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 the ability to capture multiple triggered events.

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

Applications: Shock & Vibration Analysis, In-Flight Testing, UAV/Drones, Parachute Deployment, Engine Vibration, Vehicle Crash Testing, 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)
- Advanced “sleep & wake” feature extends battery life for months
- Wide operating temperature range of -40 °C to 60 °C
- Data writes to 16 GB flash memory and stores thousands of events
- Programmable sampling rate from 100 to 20,000 sps
- User-programmable trigger modes ranging from 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 and synchronized via IEEE 1588 PTP

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

Specifications

MODELS	
Standard Model:	Supports onboard recording to flash memory
Streaming Model:	Supports onboard recording or real-time streaming*
External Power Model:	Supports onboard recording or real-time streaming. The Battery is removed to support a wider operating temperature range.

PHYSICAL	
Size:	43 x 43 x 15 mm (1.69 x 1.69 x 0.59")
Weight:	50 g (1.8 oz)
Connector:	25-pin Micro-D (Ethernet, Power, I/O, Time Sync)
Enclosure:	Anodized aluminum

ENVIRONMENTAL	
Operating Temp:	-40 °C to 60 °C -40 °C to 85 °C (External Power Model)
Shock:	500 g survivable
IP Rating:	IP67
Military Standard:	MIL-STD-810G, MIL-STD-461G

POWER / BATTERY	
Supply Voltage:	9 to 30 VDC, 2.5 W 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 6400Hz Piezoresistive, MEMS, DC response
Triaxial High-g Accelerometer:	**Primary application: Shock** Range: ±400 g ADC:12-bit Bandwidth: Adjustable** up to 2560 Hz Piezoresistive, MEMS, DC response
Triaxial Angular Rate (Gyroscope):	**Primary application: Angular Velocity** Range: ±2000 °/sec ADC: 16-bit Bandwidth: Adjustable** up to 180 Hz MEMS, DC response

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:	100 Mbps Ethernet, DTS SLICE BUS compatible
Export Options:	IRIG-106 (Chapter 10 or TmNS), CSV, 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**** (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

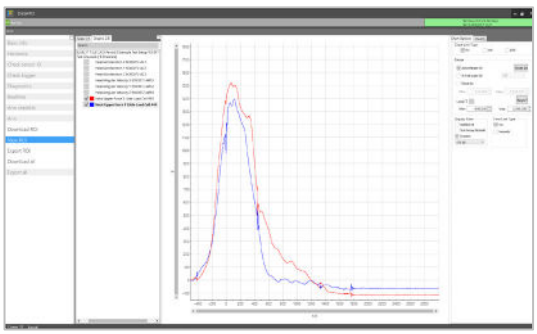
* Streaming requires external power
** Adjustable filtering value is dependent on system sample rate
*** Under development
****Requires external power

Software

TSR AIR is supported by multiple control software options:

TSR AIR GO: An Easy-to-use Windows application designed specifically to support TSR AIR. It includes a sensor database, diagnostics, arming, downloading, data viewing and PSD analysis

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



TSR AIR GO

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

The document and the products described herein are subject to change from time to time without notice and are also subject to specific disclaimers. Please visit https://vpgsensors.com/disclaimer for more information.
© 2026 VPG - All Rights Reserved