SolarEdge CSS OD Cluster Management Unit Board replacement - Support kit manual

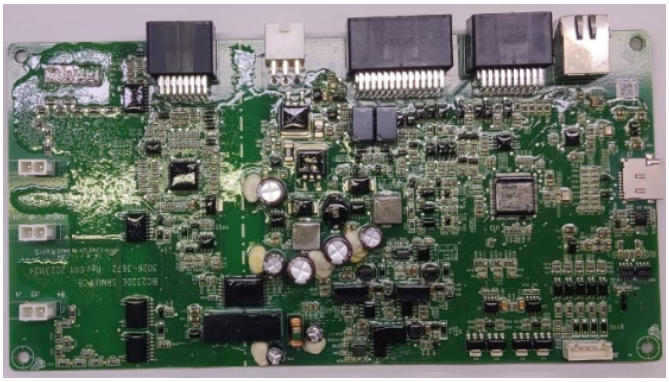
This manual describes the procedure for replacing the slave battery management unit (SBMU) for the CSS-OD.

Revision history

- Version 1.0, November 2024 - Initial release

Kit contents

- Cluster Management Unit board PN: FLD-CSS-OD-BC-SBMU-01



Required tools

- Multimeter
- Insulated tools
- Insulated gloves
- Torque screwdriver 1.2N·m

Before you begin

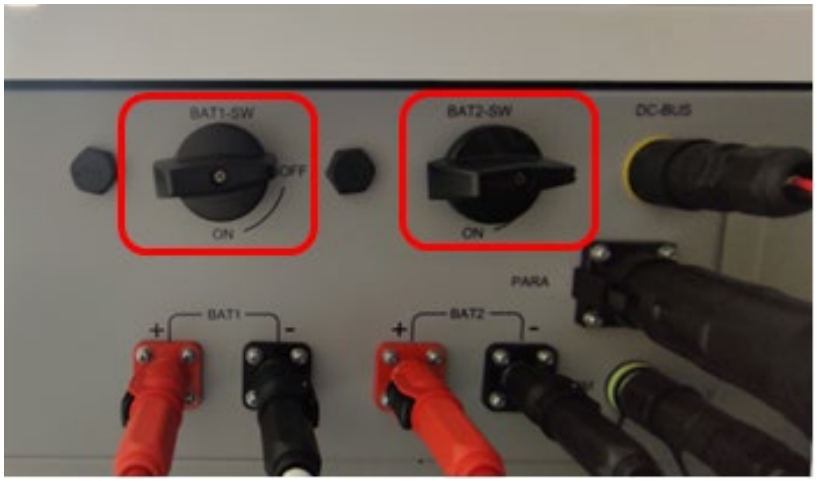
There are two versions of the system: On-grid system and the Backup Interface (BUI) system. The procedure for shutting down the system differs depending on the installed system.

On-grid system

Turn off all AC circuit breakers supplying the battery cabinet and the air conditioner.

Shut down the Battery inverter

On the bottom of the battery inverter, turn OFF (counterclockwise) the two (2) black PCS DC switches.



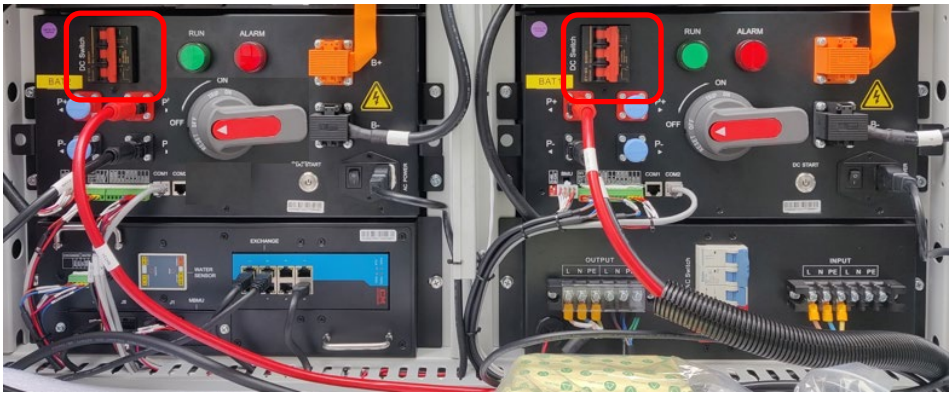
Inverter switches

Shut down the Battery cabinet

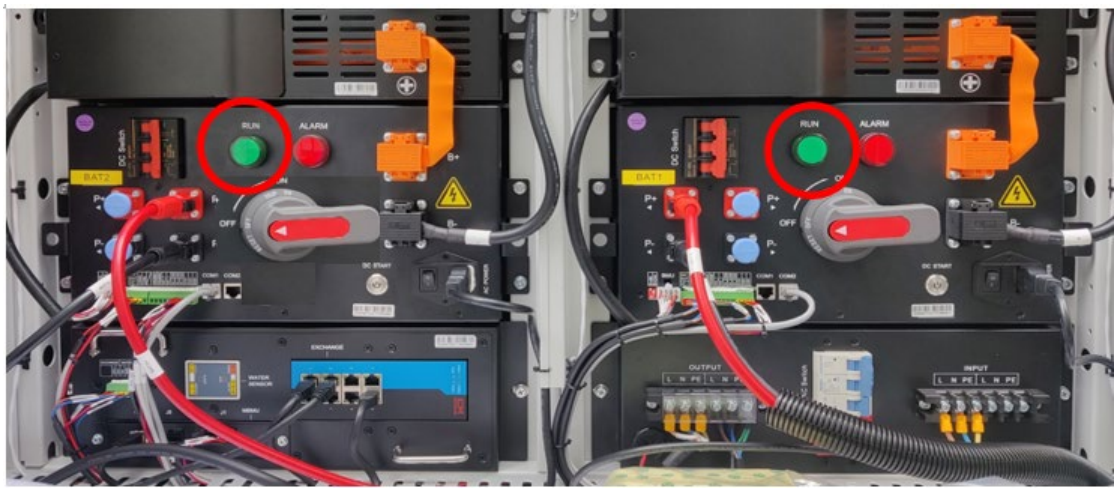
1. Open the battery cabinet door and keep it open using the support bar located inside the cabinet.
2. Turn off the two red and grey high voltage switches.

3. Turn off the blue AC switch (move it to the right).

4. Turn OFF both red DC switches by moving them to the right.

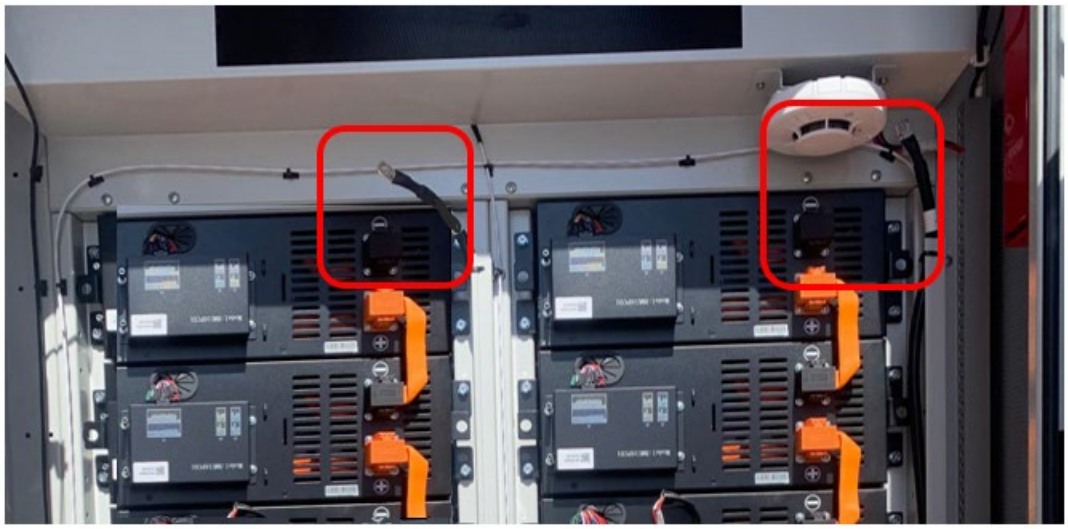


5. When the circuit breaker switches turned OFF, the Cluster management unit indicator light is OFF.



6. Ensure that the inverter indicator lights are OFF.

7. Disconnect the black cables from the top of the battery strings on both sides of the battery cabinet, as shown below.



8. Disconnect the black cables from the bottom of the battery strings on both sides of the battery cabinet.

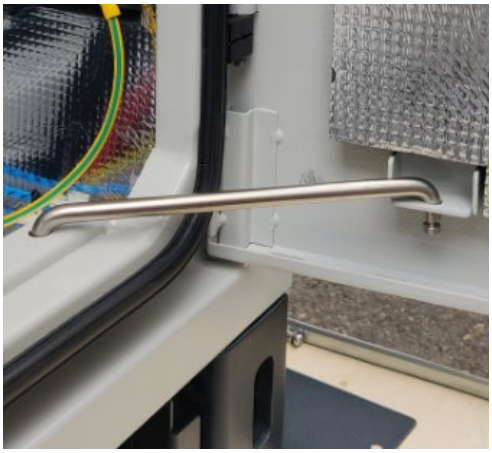
WARNING!

Be aware that each individual battery is still “live” at 52V.

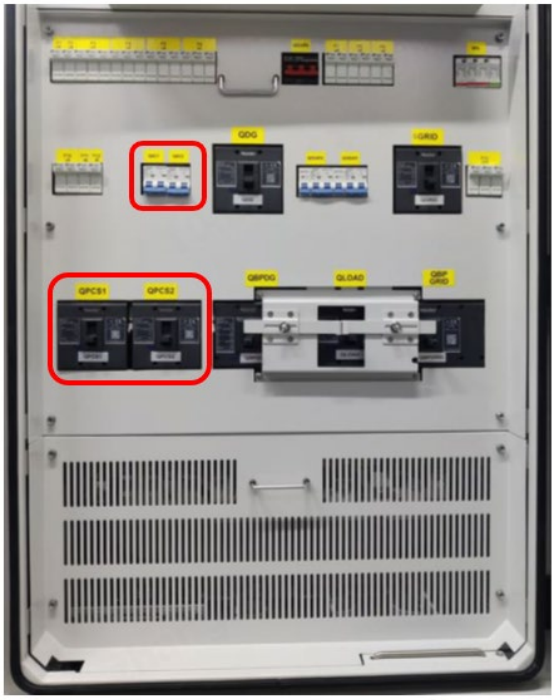
BUI system

Shut down the BUI

9. Turn off the AC circuit breakers supplying the BUI.
10. Open the Backup Interface (BUI) door and keep it open using the support bar located inside as shown in the picture below.



11. Turn off the circuit breaker switches labeled QAC1, QAC2, QPCS1, QPCS2.



12. Close the BUI door and turn the door handle 90° clockwise.
13. Lock the door using the key provided.

Shut down the Battery inverter

Refer to the steps in Shut down the Battery inverter.

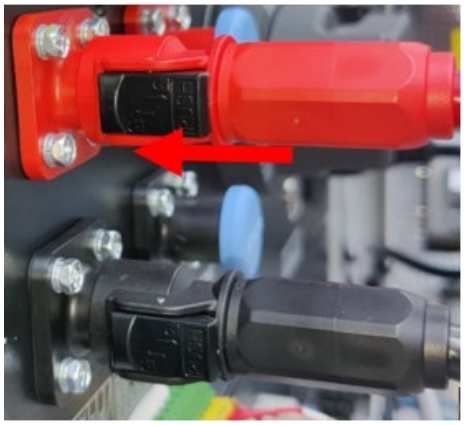
Shut down the Battery cabinet

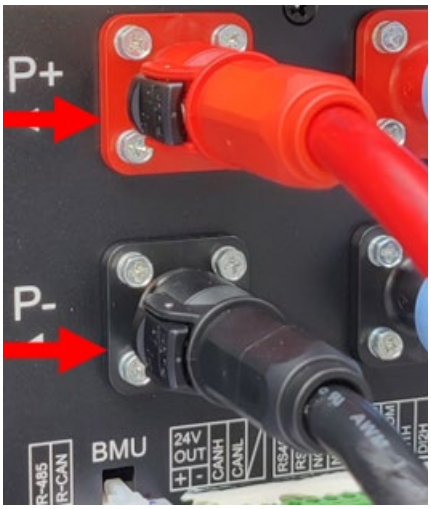
Refer to the steps in Shut down the Battery cabinet.

Remove the cluster management unit

Remove the wires from the cluster management unit

1. To remove the red wire (BAT+) push in the small black button and twist the body of the connector counter-clockwise.
2. To remove the black wire (BAT-) push in the small black button and twist the body of the connector counter-clockwise.





3. Using a sharp blade completely remove the white glue from the 5-pin and 10-pin green connectors.

4. Using the same tool, completely remove the white glue from the AC power connection.

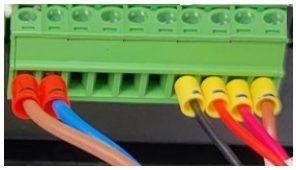
IMPORTANT NOTE!

Before proceeding with the next steps, take photographs of the 5-, 8-, and 10-pin connectors so that you can reconnect the wires to exactly the same pins.

5. Pull out the wires from the 8-pin white connector.

6. Pull out the wires from the 5-pin green connector.

7. Pull out the wires from the 10-pin green connector.



8. Unplug the grey network connector.

9. Remove the AC power connector.

Remove the DC cables

WARNING

- Be careful to prevent the metal part of any tool used from contacting the chassis resulting in a short circuit.
- Insulated gloves are required during the operation of this step to avoid electric shock.

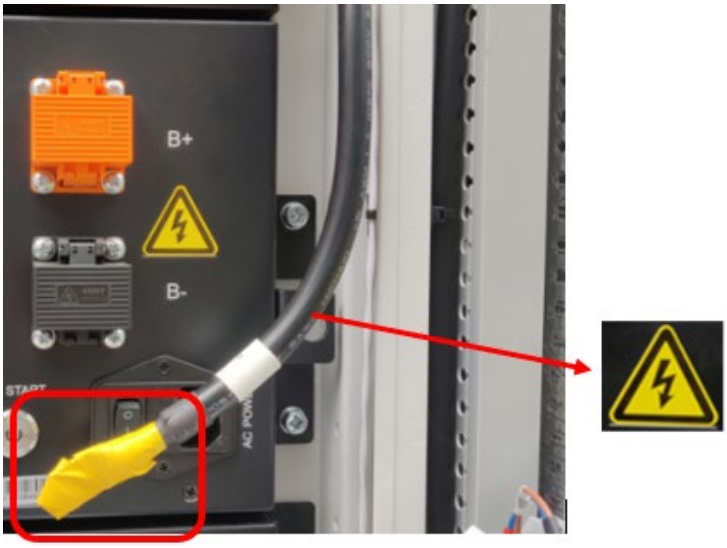
10. Open the orange terminal cover by lifting up the latch at the bottom of the cover.

11. Use a 13mm socket and a wrench to remove the bolt securing the soft copper cable.

12. Close the orange terminal cover.

13. Repeat steps 1 to 3 for the black terminal cover.

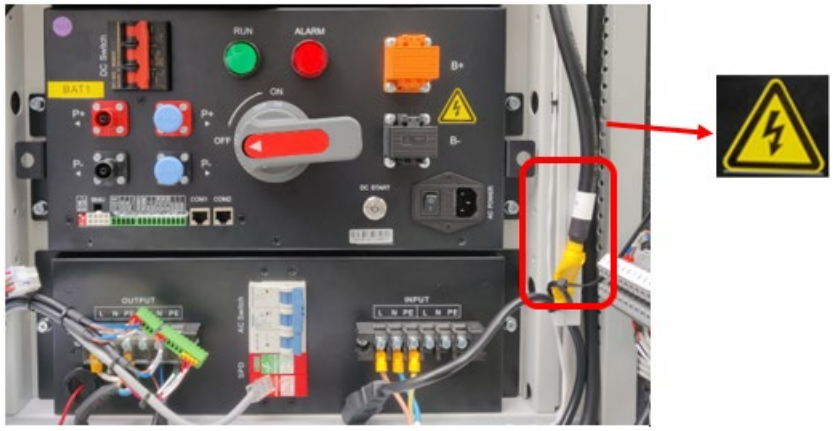
14. Use insulating tape to wrap the metal terminal of the black DC cable.



WARNING

The DC cables are live.

15. Use cable ties to attach the black DC cable to the battery cabinet chassis.



Remove the screws on the cluster management unit

16. Using a 10mm socket and a wrench, remove the 4 M6x16 bolts holding the Cluster management unit in place.

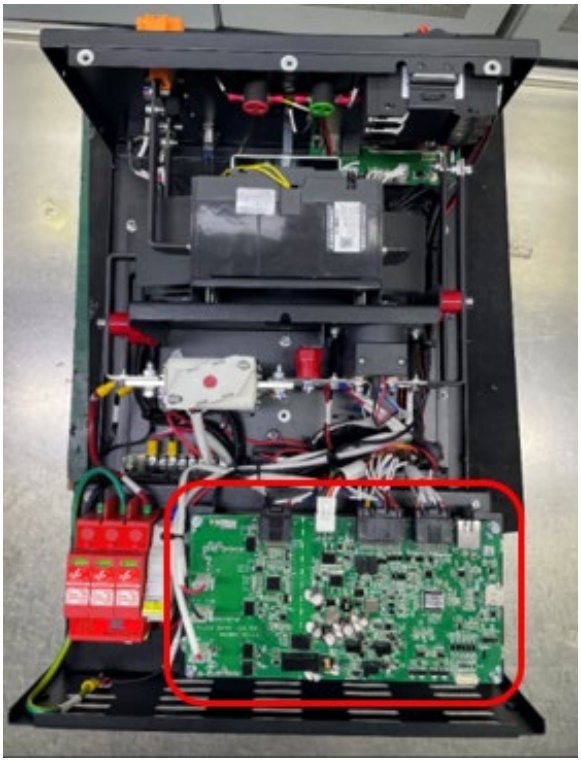
17. Pull out the damaged Cluster management unit.

Remove the cluster management unit cover

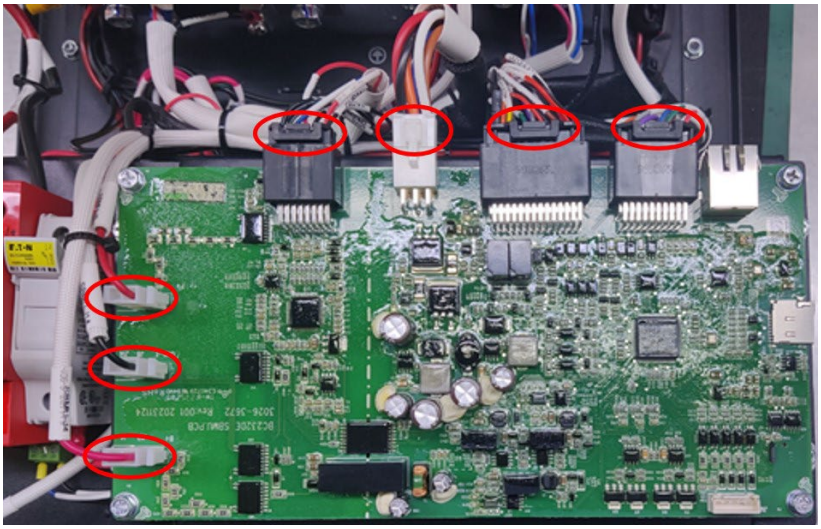
Using a Philips screwdriver, remove the 22 screws securing the cluster management unit cover.

Remove all communication connectors from the Cluster Management Unit board

1. Locate the board inside the cluster management unit.

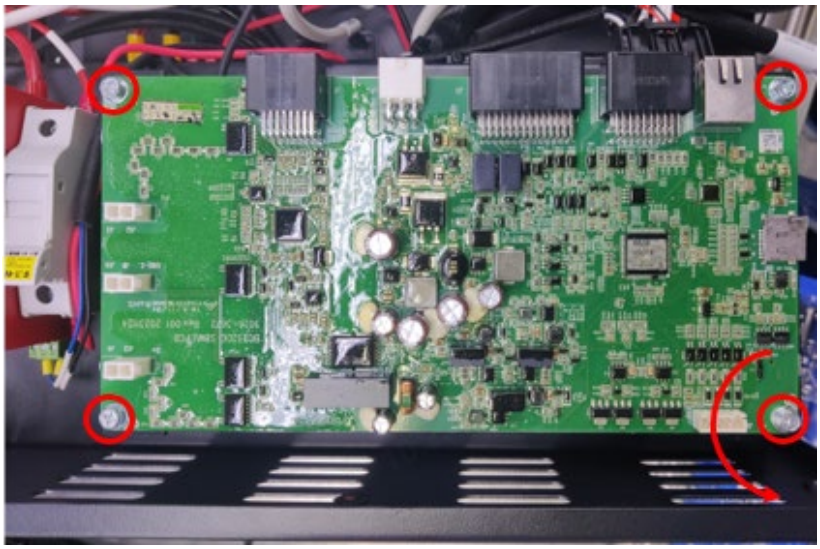


2. Wearing antistatic, insulated gloves, press the tab on all the connectors shown to remove them from the board.



Remove the faulty board

3. Wearing anti-static gloves, use a Philips screwdriver to remove the four screws holding the board in place.
4. Lift out the board and discard it.

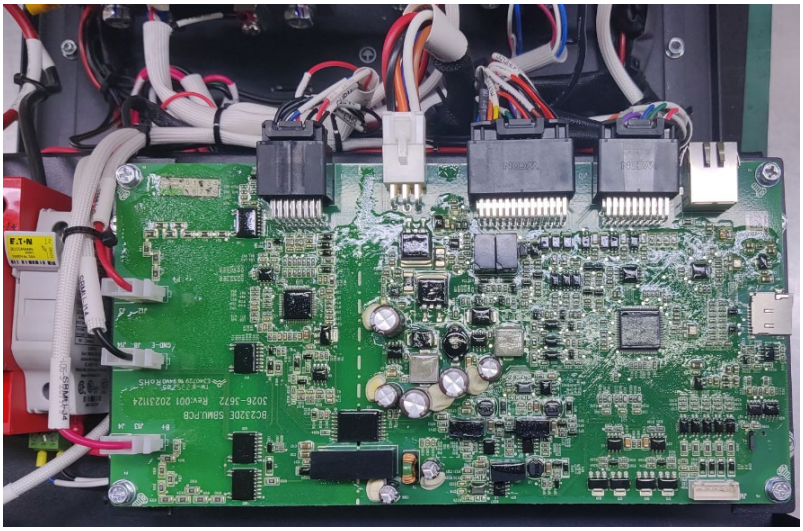


Fit the new board

Wearing anti-static gloves, insert the screws and, using a torque screwdriver, tighten the four M4 screws to a torque of 1.2N·m.

Reconnect the cables to the board

Wearing anti-static gloves, reconnect all the cables.



Attach the cluster management unit cover

Using a torque screwdriver, insert the 22 screws into the cover and tighten them.

Reinstall the cluster management unit

1. Push the replacement cluster management unit back into the cabinet.

2. Using a 10mm socket and a wrench, fasten the 4 M6x16 bolts to a torque of 4.5N·m.

Reattach the DC cables

WARNING

- Insulated gloves are required to avoid electric shock.
- Be careful to prevent the metal part of the tool used from contacting the chassis resulting in a short circuit.

3. Open the black terminal cover and attach the black DC cable to the terminal.
4. Insert the bolt and using a 13mm socket and a wrench, tighten the bolt to a torque of 9N·m.

5. Close the black terminal cover.

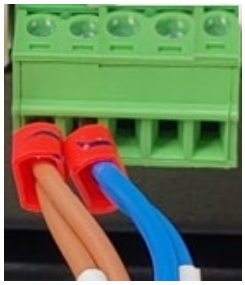
6. Repeat the same steps to reattach the orange cable to its terminal block.

7. Close the orange terminal cover.

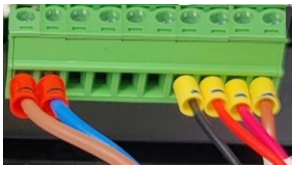
Reconnect the cables to the cluster management unit

1. Reconnect the wires of the 8-pin white terminal cable.

2. Reconnect the wires of the 5-pin green terminal cable.



3. Reconnect the wires of the 10-pin green terminal cable.



4. Reconnect the AC power cable.

Reconnect the Cluster management unit BAT+ (red) and BAT- (black) cables

5. For both the red and the black connectors, push in the black button, insert the connector and then twist it clockwise. When it locks in place it will make a click sound.

6. Plug the gray network cable into its connector.

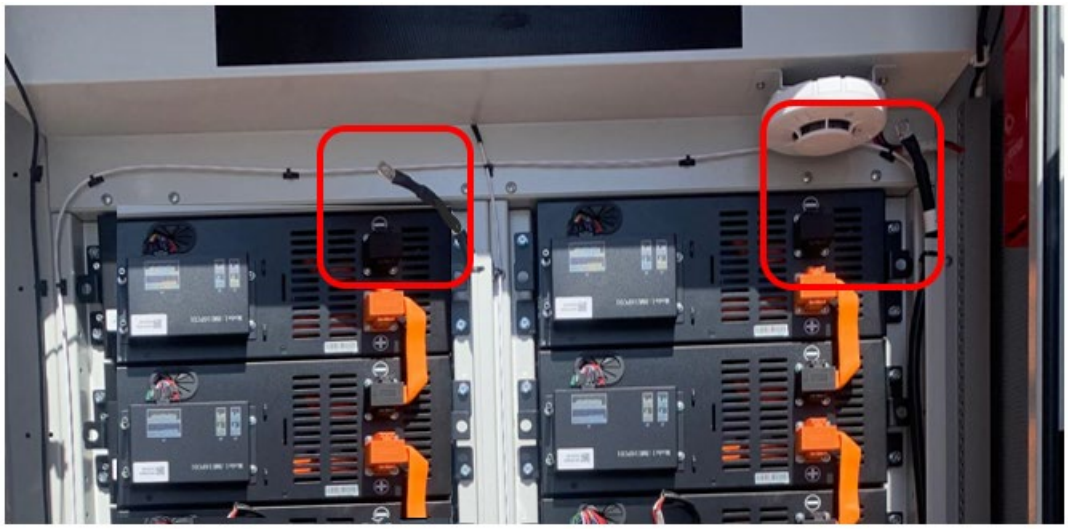
Power on the system

On-grid system

Power on the Battery cabinet

1. Connect the black cables at the bottom of the battery strings on both sides of the battery cabinet.

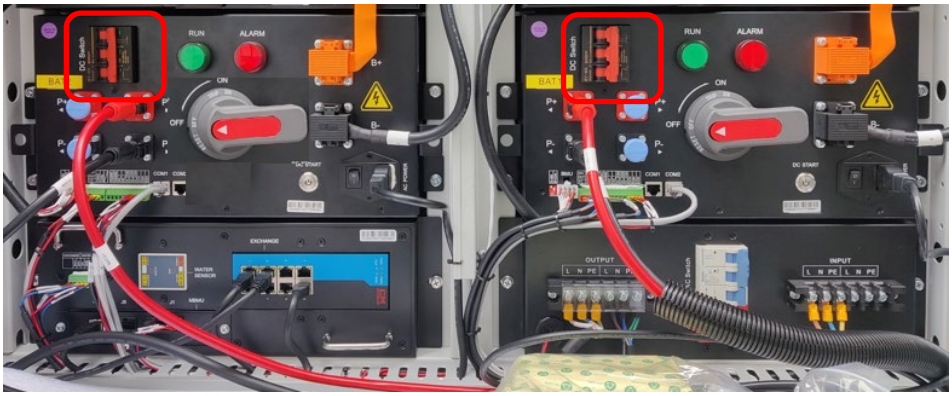
2. Reconnect the black cables at the top of the battery strings on both sides of the battery cabinet, as shown below.



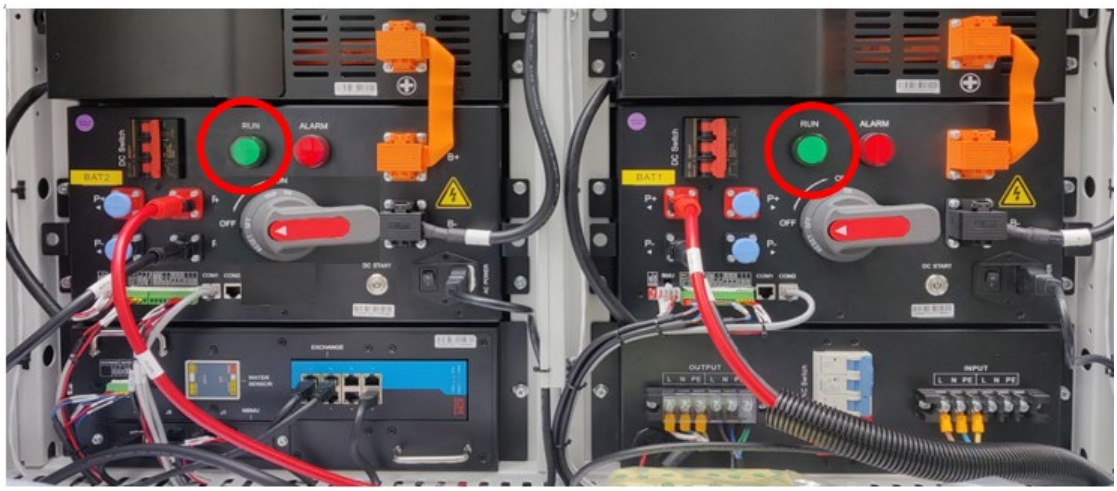
WARNING!

Be aware that each individual battery is still “live” at 52V.

3. Turn ON the two red circuit breakers.

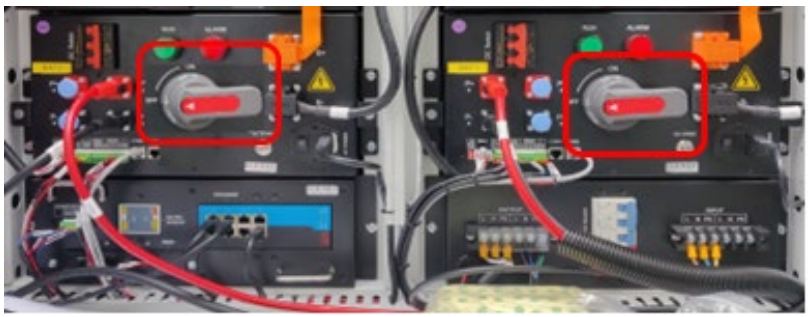


4. When these circuit breakers are turned ON, the Cluster management unit indicator lights are ON.



5. Turn on the blue AC switch (move it to the left).

6. Turn on the two red and grey high voltage switches.



7. Remove the support bar keeping the door open and close the battery cabinet door.

Power on the Battery inverter

8. At the bottom of the battery inverter, turn ON the two (2) black PCS DC switches.

Inverter switches

9. Ensure that the inverter indicator lights are ON.

10. Power on all AC circuit breakers supplying the battery cabinet and the air conditioner.

BUI system

Power on the Battery cabinet

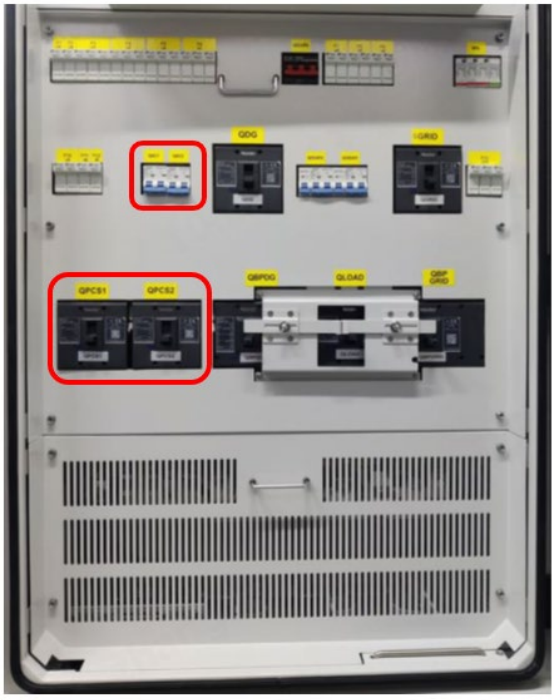
Refer to the steps in Power on the Battery cabinet.

Power on the Battery inverter

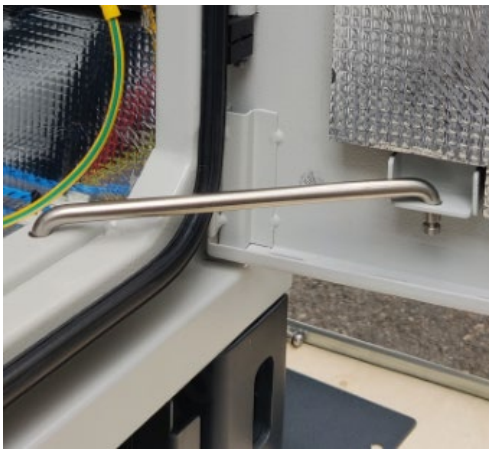
Refer to the steps in Power on the Battery inverter.

Power on the BUI

1. Unlock the door using the key provided.
2. Open the Backup Interface (BUI) door and turn the door handle 90º counterclockwise.
3. Turn on the circuit breaker switches labeled QAC1, QAC2, QPCS1, QPCS2.



4. Remove the support bar keeping the door open and close the BUI door and as shown in the picture below.



5. Turn on the AC circuit breakers supplying the BUI.