



GREEN CUBES
THE POWER TO PERFORM

Service Bulletin

Vehicle/device abruptly ceases operation

**inter-BMS Communication Error
w/ packs equipped with Primary & Secondary
BMS Set-up**

**Software Patch Download
V1.0.5.3**

This Document deals with the procedure for downloading a “service patch” to correct the “**inter-BMS communication error**” condition. The patch will be designated: **V1.0.5.3**

This condition is problematic for batteries with voltages above 48 volts that use both a primary and a secondary BMS system. For systems using the Green Cubes Industrial BMS. (See illustration below)

‘The issue presents itself when the primary and secondary BMS’s experience a communication interruption. When this interruption occurs, the vehicle or device abruptly ceases operation because the BMS has shut down the pack.

Once the patch has been applied, if a communication error subsequently occurs for any reason, the corrected operation will allow the BMS to continue normal operation using the primary BMS only- UNTIL the system is connected to a battery charger.

Once connected to a charger, the system enters an automatic “recovery mode” and makes an attempt to recover from the inter-BMS communication error if it still exists.

During the automatic recovery mode attempt- ONE of two events may occur:

(1) The BMS is successful in its recovery effort and the system continues normal operation. No other action is required as the system has “fixed itself”. The self-recovery effort can take several seconds. Charging will be delayed until the recovery effort is complete.

(2) During the charge event, the BMS is UNABLE to “fix itself” at which time it “shuts down” and the vehicle or device is now unable to move or function. If this occurs call Green Cubes Service for further assistance.



In order to proceed with downloading the patch- you must first install the BMS tool onto your PC, unless you have already have V1.0.4 through V1.0.5. A step-by-step procedure follows.

Please observe several cautions as you proceed with this fix.

CAUTION:

It is possible to enter into a ground loop condition that will permanently damage your PC during the download operation. It is imperative that you use an isolation device. You can purchase a download device like this one: USB Gear- Part number: USBG-ISO-M to protect your computer as well as the BMS.

As an additional precaution, we recommend that you don't lay your PC or laptop on the steel outer shell of the battery.

CAUTION:

Although it is not necessary for the download procedure, at some time you may be using hand tools to facilitate partial disassembly of the battery pack during this operation. If tools are used make certain to use only fully insulated tools

The Procedure:

Load BMS Tool onto your PC

Step 1:

Turn on your computer and go to this Green Cubes website:

www.greencubes.com/resources/fsb

Open the website to view the files available.

Step 2:

Download the BMS tool. (V 1.0.4)

Once the download finishes- select "Open file"

The BMS tool should now be on your desktop or laptop PC.

Step 3:

At this point you want to download the DFU files for the BMS TOOL. This allows you to get the BMS Tool loaded into your PC.

Step 4:

Save the DFU (Device Firmware Upgrade) files to your PC so you can easily access them in the future.

Using the BMS tool you just loaded-

LOAD the "inter-BMS communication error" FIX into your battery pack BMS:

Step 1:

Open the BMS Tool.



Figure 2: USB “A” to USB “B” cable

Using a USB A to USB B cable,(Figure 2) connect your PC to the port on the battery pack. Then select “CONNECT”

Once connected, you should see product information on your screen as well as the word “connected” in the bottom left corner of your screen once the unit has connected. (Figure 3)

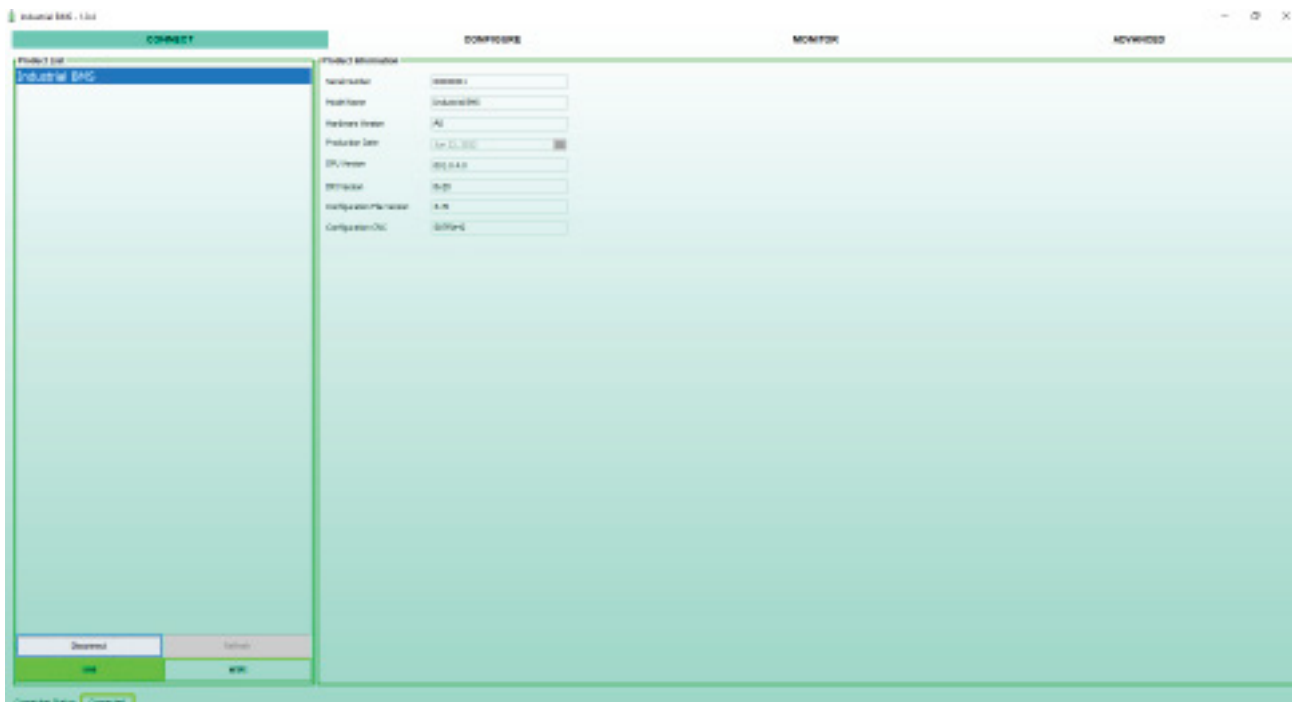


Figure 3: Unit “connected” screen shot

Step 2:

To place the BMS in the DFU mode:

- Select “Advanced”
- “Firmware upgrade”
- Now enter password: **“AA55”**
- You should now see the PRIMARY BMS under the devices in the DFU mode (Figure 4)
- Select “connect”

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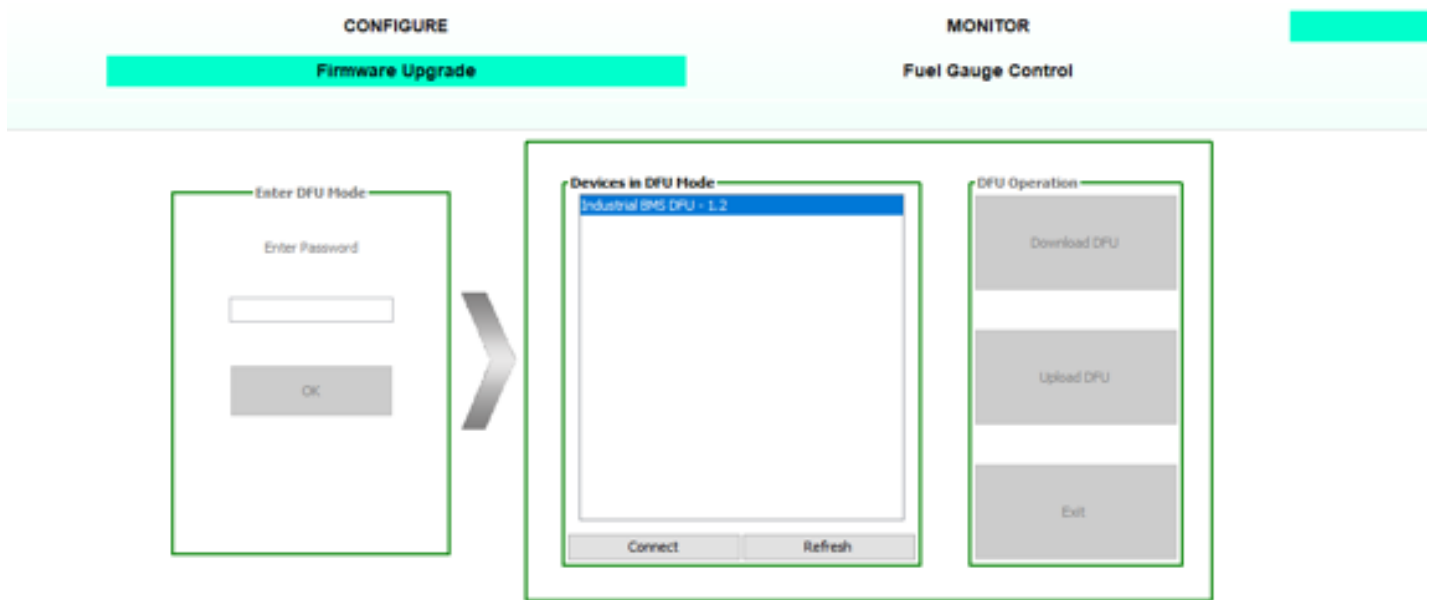


Figure 4: “DFU” Mode

Step 3:

First we will select “Download DFU” (Figure 5) Select the DFU from the folder you saved it to previously

- Allow the download to finish
- Your BMS will then automatically disconnect
- Go back to “Connect” and select it
- Select “connect” and confirm you are connected.
- Verify DFU firmware number matches the firmware number you downloaded.



Figure 5 “DFU” Download

END