TSR AIR

High-Performance Data Logger with Built-In 6DOF Sensors
Onboard Recording or 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 capabilities.

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

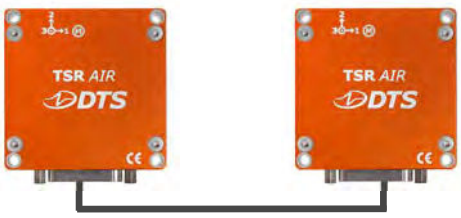
Features

- 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)
  - Temperature sensors
- Advanced “sleep & wake” feature extends battery life for months
- Wide operating temperature range of -40C to 60°C
- Data writes to flash memory (16 GB); stores thousands of events
- Programmable sampling rate from 100 to 20,000 sps
- User-programmable trigger modes; milliseconds 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 TSR AIR GO software for arming, downloading, and viewing data

Configurations & Interface

Standalone

Networked via synchronized IEEE 1588 PTP



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

Specifications

MODELS	
Standard Model:	Supports onboard recording to flash memory
Streaming Model:	Supports onboard recording or 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, Time Sync)
Enclosure:	Anodized aluminum
ENVIRONMENTAL	
Operating Temp:	-40 to 60°C
Shock:	500 g survivable
IP Rating:	IP67
Military Standard:	MIL-STD-810G, MIL-STD-461G
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: ±50 g ADC: 16-bit Bandwidth: Adjustable** up to 2000 Hz Piezoresistive, MEMS, DC response
Triaxial High-g Accelerometer:	**Primary application: Shock** Range: ±400 g ADC:12-bit Bandwidth: Adjustable** up to 640 Hz Piezoresistive, MEMS, DC response
Triaxial Angular Rate (Gyroscope):	**Primary application: Angular Velocity** Range: ±2000 deg/sec ADC: 16-bit Bandwidth: Adjustable** up to 180 Hz MEMS, DC response
Environmental	Temperature: -40 to 60°C

DATA RECORDING	
Memory Capacity:	16 GB standard, non-volatile flash
Sleep:	Advanced motion detection for power savings
Sampling Rate:	Programmable 100 to 20,000 sps
Data Collection Modes	
Active:	Circular buffer waiting for trigger 512 samples of pre-trigger data are 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 20,000 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:	TSR AIR GO
Operating Systems:	Windows®, Linux
Communication:	100M bps Ethernet, DTS SLICE BUS compatible
Export Options:	IRIG-106 (Chapter 10 or TmNS), CVS, etc.
CALIBRATION	
Calibration Supplied:	ISO/IEC 17025 (A2LA Accredited). Measurements traceable to International System of Units (SI)
Service Options:	Standard, On-site, and 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 & 1PPS Internal RTC (5 ppm)	
ACCESSORIES	
See website for the full line of accessories	

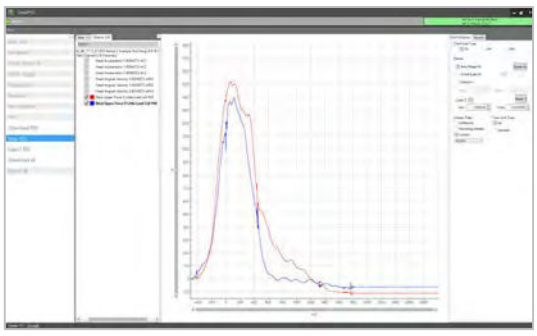
* Streaming requires external power
** Adjustable filtering value is dependent on system sample rate
*** Under development

Software

TSR AIR is supported by multiple control software options:

TSR AIR GO: 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



TSR AIR GO

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