

Battery-Max Lite

Trouble Shooting Introduction



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1

Overview

01 Overview—Notes

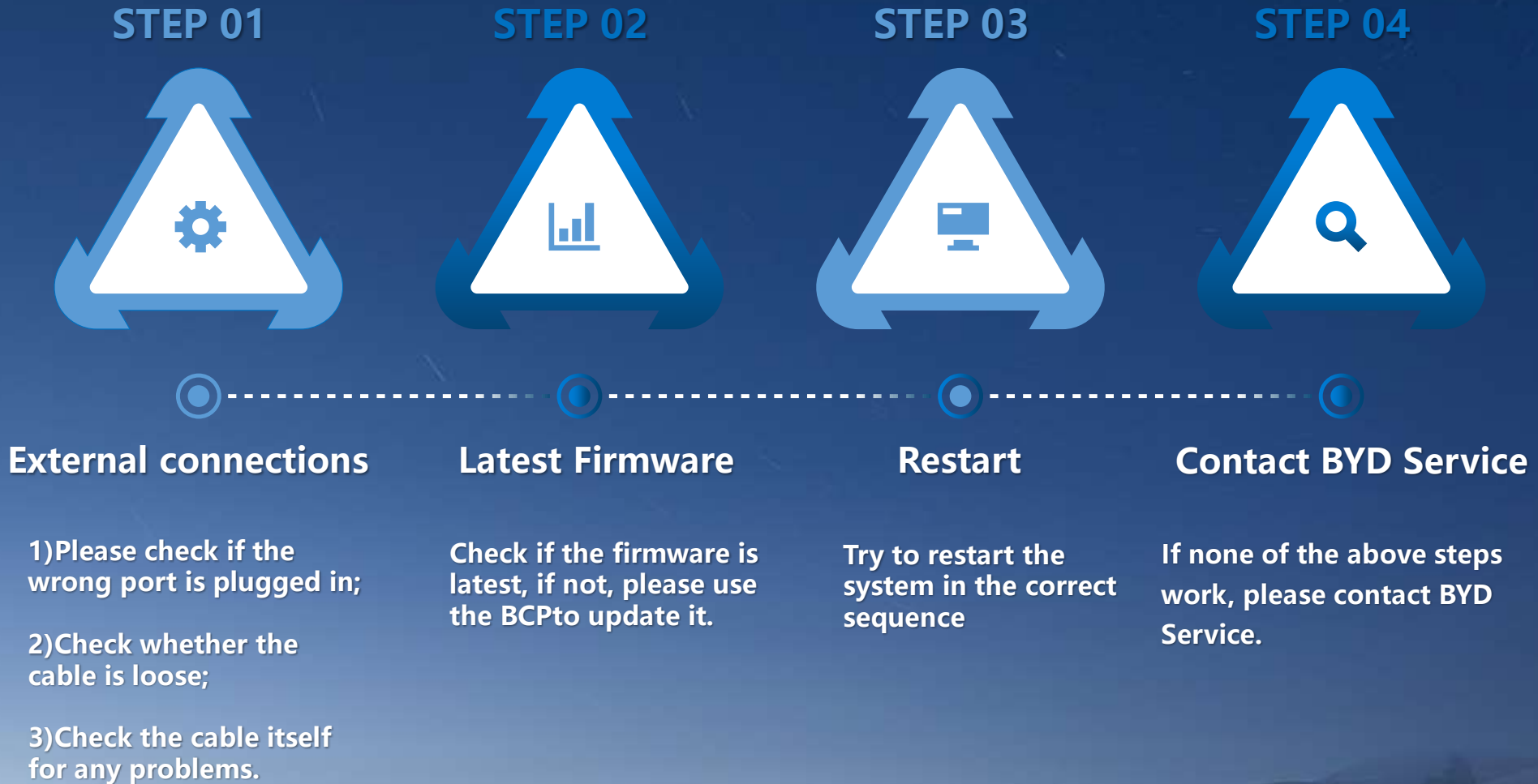


Attention: **High Voltage!** Improper handling can cause danger and damage.

Important Note: The installation and all other kinds of works or measurements in correlation with the battery are only allowed by **professional and qualified personnel.**

01 Overview—General Steps

If there is any problem of the battery system, please follow the steps for an initial check.

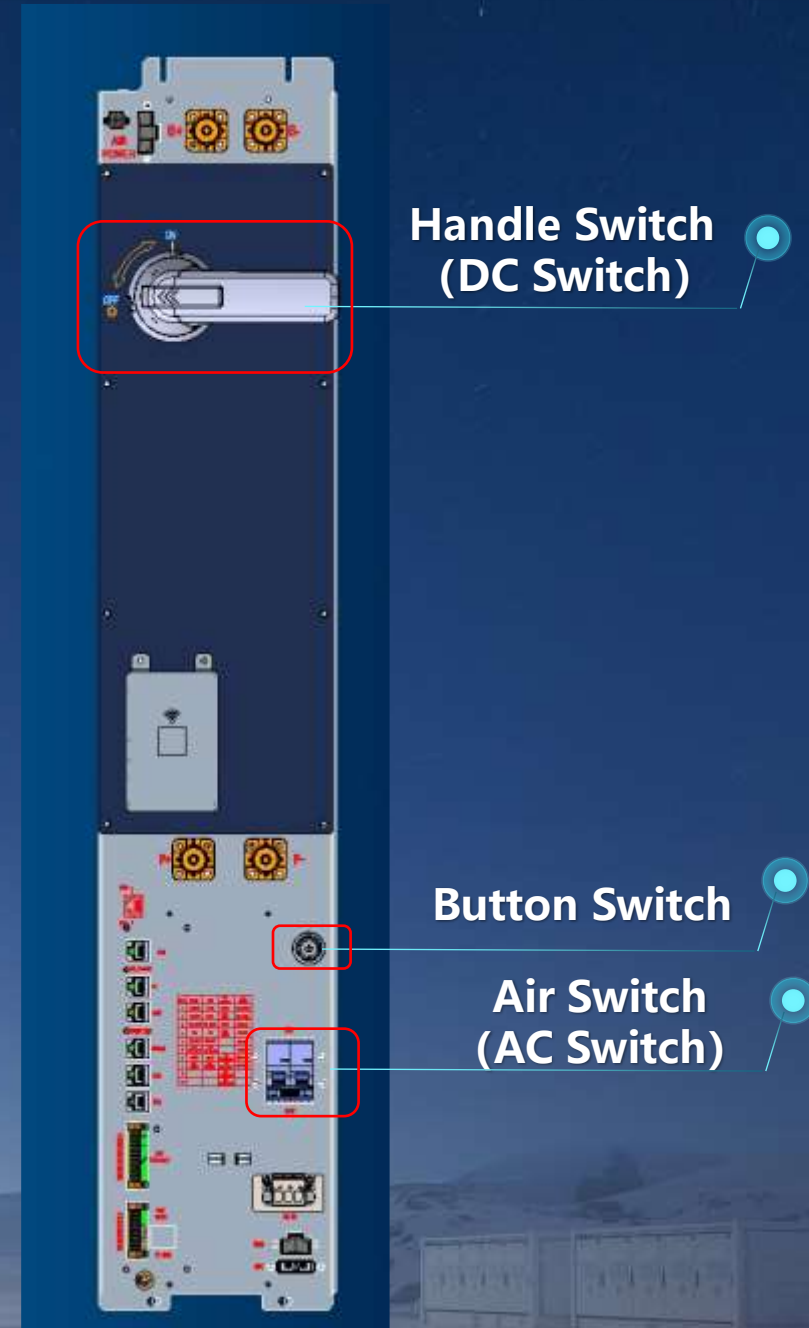


Note: If you can not complete the commissioning, then turn off the battery and close the cabinet before you leave the site.

01 Overview—System Restart Sequence

Note: It is important that the battery system is switched on before the inverter! Otherwise, the PDU might not start and not show any reaction (e.g., no Wi-Fi).

- 1) Switch off the inverter;
- 2) Switch off the air switch on the PDU
- 3) Press the button on the PDU for 5 seconds
- 4) Rotate the handle switch for 90° counterclockwise;
- 5) Wait for 3 minutes;
- 6) Rotate the handle switch for 90° clockwise;
- 7) Press the button on the PDU for 3 seconds
- 8) Switch on the air switch on the PDU
- 9) Turn on the inverter.





2

Frequent Issues

02 Frequent Issues—System cannot be turned on

**PDU shows
no reaction**

a. If you are commissioning the battery, but Wi-Fi is not detected and the indicator on the cabinet does not turn on, please try to restart the system in the correct sequence.

b.If the problem remains, please check the voltage. If the voltage is normal, try another PDU if available.

c.If the voltage is abnormal, please refer to the events on BCP to identify the faulty module.

**Immediate
disconnection
of the relay**

a. Check the wiring:

1) Switch off the inverter and battery, disconnect all external cables and restart the battery in the correct sequence.

2) If it works, check if the inverter is short-circuited; If the problem remains, proceed to the next step.

b. Check the voltage:

1) If the voltage is abnormal, identify the faulty module referring to the events on BCP.

2) If the voltage is normal, try another PDU if available.

02 Frequent Issues—Indicator becomes red /off after a period of operation

Indicator becomes
red /off after a
period of operation

Restart the system in the correct sequence:

1)If successful:

a.If events appear on the BCP, please refer to the enents for more details.

b.If not, please download the logs and send them to BYD service team. Repair under the guidance of the service team.

(Sporadic alarms can be difficult to detect because they only occur occasionally. Therefore, it is very important to download and provide all historical battery log files available to find the root cause)

2)If failed: Refer to *System cannot be turned on*

02 Frequent Issues—WiFi Issues

Common WiFi failures: no Wi-Fi signal / unstable WiFi / unable to connect to WiFi.
When these failures occur, follow the steps below:



STEP 01

**Disconnect
LAN cable**

Remove the LAN cable when your device is connecting to the Wi-Fi. After that you can connect it again to the Internet.



STEP 02

**Try other
mobile devices**

Sometimes the problem comes from the mobile device itself, try to see if other mobile devices can connect to the Wi-Fi.



STEP 03

**Reset the
WiFi**

Press the button on the PDU once one second for WiFi reset



STEP 04

**Restart the
system**

Restart the system in the correct sequence



STEP 05

**Replace
WiFi unit**

If none of the steps above work, please replace the WiFi unit on PDU.

02 Frequent Issues—Firmware Update Issue

01

Fix WiFi

If it is caused by unstable WiFi, please refer to *WiFi issues*

02

Restart

Restart the system in the correct sequence

03

Try again with other devices

Try to see if other devices can update.

04

Replace the PDU

If none of the above steps work, please try another PDU if available

02 Frequent Issues——SOC issues

SOC jumps

The SOC of a battery cannot be measured. It is an estimated value. In general, the state of charge (SOC) of a battery is estimated with the voltage, but other factors such as temperature, current flow and charging behavior also play a role. The calculation of the SOC is generally more precise if the battery regularly sees full cycles. It is normal to have a SOC correction/calibration now and then.

SOC imbalance

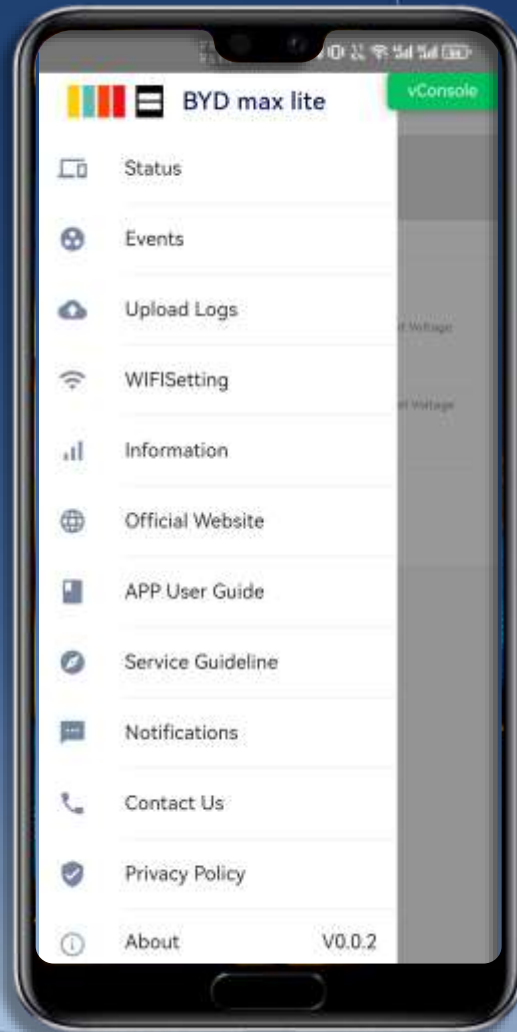
If the battery does not report a fault, but there is a loss of capacity (battery cannot be fully charge/discharged), try to full charge and discharge the system for at least two cycles to see if the problem can be solved
If not ,please use the BCP to obtain the cells' overview when the SOC is 0% and 100%. And read the logs within at least one cycle, contact the BYD Service and provide these logs.



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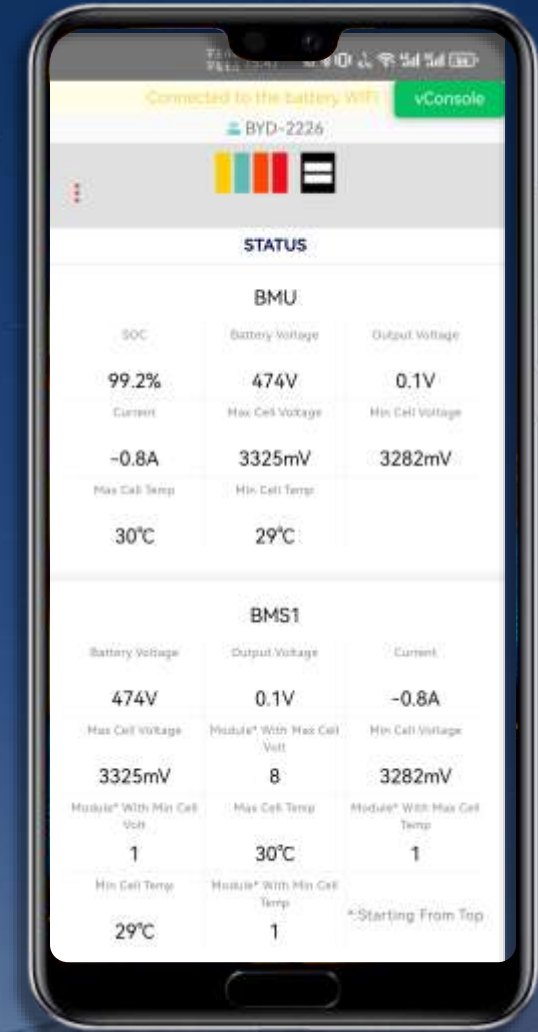
Tools & Methods

03 Tools & Methods——MAX LITE APP

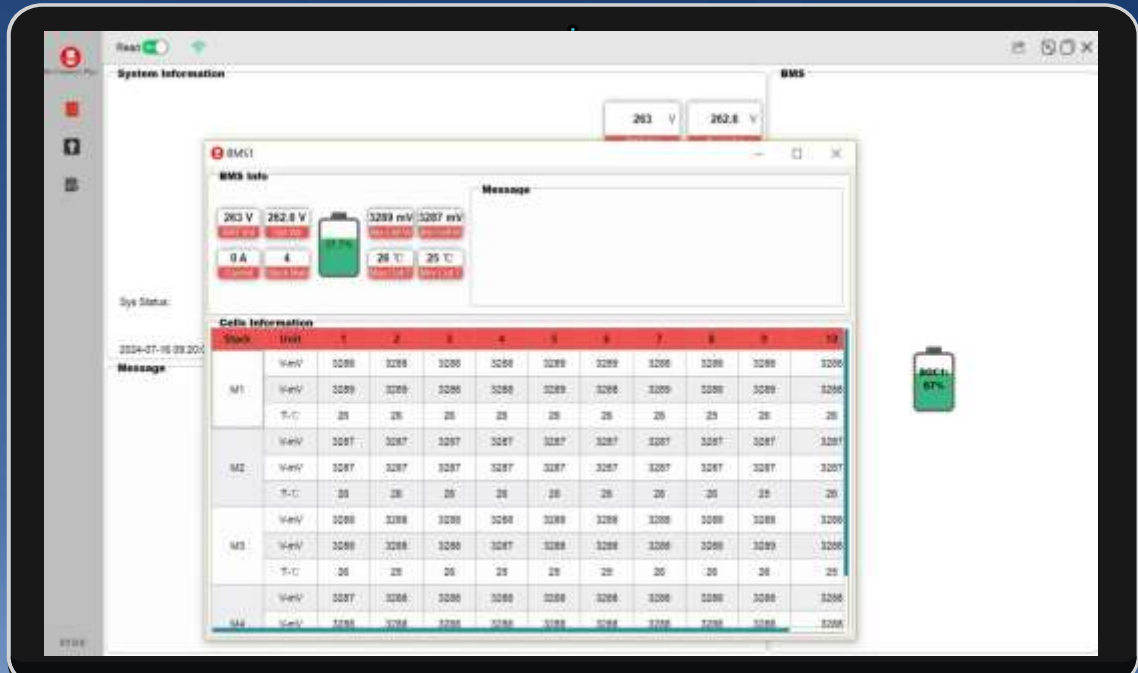


With the MAX LITE APP you can:
1)read the battery information;
2)update firmware;
3)upload battery logs.

Note:
Please make sure you are using
the latest version of the app



03 Tools & Methods——BCP

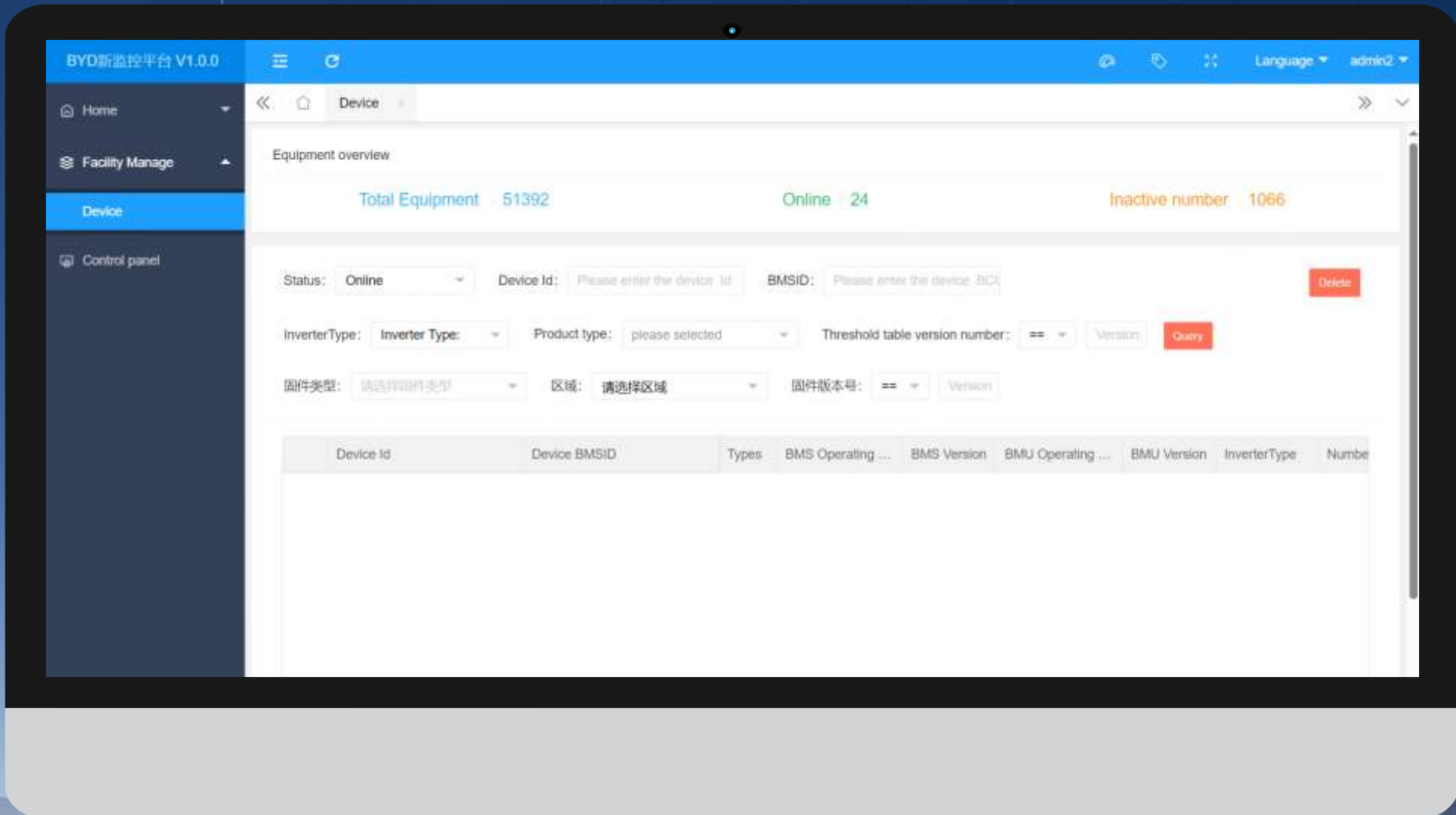


With the BCP you can:

- 1) read the battery information;
- 2) update firmware;
- 3) export / download battery logs.

The BCP is constantly being improved and updated. Make sure to use the latest program version. For the service analysis, please download and provide the data / logs as described in the program instructions.

03 Tools & Methods——Service System



03 Tools & Methods——Faulty module identification

Single Module Failure

When a module failure occurs, you can view the number of the failed module through BCP.

Communication failure between modules

When the BCP indicates that a communication failure has occurred in a module, there may be a communication failure in this module or in the module below it.

Try removing both modules separately to determine the which is fault.

If the BCP shows that module 1 has a communication failure, it may be caused by PDU or module 1. You can remove module 1 and restart the system to check whether the system can operate normally, if not, please try another PDU.

03 Tools & Methods——Measurement of Tower Voltage

Disconnect the PDU and measure the tower voltage between the B+ and B- for cabinet



B+ and B- of tower



Measurement of tower voltage

03 Tools & Methods——Measurement of Module Voltage

Note: The nominal voltage for per module is 64.8V~88.8V. If the measured voltage of the tower deviates from the nominal value, please check the voltage of the individual modules



Individual module
measurement



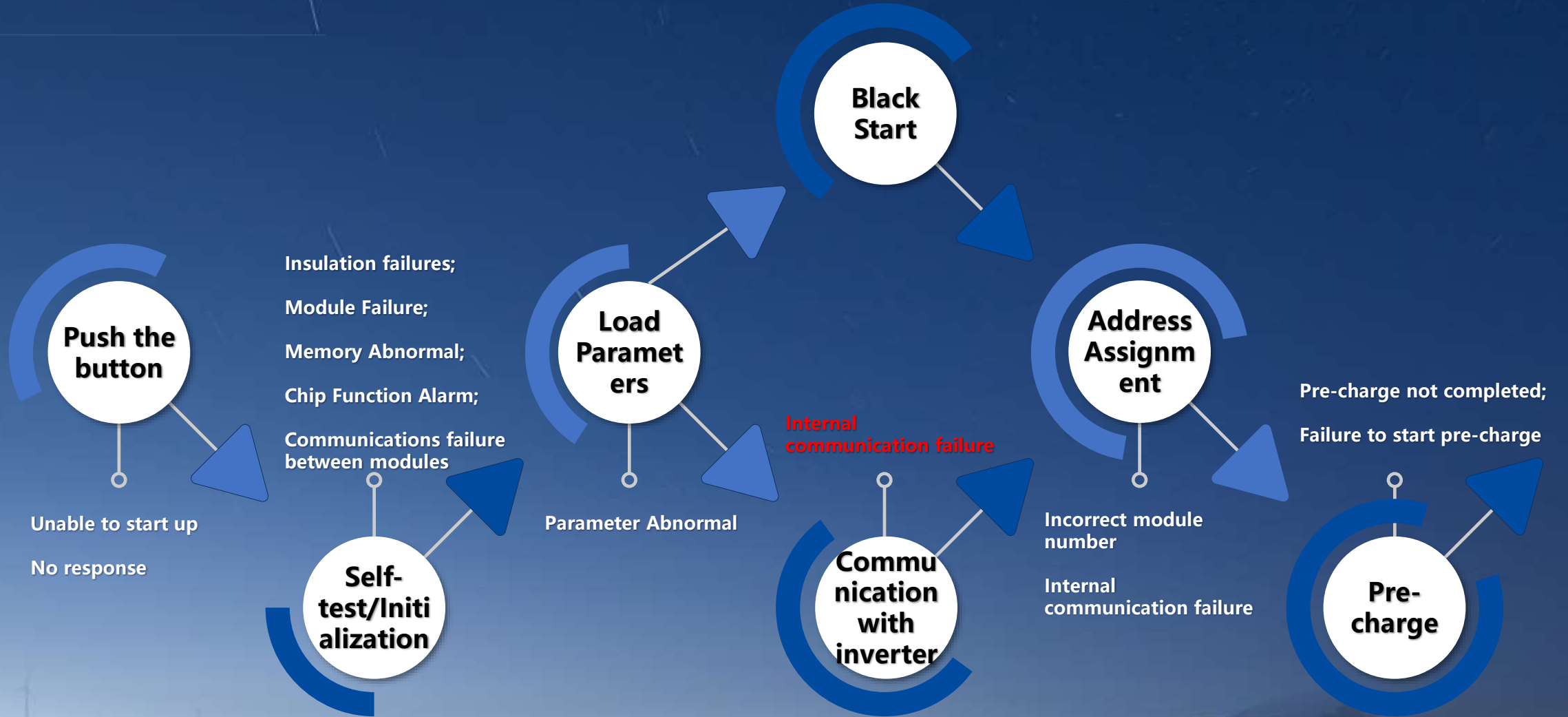
Multiple Module
Measurement



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Events Interpretation

04 Events Interpretation—— Faults In Precharge Process



04 Events Interpretation—— Common Events

Events	Possible Cause	Operation
Incorrect module number	Different amounts of modules in parallel system	Make sure that the amount of modules in the parallel system is the same
Cabinet door not closed	Battery cabinet door is open.	Check whether the cabinet doors are completely closed. If not, close the doors completely.

04 Events Interpretation—— Common Events

Events	Possible Cause	Operation
No.# Module Failures	Failure within the modules	The number in front of ‘#’ represents the number of the faulty module, please replace the faulty module corresponding to the number.
No.# Fan Failure	1)Fan Failure of Module 2)Fan communication failure 3)Abnormal power supply from PDU to fan	1) Check if the cables of the fans are normal. If yes, replace the cables. If no, proceed to the next step 2) Check if the fans are fault. If yes, replace the fans. If no, proceed to the next step. 3) If all the fans do not run, please check if the AC switch is on.

04 Events Interpretation—— Common Events

Events	Possible Cause	Operation
Internal communication failure	1) Internal CAN communication fault. 2) BMU and BMS communication failure 3) Communication interface failure 4) Address assignment failure	1) Check if the terminal resistor is normal 2) For multiple tower systems, check whether the communication cable between towers is faulty. If cables are normal, exchange the PDUs of the master and slave and check if the PDUs are faulty. 3) For a single tower system, try another PDU if available.
Communications failure between modules	Single or multiple modules are not recognized	Please refer to <i>Faulty module identification</i>

04 Events Interpretation—— Common Events

Events	Possible Cause	Operation
Communication failure with the inverter	1) Inverter not matched 2) Communication cable failure between battery and inverter - Wrong type of battery/inverter is set	1) Check if the external connections (Communication cables/Ground cables) are normal. 2) Restart in the correct order. 3) Re-upgrade the firmware. 4) Measure the CAN output of the PDU with a multimeter, if the output voltage is normal, then troubleshoot the inverter; if the output is 0, then replace the PDU.
Insulation failures	1) Ground cable not connected 2) Ground cable fault 3) Module Leakage 4) PDU leakage	1) Check the ground cable (ground cable of battery and inverter should be connected separately) 2) Restart, if the problem remains, contact BYD service

04 Events Interpretation—— Common Events

Events	Possible Cause	Operation
Failure to start pre-charge	The output voltage of the battery differs from the tower voltage by more than 5V. 1) DC connection faults 2) Inverter DC side short circuit 3) PDU main circuit failure	1) Check whether the power cable connection is correct (if correct, proceed to the next step; if incorrect, then connect the power cable correctly). 2) Restart, if the problem remains, try another PDU if available.

04 Events Interpretation—— Common Events

Events	Possible Cause	Operation
Pre-charge not completed	1) Inverter failure that prevents the battery from pre-charging it. 2) PDU fault	1) Restart 2) If the problem remains, turn off the battery and disconnect all the power cables from the inverter, black start the battery. a) If the problem remains, replace the PDU; b) If the problem disappears, check the connection of power cables between the battery and the inverter.

04 Events Interpretation—— Common Events

Events	Possible Cause	Operation
Pack V-sensor alarm	Difference between tower voltage and output voltage is more than 5V.	1) Disconnect external connections and restart. 2) If the problem disappears, please check the connections. If problem remains, check if the fuse in the PDU is blown. 3) If the fuse is blown, replace the fuse. If it's normal, try another PDU if available.

04 Events Interpretation—— Rare Events

Events	Possible Cause	Operation
Over current occurs in charging/discharging	1) The charging/discharging power is too high and the inverter fails to limit the charging/discharging current in time. 2) Unknown reasons	Check whether there is a high-power load starts when this fault occurs. If yes, check whether the load power is within the power range of the inverter: If yes, reduce the loads to ensure that the power is within the range. If not, please also contact the inverter service
Over/under temperature in charging/discharging	Unknown reasons	Please contact BYD Service

04 Events Interpretation—— Rare Events

Events	Possible Cause	Operation
Parameter Abnormal	Data loss when loading parameters	Restart, If problem remains, upload battery logs and contact BYD service
Current sensor alarm	1) When the SOC is 0% or 100%, there is still discharge/charge current in the system. 2) Current value exceeds system limit.	Upload battery logs and contact BYD service

04 Events Interpretation—— Rare Events

Events	Possible Cause	Operation
DC switch abnormal	Handle switch abnormal	Restart, if the problem remains, try another PDU if available.
Relay anomaly	Positive or negative relay disconnected	Restart, if the problem remains, try another PDU if available.

04 Events Interpretation—— Rare Events

Events	Possible Cause	Operation
Memory Abnormal	Memory chipset fault	Restart, if the problem remains, try another PDU if available.
Chip Function Alarm	Chip running lagging	Restart, if the problem remains, try another PDU if available.

04 Events Interpretation—— Rare Events

Events	Possible Cause	Operation
Fire Alarm (另外加安全章节)		For Cause 1
	1) Smoke or overheating is detected in the cabinet	1) Send trained personnel to the site and observe the system for 30 minutes from a safe distance. If there is smoke or fire, remotely power off the system, evacuate the onsite personnel as soon as possible, and call the fire emergency number.
	2) A fire has been detected in the battery cabinet.	2) If no exception is found during observation, manually clear the alarm remotely by restart the system. If the alarm persists, contact BYD service.
	3) 误报, 既没有烟也没有火	For Cause 2
		Do not open the cabinet doors. Evacuate onsite personnel.
		Contact BYD service
		3) Restart the system, if the fault does not disappear, then contact BYD Service

04 Events Interpretation—— Air Conditioner Alarm

Events	Possible Cause	Operation
Air Conditioner Alarm	1) Communication cable failure of air conditioner. 2) Air conditioner failure.	Restart, if the problem remains, try another communication cable. If the problem still remains, please refer to the <i>Air Conditioner Troubleshooting Method</i> (Scan the QR code on the air conditioner to get)

04 Events Interpretation——Air Conditioner Alarm: E1~E4

Each step needs to be photographed and recorded



Check if the temperature sensor connectors on the control board are loose.



E1: Out-of-cabinet temperature sensor

E2: Condensing Temperature Sensor

E3: Cabinet temperature sensor

E4: Evaporator temperature sensor

1. Confirm whether E1~E4 is shown on the display; if so, next step.
2. Check whether each temperature sensor is connected loosely and whether the position is correct. If the re-plugging does not work, it is determined that the sensor is damaged and needs to be replaced.
3. If it is not solved, contact BYD service.

04 Events Interpretation—— Air Conditioner Alarm: E5

Each step needs to be
photographed and recorded



Events	Possible Cause	Operation
E5 Air conditioner voltage abnormal	1) Unstable voltage 2) Cable failure 3) Abnormal power supply detection	1. Confirm that the power cable of the air conditioner is connected correctly. 2. Turn off , measure whether the input voltage exceeds the specified range, if the voltage exceeds the specified range, you need to adjust the voltage; if the voltage is normal, then the next step. 3. Replace the control board, restart to confirm if problem remains. 4. If the above do not work, contact BYD service.

04 Events Interpretation—— Air Conditioner Alarm: E6

Each step needs to be
photographed and recorded



Events	Possible Cause	Operation
E6 Abnormal temperature inside the cabinet	1)Temperature sensor failure 2)Condenser blocked	1) Check if the display has other faults, if so, deal with other faults first. 2) Check the value of the temperature sensor in the cabinet (after being stationary for ten minutes) on the display screen to see if it is consistent with the ambient temperature. If it is consistent, the sensor is not faulty. If the temperature deviation is large, check whether the condenser is blocked. If it is blocked, clean the condenser. 3) If the fault is not resolved, contact BYD service.

04 Events Interpretation—— Air Conditioner Alarm: E7

Each step needs to be
photographed and recorded



Events	Possible Cause	Operation
E7 System high voltage alarm	1. Condenser is blocked 2. Air inlet is blocked 3. Ambient temperature is too high 4. Blower is abnormal	1. Clean the condenser 2. Clean the air inlet 3. If the ambient temperature is too high, add a sunshade 4. Replace the blower 5. If the above do not work, contact BYD service.

04 Events Interpretation—— Air Conditioner Alarm: E8

Each step needs to be
photographed and recorded



Events	Possible Cause	Operation
E8 Evaporator freeze	1. The air inlet/outlet is blocked 2. The blower is abnormal	1. Clean the air inlet/outlet 2. Replace the blower 3.If the above do not work, contact BYD service.

04 Events Interpretation—— Air Conditioner Alarm: E9

Each step needs to be
photographed and recorded



Events	Possible Cause	Operation
E9 Blower failure	1.The cable of internal/external blower is loose 2.Internal/external blower is damaged	1. Check whether the cable of the internal/external blower is normal 2. If the cable is normal, replace the internal/external blower 3. If the above do not work, contact BYD service.

04 Events Interpretation—— Air Conditioner Alarm: E11

Each step needs to be
photographed and recorded



Events	Possible Cause	Operation
E11 Compressor failure	1. The cable of compressor is loose 2. The condenser is blocked	1. Check the cable of compressor 2. Clean the condenser 3. If the above do not work, contact BYD service.

04 Events Interpretation—— Air Conditioner Alarm: No Event Codes

Each step needs to be
photographed and recorded



Events	Operation
The display screen is not on.	1. Check if the AC switch is on 2. Check the cable of display 3. Replace the display
There is abnormal sound during operation	1. Check if there is any debris in the air conditioner 2. Replace the blower
There is water in the inner air outlet	1. Check if the water tank is full. If so, clean the drain. 2. Check if there is water on only one side of the water tank. If so, the air conditioner is not installed correctly. Please reinstall it.

Thanks For Watching!

