



SLICE6 LEO

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

Overview

SLICE6 LEO is a compact, radiation-tolerant data acquisition unit designed to capture analog signals in low Earth orbit environments. Optimized for size, weight, and power (SWaP) efficiency, SLICE6 LEO is ideal for test applications with strict size and mass constraints.

The SLICE6 LEO supports standalone operation, networked high-channel-count configurations, and integration with existing Ethernet-based test instrumentation. Real-time streaming in IRIG formats and dual store-in-place recording provide simultaneous real-time monitoring and redundant onboard data capture.

Applications: In-Orbit Testing, Launch Vehicle Characterization, Satellite Monitoring, Onboard Distributed DAS

Features

- Radiation-tolerant to 18 krad
- 6-channel module, ultra-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, IEPE, Thermocouple, RTD, Voltage, 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



Centralized



SLICE6 LEO DS-4 Rack

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)	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 g rms, 3 to 2k Hz	Factory Options:	Bessel configuration, custom bandwidths
EMI/EMC:	Standard protection for EMI, RFI, and ESD (8kV)		
Military Standard:	MIL-STD-810G, MIL-STD-461G, MIL-STD-3053, and MIL-STD-833	Post-ADC	
TID-Total Ionizing Dose:	18 krad	Adjustable Low Pass:	Either 65-tap FIR or 6-pole IIR Butterworth with adjustable parameters. Other options available on request.
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
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®, 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:	ISO/IEC 17025 (Accredited), Measurements traceable to SI
Current (Maximum):	< 3W 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 full line of accessories	

Software

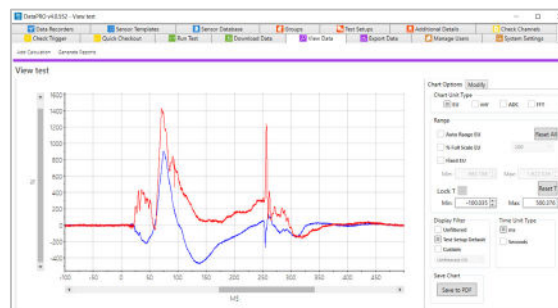
SLICE6 LEO configuration software options:

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



DataPRO Software



phone: +1 562-493-0158
email: sales@dtsweb.com
www.dtsweb.com