SolarEdge CSS OD Energy Module replacement - Support kit manual

This manual describes the procedure for replacing the energy module for the CSS OD.

Revision history

- Version 1.0, November 2024 - Initial release

Kit contents

- Energy module PN: EM-5.1K01-16-100-01

Required tools

- Multimeter
- Torque wrench 9N·m
- Insulated shoes
- Insulated gloves
- Cable ties
- Insulating tape
- Insulated tools

Shut down the system

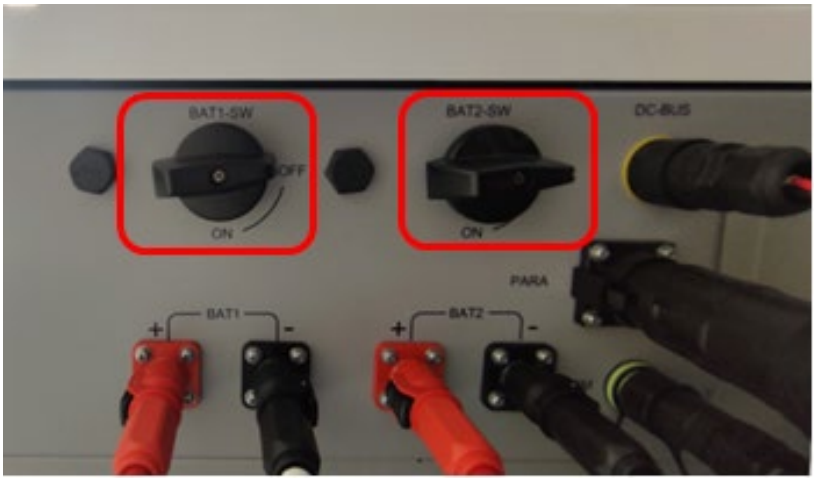
There are two versions of the system: On-grid system and the Backup Interface (BUI) system. The procedure for shutting down the system differs depending on the installed system.

On-grid system

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

Shut down the Battery inverter

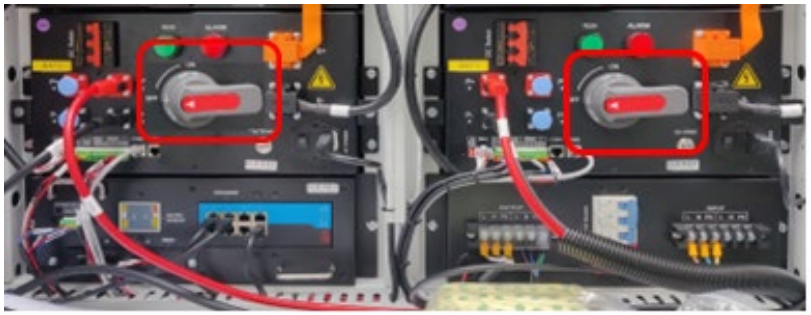
On the bottom of the battery inverter, turn OFF (counterclockwise) the two (2) black PCS DC switches.



Inverter switches

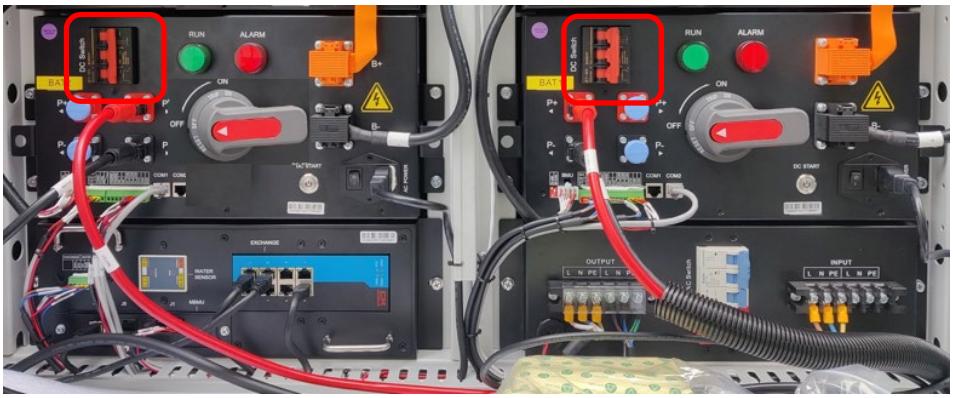
Shut down the Battery cabinet

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.

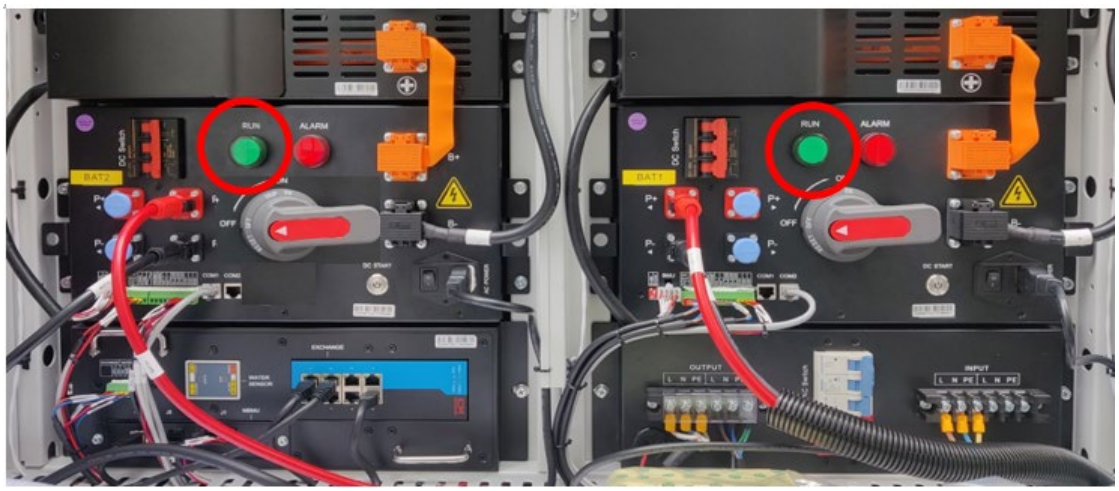


3. Turn off the blue AC switch (move it to the right).

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

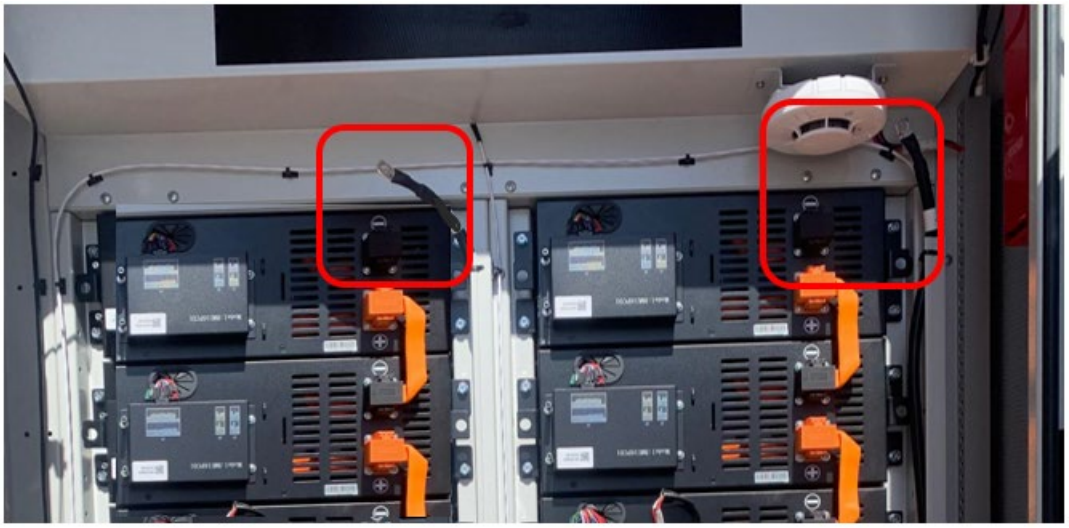


5. When the circuit breakers are turned OFF, the High Voltage Box indicator light is OFF.

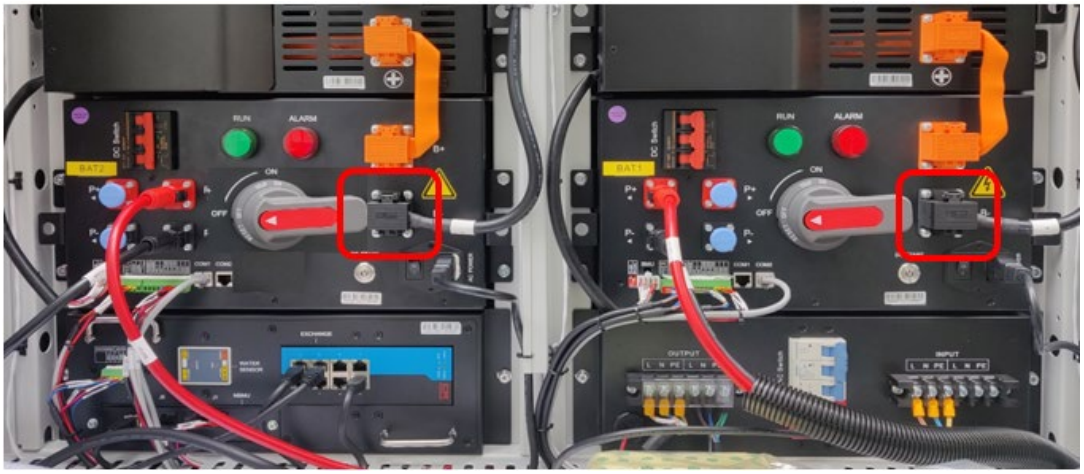


6. Ensure that the inverter indicator lights are OFF.

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.



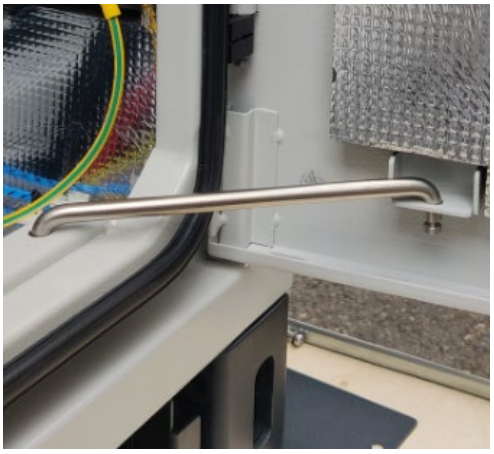
WARNING!

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

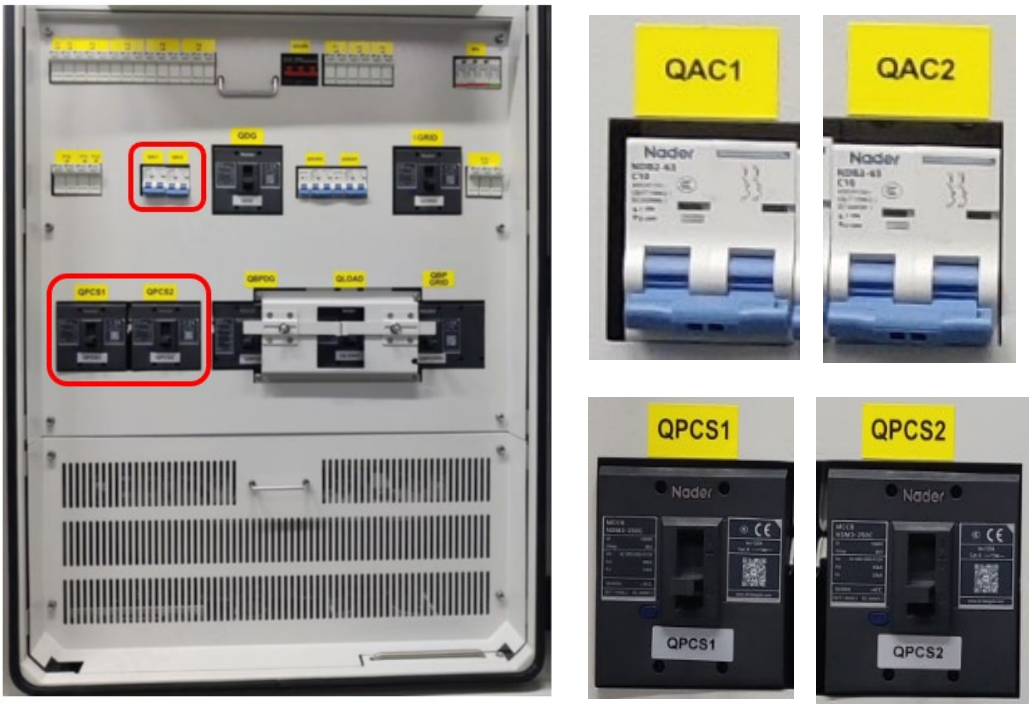
BUI system

Shut down the BUI

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



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



4. Close the BUI door and turn the door handle 90° clockwise.
5. 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

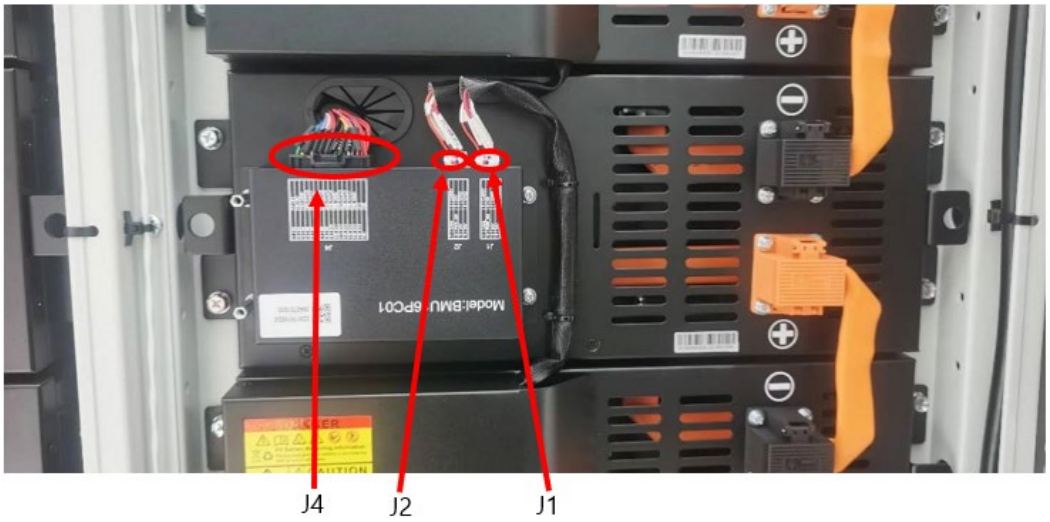
Refer to the steps in Shut down the Battery cabinet.

Remove the Energy Module

Remove the Battery Management Unit (BMU)

1. Using a Philips screwdriver, remove the screws holding the BMU protective cover in place.

2. Using a wire cutter, remove the cable ties securing the BMU communication cables
3. Remove the communication cables from the BMU by pressing the tabs on the connectors for J1, J2 and J4.



4. Using a 6mm hex bit, remove the two left screws.
5. Using a Philips screwdriver, remove the two right screws.

6. Put the BMU aside for reinstallation on the new energy module.

Remove the battery DC cables

1. Release the terminal covers on both the positive "+" (orange) and the negative "–" (black) DC terminals.

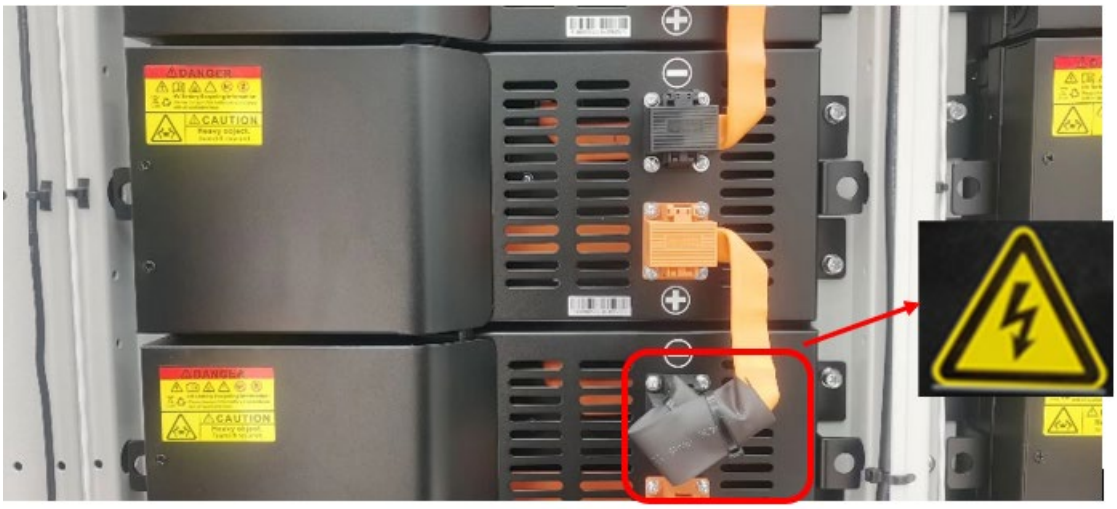
2. To release the terminal covers, lift up both latches on the sides of the cover.

3. After removing the covers, use a 13mm socket and wrench to release the cables from the terminals. Keep the nuts and washers for reuse with the new energy module.

WARNING

To avoid short circuit or electric shock ensure that the wrench does not touch other conductive metal parts such as the chassis.

4. To avoid the danger of electric shock or short circuit use insulation tape to cover the exposed terminals on the cable side.



5. After disconnecting the cables from their terminals, replace the protective covers over the terminals.
6. Using a Philips screwdriver, remove the screws securing the energy module.

7. Pull out the energy module.

NOTE

The energy module is heavy and requires 2-3 people to replace it. It should be properly stored and kept away from fire.

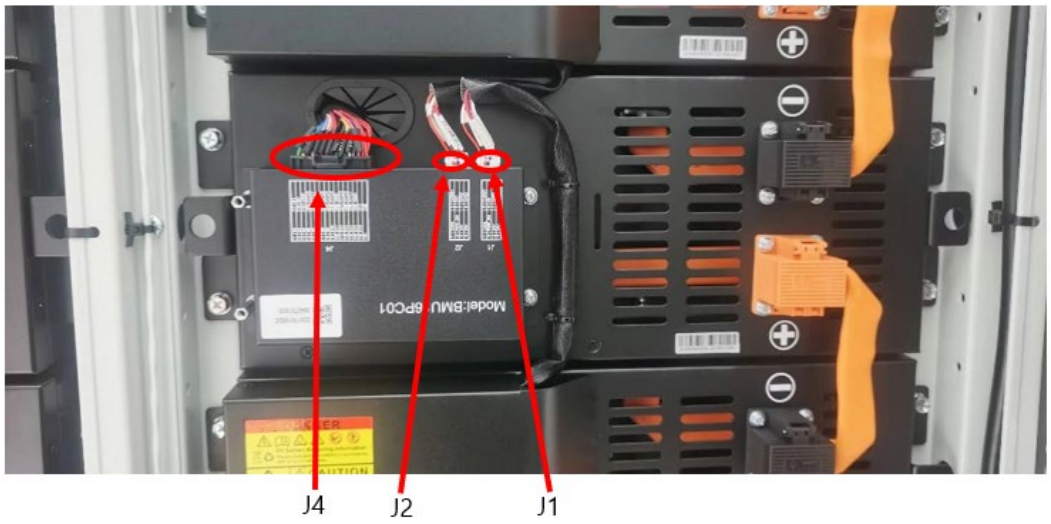
Replace the energy module

1. Push the replacement energy module into the cabinet.

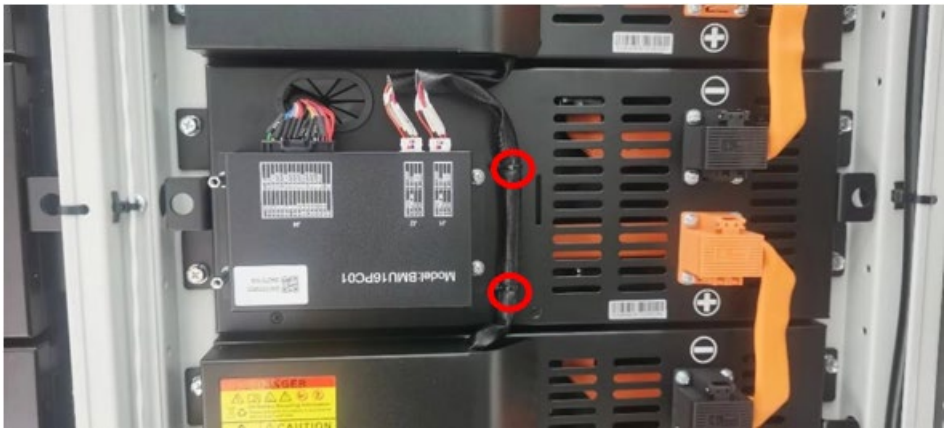
2. Using a 10mm socket and wrench, tighten the four M6*16 bolts and with a torque of 4.5N·m.
3. Using a Philips screwdriver, tighten the four screws holding the energy module in place.

4. Refit the BMU, and using a 6mm hex bit, tighten the two screws on the left side.
5. Using a Philips screwdriver, tighten the two screws on the right side.

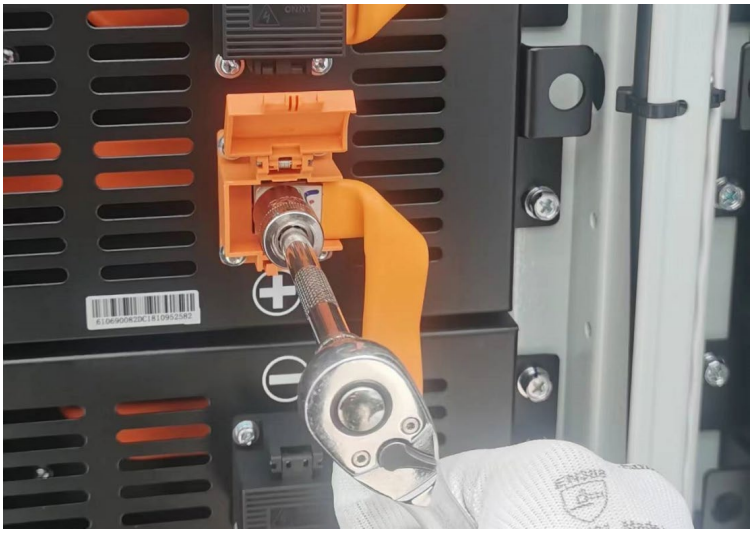
6. Reconnect the J1, J2 and J4 BMU communication cables.



7. Secure the communication cables with cable ties.



8. Open the orange terminal cover and attach the DC cable to the terminal.
9. Reattach the washer and nut and using a 13mm socket and a torque wrench, tighten the nut to a torque of 9N·m.



10. After tightening the nut, close the terminal cover.
11. Repeat steps 8 to 10 for the black terminal cover.

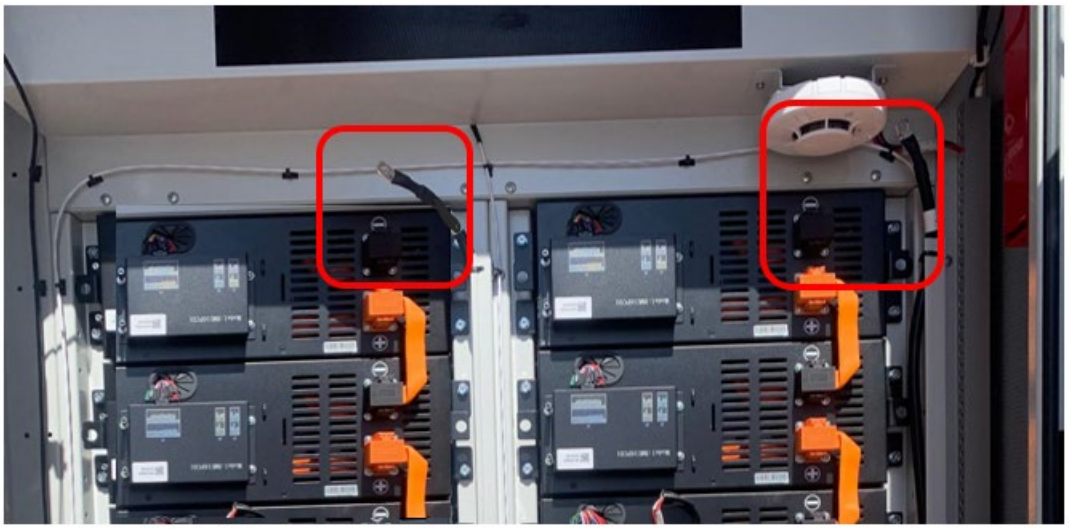
Power on the system

On-grid system

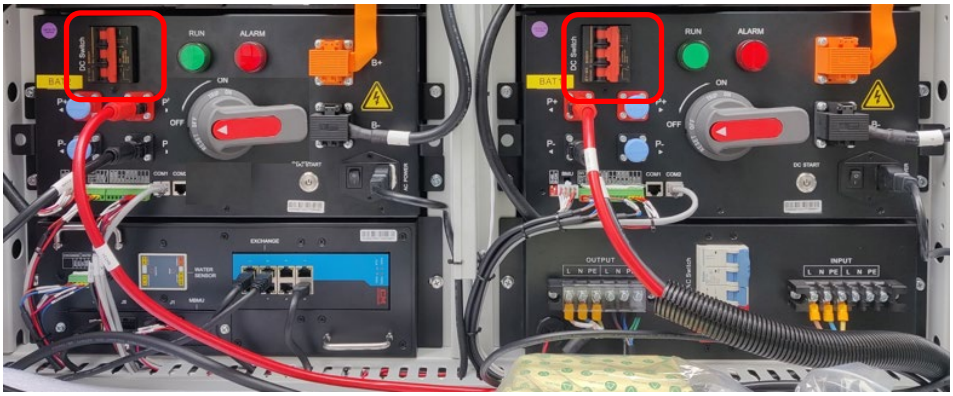
Power on the Battery cabinet

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

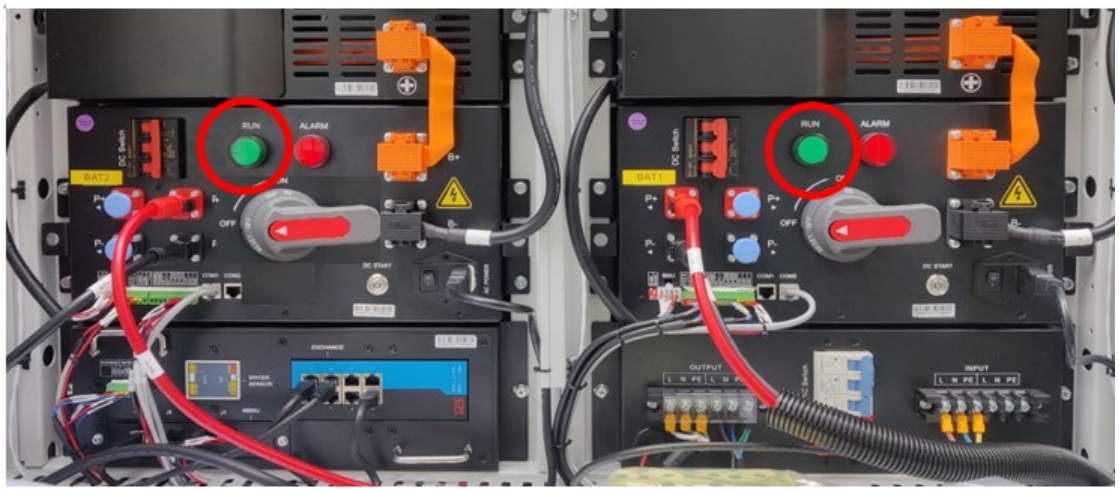
2. Reconnect the black cables at the top of the battery strings on both sides of the battery cabinet, as shown below.



3. Turn ON the two red circuit breakers.



4. When these circuit breakers are turned ON, the High Voltage Box indicator lights are ON.



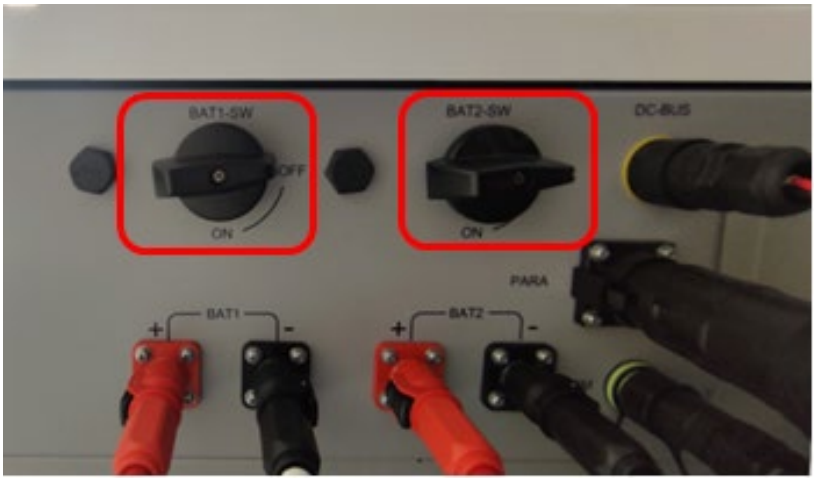
5. Turn on the blue AC switch (move it to the left).

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

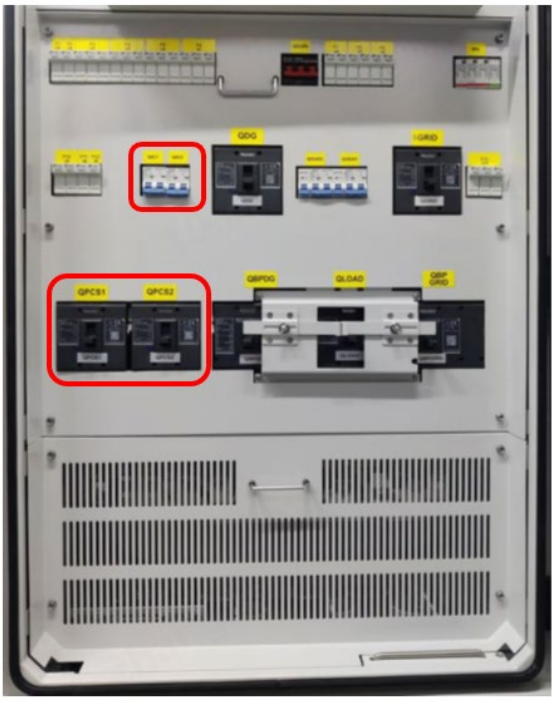
Refer to the steps in Power on the Battery cabinet.

Power on the Battery inverter

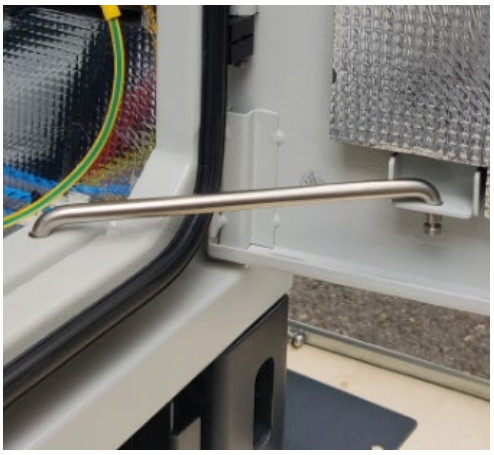
Refer to the steps in Power on the Battery inverter.

Power on the BUI

1. Unlock the door using the key provided.
2. Open the Backup Interface (BUI) door and turn the door handle 90° 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.