Renogy Battery Firmware Update

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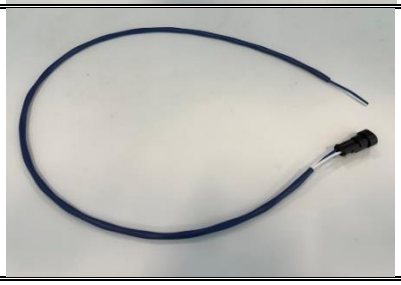
Publication Date:	September 2024
Make(s):	Jayco, Entegra Coach
Model(s):	Terrain, Solstice LI, Swift LI, Launch, Expanse LI, Ethos LI
Model Year(s):	2021-2024

Incident:	Renogy Battery Firmware Update to address alternator not charging battery	
Affected Units:	2021-2024 Jayco Terrain, Solstice LI, Swift LI; 2021-2024 Entegra Coach Launch, Expanse LI, Ethos LI with Renogy 48V Lithium system	
Parts Kit:N/A	Parts Kit #: N/A	
	Part Kit Contents: N/A	
Misc. Tools & Supplies:	Renogy sent the USBCAN Analyzer and Jumper cables to dealers.	
	1 - USBCAN Analyzer	
	1 - Jumper Cable – Male Amp Super Seal Connector to Bare Wire	

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Misc. Tools & Supplies:	1 - Jumper Cable-A – Female Amp Super Seal Connector to Grey Deutsche (DTM) Connector	
	1 - Jumper Cable-B – Female Amp Super Seal Connector to Male Amp Super Seal Connector	
Parts Return Information:	**N/A**	

RENOGY Lithium Battery Firmware Update

Please read the following instructions thoroughly before starting the inspection and battery firmware update. If you have any questions or need some guidance throughout the inspection or battery firmware update procedure, please contact Renogy at Recall@renogy.com or give us a call at **(909) 870-1885**.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

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WARNING

Indicates a potentially hazardous situation that, if not avoided, may result in death or serious injury.

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1. Inspection Process

Check the firmware version on the Samkoon screen. If the firmware version is 137.4.5 you should stop and file a claim for inspection only. Provide photo of the Samkoon Screen.

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2. Driver Installation – Getting your PC Ready

To ensure smooth driver installation, we recommend you have the following materials ready as well as access to administrative privileges on your computer if it is on a network.

Note: The update is only compatible with Windows computers and not Mac OS systems. If you do not have a Windows computer, please reach out to your dealer, or contact Renogy at Recall@renogy.com or call us at (909) 870-1885.

A. Materials Needed

1. Laptop running Windows 10 with administrative privileges preferred.
    a. The driver installation has been tested to operate on Windows 10 and Windows 11. Computers that are part of a network should have IT personnel nearby to unlock driver access to install the necessary driver to connect to the USB Can Analyzer as well as provide access to BitLocker if applicable.
    b. In some cases, you will need your BitLocker to disable your driver to install the battery firmware driver needed to conduct battery update.

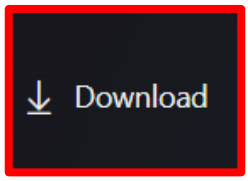
2. USB CAN Analyzer
    a. The USB-Can Analyzer will be shipped with the harnesses needed to connect to the battery as well as a USB Cable to connect to your computer.

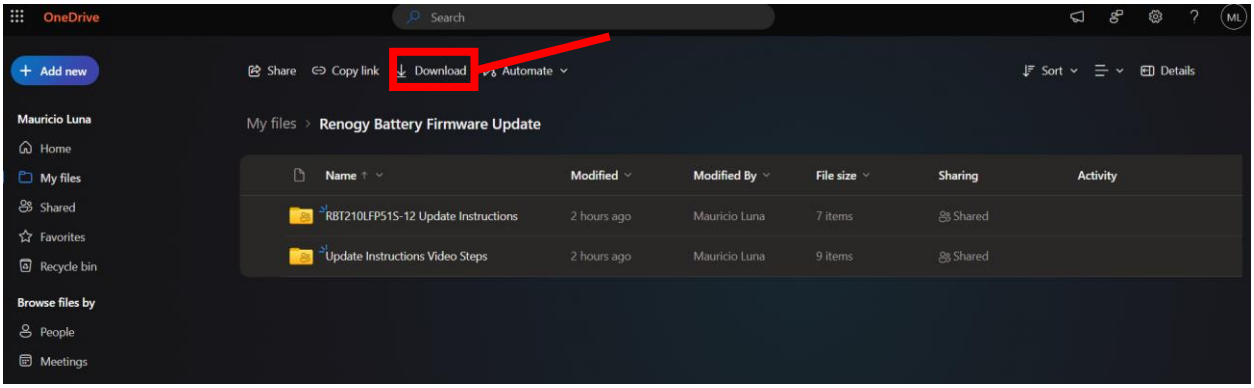
3. Access to the Driver and Firmware Installation Folders

B. Downloading the Renogy Battery Firmware Update Folder

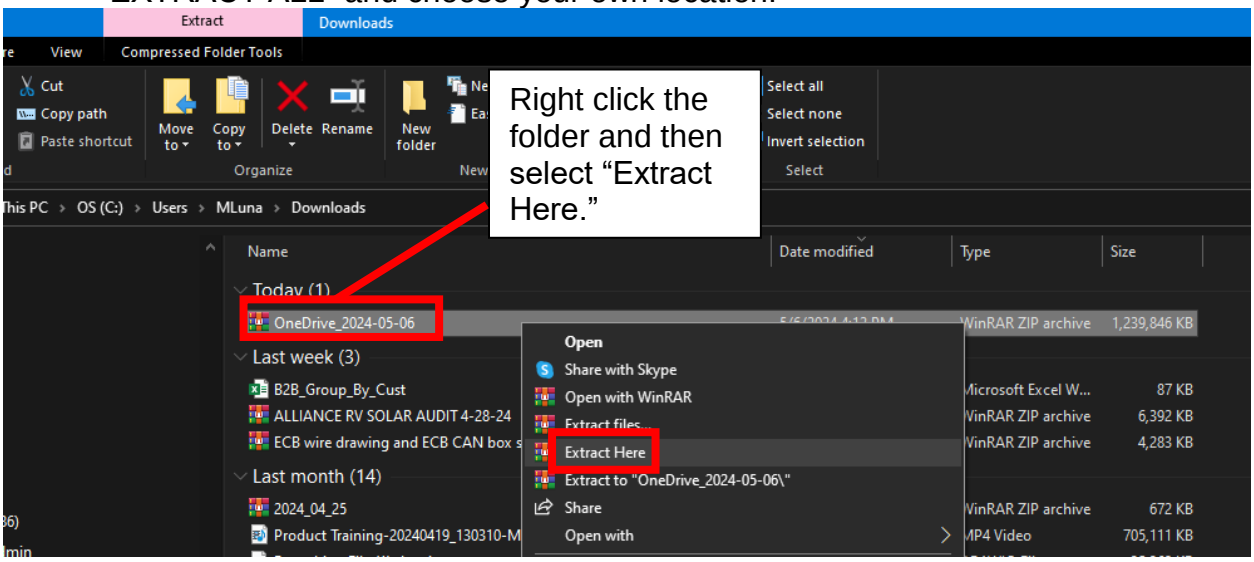
1. Click the below link to access the battery update folders and select “Download”. You can also scan the QR Code which will take you to the same domain. It is recommended to be logged into another device to download the driver as it will require a restart of your computer.

https://rb.gy/v2xtwg

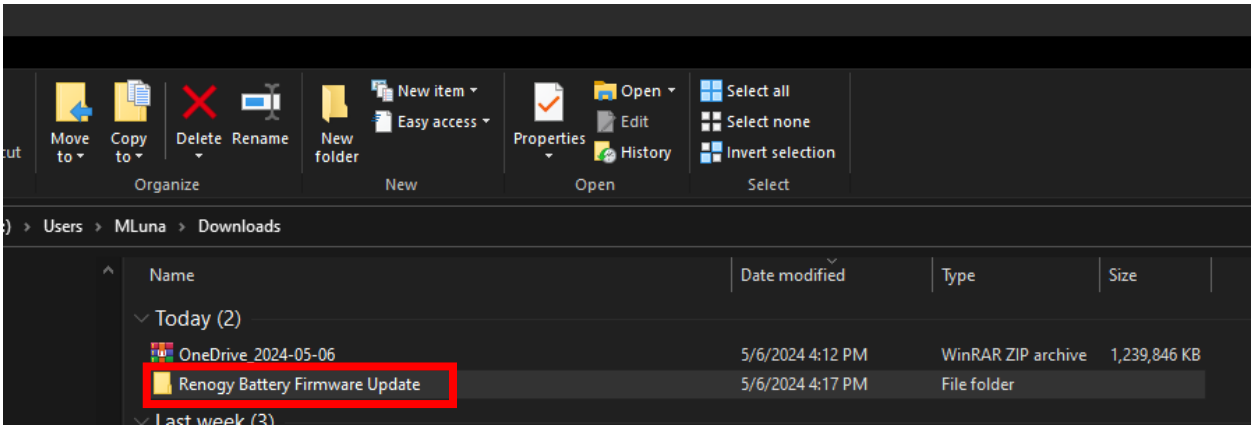




2. Go to the downloaded One Drive Folder location – typically in “Downloads” – and right click the zipped file and select “EXTRACT HERE” or “EXTRACT” or “EXTRACT ALL” and choose your own location.

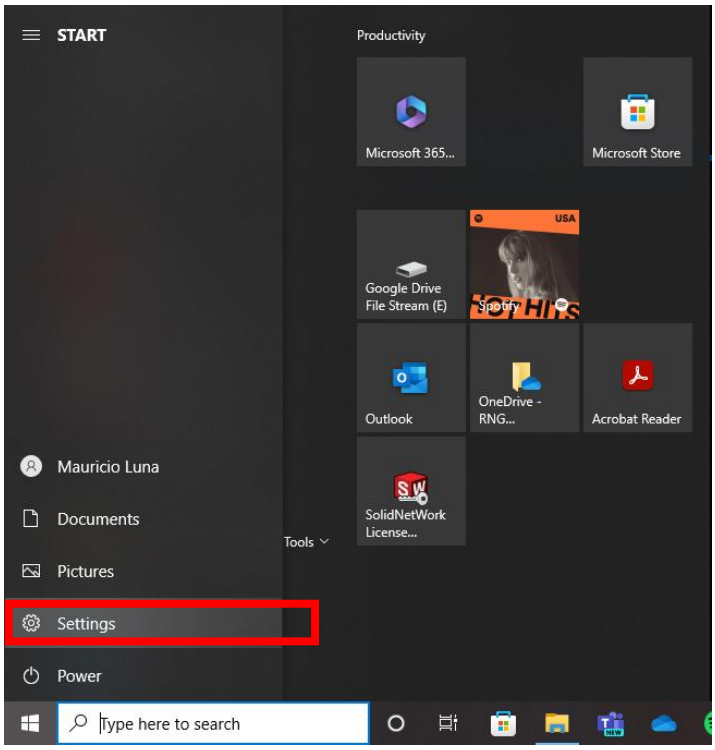


3. When finished, there will be a folder called “Renogy Battery Firmware Update” Folder

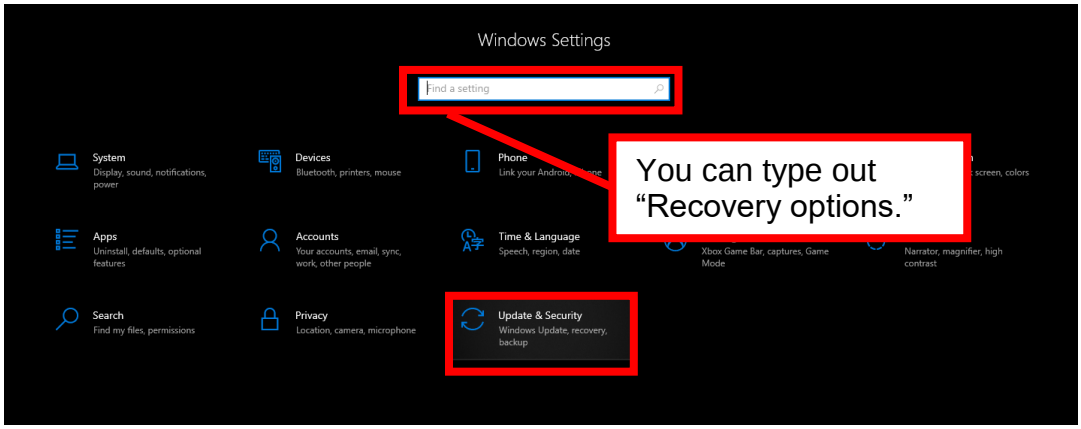


C. Installing the Driver

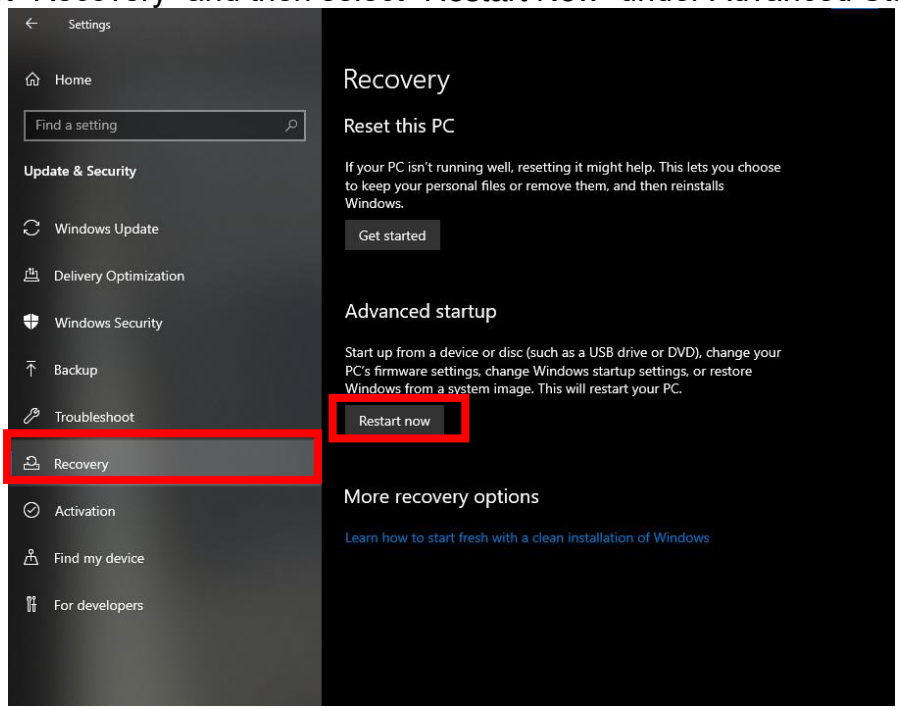
1. Click the START button and select SETTINGS.



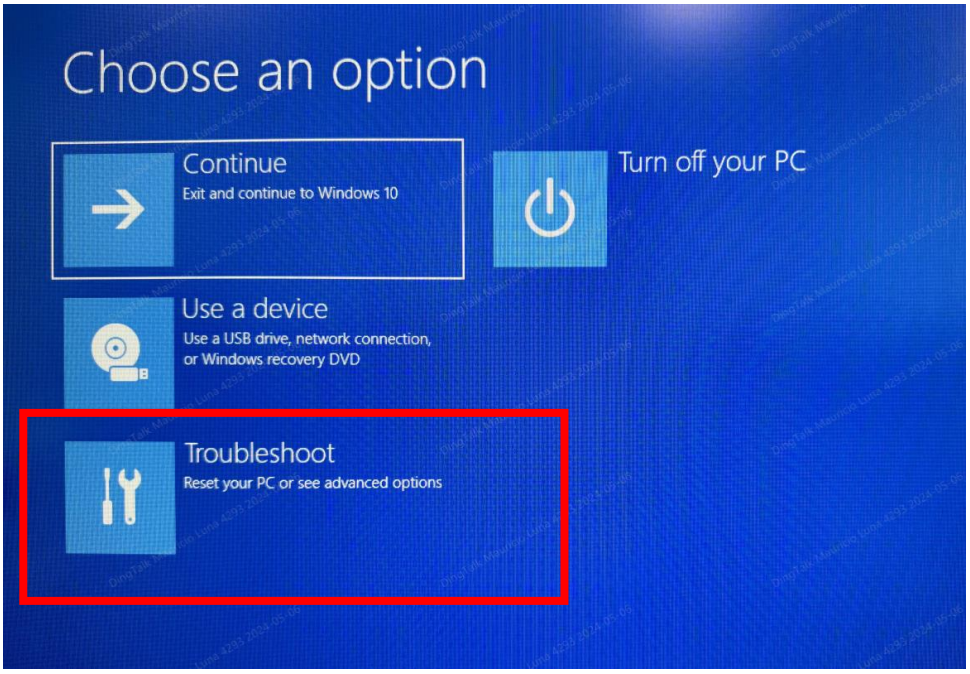
2. Select Update and Security. Alternatively, you can type in “recovery options.”



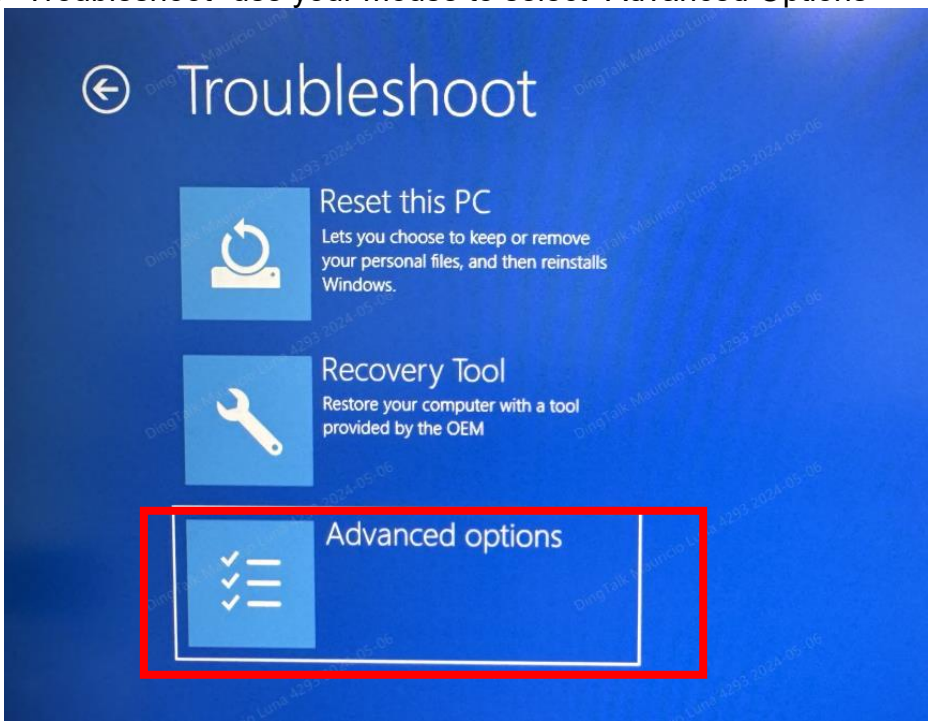
3. Select "Recovery" and then select "Restart Now" under Advanced Startup



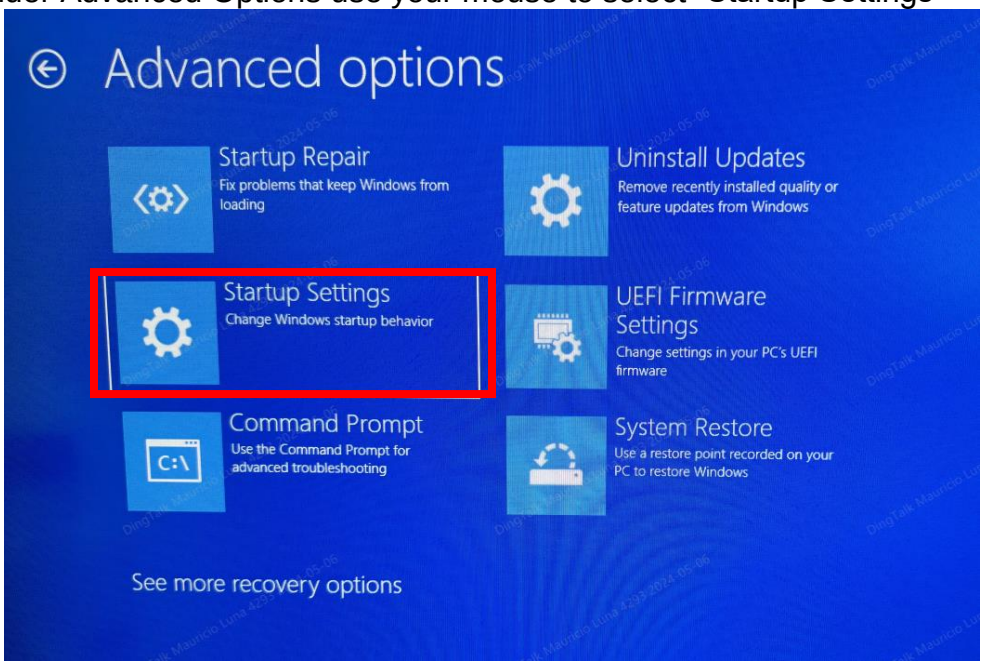
4. Your computer will restart and then prompt you to select from the following options. Use your mouse to select "Troubleshoot." Alternatively, you can use your arrow keys and press enter.



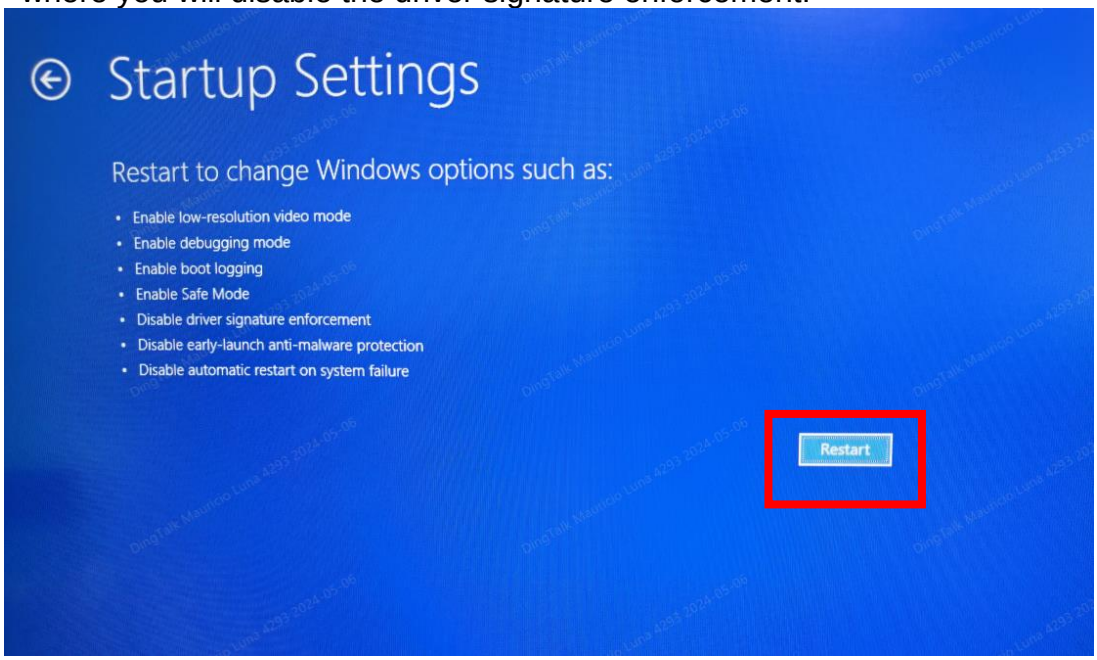
5. After “Troubleshoot” use your mouse to select “Advanced Options”



6. Under Advanced Options use your mouse to select “Startup Settings”



7. Under Startup Settings, you will press “ENTER” again to restart your computer where you will disable the driver signature enforcement.



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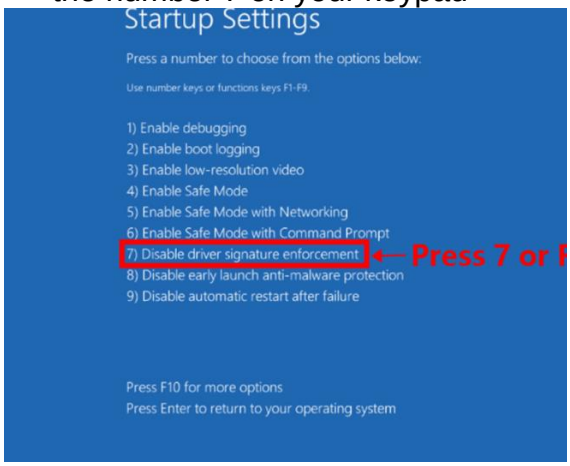
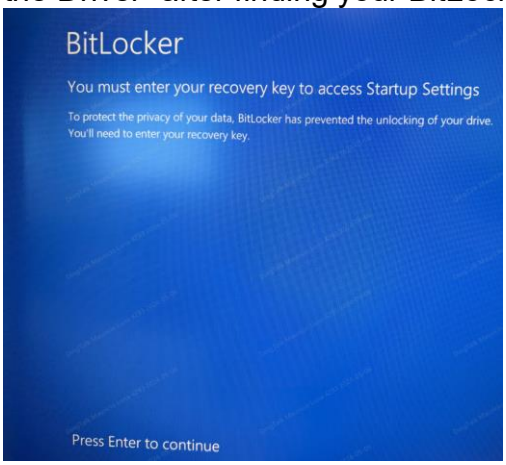
8. When your computer restarts, you will then be given the following options and make sure to select number 7 – Disable driver signature enforcement – by using your mouse to select it or pressing the number 7 on your keypad



If you did not get to the Startup Settings and instead get BitLocker below, please see the next section **"D. Finding your BitLocker"** for finding your BitLocker then proceed to redo the steps Highlighted in "C. Installing the Driver" after finding your BitLocker.

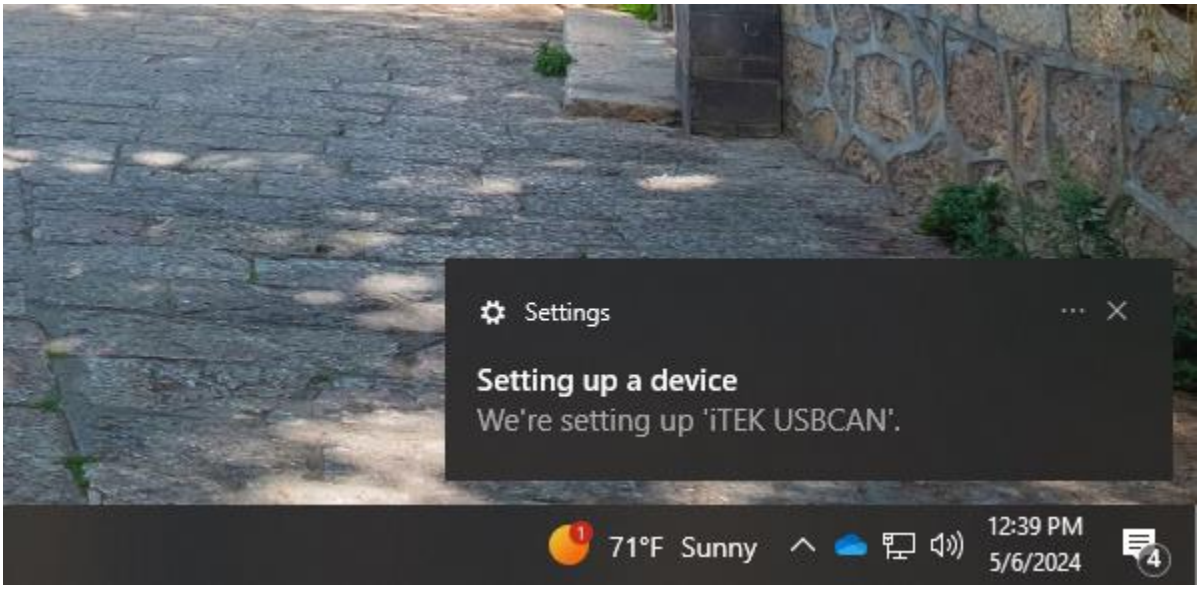


Connect the USB Can Analyzer to your computer to automatically try to download the ITEK Driver needed to conduct battery updates. Connect the USB-B Side of the cable to the USB Can Analyzer and connect the USB A side to your computer.

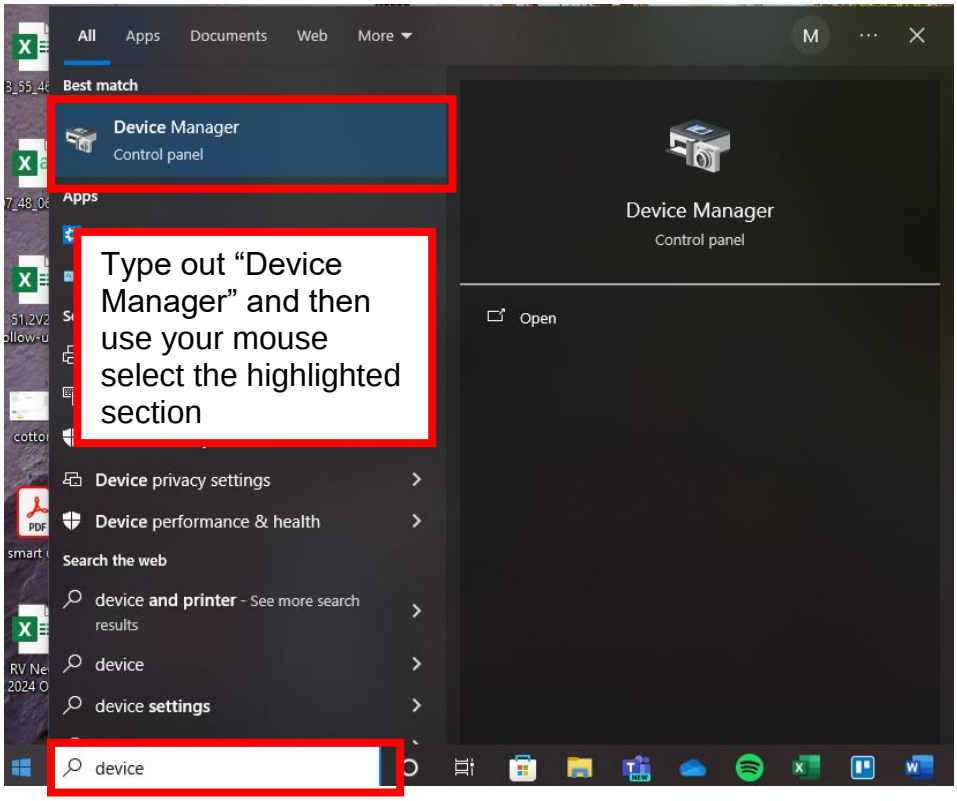
USBCAN-2I

USBCAN-2I

9. Upon connecting, the driver will attempt to automatically install if you do not have driver enforcement enabled.



10. Upon completion, you need to validate whether the driver installed correctly by going to Device Manager. Go to Start, type in “DEVICE MANAGER” and select the following to open the window.


All
Apps
Documents
Web
More
Best match
Device Manager
Control panel
Apps
Type out “Device Manager” and then use your mouse select the highlighted section
Device privacy settings
Device performance & health
Search the web
device and printer - See more search results
device
device settings
device
Device Manager
Control panel
Open

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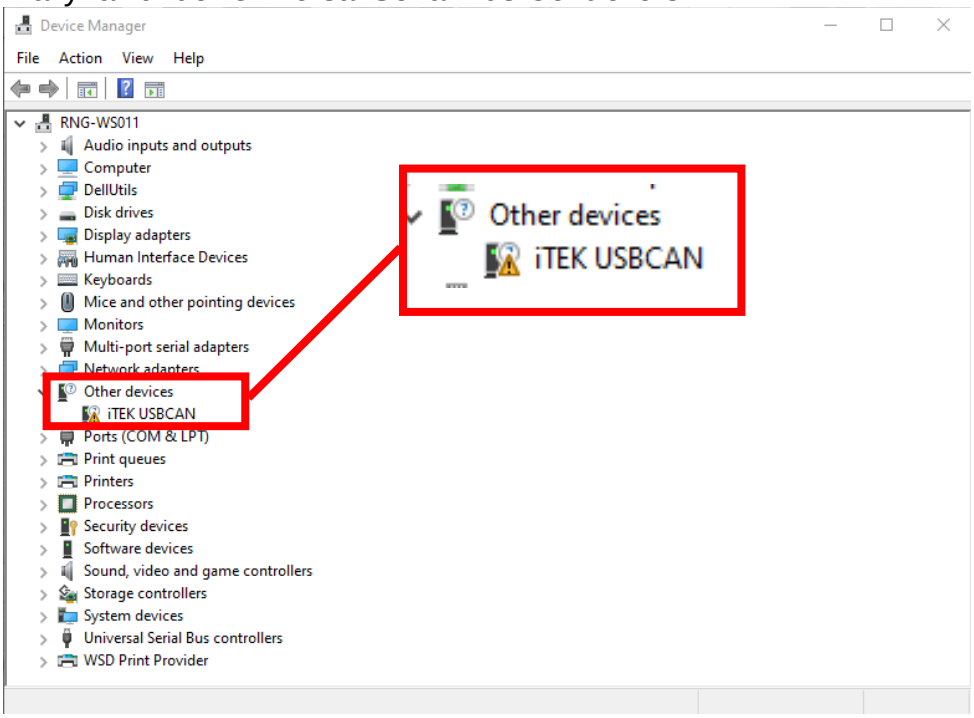
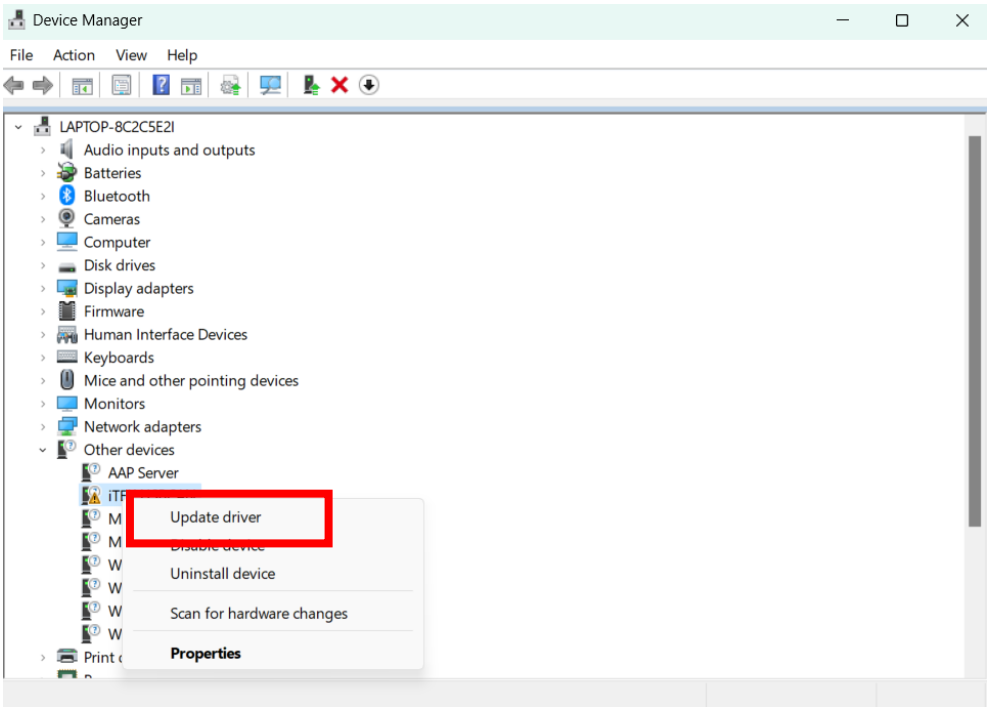
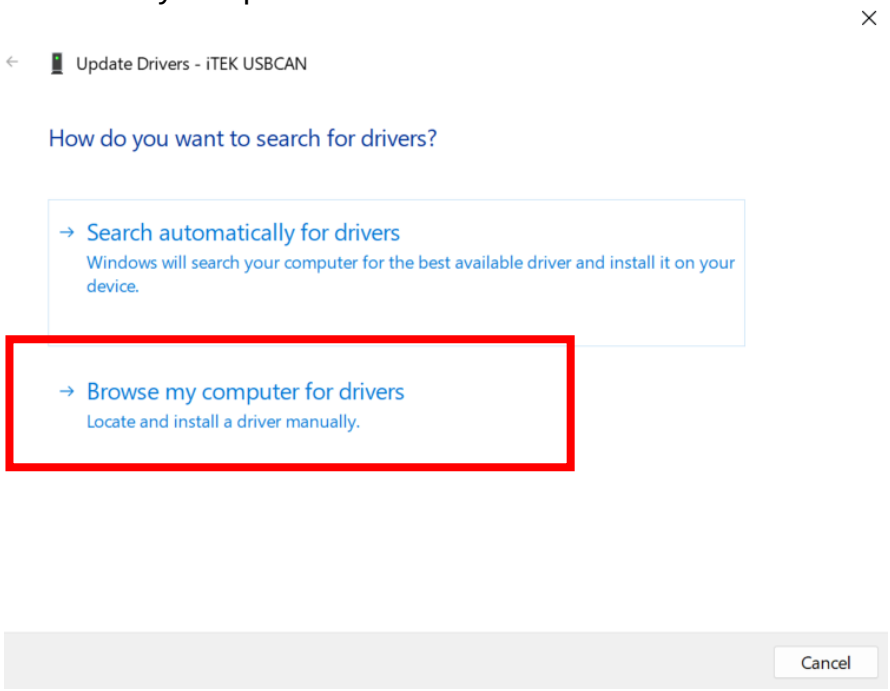
11. If the ITEK USBCAN is shown under “Other Devices” as well as has a caution symbol, then driver needs to be updated to be correctly installed. It should normally fall under Universal Serial Bus Controllers



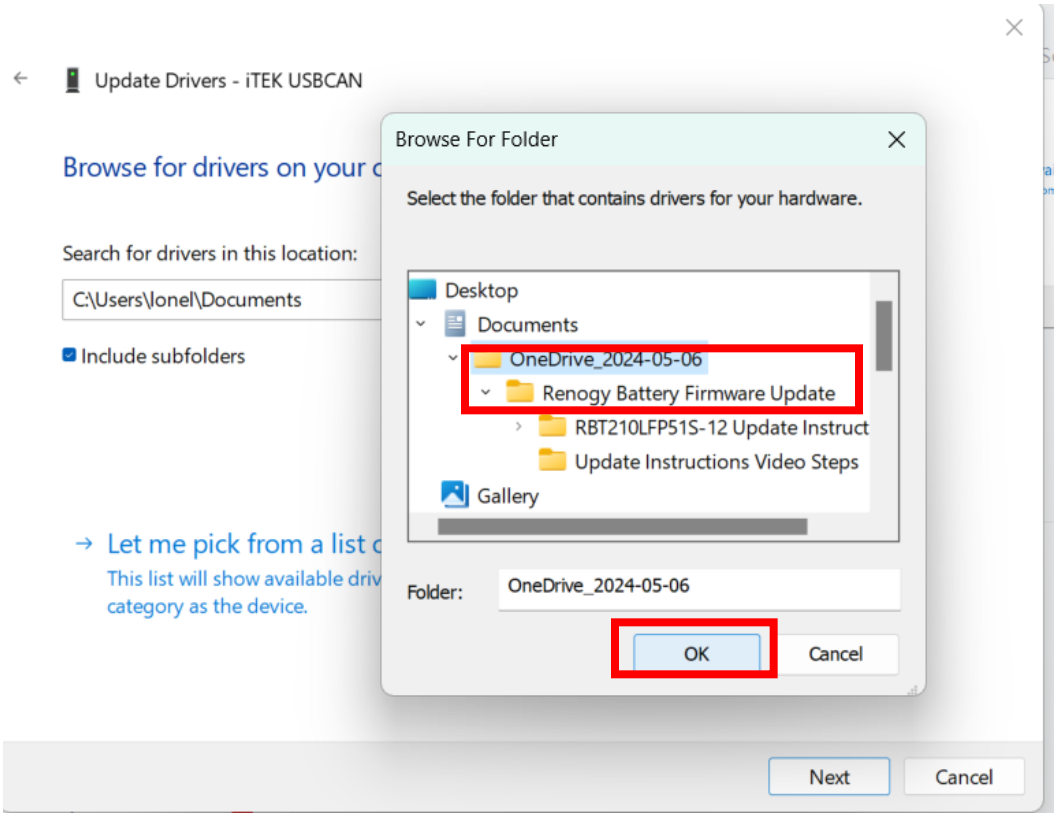
12. Right click the ITEK USB Driver and select “UPDATE DRIVER”


Device Manager
File Action View Help
LAPTOP-8C2C5E2I
Audio inputs and outputs
Batteries
Bluetooth
Cameras
Computer
Disk drives
Display adapters
Firmware
Human Interface Devices
Keyboards
Mice and other pointing devices
Monitors
Network adapters
Other devices
AAP Server
Update driver
Uninstall device
Scan for hardware changes
Properties

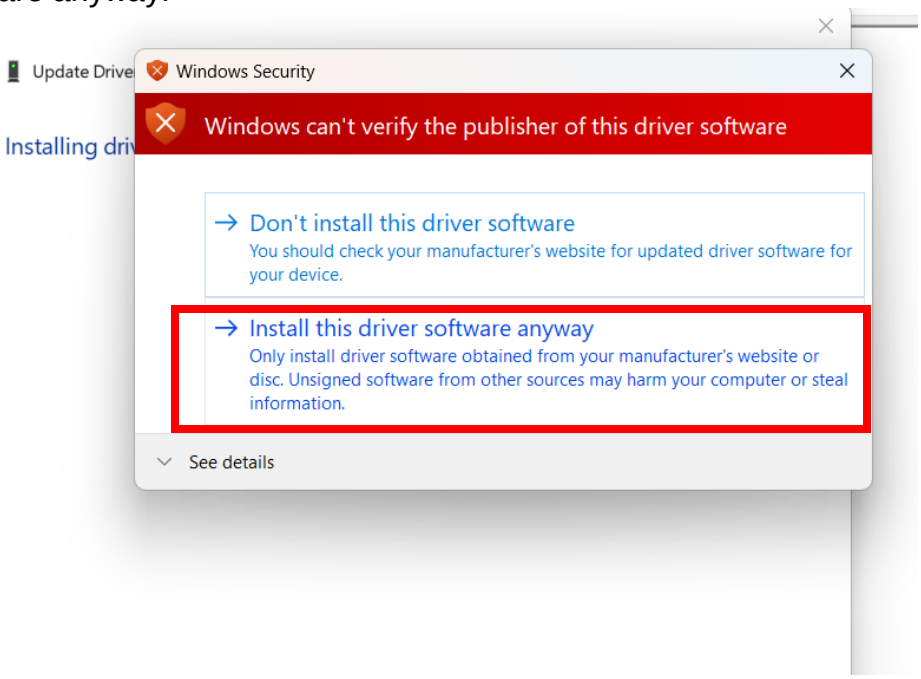
13. Select Browse my computer for drivers



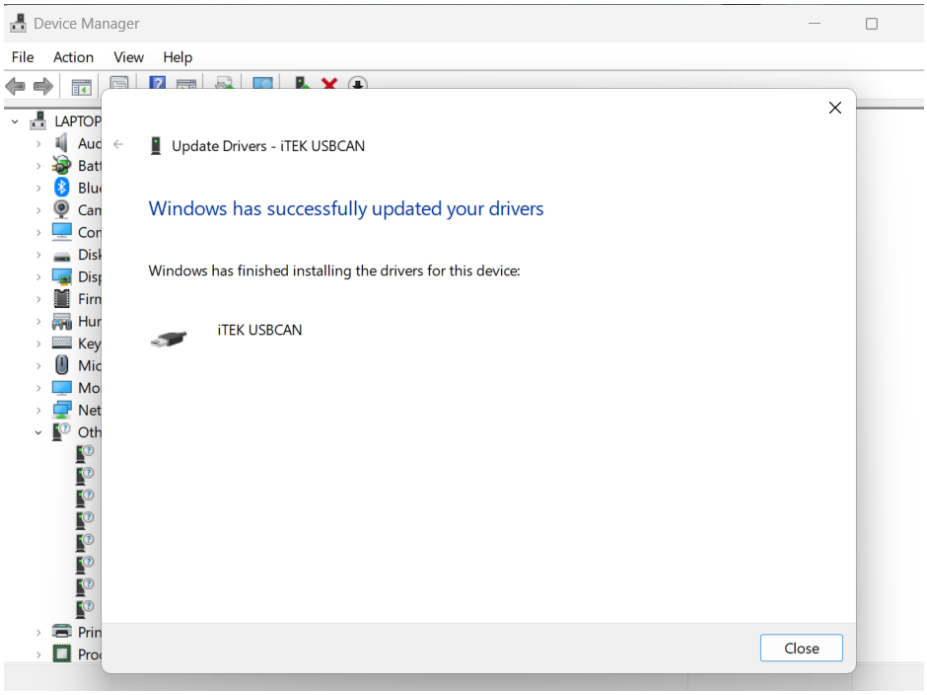
14. Select Browse and locate the folder where you downloaded the “Renogy Battery Firmware Update” folder. It will be in Downloads by default. Then select Okay.


Update Drivers - iTEK USBCAN
Browse for drivers on your c
Search for drivers in this location:
C:\Users\lonel\Documents
Include subfolders
Let me pick from a list c
This list will show available driv
category as the device.
Next
Cancel
Browse For Folder
Select the folder that contains drivers for your hardware.
Desktop
Documents
OneDrive_2024-05-06
Renogy Battery Firmware Update
RBT210LFP51S-12 Update Instruct
Update Instructions Video Steps
Gallery
Folder:
OneDrive_2024-05-06
OK
Cancel

15. Windows will give the following prompt and ensure to select the install the driver software anyway.



16. The driver has been installed and you are now ready to begin battery firmware update. You can proceed to section **3. Firmware Bootloader Instruction**


Device Manager
File Action View Help
Update Drivers - iTEK USBCAN
Windows has successfully updated your drivers
Windows has finished installing the drivers for this device:
iTEK USBCAN
Close

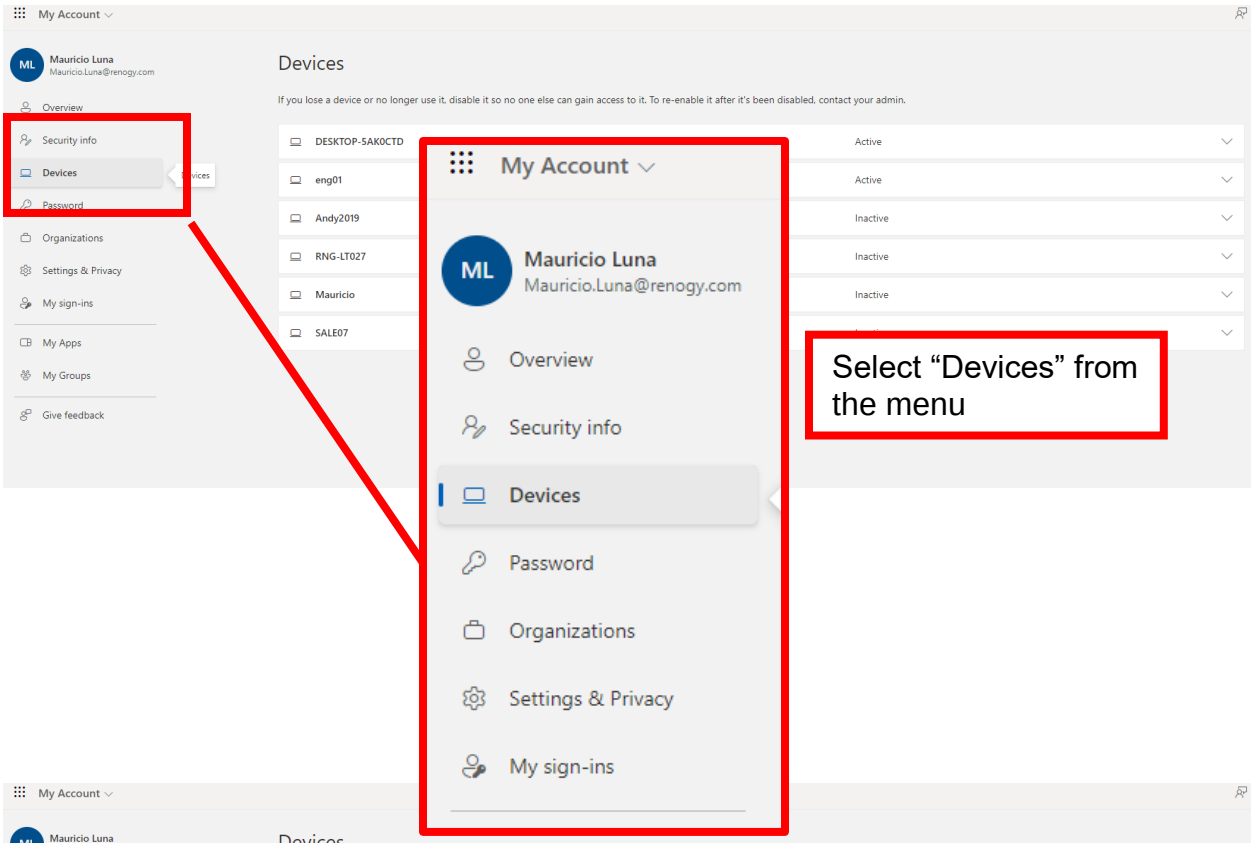
D. Finding your BitLocker

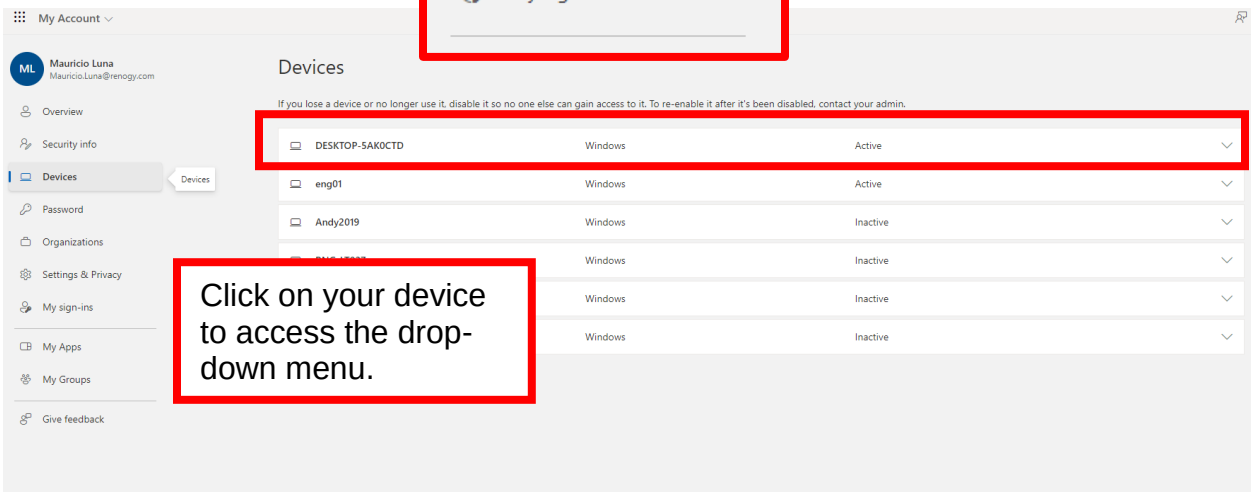
1. Press Enter to Continue then “skip this drive”.

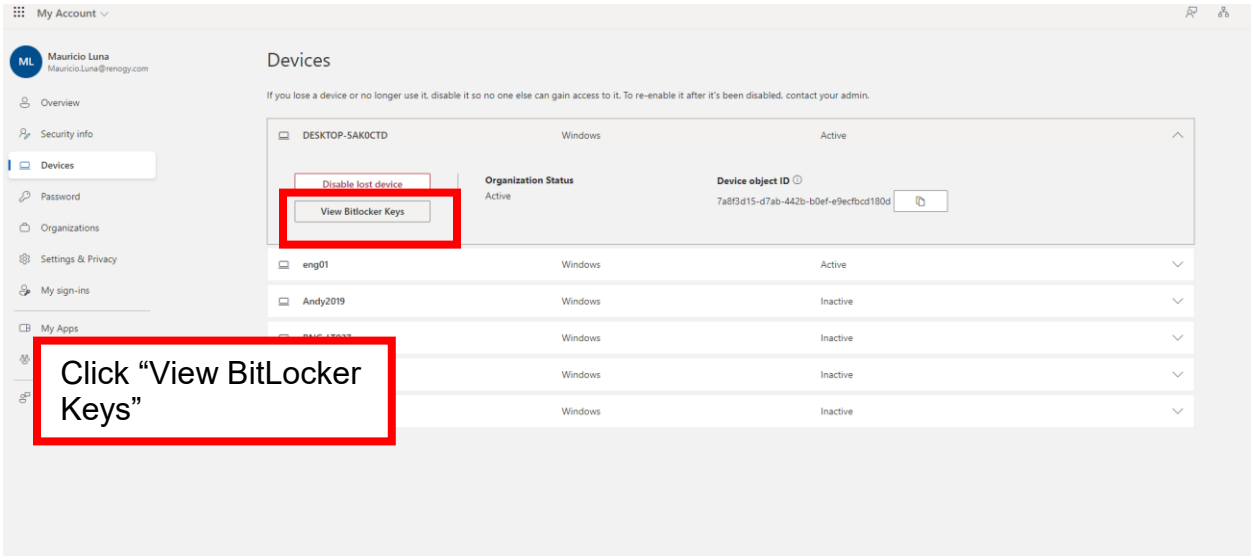
2. To find your recovery key, you will need to login to your computer like normal.
3. You can access your BitLocker through Microsoft or by clicking the following link:

   https://account.microsoft.com/devices/recoverykey

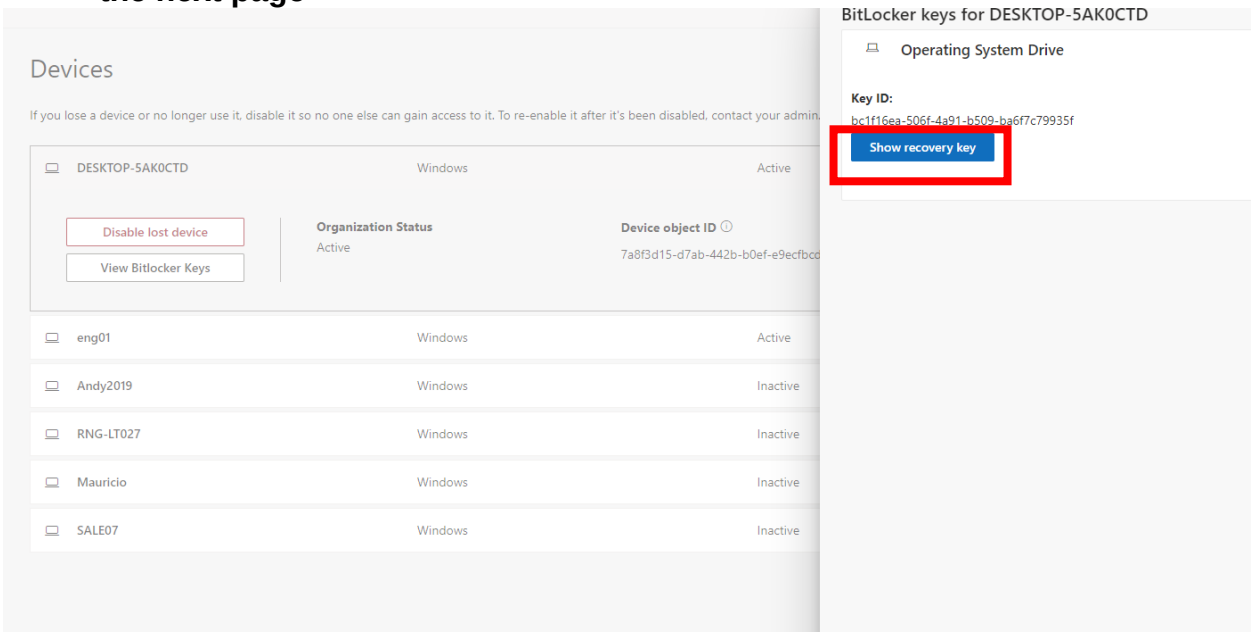
4. Once you log into your Microsoft account, you select Devices and go to your current computer device and select “View BitLocker Keys”







5. Then you select Show recovery key and **write down this BitLocker code for the next page**



6. Once you have your BitLocker Key, proceed to redo the steps in the previous section **C. Installing the Driver**

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3. Firmware Bootloader Instruction

CAUTION

- DO NOT wear jewelry or other metal objects when working on or around the battery.

WARNING

- DO NOT touch any terminals or connectors.

1. Power down the lithium battery system.

   A. Verify all charging sources have been disconnected:
      i. Alternator (Engine OFF)
      ii. Shore Power (Nothing plugged into shore power port)
      iii. Side Solar (Nothing plugged into side solar port)
      iv. Rooftop Solar – disconnect near battery in the 'OFF' position

   B. Turn off the 12V Master Disconnect (Main Power) located near the rear of the sliding door.

   C. Turn off the Inverter by pushing button on Inverter remote switch located near the Firefly Touchscreen so that the push button protrudes from its location and the green power light shuts off.

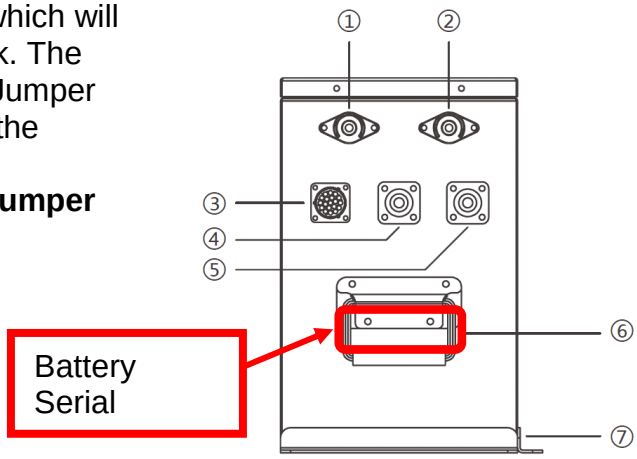
D. Review the Samkoon Battery Screen “Total Current” to ensure all charging sources have been disconnected. The “Total Current” should be 0.0A ± 0.1A.

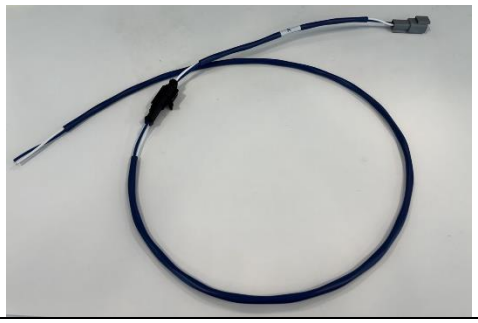
E. **Record the reported percentage - SOC%, as this will be used later for manual calibration of the battery.**

F. Press and release the Self-Locking Battery Switch. The button will flush in the ‘OFF’ position. For verification, the Samkoon Screen should be OFF.

2. Locate the Battery Serial Number which will be by the battery handle in the back. The battery serial will determine which Jumper Cable you will be using to conduct the Bootloader.

Note: Most batteries will be using the Jumper Cable



Battery Serial	Cable	Note
If your battery serial begins with 23RBC, 22RBC, or 21RBC…	Jumper Cable – Male Amp Super Seal Connector to Bare Wire	Most Common
If your battery serial begins with TE05…	Connect the Jumper Cable + Jumper Cable-A together so that you have Bare Wire and Grey Deutsche (DTM) Connector on the ends. 	Rare

3. Locate the battery harness and connect your respective jumper cable to the respective connector. The Jumper Cable will connect to the Amp Connector on the battery harness labeled “Debug”, while the Jumper Cable + Jumper Cable-A will connect to the grey DTM connector on the battery harness labeled “Generator” (Figure 2)

Cable	Connecting Point
Jumper Cable – Male Amp Super Seal Connector to Bare Wire	Connect to the Black Amp Super Seal Connector. This connector will be labelled on the “Debug” line of the battery harness. **Note: Remove the protective dust protector cap**
Connect the Jumper Cable + Jumper Cable-A together so that you have Bare Wire and Grey Deutsche (DTM) Connector on the ends.	Connect to the grey DTM Connector. This connector will be labeled on the “Generator” line of the battery harness. **Note: You may have to disconnect it from the APS**

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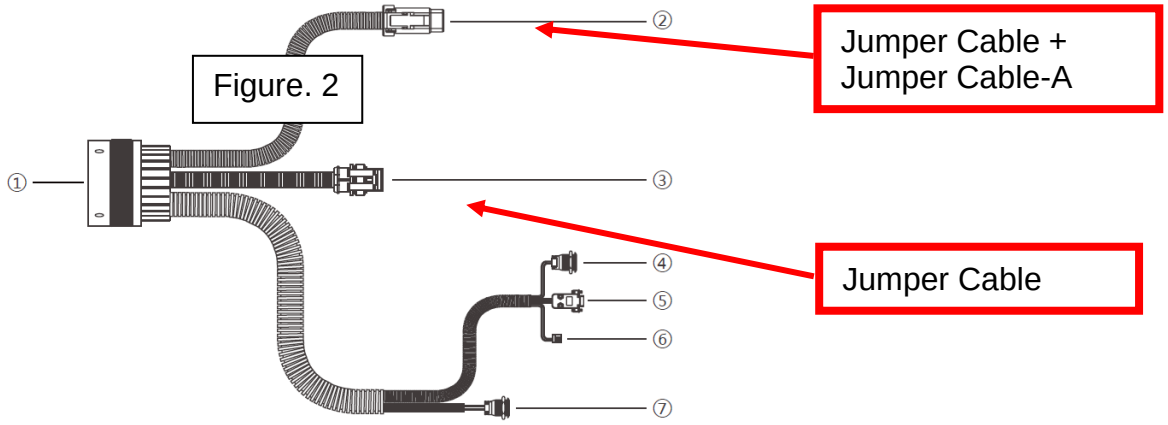

Figure. 2

4. Verify the USB-CAN analyzer has both toggles in the ON position (toggles up) as shown. (Figure 3) Also verify that the white bare wire is inserted into the CAN1 “L” terminal, and blue bare wire end is inserted into the CAN1 “H” terminal.

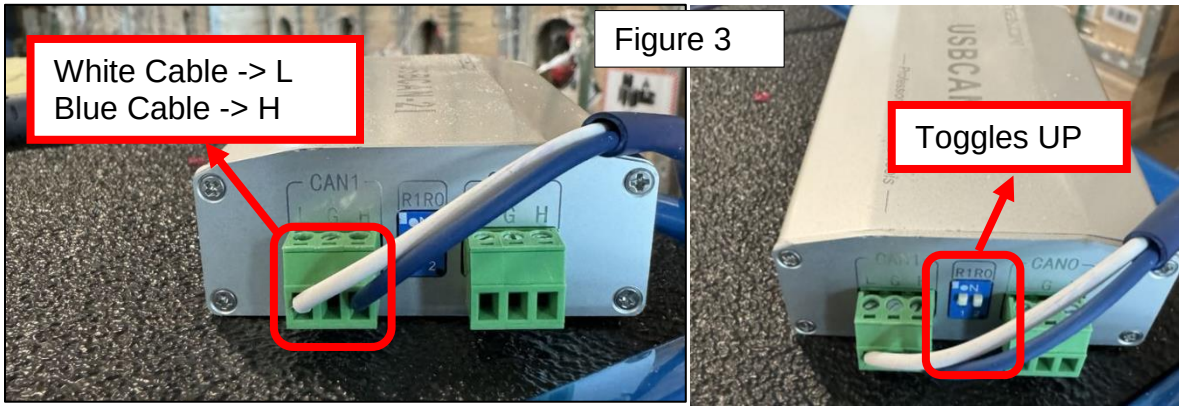

Figure 3

5. Connect the iTekon USB-CAN analyzer to the computer with a USB cable.

6. Press and release the Self-Locking Battery Switch. The button will be depressed in the ‘ON’ position. (Figure 4)

7. Go to the Renogy Battery Firmware Folder that you downloaded and open. (Figure 5)

Fig. 4

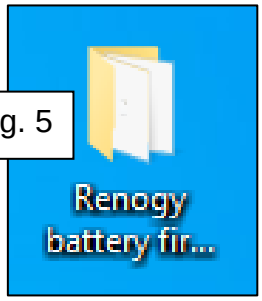

Fig. 5

8. Open the “RBT210LFP51S-12 Update Instructions” then select “1. Bootload Folder” and then Run the KPT _BMU_Bootload_V1.01.exe. (Figure 6)

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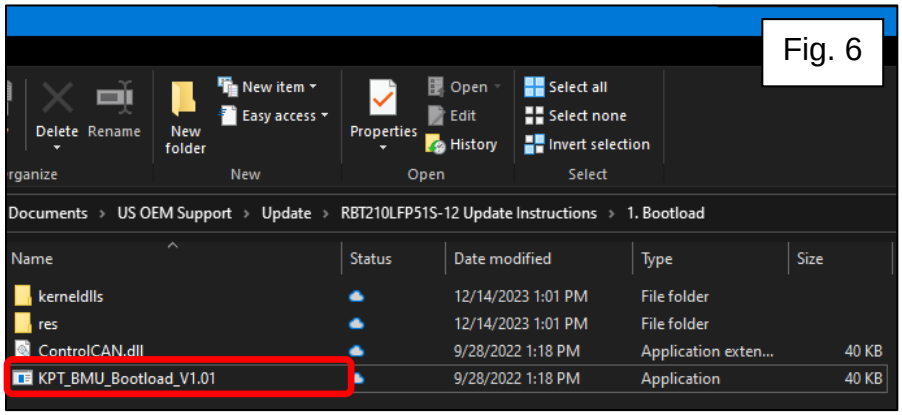

Fig. 6

9. If you get a security message, click “More Info”, then “Run Anyway”

Verify and change the following settings (Figure 7 – Red):

A. Device: USBCAN1, Channel 1
B. Baud Rate: 250K bit/s
C. CAN Type: Standard
D. File Type: S19.

10. Click **Connect** (Figure 7 – Green) to connect the battery to the KPT Bootload. The CAN connection successful prompt appears. (Figure 8)

NOTE: If connection fails, close the Bootload program , unplug the USB cable from the computer for approximately 5 seconds and re-start with step #7.

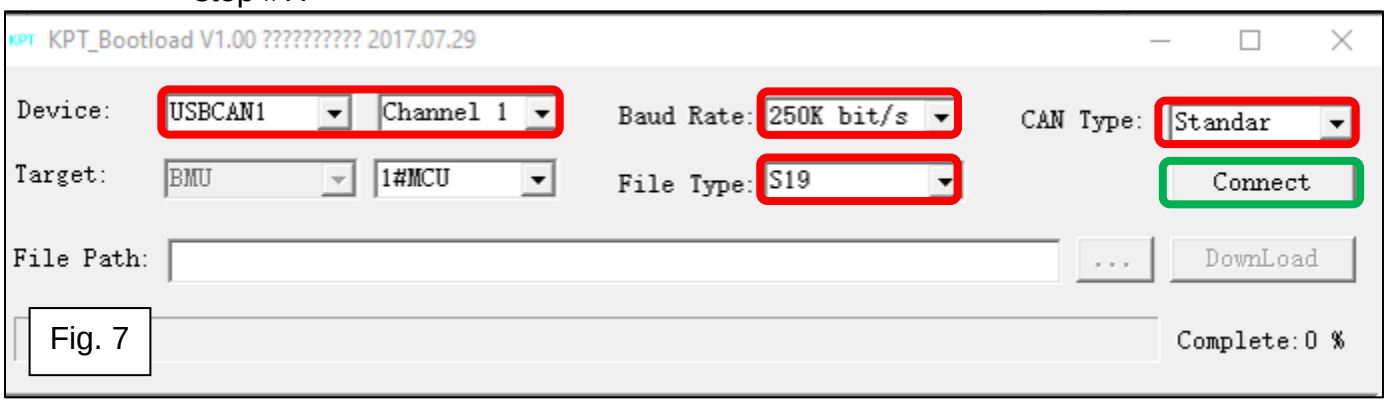

Fig. 7

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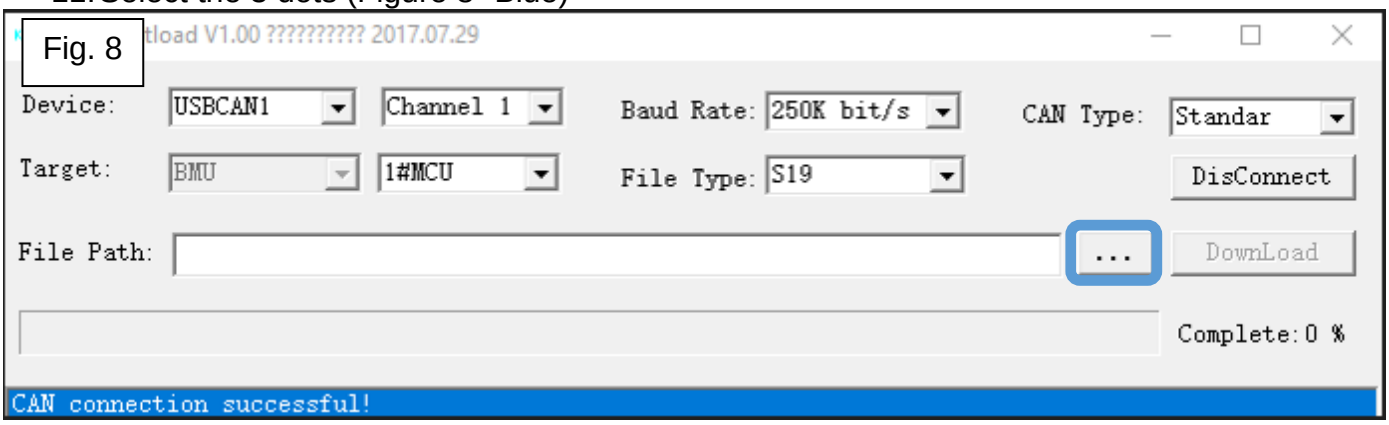
11. Select the 3 dots (Figure 8- Blue)

Fig. 8



12. Open the Firmware Folder and select V137.4.5[20240719a].S19 File (Figure 9 - Red)
13. Select Open (Figure 9 – Green)

Fig. 9

14. Select “Download”. (Figure 10 - Green)

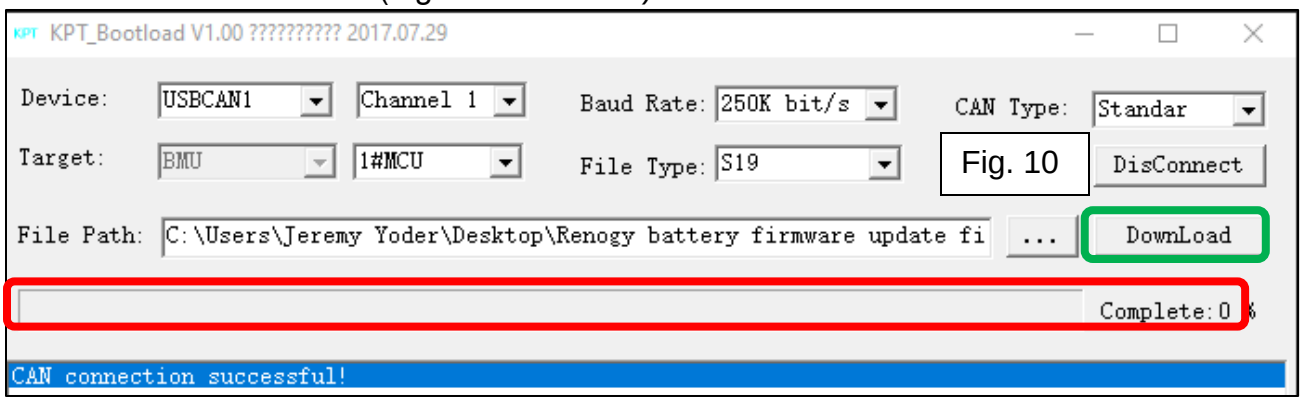


Fig. 10

15. Go to the ‘Battery Switch Self Reset’ button (Figure 11) and ensure you have the computer screen visible to you from that location so that you can observe the update percentage as it progresses.

16. Press and hold the ‘Battery Switch Self Reset’ button until the “Complete: %” (Figure 10 –Red) reaches goes from 0 to 100%. This process should take 1-2 minutes.

Note: If the download percentage does not populate, close the Bootloader program, unplug the USB cable from the computer for approximately 5 seconds and re-start with step #7.

A. While it is downloading, it is normal to see the Samkoon screen show a “No Device Response” message. This should disappear about the same time as download reaches 100%. (Figure 12)
B. Read the **BMS_ver** in the lower right corner of the battery monitor. The **updated** BMS Firmware should now read 137.4.5. (Figure 13)

Fig. 11

Note: The State of Charge (SOC%) might automatically calibrate to 0% or 100% and require manual calibration as one of the last steps of this instruction.

Fig. 12

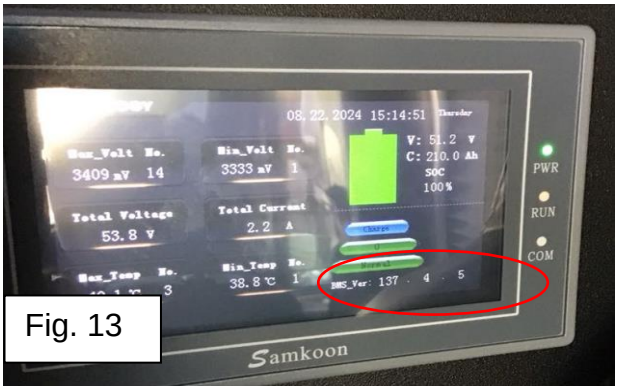


Fig. 13

Note: Upon successful download, the Samkoon screen may also power off. As long as the BMS Version number reflects 137.4.5, the bootloader still went through.

17. Click Yes on the **Download Successful** window and close the KPT Bootload. (Figure 14) If the **Download Successful** window does not appear, the **Battery Switch Self Reset** button can be released when the Complete reaches 100%. (Figure 14 –Blue)

18. When complete, the Bootload should disconnect automatically. If not, select DisConnect (Figure 14 -Green) and close the window.

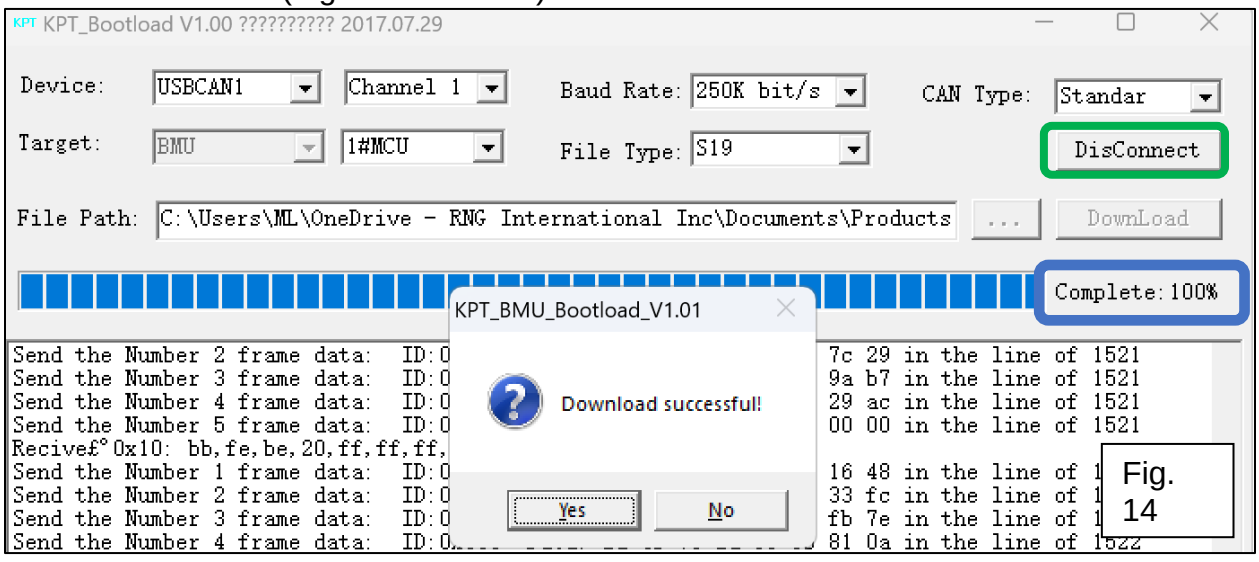


Fig. 14

19. Press and release the Self-Locking Battery Switch. The button will be flush in the 'OFF' position. For verification, the Samkoon Screen should be OFF. (Figure 15)

20. Disconnect the USB from your laptop for approximately 15 seconds before starting the Debug Tool Instruction.

Note: It is important to disconnect the USB from the laptop to reset the USB Can Analyzer so that it will successfully connect in the next program. Failure to act on this will not allow the next program to take place.

Fig. 15

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4. Debug Tool Instruction

For the Debug Tool Instruction, you will only need the Jumper Cable with the Male Amp Super Seal Connector.

Battery Serial	Cable	Note
If your battery serial begins with 23RBC, 22RBC, or 21RBC…	Jumper Cable – Male Amp Super Seal Connector to Bare Wire	Most Common
If your battery serial begins with TE05…	Connect the Jumper Cable + Jumper Cable-B together so that you have Bare Wire and Male Amp Super Seal Connector on the ends.	Rare

1. Disconnect and then Reconnect the USB cable to reset the USBCAN Analyzer.

2. Go to the Renogy Battery Firmware Folder on the desktop screen and open the KPT_Debug_ToolVE3.3.0.exe-Shortcut. (Figure 16)

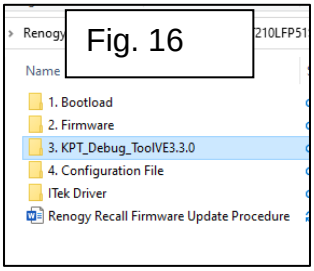


Fig. 16

3. Turn on the lithium battery: Turn battery on with the self-locking switch and self-resetting switch. (Figure 17)
   A. Press and release the self-locking switch (typically installed behind an access panel near the lithium battery)
   B. Next press and hold the self-resetting switch (typically installed overhead cabinet near Firefly touchscreen) for approximately 5-10 seconds to turn on the battery.
   C. To verify the system is ON, the Samkoon screen lights should be ON (PWR and RUN) and the COM light flashing.

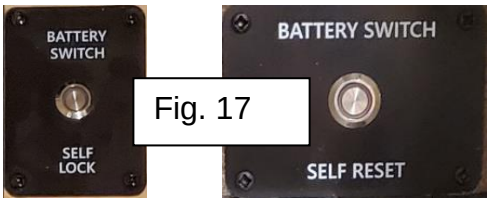


Fig. 17

4. Run the KPT_Debug_ToolVE3.3.0.exe-Shortcut (Figure 18)

Note: If the program fails to load or you experience any issues, close the program, disconnect the USB Can Analyzer, Reconnect the USB Can Analyzer, then run the KPT Program again

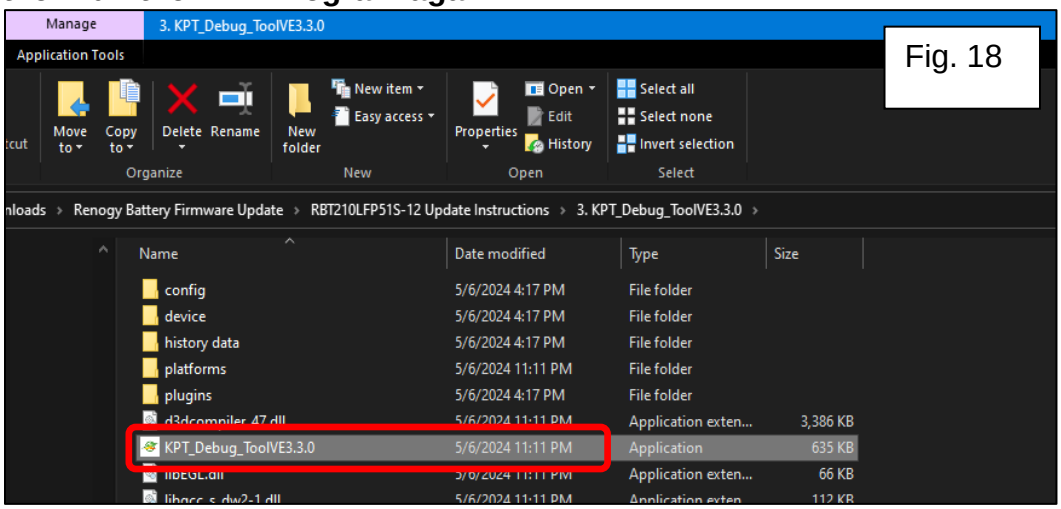
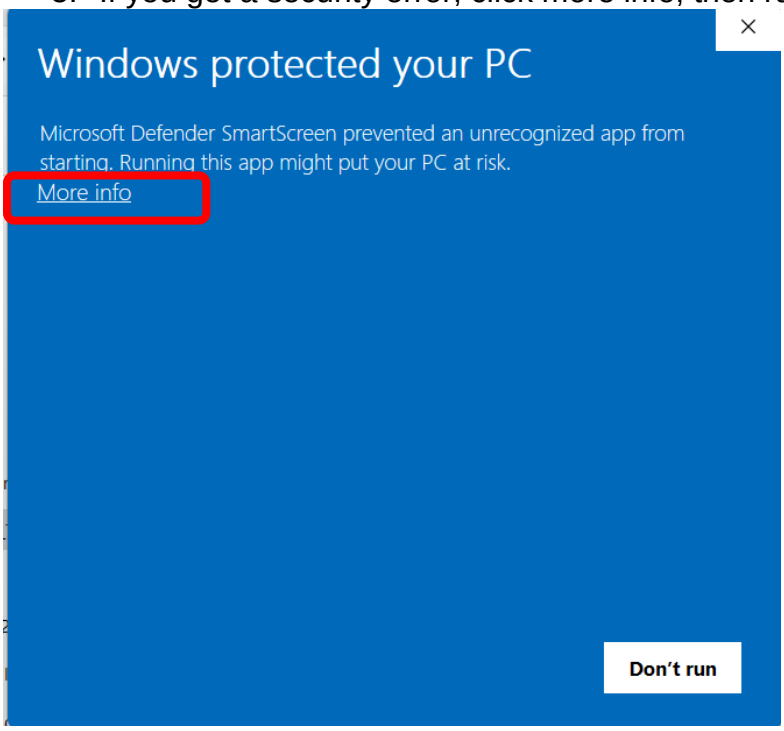
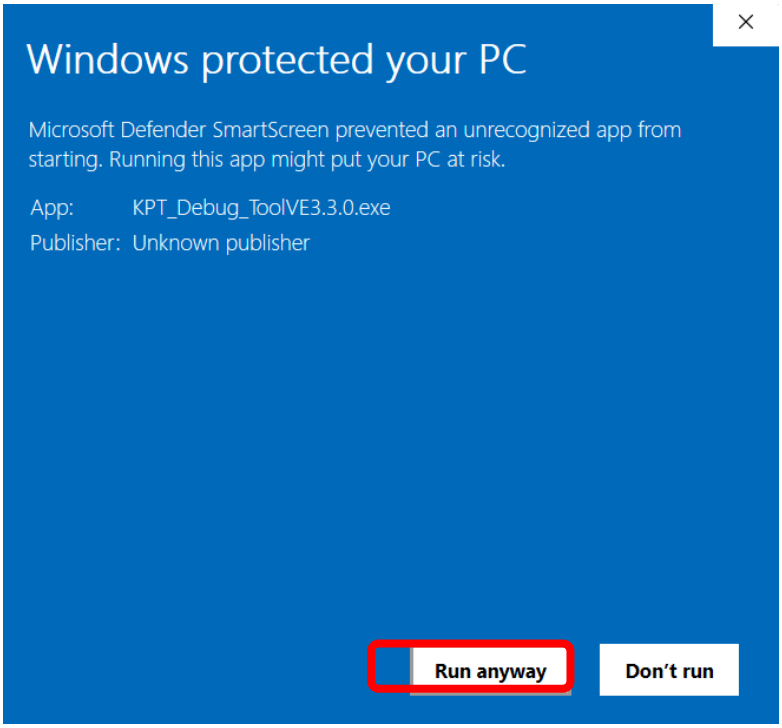


Fig. 18

5. If you get a security error, click more info, then run anyway.





Run the KPT Debug Tool and change the settings to ZLG Driver, CAN2 (Figure 19 - Red)

6. Select Open (Figure 19 –Green)

Fig. 19

7. Click **Menu** (Figure 20– Blue) and select **Threshold** (Figure 20 – Green).

Fig. 20

8. Click **Import** (Figure 21- Blue) to import a configuration file.

Fig. 21

9. Open the configuration file folder and select EV2807 Parameter Configuration Table_20240424.json file. (Figure 22)
10. Select Open.
11. At the “Succeed to import!” Message, select YES.

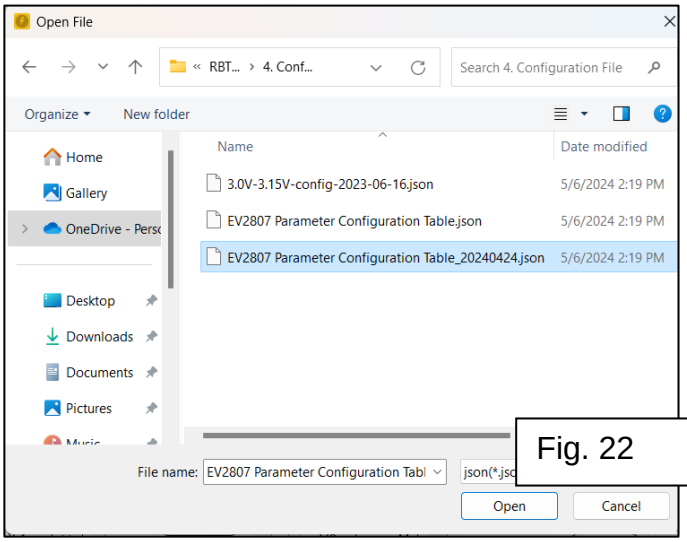


Fig. 22

12. Click **Configuration** (Figure 23 - Green) to configure the threshold.
13. At the “Config Success” Message, select YES.

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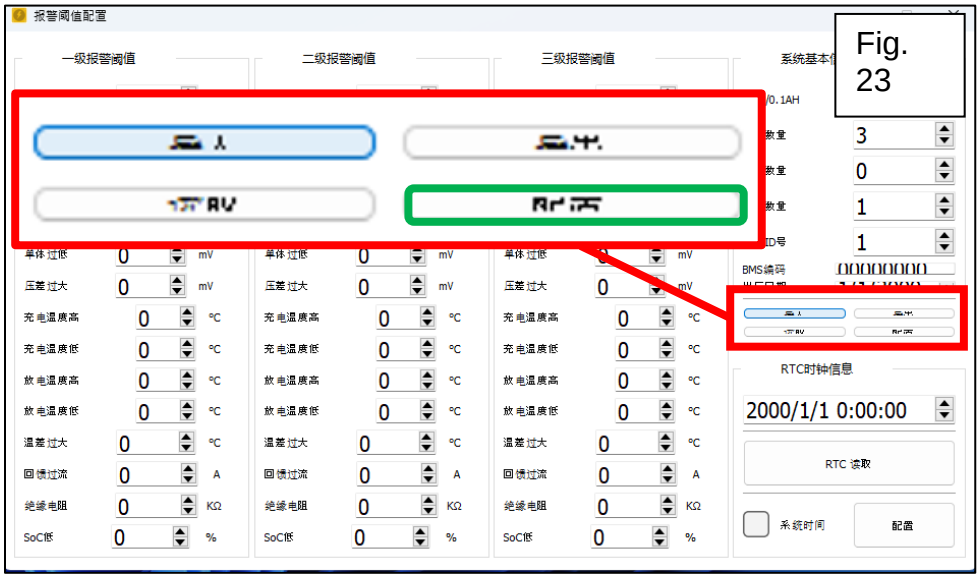

Fig. 23

14. Close the KPT Debug Tool

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5. Debug Tool Manual SOC% Calibration

At some point during the bootloader process, the state of charge (SOC) will automatically calibrate to 0% or 100% and will need to be manually set. This can be corrected through the KPT Debug Tool and will require disconnecting and reconnecting the USB Can Analyzer.

1. Reconnect the USB cable to reset the USBCAN Analyzer.

2. Go to the Renogy Battery Firmware Folder on the desktop screen and open. (Figure 24)

Fig. 24

3. Turn on the lithium battery: Turn battery on with the self-locking switch and self-resetting switch. (Figure 25)
   D. Press and release the self-locking switch (typically installed behind an access panel near the lithium battery)
   E. Next press and hold the self-resetting switch (typically installed overhead cabinet near Firefly touchscreen) for approximately 5-10 seconds to turn on the battery.
   F. To verify the system is ON, the Samkoon screen lights should be ON (PWR and RUN) and the COM light flashing.

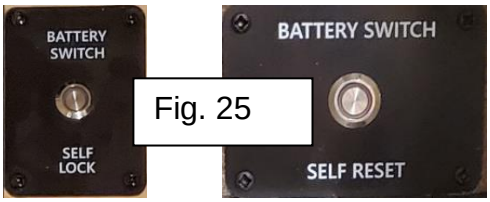


Fig. 25

4. Run the KPT_Debug_ToolVE3.3.0.exe-Shortcut (Figure 26)

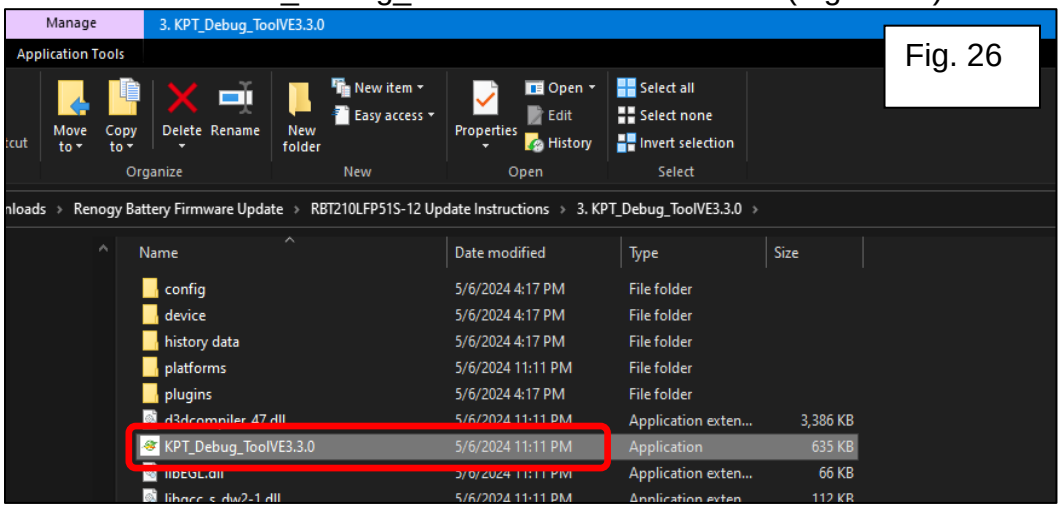


Fig. 26

5. Run the KPT Debug Tool and change the settings to ZLG Driver, CAN2 (Figure 27 - Red)
6. If you get a security error, click more info.
7. Select Open (Figure 19 –Green)

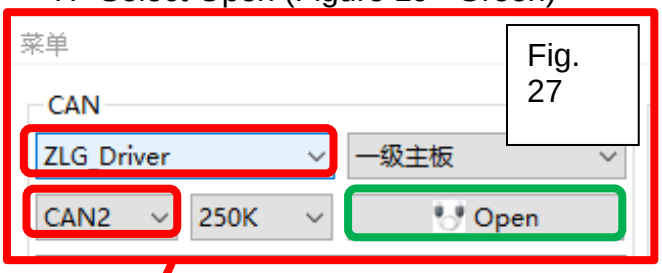
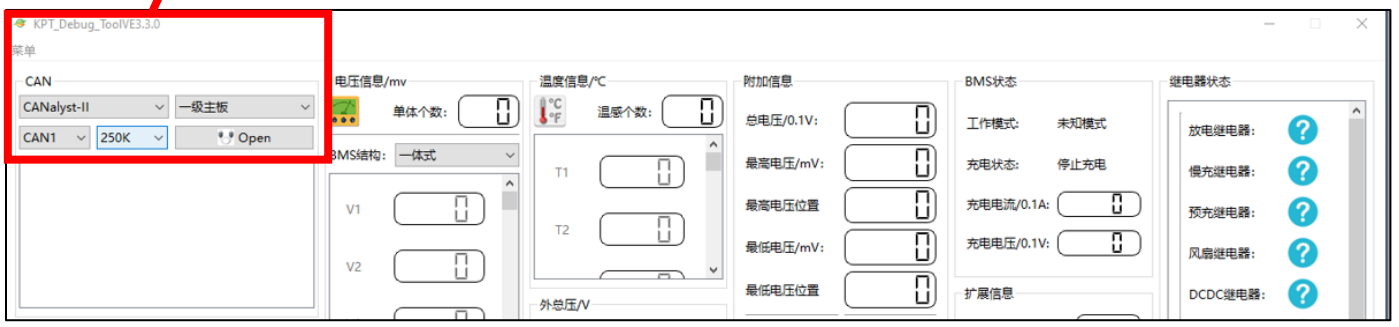


Fig. 27



8. Click **Menu** (Figure 20– Blue) and select **Battery Simulation** (Figure 28 – Green).

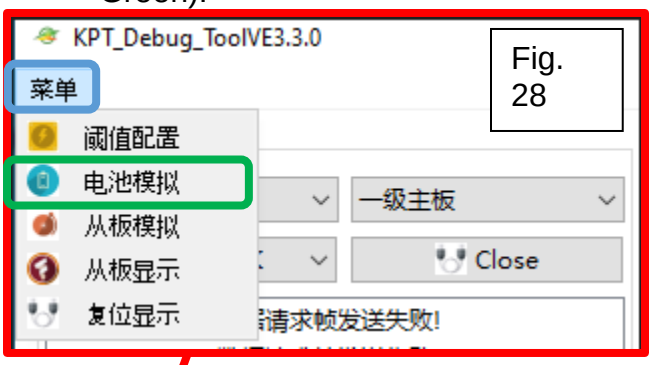
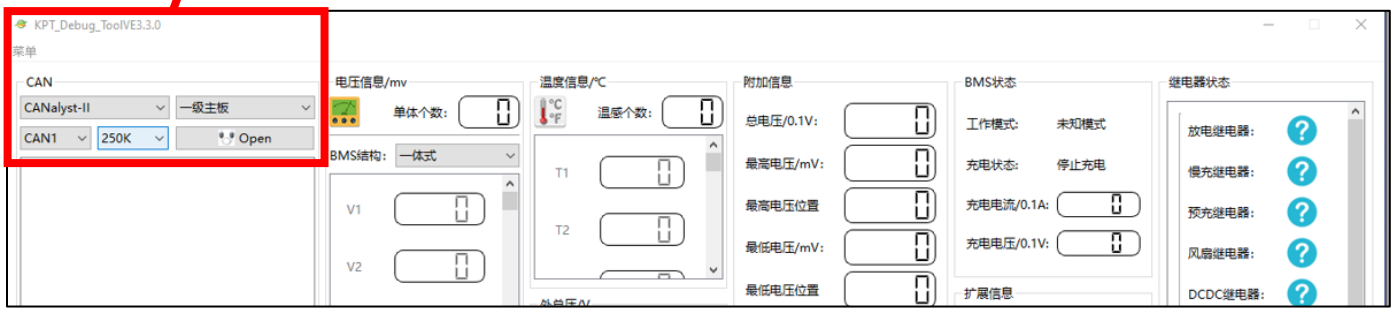


Fig. 28



9. Then a submenu will launch, where you will click the SOC line (Figure 29— Green) and manually type in the SOC percentage you recorded before the update. Once you type in the correct SOC%, you will press **Send** (Figure 29 – Red)

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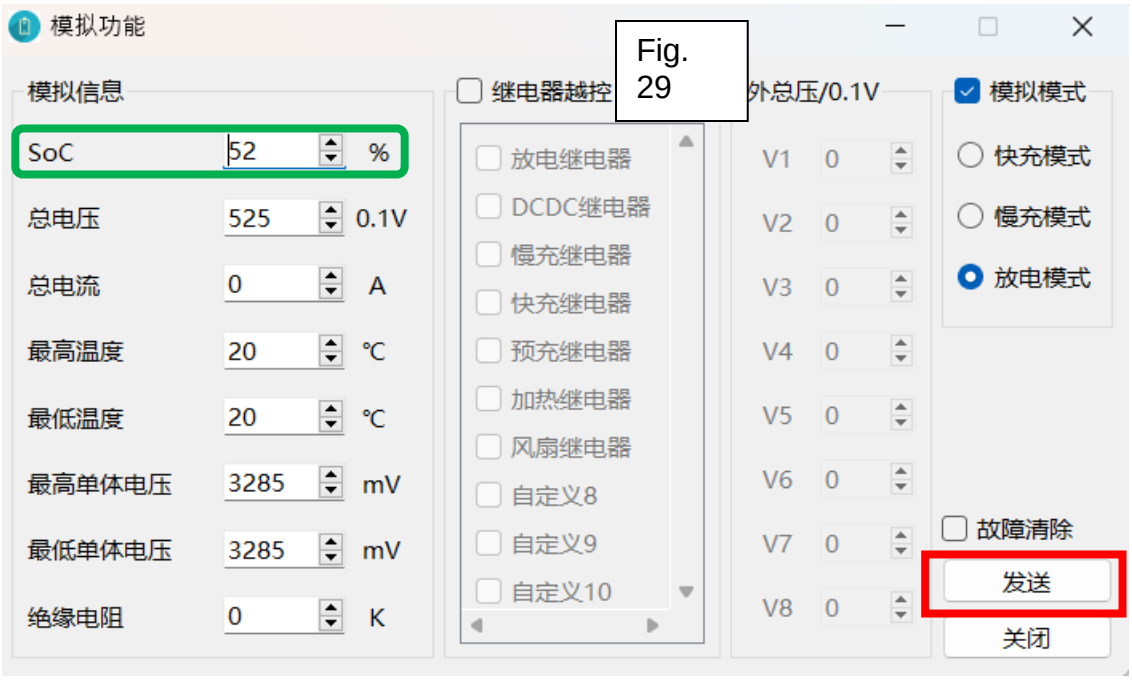


Fig. 29

10. The Samkoon will now reflect the correct SOC%. If it does not, close the program altogether, disconnect the USB Can Analyzer and begin the **5. Debug Tool Manual SOC% Calibration** section again.

11. Verify the update through a battery restart.
    a. Press and release the self-locking switch (typically installed behind an access panel near the lithium battery)
    b. Next press and hold the self-resetting switch (typically installed overhead cabinet near Firefly touchscreen) for approximately 5-10 seconds to turn on the battery.
    c. To verify the system is ON, the Samkoon screen lights should be ON (PWR and RUN) and the COM light flashing.

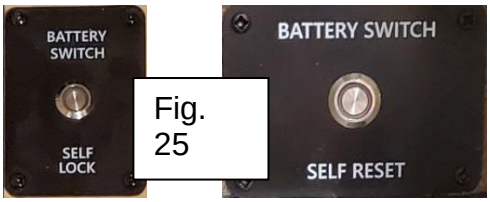
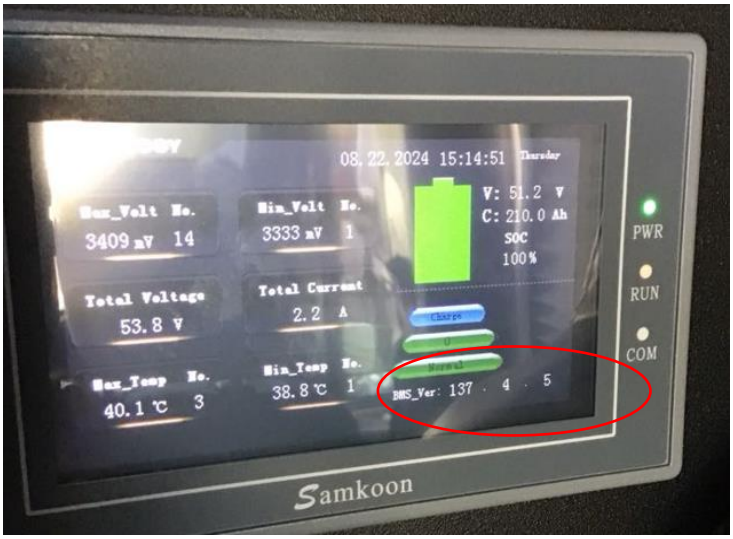


Fig. 25

Update is complete when the SOC% reflects the initial SOC% before the update began as well as the new BMS Version showing 137.4.5 on the bottom right-hand side of the Samkoon monitor.