User Manual

Industrial Liquid Cooling Energy Storage+Charger

EPPS93-AIO 60kW93kWh

All Rights Reserved

Trademarks and Permissions

 and  and other EP trademarks used in this manual are owned by EP Equipment Co., Ltd.

All other trademarks or registered trademarks mentioned in this manual are owned by their respective owners.

Notice

The purchased products, services and features are stipulated by the contract made between EP/EP ENERGY and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

EP Equipment Co., Ltd.

Address: Xiaquan Village, Lingfeng Street, Anji, Zhejiang, People's Republic OF China

Website: https://ep-equipment.com/ep-energy

Content

1 Introduction

Thank you for purchasing the Industrial Liquid Cooling Energy Storage + Charger EPPS93-AIO, this manual describes the transportation and storage, mechanical installation, electrical connection, power-on and power-off operation, troubleshooting, and maintenance of the EPPS93-AIO. Before installing and operating the EPPS93-AIO, read this document carefully to understand the safety information as well as functions and features of the EPPS93-AIO.

1.1 Applicable Scope

This manual is intended for EPPS93-AIO, which equipment is divided into two models:

- EPPS93-GB/T: provide one DC charging connector of a GB/T plug, one CEE socket(63A), and dual Type E sockets.
- EPPS93-CCS2: provide one DC charging connector of a CCS2 plug, one CEE socket(63A), and dual Type E sockets.

1.2 Target Group

This manual is intended for qualified technicians / technical support engineers who are responsible for the installation, operation, and maintenance of the EPPS93-AIO, and end users who need to check parameters.

A qualified technician is required to meet the following requirements:

- Knowledge of electronics, electricity, and machinery, and familiar with electrical and mechanical schematic diagrams.
- Training in the installation and commissioning of electrical equipment.
- Be able to quickly respond to hazards or emergencies that occur during installation and commissioning.
- Be familiar with local standards and relevant safety regulations of electrical systems.
- Read this manual thoroughly and understand the safety instructions related to operations.

1.3 Abbreviations

Abbreviations	Complete Designation
AC	Alternating Current
DC	Direct Current
PV	Photovoltaics
LFP	LiFePO4
SOH	State Of Health
SOC	State Of Charge
EPO	Emergency Power Off
MSD	Manual Service Disconnect

RCD	Residual Current Device
SPD	Surge Protection Device

Table 1: Abbreviations

1.4 Manual Disclaimer

Please read this manual carefully before using the product and keep it properly in a place for easy access.

To provide customers with the best usage experience, the products and product manuals are always in the process of improvement and upgrade. If the manual received is slightly inconsistent with the product, it may be a result of product version upgrade, and the actual product shall prevail.

Contents of the manual may be updated and amended continuously, so it is possible that there may be some errors or slight inconsistency with the actual product. Please refer to the actual product purchased, and the latest manual can be obtained **from the sales channels**.

The figures in this manual are for reference only. The actual product received may differ.

2 Safety Notes

Read these notes carefully before using this product. Failure to do so will result in death or serious injury.

2.1 Symbol Usage

DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a moderately hazardous situation which, if not avoided, will result in death or serious injury.
CAUTION	Indicates a slightly hazardous situation which, if not avoided, may result in minor or moderate injury.
NOTICE	Indicates a potential hazard which, if not avoided, will result in device malfunction or property damage.
NOTE	Indicates additional information, emphasized contents, or tips that may be helpful, e.g., to help you solve problems or save time.

2.2 General Operational Safety Warnings

WARNING	Operators must read the content of this manual carefully. Do not operate, maintain, or check the device without understanding the content of this manual.
WARNING	Batteries pose potential hazards. Appropriate protective measures must be implemented during operation and maintenance.
CAUTION	If a battery requires replacement, it should be replaced with one from the same manufacturer.
NOTICE	When a battery reaches the end of its life, it should be promptly disposed of in accordance with local regulations.

2.3 Battery Safety Warnings

DANGER	Do not disassemble, damage, or compromise the structural integrity of the battery.
DANGER	Avoid placing the battery in a fire or exposing it to prolonged high temperatures.
DANGER	Do not submerge the battery in water or allow it to become wet.
DANGER	Prevent short-circuiting, overcharging, or over discharging the battery.

2.4 High Voltage Warning

⚠ DANGER	The equipment must be reliably grounded to prevent the risk of personal injury.
⚠ DANGER	Do not perform DC input outdoors during rain.

3 Product Description

3.1 Product Description

This document involves the following product: EPPS93-AIO.

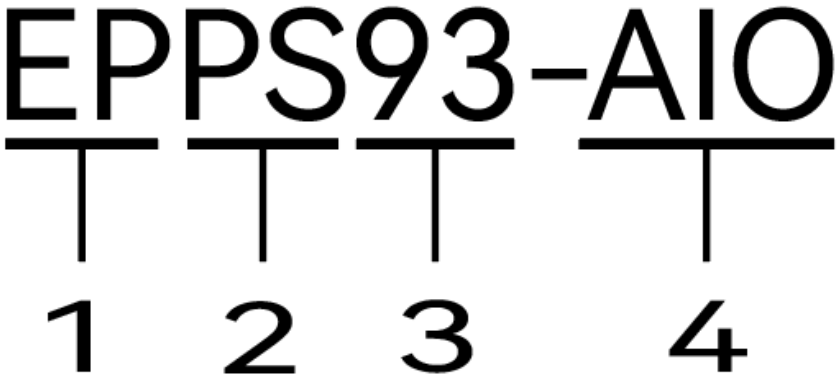


Figure 1: Product Model Number

No.	Meaning	Description
1	Brand name	EP ENERGY
2	Product family name	Power storage system family
3	Energy level	93: nominal energy of 93 kWh
4	Solution Type	All in one

Table 2: Product Model Identification

The EPPS93-AIO is an industrial-grade, mobile energy storage and charging cabinet. By integrating advanced energy storage technology, Battery Management System (BMS), Power Conversion System (PCS), and liquid cooling and heating system, it enables flexible energy storage and management. The system provides versatile charging modes, making it ideal for meeting the 24/7 power demands of industrial applications. Key advantages include:

1) All-in-one design

Highly integrated solar inverter, battery inverters, ESS, fast charge input, EV charger, liquid cooling system in a compact cabinet.

2) Quick installation and deployment

All components are pre-installed in the factory. Each cabinet can be quickly installed and deployed on site. Single cabinets can operate independently, and multiple cabinets can be combined for system expansion and centralized dispatching.

3) Flexible expansion

Fully modular design, the system can be flexibly expanded as required to satisfy multiple usage scenarios.

4) Refined management

Consistently maintain optimal working temperature range by dissipating heat during operation, and preheating battery in low temperature environment distributed temperature control, with a temperature difference of less than 3℃ within the system, can extend the battery life.

The EPPS93-AIO can meet energy demands in various scenarios. The typical application diagram of EPPS93-AIO is shown below.

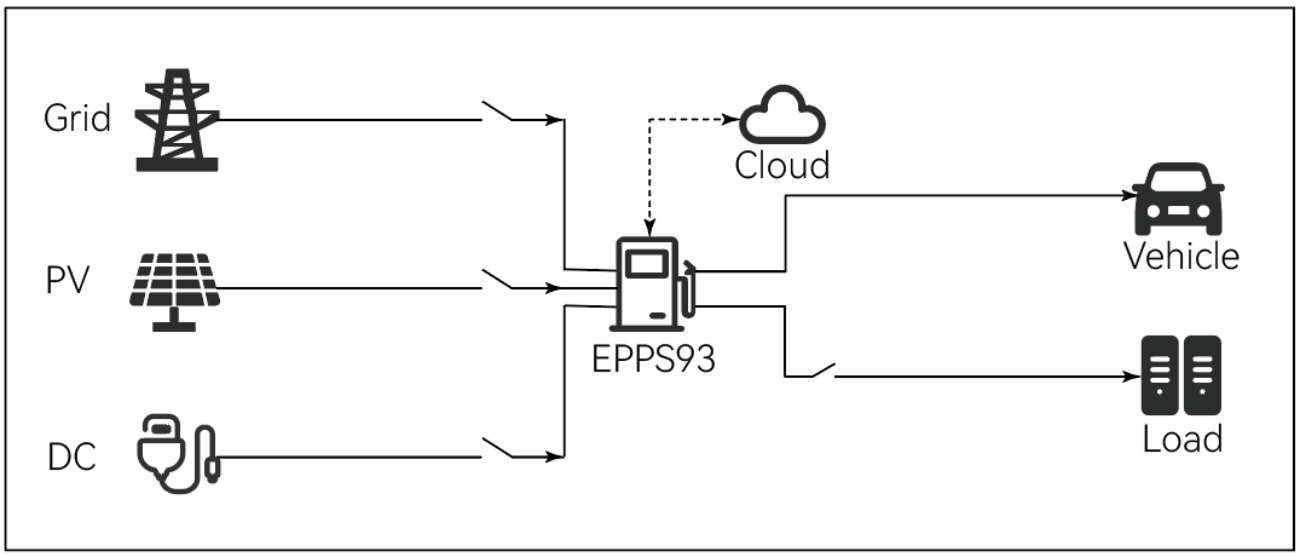


Figure 2: Application diagram

1) Energy Transfer

Charges the battery module during off-peak hours and supplies power to electric vehicles during peak hours, effectively reducing charging costs.

2) Dynamic Capacity Expansion

It can charge and store energy at lower power levels in areas with limited power supply, while providing high-power charging for electric vehicles, effectively reducing the strain on the grid's charging capacity.

3) Extend Battery Runtime

Provides mobile and backup power, helping to extend the runtime of devices when operating in areas without charging facilities or during outdoor use.

3.2 Technical Data

AC Input Parameters	
Rated Voltage	400 Vac, 3W+N+PE
Voltage Range	260 Vac~485 Vac
Nominal Grid Frequency	50/60 Hz
Rated Power	36 kW Adjustable
Max. Current	60 A
Input Socket	CEE Socket 63A
DC Input Parameters	
Nominal Voltage	332.8 V
Voltage Range	260 Vdc~ 379.6 Vdc
Max. Current	168 A

Max. Power	60 kW	
DC Input Socket	GB/T Socket	CCS2 Socket
PV Input Parameters		
Max. Power	54 kW	
MPPT Voltage Range	200 Vdc~ 850 Vdc	
Max. PV Input Current	168 A	
MPPT Trackers/ Strings	4/ 8	
PV Input Socket	8 x MC4	
DC Output Parameters		
Product Model	EPPS93-GB/T	EPPS93-CCS2
Max. Output Power	60 kW	60 kW
Output Voltage Range	200 Vdc~ 1000 Vdc	200 Vdc~ 1000 Vdc
Max. Current	200 A	200 A
Output Plug	GB/T Plug	CCS2 Plug
AC Output Parameters		
Product Model	EPPS93-GB/T	EPPS93-CCS2
Rated Voltage	230/400 Vac, 3W+N+PE, 50/60Hz	230/400 Vac, 3W+N+PE, 50/60Hz
Max. Output Power	30 kVA	30 kVA
Max. Output Current	43 A	43 A
Output Socket	CEE Socket 63A*1, Type I*2	CEE Socket 63A*1, Type E*2
General Parameters		
Nominal Energy	93 kWh	
Usable Energy	84 kWh	
Cell Type	LFP	
Altitude	<2,000 m, Derating Above 2,000 m	
Operating Relative Humidity	5~95%RH，No Condensation	
Operating Temperature Range	-20 ℃~ 50 ℃	
Thermal Management Mode	Liquid Cooling & Heating	
Rated Cooling Input Power	3 kW	
Ingress Protection	IPX4	
Dimension(W*D*H)	1,600 mm*1,100 mm*1,580 mm	
Weight	1,500 kg	

Table 3: Technical Data

3.3 Appearance and Dimensions

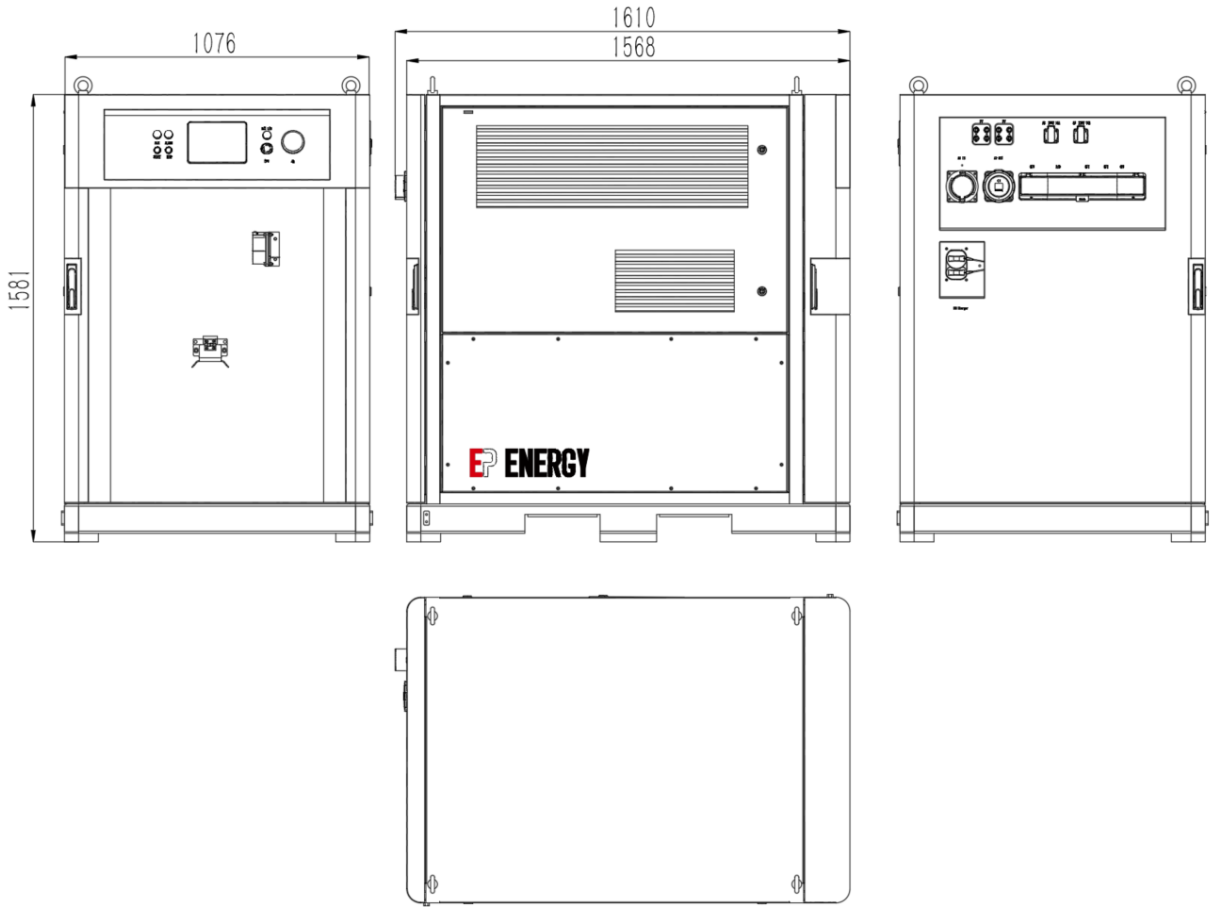


Figure 3: Appearance and dimensions

3.4 Components

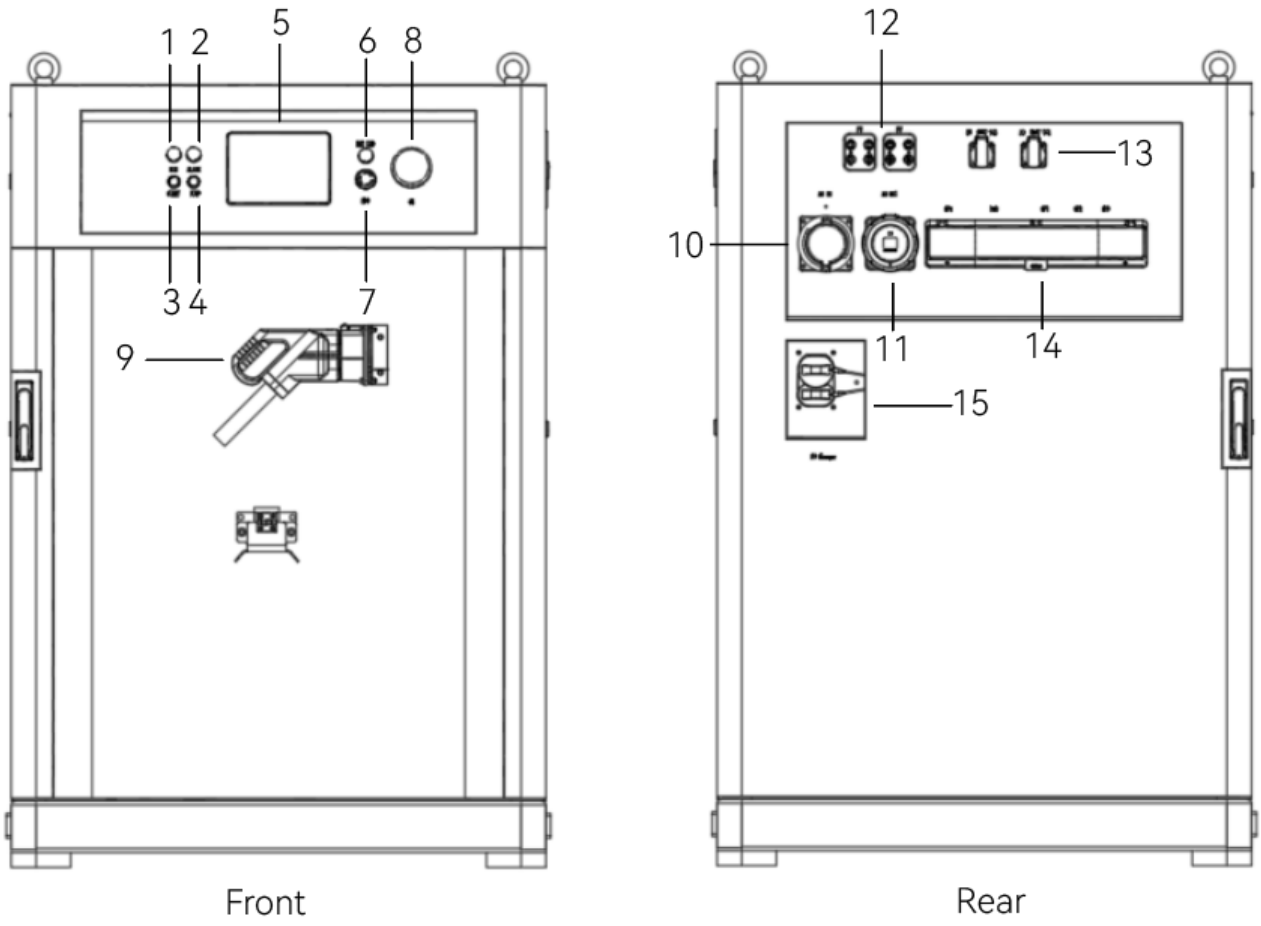


Figure 4: Components

No.	Item	Description
1	RUN LED	Monitor the status of the DC charger
2	Alarm LED	Monitor the fault of the DC charger
3	Start Button	Start vehicle charging
4	Stop Button	Stop vehicle charging
5	Touchscreen	Provides a visual interface for equipment management
6	BAT LED	Monitor the status of the equipment
7	EPO	Emergency power off
8	4G	4G

No.	Item	Description
9	Charging plug	DC charging plug
10	AC in	AC input CEE socket (male)
11	AC out (CEE)	AC output CEE socket (female)
12	PV in	PV input socket * 2
13	AC out (Type E/I)	AC output type E/I socket * 2
14	Switch box	QF1, QF2, QF3, RCD, SPD
15	DC in	DC input socket

Table 4: Components List

4 Delivery

4.1 Delivery Scope

No.	Item	Quantity
1	EPPS93-AIO	1
2	MSD plug	2
3	CEE 63A connector (Female)	1
4	CEE 63A connector (Male)	1
5	CEE 16A connector (Male)	2
6	MC4 connector (Female)	8
7	MC4 connector (Male)	8
8	PCS monitor module	1
9	User Manual	1

Table 5: Delivery Scope

4.2 Parameters Identifications

Users can identify the EPPS93-AIO through the nameplate. The information contained in the nameplate includes equipment model, serial number, main technical parameters, manufacturer information etc.

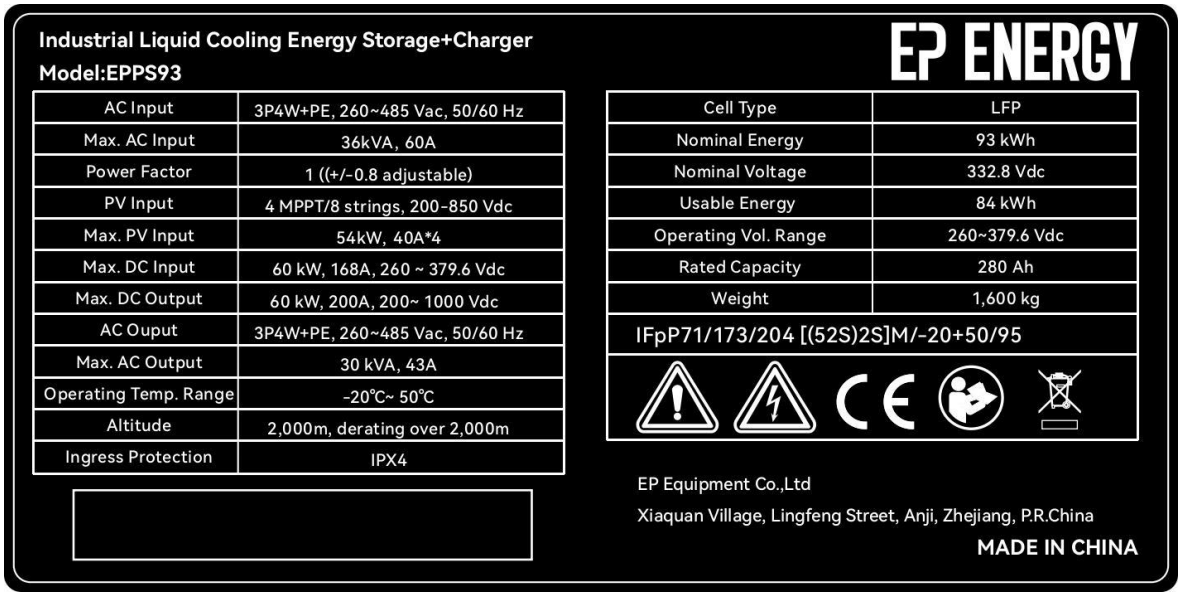


Figure 5: EPPS93-AIO nameplate

⚠ WARNING	The nameplate contains important parameter information, which should be protected during transportation, installation, maintenance, overhaul, and other operations. It is strictly prohibited to destroy or dismantle the nameplate!

4.3 Integrity check

The equipment is usually packed in a wooden case, which contains the main equipment, certificate, user manual, shipping list and necessary accessories. After receiving the equipment, the first step is to check the integrity and completeness of the transportation. At least the following items should be carefully checked:

- Confirm that the cabinet and internal equipment model is consistent with the model you previously ordered.
- Check if all shipped components are complete according to the "delivery scope".
- Carefully inspect the cabinet and internal equipment to see if there is any damage during transportation.

The cabinet has been carefully inspected by our company's staff and securely packaged before leaving the factory. However, there is still a possibility of equipment collision or even damage during transportation.

During the inspection process, if any problems or doubts are found, please contact the carrier or our company in a timely manner.

NOTICE	If no issues are raised within five working days of equipment delivery, it will be considered that there were no problems during transportation and that all internal components are intact.

⚠ WARNING	Only complete and undamaged cabinets can be installed and tested for operation! Before starting the installation, please ensure that: 1) The cabinet itself is intact and undamaged. 2) All components inside the cabinet are intact and undamaged.

4.4 Forklift Transportation

The following conditions must be met when using a forklift truck:

- The forklift must have adequate carrying capacity (at least 2 tons is recommended).
- Remove the baffle plate at the bottom of the equipment before operating the forklift.
- Fully insert the forklift's forks under the cabinet; the fork length should be at least 900 mm.
- To ensure safety during operation, secure the equipment with a safety belt and attach it to the forklift's beam.

4.5 Storage

If the equipment is not immediately installed on-site after completing the delivery and acceptance process, it should be stored in a dry warehouse with its original packaging intact. The equipment must be protected from direct sunlight and rain.

The warehouse must be free from harmful gases, flammable or explosive materials, and corrosive chemicals.

The equipment should be kept away from mechanical shocks, excessive pressure, and strong magnetic fields. Direct sunlight exposure should be avoided.

NOTICE	It is recommended to discharge and recharge the battery every 2 months to ensure that the battery's State of Charge (SOC) remains between 25% and 40%. Additionally, a capacity verification test and re-inspection should be performed every 12 months.

NOTICE	Before using an equipment that has been stored for a long period, it is recommended to perform at least one full charge to ensure the battery reaches its optimal performance.

5 Installation

This product has completed most of the internal installations, wiring, and coolant filling before leaving the factory. Do not attempt to disassemble this equipment.

In the event of any abnormalities, such as a fault detected during the self-check after power-on, please refer to *Appendix 1: Fault Code List* for troubleshooting. If the fault cannot be resolved, please contact us for further assistance.

5.1 Installation Instructions

⚠ WARNING	This product is a high-voltage energy storage device and is classified as hazardous. Improper handling or use by unqualified personnel may result in serious consequences, including electric shock, fire, or explosion. Maintenance of the device must be carried out by qualified technical personnel. During operation, all relevant safety regulations must be strictly followed.

Before installation, please carefully read and strictly follow the rules below:

- During installation, handle with care to avoid impact or dropping.
- The equipment must be placed on a level surface to ensure stable placement, with no wobbling or tilting.
- Do not install the equipment if it is defective, cracked, or damaged.
- Do not attempt to open, disassemble, repair, tamper with, or modify the equipment during installation.
- Do not install the equipment near heat sources.
- Do not submerge the equipment in water or any other liquids.
- Do not block the air intake or exhaust openings during installation.

5.2 Device Grounding

1) Preparing Cables

Name	Type	Conductor Cross-Sectional Area	Terminal
Ground cable	Single-core outdoor copper/ copper-clad aluminum/aluminum alloy cable	25–50 mm^2，35 mm^2 is optimal	M8 OT/DT terminal

Table 6: Ground Cable Parameter

2) Procedure

i. Cut the rubber into a cross shape with a utility knife.

ii. Routed the five core cables consisted of 3 phase line, neutral cable, ground cable through power cable hole (hole A).

iii. Crimp the ground cable with an M8 terminal.

iv. Use an insulated torque to fasten the screw through the M8 terminal to the ground bar, then

make a mark on the screw.

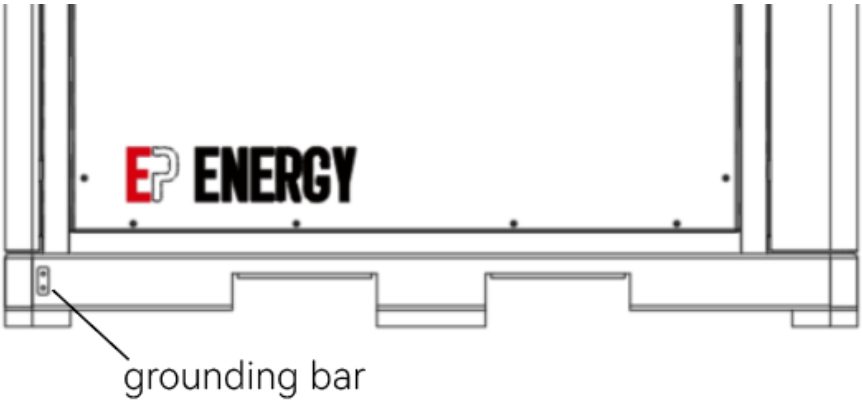


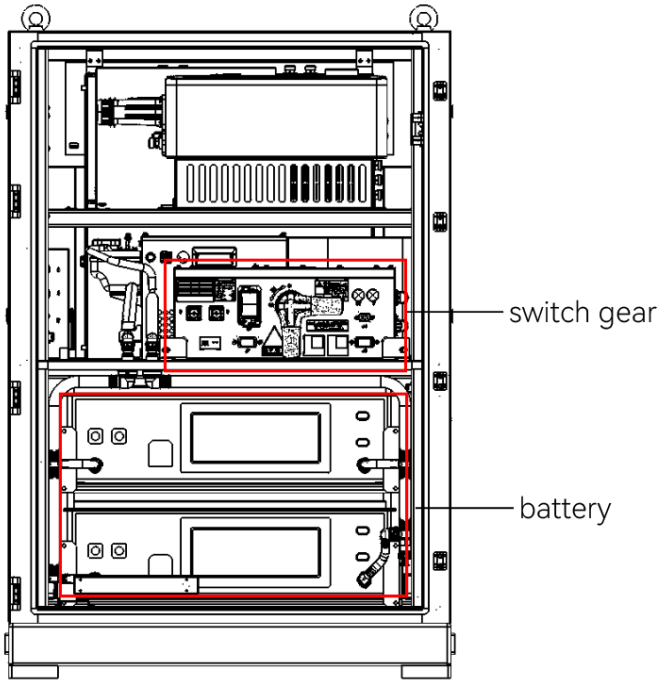
Figure 6: Grounding bar

⚠ WARNING	The ground resistance must not exceed 4Ω.

⚠ WARNING	When relocating the equipment, the ground wire must be removed first.

5.3 Preparation Before Initial Power-On

Here are the actions that must be completed before the initial power-on.

Step	Item	Illustrative Image
1	Open the rear door to locate the battery pack and the switch gear.	

2	Locate the two MSD plugs in the delivery materials and insert them into the corresponding MSD sockets on the battery.	
3	Turn on the circuit breaker (QF) and the disconnecting switch (QS) of the switch gear.	
4	Turn on QF2 to activate the surge protection device (SPD).	

Table 7: Actions before initial power-on

5.4 Connector Installation

The CEE connector installation is optional. If AC input or output is required during operation, you can use the CEE connector provided in the delivered accessories. Before using the CEE connector, it must be properly connected to a three-phase cable. Below are the instructions for connecting the CEE connector to a three-phase cable.

1) Preparing Cable

Name	Type	Conductor Cross-Sectional Area	Wire Insulation	Stripped Wire
Three-phase cable	3L+PE / 3W+N+PE	16 mm^2 / 6AWG	80 mm	18 mm

Table 8: Three-phase Cable Parameter

2) Procedure

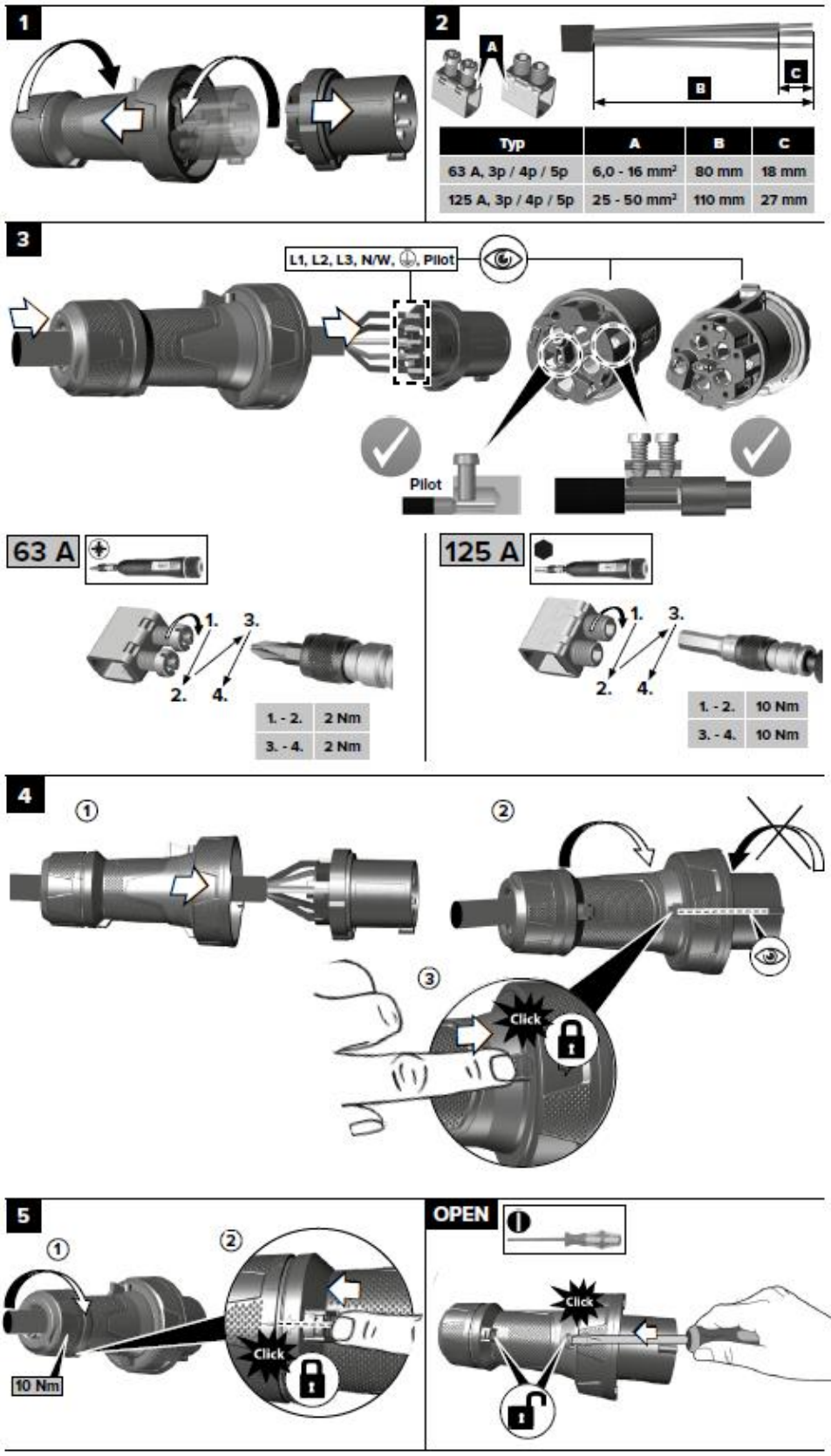


Figure 7: Connect the CEE connector to a three-phase cable

5.5 PV Installation

The PV installation is optional. If PV input is required during operation, you can use the MC4 connector provided in the delivered accessories. Before using the MC4 connector, it must be properly connected to a PV cable. Below are the instructions for connecting the MC4 connector to a PV cable.

1) Preparing Cable

Name	Type	Conductor Cross-Sectional Area	Stripped Wire
PV cable	Single-mode Fiber (SMF) / Multi-mode Fiber (MMF)	4 mm^2	12-15 mm

Table 9: PV Cable Parameter

2) Procedure

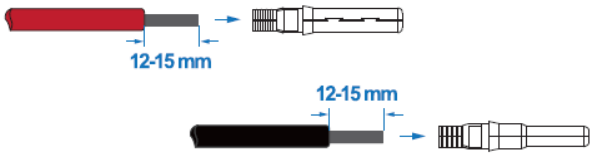
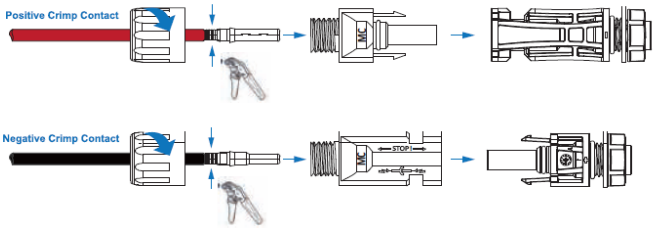
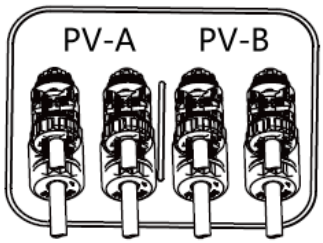
Step	Item	Illustrative Image
1	Prepare PV cable.	
2	Use PV connector crimper to pinch the point of the arrow; You'll hear click sound when the connector assembly is correct.	
3	Locate the PV input socket on the rear door and remove the protective cover; Use MC4 connector to connect the PV socket on the rear door.	

Table 10: PV Installation

⚠ WARNING	The fatal high voltage may be on the DC side, please comply with electric safety when connecting. Please make sure the correct polarity of the cable connected, otherwise equipment could be damaged.

NOTE	If the PV input sockets on the rear door are insufficient, open the side panel to access additional PV input sockets.

6 Operation

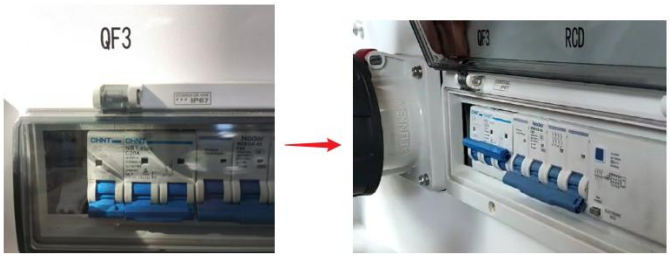
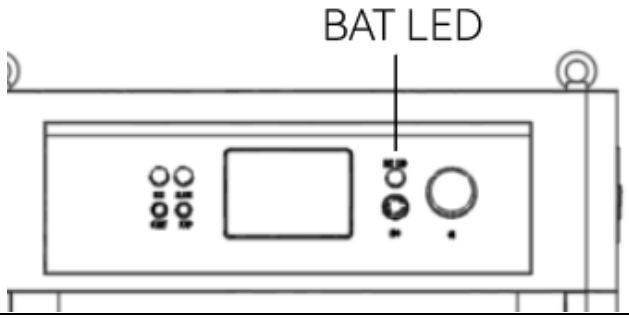
6.1 Check Before Power-on

- Check the exterior of the equipment for any visible damage.
- Check whether the electrical components inside the front door and maintenance door are in the disconnected or closed position. If they are open, they should be closed.

6.2 Power-on Process

⚠ DANGER	Wear insulated gloves and use insulated tools to prevent electric shocks or short circuits.

The Power-on Process ensures system safety, stability, and readiness by performing self-checks, initialization, and establishing communication and power supply for normal operation.

Step	Item	Illustrative Image
1	Close the rear door. Turn on QF3 located on the rear door to power on the system.	
2	Check the touchscreen on the front door to see if there are any fault codes.	
3	The BAT LED on front door can also be used to monitor the equipment status. For more information, refer to *6.6: Indicator LED*.	

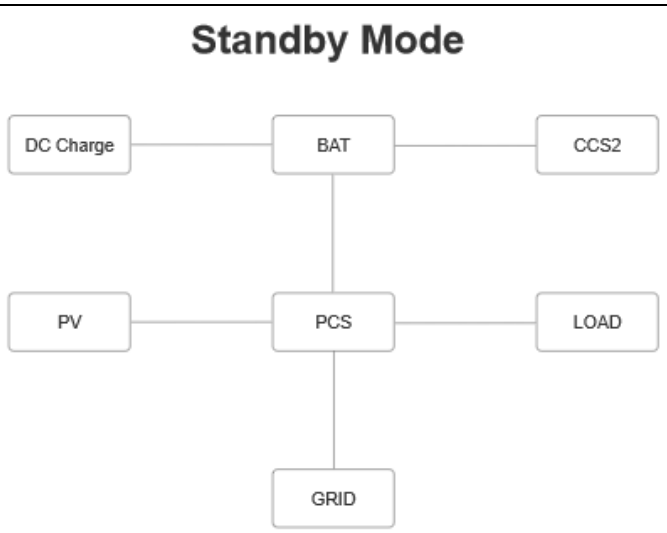
4	After the power-on process is completed, the system enters standby mode, waiting for the next operation.	

Table 11: Power-on Process

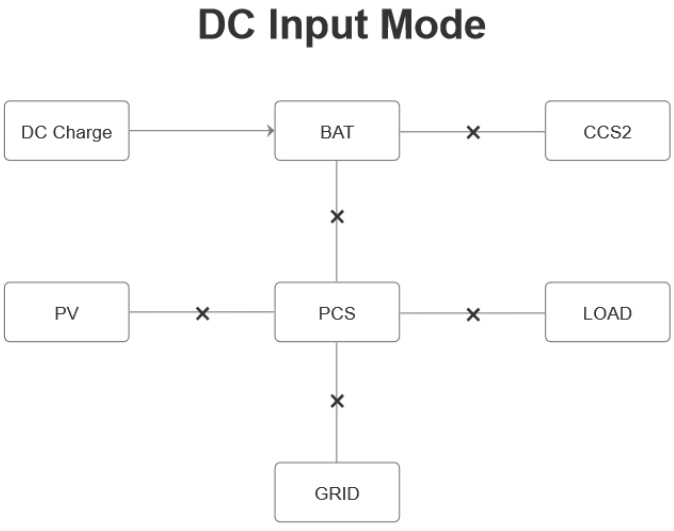
⚠ WARNING	Before performing any charging or discharging operations, please ensure the device is free from faults after powering on. If any faults are detected, please resolve them first.

6.3 Input Process

Input process refers to the process of transferring electrical energy from an external power source to the cabinet's internal battery system for storage.

Power can be provided through three methods to initiate input mode: PV input, AC input, and DC input.

For the input process, the following modes are optional.

No.	Item	Mode
1	When using DC power to charge the battery, all other input and output are inactive, and only the DC input operates.	

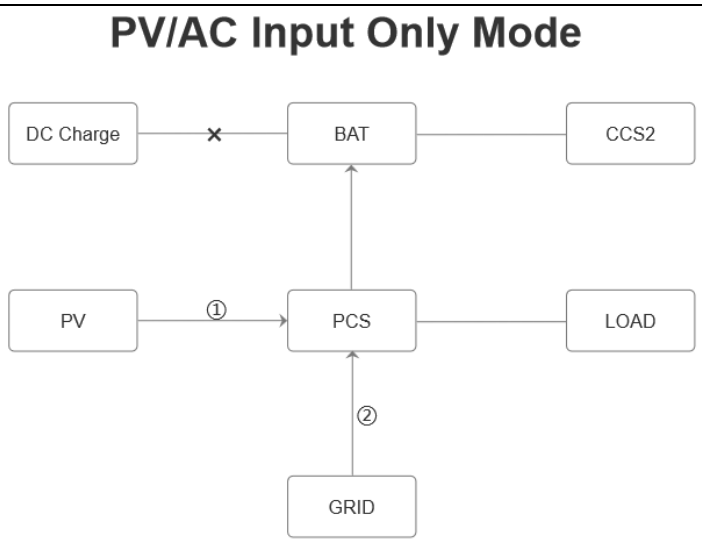
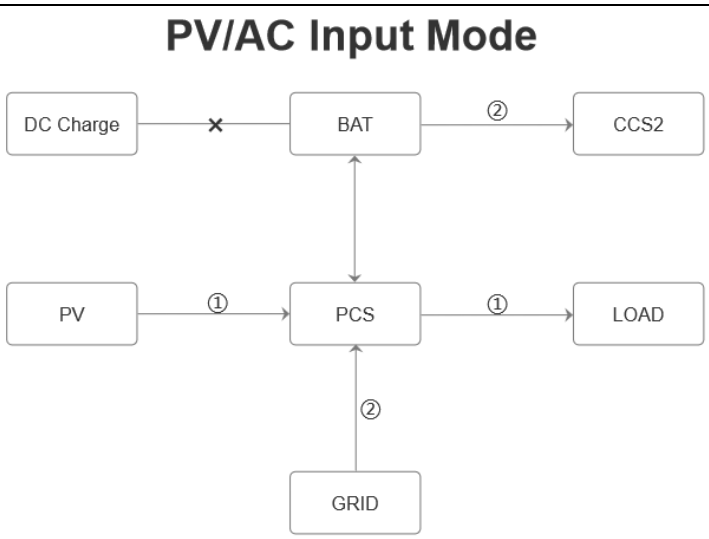
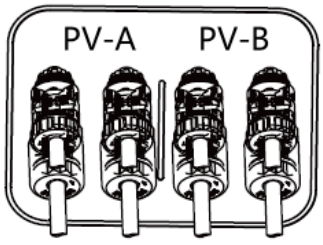
2	When DC input is not in use, PV or AC input can be used individually or simultaneously. When used simultaneously, the priority is PV > AC.	
3	Whether PV and AC input are used simultaneously or individually, AC output and DC output (either simultaneously or individually) can be provided during input. If AC output and DC output are performed simultaneously, the priority is AC output > DC output.	

Table 12: Input modes

6.3.1 PV input

Step	Item	Illustrative Image
1	Refer to *5.5 PV Installation*, complete the connection of the MC4 connector and socket.	
2	Turn on QF3.	N/A

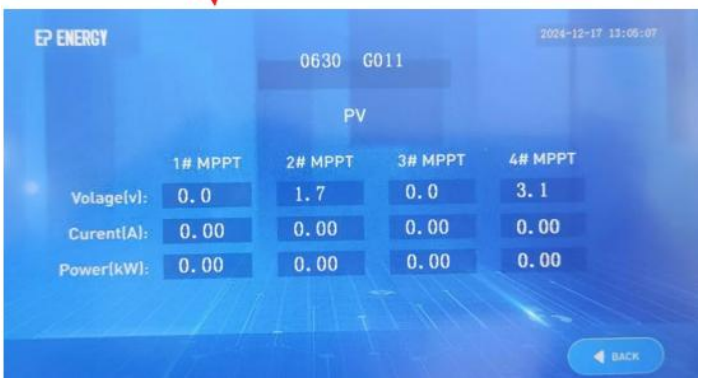
3	To view parameters such as voltage, current, and power of the PV input, press the "PV" button on the touchscreen.	 
4	If the PV input does not work, check whether the system has entered suspension mode due to the battery's deep discharge protection. For more information, refer to *6.3.4: Battery*.	

Table 13: PV input

6.3.2 AC input

- Recommended Parameters for Distribution Board

Cable	Voltage	Current	Frequency
Three-phase, 3W+N+PE	400 Vac	63A	50/60 Hz

Table 14: Distribution board parameters

Step	Item	Illustrative Image

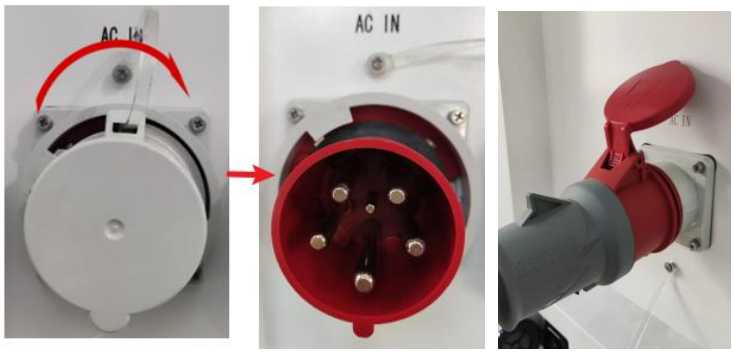
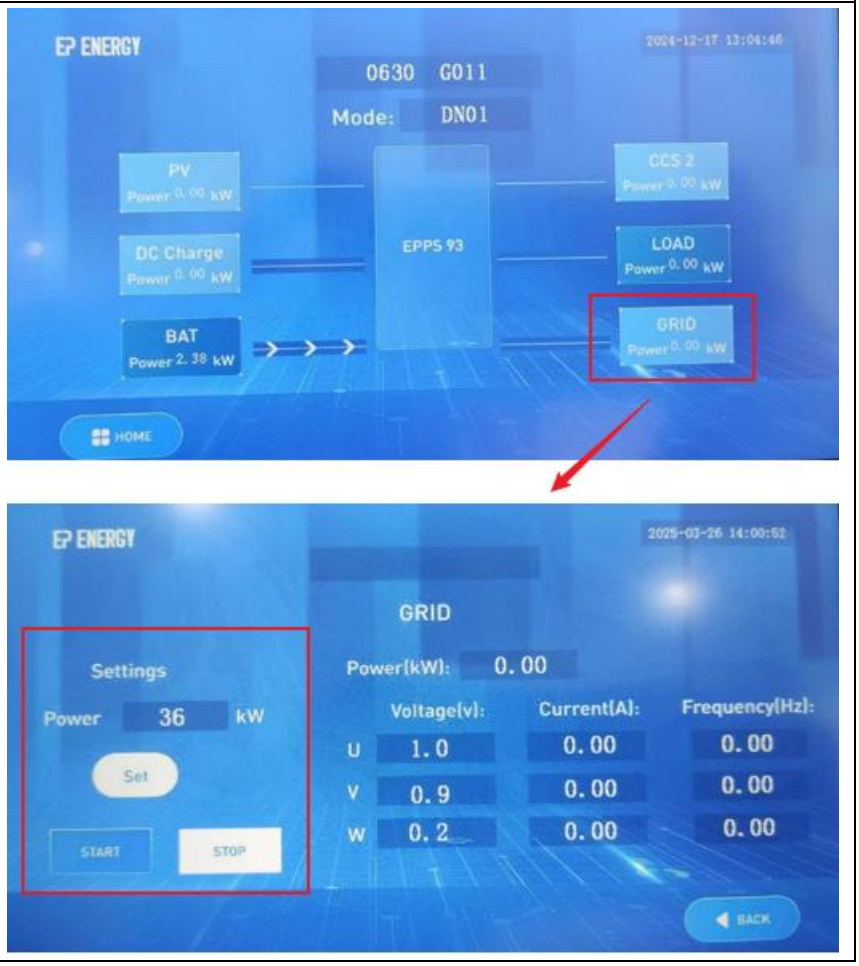
1	Open the protective cover of the AC input socket by rotating the rear dial, not the front cover; Connect the plug and socket.	
2	Turn on QF1 located on the rear door to enable the AC power input.	
3	Press the "GRID" button on the touchscreen, control the battery charging through the "START" and "STOP" buttons within the pop-up window. Before starting, you can configure the input power (default: 36 kW). After entering the power value, press “Set” button to save. Additionally, you can view parameters such as voltage, current, and power of the AC input.	

Table 15: AC input

DANGER	Do not operate under live conditions. Before unplugging the CEE plug, make sure to press the "STOP" button in the "GRID" interface.

6.3.3 DC input

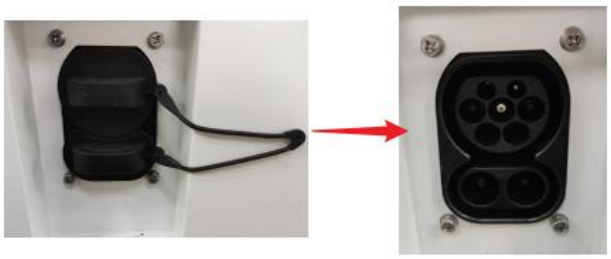
Step	Item	Illustrative Image
1	Locate the DC input socket on the rear door and remove the protective cover.	
2	Connect the plug and socket, and start power supply operation at the power source.	
3	To view parameters such as voltage, current, and power of the DC input, press the "DC Charge" button on the touchscreen.	 

Table 16: DC input

NOTE	If the DC input does not work and the fault code is '0000 E078,' it is most likely that the plug is not securely connected to the socket. Please use your hand to assist in holding the plug and try charging again.

6.3.4 Battery

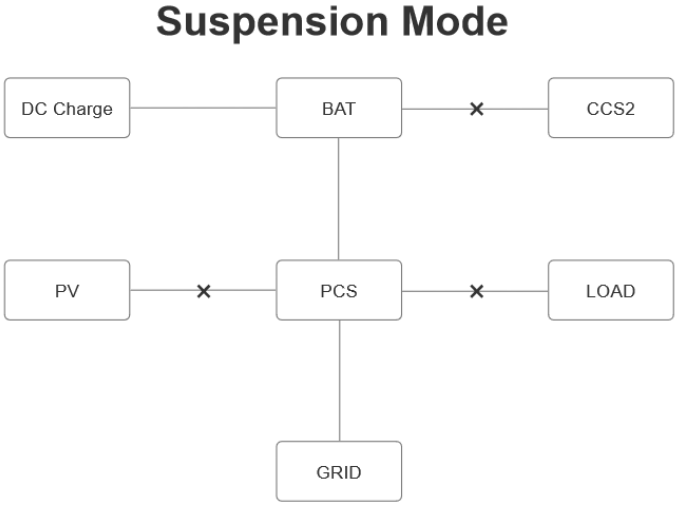
Once the input operations are started, the system will initiate battery charging mode.

You can monitor real-time data on the touchscreen, including input current, input voltage, input power, battery SOC, total voltage, cell voltage, charging current and so on.

To view parameters such as SOC, voltage, current, charge power and so on of the battery, press the "BAT" button on the touchscreen.

Figure 8: BAT Interface

When there is a lack of power input and the battery SOC continues to decrease, the system may enter one of the following abnormal modes.

No.	Item	Mode
1	When the battery SOC drops below 10%, AC output, DC output and PV input will be suspended.	

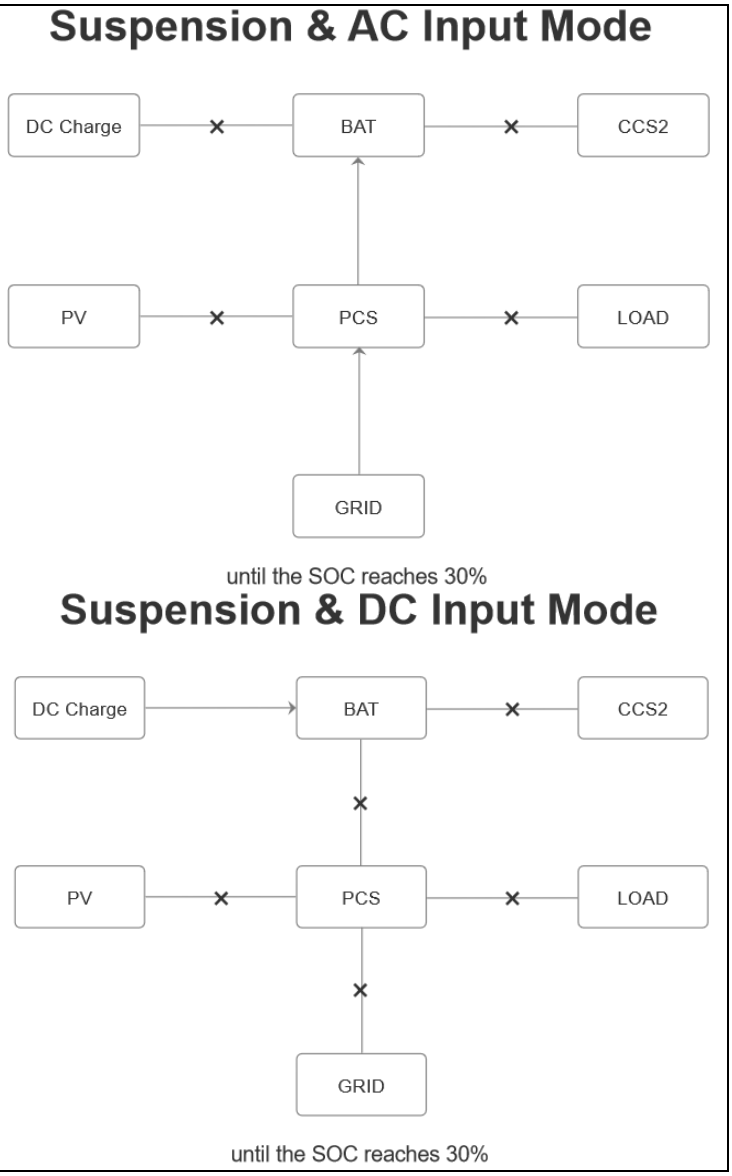
2	Once the battery SOC drops below 10%, Suspension Mode is triggered. The battery can be recharged via DC input or AC input individually, while others remain suspended until the SOC reaches 30%.	

Table 17: Abnormal modes

6.4 Output Process

Output process refers to the process of delivering stored electrical energy to vehicles and other external loads to meet their power demands.

When performing an output operation, the equipment supports three output modes: AC output (CEE), AC output (Type E/I), and DC output.

For the output process, the following modes are optional.

No.	Item	Mode

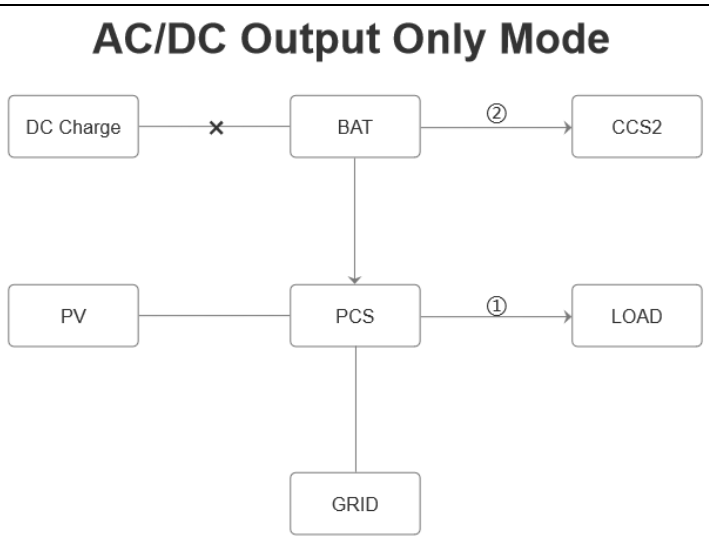
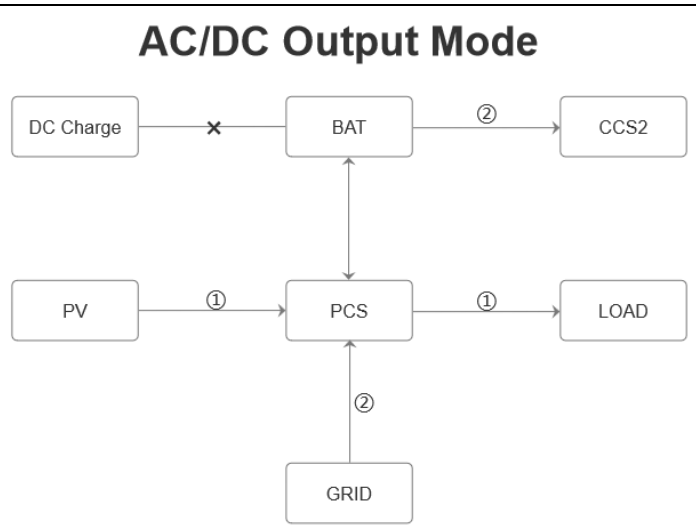
1	AC or DC output can operate individually or simultaneously. When used simultaneously, the priority is AC > DC.	
2	Whether AC and DC output are used simultaneously or individually, PV and AC input (either simultaneously or individually) can be provided during output.	

Table 18: Output modes

When AC output and DC output are operating Simultaneously, the power distribution is as follows.

Note:

AC P: The AC output power.

DC P: The DC output power.

Total P: The system's maximum output power.

No.	AC output power	DC output power
1	AC P < 3kW	DC P = Total P − 3kW
2	3kW ≤ AC P < 10kW	DC P = Total P − 10kW
3	10kW ≤ AC P < 20kW	DC P = Total P − 20kW
4	20kW ≤ AC P < 30kW	DC P = Total P − 30kW

5	30kW ≤ AC P < 40kW	DC P = Total P − 40kW

Table 19: Power distribution

6.4.1 AC output

- AC output (CEE)

Step	Item	Illustrative Image
1	Locate the AC CEE socket on the rear door and remove the protective cover; Connect the plug and socket.	 
2	Insert the connector of cable into the device charging port.	N/A
3	Turn on RCD located on the rear door.	
4	Once the device's battery reaches 100%, the load charging process will automatically cease. Load charging will also stop if the plug is disconnected or if the RCD is switched off.	N/A

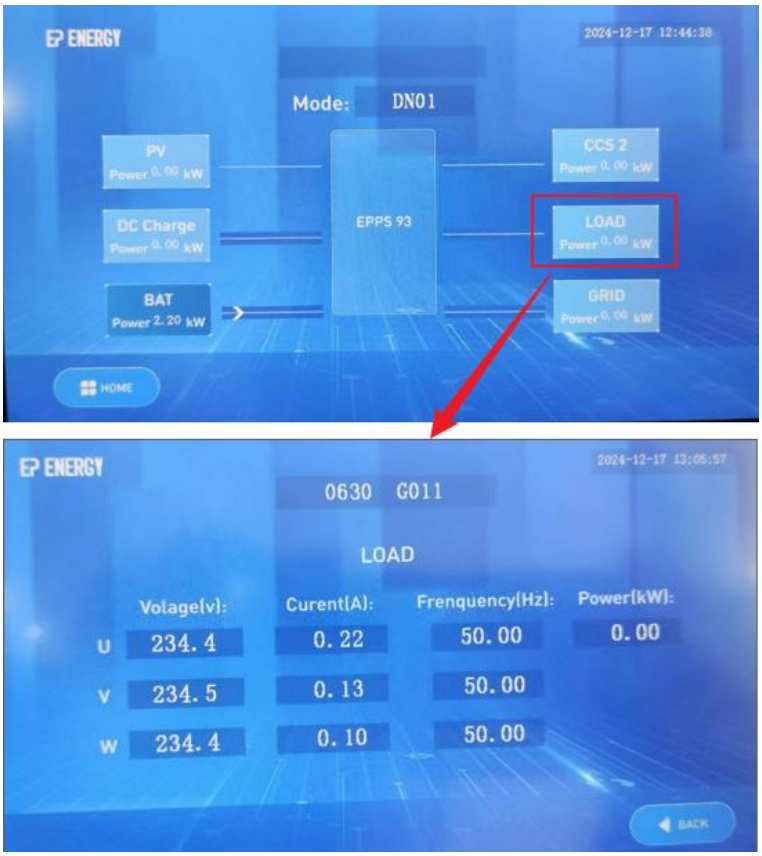
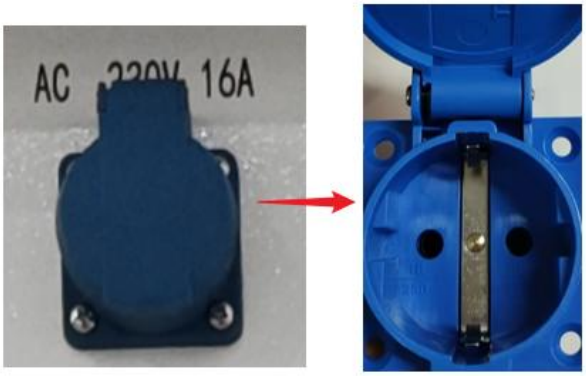
5	To view parameters such as voltage, current, and power of the AC output, press the "LOAD" button on the touchscreen.	

Table 20: AC output (CEE)

- AC output (Type E)

Step	Item	Illustrative Image
1	Locate the AC Type E socket on the rear door and remove the protective cover.	
2	Connect the device by inserting its Type E plug into the socket.	

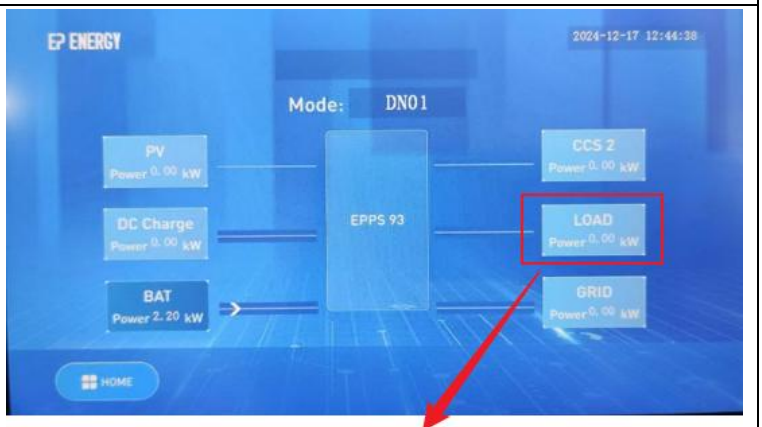
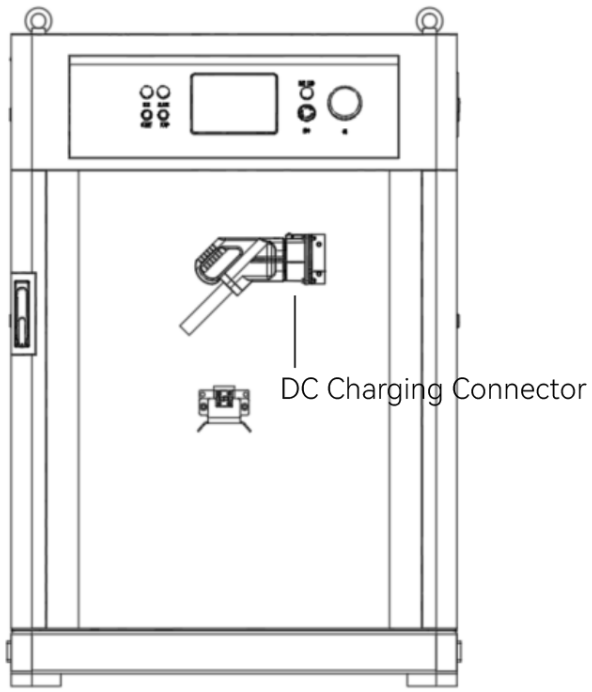
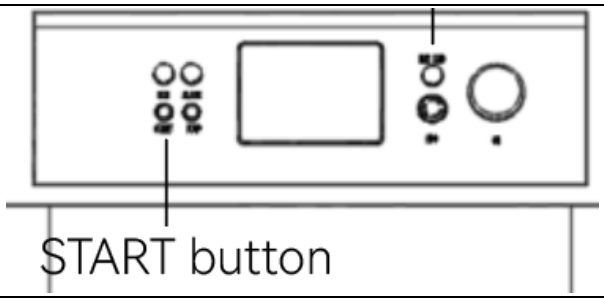
3	Turn on RCD located on the rear door to enable the AC power output.	
4	Once the device's battery reaches 100%, the load charging process will automatically cease. Load charging will also stop if the plug is disconnected or if the RCD is switched off.	N/A
5	To view parameters such as voltage, current, and power of the AC output, press the "LOAD" button on the touchscreen.	 

Table 21: AC output (Type E)

6.4.2 DC output

Step	Item	Illustrative Image

1	Locate the DC charging connector on the front door and securely insert it into the vehicle's charging port.	
2	Press the “START” button on the front door to begin vehicle charging.	
3	To view parameters such as duration, vehicle SOC, discharged energy, and power during vehicle charging, press the "CCS 2" button on the touchscreen.	 

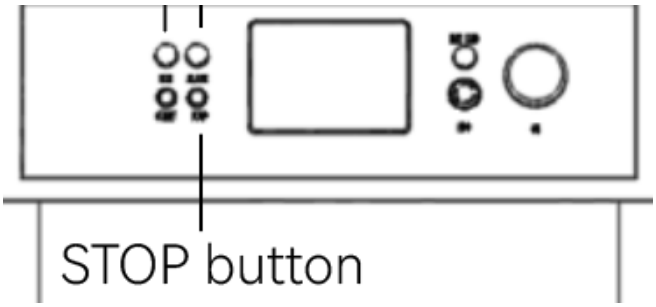
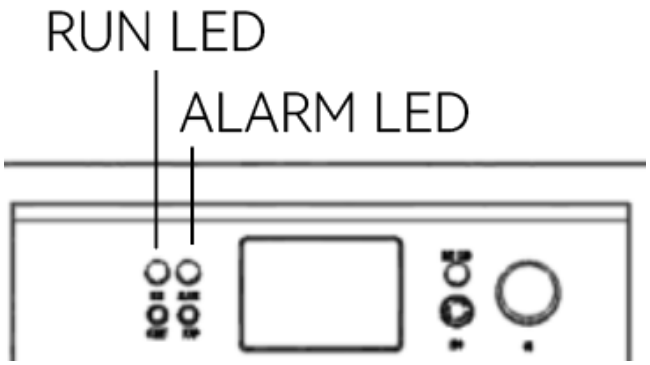
4	The system will automatically stop vehicle charging when the vehicle SOC reaches 100%. If the "STOP" button is pressed midway, the system will also stop charging.	
5	Additionally, you can control the vehicle charging through the "START" and "STOP" buttons within the "CCS 2" menu on the touchscreen.	
6	The RUN LED and ALARM LED on front door can also be used to monitor the DC output status. For more information, refer to *6.6: Indicator LED*.	
7	Disconnect the connector after the DC output is complete.	

Table 22: DC output

6.5 Power-off Process

To power down the device, please follow the steps below:

Step	Item	Illustrative Image
1	Check and disconnect all devices or vehicles once charging is complete.	N/A
2	Turn off QF1, QF2, and the RCD.	
3	Turn off QF3 to power down the entire system.	

Table 23: Power-Off Process

⚠ WARNING	In case of an emergency, press the Emergency Power Off (EPO) button on the front door to quickly disconnect the equipment power.	

NOTICE	After the EPO button has cut off the power to the equipment, rotate the EPO button clockwise to reset it.

6.6 Indicator LED

There are three indicator LEDs on the front door: RUN LED, Alarm LED, and BAT LED. These LEDs are used to indicate the status of the charger and the system. By observing the LED light patterns, you can monitor the operational status of the equipment.

Item	Light pattern	Description
RUN LED	Green light blinks every 1 second	Vehicle charging is in progress.
	Steady green light	Vehicle charging is idle.
	Off	The DC charger is powered off.
Alarm LED	Steady red light	A fault with the DC charger.
	Off	No faults / Fault has been cleared.
BAT LED	Steady **green** light	Power supply is functional.
	Green light blinks every 3 seconds	Battery charging is in progress.
	Green light blinks every 1 second	Battery discharging is in progress.
	Red light blinks every 1 second	A level 2 fault has occurred in the equipment.
	Steady **red** light	A level 3 fault has occurred in the equipment.
	Off	Power supply is **not** functional

Table 24: LED Patterns

6.7 Fault Code

At the top of the touchscreen homepage, you can view one real-time fault code. Tap on the fault code to access the list of all real-time fault codes.

Figure 9: Fault code Interface

Each fault code represents a type of alarm information. Below are common fault codes with detailed fault names and their corresponding troubleshooting methods.

Fault code	Fault name	Troubleshooting method
0600 F001	Smoke alarm	Check whether smoke exists in the device and whether the device is smoky or damaged.
0601 F002	Waterlogging alarm	Check whether water accumulates on the water sensor rope.
0602 F003	Emergency stop alarm	Reset the emergency stop button.
0603 F004	Surge alarm	Check whether the SPD is damaged and other devices are functional.

0604 F005	Tipping alarm	Check whether the equipment is placed on an inclined plane, whether the equipment has been tipped, if it is tipped, it cannot be turned on, and the equipment should be disassembled to check the damage: 1.Check the battery pack for damage and leakage. 2.Check whether the cable is disconnected. 3.Check whether the liquid cooling pipe is damaged and loose. 4.Check the other components for damage. 5.All matters are confirmed, power-on equipment to check whether there is an alarm.

Table 25: Fault List

For more fault codes and their corresponding solutions, please refer to *Appendix 1: Fault Code List*.

6.8 Time Settings

Press the "HOME" button on the touchscreen, select "Time & Date" from the pop-up window to access the time configuration interface.

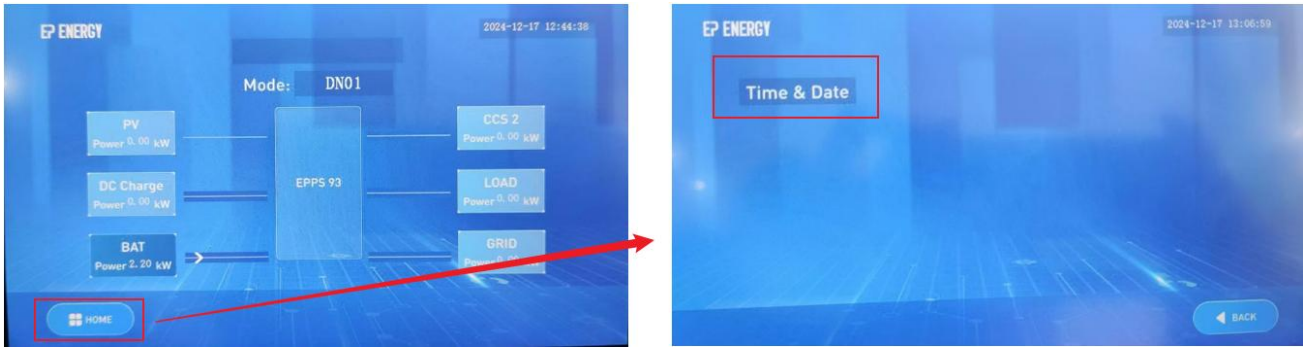


Figure 10: HOME Interface

In the time configuration interface, you can tap on Year, Month, Date, Hours, Minutes, or Seconds. Choose the desired number from the pop-up numeric keypad and press “OK.” Once all elements are set, press the “SET” button at the bottom to update the time.

Figure 11: Time & Date Interface

NOTE	When setting the year, only the last two digits need to be entered. For example, for the year 2024, simply input “24”.

6.9 Auto Recharging Settings

Press the "HOME" button on the touchscreen, select "Auto Rechg." from the pop-up window to access the Auto Recharging configuration interface.

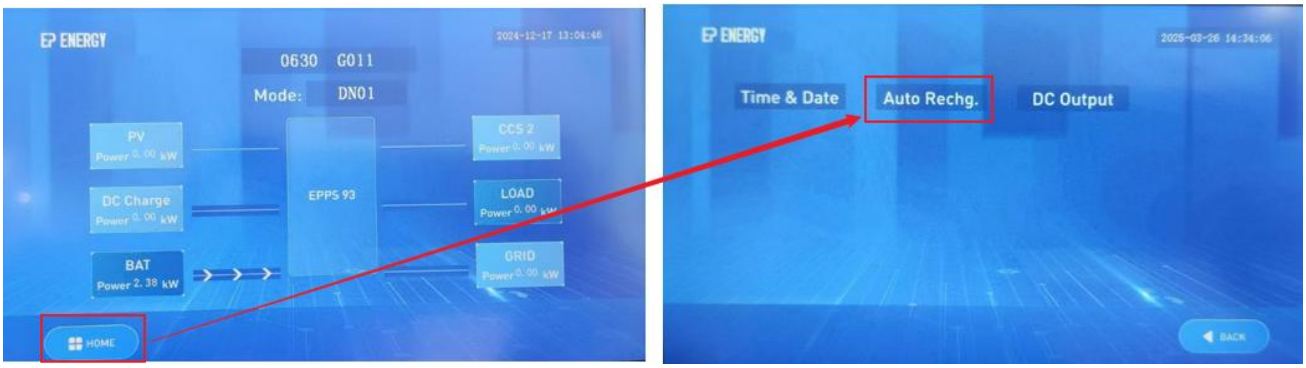


Figure 12: HOME Interface

In the Auto Recharging configuration screen, you’ll find an Auto AC Recharging toggle (default: Off). Enable this toggle if you’d like the EPPS93 to automatically recharge its battery whenever grid power is available and your preset conditions are met—no manual intervention required.

Once Auto AC Recharging is turned on, you can configure three parameters:

- Start charging when below (SOC %): Automatically begins AC charging when the battery’s SOC falls below the specified percentage and grid power is connected.
- Stop charging when reaching (SOC %): Automatically stops AC charging once the battery’s SOC reaches the specified percentage.
- Input Power (kW): Sets the rated charging power for the AC recharge.

After configuring your parameters, press the “SAVE” button to apply and store your settings.

Figure 13: Auto Recharging Interface

6.10 DC Output Configuration

Press the "HOME" button on the touchscreen, select "DC Output" from the pop-up window to access the DC output configuration interface.

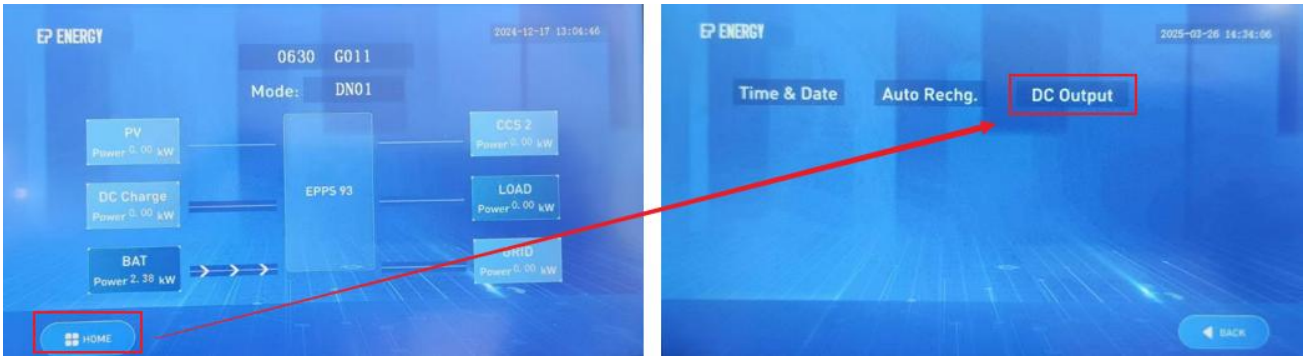


Figure 14: HOME Interface

In the DC Output configuration screen, you'll find an Auto DC Charging toggle (default: Off). Enable this toggle if you want charging to start automatically when the DC connector is plugged into the vehicle — no manual intervention required.

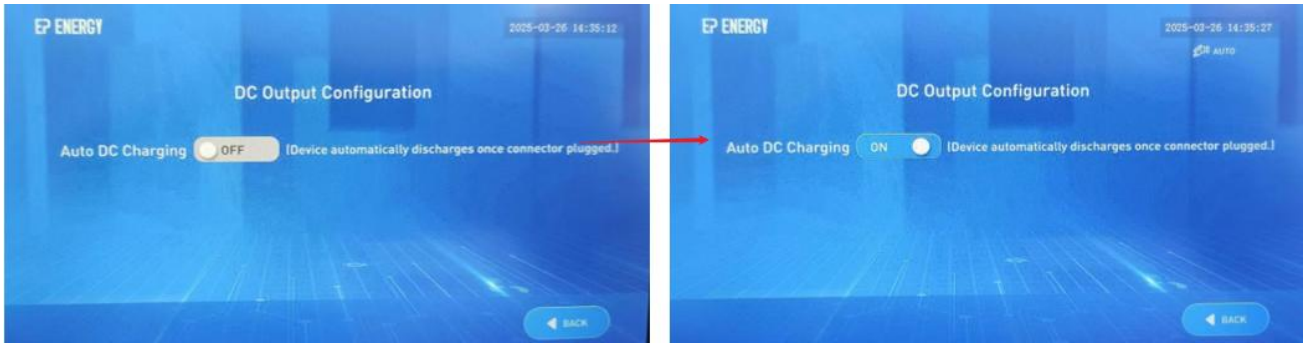


Figure 15: DC Output Interface

7 Maintenance

This equipment should be maintained regularly, and it is recommended to maintain it once every six months. When maintaining the equipment, the maintenance technician should ensure that the equipment is in the power-off state.

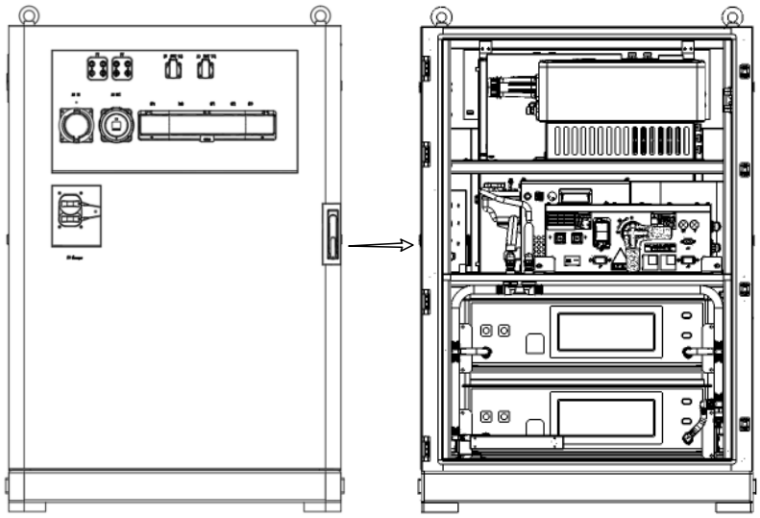
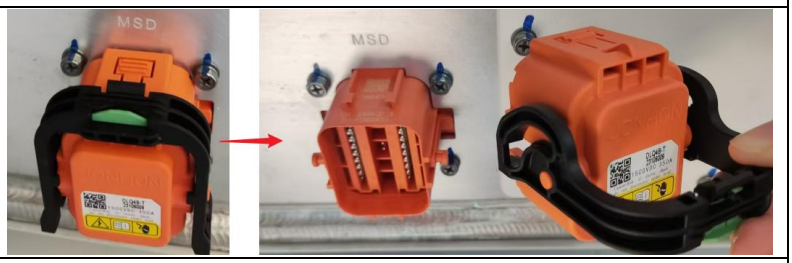
Step	Item	Illustrative Image
1	Rotate the handle on the right side of the rear door to open the rear door.	
2	Remove the MSD plugs of the battery pack.	
3	Take out the top layer: Remove the charging plug from the plug holder and fully remove the top layer through the four rings on the top of the device.	N/A

Table 26: Disassemble Process

The items to be checked are as follows:

Item	Check method
Front door & Rear door	Check whether the components of the front door are clean and whether there is rust.
	Check whether the wiring part is intact and firm.
Main part	Take off the top cover plate and check whether there are sundries, dust, dirt and condensate inside.
	Check whether the cable has any burning marks, whether it is loose, to ensure reliable connection.

	Check whether the inlet and outlet shutters and filter screen are clean, if necessary, you can use a vacuum cleaner to remove dust. Decide whether to replace the filter screen according to the specific situation.
	Check whether the liquid cooling pipes and joints of the equipment are firmly connected and whether there is leakage.
	Check the coolant fluid level. If it is too low, it is necessary to fill the liquid. The coolant used in the unit is 1:1 with ethylene glycol and water.

Table 27: Check Items

After the preceding check is complete, reverse install and reset according to the procedure for disassemble.

7.1.1 Coolant Level Check

The equipment features a liquid-cooled thermal management system designed to regulate the operating temperature of internal components using coolant. While coolant loss during operation is typically minimal, regular inspections of coolant levels remain essential.

Step	Item	Illustrative Image
1	Operations should only be performed after the equipment has been powered off and allowed to cool for at least 2 hours to prevent the risk of scalding from hot steam or coolant. Wear protective gloves and safety goggles.	
2	Unscrew the two screws on the right-side cabinet door and open it to locate the coolant tank inside.	

3	Check whether the coolant level is below the minimum level mark indicated on the right side of the coolant tank. If the level is below the minimum requirement, replenish the coolant.	
4	Unscrew the tank cap and use a funnel to add coolant up to the minimum level mark. Start the machine and allow it to run for 5 minutes, then turn it off and add coolant until the level is above the minimum mark. Finally, reinstall the top cover.	

Table 28: Coolant level check

8 Contact

If you have any technical issues with the product, please contact your installer, dealer, or EP energy. When querying, please provide the following information:

- Product Model.
- Serial number of the product.
- Installation position of the product.
- LED display status of the product.

EP Equipment Co., Ltd.

Xiaquan Village, Lingfeng Street, Anji, Zhejiang, People's Republic of China

Mail: epenergy@ep-ep.com

Website: https://ep-equipment.com/ep-energy/

Appendix 1: Fault Code List

Fault code	Fault name	Troubleshooting method
0200 B001	Output undervoltage	Check if the output is undervoltage.
0200 B003	DC input over/under voltage	Check if the DC input is overvoltage or undervoltage.
0200 B004	Output overvoltage	Check if the output is overvoltage.
0201 B006	DC/DC fan not rotating	Check if there is any obstruction.
0407 D015	Low water level alarm of liquid cooling system	1.Check the water level in the tank to confirm if it is below the minimum required level. 2.Refill the water tank with the recommended coolant to the appropriate level. 3.Restart the system after filling to ensure normal operation.
0600 F001	Smoke alarm	Check whether smoke exists in the device and whether the device is smoky or damaged.
0601 F002	Waterlogging alarm	Check whether water accumulates on the water sensor rope.
0602 F003	Emergency stop alarm	Reset the emergency stop button.
0603 F004	Surge alarm	Check whether the SPD is damaged and other devices are functional.
0604 F005	Tipping alarm	Check whether the equipment is placed on an inclined plane, whether the equipment has been tipped, if it is tipped, it cannot be turned on, and the equipment should be disassembled to check the damage: 1.Check the battery pack for damage and leakage. 2.Check whether the cable is disconnected. 3.Check whether the liquid cooling pipe is damaged and loose. 4.Check the other components for damage. 5.All matters are confirmed, power-on equipment to check whether there is an alarm.
0800 I001	PV connect fault	Check PV modules connection.
0801 I002	ISO check among PV panels/ wires and ground is abnormal.	Check PV modules wires, if those wires are soaked or damaged, and then carry out rectification.
0802 I003	PV current arcing	Check PV modules wires and connectors broken or loose connect, and then carry out rectification.
0803 I004	Pv1OverVoltFault	Reconfiguration of PV strings, reduce the PV number of a PV string to reducing inverter PV input voltage.
0804 I005	Pv2OverVoltFault	
0805 I006	Pv3OverVoltFault	
0806 I007	Pv4OverVoltFault	

0807 I008	Pv5OverVoltFault	
0808 I009	Pv6OverVoltFault	
0809 I010	Pv7OverVoltFault	
0810 I011	Pv8OverVoltFault	
0811 I012	Pv9OverVoltFault	
0812 I013	Pv10OverVoltFault	
0813 I014	Pv11OverVoltFault	
0814 I015	Pv12OverVoltFault	
0815 I016	PV1ReverseFault	Check PV (+) and PV (-) Connect whether reversed or not. If reversed, make correction.
0816 I017	PV2ReverseFault	
0817 I018	PV3ReverseFault	
0818 I019	PV4ReverseFault	
0819 I020	PV5ReverseFault	
0820 I021	PV6ReverseFault	
0821 I022	PV7ReverseFault	
0822 I023	PV8ReverseFault	
0823 I024	PV9ReverseFault	
0824 I025	PV10ReverseFault	
0825 I026	PV11ReverseFault	
0826 I027	PV12ReverseFault	
0827 I033	Pv1AbnormalFault	1.Check PV modules partial occlusion or cells damaged. 2.Check PV module wires and connectors broken or loose connect, then repair it.
0828 I034	Pv2AbnormalFault	
0829 I035	Pv3AbnormalFault	
0830 I036	Pv4AbnormalFault	
0831 I037	Pv5AbnormalFault	
0832 I038	Pv6AbnormalFault	
0833 I039	Pv7AbnormalFault	
0834 I040	Pv8AbnormalFault	
0835 I041	Pv9AbnormalFault	
0836 I042	Pv10AbnormalFault	
0837 I043	Pv11AbnormalFault	
0838 I044	Pv12AbnormalFault	
0839 I045	Pv13AbnormalFault	
0840 I046	Pv14AbnormalFault	
0841 I047	Pv15AbnormalFault	
0842 I048	Pv16AbnormalFault	
0843 I049	Pv17AbnormalFault	
0844 I050	Pv18AbnormalFault	
0845 I051	Pv19AbnormalFault	
0846 I052	Pv20AbnormalFault	
0847 I053	Pv21AbnormalFault	
0848 I054	Pv22AbnormalFault	

0849 I055	Pv23AbnormalFault	
0850 I056	Pv24AbnormalFault	
0900 I230	Installation environment temperature over	1.Change or improve the installation environment temperature, make running temperature suitable. 2.Power off, then restart
0901 I231	Installation environment temperature low	
0902 I232	Cooling temperature over	
0903 I233	Cooling temperature low	
0904 I234	Temperature3 over	
0905 I235	Temperature3 low	
0906 I236	DSP temperature over	
0907 I250	Inter fan warning	Remove foreign matter logged in fan.
0908 I251	Exter fan warning	
0909 I252	Fan3 warning	
0911 I270	Loose ground connection	1.Check earth line connection or earth connecting impedance. If abnormal, then adjust it. 2.Power off, then restart

Table 29: Fault Code List