TSR AIR

Universal Data Logger with Built-In 6DOF Sensors
Onboard Recording & Real-Time Streaming

Overview

The TSR AIR is a high-performance data logger with built-in 6-degree-of-freedom (6DOF) sensors designed for collecting shock and vibration data in harsh test environments. Compact and self-powered, the rugged system is ideal for unattended monitoring of shock, vibration and other parameters with multiple triggered-event capability.

Simple and reliable, the TSR AIR is “always on” and ready to record. An advanced sleep mode “wakes” for an event trigger, collects data to flash memory, then automatically re-arms and returns to ready mode to capture the next event.

TSR AIR Applications Include: Shock & Vibration Analysis, In-Flight Testing, UAV/Drones, Parachute Deployment, Engine Vibration, Vehicle Crash, Transportation Monitoring and High-Value Asset Tracking

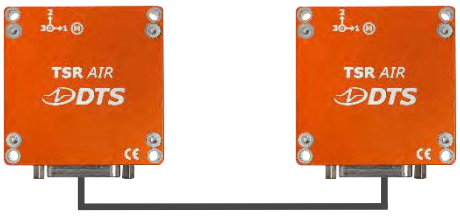
Features

- Standalone data logger with built-in sensors and memory
- Small and lightweight for quick installation and testing
- Internal Sensors
  - Multiple accelerometer g-levels for full dynamic range
  - Angular rate sensors (high-rate gyroscope)
  - Environment sensors temperature and pressure
- Advanced “sleep & wake” feature extends battery life for months
- Wide operating temperature range of -40C to 60°C
- Data writes to flash memory (8 GB), stores 1000’s of events
- Programable sampling rate from 100 to 20,000 sps
- User-programmable trigger modes; msec to hours for each event
- Unit-to-unit synchronization via IEEE 1588 PTP, IRIG or GPS
- Streaming format is IRIG 106 Chapter 10 compliant
- Simple, intuitive software for arming, downloading and viewing data

Configurations & Interface

Standalone

Networked via synchronized IEEE 1588 PTP



25-pin microD system connector
(Same pinout and functionality as SLICE6 AIR)

Specifications

MODELS	
Standard:	Supports onboard recording to flash memory
Streaming:	Supports onboard recording & real-time streaming

PHYSICAL	
Size:	43 x 43 x 15 mm (1.69 x 1.69 x 0.59")
Weight:	50 grams (1.8 oz)
Connector:	25-pin microD (Ethernet, Power, I/O, IRIG, GPS)
Enclosure:	Anodized aluminum

ENVIRONMENTAL	
Operating Temp:	-40 to 60°C
Shock:	500 g survivable
IP Rating:	IP67

POWER / BATTERY	
Supply Voltage:	9 to 30 VDC, 2.5W minimum
Battery Options:	Li-ion Rechargeable (350mAh)

EMBEDDED SENSORS	
Triaxial Low-g Accelerometer:	Primary application: Vibration Range: Programmable, ±6g, ±12g, ±25g, ±50g ADC: 16-bit, BW: 10 to 2000 Hz Piezoresistive, MEMS, DC response,
Triaxial High-g Accelerometer:	Primary application: Shock Range: ±400g ADC: 12-bit, BW: 160 to 640 Hz Piezoresistive, MEMS, DC response,
Triaxial Angular Rate (Gyroscope):	Primary application: Angular Velocity Range: Programmable ±250 or ±2000 deg/sec ADC: 16-bit, BW:10-180 Hz MEMS, DC response
Environmental Sensors:	Temperature: -40 to 85°C Pressure: 300 to 1100 hPa (4.5 to 16 psi)

DATA RECORDING	
Memory Capacity:	8 GB standard, flash non-volatile
Sleep:	Advanced motion detection for power savings
Sampling Rate:	Programmable 100 to 20k sps
Data Collection Modes	
Active:	Circular buffer waiting for trigger Pre-trigger data is also recorded with event
Recorder:	No pre-trigger data (data collection starts in <2 msec)
Schedule:	Wake and record at a specified date and time
Interval:	Wake and record at a specified interval of time

DATA STREAMING	
Streaming Rate:	Programmable 100 to 20k sps
Format:	IRIG-106 Chapter 10 or TmNS*

TRIGGERING	
Hardware Trigger:	Contact closure & TTL logic-level (active low)
Software Level Trigger:	Programmable level trigger from internal sensors
Trigger Modes:	Level, Schedule, Interval with High-g Accel

SOFTWARE	
Control:	DataPRO Software
Operating Systems:	Windows® 7/8/10 (32/64-bit), Linux
Communication:	100M bps Ethernet, SLICE BUS compatible
Export Options:	IRIG-106 (Chapter 10 or TmNS), CVS, etc.

CALIBRATION	
Calibration Supplied:	NIST traceable
ISO 17025:	ISO 17025 (A2LA Accredited)
Service Options:	Standard, On-site & Service Contracts available

TIME SOURCE
IEEE 1588 PTP (Requires external power. First TSR AIR in chain acts as Grand Master for chained units)
IRIG-B122*
GPS RS232/422/485 & 1 PPS**
Internal RTC (5 ppm)

ACCESSORIES
See website for the full line of accessories

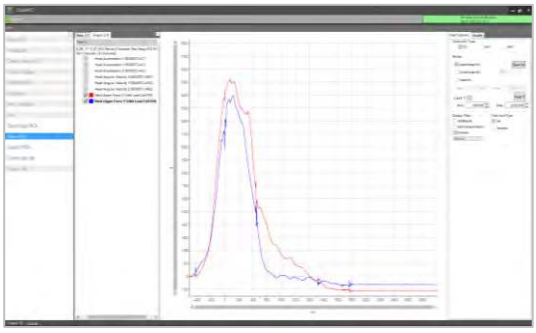
*Streaming format is IRIG 106 Chapter 10 compliant and requires 3rd-party Display Software
**Under Development

Software

TSR AIR is supported by multiple control software options:

DTS DataPRO Software: Easy-to-use Windows application designed specifically to support TSR AIR; includes sensor database, diagnostics, arming, downloading, data viewing and PSD analysis

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



DataPRO Software

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