

**MAIN CONTROL BOARD (A1)
FIELD UPGRADE OF FIRMWARE****BACKGROUND**

The "A1" Main Control Board (factory p/n EN5031-00) is the "brain" of the ATEvo Series microprocessor-controlled float battery charger. In addition to pcb-level hardware, the Main Control Board utilizes "*firmware*" (or software) installed within internal memory. A powerful feature in ATEvo is that this firmware can be easily updated in the field, without uninstalling the charger or any pc boards. The process takes minutes.

This document is an expanded supplement to Section **6.5.4** of the ATEvo O&SI manuals:

- [JA0102-51](#) - Single Phase Group I (6-25 Adc)
- [JA0102-52](#) - Single Phase Group II (16-100 Adc)
- [JA0102-53](#) - Three Phase (16-1000 Adc)

SAFETY

⚠ WARNING *High voltages appear at several points inside the ATEvo. Use extreme caution when working inside the enclosure. Do not attempt to work inside ATEvo unless you are a qualified technician or electrician.*

ATEvo does **NOT** need to be manually turned off during a firmware update. Keep **on** (closed) both front panel circuit breakers (CB1/CB2). Internal and external input (ac) and output (dc) voltage potentials **still** exist on all components inside ATEvo.

For firmware update, access the **inside surface** of the front panel door **ONLY**.

NOTICE Printed circuit boards are sensitive to damage from static discharges. Ground yourself with a wrist strap before accessing Main Control Board (A1).

PROCEDURE

1. Keep ATEvo operating normally. Do **not** open circuit breakers.
2. Open the ATEvo hinged front panel (door).
3. Locate the square Main Control Board (A1), mounted to the inside surface of the door.
4. The A1 pc board may be **GREEN** or **BLUE**, depending on date of shipment from factory.
5. Identify the SD card slot, located in the upper-left corner of the Main Control Board (A1).
6. Directly below the slot is a 'RE-FLASH ENABLE' jumper (JP4).
7. Move this jumper to the 'PRGM' position, from 'NORM'.

**NOTICE**

8. The site/installation's parameters (float voltage, alarm settings, etc.) may be different from ATEvo factory preset values. If so, these values will need to be **re-entered** or **restored** after firmware update, also via SD memory card.
 - if required, see Section **6.5.3** of the ATEvo O&SI manual for backing up parameters
9. After successfully backing up parameters (*if required*), begin update:
 - for firmware update **v3.X.X** (and later), see Sheet 2 of 8... then jump to Sheet 8 of 8
 - for firmware update **v2.6.6** (and prior), see Sheet 6 of 8... then jump to Sheet 8 of 8

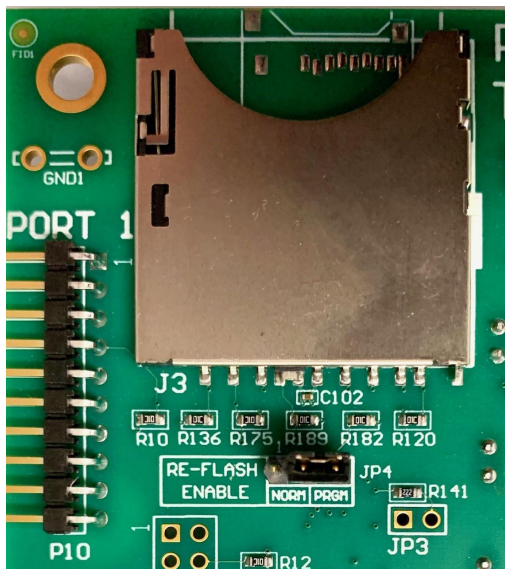
Firmware Update v3.X.X and Later

Overview

Starting with Evo firmware v3.0.1, firmware updates for the Hindepower Evo battery charger are supplied as a file with extension “.hpb” (Hindle Power Binary). The file uses AES encryption as well as multiple mechanisms to verify integrity which the Evo will reject if any check fails. An SDHC memory card 32GB or less is required to apply an update. The procedure takes about 3-4 minutes to perform.

Update Procedure

1. Copy the firmware update file to the SD card.
2. Insert the SD card into the slot on the Evo main board.
3. Move the jumper JP4 (RE-FLASH ENABLE) to the PGM position. JP4 is located directly below the SD card slot as shown in the image below.
4. If the charger is already powered press the reset button on the main board otherwise simply power the charger. The reset button is located below the SD card slot towards the bottom of the main circuit board.
5. Follow the steps in “**Navigating Update User Interface**” below.



The SDHC card shown above is an adapter for a micro SD card which is also acceptable as long as its capacity is 32GB or less.

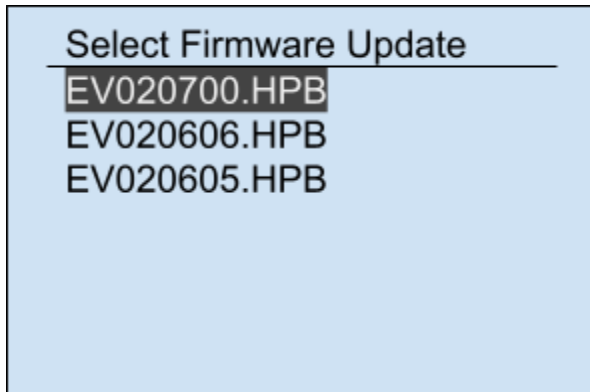
Navigating Update User Interface

The “Select Firmware Update” screen below will display following a reset when a card is inserted containing firmware update files.

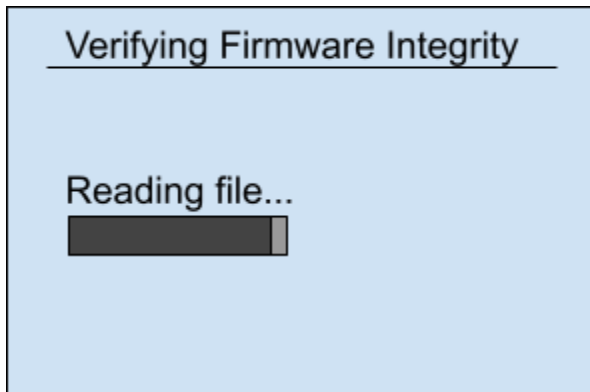
Troubleshooting

If the display does not appear check that JP4 (RE-FLASH ENABLE) jumper is moved to the PGM position. If it is not, move JP4 to the PGM position and press the reset button on the main

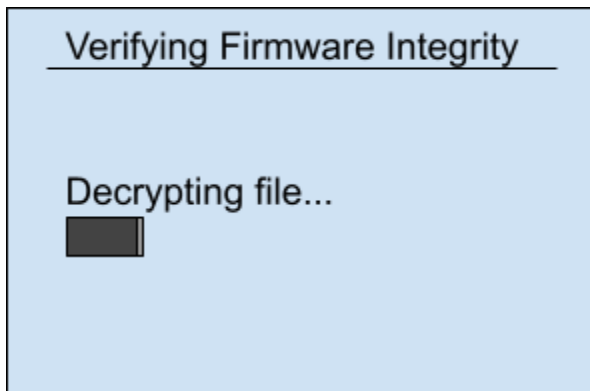
circuit board. If it still does not appear, remove the SD card and re-insert while the charger is powered and press the reset button. If that fails cycle power while the card is inserted



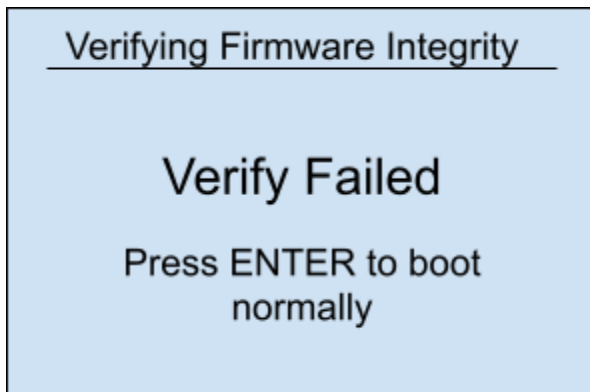
If multiple firmware update files are on the memory card they will be listed from latest firmware version to oldest. The numbers in the filename indicate the firmware version. For example, the file selected in the image above the version would be v2.7.0. Use the up/down arrow keys to select the update to apply then press ENTER. The display below will appear showing a progress bar. The integrity of the firmware update is validated as it is read into memory.



It takes extra time to decrypt the firmware file.



If for any reason the verify step fails the following screen will be displayed.



Troubleshooting

The cause of firmware update verify failure could be that the file is corrupted or there was a problem reading the file. Press the reset button to attempt the update again. If the verification still fails try reformatting the SD card and recopying the file to the memory card. If that fails to correct the problem, obtain a new copy of the file from Hindlepower.

A confirmation display to apply each update contained in the file will be displayed in sequence when firmware integrity is validated. A firmware update typically updates at least two components in the main circuit board; the main application and display application. The update sequence permits declining individual updates. Unless instructed otherwise, all applications should always be updated. The sequence of screens and how to proceed is explained in the graphic below.

1

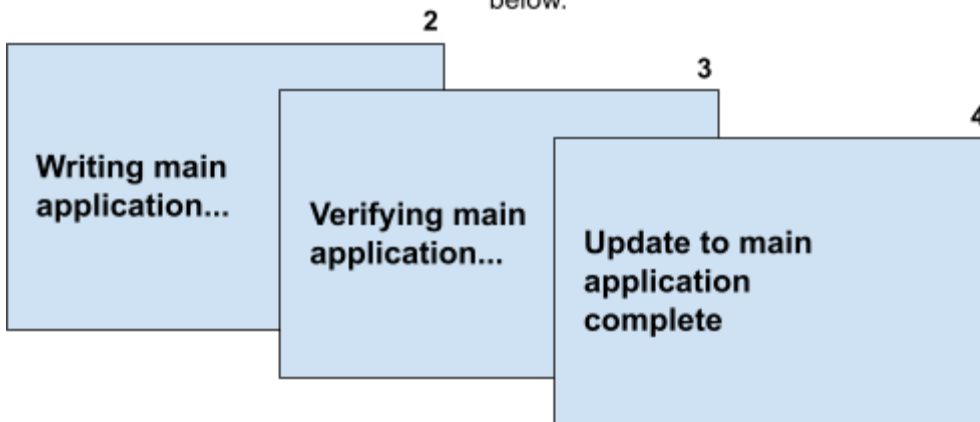
An application file has been found for the main application. Would you like to update it?

Yes No

⇐ Enter Select

Press the ← arrow to select "Yes" then press ENTER.

The display will automatically sequence through the screens below.



5

An application file has been found for the display application. Would you like to update

Yes No

⇐ Enter Select

Press the ← arrow to select "Yes" then press ENTER.

The display will go dark for about 10 seconds when this update is applied.

When programming is complete follow the directions on the display below to replace the programming jumper and hit ENTER to restart.

Move JP4 jumper back to "NORM" position then press ENTER

Verify that the new firmware is installed by observing the version displayed on the splash screen during reset.

Firmware Update Procedure

v2.6.6 and prior

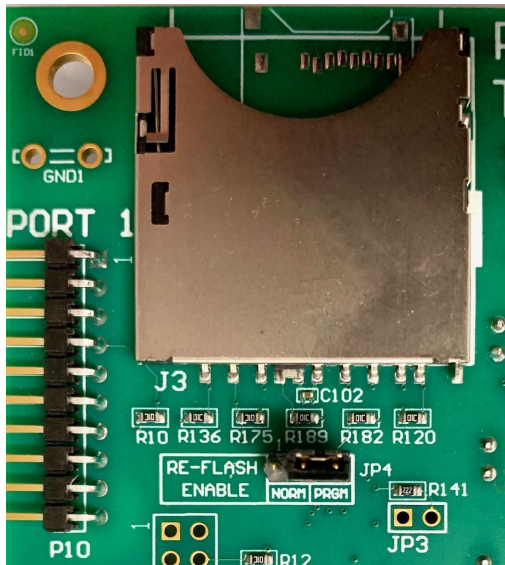
Overview

The files “bruno.bin” and “mainapp.bin” are necessary to update firmware on the Evo charger. An SDHC memory card 32GB or less is required. The procedure takes about 3 minutes to perform.

Basic Procedure

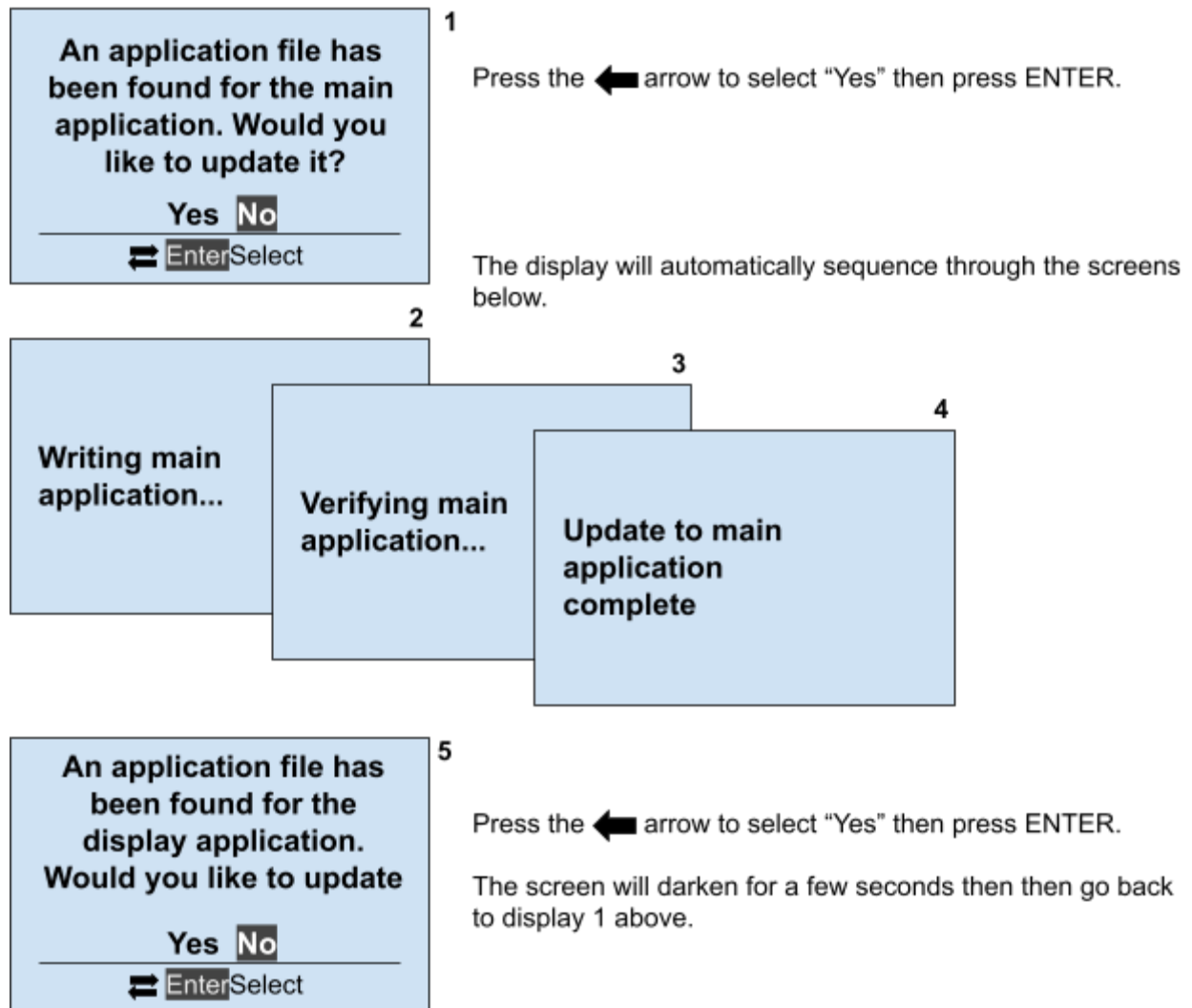
1. Copy the binary files to the SD card.
2. Insert the SD card into the slot on the Evo main board.
3. Move the jumper JP4 (RE-FLASH ENABLE) to the PGM position. Refer to the image below to locate JP4.
4. If the charger is already powered press the reset button on the main board otherwise simply power the charger.
5. Select yes/no (see below) to perform the updates offered in the screens that follow.
6. Move the jumper JP4 back to the NORM position.
7. Remove the memory card and press the reset button.

The image below shows the location of JP4 (RE-FLASH ENABLE) relative to the memory card slot.



The SDHC card shown above is an adapter for a micro SD card which is also acceptable as long as its capacity is 32GB or less.

The sequence of screens and how to proceed is explained in the graphic below.



When display 1 above shows for the second time...

1. Move JP4 back to NORM position.
2. Remove the memory card
3. Press the reset button.

Verify that the new firmware is installed by observing the version displayed on the splash screen.

**MAIN CONTROL BOARD (A1)
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10. When ATevo restarts, close the front panel door.
11. Observe the main display on the front panel.
12. Confirm upgrade, by observing firmware version shown on ATevo splash screen.
13. If this is missed, press the "**MENU**" button to access the Main Menu.
14. Use the arrow buttons to scroll down, and highlight the **(i) SYSTEM INFO** icon.
15. Press the "**EDIT / ENTER**" button.
16. The current firmware version will be listed on the third bullet down.
17. Repeat procedure if the firmware upgrade was not successful.

NOTICE

18. The site/installation's parameters may be different from ATevo factory preset values.
 - these values will need to be re-entered or restored, also via SD memory card
 - see Section **6.5.3** of the ATevo O&SI manual
19. After firmware confirmation, run the **HindleHealth** test.
 - check ATevo operation
 - see Section **8.1** of the ATevo O&SI manual
20. This *completes* the ATevo firmware upgrade procedure. 😊

