

## APPLICATIONS

- Biomechanics
- Embedded monitoring
- Ejection seats
- Helicopter rotors
- High value asset monitoring
- Impact testing
- Manufacturing
- Medical monitoring
- Munitions
- Packaging
- Parachute deployment
- Rockets
- UAS/UAV
- Vibration testing

## PRODUCTS

Diversified Technical Systems designs and manufactures data acquisition systems and sensors for experienced test professionals.

## DDR

### Miniature, Ultra-Low Power 6DOF Data Logger Includes Triaxial Linear and Triaxial Angular Accelerometers

Weighs <0.1 ounce!



The DDR is a standalone 6-degrees-of-freedom (6DOF) data logger that measures linear and angular acceleration. The ultra-light logger is designed to monitor short duration events in small devices under test.

### Features

- Embedded 3-axis linear accelerometer
- Embedded 3-axis rotational accelerometer
- Real time clock (RTC) time and temperature stamp
- Smart low power modes extend battery life
- Programmable trigger on acceleration threshold, automatically re-arms for next event
- Programmable sampling rate and anti-alias filter:
  - 100 to 5500 samples/sec/channel
  - AA filter set to ~1/4 the sample rate
- Programmable event duration with pre-trigger data buffer
- Non-volatile data memory; 100,000 samples per channel

Sample Rate	Event Duration	Stored Events
100 sps	4 sec	250 (max)
500 sps	0.5 sec	400 (max)
5000 sps	0.1 sec	200 (max)

- Environmental rating: IP67
- Easy to use software
- Data exports to ASCII CSV for easy import to Excel, MATLAB or other post analysis software

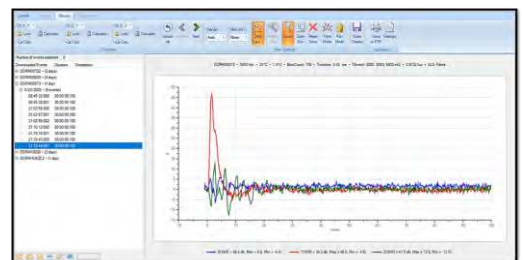
The DDR (Dynamic Data Recorder) is the smallest, ultra-low power data event logger available. The standalone shock and vibration logger is designed to be embedded on or in devices under test, without altering usage or test dynamics. The DDR is configured as a bare flex circuit with built-in sensors and non-volatile flash memory. Bluetooth communication and wireless inductive charging make the DDR one of the most innovative data acquisition solutions available.



The DDR is a flex circuit that can be laid flat or curved around an object. Wireless communication and charging make the DDR ideal for field testing.

### Software

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



## Specifications

PHYSICAL	
Size:	100 x 9 x 4.5 mm (3.94" x 0.35" x 0.18")
Weight:	2.5 g (0.09 oz.)
ENVIRONMENTAL	
Operating Temperature:	-20 to 60°C
Humidity:	100% RH
Shock:	10000 g operating/survivable
IP Rating:	IP67
MEASUREMENT CHANNEL OVERVIEW	
Sensors:	Triaxial DC response linear accelerometer, ±200g or ±400g Triaxial DC response angular accelerometer, ±15000 rad/sec <sup>2</sup>
Influence of Linear Acceleration on Rotational Acceleration Measurement:	Axis 1: ±40 rad/sec <sup>2</sup> /g Axis 2: ±40 rad/sec <sup>2</sup> /g Axis 3: ±10 rad/sec <sup>2</sup> /g
Anti-Alias Filters:	4-pole Butterworth
Data Conversion:	12-bit ADC
Programmable Sampling:	100 to 5500 samples per second/channel
Pre-Trigger Data:	adjustable samples per channel
Memory:	8 Mb non-volatile: 100000 samples/channel

TRIGGERING	
Software Trigger:	Programmable level trigger on each axis
POWER	
Battery:	27 mAh NiMH; Inductive rechargeable
Active Mode*:	8 hrs**; System always armed, Collects 170 pre-trigger data points/channel 90 hrs
Sleep Mode:	90 hrs
Charge Time:	6 hrs (Inductive)
Charger:	DTS inductive charging unit required
CALIBRATION	
Calibration:	NIST traceable
ISO 17025:	ISO 17025 (A2LA Accredited) available
Service Options:	Factory, On-site & Service Contracts available
SOFTWARE	
Control:	DDR Control
Data Management:	Date/Time/Temp recorded for each event
Post-Processing:	SAE Filters, View multiple channels/tests
Operating Systems:	Windows® 7/8/10 (32- and 64-bit)
Communication:	Bluetooth 4.0 to USB adapter

\*NOTE: Battery life will vary based on application, duty-cycle and sampling rate.  
Contact a DTS sales engineer to determine the best product and estimated battery life for your specific application.  
\*\* Estimate based on potential low temperature operation and/or older battery (actual may be longer).

## SERVICES

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



**DDR Control Software makes it easy to manage test set-ups, view data and monitor charging status via the DTS inductive charging case.**



### Application: Pharmaceuticals & Packaging



#### The Challenge:

Measuring shock and vibration on small, lightweight articles during manufacturing or shipping.

#### The Solution:

Weighing only 2.5 grams, the DDR can be used to create a "golden" unit that has the same size and weight as the actual product. The instrumented unit can then be run through the automated assembly line or shipping process to record the exposure.

### Application: Injury Research



#### The Challenge:

Measuring 6-degrees-of-freedom injury biomechanics data in the field.

#### The Solution:

Custom mouthguards with an embedded DDR provide accurate head kinematic measurements with good coupling to the upper jaw and skull. Each mouthguard is fitted to a single user and charged wirelessly via the inductive charging case (shown above).

## WORLDWIDE SUPPORT

HELP CENTER (24/7/365 Access)  
DTS Technical Centers  
Global Sales Partners

## HEADQUARTERS

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