PRODUCT DATASHEET

TSR PRO

Data Logger with Internal Triaxial Accelerometer

APPLICATIONS

- Aerospace analysis
- Amusement ride testing
- Automotive safety
- Biomechanics
- Helicopter & aircraft
- Impact testing
- Motorsports incident recorder
- Parachute deployment
- Transportation monitoring: truck, air, ship & rail
- Ride & handling
- Sports & safety equipment

The TSR PRO is a compact portable data logger with built-in triaxial accelerometers. Ideal for both short duration tests and long-term monitoring, the TSR PRO time and date stamps each event and stores up to 2,000 events in flash memory.

The TSR PRO is a self-powered data logger with three internal accelerometers. It is ideal for unattended monitoring of acceleration and vibration in harsh test environments. Featuring an advanced sleep mode that helps save battery power, the module "wakes" for an event, which can be triggered by an acceleration threshold, contact closure switch input, or voltage input. After each event, data writes to non-volatile flash memory, the unit automatically re-arms, and is ready to capture the next event. TSR PRO is available with a USB-rechargeable battery or a user-replaceable AA battery.

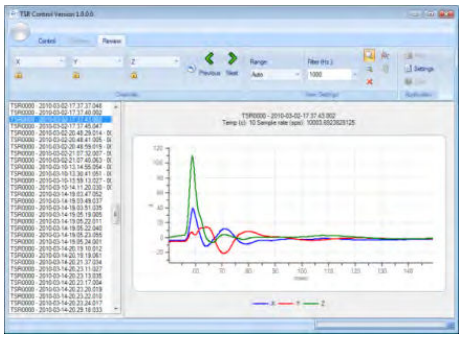
The interface connector makes it easy to access trigger inputs/outputs, USB, and an external power input option.

Features

- Compact and rugged, the data logger is designed to be mounted on or inside a test article
- Stores up to 2,000 events or 34 hours of continuous recording @ 1K sps; data writes directly to flash memory
- Battery options: Built-in rechargeable (via USB) or user-replaceable AA battery
- Multiple sensor range options: ±20, ±50, or ±250 g
- Variable sampling rates from 1,000 to 20,000 sps/channel
- Logs temperature, date and time for each event
- IP67 rated for dust protection and immersion in water
- Complies with ISO 6487 and SAE J211 recommended practices, as well as NHTSA and FAA requirements
- Intuitive software for arming, downloading and viewing data; simple data files can be viewed in Excel

Software

TSR Control software provides easy-to-use tools for test setup and viewing events. With a focus on speed and simplicity, TSR Control lets users configure the recorder, view real-time sensor output and review time-history data.



DTS

www.dtsweb.com

Specifications

TSR PRO	
Internal Accelerometer	MEMS Triaxial (DC response)
Sensor Range Options	±20, ±50 or ±250 g
Frequency Response	DC to 300 Hz 4-pole Butterworth SAE/ISO Class 180
Sampling Rate	1,000 to 20,000 samples/sec/channel 16-bit ADC

POWER – Battery Life Estimate*	
Active Mode	System always armed, collects 512 pre-trigger data points
Lithium USB-rechargeable (900 mAh)	24 hrs**
Lithium non-rechargeable (2400 mAh)	72 hrs**
External Battery (via 15-pin D-Sub connector)	Depends on customer battery size

* Battery life will vary based on type, application, duty-cycle and sampling rate.
** Estimate based on potential low temperature operation and/or older battery (actual may be longer).

See TSR Battery Life article available on DTS Help Center

PHYSICAL

Size:	72 x 72 x 22 mm (2.83 x 2.83 x 0.87")
Mass:	237 g (8.37 oz)
Enclosure Material:	Anodized Aluminum

ENVIRONMENTAL

Operating Temperature:	-20 to 60°C (Rechargeable) -20 to 85°C (Non-Rechargeable)
Humidity:	95% RH non-condensing
Shock:	500 g operating; 2000 g survivable
IP Rating:	IP67

MEASUREMENT CHANNEL OVERVIEW

Sensors:	Three MEMS DC response accelerometers
Filters:	4-pole Butterworth
Data Conversion:	16-bit ADC, one per channel
Sampling Rate:	1,000 to 20,000 samples per sec. per channel
Pre-Trigger Data:	512 samples available
Memory:	1 GB direct-write flash

POWER SAVING FEATURES (Software Enabled)

Motion Sense:	Detects slight movement to bring unit from deep sleep to ready mode.
Magnet Detect:	Hall-effect sensor can be used to bring unit in/out of deep sleep when magnet is present
Max Battery Life:	Depends on application, duty cycle and use of power saving features. Operational life can be greatly extended by using external power.

TRIGGERING

Software Trigger: Level triggering on each axis

TSR g Range ±	Approx. Actual g Range ±	Programmable Level Trigger Range
20	35	±0.7 <> ±3.5
50	70	±1.4 <> ±7.0
250	350	±7 <> ±35
500	700	±14 <> ±70

Hardware Trigger:	Contact closure or isolated voltage input
Status:	Voltage or contact-closure output

POWER

External:	6-36 VDC
Battery Options:	USB-rechargeable -or- Non-rechargeable

CALIBRATION

Calibration Supplied:	ISO/IEC 17025 (Accredited), Measurements traceable to SI
Service Options:	OEM, On-site, and Service Contracts available

SOFTWARE

Product Name:	TSR Control
Data Management:	Date/Time/Temp recorded for each event
Post-Processing:	SAE Filters, view multiple channels/tests, Head Injury Criteria (HIC)
Operating Systems:	Windows® 10/11 (32/64-bit)
Communication:	USB

CONTACT US

Phone: +1 562 493 0158
Email: sales@dtsweb.com
Web: www.dtsweb.com

DTS
www.dtsweb.com