



POWER SOLID

5KW

**POWER SOLID
STORAGE SYSTEM**

PSSi5000W#580VK



USER MANUAL

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Foreword

Summaries

Thank you for choosing the PV energy storage inverter PSSi (3600-6000W) #580VK series (hereinafter referred to as PSSi (3600-6000W) #580VK)!

This document gives a description of the PV energy storage inverter PSSi (3600-6000W) #580VK series, including the features, performance, appearance, structure, working principles, installation, operation and maintenance etc.

Please save the manual after reading, in order to consult in the future.

 **NOTE**

The figures in this manual are just for reference, for details please see the actual product.

Suitable Model








- Inverter
 - PSSi3600W#580VK
 - PSSi5000W#580VK
 - PSSi6000W#580VK
- Battery
 - iStoragE-B8

 **NOTE**

1. The PV energy storage inverter PSSi (3600-6000W) #580VK series consists of inverter and battery.
2. Single battery is iStoragE-B8, two batteries is iStoragE-B16, and so on. The PV energy storage inverter PSSi (3600-6000W) #580VK series install up to 4 batteries. For special illustration, the following take iStoragE-B8 as an example.

Symbol Conventions

The manual quotes the safety symbols, these symbols used to prompt users to comply with safety matters during installation, operation and maintenance. Safety symbol meaning as follows.

Symbol	Description
	Alerts you to a high risk hazard that will, if not avoided, result in serious injury or death.
	Alerts you to a medium low risk hazard that could, if not avoided, result in moderate or minor injury.
	Alerts you to a low risk hazard that could, if not avoided, result in minor injury.
	Anti-static prompting.
	Be care electric shock prompting.
	Provides a tip that may help you solve a problem or save time.
	Provides additional information to emphasize or supplement important points in the main text.

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1 Safety Description

This chapter mainly introduces the safety announcements. Prior to performing any work on the device, please read the user manual carefully, follow the operation and installation instructions and observe all danger, warning and safety information.

1.1 Safety Announcements



Before operation, please read the announcements and operation instructions in this section carefully to avoid accident.

The promptings in the user manual, such as "Danger", "Warning", "Caution", etc. don't include all safety announcements. They are just only the supplement of safety announcements when operation.



Any device damage caused by violating the general safety operation requirements or safety standards of design, production, and usage will be out of guarantee range.

1.1.1 Use Announcements



Don't touch terminals or conductors that connected with grid to avoid lethal risk!

 DANGER

There is no operational part inside the inverter. Please do not open the crust of the inverter by yourself, or it may cause electric shock. The inverter damage caused by illegal operation is out of the guarantee range.

 DANGER

Damaged device or device fault may cause electric shock or fire!

- Before operation, please check if the inverter is damaged or has other danger.
 - Check if the external device or circuit connection is safe.
-

 DANGER

Before checking or maintenance, if the DC side and AC side is power down just now, it is necessary to wait for 5 minutes to ensure the inner device is completely discharged, and then the operation can be performed.

 DANGER

The surface temperature of the inverter may reach to 60°C. During running, please don't touch the surface to avoid scald.

 CAUTION






No liquid or other objects are allowed to enter the inverter, or, it may cause inverter damage.

 **CAUTION**

In case fire, please use dry power fire extinguisher. If using liquid fire extinguisher, it may cause electric shock.

1.1.2 Inverter Symbol Illustration

Table1-1 Invertersymbol illustration

Symbol	Illustration
	<p>Beware of a danger zone</p> <p>This symbol indicates that the product must be additionally grounded if additional grounding or equipotential bonding is required at the installation site.</p>
	<p>Beware of electrical voltage</p> <p>The product operates at high voltages.</p>
	<p>WEEE designation</p> <p>Do not dispose of the product together with the household waste but in accordance with the disposal regulations for electronic waste applicable at the installation site.</p>
	<p>Observe the documentation</p>
	<p>CE marking</p> <p>The product complies with the requirements of the applicable EU directives.</p>

1.1.3 Protection for PV Array

When install PV array in daytime, it necessary to cover the PV array by light-proof material, or the PV array will generate high voltage under sunshine. If touching PV array accidently, it may cause electric shock or human injury!

 DANGER

There exists dangerous voltage between the positive and negative of PV array!

When installing the device, make sure that the connection between inverter and PV array has been disconnected completely. And set warning mark in the disconnected position to avoid reconnecting.

1.1.4 ESD Protection

 CAUTION

To prevent human electrostatic damaging sensitive components(such as circuit board), make sure that you wear a anti-static wrist strap before touching sensitive components, and the other end is well grounded.

1.1.5 Grounding Requirements

 WARNING

High leakage risk! The inverter must be grounded before wiring. The grounding terminal must be connected to ground, or, there will be the risk of electric shock when touching the inverter.

- When installing, the inverter must be grounded first. When dismantling, the grounding wire must be removed at last;
- Don't damage the grounding conductor;
- The inverter must be connected to protection grounding permanently.
- Before operation, check the electrical connection to ensure the inverter is grounded reliably.

1.1.6 Moisture-proof Protection

 CAUTION

Moisture incursion may cause the inverter damage!

Observe the following items to ensure the inverter works normally.

- When the air humidity is more than 95%, don't open the door of the inverter;
- In the wet or damp weather, don't open the door of the inverter to maintain or repair.

1.1.7 Safety Warning Label Setting

In order to avoid accident for unwanted person gets close to the inverter or makes improper operation, observe the following requirements while installing, maintaining or repairing.

- Set warning marks where the switches are to avoid switching them on improperly.
- Set warning signs or safety warning belt in the operation area, which is to avoid human injury or device damage.

1.1.8 Electrical Connection

Electrical connection must be performed according to the description in the user manual and the electrical schematic diagram.



The configuration of PV string, grid level, grid frequency, etc. must meet the technical requirements of inverter.

Grid-tied generation should be allowed by the local power supply department and the related operation should be performed by professionals.

All electrical connection must meet the related country and district standard.

1.1.9 Measurement Under Operation



There exists high voltage in the device. If touching device accidentally, it may cause electric shock. So, when perform measurement under operation, it must take protection measure (such as wear insulated gloves, etc.)

The measuring device must meet the following requirements:

- The range and operation requirements of measuring device meets the site requirements;
-

- The connections for measuring device should be correct and standard to avoid arcing.

1.2 Safety Precaution for Battery Pack

1.2.1 General Safety Precautions

- Overvoltage or wrong wiring can damage the battery pack and cause deflagration, which can be extremely dangerous.
- All types of breakdown of the battery may lead to a leakage of electrolyte or flammable gas.
- Battery pack is not user serviceable. High voltage is present in the device.
- Read the label with Warning Symbols and Precautions, which is on the right side of the battery pack.
- Do not connect any AC conductors or PV conductors which should be only connected to the inverter directly to the battery pack.
- Do not charge or discharge damaged battery.
- Do not damage the battery pack in such ways as dropping, deforming, impacting, cutting or penetrating with a sharp object. It may cause a leakage of electrolyte or fire.
- Do not expose battery to open flame.

1.2.2 Response to Emergency Situations

The battery pack comprises multiple batteries that are designed to prevent hazards resulting from failures. However, We cannot guarantee their absolute safety.

1. If a user happens to be exposed to internal materials of the battery cell due to damage on the outer casing, the following actions are recommended.
 - Inhalation: Leave the contaminated area immediately and seek medical attention.
 - Eye contact: Rinse eyes with running water for 15 minutes and seek medical attention.
 - Contact with skin: Wash the contacted area with soap thoroughly and seek medical attention.
 - Ingestion: Induce vomiting and seek medical attention.
2. If a fire breaks out in the place where the battery pack is installed, perform the following countermeasures.
 - Fire extinguishing media

Respirator is not required during normal operations. Use FM-200 or CO2 extinguisher for battery fire. Use an ABC fire extinguisher, if the fire is not from battery and not spread to it yet.

- Fire fighting instructions
 - If fire occurs when charging batteries, if it is safe to do so, disconnect the battery pack circuit switch to shut off the power to charge.
 - If the battery pack is not on fire yet, extinguish the fire before the battery pack catches fire.
 - If the battery pack is on fire, do not try to extinguish but evacuate people immediately.
- Effective ways to deal with accidents
 - On land: Place damaged battery into a segregated place and call local fire department or service engineer.
 - In water: Stay out of the water and don't touch anything if any part of the battery, inverter, or wiring is submerged. Do not use submerged battery again and contact the service engineer.

1.3 Requirements for Operator



The operation and wiring for inverter should be performed by qualified person, which is to ensure that the electrical connection meets the related standards.

The professional technician must meet the following requirements:

- Be trained strictly and understand all safety announcements and master correct operations.
- Fully familiar with the structure and working principle of the whole PV grid-tied generation system.
- Know well about the related standards of local country and district.

1.4 Environment Requirements

 **CAUTION**

Avoid the inverter suffering directly sunshine, rain or snow to prolong the service life (detail please see 3.2.2). If the installation environment does not meet the requirement, the guarantee time may be influenced.

The used environment may influence the service life and reliability of the inverter. So, please avoid using the inverter in the following environment for a long time.

- The place where beyond the specification (operating temperature:-30℃ ~60℃, relative humidity: 0%-95%).
- The place where has vibration or easy impacted.
- The place where has dust, corrosive material, salty or flammable gas.
- The place where without good ventilation or closed.

2 Overview

This chapter mainly introduces the device features, appearance, operating mode, etc.

2.1 Product Intro

If the PV energy is sufficient, in addition to powering the load, the excess is stored in the battery pack for supply energy when the energy supply at night is insufficient. Battery charge and discharge are use DC/DC circuit. Charge and discharge are share a main circuit for two-way flow of energy. DC/AC circuit work as inverter when grid-tied and off-grid or work as rectifier when mains reverse charge the battery. Inverter and rectifier are share a DC/AC circuit for two-way flow of energy. It is suitable for home and commercial roof PV generation system and distributed PV generation system. Generally, the system consists of PV array, battery pack and inverter, etc., as shown in Figure2-1.

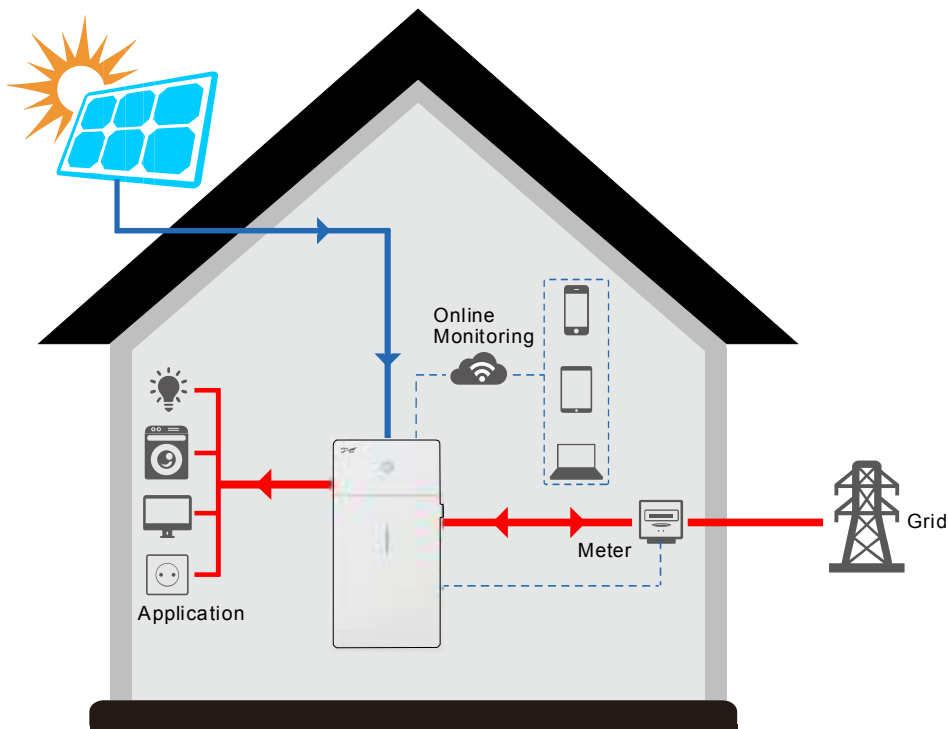


Figure2-1 PV+ESS system

2.1.1 Model Meaning

Inverter

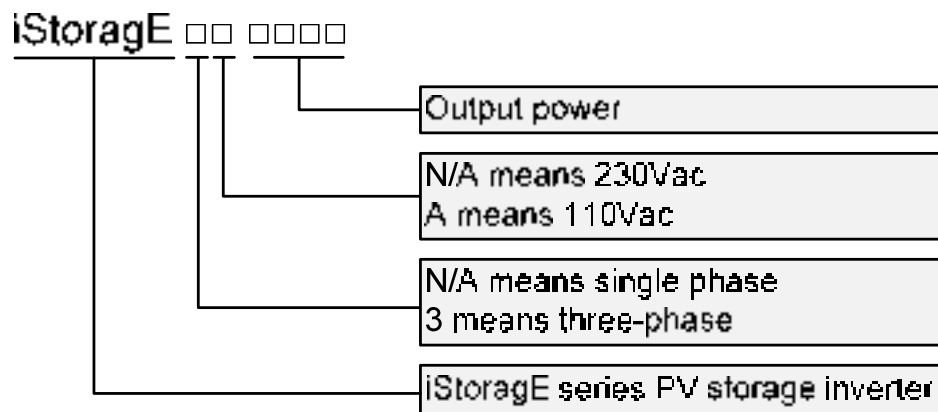


Figure2-2 Model meaning of the inverter

Battery

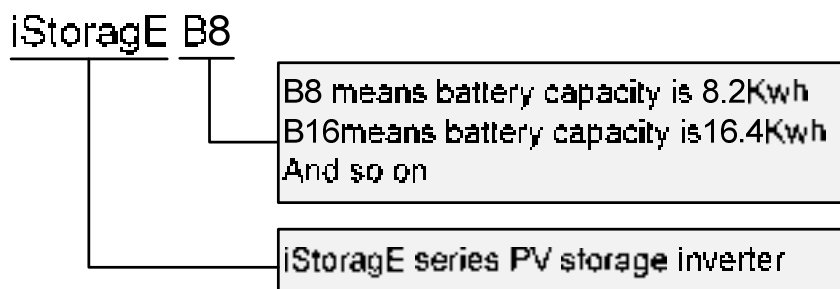


Figure2-3 Model meaning of the battery

2.1.2 Features

- Investable
- Better PV utilization
- Faster charging ability
- Higher battery efficiency
- Intelligent
- User-friendly interface
- Intelligent monitoring
- Smart power grids adaptability

- Integrated
- Easy installation
- Easy O&M
- Easy capacity expansion

2.1.3 Operating Mode

Backup mode

When the energy generated by PV array is sufficient, PV array will charge battery in advance, the remaining energy will supply power for load. If there still has remaining energy, it will be supplied for grid-connection generation. When the energy generated by PV array is not enough for load, the load will get energy from grid.

When battery SOC is less than 50%, charging the battery with maximum power, PV array will charge battery in advance. If the PV energy is not enough for battery, the grid will supply power for the battery.

When battery SOC is more than 55% (50%+5%), the battery charging power is determined by PV power supply power

Self-production mode

When the energy generated by PV array is sufficient, PV array will supply power for load in advance, the remaining energy will charge battery. If there still has remaining energy, it will be supplied for grid-connection generation.

Energy shift scheduling mode

User can set the charging time and discharging time of battery. to set the battery charging with full capacity or discharging with full capacity.

External control mode

External control mode have battery priority and grid priority. In the external control period, the operating status is determined by charge power and discharge power of battery when the product is in battery priority mode and the operating status is determined by control power of grid when the product is in grid priority mode. Outside the external control period, the product will switch to the original setting mode.

Peak shaving mode

Peak shaving mode is realized through setting the peak period and valley period. In the peak period, set to self-production mode; in the valley period, set to backup mode; in the other period, the battery power is 0 and the PV array will supply power for grid if it still have energy.

2.2 Appearance and Structure

The appearance of the inverter and battery are as shown in Figure2-4 and Figure2-5.

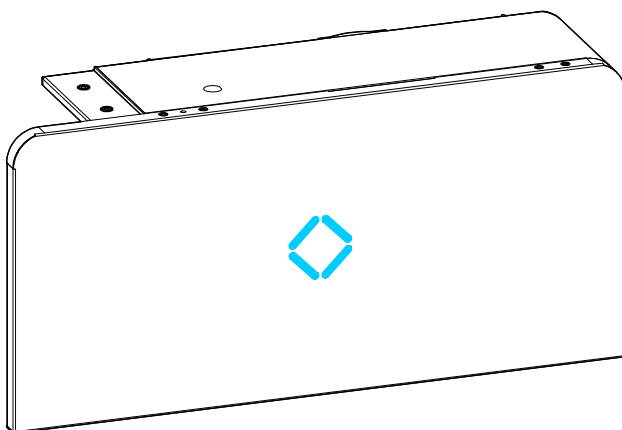


Figure2-4 Appearance of the inverter

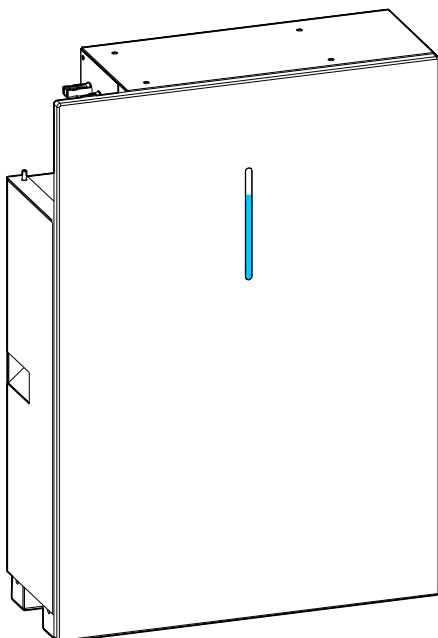


Figure2-5 Appearance of the battery

2.2.1 LED Signals

Inverter

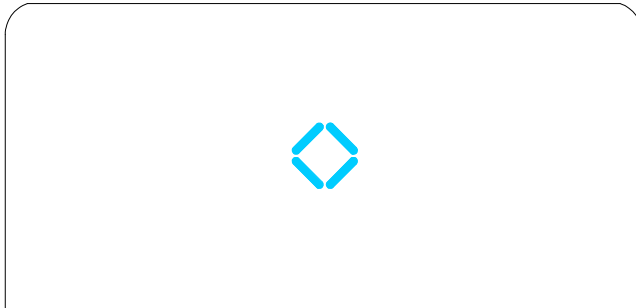


Figure2-6 Inverter LED Signals

Table2-1 Illustration of the inverter LED

Status	Illustration
OFF	Standby
Red	On: fault
Blue	On: The system works normally.
	Flicker 1s: alarm
	Flicker 3s: standby

Battery

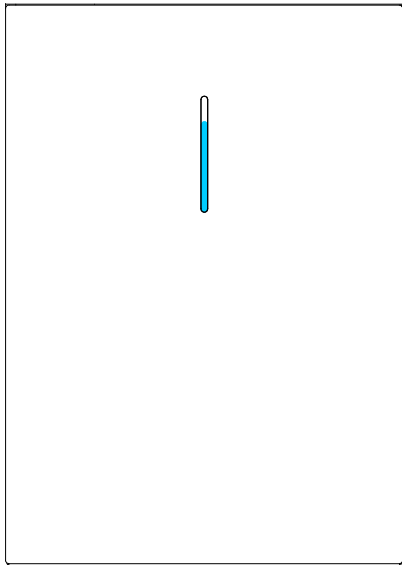
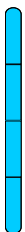


Figure2-7 Battery LED Signals

Table2-2 Illustration of the battery LED

Status	LED display	Illustration
Blue		The battery capacity is 25%
		The battery capacity is 50%
		The battery capacity is 75%

Status	LED display	Illustration
		The battery capacity is 100%
Red	\	Error: for detail, please see Table6-2

2.2.2 External Terminal Illustration

The external terminals are all located at the left side of the inverter, including PV input, AC output, communication port and DC switch, etc, as shown inFigure2-8.

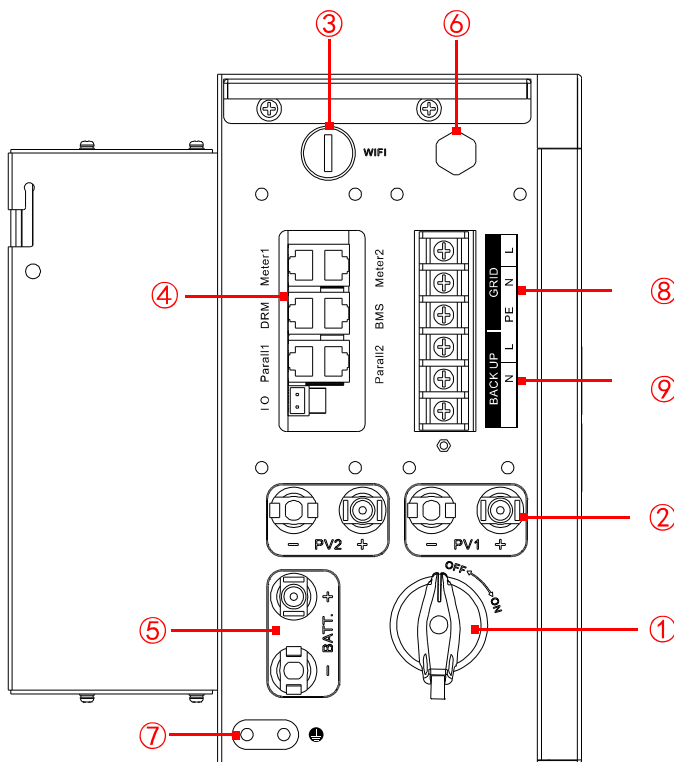



Figure2-8 Inverter terminals location

Table2-3 Inverter terminals illustration

NO.	Mark	Illustration	Remarks
①	DC SWITCH	DC switch	Optional
②	PV	+	DC input terminal

NO.	Mark	Illustration	Remarks
		-	
③	WIFI	WIFI port (Reserved)	It is used to monitor the running status of the inverter.
④	COM.	Connect with DRM, METER, BMS, Parall	Parall (reserved): have parallel function. BMS: connect to COM port of battery to communicate with battery. DRM: Inverter demand response modes. Meter: monitor the energy used.
⑤	BAT	DC input terminal	It is used to connect with battery.
⑥	Explosion-proof valve	/	/
⑦		Grounding port	External grounding port
⑧	Grid	AC output terminal	It is used to connect with grid.
⑨	Backup	AC output terminal	It is used to connect with load.

Battery terminals illustration

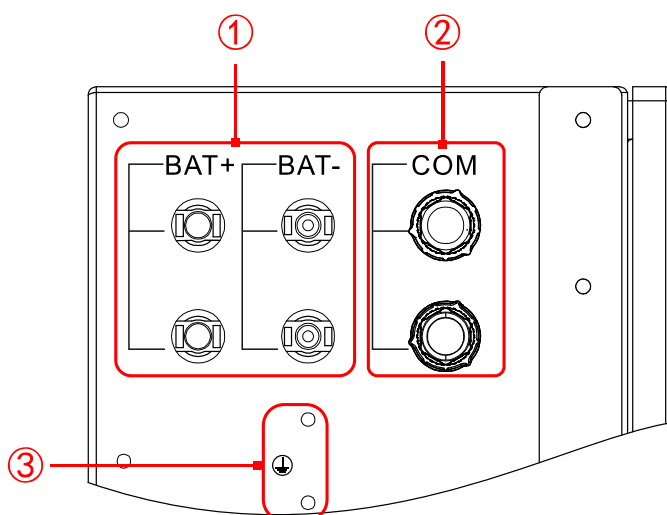



Figure2-9 Battery terminals location

Table2-4 Inverter terminals illustration

NO.	Mark	Illustration	Remarks
①	BAT	DC input terminal	It is used to connect with inverter.
②	COM.	Connect with inverter	Connect to COM port of inverter to communicate with inverter.
③		/	Connect to the external grounding or grounding of the inverter.

**NOTE**

When the DC SWITCH and COM. are not selected, the corresponding port is filled with a waterproof plug

DC switch

DC switch (as shown in the ① of Figure2-8) is the connection switch of inverter and PV array. When the inverter works normally, the DC switch must be ON. During installation and wiring, the DC switch must be OFF. Before maintenance, the DC switch must be OFF for 5 minutes, and measure the voltage of DC busbar by multimeter, only when the voltage less than 10V, the maintenance can be done.



When maintenance or wiring, the DC switch must be disconnected.

2.3 Application Scenes

The PSSi (3600-6000W) #580VK can be applied in DC-coupled systems (mostly new installation), AC-coupled systems (mostly retrofit) and hybrid-coupled systems (mostly retrofit, and PV capacity increase), as shown in Figure2-10, Figure2-11 and Figure2-12.

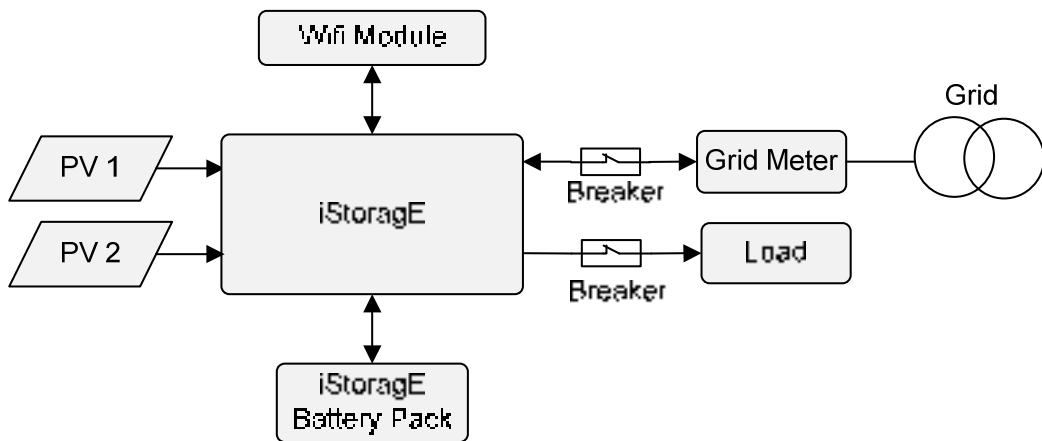


Figure2-10 DC-coupled systems

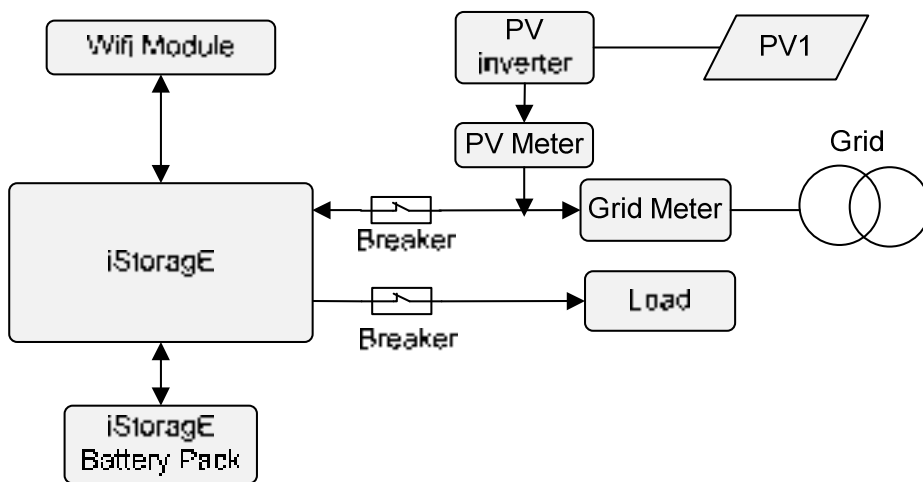


Figure2-11 AC-coupled systems

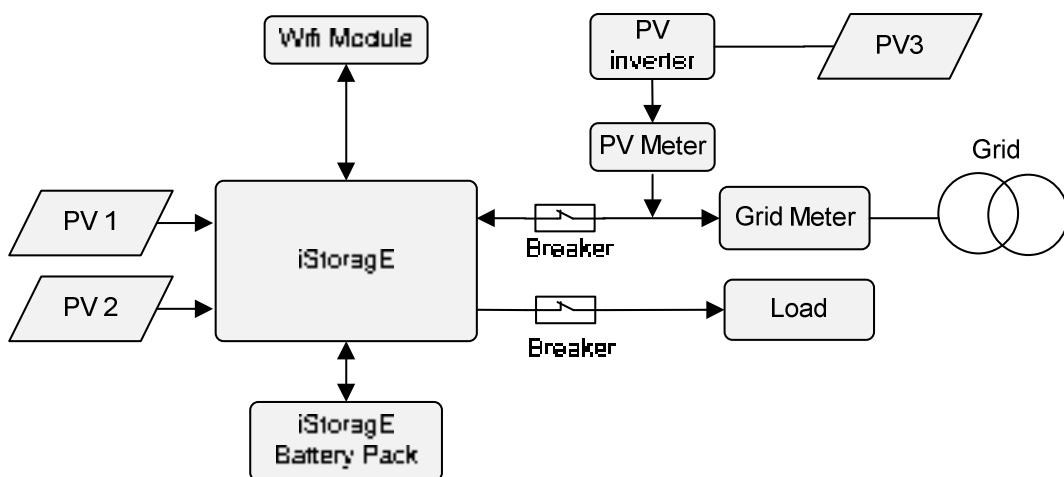


Figure2-12 hybrid-coupled systems

3 Installation

This chapter introduces the installation of the device, including installation process, installation preparation, transportation and unpacking, installation procedure, electrical connection and checking, etc.

3.1 Installation Process

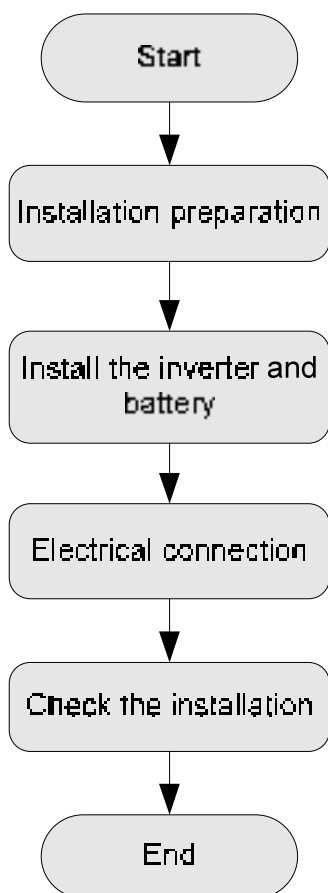
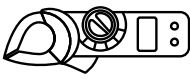
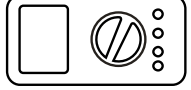

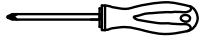



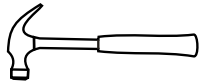
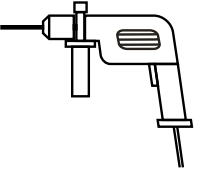
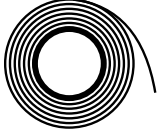
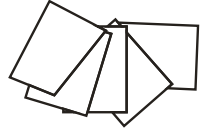
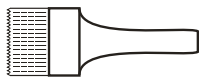
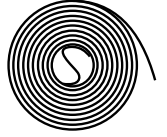
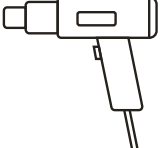
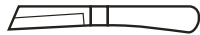
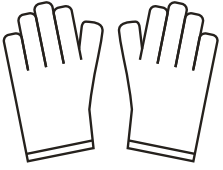
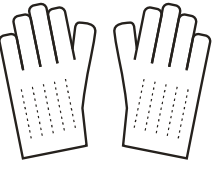
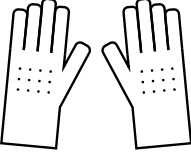




Figure3-1 Installation process

3.2 Installation Preparation

3.2.1 Tools

Tools			
			
Clamp meter	Multi-meter	Label paper	Phillips screwdriver
			
COAX crimping tool	Diagonal pliers	Wire stripper	Claw hammer
			
Hammer drill	Insulation tape	Cotton cloth	Brush
			
Heat shrink tubing	Heat gun	Electrician's knife	Protective gloves
			
ESD gloves	Insulated gloves	Hydraulic pliers	Cable tie



The installation tools must be insulated to avoid electric shock.

3.2.2 Installation Environment

- Do not install the inverter in the place with poor ventilation.
- Ensure that there has sufficient fresh-air supply around the inverter.
- The inverter must be installed on the wall or supporter with enough bearing capacity.

NOTE

1. The inverter is rated at IP65 for outdoor and indoor installation. But if the inverter is installed under directly sunshine, its temperature will rise quickly, so, do not install the inverter under directly sunshine.
2. It is suggested to install the inverter under shade as shown in Figure3-2 to max. the inverter lifespan and efficiency.
3. For easy viewing and operating the inverter please consider the visibility of the indicators and LCD during installation.

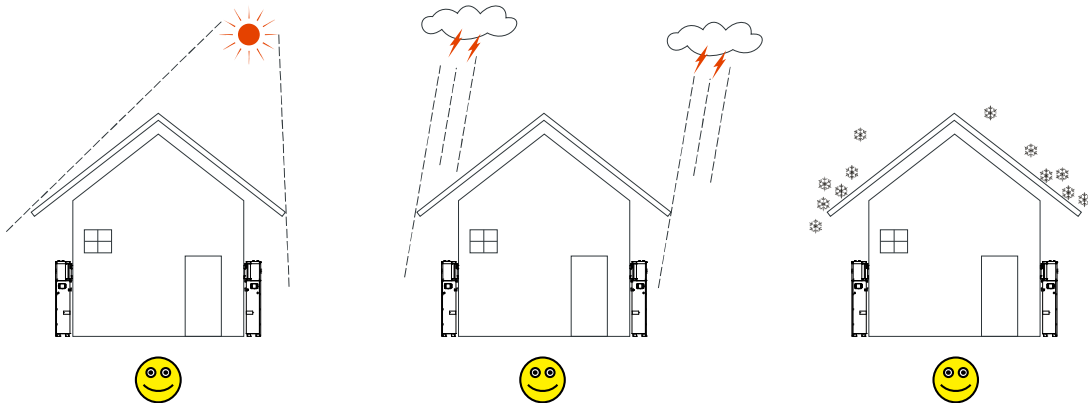


Figure3-2 Recommended installation site

3.2.3 Installation Space

Keep at least 300mm from the left and right side of the device to other objects, keep at least 300mm from the top of the device to ceiling and keep at least 100mm from front of the device to other objects, which is good for heat dissipation or maintenance, as shown in Figure3-3.

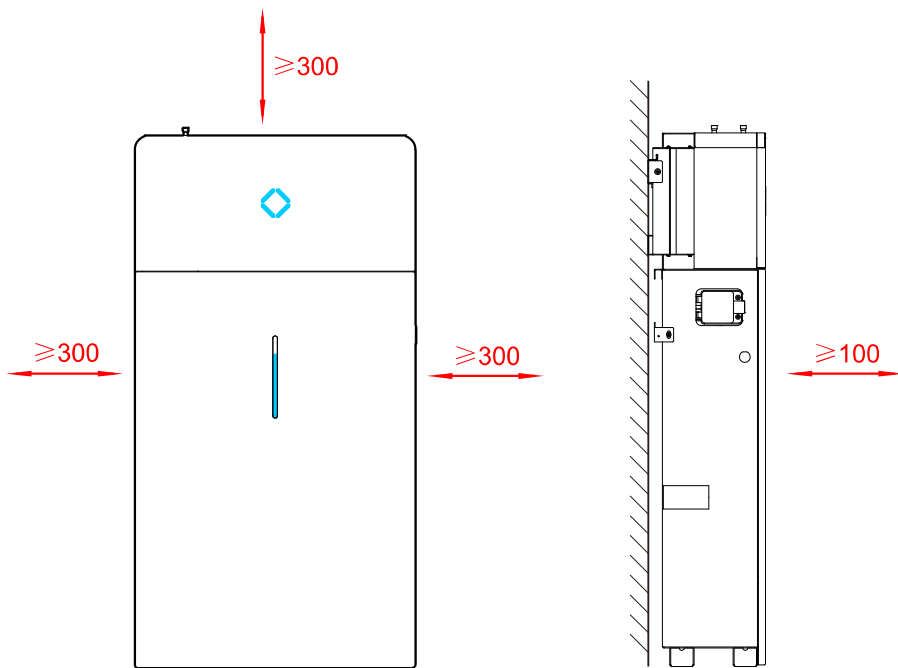


Figure3-3 Installation space (unit: mm)

3.2.4 Installation Way

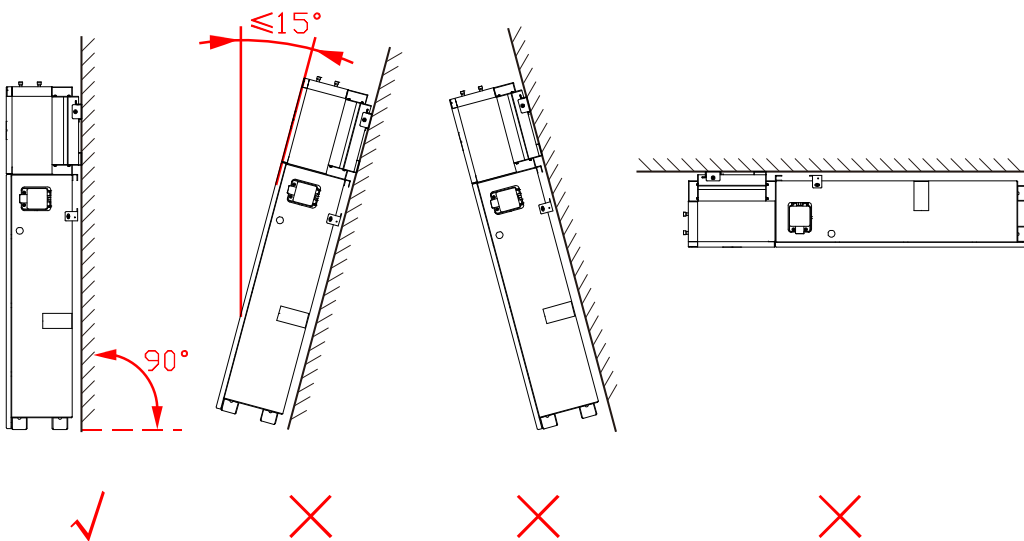


Figure3-4 Installation way

3.3 Transportation and Unpacking

3.3.1 Transportation

The device should be transported by trained professional.

CAUTION

During transporting, please take care and avoid impacting or dropping.

3.3.2 Unpacking and Checking

NOTE

Select the unpacking site in advance. In principle, the unpacking site should be as close to the installation site as possible.

The device has been tested and checked strictly, but it still may be damaged during transporting, so, please check it carefully.

- Inspect the device's appearance, if any shipping damage is found, report it to the carrier and your local dealer immediately.
- Check if the types of the accessories are complete and correct. If there is any discrepancy, take notes and contact the distributor immediately.

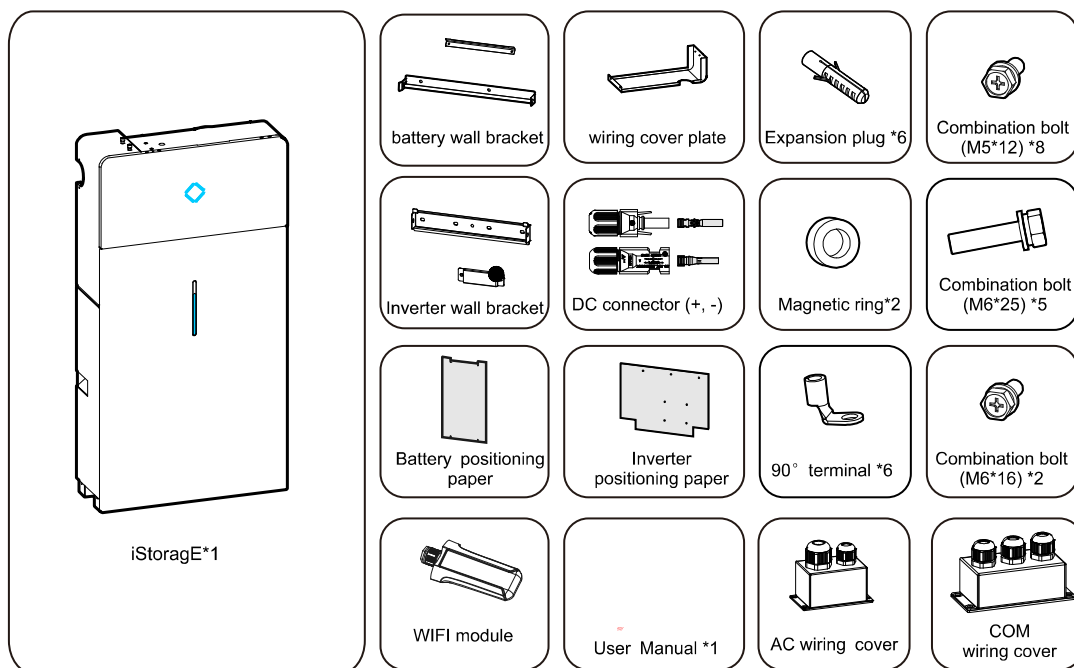


Figure3-5 Packing list

NOTE

1. Smart meter is optional, they are provided according to the contract.
2. The hexagonal wrench is packaged in the AC connector.

! CAUTION

If the inverter needs to be stored for a long time after unpacking, it is necessary to pack the inverter by original package and save properly.

If the battery needs to be stored for a long time, it is necessary to take half a year to charge.

3.4 Installation

! WARNING

The battery pack is heavy. There is risk of injury if the battery pack is lifted incorrectly or dropped while being transported or when attaching it to or removing it from the wall bracket.

3.4.1 Single Battery Installation

- Step 1 Lift the battery pack using the handles at the two sides, place it to assigned site. Do not put the battery pack upside down on the ground.

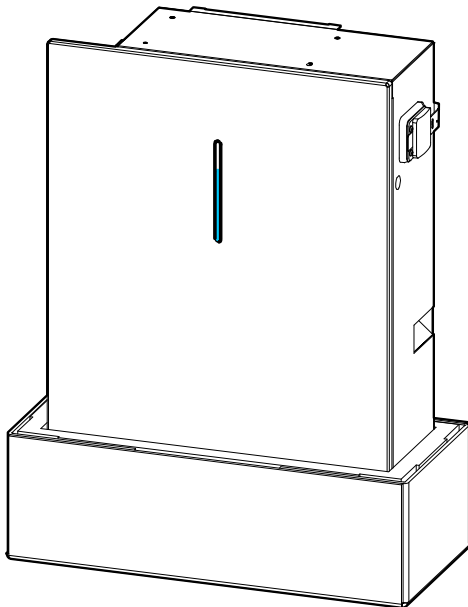


Figure3-6 Lift the battery pack

- Step 2 Determine the installation place based on the battery size (as shown in Figure3-7) and installation space (as shown in 3.2.3 Installation Space).
-

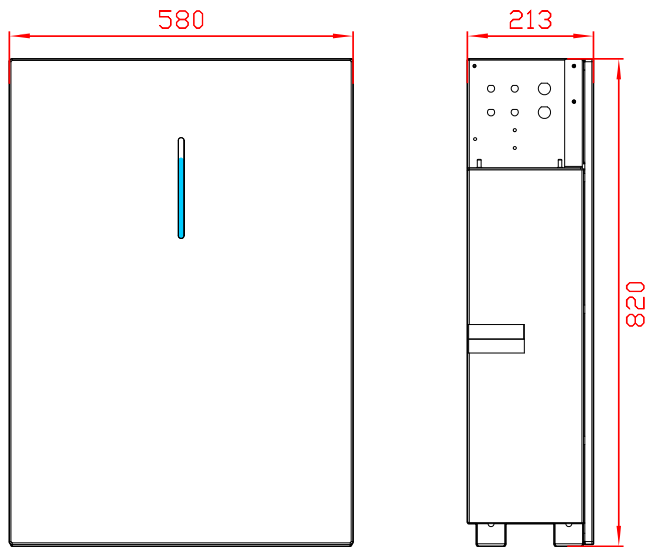


Figure3-7 Size (unit: mm)

- Step 3 Place the battery positioning paper against the wall and the bottom against the floor, and mark the positions of the two drill holes, as shown in Figure3-8.

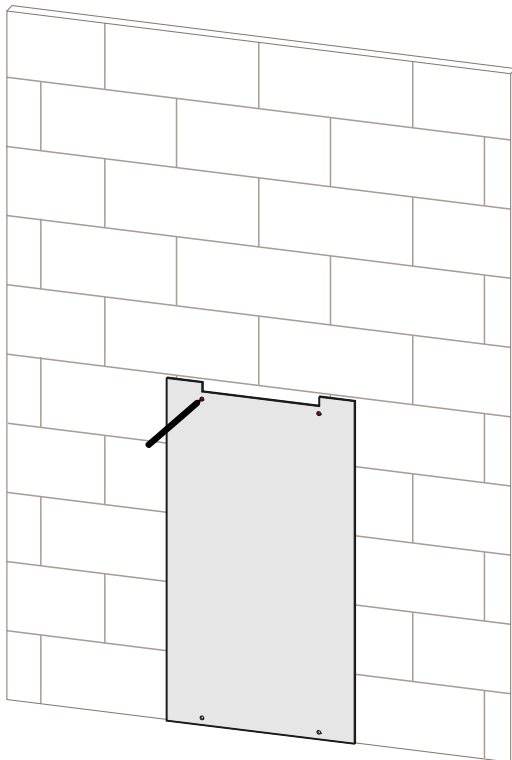


Figure3-8 Mark the battery drilling position

- Step 4 Drill 2 holes on the wall with drill $\Phi 10$, insert 2 screw anchors into the drill holes, as shown in Figure3-9.

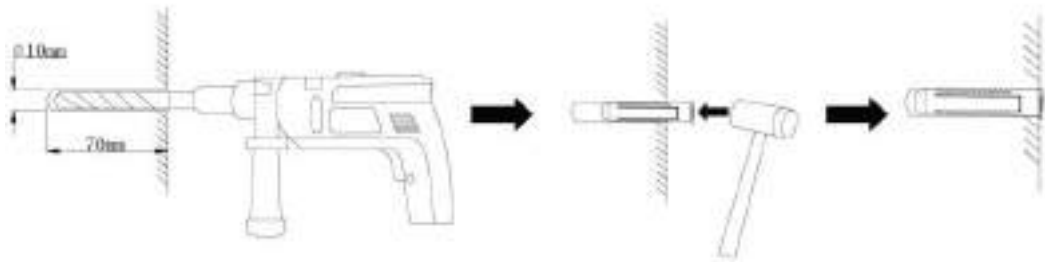


Figure3-9 Insert the screw anchors

Step 5 Attach the battery wall bracket to the wall using the screws with the tool of hexagon sleeve, as shown in Figure3-10.

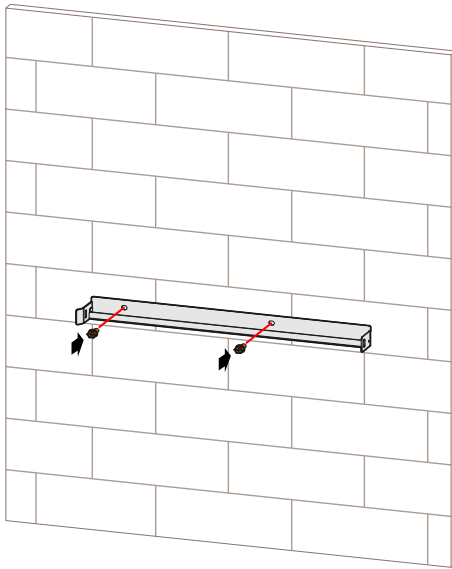
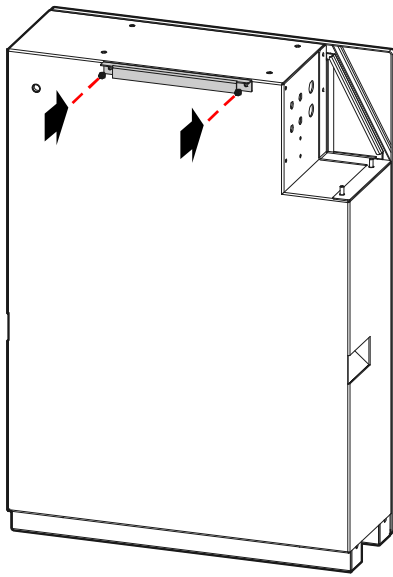


Figure3-10 Install the wall bracket

Step 6 Install the cardboard limit board on the top of the back of the battery pack with screw M5, as shown in Figure3-11.



Rear

Figure3-11 Install the cardboard limit board

Step 7 Place the battery against the wall, align the holes at the battery side to the screw holes of the wall bracket.

Step 8 Tighten the wall bracket and the battery pack with screw M5, as shown in Figure3-12.

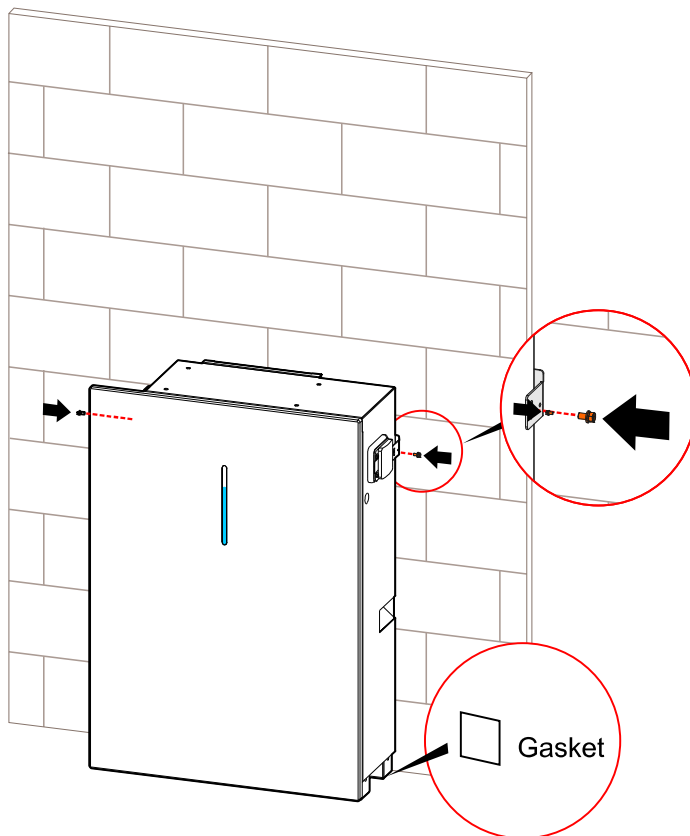


Figure3-12 Tighten the wall bracket

 **NOTE**

If the floor of installation site is uneven, please use floor gaskets to level at the bottom of the battery pack

---End

3.4.2 More Batteries Installation

 **CAUTION**

You can install extra batteries up to 4 batteries in a system.

Please install extra batteries one by one, also batteries can be stacked up to two batteries per column, it is forbidden to stack 3 batteries from top to bottom

Column installation

Install extra batteries one by one, repeat 3.4.1 steps 1~8 and keep the distance between the batteries about 300mm.

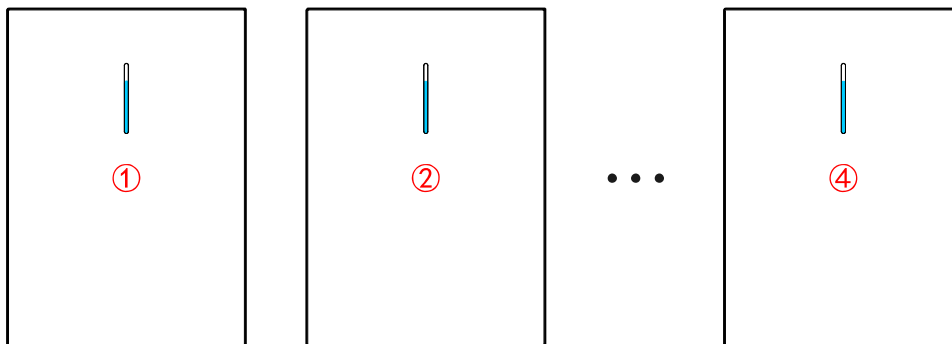


Figure3-13 Distance between the batteries

Stack installation

Step 1 After install the single battery, then lock the screw M6 on top of the below battery pack, as shown in Figure3-14.

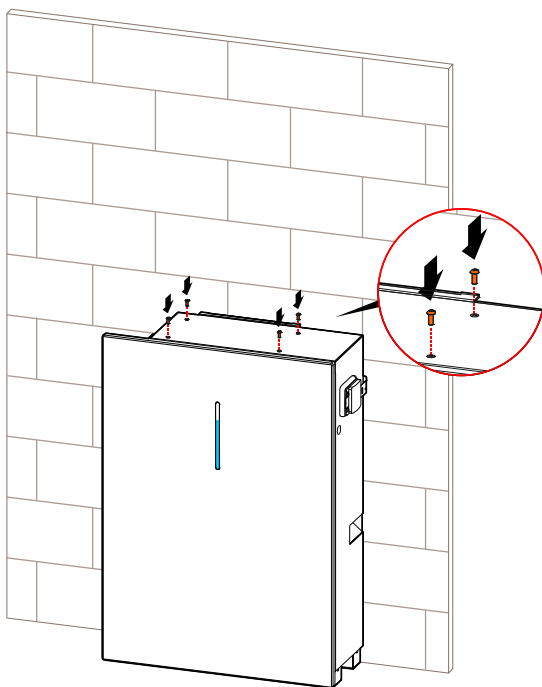


Figure3-14 Lock the screw on top

Step 2 Place the battery positioning paper against the wall and the bottom with notch against the below battery pack. Repeat 3.4.1 Step 1~3.4.1 Step 8.

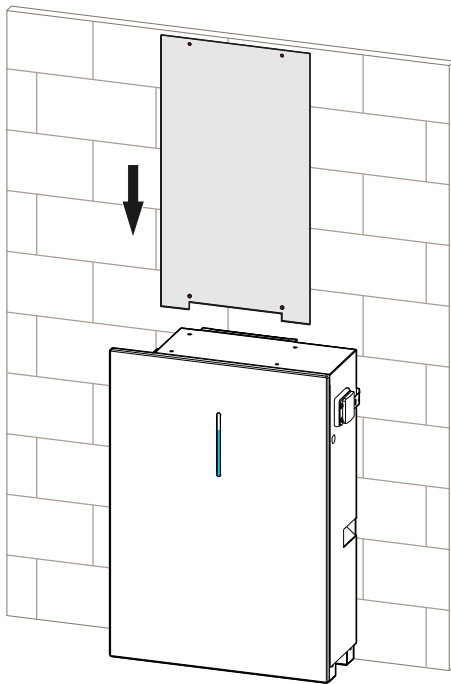


Figure3-15 Place the battery positioning paper

- Step 3 The bottom limit holes of the upper battery pack should match the screw heads on the top of the below battery pack, as shown in Figure3-16.

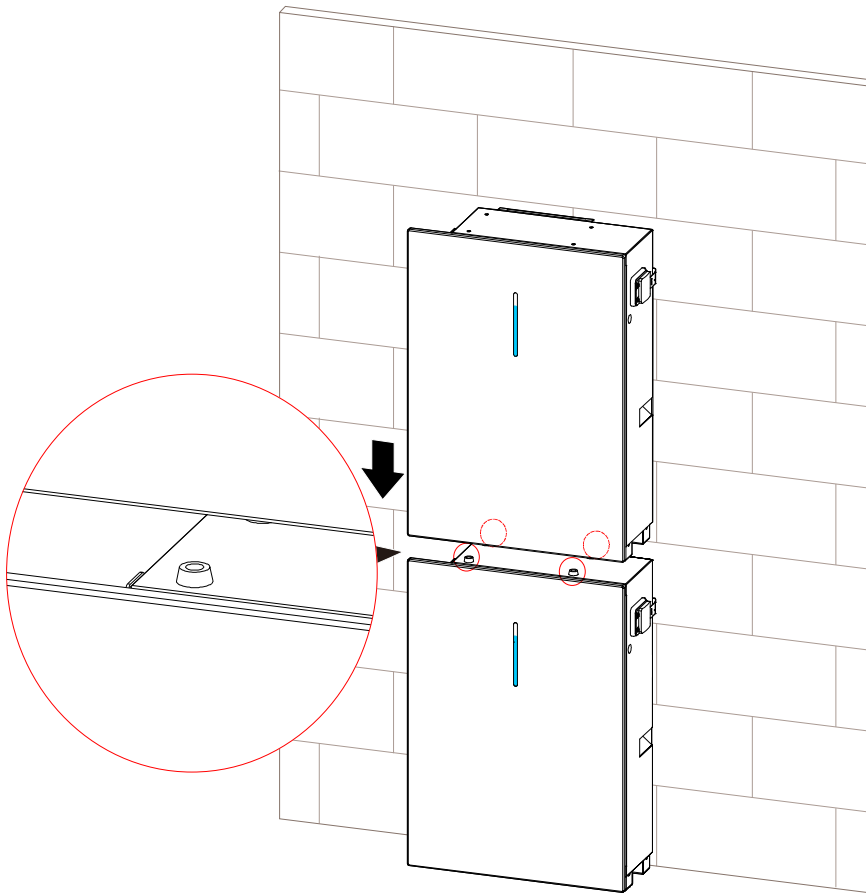


Figure3-16 Install the upper battery

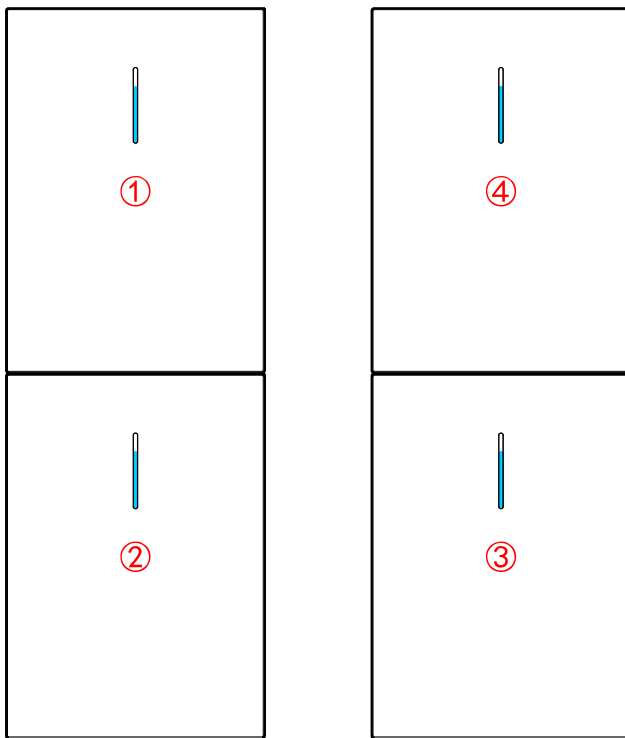


Figure3-17 Mounting more batteries

----End

3.4.3 Inverter Installation

- Step 1 Align the bottom of the inverter's positioning paper with the notch of the battery top, mark the positions of the drill holes on the paper plate.

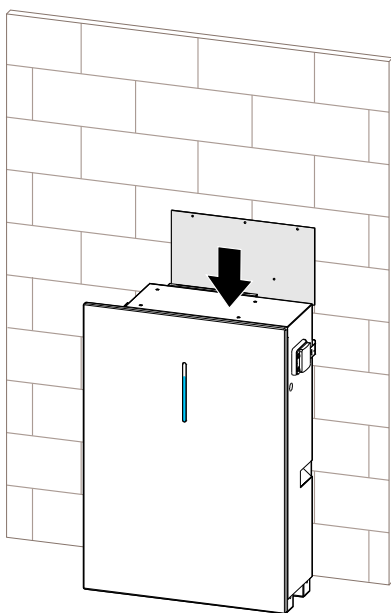


Figure3-18 Place the inverter positioning paper

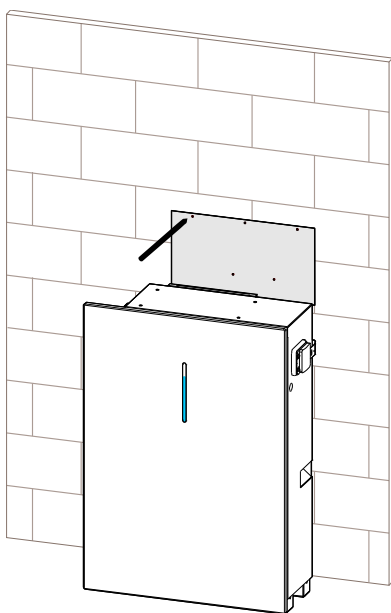


Figure3-19 Mark the inverter drilling position

- Step 2 Cover the top of the battery with plastic bag and drill 5 holes on the wall with drill $\Phi 10$, insert 5 screw anchors into the drill holes.

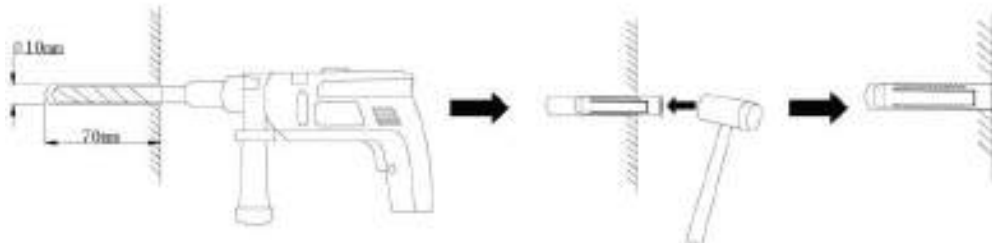


Figure3-20 Insert the screw anchors

- Step 3 Attach the wall bracket to the wall using the screws with the tool of hexagon sleeve, as shown in Figure3-21.

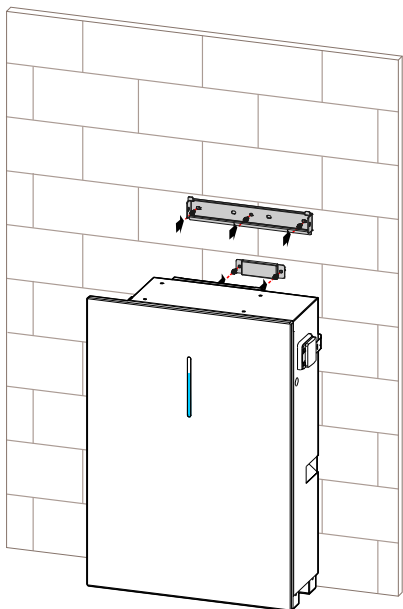


Figure3-21 Install expansion plugs

- Step 4 Hold the inverter using the handles at two sides, attach the inverter onto the wall bracket tilted slightly downwards.
- Step 5 Tighten the wall bracket and the inverter with screw M6.

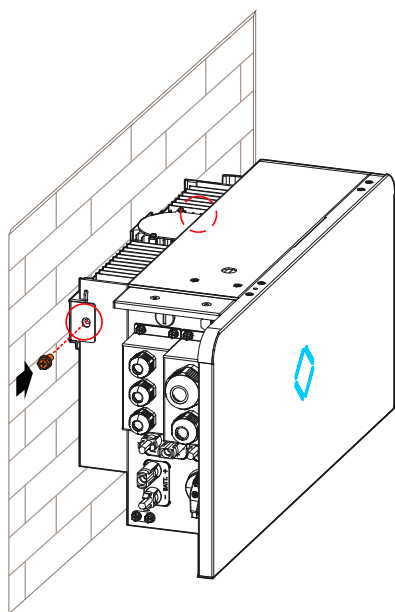


Figure3-22 Tighten the inverter

---End

3.5 Electrical Connection

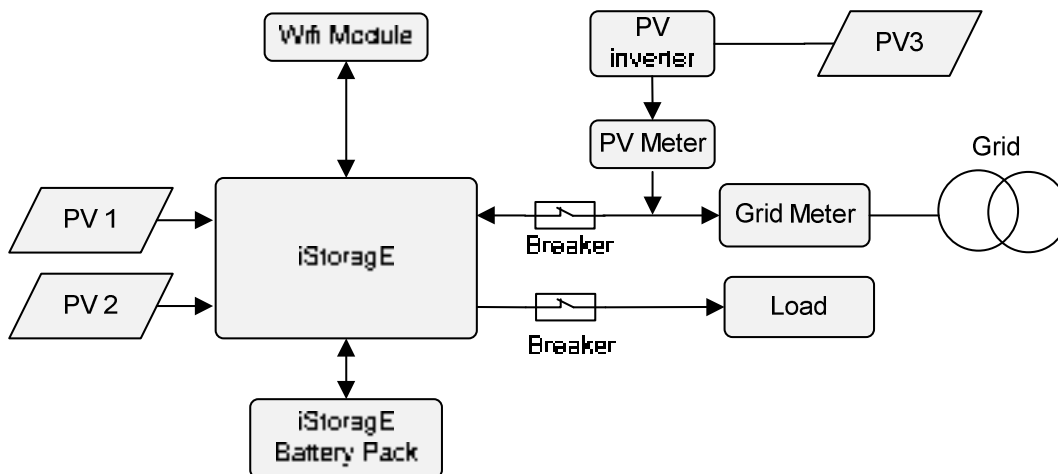


Figure3-23 Electrical Connection

3.5.1 Wire Requirement

The wiring is at the left side of the inverter, as shown in Figure2-8and Table2-3. The corresponding recommended wire specification as shown in Table3-1.

Table3-1 Recommended wire specification

No.	Cable	Type	Cross-sectional area	Outer Diameter	Source
1	Battery power cable	Standard PV cable in the industry (recommended type: PV1-F)	6 ~10 mm ²	N/A	Delivered with the battery pack
2	Battery communication cable	Standard network cable in the industry (recommended type: Cat5e, UTP, UV-resistant for outdoor use)	0.12 ~0.2 mm ² (AWG26~AWG24)	N/A	Delivered with the battery pack
3 ^{*1}	Signal cable	Standard network cable in the industry (recommended type: Cat5e, FTP, UV-resistant for outdoor use)	0.12~ 0.2mm ² (AWG26~AWG24)	N/A	Delivered with the inverter
4	PV power cable	Standard PV cable in the industry (recommended type: PV1-F)	4 mm ²	5.5 ~ 9 mm	Purchased by the installer
5 ^{*2}	Signal cable	Standard network cable in the industry (recommended type:	0.12 ~0.2 mm ² (AWG26~AWG24)	4 ~ 6 mm	Purchased by the installer

No.	Cable	Type	Cross-sectional area	Outer Diameter	Source
		Cat5e, FTP, UV-resistant for outdoor use)			
6 ^{※3}	Signal cable	Multiple-core outdoor shielded twisted pair cable	0.1 ~1.3 mm ²	4 ~ 6 mm	Purchased by the installer
7	AC power cable	Three-core (L, N and PE) outdoor copper cable	4 ~6 mm ²	12.6-13.9 mm	Purchased by the installer
8	PE cable	Single-core outdoor copper cable	4 ~10 mm ²	N/A	Purchased by the installer

 **NOTE**

- ※1 For CT communication connection with inverter.
- ※2 For CAN/RS485, LAN, Meter, DRM communication connection with inverter.
- ※3 For AUX communication connection with inverter

3.5.2 External Grounding Connection

The external grounding terminal is as shown in the ⑦ of Figure 2-8.

 **WARNING**

The external grounding wire cannot replace the PE wire of AC output terminal, they must be connected with ground reliably.

- Step 1 Strip the insulation layer of grounding wire for about 7mm, insert the wire into OT terminal and crimp them by crimping tool, the as shown in Figure 3-24.

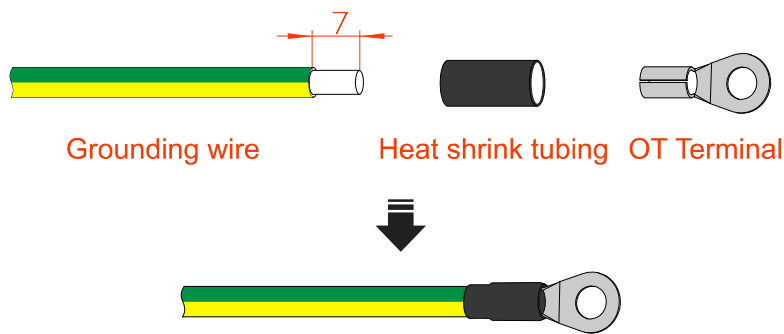


Figure3-24 Stripping diagram of external grounding wire (unit: mm)

Step 2 Connect the crimped grounding wire to the external grounding terminal, as shown in Figure3-25.

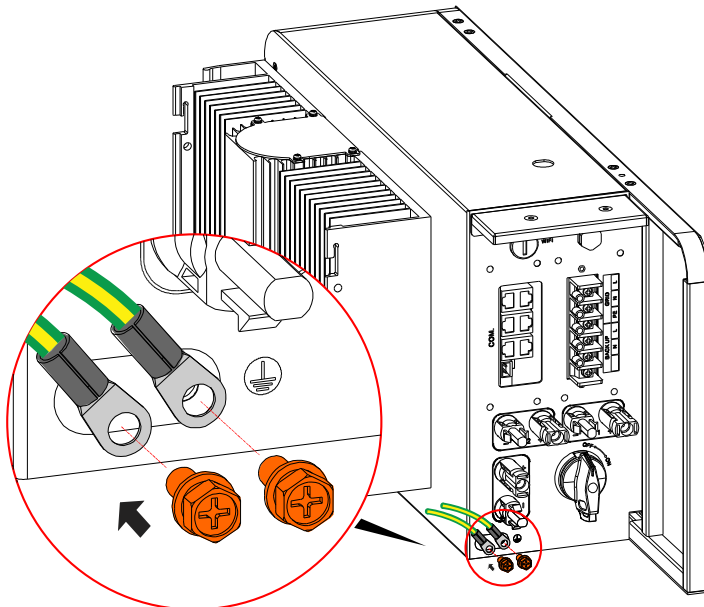


Figure3-25 External grounding wire connection

---End

3.5.3 DC Input (PV) Connection



- When installation, it must use the equipped DC terminals to avoid inverter damage.
- It is recommended to use independent switch for each PV input, and before connecting, the switches must be off. We suggest to use the special DC switch (rated voltage is 600V, rated current is more than 20A).

- Switch off the DC switch and external DC switches before connecting the PV array.
- Ensure that the connection between PV array and the inverter at positive pole and negative pole is correctly.
- The DC input voltage should be less than the max. input voltage of the inverter.
- It's forbidden to connect the grounding wire with positive pole or negative pole of PV array, or it will lead to inverter damage.

Use the equipped PV connector and metal terminal to connect the PV input. The PV connector includes positive connector and negative connector, they match the corresponding positive metal terminal and negative terminal, corresponding procedure as follows.

Step 1 Strip the insulation layer of positive wire and negative wire for about 7mm, as shown in Figure3-26.



Figure3-26 Stripping diagram of DC input (unit: mm)

 **NOTE**

It is recommended to use red wire as the positive wire, use black wire as negative wire to avoid wrong connection. If using the wires of other colour, please confirm the corresponding connection relationship.

Step 2 Unscrew the lock nut of positive and negative connection, lead the positive and negative wires go through corresponding lock nut, and then insert the positive wire and negative wire into the positive metal terminal and negative metal terminal respectively. Crimp the metal terminals firmly by crimping pliers, as shown in Figure3-27.

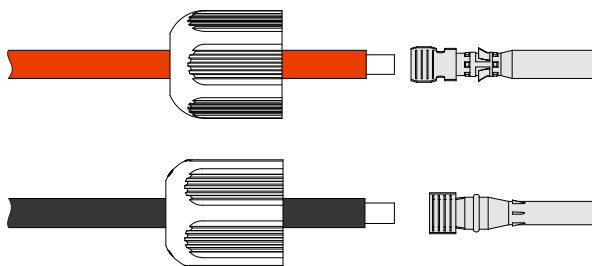


Figure3-27 Crimp the metal terminal

Step 3 Insert the positive wire and negative wire into corresponding insulation crust respectively. If there has a click sound, it means that the wire have been inserted properly, as shown in Figure3-28.

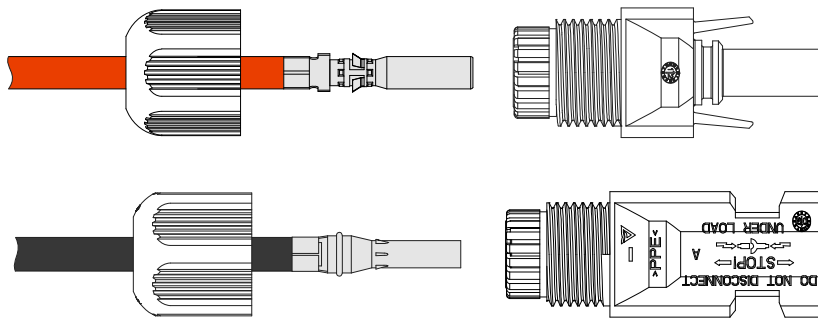


Figure3-28 Fasten the metal terminal

- Step 4 Tighten the sealing nuts of positive connector and negative connector to the corresponding insulation crusts respectively, as shown in Figure3-29.

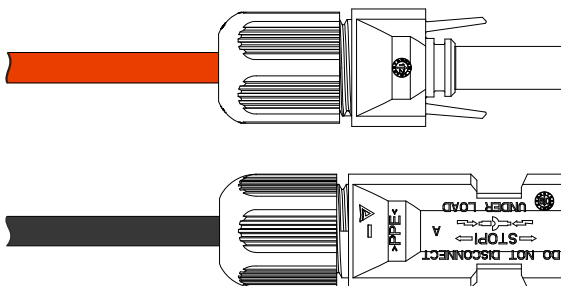


Figure3-29 Tighten the sealing nuts

- Step 5 Measure the voltage and check if the positive and negative is connected properly and if the voltage within the input range of the inverter.
- Step 6 Insert the positive connector and negative connector to the PV + and PV – terminals (as shown in Figure3-31) and tighten them. If there has a click sound, it means that the connector have been inserted properly.

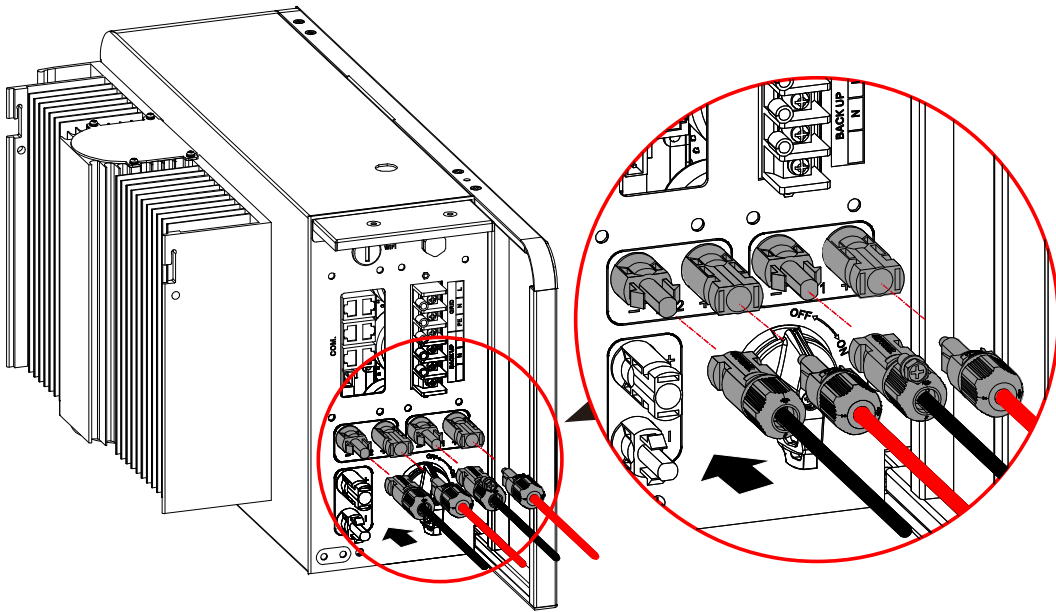


Figure3-30 Connect the PV connector

----End

3.5.4 Battery Connection

Battery power connection

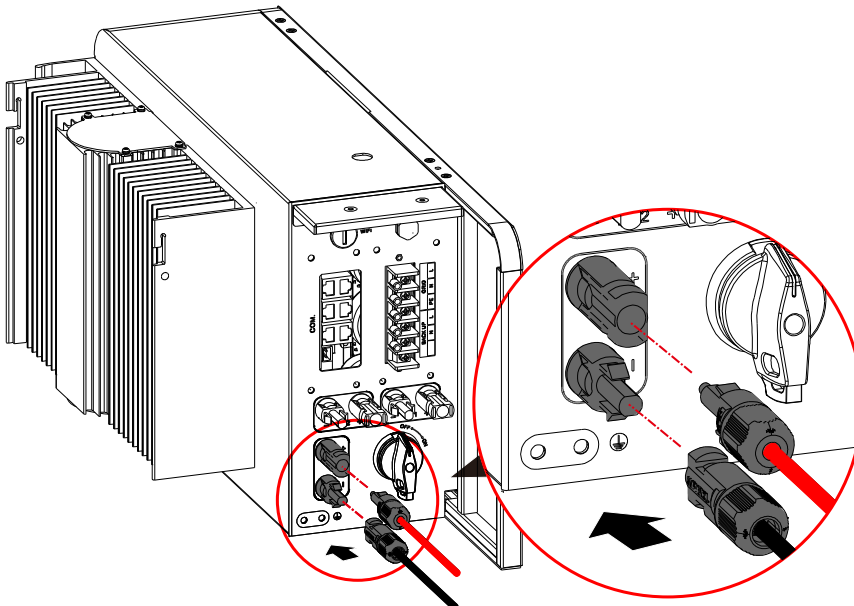


Figure3-31 Connect the BATconnector

Battery pack expansion

Step 1 Connect the power cables and BMS communication from battery 2 to battery 1.

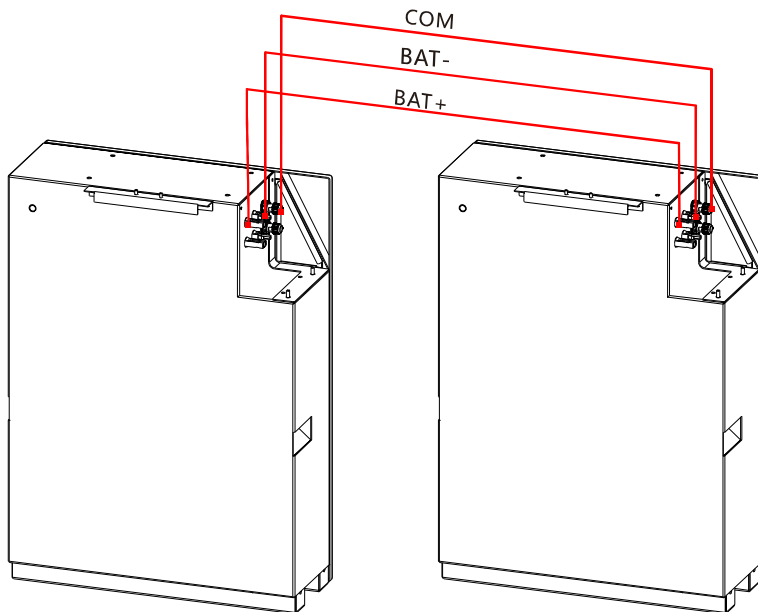


Figure3-32 Install extra batteries one by one, without stack

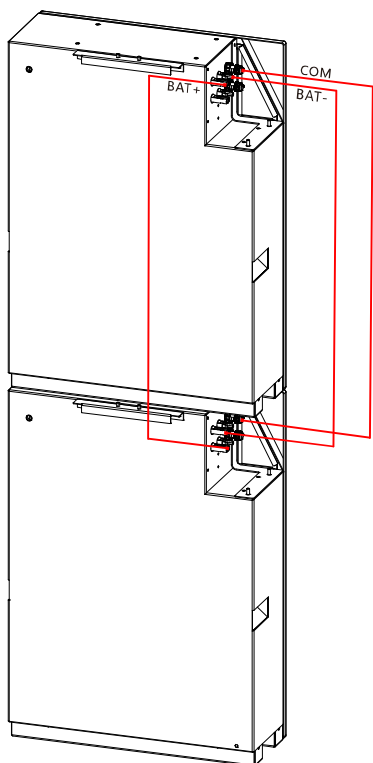


Figure3-33 Batteries installed with stack

3.5.5 AC Output (GRID) Connection



It's forbidden that several inverters shares an AC switch.

It's forbidden to connect with load between inverter and AC switch.

To ensure the inverter can be disconnected with load safely, we suggest equipping independent dipolar switch for each inverter to protect the inverter.

Table3-2 Recommended AC switch specification

Model	AC input specification (GRID)	AC output specification (BACKUP)
PSSi3600W#580VK	$\geq 35A$	$\geq 18A$
PSSi5000W#580VK	$\geq 50A$	$\geq 25A$
PSSi6000W#580VK	$\geq 60A$	$\geq 30A$

⚠ CAUTION

During wiring, please pay attention to distinguish the AC live wire, neutral wire and grounding wire.

Step 2 Strip the insulation layer of AC live wire (L), neutral wire (N) and grounding wire (PE) for about 7mm, as shown in Figure3-34.



Figure3-34 Stripping diagram of AC output (unit: mm)

NOTE

It is recommended to use brown or red wire as the live wire, use blue or white wire as neutral wire and use yellow-green wire as PE wire to avoid wrong connection. If using the wires of other color, please confirm the corresponding connection relationship.

Step 3 Insert the AC wire into the equipped 90° terminal and crimp them by crimping tool, as shown in Figure3-35.

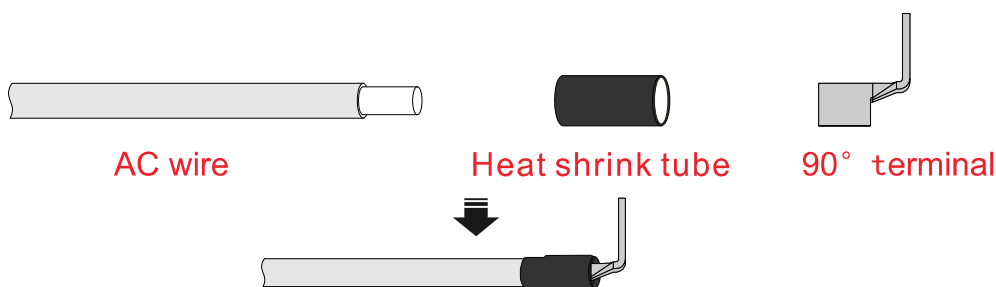


Figure3-35 Stripping diagram of external AC wire (unit: mm)

NOTE

It is recommended to use brown or red wire as the live wire, use blue or white wire as neutral wire and use yellow-green wire as PE wire to avoid wrong connection. If using the wires of other color, please confirm the corresponding connection relationship.

Step 4 Unscrew the lock nut and waterproof of AC connector, lead the live wire, neutral wire and grounding wire go through the lock and crimp them to corresponding port of AC connector.

⚠ CAUTION

There is L, N, PE mark on the AC connector, the wire connection must be accord with the mark correspondingly.

- Step 5 Insert the terminals with different color conductors to the holes of the respective polarity and tighten them one by one using the torque of 2 Nm with tool of crossrecessed screwdriver.

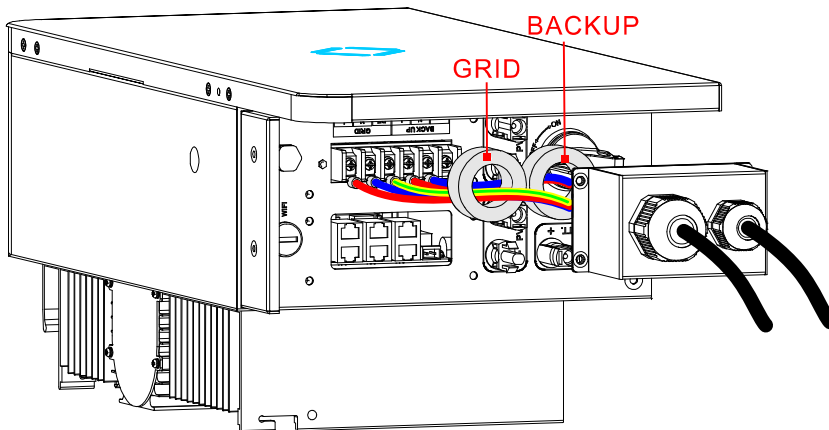


Figure3-36 Insert the terminals

- Step 6 Place the AC connection cover against the inverter housing and tighten them, tighten the pressure caps of the two cable glands by hand.

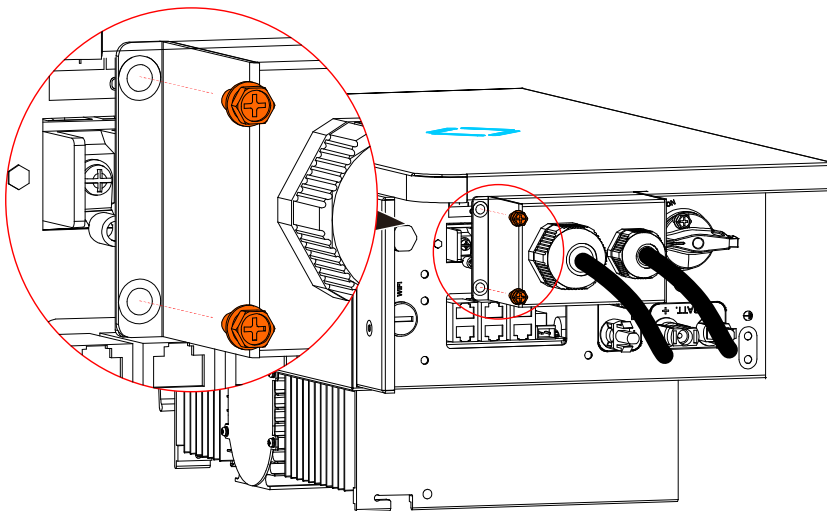


Figure3-37 Place the AC connection

 **CAUTION**

When inserting the AC connector, please pay attention to the gap on the AC connector and make it align the heave on the GRID port, avoid damaging the connector.

---End

3.5.6 WIFI Connection

If the inverter is equipped with WIFI, insert it to the WIFI port (as shown in Figure3-38) to monitor on the internet. The monitor way is as shown inFigure3-38.

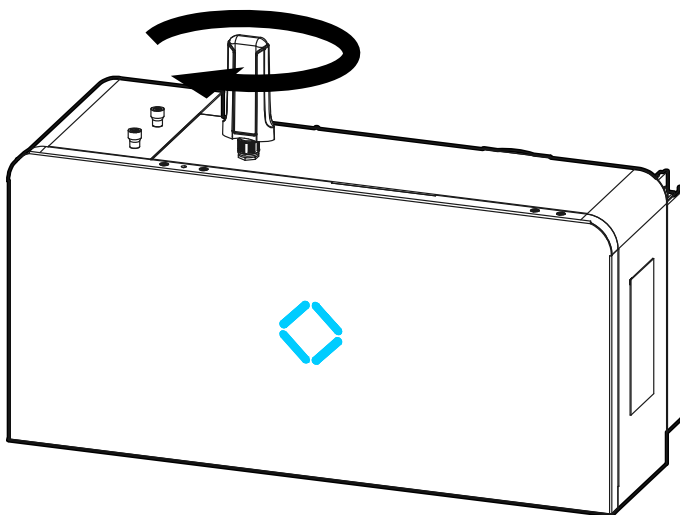


Figure3-38 WIFI communication connection

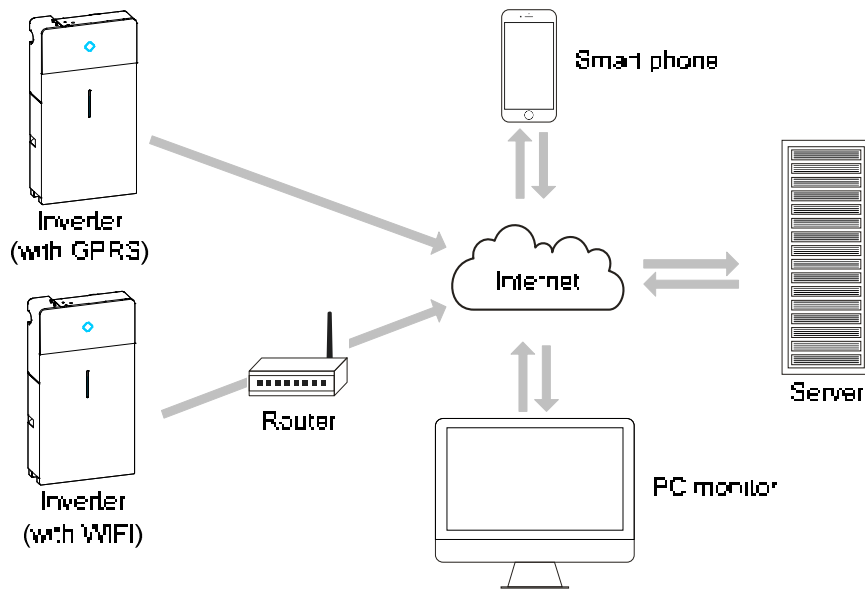


Figure3-39 WIFI monitor way

NOTE

The GPRS do not need to set.

For the use of WIFI, please see the built-in user manual in the packaging of WIFI.

3.5.7 Communication Port Connection (Optional)

COM. port can set to DRM and RS485 communication port, they all adopt RJ45 plug to connect. The pin definition of RJ45 plug is as shown in Figure3-41.

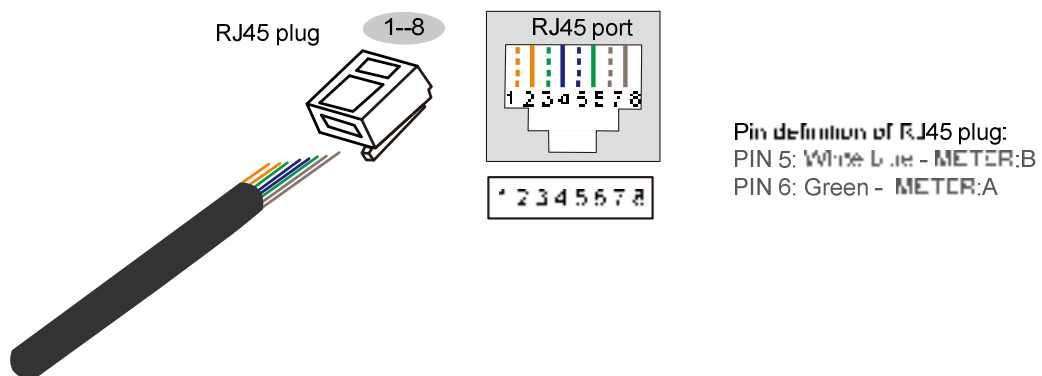


Figure3-40 Meter pin definition of inverter's COM. port

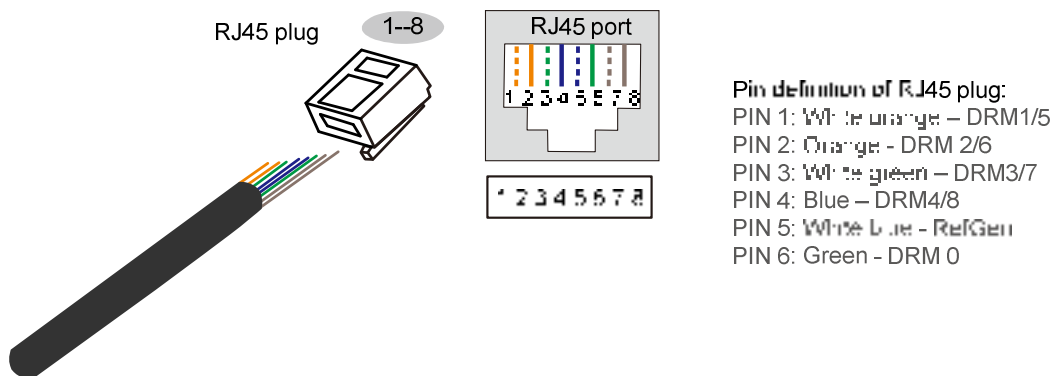


Figure3-41 DRM pin definition of inverter's COM. port

DRM port

DRM is used to connect the DRM controlling device.



When the COM. port set to DRM port, the PIN7 and PIN8 of inverter's RJ45 plug cannot connect wires. The PIN7 and PIN8 of external DRM adapter's RJ45 plug must be short connected together.

RS485 communication port

RS485 communication port is used to communicate with smart meter to achieve anti-countercurrent. The connection between smart meter and inverter and grid is as shown in **错误！不能识别的开关参数。**

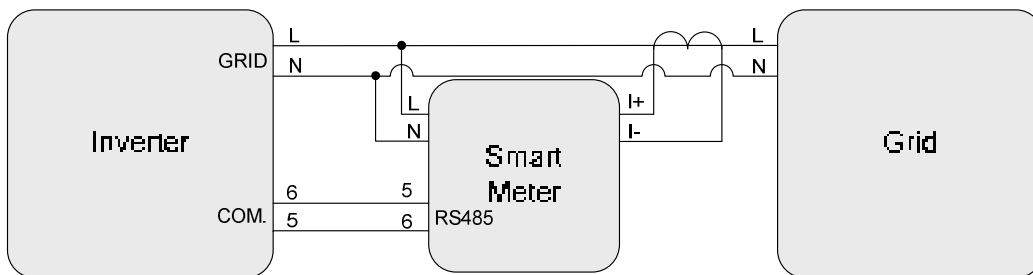


Figure3-42 Connection diagram between communication smart meter and inverter and grid

- When using the anti-countercurrent function, the following setting must be done:
 - Set the anti-countercurrent enable in "System Setting-General Setting-I/O set" to open;

- Set the anti-countercurrent power in "System Setting-General Setting-Engineer set" according to the actual use (the setting value of anti-countercurrent power is percentage, it is corrected by rated power. For example, when the rated power of the inverter is 5kW, if the anti-countercurrent power set to 30%, the set Smart feed-in control power is 1.5kW).
- The pin illustration of smart meter is as shown in Table3-3.

Table3-3 Pin illustration of smart meter

Pin	Illustration
L	Connect to phase-L of GRID port in the inverter and phase-L of grid input.
N	Connect to phase-N of GRID port in the inverter and phase-N of grid input.
I+	Connect to I+ port of current transformer in the meter.
I-	Connect to I- port of current transformer in the meter.
5	RS485: A. Connect to RJ45's pin6 of COM. port in the inverter.
6	RS485: B. Connect to RJ45's pin5 of COM. port in the inverter.

- The setting of the smart meter address is as shown in Figure3-43.
 - If the meter used in the PV inverter grid side, address is set to A-001.
 - If the meter used in the PV energy storage inverter grid side, address is set to A-002.

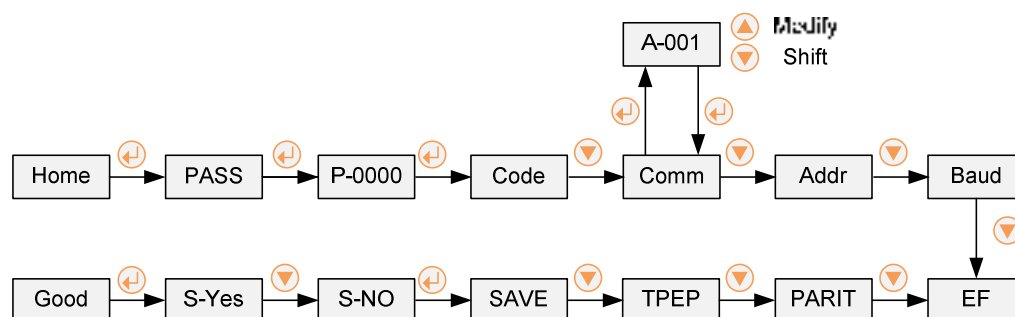


Figure3-43 The setting of the smart meter address

The communication procedure of COM. port is as follows.

- Step 1 Screw the waterproof cover on the COM. port, insert the RJ45 port to the COM. Port (as shown in Figure3-44) and screw it.

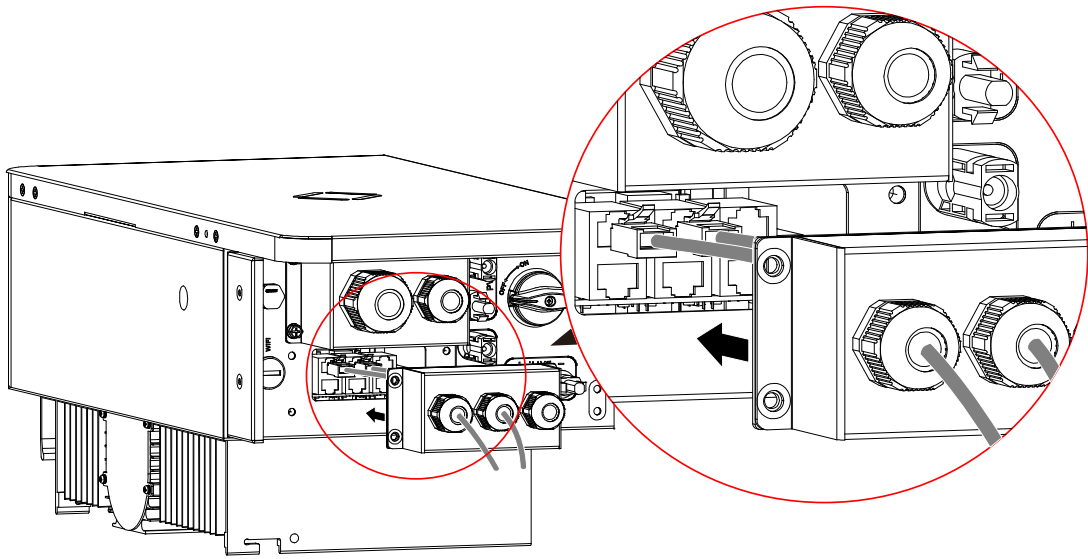


Figure3-44 Insert the communication port

Step 2 lock the screw M4 on wiring cover plate, as shown in Figure3-45.

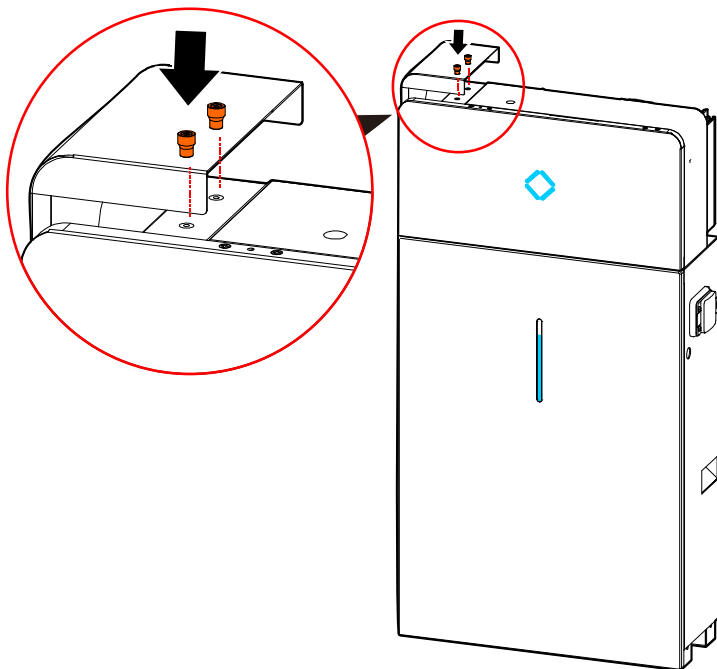


Figure3-45 Tighten the wiring cover plate

Step 3 If the left and right sides of the inverter and battery are slightly uneven, the gasket can be used to correct.

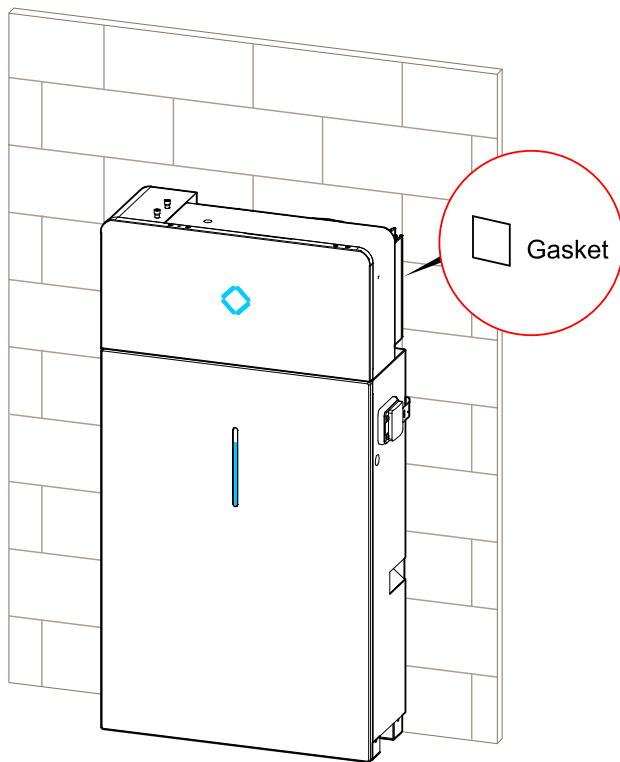


Figure3-46 Pad the gasket

---End

3.6 Check the Installation

After installation, check the following items:

- Check if the connection of DC input, AC output and communication wire are right.
- Check if the inverter is installed firmly.
- Check if all the screws of wiring are tightened.

4 APP Operation

This chapter introduces the operation of APP.

4.1 First Startup

Step 1 Login the following website to download the APP and do WIFI configuration.

- Download APP

APPSTORE; <https://apps.apple.com/cn/app/wisesolar-plus/id1510470362>

GOOGLE PLAY <https://play.google.com/store/apps/details?id=>

- WIFI configuration

Step 2 After registering and logging in, you can view the main page, as shown in Figure4-1.



Figure4-1 Home interface

Step 3 Click the plant to enter the Plant details interface, as shown in Figure4-2.



Figure4-2 Plant details interface

Step 4 After that click the "device list" button to enter the device list interface, as shown in Figure4-3.



Figure4-3 Device list

4.2 Inverter Information Query

Step 1 After performing the above steps, click corresponding SN to view the inverter information.



Figure4-4 Inverter information interface

Step 2 Pull-down the interface and click the "More" button to see more information, such as PV information, BAT information, INV information and Grid information.



Figure4-5 Inverter information interface

4.2.1 Running Information

PV information

In the PV information item , you can view PV voltage, PV current and PV power, etc. as shown in Figure4-6.



Figure4-6 PV information

Battery Information

In the battery information item, you can view battery voltage, battery current, battery power, etc. as shown in Figure4-7.

Running Information	
Battery information	
Battery voltage(V)	0.0
Battery current(A)	0
Battery soc(%)	0
7 day battery charged(kWh)	73
7 day battery discharge(kWh)	22
Battery SOC(%)	0
Min. cell voltage(V)	0
Min. cell voltage(V)	0
BMS battery voltage(V)	0
BMS battery current(A)	0
BMS charge limit current(A)	0
BMS discharge limit current(A)	0
BMS charge limit voltage(V)	0
BMS discharge limit voltage(V)	0
Max. BMS charge power(W)	0

Figure4-7 Battery information

Inverter information

In the inverter information item, you can view total grid-tied energy, grid current, grid side load voltage, etc. as shown in Figure4-8.



Figure4-8 Inverter information

Grid information

In the running information item, you can view load voltage, load current, grid-tied apparent power , etc. as shown in Figure4-9.

The screenshot shows a mobile application interface titled 'inverter information'. Under the 'Running Information' section, there is a list of 17 metrics with their corresponding values:

Grid voltage(V)	228.1
Grid current(A)	0.8
Grid feed apparent power(W)	229
Grid feed active power(W)	329
Grid feed reactive power(W)	33
Grid feed max. power(W)	33
Grid feed apparent power(W)	0
Grid feed active power(W)	0
Grid feed reactive power(W)	0
Grid voltage compensation voltage(V)	39
Grid reactive power(W)	-29
Grid apparent power(W)	-14
PF	0.99
Grid frequency(Hz)	49.0
Grid frequency(Hz)	49.9
Voltage DC component(V)	-27.3
Current DC component(A)	-1.9

Figure4-9 Grid information

4.2.2 Status Information

In the status information item , you can view battery information and device information, as shown in Figure4-10.



Figure4-10 Status information

4.3 Control Interface

Click the "Control" button in the inverter information interface to enter the control interface, as shown in Figure 4-11.



Figure 4-11 Inverter information

The control interface contains basic parameter setting, system setting, battery related setting, grid related setting, charge and discharge setting, peak period setting and external control period setting.

Basic parameter setting

Basic parameter setting contains ON/OFF setting, mode setting BMS communication setting.



Figure4-12 Basic parameter setting

System setting

In the system setting item, you can set system time.



Figure4-13 System setting

Battery related setting

In the battery related setting item, you can set battery charge and discharge power.

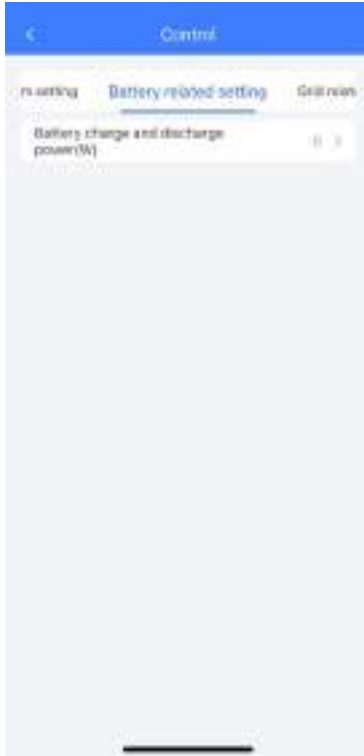


Figure4-14 Battery related setting

Grid related setting

In the grid related setting item, you can set grid mode including P-V mode, Q-V mode, SPH mode and schedule mode. As shown inFigure4-15.

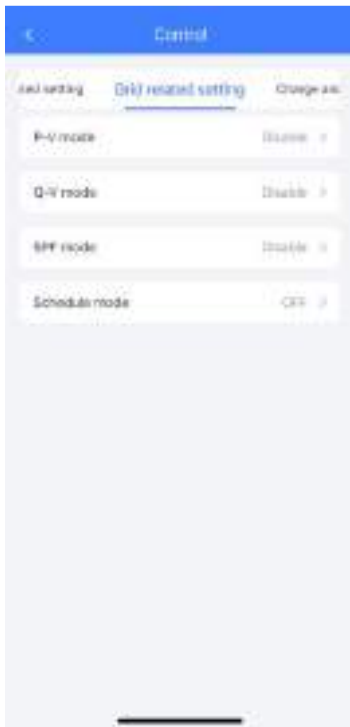


Figure4-15 Grid related setting

Charge and discharge setting



Figure4-16 Charge and discharge

Peak period setting



Figure4-17 Peak period setting

External control period setting



Figure4-18 External control period setting

5 Startup and Shutdown

This chapter introduces how to start and shut down the device.

5.1 Startup

- Step 1 Check whether the PV, battery and grid wiring correct.
- Step 2 Switch on the PV DC switch and BAT DC switch. the LED will be on;
- Step 3 Before start the inverter, you should set the inverter function via APP,
- Step 4 When the DC and AC supply power normally, the inverter will prepare to start. At first, the inverter will check the inner parameters and AC grid parameters, if they are in the normal range, 60s later, the inverter will check the insulation impedance.
- Step 5 About 60s, the inverter will generate power normally. LED id always on;
- Step 6 working status can be queried on the APP

---End

5.2 Shutdown

- Step 1 Powering off the inverter on the APP.
- Step 2 Switch off all switches.
- Step 3 Wait for all indicators off.

---End

6 Maintenance and Troubleshooting

This chapter mainly introduces the maintenance and troubleshooting for device.

6.1 Maintenance

The inverter needn't to be maintained regularly, but the sundries or dust may influence the heat dissipation performance, so, use soft brush to clean the inverter. If the surface of LCD and LED indicator is too dirty to read, use a wet cloth to clean them.



During running, do not touch the inverter. The temperature of some parts on the inverter is too high, and may cause scald injury. After shut down the inverter and wait until it cooling down, then do the maintenance and clean.



Do not clean the inverter with any solvent, abrasive material or corrosive material.

6.2 Troubleshooting

The inverter is designed on the basis of the grid-connected operation standards and meets the requirements of safety and EMC. Before provided to client, the inverter has been experienced for several rigorous tests to ensure reliable and optimizing operation.

If some faults occur, the display screen will show the corresponding alarm information. Under the circumstances, the inverter may stop power generation. The troubleshooting is as shown in Table6-1.

Table6-1 Troubleshooting

Fault type	Check item	Fault description	Solution
Alarm1	Bus over-voltage	Bus voltage is too high.	<p>1.Check whether the input voltage of PV1 and PV2 exceed 550v.</p> <p>2.If not,restart the inverter to see if the fault still exists. If it still exists, contact service.</p>
	Auxiliary power supply abnormal	Battery control system voltage abnormal.	Restart the inverter to see if the fault still exists. If it still exists, contact service.
	Insulation fault	DC side - ground impedance is too low.	<p>1.If the power on time fails in the morning, it may be caused by wet weather.</p> <p>2.Use a multimeter to test the impedance of the ground to the housing. If the impedance is not close to 0, confirm that there is a connection problem between the ground wire and the housing.</p> <p>3.Test the impedance of ground to PV+ / PV- / BAT+ / BAT- with a multimeter. If the impedance is less than 25K ohms, check whether the connection of each port is correct.</p> <p>4.Confirm to install the inverter according to the manual.</p> <p>5.Restart the inverter to see if the fault still exists. If it still exists, contact customer service.</p>
	Residual current protection	Residual current exceed allow rage	Restart the inverter to see if the fault still exists. If it still exists, contact customer service.
	Residual current hall fault	residual current detection sensor	Restart the inverter to see if the fault still exists. If it still exists, contact customer

Fault type	Check item	Fault description	Solution
		abnormal	service.
	Relay fault	Grid-tied relay/bypass relay/grid-off relay abnormal	1. Confirm to install the inverter according to the manual. 2. Restart the inverter to see if the fault still exists. If it still exists, contact service.
	Neutral-to-ground fault	When off-grid, neutral-to-ground wire is disconnected.	1. Check whether neutral-to-ground wire of off-grid side is short-circuited with a multimeter. 2. Restart the inverter to see if the fault still exists. If it still exists, contact customer service.
	Inner Over-temperature	Ambient temperature is too high.	1. Try to lower the ambient temperature. 2. Make sure that the inverter is installed according to the manual and there is no shelter around the inverter. 3. After the inverter is powered off and waiting for 30 minutes, then restart it. If the fault still exists, contact service.
	Inner communication fault (DSP)	Inner communication abnormal	1. After waiting for a while, check whether fault will recover. 2. Restart the inverter to see if the fault still exists. If it still exists, contact customer service.
	Store fault (DSP)	Inner storage abnormal	1. After waiting for a while, check whether fault will recover. 2. Restart the inverter to see if the fault still exists. If it still exists, contact customer service.
Alarm2	PV1 reverse	PV1 input reversed	Check whether PV1 wiring is reversed.

Fault type	Check item	Fault description	Solution
	connected		
	PV1 over-voltage	PV1 software current exceed allow value	Check the PV1 voltage. If it exceeds 585Vdc, reduce the number of PV modules.
	PV1 hardware over-current	PV1 hardware current exceed allow value	1. Try to lower PV power. 2. Restart the inverter to see if the fault still exists. If it still exists, contact customer service.
	PV2 reverse connected	PV2 input reversed	Check whether PV2 wiring is reversed.
	PV2 over-voltage	PV2 software current exceed allow value	Check the PV2 voltage to see if it exceeds 585V, if exceed, reduce the PV array quantity.
	PV2 hardware over-current	PV2 hardware current exceed allow value	1. Try to lower PV power. 2. Restart the inverter to see if the fault still exists. If it still exists, contact customer service.
	MPPT Over-temperature	\	1. Try to lower the ambient temperature. 2. Make sure that the inverter is installed according to the manual and there is no shelter around the inverter. 3. After the inverter is powered off and waiting for 30 minutes, then restart it. If the fault still exists, contact service.
Alarm4	Battery over-voltage protection	The voltage exceeds equalized charge and floating charge 20v	Check whether the actual battery voltage exceeds the battery charging cut-off voltage by more than 20v.
	Battery	Voltage lower than	Check whether the actual battery voltage is

Fault type	Check item	Fault description	Solution
	under-voltage protection	battery cut-off voltage.	lower than the battery discharge cut-off voltage.
	Battery disconnected	Voltage less than 75V	Confirm that the wiring is normal, and check whether the battery voltage sampling value is less than 75V.
	Battery Over-temperature protection	Battery heat sink temperature is too high.	<ol style="list-style-type: none"> 1. Try to lower the ambient temperature. 2. Make sure that the inverter is installed according to the manual and there is no shelter around the inverter. 3. After the inverter is powered off and waiting for 30 minutes, then restart it. If the fault still exists, contact service.
	Battery over-current	Battery charge/discharge current detected on software exceeds allow value	<ol style="list-style-type: none"> 1. Try to reduce the BAT power. 2. Restart the inverter to see if the fault still exists. If it still exists, contact customer service.
	BMS communication fault	Abnormal communication with BMS.	Check whether communication wire between BMS and inverter is loosed.
	Battery inner fault	Shutdown fault from BMS.	Check the fault code position question from BMS on APP.
	Battery reverse connected	Battery wiring abnormal	Check whether positive and negative wiring of battery is abnormal.
Alarm5	Inverter side over-temperature	Inverter heat sink ambient temperature is too high.	<ol style="list-style-type: none"> 1. try to lower the ambient temperature. 2. make sure that the inverter is installed according to the manual and there is no shelter around the inverter. 3. after the inverter is powered off and waiting for 30 minutes, then restart it. If the




Fault type	Check item	Fault description	Solution
			fault still exists, contact service.
	Inverter voltage abnormal	Output voltage abnormal	Check whether voltage and load of grid is abnormal
	Short-circuit protection	When off-grid, the output is short-circuited	1. Use a multimeter to test the impedance of the off grid output. If it is small, check whether the wiring is correct. 2. Restart the inverter to see if the fault still exists. If it still exists, contact service.
	Inverter voltage DC component abnormal	When off-grid, voltage DC component abnormal.	2. Restart the inverter to see if the fault still exists. If it still exists, contact service.
	Inverter current over-current	Inverter current detected on software exceeds the allowable value.	1, Check whether the off grid output terminal is overloaded, short circuited or has impact load. 2, Restart the inverter to see if the fault still exists. If it still exists, contact service.
	Inverter current DC component abnormal	When grid-tied ,current DC component abnormal.	2. Restart the inverter to see if the fault still exists. If it still exists, contact service.
	Overload	Load is too large.	1. Check whether the load exceeds the rated power. 2. Restart the inverter to see if the fault still exists. If it still exists, contact service.
Alarm6	Grid over-voltage	Voltage exceeds the allowable range.	1. check whether grid abnormal 2. check whether grid wiring abnormal。 3. restart the inverter to see if the fault still

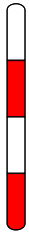





Fault type	Check item	Fault description	Solution
			exists. If it still exists, contact service.
	Grid under-voltage	Voltage exceeds the allowable range.	<ol style="list-style-type: none"> 1.Check whether grid abnormal 2.check whether grid wiring abnormal 3.Restart the inverter to see if the fault still exists. If it still exists, contact service.
	Grid over-frequency	Voltage frequency exceeds the allowable range	<ol style="list-style-type: none"> 1.Check whether grid abnormal 2.Check whether grid wiring abnormal 3.Restart the inverter to see if the fault still exists. If it still exists, contact service.
	Grid under-frequency	Grid frequency exceeds allow range	<ol style="list-style-type: none"> 1.Check whether grid abnormal 2.check whether grid wiring abnormal 3. Restart the inverter to see if the fault still exists. If it still exists, contact service.
	Grid-tied phase lock abnormal	Phase lock abnormal	<ol style="list-style-type: none"> 1.Check whether grid abnormal 2.check whether grid wiring abnormal 3.Restart the inverter to see if the fault still exists. If it still exists, contact service.
Alarm8	Battery over-voltage alarm	Battery voltage is too high.	Check whether the actual battery voltage exceeds the battery charging cut-off voltage 20V.
	Battery under-voltage alarm	Battery voltage is too low.	Check that the actual battery voltage is 10V higher than the battery charging cut-off voltage.
	Overload alarm	When off-grid, the load exceeds rated load.	Check whether the load exceeds 0.95 of the rated power.





Fault type	Check item	Fault description	Solution
	Inner sensor abnormal	Inner temperature sensor sampling abnormal	<ol style="list-style-type: none"> 1. Check whether the ambient temperature is low, if it is low, automatic recovery after operating for a while. 2. Restart the inverter to see if the fault still exists. If it still exists, contact service.
	DRM alarm	Powered off after DRM enabled	Normal, no processing.
	DC power	Load power exceeds DC power	<ol style="list-style-type: none"> 1. Check whether the total power of the battery and PV is less than the load power. 2. Restart the inverter to see if the fault still exists. If it still exists, contact service.
	Fan fault alarm	Fan abnormal.	<ol style="list-style-type: none"> 1. Check whether the fan is blocked 2. Restart the inverter to see if the fault still exists. If it still exists, contact service.
	Battery inner alarm	Alarm instruction from BMS.	Check code position question from BMS on APP.
	Heat sink over-temperature alarm	Temperature is too high to reach the rate drop point.	<ol style="list-style-type: none"> 1. Check whether the environment temperature is too high, try to lower the ambient temperature. 2. Make sure that the inverter is installed according to the manual and there is no shelter around the inverter. 3. After the inverter is powered off and waiting for 30 minutes, then restart it. If the fault still exists, contact service.
	Battery capacity low	SOC is too low	<ol style="list-style-type: none"> 1. Confirm if battery SOC less than the SOC in forced charge status. 2. Charging the battery to see if the fault disappears.

Fault type	Check item	Fault description	Solution
	Smart meter abnormal	Communication failure with the meter	1. Check if the communication wire disconnected. 2. Check meter address and baud rate. 3. Test after exchanging two communication wires.
	Heat sink sensor abnormal	Heat sink sampling is less than -39°	Check the temperature after the product is operating for a while, if the temperature is abnormal, please contact manufacturers.

Table6-2 Battery Error Description

LED Indicator	Error Code	LED display	Description	Troubleshooting
Red LEDs flash once every 1S.	Error 01		Hardware error	Wait for automated recovery. If the problem is not resolved, call for service.
	Error 02		Hardware error	
	Error 03		Hardware error	

LED Indicator	Error Code	LED display	Description	Troubleshooting
	Error 05		Hardware error	
	Error 06		Circuit switch open	Switch on circuit switch after powering off the battery.
	Error 08		LMU disconnect (slave)	Reconnect the BMScommunication cable.
	Error 09		SN missing	Call for service.
	Error 10		LMU disconnect (master)	Reconnect the BMScommunication cable.
	Error 11		Software version inconsistent	Call for service.

LED Indicator	Error Code	LED display	Description	Troubleshooting
	Error 12		Multi master	Restart all batteries.
	Error 13		MOSovertemperature	Power off the battery and power on the battery after 30 minutes.
	Error 14		Insulation fault	Restart battery and in case the problem is not resolved, call for service.
	Error 15		Total voltage fault	Restart battery and in case the problem is not resolved, call for service.

 **CAUTION**

If the inverter has any alarm information mentioned in Table6-1, please shut down the inverter (refer to 5.2 Shutdown), 5 minutes later, restart the inverter (refer to 5.1 Startup). If the alarm status is not removed, please contact our local dealer or service centre. Before contacting us, please prepare the following information.

1. Inverter S/N.
2. Distributor/ dealer of the inverter (if has).
3. The date of grid-connected power generation.

4. Problem description (that is the alarm information displayed on the display screen and the status of indicators and other information obtained from information menu (refer to 4.3.3 Record Query).
 5. Your detail contact information.
-

7 Package, Transportation and Storage

This chapter introduces the package, transportation and storage of device.

7.1 Package

The device is packaged by carton. When packaging, pay attention to the placing direction requirements. On the side of the carton, there has warning icons, including keep dry, handle with care, up, stacking layer limit, etc. On the other side of the carton, it prints the device model, etc. On the front side of the carton, there is the logo of The company and device name.

7.2 Transportation

During transporting, pay attention to the warnings on the carton. DO NOT make the device impact severely. To avoid damaging the device, place the device strictly according to the placement direction. DO NOT carry the device with the objects that is inflammable, explosive, or corrosive. DO NOT put the device in the open-air while midway transshipment. Leaching or mechanical damage by rain, snow or liquid objects is prohibited.

7.3 Storage

During storage, place the device strictly according to the direction that showed on the carton. Keep at least 20cm from the bottom of the carton to floor and keep at least 50cm from the carton to wall, heat source, cold source, windows or air inlet.

The storage environment temperature is -40°C - 70°C . After storing or transporting the device beyond the work temperature, keep the device aside and make its temperature return to normal range for more than 4h before installation. In warehouse, the poisonous gas, inflammable or explosive or corrosive chemical objects are prohibited. Besides, strong mechanical shaking, impact or strong magnetic field is also prohibited. Under the storage conditions above, the storage period is six months. If the device is stored beyond six months, it should be rechecked.

A Technical Specifications

A.1 Technical Specifications of Inverter

Item \ Model	PSSi3600W#580VK	PSSi5000W#580VK	PSSi6000W#580VK
PV input			
Max. input power (W)	5400	7500	9000
Vmax PV (Vdc)	580		
MPPT voltage range (Vdc)	100~550		
Isc PV (A _{dc})	2*9	2*13.3	2*15
Full-load MPPT voltage range (Vdc)	300~450	300~450	300~450
Startup voltage (Vdc)	100		
No. of MPPTs	2	2	2
Strings per MPPT	1/1	1/1	1/1
Max. input current (A dc)	18.75	18.75	18.75
Maximum inverter backfeed current to Array (A)	0	0	0
Gridinput			
Rated input power (W)	7200	10000	12000
Max. apparent power (VA)	7200	10000	12000
Rated grid voltage (Vac)	230		

Item	Model	PSSi3600W#580VK	PSSi5000W#580VK	PSSi6000W#580VK
	Grid voltage range (Vac)	180~280		
Grid type	Single-phase			
Rated output current (Aac)	31.2	43.4	52.4	
Max. continuous output current (Aac)	31.2	43.4	52.4	
Rated grid frequency (Hz)	50/60			
Grid frequency range (Hz)	45.0~53.0			
Power factor (rated power)	>0.99			
Power factor adjusting range	0.8 ahead~0.8 lag (0.8* rated power)			
THDi	<3% (rated power) <5% (load is 50% rated power)			
Backupoutput				
Rated output power (W)	3600	5000	6000	
Max. apparent power (VA)	3600	5000	6000	
Rated voltage (Vac)	220			
Rated output current (Aac)	15.6	21.7	26.2	
Max. continuous output current (Aac)	15.6	21.7	26.2	
Maximum output over current protection (Aac)	23.4	32.6	39.3	
Protection & safety				
DC reverse connection protection	Yes			
Anti-island	Yes			
Smart feed-in control	Yes (via smart meter)			
AC short-circuit protection	Yes			

Item	Model	PSSi3600W#580VK	PSSi5000W#580VK	PSSi6000W#580VK
	Leakage current protection (RCD)	Yes		
DC switch	Optional			
PV Fault Detect	Yes			
Input DC impedance monitor	Yes			
Surge protection	Yes Class D, Piezoresistor			
Standard & certification (upon request)	IEC62109-1/-2, EN61000-6-1/-2/-3/-4, AS4777.2-2020, VDE4105, EN50549, CEI 0-21, CE			
Basic parameter				
Size (W×H×D) (mm)	580×280×230			
Weight (kg)	16.3Kg			
Installation	Wall-mounting			
Insulation	No transformer			
Degree of protection	IP65			
Self-consumption at night	<10W			
Operating temperature range	INV: -30~60℃ (If the temperature higher than 45℃ or lower than -25℃, the inverter needs to decrease rated power to use) BAT: -10℃~50℃ (If the temperature higher than 45℃ or lower than -10℃, the inverter needs to decrease rated power to use)			
Operating humidity range	0~95%			
Cooling	Natural			
Maximum operating altitude	3000m (>3000m derating)			
Noise emission (typical)	<25db (A) @ 1m			
Inverter design	Transformerless			

Item	Model	PSSi3600W#580VK	PSSi5000W#580VK	PSSi6000W#580VK
	Display	LED indicator		
Communication	RS485 /WIFI/ /DRM (Australia)			
AC terminal	Grid (max. 10mm ²) Back up (max. 6mm ²)			
PV DC terminal	MC4 (max. 6 mm ²)			
BAT terminal	MC4 (max. 10 mm ²)			
the function				
Whole machine	Update online			

- Specifications are subject to change without prior notice.

A.2 Technical Specifications of Battery

Item	Model	PS-PSLB8.2K
	BAT input	
Max. input voltage (V dc)	450	
Input voltage range (V dc)	85~450	
voltage range with full load (V dc)	167-400	
Max. charge current (A dc)	32	
Max. discharge current (A dc)	32	
BAT pack Capacity	8.2 (8.2~32.8) kwh , Voltage range: 244-288Vdc	
Basic parameter		
Size (W×H×D) (mm)	580*800*230	
Weight (kg)	88Kg	
Installation	Wall-mounting	

Item \ Model	Model
	PS-PSLB8.2K
Insulation	No transformer
Degree of protection	IP65
Self-consumption at night	<10W
Operating temperature range	INV: -30~60°C (If the temperature higher than 45°C or lower than -25°C, the inverter needs to decrease rated power to use) BAT: -10°C ~50°C (If the temperature higher than 45°C or lower than -10°C, the inverter needs to decrease rated power to use)
Operating humidity range	0~95%
Cooling	Natural
Maximum operating altitude	3000m (>3000m derating)
Noise emission (typical)	<25db (A) @ 1m
Inverter design	Transformerless
Display	LED indicator
Communication	RS485 /WIFI/ /DRM (Australia)
AC terminal	Grid (max. 10mm ²) Back up (max. 6mm ²)
PV DC terminal	MC4 (max. 6 mm ²)
BAT terminal	MC4 (max. 10 mm ²)
The function	
Whole machine	Update online

- Specifications are subject to change without prior notice.

B Acronyms and Abbreviations

A

AC Alternating Current

C

CE Conformance Européenne

D

DC Direct Current

DSP Digital Signal Processor

I

IEC International Electrotechnical Commission

L

LCD Liquid Crystal Display

LED Light-emitting Diode

M

MPPT	Maximum Power Point Tracking
P	
PE	Protective Earthing
PV	Photovoltaic
R	
RS485	Recommend Standard485
T	
THDi	Total Distortion of the input current waveform



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