

APPLICATIONS

- Aerospace analysis
- Automotive safety
- Biomechanics
- Blast testing
- Helicopter & aircraft
- Impact testing
- Parachute deployment
- Package testing: truck, air, ship & rail
- Ride & handling
- Sports & safety equipment
- Vibration testing
- Vehicle black box

PRODUCTS

Diversified Technical Systems designs and manufactures data acquisition systems and sensors for the experienced testing professional.

TSR 3DXP & TSR 6DXP

Shock Recorder with Internal Sensors to Measure Acceleration, Angular Rate & Pressure

Fielded by the U.S. Army as a vehicle blast event recorder



The TSR 3DXP and TSR 6DXP are rugged data recorders with built-in sensors ideal for high shock and vibration testing in harsh environments. Capture transient shock events for months or run as a continuous data recorder for seconds to days.

Features

- Simple, intuitive software for arming, downloading and viewing data. Simple data files can be viewed in Excel.
- Compact size: Easily mounts to test article or can be discretely embedded inside a test device.
- Data writes directly to 1 GB flash memory, up to 2,000 events.
- Built-in sensors for acceleration, angular rate and pressure.
- Fixed sampling rates.
- Logs temperature, date and time for each event. Synchronizes time sequence for event reporting.
- USB-rechargeable Lithium battery operates up to 6 months.

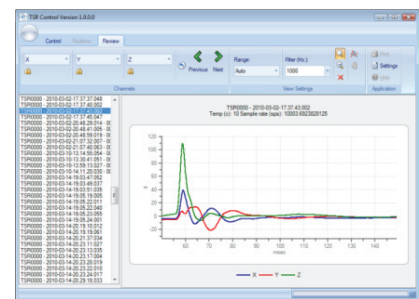
The TSR 3DXP and 6DXP are high performance loggers with built-in sensors that make collecting shock and vibration data easy, even in harsh test environments. Compact and self-powered, the rugged system is designed for unattended monitoring of acceleration in blast and multi-event impacts.

Simple and reliable, the TSR is always on and ready to record. An advanced sleep mode “wakes” for an event trigger, collects data which is stored in 1 GB flash memory and then automatically re-arms and returns to ready mode to capture the next event.

Available in two models: TSR 3DXP and TSR 6DXP

Software

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



Specifications

| MODEL | TSR 3DXP | TSR 6DXP |
|------------------------------|--|--|
| Internal Accelerometer | ± 6000 g full scale Piezo-Electric Triaxial | ± 6000 g full scale Piezo-Electric Triaxial |
| Internal Angular Rate Sensor | NA – Not Applicable | ±18000 deg/sec Triaxial |
| Internal Pressure Sensor | 100 psia full scale | 100 psia full scale |
| Frequency Response | Accel: 0.3 Hz – 5 kHz ARS: NA Pressure: 0-300 Hz | Accel: 0.3 Hz – 5 kHz ARS: 0-1650 Hz Pressure: 0-300 Hz |
| Sampling Rate | Accel: 75000 samples/sec /channel ARS: NA – Not Applicable Pressure: 5000 samples/sec /channel 12-bit ADC | Accel: 75000 samples/sec /channel ARS: 5000 samples/sec /channel Pressure: 5000 samples/sec /channel 12-bit ADC |
| Battery* | Lithium Rechargeable (900 mAh) Active/Record Mode ~3 days typical Low Power/Sleep Mode ~6 months typical | Lithium Rechargeable (900 mAh) Active/Record Mode ~24 hours typical Low Power/Sleep Mode ~6 months typical |
| | | *NOTE: Battery life will vary based on type, application, duty-cycle and sampling rate. Contact a DTS sales engineer to determine the best product and estimated battery life for your specific application. See TSR Battery Life article available on DTS Help Center. |

SERVICES

24/7 Worldwide Tech Support
ISO 17025 (A2LA) Calibration
Onsite Calibration & Training
Application Consulting
Software Integration
OEM/Embedded Applications

PHYSICAL

Size: 57.1 x 57.1 x 25.4 mm (2.25 x 2.25 x 1.00")
Weight: 200 g (7.1 oz.)
Model Options: TSR 3DXP, TSR 6DXP

ENVIRONMENTAL

Operating Temp.: -30 to 60°C (-22 to 140°F) Rechargeable
Humidity: 20 to 95%
Shock: 10000 g survivable
IP Rating: IP67

INPUT CHANNELS

Acceleration: 3 channels, internal triaxial accelerometer
Angular Rate: 3 channels, internal triaxial angular rate sensor
Pressure: 1 channel, internal pressure sensor
Additional Features: Logs temperature and time stamp per event

DATA CONVERSION

Resolution: 12-bit ADC
Memory Capacity: 1 GB flash
Sleep: Advanced motion detection for power savings
Trigger: When armed in low power mode, data collection starts <100 µsec after trigger
Data Collection Modes:
Active: Loops in memory waiting for trigger
Low power: No pre-trigger data

TRIGGERING

Software Trigger: Programmable level trigger from acceleration

POWER

Internal Battery: USB-rechargeable lithium polymer

SOFTWARE

Product Name: TSR Control
Data Management: Date/Time/Temp recorded for each event
Post-Processing: SAE Filters, View multiple channels/tests, HIC Head Injury Criteria
Operating Systems: Windows® XP/Vista/7/8
Communication: USB



The TSR 3DXP and TSR 6DXP are packaged in the same IP67-rated enclosure and run up to 6 months on a USB-rechargeable Lithium battery depending upon application and sampling rate.

TECH CENTERS

Novi, Michigan USA
Sydney, Australia
Tokyo, Japan
Lincoln, United Kingdom

HEADQUARTERS

Seal Beach, California USA

CONTACT US

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

Authorized DTS Representative:


www.dtsweb.com

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