GenStar MPPT Firmware Updates Guide

Periodically, Morningstar releases firmware updates for the GenStar MPPT controller. These updates will fix minor operational bugs, adjust operating parameters for better battery charging, or add additional features. Firmware updates are free and posted, as they become available, on the Morningstar web site at https://www.morningstarcorp.com/firmware/genstar-mppt-firmware/.

There are four different methods that can be used to update the Firmware for the GenStar MPPT controller.
1. SD Card
2. LiveView Web Dashboard with Ethernet connection (RJ-45)
3. Morningstar Mobile App (BlueTooth)
4. MSLoad Windows Utility program with a serial connection (USB, RS-232 or EIA-485)

Note: It is not necessary to perform a factory reset or re-commission the controller after updating to a new version of the firmware. Firmware updates will not affect the settings of the Genstar controller unless the new version includes new features or default settings that may be affected. The likelihood of this happening is rare, but it is recommended to review the settings after performing a firmware update.

Method #1: Firmware Update with SD Card

SD Card Slot

1. Download the GS firmware file from our website (see addendum)
2. Unzip the downloaded firmware file to a folder on your PC
3. Copy the downloaded firmware file to the /FIRMWARE directory of the SD card
   a. The SD card provided with the GenStar includes the /FIRMWARE directory.
   b. If using a different SD card, first format the SD card from the GenStar meter display (SETUP/ SD Card & Logger/ Format) and the /FIRMWARE and other directories will be created.
4. Insert the SD card into the slot on left side of GenStar MPPT meter
5. On the GenStar meter display: Navigate to STATUS/About/IDs & Versions/Software Version and record the current Firmware Version
6. On the GenStar meter display: Navigate to SETUP\Firmware\Load Firmware
7. Select the desired firmware file, and confirm loading from SD Card
8. A progress bar will indicate loading of the firmware file into GenStar MPPT memory. This will take several minutes.
9. When complete, select Okay and then Next with additional prompts to update the GenStar MPPT firmware
10. Reboot the GenStar MPPT controller. The firmware will update, noted by a flashing Green LED. The amount of time it takes to be installed varies depending on the firmware release, but it may take up to 10 minutes or longer.
11. Once complete the Green flashing LED will become solid Green (note that the Green LED flashing will stop once and start again after approx. 45 seconds. you must wait until the Green flashing stops a second time). Reboot the controller by cycling power to complete the process.
12. On the GenStar meter display: Navigate to STATUS/About/IDs & Versions/Software Version and confirm the new version is showing as compared to the version you recorded in Step 5.

GenStar MPPT Firmware Updates Guide
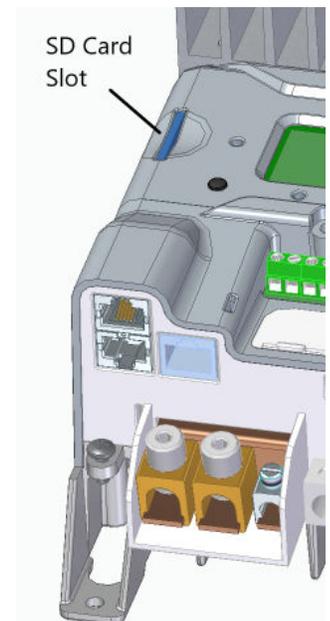
Method #2: Firmware Update with LiveView Web Dashboard with Ethernet (RJ-45) connection

The GenStar MPPT controller includes an Ethernet RJ45 port for connecting to a Local Area Network (LAN). With an Ethernet connection on a LAN, the GenStar LiveView HTML Webpage can be accessed on a web browser.

Important: Ethernet writes must be enabled to update the firmware with LiveView. Enable Ethernet writes during commissioning or navigate to SETUP/ Network/ Ethernet Modbus Writes on the GS Meter Display.

Ethernet RJ45 port
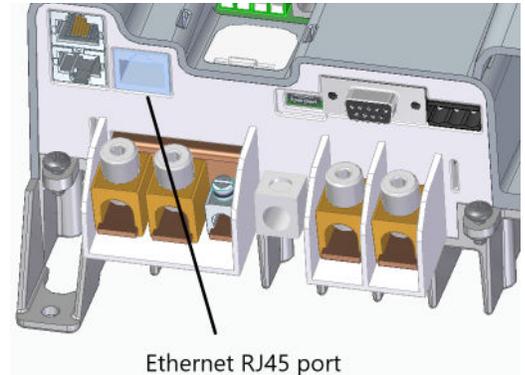
TO WRITE NEW FIRMWARE TO the GENSTAR:
1. Download the GS firmware file from our website (see addendum)
2. Unzip the downloaded firmware file to a folder on your PC
3. With the GenStar MPPT controller connected to a LAN, open a Web Browser on your PC.
4. Use one of the following methods to open the GenStar MPPT LiveView web page.
   a. Enter the GenStar MPPT's IP address into the Address bar, e.g., 192.168.1.253. The IP address can be found in the meter display in Settings\Network.
   b. Scan the QR code on the serial label with a mobile device that has a wifi connection to the LAN.
   c. Enter the GenStar MPPT's NetBIOS name [product abbreviation GSMPPT + 8-digit serial no.] into the address bar, e.g., http://GSMPPT22070007
5. In LiveView, navigate to the "Settings" tab, then look under "IDs & Versions" and record the current Firmware Version Listed
6. Select the "Update" tab
7. Check the box for "After firmware update, automatically reboot the unit with the new firmware. If not checked, a manual power cycle is needed."

8. Click on the "Choose File" button at the lower left of the screen and select the new GenStar firmware .msc file that was downloaded, extracted and saved on your pc
9. Click the "Upload" button to upload the firmware file to the GenStar

![Morningstar logo - World's Leading Solar Controllers & Inverters]

10. Wait for the firmware file to upload to the controller. The time this takes will depend on the overall network speed, it could be as fast as a couple minutes, but it may take up to 10 minutes or more. When prompted. select REBOOT CONTROL NOW

Firmware upload succeeded.
Please reboot the Control to complete the firmware update process.

> REBOOT CONTROL NOW

11. The firmware will now be installed. The amount of time it takes to be installed varies depending on the firmware release, but it may take up to 10 minutes or more. (Note if you are at the controller, you will see the Green LED begin to flash very quickly for a period of time and then stop, it will then do a second cycle of flashing very quickly. The Firmware update is complete once this second cycle of flashing has stopped)
12. Refresh your web browser to reload the liveview screen
13. Navigate back to the "Settings" tab, then look under "IDs & Versions" and confirm the new version is showing as compared to the version you recorded at the beginning of the process

CAUTION:
The controller may fail to properly reboot after a firmware update leaving the system offline and without power. It is recommended to be physically near the device during the firmware update in the event a manual power cycle is needed to bring the system back online. Always reboot after a firmware update. Check the LiveView Update Screen box to automatically reboot after the update. The system will lose power during a reboot!

Method #3: Firmware Update with Morningstar Mobile App (BlueTooth)

The Morningstar Mobile App includes the latest version of the GenStar firmware when installing or updating the app. A mobile app is available for use with Android or iOS devices, and can be downloaded to a mobile device from either the Google Play Store (Android) or the Apple App Store (IOS). The application uses Bluetooth LE to communicate with the GenStar, and includes much of the functionality seen in the Morningstar LiveView Web Dashboard.

1. Install the latest version of the Morningstar Mobile App on a mobile device.
   a. Android: https://play.google.com/store/apps/details?id=com.morningstar.android
   b. Apple iOS: https://apps.apple.com/us/app/morningstar-mobile/id1638164491
2. Open the Morningstar Mobile App
3. Connect to the GenStar MPPT controller
4. Once connected, select the firmware update icon on the bottom right of the mobile app.
5. The Update screen will indicate if a new version of the firmware is available.
6. Follow the directions on the screen to update the firmware.

IMPORTANT: The Firmware upload may take up to 10 minutes or more. Keep the Morningstar Mobile App open and maintain a Bluetooth connection with the GenStar MPPT controller during the Firmware update. If the connection is lost, it may be necessary to cycle power to the GenStar and start the Firmware update again.

Notes:

The GenStar controller must have firmware version 2.2.6 or later to be updated with the Morningstar Mobile App. If the GenStar has an earlier version of the firmware, use one of the other three methods.

New versions of the Firmware may be released on the Morningstar website before being released with the Morningstar Mobile App. It is still possible to update the firmware to the newer version of the firmware by downloading the firmware from the website to the mobile device (see addendum). The Installer password (141) must first be entered to be able to upload the firmware from a file. Enter the installer password by selecting the settings icon on the top right of the Morningstar Mobile app before selecting the Update icon.

Method #4: Firmware Update with MSLoad Windows Utility program with a serial connection

Note: Updating with LSLoad can be much slower than the preceding methods in this document.

The MSLoad software program requires a serial connection and cannot be used with an Ethernet or a wireless connection. The GenStar MPPT controller includes three serial communication ports.

- USB Type C
- RS-232
- EIA-485
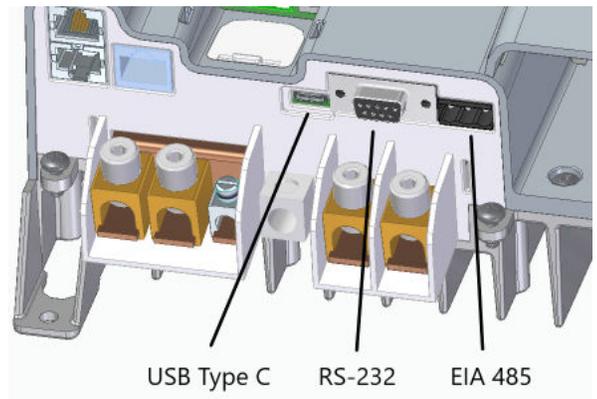
See USB and RS-232 cables and EIA-485 terminal block below.

USB-A to USB-C   RS-232 Cable   RS-232 Ribbon Cable   EIA-485 3-pin terminal block

1. Download the GS firmware file from our website (see addendum)
2. Unzip the downloaded firmware file to a folder on your PC
3. Download the MSLoad firmware utility at https://www.morningstarcorp.com/software/msload/
4. Unzip the MSLoad (v1.5.7 or higher) firmware utility
5. The MSLoad software does not require installation and can be run directly from the MSLoad folder.
6. Refer to the README file included with the MSLoad folder for instructions for uploading the GenStar firmware to the GenStar controller.
7. Updating with LSLoad can take much longer than 10 minutes. Ensure that the PC remains on with the serial connection throughout the update process.

Addendum: Downloading the Firmware file for the Genstar MPPT

The most recent firmware file for the GenStar MPPT controller can be found on our website at the following web address. https://www.morningstarcorp.com/firmware/genstar-mppt-firmware/
- The firmware file will download to your computer as a ZIP folder and will need to be extracted in order to be used. Depending upon if you are using a Windows PC (and which version of Windows), MAC or other will determine how to extract the compressed files.
- Once Extracted you will need to save the Genstar firmware file somewhere easy to locate, like your desktop.

Note: Morningstar's Mobile Utility App includes the latest version of the GenStar firmware when installing or updating the app. Therefore, it is not necessary to download the GenStar Firmware when updating the Firmware with the Morningstar Mobile Utility App.

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