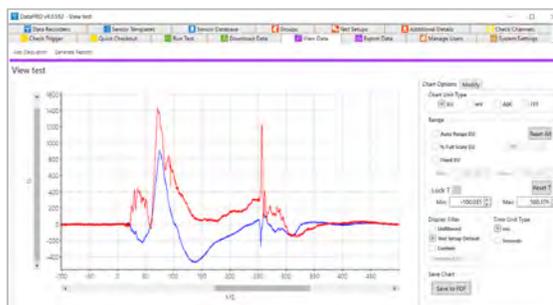
SLICE6 AIR configuration software options:

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/IEA/TmNS Streaming: Requires 3rd party IRIG 106 compliant software for real-time data visualization.



DataPRO Software



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