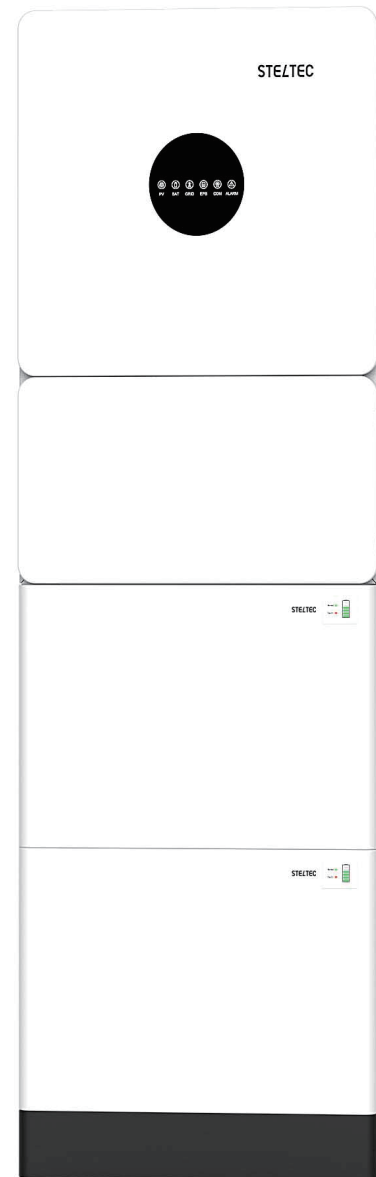


STELTEC

STELTEC



Shanghai Steltec Energy Technology CO.,LTD
Address:Room J4986, Floor1, NO.185, Moyu Road , Anting Town,
Jiading District, Shanghai China
www.steltec-ess.com

V2.0-2023-08-18

E-home Energy Storage System Installation Guide

Copyright Statement

This manual is under the copyright of Steltec Co., Ltd. with all rights reserved. Please keep the manual properly and operate in strict accordance with all safety and operating instructions in this manual. Please do not operate the system before reading through the manual.

Catalogue

1 System Information

1.1 System introduction-	1
1.2 STE-INV-HB5000/6000information -	3
1.3 STE-BSG-5220 information-	4
1.4 System box information -	9

2 Installation

2.1 Installation site and environment -	9
2.2 Installation steps -	12

3 Electrical Connection

3.1 Grounding -	19
3.2 Battery power and communication cable connection-	20
3.3 Grid/EPS Connection -	22
3.4 PV Connection -	24
3.5 Meter/CT Connection -	24

3.6 Communication Connection -	26
3.7 Meter/CT Communication Connection -	28
3.8 RS485 Connection -	31
3.9 NTC/RMO/DRY Connection(s) -	32
3.10 WiFi Datalogger Connection -	33

4 Startup/Shutdown the System

4.1 Inverter Working Mode -	35
4.2 Start up the System -	44
4.3 Shut down the System -	44

5 Commissioning and Inspection

5.3 Commissioning -	45
---------------------	----

6 User Interface

6.1 LED -	45
6.2 App Setting Guide -	49
6.3 Remote Monitoring-	70

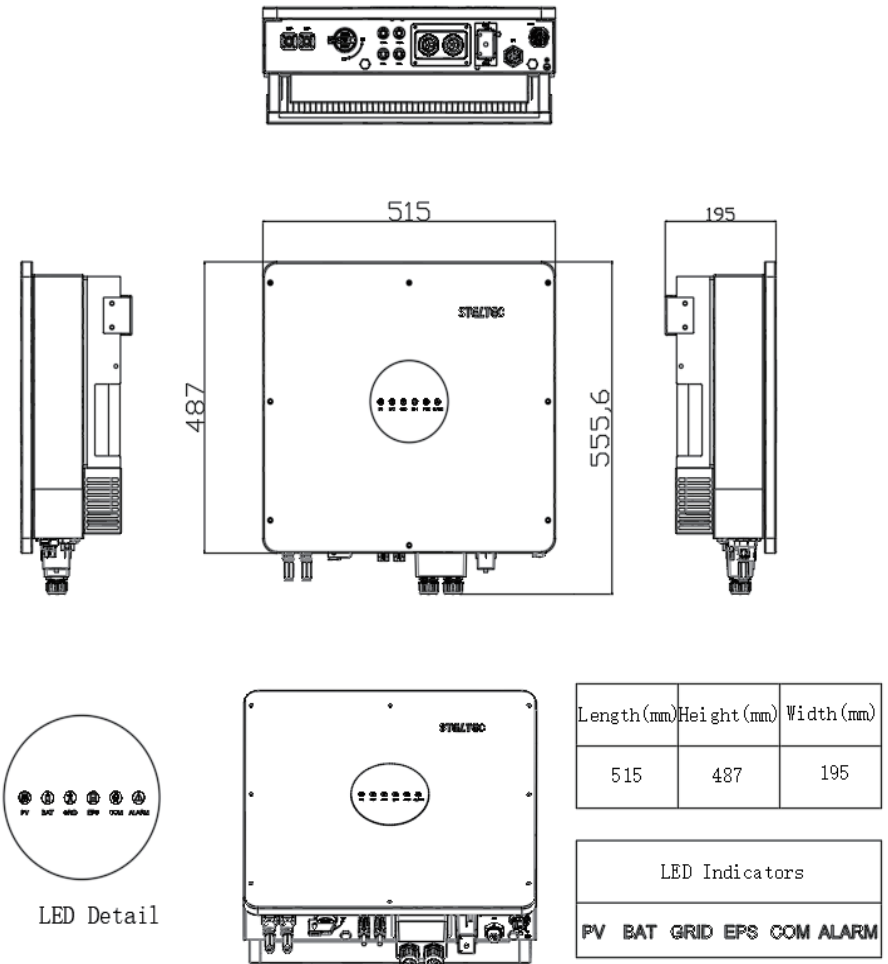
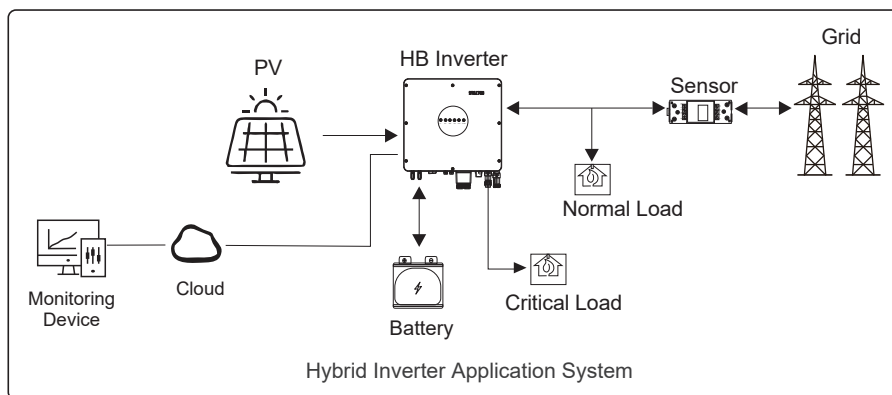
7. Maintenance

7.1 Routine Maintenance -	72
7.2 System common issues and solutions -	73
7.3 Removing the Inverter-	77

1 Product Introduction

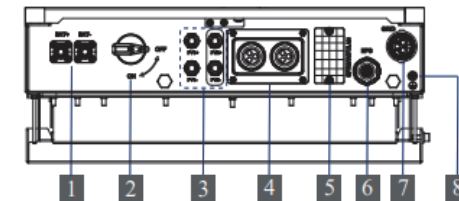
1.1 System introduction

STELTEC E-home energy storage system include STE-INV-HB5000/6000 inverter, STE-BSG-5220 and system box. STE-INV-HB5000/6000 inverter and STE-BSG-5220 are our standard products which can be sold independently. System box are designed for the E-home energy storage system and it owns a DC battery breaker (125A) inside and can cover all the cables as you can see below pictures. It will save your room space and much more beautiful without jumbled wiring. Our E-home energy storage system can be applied in DC-coupled systems (mostly new installation), AC-coupled systems (mostly retrofit) as the following schemes show:



1.2 STE-INV-HB5000/6000 information

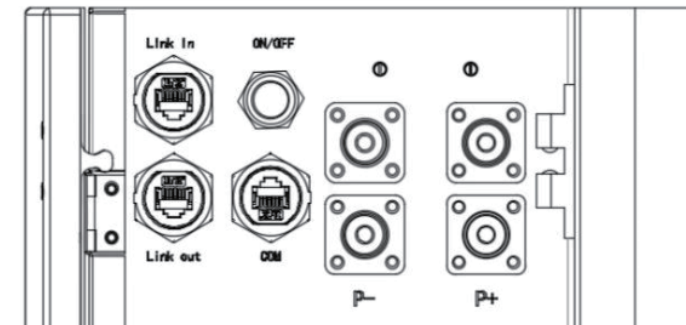
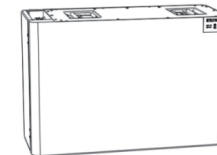
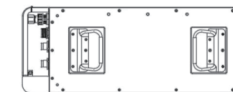
Inverter Specification	STE-INV-HB5000	STE-INV-HB6000
Efficiency		
Max.Efficiency(PV to Grid)	97.3%	
Input(PV)		
Max.Input Voltage	550V	
Max.Input Current	15/15A	
Max.Short Circuit Current	20/20A	
Start Input Voltage	90V	
MPPT Operating Voltage Range	200V-480V	230V-480V
Max.Number of PV Strings	2	
No.of MPPTs	1	
Input(Battery)		
Battery Type	Lithium-ion	
Nominal Battery Voltage	48V	
Battery Voltage Range	40-60V	
Max.Charge/Discharge Current	120A	120A
Lithium-ion Batter Charge Curve	Self-adaption to BMS	
Output(Grid)		
Rated AC Active Power	5000W	6000W
Rated AC Voltage	220V	
AC Voltage Range①	150V-300V(Adjustable)	
Rated Grid Frequency	50Hz/60Hz	
Grid Frequency Range②	45-55Hz/55-65Hz(Adjustable)	
Max.AC Current Output to Utility Grid(A)	25A	27.2
THDI	< 3%(Rated Power)	
Power Factor	> 0.99 Rated power(Adjustable 0.8 Leading-0.8 Lagging)	
Output(EPS)		
Nominal Output Power	5000VA	6000VA
Nominal Output Voltage	230V	
Nominal Output Frequency	50Hz/60Hz	
THDV	< 3% @100% R Load	
Transfertime (ms)	10(type)/20(max.)	



The bottom view of hybrid inverter

1. Battery Connect Terminals
2. PV Switch
3. PV Input Terminals
4. COM1 Ports (USB, PARAL, RS485, DRM, CT/METER, BMS, NTC/RMO/DRY)
5. COM2 Port (WIFI)
6. EPS Output Terminal
7. GRID Output Terminal
8. Grounding Terminal

1.3 STE-BSG-5220 information



STE-BSG-5220 Technical Specication

Power module model	Number of battery Modules	Battery System Capacity	Cell Technology	Battery System Voltage	Operating Voltage Range	Dimension (W*D*H)	Net Weight
Focus-L1	1	5.22Wh	Li-ion(LFP)	51.2V	45.6-56.2V	515*200*490(mm) 20.28*7.87*19.29(inch)	56kg (123.46 lb)
	2	10.44kWh		51.2V	45.6-56.2V	515*200*840(mm) 20.28*7.87*33.07(inch)	102kg (224.87 lb)
	3	15.66kWh		51.2V	45.6-56.2V	515*200*1190(mm) 20.28*7.87*46.85(inch)	148kg (326.28 lb)
	4	20.88kWh		51.2V	45.6-56.2V	515*200*1540(mm) 20.28*7.87*60.63(inch)	194kg (427.7 lb)

Focus-L1	Battery Base dimensions (W*D*H)	Battery Cover dimensions (W*D*H)	Battery Base Weight	Battery Cover Weight
	515*200*90 (mm) 20.28*7.87*3.54 (inch)	515*200*50 (mm) 20.28*7.87*1.97 (inch)	5kg (11.02lb)	2.5kg (5.51lb)

Scalability	Installation	Depth of Discharge	Battery System Charge Current (recommendl)	Battery System Charge Current (Max)	Battery System Discharge Current (recommend)	Battery System Discharge Current (Max)	Display	Certificates
Max 15 in parallel	Floor stand	90%	80A	100A	80A	100A	The information of Battery, such as SOC, battery status	IEC62619 / IEC61000 / IEC62040 / CE / UN38.3
Communic ation Port	Protection Class	Charging temperature	Discharge temperature	Humidity	Max. operating altitude	Warranty	Cooling	
RS232, RS485, CAN	IP54	0C~50C (32°F-122°F)	-20C~50C (-4°F-122°F)	5%-95%	2,000m (6,562ft.)	10 years	Natural convection	

STE-BSG 5220	Battery Cell Capacity	Configuration	Battery module dimensions (W*D*H)
	102Ah	1P16S	515*200*350(mm) 20.28*7.87*13.78 (inch)
	Battery module capacity	Battery Module Voltage	Battery Module Weight
	5.22kWh	51.2V	46kg (101.41 lb)

ON/OFF

1. ON

For single Battery Module, Long press (more than 3 seconds) ON/OFF button, Normal LED will be lighted in the front panel then battery will operate normally.

L1 to L6 shows battery SOC, L7/L8 shows battery status.

For multiple Battery Modules in parallel, long press (more than 3 seconds) ON/OFF button of MASTER battery (Which connect with inverter), normal LED will be lighted, battery system will automatically encode and assign ID to each slave battery, then battery system will operate normally.

Note: For multiple batteries in parallel, only the Master battery SOC LED will be on to show the whole system SOC level, slave battery SOC LEDs are off, but the Normal&Alarm LED will show normally.

2 OFF

Press ON/OFF button of Master battery (which connect with inverter) more than 3s, LED will flash in the front panel and then release the button, the master battery will shut down after all slave batteries shut down (Sleep mode).

For single Battery Module, Long press (more than 3 seconds) ON/OFF button, LED will flash in the front panel and then release the button, the battery will shut down.

In the system with inverter, there is an air switch between inverter and battery system, normally the air switch keeps off-state if the system does not work.

Link COM Port

The Link Com Port is the interface between the master battery and the inverter.

The inverter retrieves the battery data such as SOC, DOD, charge current via this connection.

CAN / RS485/RS232 Communication Terminal (RJ45 port),

CAN/RS485 connect to inverter, follow CAN / RS485 protocol.

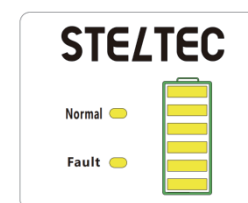
RS232 Communication follow RS232 protocol, for manufacturer or professional engineer to debug or service.

PIN	Definition
Pin 1	RS485-B (to PCS, reserved)
Pin 2	RS485-A (to PCS, reserved)
Pin 3	GND_2
Pin 4	CAN H (to PCS)
Pin 5	CAN L (to PCS)
Pin 6	RS232_TX
Pin 7	RS232_RX
Pin 8	RS232_GND

Link in/Link out

Link in/Link out are used for the communication between battery piles. The battery pack close to the inverter as the master, others are the slave pack.

LED Indicator Definition



flash 1 - 0.25s on/3.75s off

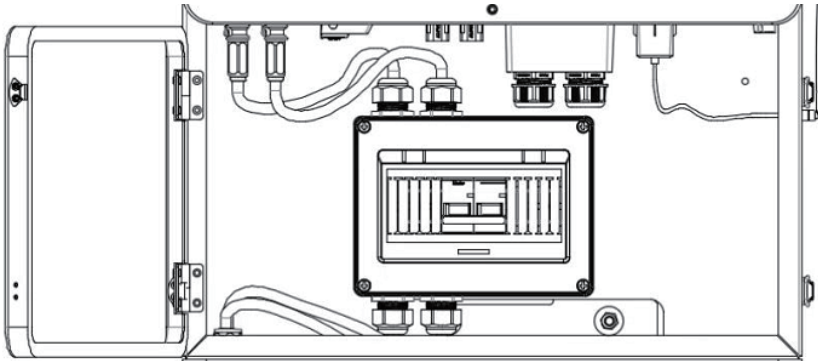
flash 2 - 0.5s on/ 0.5s off

flash 3 - 0.5s on/ 1.5s off

LED Indicators Instructions

		Normal	Fault	Battery Level Indicator						
Status		L8	L7	L6	L5	L4	L3	L2	L1	Descriptions
		●	●	●	●	●	●	●	●	
Shut down		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	All OFF
Standby		Flash 1	OFF	According to the battery level						Indicates Standby
Charging	Normal	Light	OFF	According to the battery level						The highest capacity indicator LED flashes (flash 2), others lighting
	Full Charged	Light	OFF	Light	Light	Light	Light	Light	Light	Turn to standby status when charger off
	Protection	OFF	Light	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging
Discharge	Normal	Flash 3	OFF	According to the battery level						
	UVP	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging
	Protection	OFF	Light	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharge
Fault		OFF	Light	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging and Discharge

1.4 System box information



There is a 125A DC breaker between battery and inverter, and can cover all the cables as you can see, It will save your room space and much more beautiful without jumbled wiring.

2 Installation

2.1 Installation site and environment

2.1.1 General

This E-home energy storage system is supposed to be installed in an indoor location.

When E-home systems are installed in a room, it must not be hampered by the structure of the building, the furnishings and equipment of the room.

The E-home system is naturally ventilated. The location should therefore be clean, dry and adequately ventilated. The mounting location must allow free access to the unit for installation and maintenance purposes, and the system panels must not be blocked.

The following location are not allowed for installation:

- Habitable rooms;
- Ceiling cavities or wall cavities;
- On roofs that are not specifically considered suitable;
- Access/ exit areas or under stairs/ access walkways;
- Where the freezing point can be reached, such as garages, carports or other places as well as wet rooms (environmental category 2);
- Locations with humidity and condensation over 85%;
- Places where salty and humid air can penetrate;
- Seismic areas- additional security measures are required;
- Sites higher than 2000 meters above sea level;
- Places with an explosive atmosphere;
- Locations with direct sunlight or a large change in the ambient temperature;
- Places with flammable materials or gases or an explosive atmosphere.

2.1.2 Restricted Locations

The E-home shall not be installed—

- (a) In restricted locations as defined for panels in AS/ NZS 3000;
- (b) Within 600 mm of any heat source, such as hot water unit, gas heater, air conditioning unit or any other appliance;
- (c) Within 600 mm of any exit;
- (d) Within 600 mm of any window or ventilation opening;
- (e) Within 900 mm of access to 240Vac connections;
- (f) Within 600 mm of side of other device.

An E-home installed in any corridor, hallway, lobby or the like and leading to an emergency exit shall ensure sufficient clearance for safe egress of at least 1 meter.

The E-home must also not be installed in potentially explosive atmospheres for gas cylinders that are heavier than air gases and have a vent clamp in 3.4.3

To protect against the spread of fire in living spaces where the E-home is mounted or on surfaces of a wall or structure in living spaces with a E-home on the other side, the wall or structure shall have a suitable non-combustible barrier. If the mounting surface itself is not made of a suitable non-combustible material, a non-combustible barrier can be placed between the E-home and the surface of a wall or structure.

If the E-home is mounted at a wall or at a distance of 300mm from the wall or structure separating it from the habitable space, the distances to other structures or objects must be increased. The following distances must then remain free:

- (i) 600 mm beside the E-home;
- (ii) 600 mm above the E-home;
- (iii) 600 mm before the E-home.

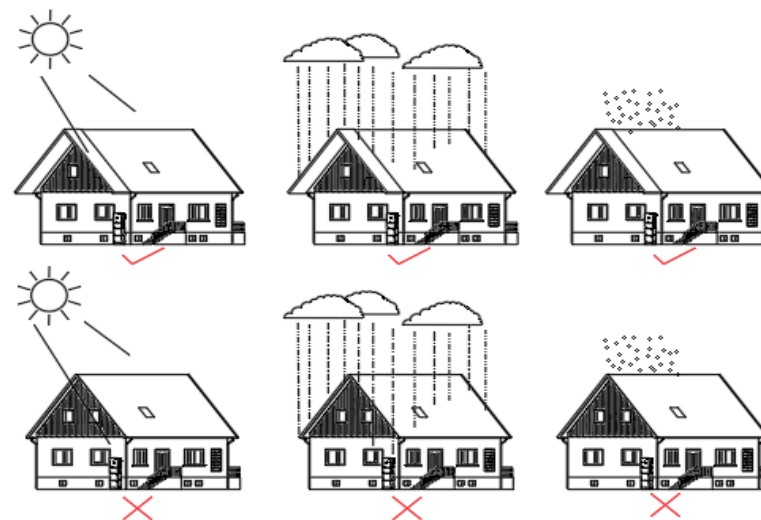
If the distance between the E-home and the ceiling or any object above the system is less than 600 mm, the ceiling or structural surface above the system must be made of non-combustible material within a radius of 600 mm around the system.

The E-home must be mounted so that the highest point is not more than 2.2m above the ground or the platform.

Note: If you have to install E-home outside, please add a canopy on top and the ground must be cement base to avoid direct sun, rain and snow. No condensate is allowed as battery is IP54.



Following are some installation examples, the ones with 'X' is not allowed.

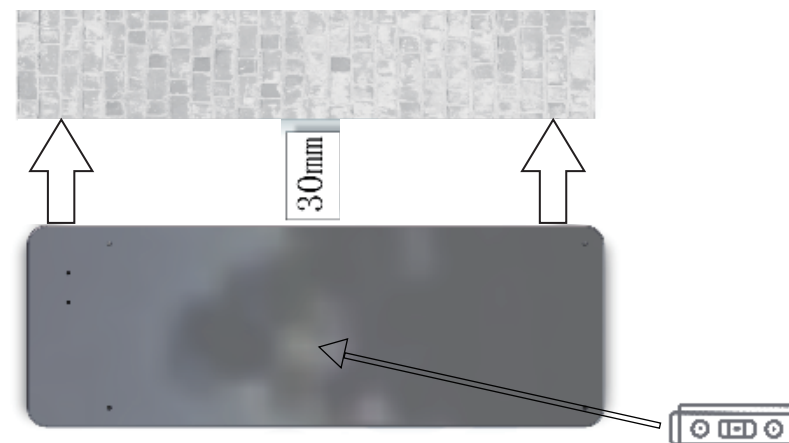


2.2 Installation steps

Step 1

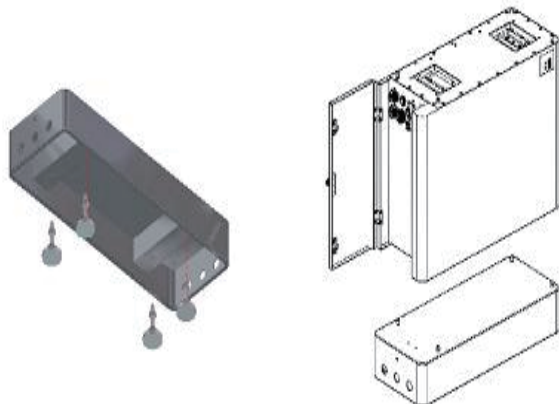
Placed the base against the wall, the distance between the base and the wall is 30mm as followed.

Note : Levelness of the base is less than 2mm.



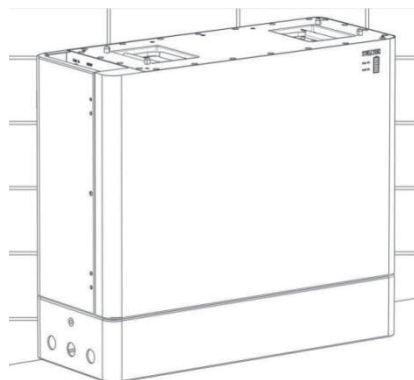
Step 2

Screw the locating pin into the base and put the first battery pack on the base.



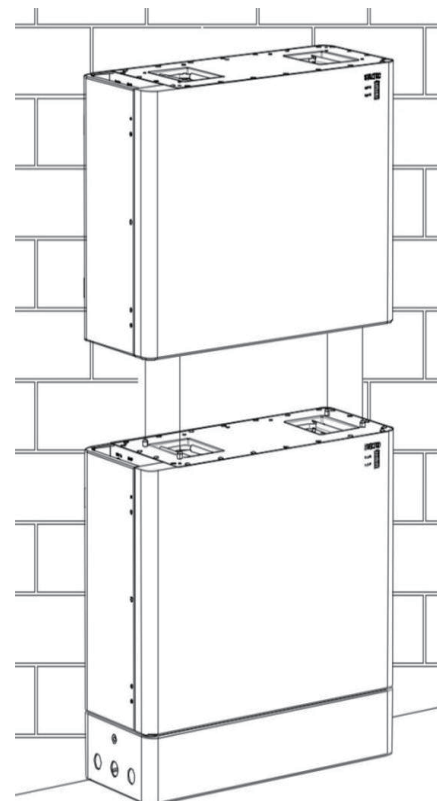
Step 3

Secure the battery module to the base with the L-shape plate.



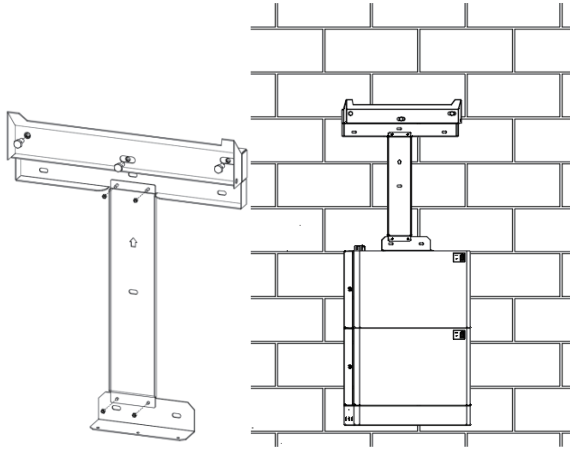
Step 4

Place the next battery module on top of the first battery module and secure the battery modules with the fixing plate. Repeat this step until all battery modules have been installed



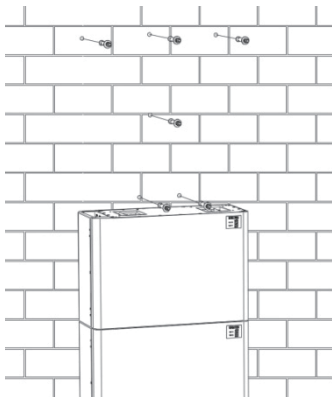
Step 5

Fix the mounting plate as below with 3 pcs of M10X20 screws and 4 pcs of M5 nuts, mark the positions on the wall to drill holes.



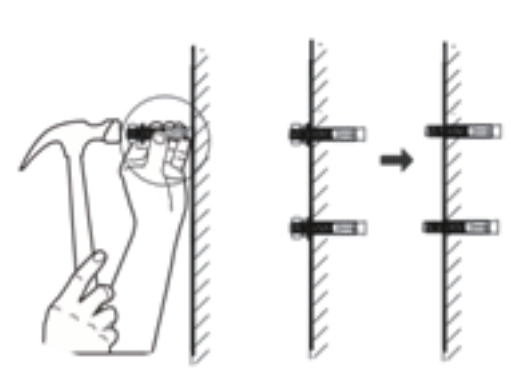
Step 6

Take off the L shape metal and the mounting plate and drill hole on the wall. Position the battery parallel to the wall and use a $\phi 10\text{mm}$ drill to drill holes at a depth of about 45mm in the wall for subsequent fixation of the mounting plates.



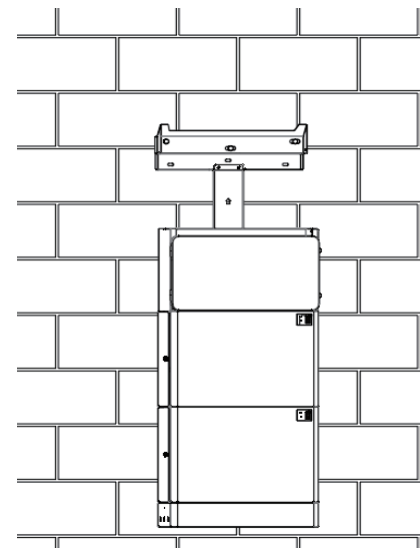
NOTE: Place a cover (paper, foil, cloth etc.) over the battery while drilling into the wall to protect it from dust. Indation, at the place of installation, the slope of the ground on a horizontal plane may not exceed 3° .

Knock the expansion screw kit into the hole together with a hammer. After tightening 2-3 buckles, the expansion bolts are tight and not loose, and then unscrew the bolts, spring washer, gasket. Refer to Figure below.



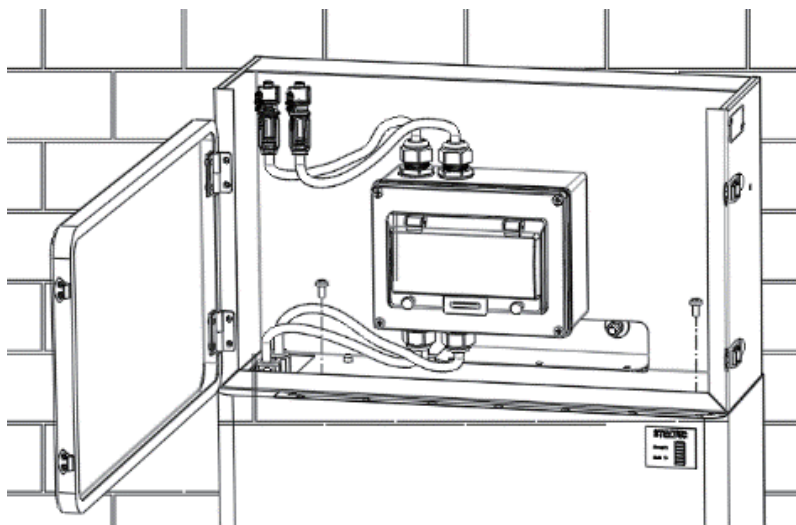
Step 7

Remove the debris baffle and install the system box on the top battery. Install and fix the mounting bracket on the wall.



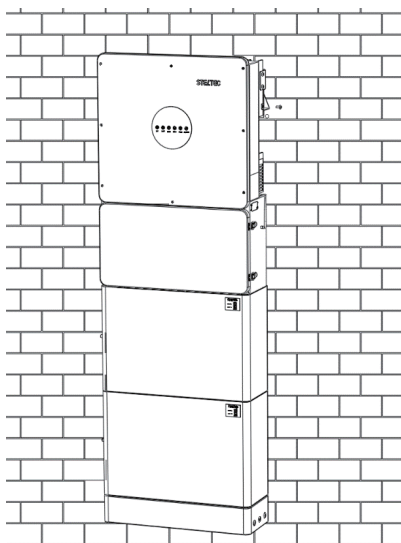
Step 8

Fix the system box to the battery using screw M5*8 (from the system box)



Step 9

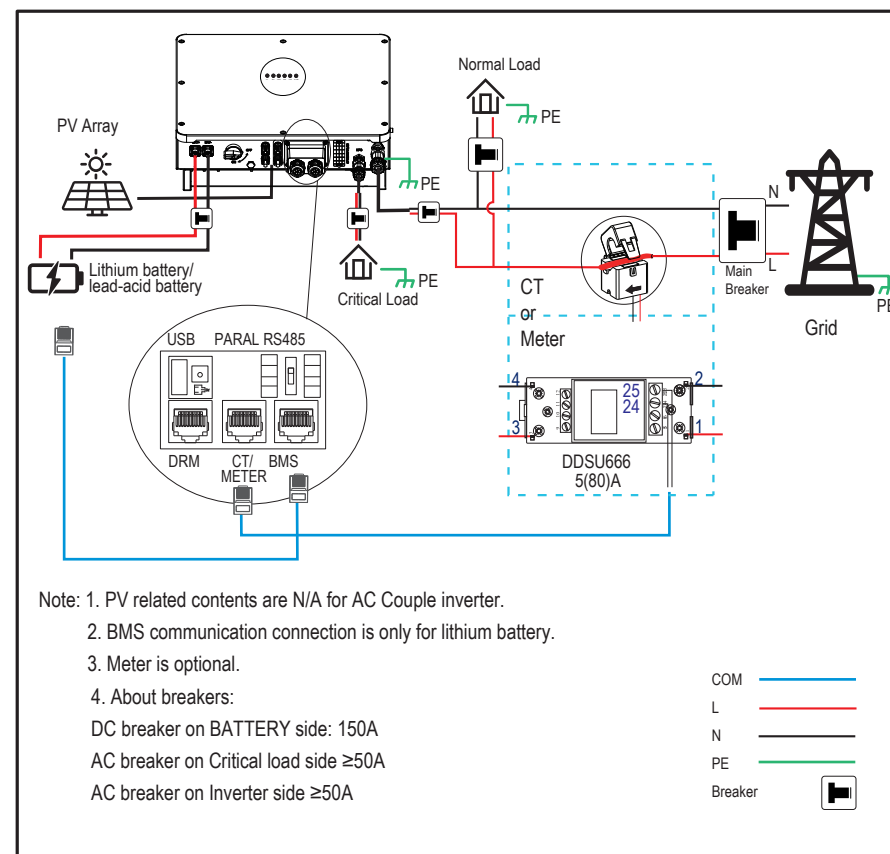
Install the inverter on the mounting bracket. Then lock the inverter using the security screw M6 (from inverter packaging box).



3 Electrical Connection

This chapter shows the details connection of ESS inverter. And PV connection is N/A for AC couple inverters. The following illustration only uses the hybrid inverters as an example.

ESS inverter system connection diagram:
Non-parallel connection mode

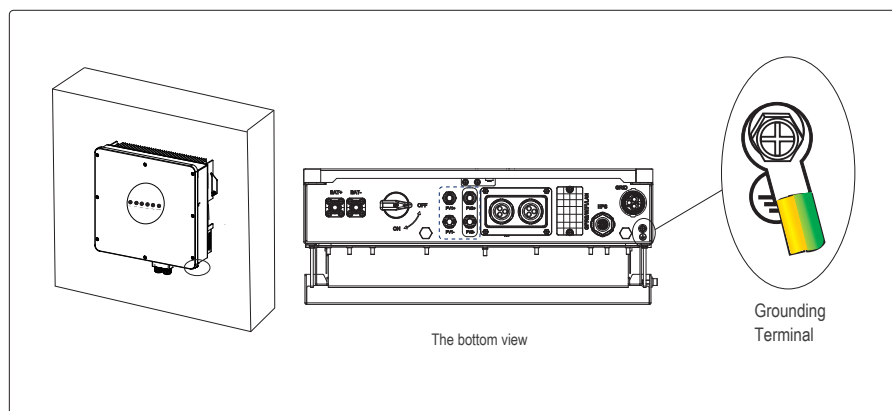


DANGER

Ensure that inverter and all cables to be installed are completely powered off during whole installation and connection. Otherwise, fatal injury can occur due to the high voltage.

3.1 Grounding

a. Connect to the ground between inverter and system box using M5 hexagon nuts with flange



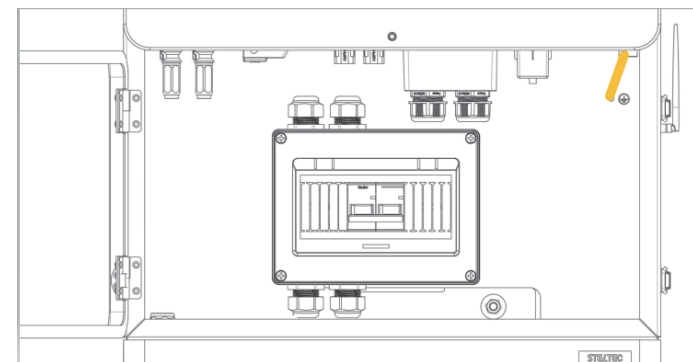
WARNING

The inverter must be grounded; otherwise, there may be electric shock risk.

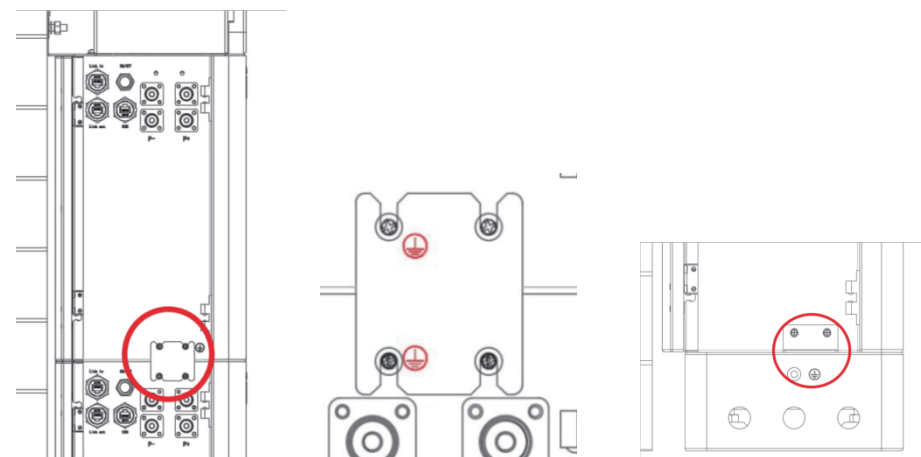


CAUTION

If the positive pole or negative pole of the PV array is required to be grounded, then the inverter output (to AC grid) must be isolated by transformer in accordance with IEC62109-1, -2 standards.

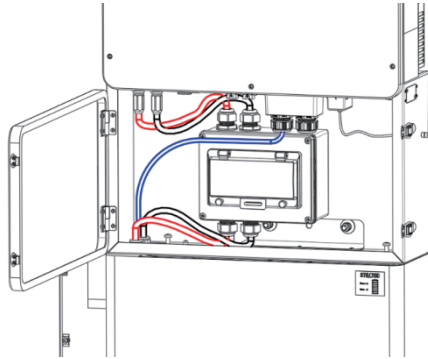


b. Connect the battery to ground with a small metal plate using screw M4*8 (from the system box) as follows and there is a 1.5m GND cable to fix the base

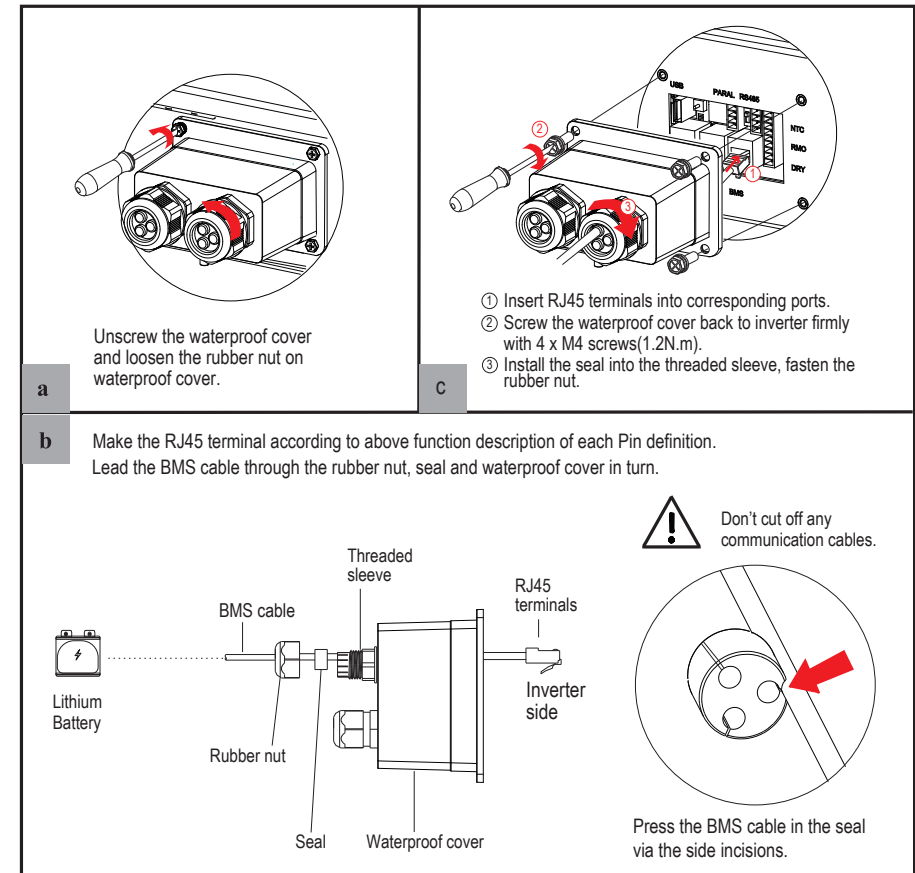
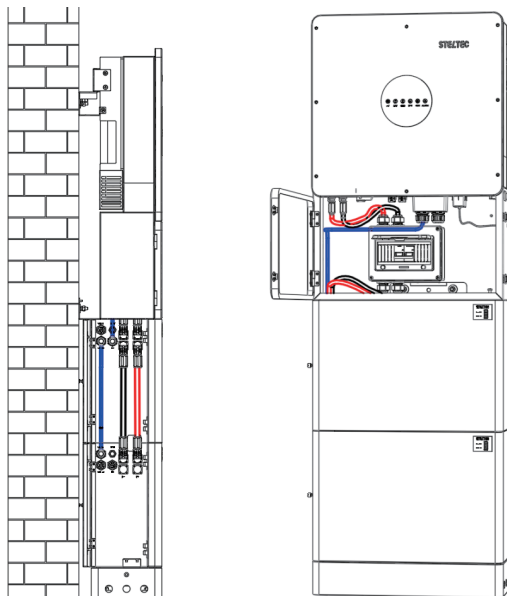


3.2 Battery power and communication cable connection

a. Connect the battery power cable in the down side of the breaker in the system box to the upper battery which is the master battery. Connect the battery power cable in the up side of the breaker in the system box to the inverter battery ports. Connect the battery in parallel using power cable and communication cable as follow.

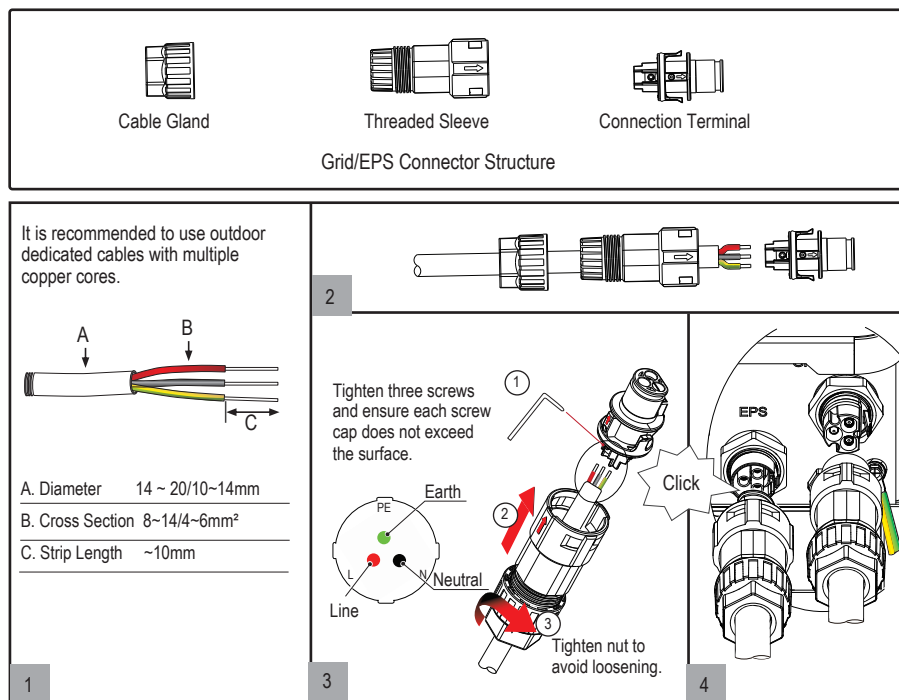


b. connect the BMS cable to the inverter BMS port directly through the system box



3.3 Grid/EPS Connection

Grid/EPS connection please refer to below.



An AC breaker should be installed between inverter and the grid/EPS.

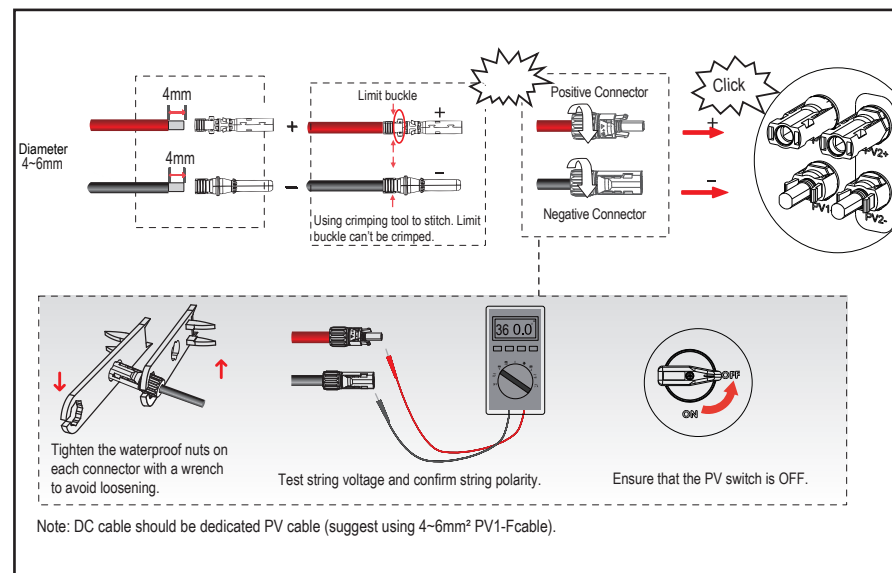
- Before connecting the AC cable from inverter to AC breaker, you should confirm the AC breaker is working normally. Turn off the AC breaker and keep the status.
- Connect the PE conductor to grounding electrode, and connect the N and L conductors to AC breaker.
- Connect the AC breakers to the grid/EPS grid.

NOTICE

Multiple inverters are not allowed to share a circuit breaker.
Load is not allowed to connect between the inverter and the AC breaker.

To ensure that the inverter can be safely and reliably disconnected from the grid, a AC breaker(≥50A) should be installed only for inverter GRID/EPS port.

3.4 PV Connection



NOTICE

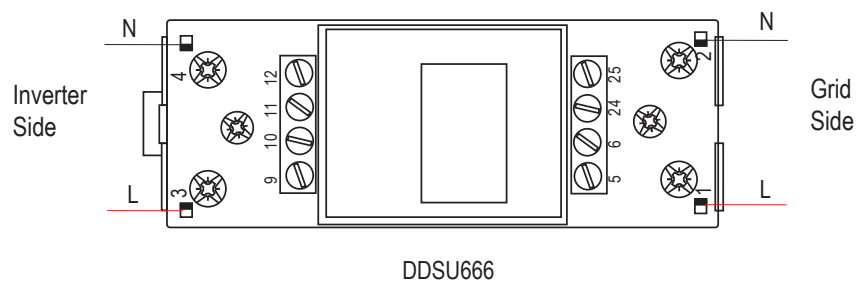
- Before connection the PV panels, ensure the plug connector has the correct polarity. Incorrect polarity could permanently damage the inverter.
- PV array shouldn't be connected to the grounding conductor.
- The minimum insulation resistance to ground of the PV panels must exceed 18.32KΩ, there is a risk of shock hazard if the requirement of minimum resistance is not met.

3.5 Meter/CT Connection

You can monitor usage with a meter or a CT. The meter and CT can't be installed at the same time. The meter is optional while CT is standard

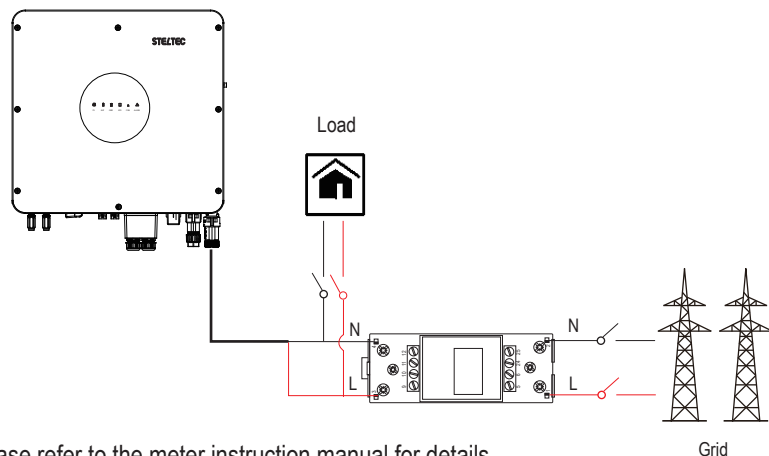
Meter Connection

HB5000/6000 inverter only supports the meter: CHNT-DDSU666 meter.



Before connecting to Grid, please install a separate AC breaker($\geq 60A$; not equipped) between meter and Grid. This ensure the inverter can be security disconnected during maintenance.

The connection diagram of power cable of meter is as shown in the figure below:

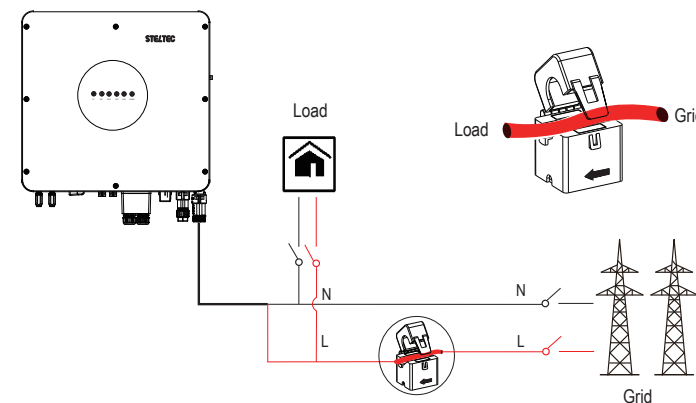


Please refer to the meter instruction manual for details.

CT Connection

Before connecting to Grid, please install a separate AC breaker($\geq 60A$; not equipped) between CT and Grid. This ensure the inverter can be security disconnected during maintenance.

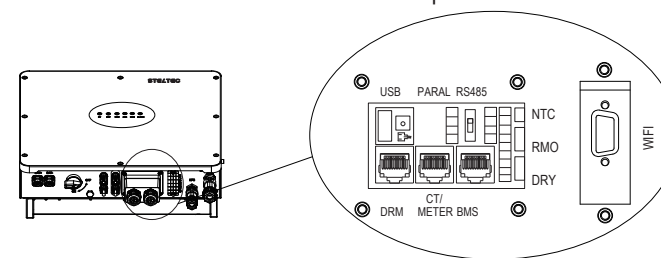
The connection diagram of power cable of CT is as shown in the figure below:



Please attention to the Current interchanger (CT) connection. The arrow on the CT indicates the current flow from grid to inverter. And lead the live line through the detection hole of CT.

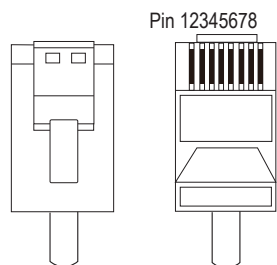
3.6 Communication Connection

There are communication interfaces in the communication port on the bottom of the inverter.



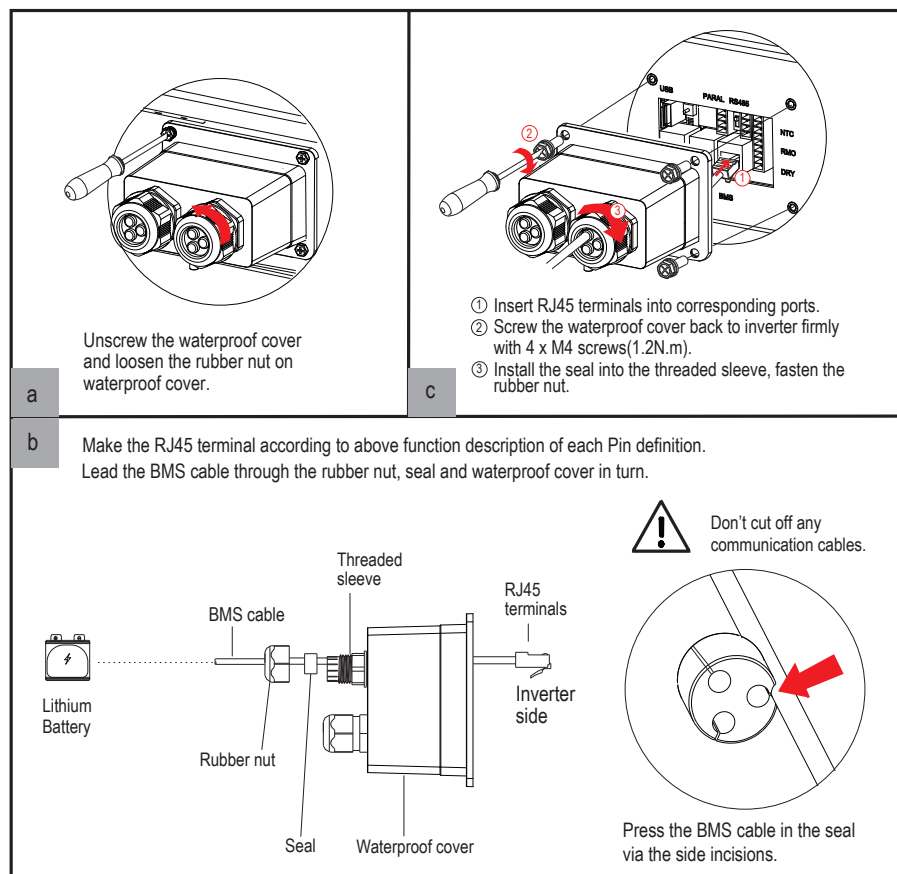
Interface	Descriptions
USB	For fast firmware upgrade.
PARAL	4-Pins interface for parallel communication
RS485	4-Pins interface for RS485 communication
DRM	Demand response mode for Australia application
CT/METER	For Meter communication or Grid current sense.
BMS	Lithium battery communication interface
9-Pins	NTC Temperature sensor terminal of lead-acid battery
	RMO Remote off control
	DRY DO control
WIFI	For WIFI communication.

BMS Connection(Inverter BMS port definition)



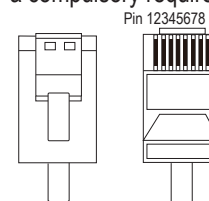
PIN	1	2	3	4
Function Description	RS485_A	RS485_B	GND_S	GND_S

PIN	5	6	7	8
Function Description	GND_S	GND_S	CAN_L	CAN_H



DRMs Connection

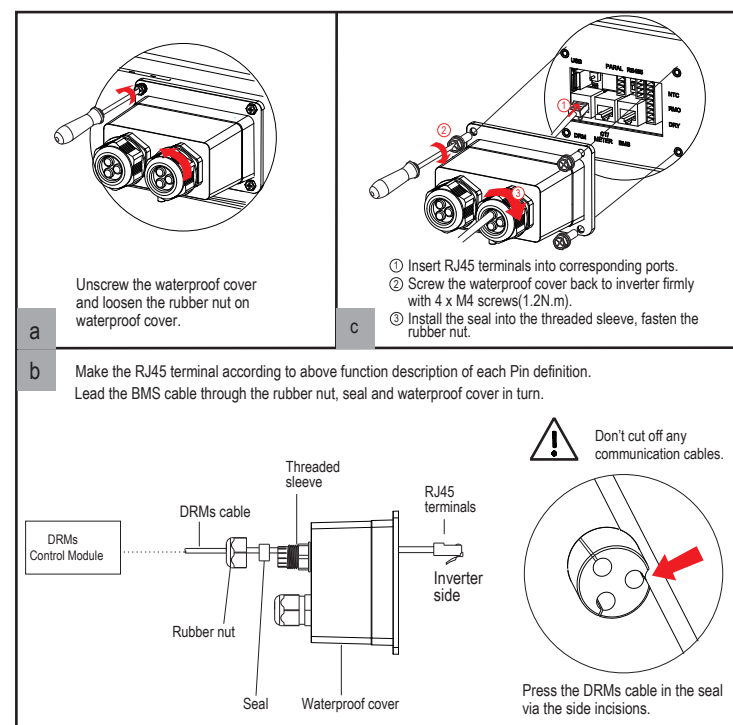
DRMs is a shortened form for “inverter demand response modes”. It is a compulsory requirements for inverters in Australia.



PIN	1	2	3	4
Function Description	DRM1/5	DRM2/6	DRM3/7	DRM4/8

PIN	5	6	7	8
Function Description	REF	DRM 0/COM	NC	NC

Refer to the following steps:

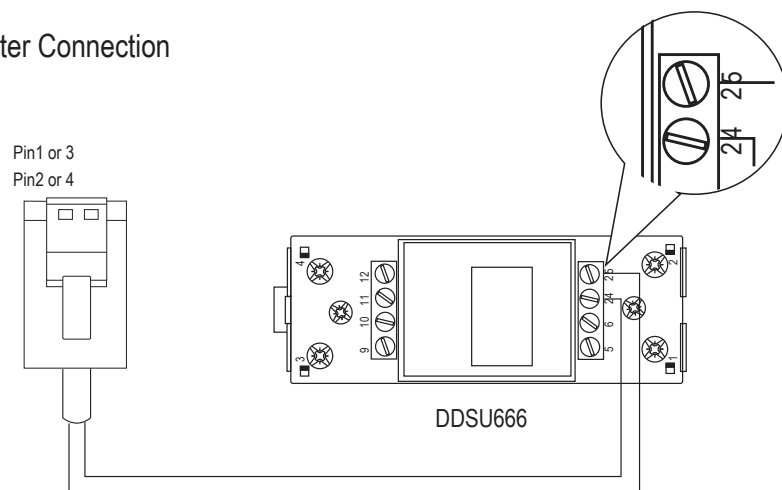


3.7 Meter/CT Communication Connection

RJ45 Terminal Configuration of Meter/CT Communication

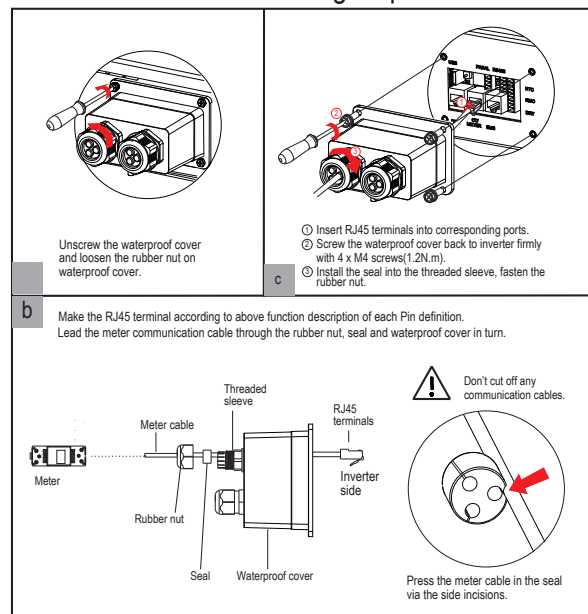
PIN	1	2	3	4	5	6	7	8
Function Description	RS485_A	RS485_B	RS485_A	RS485_B	CT+	CT-	NC	NC

Meter Connection



Inverter	Meter
Pin1 or Pin3(RS485_A)	Pin24
Pin2 or Pin4(RS485_B)	Pin25

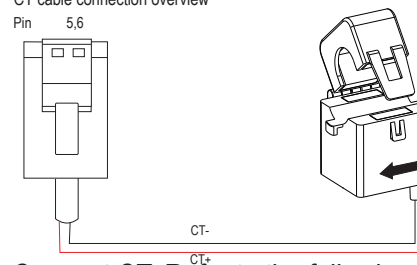
Connect meter. Refer to the following steps:



CT Connection

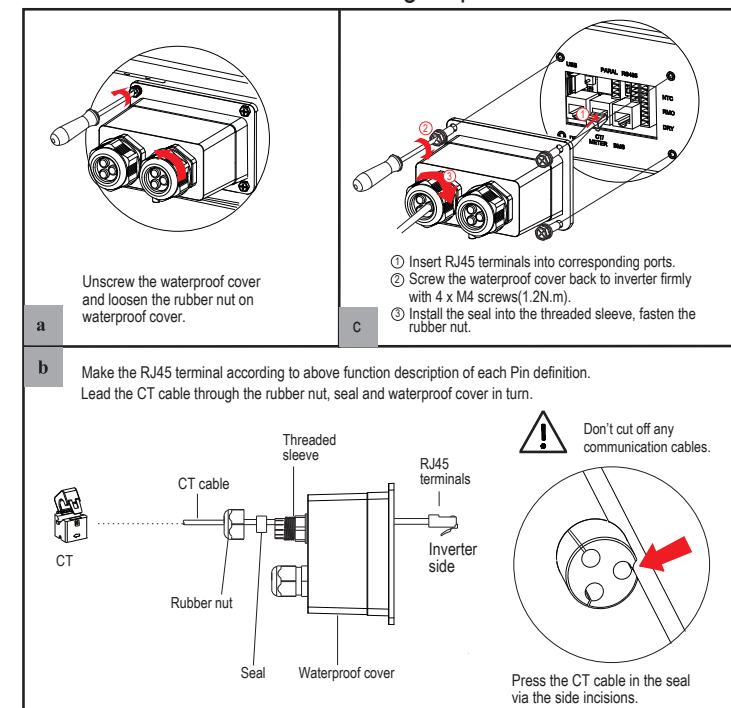
CT cable connection overview

Pin 5,6



Inverter	CT
Pin5(CT-)	Black
Pin6(CT+)	Red

Connect CT. Refer to the following steps:



3.8 RS485 Connection

RJ45 Terminal Configuration of RS485 Communication



PIN	A	B	PE	PE
Function Description	RS485_A	RS485_B	PE	PE

Connect RS485. Refer to the following steps:

a Unscrew the waterproof cover and loosen the rubber nut on waterproof cover.

c

- ① Insert 4-Pins terminal into corresponding ports.
- ② Screw the waterproof cover back to inverter firmly with 4 x M4 screws(1.2N.m).
- ③ Install the seal into the threaded sleeve, fasten the rubber nut.

b Make the 4-Pins terminal according to above function description of each Pin definition. Lead the RS485 cable through the rubber nut, seal and waterproof cover in turn.

RS485 Control Module

RS485 cable

Rubber nut

Seal

Waterproof cover

Threaded sleeve

4-Pins terminal

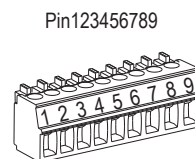
Inverter side

Don't cut off any communication cables.

Press the RS485 cable in the seal via the side incisions.

3.9 NTC/RMO/DRY Connection(s)

9-Pins Terminal Configuration of Auxiliary Communication

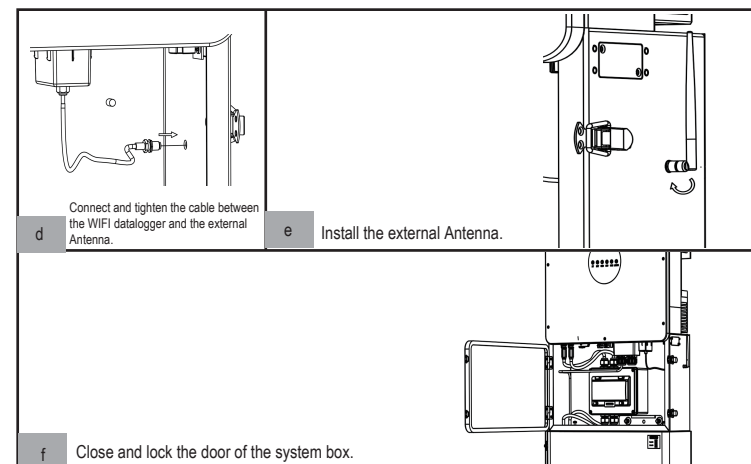
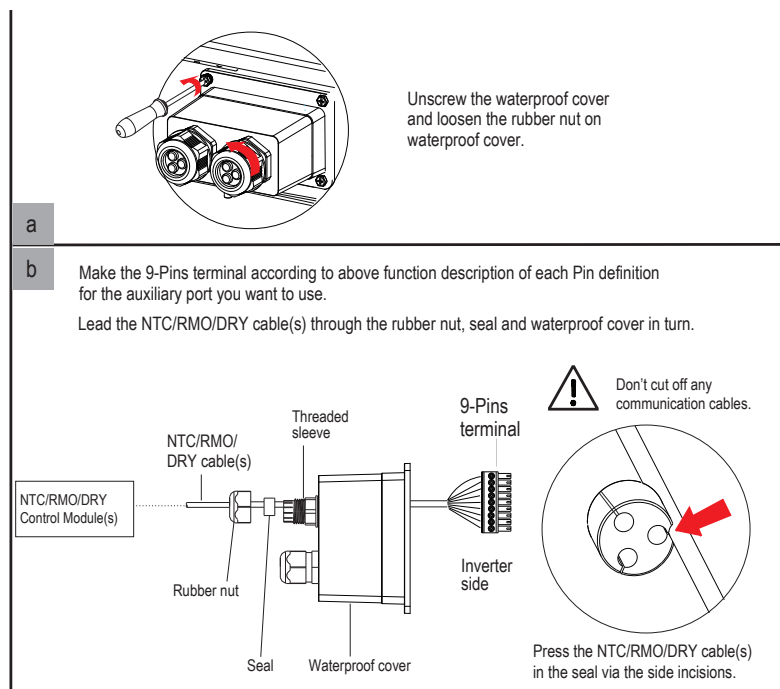


PIN	Function Description
1	NO1 (Normal Open)
2	N1
3	NC1 (Normal Close)
4	NC2 (Normal Close)
5	N2
6	NC2 (Normal Close)
7	REMO OFF
8	GND S (NTC BAT)
9	NTC BAT+

c

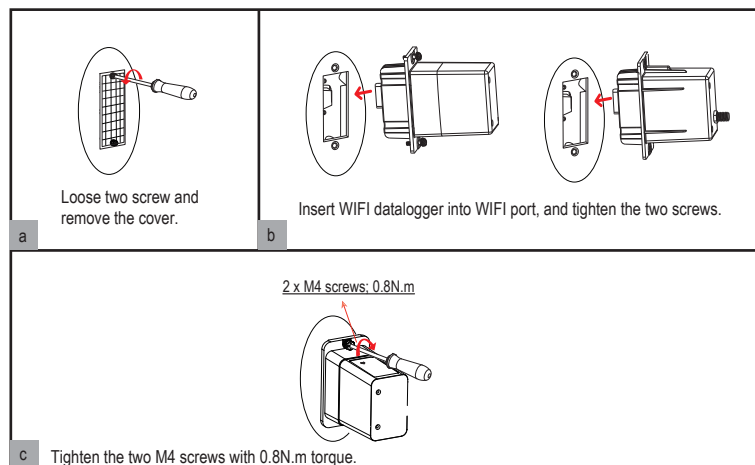
Insert its 9-Pins terminal into the corresponding NTC/RMO/DRY port on the ESS inverter. Install the seal into the threaded sleeve, fasten the rubber nut and screw the waterproof cover back to inverter firmly with 4 x M4 screws; 1.2N.m.

Pin	Function
9	NTC
8	RMO
7	
6	DRY
5	
4	
3	
2	
1	



3.10 WiFi Datalogger Connection

The appearance of datalogger may be slightly different. The figure shown here is only for reference.



4 System Operation

4.1 Inverter Working Mode

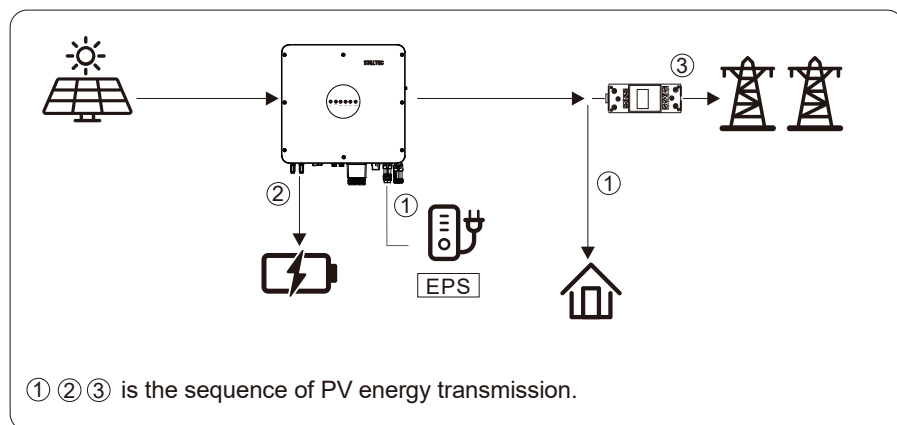
The inverter supports several different working modes.

4.1.1 Self Used Mode

Go to the "Hybrid work mode" menu, and select the "Self used mode" working mode. Under Self Used mode, the priority of PV energy will be Load > Battery > Grid, that means the energy produced by PV gives priority to local loads, excess energy is used for charging the battery, and the remaining energy is fed into the grid. This is the default mode to increase self-consumption rate. There are several situations of Self used working mode based on PV energy.

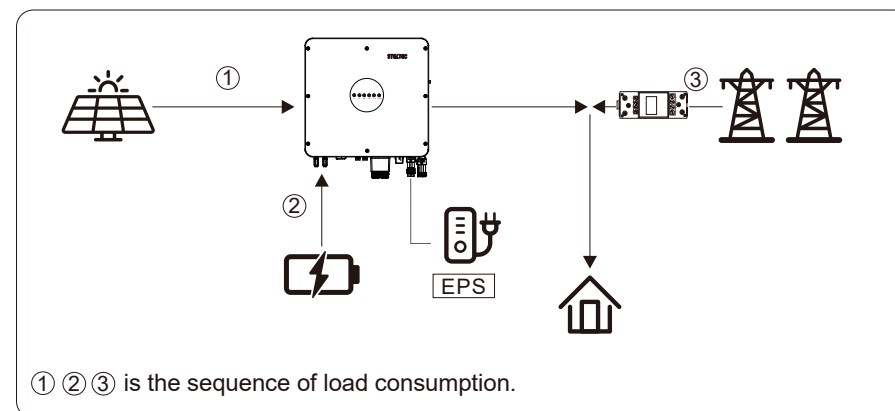
a) Wealthy PV Energy

When PV energy is wealthy, the PV energy will be first consumed by loads, the excess energy will be used to charge the battery. then the remaining energy will be fed into the grid.



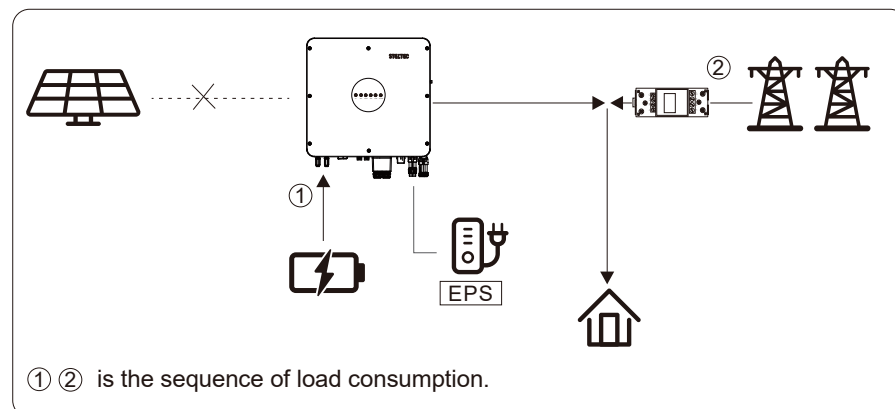
b) Limited PV power

When the PV energy is not enough to cover all the loads, all the PV energy will be used for load, and the insufficient part will be supported by battery. Then still insufficient parts will be supported by grid.



c) No PV Input

The inverter will first discharge the battery energy for home load consuming when no PV input(such as in the evening or some cloudy or rainy days). If the demand is not met then will consume the grid energy.

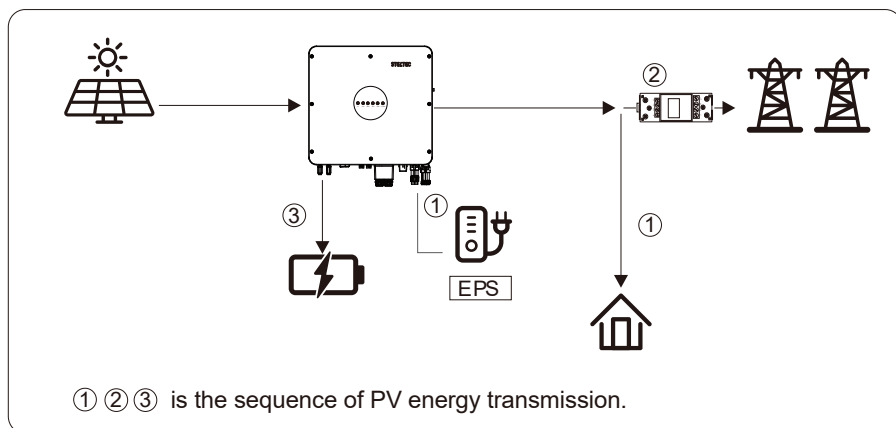


4.1.2 Feed-in Priority Mode

Go to the "Hybrid work mode" menu, and select the "Feed-in priority mode" working mode. Under this mode, the priority of PV energy will be Load > Grid > Battery, that means the energy produced by PV gives priority to local loads, excess energy is fed into the grid, and the remaining energy is used for charging the battery.

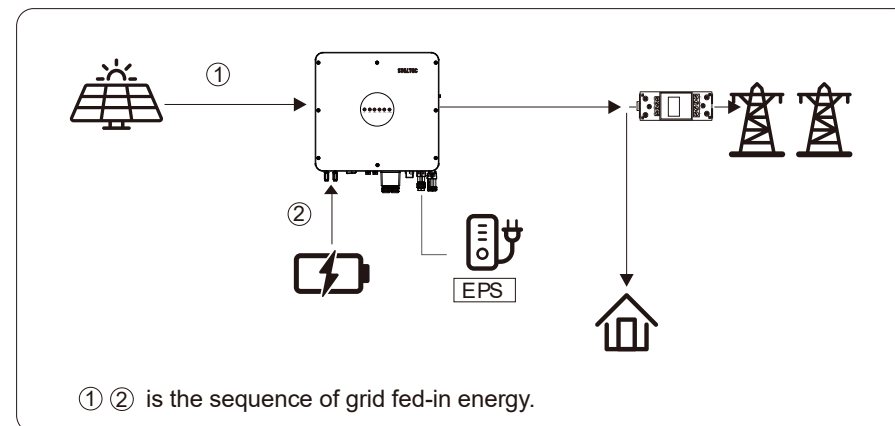
a) Wealthy PV Energy

When PV energy is wealthy, the PV energy will be first consumed by loads, if there is excess PV power, then the excessive power will be fed into grid. If there is still PV energy rested after load consuming and grid feeding, then the rested PV power will be used to charge the battery.



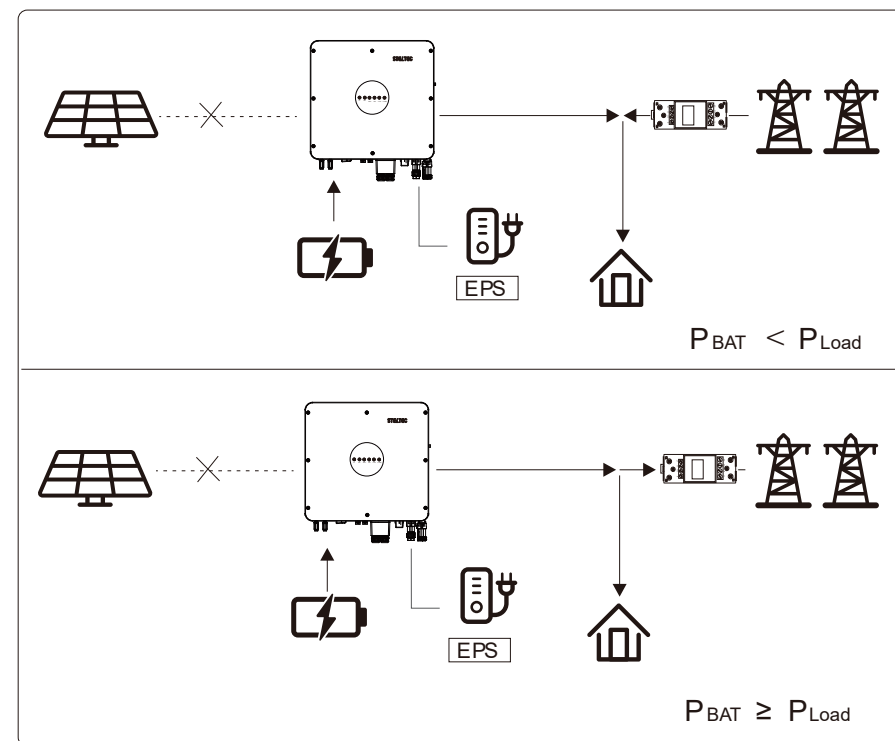
b) Limited PV Energy

When PV energy is limited and can not meet the feed-in grid power, the battery will discharge to meet it.



c) No PV Input

The inverter will first discharge the battery energy for home load consuming when no PV input (such as in the evening or some cloudy or rainy days). If the demand is not met then will consume the grid energy.



4.1.3 Time-Based Control Mode

Go to the "Hybrid work mode" menu, and select the "Time-based Control" working mode. Under this mode, you can control the charging and discharging of the inverter. You can set the following parameters based on your requirements:

- Charge and discharge frequency: one time or daily
- Charging start time: 0 to 24 hours
- Charging end time: 0 to 24 hours
- Discharge start time: 0 to 24 hours
- Discharge end time: 0 to 24 hours

You can also choose whether to allow the grid to charge the battery, which is prohibited by default. If the user enables the "Grid charge function", the "Maximum grid charger power" and "Capacity of grid charger end" can be set. When the battery capacity reaches the set value of "Capacity of grid charger end", the grid will stop charging the battery.

4.1.4 Back-up Mode

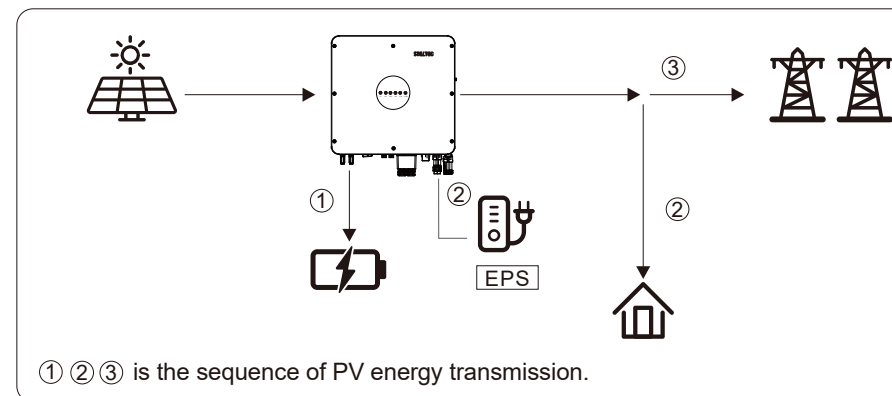
Go to the "Hybrid work mode" menu, and select the "Back-up Mode" working mode. Under this mode, the priority of PV energy will be Battery > Load > Grid. This mode aims at charging the battery quickly, and at the same time, you can choose whether to allow grid to charge the battery.

Forbid grid charging

In this mode, the battery can be charged only with PV power, and the charging power varies with PV power.

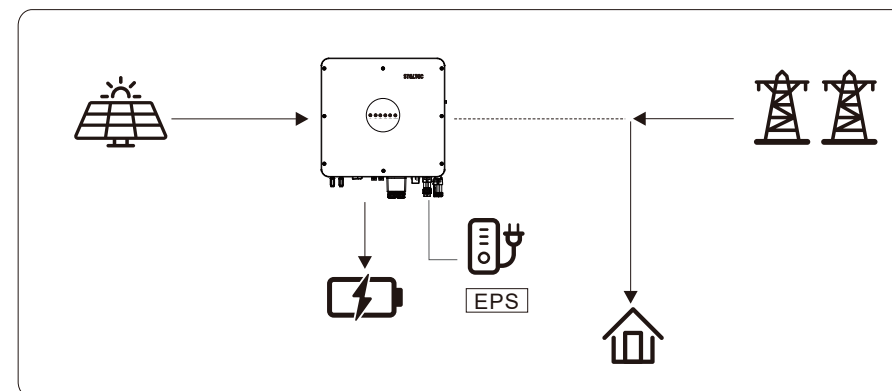
a) Wealthy PV power

When PV energy is wealthy, PV charges the battery first, then meets the load, and the rest is fed into the grid.



b) Limited PV power

When PV energy is limited, PV gives priority to charging the battery, and the grid directly meets the load demand.

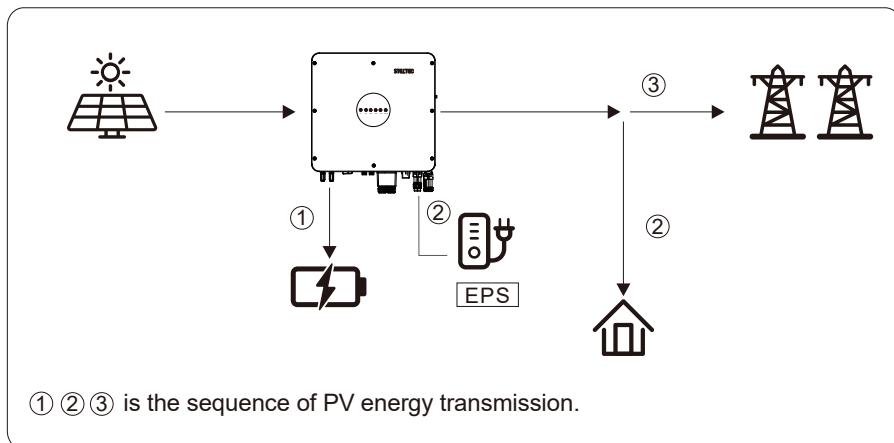


Allow grid charging

In this situation, the battery can be charged both with PV and grid.

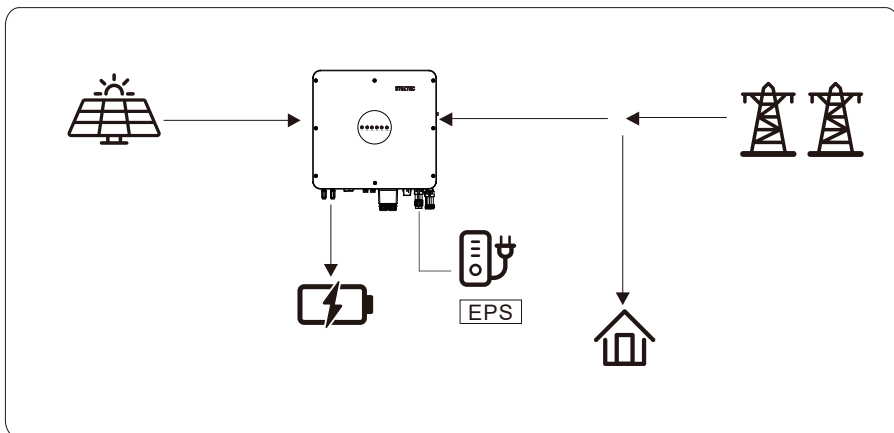
a) Wealthy PV power

When PV energy is wealthy, PV charges the battery first, then meets the load, and the rest is fed into the grid.



b) Limited PV power

When the PV energy is not enough to charge the battery, the grid energy will charge the battery as supplement. Meanwhile, the grid energy is consumed by loads.

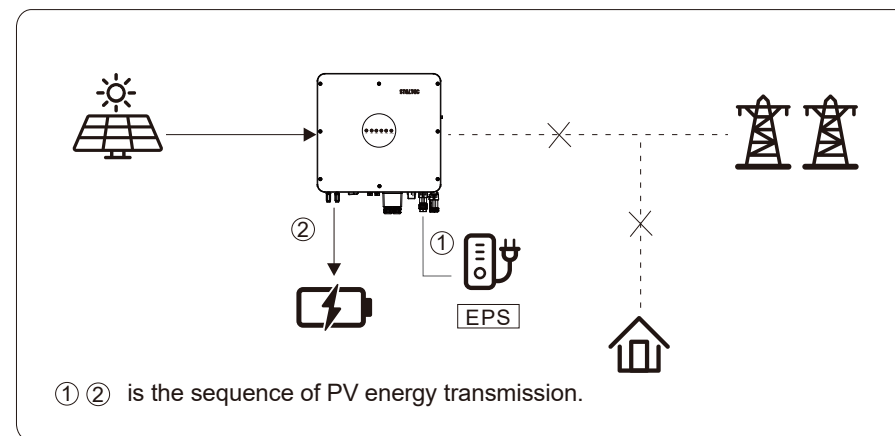


4.1.5 Off Grid Mode

When the power grid is cut off, the system automatically switches to Off Grid mode. Under off-grid mode, only critical loads are supplied to ensure that important loads continue to work with grid cut-off. Under this mode, the inverter can't work without the battery.

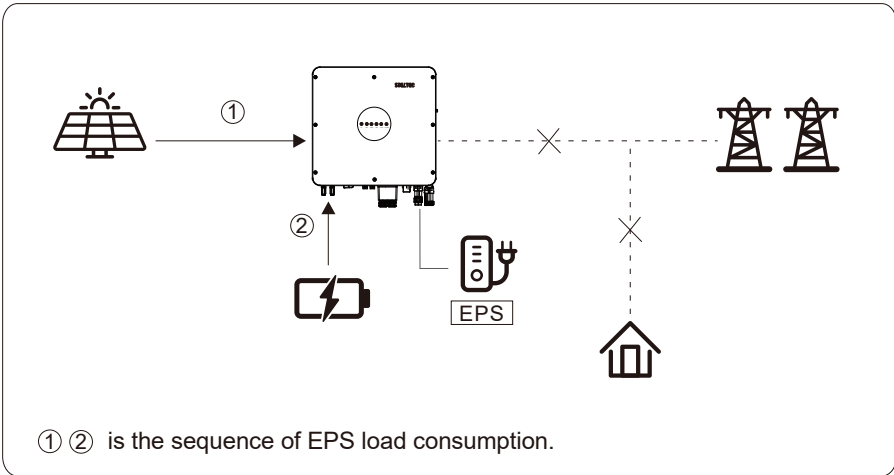
a) Wealthy PV power

When PV energy is wealthy, the PV power will be first consumed by critical load, charges battery then EPS load.



b) Limited PV power

When PV energy is limited, EPS loads are first powered by PV and then supplemented by battery.



NOTICE

Under this mode, please complete the output voltage and frequency settings.

It is better to choose the battery capacity larger than 100Ah to ensure EPS function work normally. If EPS output loads are inductive or capacitive loads, to make sure the stability and reliability of system, it is recommended to configure the power of these loads to be within 50% EPS output power range.

4.2 Start up the System

Check and confirm the installation is secure and strong enough and that the system groundings is OK. Then confirm the connections of AC, battery, PV etc. are correct. Confirm the parameters and configurations conform to relevant requirements.

AC Frequency 50/60Hz	PV Voltage 90~530V
Battery Voltage 42~60V	Grid AC Voltage 180~270V

Make sure all the above aspects are right, then follow the procedure to start up the inverter:

- 1) Power on PV.
- 2) Power on the Battery.
- 3) Power on the AC.
- 4) Power on the EPS.
- 5) Connect the cell phone App via Bluetooth. Please refer to Section 7.2 for details.
- 6) Click the Power ON in the App for the first time. Please refer to Section 7.2 for details.

4.3 Shutdown Procedure

According to actual situation, if there is a must to shut-down the running system, please follow below procedure:

- 1) Connect the cell phone App via Bluetooth. Please refer to Section 7.2 for details.
- 2) Click the Power OFF on the App. Please refer to Section 7.2 for details.
- 3) Power off the EPS.
- 4) Power off the AC.
- 5) Power off the Battery.
- 6) Power off the PV.
- 7) If you need to disconnect the inverter cables, please wait at least 10 minutes before touching these parts of inverter.

5 Commissioning and Inspection

5.3Commissioning

It is necessary to make a complete commissioning of the E-home system. This will essentially protect the system from fire, electric shock or other damages or injuries.

5.3.1 Inspection

Before commissioning, the operator or installer (qualified personnel) must inspect the system carefully and make sure:

- 1.The system is firmly installed correctly following the contents and notifications of this manual, and there are enough spaces for operation, maintenance and ventilation.
- 2.All the terminals and cables are in good status without any damages.
- 3.No items are left on the inverter or within the required clearance section.
- 4.The PV, battery pack is working normally, and grid is normal.

5.3.2 Commissioning Procedure







After the inspection and make sure status is right, then start the commissioning of the system.

- 1.Power on the system by referring to the Startup section 4.
- 2.Setting the parameters on the App according to user's requirement.
- 3.Finish commissioning.

LED Indicator	Status	Description
PV	On	PV input is normal.
	Blink	PV input is abnormal.
	Off	PV is unavailable.
BAT	On	Battery is charging.
	Blink	Battery is discharging. Battery is abnormal.
	Off	Battery is unavailable.
GRID	On	GRID is available and normal.
	Blink	GRID is available and abnormal.
	Off	GRID is unavailable.
COM	On	Communication is ok.
	Off	Power supply is unavailable.
EPS	On	EPS power is available.
	Blink	EPS output is abnormal.
	Off	EPS power is unavailable.
ALARM	On	Fault has occurred and inverter shuts down.
	Blink	Alarms has occurred but inverter doesn't shut down.
	Off	No fault.

6 User Interface

6.1 LED

<p>This section describes the LED panel. LED indicator includes PV, BAT, GRID, EPS, COM, ALARM indicators. It includes the explanation of indicator states and summary of indicator states under the running state of the machine.</p>						
	PV	BAT	GRID	EPS	COM	ALARM

Details	Code	PV LED	Grid LED	BAT LED	EPS LED	COM LED	ALARM LED
PV normal		●	◎	◎	◎	◎	○
No PV		○	◎	◎	◎	◎	○
PV over voltage	B0						
PV under voltage	B4						
PV irradiation weak	B5	★	◎	◎	◎	◎	○
PV string reverse	B7						
PV string abnormal	B3						
On grid		◎	●	◎	◎	◎	○
Grid over voltage	A0						
Grid under voltage	A1						
Grid absent	A2						
Grid over frequency	A3	◎	★	◎	◎	◎	○
Grid under frequency	A4						
Grid abnormal	A6						
Grid over mean voltage	A7						
Neutral live wire reversed	A8						
Battery in charge		◎	◎	●	◎	◎	○
Battery absent	D1	◎	◎	○	◎	◎	○
Battery in discharge		◎	◎	★★	◎	◎	○
Battery under voltage	D3						
Battery over voltage	D2						
Battery discharge over current	D4	◎	◎	★	◎	◎	○
Battery over temperature	D5						
Battery under temperature	D6						
Communication loss (Inverter - BMS)	D8						
EPS output active		◎	◎	◎	●	◎	◎
EPS output inactive		◎	◎	◎	○	◎	◎
EPS short circuit	DB						
EPS over load	DC						
EPS output voltage abnormal	D7	◎	◎	◎	★	◎	○
EPS over dc-bias voltage	CP						

Details	Code	PV LED	Grid LED	BAT LED	EPS LED	COM LED	ALARM LED
RS485/DB9/BLE/USB		◎	◎	◎	◎	●	◎
Inverter over temperature	C5						
Fan abnormal	C8						
Inverter in power limit state	CL						
Data logger lost	CH	◎	◎	◎	◎	◎	★
Meter lost	CJ						
Remote off	CN						
PV insulation abnormal	B1						
Leakage current abnormal	B2						
Internal power supply abnormal	C0						
Inverter over dc-bias current	C2						
Inverter relay abnormal	C3						
GFCI abnormal	C6						
System type error	C7						
Unbalance Dc-link voltage	C9						
Dc-link over voltage	CA	◎	◎	◎	◎	◎	●
Internal communication error	CB						
Internal communication loss(E-M)	D9						
Internal communication loss(M-D)	DA						
Software incompatibility	CC						
Internal storage error	CD						
Boost abnormal	CG						
Dc-dc abnormal	CU						

Remark: ● Light on ○ Light off ◎ Keep original status
 ★ Blink 1s and off 1s ★★ Blink 2s and off 1s

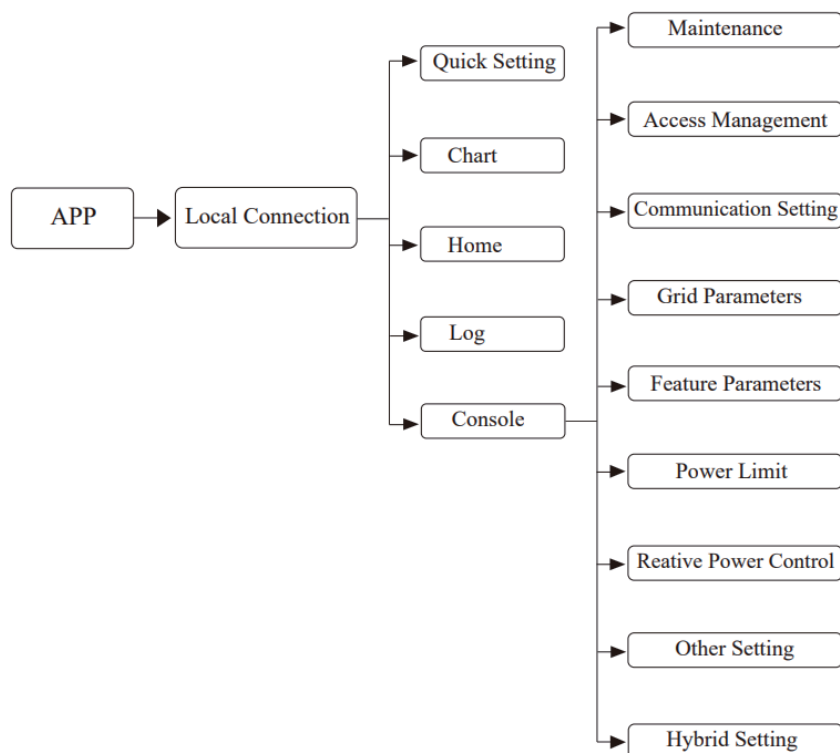
6.2 App Setting Guide

6.2.1

Download “SolarHope” from the App store or Google Play.
The APP should access some permissions such as device’s location. You need to grant all access rights in all pop-up windows when installing the APP or setting your phone.

6.2.2 App Architecture

Local connection: APP reads data from inverter through Bluetooth connection with Modbus protocol to display and configure inverter parameter.



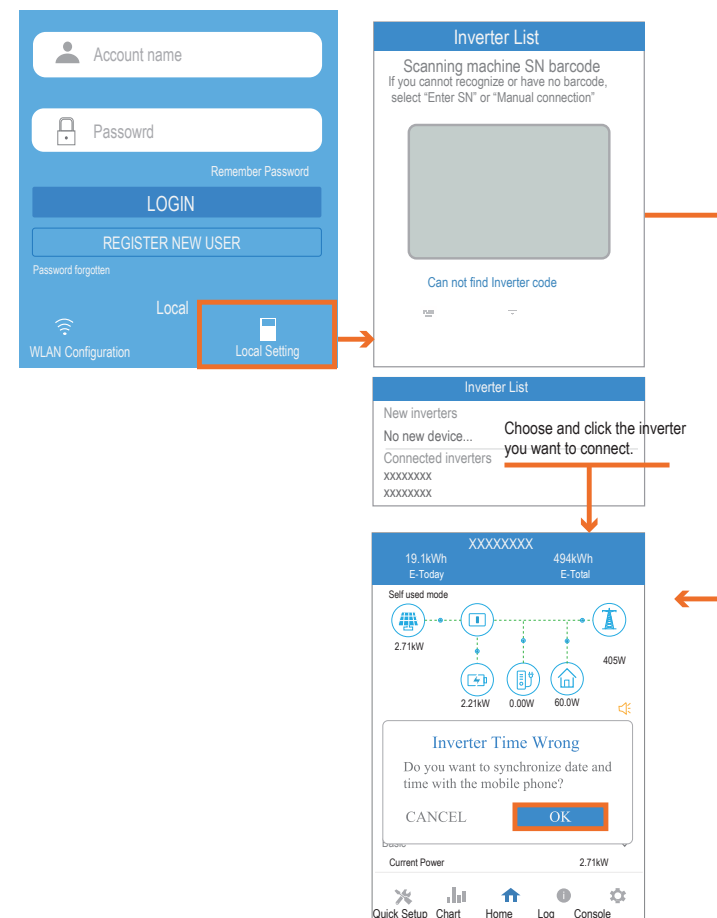
6.2.3 Local Setting

Access Permission

Before using the local setting, “SolarHope” APP should access some permissions.
(You need to grant all access rights in all pop-up windows when installing the APP or setting your phone.) When the APP asks for permission, please click Allow.

Connect Inverter

Firstly, open the Bluetooth on your own phone, then open “SolarHope” APP.
Press Local Setting to go to the connect page. This page shows the inverters which you can connect or you have connected. (As shown below) Press the inverter’s name to connect it.



■ Quick Setting

1. Set parameters of power grid

- Step 1 Click each item to enter the parameters of power grid.
 Step 2 Click [Next](#) .
 Step 3 Click [Previous](#) back to the previous page.

XXXXXXX

1 2 3 4 5

Step2 Set parameters for the inverter to connect to the power grid.

Standard Code

Nominal Voltage(V)

Nominal frequency (Hz)

Date and Time

Click each item to enter the information.

Previous Next

2. Set parameters of power limit

- Step 1 Click each item to enter the parameters of power limit.
 Step 2 Click [Next](#) .
 Step 3 Click [Previous](#) back to the previous page.

XXXXXXX

1 2 3 4 5

Step3 Set parameters for the inverter to connect to the power limit.

Power control

Meter location

Meter Type

Power flow direction

Digital meter modbus address

Maximum feed in grid power(W)

Click each item to enter the information.

Previous Next

3. Set parameters of work mode

- Step 1 Click each item to enter the information of work mode.
 Step 2 Click [Next](#) .
 Step 3 Click [Previous](#) back to the previous page.

XXXXXXX

1 2 3 4 5

Step4 Set parameters for the inverter to connect to the workmode.

Hybrid work mode

Battery type selection

EPS Output

Click each item to enter the information.

Previous Next

4. Start Inverter

- Step 1 Click .
 Step 2 Click [Previous](#) back to the previous page.

XXXXXXX

1 2 3 4 5

Step5 Please click the button below to start the inverter.

Click it to start.

Previous

■ APP Power Chart

The power chart is showed by Day, Month and Year in our APP. For each exhibition method, it includes both Production and Consumption. We use different icons and colors for different power messages. The icon and color definition as below:



Color: Blue
Definition: Load consumption only from PV



Color: Red
Definition: Battery charge power with PV or AC



Color: Red
Definition: Battery discharge power for load consumption or feed-in grid



Color: Purple
Definition: Consumption power from grid



Color: Purple
Definition: Feed-in grid power from PV or battery



Color: Orange
Definition: Loadower



Color: Orange
Definition: PV generating power

1. Query (Daily) Data

Go to Chart > Day page. It will show the Daily Production or Consumption Curve in this page. You can swipe the screen left and right to switch the graph.

■ Day Chart--Production



The above combination day chart shows the PV production power distributed with three parts:
load consumption power (Blue)
battery charge power (Red)
feed-in grid power (Purple)

Day Chart--Consumption

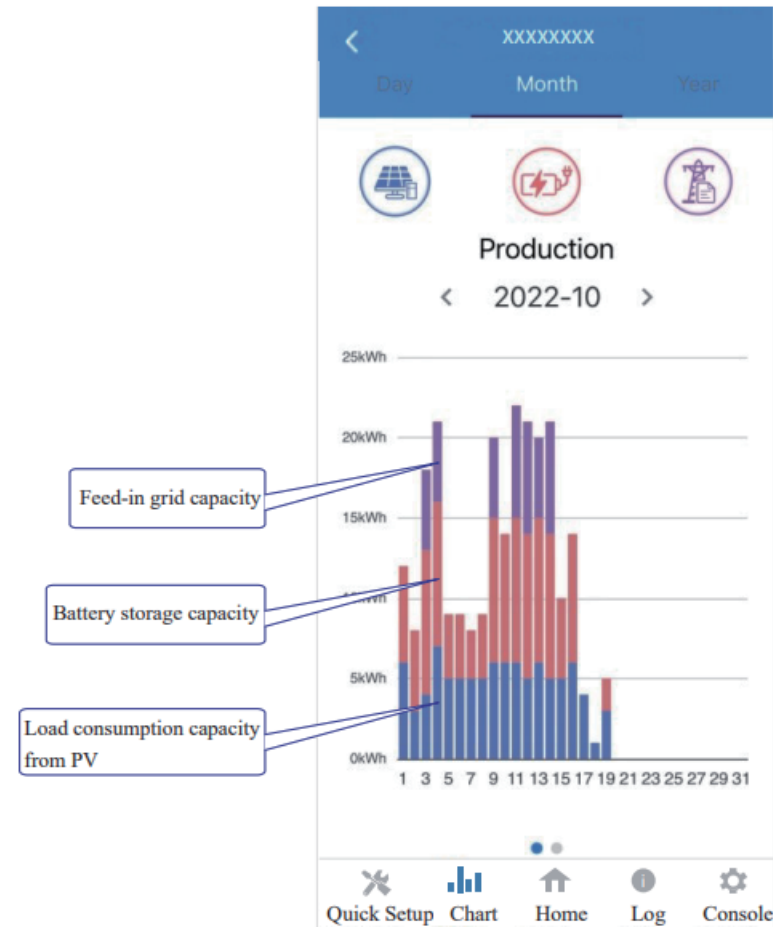


The above combination day chart shows the load consumption power from three parts:
 PV generation power (Blue)
 battery discharge power (Red)
 grid power (Purple)
 $\text{Power supported by PV} + \text{power supported by battery} + \text{power supported by grid} = \text{Load consumption power}.$

2. Query (Monthly) Data

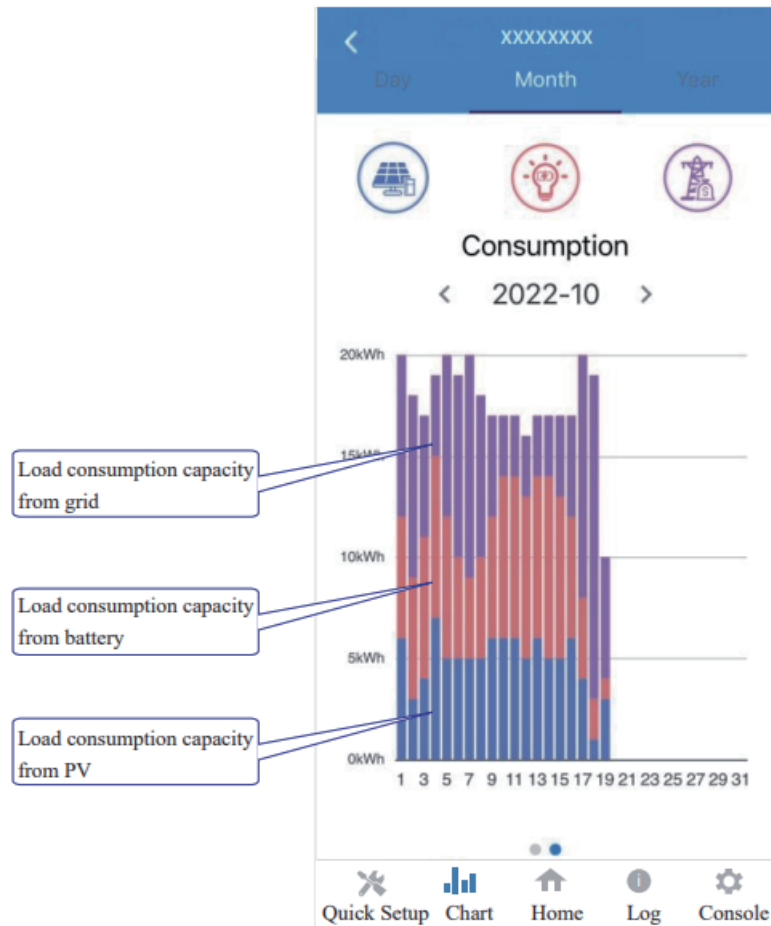
Go to Chart > Month page. It will show the Monthly Production or Consumption Curve in this page. You can swipe the screen left and right to switch the graph.

Month Chart--Production



The above combination day chart shows the load consumption power from three parts:
 load consumption capacity (Blue)
 battery storage capacity (Red)
 feed-in grid capacity (Purple)

■ Month Chart--Consumption

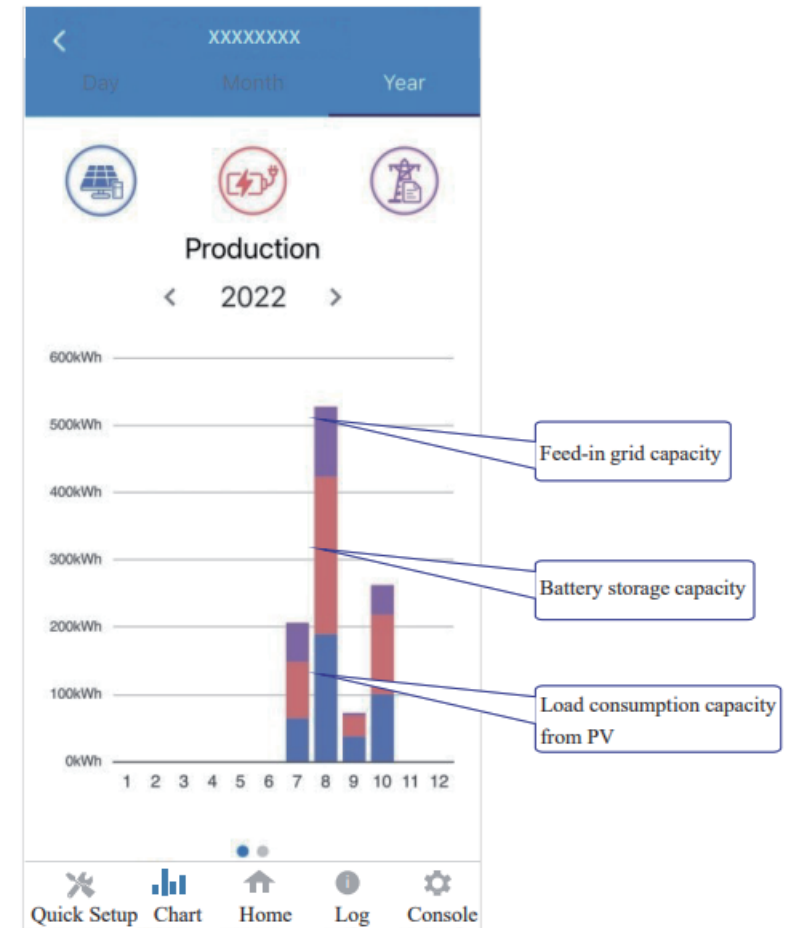


The above combination month chart shows the load consumption capacity from three parts:
 PV generation capacity (Blue)
 battery discharge capacity (Red)
 grid capacity (Purple)

Query (Yearly) Data

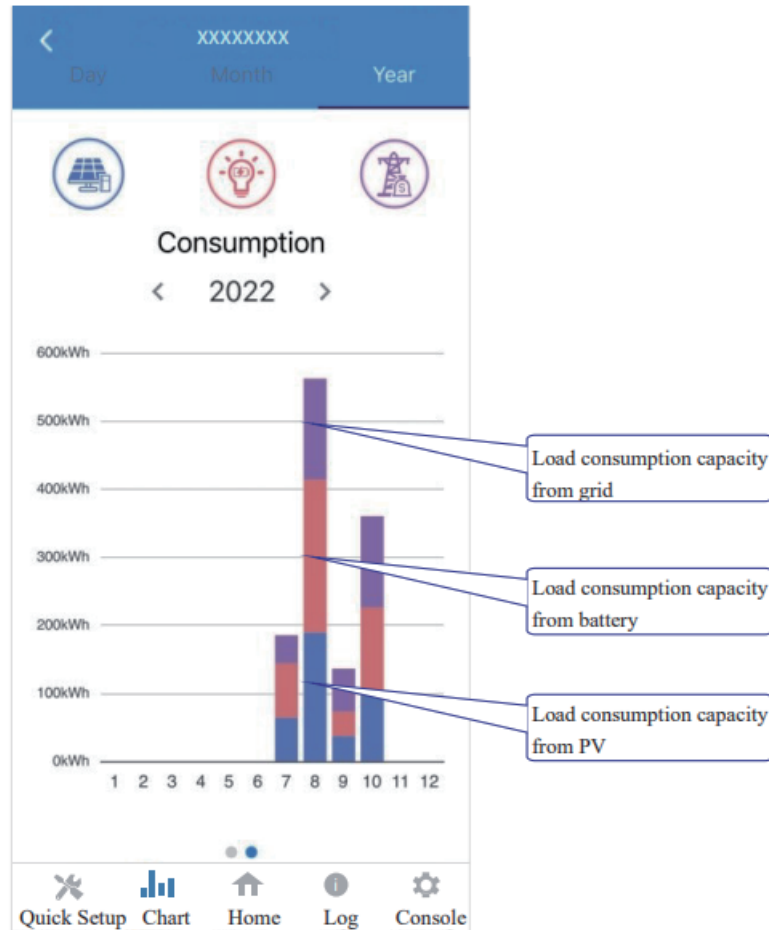
Go to Chart > Year page. It will show the Annually Production or Consumption Curve in this page. You can swipe the screen left and right to switch the graph.

Year Chart--Production



The above combination year chart shows the distribution of PV production capacity with three parts:
 load consumption capacity (Blue)
 battery storage capacity (Red)
 feed-in grid capacity (Purple)

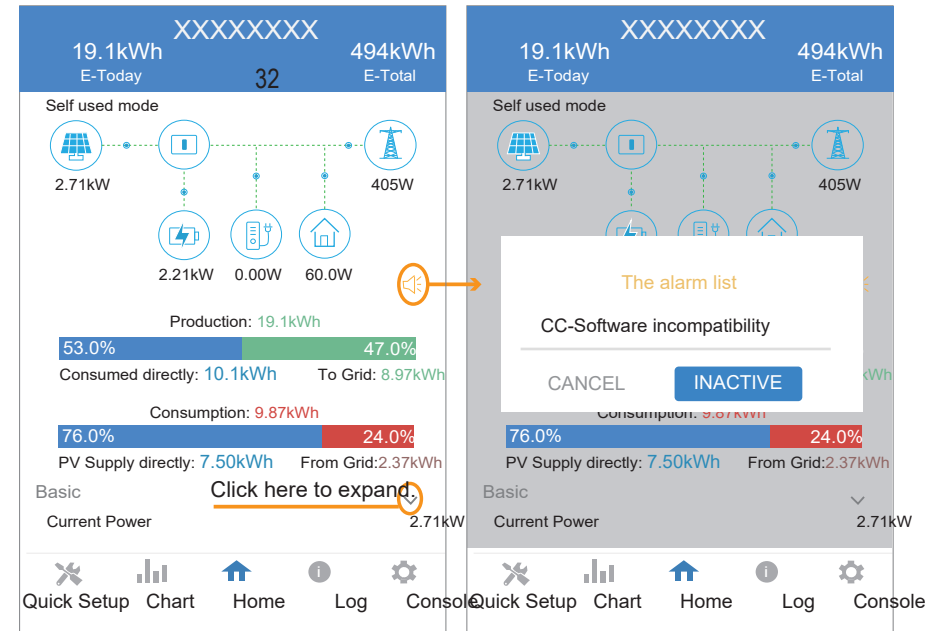
■ Year Chart--Consumption



The above combination year chart shows the load consumption capacity from three parts:
 PV generation capacity (Blue)
 battery discharge capacity (Red)
 grid capacity (Purple)

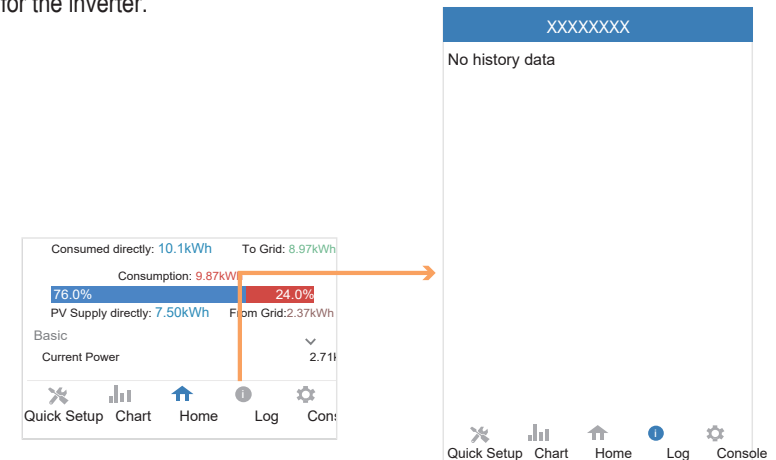
2. Local Setting Homepage

This page shows the basic information of inverter. Click to display the warning message.

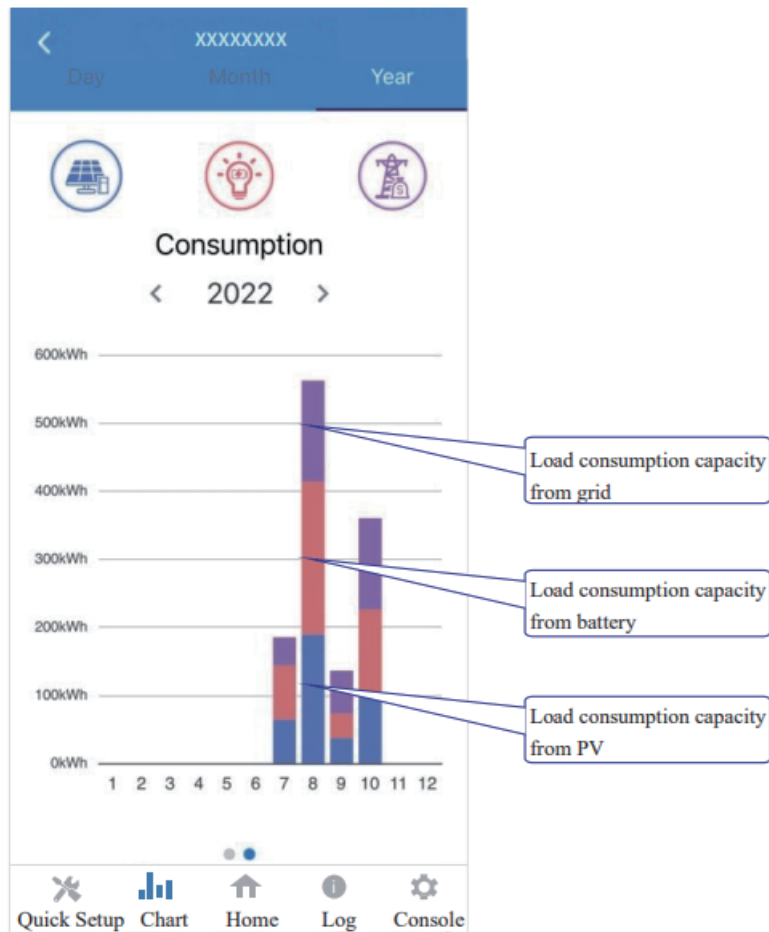


History Log

Press Log at the bottom and then go to the history logpage (as shown below). It contains all the logs for the inverter.



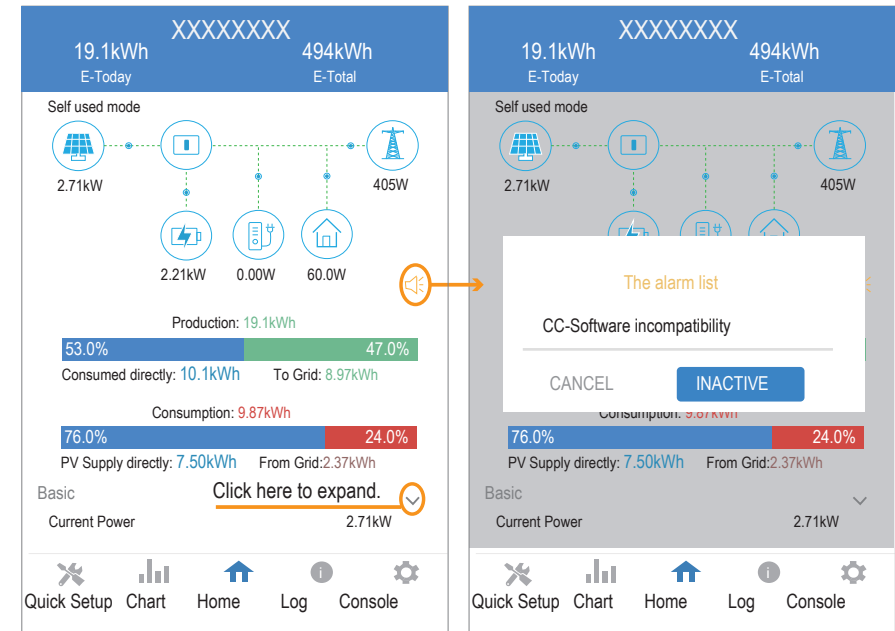
■ Year Chart--Consumption



The above combination year chart shows the load consumption capacity from three parts:
 PV generation capacity (Blue)
 battery discharge capacity (Red)
 grid capacity (Purple)

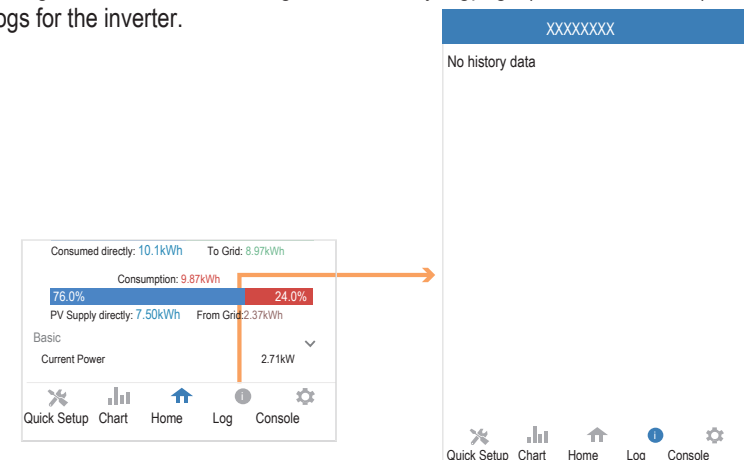
2. Local Setting Homepage

This page shows the basic information of inverter. Click to display the warning message.



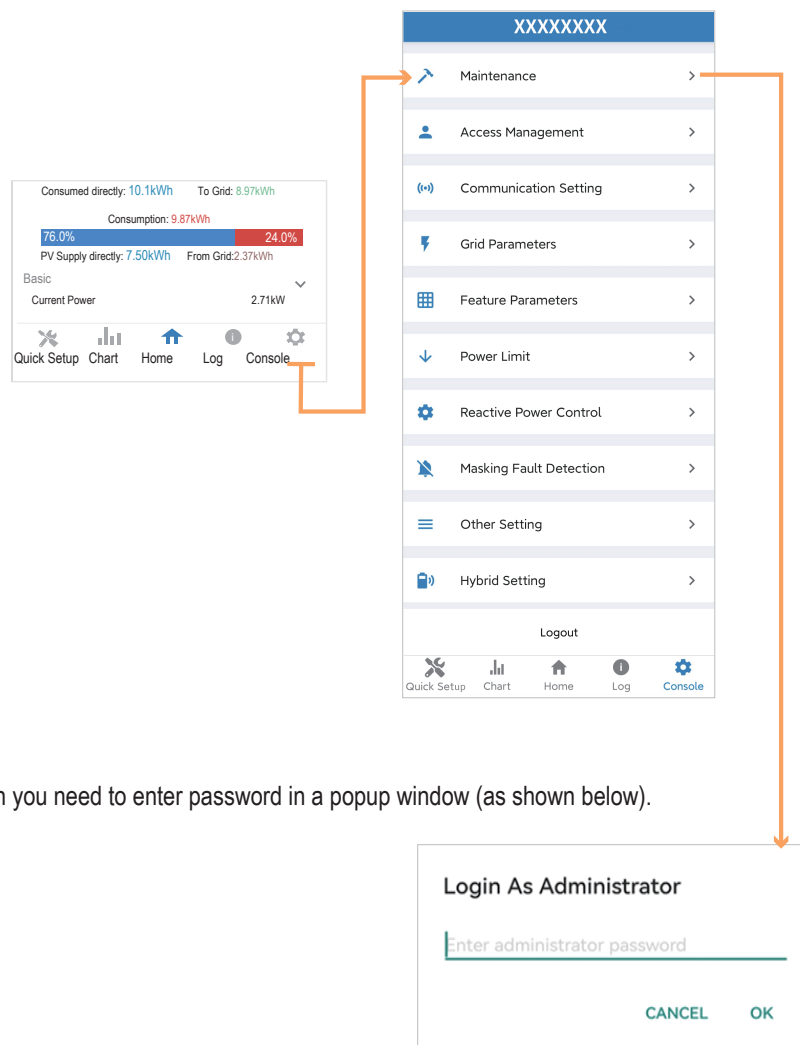
History Log

Press Log at the bottom and then go to the history logpage (as shown below). It contains all the logs for the inverter.

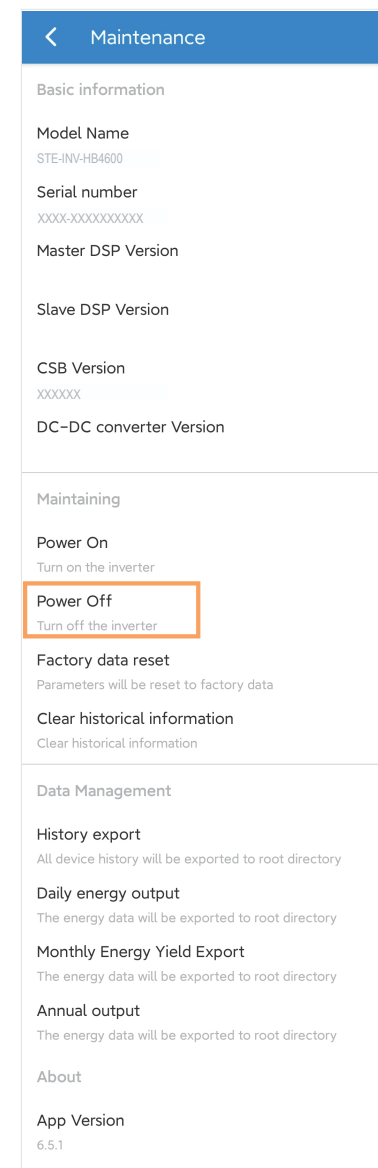


■ Maintenance

Go to [Console](#) page. And click [Maintenance](#)



Then you need to enter password in a popup window (as shown below).

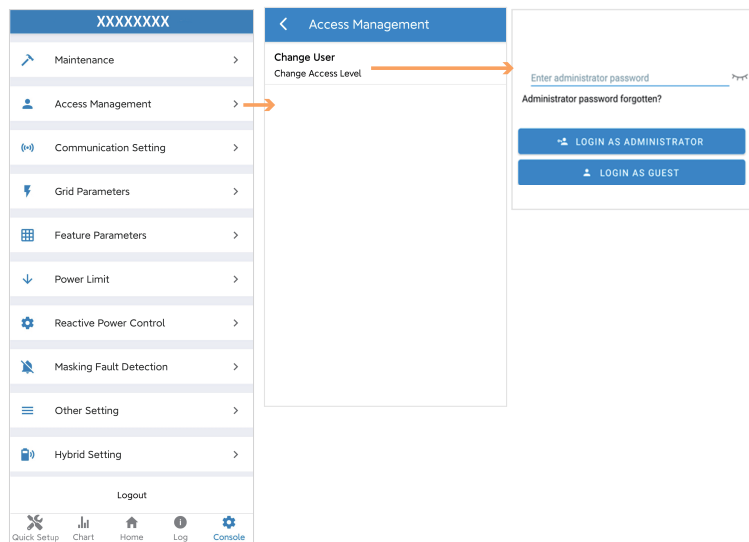


In this page, you can view the basic information like some version information, do some maintaining operations like turn off/on the inverter and manage data.

■ Console

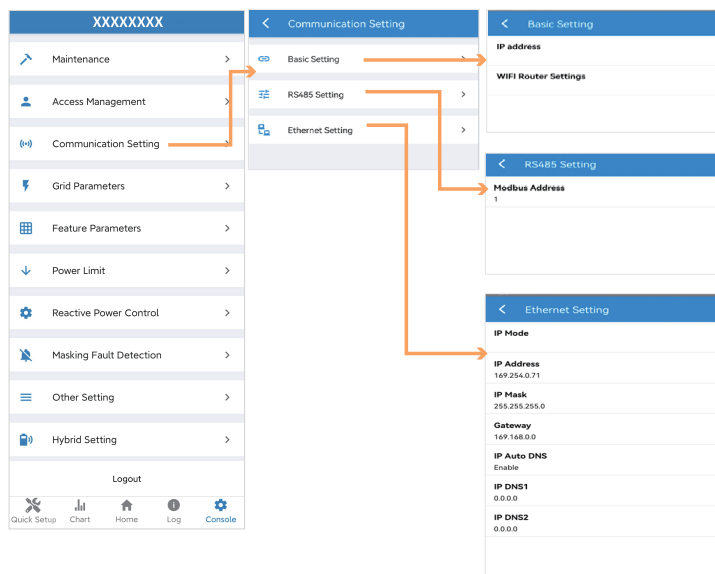
Access Management

Go to [Console](#) > [Access Management](#) page. In this page, you can switch the login permission.



Communication Setting

Go to [Console](#) > [Communication Setting](#) page. In this page, you can set or change the parameters of communication settings: Basic Setting, RS485 Setting and Ethernet Setting.



Grid Parameters

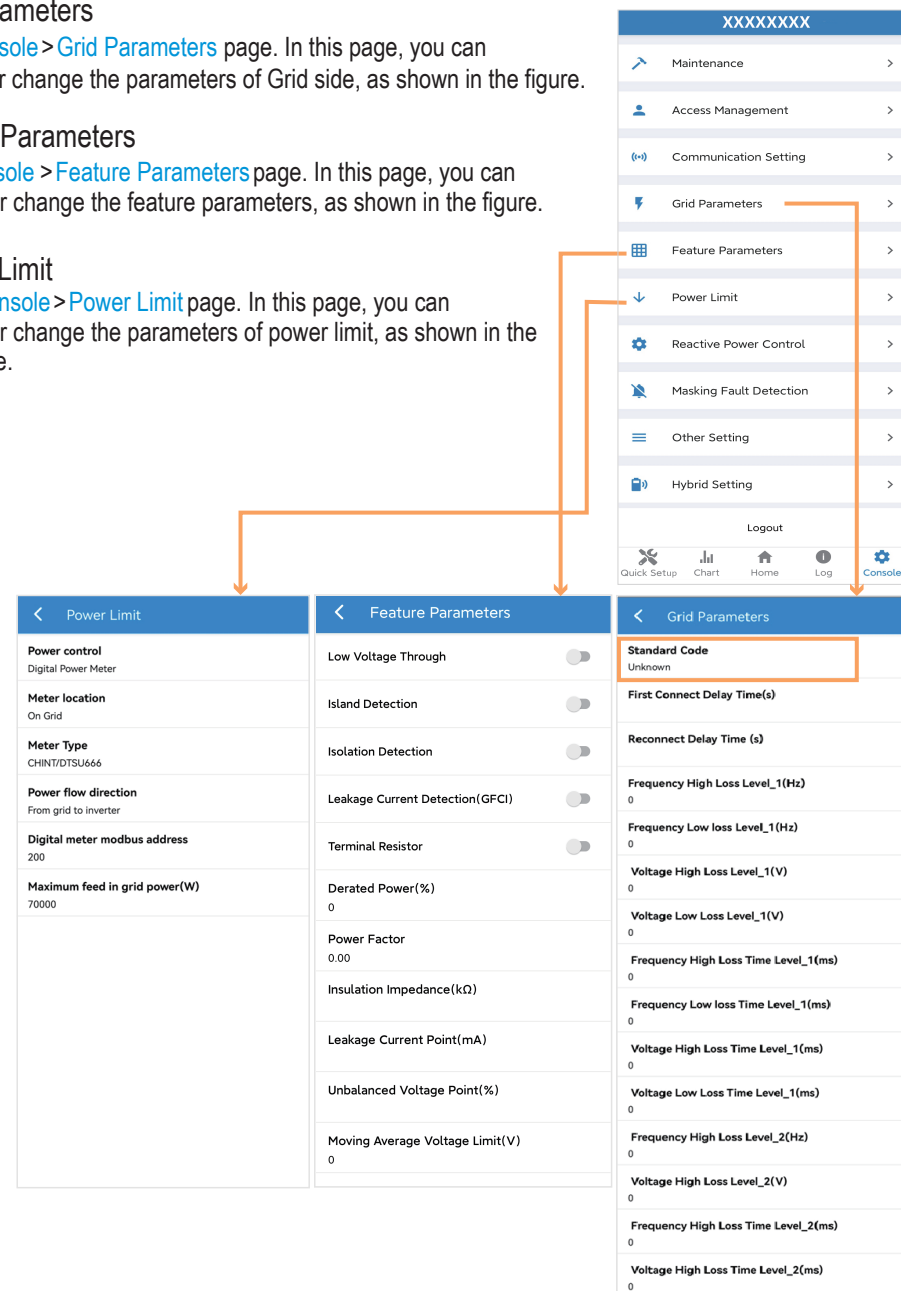
Go to [Console](#) > [Grid Parameters](#) page. In this page, you can set or change the parameters of Grid side, as shown in the figure.

Feature Parameters

Go to [Console](#) > [Feature Parameters](#) page. In this page, you can set or change the feature parameters, as shown in the figure.

Power Limit

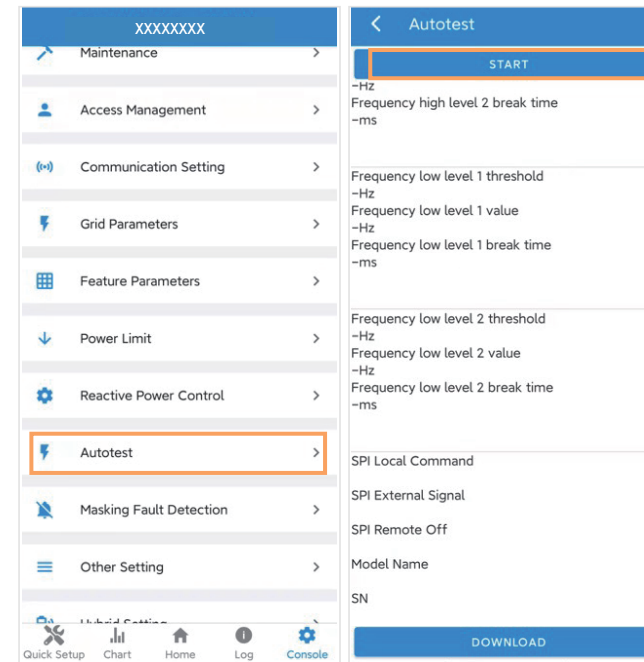
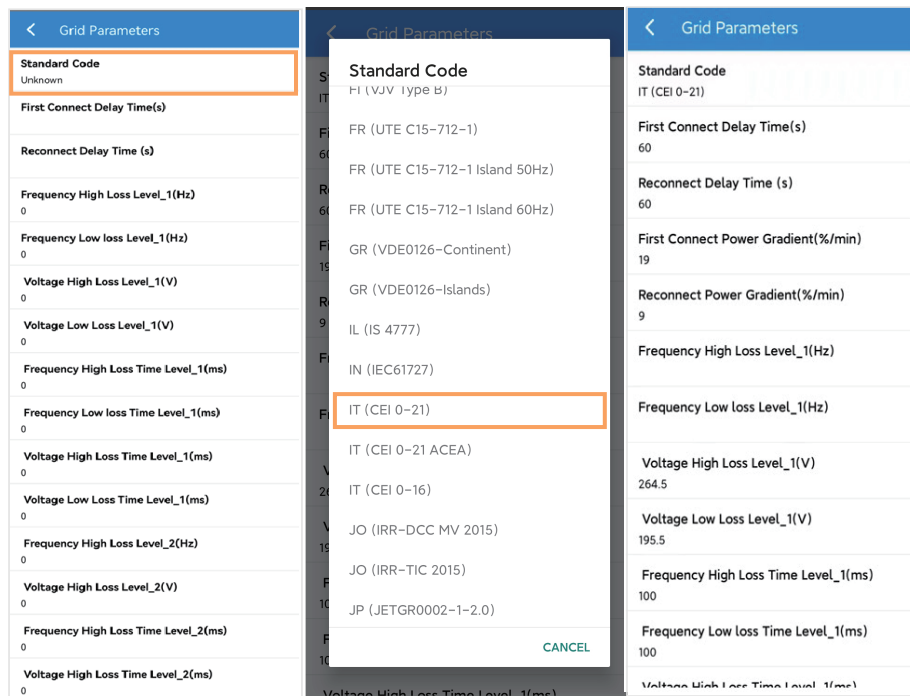
Go to [Console](#) > [Power Limit](#) page. In this page, you can set or change the parameters of power limit, as shown in the figure.



How to Autotest?

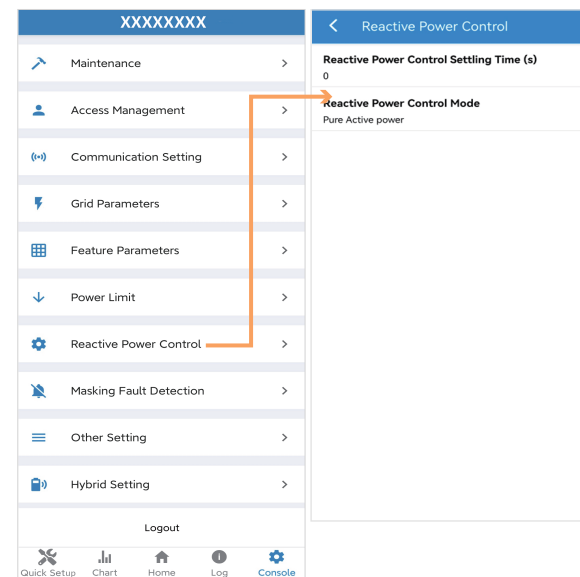
- Step 1. Go to [Grid Parameters](#) > [Standard Code](#) page to select the IT (CEI 0-21).
- Step 2. Back to [Console](#) page. Refresh the page and enter the [Autotest](#) page to click [START](#).
- Step 3. Then the inverter is autotesting. Wait for about 10 minutes, the autotest process will be finished.
- Step 4. You can click the [DOWNLOAD](#) to save the data file if necessary.

Note: if the [Autotest](#) option can't be turned out after the refresh in step 2. Please re-connect after logout. And then go to [Console](#) > [Autotest](#) page to click [START](#).



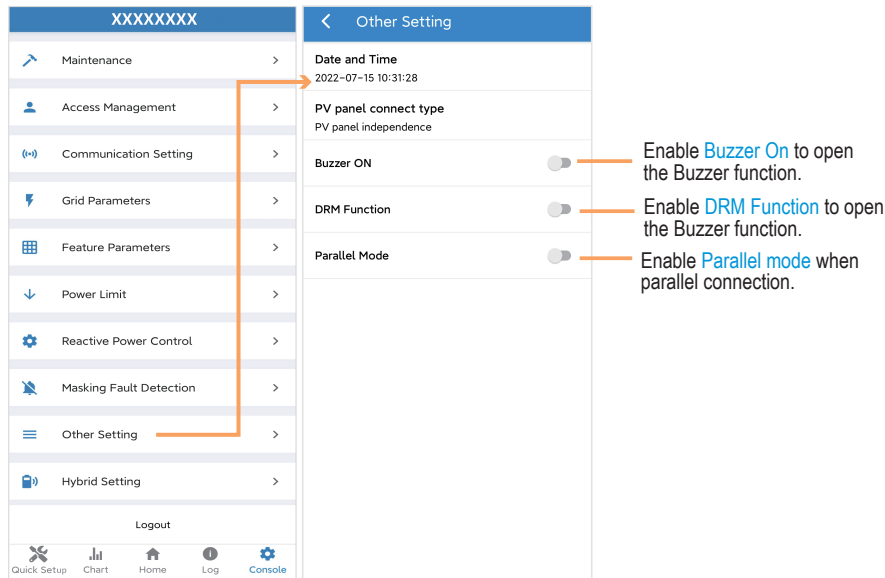
Reactive Power Control

Go to [Console](#) > [Reactive Power Control](#) page. In this page, you can set or change the Reactive Power .Control parameters.



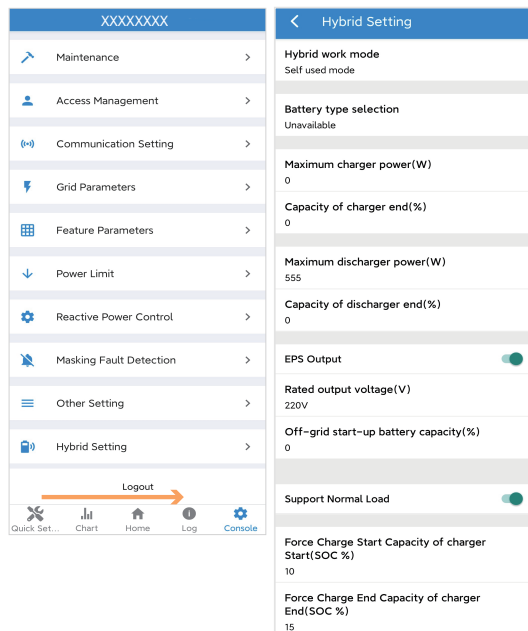
Other Setting

Go to [Console > Other Setting](#) page. In this page, you can set other setting parameters.



Hybrid Setting

Go to [Console > Hybrid Setting](#) page. In this page, you can set Hybrid Setting parameters.

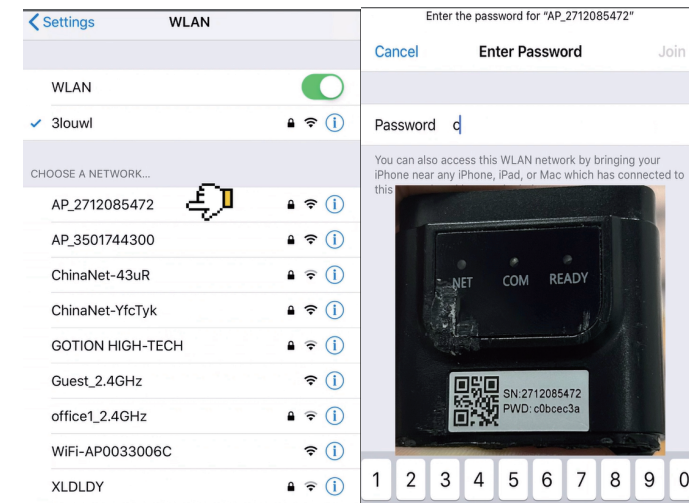


6.3 Remote Monitoring

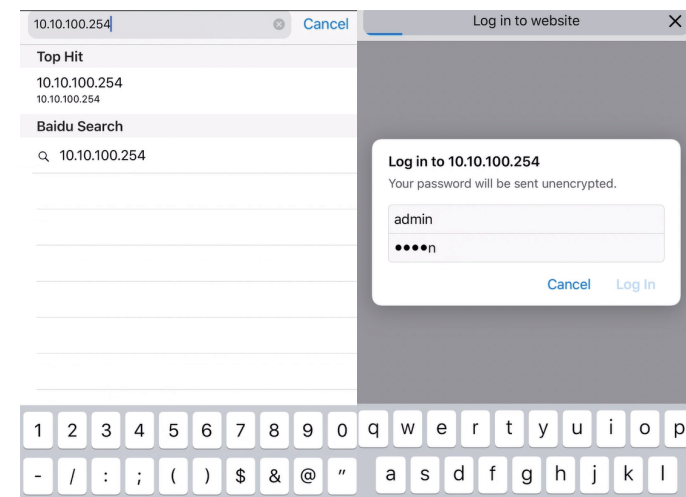
6.3.1 Remote monitoring

6.3.1.1 WIFI configuration(Connect the Inverter to router)

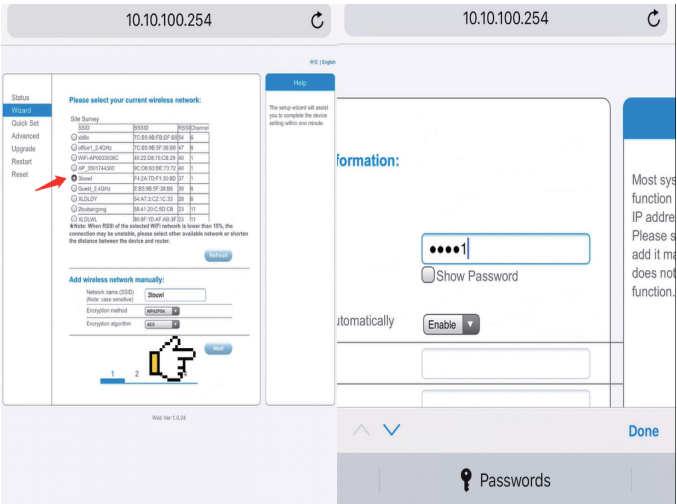
Step 1 Go to your phone/settings/WLAN to connect your phone to WIFI datalogger's signal. WIFI signal name is the datalogger's SN. WIFI password you can read from the datalogger body.



Step 2 Open your explorer of your phone and open the website: 10.10.100.254, login ID and password is both admin.



Step 3 Choose a WIFI signal(router) around your inverter which can connect to internet, input its password accordingly.



Step 4 WIFI configuration is done, you can create plant and add inverter on Solarman WEB or APP.

6.3.1.2 Solarman remote monitoring


Since you have configured the inverter to router, please use SOLARMAN WEB or APP for remote monitoring of the inverter.

If you are installers or distributors, please use SOLARMAN Business, here is the guide:

- 1. https://1m29I9z267.k.topthink.com/@solarmanbusiness-web_en/xiaomaishangjiabanWebcaozuoshouce.html
- 2. https://1m29I9z267.k.topthink.com/@solarmanbusiness-app_en/1xiaomaishangjiabanAPPyingyong.html

If you are end users, please use SOLARMAN Smart, here is the guide:

- 1. https://1m29I9z267.k.topthink.com/@solarmanSMART-web_en/1xiaomaizhidianWebyingyong.html
- 2. https://1m29I9z267.k.topthink.com/@solarmanSMART-app_en/1.xiaomaizhidianAPPyingyong.html

**CAUTION**

Before maintaining and commissioning inverter and its peripheral distribution unit, switch off all the charged terminals of the inverter and wait at least 10 minutes after the inverter is powered off.

7. Maintenance

7.1 Routine Maintenance

Items	Check Content	Maintain Content	Maintenance Interval
Inverter output status	Statistically maintain the status of electrical yield, and remotely monitor its abnormal status.	N/A	Weekly
PV inverter cleaning	Check periodically that the heat sink is free from dust and blockage.	Clean periodically the heat sink.	Yearly
PV inverter running status	Check that the inverter is not damaged or deformed. Check for normal sound emitted during inverter operation. Check and ensure that all inverter communications are running well.	If there is any abnormal phenomenon, replace the relevant parts.	Monthly
PV inverter electrical connections	Check that all AC, DC and communication cables are securely connected; Check that PGND cables are securely connected; Check that all cables are intact and free from aging.	If there is any abnormal phenomenon, replace the cable or re-connect it.	Semiannually

7.2 System Troubleshooting

When the inverter has an exception, its basic common warning and handling methods are shown below.

Code	Alarm Information	Suggestions
A0	Grid over voltage	<ol style="list-style-type: none"> 1. If the alarm occurs occasionally, possibly the power grid voltage is abnormal temporarily, and no action is required. 2. If the alarm occurs repeatedly, contact the local power station. After receiving approval of the local power bureau, revise the electrical protection parameter settings on the inverter through the App. 3. If the alarm persists for along time, check whether the AC circuit breaker /AC terminals is disconnected, or if the grid has a power outage.
A1	Grid under voltage	
A3	Grid over frequency	
A4	Grid under frequency	
A2	Grid absent	Wait till power is restored.
B0	PV over voltage	Check whether the maximum input voltage of a single PV string exceeds the MPPT working voltage. If yes, modify the number of PV module connection strings.
B1	PV insulation abnormal	<ol style="list-style-type: none"> 1. Check the insulation resistance against the ground for the PV strings. If a short circuit has occurred, rectify the fault. 2. If the insulation resistance against the ground is less than the default value in a rainy environment, set insulation resistance protection on the App.
B2	Leakage current abnormal	<ol style="list-style-type: none"> 1. If the alarm occurs occasionally, the inverter can be automatically recovered to the normal operating status after the fault is rectified. 2. If the alarm occurs repeatedly, contact your dealer for technical support.
B4	PV under voltage	<ol style="list-style-type: none"> 1. If the alarm occurs occasionally, possibly the external circuits are abnormal accidentally. The inverter automatically recovers to the normal operating status after the fault is rectified. 2. If the alarm occurs repeatedly or last a long time, check whether the insulation resistance against the ground of PV strings is too low.
C0	Internal power supply abnormal	<ol style="list-style-type: none"> 1. If the alarm occurs occasionally, the inverter can be automatically restored, and no action is required. 2. If the alarm occurs repeatedly, please contact the customer service.

C2	Inverter over dc-bias current	<ol style="list-style-type: none"> 1. If the alarm occurs occasionally, possibly the power grid voltage is abnormal temporarily, and no action is required. 2. If the alarm occurs repeatedly, and the inverter fails to generate power, contact the customer service.
C3	Inverter relay abnormal	<ol style="list-style-type: none"> 1. If the alarm occurs occasionally, possibly the power grid voltage is abnormal temporarily, and no action is required. 2. If the alarm occurs repeatedly, pls. refer to the suggestions or measures of Grid over voltage. If the inverter fails to generate power, contact the customer service center. If there is no abnormality on the grid side, the machine fault can be determined. (If you open the cover and find traces of damage to the relay, it can be concluded that the machine is faulty.) And pls. contact the customer service.
CN	Remote off	<ol style="list-style-type: none"> 1. Local manual shutdown is performed in APP. 2. The monitor executed the remote shutdown instruction. 3. Remove the communication module and confirm whether the alarm disappears. If yes, replace the communication module. Otherwise, please contact the customer service.
C5	Inverter over temperature	<ol style="list-style-type: none"> 1. If the alarm occurs occasionally, the inverter can be automatically recovered. No action is required. 2. If the alarm occurs repeatedly, please check whether the installation site has direct sunlight, bad ventilation, or high ambient temperature (such as installed on the parapet). Yet, if the ambient temperature is lower than 45° C and the heat dissipation and ventilation is good, please contact customer service.
C6	GFCI abnormal	<ol style="list-style-type: none"> 1. If the alarm occurs occasionally, it could have been an occasional exception to the external wiring. The inverter can be automatically recovered. No action is required. 2. If it occurs repeatedly or cannot be recovered for a long time, please contact customer service.
B7	PV string reverse	Check and modify the positive and negative polarity of the input string.
C8	Fan abnormal	<ol style="list-style-type: none"> 1. If the alarm occurs occasionally, please restart the inverter. 2. If it occurs repeatedly or cannot be recovered for a long time, check whether the external fan is blocked by other objects. Otherwise, Please contact customer service.
C9	Unbalance Dc-link voltage	<ol style="list-style-type: none"> 1. If the alarm occurs occasionally, the inverter can be automatically recovered. No action is required. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Please contact customer service.
CA	Dc-link over voltage	

CB	Internal communication error	1. If the alarm occurs occasionally, the inverter can be automatically recovered. No action is required. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Please contact customer service.
CC	Software incompatibility	
CD	Internal storage error	1. If the alarm occurs occasionally, the inverter can be automatically recovered. No action is required. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Please contact customer service.
CE	Data inconsistency	
CF	Inverter abnormal	1. If the alarm occurs occasionally, the inverter can be automatically recovered. No action is required. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Please contact customer service.
CG	Boost abnormal	
CJ	Meter lost	1. Check the meter parameter settings 2. Check whether the communication address of the inverter is consistent with that of the electricity meter through local APP. 3. The communication line is connected incorrectly or in bad contact 4. electricity meter failure. 5. If exclude the above faults, the alarm continues to occur, please contact the customer service center.
P1	Parallel ID warning	It is Parallel ID Alarm. Pls. check the parallel communication cable, and check whether any inverter joins or exits online. All inverters are powered off completely, check the line, and then power on the inverters again to ensure that the alarm is lifted
P2	Parallel SYN signal warning	Parallel synchronization signal is abnormal. Check whether the parallel communication cable is properly connected.
P3	Parallel BAT abnormal	The parallel battery is abnormal. Check whether the battery of the inverter is reported low voltage or the battery is not connected.
P4	Parallel GRID abnormal	The parallel grid is abnormal. Check whether the grid of the inverter is abnormal.

D2	Battery over voltage	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. Check whether the battery overvoltage protection value is improperly set. 3. The battery is abnormal. 4. If exclude the above, the alarm continues to occur, please contact customer service.
D3	Battery under voltage	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. Check the communication line connection between BMS and inverter (lithium battery). 3. The battery is empty or the battery voltage is lower than the SOC cut-off voltage. 4. The battery undervoltage protection value is improperly set. 5. The battery is abnormal. 6. If exclude the above, the alarm continues to occur, please contact the customer service center.
D4	Battery discharger over current	1. Check whether the battery parameters are correctly set. 2. The battery is undervoltage. 3. Check whether a separate battery is loaded and the discharge current exceeds the battery specifications. 4. The battery is abnormal. 5. If exclude the above, and the alarm continues to occur, please contact customer service.
D5	Battery over temperature	1. If the alarm occurs repeatedly, please check whether the installation site is in direct sunlight and whether the ambient temperature is too high (such as in a closed room). 2. If the battery is abnormal, replace it with a new one 3. If exclude the above, and the alarm continues to occur, please contact the customer service center.
D6	Battery under temperature	
D7	EPS output voltage abnormal	1. Check whether the EPS voltage and frequency Settings are within the specified range 2. Check whether the EPS port is overloaded 3. When not connected to the power grid, check whether EPS output is normal 4. If exclude the above, and the alarm continues to occur, please contact customer service.
D8	Communication error (Inverter-BMS)	1. Check whether the battery is disconnected. 2. Check whether the battery is well connected with the inverter. 3. Confirm that the battery is compatible with the inverter. It is recommended to use CAN communication. 4. Check whether the communication cable or port between the battery and the inverter is faulty. 5. If exclude the above, and the alarm continues to occur, please contact the customer service center.

D9	Internal communication loss (E-M)	1. Check whether the communication cables between EPS, electricity meter and inverter are well connected and whether the wiring is correct 2. Check whether the communication distance is within the specified range 3. Disconnect the external communication and restart the electricity meter and inverter.
DA	Internal communication loss (M-D)	4. If exclude the above, and the alarm continues to occur, please contact the customer service center.
CU	Dcdc abnormal	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. If the alarm occurs repeatedly, please check: 1) Check whether the MC4 terminal on the PV side is securely connected. 2) Check whether the voltage at the PV side is open circuit, short circuit or ground to ground, etc. If exclude the above, and the alarm continues to occur, please contact the customer service center.
CP	EPS over dc-bias voltage	1. If the alarm occurs occasionally, the inverter can be automatically recovered and no action is required. 2. If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
DB	EPS short circuit	1. Check whether the live line and null line of EPS output are short-circuited. 2. If it is confirmed that the output is not short-circuited or an alarm, please contact customer service to report for repair (after the troubleshooting of alarm problems, EPS switch needs to be manually turned on during normal use)
DC	EPS over load	1. Disconnect the EPS load and check whether the alarm is lifted 2. If the load is disconnected but the alarm still exists, please contact the customer service. (After the alarm is lifted, the EPS switch needs to be manually turned on for normal use.)

7.3 Removing the Inverter

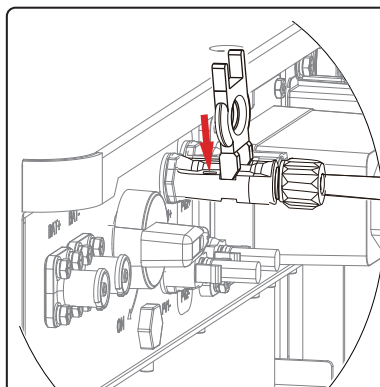


WARNING

Before removing DC input connector, double check DC input switch is turned to OFF to avoid inverter damage and personal injury.

Perform the following procedures to remove the inverter:

Step 1. Disconnect all cables from the inverter, including communications cables, DC input power cables, AC output power cables, and protective ground (PGND) cable, as shown below.

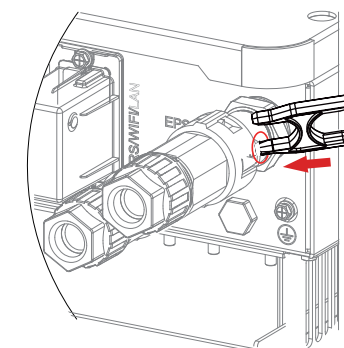
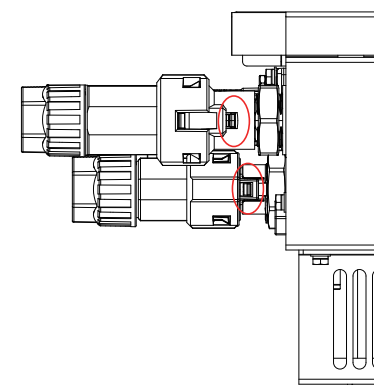


PV Connectors Removing Detail



NOTE

To remove the PV/Grid/EPS connectors, insert the removal tool into the bayonet according to the position indicated in the drawing, press inward, and then take out the connector outward.



Grid/EPS Connectors Removing Detail

Step 2. Remove the inverter from the mounting bracket.