GULF COAST DATA CONCEPTS, LLC

Thank you for your purchase! These simple instructions describe how to quickly configure and operate your new GCDC accelerometer.

Quick Start Guide

1a Plug the **X6-2 or X250-2** device into a computer USB port to charge the internal rechargeable lithium-polymer battery. One hour will charge a depleted battery to 80%. The computer will mount the device as a local drive.

1b Open the **X6-1A** enclosure and install an 'AA' sized alkaline, lithium, or NiMH battery. Plug the device into a computer USB port and the computer will mount the device as a local drive.

2 Start XLR8R by clicking *xlr8r.jar* in the *xlr8r* directory located on the device (requires Java 6). Select the *Utilities>Configuration File Editor* tab and make appropriate changes to the configuration settings (see reverse side of this guide for details).*

3 Select the *Utilities>Set Device Time* tab. Click "Write File" to automatically create a file on the device containing the current host time.*

4 Remove the device from the host computer. Activate the device by pressing the start button with a pen, pencil, or stylus. Upon start up, the device will initialize the clock with the time file.** You may turn off the unit by pressing and holding the button for 2 seconds.
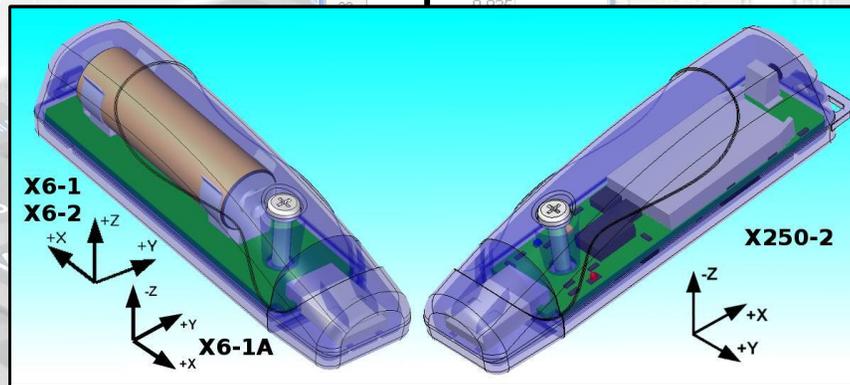
5 Attach the device to the target object and turn the device on. See Tips & Tricks for mounting suggestions.

6 When data collection is complete, return the device to a computer USB port. The device will mount as a new drive containing the data files located in the *GCDC* directory.

7 Start XLR8R. Select a data file or directory containing data files. XLR8R will display the time series data in the *Plotted Data* tab. XLR8R allows copy-paste operations to import data into other applications.

Tips & Tricks:
- Most types of motions, such as running, walking, and roller coasters, can be captured with 20 hertz sample rate.
- Slower sample rates and the use of the deadband feature will conserve battery life.
- Attach the accelerometer device using double stick tape, zip-ties, hook-and-loop fabric, a small amount of cyanoacrylate glue (super glue), or use a long #6-32 screw for a more permanent attachment.
- Lithium batteries provide about 30% more capacity than alkaline, which helps extend the operating life of the X6-1A.

Notes:
* GCDC products use text files to configure system settings and store data. Only a text editor and spreadsheet are needed to fully utilize a device. XLR8R is a Java based application provided on each device to allow easy configuration and quick viewing of data.
** When the X6-1A device is powered off, the clock time is maintained using the on-board backup battery. This backup battery lasts for several hours. The X6-2 and X250-2 maintain the clock time continuously using the main lithium-polymer battery even when the device is powered off.

X6-1
X6-2

X6-1A

X250-2

http://www.gcdataconcepts.com

Configuration Settings

GCDC products are configured using a set of tags and settings stored in a file named "config.txt", which is located in the root directory of the microSD card. The system reads the configuration file at boot time. Each line of the file defines a setting in the format: <tag> = <setting>. Lines starting with a semicolon (";") are treated as comments and ignored by the system.

deadband - defines the difference between readings that must be present before another sample of data is recorded. This is used to reduce the number of recorded data samples. Input numbers for the "deadband" command are in counts, not g-force (see device specification for converting counts to g-force).

deadbandtimeout - defines the period in seconds when a sample is recorded by the device regardless of the deadband setting. This feature ensures periodic data is recorded during very long periods of inactivity.

gain - defines the sensor scale. "high" sets the system to record at ±2g. "low" sets the system to record at ±6g. Not applicable to the X250-1 device.

rebootOnDisconnect - The devices incorporate an on/off button for initiating and terminating the data recording process. Data recording is automatically started upon disconnect from a computer USB port if the tag word "rebootOnDisconnect" is included in the configuration file. Note that the system must first be turned on and the configuration file read before the rebootOnDisconnect option is implemented by the system. Subsequent disconnects will then cause a reboot and immediate data recording.

samplesPerFile - defines the number of lines each data file can have before a new file is created. This tag controls the size of the data files into easily manageable lengths for later processing.

sampleRate - defines the interval in Hertz that data samples are recorded.

starttime/stoptime - starts and stops data recording based on the times defined using the "starttime" and "stoptime" tags. The times must be in "MM HH" 24-hr format. Entries marked with "*" operate as a wild card. Example configurations:

> Example 1: Start recording at 12:30pm and stop recording at 6:00pm.
> > startTime = 30 12
> > stopTime = 00 18
>
> Example 2: Start recording at the beginning of every hour and stop recording at the 45 minutes later.
> > startTime = 00 *
> > stopTime = 45 *

statusIndicators – controls the brightness of the LED status indicators using the settings of "Normal", "High", and "Off".

```
; PRODUCT_ID = X6-1A
gain = low
deadband = 10
DeadBandTimeout = 30
samplesperfile = 75000
statusindicators = Normal
SampleRate = 20
rebootOnDisconnect
startTime = 30 14
stopTime = 00 18
```

A detailed specification document in pdf format is included with device. The document includes technical capabilities, detailed operating instructions and mechanical dimensions.

XLR8R

The XLR8R application is a quick and easy tool for graphically presenting data collected from a GCDC data logging device. The program uses Java, which provides cross platform compatibility to operating systems running Java 6.0 or later. XLR8R implements some basic analysis tools but GCDC recommends using a commercial or open source mathematics package, such as MathCAD, Microsoft Excel, OpenOffice Calc, Octave, R, S, etc.
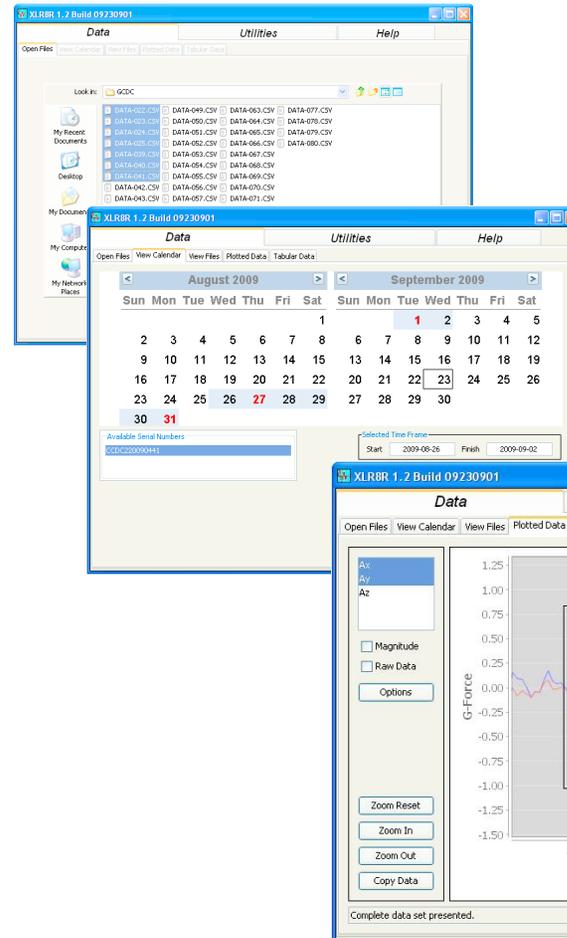
XLR8R allows the user to open and display multiple files created from a single device. A calendar highlights relevant dates, a gant chart graphically shows the time frame of each file, and a time series plot presents the collected data. Copy-and-paste operations allow easy transport of converted data or re-sampled data into other software applications.

Device configuration files are easily managed using the configuration options editor. XLR8R will write properly formatted time initialization files to a device or directly initialize the real time clock (requires the GCDC device driver).

If you have questions, please contact tech_support@gcdataconcepts.com or visit http://www.gcdataconcepts.com/support for the latest software.