

GPS Receivers

Firmware Upgrade Procedure

This guide provides procedures referring to the following products:

- 59551A GPS Synchronization Module
- 58503A GPS Time and Frequency Reference Receiver
- Z38XXA OEM-based Receivers

New revisions of the operating system firmware can be installed in any of the above products (now referred to as "GPS Receiver" in this document) by utilizing Flash ROM technology. The firmware is supplied upon request or by notification in the form of a PC file, either on a 3.5 inch floppy disk or via electronic transfer. This procedure gives instructions on how to upgrade this firmware on your GPS product once you have received the file.

For assistance, contact:

Symmetricom, Inc.
2300 Orchard Parkway
San Jose, CA 95131-1017

U.S.A. Call Center:
888-367-7966
(from inside U.S.A. only toll free)
408-428-7907

U.K. Call Center:
+44.7000.111666 (Technical Assistance)
+44.7000.111888 (Sales)

Fax: 408-428-7998

E-mail: ctac@symmetricom.com

Internet: <http://www.symmetricom.com>

Warning Symbols Used In This Procedure



Instruction manual symbol; the product will be marked with this symbol when it is necessary for the user to refer to the instruction manual.



Indicates hazardous voltages.



Indicates earth (ground) terminal.



or



Indicates terminal is connected to chassis when such connection is not apparent.



Indicates Alternating current.



Indicates Direct current.

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This procedure does NOT give instructions on how to obtain the file, and assumes that you already have a copy in your possession. If not, you may contact your local Sales/Service Office to inquire about the availability of any updates. When contacting sales/service, please have your instrument model number, serial number, and the current revision number of your firmware. (Refer to the supplied documentation for information on how to use the *IDN? command to get this information).

This procedure is written so that any operator with access to a PC-compatible computer loaded with Windows 3.1 can update the firmware.

This process should require no more than 45 minutes to complete, and it will be necessary to take the GPS Receiver off line for that period.

PROCEDURE

1. Refer to the "Getting Started Guide", or other supplied documentation for information on how to connect the GPS Receiver with a PC-compatible computer.

NOTE: We recommend that the GPS Receiver and PC Serial Port be set to at least 9600 baud to optimize the speed of firmware download, 19200 baud is preferable.

2. Connect power to the GPS Receiver.

NOTE: The following section assumes that SatStat software is installed on a PC with MS-Windows. If not, refer to the "Getting Started Guide" or other documentation that was provided with the GPS Receiver for instructions on its installation.

SatStat is a Windows-based program that simplifies connection, control, query, and adjustment of the GPS Receiver. A copy of this program is shipped with some GPS Receiver products on a 3.5 inch High-Density floppy diskette. If you do not have a copy, one can be obtained at no charge from any Sales office by requesting Part Number 59551-13401.

NOTE: It is highly recommended that no other programs are active in background while performing the download. This is especially true for any communications software. The download process is very buffer-intensive and most errors encountered are due to process interruptions from other programs or the operator.

3. Select the "SatStat" icon to start SatStat.

4. Select "Function" from the menu bar.

a. Select the "Status" menu item so that a check-mark appears.

b. Select the "Disable Updates" menu item so that a check-mark appears.

NOTE: If the "Terminal Emulator" menu item is available on this revision of Satstat, be sure it is not checked.

5. Select "CommPort" from the menu bar.

6. Select the "Port Open" menu item to automatically initiate communication between the GPS Receiver and the PC.

NOTE: If necessary, use the "Settings" menu item under "CommPort" to match your PC and GPS Receiver' serial port parameters. Information for this procedure is also outlined in the "Getting Started" Guide, or other supplied documentation.

7. Wait until a connection is establish. This will be indicated by a "Connected to Hpxxxxx" message in the Title Bar.

NOTE: The "Idle" on the screen indicates that no updates are being sent. This is normal.

8. Select the "Clear Cmd" indicator at the screen bottom, just below the SatStat main window. This will open the "Control & Query" window.

9. Select "Service" in the menu bar.

10. Select the "Download Firmware" menu item.

11. Insert the supplied disk with the firmware file "XXXXXXXXX.S", or ensure that this file is already copied onto your PC hard disk in a known directory.

12. Enter the path and filename in the edit box "File to Download".. Examples below.

A:\XXXXXXXX.S, or
C:\<path>\XXXXXXXX.S

NOTE: If necessary, select the "Files..." button to search for the directory and filename.

13. When the path and filename are entered, select "Download" The "Erasure Warning" window will appear, making sure you really want to change the firmware.

CAUTION: During the following process, do not switch to another program or launch any other programs. The download is buffer-intensive, and although it will retry when interruptions occur, the process will be significantly slowed. In some extreme cases, the process can even abort.

14. Select the "Yes" button.

As the download progresses, "Lines Sent" and "Lines Retried" will give an indication of activity.

15. Wait up to 25 to 30 minutes until the word "Done" appears in the "Lines Sent" field. This time will vary depending on the speed of your PC processor and the baud rate selected.

16. Select the "Close" button in the "Firmware Download" window.

17. Remove any floppy disk with the firmware file and store it in a safe location.

18. Select the "Cmd:" Edit field and type the following command:

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SYST:LANG "PRIMARY"
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19. Select the "Send Cmd" button.

NOTE: Alternatively you can simply remove power from the GPS Receiver and re-connect. This will also initiate the Internal Primary language.

20. Select "Query" from the Menu Bar.

21. Select the "Product ID" menu item.

22. Select the "Send Cmd" button.

23. Verify that the serial number matches your product. The Firmware revision code should now be the same as that on the supplied floppy disk.

24. Refer to the "Getting Started" guide or other supplied documentation to re-connect (or set up for the first time) your GPS antenna, cable, and other accessories. Instructions contained in that

manual will assist to determine when your GPS Receiver has completed its lock process and is operating normally.

IN CASE OF TROUBLE

The download process has built-in checking to ensure that all information is properly written to the Flash ROMs. However, there are situations (such as power failures) where the process can abort before completion. However, even without the firmware downloaded, there is still a "kernel" that remains untouched that ensures serial communication.

If a download has been aborted, simply repeat the procedure above from step 1.

The most common symptom can be seen using the "*"IDN?" query. If the firmware revision is not the same as the version you have attempted to download and also different from the original code, it is usually a revision name assigned to the "kernel" code. One example could be "PERU" instead of a 4-digit date code.

Two messages below are typical of those encountered after an aborted download

"No Flash ROM" This may appear when attempting to establish communications with the product after a download problem

"Consecutive errors..." This message appears if attempting to issue a Control or Query command, or when attempting to view the status screen.

NOTE: If a download has been aborted, simply repeat the procedure above from step 1.