Lenercom

6-15KW Lenercom Residential ESS
User's Manual

Thank you for purchasing this product.
Please read this manual before use.
Please keep this manual properly for consultation.

Foreword

Overview

This document mainly introduces the installation, electrical connection, debugging, maintenance and troubleshooting methods of LC-E2 (battery high voltage) Lenercom ESS (hereinafter referred to as "LC-E2"). Please read this manual carefully before installing and using LC-E2 high-voltage products to understand the safety information and the functions and features of LC-E2 high-voltage products.

Scope

This manual is applicable to:
● Installer
● User

Symbols

The following symbols in this manual shall have the meanings as follows.

Symbol	Description
⚠ Danger	To indicate the serious danger which will cause death or serious injury if not avoided
⚠ Warning	To indicate the intermediate danger which may cause death or serious injury if not avoided
⚠ Caution	To indicate the slight danger which may cause slight or moderate injury if not avoided
Note	To indicate the warning information for the safety issues about the equipment or environment, if not avoided, which may lead to equipment damage, data loss, performance degradation or other unpredictable results. "Note" does not involve personal injury.
📖 Description	To highlight the important/key information, best practices, tips, etc. "Description" is not safety warning information, and does not involve any personal, equipment and environmental damage information.

Version information

S/N	Revision No.	Revision	Date	Remarks
1	V1.0 (first edition)		4/11/2022	
2	V1.1 (first edition)	6kW and 15kW three-phase models were added	5/19/2022	
3				
4				
5				

Table of Contents

1 Safety Precautions

1.1 General safety

Statement

When installing, operating and maintaining equipment, please read this manual first and follow the identification on the equipment and all safety precautions in this manual.

The "Notes", "Cautions", "Warnings" and "Dangers" in this manual do not represent all safety precautions to be observed, but only serve as supplements to all safety precautions. Lenercom does not assume any responsibility caused by violation of the general safe operation requirements or the safety standards for the design, production and use of equipment. This equipment shall be used in the environment in line with the design specifications, otherwise the equipment fault may be caused, and the resulting equipment abnormality or component damage, personal safety accident, property loss, etc. may not be covered by the quality assurance. When installing, operating and maintaining equipment, please observe the local laws, regulations and specifications. The safety precautions in this manual are only used as a supplement to local laws, regulations and specifications.

Lenercom assumes no responsibility for any of the following situations:
● Operation beyond the conditions of use described in this manual.
● Installation and use environment not in line with relevant international or national standards.
● Unauthorized disassembly, modification of products or modification of software codes.
● Failure to follow the operation instructions and safety warnings of products and documents.
● Equipment damage caused by abnormal natural environment (force majeure, such as earthquake, fire, storm, etc.).
● Damage during the transportation arranged by customer.
● Damage caused by storage conditions inconsistent with the requirements of product documents.

General requirements

⚠ Danger

Live operation is strictly prohibited during installation.

Do not install, use and operate outdoor equipment and cables (including but not limited to handling equipment, operating equipment and cables, plugging and unplugging signal interfaces connected to outdoors, aerial work, outdoor installation, etc.) in severe weather such as lightning, rain, snow and strong winds above Grade 6.
● After installing the equipment, remove the empty packaging materials in the equipment area, such as cartons, foam, plastics, cable ties, etc.
● In case of fire, withdraw from the building or equipment area and press the fire alarm bell or call the fire emergency number. Under no circumstances is it allowed to re-enter the burning building.

● Do not artificially alter, damage or block the marks and nameplates on the equipment.

● When installing the equipment, use tools to tighten the screws according to the specified torque.

● Fully understand the components, working principle of LC-E2 high-voltage products and relevant standards in the country/region where the project is located.

● Repair the paint scratches during equipment transportation and installation in time which shall not be exposed to outdoor environment for a long time.

● Do not open the back panel of inverter.

Personal safety

In case of the fault that may cause personal injury or equipment damage in the process of equipment operation, terminate the operation immediately, and make report to the person in charge to take effective protective measures.

● Be knowledgeable of the correct use of tools before the use to avoid the personal injury and equipment damage.

● When the equipment is running, the shell temperature is high, and there is a danger of burning. Please do not touch it.

1.2 Personnel requirements

Personnel for the installation and maintenance of LC-E2 high-voltage products shall first receive the rigorous training to understand various safety precautions and correct operation methods.

● Equipment shall only be installed, operated and maintained by the qualified professionals or trained personnel.

● Safety facilities and repair equipment shall only be removed by the qualified professionals.

● Personnel who operate equipment, including operators, trained personnel and professionals, shall have special operation qualifications required by local countries, such as high-voltage operation, working at heights and special equipment operation qualifications.

● Equipment or parts (including software) shall only be replaced by professionals or authorized personnel.

Description

● Professionals: People who have training or experience in operating equipment, and can know all kinds of potential hazard sources and hazard levels in the process of equipment installation, operation and maintenance.

● Trained person: A person with appropriate technical training and necessary experience, who is aware of the danger that may be brought to him when performing an operation, and can take measures to minimize the danger to himself or other personnel.

● Operators: Operators who may come into contact with equipment except trained personnel and professionals.

1.3 Electrical Safety

Grounding requirements

● When installing the equipment to be grounded, install the protective grounding wire first. When removing equipment, remove the protective grounding wire last.
● Do not damage the grounding conductor.
● Do not operate the equipment without installing the grounding conductor.
● Permanently ground the equipment. Before operating the equipment, check the electrical connection of the equipment to ensure that the equipment is reliably grounded.

General requirements

⚠ Danger

Before the electrical connection, please ensure that the equipment is not damaged, otherwise the electric shock or fire may be caused.
● All electrical connections shall meet the electrical standards of the country/region.
● The grid can be connected for power generation only after the permission is obtained from the power authority of the country/region.
● User-provided cables shall comply with local laws and regulations.
● Special insulating tools shall be used for high voltage operation.

AC/DC operation

⚠ Danger

Live installation and removal of power line are prohibited. When touching the conductor, the power line core will produce electric arc or spark which can lead to fire or personal injury.
● Before the electrical connection of the equipment, if live parts may be touched, the corresponding breaking device at the front stage of the equipment shall be disconnected.
● Power line label shall be correctly identified before the connection of power line.
● If the equipment has multiple inputs, all inputs of the equipment shall be disconnected, and the equipment can be operated only after the complete power-off.

Wiring requirements

● The insulation layer may be aged and damaged when the cable is used in high temperature environment, and the distance between the cable and the periphery of heating device or heat source area shall be at least 30mm.
● Cables of the same kind shall be bound together, and cables of different kinds shall be laid at the interval of at least 30mm. Winding or cross laying shall be avoided.

1.4 Requirements of installation environment

● Please ensure that the installation environment of equipment is well ventilated.
● When the equipment is running, do not block the vents or heat dissipation system to prevent the fire caused by high temperature.
● Do not place the equipment in the environment of flammable, explosive gas or smoke, and do not carry out any operation in this environment.
● Do not place equipment in high salt spray environment.
● Load strength of installation ground shall be greater than the load caused by product weight.
● The annual temperature of the installation area is lower than 0°C or higher than 50°C.
● Relative humidity of air is less than 95%.

1.5 Mechanical safety

Drilling safety
The following safety precautions shall be considered when drilling holes on walls and ground:
● Wear goggles and protective gloves when drilling holes.
● Shield the equipment during drilling to prevent debris from falling into the equipment. After drilling, clean the debris in time.

Safety of carrying weights
● When carrying weights, prepare for bearing loads to avoid injury.
● When handling equipment, wear protective gloves to avoid injury.

< 18 kg (< 40 lbs)	1 person
18 ~ 32 kg (40 ~ 70 lbs)	2 persons
32 ~ 55 kg (70 ~ 121 lbs)	3 persons
> 55 kg (> 121 lbs)	4 persons or machinery

1.6 Debugging safety

When the equipment is powered on for the first time, the parameters shall be set correctly by professionals.

1.7 Maintenance and replacement

⚠ Danger

During the operation, there is high voltage, which may produce electric shock, resulting in death, serious personal injury or property loss. Therefore, the equipment shall be powered off before any

maintenance, which shall be conducted in strict accordance with the safety precautions listed in this manual and other relevant documents.

● Please maintain the equipment after being knowledgeable of this manual and preparing suitable tools and test devices.

● Before the maintenance, please power off the equipment first, and then follow the instructions of the delayed discharge label and wait properly to ensure that the equipment has been powered off before operating the equipment.

● During the maintenance, please prevent the irrelevant personnel from entering the maintenance site, and set the temporary warning signs or fences for isolation.

● If the equipment fails, please contact your dealer for treatment.

● The equipment can be powered on again only after the fault is solved, otherwise the failure may be deteriorated or the equipment may be damaged.

2 Product Introduction

2.1 Introduction of products

Features

LC-E2 products are comprised of PV energy storage hybrid inverter, energy storage battery module and wireless communication module. PV power generation system can be formed if PV is connected. The product mainly functions to convert DC power of PV and battery into AC power and output it to loads. The system, in conjunction with the household EMS (Energy Management System) and BMS (Battery Management System) independently developed by Lenercom, can realize remote data monitoring, early warning and control of LC-E2.
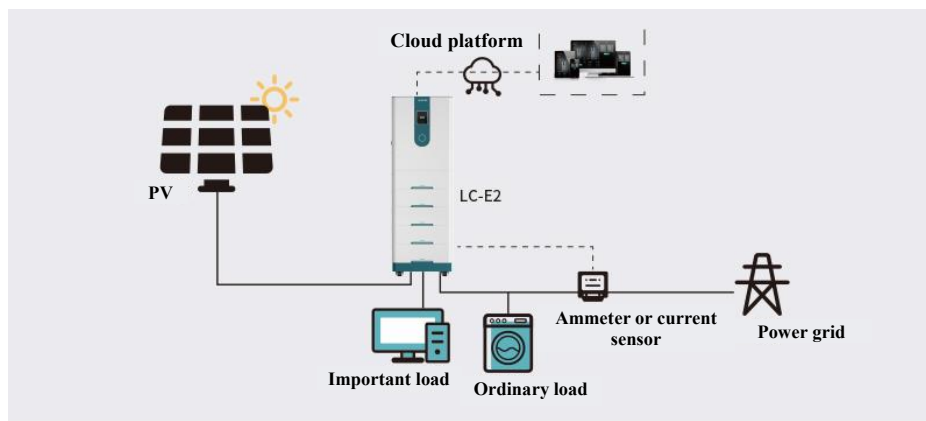
The system can be used in off-grid system and grid-connected system, and is suitable for many applications such as home users, small agriculture, small business and electric vehicle charging.

Model

LC-E2 mainly includes the following models

●   Single-phase models:

LC-E2-915S   LC-E2-920S   LC-E2-925S   LC-E2-930S

LC-E2-1015S   LC-E2-1020S   LC-E2-1025S   LC-E2-1030S

LC-E2-1115S   LC-E2-1120S   LC-E2-1125S   LC-E2-1130S

● Three-phase models

LC-E2-615T   LC-E2-620T   LC-E2-625T   LC-E2-630T

LC-E2-815T   LC-E2-820T   LC-E2-825T   LC-E2-830T   LC-E2-835T

LC-E2-1020T   LC-E2-1025T   LC-E2-1030T   LC-E2-1035T

LC-E2-1225T   LC-E2-1230T   LC-E2-1235T

LC-E2-1535T   LC-E2-1240T   LC-E2-1245T

● Model description (taking LC-E2-1020S and LC-E2-1020T as examples)

LC-E2	10	20	S/T
Product line	Rated power (kW)	Battery capacity	S stands for single-phase T stands for three-phase

● Description of battery capacity

Model	No of battery modules	Battery capacity
05	1	5.12kWh*1
10	2	5.12kWh*2
15	3	5.12kWh*3
20	4	5.12kWh*4
25	5	5.12kWh*5
30	6	5.12kWh*6
35	7	5.12kWh*7
40	8	5.12kWh*8
45	9	5.12kWh*9

LC-E2 configuration

LC-E2=inverter * 1 + battery module * n + base * 1

Note: n is the number of battery modules

Single-phase model: 3≤n≤7;

Three-phase model: 3≤n≤9;

600*420*1550 600*420*1750 600*420*1950 600*420*2150 600*420*2350 600*420*2550 600*420*2750

LC-E2-615T	LC-E2-620T	LC-E2-625T	LC-E2-630T	LC-E2-835T	LC-E2-1540T	LC-E2-1545T
LC-E2-815T	LC-E2-820T	LC-E2-825T	LC-E2-830T	LC-E2-1035T		
LC-E2-915S	LC-E2-1020T	LC-E2-1025T	LC-E2-1030T	LC-E2-1235T		
LC-E2-1015S	LC-E2-920S	LC-E2-1225T	LC-E2-1230T	LC-E2-1535T		
LC-E2-1115S	LC-E2-1020S	LC-E2-925S	LC-E2-930S			
	LC-E2-1120S	LC-E2-1025S	LC-E2-1030S			
		LC-E2-1125S	LC-E2-1130S			

● Inverter mainly includes the following models

LC-9KH1

LC-10KH1

LC-11KH1

LC-6KH3

LC-8KH3

LC-10KH3

LC-12KH3

LC-15KH3

● Model description (for examples LC-10KH1 and LC-10KH3)

LC	10K	H	1/3	
Product line	Inverter Power	High voltage of battery	1 stands for single-phase 220Vac 3 stands for three-phase 380Vac	

● Battery module mainly includes the following models (for example LC-BH512)

LC	B	H	512	
Product line	Battery Module	High voltage of battery	Battery capacity 5.12kWh	

Base is as shown in the following figure.
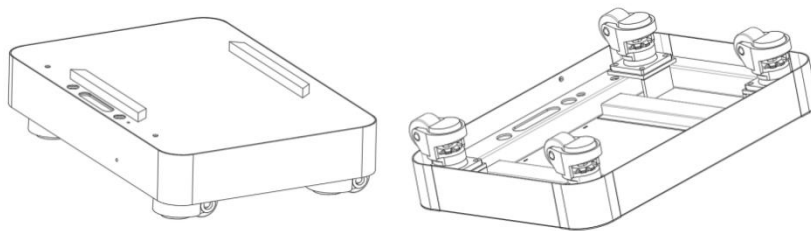
2.2 Description of appearance and interfaces

2.2.1 Equipment appearance
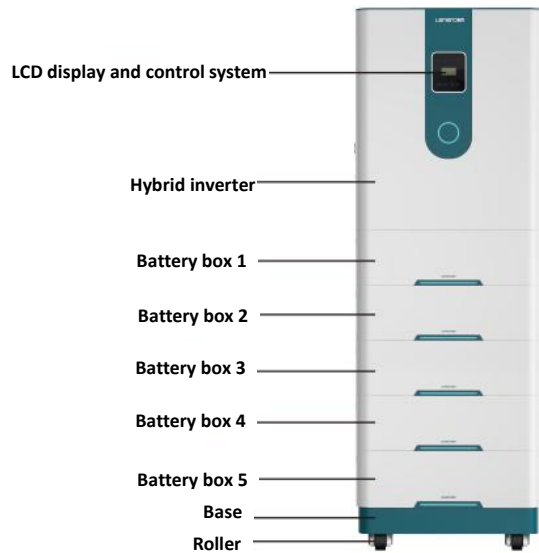
Instruction: Lenercom LC-E2 6-15kW products can accommodate up to 7 battery modules for single-phase model and 9 battery modules for three-phase model. In case of more that 7 battery modules, please contact your dealer or Lenercom.

2.2.2 Appearance and interfaces of inverter

Single-phase	Three-phase models
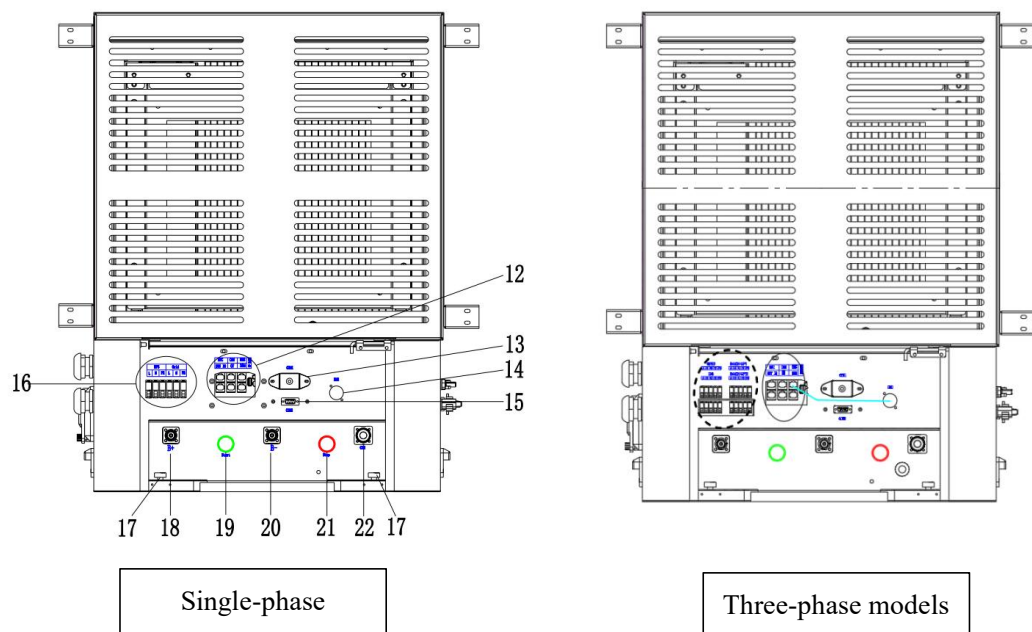
📖Description

4 channels of PV input for single-phase model, and 2 channels of PV input for three-phase model

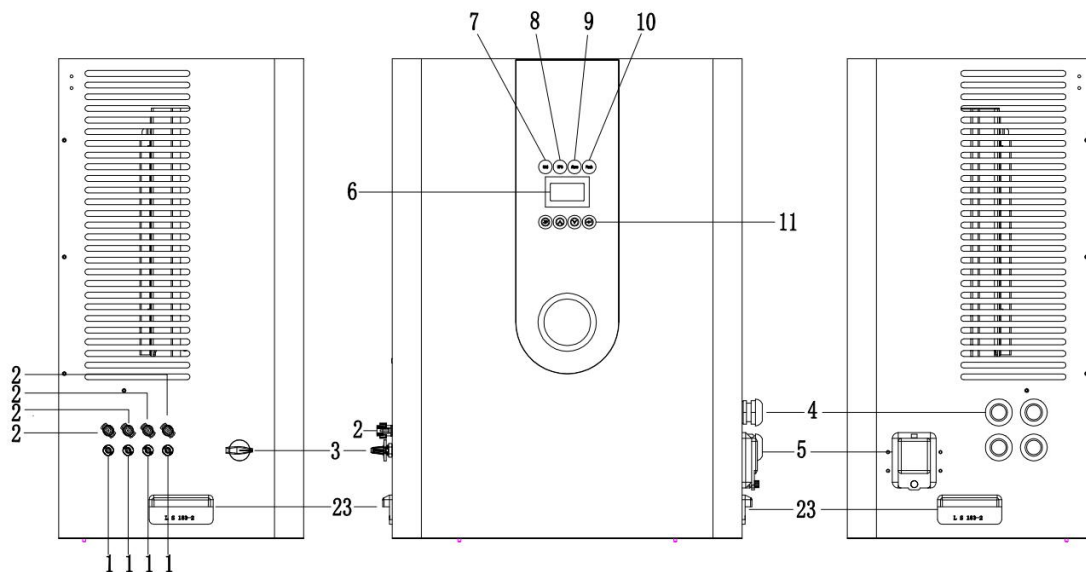| Code	Name	Description	
1	Cathode MC4 socket of PV	To connect PV cathode	
2	Anode MC4 socket of PV	To connect PV anode	
3	PV switch	To turn on/off PV	
4	AC inlet/outlet	Grid, generator and load	
5	DC breaker	Breaker for the connection of battery pack and inverter	
6	LCD display panel	To display the data and set the functions of inverter	
7	Grid-connected operation indicator	Green when connected to the grid	See the description of control panel for details
8	Off-grid operation indicator	Green for off-grid with load	
9	Alarm indicator	Yellow when an alarm is given	
10	Fault indicator	Red for serious fault	
11	Function button	To set the functions	
12	Communication port	See 5.2.1 "Definitions of inverter communication interfaces" for details	
13	COM1	To connect WIFI data collector	
14	BMS mainframe communication port	BMS mainframe communication connection	
15	COM2	Not developed	
16	Grid-connected grid input/off-grid AC output terminal	Single-phase models: L/N/PE Three-phase models: L1/L2/L3/N/PE	

17	Longitudinal bolt	For installation and positioning
18	Anode socket	To connect the master anode
19	Button switch	Start switch of battery
20	Cathode socket	To connect the master cathode
21	Button switch	Emergency stop button of battery
22	BMS battery communication port	BMS battery communication link
23	Handle	For handling

2.2.3 Appearance and interfaces of battery module

The interface of battery module is located on the back of battery module. Open the back cover of battery module and you can see it, as shown in the following figure
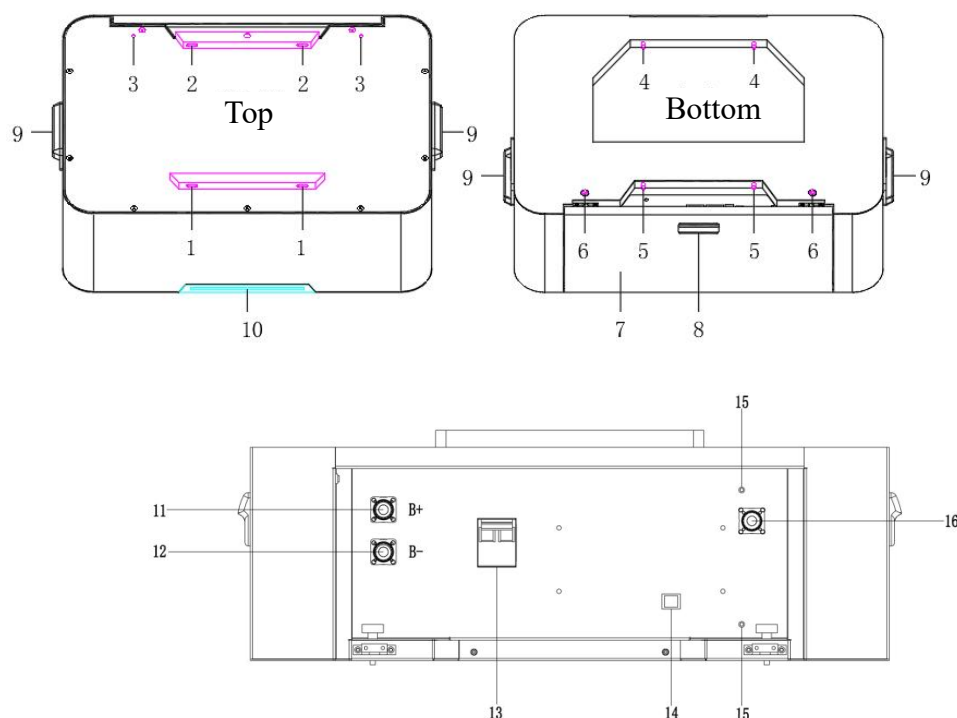
Code	Name	Description
1	Front locating hole	Transverse
2	Rear locating hole	Transverse
3	Rear locating hole	Longitudinal
4	Front locating pin	Transverse
5	Rear locating pin	Transverse
6	Rear locating pin	Longitudinal
7	Back panel	Openable
8	Back panel handle	
9	Handle	
10	Indicator	To be blue if the battery module is powered on
11	Anode socket	To connect the cathode of battery module or

		anode of inverter
12	Cathode socket	To connect anode of battery module below
13	Switch of battery module	To power on/off the battery module
14	Dip switch	For detailed design, please refer to the setting description of dip switch
15	Grounding point	To connect the grounding point of adjacent battery or inverter
16	BMS communication interface	To connect BMS communication interface of adjacent battery or inverter

2.3 Label description

Taking LC-E2-1020T as example:

Inverter nameplate

Lenercom ESS	
Model: LC-E2-1020 T	
PV input	
Maximum PV input power	15kW
Maximum PV input current	2*13A
PV short circuit current	2*16A
MPPT voltage range	180~850V
MPPT voltage range at full power	430~850V
Maximum PV input voltage	1000V
Quantity of MPPT	2
Maximum number of strings in parallel of each MPPT	1
AC output / input (grid-connected)	
Rated grid voltage	3W+N+PE,230/400V
Rated grid frequency	50Hz/60Hz
Rated output power	10000W
Maximum grid-connected output apparent power	11000VA
Maximum grid-connected output current	ac,15.9A
Maximum grid-connected input apparent power	22000VA
Maximum grid-connected input current	ac,31.9A
Power factor	-0.8~+0.8
AC output (off-grid)	
Rated off-grid voltage	3W+N+PE,230/400V
Rated off-grid frequency	50Hz/60Hz
Maximum off-grid output apparent power	11000VA
Maximum off-grid output current	ac,15.9A
Battery parameters	
Input voltage range of battery	166~233V
Rated voltage of battery pack	204.8V
Maximum charge current	50A
Maximum discharge current	50A
Maximum charge / discharge power	10kW
Battery type	$LiFePO_4$
System parameters	
IP grade	IP20
Dimensions (W*D*H)	600*420*1750mm
Net weight	299kg
Maximum efficiency	98.2%

Battery module nameplate

Parameters of LC-BH512 battery module	
Battery type	Lithium iron phosphate
Battery capacity	100Ah
Rated voltage	51.2V
Battery power	5120Wh

Box identification

This section explains all the symbols on the inverter and type labels.

* Symbols on type labels

Symbol	Description
CE	**CE mark** **The product meets the requirements of applicable CE product line**
	Beware of hot surfaces. **The product may get hot during operation to avoid the contact during operation.**
	Danger of high-voltage electric shock!
	Watch out! **Failure to comply with the warnings in this manual may cause the personal injury**
	Please follow the attached manual.
	The inverter and battery shall not be disposed of with household waste, and the disposal information can be found in the attached file.
	Do not operate this inverter until it is isolated from the battery, power supply, and field PV generator.
	Beware of rollover!
	High voltage may endanger life. **After the power off, there is residual voltage in the inverter which takes 5 minutes to discharge.** **Wait 5 minutes before opening the cover.**
	TUV Mark **This product has obtained TUV certificate**

2.4 Working principle

LC-E2 is connected with a PV string and an energy storage battery, converts the direct current of PV and battery into alternating current and outputs it to the loads. The direct current of PV can charge the battery at the same time. LC-E2 is connected with a AC power supply, bypass the output to the load. At the same time, the inverter can convert the AC input power into DC power to charge the battery.

2.4.1 Block diagram of circuits

Block diagram of single-phase circuit
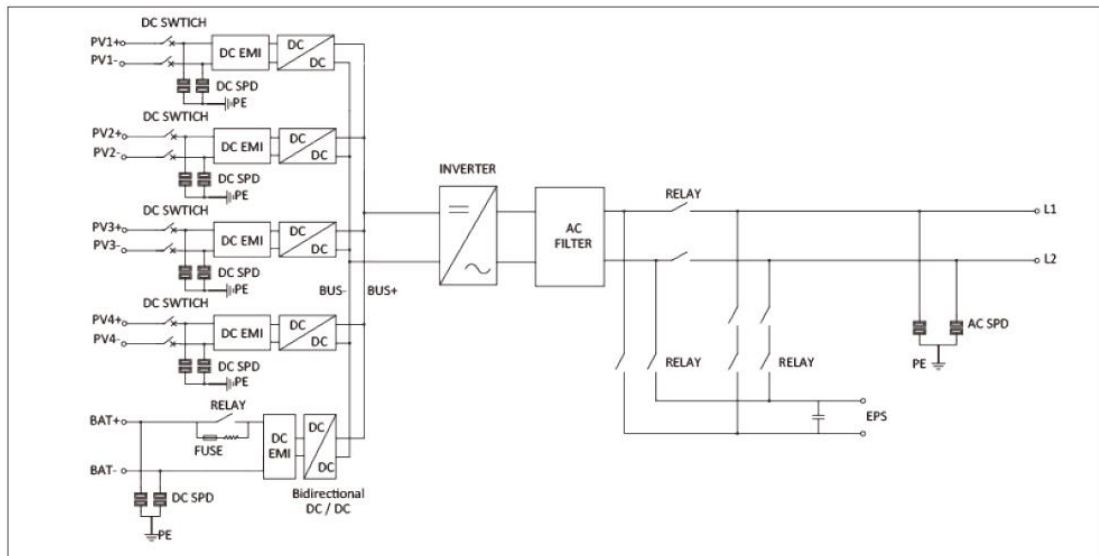
Block diagram of three-phase circuit
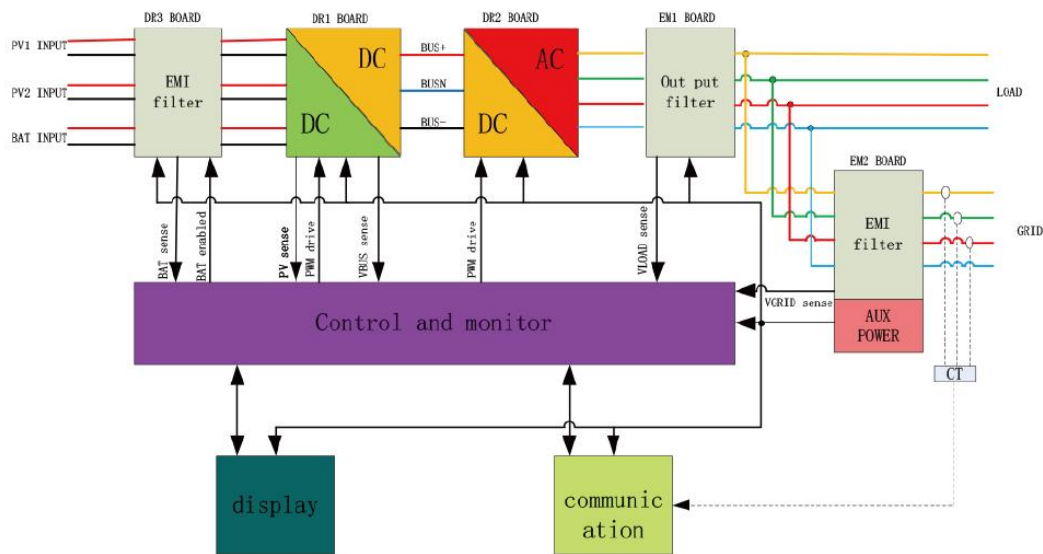
2.4. 2 AC/DC coupling

Lenercom LC-E2 can be applied to DC coupling system (mainly newly installed), AC coupling system (mainly retrofit) and hybrid coupling system (mainly retrofit and increased PV capacity)

DC Coupling
For new intallation

DC/AC Coupling
For modification and PV capacity expansion
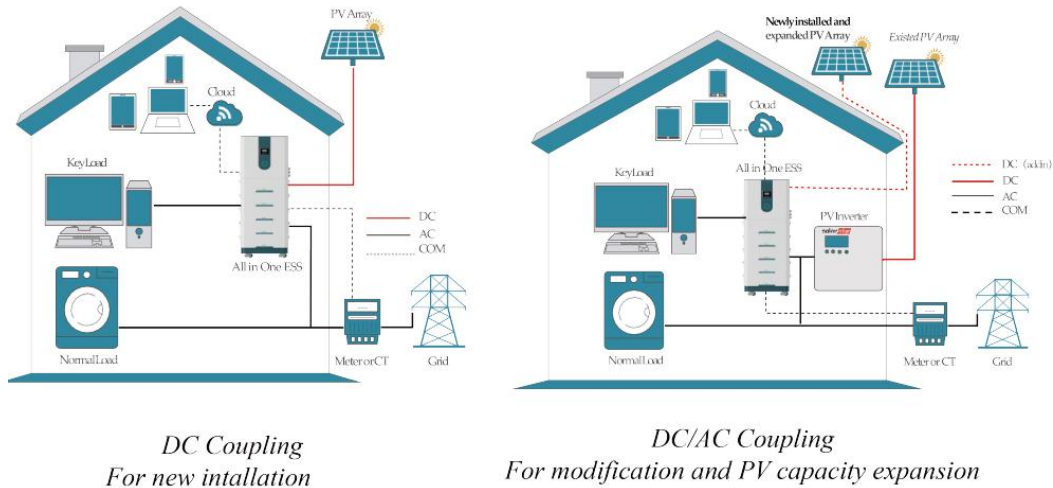
⚠️ Warning: For AC/hybrid coupling systems, two electricity metering units shall be installed.

3 Application and Setting of System Networking

3.1 System networking mode

LC-E2 single-phase/three-phase product networking is mainly used in household, small industrial and commercial enterprises, pure off-grid PV energy storage system. There are two main networking modes:
● Grid and off-grid networking system
● Pure off-gird networking system

Networking 1: LC-E2 system networking
Grid and off-grid energy storage system consists of PV string, LC-E2 energy storage system, load and distribution unit, current transformer, power grid, etc. PV string converts solar energy into electric energy, which is converted to load power supply and fed to power grid through inverter. When the grid is powered off, the equipment automatically switches to off-grid (EPS) mode. At this time, the off-grid load can be used normally, but the grid-connected load cannot be used.
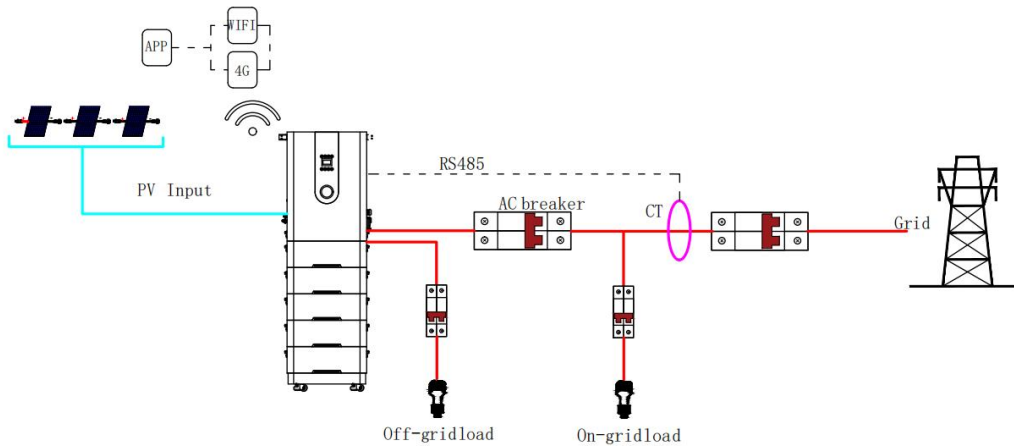
Instruction: the above picture is a single-line schematic diagram which is applicable to single-phase / three-phase systems.

Networking 2: LC-E2 system + PV grid-connected inverter

Grid and off-grid energy storage system supports cascade with PV inverter of any manufacturer to form AC coupling system. Grid input is connected to AC grid-connected end, and off-grid load is connected to LC-E2 system. AC coupling system can effectively solve the problem of remaining power storage of PV. LC-E2 system may not be connected with PV, and can also be directly used for the transformation of original PV system.
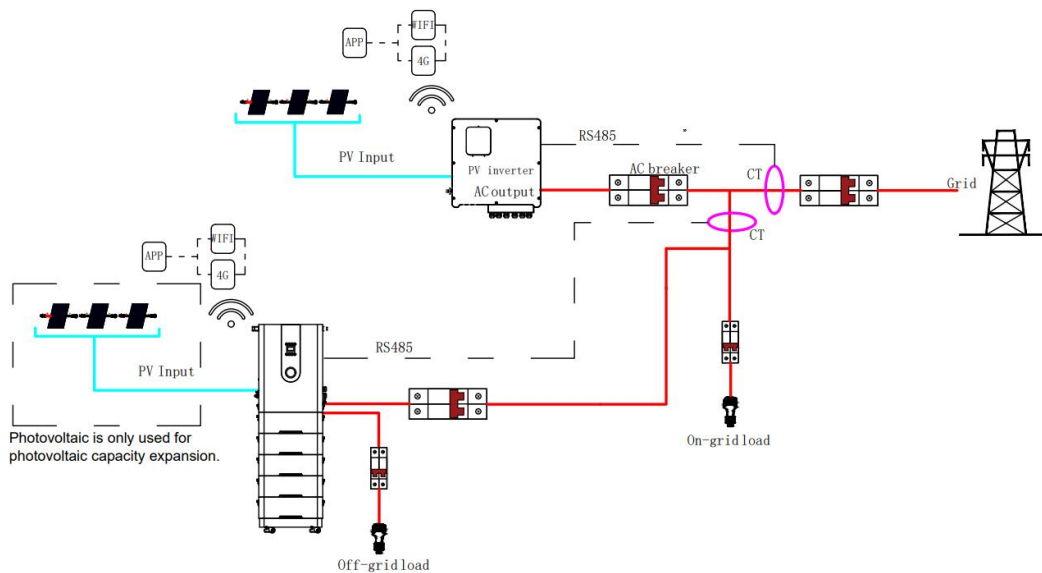
Networking 3: LC-E2 system + diesel generator (off-grid)

Grid and off-grid energy storage system supports connection with diesel generator and is used in areas without grid coverage.
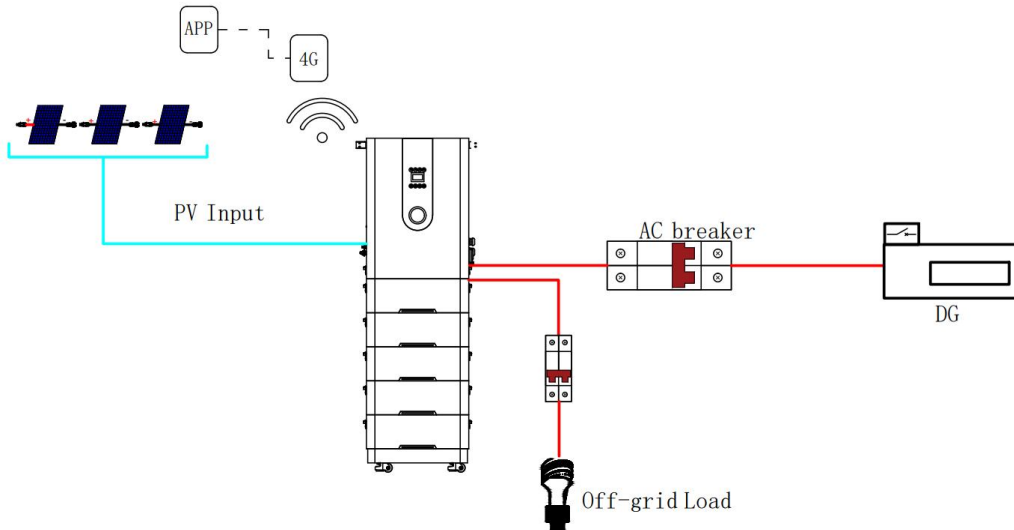
3.2 System application mode and setting

LC-E2 energy storage system can provide a variety of working modes according to different requirements.

● Self-generating and self-use

● Peak-valley arbitrage

● Battery preferred (standby)

3.2.1 Self-generating and self-use

Working mode: Self-generating and self-use

PV priority: load > battery > grid

● Suitable for areas with high electricity price, low or no subsidy for Internet access.

● PV supplies power to the load first, and the excess generated power of PV is stored in the battery. When PV power generation is insufficient or there is no PV power generation at night, the battery discharges for the load, and the gap is supplemented by the power grid. This mode improves the self-use rate of PV system and the self-sufficiency rate of household energy, and saves electricity expenses.

● The working mode is "self-generating and self-use". The default charge cut-off capacity of Lenercom LC-E2 system is

100%, and the discharge cut-off capacity is 10%. If it is necessary to modify the charge or discharge cut-off capacity, refer to 8.3 "Energy Storage Control Settings".

Instruction: Control [anti-countercurrent] {allowed/prohibited}; factory default setting {forbidden}.

Examples of self-generating and self-use

Examples of self-generating and self-use:

（1）When PV illumination is sufficient, PV input power is 10kW, load consumption is 5kW, and charge power of energy storage system is 5kW.

（2）When PV illumination becomes weak, PV input power is 4kW, load consumption is 8kW, and discharge power of energy storage for load is 4kW.

（3）When there is no illumination, the load consumes 10KW, the energy storage discharges 8KW to the load, and the grid supplies 2KW to the load.

(1)
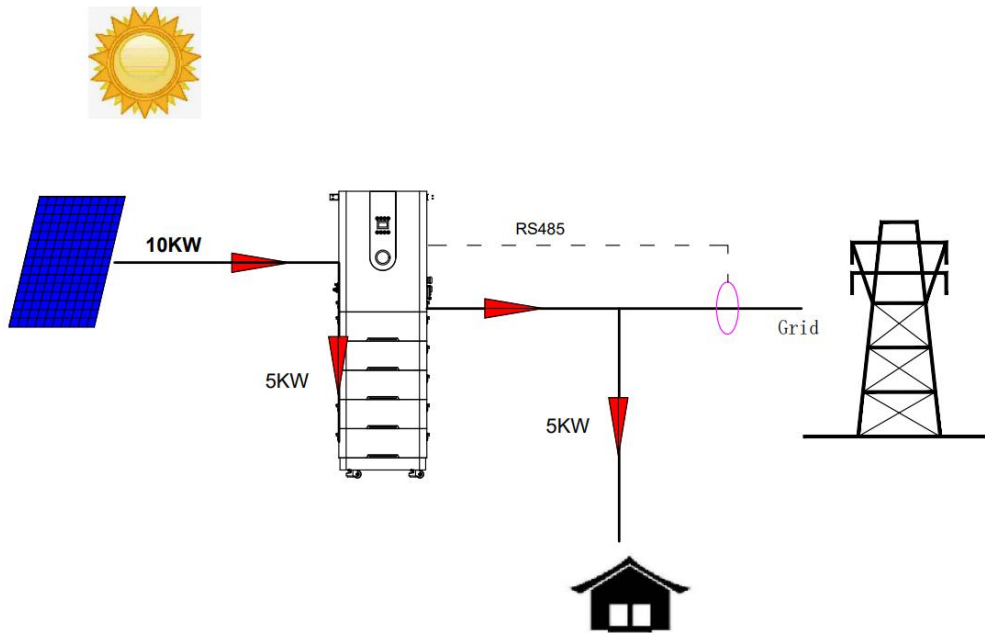
(2)
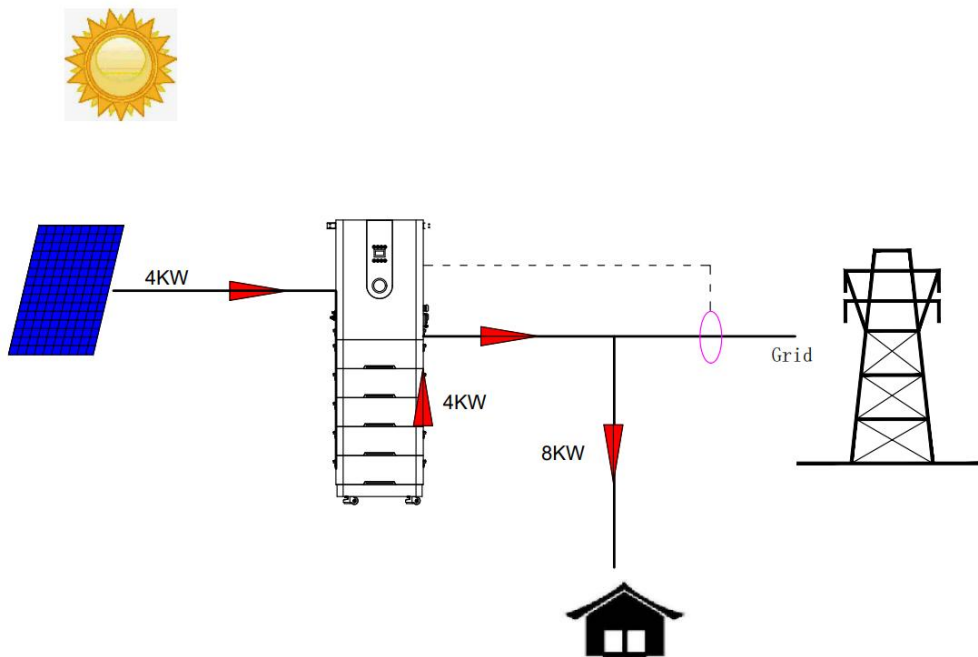
（3）
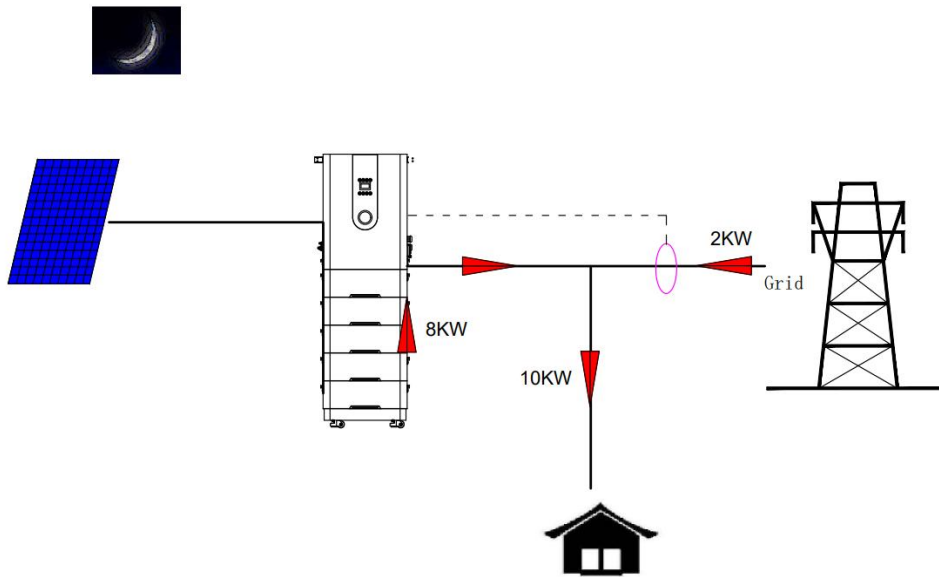
Working mode: Self-generating and self-use, surplus electricity fed to grid

PV priority: load > battery > grid

● Suitable for areas with high electricity price, low or no subsidy for Internet access.

● PV supplies power to the load first, and the surplus generated power of PV is stored in the battery, and the surplus power is connected to the grid. When PV power generation is insufficient or there is no PV power generation at night, the battery discharges for the load, and the gap is supplemented by the power grid. This mode improves the self-use rate of PV system and the self-sufficiency rate of household energy, and saves electricity expenses.

Example of working mode:

When PV illumination is sufficient, PV input power is 10kW, load consumption is 1kW, charge power of energy storage system is 8kW, and discharge to power grid is 1kW.
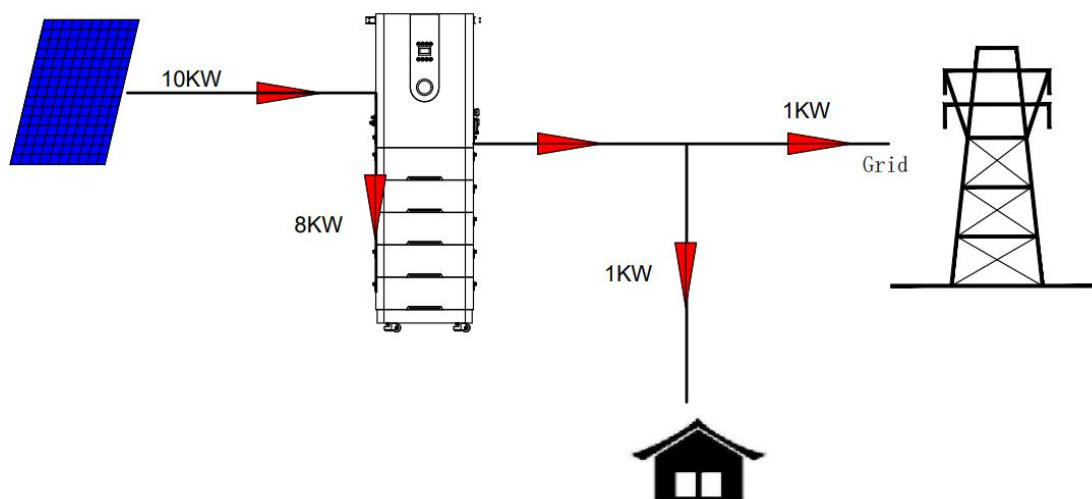
3.2.2 Peak load shifting

Working mode: peak load shifting

PV priority: Battery > load > grid (charging)

PV priority: Load > battery > grid (discharging)

● It is suitable for large peak-valley price difference.

● The working mode is "peak load shifting", and the charging and discharging period is manually set, for example, the low electricity price period at night is selected for charging, during which the system charges the energy storage system with the maximum charging power, and the high electricity price period is selected for discharging, so the battery can only discharge in the discharging period, thus saving the household electricity cost.

● Up to 3 periods can be set, and the charging and discharging parameters can be set with reference to 8.3 "Energy Storage".

● This mode requires at least one set of charging period and discharging period. In the charging period, power grid is allowed to charge the energy storage system, and in the discharging period, the load can be supplied with power. Energy storage system does not discharge in other periods, and PV and power grid supply power to the load. (In off-grid mode, the grid is powered down and the energy storage system can discharge at any time.)

Example of peak load shifting
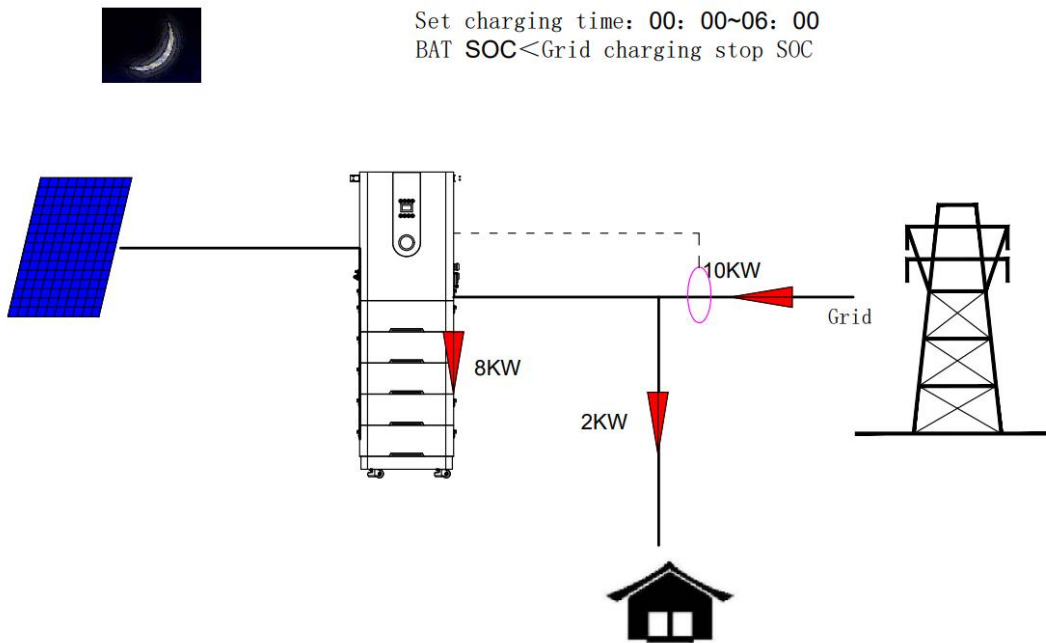
Set charging time: 00: 00~06: 00
BAT SOC＜Grid charging stop SOC

2KW

2KW
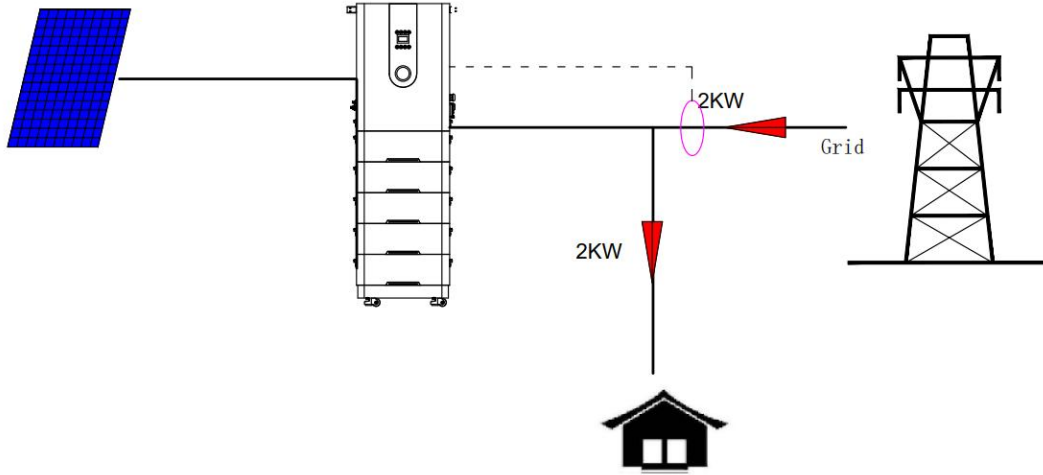
Grid

Non set charging and discharging time period
12: 00~17: 00

6KW

2KW

Grid

8KW
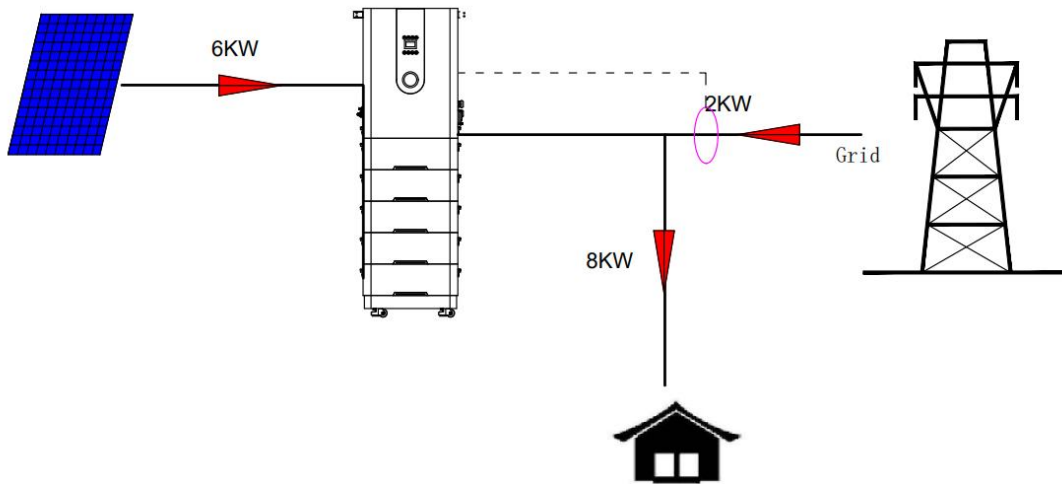
Discharge setting time period
17: 30~21: 30

6KW

6KW
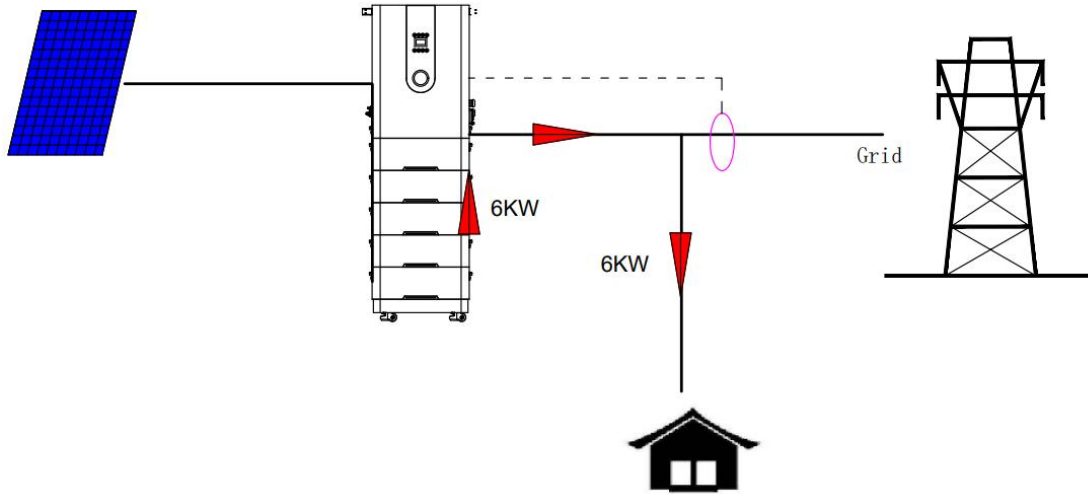
Grid

3.2.3 Battery preferred (standby)

Working mode: battery preferred (standby)

PV priority: battery > load > grid

This mode is suitable for areas with frequent power outages. When the grid is disconnected, this mode ensures that the battery has enough energy supply. In this mode, the battery will be charged at the maximum set power and will never discharge when the grid is connected.

BAT SOC<Charging stop SOC
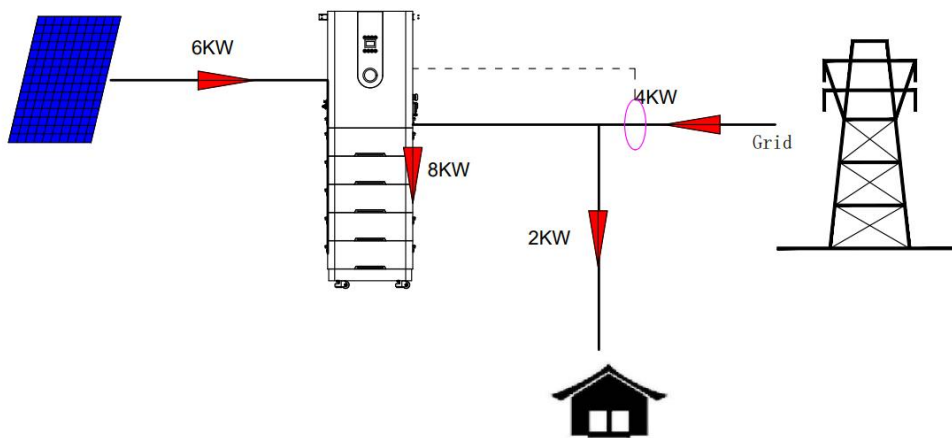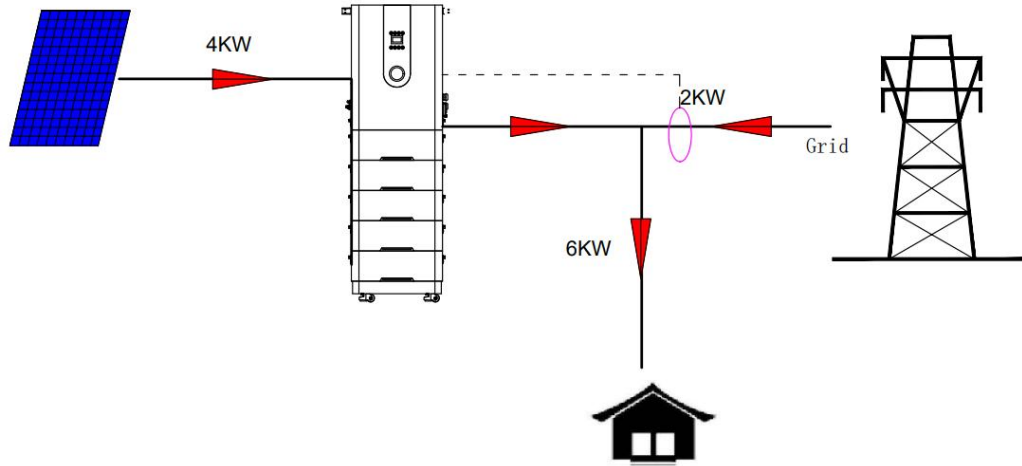
6KW

4KW

Grid

8KW

2KW

BAT SOC＞Charging stop SOC

4KW

2KW

Grid

6KW

Power failure of public grid

4KW

2KW

6KW

EPS Load

Power failure of public grid

6KW

6KW

EPS Load

Power failure of public grid

4KW

2KW

6KW
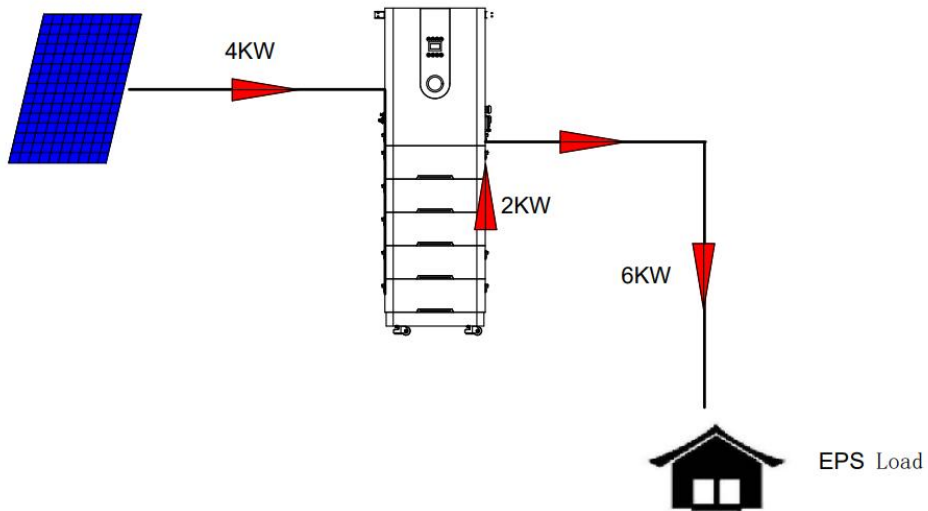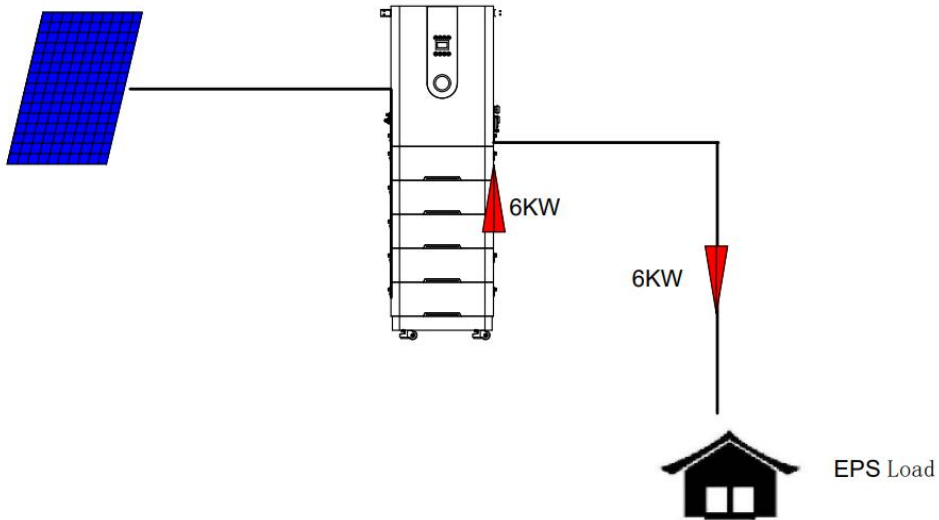
EPS Load
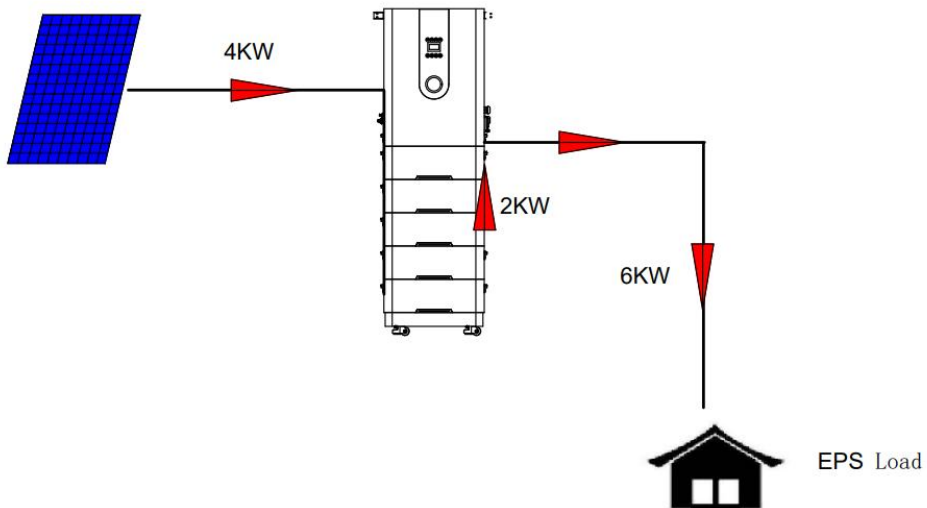
* EPS status

When the grid is off, the system will provide emergency power through PV or battery to power the household load.

4 Installation of Equipment

4.1 Check before installation

Check of external package

Before unpacking the inverter, check the external package for visible damage, such as holes, cracks or other signs of possible internal damage, and check the models of inverter and battery module. In case of any package anomaly or incorrect inverter model, do not open it and contact your dealer as soon as possible.

Check of fittings

Check the following list of parts to ensure no missing part
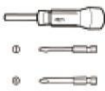
Lenercom provides the necessary parts for installation in the box, including:

Instruction: "N" is the number of LC-E2 battery modules.

Data collection module has been assembled before its delivery.

4.2 Tools preparation

Category	Tools and Instruments		
Installation	Percussion drill (bit φ 8mm)	Torque socket spanner	Torque spanner

Category	Tools and Instruments		
Category name	Oblique plier	Wire stripping plier	Torque screwdriver
	Utility knife	Crimping plier (Model: PVCZM-22100/19100)	Multimeter (DC voltage range≥ 600V DC)
	Removal and installation tools (Model: PVMS-HZ open spanner)	Cable tie	Clip-on ammeter
	Marker pen	Steel tape	

Category	Tools and Instruments		
Personal protective equipment	Safety gloves	Protective goggles	Dust mask
	Safety shoe		

4.3 Selection of installation location

● The product shall be installed in a well-ventilated indoor environment to ensure good heat dissipation.
● LC-E2 shall not be installed in areas where flammable and explosive materials are stored.
● LC-E2 will be corroded when installed in high salt spray areas, which may cause fire.
● LC-E2 shall not be installed on the flammable building materials.
● LC-E2 is heavy, so the mounting surface shall be firm and can support the inverter.

4.4 Space requirements for installation

The distance between product and surrounding objects shall be more than 50cm to ensure the sufficient heat dissipation and maintenance space as follows:
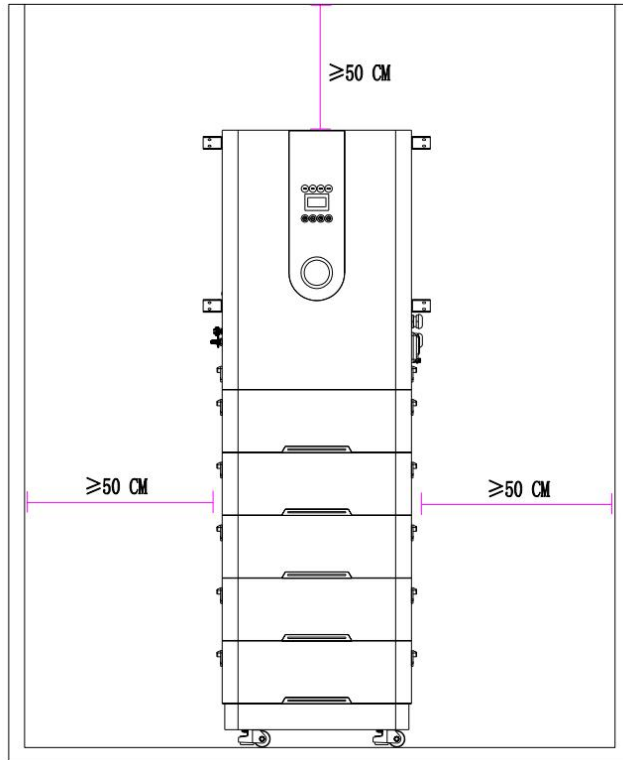
4.5 Installation steps

⚠ Caution

The equipment shall be mounted by no less than 3 installers who shall wear the safety shoes, gloves and other protective tools.

Step 1: Take out inverter, battery, base and accessories;

Battery module	
Base	
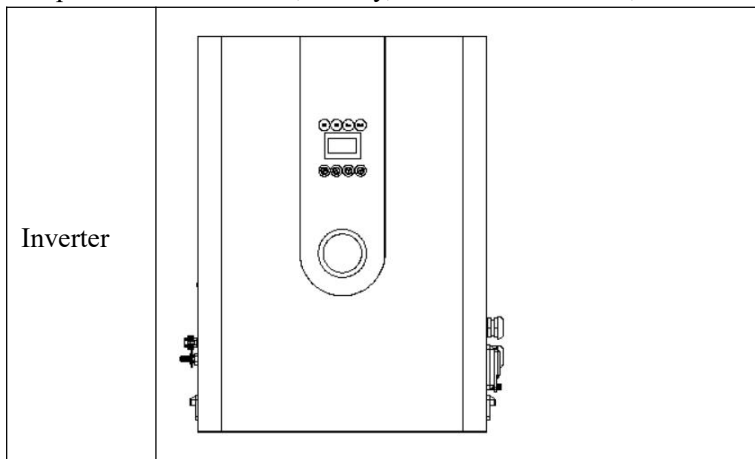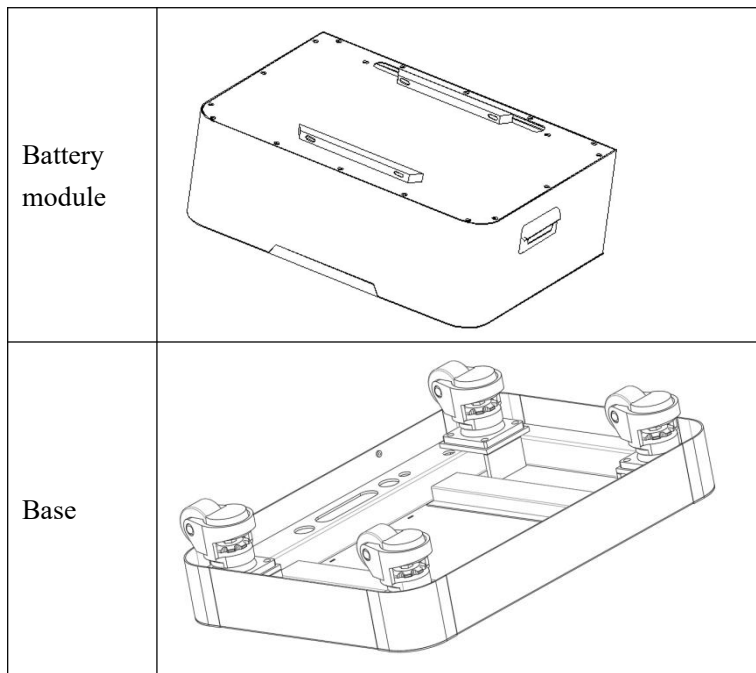
Step 2: First place the base at the installation position of equipment, take off the back panel of each battery box, and put the first battery box on the

Back

Remove the back panel of battery module

Place the battery module at the assembly position on base
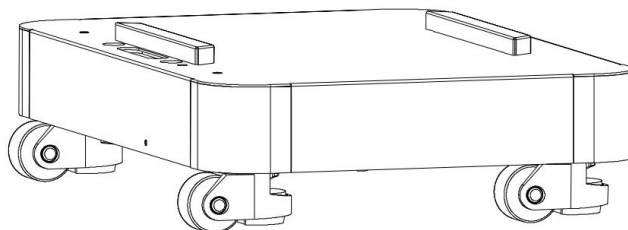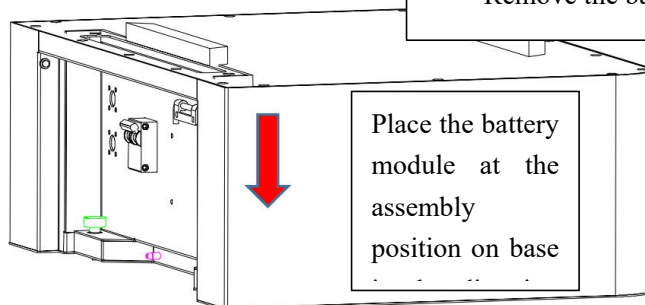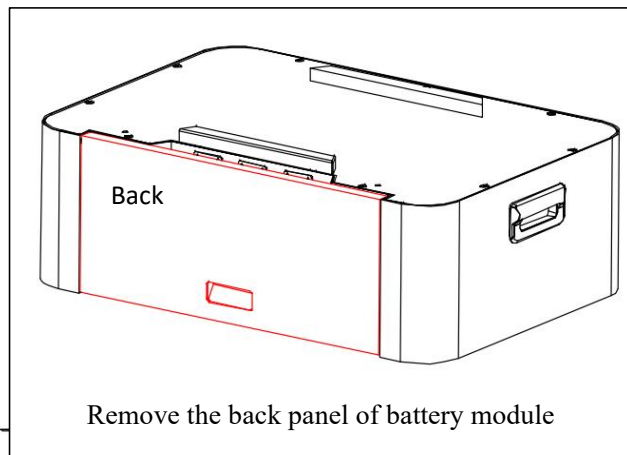
Step 3: Align the transverse locating pin at the bottom of battery box with the axis of transverse locating hole of base; push the battery to the extent that the longitudinal locating pin of battery is aligned with the longitudinal locating hole of base, put down the longitudinal locating pin at the back of battery, and complete the installation after the clamping sound of pin;

In the direction of arrow, push the battery on the left and right sides at the same time to insert the limit post of battery into the limit hole of base.
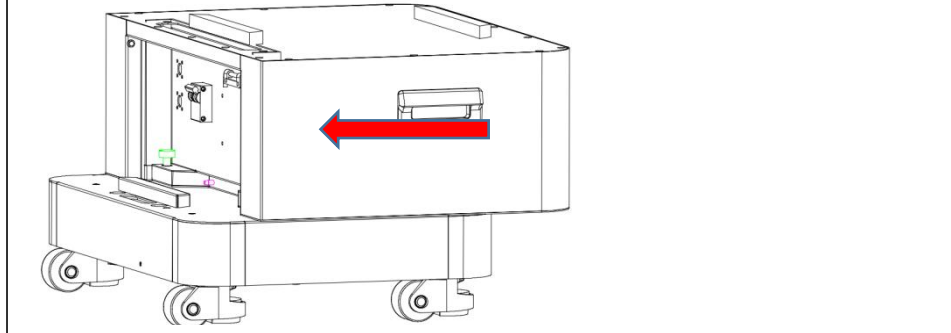
Rotate and drop two longitudinal locating pins respectively, insert the locating pin into the locating hole and complete the installation after the clamping sound of pin
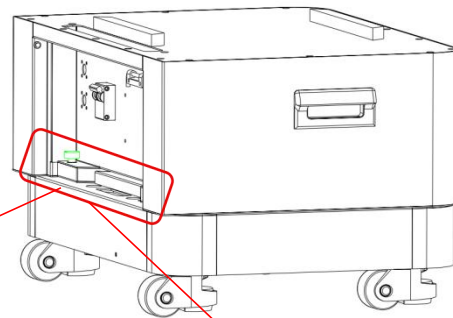
Description of correct installation: the locating pin is fully inserted into the locating hole

Description of correct installation: the locating pin is fully inserted into the locating hole
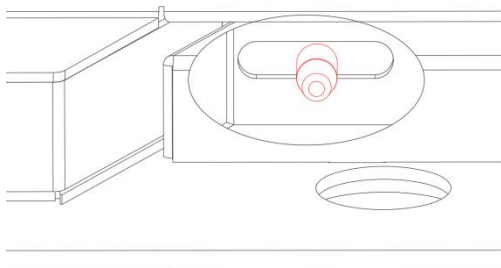
Description of wrong installation: Locating pin is not fully inserted into locating hole
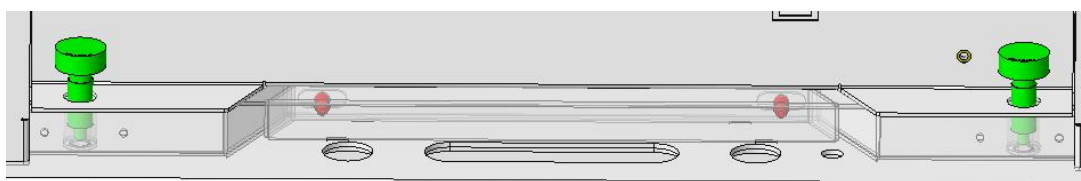
Step 5: Install the rest of the batteries and inverters according to the same method and steps as above;

The installation method and steps are the same as above

Installation Diagram of Inverter lug:

Enlarged view

Install the fixing support at the back of inverter

The installation method and steps of inverter are the same as battery
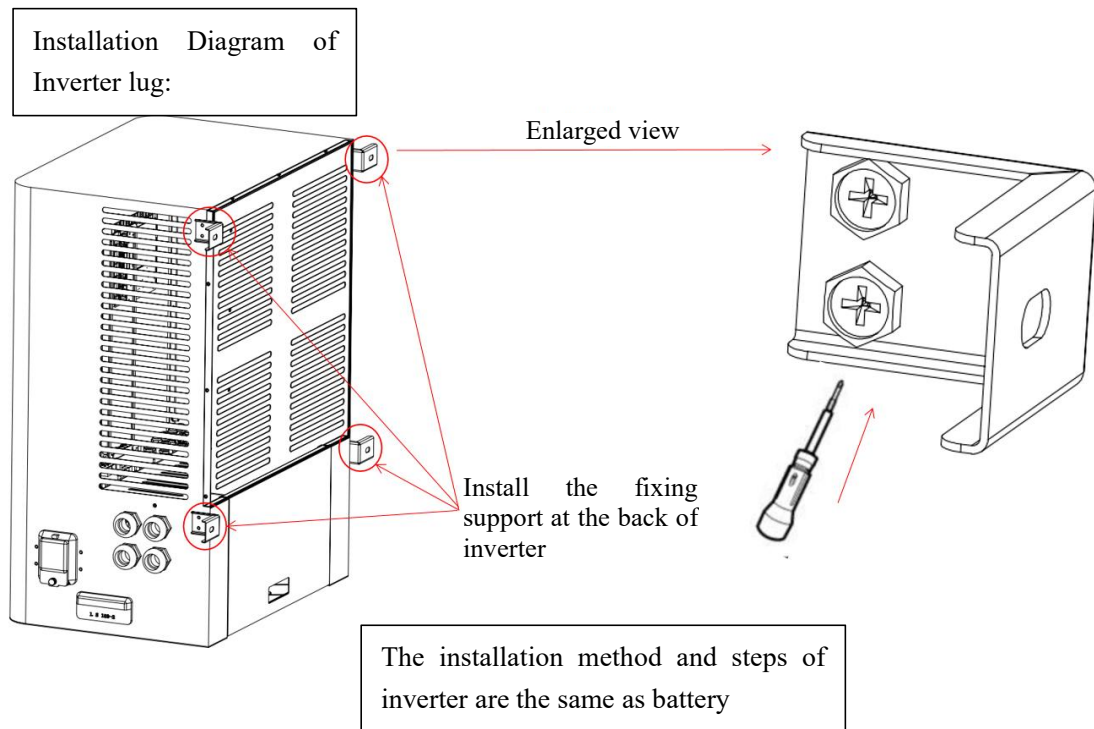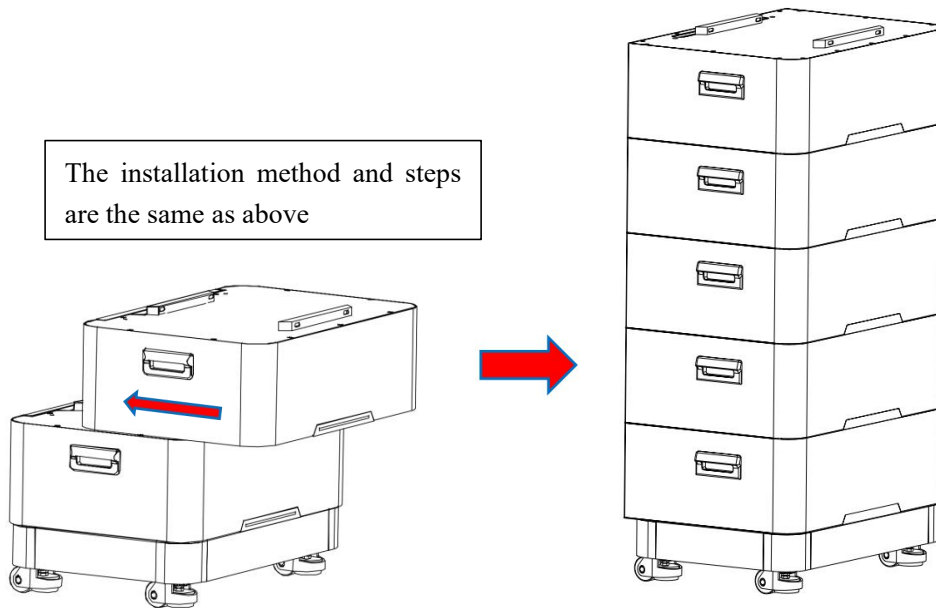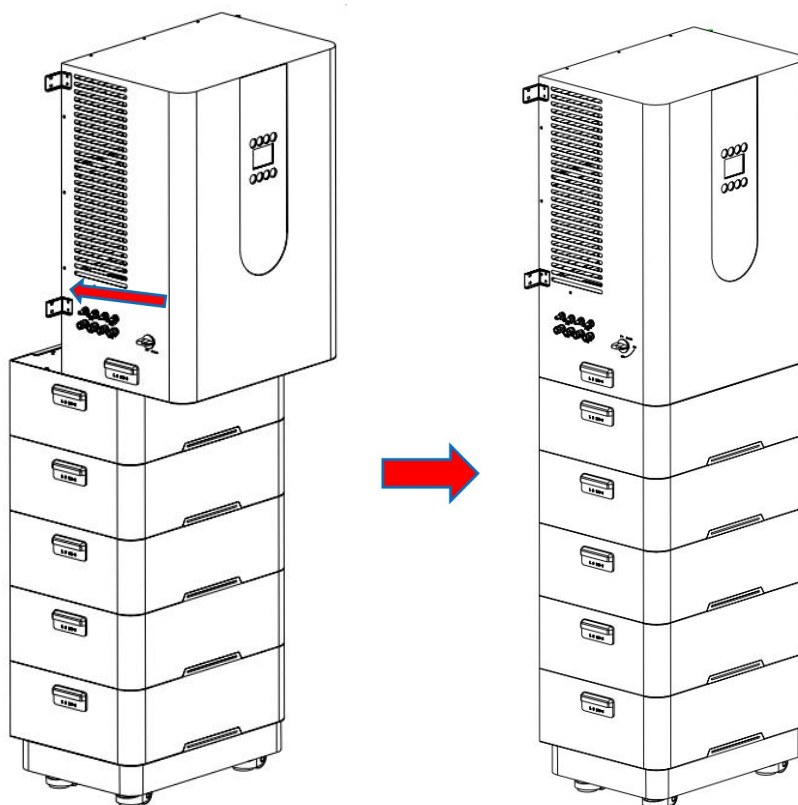
Step 6: Fix the equipment, and after completing all installations and debugging, apply the rear cover of battery box, install two fixing supports on the back of inverter, punch two expansion screws on the wall according to the height of screw holes of the fixing support, move the equipment against the wall, and lock the fixing support on the expansion screw;

⚠ Caution

Equipment shall be installed by not less than 3 installers who shall wear safety shoes, gloves and other protective tools.

Wall

Schematic diagram for mounting the expansion screws into the wall:

Φ8 mm
45-50 mm 90°

First punch holes in the wall, then install the expansion screw into the wall, and then push the device to the wall by two installers to place it against the wall
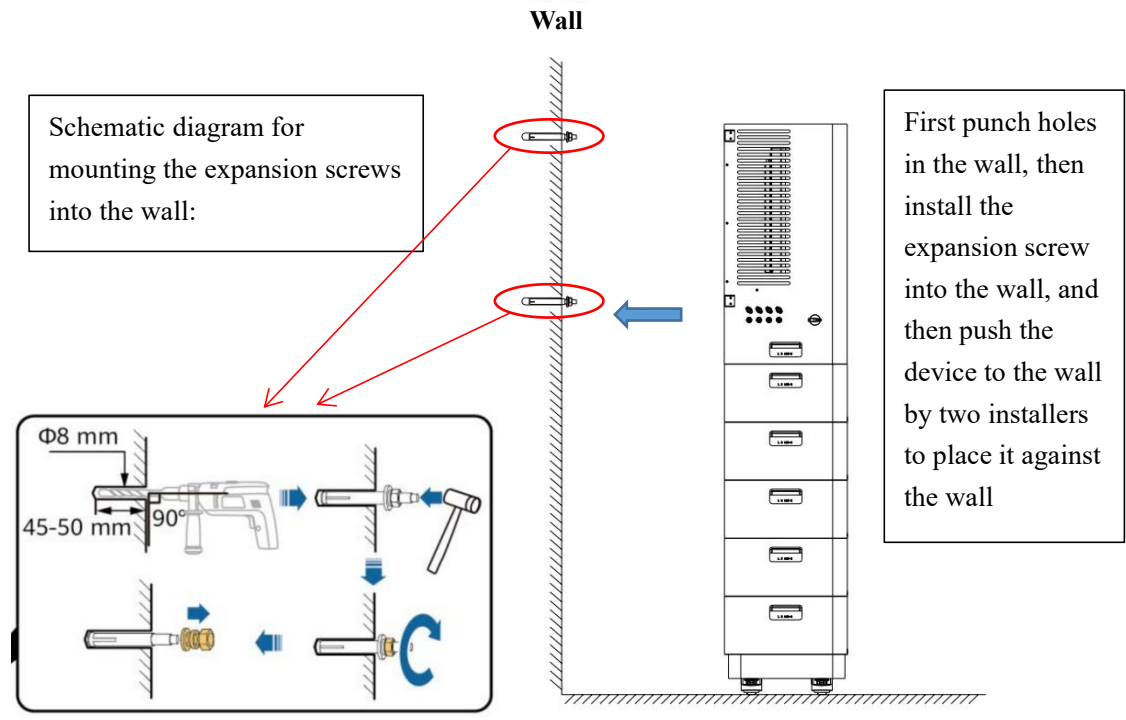
The expansion screws are fixed on the wall

≥50 CM

≥50 CM   ≥50 CM

The top, left and right sides of the equipment shall be more than 50cm away from surrounding objects or walls.
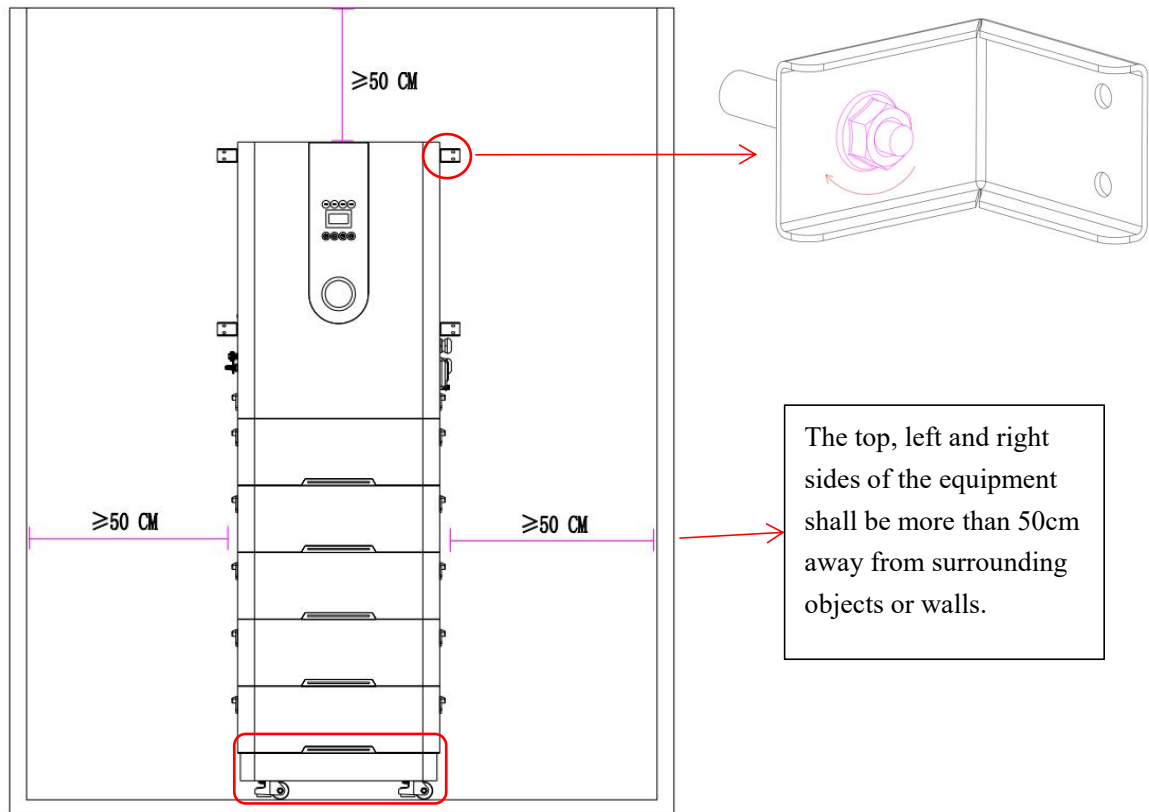
Step 7: Lock the universal wheel

After fixing the equipment, lock the universal wheel according to the following figure:

Adjusting gear

Rotate the gear counterclockwise to loosen it

Rubber base

Roller

Rubber base rises

Loosen the universal wheel

Adjusting gear

Rotate the gear clockwise to loosen it

Rubber base

Roller

Rubber base falls

Lock the universal wheel
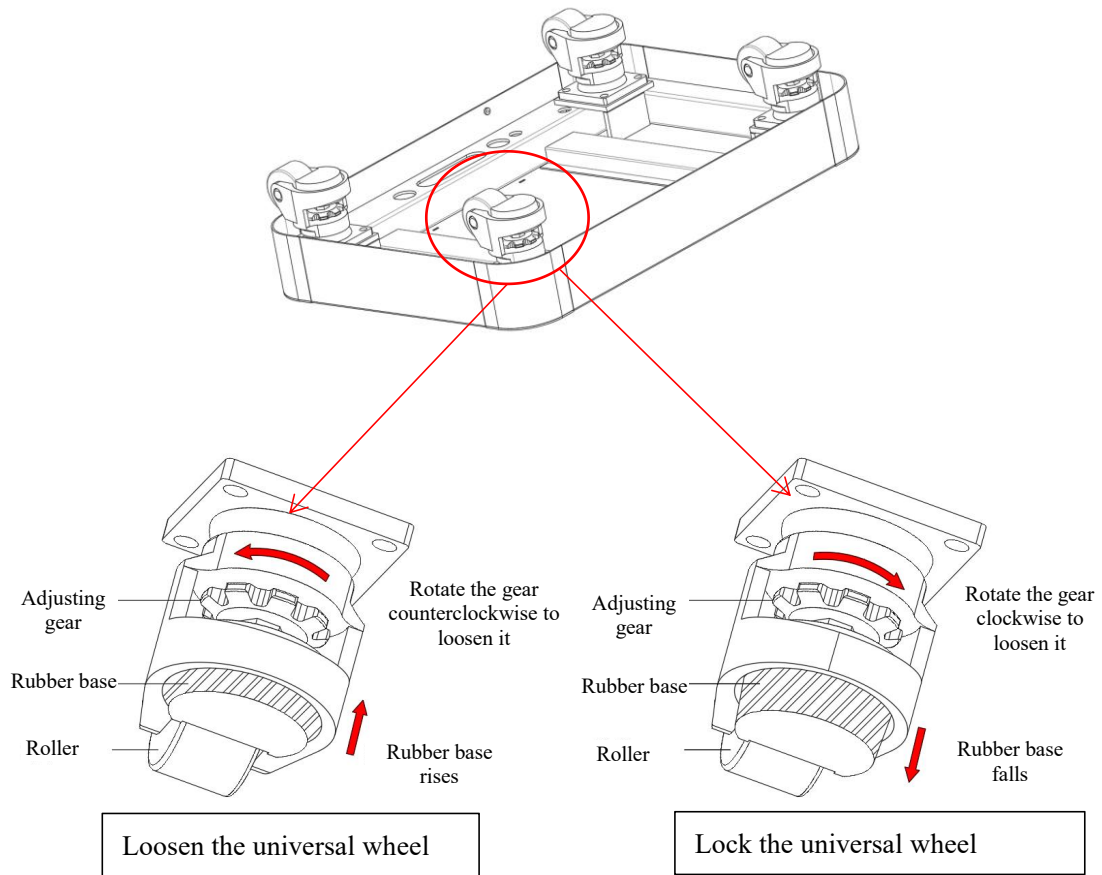
4.6 Dip settings

After the installation, set the communication address of battery BMS. The dip switch for address setting is located on the left side of BMS interface on the back of battery module as shown in the following figure.

Schematic diagram of dip switch:

2D

Shaded part protrudes from the surface

Picture
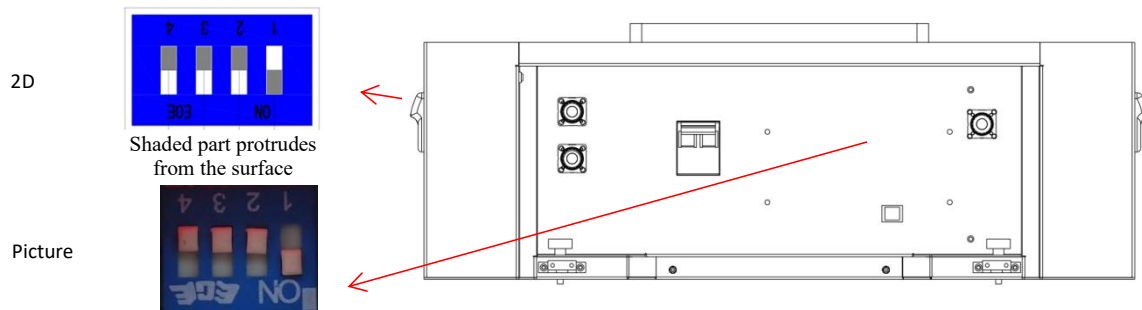
Instruction: The dip switch is actually inverted, and the digital dip position shall be checked for dipping.

⚠ Caution

6-15kW products can accommodate up to 7 battery modules for single-phase model and 9 battery modules for three-phase model. In case of more that 7 battery modules, please contact your dealer or Lenercom

Dip switch is used to set the address of each BMS slave protection board. The code value is "1" at "ON" position, and "0" at "OFF" position.
The list of dip addresses is as follows:

Dip position				Address
4	3	2	1	
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	0	0	0	8
1	0	0	1	9
1	0	1	0	10
1	0	1	1	11
1	1	0	0	12
1	1	0	1	13
1	1	1	0	14
1	1	1	1	15

0001 — Address: 1
0010 — Address: 2
0011 — Address: 3
0100 — Address: 4
0101 — Address: 5
0110 — Address: 6
0111 — Address: 7
1000 — Address: 8
1001 — Address: 9
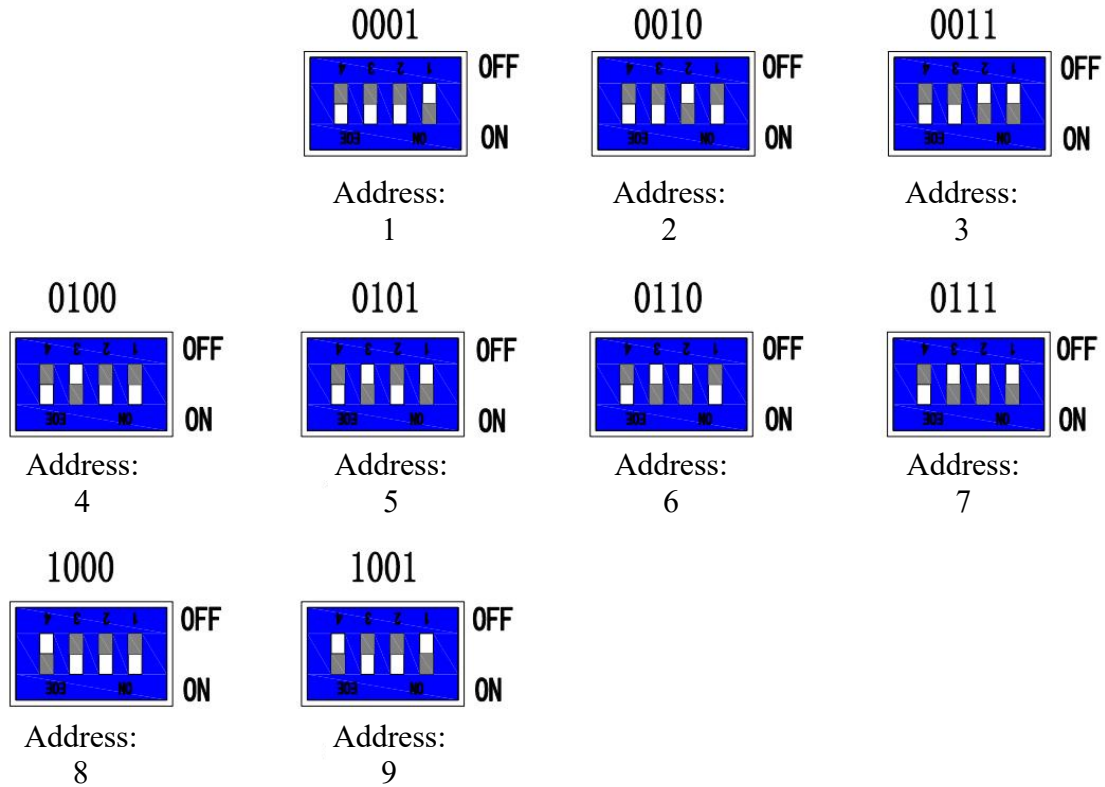
Instruction: Battery module BMS slave dip address is set as 1 to 9 from bottom to top according to the assembly position of battery module.

5 Electrical Connection

5.1 Internal wiring of equipment

5.1.1 Connection of grounding wire and communication wire

Connect the grounding points of the base, battery module, and inverter in turn, and fasten the grounding wire with grounding screws.

Communication harness

Communication harness

Communication harness

Communication harness

Communication harness

Grounding
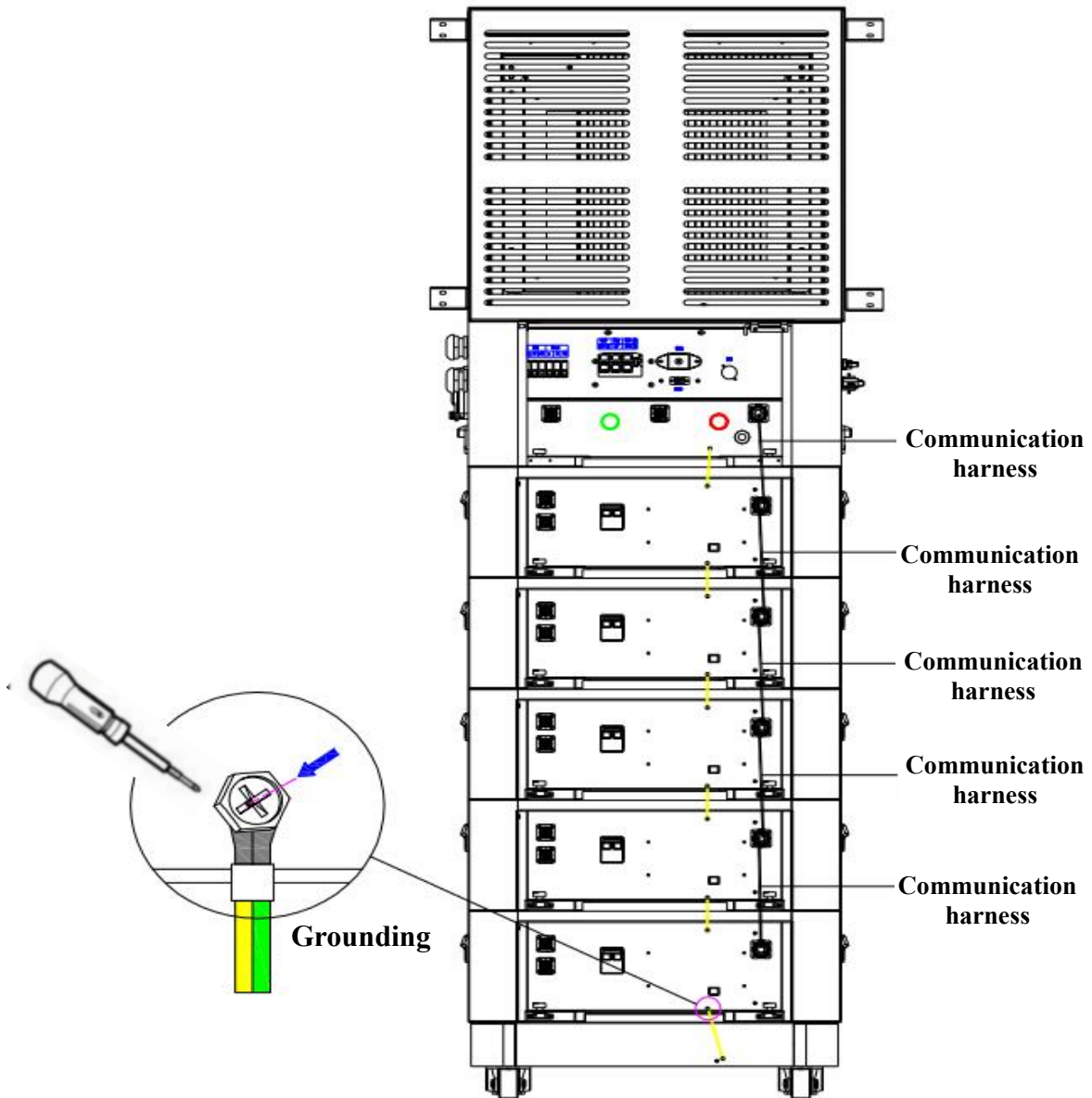
5.1.2 Power line connection

Both ends of the anode connection line between battery and inverter are orange, and both ends of the cathode connection line between battery and inverter are black.

The anode end of the battery series wire is orange and the cathode end is black;

S/N	Name	Illustration	Description
1	Grounding wire		Grounding
2	Communication harness		Communication link between battery boxes. Communication wire is installed from top to bottom. First, insert the plug into the socket. After pushing the metal part of the plug forward, rotate it clockwise. The connection is completed when a beep sound is heard.

S/N	Name	Illustration	Description
1	Anode of power output line (Orange)		To connect inverter "B +" and battery "B +".

2	Cathode of power output line (Black)		To connect inverter "B-" and battery "B-".
3	Battery series wire (Black and orange)		To connect "B+" and "B -" of adjacent batteries Black end is connected with B-, and orange end with B+.

Precautions for connector installation
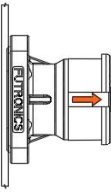
The locating ring of the battery anode/cathode socket can be rotated, and there are two locating slots. Before connecting the cable, make the locating slot indicated by the socket arrow face outward (B+ is to the left, B- is to the right)	The power line plug has two locating pins. Align the plug with the socket arrow, insert the power line plug into the socket, and complete the connection when a crisp sound is heard.
① ① B+ B− Locating slot Locating slot	Slot Plug ② ③
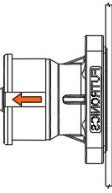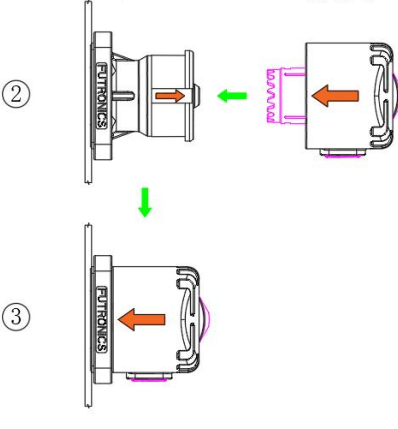
Power-on check of battery: after the internal cables are connected, test whether the battery high voltage system can be turned on normally according to steps 2 and 3 of Chapter 6.1. If it fails to turn on, please check again whether the internal wiring of equipment is correct and whether the connector is plugged in place. After confirming that it can be started normally, please turn off the battery high voltage system according to steps 5 and 6 of Chapter 6.2, and then complete the external wiring of the equipment.

5.2 External wiring of equipment

5.2.1 Inverter grid input and load output wires (single-phase model versus three-phase model)

1. AC input (Grid connection) (single-phase models)

Hybrid inverter is specially designed for single-phase power grid. Voltage is 230V and the frequency is 50Hz/60Hz (automatic detection frequency).

Miniature breaker shall be installed between the inverter and power grid, and no load shall be directly connected to the inverter

Step 1: Check the grid voltage

    1.1 Check whether the grid voltage/range conforms to the grid voltage range of equipment (230V/176Vac ~ 270Vac).

    1.2 Disconnect the AC input power supply, and turn off LC-E2 (operate 5min after shutdown) to ensure that the whole equipment is powered off.

Step 2: Select the wire to connect with cold-pressed terminal.

Step 3: Fit the grid cable through the grid port and connect the grid cable to the grid terminal.

2. Load output (EPS connection) (single-phase models)

The inverter has grid-connected and off-grid functions. When the power grid is connected, the inverter enables the output through the AC port. Output is enabled through EPS port when power grid is disconnected

Miniature breaker shall be installed between the inverter and load, and no load shall be directly connected to the inverter

Step 1: Check the voltage of EPS port

    1.1 Check whether the voltage/range of EPS port conforms to the grid voltage range of equipment (230V/176Vac ~ 270Vac)

    1.2 Disconnect the AC input power supply, and turn off LC-E2 (operate 5min after shutdown) to ensure that the whole equipment is powered off.

Step 2:   Select the wire to connect with cold-pressed terminal.

Step 3: Fit the load cable through EPS port and connect the load cable to the load terminal.

3. AC input (Grid connection) (three-phase models)

Hybrid inverter is specially designed for three-phase power grid. Voltage is 380V and the frequency is 50Hz/60Hz (automatic detection frequency).

Miniature breaker shall be installed between the inverter and power grid, and no load shall be directly connected to the inverter

Step 1: Check the grid voltage

    1.1 Check whether the grid voltage/range conforms to the grid voltage range of equipment (380V between live wires and 230V between live wire and null wire).

    1.2 Disconnect the AC input power supply, and turn off LC-E2 (operate 5min after shutdown) to ensure that the whole equipment is powered off.

Step 2: Select the wire to connect with cold-pressed terminal.

Step 3: Fit the grid cable through the grid port and connect the grid cable to the grid terminal.

4. Load output (BACK-UP1/BACK-UP2 connection) (three-phase models)

The inverter has grid-connected and off-grid functions. When the power grid is connected, the inverter enables the output through the AC port. Output is enabled through BACK port when power grid is disconnected

Miniature breaker shall be installed between the inverter and load, and no load shall be directly connected to the inverter

Step 1: Check the voltage of **BACK** port

1.1 Check whether the voltage/range of **BACK** end conforms to the grid voltage range of equipment (380V between live wires and 230V between live wire and null wire).

1.2 Disconnect the AC input power supply, and turn off LC-E2 (operate 5min after shutdown) to ensure that the whole equipment is powered off.

Step 2: Select the wire to connect with cold-pressed terminal.

Step 3: Fit the load cable through **BACK** port and connect the load cable to the load terminal.

5. Generator input (DG) (three-phase models)

Hybrid inverter is specially designed for three-phase power grid. Voltage is 380V and the frequency is 50Hz/60Hz (automatic detection frequency).

Miniature breaker shall be installed between the inverter and generator, and no load shall be directly connected to the inverter

Step 1: Check the output voltage of generator

1.1 Check whether the output voltage/range of generator conforms to the grid voltage range of equipment (380V between live wires and 230V between live wire and null wire).

1.2 Disconnect the AC input power supply, and turn off LC-E2 (operate 5min after shutdown) to ensure that the whole equipment is powered off.

Step 2: Select the wire to connect with cold-pressed terminal.

Step 3: Fit the grid cable through the grid (DG) port and connect the grid cable to the grid (DG) terminal.

Schematic diagram of single-phase model wiring:

Inverter communication port
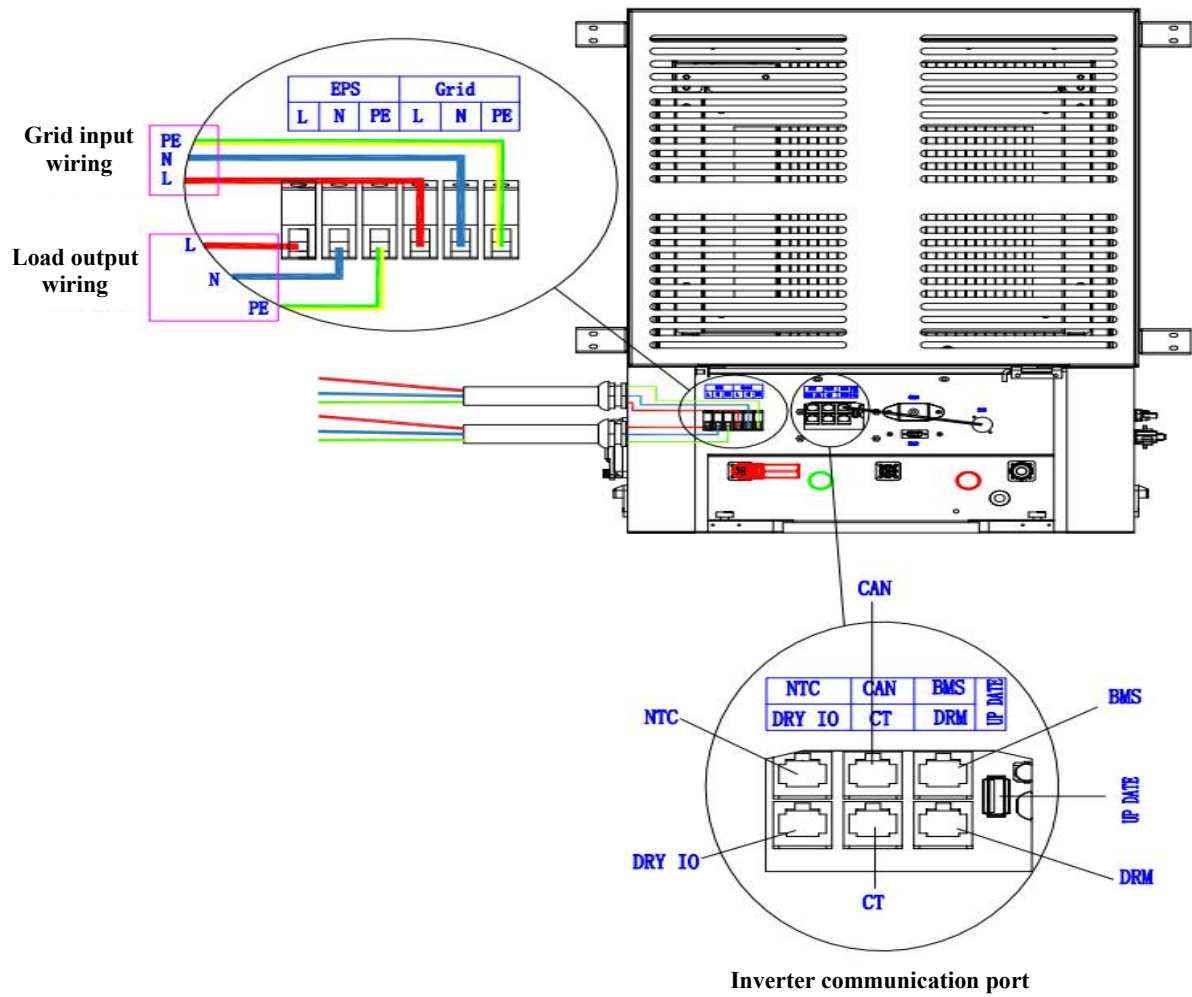
Schematic diagram of three-phase model wiring:
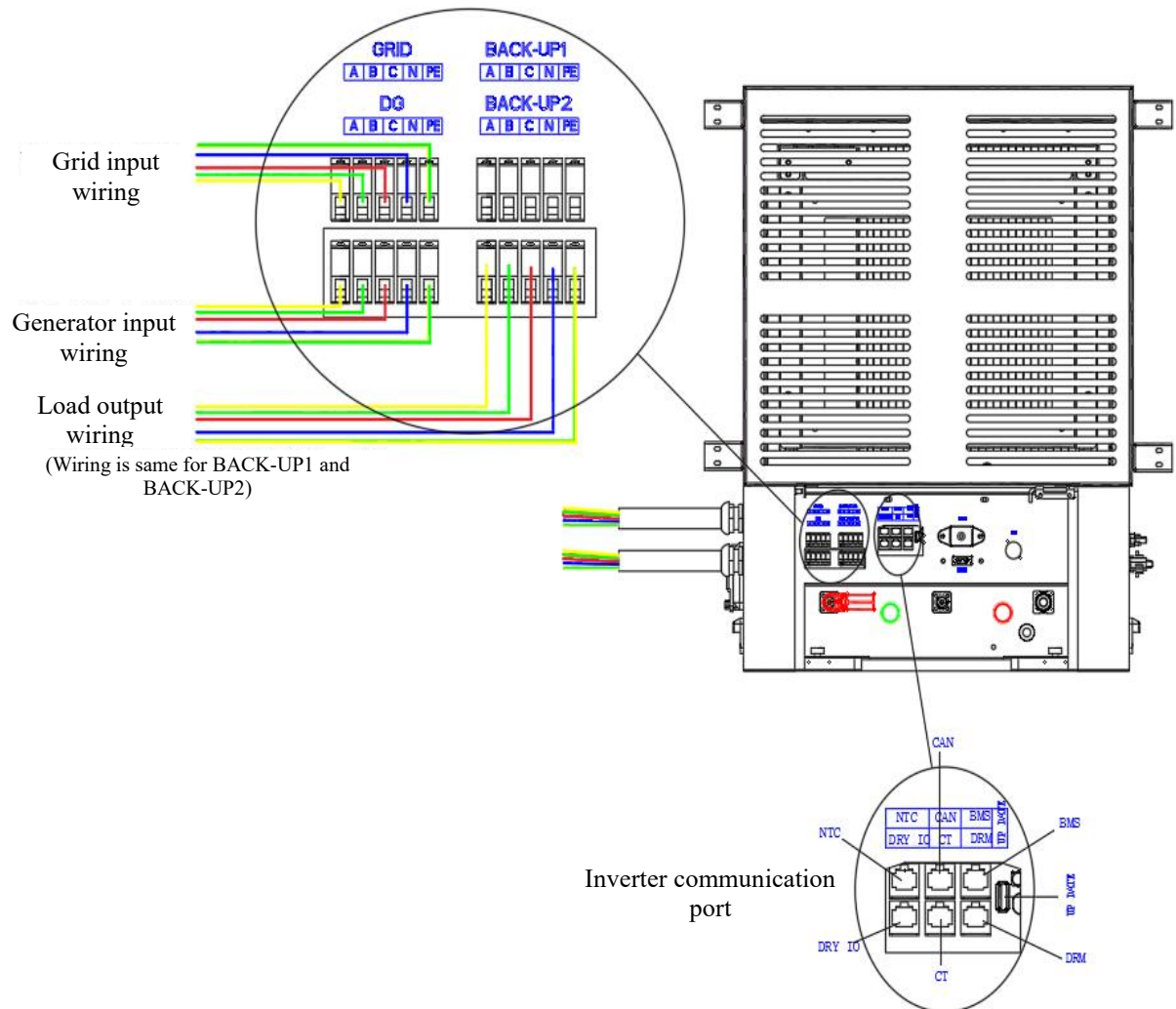
Definitions of inverter communication ports:

No.	Name	Description
1	NTC	Lead-acid battery sampling, not yet developed;
2	CAN	Internal communication (parallel), not developed yet
3	BMS	To connect with BMS communication wire of lithium battery
4	DRY IO	Dry contact, not yet developed;
5	CT	To connect the grid side CT (transformer)
6	DRM	Reserved interface to be developed
7	UP DATE	Upgrade port for USB firmware

5.2.2 PV input wire

Instructions:

1. PV input voltage range of 9/10/11kW single-phase models is 125V-500Vdc, and the maximum open circuit voltage is 550Vdc. It is recommended that the number of PV modules in series per channel is 6-10.

2. PV input voltage range of 6/8/10/12/15kW three-phase models is 180V-850Vdc, and the maximum open circuit voltage is 1000Vdc. It is recommended that the number of PV modules in series per channel is 8-16.

The open circuit voltage (VOC) of PV module shall not be greater than the maximum open circuit voltage of inverter MPPT (e.g., maximum open circuit voltage of PV array < 550V for the single-phase models or < 1000V for three-phase models)

The open circuit voltage (VOC) of PV module shall be higher than the minimum voltage of battery.

The voltage of the maximum power PV module (Vmp) shall be close to or within the optimal VMP of the inverter. If one PV module cannot meet this requirement, multiple PV modules shall be connected in series. Please refer to the table below.

Solar charging mode (MPPT)					
Inverter model	9kW - single phase	10kW - single phase	11kW - single phase		
Maximum input power of PV	11.7kW	13kW	14.8kW		
Number of MPPT controller channels	2 channels of MPPT / number of parallel controllers of each channel - 2 in parallel				
PV charge current	4*12A	4*12A	4*12A		
Maximum open circuit voltage of PV array	550V				
MPPT voltage range of PV array	180V~500V				
Inverter model	6kW - three-phase	8kW - three-phase	10kW - three-phase	12kW - three-phase	15kW - three-phase
Maximum input power of PV	9kW	12kW	15kW	18kW	22.5kW
Number of	2 channels of MPPT / number of parallel controllers of each channel - 1 in				

MPPT controller channels	parallel				
PV charge current	2*13A	2*13A	2*13A	2*13A	2*13A
Maximum open circuit voltage of PV array	1000V				
MPPT voltage range of PV array	180V~850V				

Step 1: connection steps of PV panel:

1. Check PV components:

1.1 Measure the voltage of module array with a multimeter

1.2 Check whether the PV + and PV- connections between PV string and all-in-one machine are correct

1.3 Ensure that PV module anode and cathode impedance to ground is of M Ω grade

Step 2: wiring steps of PV connector

1 Prepare the harness

1.1 Select 12AWG conductor and cold-pressed terminal (male pin and female pin)

1.2 Strip 8-10mm insulation from wire ends

1.3 Insert the insulated wire into the pin contact and press it firmly with a special pressing clamp.

1.4 PV cable is assembled to the back of the male or female plug after passing through the connector nut and flange head. When you feel or hear a "click" sound, the pin contact component is in place correctly

1.5 Insert the PV connector into the corresponding PV connector port on the inverter

Anode metal terminal
8-10 mm
8-10 mm
Cathode metal terminal

PV-CZM-22100/19100
Ensure that the cable cannot be pulled out after compression

Anode connector
Cathode connector
Click

Measure the voltage with a multimeter at DC position

Tighten the lock nuts with the spanner as shown in the figure. When the spanner slips during tightening, the lock nut is tightened.

PV-MS-HZ
Open spanner

IH07I30001

Use Staubli MC4 anode, cathode metal terminals and DC connectors. The use of other incompatible models of anode, cathode metal terminals and DC connectors may result in serious consequences, and the resulting equipment damage is not covered by the warranty.

Three-phase inverter

PV1- PV2-

PV1   PV2

Single-phase inverter

PV1- PV2-

PV1   PV2
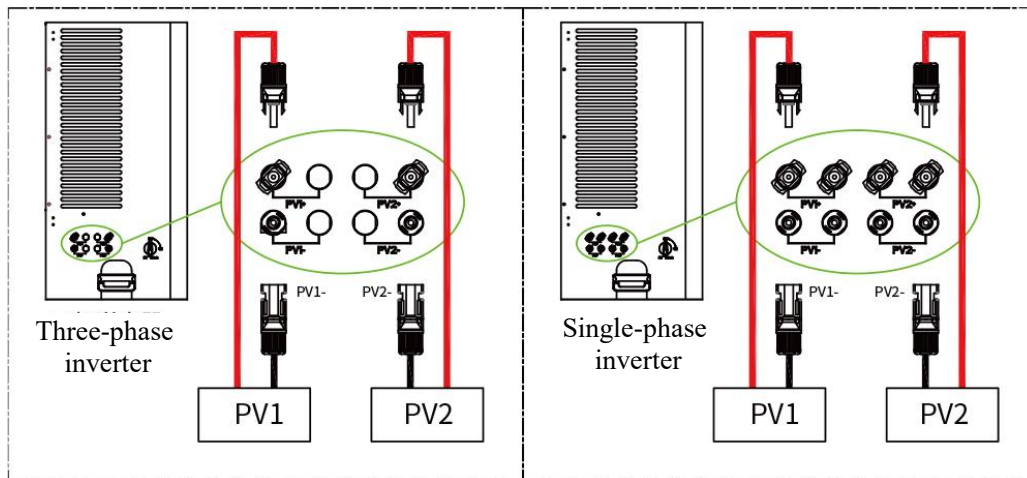
PV string connection is as shown in the following figure

PV1+
PV1−

PV2+
PV2−
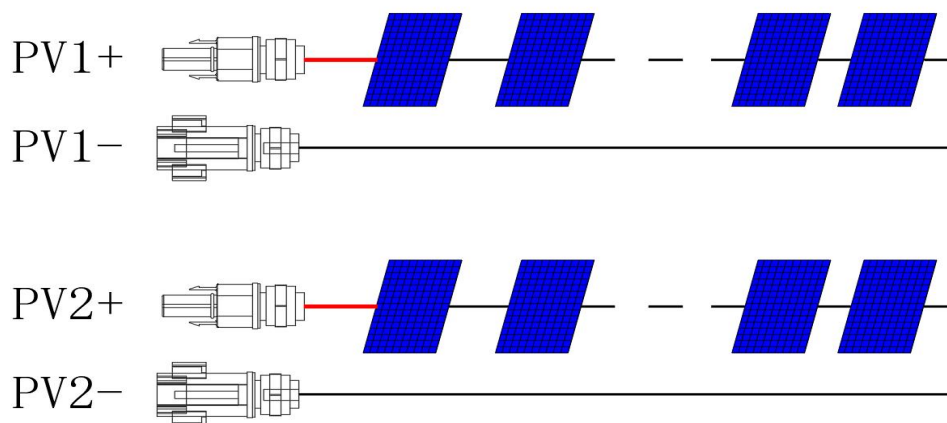
5.2.3 Distribution box wire:

1. Wiring diagram with dual power switch (optional) (single-phase models)
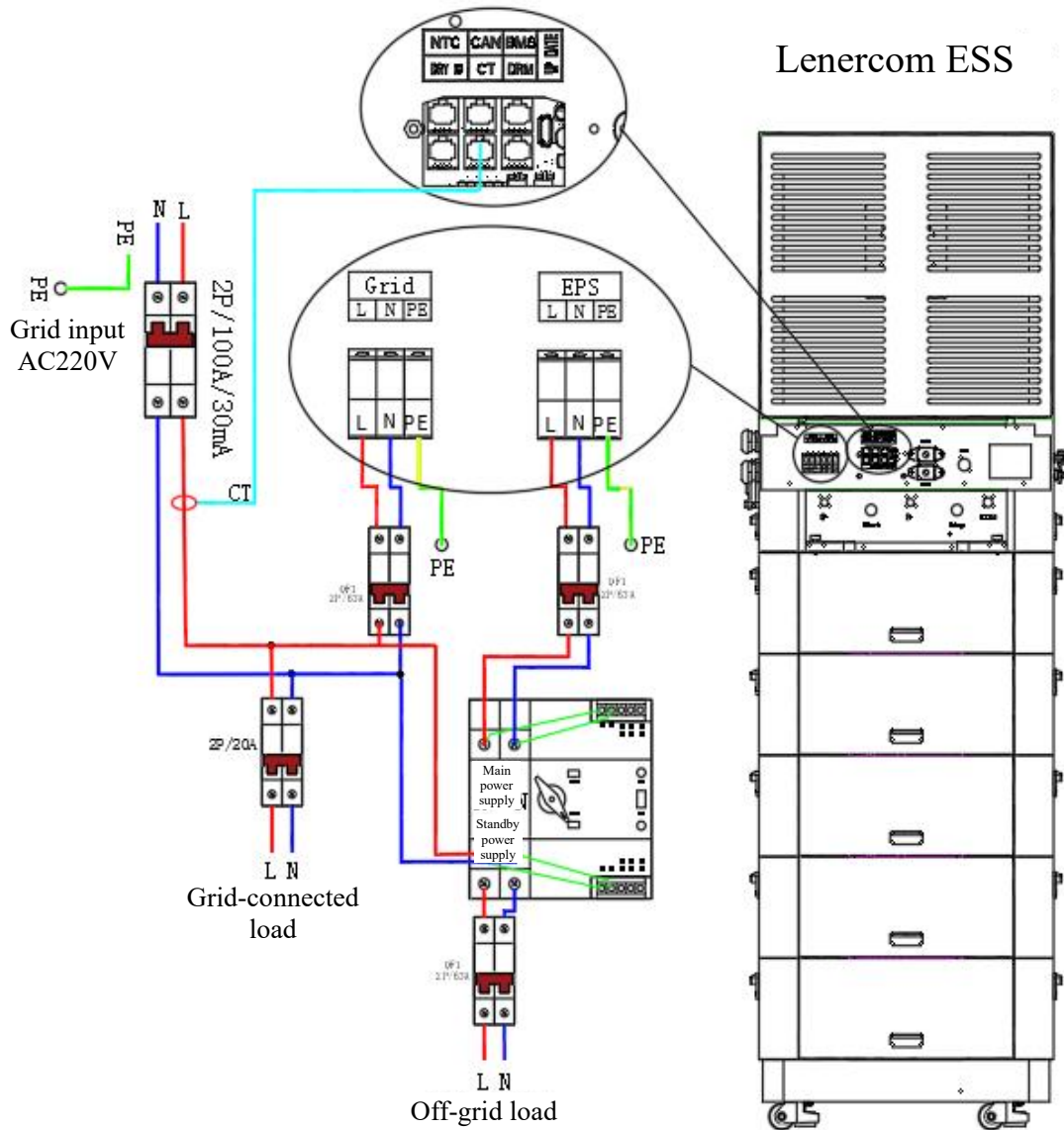
2. Wiring diagram without dual power switch (single-phase models):
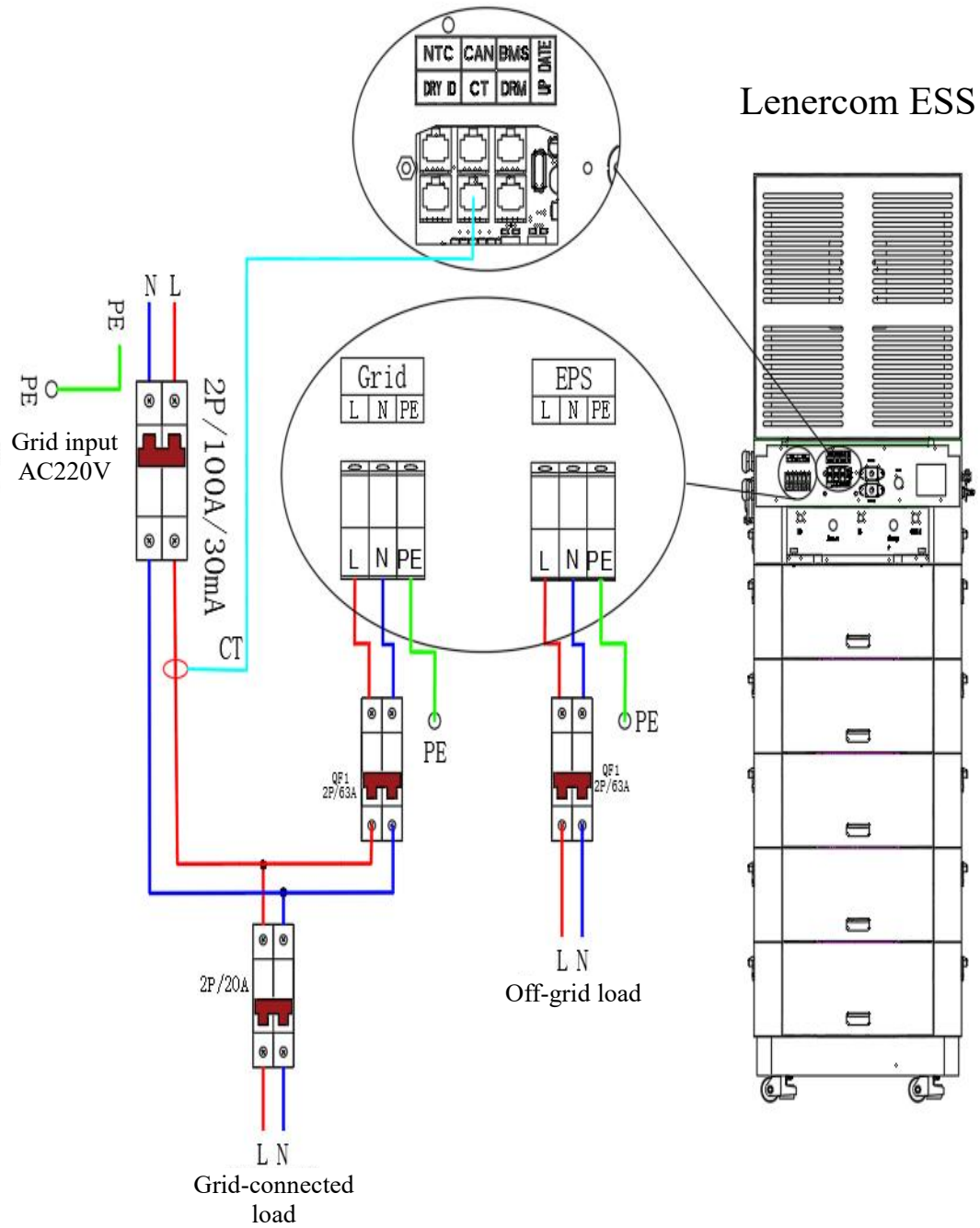
3. Wiring diagram with dual power switch (three-phase models)
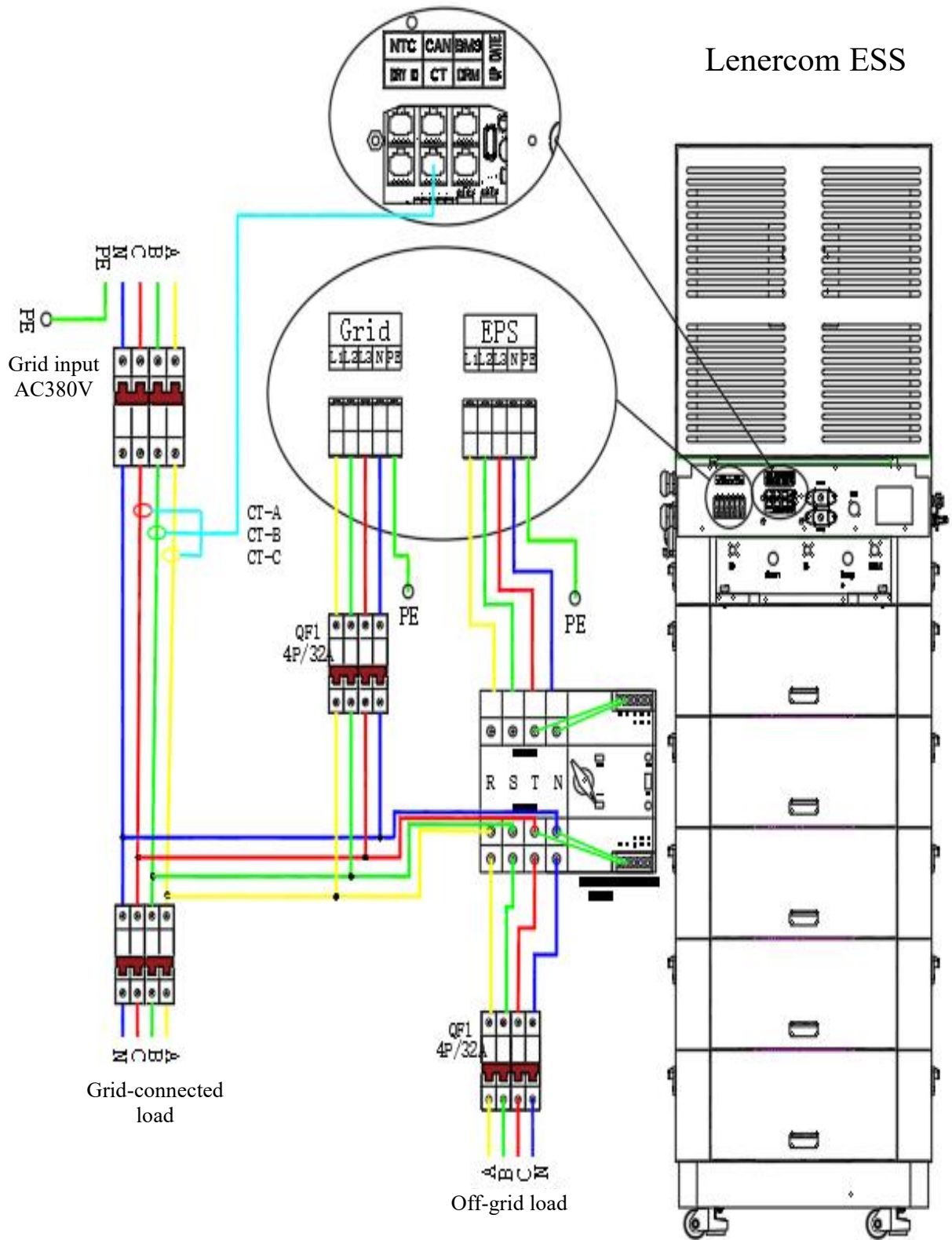
4. Wiring diagram without dual power switch (three-phase models):
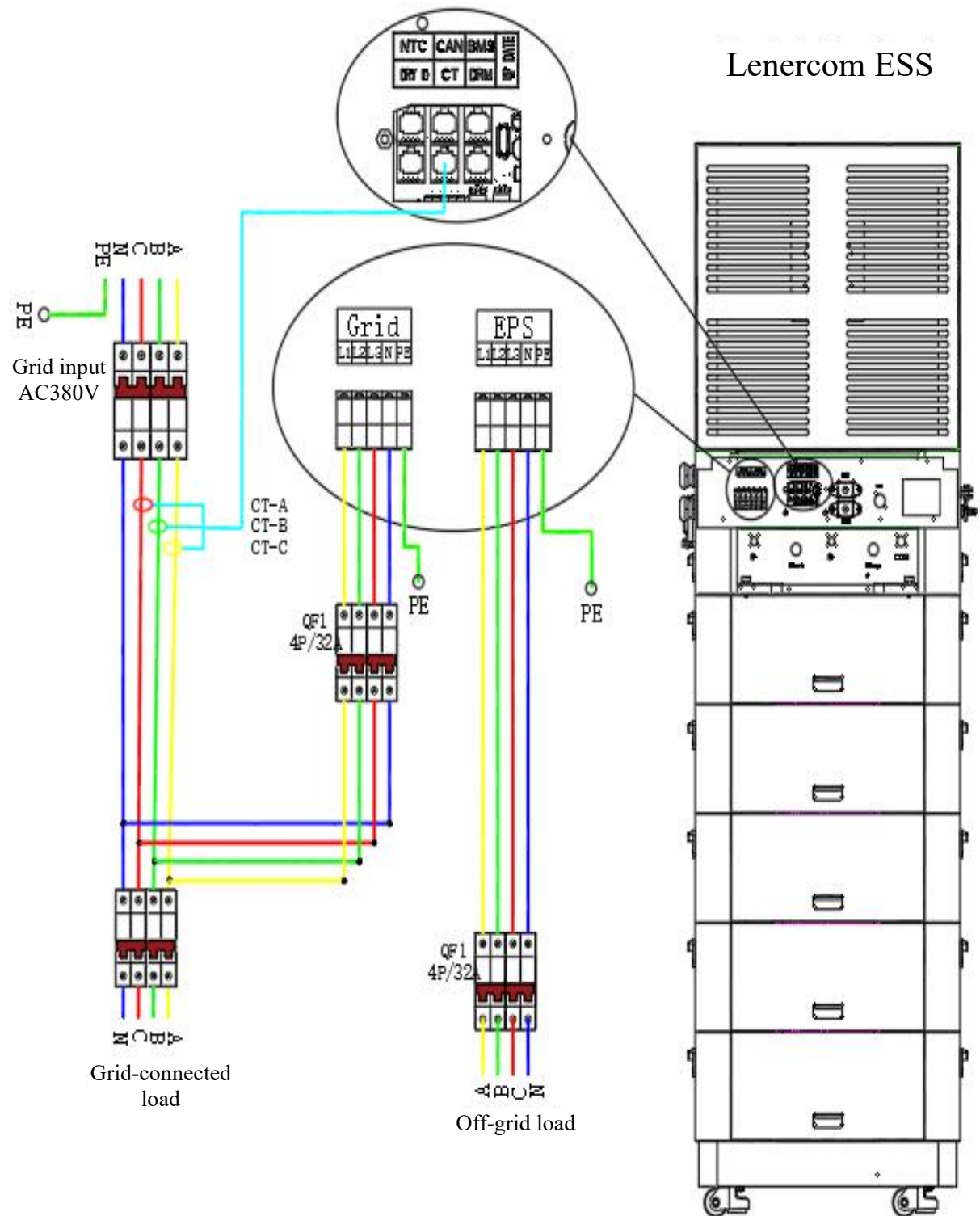
5.3 Precautions for CT installation:
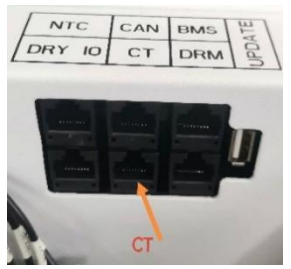
5.3.1 CT of single-phase model can be connected to L wire on the grid side.

⚠ Caution

All works shall be performed by trained operators with safe and appropriate tools.
This product is an open-close transformer. Please pay attention to the cleanliness of magnetic core surface when installing. If there is dirt on the magnetic core surface, the accuracy of the product will deteriorate.

1.Before the transformer is connected to the equipment, please ensure that the circuit is powered off to prevent electric shock.

2.Turn on CT as shown in Picture 1.

3.Clip the CT on the cable under test. Ensure that the maximum current in the circuit does not exceed the maximum input current of CT; the current is in the direction of the arrow on the CT shell, i.e. the arrow points to grid side.

4.Fasten the CT. At this time, the cable under test shall be inside the CT window (see Picture 2)

5.Fix the CT to the cable under test with nylon tie to prevent the CT from sliding (see Picture 3)

6.Connect the CT output black line (RJ45) to the CT communication port of inverter. (See Picture 4).

7.After checking that the circuit is correct, turn on the power supply that CT starts to measure the current in the circuit.

Picture 1	Picture 2	Picture 3	Picture 4
Turn on CT	Install CT	Fix CT	Connect CT output

5.3.2 Installation mode of the three-way camera CT

Referring to chapter 5.3.1, the CT installation method, the difference is that the A, B, and C three-phase cables are all connected to the CT, as shown in the figure below:

Description of pin

Pins 7 and 8 are empty
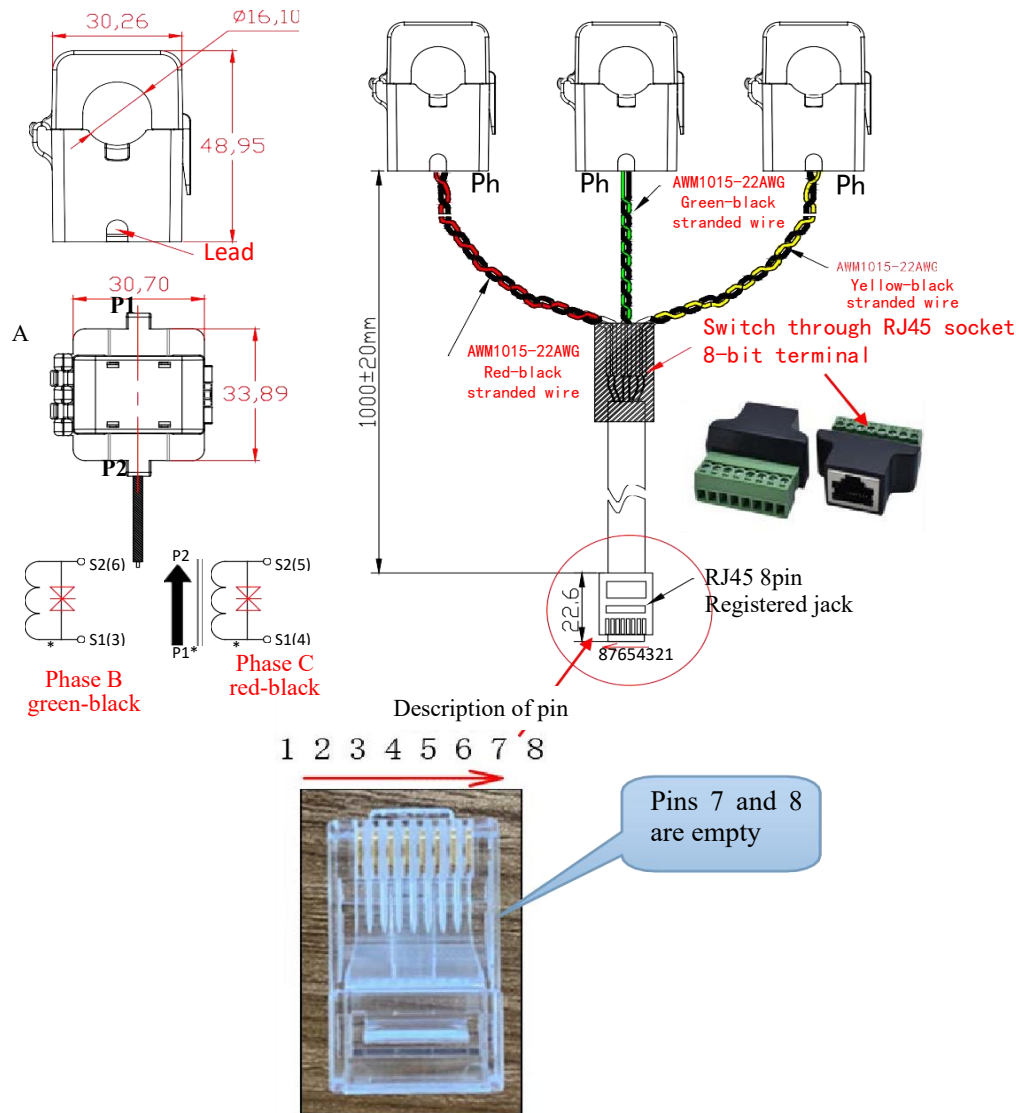
Phase A(U)	Phase B(V)	Phase C(W)	RJ45 8pin
Yellow-black stranded wire	Green-black stranded wire	Red-black stranded wire	CT interface of inverter

5.4 Definitions of COM interfaces

Inverter COM port
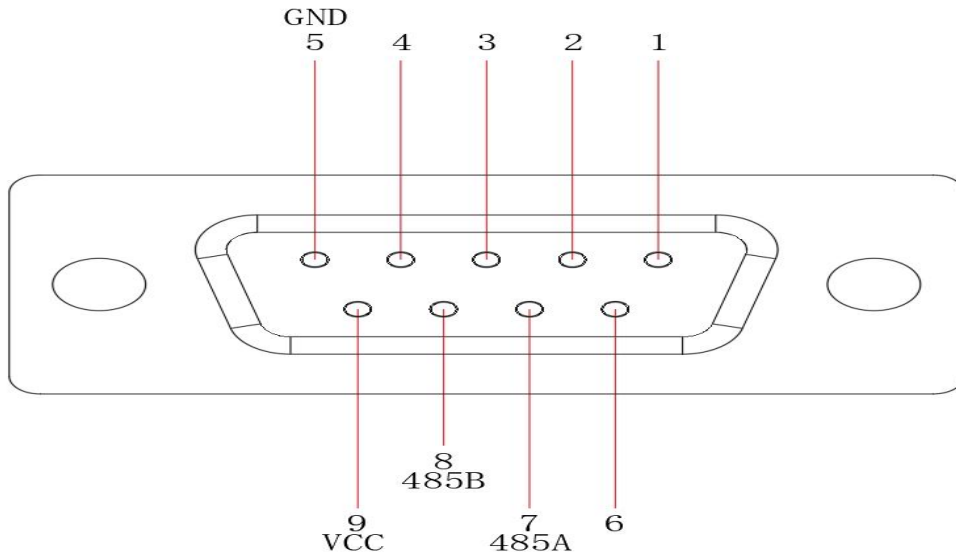
Definition of COM1/DB9 interface:

Pin	Description	Network name	Type	Description
9	Power supply	VCC	POWER	+5Vdc power supply
7	Data communication	A	I/O	RS485_A line
8	Data communication	B	I/O	RS485_B line
5	Power supply grounding	GND	GND	GND

5.5 Installation of WiFi data collector

5.5.1 Funtion introduction

Data collection bar (WiFi) can monitor PV power generation system for a long time by collecting and recording the working status and power generation of inverter. Collection bar can be connected with a single inverter through "RS485 interface", and receive various information of PV system from the inverter. Meanwhile, the system cloud platform can provide powerful data support for the collection bar. Collection bar sends the data to the monitoring platform wirelessly, and the real-time status and historical data of PV system can be presented in the form of charts, which is intuitive, clear and easy to understand. WiFi module is integrated inside the collection bar, so data can be transmitted through WiFi network.

5.5.2 Funtion introduction

Install the data collector into the COM port (DB9 interface) and tighten the flange fixing screw to complete the installation.

6 Power On/Off

6.1 Power on

Step 1: Check whether the harness is correctly connected according to the requirements of the manual (grounding wire, battery power line, communication wire, external power distribution (including CT) and PV wire). Please confirm that all of them have been connected properly and have passed the safety acceptance.

Step 2: Close the BAT Breaker on the right side of inverter cabinet;

Step 3: Turn on the DC breaker of the battery box body from top to bottom or from bottom to top;

Step 4: After confirming that the emergency stop button (STOP) is open (normally close contact is closed), press the green start button (Start) on the back panel of inverter cabinet. It is estimated that the click sound of internal relay after 2-3s will be heard, and the high-voltage system of battery pack will be started;

Step 5: Turn the PV rotary switch on the left side of inverter cabinet. If PV is not installed, PV switch may not be turned on.

At this point, the all-in-one machine is started.

The legend of operation is attached as follows:

① Close the breaker of inverter cabinet;
② Turn the DC breaker of single battery to NO from bottom to top;
③ Press Start button (green)

Start button

Emergency stop button

DC breaker of single battery

④ PV rotary switch
Rotate it to ON position

PV switch
(PV rotary switch)
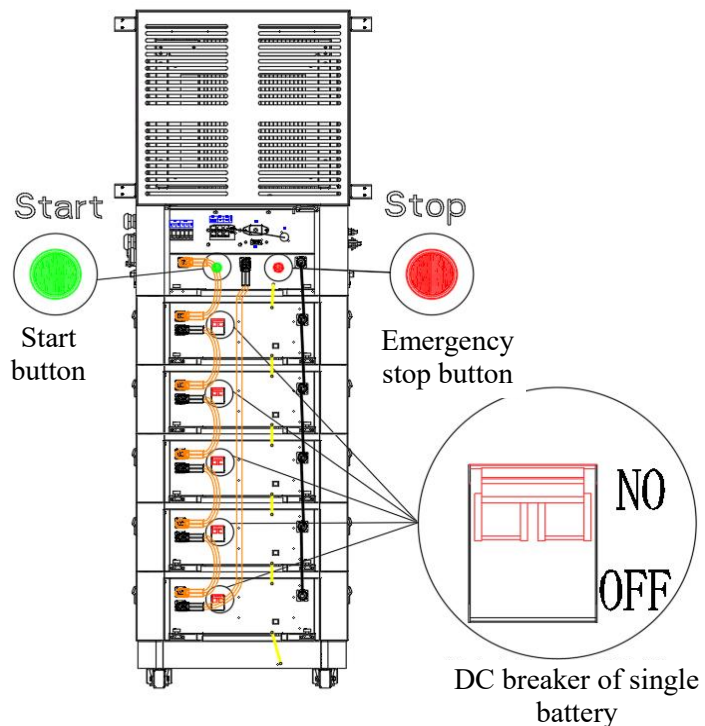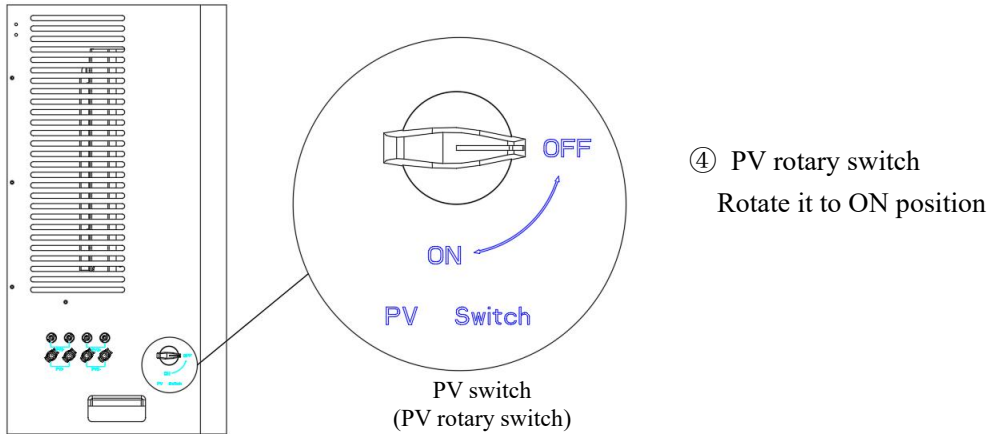
6.2 Shutdown:

⚠ Caution

If the all-in-one machine is out of service for a long time, please make sure that the power is above 50% of SOC before shutdown, and replenish the power every 3 months. Do not store the machine for a long time when the power is lower than 10% of SOC

Step 1: Disconnect the EPS from the electricity load.

Step 2: Disconnect the grid from the GRID of all-in-one machine.

Step 3: Turn the PV rotary switch to OFF position.

Step 4: Disconnect the BAT Breaker on the right side of inverter cabinet.

Step 5: Press the emergency stop button (STOP) to shut down the high-pressure box system (rotate it to the right and return it to the open status).

Step 6: Disconnect DC breaker of each battery box from top to bottom.

At this point, the all-in-one machine is shut down.

② Press the emergency stop button (restore before starting up)

Start button

Emergency stop button

DC breaker of single battery
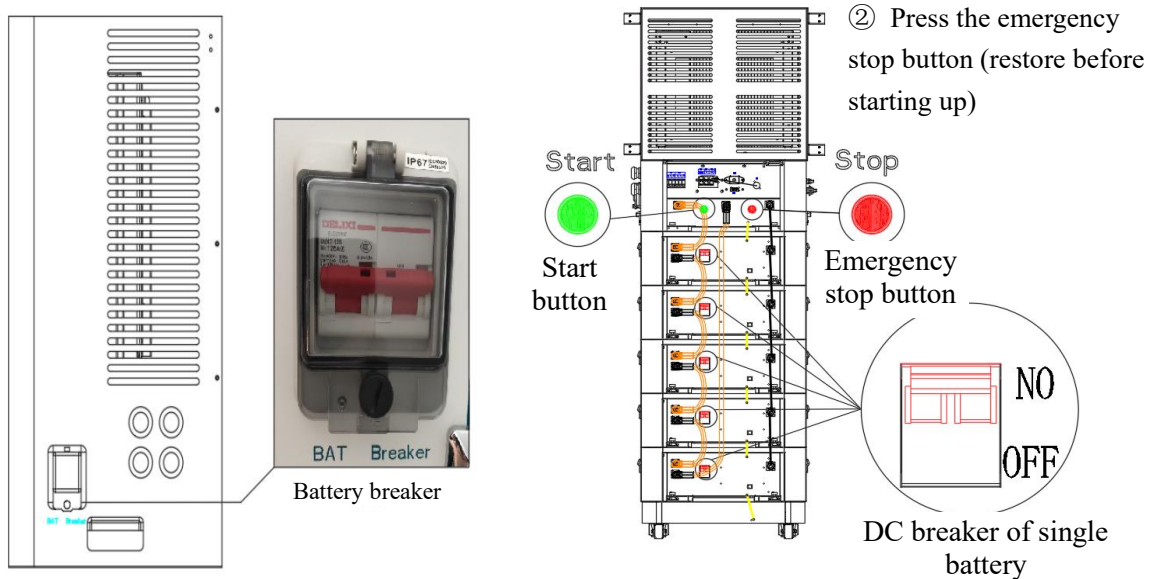
Battery breaker

① Disconnect the battery breaker

③ Switch the DC breaker of single battery to OFF from top to bottom in sequence

7 Instructions of APP

7.1 Product Introduction

Lenercom APP is a client for PV and energy storage system monitoring and control provided for LC-E2. Customers can remotely view the operating parameters of LC-E2 through APP, monitor the running status and working conditions of equipment, and remotely issue control commands, thus realizing remote management of LC-E2.

7.2 APP download

(1) Overseas Android users visit Google Store and search for "Lenercom" to download (or download by scanning QR code on the last page of manual).

(2) IOS users visit app store and search for "Lenercom EMS" to download for installation (or download by scanning QR code on the last page of manual).

7.3 Functional description

Login

Launch the app to see the following interface. Users with existing accounts shall enter the account password to log in
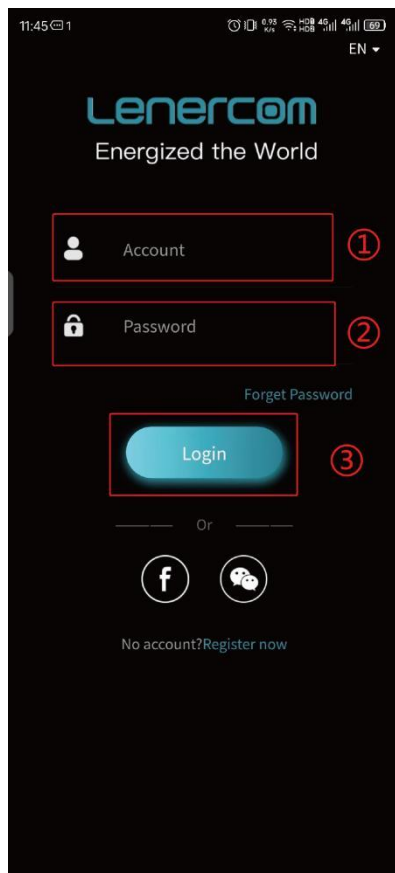
① Enter the account number (email or cell phone number)

② Enter the password

③ Click "Login"

Registration

After downloading the APP, the new user launches APP to enter the homepage, and clicks "Register Now" to enter the registration page. Two registration modes are provided: email registration or cell phone registration. After selecting the registration method, complete the registration steps according to the prompts (the country is a required option), and return to the login page to complete the login. (Cell phone registration only available in Chinese mainland)
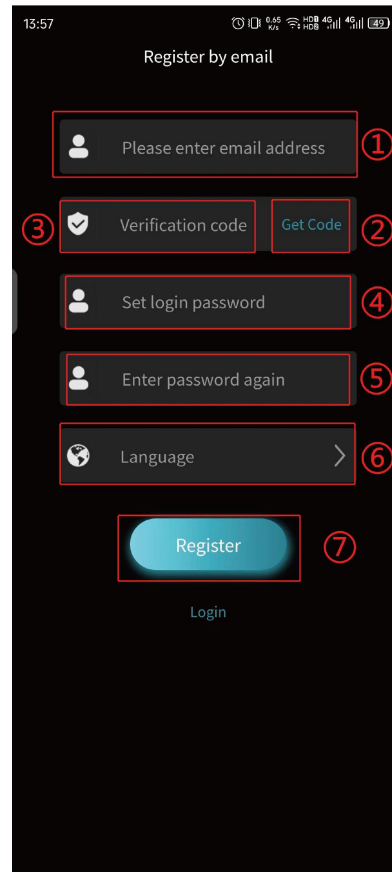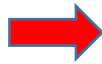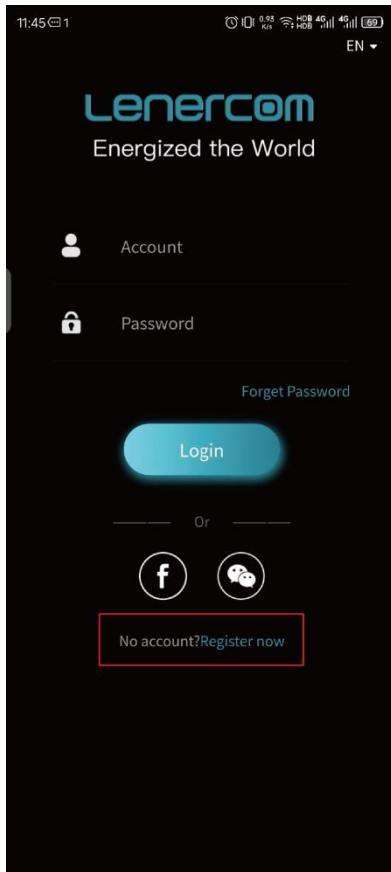
Email registration
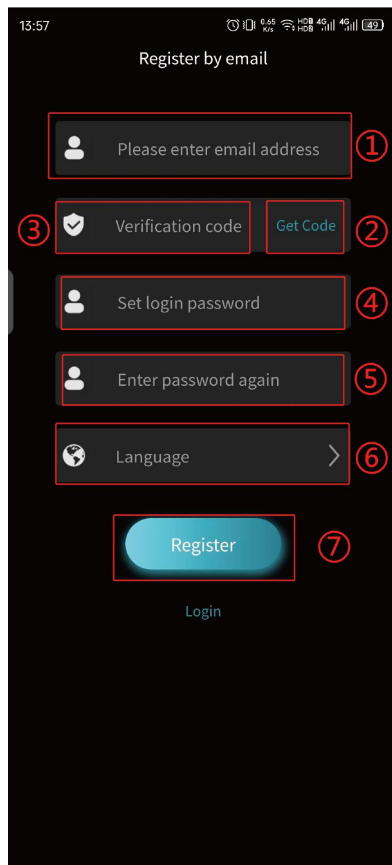
① Select the email registration

② Enter the email account

③ Click to get the verification code

④ Enter the email verification code

⑤, ⑥ Set the login password

⑦ Select your country (required)

⑧ Click register, and after completing the register, return to the homepage and enter the account number and password to log in.

Addition of power station

Addition of first power station

The power station addition function can add power station without ownership and consists of two addition modes (4G RTU and WiFi) according to the communication module.
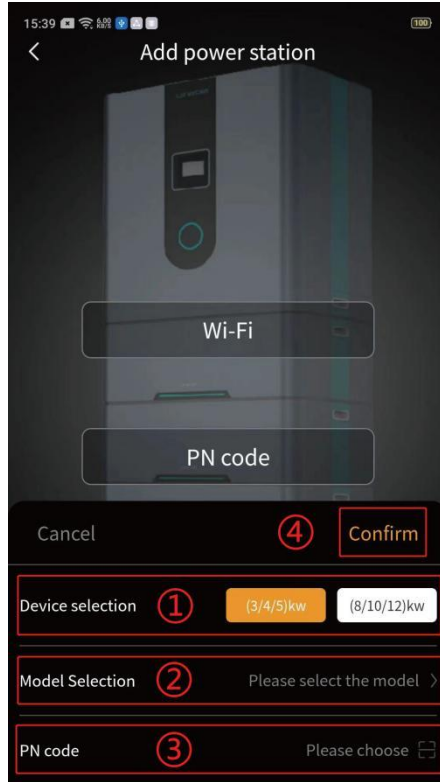
① Select the power range of equipment to be added.

② Select the model of equipment to be added.

③ Enter sn code or click on the scan mark to scan the communication QR code on the back of machine

④ Click "OK" to add.
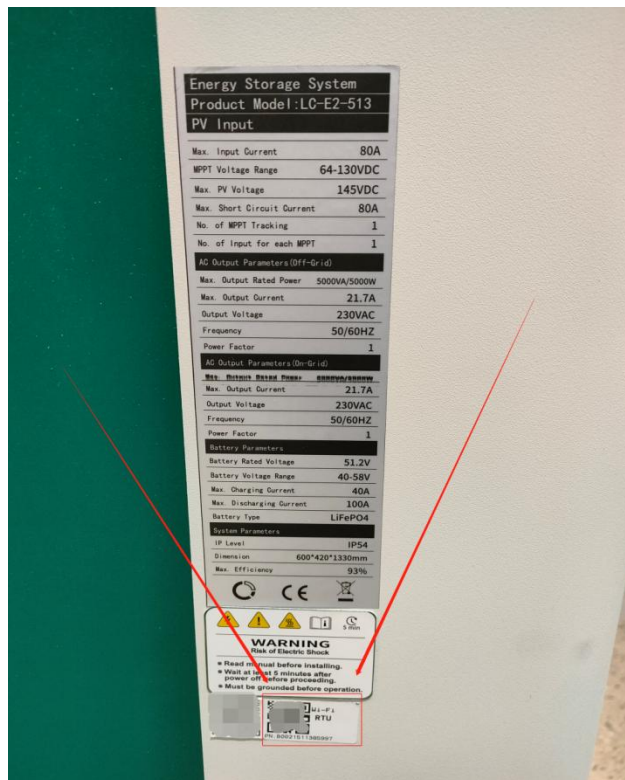
The communication module can be added by scanning the QR code or filling in the PN code which can be scanned or viewed under the inverter nameplate.
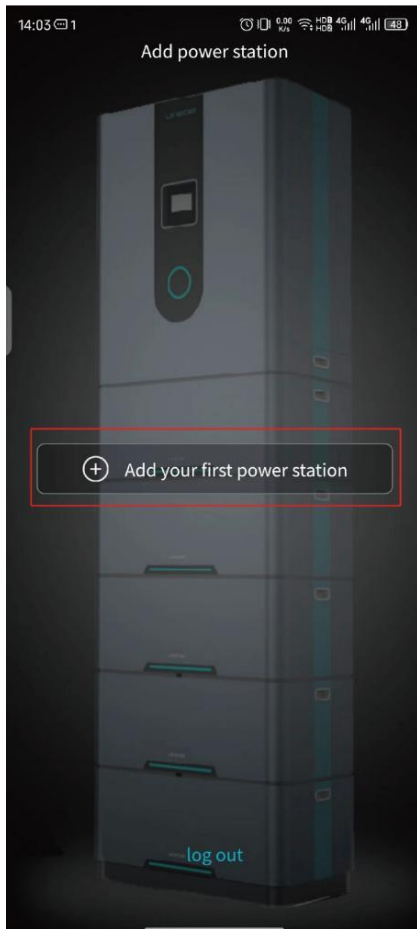
For adding a power station for the first time, APP will directly enter the prompt page of adding power station after the account is logged in, and click it to add your first power station, and complete the addition of first power station according to the prompts. See Instructions for Lenercom APP for detailed operation steps. After adding the first power station, enter the homepage as shown in the following figure. At this time, you can view the operation data of power station on APP.
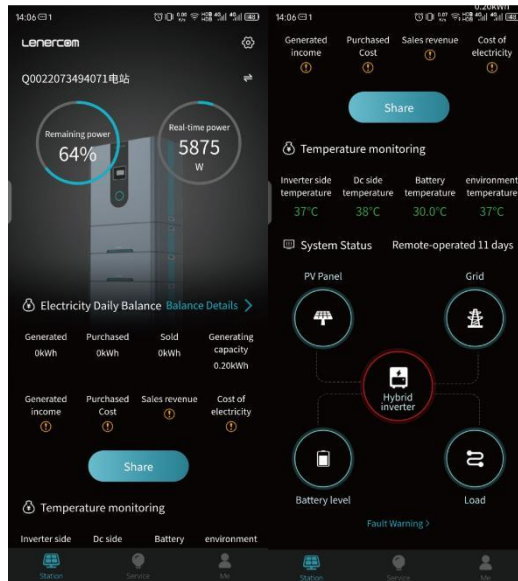
Addition of multiple power stations
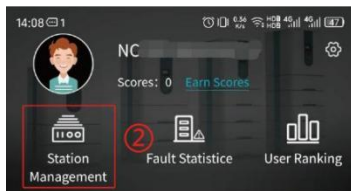
Step 2: Select the power station management page.
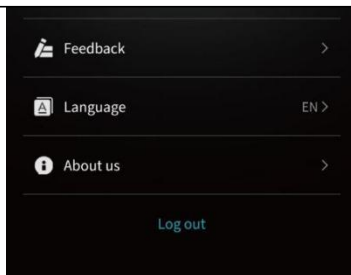
Step 1: Enter the "Personal
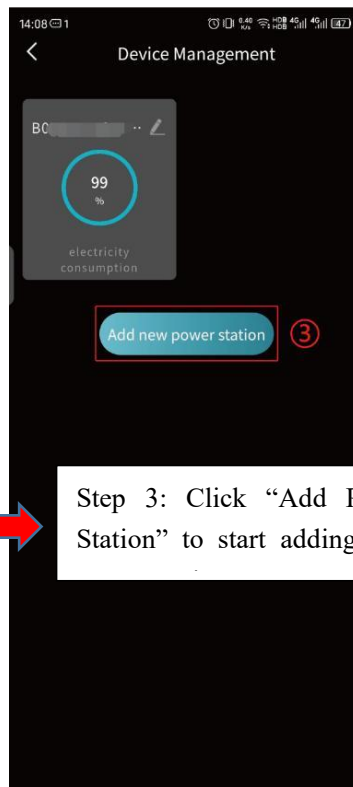
Step 3: Click "Add Power Station" to start adding new

Instruction: Multiple power stations can be added under the same account number, and one power station can only be added to one account number.

View the data of power station
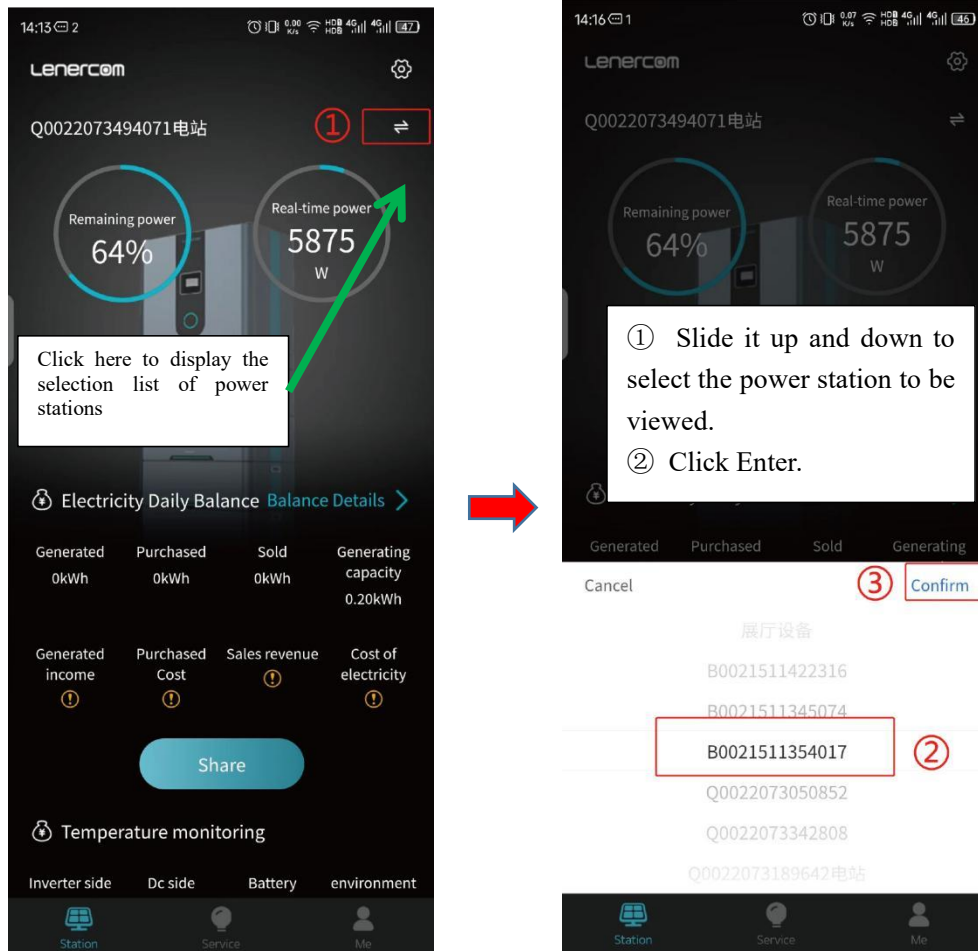
8 Setting

8.1. Control panel
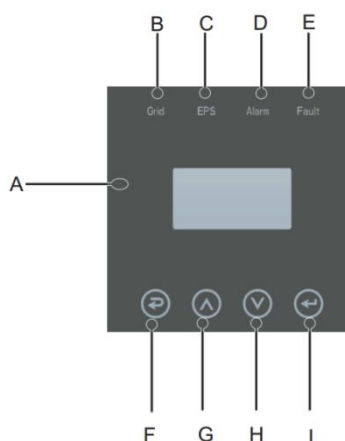
S/N	Name	Description
A	LCD display	To display all information about the whole machine
B	Indicator	On: Inverter works in grid-connected mode
		Off: Inverter works not in grid-connected mode
C		On: Inverter works in off-grid mode
		Off: Inverter works not in off-grid mode
D		On: Warning for whole machine
		Off: No warning for whole machine
E		On: Serious fault of whole machine
		Off: No fault of whole machine
F	Touch screen buttons	Esc: Return from the current setting interface
G		Up: Move the cursor up or increase the setting value
H		Down: Move the cursor down or decrease the setting value
I		Enter: Confirm and save the current settings

8.2 Description of LED indicator

Status of whole machine	Grid (Green)	EPS (Green)	Alarm (yellow)	Fault (red)
Initialization	Off	Off	Off	Off
Standby	Off	Off	Off	Off
Grid-connected	On	Off	Off	Off
Off-grid	Off	On	Off	Off
Bypass	Off	On	On	Off
Fault	Off	Off	Off	On

8.3 Quick setup guide

Summary of display items
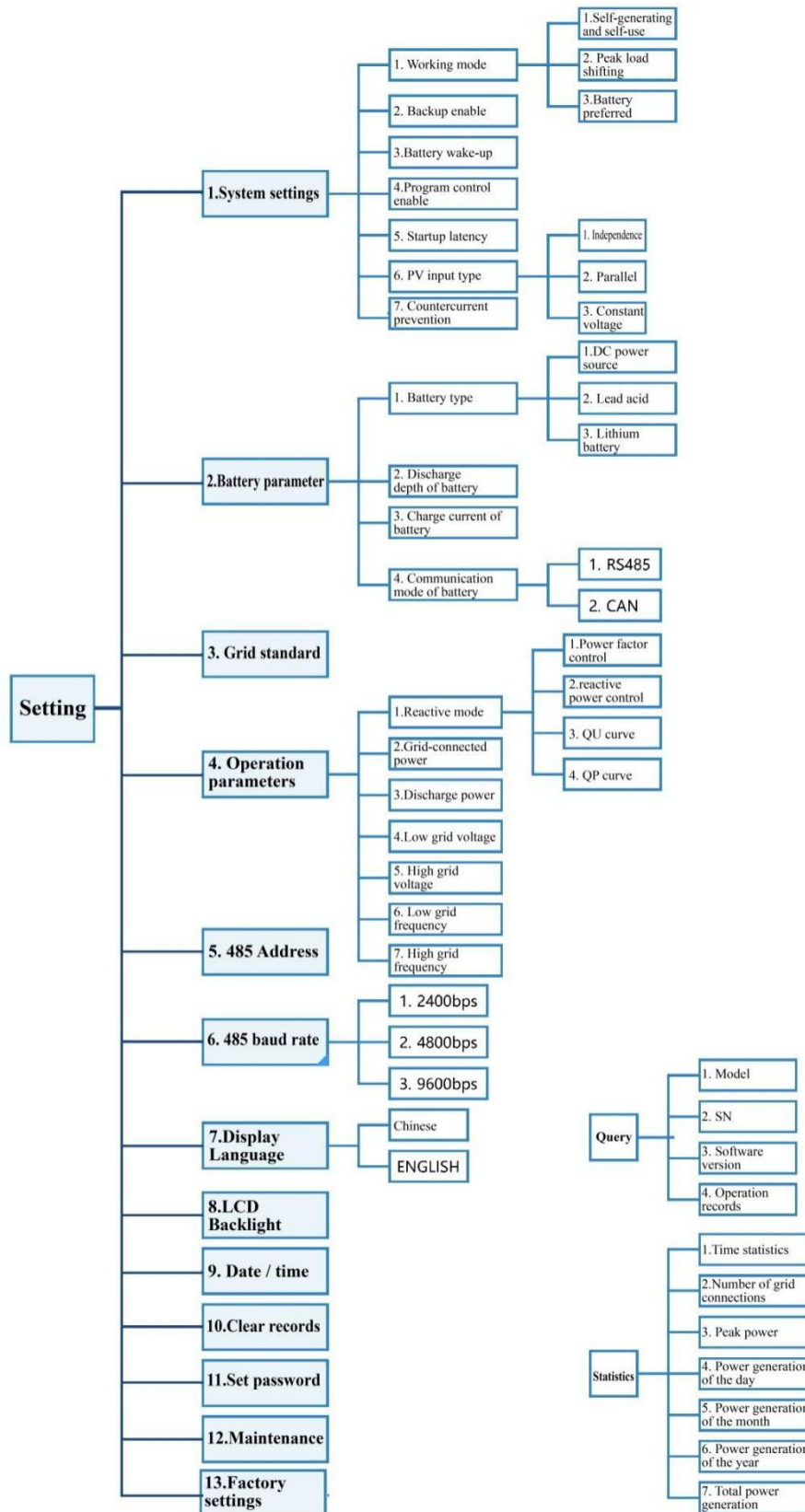
8.4 Operation method of setting item
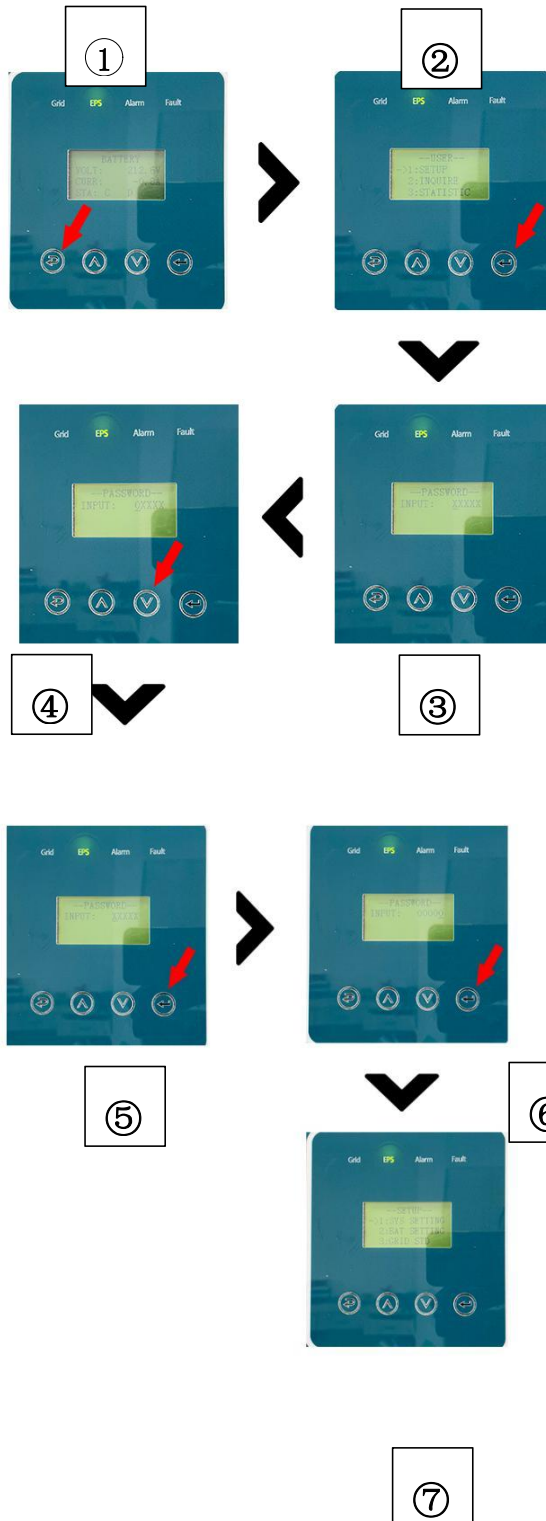
① Cycle interface, touch the ESC button lightly
② Press Enter button and click Equipment
③ Set the password
④ Enter password: 00000
⑤ Click Enter to the next step
⑥ Enter the password: 00000, and click Enter
⑦ Enter the setting menu

Examples:

Peak load shifting
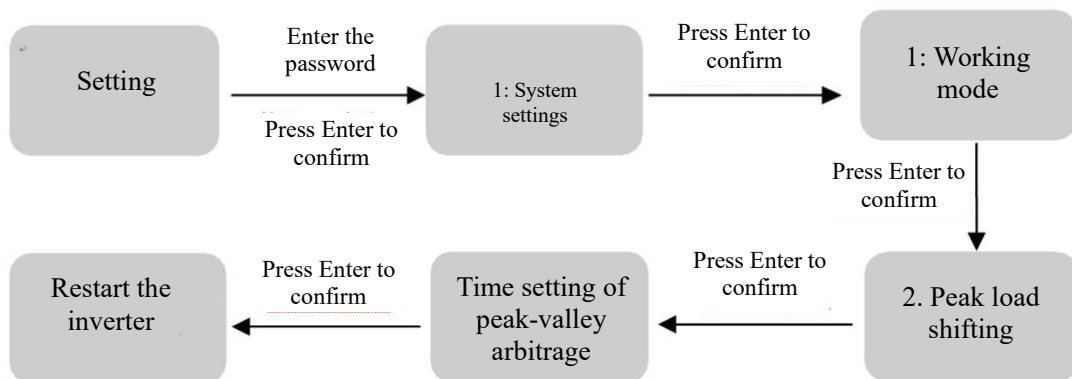
8.5 Detailed description of display and setting parameters

8.5.1 Description of parameter information

Display parameters of PV

LCD interface
PV1 input Voltage: 49.9V → Pv1 Real-time voltage Current: 0.00A → Pv1 Real-time current Power: 0W → Pv1 Real-time power
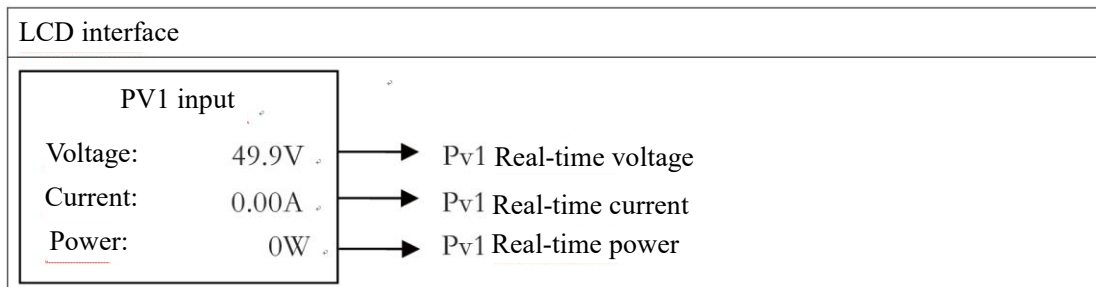
Caution: Single-phase high-voltage equipment has 4 channels of display; 3-phase high-voltage equipment has 2 channels of display.

DC voltage display

LCD interface
DC voltage BUS: 0.00V → Real-time voltage of whole machine bus capacitor

Battery parameters

LCD interface	
Battery Voltage: 42.2V	→ Real-time voltage of battery
Current: 20.2A	→ Real-time current of battery ("-" means discharging)
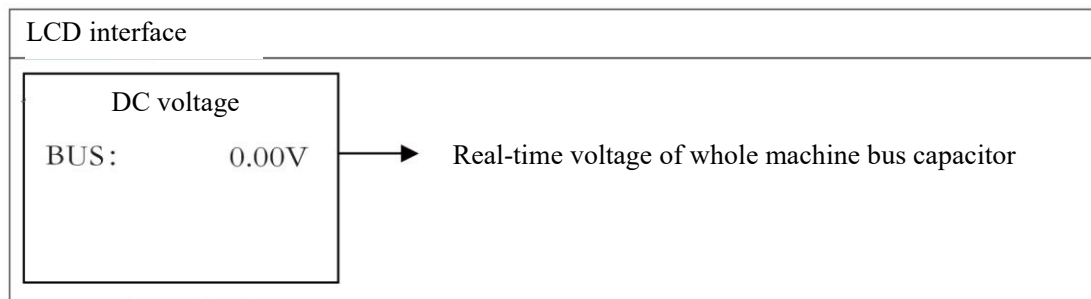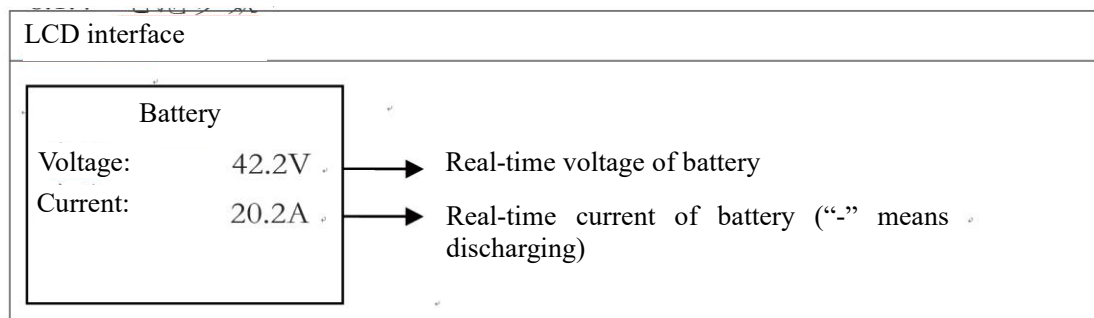
Caution: the real-time rated voltage of high-voltage device of battery is 51.2 V*N; N is the number of battery boxes.

Battery information

LCD interface	
Battery Type:	→ Battery type (lead acid or lithium battery, corresponding to setting)
Temperature 0.00℃	→ Battery temperature
SOC: 60%	→ Remaining power of battery
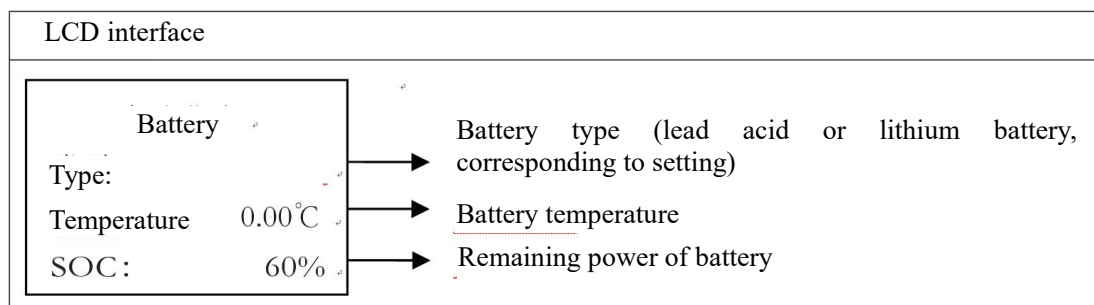
Caution: Battery type: lithium battery by default

BMS parameters

LCD interface	
	The following parameters correspond to the set values
BMS parameters Charge voltage: 54.5V	→ Charge voltage of battery
Rated charge: 25A	→ Rated charge current of battery
Rated discharge: 25A	→ Rated discharge current of battery

Parameters of grid side

LCD interface	
Grid-connected output Voltage: 0.0V	→ Real-time voltage of grid
Current: 0.00A	→ Real-time current of grid
Frequency: 0.00Hz	→ Real-time frequency of grid

Inverter parameters

LCD interface
Inverter output Voltage: 0.0V → Real-time voltage of inverter Current: 0.00A → Real-time current of inverter Frequency: 0.00Hz → Real-time frequency of inverter

Load parameters

LCD interface
Load Voltage: 0.0V → Real-time voltage on the load side Current: 0.00A → Real-time current on the load side %:   80% → Percentage of power on the load side

Inverter power and grid power

LCD interface
Power Inverter: 0W → Real-time power on the inverter side Grid-connected: 0W → Real-time power on the grid side

PV, load, battery power

LCD interface
Power PV: 0W → Real-time power on the PV side Load: 0W → Real-time power on the load side Battery: 0W → Real-time power on the battery side
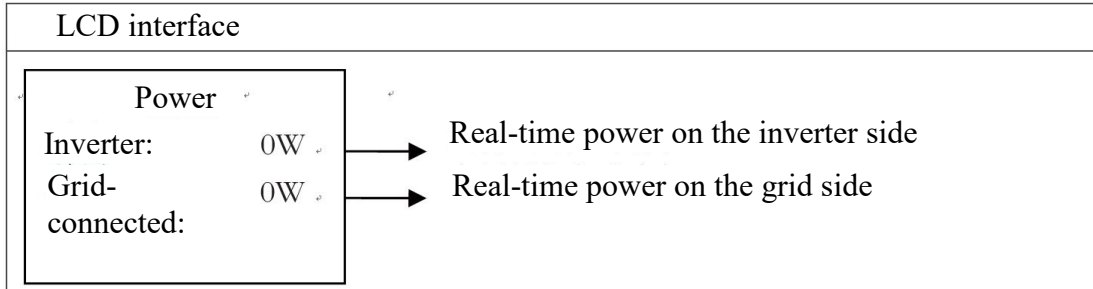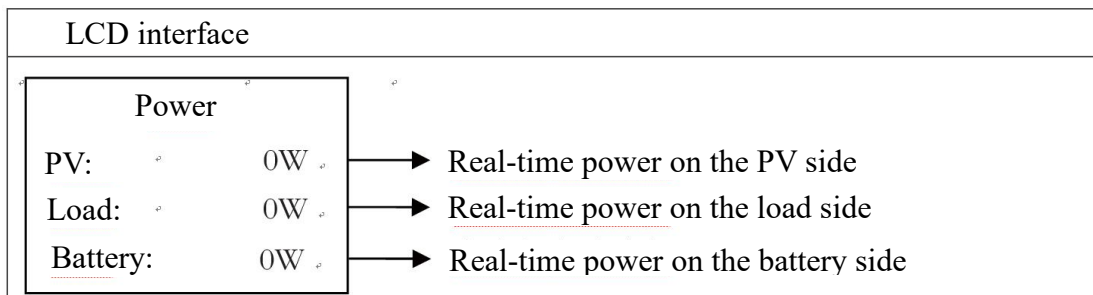
Temperature

LCD interface
Temperature Inverter: 25℃ → Real-time temperature of radiator on the inverter side DCDC: 26℃ → Real-time temperature of radiator on the DCDC side Environment: 27℃ → Ambient temperature inside the whole machine

Status information

LCD interface	Detailed information
Status information System: Power supply of grid Inverter: Standby	System: the status information of whole machine, including initialization, standby PV grid connection, battery grid connection, hybrid power supply, grid charging, PV charging, grid power supply, fault mode, etc Inverter: the status information of inverter, including standby, off-grid, grid-connected, off-grid tracking, etc DCDC: the status information of charge and discharge, including standby, charge mode, discharge mode, etc

Error information

LCD interface	
Error information 02 Battery not connected	Where the number represents the error code and the text is the error message Caution: You can't turn the page when there is a lock sign in the upper right corner of the screen. You need to press Enter to unlock it first.

Caution: In case of off-grid, it is normal to indicate that the grid voltage and frequency are both low.

8.5.2 System setup

LCD interface	Detailed information
System settings Status:　　Self-generating 　　　　　　and self-use Grid connection　　220/50 standard: PV input:　　Independence	Status: the setting value of whole machine working mode, including the self-generating and self-use, peak load shifting, battery preferred Grid connection standard: the displayed value is the actual grid standard. PV input: the display value is the setting value of PV input type, including the parallel, stand-alone and constant voltage.

User settings

LCD interface	Description
--User-- →1：Setting 　2：Query 　3：Statistics	Press "Esc" to enter user settings;

Type in the password when entering the settings. The details are as follows:

LCD interface	Description
-- password-- Input:　　XXXXX	Type in the password when entering the settings, and the default password is "_00000". Press Up/Down to adjust the password, press Enter to move the cursor forward, and press Esc to move the cursor backward;

8.5.3 Description of setting item:

LCD interface	Detailed information
--Settings-- → 1: System settings 　　2:　Battery parameter 　　3:　Grid standard 　　4:　Operation parameters	This page shows the setting options, and press Up/Down to select it accordingly.　Press Enter to enter the selected menu. There are 13 options, including system settings, battery parameters, grid standards, operation parameters, 485 address, 485 baud rate, display language, LCD backlight, date/time, clear records, set password, maintenance and factory settings.

5: 485 Address 6: 485 baud rate 7: Display Language 8: LCD Backlight 9: Date / time 10: Clear records 11: Set password 12: Maintenance 13: Factory settings	

LCD interface	Detailed information

--System settings--
→ 1: Working mode
   2:    Backup enable
   3:    Battery wake-up
   4:    Program control enable
   5:    Startup latency
   6:    PV input type
   7:    Countercurrent prevention
	This page shows the system setting parameters. Press Up/Down to select it accordingly. Press Enter to enter the selected menu.

Working mode

LCD interface	Description

--Working mode--
→ 1:   Self-generating and self-use
   2:   Peak load shifting
   3:   Battery preferred
	This interface is used to select the working mode.
	Press Esc to return to the setting interface.

When peak load shifting is selected, the charge and discharge time shall be set accordingly. (A total of 3 periods can be set)

LCD interface		Description
Start of charge:	00:00	This interface is used to select the offset time of peak load. Press Up/Down to move to the appropriate option. Press Enter to enter the selected menu.
End of charge:	00:00	Press Esc to return to the interface of working mode.
Start of discharge	00:00	
End of discharge:	00:00	

Backup enable

LCD interface	Description
-- Backup enable-- → 1. Disabled 2. Enabled	When the grid and PV are turned off, the battery is enabled to supply power to the load. Default option is "Enabled".

Battery wake-up

LCD interface	Description
-- Battery wake-up-- → 1. Disabled 2. Enabled	Enable settings of battery wake-up Default option is "Disabled".

Program control enable

LCD interface	Description
-- Program control enable-- → 1. Disabled 2. Enabled	When you want to control the machine remotely, you need to enable it. Default option is "Disabled".

Startup latency

LCD interface	Description
--Startup latency-- Input: 60 Unit: S	Input value ranges from 20 to 300, depending on the criteria.

Caution: Default duration is 60S.

PV input type

LCD interface	Description
--Input mode-- → 1: Independence 2: Parallel 3: Constant voltage	PV input mode setting Default factory option is "stand-alone"; When the parallel input is set to stand-alone mode, PV power will be unbalanced.

8.5.4 Battery parameter
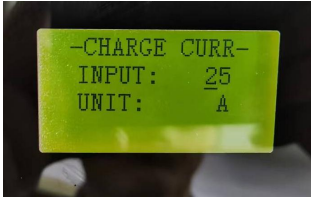
LCD interface	Description
--Battery parameters— 　　1:　Battery type 　　2:　Discharge depth of battery 　　3:　Charge current of battery	This interface is used to select the battery parameters. Press Up/Down to move to the appropriate option; Press Enter to enter the selected menu; Press Esc to return to the setting interface;

Battery type: lithium battery by default, and the setting cannot be changed.

Discharge depth of battery

LCD interface	Description
	DOD1: Grid-connected discharge depth. DOD2: Off-grid discharge depth. Default factory settings of DOD1, DOD2 and backlash are respectively 90%, 90% and 10%.

Charge current of battery

LCD interface	Description
	Charge current is settable Factory default value is 25A.

Operation parameters

LCD interface	Description
-- Operation parameters-- → 1:　Reactive mode 　2:　Grid-connected power 　3:　Discharge power 　4:　Low grid voltage 　5:　High grid voltage 　6:　Low grid frequency 　7:　High grid	Press Up/Down to move to the appropriate option; Press Enter to enter the selected menu; Press Esc to return to the setting interface. Options include reactive power mode, grid-connected power, discharge power, low grid voltage, high grid voltage, low grid frequency and high and low grid frequency/high grid frequency (see ① to ⑦)

frequency	

Reactive mode

LCD interface	Description

-- Reactive mode--
→ 1: Power factor control
  2: Reactive control
  3: QU curve
	Press Up/Down to move to the appropriate option;
	Press Enter to enter the power factor setting interface;
	(Select 2, press Enter to confirm the input and enter the reactive power interface; select 3, 4 to select the corresponding mode and return to the parameter setting interface); press Esc to cancel the input and return to the operation parameter interface.

Caution: The default is power factor control.

Grid-connected power:

LCD interface	Description

-- Grid-connected power--
  Input:
  100%
 	
Value range
(0~100)
	Press Up/Down to adjust the input number;
	Press Enter to confirm, or press Esc to cancel the input and return to the operation parameter interface;
	The input value shall be between 0 and 100.

Caution: The default is 100%.

Discharge power

LCD interface	Description

-- Discharge power--
  Input:
  050%
 	
Value range
(0~100)
	Press Up/Down to adjust the input number;
	Press Enter to confirm, or press Esc to cancel the input and return to the operation parameter interface;
	The input value shall be between 0 and 100.

Caution: The default is 100%

Low voltage protection of grid

LCD interface	Description
--Low voltage of grid-- Input: Unit: V	Low voltage protection point of grid. Press Up/Down to adjust the input number; Press Enter to confirm the input; Press Esc to cancel the input and return to the operation parameter interface;
Value range (176~270 V)	The value shall be between 176 V and 270 V, which varies with different standards

High voltage protection of grid

LCD interface	Description
-- High voltage of grid-- Input: Unit: V	Overvoltage protection point of grid Press Up/Down to adjust the input value; Press Enter to confirm the input; Press Esc to cancel the input and return to the operation parameter interface;
Value range (240~280 V)	The value shall be between 240 V and 280 V, which varies with different standards

Low frequency of grid

LCD interface	Description
-- Low frequency of grid -- Input: Unit: Hz	Low frequency protection point of grid Press Up/Down to adjust the input value; Press Enter to confirm the input; Press Esc to cancel the input and return to the operation parameter interface; The value is between 45 and 49.8, which varies with different standards.
Value range (45~49.8)	

High frequency of grid

LCD interface	Description
-- High frequency of grid -- Input: 52.0 Unit: Hz Value range (50.5~55)	Overclocking protection point of grid Press Up/Down to adjust the input value; Press Enter to confirm the input; Press Esc to cancel the input and return to the operation parameter interface; The value is between 50.5 and 55, which varies with different standards.

485 Address

LCD interface	Description
-- 485 Address-- Input: 1 Value range (1~64)	Press Up/Down to adjust the input value; Press Enter to confirm, or press Esc to cancel the input and return to setting interface; The input value shall be between 1 and 64.

Caution: The default is 1, which can not be changed

485 baud rate

LCD interface	Description
--Select-- 1: 2400 bps 2: 4800 bps →3: 9600 bps	Press Up/Down to move to the appropriate option; Press Enter to confirm, or press Esc to cancel the input and return to setting interface; There are three options available: 2400/4800/9600.

Language:

LCD interface	Description
-- Display Language-- →1: Chinese 2: ENGLISH	Press Up/Down to move to the appropriate option; Press Enter to confirm, or press Esc to cancel the input and return to setting interface;

Caution: The default language is Chinese in China (including Hong Kong and Taiwan) and English in other areas.

LCD backlight

LCD interface	Description
--Backlight time-- Input: 20 Unit: s Value range (20~120)	Press Up/Down to adjust the input value; Press Enter to confirm, or press Esc to cancel the input and return to setting interface; The input value shall be between 20 and 120.

Date / time

LCD interface	Description
-- Date / time-- Date: 9/19/2018 Time: 10: 01: 12 Saturday	Press Up/Down to adjust the input value; Press Enter to confirm the input and return to setting interface; Press Enter to return to the setting interface; The input value shall be between 2000 and 2099.

Caution: When the equipment is turned on for the first time, the user shall set the time and date for calibration.

Clear records

LCD interface	Description
-- Clear records-- →1: Cancel 2: Enter	Clear all previous history records in the Query/Record menu. Press Up/Down to move to the appropriate option; Press Enter to confirm, or press Esc to cancel the selection and return to setting interface;

Password setting

LCD interface	Description
-- Password-- Old: XXXXX New: XXXXX Enter: XXXXX	This interface will be used to change the password entering the setting interface; Press Up/Down to adjust the input value; Press Enter to move the cursor backward, confirm the modification and return to the setting interface Press Esc to move the cursor forward and return to the setting interface;

Maintenance

LCD interface	Description
→ 12: Maintenance	Maintenance personnel only.

Factory settings

LCD interface	Description
-- Factory settings-- →1: Cancel 2: Enter	Press Up/Down to move to the appropriate option; Press Enter to confirm the selection;

8.5.5 Query

LCD interface	Description
--Query-- → 1: Model 2. SN 3: Software version 4: Operation records	Press Up/Down to move to the appropriate option; Press Enter to confirm the selection; Press Esc to return to User interface (see 8.1.16); There are four options: model, SN, software version, and operation record (see 1 through 4).

Model

LCD interface	Description
--Model--	This interface displays the model of the inverter. Press Esc to return to the query interface.

SN

LCD interface	Description
--SN-- GUID: 05DBFF38 430987323639424E	This interface displays SN of the inverter. This is unique for any equipment or in any context.

Software version

LCD interface	Description
-- Software version-- ARM: V1.00.21 DSP: V1.01.10	The interface displays software versions of inverter ARM and DSP; Press Esc to return to the query interface.

Operation records

LCD interface	Description
--Record (01)-- 02: BATTERY NOT CONNECTED APPEAR: AUGUST 12, 15:12 DISAPPEAR:	Record (01): Total number of fault records (up to 500) (those marked as 1 are the latest fault or alarm); 02: fault code Appear: the time when the fault occurs; Press Up/Down to view the record; press Enter to enter the description interface of corresponding record; press Esc to return to the query interface.

8.5.6 Statistics

LCD interface	Description
--Statistics-- → 1: Time statistics 2: Number of grid connections 3: Peak power 4: Power generation of the day 5: Power generation of the month 6: Power generation of the year 7: Total power generation	This interface is used to select statistical items; Press Up/Down to move to the appropriate option; Press Enter to enter the selected menu; Press Esc to return to the user interface; There are seven options in total: Time statistics/number of grid connection/peak power/power generation of the day/power generation of the month/power generation of the year/total power generation (see 1 to 7).

Time statistics

LCD interface	Description
--Time-- Operation 5 Grid-connected 0 Unit hours	Operation time of inverter (hours) Grid connection time (hours) Press Esc to return to the Statistics interface.

Number of grid connections

LCD interface	Description
-- Number of grid connections-- Value 5	This interface displays the number of grid connections for inverter. Press Esc to return to the Statistics interface.

Peak power

LCD interface	Description
-- Peak power-- After start: 5000 Peak value 0 of the day: Unit: W	This interface displays historical records and peak power of the day. Press Esc to return to the Statistics interface.

Power generation of the day

LCD interface	Description
--Current day-- PV: 0.0 KWH Grid-connected: 0.0 KWH Energy 0.0 KWH consumption:	This interface displays the power generation of the day (kWh) PV power generation; Grid-connected power generation; Power consumption of load and inverter; Press Esc to return to the Statistics interface.

Power generation of the month

LCD interface	Description
--Current month-- PV: 0.0 KWH Grid-connected: 0.0 KWH Energy 0.0 KWH consumption:	This interface displays the power generation of the month (kWh) PV power generation; Grid-connected power generation; Power consumption of load and inverter; Press Esc to return to the Statistics interface.

Power generation of the year

LCD interface	Description
--Current year-- PV: 0.0 KWH Grid-connected: 0.0 KWH Energy 0.0 KWH consumption:	This interface displays the power generation of the year (kWh) PV power generation; Grid-connected power generation; Power consumption of load and inverter; Press Esc to return to the Statistics interface.

Total power generation

LCD interface	Description
-- Total power generation-- PV: 0.0 KWH Grid-connected: 0.0 KWH Energy 0.0 KWH consumption:	This interface displays the total power generation (kWh) PV power generation; Grid-connected power generation; Power consumption of load and inverter; Press Esc to return to the Statistics interface.

9 Technical Data

9.1 Parameter list of single-phase model

Model	LC-E2-915S	LC-E2-920S	LC-E2-925S	LC-E2-930S
Voltage of battery	153.6V	204.8V	256V	307.2V
PV parameters				
Maximum input power of PV	11.7kW	11.7kW	11.7kW	11.7kW
Maximum DC voltage	550V	550V	550V	550V
MPPT voltage range/ rated voltage	125V~500V/360V	125V~500V/360V	125V~500V/360V	125V~500V/360V
Maximum input current of each pack	12A	12A	12A	12A
Number of MPPT / Maximum number of strings in parallel of each pack	2/2	2/2	2/2	2/2
Battery data				
Battery voltage range	125~175V	166~233V	208~292V	249~350V
Rated voltage of battery pack	153.6V	204.8V	256V	307.2V
Battery capacity	5.12kWh*3	5.12kWh*4	5.12kWh*5	5.12kWh*6
Maximum charge/ discharge current	80A/80A	80A/80A	80A/80A	80A/80A
Battery type	Lithium iron phosphate battery	Lithium iron phosphate battery	Lithium iron phosphate battery	Lithium iron phosphate battery
Communication interface	CAN	CAN	CAN	CAN
Grid-connected output/input				
Rated output power	9kW	9kW	9kW	9kW
Rated output current	39.2A	39.2A	39.2A	39.2A
Grid voltage / range	230V/176Vac~270Vac	230V/176Vac~270Vac	230V/176Vac~270Vac	230V/176Vac~270Vac
Frequency of grid	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Power factor	0.99 lead-0.99 lag (settable)	0.99 lead-0.99 lag (settable)	0.99 lead-0.99 lag (settable)	0.99 lead-0.99 lag (settable)
THDI	<2%	<2%	<2%	<2%
Grid connection type	L+N+PE	L+N+PE	L+N+PE	L+N+PE
Off-grid output				
Rated output power	9kW	9kW	9kW	9kW
Overload protection	125%，60S/150%,1S	125%，60S/150%,1S	125%，60S/150%,1S	125%，60S/150%,1S，1S
Rated output voltage	230Vac	230Vac	230Vac	230Vac
Rated output current	39.2A	39.2A	39.2A	39.2A
Rated output	50/60Hz	50/60Hz	50/60Hz	50/60Hz

	frequency				
	Automatic switching duration	<20ms	<20ms	<20ms	<20ms
	THDU	<2%	<2%	<2%	<2%
Efficiency parameter	Charge/discharge efficiency of battery	96%	96%	96%	96%
	Maximum efficiency	98.2%	98.2%	98.2%	98.2%
	European efficiency	97.2%	97.2%	97.2%	97.2%
	MPPT efficiency	99%	99%	99%	99%
General data	Dimensions (W/D/H)	600mm/420mm/1550mm	600mm/420mm/1750mm	600mm/420mm/1950mm	600mm/420mm/2150mm
	Net weight	245Kg	299Kg	353Kg	407Kg
	IP grade	IP20	IP20	IP20	IP20
	Working temperature	-15℃ ~55℃	-15℃ ~55℃	-15℃ ~55℃	-15℃ ~55℃
	Noise	<35dB	<35dB	<35dB	<35dB
	Display	LCD	LCD	LCD	LCD
	Communication mode	RS485/CAN/DRM available 4G/WIFI optional	RS485/CAN/DRM available 4G/WIFI optional	RS485/CAN/DRM available 4G/WIFI optional	RS485/CAN/DRM available 4G/WIFI optional

	Model	LC-E2-1015S	LC-E2-1020S	LC-E2-1025S	LC-E2-1030S
	Voltage of battery	153.6V	204.8V	256V	307.2V
PV parameters	Maximum input power of PV	13kW	13kW	13kW	13kW
	Maximum DC voltage	550V	550V	550V	550V
	MPPT voltage range/ rated voltage	125V~500V/360V	125V~500V/360V	125V~500V/360V	125V~500V/360V
	Maximum input current of each pack	12A	12A	12A	12A
	Number of MPPT / Maximum number of strings in parallel of each pack	2/2	2/2	2/2	2/2
Battery data	Battery voltage range	125~175V	166~233V	208~292V	249~350V
	Rated voltage of battery pack	153.6V	204.8V	256V	307.2V
	Battery capacity	5.12kWh*3	5.12kWh*4	5.12kWh*5	5.12kWh*6
	Maximum charge/ discharge current	80A/80A	80A/80A	80A/80A	80A/80A
	Battery type	Lithium iron phosphate battery	Lithium iron phosphate battery	Lithium iron phosphate battery	Lithium iron phosphate battery
	Communication interface	CAN	CAN	CAN	CAN
P o	Rated output power	10kW	10kW	10kW	10kW

Rated output current	43.5A	43.5A	43.5A	43.5A
Grid voltage / range	230V/176Vac~270Vac	230V/176Vac~270Vac	230V/176Vac~270Vac	230V/176Vac~270Vac
Frequency of grid	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Power factor	0.99 lead-0.99 lag (settable)	0.99 lead-0.99 lag (settable)	0.99 lead-0.99 lag (settable)	0.99 lead-0.99 lag (settable)
THDI	＜2%	＜2%	＜2%	＜2%
Grid connection type	L+N+PE	L+N+PE	L+N+PE	L+N+PE

Off-grid output	Rated output power	10kW	10kW	10kW	10kW
	Overload protection	125%，60S/150%,1S	125%，60S/150%,1S	125%，60S/150%,1S	125%，60S/150%,1S，1S
	Rated output voltage	230Vac	230Vac	230Vac	230Vac
	Rated output current	43.5A	43.5A	43.5A	43.5A
	Rated output frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Automatic switching duration	＜20ms	＜20ms	＜20ms	＜20ms
	THDU	＜2%	＜2%	＜2%	＜2%
Efficiency parameter	Charge/discharge efficiency of battery	96%	96%	96%	96%
	Maximum efficiency	98.2%	98.2%	98.2%	98.2%
	European efficiency	97.2%	97.2%	97.2%	97.2%
	MPPT efficiency	99%	99%	99%	99%
General data	Dimensions (W/D/H)	600mm/420mm/1550mm	600mm/420mm/1750mm	600mm/420mm/1950mm	600mm/420mm/2150mm
	Net weight	245Kg	299Kg	353Kg	407Kg
	IP grade	IP20	IP20	IP20	IP20
	Working temperature	-15℃ ~55℃	-15℃ ~55℃	-15℃ ~55℃	-15℃ ~55℃
	Noise	＜35dB	＜35dB	＜35dB	＜35dB
	Display	LCD	LCD	LCD	LCD
	Communication mode	RS485/CAN/DRM available 4G/WIFI optional	RS485/CAN/DRM available 4G/WIFI optional	RS485/CAN/DRM available 4G/WIFI optional	RS485/CAN/DRM available 4G/WIFI optional

Model	LC-E2-1115S	LC-E2-1120S	LC-E2-1125S	LC-E2-1130S
Voltage of battery	153.6V	204.8V	256V	307.2V

		LC-E2-1115S	LC-E2-1120S	LC-E2-1125S	LC-E2-1130S
PV parameters	Maximum input power of PV	14.8kW	14.8kW	14.8kW	14.8kW
	Maximum DC voltage	550V	550V	550V	550V
	MPPT voltage range/ rated voltage	125V~500V/360V	125V~500V/360V	125V~500V/360V	125V~500V/360V
	Maximum input current of each pack	12A	12A	12A	12A
	Number of MPPT / Maximum number of strings in parallel of each pack	2/2	2/2	2/2	2/2
	Battery voltage range	125~175V	166~233V	208~292V	249~350V

	Rated voltage of battery pack	153.6V	204.8V	256V	307.2V
	Battery capacity	5.12kWh*3	5.12kWh*4	5.12kWh*5	5.12kWh*6
	Maximum charge/ discharge current	80A/80A	80A/80A	80A/80A	80A/80A
	Battery type	Lithium iron phosphate battery	Lithium iron phosphate battery	Lithium iron phosphate battery	Lithium iron phosphate battery
	Communication interface	CAN	CAN	CAN	CAN
Grid-connected output/input	Rated output power	11kW	11kW	11kW	11kW
	Rated output current	49.5A	49.5A	49.5A	49.5A
	Grid voltage / range	230V/176Vac~270Vac	230V/176Vac~270Vac	230V/176Vac~270Vac	230V/176Vac~270Vac
	Frequency of grid	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Power factor	0.99 lead-0.99 lag (settable)	0.99 lead-0.99 lag (settable)	0.99 lead-0.99 lag (settable)	0.99 lead-0.99 lag (settable)
	THDI	<2%	<2%	<2%	<2%
	Grid connection type	L+N+PE	L+N+PE	L+N+PE	L+N+PE
Off-grid output	Rated output power	11kW	11kW	11kW	11kW
	Overload protection	125%，60S/150%,1S	125%，60S/150%,1S	125%，60S/150%,1S	125%，60S/150%,1S，1S
	Rated output voltage	230Vac	230Vac	230Vac	230Vac
	Rated output current	49.5A	49.5A	49.5A	49.5A
	Rated output frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Automatic switching duration	<20ms	<20ms	<20ms	<20ms
	THDU	<2%	<2%	<2%	<2%
Efficiency parameter	Charge/discharge efficiency of battery	96%	96%	96%	96%
	Maximum efficiency	98.2%	98.2%	98.2%	98.2%
	European efficiency	97.2%	97.2%	97.2%	97.2%
	MPPT efficiency	99%	99%	99%	99%
General data	Dimensions (W/D/H)	600mm/420mm/1550mm	600mm/420mm/1750mm	600mm/420mm/1950mm	600mm/420mm/2150mm
	Net weight	245Kg	299Kg	353Kg	407Kg
	IP grade	IP20	IP20	IP20	IP20
	Working temperature	-15℃ ~55℃	-15℃ ~55℃	-15℃ ~55℃	-15℃ ~55℃
	Noise	<35dB	<35dB	<35dB	<35dB
	Display	LCD	LCD	LCD	LCD
	Communication mode	RS485/CAN/DRM available 4G/WIFI optional	RS485/CAN/DRM available 4G/WIFI optional	RS485/CAN/DRM available 4G/WIFI optional	RS485/CAN/DRM available 4G/WIFI optional

9.2 Parameter list of three-phase model

Model		LC-E2-615T	LC-E2-620T	LC-E2-625T	LC-E2-630T
PV input	Maximum PV input power	9kW	9kW	9kW	9kW
	Maximum PV input voltage	1000V	1000V	1000V	1000V
	MPPT voltage range	180~850V	180~850V	180~850V	180~850V
	MPPT voltage range at full power	250~850V	250~850V	250~850V	250~850V
	Maximum PV input current	2*13A	2*13A	2*13A	2*13A
	PV short circuit current	2*16A	2*16A	2*16A	2*16A
	Number of MPPT / Maximum number of strings in parallel of each MPPT	2/1	2/1	2/1	2/1
Battery parameters	Input voltage range of battery	125~175V	166~233V	208~292V	249~350V
	Rated voltage of battery pack	153.6V	204.8V	256V	307.2V
	Battery capacity	5.12kWh*3	5.12kWh*4	5.12kWh*5	5.12kWh*6
	Maximum charge/ discharge current	50A/50A	50A/50A	50A/50A	50A/50A
	Maximum charge / discharge power	6kW	6kW	6kW	6kW
	Battery type	LiFePO4（LFP）	LiFePO4（LFP）	LiFePO4（LFP）	LiFePO4（LFP）
	Communication interface	CAN	CAN	CAN	CAN
Grid-connected output/input	Rated grid voltage	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V
	Rated grid frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Rated output power	6kW	6kW	6kW	6kW
	Maximum grid-connected output apparent power	6.6kVA	6.6kVA	6.6kVA	6.6kVA
	Maximum grid-connected output current	9.5A	9.5A	9.5A	9.5A
	Maximum grid-connected input apparent power	13.2kVA	13.2kVA	13.2kVA	13.2kVA
	Maximum grid-connected input current	19A	19A	19A	19A
	Power factor	0.8ind...0.8cap	0.8ind...0.8cap	0.8ind...0.8cap	0.8ind...0.8cap
	Total harmonic distortion rate of current	＜3%	＜3%	＜3%	＜3%
Off-grid output	Rated off-grid voltage	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V
	Rated off-grid frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Maximum off-grid output apparent power	6.6kVA	6.6kVA	6.6kVA	6.6kVA
	Maximum off-grid output current	9.5A	9.5A	9.5A	9.5A
	Switching duration	＜20ms	＜20ms	＜20ms	＜20ms
	Total harmonic distortion rate of voltage	＜2%	＜2%	＜2%	＜2%
Efficiency parameter	Charge/discharge efficiency of battery	97.5%	97.5%	97.5%	97.5%
	Maximum efficiency	97.9%	97.9%	97.9%	97.9%
	European efficiency	97.2%	97.2%	97.2%	97.2%
	MPPT efficiency	99.5%	99.5%	99.5%	99.5%
General data	Dimensions (W/D/H)	600mm/420mm/1550 mm	600mm/420mm/1750 mm	600mm/420mm/1950 mm	600mm/420mm/2150 mm
	Net weight	245Kg	299Kg	353Kg	407Kg

	IP grade	IP20	IP20	IP20	IP20
	Working temperature	-15℃~55℃	-15℃~55℃	-15℃~55℃	-15℃~55℃
	Noise	＜35dB	＜35dB	＜35dB	＜35dB
	Display	LCD	LCD	LCD	LCD
	Communication mode	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional

	Model	LC-E2-815T	LC-E2-820T	LC-E2-825T	LC-E2-830T
PV input	Maximum PV input power	12kW	12kW	12kW	12kW
	Maximum PV input voltage	1000V	1000V	1000V	1000V
	MPPT voltage range	180~850V	180~850V	180~850V	180~850V
	MPPT voltage range at full power	330~850V	330~850V	330~850V	330~850V
	Maximum PV input current	2*13A	2*13A	2*13A	2*13A
	PV short circuit current	2*16A	2*16A	2*16A	2*16A
	Number of MPPT / Maximum number of strings in parallel of each MPPT	2/1	2/1	2/1	2/1
Battery parameters	Input voltage range of battery	125~175V	166~233V	208~292V	249~350V
	Rated voltage of battery pack	153.6V	204.8V	256V	307.2V
	Battery capacity	5.12kWh*3	5.12kWh*4	5.12kWh*5	5.12kWh*6
	Maximum charge/ discharge current	50A/50A	50A/50A	50A/50A	50A/50A
	Maximum charge / discharge power	7.68kW	8kW	8kW	8kW
	Battery type	LiFePO4（LFP)	LiFePO4（LFP)	LiFePO4（LFP)	LiFePO4（LFP)
	Communication interface	CAN	CAN	CAN	CAN
Grid-connected output/input	Rated grid voltage	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V
	Rated grid frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Rated output power	8kW	8kW	8kW	8kW
	Maximum grid-connected output apparent power	8.8kVA	8.8kVA	8.8kVA	8.8kVA
	Maximum grid-connected output current	12.7A	12.7A	12.7A	12.7A
	Maximum grid-connected input apparent power	17.6kVA	17.6kVA	17.6kVA	17.6kVA
	Maximum grid-connected input current	25.5A	25.5A	25.5A	25.5A
	Power factor	0.8ind...0.8cap	0.8ind...0.8cap	0.8ind...0.8cap	0.8ind...0.8cap
	Total harmonic distortion rate of current	＜3%	＜3%	＜3%	＜3%
Off-grid output	Rated off-grid voltage	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V
	Rated off-grid frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Maximum off-grid output apparent power	8.8kVA	8.8kVA	8.8kVA	8.8kVA
	Maximum off-grid output current	12.7A	12.7A	12.7A	12.7A
	Switching duration	＜20ms	＜20ms	＜20ms	＜20ms
	Total harmonic distortion rate of voltage	＜2%	＜2%	＜2%	＜2%
y	Charge/discharge efficiency of battery	97.5%	97.5%	97.5%	97.5%

	Maximum efficiency	97.9%	97.9%	97.9%	97.9%
	European efficiency	97.2%	97.2%	97.2%	97.2%
	MPPT efficiency	99.5%	99.5%	99.5%	99.5%
General data	Dimensions (W/D/H)	600mm/420mm/1550mm	600mm/420mm/1750mm	600mm/420mm/1950mm	600mm/420mm/2150mm
	Net weight	245Kg	299Kg	353Kg	407Kg
	IP grade	IP20	IP20	IP20	IP20
	Working temperature	-15℃~55℃	-15℃~55℃	-15℃~55℃	-15℃~55℃
	Noise	＜35dB	＜35dB	＜35dB	＜35dB
	Display	LCD	LCD	LCD	LCD
	Communication mode	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional

	Model	LC-E2-835T	LC-E2-1020T	LC-E2-1025T	LC-E2-1030T
PV input	Maximum PV input power	12kW	15kW	15kW	15kW
	Maximum PV input voltage	1000V	1000V	1000V	1000V
	MPPT voltage range	180~850V	180~850V	180~850V	180~850V
	MPPT voltage range at full power	330~850V	430~850V	430~850V	430~850V
	Maximum PV input current	2*13A	2*13A	2*13A	2*13A
	PV short circuit current	2*16A	2*16A	2*16A	2*16A
	Number of MPPT / Maximum number of strings in parallel of each MPPT	2/1	2/1	2/1	2/1
Battery parameters	Input voltage range of battery	291~409V	166~233V	208~292V	249~350V
	Rated voltage of battery pack	358.4V	204.8V	256V	307.2V
	Battery capacity	5.12kWh*7	5.12kWh*4	5.12kWh*5	5.12kWh*6
	Maximum charge/ discharge current	50A/50A	50A/50A	50A/50A	50A/50A
	Maximum charge / discharge power	8kW	10kW	10kW	10kW
	Battery type	LiFePO4（LFP）	LiFePO4（LFP）	LiFePO4（LFP）	LiFePO4（LFP）
	Communication interface	CAN	CAN	CAN	CAN
Grid-connected output/input	Rated grid voltage	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V
	Rated grid frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Rated output power	8kW	10kW	10kW	10kW
	Maximum grid-connected output apparent power	8.8kVA	11kVA	11kVA	11kVA
	Maximum grid-connected output current	12.7A	15.9A	15.9A	15.9A
	Maximum grid-connected input apparent power	17.6kVA	22kVA	22kVA	22kVA
	Maximum grid-connected input current	25.5A	31.9A	31.9A	31.9A
	Power factor	0.8ind...0.8cap	0.8ind...0.8cap	0.8ind...0.8cap	0.8ind...0.8cap
	Total harmonic distortion rate of current	＜3%	＜3%	＜3%	＜3%
	Rated off-grid voltage	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V

	Rated off-grid frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Maximum off-grid output apparent power	8.8kVA	11kVA	11kVA	11kVA
	Maximum off-grid output current	12.7A	15.9A	15.9A	15.9A
	Switching duration	＜20ms	＜20ms	＜20ms	＜20ms
	Total harmonic distortion rate of voltage	＜2%	＜2%	＜2%	＜2%
Efficiency parameter	Charge/discharge efficiency of battery	97.5%	97.5%	97.5%	97.5%
	Maximum efficiency	97.9%	98.2%	97.9%	97.9%
	European efficiency	97.2%	97.5%	97.2%	97.2%
	MPPT efficiency	99.5%	99.5%	99.5%	99.5%
General data	Dimensions (W/D/H)	600mm/420mm/2350mm	600mm/420mm/1750mm	600mm/420mm/1950mm	600mm/420mm/2150mm
	Net weight	461Kg	299Kg	353Kg	407Kg
	IP grade	IP20	IP20	IP20	IP20
	Working temperature	-15℃~55℃	-15℃~55℃	-15℃~55℃	-15℃~55℃
	Noise	＜35dB	＜35dB	＜35dB	＜35dB
	Display	LCD	LCD	LCD	LCD
	Communication mode	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional

	Model	LC-E2-1035T	LC-E2-1225T	LC-E2-1230T	LC-E2-1235T
PV input	Maximum PV input power	15kW	18kW	18kW	18kW
	Maximum PV input voltage	1000V	1000V	1000V	1000V
	MPPT voltage range	180~850V	180~850V	180~850V	180~850V
	MPPT voltage range at full power	430~850V	510~850V	510~850V	510~850V
	Maximum PV input current	2*13A	2*13A	2*13A	2*13A
	PV short circuit current	2*16A	2*16A	2*16A	2*16A
	Number of MPPT / Maximum number of strings in parallel of each MPPT	2/1	2/1	2/1	2/1
Battery parameters	Input voltage range of battery	291~409V	208~292V	249~350V	291~409V
	Rated voltage of battery pack	358.4V	256V	307.2V	358.4V
	Battery capacity	5.12kWh*7	5.12kWh*5	5.12kWh*6	5.12kWh*7
	Maximum charge/ discharge current	50A/50A	50A/50A	50A/50A	50A/50A
	Maximum charge / discharge power	10kW	12kW	12kW	12kW
	Battery type	LiFePO4（LFP）	LiFePO4（LFP）	LiFePO4（LFP）	LiFePO4（LFP）
	Communication interface	CAN	CAN	CAN	CAN
Grid-connected output/input	Rated grid voltage	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V
	Rated grid frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Rated output power	10kW	12kW	12kW	12kW
	Maximum grid-connected output apparent power	11kVA	13.2kVA	13.2kVA	13.2kVA
	Maximum grid-connected output current	15.9A	19.1A	19.1A	19.1A

	Maximum grid-connected input apparent power	22kVA	26.4kVA	26.4kVA	26.4kVA
	Maximum grid-connected input current	31.9A	38.2A	38.2A	38.2A
	Power factor	0.8ind...0.8cap	0.8ind...0.8cap	0.8ind...0.8cap	0.8ind...0.8cap
	Total harmonic distortion rate of current	＜3%	＜3%	＜3%	＜3%
Off-grid output	Rated off-grid voltage	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V
	Rated off-grid frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Maximum off-grid output apparent power	11kVA	13.2kVA	13.2kVA	13.2kVA
	Maximum off-grid output current	15.9A	19.1A	19.1A	19.1A
	Switching duration	＜20ms	＜20ms	＜20ms	＜20ms
	Total harmonic distortion rate of voltage	＜2%	＜2%	＜2%	＜2%
Efficiency parameter	Charge/discharge efficiency of battery	97.5%	97.6%	97.6%	97.6%
	Maximum efficiency	98.2%	98.2%	98.2%	98.2%
	European efficiency	97.5%	97.5%	97.5%	97.5%
	MPPT efficiency	99.5%	99.5%	99.5%	99.5%
General data	Dimensions (W/D/H)	600mm/420mm/2350 mm	600mm/420mm/1950 mm	600mm/420mm/2150 mm	600mm/420mm/2350 mm
	Net weight	461Kg	353Kg	407Kg	461Kg
	IP grade	IP20	IP20	IP20	IP20
	Working temperature	-15℃~55℃	-15℃~55℃	-15℃~55℃	-15℃~55℃
	Noise	＜35dB	＜35dB	＜35dB	＜35dB
	Display	LCD	LCD	LCD	LCD
	Communication mode	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional

	Model	LC-E2-1535T	LC-E2-1540T	LC-E2-1545T
PV input	Maximum PV input power	22.5kW	22.5kW	22.5kW
	Maximum PV input voltage	1000V	1000V	1000V
	MPPT voltage range	180~850V	180~850V	180~850V
	MPPT voltage range at full power	620~850V	620~850V	620~850V
	Maximum PV input current	2*13A	2*13A	2*13A
	PV short circuit current	2*25A	2*25A	2*25A
	Number of MPPT / Maximum number of strings in parallel of each MPPT	2/1	2/1	2/1
Battery parameters	Input voltage range of battery	291~409V	333~467V	374~525V
	Rated voltage of battery pack	358.4V	409.6V	460.8V
	Battery capacity	5.12kWh*7	5.12kWh*8	5.12kWh*9
	Maximum charge/ discharge current	50A/50A	50A/50A	50A/50A
	Maximum charge / discharge power	15kW	15kW	15kW
	Battery type	LiFePO4（LFP）	LiFePO4（LFP）	LiFePO4（LFP）
	Communication interface	CAN	CAN	CAN
	Rated grid voltage	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V

	Rated grid frequency	50/60Hz	50/60Hz	50/60Hz
	Rated output power	15kW	15kW	15kW
	Maximum grid-connected output apparent power	16.5kVA	16.5kVA	16.5kVA
	Maximum grid-connected output current	23.8A	23.8A	23.8A
	Maximum grid-connected input apparent power	30kVA	30kVA	30kVA
	Maximum grid-connected input current	47.6A	47.6A	47.6A
	Power factor	0.8ind...0.8cap	0.8ind...0.8cap	0.8ind...0.8cap
	Total harmonic distortion rate of current	<3%	<3%	<3%
Off-grid output	Rated off-grid voltage	3W+N+PE,230/400V	3W+N+PE,230/400V	3W+N+PE,230/400V
	Rated off-grid frequency	50/60Hz	50/60Hz	50/60Hz
	Maximum off-grid output apparent power	16.5kVA	16.5kVA	16.5kVA
	Maximum off-grid output current	23.8A	23.8A	23.8A
	Switching duration	<20ms	<20ms	<20ms
	Total harmonic distortion rate of voltage	<2%	<2%	<2%
Efficiency parameter	Charge/discharge efficiency of battery	97.8%	97.8%	97.8%
	Maximum efficiency	98.5%	98.5%	98.5%
	European efficiency	97.6%	97.6%	97.6%
	MPPT efficiency	99.5%	99.5%	99.5%
General data	Dimensions (W/D/H)	600mm/420mm/2350mm	600mm/420mm/2550mm	600mm/420mm/2750mm
	Net weight	463Kg	517Kg	571Kg
	IP grade	IP20	IP20	IP20
	Working temperature	-15℃~55℃	-15℃~55℃	-15℃~55℃
	Noise	<35dB	<35dB	<35dB
	Display	LCD	LCD	LCD
	Communication mode	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional	RS485/CAN/DRM Have 4G/WIFI Optional

9.3 Table of battery module parameters

Model	LC-BH512
Battery type	Lithium iron phosphate
Capacity	5.12kWh
Rated voltage	51.2V

Maximum charge/ discharge current	50A/110A
Range of charging temperature	0℃ ~+55℃
Range of discharging temperature	-15℃ ~+55℃
Discharging overcurrent protection	110A
Communication mode	RS485/CAN
Dimensions (W/D/H)	600mm/420mm/200mm
Weight	54kg
Prompt: the discharge rate will be attenuated when the temperature is lower than 0 ° C 　　　When the temperature is lower than 0 ℃, the battery cannot be charged 　　　When the temperature is lower than -15℃, the battery cannot be discharged	

9.4 Dimensions and weight of equipment

Equipment name	Dimension (mm)	Net weight (kg)
8 -12kW hybrid inverter (W/D/H)	600*420*600	65.5±1
Battery module (W/D/H)	600*420*200	54±1
Base (W/D/H)	600*420*130	17.5±1

9.5 Dimensions and weight of packaging

Packaging	Dimension (mm)	Net weight (kg)
Packing carton of inverter (W/D/H)	690*450*650	10.5
Packing carton of battery module (W/D/H)	670*455*260	8
Packing carton of base (W/D/H)	660*460*170	3

10 Transportation

Basic Requirements

● LC-E2 shall be packed and shipped separately.

● Before packing and transportation, the package shall be intact and undamaged, and the product model and identification information shall be clear and complete.

● The product shall not be transported together with inflammable, explosive and other dangerous goods.

● The equipment shall be transported on the pallet with anti-dumping measures to avoid the violent vibration.

11 Storage

Before the assembly of LC-E2, the inverter, battery module and base shall be packed and stored separately. If they are not put into use immediately, the storage shall meet the following requirements:

● Do not remove the outer package of inverter, battery module and base.

● The storage temperature shall be kept at -20 °C ~ + 60 °C, and the recommended temperature is 25 °C ± 5 °C; the relative humidity shall be kept at 5% RH ~ 95% RH.

● The product shall be stored at the clean and dry place to prevent the erosion caused by dust and water vapor.

● Up to 6 layers can be stacked. The equipment shall be stacked carefully to avoid personal injury or equipment damage caused by rollover.

● During the storage, regular check shall be made (it is recommended to check once every three months). If the packages are damaged by insects and rat,
the packaging materials shall be replaced in time.

● During the storage period, the battery shall be checked regularly to supplement the power loss caused by self-discharge and keep about 50% of power (it is recommended to check once every 6 months).

● If the storage time of battery is 1 year or more, the battery shall be checked and tested by professionals before put into use.

● If the storage time of inverter is 2 years or more, the battery shall be checked and tested by professionals before put into use.

12 Fault Diagnosis

When you encounter any of the following issues, please refer to the following solutions. If such issue remains unresolved, please consult your local distributor.

Fault	Fault code	Solution
Discharging overcurrent	00 29	(1) Inverter will restart automatically 1min later. (2) Check whether the load size is consistent with the description in the specification (3) Cut off all power switches and power on the whole machine again after the display goes off (4) If the issue remains unsolved, check whether there is a short circuit at the

		load end.
Overload	01	(1) Check whether the load size is lower than the maximum power of whole machine. (2) Cut off all power switches and power on the whole machine again after the display goes off (3) If the issue remains unsolved, check whether there is a short circuit at the load end.
Battery not connected	02	(1) Check whether the battery is connected (2) Check the connection wire of battery for the open circuit (3) If the issue remains unresolved, please consult your local distributor
Battery undervoltage	03 04 26	(1) Check whether the voltage setting range of the battery is compatible with that of the current battery. (2) Check whether the power grid and PV are live. If not, the battery will be automatically charged after power restoration. (3) If the issue remains unresolved, please consult your local distributor
Battery overvoltage	05 27	(1) Check whether the voltage setting range of the battery is compatible with that of the current battery. (2) Check whether the power grid is cut off. If the power supply is turned off, the power grid will automatically charge the battery after the power restoration. (3) If the issue remains unresolved, please consult your local distributor
Battery undervoltage	06	(1) Check whether the grid is abnormal (2) Power off the whole machine, wait for the LCD display to be turned off, and then power it on. (3) If the issue remains unresolved, please consult your local distributor
Grid overvoltage	07	(1) Check whether the grid is abnormal (2) Power off the whole machine, wait for the LCD display to be turned off, and then power it on. (3) If the issue remains unresolved, please consult your local distributor
Low frequency of grid	08	(1) Check whether the grid is abnormal (2) Power off the whole machine, wait for the LCD display to be turned off, and then power it on. (3) If the issue remains unresolved, please consult your local distributor
High frequency of grid	09	(1) Check whether the grid is abnormal (2) Power off the whole machine, wait for the LCD display to be turned off, and then power it on. (3) If the issue remains unresolved, please consult your local distributor
Leakage current exceeding the standard	10	(1) Check whether PV panel is short-circuited to ground (2) Check whether the electric leakage to PE at load side. (3) If the issue remains unresolved, please consult your local distributor
PV not connected	11	(1) Check whether the PV panel is connected to its corresponding port

		(2) PV switch on the front panel of whole machine is not closed
		(3) Check whether PV panel is damaged
Grid CT inversed	12	(1) Check the wiring direction of CT
		(2) If the issue remains unresolved, please consult your local distributor
Low voltage of bus	13	(1) Check whether the input mode is correct
		(2) Power off the whole machine, wait for the LCD display to be turned off, and then power it on.
		(3) If the issue remains unresolved, please consult your local distributor
Overvoltage of bus	14	(1) Check whether the input mode is correct
		(2) Power off the whole machine, wait for the LCD display to be turned off, and then power it on.
		(3) If the issue remains unresolved, please consult your local distributor
Inverter overcurrent	15	(1) Power off the whole machine, wait for the LCD display to be turned off, and then power it on.
		(2) If the issue remains unresolved, please consult your local distributor
Charger overcurrent	16	(1) Check the battery side for the open circuit
		(2) Check the settings of charging current
		(3) Power off the whole machine, wait for the LCD display to be turned off, and then power it on.
Voltage oscillation of bus	17 18 19 20	(1) Power off the whole machine, wait for the LCD display to be turned off, and then power it on. (2) If the issue remains unresolved, please consult your local distributor
High ambient temperature	21	(1) Check whether the current ambient temperature exceeds the recommended operating temperature. If so, power on the whole machine after powering off it for one hour. (2) If the issue remains unresolved, please consult your local distributor
High battery temperature	23	(1) Power on the whole machine after powering off it for one hour. (2) If the issue remains unresolved, please consult your local distributor
Low battery temperature	24	(1) Check the ambient temperature near the battery to see if it meets the specifications. (2) If the issue remains unresolved, please consult your local distributor
Large voltage difference of battery monomers	25	(1) Carry out continuous charging and discharging on the battery. The specific operation is as follows: disconnect the grid side and the PV side for one hour first, and then turn off the switch on the grid side and the PV side after one hour of discharging, to charge the battery for 1 to 2 cycles, and then the battery voltage will return to normal. (2) If the issue remains unresolved, please consult your local distributor
Charging overcurrent	28	(1) Check the battery line for short circuit (2) Check the of settings of charging current (3) Power off the whole machine, wait for the LCD display to be turned off, and then power it on. If the issue remains unresolved, please consult your local distributor

Soft start failure of bus	32	(1) Power off the whole machine, wait for the LCD display to be turned off, and then power it on. (2) If the issue remains unresolved, please consult your local distributor
Soft start failure of inverter	33 34	
Short circuit of bus	35	
Short circuit of inverter	36	
Fault of fan	38	
Fault of BUS relay	39	
Fault of Grid relay	40	
Fault of EPS relay	41	
Fault of GFCI	42	
Fault of internal CT	43	
Fault of off-grid relay	44	
System fault	45	
Low insulation resistance of PV	37	(1) Check whether PE line is grounded (2) If the issue remains unresolved, please consult your local distributor
Short circuit of PV	43	(1) Power off the whole machine, wait for the LCD display to be turned off, and then power it on. (2) If the issue remains unresolved, please consult your local distributor
Reversed battery	46	(1) Check the anode and cathode wirings are correct (2) If the issue remains unresolved, please consult your local distributor

13 Warranty

13.1 Warranty Period

Hunan Lenercom Technology Co., Ltd. (hereinafter referred to as "Lenercom") provides LC-E2 ESS series products (hybrid inverter (referred to as "inverter") + battery module) with warranty services in line with warranty scope and conditions, and the warranty period is 5 years for inverter and 10 years for battery module.

The warranty period is calculated from 1) the first installation date; 2) 3 months from the delivery by Lenercom (whichever comes first).

13.2 Warranty Conditions

LC-E2 products purchased and installed through Lenercom or its authorized partners are within the warranty scope of Lenercom. New, second-hand or refurbished products purchased through other channels are not covered by this warranty.

13.3 Request for Repair

During the warranty period, if the product is operated normally according to the manual, and the product fails or cannot work, the requester can send the Customer Repair Registration Form or provide enough information to Lenercom through call/fax/e-mail to help the after-sales service team complete the warranty repair. [This article is tentative: first understand how to realize it on the computer, register on the website as recommended, and then report the fault directly].

The requester shall provide the following information or documents about the faulty product:

S/N	Content
1	Contact information of requester: including name, company name, telephone number, email, contact address and purchase outlet;
2	Information of faulty product: including product model, serial number, installation date and fault date (which can be provided by photos);
3	PV installation information (if any): including the brand, model and quantity of PV system components;
4	If conditions permit, please provide LCD error information, additional fault/error information, etc.;
5	Description of product performance before fault;
6	Provide the PN code.

If the product fails during the warranty period, Lenercom will handle it in one of the following ways:

◎Remote video technical support;

◎On-site maintenance by Lenercom or its authorized third party;

◎Send it back to Lenercom maintenance center for repair;

◎Replace it with a refurbished machine with the latest firmware (if the production of original model has been suspended and there is no stock, Lenercom has the right to provide products with equal value and equal functions for replacement).

Depending on the fault, Lenercom will arrange remote video technical support or on-site inspection to identify the cause. The requester shall ensure that the technical personnel of Lenercom and its authorized third party have the authority and time to conduct on-site inspection and protect their safety. In case that the technical personnel think that the site safety conditions are insufficient, they have the right to refuse access to the site. The requester shall be responsible for the failure of inspection due to negligence in site access conditions, time or safety.

The replaced product or component in return shipment shall be in the original packaging or equivalent packaging. The replacement product will automatically inherit the remaining warranty period. Before the shipper entrusted by Lenercom retrieves the replaced product, the requester shall be responsible for the proper preservation of the product, and the lost product during this period shall be compensated by the requester.

13.4 Faults beyond Warranty Scope

Product faults caused by the following conditions are not covered by the warranty:

◎Failure to comply with applicable safety regulations;

◎The product is damaged, lost or stolen during transportation;

◎Fault or damage caused by the causes other than product quality;

◎Failure to comply with user manual, maintenance procedures and time intervals, incorrect use or improper storage, operation, debugging or modification of products;

◎Live installation, wiring or incorrect use of tools;

◎Product damage caused by disassemble, repair, process, replacement, installation or commissioning by the distributor or installer not authorized or certified, or due to the negligence or recklessness, intentional behavior of any third party;

◎The service environment of product exceeds the normal temperature (0°C-40°C);

◎Product fault or damage caused by the wrong installation position (for example, the distance from the wall can not meet the installation requirements of the manual, and the outside of box is corroded, dusted or drenched, or the product is exposed to coastal/saline or other corrosive environmental conditions);

◎Product damage due to the risk of installation location (such as the storage place of inflammable and explosive materials, high humidity area (no condensation when the humidity exceeds 85%), and long-term water accumulation area)

◎Product damaged caused by the product accessories or consumables purchased from third parties other than Lenercom or the authorized agency;

◎Battery power loss due to normal loss and long-term idleness for more than 6 months;

◎The requester refuses to provide the information about the installation, commissioning, operation, use environment and fault;

◎Damage caused by force majeure (such as extreme weather, fire, flood, earthquake, lightning strike, lightning, war, etc., including but not limited to the above events);

◎All other environments and behaviors that may damage the normal use of equipment.

13.5 Service after Expiration of Warranty Period

For products beyond the warranty period, Lenercom can still provide related services, but will charge relevant fees to end users, including but not limited to:

◎On-site service fee: including the travel expenses and working hours of technicians who deal with problems on site.

◎Material cost: the cost of replacing materials (including all transportation and management expenses).

◎Labor cost: the labor cost of technicians includes testing, repairing, maintaining, installing (hardware or software) and debugging faulty products.

◎Logistics costs: delivery costs and other related costs, including sending faulty products from users to Lenercom or/and repaired products from Lenercom to the user's location.

13.6 Miscellaneous

The purchase invoice shall be properly kept as the basis for repairing. [Tentative]

Warranty clause is the only express guarantee clause of Lenercom for LC-E2 products without any other express, implied, oral or written warranty.

Warranty cannot be understood as a guarantee of product service life or usability of products of the same model.

During the warranty period, Lenercom shall assume the labor cost of maintenance and testing and the cost of required materials and no other expenses.

Unless otherwise provided in a separate service agreement between Lenercom and the customer, this agreement shall prevail.

13.7 Contact Information

Hunan Lenercom Technology Co., Ltd.

Tel: +86 73188051567

E-mail: service@lenercom.com

Official website: cn.lenercom.com

Address: Building B1, Lugu Innovation and Entrepreneurship Park, Yuelu District, Changsha City, Hunan Province

| IOS | Google | Android |

Warranty card

Lenercom

PRODUCT WARRANTY CARD

Product Name _____

Product Model _____

Production Date _____

Hot-Line: +86 731 85976599

Warranty Card Ordinance ——————————— Lenercom

1. WThe inverter warranty period is____years, and the battery warranty period is____years

2. During the warranty period, if there is a problem in normal use according to the manual (as determined by the official staff of the company), free maintenance will be offered.

3. During the warranty period, if the following problems occur, they must be treated as charges

1) Cannot provide this guarantee or provide a valid proof of purchase

2) Damage and malfunction caused by wrong usage or improper self-repair

3) Damages and malfunctions caused by transportation, dropping, and handling after purchase

4) Damage and failure caused by other unavoidable external factors

5) Damage and failure caused by water or other solutions caused by improper use

LENERCOM

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