

## Lassen iQ Dual Port RS232 Eval Board 2/3/06

### 1 Parts list (included with kit)

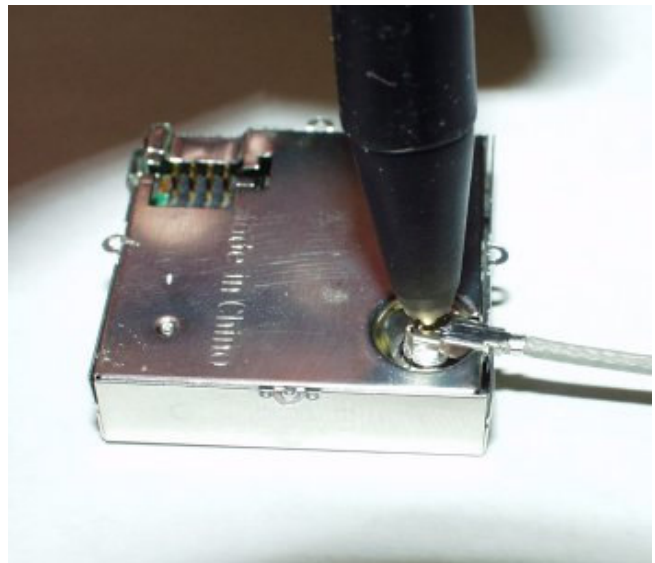
- 1) RS232 Evaluation Board
- 2) Trimble GPS module
- 3) SMA to HFL Interface Cable
- 4) GPS Antenna - SMA Terminated
- 5) Wall Power Supply
- 6) 3 Volt Coin Cell Battery

Please note, the RS232 Breakout has two serial ports that run at different default baud rates:

- Port 1 runs at 9600 BPS (TSIP Protocol)
- Port 2 runs at 4800 BPS (NMEA Protocol)

### 2 Assembling the Kit

**Step One:** Connecting the Trimble GPS module to the SMA to HFL interface cable. The best way to do this is with a ball point pen or a precision Philips screwdriver. On the back side of the Trimble there is a recessed circular connector port. Place the small end of the interface cable (flat side up) straight over the connector port.

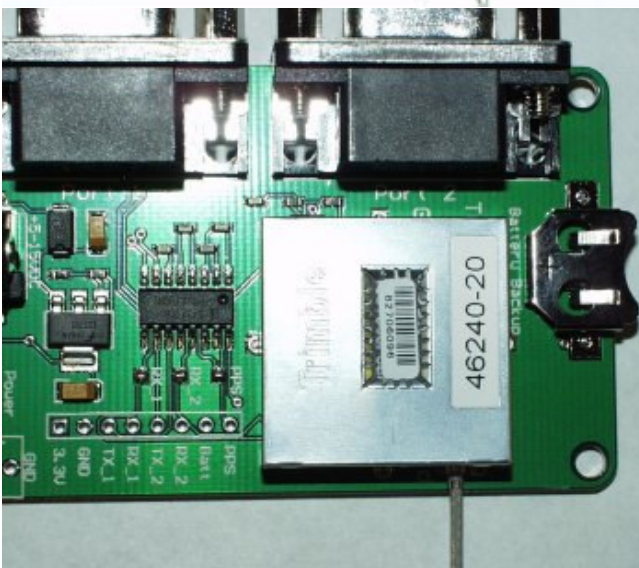
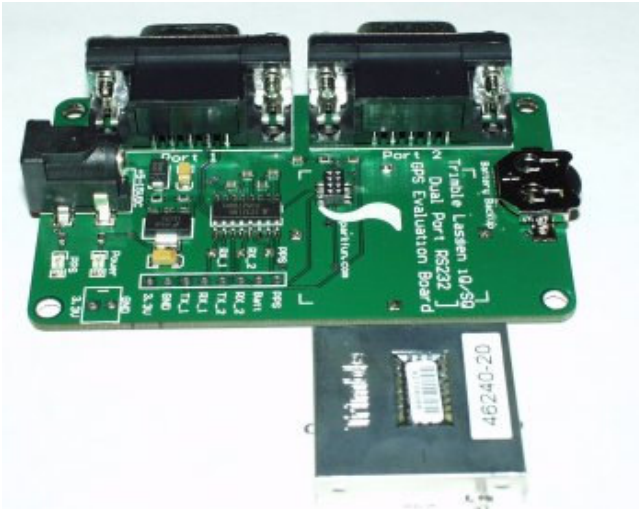


There is a small dimple on the flat head of the interface cable. Press down on the dimple with a pen or screwdriver until connector snaps down and feels firmly in place.

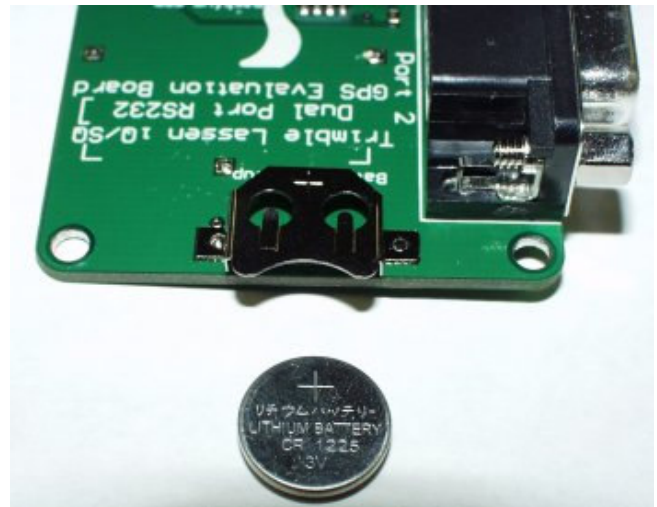


## Lassen iQ Setup Tutorial

**2 Step Two:** Putting the Trimble module onto the RS232 Eval board. On the back of the Trimble there a recessed 8-pin male connector and there is a corresponding female connector on the RS232 Eval board. Make sure that the module is oriented correctly to the connector. Use the white corner out-lines on the RS232 Eval to position the Trimble module, then press straight down until module is flush on the board.

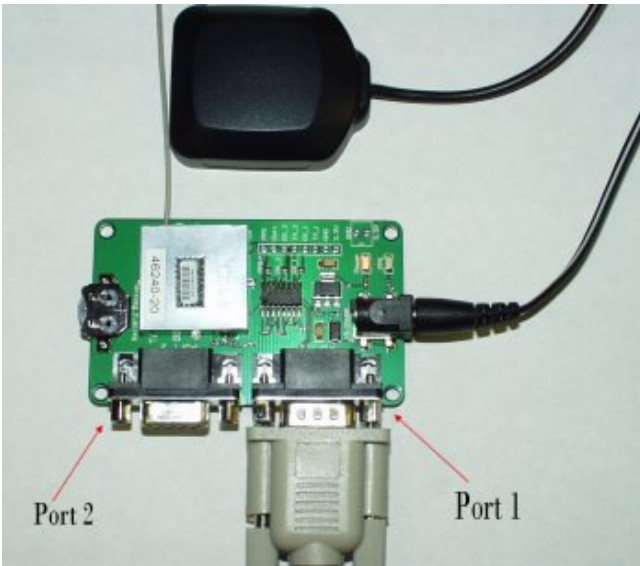


**3 Step Three:** Installing battery back up. The battery has a + on the positive side and the RS232 Eval also has a + on the battery holder. Make sure that the battery's + is facing up, then slide battery into the holder. It will be a snug fit. If you ever need to replace the battery, use a small screw driver or small pen to push the battery out.



**4 Step Four:** Attach SMA GPS antenna to the Trimble GPS module. This is simply done by screwing the corresponding ends together.

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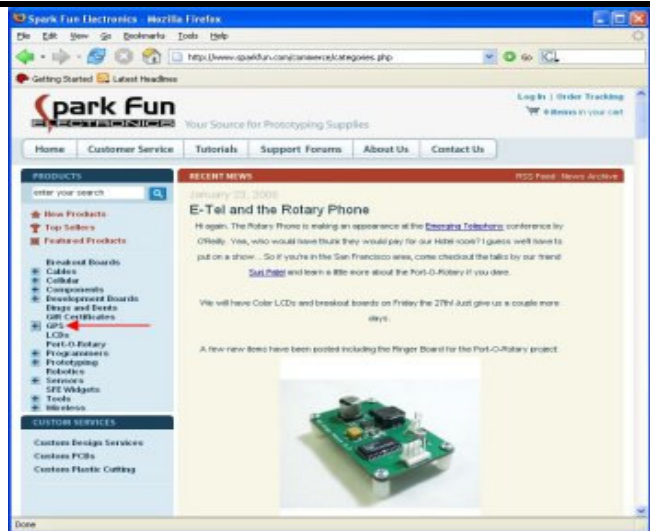


Your Lassen iQ kit is now assembled!

## 2 Setting up your Lassen iQ

**Using iQ\_Monitor :** The first step in setting up the software is hooking your board to your computer via **Port1**, and then attaching power barrel jack. The power LED should come on and a few seconds later the LED marked PPS (pulse per second) should begin to flash.

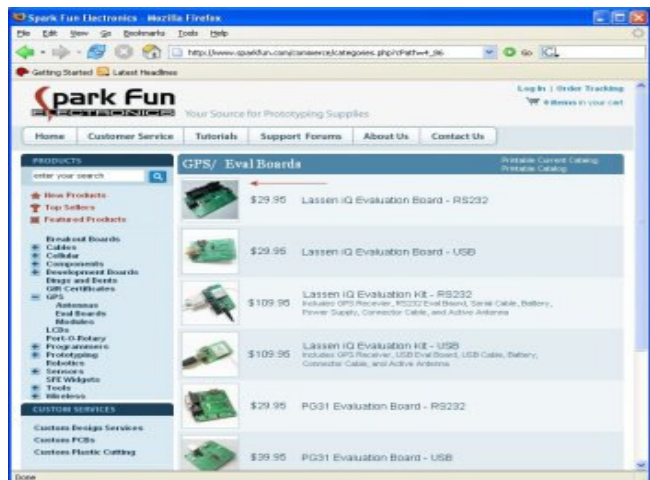
If you do not have iQ\_Monitor you can get it by going to [www.sparkfun.com](http://www.sparkfun.com).



On the home page click *GPS*.



Then click *Eval Boards*



# Lassen iQ Setup Tutorial

Then Lassen iQ Evaluation Board - RS232



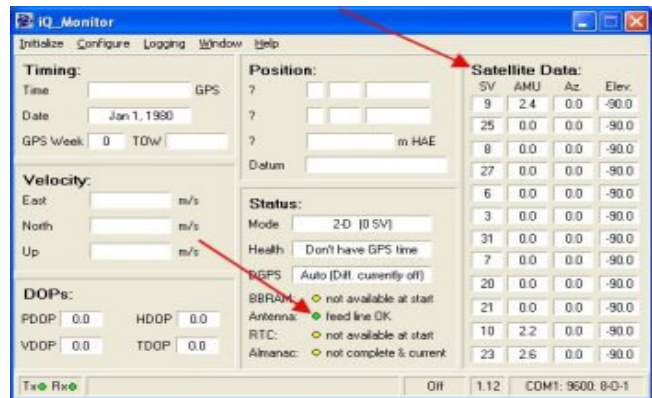
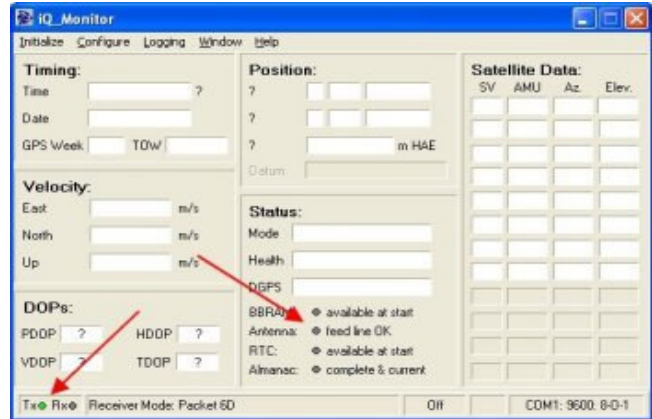
At the bottom on the Lassen iQ product page there is an iQ Monitor link, click it to begin download.



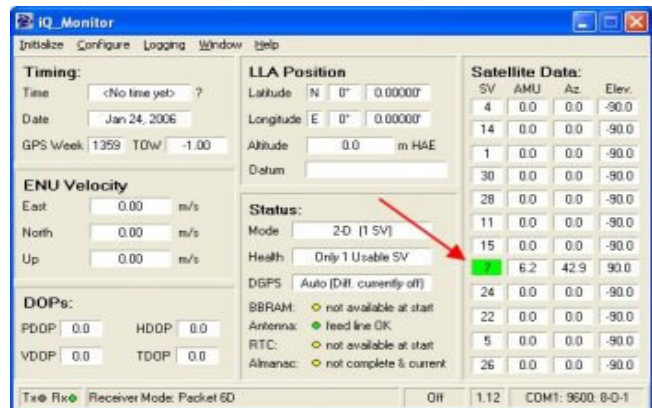
After you have successfully downloaded the iQ Monitor, open the file it was downloaded to and unzip the folder to desired location. Open the unzipped directory and double click on iQ\_Monitor.exe. A window will prompt you to select a serial port. If you are using a serial connection it will usually be COM1.

After selecting your serial port the monitor will come up. If there is no feed the "Antenna" indicator will be yellow and the satellite data columns will be empty. Also in the lower left hand corner the are Tx (transmit) and Rx (receive) indicators. Only the Tx will be active (blinking green)

if there is no feed.



If Both Tx and Rx are active the "Antenna" indicator will be green and the satellite data columns will have data. Once you power the board and get the feed going the Lassen iQ will automatically start tracking satellites and Data



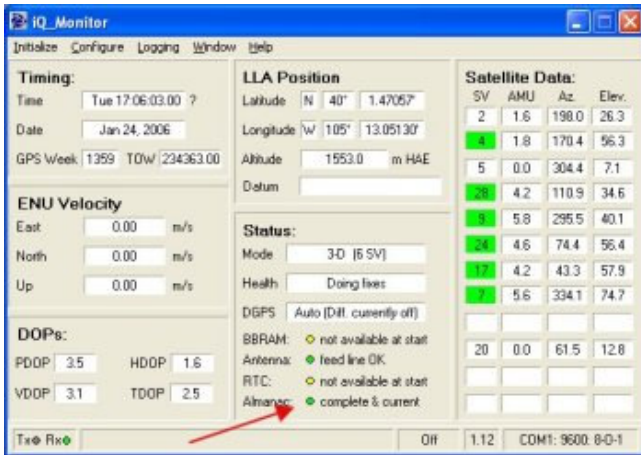
should start filling the satellite data columns.

The first data to start appearing will be the Satellite Vehicle (SV) number followed by the sig-

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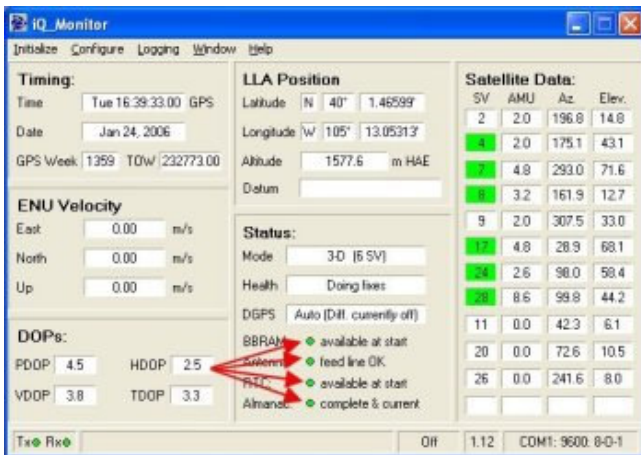
nal strength (AMU).

As soon as the AMU strength is high enough for a lock the corresponding SV column



will turn green indicating a lock.

It takes a positive lock on 4 satellites to pinpoint Latitude, Longitude, and Altitude. While the satellite locks are being made the module is compiling the almanac from all the data it is gathering. The almanac is kind of a flight path for the satellites that are being locked. Having this flight path stored on the module makes it possible to make faster locks the next time you use the device. It may take several minutes to completely compile the almanac but when it's done the "Almanac" indicator will turn green and report complete and



current.

Once a full Almanac has been obtained, running the iQ Monitor again should have all status indicators green and the satellite tracking should go a lot quicker. After the almanac is com-

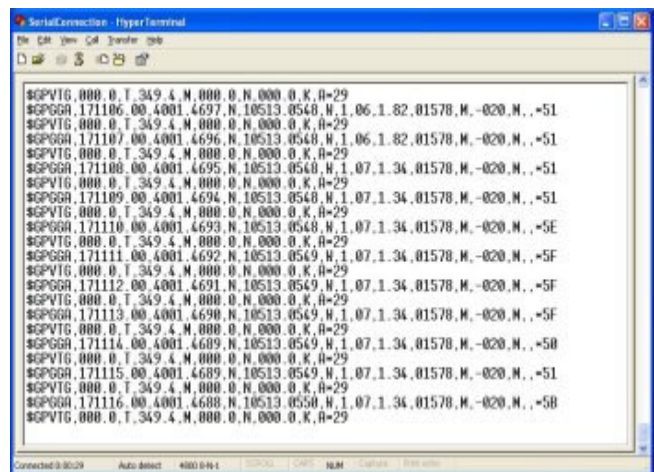
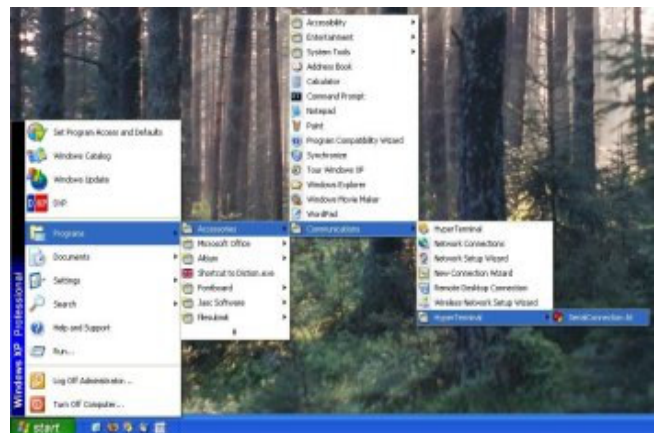
plete do not remove the backup battery or the module or else the almanac data will be lost and will require another 5-10 minutes to restore.

## 3 Using HyperTerminal with the Lassen iQ

HyperTerminal will give you access to the visible NMEA sentences coming out of **Port 2**. The first thing you must do to run HyperTerminal is switch the serial cable from **Port 1** to **Port 2** on the Eval board. Remember: **Port 2** runs at 4800 BPS. If you run HyperTerminal while plugged into port 1 gibberish TSIP data will be seen.

HyperTerminal comes with Windows and can be accessed through the start menu.

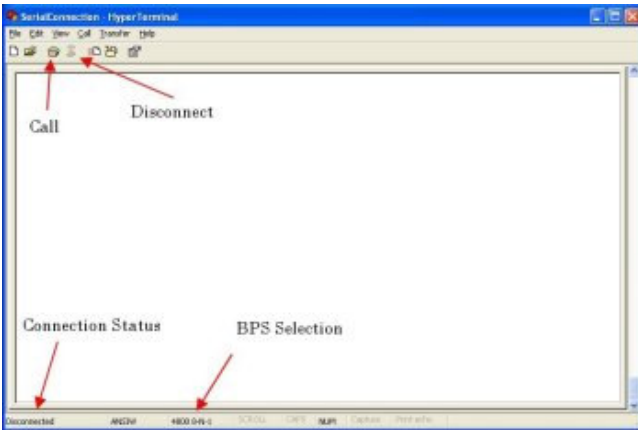
- Start
- Programs
- Accessories
- Communications



# Lassen iQ Setup Tutorial

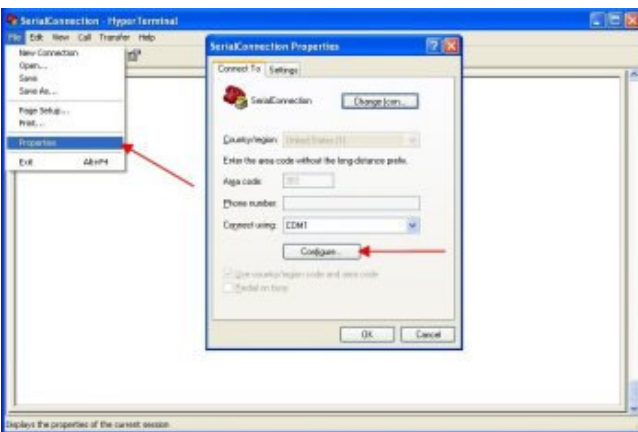
## -HyperTerminal

HyperTerminal will most likely default to COM1 and will begin streaming data right away if COM1

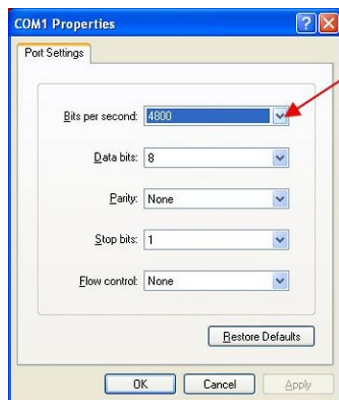


is the correct serial port.

If data does not begin to stream first check to make sure HyperTerminal is calling the device and is not disconnected and that is running at the

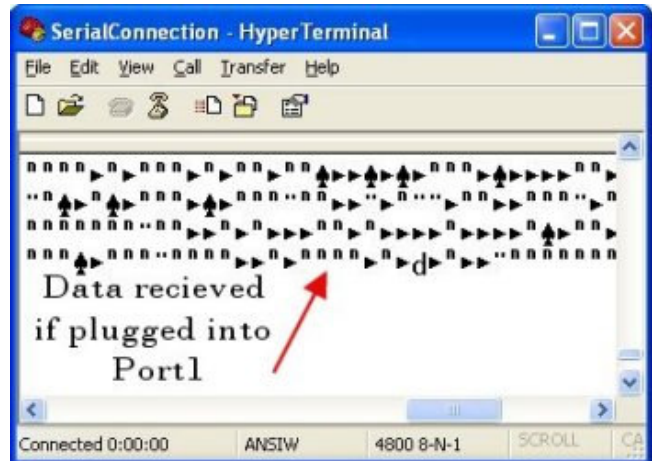


correct speed (4800 BPS).



If HyperTerminal is calling, but there is still no data stream check the COM setting. You can do this by accessing the file menu and selecting Properties.

If the connection speed is not 4800 BPS, it can be changed by selecting configure in SerialCon-



nection Properties.

Running HyperTerminal while plugged into the wrong port on the Eval board will not damage anything but you will not get any true data.