

Commercial & Industrial Energy Storage System

SUN-MPPT-L01-EU-AM8

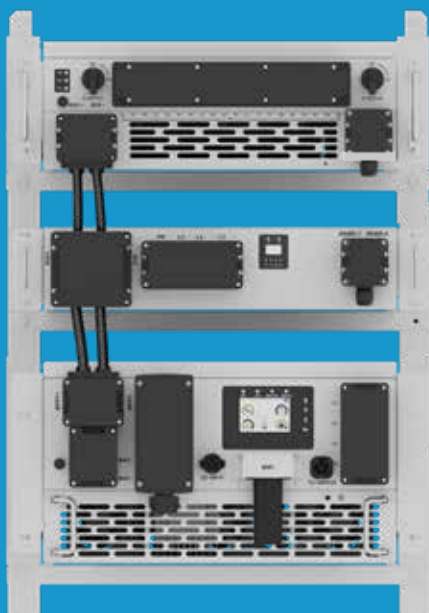
SUN-MPPT-L01-EU-AM10

SUN-80K-CG01-C

SUN-100/125K-PCS01HP3

SUN-100/125K-PCS02HP3

User Manual



Contents

1. Safety Introductions	01-09
1.1 Personal Safety	
1.2 Electrical Safety	
1.3 Environment Requirements	
1.4 Mechanical Safety	
2. Product Instructions	09-19
2.1 Product Overview	
2.2 Function Port Definition	
2.3 Product Size	
2.4 Product Features	
2.5 Basic System Architecture	
2.6 Storage Requirements	
3. Installation	19-49
3.1 Parts List	
3.2 Mounting Instructions	
3.3 Product Handling Requirements	
3.4 Battery Connection	
3.5 AC Cable Connection	
3.6 Connection With MPPT Module(Optional)	
3.7 Earth Connection(Mandatory)	
3.8 TypicalApplication Scenarios	
3.9 Data Logger Connection	
3.10 Parallel Wiring Diagram	
4. Operation	50-51
4.1 Power ON/OFF	
4.2 Operation And Display Panel	
5. Commissioning Through LCD	52-74
5.1 Main Screen	
5.2 Basic Setup	
5.3 System Work Mode	
5.4 Grid Setup	
5.5 STS Setup	
5.6 Fault Code	
5.7 Battery Setup	
5.8 Advance	
5.9 AC/DC Group LCD Home Screen	
5.10 AC/DC Group-Parameter and Setting View	
6. Warranty	75
7. Troubleshooting	75-80
8. Datasheet	81-84
9. Appendix I	85-88
10. EU Declaration Of Conformity	88-91

About This Manual

This manual provides information and guidelines for the installation, operation, and maintenance of the Commercial & Industrial Storage System, including:

- SUN-(100-125)K-PCS01HP3/SUN-(100-125)K-PCS02HP3
Power Conversion System (referred to as PCS)
- SUN-MPPT-L01-EU-AM8/SUN-MPPT-L01-EU-AM10
- SUN-80K-CG01-C

How To Use This Manual

Before performing any operation, carefully read this manual and all related documents. Ensure these documents are stored safely and remain easily accessible at all times.

Please note that the contents of this manual may be updated or revised periodically due to ongoing product development. As a result, the information provided herein is subject to change without prior notice. The latest version of the manual can be obtained by contacting

Security Declaration

For detailed information regarding the product's network security vulnerability response and the disclosure of related vulnerabilities, please refer to the Security Center at

Labels Description

Label	Description
	The 'Caution: Risk of Electric Shock' symbol signifies important safety instructions. Incorrect adherence may result in electric shock.
	The DC input terminals of the device must not be grounded.
	High surface temperature, Please do not touch the device case.
	The AC and DC circuits must be disconnected separately. Maintenance personnel must wait for 5 minute until the system is completely powered off before beginning work.
	CE mark of conformity
	Please read the instructions carefully before use.
	Symbol for marking electrical and electronic devices in accordance with Directive 2002/96/EC. This symbol indicates that the device, its accessories, and packaging must not be disposed of as unsorted municipal waste. They must be collected separately at the end of their service life. Please follow local ordinances or regulations for proper disposal, or contact an authorized representative of the manufacturer for guidance on decommissioning the equipment.

1.1 Personal Safety

 DANGER

- 1. Ensure the power is off during installation. Do not install or remove cables while the system is powered on. Transient contact between the cable core and the conductor can generate electric arcs or sparks, potentially causing fire or personal injury.
- 2. Improper handling of energized equipment can result in serious hazards. Non-standard or incorrect operations may lead to fire, electric shock, or explosion, causing property damage, personal injury, or even death.
- 3. Remove conductive objects before working. Take off watches, bracelets, rings, necklaces, and other metallic accessories to prevent the risk of electric shock.
- 4. Use dedicated insulated tools. During operation, always use tools designed for electrical work to prevent electric shock or short circuits. The dielectric withstand voltage of the tools must comply with local laws, regulations, standards, and specifications.

 WARNING

During operations, wear personal protective equipment such as protective clothing, insulated shoes, goggles, safety helmets, and insulated gloves.

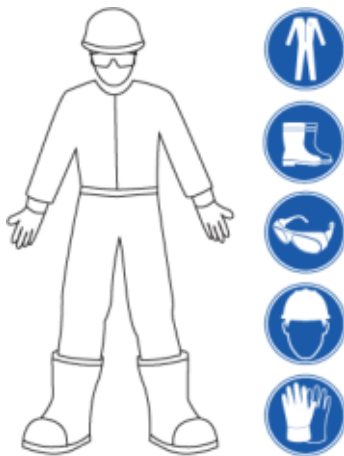


Figure 1-1 Personal protective equipment

General Requirements

- Do not disable protective devices. Follow all warnings, cautions, and precautionary measures outlined in this document and on the equipment.
- If there is a risk of personal injury or equipment damage during operation, stop immediately, report the issue to a supervisor, and take appropriate protective measures.
- Do not power on the equipment until it has been installed and confirmed by a qualified professional.
- Avoid direct contact with power supply equipment or conductive materials such as damp objects. Before touching any conductor surface or terminal, always measure the voltage at the contact point to ensure there is no risk of electric shock.
- Do not touch the enclosure of operating equipment, as it may be hot.
- Keep hands, tools, and other objects away from running fans. Contact with components, screws, tools, or circuit boards may cause personal injury or equipment damage.
- In the event of a fire, evacuate the building or equipment area immediately and activate the fire alarm or call emergency services. Under no circumstances should you re-enter the affected area.

Personnel Requirements

- Only qualified professionals and trained personnel are permitted to operate the equipment.
- Professionals: Individuals who are familiar with the working principles and structure of the equipment, have undergone training or have relevant experience in equipment operations, and have a clear understanding of potential hazards associated with equipment installation, operation, and maintenance.
- Trained personnel: Individuals who have received technical and safety training, possess the required experience, are aware of potential hazards in specific operations, and are capable of implementing protective measures to minimize risks to themselves and others.
- Personnel responsible for installing or maintaining the equipment must receive adequate training, be capable of performing all operations correctly, and fully understand necessary safety precautions as well as relevant local standards.
- Only qualified professionals or trained personnel are authorized to install, operate, and maintain the equipment.
- Only qualified professionals are permitted to remove safety devices and inspect the equipment.
- Personnel performing specialized tasks such as electrical operations, working at heights, or operating special equipment must hold the necessary local qualifications.
- Only authorized professionals are permitted to replace equipment or components, including software.
- Only personnel with work-related responsibilities are allowed access to the equipment.

1.2 Electrical Safety



DANGER

1. Before connecting cables, ensure that the equipment is intact. Otherwise, electric shocks or fires may occur.
2. Non-standard or improper operations may result in fires or electric shocks.
3. Prevent foreign matter from entering the equipment during operations. Otherwise, equipment short-circuits or damage, load power derating, power failure, or personal injury may occur.



WARNING

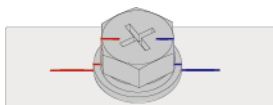
For equipment that requires grounding, connect the ground cable first during installation and disconnect it last during removal.

CAUTION

Do not route cables near the air intake or exhaust vents of the equipment.

General Requirements

- Follow the procedures described in this document for installation, operation, and maintenance. Do not modify or alter the equipment, add components, or change the installation sequence without prior authorization.
- Obtain approval from the national or local electric utility company before connecting the equipment to the grid.
- Comply with power plant safety regulations, such as operational and work permit mechanisms.
- Install temporary fences or warning ropes and place “No Entry” signs around the operation area to prevent unauthorized access.
- Before installing or removing power cables, turn off the equipment switches as well as the upstream and downstream switches.
- Before performing operations on the equipment, ensure that all tools meet the requirements and record them. After completing the operations, collect all tools to prevent any from being left inside the equipment.
- Before installing power cables, verify that cable labels are correct and that cable terminals are properly insulated.
- When installing the equipment, use a torque tool with an appropriate measurement range to tighten the screws. If using a wrench, ensure that it remains level and that the torque error does not exceed 10% of the specified value.
- Ensure that bolts are tightened using a torque tool and marked in red and blue after double-checking:
- Installation personnel mark tightened bolts in blue.
- Quality inspection personnel confirm the bolts are securely tightened and then mark them in red. (The markings must cross the edges of the bolts.)



- If the equipment has multiple inputs, disconnect all inputs and wait until the equipment is completely powered off before performing any operations.
- Before maintaining a downstream electrical or power distribution device, turn off the output switch on the power supply equipment.
- During equipment maintenance, attach “Do Not Switch On” labels near the upstream and downstream switches or circuit breakers, along with warning signs, to prevent accidental reconnection. The equipment should only be powered on after troubleshooting is complete.
- Do not open equipment panels.
- Periodically check equipment connections to ensure that all screws are securely tightened.
- Only qualified professionals are allowed to replace damaged cables.
- Do not deface, damage, or obscure any labels or nameplates on the equipment. Promptly replace any worn-out labels.
- Do not use solvents such as water, alcohol, or oil to clean electrical components inside or outside the equipment.

Grounding

- Ensure that the grounding impedance of the equipment complies with local electrical standards.
- Ensure that the equipment is permanently connected to the protective ground. Before operating the equipment, verify that its electrical connection is secure and reliably grounded.
- Do not work on the equipment if a properly installed ground conductor is absent.

Cabling Requirements

- When selecting, installing, and routing cables, follow local safety regulations and standards.
- When routing power cables, ensure they are not coiled or twisted. Do not join or weld power cables. If necessary, use a longer cable.
- Ensure that all cables are properly connected, insulated, and meet specifications.
- Ensure that cable slots and routing holes are free from sharp edges. When cables pass through pipes or cable holes, use cushioning materials to prevent damage from sharp edges or burrs.
- Ensure that cables of the same type are neatly bundled and arranged straight, with their sheaths intact. When routing different types of cables, keep them separated to prevent entanglement and overlapping.
- Secure buried cables using cable supports and clips. Ensure that cables in the backfill area are in close contact with the ground to prevent deformation or damage during backfilling.
- If external conditions (such as cable layout or ambient temperature) change, verify cable specifications in accordance with IEC 60364-5-52 or local laws and regulations. For example, check that the current-carrying capacity meets the requirements.
- Maintain at least 30 mm of clearance between cables and heat-generating components or areas to prevent deterioration or damage to the cable insulation layer.

1.3 Environment Requirements



DANGER

1. Do not expose the equipment to flammable or explosive gases or smoke. Do not perform any operations on the equipment in such environments.
2. Do not store any flammable or explosive materials in the equipment area.
3. Do not place the equipment near heat sources or open flames, such as cigarettes, candles, heaters, or other heating devices. Overheating may damage the equipment or cause a fire.



WARNING

1. Install the equipment in an area far away from liquids. Do not install it under areas prone to condensation, such as under water pipes and air exhaust vents, or areas prone to water leakage, such as air conditioner vents, ventilation vents, or feeder windows of the equipment room. Ensure that no liquid enters the equipment to prevent faults or short circuits.
2. To prevent damage or fire due to high temperature, ensure that the ventilation vents or heat dissipation systems are not obstructed or covered by other objects while the equipment is running.

General Requirements

- Store the equipment in accordance with the specified storage requirements. Damage caused by improper storage conditions is not covered under the warranty.
- Ensure that the installation and operating environments remain within the specified limits. Failure to do so may compromise the equipment's performance and safety.
- The operating temperature range specified in the equipment's technical documentation refers to the ambient temperature of the installation environment.
- Do not install, use, or operate outdoor equipment and cables (including but not limited to moving or operating equipment, inserting or removing connectors from signal ports connected to outdoor facilities, working at heights, performing outdoor installation, or opening doors) in harsh weather conditions such as lightning, rain, snow, or winds of level 6 or stronger.
- Do not install the equipment in an environment containing dust, smoke, volatile or corrosive gases, infrared or other radiation sources, organic solvents, or salty air.
- Do not install the equipment in an environment containing conductive metal or magnetic dust.
- Do not install the equipment in areas conducive to the growth of microorganisms, such as fungus or mildew.
- Do not install the equipment in areas with strong vibrations, noise, or electromagnetic interference. The equipment must be installed in an environment where the magnetic field strength is less than 4 Gauss. If the magnetic field strength is 4 Gauss or higher, the equipment may fail to function properly. In high-magnetic-field environments, such as smelteries, use a Gauss meter to measure the magnetic field strength at the installation site while the smelting equipment is operating normally.
- Ensure that the installation site complies with all applicable local laws, regulations, and relevant standards.
- Ensure that the ground in the installation environment is solid, free from spongy or soft soil, and not prone to subsidence. The site must not be located in a low-lying area prone to water or snow accumulation. The installation site's elevation must be above the highest recorded water level for that area.
- Do not install the equipment in locations that may be submerged in water.
- Do not install the equipment outdoors in salt-affected areas, as this may lead to corrosion. A salt-affected area refers to regions within 500 meters of the coast or areas exposed to sea breezes. The extent of sea breeze influence may vary depending on weather conditions (such as typhoons and monsoons) or geographical features (such as dams and hills).
- Before opening doors during installation, operation, or maintenance, remove any water, ice, snow, or foreign objects from the top of the equipment to prevent them from falling inside.
- When installing the equipment, ensure that the installation surface is strong enough to support its weight.
- After installation, remove all packing materials, including cartons, foam, plastic, and cable ties, from the equipment area.

1.4 Mechanical Safety



WARNING

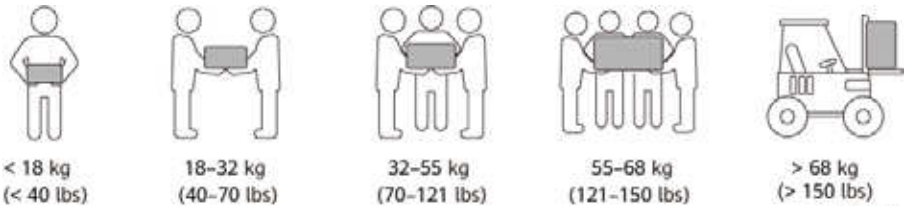
1. Ensure that all necessary tools are prepared and inspected by a certified professional organization. Do not use tools that show signs of damage, such as scratches, fail to pass inspection, or have exceeded their inspection validity period. Ensure that the tools are secure and not overloaded.
2. Do not drill holes into the equipment. Doing so may compromise its sealing performance and electromagnetic containment, potentially damaging internal components or cables. Metal shavings from drilling may cause short circuits on circuit boards inside the equipment.

General Requirements

- Repaint any scratches caused during equipment transportation or installation in a timely manner. Equipment with scratches must not be left exposed for an extended period of time.
- Do not perform operations such as arc welding or cutting on the equipment without prior evaluation by the Company.
- Do not install any devices on top of the equipment without prior evaluation by the Company.
- When performing operations above the equipment, take necessary precautions to protect it from damage.
- Use the correct tools and operate them properly.

Moving Heavy Objects

- Be cautious to prevent injury when moving heavy objects.



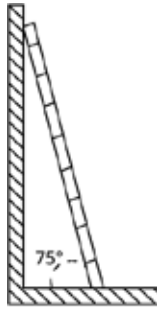
- If multiple people need to move a heavy object together, determine the required manpower and work division, considering factors like height and other conditions, to ensure the weight is equally distributed.
- If two or more people are moving a heavy object together, ensure that the object is lifted and lowered simultaneously, and moved at a uniform pace under the supervision of one person.
- Wear personal protective gear, such as gloves and shoes, when manually moving the equipment.
- When moving an object by hand, approach it, squat down, and lift the object gently and steadily using the strength of your legs rather than your back. Do not lift it suddenly or twist your body.
- Do not lift a heavy object above your waist too quickly. Place the object on a workbench that is about waist height or another suitable surface, adjust your hand positions, and then lift it.
- Move a heavy object steadily with balanced force at a consistent, slow speed. Lower the object gently to avoid collision or damage to the surface, components, or cables.
- When moving a heavy object, be aware of obstacles such as workbenches, slopes, stairs, and slippery surfaces. When moving an object through a door, ensure the door is wide enough to accommodate the object, and avoid bumps or injuries.
- When transferring a heavy object, move your feet rather than twisting your waist. When lifting and moving a heavy object, ensure your feet are pointed in the direction of movement.
- When transporting equipment using a pallet truck or forklift, ensure the tines are properly positioned to prevent the equipment from toppling. Secure the equipment to the pallet truck or forklift using ropes before moving it. Assign a dedicated person to oversee the transport.
- Choose good-condition roads, sea transport, or airplanes for transportation. Do not transport the equipment by railway. Avoid tilting or jolting during transportation.

Using Ladders

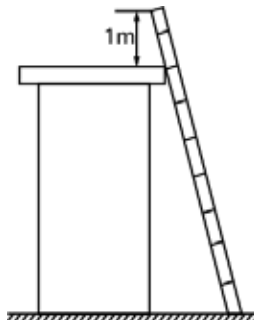
- Use wooden or insulated ladders when you need to perform live-line working at heights.
- Platform ladders with protective rails are preferred. Single ladders are not recommended.
- Before using a ladder, check that it is intact and confirm its load-bearing capacity. Do not exceed the maximum load limit.
- Ensure the ladder is securely positioned and stable before use.



- When climbing a ladder, maintain body stability, keep your center of gravity between the side rails, and avoid overreaching.
- When using a step ladder, ensure the pull ropes are properly secured.
- If using a single ladder, position it at a 75-degree angle against the floor, as shown in the following figure. A square can be used to measure the angle.



- If using a single ladder, ensure that the wider end is at the bottom and take protective measures to prevent it from sliding.
- Do not climb higher than the fourth rung from the top of a single ladder.
- When using a single ladder to access a platform, ensure that the ladder extends at least 1 meter above the platform.



Drilling Holes

- Obtain consent from the customer and contractor before drilling holes.
- Wear protective equipment such as safety goggles and protective gloves when drilling holes.
- To avoid short circuits or other risks, do not drill holes into buried pipes or cables.
- When drilling holes, protect the equipment from shavings. After drilling, clean up any shavings.

2. Product Introductions

The PCS (Power Conversion System) performs rectification and inversion using a three-phase three-level converter. During rectification, it converts three-phase AC power into DC power, which is then stored in the energy storage system (ESS). During inversion, the DC power is converted back into three-phase AC power through a filtering process, allowing it to supply local loads or be fed into the utility grid. This PCS features a user-friendly HMI (Human-Machine Interface) with a large, touch-sensitive LCD display and intuitive physical buttons for easy operation.

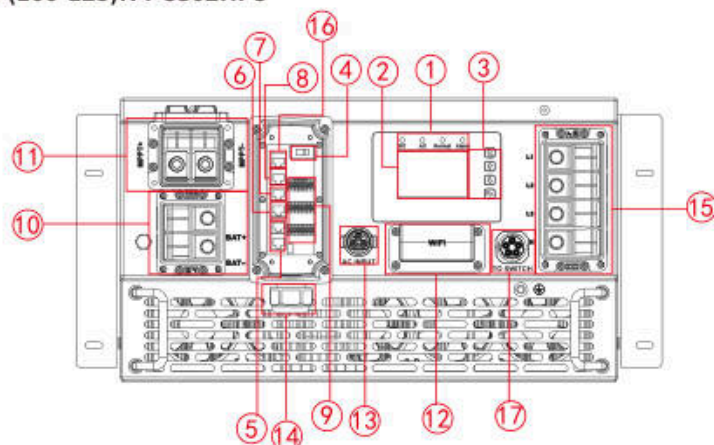
The Maximum Power Point Tracking (MPPT) is an electronic DC-DC converter designed to optimize the matching between solar arrays (PV panels) and battery banks, or between PV panels and Power Conversion System (PCS) input voltage. In essence, it converts the lower-voltage DC output from solar panels into the higher voltage required to support battery charging or enable the PCS inverter output power.

The AC/DC module is used to rectify the mains power into DC for the PCS. The AC/DC module communicates with the PCS, and the PCS controls the output power of the AC/DC module

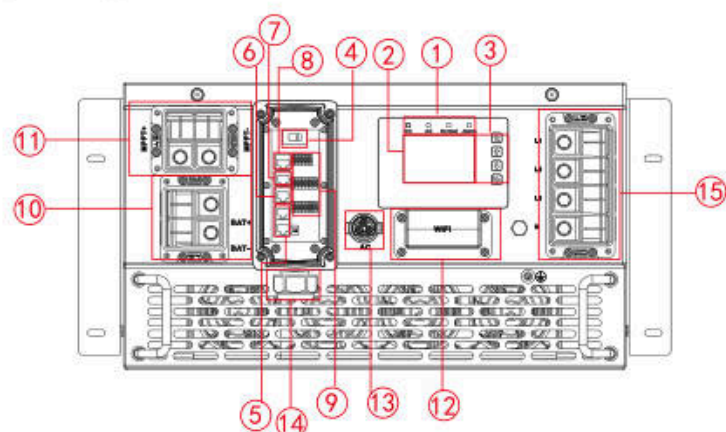
2.1 Product Overview

2.1.1 PCS Product Overview

SUN-(100-125)K-PCS02HP3



SUN-(100-125)K-PCS01HP3



1: PCS indicators

2: LCD display

3: Function buttons

4*: Auxiliary Power Switch

5: Parallel port

6: MPPT CAN port

7: BATBMS port

8: LCD 485 port

9: Function port

10: Battery input

11: MPPT input

12: Interface for logger

13*: Auxiliary power port

14: Inlet of cables

15: AC input/output port

16: DRM port

17*: To Switch Port

Note:

4*: Select auxiliary power supply for PCS from STS AC side or PCS AC side.

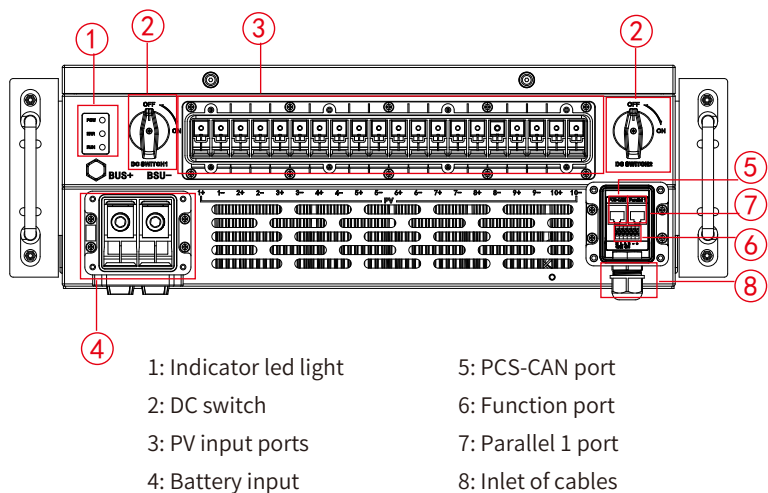
13*: Connect to the STS auxiliary power port to enable STS supply power to the auxiliary power of PCS.

17*: For ATS solution only. Not required for other solutions.

*SUN-(100-125)K-PCS02HP3 can be paired with SUN-MPPT-L01-EU-AM8 and SUN-MPPT-L01-EU-AM10.

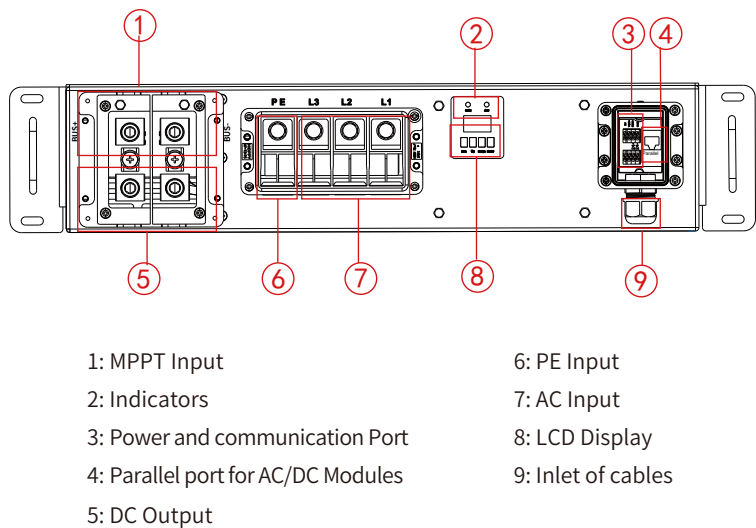
*SUN-(100-125)K-PCS01HP3 can only be paired with SUN-MPPT-L01-EU-AM8, pairing with SUN-MPPT-L01-EU-AM10 is not recommended.

2.1.2 MPPT Product Overview



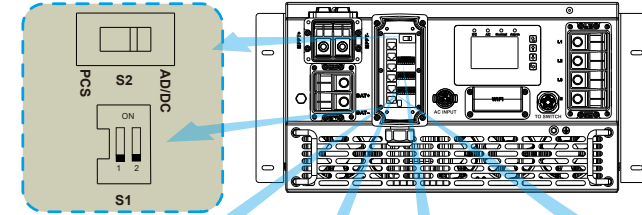
Note:
*SUN-(100-125)K-PCS02HP3 can be paired with SUN-MPPT-L01-EU-AM8 and SUN-MPPT-L01-EU-AM10.
*SUN-(100-125)K-PCS01HP3 can only be paired with SUN-MPPT-L01-EU-AM8, pairing with SUN-MPPT-L01-EU-AM10 is not recommended.

2.1.3 AC/DC Product Overview

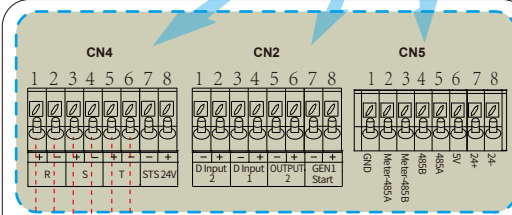


2.2 Function Port Definition

2.2.1 PCS Function Port Definition



Note:
For PCS communication port cable definitions, refer to Appendix 1, Chapter 9.



S2: Used to select whether the PCS auxiliary power supply is powered by the STS device or by the PCS AC side. If the DIP switch is set to the STS side, the power supply line for the PCS auxiliary power must be connected from the PCS Auxiliary Power Port to the STS Auxiliary Power Supply Port to establish the power supply circuit.

S1: Used to configure CAN communication impedance matching when multiple PCS units operate in parallel.

CN4:

R+/R- (1,2): Input for CT on R(L1/A/U) phase.
S+/S- (3,4): Input for CT on S(L2/B/V) phase.
T+/T- (5,6): Input for CT on T(L3/C/W) phase.
STS 24V-/STS 24V+ (7,8): Used to provide auxiliary power to the STS module in off-grid conditions.

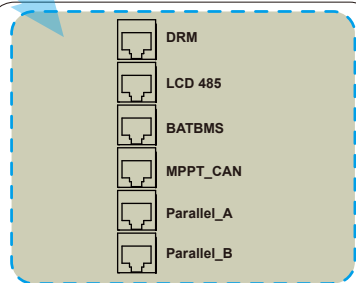
CN2:

GEN1 Start -/(+7,8): Sets of output dry contacts, which can be used for remote start/stop control of a generator.
OUTPUT 2 -/(+5,6): Sets of output dry contacts, which can be used to control other external devices via customized software.
D Input 2/D Input 1 (1,2/3,4): Sets of input dry contacts, which can be used for connecting emergency stop button or other customized external control devices.

CN5:

GND (1): Used for grounding the PE wire of external meter or form a loop circuit with 5V-COM.
Meter-485A/Meter-485B (2,3): Communication port for external meter.
485A/485B (4,5): reserved.
5V (6): Supply 5V DC for external device, such as Smart TX.
24V-/24+ (8,7): Used for external 24V input to power the PCS.

WiFi interface: Interface for installing the stick logger, not limited to WiFi logger, there is also 4G option available.



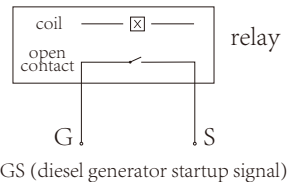
ParallelA/ParallelB: Used for parallel communication with other PCS modules, the surplus parallel port of master PCS module can be used for CAN communication with STS module, no difference between parallelA and parallelB.

MPPT CAN : Used for CAN communication between PCS module and MPPT module.

BATBMS: Used for communication between PCS module and BMS of battery set.

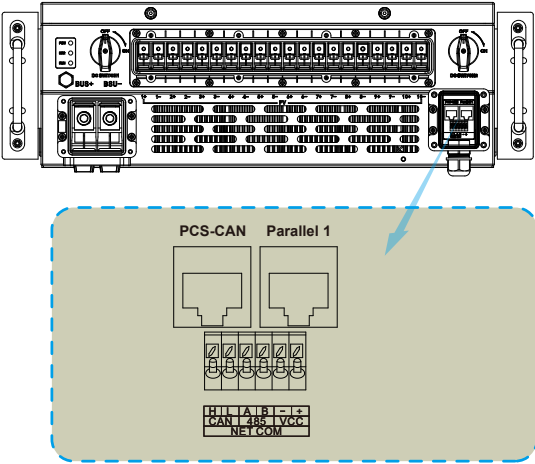
LCD 485: Used for communication between PCS module and external control devices, such as EMS.

DRM: It is used to accept the external input signal(Digital input). More details please refer to the P98-99.



GS (diesel generator startup signal)

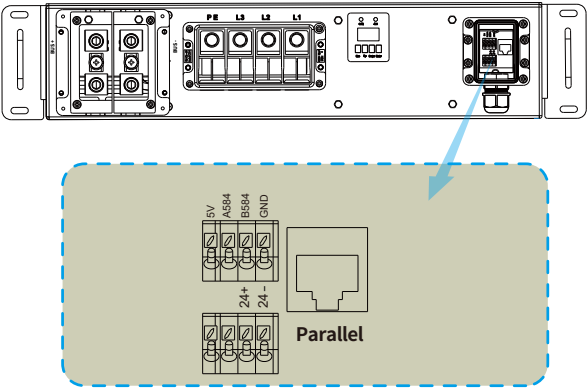
2.2.2 MPPT Function Port Definition



Note:
For MPPT communication port cable definitions, refer to Appendix 1, Chapter 9.

- PCS-CAN:** Communication port between MPPT and PCS Module
- Parallel 1:** Same as PCS-CAN port, it is in parallel together, reserved for future use.
- CAN:** CAN H, CAN L , commissioning port for CAN box so that our engineers can get original data like hex format from MPPT module
- 485:** 485A,485B, it is used to communicate with upper computer software via modbus protocol so that our engineers can get real-time data from MPPT module
- VCC:** VCC+, VCC- 12V power supply for external upgrading module from
- Note:** For MPPT communication port cable definitions, refer to Appendix 1, Chapter 9.

2.2.3 AC/DC Function Port Definition



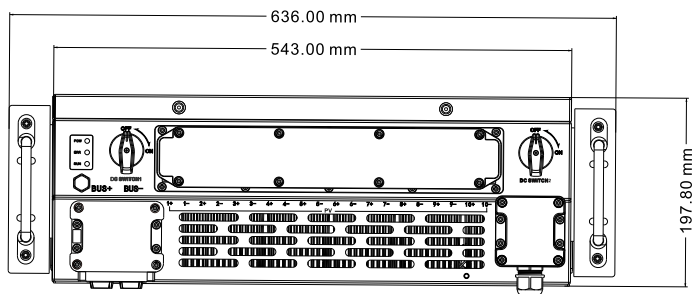
Note:
For AC/DC communication port cable definitions, refer to Appendix 1, Chapter 9.

- 5V/GND(1,4):** 5V power input. This port can be connected to the PCS's 5V output, which is used by the PCS to supply power to the AC/DC module. Normally, it does not need to be used.
- 485A/B(3,2):** Used for communication control between the PCS and the AC/DC module.
- Parallel Port(RJ45):** Used for parallel communication between two AC/DC modules.
- 24V+/- (8,7):** 24V power output, used to connect to the PCS 24V input port to supply power to the PCS.

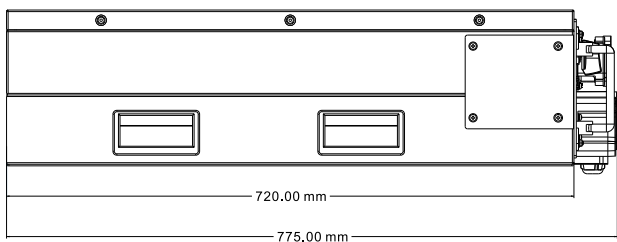
2.3.1 PCS Product Size



2.3.2 MPPT Product Size

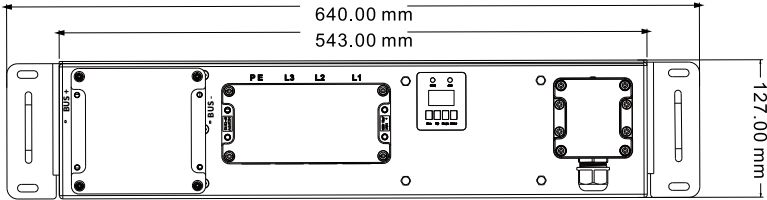


Front size of MPPT

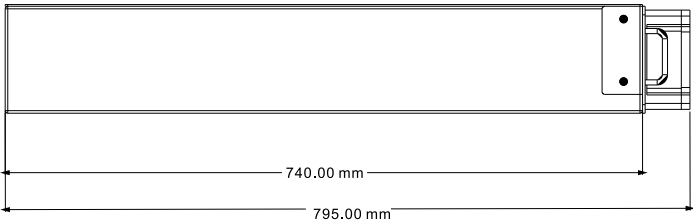


Side size of MPPT

2.3.3 AC/DC Product Size



Front size of AC/DC



Side size of AC/DC

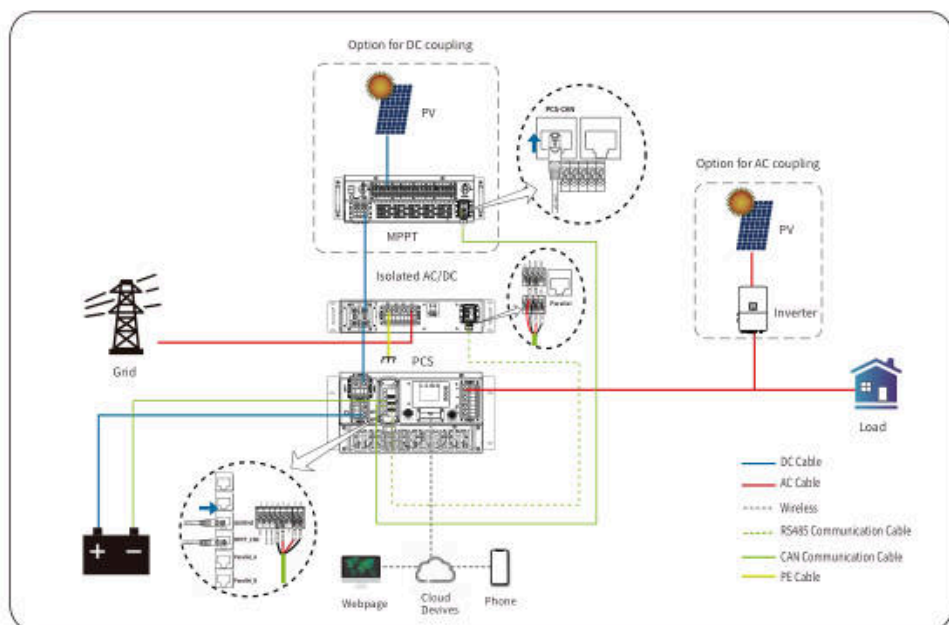
2.4 Product Features

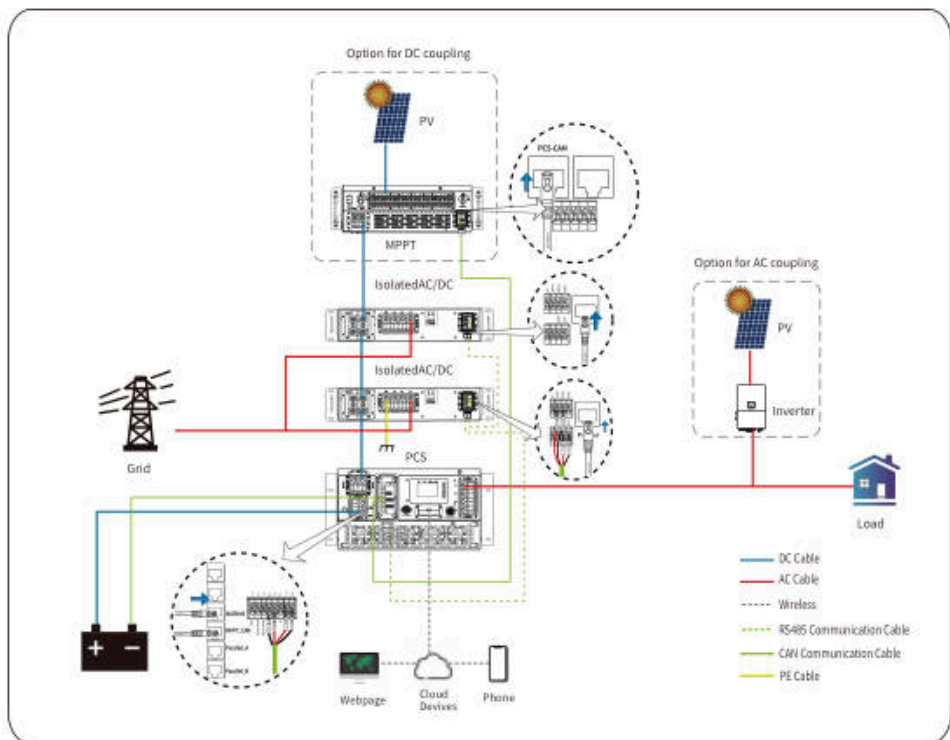
- 230V/400V Three-phase pure sine wave PCS.
- Self-consumption and feed-in to the grid.
- Auto restart while AC is recovering.
- Programmable supply priority for battery or grid.
- Multiple optional operating modes: Only PCS mode, PCS+MPPT mode, PCS+AC/DC mode, PCS+MPPT+AC/DC mode.
- Configurable battery charging current/voltage based on applications by LCD setting.
- Configurable AC/Solar/Generator Charger priority by LCD setting.
- Compatible with mains voltage or generator power.
- Overload/over temperature/short circuit protection.
- Smart battery charger design for optimized battery performance
- Includes limit function, prevent excess power overflow to the grid.
- Supports remote monitoring via APP or webpage when connected with 4G/Wi-Fi stick logger
- Time of use function.

2.5 Basic System Architecture

The following diagram shows basic application of energy storage system built by this PCS module. It usually includes following devices to have a complete photovoltaic energy storage system:

- PCS module
- AC/DC module
- Generator or Utility Grid
- MPPT module
- PV Array
- Battery set





2.6 Storage Requirements

NOTICE

- Store PCS, AC/DC and MPPT modules according to the storage requirements. Device damage caused by unqualified storage conditions is not covered under the warranty.
- Do not store PCS, AC/DC and MPPT modules without outer packaging.
- Do not tilt a packing case or place it upside down.

If Store PCS, AC/DC and MPPT modules will not be put into use immediately, store them according to the requirements specified in this section. Device damage caused by unqualified storage conditions is not covered under the warranty. Store PCS, AC/DC and MPPT modules with outer packaging in a ventilated, dry, and clean indoor environment. In addition, ensure that the following requirements are met:

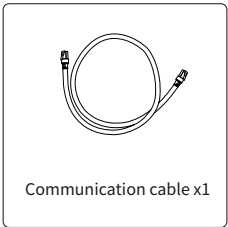
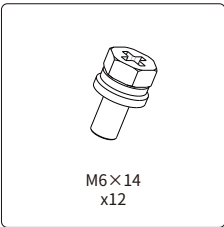
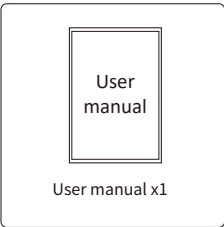
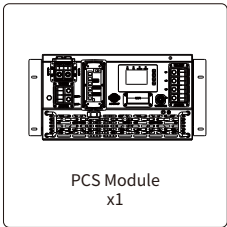
- If PCS, AC/DC and MPPT modules are unpacked but will not be used immediately, put them back to the original packaging with the desiccant, and seal with tape.
- When temporarily storing PCS, AC/DC and MPPT modules outdoors, do not stack them on a pallet. Take rainproof measures such as using tarpaulins to protect PCS, AC/DC and MPPT-modules from rain and water.
- PCS, AC/DC and MPPT modules must be stored in a clean and dry environment with appropriate temperature and humidity. The air must not contain corrosive or flammable gases. Maintain a storage temperature between -40°C to $+70^{\circ}\text{C}$, and humidity between 5%–95% RH.
- A maximum of four Smart PCSs can be stacked. To avoid personal injury or device damage, exercise caution when stacking PCS modules and MPPT modules to prevent them from falling over.
- Do not remove the outer packaging. Check the packaging regularly (recommended: once every three months). Replace any packaging that is damaged during storage.
- Do not store PCS modules and MPPT modules for more than two years. If PCS modules and MPPT modules have been stored for two years or longer, they must be checked and tested by professionals before being put into use.
- If the PCS module has not been running for six months or longer after being mounted, it may fail and must be checked and tested by professionals before being put into operation.

3. Installation

3.1 Parts List

3.1.1 PCS Parts List

Check the equipment before installation. Please make sure nothing is damaged in the package. You should have received the items in the following package:





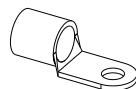
3-pin male connector x1



M4 × 12
x2



M8 × 16
x1



OT terminals RNBS70-8
x6

3B



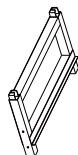
Support Plate 1x1

3B



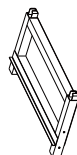
Support Plate 2x1

1L



Left frame x1

1R

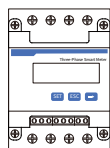


Right frame x1

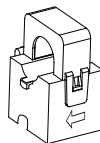
2F&2B



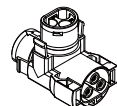
Front and back
crossmembers x2



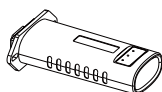
Meter(optional)*
x 1



Sensor clamp(optional)*
x 3



T-type AC connector
x1



Data logger(optional)* x1



Solar Photovoltaic
Connector Special
Spanner x1



Dust Plug x1

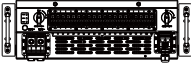
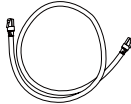
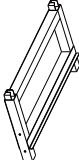
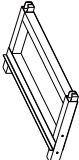


female connector x1

*Note: Please confirm whether you need the meter and sensor clamp before placing an order. For data logger, please confirm which kind of communication interface do you need, Wi-Fi/4G are the available options.

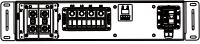
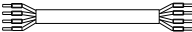
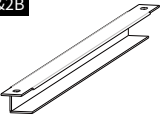
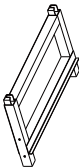
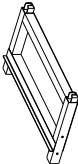
3.1.2 MPPT Parts List

Check the equipment before installation. Please make sure nothing is damaged in the package. You should have received the items in the following package:

 MPPT Module x1	 User manual x1	 M6×14 x12	 Communication cable x1
 Red connection wire x2	 M4×8 x1	 OT terminals RNBS8-5 x20	 2F&2B Front and back crossmembers x2
 3B Support Plate x1	 3B Support Plate 2x1	 1L Left frame x1	 1R Right frame x1
 Black connection wire x2	 L-type Hexagon wrench x1		

3.1.3 AC/DC Parts List

Check the equipment before installation. Please make sure nothing is damaged in the package. You should have received the items in the following package:

 AC/DC Module x1	 User manual x1	 Communication cable x1	 M6*14 x10
 Red connection wire x2	 Black connection wire x2	 Multi-core Cable x1	2F&2B  Front and back crossmembers x2
3B  Support Plate x1	1L  Left frame x1	1R  Right frame x1	

3.2 Mounting Instructions

Site Selection Requirements

Prohibited Installation Areas

- Explosive environments: Avoid areas with blasting agents, fireworks, or flammable materials.
- Corrosive environments: Do not install near sulfuric acid, hydrochloric acid, nitric acid, hydrogen sulfide, or chlorine, as corrosion damage is not covered under warranty.
- High-risk areas: Avoid locations with strong vibration, noise, electromagnetic interference ($\geq$ X Gauss), or near antennas.
- High-voltage risk zones: Keep away from easily accessible areas to prevent accidental contact and burns.
- Poor ventilation areas: Ensure good airflow to prevent overheating and power loss.
- Noise-sensitive locations: Keep a safe distance from residential areas, offices, and schools ($\geq$ X meters).

Installation Requirements

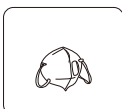
- Sheltered placement: Protect from direct sunlight, rain, snow, and lightning.
- Solid foundation: Ensure the surface can support the PCS module's weight.
- Public areas: If installed in public spaces (e.g., parking lots, stations, factories), use protective barriers and warning signs.
- Electrical safety: Insulate unused DC cables, route AC/DC power cables vertically to prevent terminal stress damage.
- Salt-affected regions: If near the coast ($\geq$ X meters), consult the manufacturer before outdoor installation.

Installations Tools

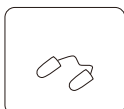
Installation tools can refer to the following recommended ones. Additionally, use other auxiliary tools as need on site.



Protective goggles



Anti-dust mask



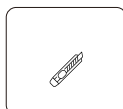
Earplugs



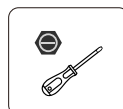
Work gloves



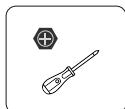
Work shoes



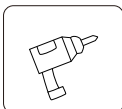
Utility Knife



Slotted screwdriver



Cross screwdriver



Percussion drill



Pliers



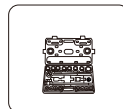
Marker



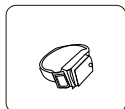
Level



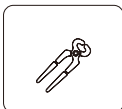
Rubber hammer



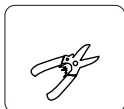
socket wrenches set



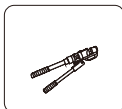
Anti-static wrist strap



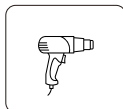
Wire cutter



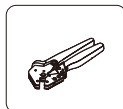
Wire stripper



Hydraulic pliers



Heat gun



Crimping tool4-6mm²



Solar connector
wrench



Multimeter ≥ 1100 Vdc RJ45 crimping plier



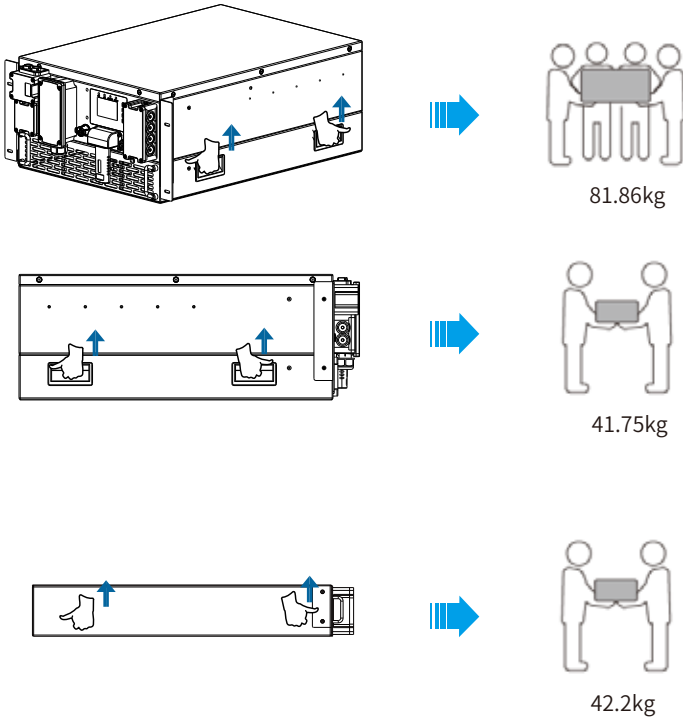
Cleaner



Spanner

3.3 Product Handling Requirements

Lift the PCS module and MPPT module(if any) out of the packaging box and transport them to the designated installation location.



transport



CAUTION:

Improper handling may cause personal injury!

- Arrange an appropriate number of personnel to carry the PCS module , MPPT module (if any) and AC/DC module (if any) according to their weight, and installation personnel should wear protective equipment such as anti-impact shoes and gloves.
- Placing the PCS module , MPPT module (if any) and AC/DC module (if any) directly on a hard ground may cause damage to their metal enclosure. Protective materials such as sponge pad or foam cushion should be placed underneath the PCS module , MPPT module (if any) and AC/DC module (if any) .
- Move the PCS module , MPPT module (if any) and AC/DC module (if any) by four or five people or by using a proper transport tool.
- Move the PCS module , MPPT module (if any) and AC/DC module (if any) by holding the handles on them. Do not move the device by holding the terminals.

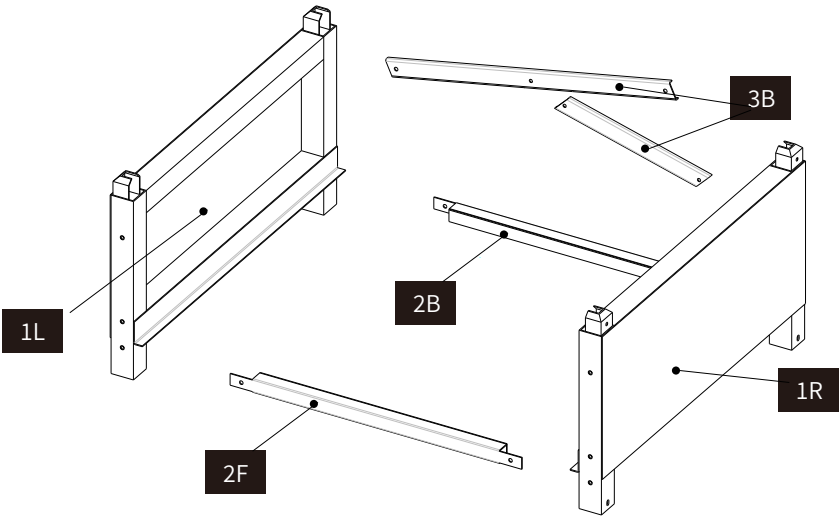
Mounting The PCS Module And MPPT Module(If Any)

Remember that this PCS module is heavy! Please be careful when lifting out of the package.

Follow the steps below to install the PCS module:

1. Attach the front and back crossmembers to the left and right frames.
2. Secure the back inclined brace to the left and right frames.
3. Place the PCS module into the assembled bracket.
4. Use the screws from the accessory kit to fasten the hanging ears on both sides of the front of the PCS module to the bracket, completing the installation.

PCS Bracket Component Diagram



Component	Description
1L	Left frame
1R	Right frame
2F	Front crossmember
2B	Back crossmember
3B	Support Plate

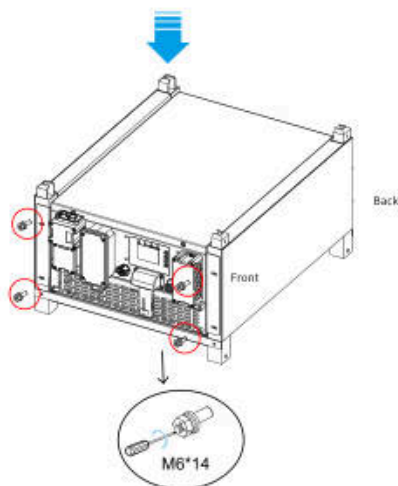
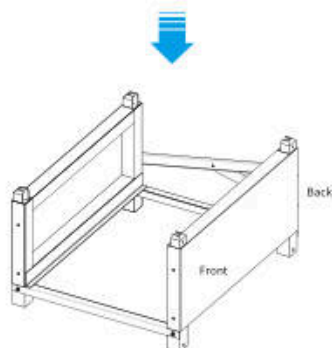
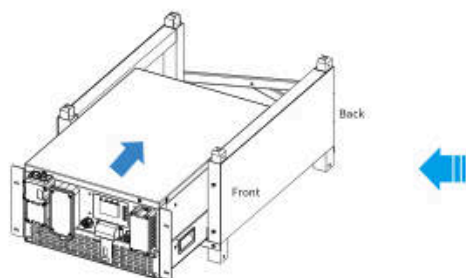
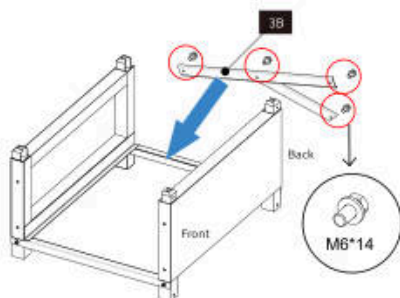
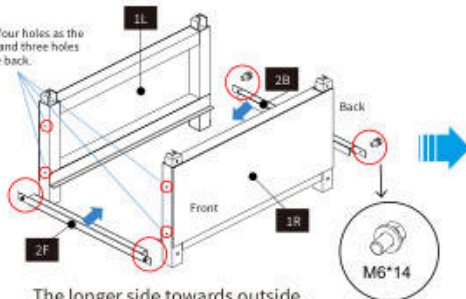
Note: The abbreviations **T, B, F, R, L** are used throughout this manual to indicate standard orientations relative to the device:

Direction Indicators

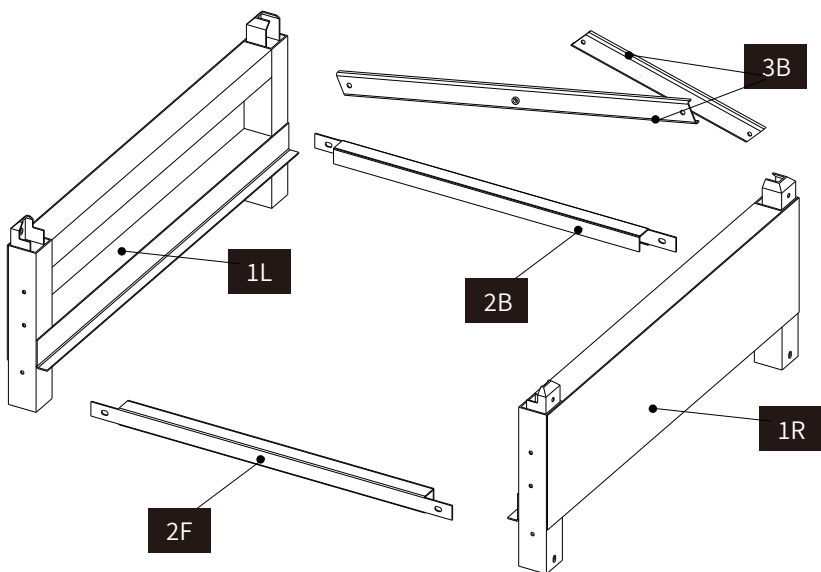
“T” = Top; “B” = Back; “F” = Front; “R” = Right; “L” = Left;
Right/Left are defined when facing the Front (F).

PCS Mounting Bracket Installation

Take four holes as the front and three holes as the back.



MPPT Bracket Component Diagram



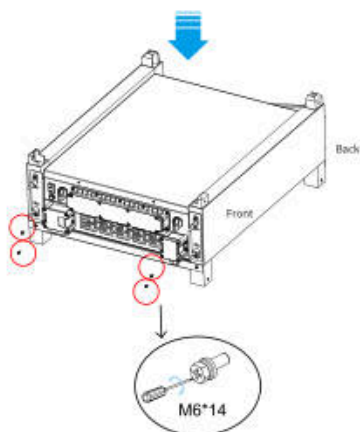
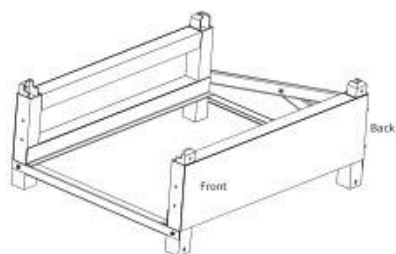
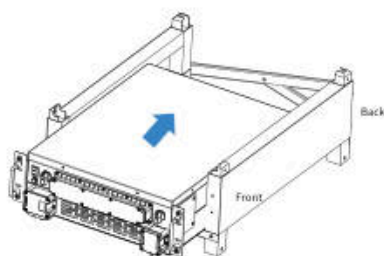
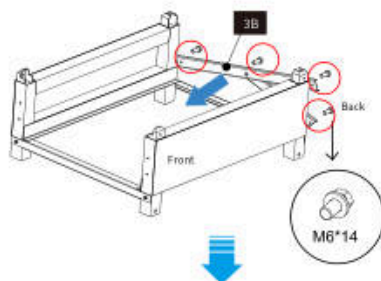
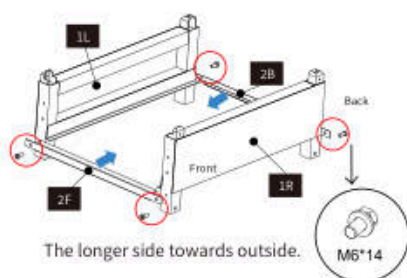
Component	Description
1L	Left frame
1R	Right frame
2F	Front crossmember
2B	Back crossmember
3B	Support Plate

Note: The abbreviations **T, B, F, R, L** are used throughout this manual to indicate standard orientations relative to the device:

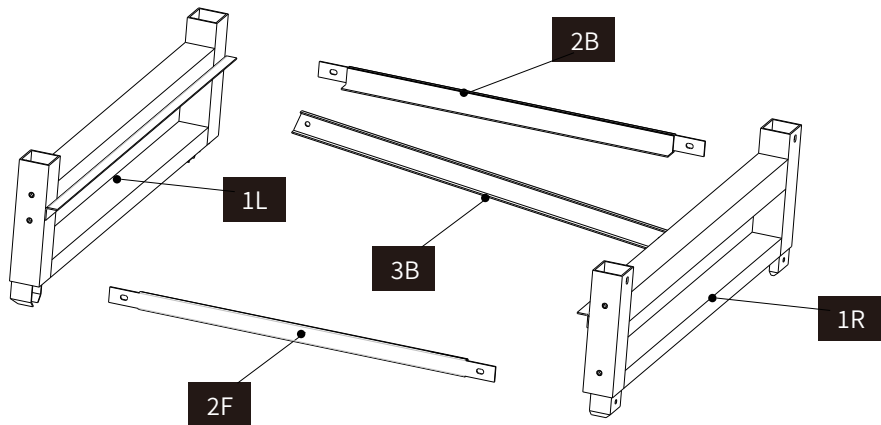
Direction Indicators

“T” = Top; “B” = Back; “F” = Front; “R” = Right; “L” = Left;
Right/Left are defined when facing the Front (F).

MPPT Mounting Bracket Installation



AC/DC Mounting Bracket Installation



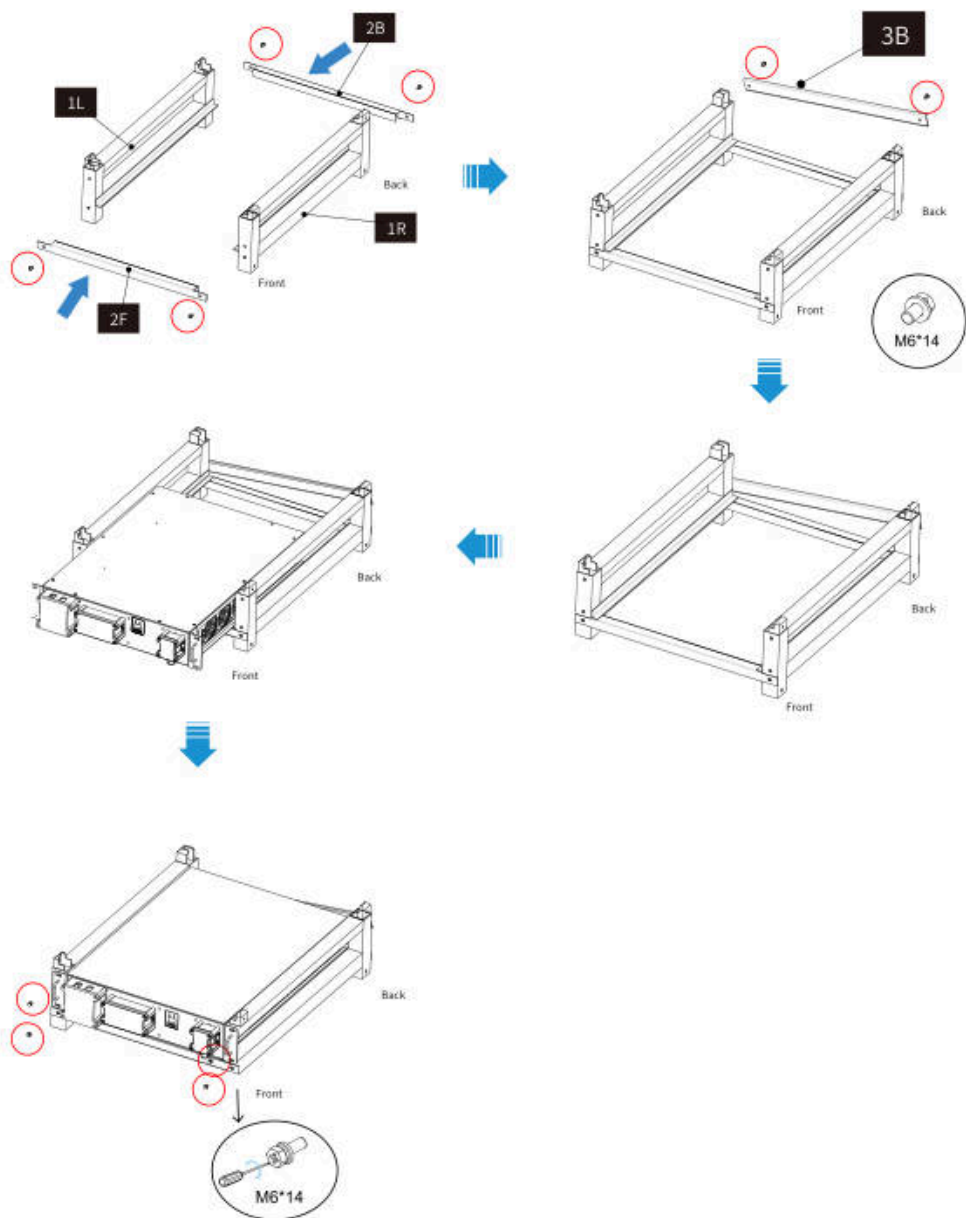
Component	Description
1L	Left frame
1R	Right frame
2F	Front crossmember
2B	Back crossmember
3B	Support Plate

Note: The abbreviations **T, B, F, R, L** are used throughout this manual to indicate standard orientations relative to the device:

Direction Indicators

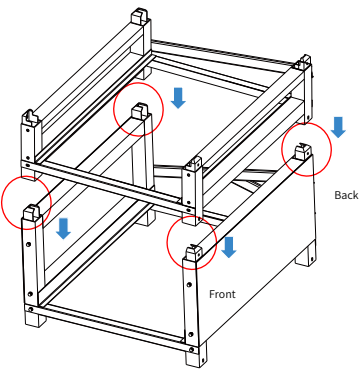
“T” = Top; “B” = Back; “F” = Front; “R” = Right; “L” = Left;
Right/Left are defined when facing the Front (F).

AC/DC Mounting Bracket Installation

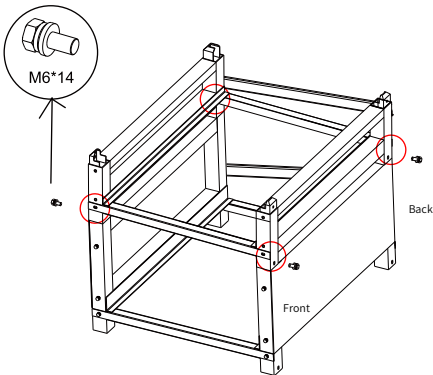


PCS+AC/DC+MPPT Mounting Bracket Installation

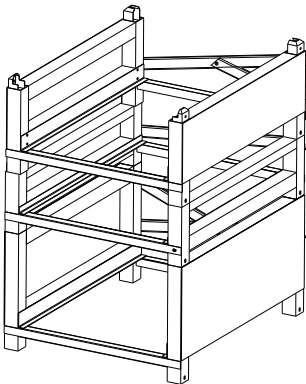
1. Framework Construction



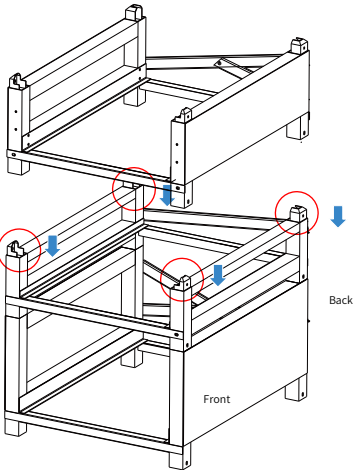
Place the PCS bracket at the bottom layer, and stack the AC/DC module bracket on top of the PCS bracket.



Screw the screws into the corresponding holes to secure the bracket.



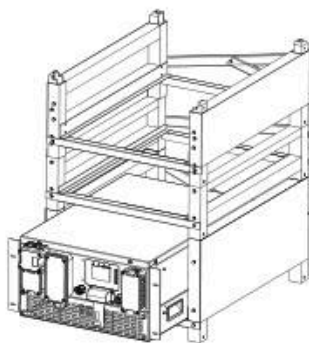
Stack the MPPT bracket on top of the AC/DC bracket.



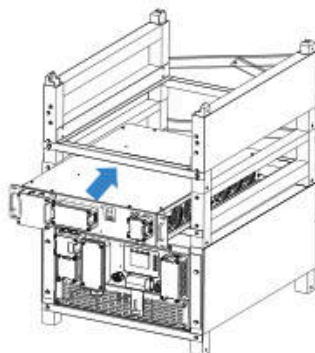
Tighten the screws into the corresponding holes to secure the bracket.

PCS+AC/DC+MPPT Mounting Bracket Installation

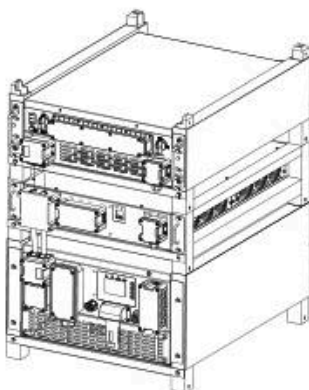
2. PCS+AC/DC+MPPT Installation



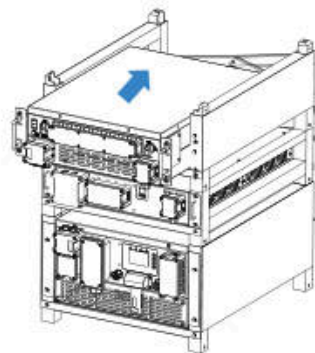
Place the PCS module into the bracket, and tighten the screws to secure the PCS module.



Place the AC/DC module into the bracket, and tighten the screws to secure the AC/DC module.



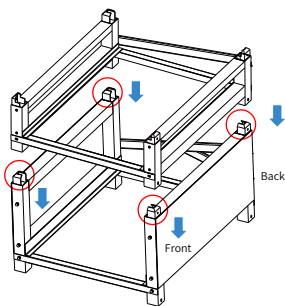
Installation complete.



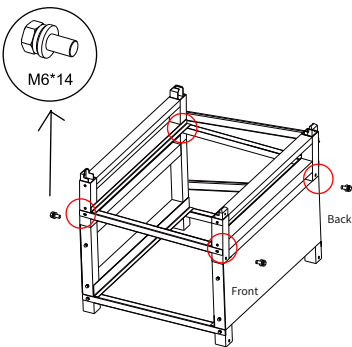
Check whether the bracket and module are securely installed, and whether any screws have been missed for

PCS+2*AC/DC+MPPT Mounting Bracket Installation

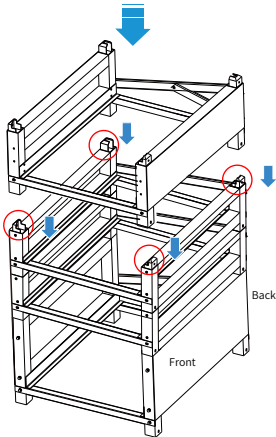
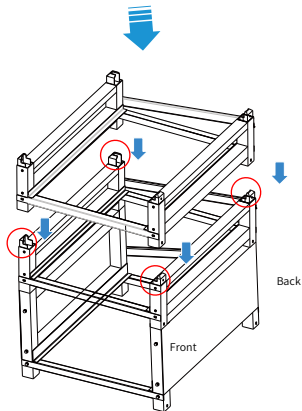
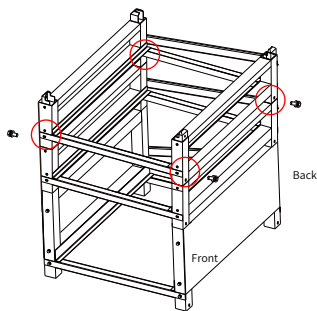
1. Framework Construction



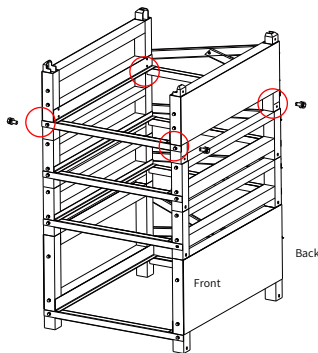
Place the PCS bracket at the bottom layer, and stack the AC/DC module bracket on top of the PCS bracket.



Screw the screws into the corresponding holes to secure the bracket.



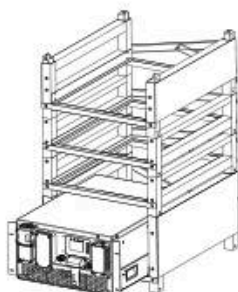
Tighten the screws into the corresponding holes to secure the bracket.



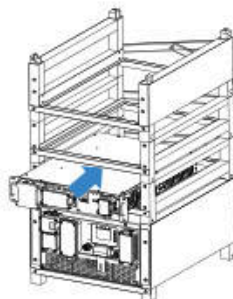
Stack the MPPT bracket on top of the AC/DC bracket.

PCS+2*AC/DC+MPPT Mounting Bracket Installation

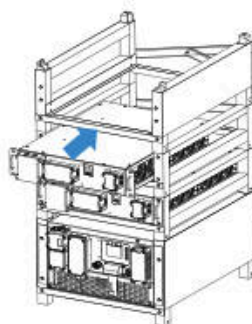
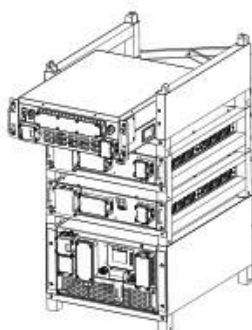
2. PCS+AC/DC+MPPT Installation



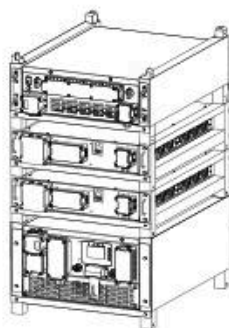
Place the PCS module into the bracket, and tighten the screws to secure the PCS module.



Place the AC/DC module into the bracket, and tighten the screws to secure the AC/DC module.



Check whether the bracket and module are securely installed, and whether any screws have been missed for



Installation complete.

3.4 Battery Connection

For safe operation and compliance, a separate DC over-current protector or disconnect device is required between the battery and the PCS module. If the battery is integrated with a readily accessible internal DC breaker, no additional DC breaker is required.

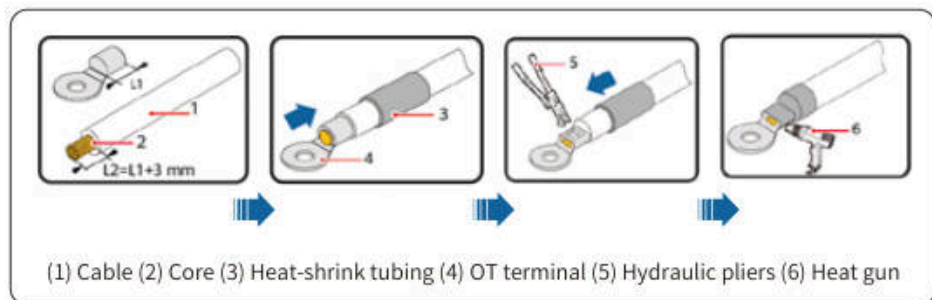
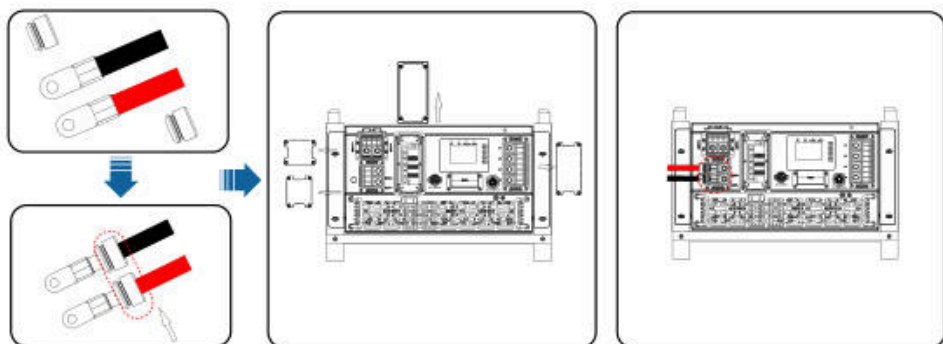


Chart 3-1Crimping an OT terminal

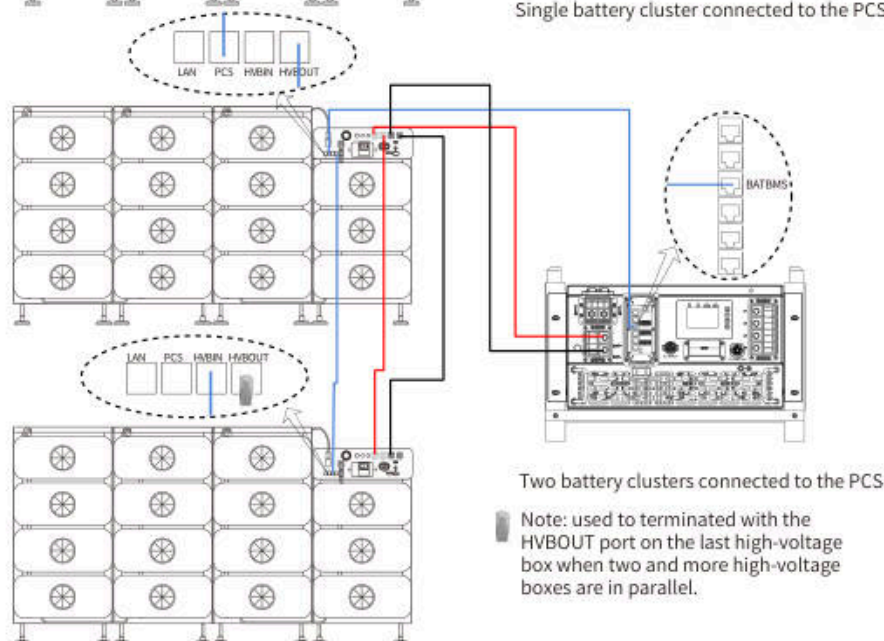
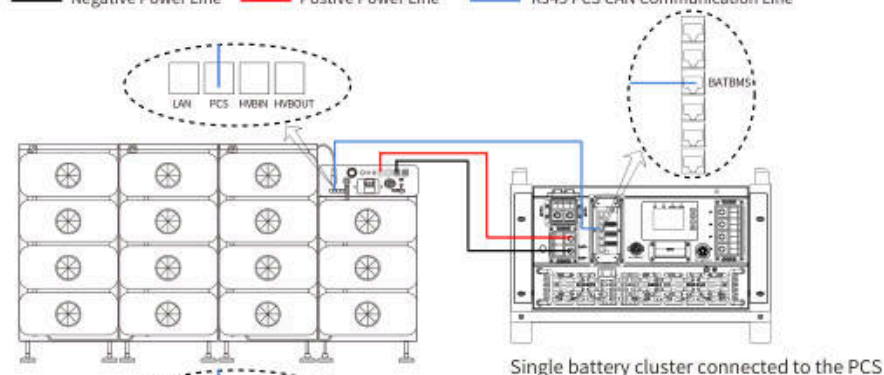
Crimping an OT Terminal

- 1. Strip the Cable Insulation:** Remove the insulation layer from the positive and negative power cables of the battery set. Strip an appropriate length according to the depth of the OT terminal's wire inlet.
- 2. Prepare for Crimping:** Slide a piece of heat-shrink tubing over the end of the battery power cable, then fully insert the exposed wire core into the OT terminal's wire inlet.
- 3. Crimp the Terminal:** Use the appropriate hydraulic pliers to crimp the OT terminal securely onto the wire core. Then, slide the heat-shrink tubing toward the OT terminal, ensuring it covers the entire wire inlet.
- 4. Heat-Shrink the Tubing:** Use a heat gun to shrink the tubing, ensuring it is securely in place to prevent movement.
- 5. Secure the Connection:** Using an Allen wrench, fasten the OT terminals of the positive and negative power cables to the BAT input terminals of the PCS, following the polarity markings. Then Connect the BMS port of PCS and the corresponding interface of the battery control box with the communication cable in the package of battery control box. If multiple sets of batteries are connected in parallel, only the control box of master battery need to communicate with PCS.

There are two different application scenarios, as detailed below:



— Negative Power Line
 — Positive Power Line
 — RJ45 PCS CAN Communication Line



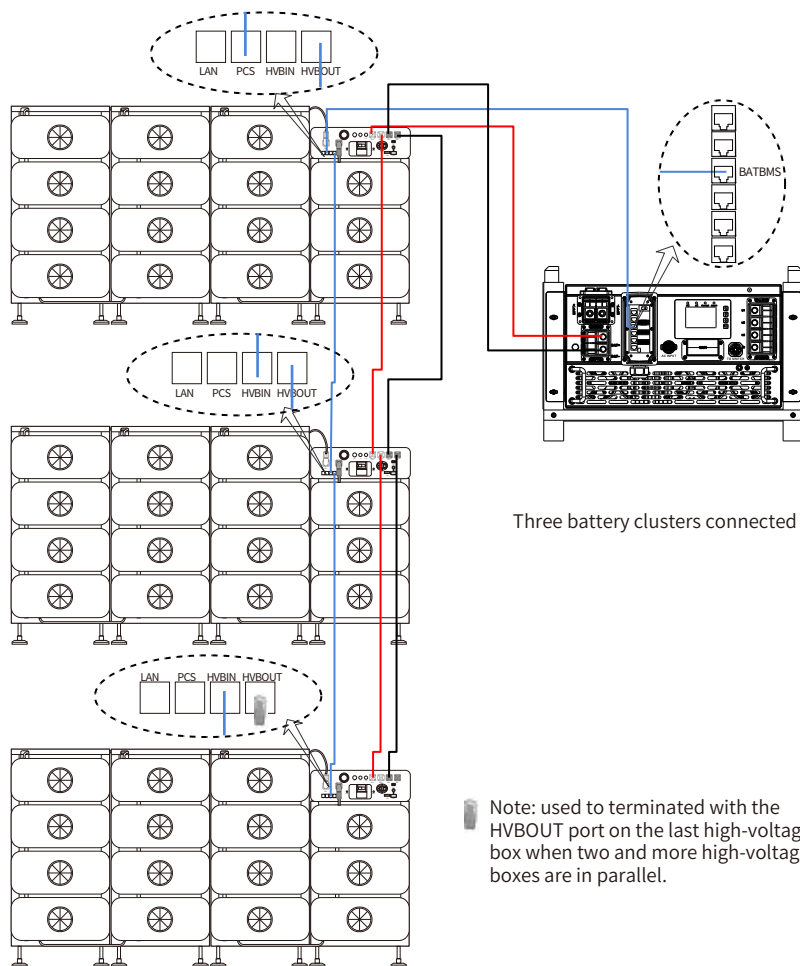
Safety Hint:

Please use approved DC cable for battery system.

Model	Wire Size	Cross section (mm ²)
SUN-100K-PCS02HP3	3/0AWG	70mm ²
SUN-125K-PCS02HP3	4/0AWG	95mm ²

Chart 3-2

— Negative Power Line
 — Positive Power Line
 — RJ45 PCS CAN Communication Line



Three battery clusters connected to the PCS

 Note: used to terminated with the HVBOU port on the last high-voltage box when two and more high-voltage boxes are in parallel.



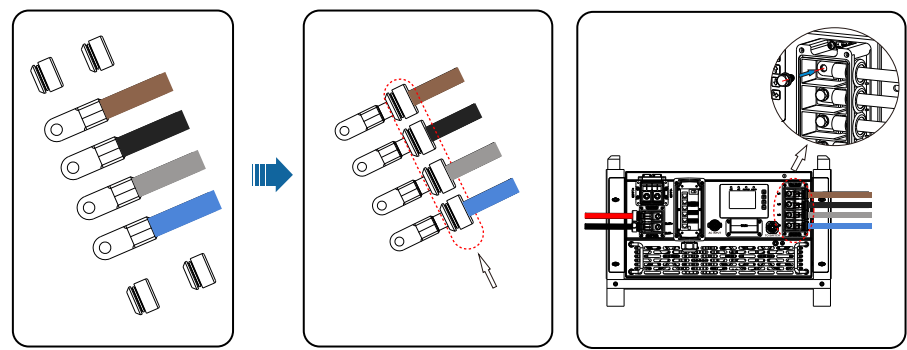
Note:

If the number of batteries connected in parallel exceeds three, the daisy-chain connection method must not be used. Instead, the user must install a DC busbar, with all parallel-connected batteries terminating at the busbar for current consolidation before connecting to the PCS.

3.5 AC Cable Connection

There are two kinds of scenarios:
(1)Without STS module: Before connecting to the grid, a separate AC breaker must be installed between the PCS module and the grid.

- Step1: Install a AC breaker between this PCS module and the main power, the specification of AC breaker has been recommended in the table below.
Step2: Turn off that AC breaker, and then connect the 4 core AC cable of recommended specification to the output terminals of AC breaker.
Step3: Use the RNB60-8 terminals to crimp the other end of that 4 core AC cable, please refer to the Chart 3-1 for the details of crimping.
Step4: Connect the 4 core AC cable to the AC port of PCS module according to the polarity mark.



Model	Recommended AC breaker
SUN-100/125K-PCS02HP3	225A/400V

Chart 3-3 Recommended specification of external AC breaker



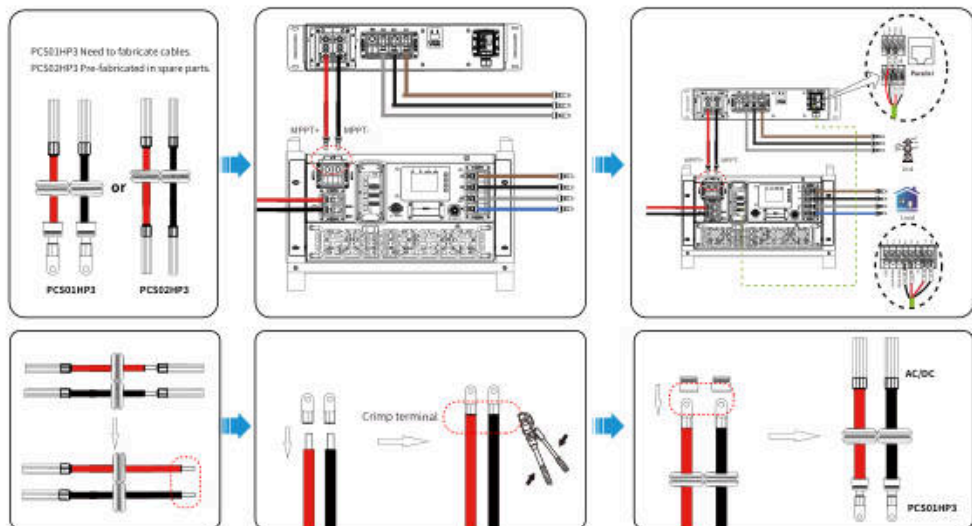
Note:
In final installation,a breaker certified according to IEC 60947-1 and IEC 60947-2 shall be installed with the equipment.
All wiring must be performed by a qualified personnel.It is very important for system safety and efficient operation to use appropriate cables for AC input connection. To reduce risk of injury, please use the proper recommended cables as below. This cable specification is recommended based on the Max.AC output current 166.7A. You can also select the proper specification of cable based on the maximum output current of real application scenario and remember to obey the local regulations.

Model	Wire Size (AC Output)	Cross section (mm ²)	Torque value (max)
SUN-100/125K-PCS01HP3	3/0AWG	70	28.2N · m
SUN-100/125K-PCS02HP3	3/0AWG	70	28.2N · m

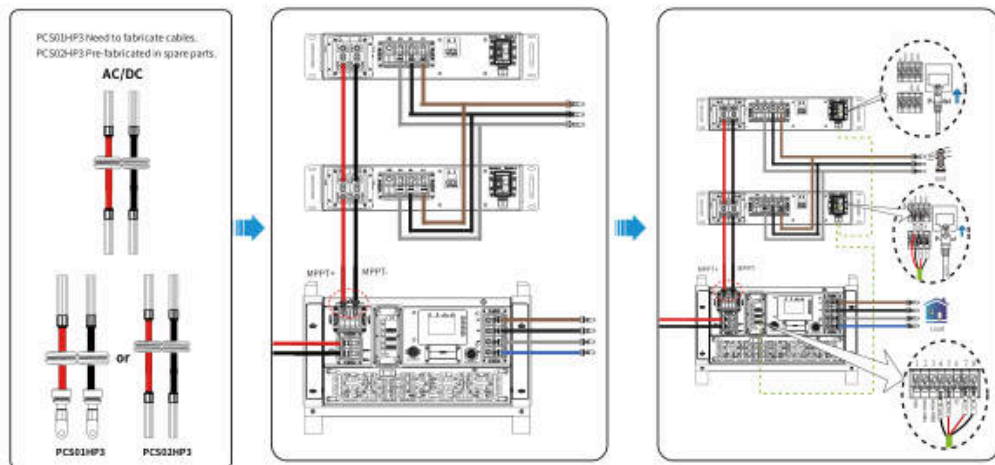
Chart 3-4 Recommended cable

PCS Connection Diagram

PCS and AC/DC Connection Diagram



PCS and 2*AC/DC Connection Diagram





Be sure that AC power source is disconnected before attempting to wire it to the unit.

3.6 Connection With MPPT Module(Optional)

If you have not paired the PCS module with an MPPT module, please skip this section. However, if you plan to use the MPPT module together with the PCS module, please read the following instructions carefully to ensure the correct connection between the PCS module and the MPPT module that requires PV string connections.



To prevent malfunctions, do not connect any PV modules with potential leakage current to the MPPT module. For example, grounded PV modules can cause leakage current to the MPPT module. Ensure that the PV+ and PV- terminals of the PV strings are not grounded.



It is required to use a PV junction box with surge protection. Otherwise, strong lightning strikes on the PV modules may damage both the MPPT module and the PCS module.

3.6.1 Connection Of PV Strings

It is recommended to install a DC circuit breaker between the PV strings and the MPPT module to facilitate installation, maintenance, and future repairs.

Before connecting the PV strings to the MPPT module, first switch off the DC switch of the MPPT module and turn off the DC circuit breaker between the PV strings and the MPPT module.



Safety Hint:

Before connection, please make sure the polarity of cables of the PV strings match the "DC+" and "DC-" marks beside the PV inputs of MPPT module



Safety Hint:

Before connecting to the MPPT module, please make sure that the open circuit voltage of PV strings haven't exceeded the max.PV input voltage of the the MPPT module.



Safety Hint:

Please use recommended DC cable for PV system.

Connect PV Strings To MPPT

Please note that Earth faults are a common issue in solar power plants. Most often, these problems arise due to damage to PV cables during installation or engineering work. Some faults are severe and easy to detect, while others may have minor defects that are harder to identify. These potential earth faults can affect or damage MPPT Module and even lead to the failure of combiner boxes. In extreme cases, an MPPT Module may burn out.

Here, we will explain how to quickly check for earth faults in a PV system using a multimeter.

Testing Principle
The photovoltaic effect refers to the phenomenon where a semiconductor generates an electromotive force when exposed to light. In a PV module, the built-in electric field within the silicon semiconductor drives electrons and holes to opposite sides, thereby generating PV voltage.

In an ideal scenario, the voltage between the positive terminal and earth and the voltage between the negative terminal and earth should be equal, each accounting for half of the total PV voltage at the instant of measurement. However, this voltage is not real but rather a virtual voltage, which will gradually decline to zero.

Since the earth is not directly connected to the positive or negative terminals, when a multimeter is used to measure the voltage, the reading initially appears and then decreases to zero over time due to a discharge process.

Testing Tools

To detect earth faults, you will need:

- A multimeter
- A traditional or electronic megger

Testing Procedure

1. Detecting Earth Faults Using a Multimeter

Step 1: Turn off the MPPT Module and PCS or stop its operation.

Step 2: Disconnect the PV system from the MPPT Module.

Step 3: Place the red probe of the multimeter on the positive PV cable and the black probe on earth. Wait for a moment and record the voltage.

Step 4: Place the black probe on the negative PV cable and the red probe on earth. Wait for a moment and record the voltage.

Interpreting the Results:

- In a normal PV string, the DC voltage between the positive terminal and earth and the negative terminal and earth should each be approximately half of the total PV voltage at the instant of measurement. The initial voltage will then decline to zero.
- In an abnormal PV string, an imbalance voltage will be observed between these two voltage readings, and stable indicating a potential earth fault.

Step 1: Unscrew the fixed screws on the cover of the MPPT module's PV input port. The following steps will be described separately based on two scenarios:

Scenario 1: One Maximum Power Point Tracker (MPPT) input port connects to only one PV string.

Step 2: Refer to Chart 3-1 to crimp the PV+ and PV- cables of the PV string with the RNBS8-4 terminals. Then, thread them into the available inlet of the MPPT module's PV input port, following the polarity indication below.

Step 3: Ensure that the DC switch is in the off position and that the DC voltage between PV+ and PV- is at a safe level. Then, secure the PV+ and PV- cables of the PV string to the terminal block of the MPPT module.

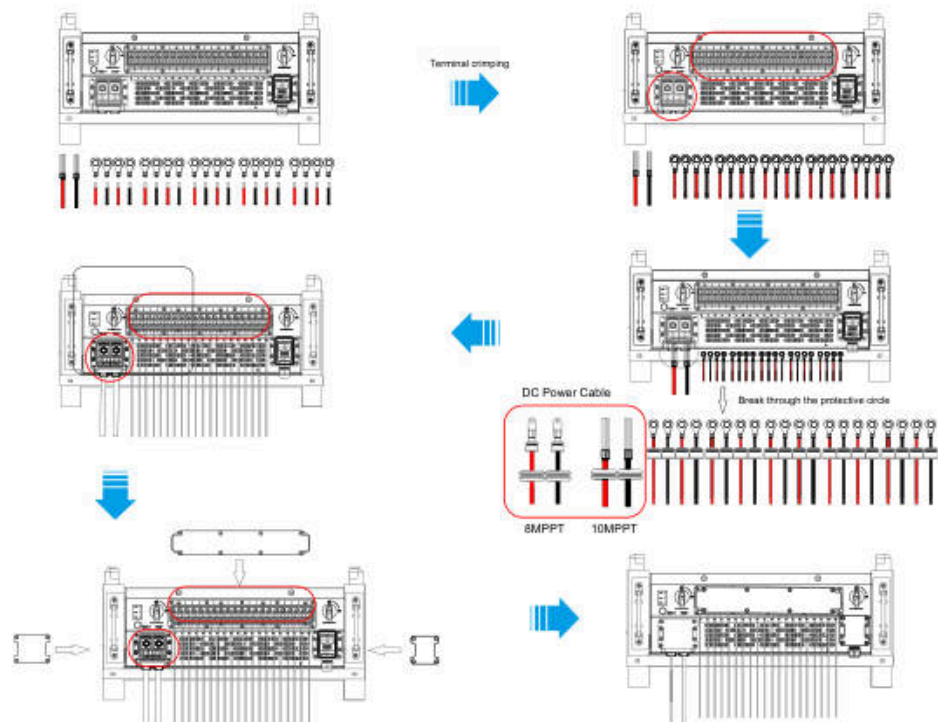
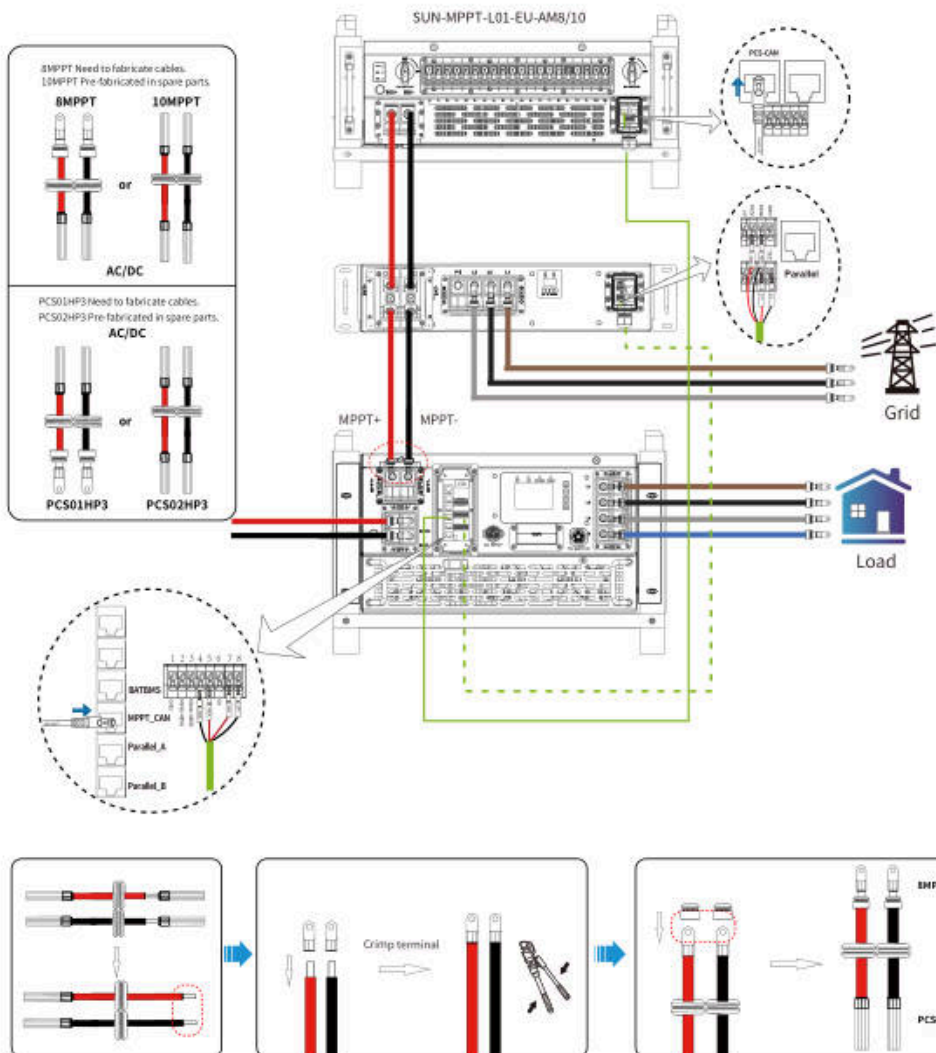


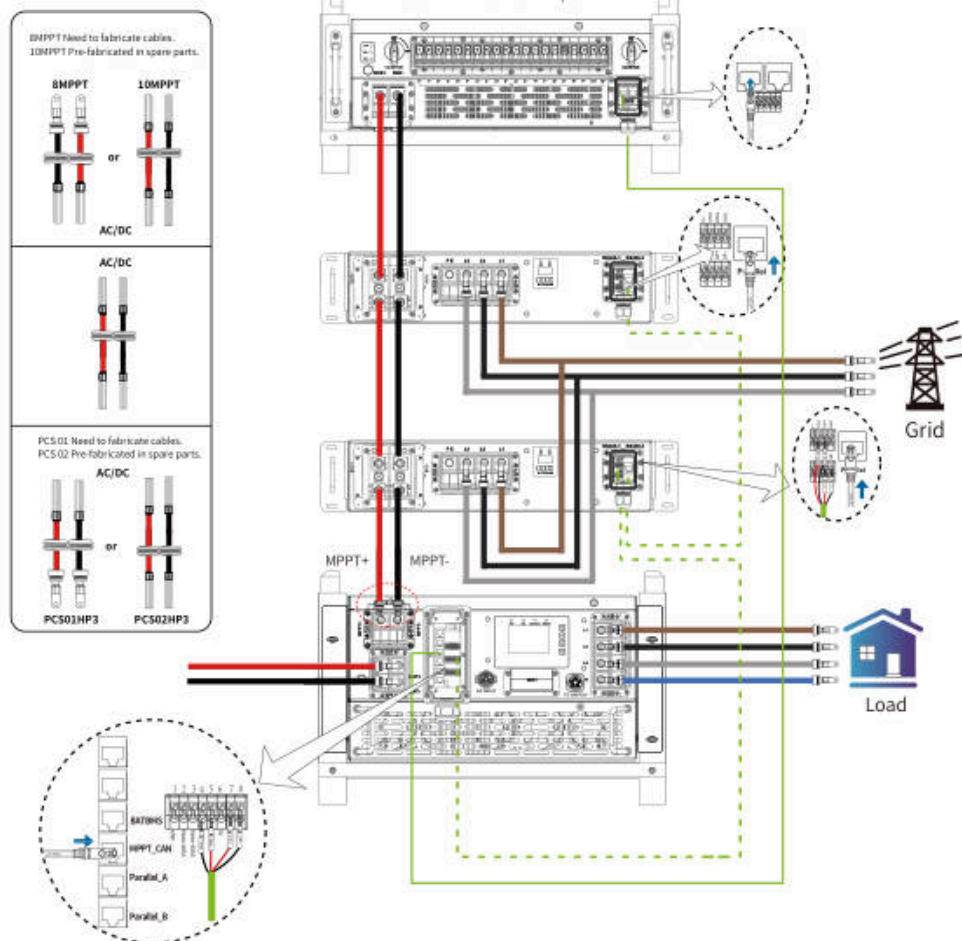
Chart 3-8

Connection Wire Between MPPT,AC/DC and PCS

Model	Wire Size (DC Output)	Cross section (mm ²)
SUN-MPPT-L01-EU-AM8	8/0AWG	6
SUN-MPPT-L01-EU-AM10	8/0AWG	6

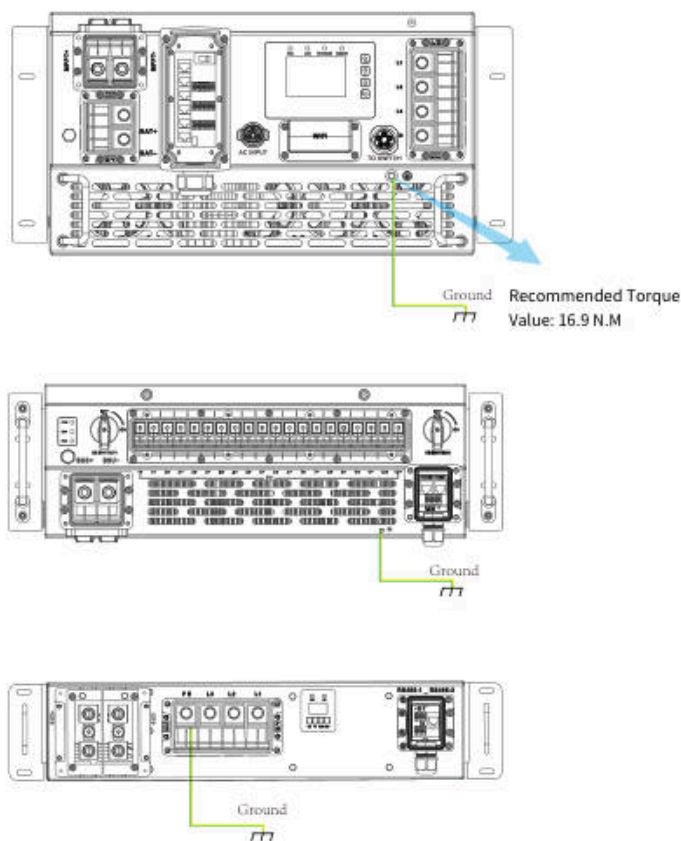


Connection Wire Between MPPT, 2*AC/DC and PCS



3.7 Earth Connection(Mandatory)

There is a grounding hole located below the AC input of the PCS module. Ensure that this grounding hole is properly connected to the Earth Bar using an appropriate grounding cable. Furthermore, if you are installing the MPPT module and STS module, make sure to connect their grounding holes to the same Earth Bar.



Earth Connection (Copper wires)

Model	Wire Size (PE)	Cross section (mm ²)	Torque value (max)
SUN-100/125K-PCS02HP3	0AWG	50	16.9N · m
SUN-MPPT-L01-EU-AM8/10	0AWG	50	16.9N · m
SUN-80K-CG01-C	2AWG	25	16.9N · m

The conductor should be made of the same metal as the phase conductors.

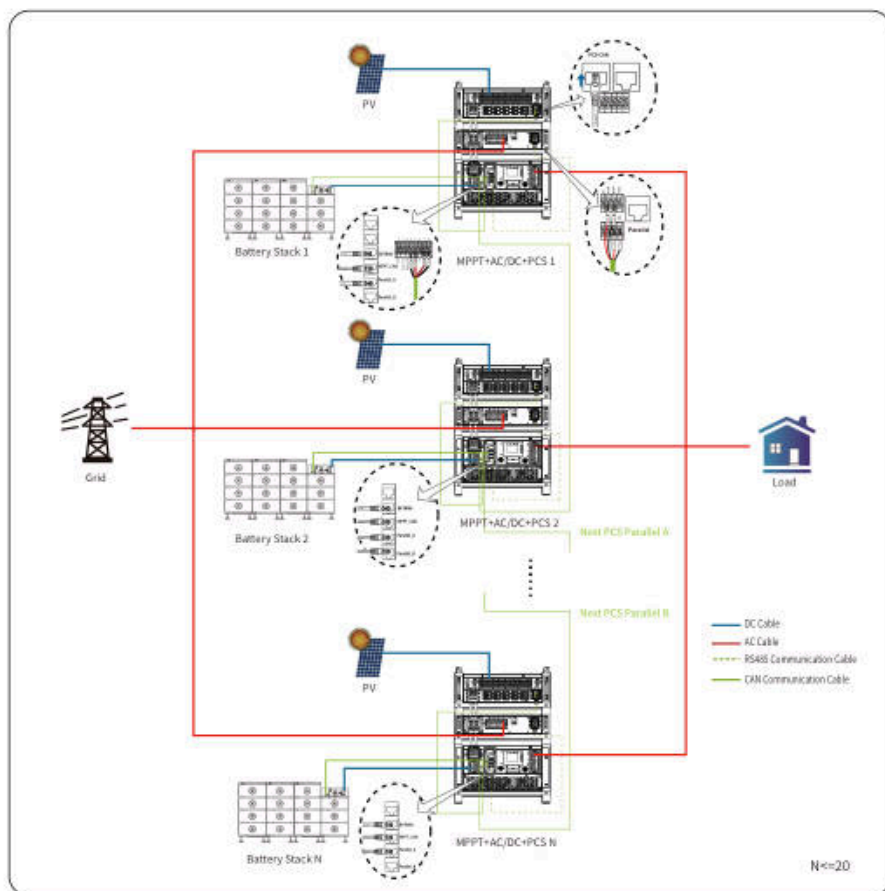


Warning:

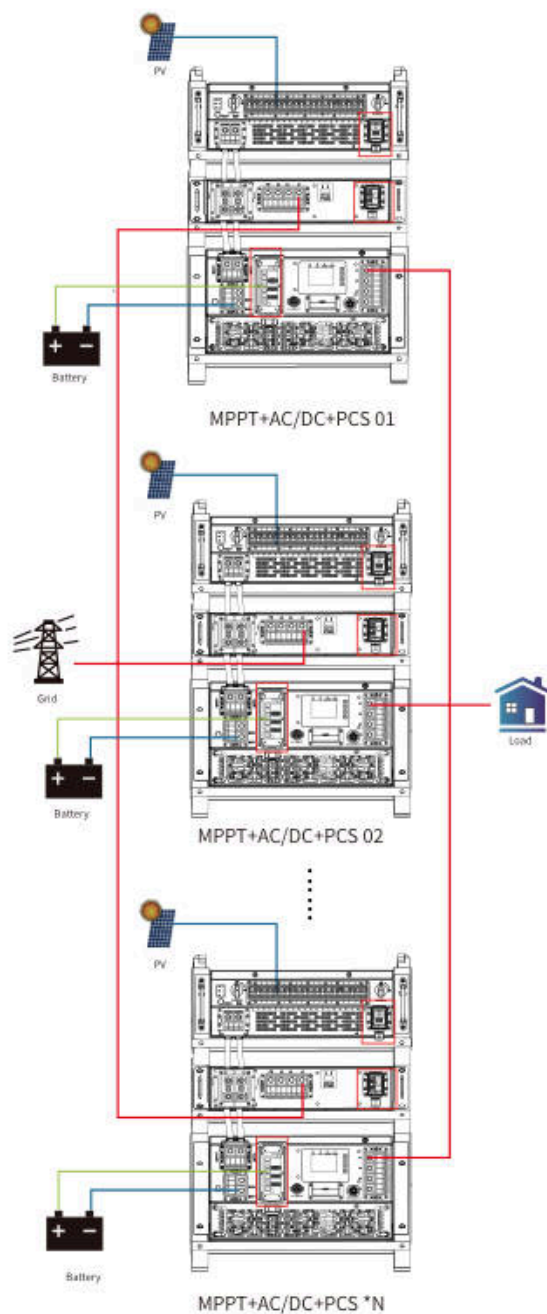
PCS has built-in leakage current detection circuit, The type A RCD can be connected to the PCS for protection according to the local laws and regulations. If an external leakage current protection device is connected to the grid port of PCS, please refer to section 3.11, its operating current must be equal to 1000 mA or higher, otherwise PCS may not work properly.

3.8 Typical Application Scenarios

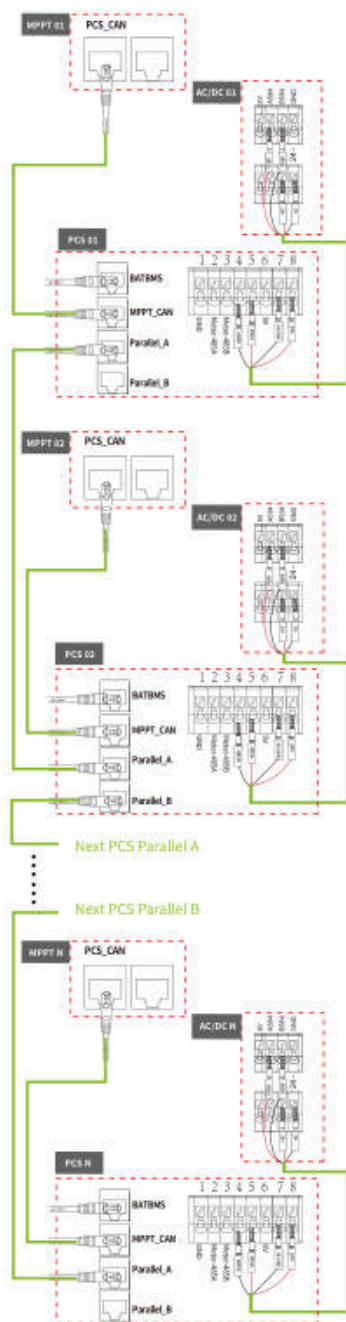
MPPT + AC/DC + PCS System Diagram



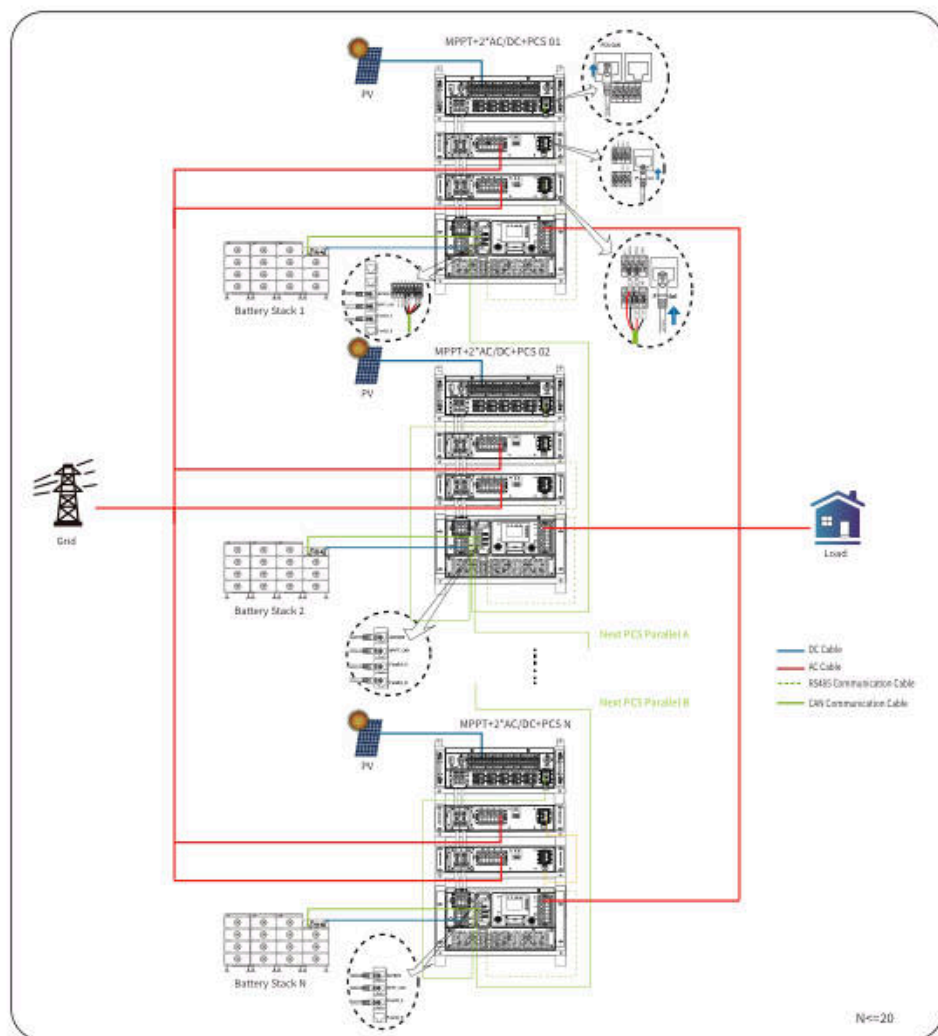
Power Wiring Diagram



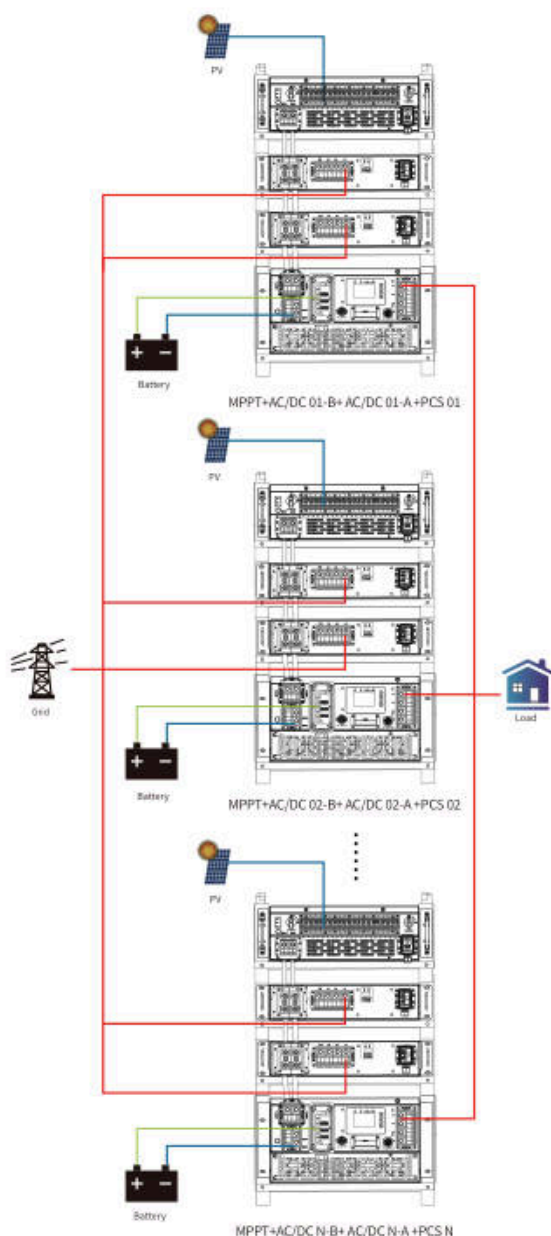
Communication Wiring Diagram



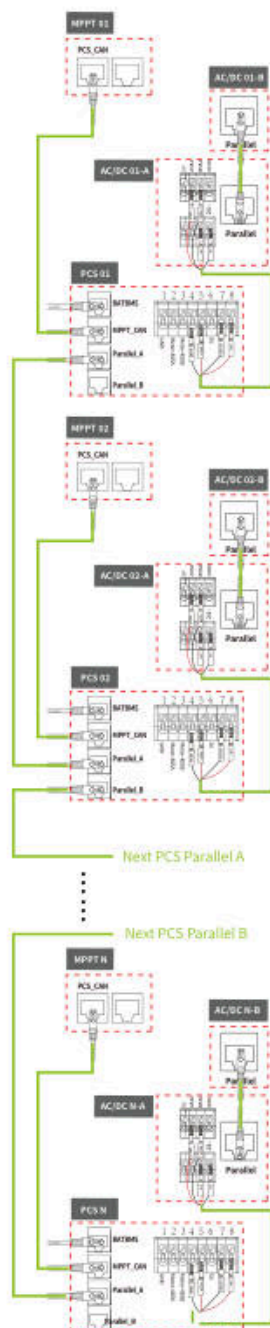
MPPT+2*AC/DC + PCS System Diagram



Power Wiring Diagram



Communication Wiring Diagram



3.9 Data Logger Connection

For the configuration of data logger, please refer to the user manual of data logger. Wi-Fi plug is not the only option, If the installation location does not have Wi-Fi signal or the signal is weak, you can also choose a data logger that communicates via other interfaces.

3.10 Parallel Wiring Diagram

Note: In a parallel system, battery-less mode is also supported. All PCSs connected in parallel must be of the same model.

Each PCS should has its own separate battery set.

4. Operation

4.1 Power ON/OFF

Once the whole system has been properly installed, please follow the steps below to turn on the PCS:

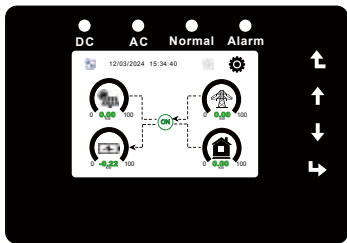
- (1) Turn on all the AC breakers on the AC side of PCS .
- (2) Turn on the battery (If any) and DC breaker between battery and PCS.
- (3) Turn on the DC breakers between the PV strings and the MPPT module (If have), and switch on the DC switches of MPPT module.

When you want to shut down the PCS module, please follow the following steps:

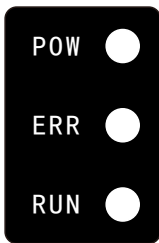
- (1) Turn off all the AC breakers on the AC side of PCS .
- (2) Turn off the DC breakers between the PV strings and the MPPT module (If have), and switch off the DC switches of MPPT module.
- (3) Turn off the battery (If any) and DC breaker between battery and PCS.

4.2 Operation And Display Panel

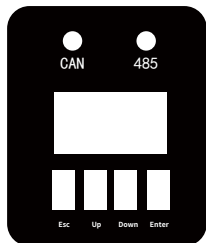
The HMI interactive interface on the front of the PCS module is shown in the following figure. It includes four LED indicator lamps to display the operating status of the PCS module, four function keys, and a touch-sensitive LCD display for viewing operational data and adjusting parameter settings.



PCS



MPPT



AC/DC

LED Indicator		Messages
DC	Green led solid light	PV Connection normal
AC	Green led solid light	Grid Connection normal
Normal	Green led solid light	PCS operating normal
Alarm	Red led solid light	Malfunction or warning

Chart 4-1 LED indicators(PCS)

Function Key	Description
Esc	To exit setting mode
Up	To go to previous selection
Down	To go to next selection
Enter	To confirm the selection

Chart 4-2 Function Buttons(PCS)

LED Indicator		Messages
POW	Solid green light	MPPT module is powered on
ERR	OFF	Normal
	Solid red light	MPPT module is malfunctioning
RUN	Solid green light	Normal

Chart 4-3 LED indicators(MPPT)

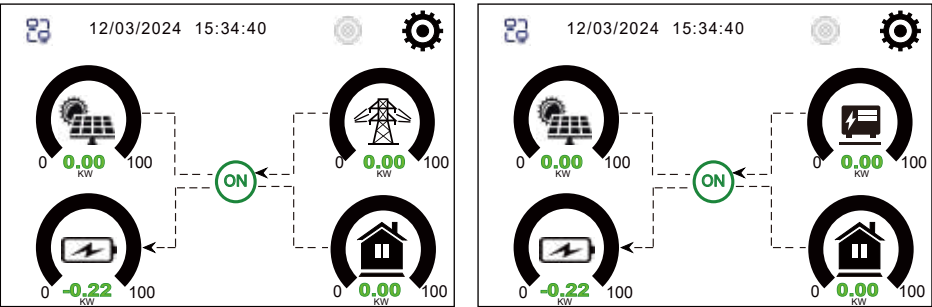
LED Indicator		Messages
CAN	Solid blue light	Communication between LCD and AC/DC module is normal.
	OFF	Communication between LCD and AC/DC module is abnormal.
485	Solid blue light	Communication between PCS and AC/DC module is normal.
	OFF	Communication between PCS and AC/DC module is abnormal.

Chart4-4 LED indicators(AC/DC)

5. Commissioning Through LCD

5.1 Main Screen

LCD is touchable, and its main screen displays the overall information of the ESS system constructed by the PCS module as follows.

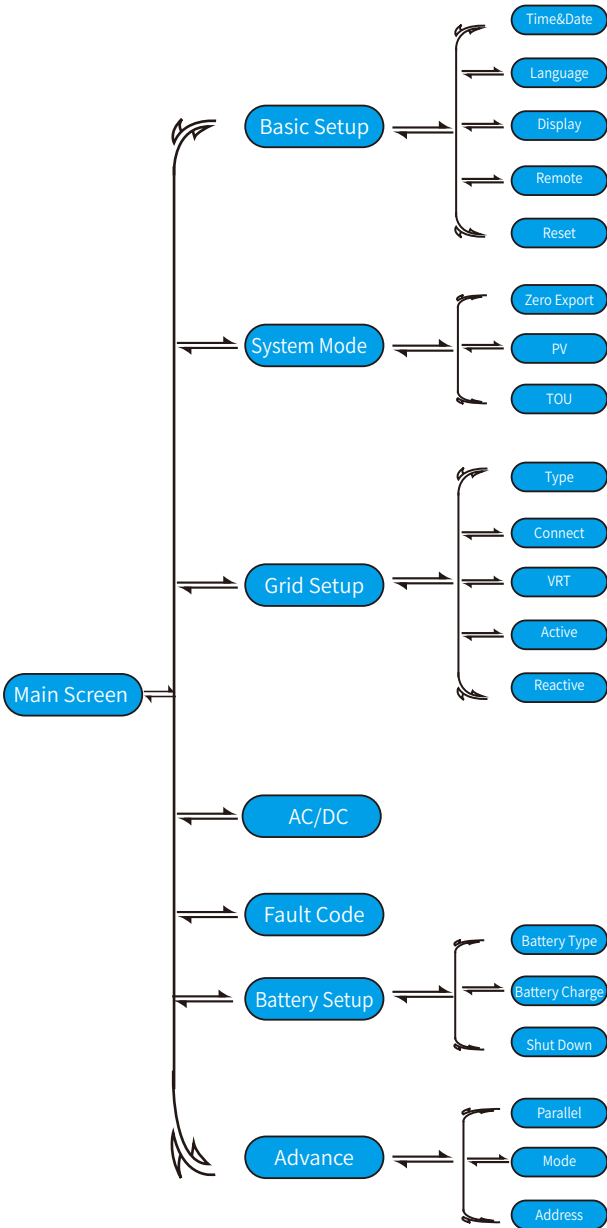


1. The icon at the center of the screen indicates whether the system is operating normally. It displays " ON " for normal operation or an error code such as " Comm./F01-F64 " for communication errors or other faults. Please refer to the Error Code List in Chapter 8 for troubleshooting solutions.
2. The date and time are displayed at the top center of the screen. These must be set correctly during commissioning to match the local time.
3. The gear icon in the upper-right corner of the screen provides access to the system setup menu, which includes Basic Setup, System Mode, Grid Setup, STS, Fault Code, Battery Setup, and Advanced Settings.
4. The main screen displays icons for PV (top left), grid (top right),Grid or Diesel generator, load (bottom right), and Battery (bottom left). It also shows the direction of energy flow using moving points.

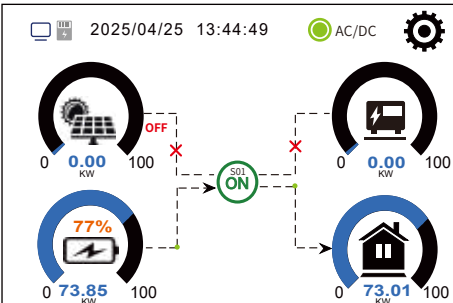
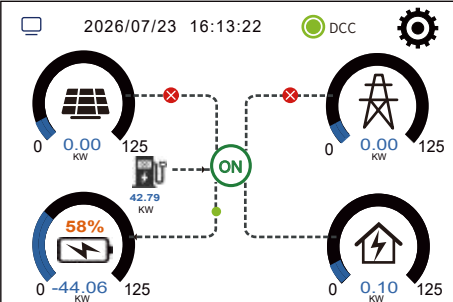
Clarifications about system status:

- PV power will always be positive.
- In a system with only one PCS module, load power will always be positive. (In a parallel system, load power may be negative if energy from another PCS module flows into the current one.)
- A negative grid power value indicates energy being exported to the grid (sold), while a positive value indicates energy being imported from the grid (purchased).
- A negative battery power value indicates charging, whereas a positive value indicates discharging.

5.1.1 LCD Operation Flow Chart



LCD Home Screen

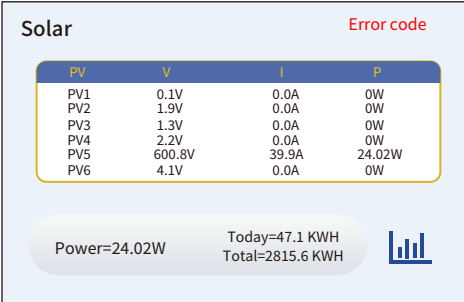


- X** :If a red cross (X) appears on the energy flow path, it indicates that communication or power line connectivity between the device at one end of the path and the PCS is disconnected. (For example: In off-grid mode, a red X will appear on the energy path between the grid and the PCS)
- OFF**: If the word "OFF" appears next to the PV icon, it indicates that the MPPT is communicating normally with the PCS but is in a shutdown state. To resolve this, click "⚙️", then navigate to System Mode, enter the PV Settings, select PV Switch On, and press "↩️" to confirm. This will enable software command control to power on the MPPT.
- :The electricity meter's online status is indicated by its icon: blue signifies normal communication with PCS/STS; gray indicates a communication fault. (Note:When CT is selected instead of an electricity meter, the meter icon is hidden.)
- :This icon is valid in DCC mode (with the AC/DC module connected). It displays the output power of the AC/DC module and also indicates the grid input power that is connected to the AC/DC module.

LCD Home Screen:This interface is designed to monitor the system's operational status, including real-time power flow direction of photovoltaic (PV), battery, grid, and load.

- DCC**: It indicates the online status of the connected DC Charger (AC/DC Module) devices:
Green: DCC is online and communication with the PCS is successfully established.
Gray: DCC is offline.(Communication with the PCS is disconnected)
- :Click this icon to configure system parameters.
- :It displays real-time PV output power. Click this icon to view detailed photovoltaic information.
- :A negative grid power value indicates energy being exported to the grid (sold), while a positive value indicates energy being imported from the grid (purchased).Click this icon to view detailed grid information.Under AC/DC input mode, this icon does not indicate grid power. Please refer to the DCC icon for grid power.
- :It displays the output power of the diesel generator. When the generator is connected, its icon will appear at the grid icon position on the interface.
- :It displays the battery's real-time charge/discharge power and State of Charge (SOC). Positive values indicate discharging power , while negative values indicate charging power. Click the icon to view detailed battery information.
- :It displays real-time load power consumption. Click this icon to view detailed load information.
- :It displays operational status and fault codes; clicking this icon reveals comprehensive system operational data, including this unit's PCS operation data, connected photovoltaic (PV) system data, operational data from all parallel-connected PCS units within the system, as well as grid, load, and diesel generator operation data.

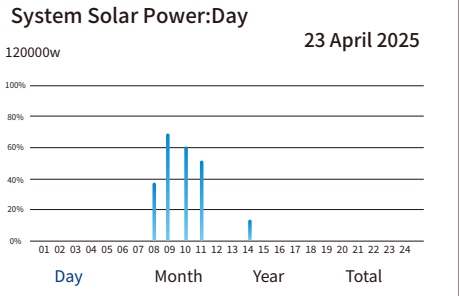
Solar Data Display



Solar Data: This interface displays the power generation data of the MPPT modules connected to the PCS.
PV1-PV8: Indicates 8 independent MPPT channels. Each channel shows real-time parameters, including voltage (V), current (A), and power (kW).

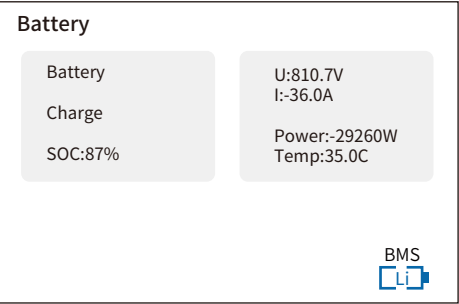
- Error code:** It displays the MPPT module fault code.
- : Click the chart icon to view a bar chart of historical PV energy generation statistics (daily, monthly, or annual).

System Solar Power



System Solar Power Data Bar Chart:This interface displays historical statistics of photovoltaic (PV) power generation, including daily, monthly, annual, and cumulative totals.

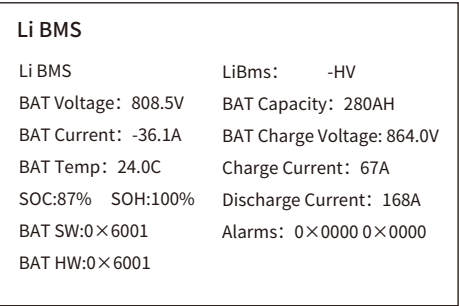
Battery Data Display



Battery Data: This interface displays the operational data of the battery system connected to the PCS , including charge/discharge status, State of Charge (SOC), voltage, current, power, and temperature information.

Click the icon to access detailed BMS data.

Li BMS



BMS Data:This interface presents data uploaded by the Battery Management System (BMS), including battery system voltage, current, temperature, State of Charge (SOC), State of Health (SOH), and other critical parameters.

BAT Voltage: Average voltage of the battery system (V).

BAT Current: Total output current of the battery system (A).

Positive value: Discharging current.

Negative value: Charging current.

BAT Temp: Maximum temperature of individual battery cells (°C).

SOC: Average remaining capacity of the battery system (%).

SOH: Average health status of the battery system (%), reflecting capacity retention and aging.

BAT SW: Software version of the BMS.

BAT HW: Hardware version of the BMS.

BAT Capacity: Rated capacity of individual battery cells (Ah).

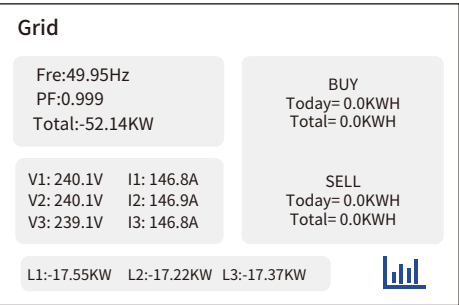
BAT Charge Voltage: Charge cut-off voltage of the battery system (V).

Charge Current: Maximum allowable charging current (A).

Discharge Current: Maximum allowable discharging current (A).

Alarms: Active fault codes indicating system anomalies.

Grid Data Display



Grid Data: This interface displays Grid voltage, frequency, current, Power, Power Factor, along with energy import from grid , export to grid.

Click the icon to access detailed Grid data.

AC/DC Data Display (In DCC Mode)

DCC

Total=10KWH
Total=1494KWH

V1:852.2V I1:27.9A
V1:851.7V I2:27.9A

D1M1:0

D1M2:0

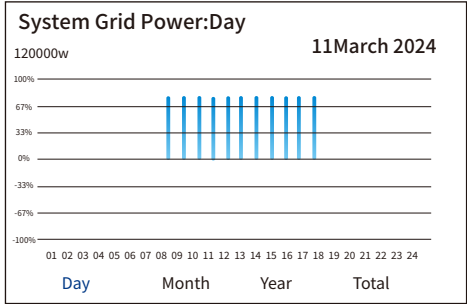
D2M1:0

D2M2:0

Today: Today's power consumption of the AC/DC modules.
Total: Cumulative total power consumption of the AC/DC modules.
V1&I1: Total output voltage and current of AC/DC Module 1
V2&I2: Total output voltage and current of AC/DC Module 2
D1M1: Fault Code for unit 1 of AC/DC Module 1 D1M2: Fault Code for unit 2 of AC/DC Module 1
D2M1: Fault Code for unit 1 of AC/DC Module 2
D2M2: Fault Code for unit 2 of AC/DC Module 2

Note: Fault codes are in decimal. Convert to binary and match with the codes in Troubleshooting.

System Grid Power



System Grid Power Data Bar Chart: This interface displays historical statistics of grid power import/export, including daily, monthly, annual, and cumulative totals.

Load Data Display

Load

Power:54620W

Today= 0.0KWH
Total= 0.0KWH

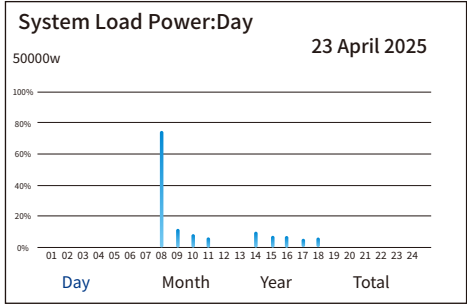
L1: 236.6V
L2: 238.3V
L3: 238.4V

P1:17980W
P2:18420W
P3:18220W

Load Data: This interface displays the load power, phase voltages, as well as today's and cumulative load energy consumption statistics.

: Click the icon to access detailed Load data.

System Load Power



System Load Power Data Bar Chart: This interface displays historical statistics of load power consumption, including daily, monthly, annual, and cumulative totals.

PCS Data Display

PCS			
INV		Total:106.0KW	PV
L1:240.8V	146.9A	35.48KW	MPPT:0
L2:240.7V	147.0A	35.36KW	0W
L3:240.5V	146.9A	35.22KW	
BAT		Grid	
800.0V	106.7KW	L1:240.7V	50.02Hz
133.3A	-100.0°C	L2:240.9V	0.999
		L3:239.9V	
PCS Online	PCS Total	Grid	Load
10	Total:536.8KW P1:179.0KW P2:179.0KW P3:178.9KW	Total:528.8KW P1:178.2KW P2:174.4KW P3:176.2KW	Total:7970W P1:750W P2:4570W P3:2650W

PCS Data :This interface displays real-time data for the PCS, its connected battery packs, MPPT module, grid port parameters, as well as total power/phased power summation and total load/phased load summation under parallel operation.

PCS INV: It displays the INV output voltage, current, and power of this PCS.

PV: It displays the data of the MPPT module connected to this PCS, including the number of MPPT channels and MPPT output power.

BAT: It displays the data of the Battery system connected to this PCS, including current, power and temperature.

Grid: It displays the grid-side voltage, frequency, and power factor of the single PCS unit.

PCS Online:The number of PCS units in parallel operation.

PCS Total: It displays the total INV power output and individual phase power output of all parallel-connected PCS units in the system.

Grid: It displays the total grid import/export power of all parallel-connected PCS units.

Load: Total output power delivered to loads by all parallel-connected PCS units.

Note: Press " ⏴ " to page down and view more information.

STS Data Display

STS		 Offline	Total:-149W	
Status		P	I	
Off-Grid		-180W	L1:0.0A	
		16W	L2:0.0A	
		15W	L3:0.0A	
Grid		Gen		
L1:238.1V	50.00Hz	L1:19.0V	0.00Hz	
L2:240.2V	0/240/120	L2:8.3V	Fault	
L3:238.0V		L3:26.8V		
Para		Load		
L1:1.7V	0.00Hz	L1:0.0V	0.00Hz	
L2:1.3V	Fault	L2:0.0V	0/240/120	
L3:1.6V		L3:0.0V		

Status: STS Status, Off-Grid / Grid On / Gen On / Off-Grid(Para)

- **Off-Grid**: It indicates the STS is operating off-grid.
- **Grid On**: It indicates the STS is connected to the grid.
- **Gen On**: It indicates the STS is connected to the generator.
- **Off-Grid (Para)**: It indicates multiple STSs are operating off-grid in parallel.

Total Power Display (Total): If the status is Grid On, it shows total power at the Grid Port; if the status is Gen On, it shows total power at the Gen Port; and if multiple STSs are in Off-Grid (Para) status, it shows total power at the Parallel Port for the STS.

Power Display (P): If the status is Grid On, it shows per-phase power at the Grid Port; if the status is Gen On, it shows per-phase power at the Gen Port; and if multiple STSs are in Off-Grid (Para) status, it shows per-phase power at the Parallel Port for the STS.

Current Display (I): If the status is Grid On, it shows per-phase current at the Grid Port; if the status is Gen On, it shows per-phase current at the Gen Port; and if multiple STSs are in Off-Grid (Para) status, it shows per-phase current at the Parallel Port for the STS.

Grid: STS Grid Port Voltage, Frequency, and Power Factor.

Gen:STS Gen Port Voltage, Frequency, and Power Factor.

Para:STS Parallel Port Voltage, Frequency, and Power Factor.

Load:STS Load Port Voltage, Frequency, and Power Factor.

0/240/120 OR 0/120/240: It displays the voltage phase sequence of this port.

Fault:No voltage phase sequence detected.

PCS1-5 Data Display

PCS1-5						
	A	B	C	Total	Bat Soc	Bat P
Total	178.9KW	179.0KW	178.9KW	536.8KW	0.0%	60.49KW
PCS1	36.26KW	36.36KW	36.26KW	108.9KW	0.0%	-51.03KW
PCS2	36.33KW	36.33KW	36.24KW	108.9KW	0.0%	-50.93KW
PCS3	35.34KW	35.39KW	35.24KW	106.0KW	0.0%	106.7KW
PCS4	34.83KW	34.55KW	34.79KW	104.2KW	0.0%	106.7KW
PCS5	36.17KW	36.32KW	36.40KW	108.9KW	0.0%	-50.99KW

Parallel PCS1-5 Data: This interface displays the per-phase power output of each PCS in parallel operation mode, along with the State of Charge (SOC) and charge/discharge power of the battery system connected to each PCS unit.

Note: Press " ⏴ " to page down and view more information.

PCS6-10 Data Display

PCS6-10						
	A	B	C	Total	Bat Soc	Bat P
Total	178.9KW	179.0KW	178.8KW	536.7KW	0.0%	60.38KW
PCS6	0W	0W	0W	0W	0.0%	0W
PCS7	0W	0W	0W	0W	0.0%	0W
PCS8	0W	0W	0W	0W	0.0%	0W
PCS9	0W	0W	0W	0W	0.0%	0W
PCS10	0W	0W	0W	0W	0.0%	0W

Parallel PCS6-10 Data: This interface displays the per-phase power output of each PCS in parallel operation mode, along with the State of Charge (SOC) and charge/discharge power of the battery system connected to each PCS unit.

Note: Press " ⏴ " to page down and view more information.

Settings Display

ⓘ Settings

Basic Setup

System Mode

Grid Setup

STS

Device Info

Battery Setup

Advance

Settings: This interface is used to configure system parameters including Basic Setup, System Mode, Grid Setup, STS, Battery Setup, and Advanced functions, as well as to view fault codes and Device information.

Note: All settings require confirmation by pressing the "↩" to take effect.

5.2 Basic setup

Basic Setup

⏻ Turn On

Time Date

Language

Display

Reset

Remote

Basic Setup:This interface is used for setting the time and date, language, display effects, parameter reset, and remote control methods.

Turn On: Click this button to turn the PCS on/off. A green "Turn on" indicates that it is already powered on and can be clicked again to shut down the PCS. A gray "Turn off" indicates that it is powered down.

Basic Setup | Time & Date

Hours

Minutes

Seconds

09 : 56 : 03

Use slide to select a number
Sync with App

Time

Date

Time&Date: Slide up and down the corresponding screen area to adjust the time to match the local time,and then go to the date page and adjust the date using the same method.

Basic Setup | Language

Select your default language

☒ English

☐ French

☐ Spanish

☐ Portuguese

Language: Choose your preferred display language for the LCD. The current options are English, French, Spanish, and Portuguese. Additional languages may be supported in the future.

Basic Setup

Display

Brightness

0%

100%

☐ LCD Auto Sleep Mode (5 mins)
 ☐ Buzzer

Brightness: Adjust the LCD screen brightness by dragging the progress bar left or right.

LCD Auto Sleep Mode (5 mins): When enabled, the LCD will automatically enter sleep mode after 5 minutes of inactivity.

Buzzer: When enabled, the buzzer will sound during fault alarm periods.

Basic Setup

Reset

☒ None
 ☐ Restore all data
 ☐ Restore setting options

None: Keep original value, no change.

Restore all data: Recover all data in the PCS.

Restore settings options: Only Recover factory settings, it does not clear power generation/consumption data.

Basic Setup

Remote

☐ Independent Power Control
 ☒ Master LCD Control

Independent Power Control: Remote control mode, independent power control via external devices.

Master LCD Control: Local control mode, TOU(Time of Use) Function is required to control charging and discharging.

5.3 System Work Mode

System Work Mode

Zero Export

PV

TOU

System Work Mode: This interface is used to configure the system operating modes, including Zero Export to Grid, PV system parameter settings, and PCS scheduled charging/discharging control (TOU).

SWM | ZeroExport

☐ Sell First
 Total Max Sell P 45.5KW

☐ Zero Export
 ☒ Solar Sell

ZeroExport Mode

☐ CT
 ☒ None

☐ PCS Meter

☐ STS Meter

☐ STS Internal CT

Total Zero Export P 0.0KW
 Total Peak Shaving 80.0KW

Energy pattern
☐ Load First
☒ Bat First

Sell First: This mode allows the PCS to feed excess power from PV/battery into the grid. (If TOU permits battery discharge, the battery can sell electricity to the grid.) In Sell First mode, PV power prioritizes supplying the load. Any surplus PV energy will charge the battery or feed into the grid. In this mode, you need select either CT, PCS Meter, STS Meter, or STS Internal CT to implement the functionality.

Total Max Sell P: This setting is enabled in Sell First mode, configuring the maximum allowed PCS feed-in power to the grid.

Zero Export: When enabled, the PCS will not feed power into the power grid. In this mode, you also need select either CT, PCS Meter, STS Meter, or STS Internal CT to implement the functionality.

Solar Sell: This setting is enabled in Zero Export mode, allowing the PCS to feed surplus DC power from the MPPT module into the grid.

Zero export mode: It includes four implementation methods, when the system does not have an STS, a CT/PCS meter must be used. When the system includes an STS, an STS meter/STS internal CT can be selected.

None: Default status, it indicates that the Zero Export mode is disabled.

CT: To enable the Zero Export function, an external Current Transformer (CT) must be installed on the AC output side of the PCS. The CT connects to the PCS via the CN1 (R, S, T) ports on the PCS communication board.

PCS Meter: To implement the Zero Export function, an external energy meter must be connected to the AC output side of the PCS. The meter interfaces with the PCS through the Meter-RS485 port on the PCS communication board.

STS Meter: If loads are connected to the grid-side port of the STS, an external energy meter must be installed to prevent power backfeed to the grid. The STS communicates with the meter via the RS485 port on the STS communication board.

STS Internal CT: The built-in CT of the STS grid port is used to implement the Zero Export function.

Total Zero Export P: In Zero Export mode, if excess power from PV or battery attempts to feed to the grid, this setting enables the grid to output a specified power level to the PCS, thereby offsetting the reverse power flow.

Total Peak Shaving: When activated, grid power will be limited to the set value. However, if the grid peak-shaving power, PV power, and battery power combined are insufficient to meet the load demand after peak-shaving, the grid peak-shaving function will become ineffective, and power drawn from the grid may exceed the set limit.

Load First: This setting takes effect in Zero Export mode. PV power is primarily used to supply the load. Any excess power will be used to charge the battery. If PV power is insufficient, the grid will supplement power for the load.

Bat First: This setting takes effect in Zero Export mode. PV power is primarily used to charge the battery. Any excess power will be used to supply the load. If PV power is insufficient, the grid will simultaneously supplement power for both the battery and the load.

Note: To activate either 'Sell First' or 'Zero Export' functionality, one of the following configurations must be selected:

1. Current Transformer (CT)
2. PCS Meter
3. STS Meter
4. STS Internal CT

SWM | ZeroExport

☐ Sell First
 Total Max Sell P 45.5KW

☐ Zero Export
 ☒ Solar Sell

ZeroExport Mode

☒ CT
 ☐ None

☐ PCS Meter

☐ STS Meter

☐ STS Internal CT

Total Zero Export P 0.0KW
 Total Peak Shaving 80.0KW

Primary Side 300A
 Secondary Side 5000mA

Energy pattern
☐ Load First
☒ Bat First

If CT is selected, the CT ratio must be configured:

Primary side: CT primary current rating
Secondary side: CT secondary current rating

SWM | ZeroExport

☐ Sell First
 Total Max Sell P 45.5KW

☐ Zero Export
 ☒ Solar Sell

ZeroExport Mode

☐ CT
 ☐ None

☒ PCS Meter

☐ STS Meter

☐ STS Internal CT

Total Zero Export P 0.0KW
 Total Peak Shaving 80.0KW

Energy pattern
☐ Load First
☒ Bat First

If PCS Meter/STS Meter is selected, click the "ⓘ" icon to access detailed meter parameter configuration.

SWM | Meter

Meter Mode Chint	Offline output power 0.0KW	Offline timeout 0.0s
☐ Soft Limit	Soft Power 110.0KW	
☐ Hard Limit	Hard Delay 110.0KW	Hard Power 110.0KW

When entering the PCS Meter/STS Meter configuration interface, the following meter parameters can be configured:

Meter Mode: Select meter model (e.g., Chint/Eastron).
Offline output power: The output power value the PCS will use if the meter goes offline
Offline timeout: The duration for determining meter offline status
Soft Limit: Enable or disable the limitation of PCS output power via software. Australian Safety type.
Soft Power: The maximum PCS output power allowed by the software. If this limit is reached, the PCS output power will reach set value. Australian safety type
Hard Limit: Enable or disable the limitation of PCS output power via hardware. Australian Safety type
Hard Delay:When the hard limit is enabled, this setting determines the delay time before it takes effect.
Hard Power:The maximum PCS output power allowed by the hardware. If this limit is reached, the PCS module will shut down.

SWM | PV

Selfcheck time 30s	Factory Reset ☐ Factory Now
PV Switch ☒ OFF ☐ ON	The Solar Arc Fault mode is enabled ☒ Disable ☐ Enable ☐ Clear Fault
Maximum PV Power 115.1%	

Selfcheck time: The interval at which the MPPT module automatically performs a self-check procedure including ISO, Chip self-check, Voltage, Current etc
Factory Now:Restore the MPPT module to its factory settings.
PV switch On/Off: Use a software command to turn the MPPT module on or off or restart it.
Maximum PV Power:Set the maximum PV generation power.
Arc Fault Mode: Enable or Disable AFCI (Arc Fault Circuit Interrupter) Function. AFCI is primarily used to detect and prevent fire hazards caused by arc faults. In MPPT module, it can detect abnormal DC arcs and disconnect the circuit when necessary to enhance system safety.
Zero Clearing: Eliminate Arc Fault alarm that have already occurred and been resolved.

SWM | TOU

☒ Time of Use

Time Start	Time End	Power	SOC/V	Grid	Gen
00:00	04:00	110KW	50%	☒	☒
04:00	08:00	110KW	50%	☒	☒
08:00	12:00	110KW	50%	☒	☒
12:00	16:00	110KW	50%	☒	☒
16:00	20:00	110KW	50%	☒	☒
20:00	00:00	110KW	50%	☒	☒

System1 **System2**

Time of Use:This function allows users to schedule when to use the grid or a generator to charge the battery and when to discharge the battery to power the load. The "Time of Use" setting must be enabled for the following parameters (Grid Charge, Time, Power, etc.) to take effect.

Time Start: The beginning of the scheduled time period.
Time End: The end of the scheduled time period.
Power: The maximum discharge power of the battery allowed by the PCS during each time period.
SOC/V: The target battery voltage or SOC for the current time period. If the actual battery SOC or voltage is lower than the target value, the battery needs to be charged. If an energy source such as solar power or the grid is available, the battery will be charged. If the actual SOC or voltage is higher than the target value, the battery can discharge.
Grid: Determine whether the grid is used for charging during the current time period.
Charge Gen: Allow the use of a generator for charging during the current time period.
Example of Time of Use Settings:

- 00:00 - 04:00:** If the battery SOC is below 50%, the system will use the grid to charge the battery until SOC reaches 50%.
- 04:00 - 08:00:** If the battery SOC is above 50%, the PCS will discharge the battery until SOC reaches 50%. If SOC drops below 50%, the grid will charge the battery up to 50%.
- 08:00 - 12:00:** If the battery SOC is above 50%, the PCS will discharge the battery until SOC reaches 50%.
- 12:00 - 16:00:** If the battery SOC is below 50%, the PCS will charge the battery until SOC reaches 50%. If PV power is sufficient, the battery can be charged up to 50%.
- 16:00 - 20:00:** If the battery SOC is above 50%, the PCS will discharge the battery until SOC reaches 50%.
- 20:00 - 00:00:** If the battery SOC is above 50%, the PCS will discharge the battery until SOC reaches 50%.

TOU (In DCC Mode)

Time of Use: With DCC mode enabled, the TOU function lets users decide, based on SOC and time, when to use the AC/DC modules (grid power) and when to use battery power for the load.
 Only three parameters—Time Start, Time End, and SOC—can be configured and take effect. If the TOU function is not activated, the AC/DC modules are permitted to draw power from the grid all day by default.
 During the corresponding time period, if the current SOC is higher than the TOU-set SOC, the AC/DC converter will shut down and not draw power from the grid, giving priority to battery and PV energy.
 During the corresponding time period, if the current SOC is lower than the TOU-set SOC, the AC/DC converter will start up and draw power from the grid, giving priority to grid and PV energy.

TOU

☒ Mon

☒ Tues

☒ Wed

☒ Thur

☒ Fri

☒ Sat

☒ Sun

System1

System2

TOU: This interface is used to configure the operating days for "Time of Use" (TOU) scheduling.

For example:
If all days are selected, the PCS will execute TOU functions every day (Monday through Sunday).

5.4 Grid Setup

Pass Key Required

-

*

/

1

2

3

⏏

4

5

6

✖

7

8

9

↩

,

0

.

Before entering the Grid Setup menu, you need to enter the password: 9999, and press Enter to confirm.

Grid Setup

Type

Connect

VRT

Active

Reactive

Grid Setup: It contains Type, Connect, VRT(High/Low Voltage Ride Through), Active and Reactive.

Grid | Type

Select mode using arrow keys below

4.SRD-UL-1741

5.CEI_0_21_Internal

6.EN50549_CZ-PPDS(>16A)

7.Australia_A

8.Australia_B

5/24

Standard

Setting

Mode: Slide up and down the blue background area in the middle of the LCD screen to find the desired Grid code.

Grid | Type

☒ 50Hz

☐ 127V

☐ 60Hz

☒ 230V

☒ 0/120/240

☐ 0/240/120

Standard

Setting

50/60Hz: The frequency of the PCS output AC. If the PCS is connected to the grid, the output frequency should match the grid frequency. If operating in off-grid mode, the PCS output frequency can be set according to the load requirements.

127V/230V: The output voltage between the phase line and neutral line of the PCS. If connected to the grid, the output voltage should match the grid voltage. In off-grid mode, the PCS output voltage can be set based on load requirements.

0/120/240: The phase sequence for grid connection can be L1/L2/L3, L2/L3/L1, or L3/L1/L2. This also applies to power grids with R/S/T or U/V/W phase markings.

0/240/120: The phase sequence for grid connection can be L1/L3/L2, L3/L2/L1, or L2/L1/L3. This also applies to power grids with R/S/T or U/V/W phase markings.

Grid | Connect

High V 275.0 V

High F 52.00 Hz

Low V 187.0 V

Low F 47.50 Hz

Connect Ramp Rate

5.0S

Connect time

20S

High V 275.0 V

High F 52.00 Hz

Low V 187.0 V

Low F 47.50 Hz

Reconnect Ramp Rate

0.0S

Reconnect time

0.0S

Connect

Voltage

Frequency

Grid|Connect: Used for condition determination and power control during the initial startup or active grid connection of the PCS.

Connect:

- Low F: Minimum grid frequency allowed. PCS will not connect if below.
- High F: Maximum grid frequency allowed. Exceeding prevents connection.
- Low V: Minimum grid voltage allowed for connection. PCS will not connect if below.
- High V: Maximum grid voltage allowed for connection. PCS will not connect if exceeded.
- Connect Ramp Rate: Power ramp-up rate during initial connection. The time required for the PCS to gradually increase its output power from 0% to 100% of rated capacity when initially connecting to the grid
- Connect time: Delay before attempting connection after self-check.

Reconnect:

- Low F: Minimum grid frequency for reconnection.
- High F: Maximum grid frequency for reconnection.
- Low V: Minimum grid voltage for reconnection.
- High V: Maximum grid voltage for reconnection.
- Reconnect Ramp Rate: Power ramp-up rate during reconnection. The time required for the PCS to gradually increase its output power from 0% to 100% of rated capacity when reconnecting to the grid.
- Reconnect time: Delay before attempting reconnection after grid recovery.

Grid | Connect

Over Voltage U(10min,running mean)

299.0V

HV1 275.1 V 0.21s

HV2 286.1 V 0.11s

HV3 297.1 V

LV1 186.1 V 0.21s

LV2 186.1 V 0.11s

LV3 186.1 V

Connect

Voltage

Frequency

Grid|Connect: These parameters configure the PCS's response logic to grid voltage anomalies during grid connection, forming a hierarchical protection mechanism. When grid voltage exceeds (Over Voltage) or falls below (Under Voltage) set thresholds, the PCS executes corresponding actions based on different trigger levels.

Over Voltage U: If the average grid voltage over a 10-minute period reaches this set value, the PCS will disconnect from the grid.

HV1/HV2: When the grid voltage rises to this set value, the PCS will disconnect from the grid within the specified time.

HV3: When the grid voltage rises to this set value, the PCS will disconnect from the grid immediately.

LV1/LV2: When the grid voltage drops to this set value, the PCS will disconnect from the grid within the specified time.

LV3: When the grid voltage drops to this set value, the PCS will disconnect from the grid immediately.

Grid | Connect

HF1 52.01Hz 0.21s

HF2 53.01Hz 0.11s

HF3 54.01Hz

LF1 47.51Hz 0.21s

LF2 47.01Hz 0.10s

LF3 46.01Hz

Connect

Voltage

Frequency

Grid|Connect: These parameters configure the PCS's response logic to grid frequency anomalies during grid connection, forming a hierarchical protection mechanism. When grid frequency exceeds (Over Frequency) or falls below (Under Frequency) set thresholds, the PCS executes corresponding actions based on different trigger levels.

HF1/HF2: When the grid frequency rises to this set value, the PCS will disconnect from the grid within the specified time.

HF3: When the grid frequency rises to this set value, the PCS will disconnect from the grid immediately.

LF1/LF2: When the grid frequency drops to this set value, the PCS will disconnect from the grid within the specified time.

LF3: When the grid frequency drops to this set value, the PCS will disconnect from the grid immediately.

Grid | VRT

☐ LVRT

☐ HVRT

Reactive Current Mode

☒ Constant Ratio

LV_V1 80.00% HV_V1 120.00%

☐ K

LV_V2 90.00% HV_V2 115.00%

K 0.0

LV_Iq 10.00% HV_Iq 10.00%

RT Timeout

LV_Id 10.00% HV_Id 10.00%

0.0s

☐ Zero current crossing

Zero current V

0.00%

Grid|VRT: These parameters are used to configure active/reactive current support, trigger conditions, and timing control during Low Voltage Ride-Through (LVRT) and High Voltage Ride-Through (HVRT) events.

LVRT: Enable/Disable Low Voltage Ride-Through.

HVRT: Enable/Disable High Voltage Ride-Through.

Constant Ratio: Fixed current compensation ratio (percentage of rated current).

K: Reactive current compensation K-factor.

LV_V1~LV_V2: LVRT initiation conditions.

HV_V1~HV_V2: HVRT initiation conditions.

LV_Iq: Reactive current compensation percentage during LVRT.

LV_Id: Active current compensation percentage during LVRT.

HV_Iq: Reactive current compensation percentage during HVRT.

HV_Id: Active current compensation percentage during HVRT.

Zero Current Crossing: Enable/Disable reactive and active current support capability.

Zero Current V: The critical voltage level at which the PCS ceases current output during voltage anomalies. When grid voltage falls below (LVRT) or rises above (HVRT) this threshold, the device will forcibly interrupt current to protect power semiconductors.

RT Timeout: The maximum allowable duration for PCS to remain connected during voltage anomalies. If the voltage sag/surge persists beyond this threshold, the device will actively disconnect from the grid to prevent damage.

GS | Active

P(F)

P(U)

P control

GS|Active: This menu configures the PCS's active power (P) output strategies under different grid conditions, enabling dynamic adjustment of power generation to support grid stability.

Grid | PF

☐ Over Fre(Enable)

Start Frequency F

51.00Hz

Start Delay F

0.0S

Recovering Frequency F

50.50Hz

Recovering Delay F

0.0S

Droop F

56.8% PE/Hz

Recovering_Rate

20% Pn/Min

Over Fre

Under Fre

Other

Start Frequency: When the grid frequency reaches or exceeds this set value, the PCS module will gradually reduce its maximum output power.

Start Delay: The delay time before derating begins.

Recovering Frequency: When the grid frequency drops to this set value, the PCS will resume outputting at its rated power.

Recovering Delay: The delay time before power output recovery begins.

Droop Rate: After the grid frequency reaches or exceeds the Start Frequency of the Over-Frequency function, the PCS will reduce its output power at this set rate.

Recovering Rate: After the grid frequency returns to the Recovering Frequency, the PCS will gradually restore its output at the set rate until it reaches its rated power.

Grid | PF

☐ Under Fre(Enable)

Start Frequency F

49.00Hz

Start Delay F

0.0s

Recovering Frequency F

49.50Hz

Recovering Delay F

0.0s

Droop F

40.0% PE/Hz

Recovering_Rate

20.0% Pn/Min

Over Fre

Under Fre

Other

Start Frequency: When the grid frequency drops to this set value, the PCS module will gradually increase its maximum output power.

Start Delay: The delay time before the PCS can output beyond the rated power.

Recovering Frequency: When the grid frequency returns to this set value, the PCS will resume outputting at its rated power.

Recovering Delay: The delay time before power output recovery begins.

Droop Rate: After the grid frequency drops to the Start Frequency of the Under-Frequency function, the PCS will increase its output power at this set rate.

Recovering Rate: After the grid frequency returns to the Recovering Frequency, the PCS will gradually restore its output at the set rate until it reaches its rated power.

Grid | PF

Droop Reference

☐ PE%/Hz

☒ Pn%/Hz

Acting Time for Power Response to Frequency

0.1s

Over Fre

Under Fre

Other

PE%/Hz: It represents the percentage change in pre-overfrequency power (actual power before frequency deviation) per hertz of frequency deviation in a droop control system. It defines how much the active power output of PCS changes in response to frequency variations.

For example, if PE% = 5%/Hz, it means that for every 1 Hz increase in system frequency, the active power output will decrease by 5% of its pre-overfrequency power.

Pn%/Hz: It represents the percentage change in rated power (Pn) per hertz of frequency deviation in a droop control system. It defines how much the active power output of PCS changes in response to frequency variations.

For example, if Pn = 5%/Hz, it means that for every 1 Hz increase in frequency, the power output will decrease by 5% of the rated power.

Grid | P(U)

☐ EN(PU)

U1	100.00%Un	P1	100.00%	TmsRmp
U2	105.00%Un	P2	100.00%	1.0S
U3	110.00%Un	P3	80.00%	
U4	120.00%Un	P4	20.00%	

EN(PU): Adjust the upper limit of PCS active power output based on the voltage at the grid connection point.
U1-U4: The percentage of the current grid voltage relative to the rated voltage for Level 1-4 overvoltage protection.
P1-P4: The percentage of the maximum allowable active power output relative to the rated power for Level 1-4 overvoltage protection.
TmsRmp: The time required to adjust the maximum active power output between P1, P2, P3, and P4.

Grid | P Control

Inverter AC Output Power

110.0%

P Control Ramp Rate

5.0 S

Inverter AC Input Power

110.0%

Grid|P Control: This menu is used to configure the charge/discharge power limits and dynamic response characteristics of the Power Conversion System (PCS) in constant power mode.

Inverter AC Output Power: Maximum Discharge Power of PCS in P Control Mode

Inverter AC Input Power: Maximum Charge Power of PCS in P Control Mode

P Control Ramp Rate: The rate at which active power changes, defined as the time required to transition from 0% to 100% of rated power.

Grid | Reactive

Q(U)

Q(P)

PF(P)

Q Control

GS|Reactive: It contains Q(U),Q(P),PF(P) and Q control. This menu configures the reactive power (Q) control strategies for Power Conversion Systems (PCS). By dynamically adjusting reactive power output, it optimizes grid voltage/power factor.

Grid | Q(U)

☐ En(QU)

U1	80.00%Un	Q1	-25.00%	Lock-in/P
U2	90.00%Un	Q2	0.00%	30.00%
U3	110.00%Un	Q3	0.00%	
U4	120.00%Un	Q4	25.00%	Lock-out/P
U5	120.00%Un	Q5	25.00%	20.00%
U6	120.00%Un	Q6	25.00%	

En (QU): Adjust the upper limit of the reactive power output of the PCS based on the voltage at the grid connection point.

U1-U6: The percentage of the current grid voltage relative to the rated voltage for levels 1 to 6 in the Q(U) function.

Q1-Q6: The percentage of the maximum allowable reactive power output relative to the rated power for levels 1 to 6 in the Q(U) function.

Lock-in/P: When the PCS active power is not lower than this set value, the Q(U) function will take effect.

Lock-out/P: When the PCS active power drops below this set value, the Q(U) function will no longer take effect.

Grid | Q(P)

☐ En(QP)

P1	20%	Q1	0%
P2	50%	Q2	0%
P3	100%	Q3	0%
P4	100%	Q4	0%
P5	100%	Q5	0%
P6	100%	Q6	0%

En(QP): Adjust the Reactive Power of PCS based on active power output.

P1-P6: Percentage of current active power output relative to rated power for level 1-6 of P(Q) function.

Q1-Q6: (Q1-Q6) The corresponding set values of reactive power for level 1-6 of P(Q) function.

Grid | PF(P)

☐ En(PFP)

P1	20%	PF1	0.600	Lock-in/U
P2	30%	PF2	0.600	105.0U%
P3	40%	PF3	0.600	
P4	50%	PF4	0.600	Lock-out/U
P5	60%	PF5	0.600	20.0U%
P6	70%	PF6	0.600	

En PF(P): Adjust Power Factor of PCS based on active power output.

P1-P6: Percentage of current active power output relative to rated power for level 1-6 of PF(P) function.

PF1-PF6: (PF1-PF6) The corresponding set values of power factor for level 1-6 of PF(P) function.

Lock-in/U: When the output voltage is not lower than this set value, PF(P) will take effect.

Lock-out/U: When the output voltage returns to this set value or below, PF(P) will not take effect.

Grid | Q Control

☒ OFF

☐ Constant Percentage

☐ PF Mode

R.T(3Tau)

2.0 S

Q Setting

OFF

OFF: Disable reactive power function

Constant Percentage: The PCS maintains a constant percentage of reactive power (Q) injection/absorption.

PF Mode: The PCS regulates reactive power in real-time according to the configured target power factor (PF), ensuring stable power factor for the grid or connected loads.

R.T(3Tau): Set reactive power response time.

Grid | Q Control

☐ OFF

Q Setting

-100.0%Qn
Min-

0.0%Qn
Value

100.0%Qn
Max+

+

OK

Cancel

-

Constant Percentage: Once selected, clicking "Total Power Setting" will open another page for percentage adjustment.

Grid | Q Control

☐ OFF

Q Settings

PF=-1.000 Min-

PF=0.000 Value

PF=1.000 Max+

+

OK

Cancel

-

PF Mode: Display Power Factor, Once selected, clicking "Total Power Setting" will open another page for percentage adjustment.

5.5 STS Setup

STS | Type

ON-Grid/Off-Grid Switch

☒ Without STS
☐ DI-2 Control

Open: on grid

Short: off grid

☐ STS Auto
☐ ON-Grid
☐ Gen On-Grid

☐ STS Manual
☒ OFF-Grid

STS Parallel Mode

☒ OFF
☐ Parallel Port
☐ Load

STS|Type: This interface configures on-grid/off-grid switching modes and multi-STs parallel operation.
Three switching modes are available:
Without STS: Manually switch between on-grid and off-grid modes when no STS module is present or via the DI port, where an external device sends signals to control the on-grid/off-grid switching of the PCS.
STS Auto: When the PCS module operates with an STS module, the STS module automatically switches between on-grid and off-grid modes.
STS Manual: When the PCS module operates with an STS module, manually switch between on-grid and off-grid modes using the STS module.
STS Parallel Mode:
OFF: Disable parallel operation between STS units.
Parallel Port: Enable multi-STs parallel function via the parallel port.
Load: Enable multi-STs parallel function via the STS load port.
Gen On-Grid: When no STS module is present, the diesel generator can be enabled to connect to the PCS AC port. This configuration is typically applied in off-grid scenarios without STS, allowing the diesel generator to function as the grid source. (This setup requires reverse power protection to prevent PCS energy from backfeeding into the diesel generator).
Note: In STS parallel mode (Load), when multiple units are connected via load terminals, the maximum supported off-grid load capacity is limited to 700 kW.

5.6 Device Info

Devive Info		SUN-100K-PCS01HP3	
COMM:8001-C016	MCU:6011-1127-AB73	S MCU:1007	
MPPT:7100-0022	ARC:A002	ID:2504242008	
STS:FFFF-FFFF		ID:2504194281	
F58	Battery_comm_Lose	2025-05-29	15:28
F61	INVERTER_MANUAL_OFF	2025-05-29	11:24
F58	Battery_comm_Lose	2025-05-29	09:44
F58	Battery_comm_Lose	2025-05-29	09:40
F35	AC_NoUtility_Fault	2025-05-29	14:47
Fault Code		ID:2503092058	Occured

COMM: LCD Communication Board Software Version
MPPT: MPPT Module Control Board Software Version
ID: MPPT Serial Number
STS: STS Module Control Board Software Version
ID: STS Serial Number
MCU: PCS Main Control Unit Software Version
S MCU: PCS Slave Microcontroller Software Version
ARC: Arc Fault Detection Board Software Version
Alarms Code: Alarm code when PCS is something wrong.
ID: PCS Serial Number
Occured: Fault or warning has occurred at that time.

5.7 Battery Setup

Battery Setup

Battery Type

Battery Charge

Shut Down

Battery Setup: This interface is used to configure battery parameters, including: Battery type settings, Battery charge settings, Shut down settings.

Battery | Type

Batt Mode

☒ Use Batt V

☐ Lithium

☐ No Battery

Batt Capacity

280Ah

Max A Charge

175.0A

Max A Discharge

175.0A

Use Batt V: Used for batteries without BMS communication, such as lead-acid batteries.

Lithium: Select this option for lithium-ion batteries, which require CAN or RS485 communication with the PCS.

No Battery: No batteries are connected to the PCS module. The PCS can operate without a battery system in both single and parallel systems.

Batt Capacity: Battery Cell Capacity.

Max A Charge: Maximum allowable charging current for the battery system.

Max A Discharge: Maximum allowable discharging current for the battery system.

Battery | Charge

☒ Grid Charge

☒ Gen Charge

Charging current

A 175.0 A

☐ Grid Signal

☐ Gen Signal

Gen max output power

80.0%

Gen start

5.0%

Gen max run time

24.0 hours

Gen min output power

30.0%

Gen stop

95.0%

Gen down time

0.0 hours

Gen capacity

300 kW

☐ Gen Force

Grid Charge: When enabled, the grid power can be used to charge the battery.

***Charging current:** Set the generator charging current (generator connected to the STS Grid port or PCS AC Output).

(In DCC mode, it can be used to limit both the discharge current of the AC/DC modules and the current that the AC/DC modules draw from the grid).

Gen Charge: When enabled, the generator power can be used to charge the battery.

***Charging current:** Set the generator charging current (generator connected to the STS Gen port or PCS AC Output).

Grid Signal: Enable the STS/PCS dry contact (DO) port to send start/stop signals to the diesel generator which is connected to the STS Grid port or PCS AC Output.

Gen Signal: Enable the STS/PCS dry contact (DO) port to send start/stop signals to the diesel generator which is connected to the STS Gen port or PCS AC Output.

Generator Capacity: Set the rated capacity of the generator.

Gen start: Trigger generator startup when battery SOC drops below the set threshold.

Gen stop: Trigger the generator to stop charging when the battery SOC exceeds the set threshold.

Gen min output power: Configure the minimum allowable output power for the diesel generator.

Gen Max Run Time: Define the maximum continuous operating duration for the generator.

Gen max output power: Set the maximum allowable output power for the diesel generator.

Gen Down Time: It indicates the rest time of the Generator before the PCS start it again.

Gen Force: Force start of diesel generator.

(Note: This setting must be manually cleared to stop the generator)

Battery | Shut Down

Restart

630.0V

Float V

860.6V

Shut Down

600.0V

Shut Down: Be valid in off-grid mode, battery can discharge to this SOC, then the DC/AC inverter module of this PCS will be shut down and the solar power can only be used to charge the battery.

Restart: Be valid in off-grid mode, after the DC/AC inverter module of this PCS is shut down, the PV power can only be used to charge the battery. After the battery SOC has resumed to this "Restart" voltage, the DC/AC inverter module will restart to output AC power.

Float V: Set the upper limit of battery full charge voltage.

5.8 Advance

Advance

Parallel

Mode

Address

Advance: This interface is used to configure PCS parallel parameters, advanced modes (such as anti-islanding, RCD, and RSIO), and communication addresses.

Advance | Parallel

Pcs parallel port

01

Minimum number in parallel

01

☒ Parallel enable

☒ Slave

☐ Master

Parallel System Capacity

100 kw

PCS Parallel Port: Set PCS parallel address (01-20). Address "1" is reserved for the master unit.

Parallel Enable: Enable/disable PCS parallel operation

Slave Mode: Configure this PCS as a slave unit

Master Mode: Configure this PCS as the master unit

Minimum Units in Parallel: Minimum number of PCS

required for parallel operation

Parallel System Capacity: Total capacity of the parallel

system

Note:When an STS is present, the STS defaults to the master device, while all PCS units operate as slaves. Among them, the PCS with address 01 serves as the primary slave (master-slave), responsible for controlling all data distribution and parameter settings.

Pass Key Required

	-	*	/
1	2	3	↵
4	5	6	⌫
7	8	9	↵
,	0	.	

Access the Mode menu: Enter password 7777 and press Enter.

Advance | Mode

☒ Anti-Islanding

☒ RISO

☒ RCD

☐ DRM

☐ Share PV Power

☐ Connect Gen to Grid

☐ DC Charger

☐ ATS

Load Meter Type

Chint

UPS Mode

▼

ACCouple Mode

Chint

ACCouple F

50.00Hz

12.0 kw

Anti-Islanding: Enable or disable the anti-islanding function, which disconnects the PCS from the grid in the event of a grid fault.

RCD: Residual current monitoring device of the PCS module.

RISO: Insulation impedance detection function of the PCS module.

Share PV Power: Enable photovoltaic power sharing control.

DRM: Demand response mode, receive external commands for active power scheduling and reactive power scheduling.

AC Couple Mode: Select the AC-coupled inverter mode, supporting RS485 control or Frequency Shift Power Control. To monitor the AC-coupled output power, select the appropriate power meter and complete the physical connection.

AC Couple F: Cut-off frequency for the output of the Frequency Shift Power Control function.

Load Meter Type: To collect multi-channel load data, select the appropriate meter type and complete the physical connection.

DC Charger: Applicable to the 0ms switching solution. Activates the on-line architecture function and requires the use of the AC/DC module.

DC Charge Power: Limits the maximum output power of the AC/DC module. Typically used to restrict the maximum power drawn from the grid by the AC/DC converter.

Connect Gen to Grid: When STS module is present, the diesel generator can be enabled to connect to the Grid port.

ATS: Suitable for systems without STS, using ATS to achieve automatic on/off-grid switching. Two configuration modes are available: one based on three circuit breakers (Grid & Gen & PCS) and another based on two circuit breakers (Grid & Gen). If the configuration uses three circuit breakers—one for connecting/disconnecting the grid, one for connecting/disconnecting the diesel generator, and one for connecting/disconnecting the PCS—then select Grid & Gen & PCS.

Advance | Address

LCD 485

1

MCU 485

1

Modbus RS485

1

RS485 Meter

1

LCD 485: Configure the communication address between the upper computer and the LCD screen.

MCU 485: 485 communication between DSP Chip on control board and upper computer.

Modbus RS485: Configure the communication address between the STS and the external device).

RS485 Meter: Configure the communication address between the STS and the meter).

The system's first priority for power is always PV power (if available). The second and third priority sources will be the battery bank or the grid, depending on the settings. The final backup power source will be the generator (if available).

- 71 -

5.9 AC/DC Group LCD Home Screen

Group1TotalVol: 800 V Group1TotalCur: 12.3 A	Display the actual output voltage and current of AC/DC module group. When the PCS is connected to two sets of AC/DC modules, Group 1 and Group 2 are used to distinguish between the two sets.
Upgrade State: No Upgrade	Display whether AC/DC module group is updating.
Soft Version:1003 SN:152604032701	Display the AC/DC module LCD software version and serial number.

5.10 AC/DC Group-Parameter and Setting View

Basic Info ✓ Settings	Basic Info: View group status, faults, and sub-module info (faults, status, SN). Settings: Set the communication address of the AC/DC module group and view the running status.
Group1 Info ✓ Sgl Module	Group Info: View AC/DC group information. Sgl Module: View information of each sub-module in the AC/DC group.

Group1 Info:
ModuleCount: 002
FaultModNum:000
Mod1Status:0000

Basic Info → Group Info
ModuleCount: The total number of sub-modules in the AC/DC group.
FaultModNum: Faulty sub-module bitmask (e.g., 003 = modules 1 & 2 faulty; 002 = module 2; 001 = module 1).
Mod1Status: Fault status code (decimal). Convert to binary and check the fault code table for details.

Module 1 ✓
Module 2

Basic Info → Sgl Module → Module1
Module 1&2: Select sub-module 1 or 2 to view faults, SN & status.

SingleMod1Info:
Vol: 800 V
Cur: 20 A
ModStatus1: 000

View the actual output voltage and current of a selected single module within the AC/DC group.
ModStatus1: Fault code of a single module under operating status 1.
Note: Decimal shown; convert to binary & refer to single-module status fault table.

ModStatus2: 065
ModStatus3: 128
ModStatus4: 001

ModStatus2: Fault code of a single module under operating status 2.
ModStatus3: Fault code of a single module under operating status 3.
ModStatus4: Fault code of a single module under operating status 4.
Note: Decimal shown; convert to binary & refer to single-module status fault table.

Module1SN
152604034901

Single module serial number information

Init Para ✓
Group1 Para
Comm Addr

Init Para: View the initial parameters of the AC/DC group.
Group1 Para: Display AC/DC group operating parameters.
Comm Addr: Set the communication address of the AC/DC group.

Init Para
Bat Fact: YFY
Gropu1Cnt: 000

Settings→Init Para
Show AC/DC group model & sub-module count.

Group1 Para
On/Off Mode: Off
Vol: 800 V
Cur: 25 A

Settings→Group Para
Display the operating status of the AC/DC group and the voltage/current information received from PCS commands.

AddWay: AutoAsg

Display that the sub-module addresses within the AC/DC group are in auto-assignment mode.

Set 485 Addr
Value: 1
OK Save

Settings→Comm Addr
Set the communication address of the AC/DC group. The default address is 1. When one PCS is connected to two AC/DC groups, one of the AC/DC groups should be set to address 2.

*Press Enter to save settings.
*Address rules:
1 PCS + 1 AC/DC group → address 1 (default).
1 PCS + 2 AC/DC groups → second group address 2.

6. Warranty

For warranty terms, please refer to the "General Warranty Agreement - ."

Under our company's guidance, customers may return products for maintenance or replacement with a product of equal value. Customers are responsible for the necessary freight and other related costs. Any replacement or repair will retain the original product's remaining warranty period. If any part of the product is replaced by the company during the warranty period, all rights and ownership of the replaced product or component will belong to the company.

Factory Warranty Exclusions:

The factory warranty does not cover damage caused by the following:

- Damage during equipment transportation.
- Incorrect installation or commissioning.
- Failure to comply with operation, installation, or maintenance instructions.
- Unauthorized modifications, alterations, or repairs.
- Incorrect use or operation.
- Insufficient ventilation of the equipment.
- Failure to comply with applicable safety standards or regulations.
- Natural disasters or force majeure events (e.g., floods, lightning, overvoltage, storms, fires, etc.).

Additionally, normal wear and tear or any failure that does not affect the product's basic operational is not covered. External scratches, stains, or natural mechanical wear do not constitute a defect.

7. Troubleshooting

Perform troubleshooting using the solutions provided in the table below. If the issue persists, contact after-sales service for further assistance.

Before reaching out to after-sales service, collect the following information to help resolve the issue quickly:

- Device information: Serial number, firmware version, installation date, fault occurrence time, fault frequency, etc.
- Installation environment: Weather conditions, presence of shading or obstructions on PV modules, etc. Providing photos or videos is recommended to assist in problem analysis.
- Utility grid status.

PCS Troubleshooting Form

Error code	Description	Solutions
F01	DC_Inversed_Failure	1. Turn off the built-in or external DC breaker on battery side immediately, and then check the polarity of the power cables between the battery and PCS, if it is indeed reversed, correct it. 2. If the power cable of battery are connected correctly, please contact after sales support team for help.
F02	SlaveMCU_Fault	1. Update the firmware of slave MCU. 2. Check the sampling circuit of battery voltage. 3. If the fault still hadn't been solved, please contact after sales support team for help.
F03	STS_Disconnected	1. Plug or replug the communication cable between the PCS module and the STS module. 2. Replace the communication cable between the PCS module and the STS module. 3. Replace the communication PCB board. 4. If the fault still hadn't been solved, please contact after sales support team for help.
F04	PARA_ID_DUP_WARNING	1. Check if the IDs of different PCS modules in the parallel system are repeated, and set the repeated IDs as different and unused ID value. 2. If the fault still hadn't been solved, please contact after sales support team for help.
F05	EEPROM_Read_Failure	1. Restart the PCS module and see if it will return to normal. 2. If the fault still hadn't been solved, please contact after sales support team for help.
F07	HV_SS_Failure	1. Replace the fuse on the battery input side of PCS module and check the MOS on the battery input side of PCS module. 2. Replace the control PCB board. 3. If the fault still hadn't been solved, please contact after sales support team for help.
F08	Start_Failure	1. Update the firmware of the PCS module. 2. If the fault still hadn't been solved, please contact after sales support team for help.
F09	LC_Comm_Error	1. Check if the communication flat cables between the PCB board of LCD and other parts of PCS module are completed and plugged well. 2. If the fault still hadn't been solved, please contact after sales support team for help.
F10	AuxPowerBoard_Failure	1. Restart the PCS module and check if it can automatically recover. 2. Replace the damaged components or PCB board related to auxiliary power. 3. If the fault still hadn't been solved, please contact after sales support team for help.
F13	Reserved	Reserved
F15	AC_OverCurr_Failure	1. Restart the PCS module and see if it will return to normal. 2. Replace the driver board. 3. Replace the current sensor. 4. If the fault still hadn't been solved, please contact after sales support team for help.
F16	GFCI_Failure	1. Check if any part of the PV cable isolation layer is damaged. 2. Check if the PCS module is assembled normally. 3. If the fault still hadn't been solved, please contact after sales support team for help.
F17	Tz_PV_OverCurr_Fault	1. In some cases, the alarm will automatically disappear. 2. If it does not automatically eliminate, please update the firmware of the PCS module. 3. Check if the sum Isc of your PV arrays on each MPPT input of the MPPT module is in allowed range. 4. If the fault still hadn't been solved, please contact after sales support team for help.

Error code	Description	Solutions
F18	Tz_Ac_OverCurr_Fault	1.Check whether the power grid is normal and the load power is in allowed range or not. 2.Update the firmware of the PCS module. 3. If the fault still hadn't been solved, please contact after sales support team for help.
F22	Tz_EmergStop_Fault	After the emergency situation is resolved, release the emergency stop button.
F23	Tz_GFCI_OC_Fault	1.Check if any part of the PV cable isolation layer is damaged. 2.Check if the PCS module is assembled normally. 3. If the fault still hadn't been solved, please contact after sales support team for help.
F24	DC_Insulation_Fault	1.Check if any part of the PV cable isolation layer is damaged. 2.Check if the PCS module is assembled normally. 3. If the fault still hadn't been solved, please contact after sales support team for help.
F26	BusUnbalance_Fault	1. Reduce the power difference between three phases. 2. If the fault still hadn't been solved, please contact after sales support team for help.
F27	Tz_Balance_OverCurr_Fault	1. Reduce the power difference between three phases. 2. Replace the driver board PCB. 3. If the fault still hadn't been solved, please contact after sales support team for help.
F30	AC_MainContactor_Fault	1.Restart the PCS module to see if the fault can be resolved. 2. Check if the main relays are in normal status and the AC output voltage is in range. 3.Check if current version of firmware need to be updated. 4.Check if the driver circuit of the main relays is normal. 5. If the fault still hadn't been solved, please contact after sales support team for help.
F31	AC_SlaveContactor_Fault	1.Restart the PCS module to see if the fault can be resolved. 2. Check if the main relays are in normal status and the AC output voltage is in range. 3.Check if current version of firmware need to be updated. 4.Check if the driver circuit of the main relays is normal. 5. If the fault still hadn't been solved, please contact after sales support team for help.
F34	AC_Overload_Fault	1. Shut down some loads to reduce the total power consumption to be in allowed range. 2.Restart the PCS module to see if the fault can be resolved. 3.Check if current version of firmware need to be updated.
F35	AC_NoUtility_Fault	1.Check the AC cable connection, and fix the discovered issues. 2. If the fault still hadn't been solved, please contact after sales support team for help.
F36	AC_GridPhaseSeque_Fault	1.Shut down the PCS module immediately, and then check if the phase of grid cable connection is consistent with the set phase type 0/120/240 or 0/240/120.
F41	AC_WU_OverVolt_Fault	1.Check the voltage of the power grid. 2.Check the voltage of the generator(if any). 3.Check if the internal sampling circuit is functioning properly. 4. If the fault still hadn't been solved, please contact after sales support team for help.
F42	AC_WU_UnderVolt_Fault	1.Check the voltage of the power grid. 2.Check the voltage of the generator(if any). 3.Check if the internal sampling circuit is functioning properly. 4. If the fault still hadn't been solved, please contact after sales support team for help.

Error code	Description	Solutions
F44	Mst_Disconnect	1. Check the setting of parameters corresponding to parallel function. 2. Check the parallel communication cable and its wiring. 3. Check the hardware components on PCB board corresponding to parallel communication. 4. If the fault still hadn't been solved, please contact after sales support team for help.
F45	AC_UV_Overvolt_Fault	1. System shutdown in parallel system is caused by individual PCS fault. 2. Please check the parallel configuration and review the fault code of each PCS.
F46	STS_Fault	1. Check the error code list of STS module to find solution.
F47	AC_OverFreq_Fault	1. Check the frequency of the power grid. 2. Check the frequency of the generator(if any). 3. Check if the internal sampling circuit is functioning properly. 4. If the fault still hadn't been solved, please contact after sales support team for help.
F48	AC_UnderFreq_Fault	1. Check the frequency of the power grid. 2. Check the frequency of the generator(if any). 3. Check if the internal sampling circuit is functioning properly 4. If the fault still hadn't been solved, please contact after sales support team for help.
F50	Tz_BAT_OverCurr_Fault	1. Ensure that the power of loads are in allowable range. 2. Ensure that the SOC or voltage of the battery is sufficiently high. 3. If the fault still hadn't been solved, please contact after sales support team for help.
F52	BAT_OverVoltage_Fault	1. Turn off the external or built-in DC breaker between battery and PCS module immediately, and then check the datasheet of battery to ensure that full charged voltage of battery is in allowable range of PCS module. 2. Restart the battery to resume the built-in relay of BMS. 3. If the fault still hadn't been solved, please contact after sales support team for help.
F53	BAT_SS_RELAY_Fault	1. Update the firmware of the PCS module. 2. Check if the internal sampling circuit is functioning properly 3. If the fault still hadn't been solved, please contact after sales support team for help.
F54	BAT_RELAY_Fault	1. Replace the damaged main contactor on battery side of the PCS module.
F55	DC_VoltHigh_Fault	1. Check if the voltage of battery is in allowable range. 2. Check if the voltage of PV string is in allowable range. 3. Ensure that the load power is relatively stable without significant fluctuations. 4. If the fault still hadn't been solved, please contact after sales support team for help.
F56	DC_VoltLow_Fault	1. Check if the voltage of battery is in allowable range.
F57	AC_BackFeed_Fault	1. Check if the voltage on grid side is stable. 2. Replace the driver board PCB.
F58	Battery_comm_Lose	1. Check if the communication cable is intact and if the wiring is correct. 2. Check the parameter settings related to BMS communication on the PCS module and battery. 3. Check if the communication module of the PCS module is damaged.

F61	INVERTER_MANUAL_OFF	1. Restart the master PCS module, this alarm of slave PCS module will disappear automatically.
F63	PV_ARC_Fault	1.Check the wiring of all PV strings.
F64	Heatsink_LowTemp_Fault	1.Check if the ambient temperature is in allowable range and the ventilation condition is well enough at the installation location. 2.Check if the temperature sensor is normal.

MPPT Troubleshooting Form

Error code	Description	Solutions
F09	Boost Circuit_Fault	1.Replace the driver board PCB.
F13	CAN_Com_Failure	1.Check if the RJ45 terminals and communication cable for CAN communication between PCS and MPPT module are normal. 2. If the fault still hadn't been solved, please contact after sales support team for help.
F14	DC_OverCurr_Failure	1.This fault rarely occurs;if it happens, please contact the after-sales support team.
F16	Power_Uncontrollable_Fault	1.Update the firmware. 2.Replace the control board PCB.
F19	Over/UnderVolt_Fault	1. Check if the output voltage of PV strings are in allowable range. 2.Check if the voltage of the DC BUS is normal. 3.Check if the sampling circuit for PV input and DC BUS are normal.
F20	Dc_OverCurr_Fault	1.Update the firmware. 2.Replace the driver board PCB.
F24	DC_Insulation_Fault	1.Check and confirm if the insulation layer of the photovoltaic cable is damaged. 2.Confirm if the wiring inside the device is normal.
F30	DC_MainContactor_Fault	1.Replace the damaged main contactor or the whole PCB board.
F31	DC_SlaveContactor_Fault	1.Update the firmware. 2.Replace the pre-charging relay or the whole PCB board.
F55	DC_VoltHigh_Fault	1.Check if the voltage of PV strings are in allowable range 2.Check if the voltage of DC BUS is normal 3.Check if the sampling circuit for PV input and DC BUS are normal.
F64	MPPT_Low/High_Temp_Fault	1.Check if the ambient temperature is in allowable range and the ventilation condition is well enough at the installation location. 2.Check if the temperature sensor is normal.

AC/DC Group Fault Table

Error code	Description	Solutions
Bit0	Module discharge abnormality	Check battery SOC and discharge permission; verify PCS AC load status; ensure grid connection is stable.
Bit1	Output short circuit	Disconnect PCS AC load; inspect output wiring and contactors; check for short circuit at DC bus or AC terminals.
Bit2	Input or DC bus abnormality	Measure AC input voltage and frequency; check DC bus voltage from PV/battery; verify bus capacitor and pre-charge circuit.
Bit3	Module internal communication fault	Re-seat CAN/RS485 cables; reset module; check main control board; replace if persistent.
Bit4	Output overvoltage alarm	Verify voltage feedback loop; check DC bus regulation; adjust setpoint;
Bit5	Overtemperature alarm	Clean heatsink and air filters; confirm fan operation; reduce ambient temperature or derate load.
Bit6	Fan fault alarm	Replace fan; inspect fan power supply and connector;
Bit7	Module protection alarm	Reset module; check for overcurrent/overvoltage on grid or DC side; clear external trip.
Bit8	Module fault alarm	Read binary fault code; restart module; if recurring, replace module or check internal power board.
Bit9	Module communication interruption alarm	Check comm wiring and termination; verify master/slave address.
Bit10	Input overvoltage alarm	Check grid voltage (L-N/L-L).
Bit11	Input undervoltage alarm	Check grid voltage (L-N/L-L).
Bit12	Severe current imbalance among modules	Check parallel cabling; calibrate current sensors; match module firmware/parameters.

Single-module status fault table of AC/DC Group

Bit	Module N Status4 Table	Module N Status3 Table	Module N Status2 Table	Module N Status1 Table
Bit7		1: Module PFC side is in shutdown state	1: Module communication interruption alarm	(empty)
Bit6		1: Input overvoltage alarm	1: WALK-IN enable	1: Air duct blocked
Bit5		1: Input undervoltage alarm	1: Output overvoltage alarm	1: Module discharge abnormality
Bit4		1: Three-phase input imbalance alarm	1: Overtemperature alarm	1: Module sleep
Bit3		1: Three-phase input phase loss alarm	1: Fan fault alarm	1: Input or bus abnormality
Bit2		1: Module severe imbalance	1: Module protection alarm	1: Module internal communication fault
Bit1	00: Module does not require high/low voltage control 01: High/low voltage automatic control mode	1: Module ID duplicate	1: Module ID duplicate	(empty)
Bit0	10: Low voltage mode set by monitoring 11: High voltage mode set by monitoring	1: Module is in power-limited state	1: Module is in power-limited state	1: Output short circuit

8. Datasheet

PCS Module	SUN-100K-PCS01HP3	SUN-125K-PCS01HP3
Battery Data		
Battery Type	Lithium-ion	
Battery Voltage Range(V)	630-1000	
Max. Charging Current(A)	175	200
Max. Discharging Current(A)	175	200
Number of Battery Input	1	
DC Input Data		
DC Input Voltage Range(V)	630-1000	
Max. DC Input Current(A)	200	
AC Input/Output Data		
Rated AC Input/Output Active Power(W)	100000	125000
Max. AC Input/Output Apparent Power(VA)	110000	125000
Rated AC Input/Output Current(A)	151.6/145	189.4/181.2
Max. AC Input/Output Current(A)	166.7/159.5	189.4/181.2
Max. Output Fault Current(A)	350	
Max. Output Overcurrent Protection(A)	450	
Rated Input/Output Voltage/Range(V)	220/380V, 230/400V 0.85Un-1.1Un	
Grid Connection Form	3L+N+PE	
Rated Input/Output Grid Frequency/Range	50Hz/45Hz-55Hz 60Hz/55Hz-65Hz	
Power Factor Adjustment Range	-1 to +1	
Total Current Harmonic Distortion THDi	<3% (of nominal power)	
DC Injection Current	<0.5% In	
Efficiency		
Max. Efficiency	98.5%	
Euro Efficiency	97.8%	
Equipment Protection		
AC Output Overcurrent Protection	Yes	
AC Output Overvoltage Protection	Yes	
AC Output Short Circuit Protection	Yes	
Thermal Protection	Yes	
Anti-islanding protection	Yes	
Surge Protection Level	TYPE II(DC),TYPE II(AC)	
Interface		
LCD/LED display	LCD	
Communication Interface	WIFI,RS485,CAN,Meter	
General Data		
Operating Temperature Range	-40°C to +60°C,>45°C Derating	
Permissible Ambient Humidity	0-95%	
Noise	<75dB	
Permissible Altitude	4000m	
Ingress Protection(IP) Rating	IP 65	
Inverter Topology	Non-Isolated	
Over Voltage Category	OVC II(DC), OVC III(AC)	
Cabinet size(W*H*D) [mm]	543W×310H×775D (Excluding connectors and brackets)	

Weight(kg)	81.86
Warranty	5 Years/10 Years the Warranty Period Depends the Final Installation Site of PCS, More Info Please Refer to Warranty Policy
Type of Cooling	Intelligent Air Cooling
Grid Regulation	IEC 61727, IEC 62116, CEI 0-21, EN 50549, NRS 097, RD 140, UNE 217002, OVE-Richtlinie R25, G99, VDE-AR-N 4105
Safety EMC/Standard	IEC/EN 62477-1

PCS Module	SUN-100K-PCS02HP3	SUN-125K-PCS02HP3
Battery Data		
Battery Type	Lithium-ion	
Battery Voltage Range(V)	630-1000	
Max. Charging Current(A)	175	200
Max. Discharging Current(A)	175	200
Number of Battery Input	1	
DC Input Data		
DC Input Voltage Range(V)	630-1000	
Max. DC Input Current(A)	250	
AC Input/Output Data		
Rated AC Input/Output Active Power(W)	100000	125000
Max. AC Input/Output Apparent Power(VA)	110000	125000
Rated AC Input/Output Current(A)	151.6/145	189.4/181.2
Max. AC Input/Output Current(A)	166.7/159.5	189.4/181.2
Max. Output Fault Current(A)	350	
Max. Output Overcurrent Protection(A)	450	
Rated Input/Output Voltage/Range(V)	220/380V, 230/400V 0.85Un-1.1Un	
Grid Connection Form	3L+N+PE	
Rated Input/Output Grid Frequency/Range	50Hz/45Hz-55Hz 60Hz/55Hz-65Hz	
Power Factor Adjustment Range	-1 to +1	
Total Current Harmonic Distortion THDi	<3% (of nominal power)	
DC Injection Current	<0.5% In	
Efficiency		
Max. Efficiency	98.5%	
Euro Efficiency	97.8%	
Equipment Protection		
AC Output Overcurrent Protection	Yes	
AC Output Overvoltage Protection	Yes	
AC Output Short Circuit Protection	Yes	
Thermal Protection	Yes	
Anti-islanding protection	Yes	
Surge Protection Level	TYPE II(DC),TYPE II(AC)	
Interface		
LCD/LED display	LCD	
Communication Interface	WIFI,RS485,CAN,Meter	

General Data	
Operating Temperature Range	-40°C to +60°C, >45°C Derating
Permissible Ambient Humidity	0-95%
Noise	<75dB
Permissible Altitude	4000m
Ingress Protection(IP) Rating	IP 65
Inverter Topology	Non-Isolated
Over Voltage Category	OVC II(DC), OVC III(AC)
Cabinet size(W*H*D) [mm]	543W×310H×775D (Excluding connectors and brackets)

Weight(kg)	81.86
Warranty	5 Years/10 Years the Warranty Period Depends the Final Installation Site of PCS, More Info Please Refer to Warranty Policy
Type of Cooling	Intelligent Air Cooling
Grid Regulation	IEC 61727, IEC 62116, CEI 0-21, EN 50549, NRS 097, RD 140, UNE 217002, OVE-Richtlinie R25, G99, VDE-AR-N 4105
Safety EMC/Standard	IEC/EN 62477-1

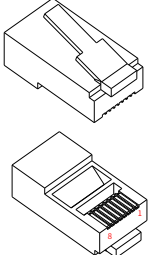
AC/DC Module	SUN-80K-CG01-C
AC Input	
Input Voltage Range	260Vac ~ 530Vac, 3L+PE
Max Input Current(A)	160
Frequency Range	45Hz ~ 65Hz
Power Factor	≥0.99
Efficiency	Full load > 96%, peak > 97%
THD	<5%
DC Output	
Output Power(kW)	80
Voltage Range(V)	50~1000
Constant Power Output Voltage Range(V)	300~1000
Output Current(A)	0 ~ 266
Output Current Limiting	0.3 ~ 266A continuously adjustable
Current Sharing	Imbalance < ±5%
Voltage Regulation Accuracy	< ±0.5%
Current Regulation Accuracy	≤ ±1% (within 20%~100% rated output load)
Operating Environment Conditions	
Operating Temperature	-40°C +75°C (>45°C derating)
Relative Humidity	≤95% RH, non-condensing
Cooling Method	Forced air cooling
General Data	
Grid Connection Form	3L
Altitude	≤2000m, derating required above 2000m
Dimensions and Weight	
Dimensions[WxHxD](mm)	543x127x740 (excluding handles and terminal protrusions)
Weight (kg)	42.2

Others	
Battery Type	RS458

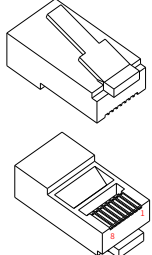
MPPT Module	SUN-MPPT-L01-EU-AM8	SUN-MPPT-L01-EU-AM10
PV String Input Data		
Max. PV access power(KW)	200	250
Max. PV Input Power(kW)	160	200
Max. PV Input Voltage(V)	800*	
Start-up Voltage(V)	200	
MPPT voltage range(V)	180-750	
Full Load MPPT Voltage Range(V)	450-750	
Rated PV Input voltage(V)	600	
Max. Input Short Circuit Current (A)	60+60+60+60+60+60+60+60	60+60+60+60+60+60+60+60+60
Max. Operating PV Input Current(A)	40+40+40+40+40+40+40+40	40+40+40+40+40+40+40+40+40+40
No. of MPP Trackers	8	10
DC Output Data		
DC Output Voltage Range(V)	630-1000	
Max. DC Output Current(A)	200	250
Efficiency		
Max. Efficiency	>99%	
MPPT Efficiency	>99.9%	
Equipment Protection		
DC input reverse protection	YES	
DC ARC protection	Optional	
Anti-PID(Potential Induced Degradation)	Optional	
DC Switch	YES	
Surge Protection Level	TYPE II	
General Data		
Operating Temperature Range (°C)	-40°C to 60°C	
Permissible Ambient Humidity	0-95%	
Permissible Altitude (m)	4000m	
Ingress Protection(IP) Rating	IP65	
Over Voltage Category	OVC II	
Cabinet Size (W*H*D) [mm]	543×198×700	543×198×720
Weight [kg]	41.75	50.6
Warranty	10 Years	
Type Of Cooling	Intelligent air cooling	
Safety EMC/Standard	IEC/EN 62109-1	
Features		
DC port/AC port	OT terminal	
Display	LED	
Communication Interface	CAN/RS485	

9. Appendix I

Definition of PCS communication ports

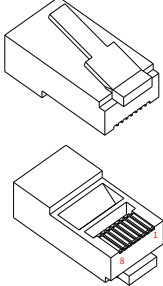
No.	MPPT-CAN	BATBMS	RJ45	Parallel_A	Parallel_B	Pin sequence of RJ45 port
1	\	485_B	485_B	+12V	+12V	
2	\	485_A	485_A	+12V	+12V	
3	CAN-H	GND_485	GND_485	SYNC	SYNC	
4	CAN-H	CAN-H	\	CAN-H	CAN-H	
5	CAN-L	CAN-L	\	CAN-L	CAN-L	
6	CAN-L	GND_485	GND_485	GND_COM	GND_COM	
7	GND-COM	485_A	485_A	-12V	-12V	
8	GND-COM	485_B	485_B	-12V	-12V	

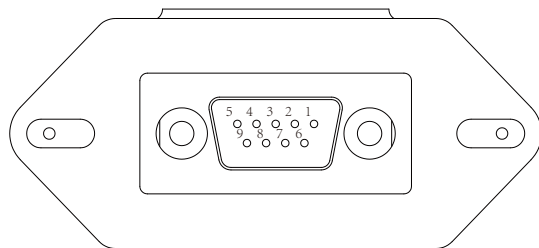
Definition of MPPT communication ports

No.	MPPT-CAN_1 (Communication Port For PCS)Parallel 1	MPPT-CAN_2 (Communication Port For PCS)Parallel 2	485 is used as the master for host communication	Pin sequence of RJ45 port
1	\	\	CAN-H	
2	\	\	CAN-L	
3	CAN-H	CAN-H	485-A	
4	CAN-H	CAN-H	485-B	
5	CAN-L	CAN-L	GND-COM	
6	CAN-L	CAN-L	12V-COM	
7	\	\	\	
8	\	\	\	

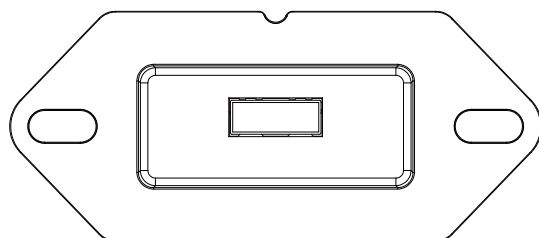
Definition of AC/DC communication ports

This model of PCS has two types of logger interfaces, DB9 and USB. Please refer to the actual PCS received for the actual interface type.

No.	AC/DC Parallel Port	Pin Sequence of RJ45 Port
1	GND	
2	GND	
3	485_B	
4	485_B	
5	485_A	
6	485_A	
7	24V	
8	24V	



DB9 (RS232)



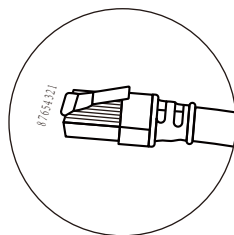
USB

RS232

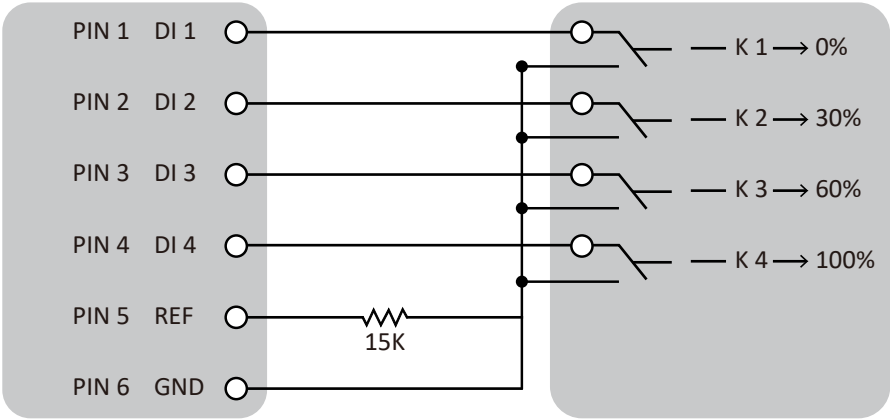
No.	RS232
1	
2	TX
3	RX
4	
5	D-GND
6	
7	
8	
9	12Vdc

Definition of RJ45 Port Pin for DRM

No.	DRED	RCR
1	DRM1/5	DI 1
2	DRM2/6	DI 2
3	DRM3/7	DI 3
4	DRM4/8	DI 4
5	REF	REF
6	COM	GND
7	Reserved	Reserved
8	Reserved	Reserved

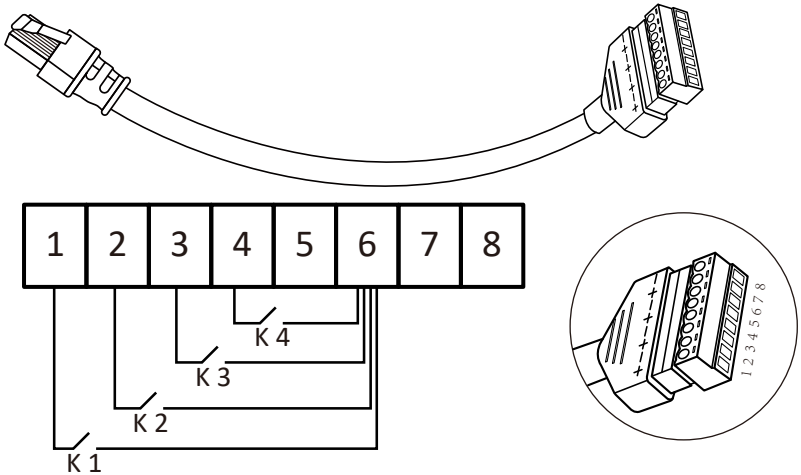


RCR

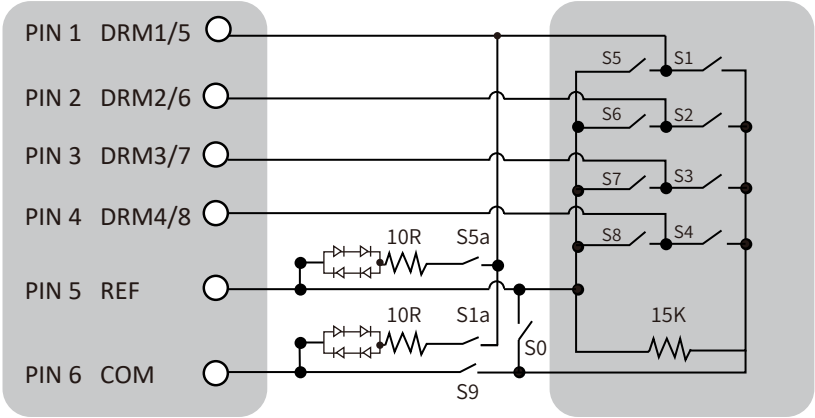


Inverter

RCR



DRED



10. EU Declaration Of Conformity

- within the scope of the EU directives
- Electromagnetic compatibility 2014/30/EU (EMC)
 - Low Voltage Directive 2014/35/EU (LVD)
 - Restriction of the use of certain hazardous substances 2011/65/EU (RoHS)



confirms herewith that the products described in this document are in compliance with the fundamental requirements and other relevant provisions of the above mentioned directives. The entire EU Declaration of Conformity and certificate can be found at [Conformity/?tag=55,17,192](#).

20260812 V1.0.0

EU Declaration of Conformity

Product: **Energy Storage Converter**

Models: SUN-100K-PCS02HP3;SUN-125K-PCS02HP3;SUN-100K-PCS02HP3-B;SUN-125K-PCS02HP3-B

Name and address of the manufacturer: Ningbo Deye Inverter Technology Co., Ltd.

No. 26 South Yongliang Road, Daqi, Beilun, Ningbo, China

Name and address of the authorized EU/EEA importer: Sun Solar Components GmbH&Co. KG, Hauptstrasse 57, 90562 Heroldsberg, Deutschland

This declaration of conformity is issued under the sole responsibility of the manufacturer. Also this product is under manufacturer's warranty.

This declaration of conformity is not valid any longer: if the product is modified, supplemented or changed in any other way, as well as in case the product is used or installed improperly.

If the inverter is equipped with a wireless module datalogger in the EU market, the following is complied with:

The object of the declaration described above is in conformity with the relevant Union harmonization legislation:

- Radio Equipment Directive (RED) 2014/53/EU.
- Restriction of the use of certain Hazardous Substances (RoHS) Directive 2011/65/EU and 2015/863/EU



References to the relevant harmonized standards used or references to the other technical specifications in relation to which conformity is declared:

Health and Safety (RED, Article 3.1a)	
EN IEC 62311:2020	●
EN 62109-1:2010	●
EN 62109-2:2011	●
EN 50665:2017	●
EN 50663:2017	●
EN 62479:2010	●
EMC (RED, Article 3.1b)	
EN IEC 61000-6-1:2019	●
EN IEC 61000-6-2:2019	●
EN IEC 61000-6-3:2021	●
EN IEC 61000-6-4:2019	●
EN 301489-1 V2.2.3:2019	●
EN 301489-17 V 3.3.1:2024	●
EN 55011:2016+A1+A11+A2	●

EU DoC - v4

1 / 2

Ningbo Deye Inverter Technology Co., Ltd.
No. 26 South Yongliang Road, Daqi, Beilun, Ningbo, China

EU Declaration of Conformity

Product: **Energy Storage Converter**

Models: SUN-100K-PCS01HP3, SUN-125K-PCS01HP3, SUN-100K-PCS01HP3-B, SUN-125K-PCS01HP3-B

Name and address of the manufacturer: Ningbo Deye Inverter Technology Co., Ltd.

No. 26 South Yongjiang Road, Daqi, Beilun, Ningbo, China

Name and address of the authorized EU/EEA importer: Sun Solar Components GmbH & Co. KG, Hauptstrasse 57, 90562 Heroldsberg, Deutschland

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References to the relevant harmonized standards used or references to the other technical specifications in relation to which conformity is declared.

Health and Safety (RED, Article 3.1a)	
EN IEC 62311:2020	●
EN 62109-1:2010	●
EN 62109-2:2011	●
EN 50665:2017	●
EN 50663:2017	●
EN 62479:2010	●
EMC (RED, Article 3.1b)	
EN IEC 61000-6-1:2019	●
EN IEC 61000-6-2:2019	●
EN IEC 61000-6-3:2021	●
EN IEC 61000-6-4:2019	●
EN 301489-1 v2.2.3:2019	●
EN 301489-17 V 3.3.1:2024	●
EN 55011:2016+A1+A11+A2	●

EU Declaration of Conformity

Product: **MPPT Module of ESS**

Models: SUN-MPPT-L01-EU-AMB;SUN-MPPT-L01-EU-AM10

Name and address of the manufacturer: Ningbo Deye Inverter Technology Co., Ltd.

No. 26 South Yongjiang Road, Daqi, Beilun, Ningbo, China

Name and address of the authorized EU/EEA importer: Sun Solar Components GmbH&Co. KG, Hauptstrasse 57, 90552 Heroldsberg, Deutschland

This declaration of conformity is issued under the sole responsibility of the manufacturer. Also this product is under manufacturer's warranty.

This declaration of conformity is not valid any longer: if the product is modified, supplemented or changed in any other way, as well as in case the product is used or installed improperly.

The object of the declaration described above is in conformity with the relevant Union harmonization legislation:

- The Low Voltage Directive (LVD) 2014/35/EU.
- The Electromagnetic Compatibility (EMC) Directive 2014/30/EU.
- The Restriction of the use of certain Hazardous Substances (RoHS) Directive 2011/65/EU and 2015/863/EU.



References to the relevant harmonized standards used or references to the other technical specifications in relation to which conformity is declared:

LVD:	
EN 62109-1:2010	●
EMC:	
EN IEC 61000-6-3:2021	●
EN IEC 61000-6-4:2019	●
EN 55011:2016+A1:2017+A11:2020+A2:2021	●

Additional information: CE mark was affixed on the product since 2026.

Nom et Titre / Name and Title:

Bard Dai

Senior Standard and Certification Engineer

宁波德业逆变器技术有限公司

NINGBO DEYE INVERTER TECHNOLOGY CO., LTD.

Ningbo Deye Inverter Technology Co., Ltd.

2026-05-26

Ningbo, China

Au nom de / On behalf of:

Date / Date (yyyy-mm-dd):

A / Place:

EU DoC - v4

1 / 1

Ningbo Deye Inverter Technology Co., Ltd.
No. 26 South Yongjiang Road, Daqi, Beilun, Ningbo, China



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