

55300A

GPS TELECOM PRS FIRMWARE

This guide describes how to download new (upgraded) firmware into the 55300A.

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Warning Symbols That May Be Used In This Book



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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Contents

What's In This Guide

This guide contains procedures to help you download new (upgraded) firmware into 55300A GPS Telecom Primary Reference Source.

This guide contains the following:

Table of Contents

Chapter 1, “**Introduction**,” (this chapter) introduces you to the Firmware Upgrading Guide.

Chapter 2, “**Firmware Upgrade Installation**,” provides complete downloading, initializing, and security setting procedures for upgrading the firmware in the 55300A.

Chapter Contents

This chapter contains complete downloading, initializing, and security setting procedures for upgrading the firmware in the 55300A GPS Telecom Primary Reference Source.

This chapter is organized as follows:

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Equipment Requirements

You need the following items to perform the download of the upgraded firmware.

Computer and Interface Cable

- Personal computer (PC) with MS Windows® 95, MS Windows® 3.1, or MS Windows® NT installed, and 3 1/2-inch disk drive.
- 24542U (or HP F1047-80002) (or equivalent) DTE-to-DTE 9-pin (f)-to-9-pin (f) RS-232 Interface cable

Firmware Upgrade Kit (55300-67001) Contents

- Firmware Upgrading Guide (this guide), P/N 097-55300-11
- 55300A User's Guide, P/N 097-55300-01
- 55300A Programming Guide, P/N 097-55300-02
- SatStat Program disk (Version 4.2 and later) 3 1/2-inch disk (located inside the front cover of this guide), P/N 59551-13401
- 55300A GPS Telecom Primary Reference Source Firmware Upgrade 3 1/2-inch disk (located inside the front cover of this guide), P/N 55300-13403 — Revision 3639
- Front panel serial-number labels for customer to put on front panel
- Rev C and D labels for customer to put on front panel
- NO (normally -opened) and NC (normally-closed) alarm relay contacts labels to correct mistake on early versions of the 55310A's rear panel wire-wrap connectors

What You Will Need to Do

- First, use the SatStat program to download the new firmware.
- Second, remove the 55300A module from the rack mount shelf. *The 55300A will have to be taken off-line for firmware upgrade. See the section titled “How Long Will it Take to Upgrade?” on page 2-4 for length of time the unit has to be off-line.*
- Third, set switch S1 to its “initialize” configuration.
- Fourth, re-install the 55300A module into the shelf.
- Fifth, power up the 55300A and allow it to go through its front-panel lamp or LED test.
- Sixth, remove the 55300A module from the shelf, again.
- Seventh, set all bit switches on S1 to their OFF position.
- Eighth, set bit switch 8 (B8) for the proper main board (hardware) revision.
- Ninth, set bit switch 2 (B2) of S1 for your desired security (i.e., password required, or no password required, and
- Last, re-install the 55300A module and power up the unit.

How Long Will it Take to Upgrade?

The entire download and upgrade procedure takes approximately 1 hour.

Downloading New Firmware Using SatStat Program

- 1 Retrieve the new or updated firmware disk (which is located inside the front cover of this guide) and insert it into the PC's 3 1/2-inch disk drive.
- 2 Copy the file of the updated firmware disk to a directory on your PC disk drive.

If you haven't already installed SatStat, you should install it now (follow instructions on the disk label or in the section titled "Installing the Automated SatStat Program for Continual Status Updates" in Chapter 1, "Getting Started," of the *55300A User's Guide*).

- 3 Start SatStat (easiest way is to double-click on the icon).
- 4 You should establish communication with the 55300A. This requires connection from a serial RS-232 port on your PC to the 55300A's **TIME OF DAY** (refer to the User's Guide for information on connecting to this port). Assuming you've got the cable attached to make this connection, you may want to check the settings.

- a. Select **CommPort**, then choose **Settings**.

The Communication Settings dialog box is displayed. Unless someone has reprogrammed the CommPort settings on the 55300A, these settings are probably OK. *The one setting that is likely to need changing is the Com Port. The application defaults it to Com1, but the serial port on your PC may be assigned to a different Com Port. Select the appropriate setting. If you are unsure, Com1 will be your best bet (worst case, you can cycle through all of them until it works).*

- b. If you made any changes on this form, select **OK**, otherwise you can just **Cancel**.
- 5 Select **CommPort**, then choose **Port Open**.

The main form of the Receiver Status screen is displayed. The application will send some commands to the 55300A and then the main form should begin to periodically update every few seconds. If you are getting screen updates, proceed to the next step. Otherwise, something is wrong with your CommPort settings or perhaps the physical connection between your PC and the 55300A.

Downloading New Firmware Using SatStat Program

NOTE

An error message such as “port not available” indicates a problem in the PC, such as another program or application is already using the port. Check for another copy of SatStat that may be running, or another copy of a terminal emulator.

NOTE

Prior to download, interrogate the product, record any custom configuration parameters. This step is necessary because downloading new instrument firmware will reset all parameters to system-preset defaults. Parameters typically recorded include:

- *antenna delay*
- *elevation mask angle*
- *timezone offset*
- *Alarm settings, especially, Holdover Action, Threshold1 and Threshold2.*

A table of all system-preset defaults is printed in Chapter 4, “TL1 Commands,” under the INIT-SYS (Initialize System) command definition in the 55300A Programming Guide. Refer to it to identify additional parameters whose default values are inappropriate for your application. Record the settings you use prior to download.

- 6 Performing the download works best if the periodic updates are disabled. On the main form, select the **Function** menu and choose **Disable Updates**.
- 7 Activate the form titled “Control & Query” by clicking anywhere on it. Select **Service**, then choose **Download Firmware**. This will bring up a form titled “Firmware Download”.
- 8 Now you need to select the file that you will download. Select the control labeled **File**.

This brings up a form for file selection. Download files for the 55300A have a .s appended to the file name. This form is set to only find .s type files. In this case, you want to find and select the filename, for example **u_3639.s**. Depending on where you have placed this file, you may have to use this form to navigate for it. If it is on a different drive, use the Drives selection in the lower right. Once you’ve located **u_3639.s** select it (clicking on the name is probably the easiest) and then select **OK**. The file, along with its path should now appear in the “File to Download” portion of the “Firmware Download” form.

Downloading New Firmware Using SatStat Program

- 9 The SatStat program (version 4.2 and later) will offer to set up for the most efficient data transfer. By optimizing communication settings of both the instrument and the PC communication port, download time is reduced.

Prior to download, the program offers BAUD rate 19200, and echo off. If selected, these settings are maintained until after download is complete.

Following download, you should reconfigure the instrument and the PC com port settings, restoring them to the choices appropriate to your installation.

- 10 You're now ready to perform the download. Select the control titled **Download** and an erase warning will appear. This is just a double-check to make sure you really want to do this. Assuming you do, select **Yes, Perform the Download**.

The program will switch the 55300A to the "INSTALL" language, erase the flash memory, and begin downloading S-records. The S-records are the long character strings that appear in the lower part of the form as the downloading process proceeds. The total downloading time varies depending on the type of PC you have, but with communication settings optimized a typical time is about 8 minutes *with BAUD rate set at 19200*. Once the download is under way, an estimate of the time to complete the process is updated every 100 S-records.

- 11 When the downloading has completed, the "Minutes Until Finished" field will say "DONE". You can then select **Close** on the Firmware Download form.

There are a couple of ways to confirm that the new firmware has been installed; the easiest is to just power-cycle the unit. Once it has powered up, you can confirm that the new revision is in place by selecting **Query**, then choosing **Product ID** (from the "Control & Query" form) and selecting **Send Cmd**. The product ID will appear on the Control & Query form and should contain the new date code "3639", for example. An alternative way to check the download is to type SYST:LANG "PRIMARY" in the edit field on the "Control & Query" form and select **Send Cmd**. This will return the unit to normal operating mode without power-cycling. If you do this, you could then check the product ID as described above. NOTE: it is expected that in early software revisions the alarm will come on the first time you power-cycle (or switch to "primary" using SYST:LANG "PRIMARY").

If you investigate the alarm, you will find it is the software safeguard — it has gone off because you have changed the instrument firmware. On subsequent power-ons the alarm will not come on.

Downloading New Firmware Using SatStat Program

After upgrading instrument firmware, you will need to restore the instrument settings recorded prior to the download, and restore the instrument and PC communications settings so that BAUD rate and echo are set according to the requirements of your installation.

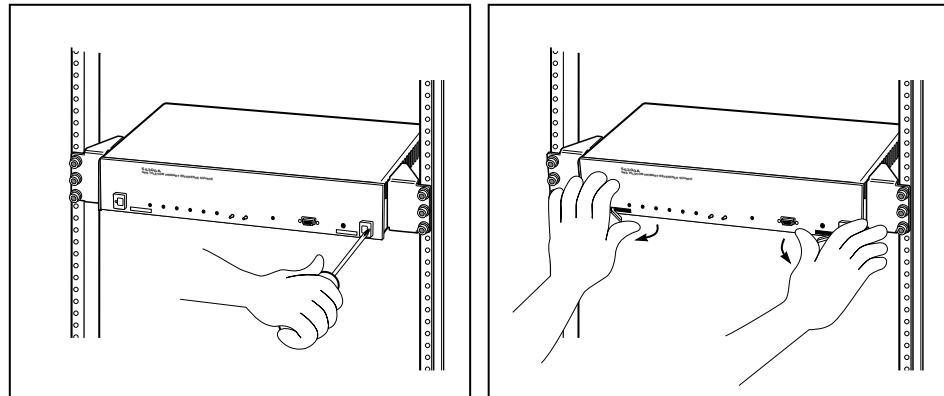
Initializing the 55300A After Firmware Download

Once the new firmware is downloaded, you need to initialize the 55300A. This is necessary because locations in the non-volatile memory have been re-defined by this major upgrade, and must be cleared.

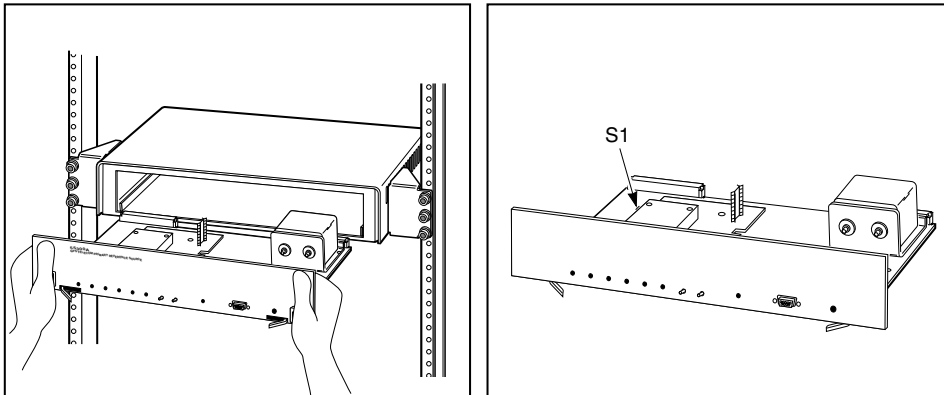
To initialize the 55300A, perform the following steps.

- 1** Remove the 55300A card or module from the rack mount shelf as shown in Figure 2-1.

Chapter 2 Firmware Upgrade Installation
Initializing the 55300A After Firmware Download



1 Loosen both screws.	2 Pull out levers.
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3 Pull out the 55300A module.	4 Locate S1 on the main board.
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Figure 2-1. Accessing Security Switch S1

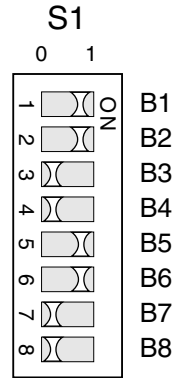
- 2 Locate S1 (the “security” switch) on the left side of the main board as shown in Figure 2-1.

Initializing the 55300A After Firmware Download

- 3 Set S1 to the “initialize” configuration as shown in Figure 2-2.

NOTE

All of the bit switches on S1 must be set as shown in Figure 2-2.



Bit	Switch Position
B1 (Bit 1)	1 (ON)
B2 (Bit 2)	1 (ON)
B3 (Bit 3)	0 (OFF)
B4 (Bit 4)	0 (OFF)
B5 (Bit 5)	1 (ON)
B6 (Bit 6)	1 (ON)
B7 (Bit 7)	0 (OFF)
B8 (Bit 8)	0 (OFF)

Figure 2-2. S1 Initialization Configuration

- 4 Re-install the 55300A module into the shelf and allow the unit to power up.

It is only necessary for the unit to complete its selftest of the front-panel LEDs. (All LED indicators illuminate, then cycling through, one LED illuminates at a time. This takes less than 5 seconds.)

- 5 Again, remove the 55300A module from shelf and return all switches to the “OFF” or “0” position as shown in Figure 2-3.

Chapter 2 Firmware Upgrade Installation
Initializing the 55300A After Firmware Download

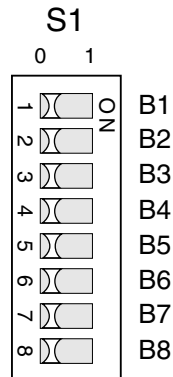


Figure 2-3. S1 With All Bit Switches Set to OFF

NOTE

You have now initialized everything to factory default settings, including all serial ports and passwords. If you are still running SatStat, you may need to reconfigure the com port from 19200 BAUD to 9600 BAUD.

- 6 Now, proceed to the next section for instruction to configure switch S1 for appropriate main board revision.

Setting Main Board Revision Switch

After you have initialized the 55300A, you have to set the hardware revision in the firmware.

NOTE

If you are still running SatStat, you may need to reconfigure the com port from 19200 BAUD to 9600 BAUD.

- 1 Verify which revision (C or D) main board you have by reading the revision label (for example, 55300-20001 REV C) that is screened on the top, middle, front part of the main board, viewing from the front-panel of the 55300A module.
- 2 If the main board for the 55300A is Revision C, type DIAG:IDEN:HARD “C” at the >scpi prompt then press Return or Enter key.
- 3 Now, type *IDN? and press Return to verify the the hardware revision has been set.

A response similar to the following should appear on the computer screen:

```
HEWLETT-PACKARD,55300A,3626A00234,3639-C
```

where the “-C” indicates that the hardware revision is set to C.

- 4 If the main board for the 55300A is Revision D, perform steps 2 and 3, but replace “D” for “C”.

A response similar to the following should appear on the computer screen:

```
HEWLETT-PACKARD,55300A,3626A00234,3639-D
```

where the “-D” indicates that the hardware revision is set to D.

The reason for setting hardware revision is that Revision D main board has one more alarm detector called DPM2 (Digital Pulse Monitor 2). Since the Revision C main board, which has DPM1 alarm detector only, does not have this extra alarm detector, an alarm will be activated that never clears.

- 5 Now, proceed to the next section for instructions to configure the security settings.

Setting Up Security

When shipped from the factory, the 55300A comes with the security feature disabled. If it is important to protect your 55300A's resources and information from unauthorized users, you need to enable the security feature to set up system security. Table 2-1 lists the two security levels available: PUBLIC (No password required; no security) and SECURITY (password required).

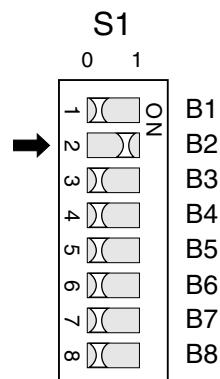
Table 2-1. 55300A Security Levels

Security Access	Description
PUBLIC	No security — no password required, can use all commands without logging on. The Password Required bit switch on S1 is set to OFF.
SECURITY	Requires password, can use all commands including commands that download firmware. Password Required switch is set to ON.

To Enable Security

To enable the security feature, perform the following steps.

- 1 Access S1 as shown in Figure 2-1 (on page 2-10).
- 2 Set bit switch B2 on S1 to its ON (Password Required) position as shown in Figure 2-4.



B1 (Bit 1) Preset All Serial Ports at Powerup

B2 (Bit 2) Password Required = ON; No Password Required = OFF

Figure 2-4. S1 Password Required Setting

Setting Up Security

- 3 If you choose not to use the default password (“GPS-SYNC!”) to disallow unauthorized users to operate the 55300A, use the ED-PID command to change the password. Refer to Chapter 4 in the *55300A GPS Telecom Primary Reference Source Programming Guide* for more information on ED-PID.
- 4 Re-install the 55300A module into the shelf, and power up the 55300A.

Once the 55300A is secured, re-installed, and powered up, you must enter or type the following commands:

ACT-USER::SUPER:123::GPS-SYNC!; — to log on and begin a session (Note: the default <pid> or password is “GPS-SYNC!”).

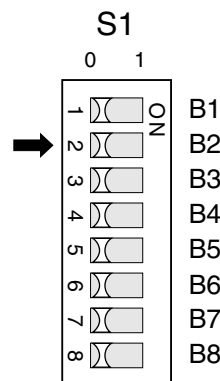
Note that if you try to enter a command without first logging on when the 55300A is secured, your command will be denied. The controller or terminal will echo back an error message.

Refer to Chapter 2, “Getting Started,” in the *55300A GPS Telecom Primary Reference Source Programming Guide* for more information.

To Disable Security

To disable the security feature, perform the following steps.

- 1 Access S1 as shown in Figure 2-1 (on page 2-10).
- 2 Set bit switch B2 on S2 to its OFF (No Password Required) position as shown in Figure 2-5.



B1 (Bit 1) Preset All Serial Ports at Powerup

B2 (Bit 2) Password Required = ON; No Password Required = OFF

Figure 2-5. S1 No Password Required Setting

Further Assistance

- 3 Re-install the 55300A module into the shelf, power up the 55300A, and resume operation.

Further Assistance

Contact your local Symmetricom Sales or Service facility for assistance if you are not able to successfully upgrade new firmware.