SLICE6 AIR-TC

**Small 24-Channel Ethernet-Based Data Acquisition Unit,
Thermocouple Sensor Support,
Real-Time Streaming**

Overview

SLICE6 AIR-TC is an ultra-compact data acquisition unit designed to stream up to 24 thermocouple channels. Optimized for size, weight, and power (SWaP) efficiency, it delivers reliable thermocouple measurements in harsh test environments.

The system combines a data acquisition module with an integrated microprocessor and Ethernet switch, along with a thermocouple TC Interface that includes cold-junction compensation and signal conditioning. It supports scalable networking for high-channel-count testing and integrates easily with existing Ethernet-based flight-test instrumentation.

Real-time streaming in IRIG formats ensures interoperability with IRIG 106 standards-based systems.

Applications: In-Flight Testing, Munitions, Hypersonics, Launch Vehicles

Features

- 24-channel DAS module, compact (42 x 42 x 13 mm), low-mass (50 grams),
- TC Interface, 3 x 8-channel blocks per DAS module, each block (42 x 42 x 36 mm, 135 grams)
- Supports Type K, S, T & E thermocouples
- Flexible configurations: network or integrate into existing flight test instrumentation
- Designed to position near the sensors, significantly reduces installation time and cost
- Built-in thermocouple signal conditioning
- Real-Time Streaming (CH10, IENA or TmNS)
- Programmable sampling rates; up to 2k sps on all channels
- Time synchronization via IEEE 1588/PTPv2, GPS/PPS, or IRIG-B with internal Real Time Clock

SLICE6 AIR-TC data acquisition unit with three TC Interface blocks, shown as a 24-channel system

SLICE6 AIR-TC supports up to 10 modules (240ch) networked in a daisy-chain configuration via a 2-port 10/100Mbit Ethernet switch

Specifications

PHYSICAL	
Size:	DAS 42 x 42 x 13 mm (1.65 x 1.65 x 0.51")
	TC Interface 42 x 42 x 36 mm (1.65 x 1.65 x 1.42")
Mass:	DAS 50 g (1.8 oz)
	TC Interface 135 g (4.4 oz)
Connectors:	DAS (Micro-D) 31-pin with 3 adapter inputs
	DAS (Micro-D) 25-pin for power, Ethernet (2-ports), & Control
	TC Interface Micro Spade

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 Ratings:	DAS: IP64; TC Interface: IP53
	Contact DTS for applications with higher IP requirements
EMI/EMC:	Standard protection for EMI, RFI, and ESD (8kV)
Military Standard:	MIL-STD-810G, MIL-STD-461G

DATA STREAMING	
Sampling Rate:	Programmable up to 2k sps
Format:	IRIG 106 Chapter 10, IENA or TmNS

TC INTERFACE	
Supported TC Types:	K, S, T, E
Channel Count:	3 blocks of 8ch ea
Bandwidth:	DC to 200 Hz
Linearity (typical):	0.1% (gain 1 to 320), ≤0.5% (gain ≥640)
Accuracy:	+/-1 ºC less than 400ºC, 0.25% of Full Scale (> 400 ºC)

POWER	
Supply Voltage:	9-30 VDC
Power (Maximum):	< 3W for DAS + 3 TC Interfaces
Protection:	Reverse current, ESD

FILTERS	
Fixed Low Pass:	3-pole Butterworth, knee at 200 Hz
DSP Filter:	6-pole Infinite Impulse Response (IIR) Butterworth Filter

ANALOG-TO-DIGITAL CONVERSION	
Type:	24-bit Delta-Sigma ADC decimated to 16 bits
Synchronization:	510usec, channel-to-channel entire system via IEEE 1588 PTPv2 or PPS

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

CALIBRATION	
Calibration Supplied:	At time of manufacture or recalibration
Service Options:	OEM, On-site, and Service Contracts available

TIME SOURCE

IEEE 1588 PTPv2, IRIG-B, GPS RS232/422/485 & 1 PPS

ACCESSORIES

See website for full line of accessories

*In development

DTS makes it easy to put together a complete test solution.

Kits are available with Micro-TC thermocouple mating connectors, connector retainer brackets, and 31-pin mating connectors.

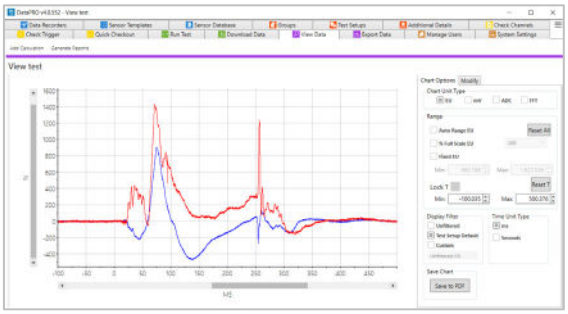
Software

SLICE6 AIR-TC configuration software options:

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

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

IRIG Chapter 10/IENA/TmNS Streaming: Requires 3rd party IRIG 106 compliant software for real-time data visualization



DataPRO Software

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