

US GlobalSat Model BU-353-S4
GPS Receiver Configuration
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I have been using the BU-353-S4 “hockey puck” GPS receiver from US GlobalSat with NMEATime and Winlink. The BU-353 receiver uses the SiRF Star IV chipset. The S4 version of the device has a USB interface and comes with a 1.5m cord. It appears to the PC as a COM port operating at 4800, N, 8, 1.

One of my BU-353 units worked correctly out of the box. Another unit did not work. The NMEATime2 utility showed that it was “seeing” satellites but the program would not lock. On the VisualGPS website, I found this note:

[This receiver seems to come in a couple of flavors. One of which makes it not function with NMEATime2 without configuring the SiRF chipset. Some versions come with the GPGGA sentence outputting at a 2Hz rate. NMEATime2 must have at least a 1Hz output for the GPGGA and GPRMC sentences. You can download SiRFDemo software to configure this receiver. You should configure this receiver to output the GGA and RMC at 1Hz and GSA and GSV at 2Hz. It's also recommended to configure the baud rate to at least 9600.](#)

Unfortunately, there were no further instructions on how to accomplish this. With difficulty, I tracked down the following information.

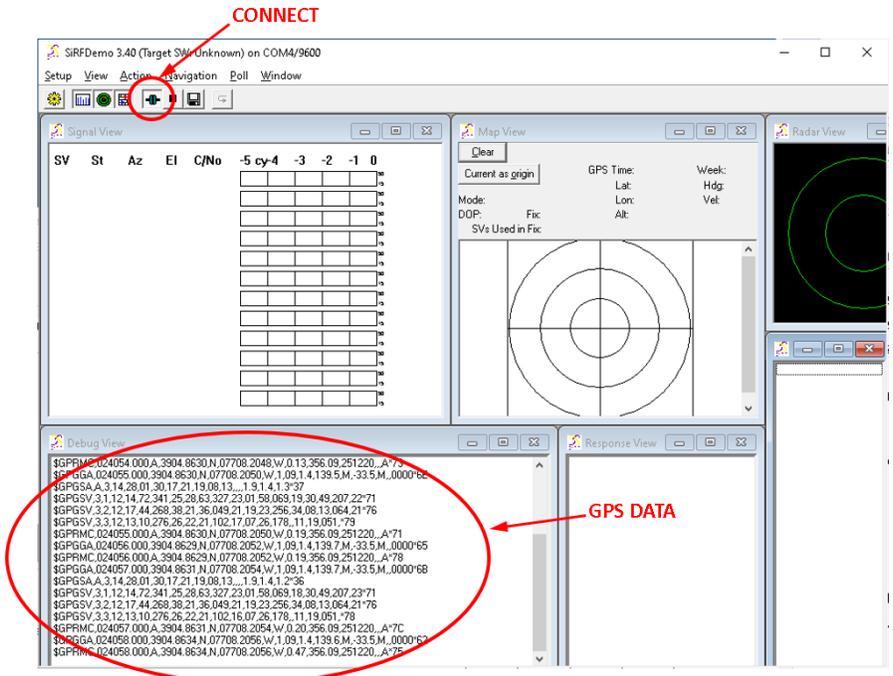
1. Download and run the SiRFDemo utility. It is widely available, but I found it here:

<https://www.stargps.ca/downloads.htm>

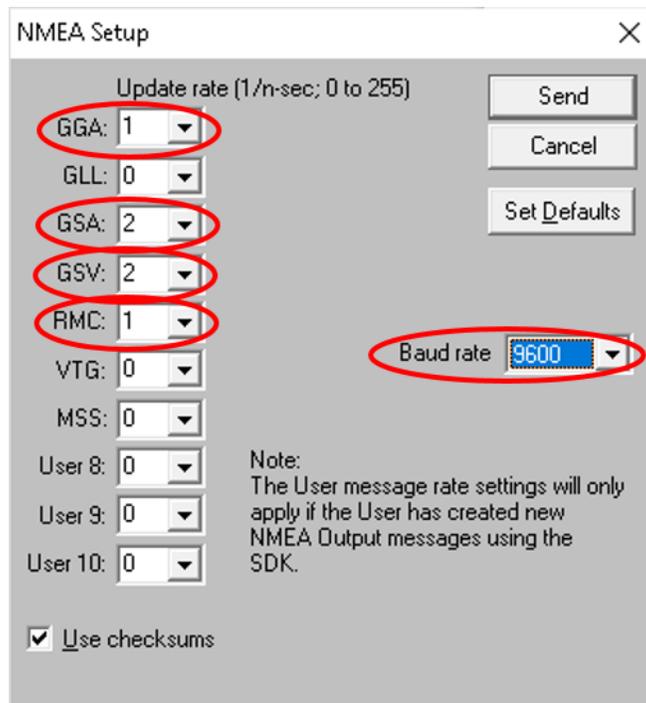
2. In the SiRFDemo program, set the data source to the correct COM port and 4800 baud. You should see a stream of NEMA “sentences” displayed.

Note: If you don't know which COM port to use, look in the Windows Device Manager or use a COM port detection utility. It will be labeled “Prolific Serial-to-USB Comm Port (COM x).”

3. Click on the Connect button and you should see a continual stream of NMEA-formatted position reports coming from the GPS receiver. See the screenshot on the following page.



4. In the SIRFDemo menu, click on **Action .. Switch to SiRF Protocol**. The data stream should change to hexadecimal data.
5. Now click on **Action .. Switch to SiRF Protocol**. You should see a popup window to set the NMEA parameters. Change the defaults to the values shown below and click the Send button.



6. Now you should see the NMEA data stream resume, albeit at the new baud rate of 9600 baud. You can now close the SiRFDemo program and start NMEATime. Set the baud rate in that program to 9600 and you should be in business.

This technique may also work with other hockey puck GPS receivers that use the SiRF chipset.

One other note: The BU-353 uses a supercapacitor to back up the device configuration. If left unpowered for a long period of time, the configuration data may be lost and the device will revert to factory defaults. If this occurs, you will have to repeat this configuration procedure.

Incidentally, you can also send configuration commands to the BU-353 using a terminal program such as PuTTY. I did not attempt this, as the SiRFDemo program simplifies the process. For the record, here are the relevant commands. Each command must be terminated by a <CR><LF>.

| | |
|------------------------------|---------------------------|
| Enable GGA Output 1 sec: | \$PSRF103,0,0,1,1*25 |
| Enable RMC Output 1 sec: | \$PSRF103,4,0,1,1*21 |
| Enable GSA Output 2 sec: | \$PSRF103,2,0,2,1*24 |
| Enable GSV Output 2 sec: | \$PSRF103,3,0,2,1*25 |
| Set baud rate to 9600,N,8,1: | \$PSRF100,1,9600,8,1,0*0D |

References:

<https://www.sparkfun.com/datasheets/GPS/NMEA%20Reference%20Manual-Rev2.1-Dec07.pdf>
<https://nmeachecksum.eqth.net/>