

# ULTRASHOCK

## TEMPERATURE, HUMIDITY, PRESSURE & TRI-AXIAL SHOCK DATA LOGGER



### 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

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 4,000,000 measurements (for a single channel). 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.



## MADGETECH DATA LOGGER SOFTWARE

### Key

- A** Graph View
- B** Tabular Data View
- C** Statistics
- D** Digital Calibration
- E** Copy to Excel®



### Software Features:

- 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
- Data table view
- Automatic report generation
- Summary view
- Multilingual

# ULTRASHOCK SPECIFICATIONS\*

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

## TEMPERATURE

|                    |                          |
|--------------------|--------------------------|
| <b>Sensor:</b>     | Semiconductor            |
| <b>Range:</b>      | -20 °C to +60 °C         |
| <b>Resolution:</b> | 0.1 °C                   |
| <b>Accuracy:</b>   | ±0.5 °C (0 °C to +50 °C) |

## HUMIDITY

|                                  |                                  |
|----------------------------------|----------------------------------|
| <b>Sensor:</b>                   | Capacitive Polymer               |
| <b>Range:</b>                    | 0 %RH to 95 %RH                  |
| <b>Resolution:</b>               | 0.1 %RH                          |
| <b>Calibrated Accuracy:</b>      | ±3 %RH (±2 %RH typical at 25 °C) |
| <b>Specified Accuracy Range:</b> | 0 °C to +50 °C; 20 %RH to 80 %RH |

## PRESSURE

|                             |                                 |
|-----------------------------|---------------------------------|
| <b>Sensor:</b>              | Semiconductor Strain Gage       |
| <b>Range:</b>               | 100 to 1300 mbar                |
| <b>Resolution:</b>          | 0.05 mbar                       |
| <b>Calibrated Accuracy:</b> | ±1.5 mbar at 25 °C; at 750 mbar |

## SHOCK

|                                     |                                                                                                                                                                                                       |        |        |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|
| <b>Accelerometer Type:</b>          | MEMS Semiconductor                                                                                                                                                                                    |        |        |
| <b>Acceleration Range (g):</b>      | ±15 g                                                                                                                                                                                                 | ±100 g | ±300 g |
| <b>Acceleration Resolution (g):</b> | 0.02 g                                                                                                                                                                                                | 0.05 g | 0.2 g  |
| <b>Calibrated Accuracy (g):</b>     | ±0.3 g                                                                                                                                                                                                | ±2.0 g | ±6.0 g |
| <b>Sampling Rate:</b>               | 1000 Hz                                                                                                                                                                                               |        |        |
| <b>Accelerometer Freq. Resp.:</b>   | >1000 Hz (15 g)<br>>500 Hz (100 g, 300 g)                                                                                                                                                             |        |        |
| <b>Reading Rate:</b>                | 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. |        |        |

|                               |                                                                                                                                                                                     |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Memory:</b>                | 4,000,000 readings (660,000 per channel, all channels in use)                                                                                                                       |
| <b>Start Modes:</b>           | Software programmable immediate start or delay start, up to 6 months in advance                                                                                                     |
| <b>Real Time Recording:</b>   | May be used with PC to monitor and record instantaneous measurements in real time                                                                                                   |
| <b>Password Protection:</b>   | An optional password may be programmed into the device to restrict access to configuration options. Data may be read out with the password.                                         |
| <b>Calibration:</b>           | Digital calibration through software                                                                                                                                                |
| <b>Calibration Date:</b>      | Automatically recorded within device                                                                                                                                                |
| <b>Battery Type:</b>          | Internal Lithium Ion pack, charger included                                                                                                                                         |
| <b>Battery Life:</b>          | 90 days typical at 64Hz rate                                                                                                                                                        |
| <b>Data Format:</b>           | 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) |
| <b>IP Rating:</b>             | IP64                                                                                                                                                                                |
| <b>Time Accuracy:</b>         | 10 seconds/month (at 0 °C to 50 °C)                                                                                                                                                 |
| <b>Computer Interface:</b>    | USB (type C cable required); 1MBaud                                                                                                                                                 |
| <b>Software:</b>              | Windows XP SP3 or later                                                                                                                                                             |
| <b>Operating Environment:</b> | -20 °C to +60 °C,<br>0 %RH to 95 %RH non-condensing                                                                                                                                 |
| <b>Dimensions:</b>            | 3.4 in x 1.7 in x 1.3 in<br>(86 mm x 43 mm x 33 mm)                                                                                                                                 |
| <b>Weight:</b>                | 8 oz (227 g)                                                                                                                                                                        |
| <b>Enclosure:</b>             | Anodized aluminum                                                                                                                                                                   |
| <b>Approvals:</b>             | CE compliant<br>EMC Directive 2014/30/EU<br>RoHS Directive 2011/65/EU<br>IP Rating 64                                                                                               |

**BATTERY WARNING:** DISCARD USED BATTERY PROMPTLY. KEEP OUT OF REACH OF CHILDREN. DO NOT DISPOSE OF IN FIRE, RECHARGE, PUT IN BACKWARDS, DISASSEMBLE, OR MIX WITH OTHER BATTERY TYPES. MAY EXPLODE, FLAME OR LEAK AND CAUSE PERSONAL INJURY.

## ORDERING INFORMATION

| MODEL      | PART NUMBER | DESCRIPTION                                                                                                                             |
|------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| ULTRASHOCK | 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 |

ASK ABOUT  
OUR OTHER  
DATA  
LOGGERS

Temperature  
Humidity  
Pressure  
pH  
Level  
Shock  
LCD Display  
Pulse/Event/State  
Current  
Voltage  
Wireless  
Intrinsically Safe  
Spectral Vibration  
Motion

For Quantity Discounts call (603) 456-2011 or email [sales@madgetech.com](mailto:sales@madgetech.com)