DATASHEET

UltraShock

MadgeTech

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MADGETECH
WE BUILD DATA LOGGERS

UltraShock

Temperature, Humidity, Pressure and Tri-Axial Shock Data Logger

The UltraShock is a battery powered, stand alone temperature, pressure, humidity and 3-axis shock data logger. The UltraShock measures and records temperature, pressure and humidity at the selected reading rates, while shock is recorded as the peak acceleration levels over the same interval.

The UltraShock is specifically designed for documenting dynamic environments such as moving vehicles, trucks, containers, ships, etc. The device is also valuable in characterizing environments such as production and assembly lines of delicate electronics, IC fabrication, communications and computer components. This compact, portable, easy to use device will measure and record up to 3,593,358 measurements. The storage medium is non-volatile solid state memory, providing maximum data security even if the battery becomes discharged. The device can be started and stopped directly from your computer and its small size allows it to fit almost anywhere. The UltraShock makes data retrieval quick and easy. Simply plug it into an empty USB port and our user-friendly software does the rest.

The UltraShock provides simple ordering as one model which provides three acceleration ranges. The ranges are implemented on separate low-g and high-g accelerometers for excellent resolution and accuracy.

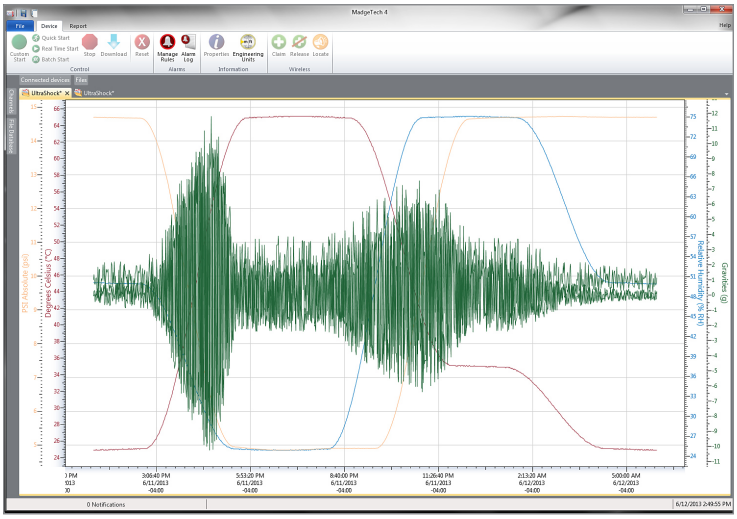
Features

- Compact size
- 3-axis shock
- Temperature, humidity, pressure
- Fully configurable measurements
- Long life rechargeable battery
- Large capacity event memory
- Programmable start time
- Real-time operation
- CE compliant
- Separate low-g and high-g accelerometers

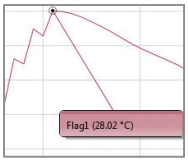
Applications

- Complete environmental shipment monitoring
- Shipping live cargo
- Aircraft turbulence measurement
- Endurance testing
- Assembly line monitoring
- Brake testing
- Laboratory drop testing
- Machinery monitoring
- Railcar coupling impacts

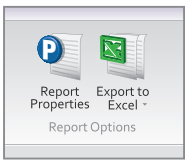
MadgeTech 4 Software Features



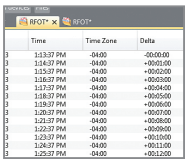
Graph View



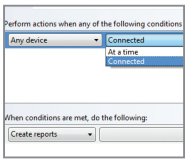
Cooling Flags



Export to Excel



Tabular Data View



Automation

- Multiple graph overlay
- Statistics
- Digital calibration
- Zoom in/ zoom out
- Lethality equations (F0, PU)
- Mean Kinetic Temperature
- Full time zone support
- Data annotation
- Min./Max./Average lines
- Summary view

SPECIFICATIONS

Specifications are subject to change without notice. Specific warranty remedy limitations apply. Call (603) 456-2011 or go to **madgetech.com** for details.

TEMPERATURE	
Sensor	Semiconductor
Range	-20 °C to +60 °C
Resolution	0.1 °C
Accuracy	±0.5 °C (+5 °C to +60 °C)

HUMIDITY	
Sensor	Capacitive Polymer
Range	0 %RH to 95 %RH
Resolution	0.1 %RH
Calibrated Accuracy	±3 %RH (±2 %RH typical at 25 °C)
Specified Accuracy Range	+20 °C to +40 °C; 20 %RH to 80 %RH

PRESSURE	
Sensor	Semiconductor Strain Gage
Range	100 mbar to 1260 mbar
Resolution	0.05 mbar
Calibrated Accuracy	±1.5 mbar at 25 °C; at 750 mbar

SHOCK			
Accelerometer Type	MEMS Semiconductor		
Acceleration Range (g)	±15 g	±100 g	±300 g
Acceleration Resolution (g)	0.02 g	0.05 g	0.2 g
Calibrated Accuracy (g)	±0.3 g	±2.0 g	±6.0 g
Sampling Rate	1000 Hz		
Accelerometer Freq. Resp.	>1000 Hz (15 g) >500 Hz (100 g, 300 g)		
Reading Rate	1024 Hz to 5 minutes for shock, selectable in software. Temperature, pressure & humidity sampled approx. every 2 seconds at intervals shorter than 2 seconds. Otherwise, sampled at the reading rate.		

GENERAL	
Start Modes	Software programmable immediate start or delay start, up to 6 months in advance
Real Time Recording	May be used with PC to monitor and record instantaneous measurements in real time
Memory	3,593,358 readings (598,893 per channel, all channels in use)
Password Protection	An optional password may be programmed into the device to restrict access to configuration options. Data may be read out with the password.
Calibration	Digital calibration through software
Calibration Date	Automatically recorded within device
Battery Type	Internal Lithium Ion pack, charger included
Battery Life	20-90 days dependent on user settings (reading rate, trigger level, peak or instantaneous)
Data Format	Date and time stamped gravities (g and mg), temperature (°C, °F, K, °R), humidity (%RH, mg/ml water vapor concentration), pressure (PSIA, inHg, mmHg, bar, atm, Torr, Pa, kPa, MPa)
IP Rating	IP64
Time Accuracy	10 seconds/month (at 0 °C to 50 °C)
Computer Interface	USB-C cable required (included); 1MBaud
Operating System Compatibility	Windows XP SP3 or later
Software Compatibility	Standard Software version 4.2.15.0 or later Secure Software version 4.2.14.0 or later
Operating Environment	-20 °C to +60 °C (-4 °F to +140 °F), 0 %RH to 95 %RH non-condensing
Dimensions	3.4 in x 1.7 in x 1.3 in (86 mm x 43 mm x 33 mm)
Weight	8 oz (227 g)
Material	Anodized aluminum
Approvals	CE compliant EMC Directive 2014/30/EU RoHS Directive 2011/65/EU

BATTERY WARNING: FIRE, EXPLOSION AND SEVERE BURN HAZARD. DO NOT SHORT CIRCUIT, CRUSH, PENETRATE, INCINERATE OR DISASSEMBLE. AVOID TEMPERATURES ABOVE THE MAXIMUM OPERATING TEMPERATURE OF THE PRODUCT. DISPOSE OF PROPERLY. CHARGE ONLY WITH THE PROVIDED MADGETECH CHARGER, OR FROM OTHER USB POWER SOURCE VIA THE MADGETECH PROVIDED CABLE.

Ordering Information

UltraShock	PN 902121-00	Temperature, Humidity, Pressure and ±15 g / ±100 g / ±300 g Tri-Axial Shock Data Logger, Battery Charger and USB Type C Interface Cable

For Quantity Discounts call (603) 456-2011 or email **sales@madgetech.com**

AKIBIS www.akibis.info contact@akibis.info