User Manual

5KW
Energy Storage System

Version: 1.0

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ABOUT THIS MANUAL

Purpose

This manual describes the assembly, installation, operation and troubleshooting of this unit. Please read this manual carefully before installations and operations. Keep this manual for future reference.

Scope

This manual provides safety and installation guidelines as well as information on tools and wiring.

SAFETY INSTRUCTIONS

⚠ **WARNING: This chapter contains important safety and operating instructions. Read and keep this manual for future reference.**

1. Before using the unit, read all instructions and cautionary markings on the unit, the batteries and all appropriate sections of this manual.
2. **CAUTION** – This inverter does not support other batteries except the corresponding lithium battery modules.
3. Do not disassemble the unit. Take it to a qualified service center when service or repair is required. Incorrect re-assembly may result in a risk of electric shock or fire.
4. To reduce risk of electric shock, disconnect all wirings before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
5. **CAUTION** – Only qualified personnel can install this device with battery.
6. For optimum operation of this inverter/charger, please follow required spec to select appropriate cable size. It's very important to correctly operate this inverter/charger.
7. Please strictly follow installation procedure when you want to disconnect AC or PV terminals. Please refer to INSTALLATION section of this manual for the details.
8. DC breaker is provided as over-current protection for the battery module.
9. GROUNDING INSTRUCTIONS -This inverter/charger should be connected to a permanent grounded wiring system. Be sure to comply with local requirements and regulation to install this inverter.
10. NEVER cause AC output and DC input short circuited. Do NOT connect to the mains when DC input short circuits.
11. **Warning!!** Only qualified service persons are able to service this device. If errors still persist after following troubleshooting table, please send this inverter/charger back to local dealer or service center for maintenance.
12. **WARNING:** Because this inverter is non-isolated, only three types of PV modules are acceptable: single crystalline, poly crystalline with class A-rated and CIGS modules. To avoid any malfunction, do not connect any PV modules with possible current leakage to the inverter. For example, grounded PV modules will cause current leakage to the inverter. When using CIGS modules, please be sure NO grounding.
13. **CAUTION:** It's required to use PV junction box with surge protection. Otherwise, it will cause damage on inverter when lightning occurs on PV modules.

INTRODUCTION

This energy storage system can provide power to connected loads by utilizing PV power, utility power and battery power and store surplus energy generated from PV solar modules for use when needed. When the sun has set, energy demand is high, or there is a black-out, you can use the energy stored in this system to meet your energy needs at no extra cost. In addition, this energy storage system helps you pursue the goal of energy self-consumption and ultimately energy-independence.

Features

- Pure sine wave inverter
- Touchable button with 5” colored LCD
- Built-in Wi-Fi for mobile monitoring (APP is required)
- Built-in anti-dusk kit
- Communication ports for BMS (RS485)
- Configurable input voltage ranges for home appliances and personal computers via LCD control panel
- Configurable output usage timer and prioritization
- Configurable charger source priority via LCD control panel
- Configurable battery charging current based on applications via LCD control panel
- Compatible to utility mains or generator power

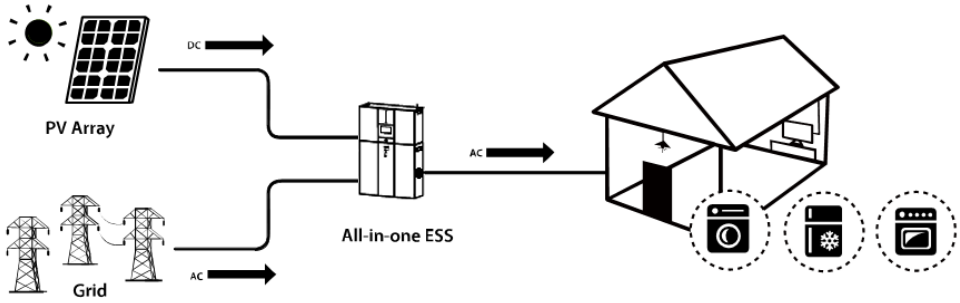
Basic System Architecture

The following illustration shows basic application for this unit. It also required the following devices to have a complete running system:

- Generator or Utility mains.
- PV modules

Consult with your system integrator for other possible system architectures depending on your requirements.

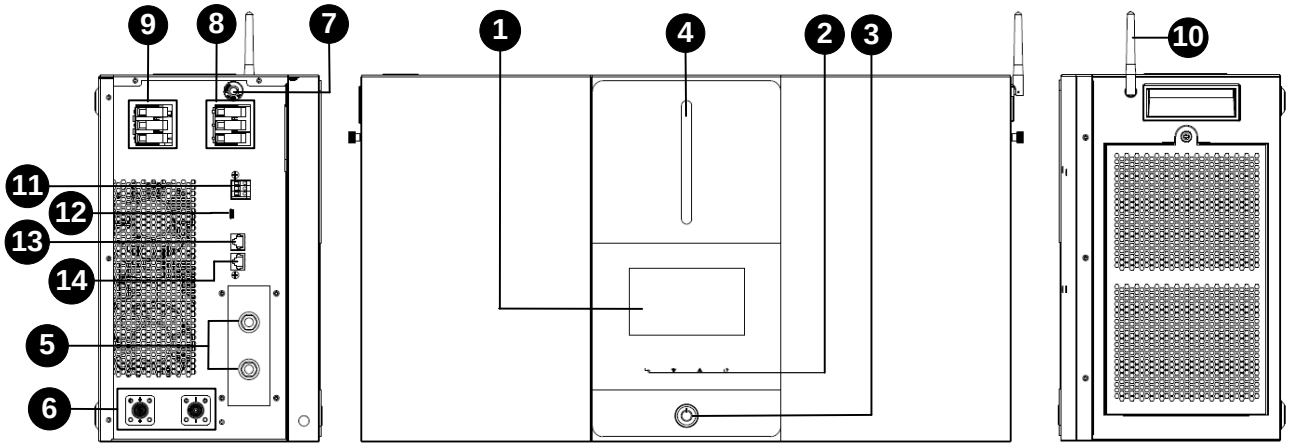
This inverter can power various appliances in home or office environment, including motor-type appliances such as tube light, fan, refrigerator and air conditioners.



Energy storage system overview

Product Overview

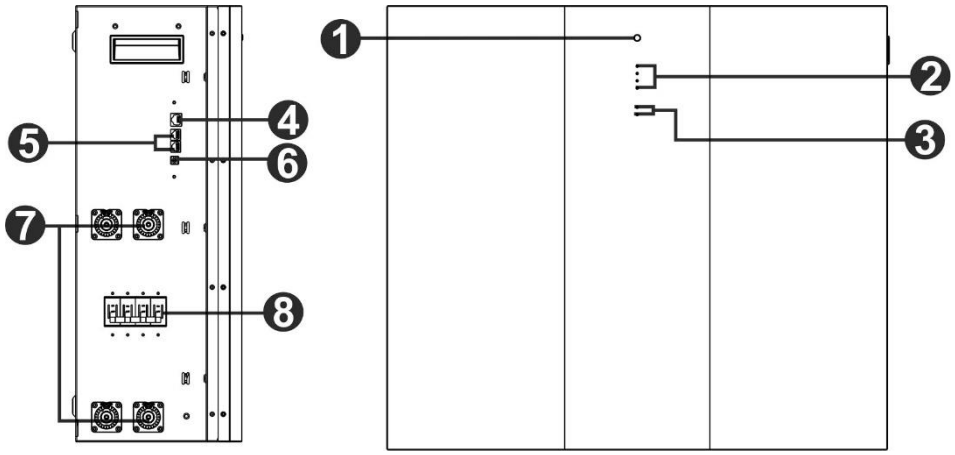
Inverter Module



Left Side View **Front View** **Right Side View**

1. LCD display
2. Touchable function buttons
3. Power on/off button
4. LED Bar
5. PV terminals
6. Battery connectors
7. AC Breaker
8. AC input
9. AC output
10. WiFi antenna
11. Dry contact
12. USB port
13. RS232 comm. Port
14. BMS port

Battery Module



Side View **Front View**

1. Power on/off button
2. Battery capacity indicators
3. Battery status indicators
4. RS485 port (BMS com. port)
5. Extension port
6. ID switch
7. Battery connecters
8. DC breaker

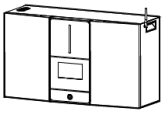
INSTALLATION

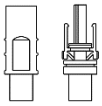
Unpacking and Inspection

Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. You should have received the following items inside of package:

Inverter Package

You should receive the following items inside of package:


Inverter module

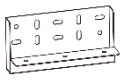

PV connector


Software CD


Manual


RS232 cable


BMS cable


Mounting brackets


x 6
Flat-head screws


x 6
Mounting screws


x 6
Nylon-Plug


Bracket cover


x 4
Round-head screws


Mouting plate

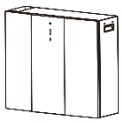

WiFi antenna

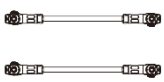

x 2
L-type Bracket

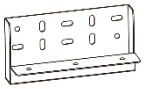

x 2
Expansion Bolt M10

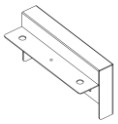
Battery Module Package

You should receive the following items inside of package:


Battery module


Battery cable #B-B


Top-bracket


Bottom-bracket


x 2
L-shape plate


X 4
Round-head screws


x 7
Flat-head screws


x 8
Mounting screws

x 8
Nylon-Plug

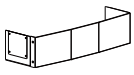
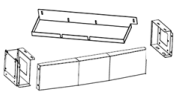
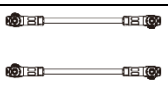

RJ11 cable


RJ11 Jumper


X 2
Ball screws

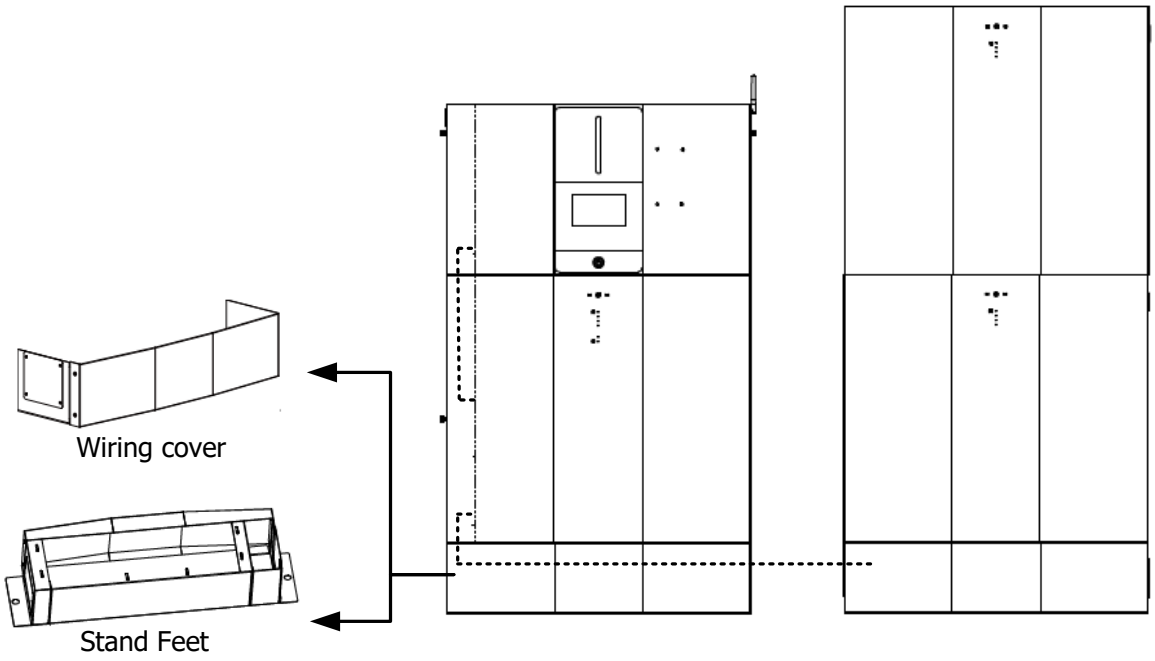
Optional Accessories

Optional accessories can be purchased separately.

Option	Package contents
1	 Wiring cover  x 4 Thumb screws
2	 Stand Feet  x 6 Thumb screws  x2 Fixing Plate  x 4 Flat-head screws  X 8 Round-head screws  x 4 Expansion Bolt M10  x 2 L-type Bracket
3	 Battery cable #B2-B (1500mm, for parallel battery modules connected side by side)

Introduction of optional wiring cover or stand feet

There is a separate part called "Wiring cover" or "Stand Feet". If connecting parallel battery modules, you may purchase it separately to cover all cables on the bottom.



Mounting the Unit

Selecting Mounting Location

Consider the following points to install the energy storage system:

- Do not mount the unit on flammable construction materials.
- Mount on a solid surface
- This unit might make noises during operation which may be perceived as a nuisance in a living area.
- Install this unit at eye level in order to allow the readability of LCD display at all times.
- For proper air circulation to dissipate heat and further maintenance, allow a clearance of approx. 75 cm to the sides of the unit.
- To avoid battery falling, be sure to leave around 80~100cm distance between battery modules installed.
- Dusty conditions on the unit may impair the performance of this inverter.
- The ambient temperature should be between 0°C and 40°C and relative humidity should be between 5% and 85% to ensure optimal operation.
- The recommended installation is vertical adherence.
- For proper operation of this unit, please use appropriate cables for grid connection.
- The pollution degree of the energy storage system is PD2. Select an appropriate mounting location. Install the inverter and battery modules in a protected area that is dry, free of excessive dust and with adequate air flow. Do NOT operate it in the place where the temperature and humidity is beyond the specific limits. (Please check the specs for the limitations.)
- The inverter should be installed in the position where the disconnection means is easily accessible.
- This unit is designed with IP20 protection for indoor applications only.
- Regularly clean the fan filter.

Mounting the Unit

WARNING!! Remember that this inverter is heavy so please be careful when removing it from the package.

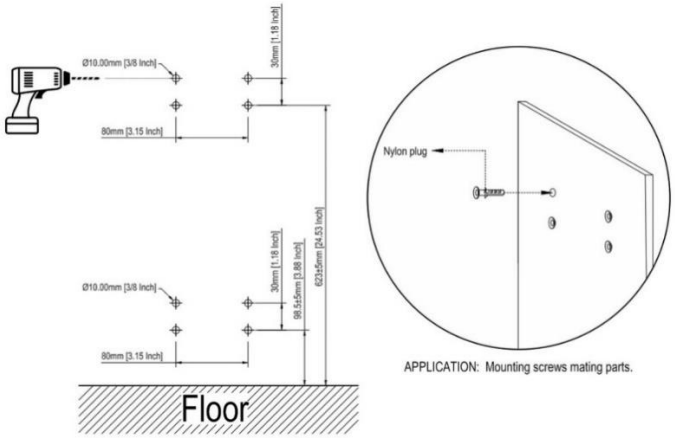
Installation to the wall should be fixed with proper screws. After that, the device should be bolted on securely.

The unit can only operate in a CLOSED ELECTRICAL OPERATING AREA. Only service personnel can enter this area.

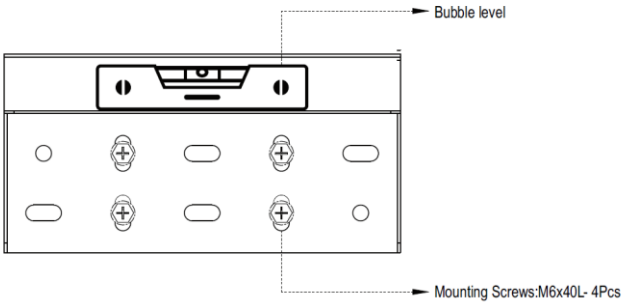
WARNING!! FIRE HAZARD.
SUITABLE FOR MOUNTING ON CONCRETE OR OTHER NON-COMBUSTIBLE SURFACE ONLY.

This energy storage system should be installed battery modules first on the bottom and then inverter module on the top.

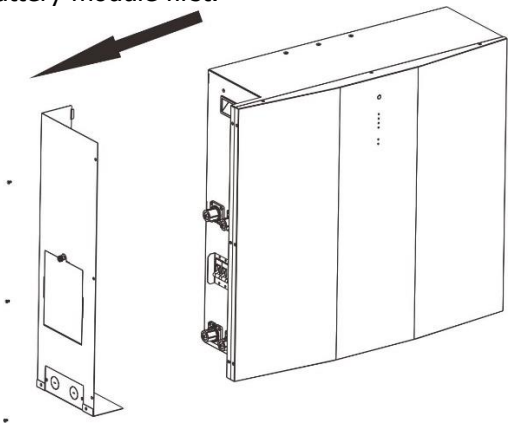
Step 1: Use Ø10mm drill to drill holes at a depth of 50mm. The distance between holes is as follows. Insert the nylon-plug after drilling is completed.



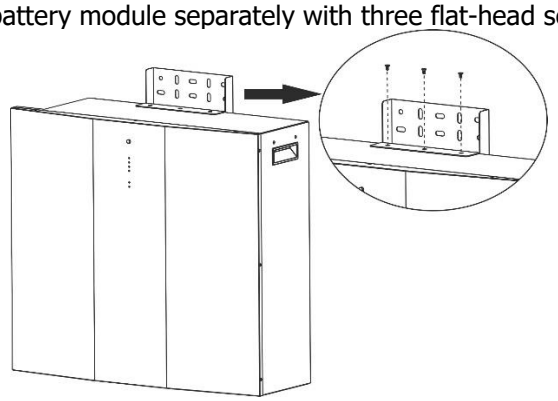
Step 2: It's required to use the bubble level to adjust the bottom bracket to the center first. Then, mount the bracket to the wall.



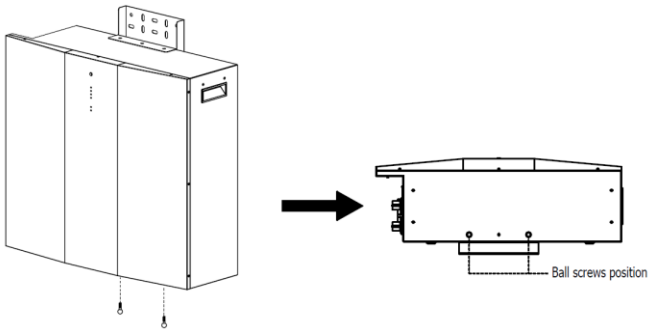
Step 3: Remove side cover of battery module first.



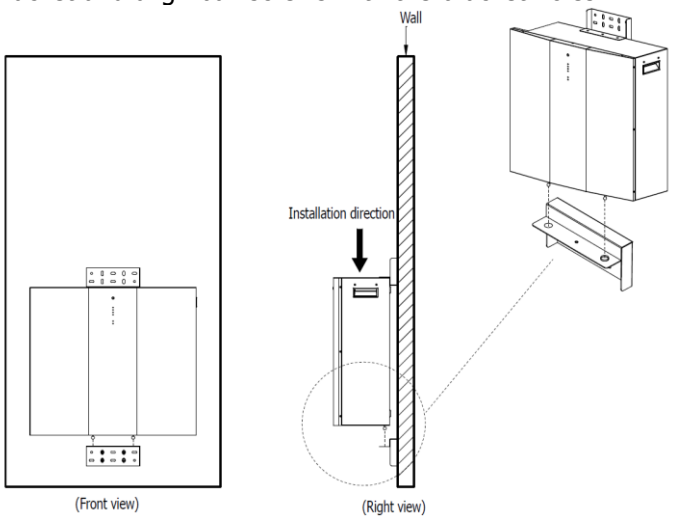
Step 4: Fix top-bracket of the battery module separately with three flat-head screws as shown in the chart.



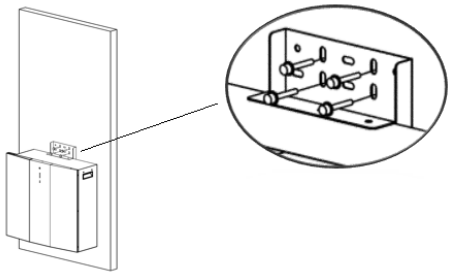
Step 5: Fix ball-screws on the bottom of battery module as shown in below chart.



Step 6: Take the bottom bracket and align ball screws with the bracket holes.

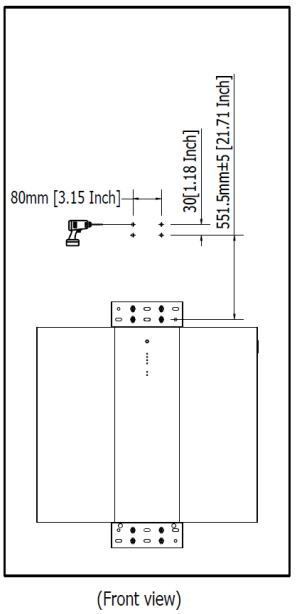


Step 7: Mount the top-bracket with four mounting screws on the wall.

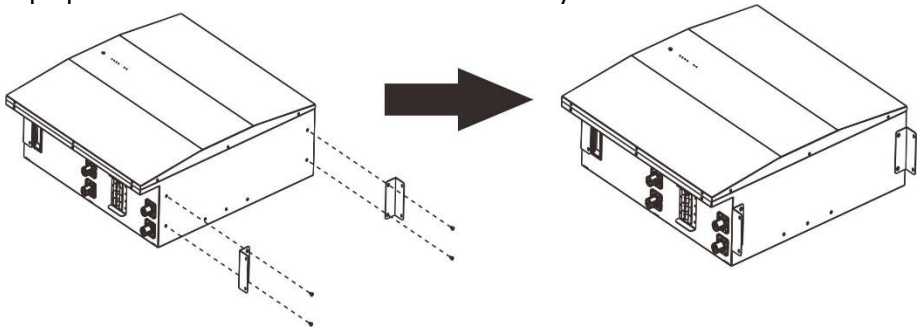


Step 8: For a single battery module connection, please skip this step. If more than one battery module is connected, please follow the instruction as below.

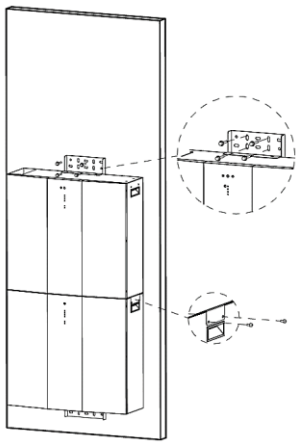
(a) Use Ø10mm drill to drill holes at a depth of 50mm. The distance between holes is as follows. Install the nylon-plug after drilling is completed.



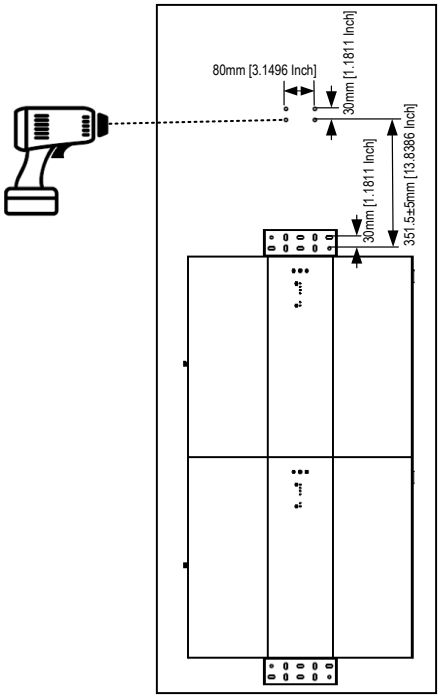
(b) Fix two L-shape plates on the bottom of the second battery module with four flat-head screws.



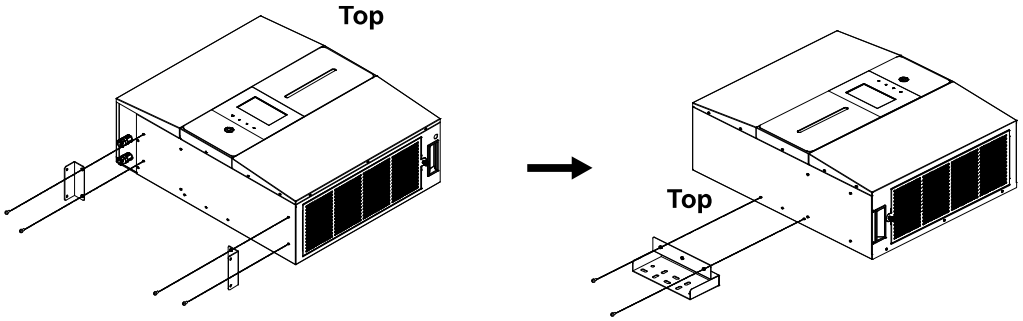
(c) Put the second battery module on the top of first battery module and fix two L-shape plates to the first battery module with four round-head screws. Then, fix the second battery module to the wall with four mounting screws.



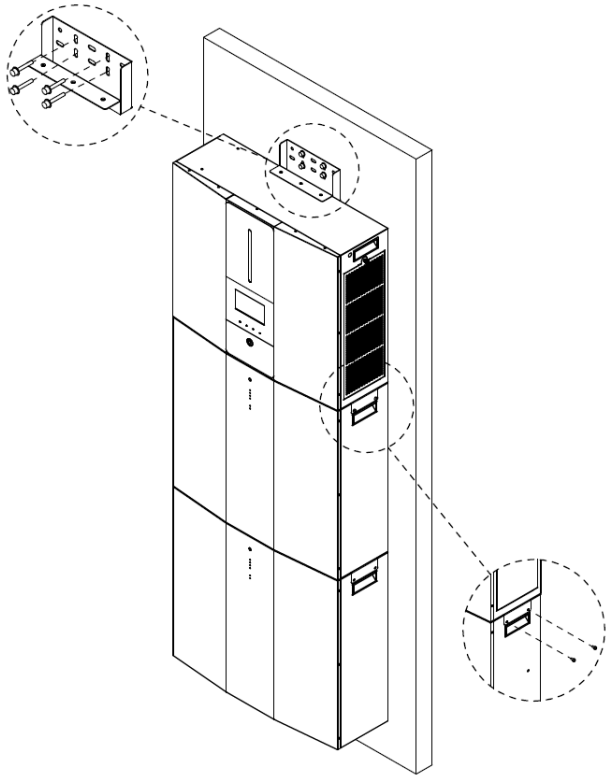
Step 9: Use Ø10mm to drill holes at a depth of 50mm at the wall and insert nylon-plugs inside of each hole. The distance between the inverter module holes and the battery module holes is as follows.



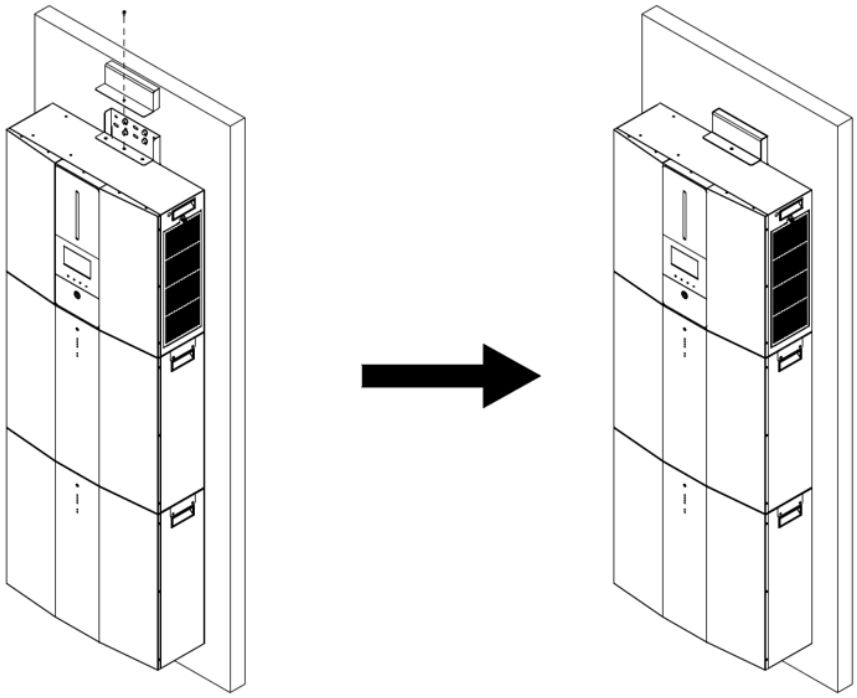
Step 10: Fix two L-shape plates on the bottom of the inverter module with four flat-head screws and fix the mounting bracket on the top of the inverter with two flat-head screws.



Step 11: Put the inverter module on the top of the second battery module. Fix mounting bracket with four mounting screws to the wall. Then, fix two L-shape plates to the second battery module with four round-head screws.

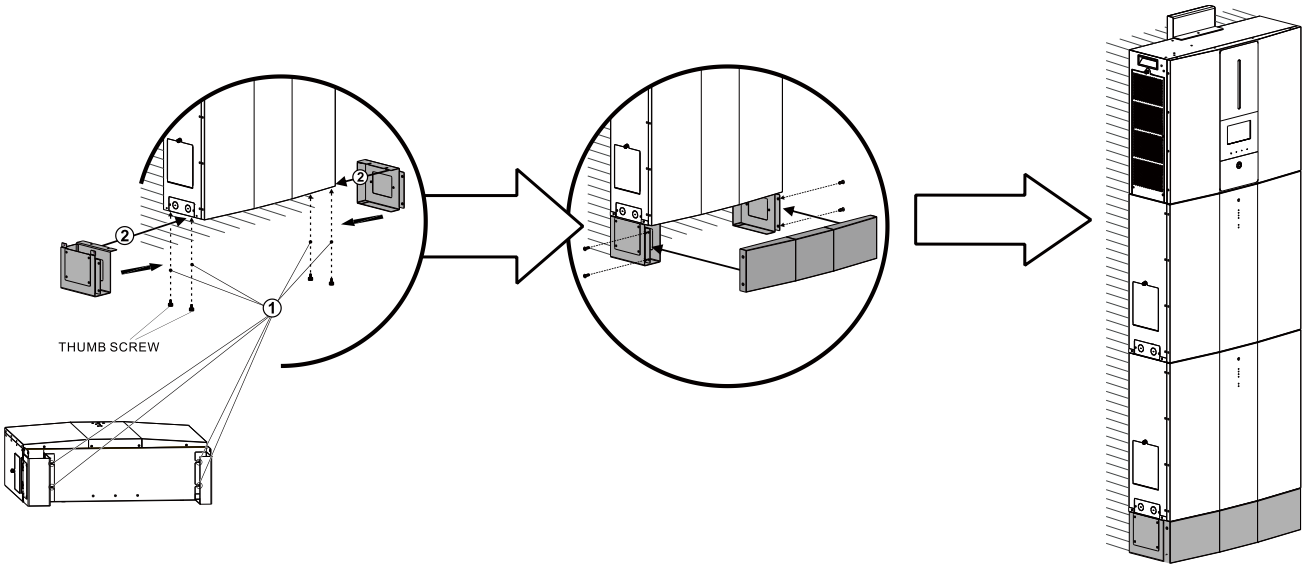


Step 12: Fix bracket cover to the mounting bracket with one flat-head screws.



Installation for optional wire cover

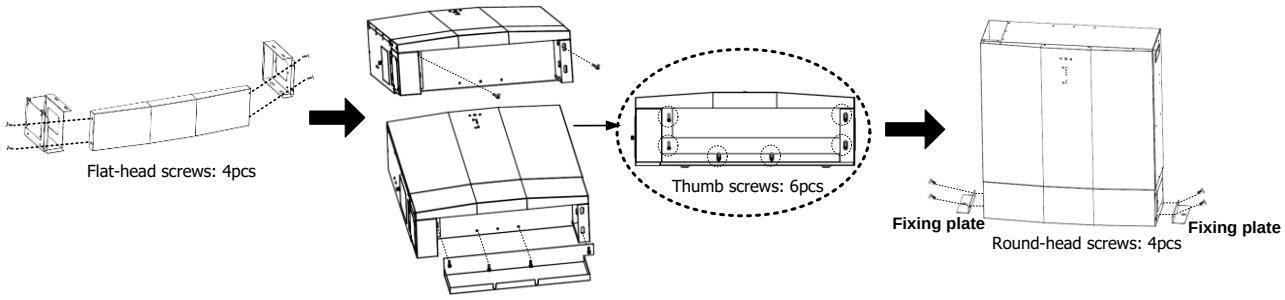
If the wiring cover is purchased separately, screw four thumb screws under the bottom of the battery module first. Then, push the two fixing feet from two sides of the battery module until they are locked with thumb screws. At last, install the cover to fix the feet with four screws as shown below.



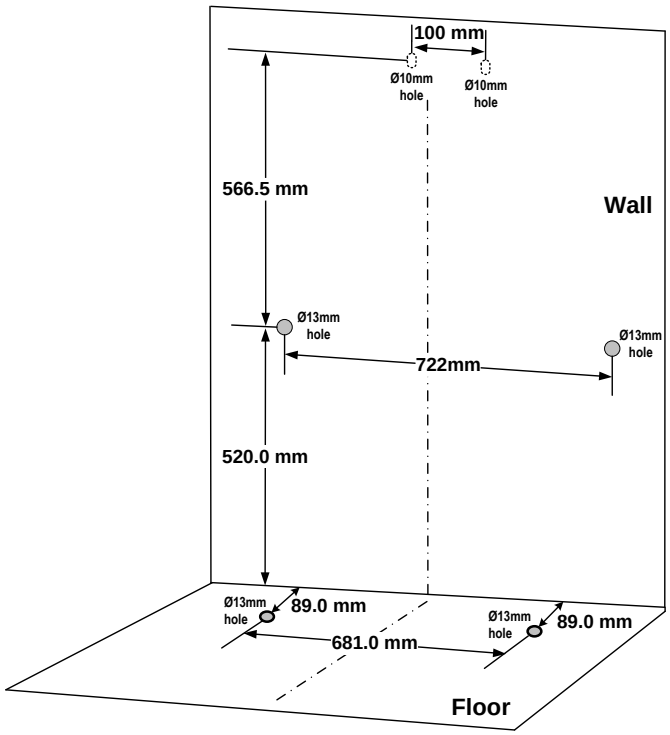
Tower installation with optional stand Feet

Stand Feet is optional and purchased separately for tower solution. Please assemble it as the below steps.

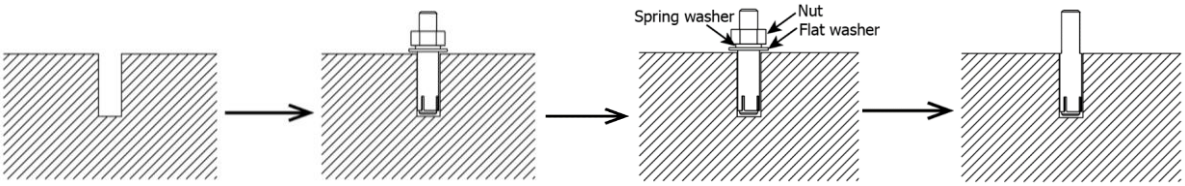
Step 1: Assemble the Stand Feet to the battery module as shown below.



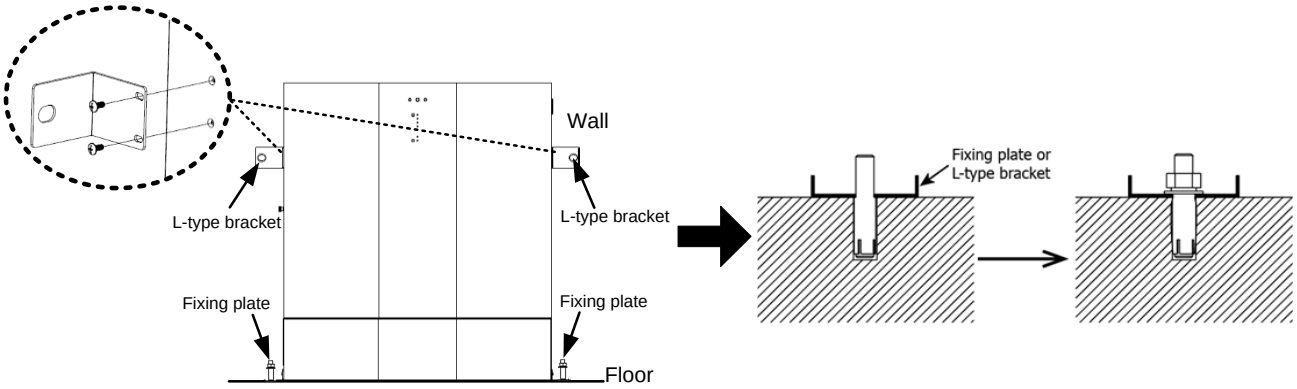
Step 2: Use Ø13mm to drill holes at a depth of 60mm at the wall according to the distance indicated below. Insert nylon-plugs inside of each hole. Drill two holes on the floor first, then drill two holes on the wall. Use Ø10mm to drill two holes for mounting plates on the wall.



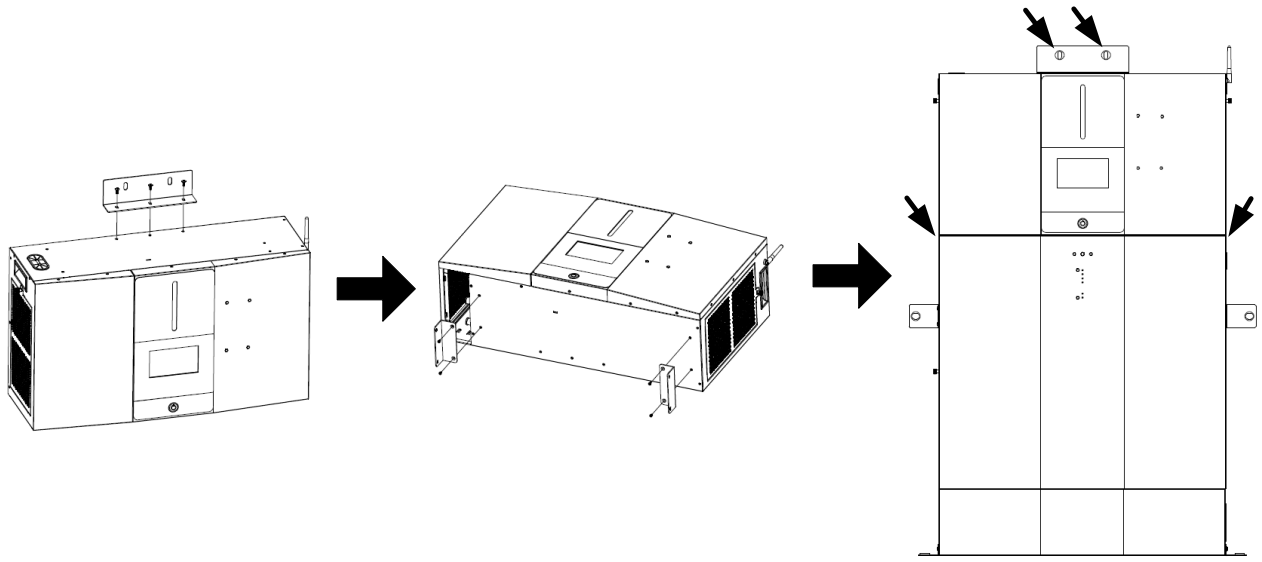
Step 3: Push four expansion bolts into the Ø13mm holes drilled on the previous step. Remove nut, spring washer, and flat washer.



Step 4: Fix two L-type brackets to both sides of the battery module with 4 round-head screws. Take assembled battery module and put it on the ground. Align the hole on the fixing plate with the two expansion bolts on the ground. Align the hole on the L-type bracket with two expansion bolts on the wall. Pass through the remaining bolt in the floor and wall. Then, screw back the nut, spring washer, and flat washer.

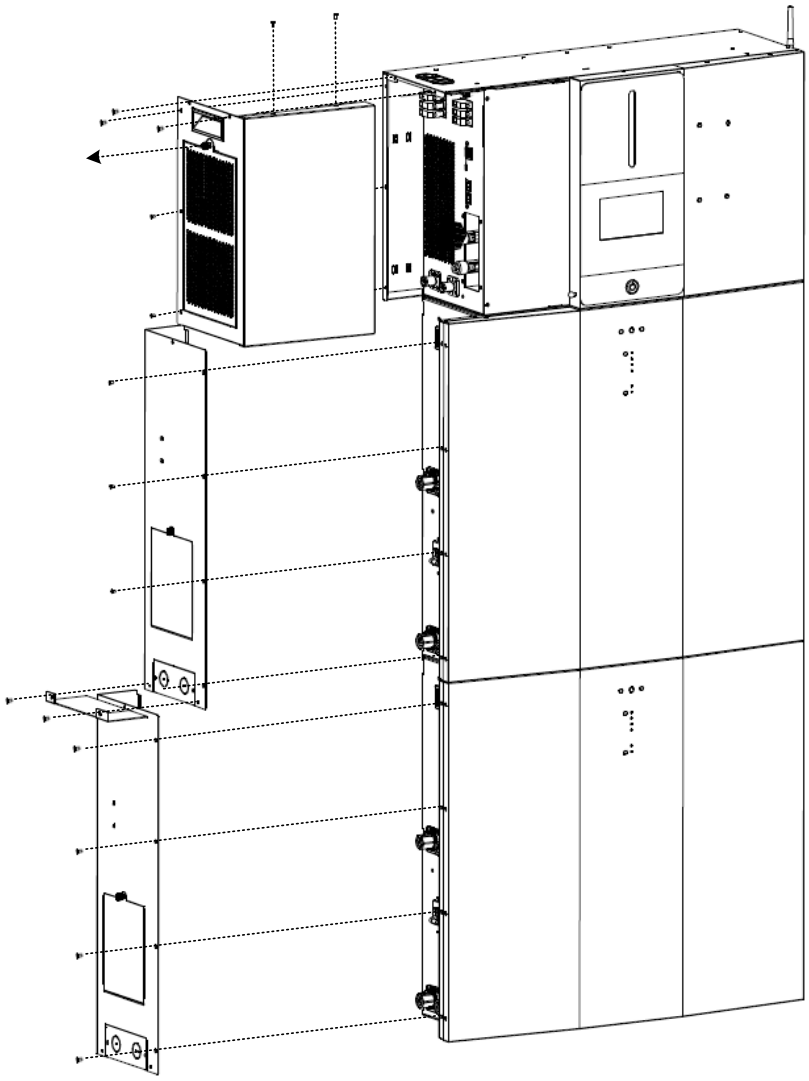


Step 5: Fix mounting plate with 3 mounting screws to inverter module, fix two L-shape plates to the inverter with four round-head screws. Then, put the inverter module on top of the battery module, screw the mounting plates on the inverter module to the battery module, and the mounting plate on the wall.



Preparation for wiring

Before connecting all wires, be sure to take off the wiring cover by removing four screws and one thumb screw. Refer to the below chart for the details.



Battery Connection

CAUTION: Before connecting to battery modules, please **disconnect** the DC breaker between inverter and batteries.

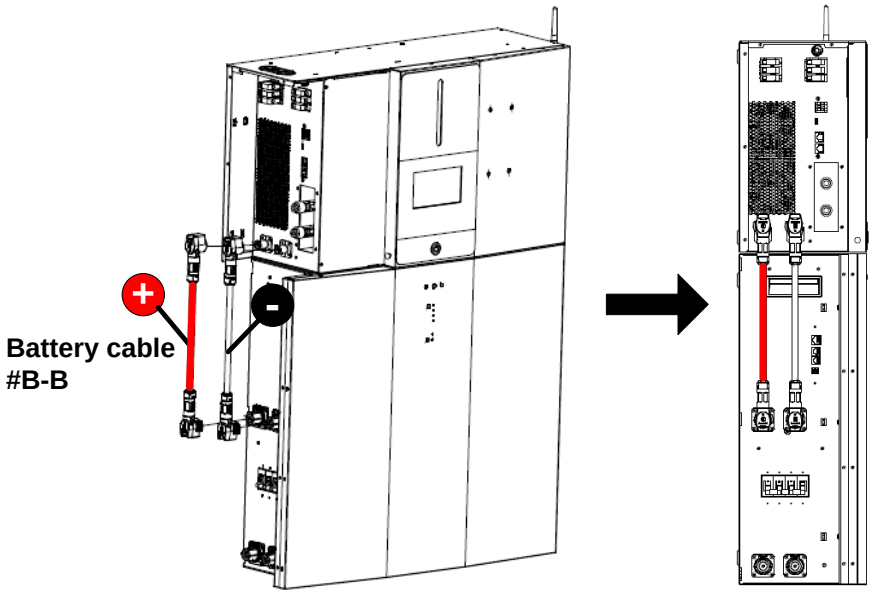
Single battery connection

Step 1: Use supplied two battery cables #B-B (supplied in battery module package). Follow the polarity of battery printed near the battery terminal! Simply plug battery cable to battery terminals on inverter module and battery module as shown in the chart.

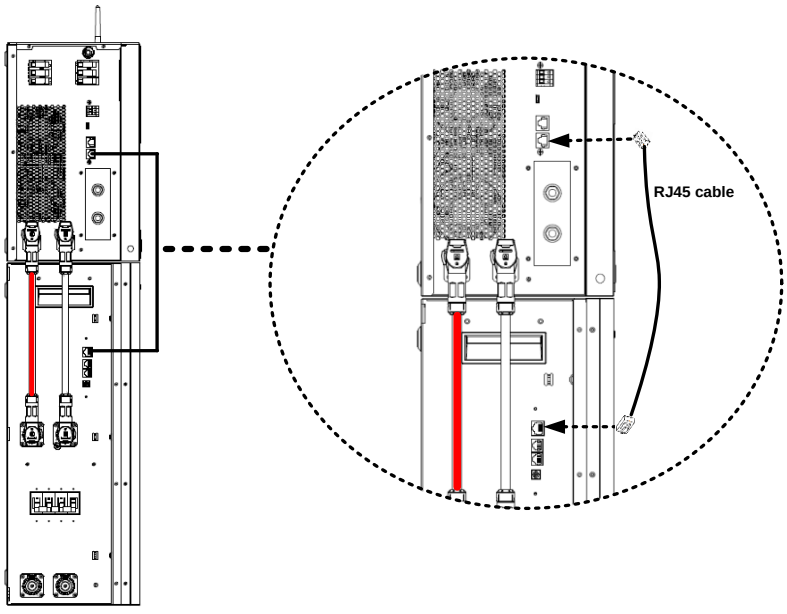
ORANGE cable to the positive terminal (+)
BLACK cable to the negative terminal (-)

WARNING! Wrong connections may damage the unit permanently.

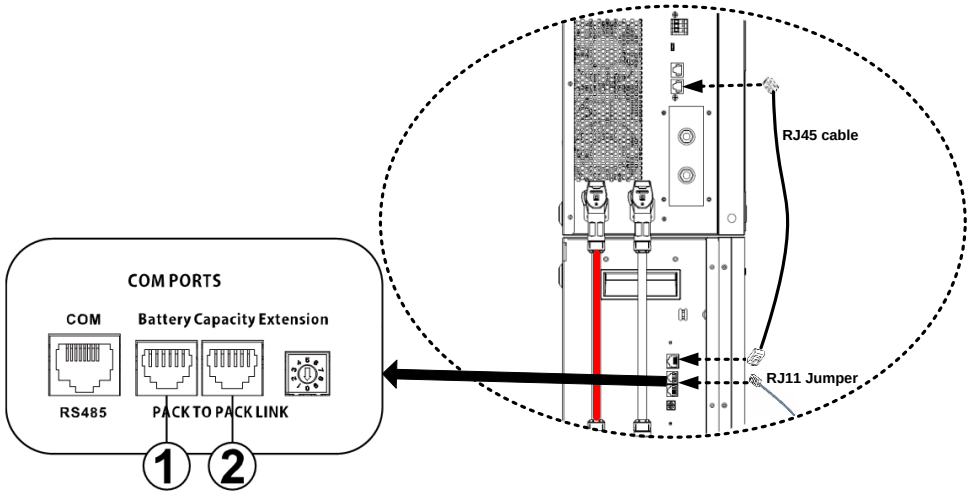
Step 2: Make sure the wires are securely connected.



Step 3: Insert the supplied RJ45 cable (supplied in inverter module package) into the BMS port on the inverter module. The other end connects to RS485 port on the first battery module.



Step 4: Insert the supplied RJ11 Jumper (supplied in battery module package) into one of the extension port (① or ②) on the battery module.



Multiple battery connection

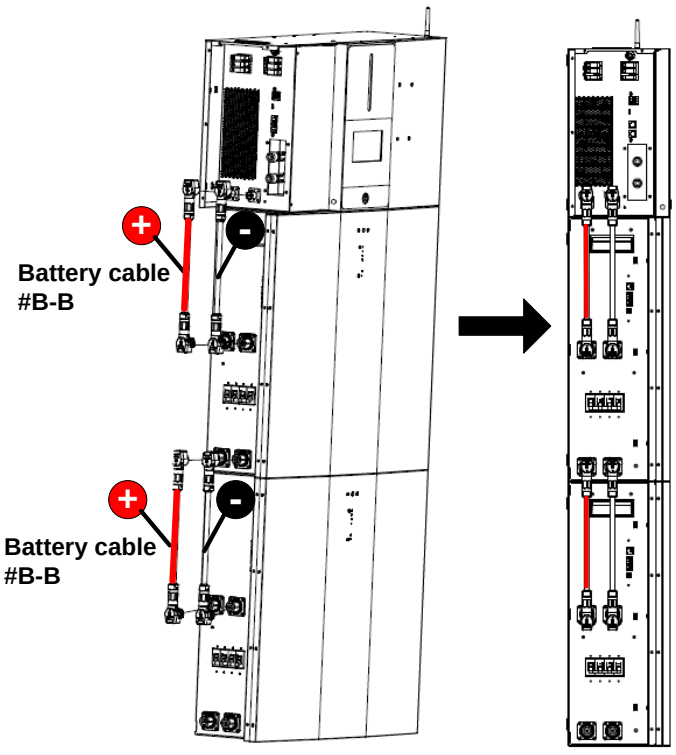
If there are more battery modules to connect, please follow below steps to connect batteries.

Step 1: Use supplied battery cable #B-B (supplied in battery module package) to connect the first battery module and connect second battery module with another battery cable #B-B as shown below chart.

Follow the polarity of battery printed near the battery terminal!

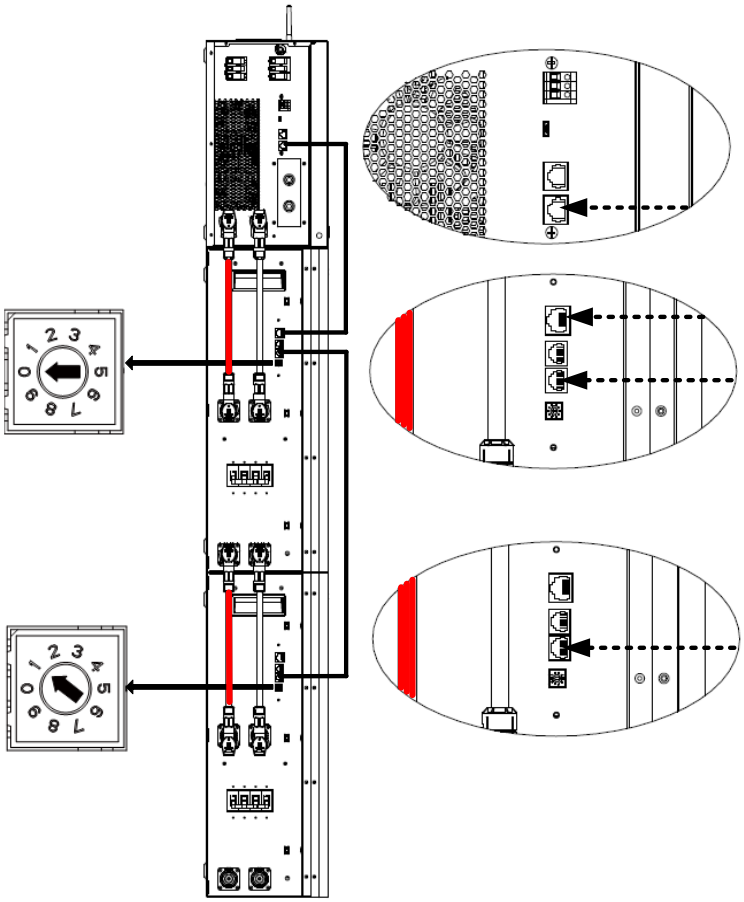
ORANGE cable to the positive terminal (+)

BLACK cable to the negative terminal (-)

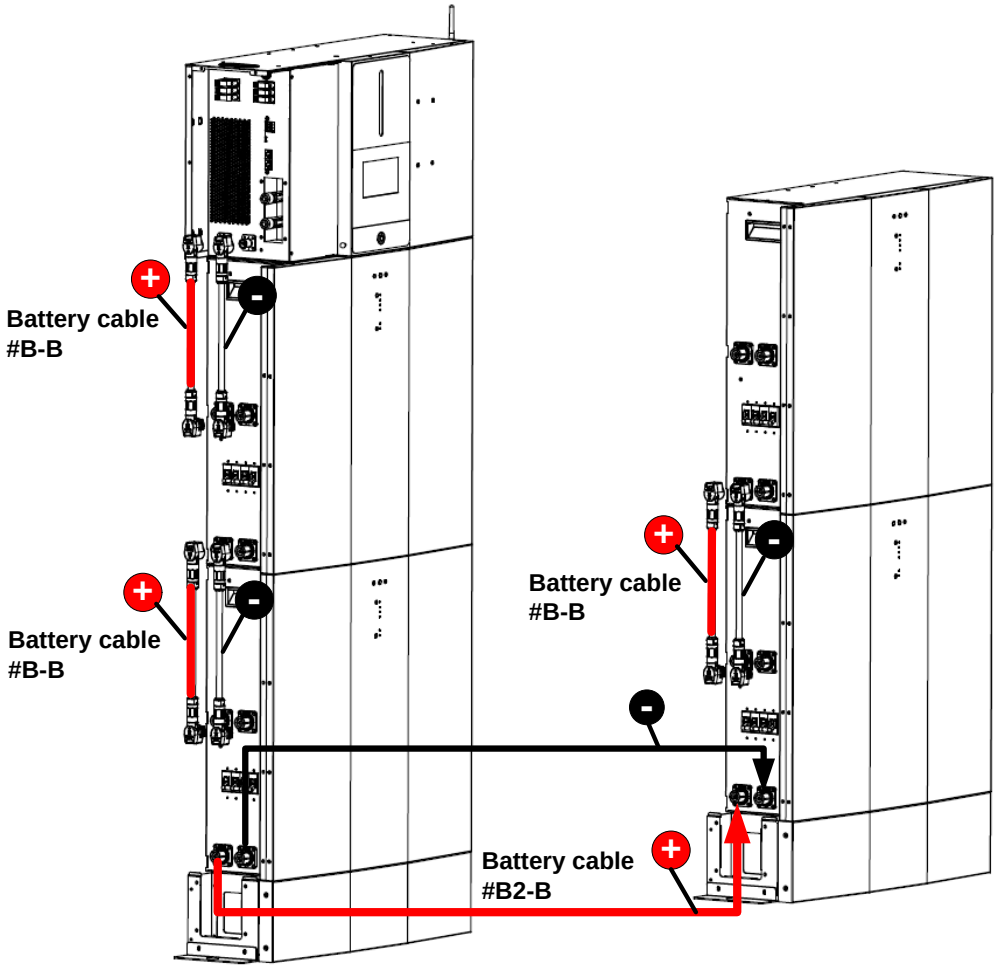


Step 2: Insert the supplied RJ11 cable (supplied in battery module package) into the extension port on the first battery module. The other end connects to the extension port on the second battery module. Refer the below chart for the details.

Step 3: After all wiring installation is complete, set up ID for each battery module. The ID code for each battery module MUST be unique. Not the same number for 2 battery modules in a parallel system. Refer the below chart for the details.



If there is more battery module installed in parallel, please follow below to connect the battery module in parallel side by side.



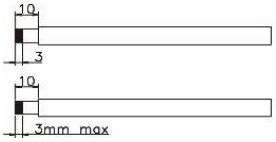
AC Input/Output Connection

CAUTION: Before connecting to the AC input power source, please install a separate AC circuit breaker between the inverter module and the AC input power source. This will ensure the inverter can be securely disconnected during maintenance and fully protected from over current of AC input.
CAUTION!! There are two terminal blocks with "IN" and "OUT" markings. Please do NOT misconnect input and output connectors.

WARNING! All wiring must be performed by qualified personnel.
WARNING! For safety and efficiency, it's very important to use appropriate cables for AC input and output connection. To reduce the risk of injury, please use the proper cable size recommended below.

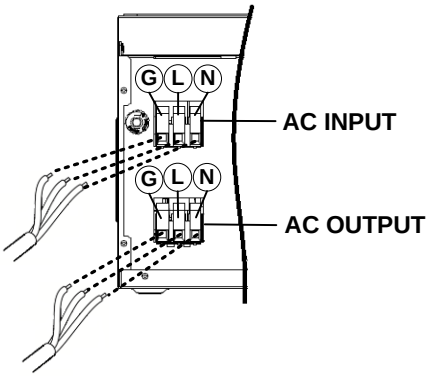
Suggested cable requirement for AC wire:

Gauge	Cable (mm^2)	Torque Value
10 AWG	6	1.2Nm



Please follow the below steps to implement the AC input/output connection:
Step 1: Before making AC input/output connection, turn off the circuit breaker.
Step 2: Remove insulation sleeve 10mm for six conductors. And shorten phase L and neutral conductor N 3mm.
Step 3: Connect AC input and output wires according to polarities indicated on the terminal block and tighten the terminal screws. Be sure to connect PE protective conductor (**G)** first.

G→Ground (yellow-green)
L→LINE (brown or black)
N→Neutral (blue)



WARNING:
Be sure that AC power source is disconnected before attempting to hardwire it to the unit.

Step 4: Make sure the wires are securely connected.

CAUTION:
Appliances such as air conditioner requires at least 2~3 minutes to restart because it's required to have enough time to balance refrigerant gas inside of circuits. If a power shortage occurs and recovers in a short time, it will cause damage to your connected appliances. To prevent this kind of damage, please check manufacturer of air conditioner if it's equipped with time-delay function before installation. Otherwise, this inverter/charger will be trigger overload fault and cut off output to protect your appliance but sometimes it still causes internal damage to the air conditioner.

PV Connection

CAUTION: Before connecting to PV modules, please install **separately** DC circuit breakers between inverter and PV modules.

WARNING! It's very important for system safety and efficient operation to use appropriate cable for PV module connection. To reduce risk of injury, please use the proper recommended cable size shown below.

Wire Size	Cable (mm^2)	Torque value (max)
1 x 12AWG	4	1.2 Nm

WARNING: Because this inverter is non-isolated, only two types of PV modules are accepted, single crystalline, poly crystalline with class A-rated and CIGS modules. To avoid any malfunctions, do not connect any PV modules with possible current leakage to the inverter. For example, grounded PV modules will cause current leakage to the inverter. When using CIGS modules, please be sure NO grounding connection.

CAUTION: It's requested to use PV junction box with surge protection. Otherwise, it will cause damage on inverter when lightning occurs on PV modules.

PV Module Selection:

When selecting proper PV modules, please be sure to consider the following parameters:

1. Open circuit Voltage (Voc) of PV modules not to exceeds maximum PV array open circuit voltage of the inverter.
2. Open circuit Voltage (Voc) of PV modules should be higher than the start-up voltage.

Max. PV Array Power	5000W
Max. PV Array Open Circuit Voltage	500Vdc
PV Array MPPT Voltage Range	120Vdc~450Vdc
Start-up Voltage	150Vdc +/- 10Vdc

Recommended solar panel configuration:

Solar Panel Spec.	SOLAR INPUT	Q'ty of panels	Total input power
Reference A: - 250Wp - Vmp: 30.1Vdc - Imp: 8.3A - Voc: 37.7Vdc - Isc: 8.4A - Cells: 60	6 pcs in series	6 pcs	1500W
	8 pcs in series	8 pcs	2000W
	12 pcs in series	12 pcs	3000W
	8 pieces in series and 2 sets in parallel	16 pcs	4000W
	10 pieces in series and 2 sets in parallel	20 pcs	5000W
Reference B: - 500Wp - Vmp: 42Vdc - Imp: 12A - Voc: 50Vdc - Isc: 13A - Cells: 144	3 pcs in series	3 pcs	1500W
	4 pcs in series	4 pcs	2000W
	8 pcs in series	8 pcs	4000W
	10 pcs in series	10 pcs	5000W

Components for PV connectors and Tools:

Female connector housing	
Female terminal	
Male connector housing	
Male terminal	
Crimping tool and spanner	

Prepare the cable and follow the connector assembly process:
Strip one cable 8 mm on both end sides and be careful NOT to nick conductors.

Insert striped cable into female terminal and crimp female terminal as shown below.



Insert assembled cable into female connector housing as shown below.



Insert striped cable into male terminal and crimp male terminal as shown below.



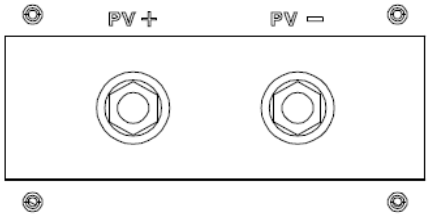
Insert assembled cable into male connector housing as shown below.

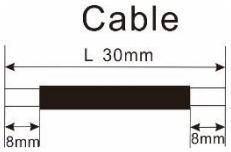


Then, use spanner to screw pressure dome tightly to female connector and male connector as shown below.



Check the correctness of the polarity of connection cable on PV modules and PV input connectors. Then, connect positive pole (+) of connection cable to positive pole (+) of PV input connector. Connect negative pole (-) of connection cable to negative pole (-) of PV input connector.





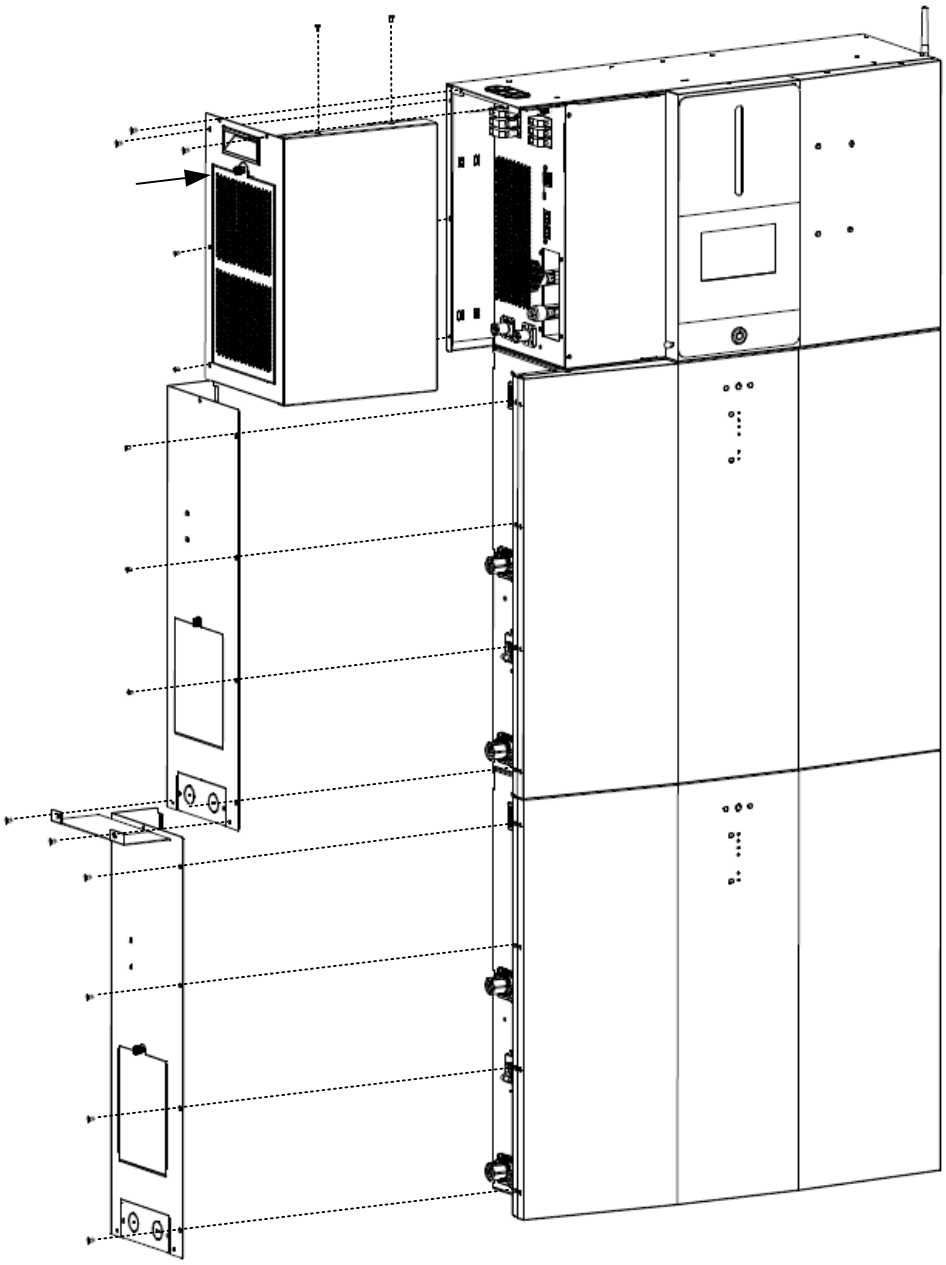
WARNING! For safety and efficiency, it's very important to use appropriate cables for PV module connection. To reduce risk of injury, please use the proper cable size as recommended below.

Conductor cross-section (mm2)	AWG no.
4~6	10~12

CAUTION: Never directly touch the terminals of inverter. It might cause lethal electric shock.

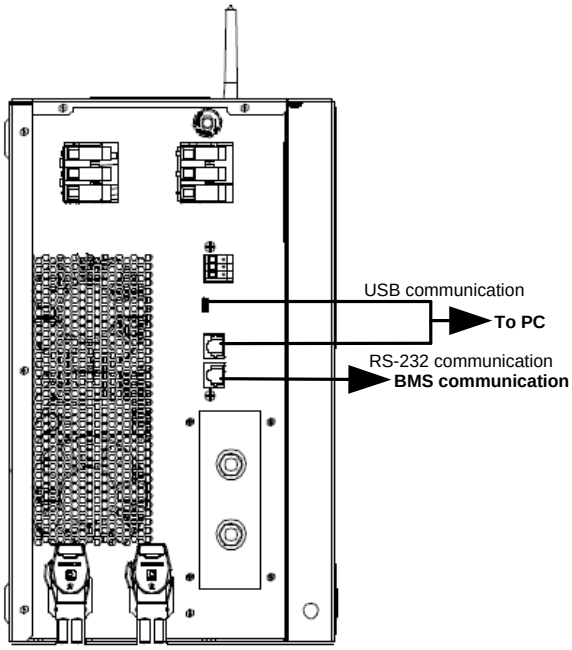
Final Assembly

After connecting all wirings, put side covers back to original positions by fixing six screws as shown below.



Communication

Follow the below chart to connect all communication wiring.

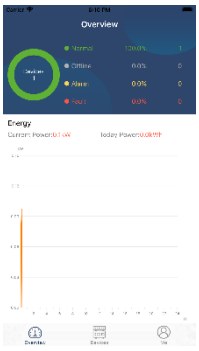


Communication Connection

Please use the supplied serial cable to connect between the inverter and your PC. Install the monitoring software from the bundled CD and follow the on-screen instructions to complete your installation. For detailed software operation, refer to the software user manual on the bundled CD.

Wi-Fi Connection

This unit is equipped with a Wi-Fi transmitter. Wi-Fi transmitter can enable wireless communication between off-grid inverters and monitoring platform. Users can access and control the monitored inverter with downloaded APP. You may find "WatchPower" app from the Apple® Store or "WatchPower Wi-Fi" in Google® Play Store. All data loggers and parameters are saved in iCloud. For quick installation and operation, please check Appendix II.



BMS Communication Connection

Please refer to Appendix I - BMS Communication Installation for details.

Dry Contact Signal

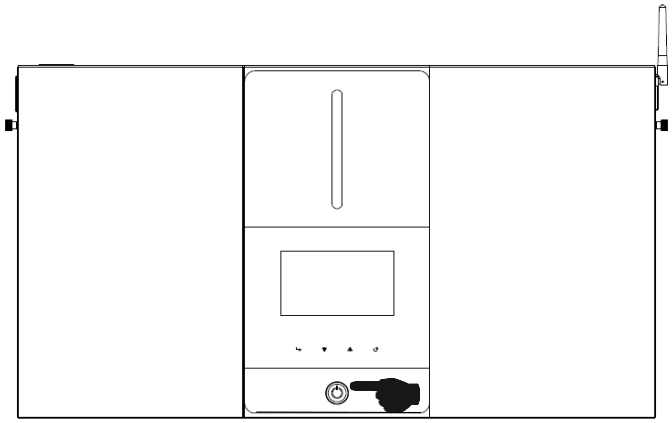
There is one dry contact (3A/250VAC) available on the rear panel. It could be used to deliver signal to external device when battery voltage reaches warning level.

Unit Status	Condition			Dry contact port: 	
				NC & C	NO & C
Power Off	Unit is off and no output is powered.			Close	Open
Power On	Output is powered from Battery power or Solar energy.	Program 01 set as USB (utility first) or SUB (solar first)	Battery SOC < Low DC warning SOC	Open	Close
			Battery SOC > Setting value in Program 13	Close	Open
		Program 01 is set as SBU (SBU priority)	Battery SOC < Setting value in Program 12	Open	Close
			Battery SOC > Setting value in Program 13	Close	Open

OPERATION

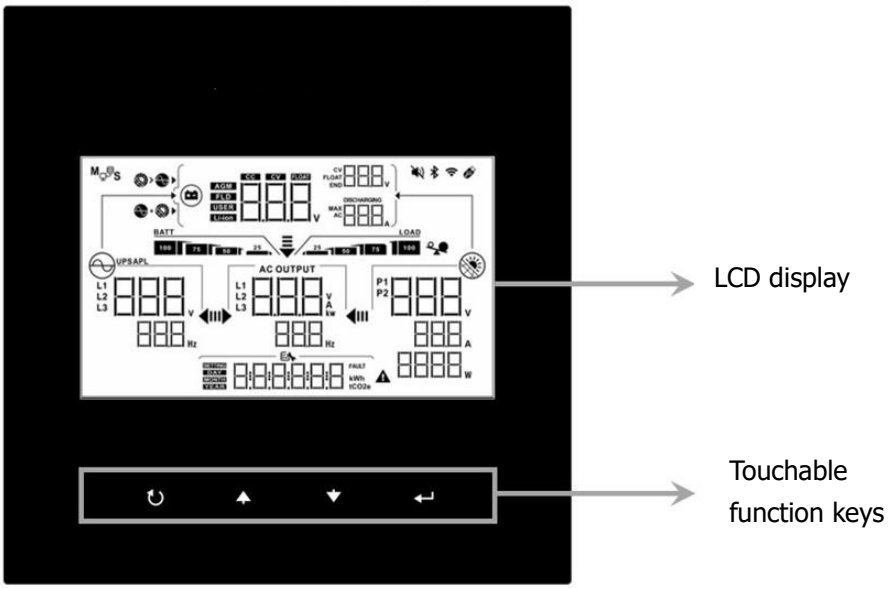
Power ON/OFF

Once the unit has been properly installed and the batteries are connected well, simply press the power switch to turn on the unit.



Operation and Display Panel

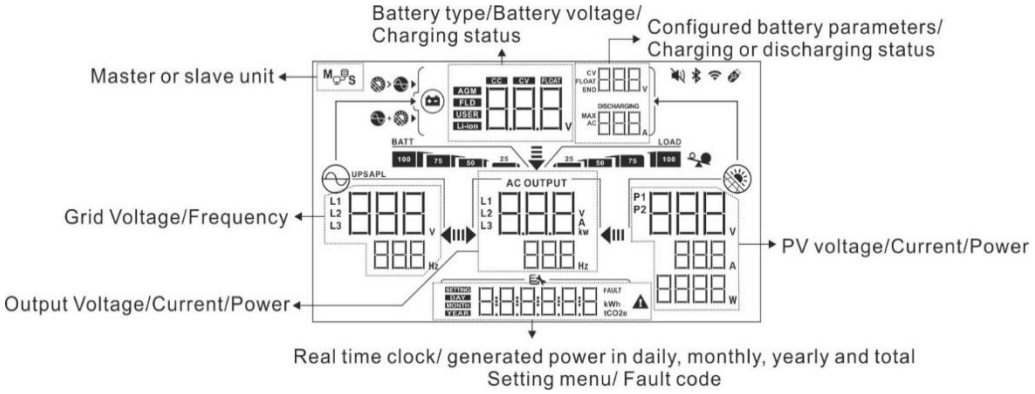
The operation and the LCD module, shown in the chart below, includes four touchable function keys and a LCD display to indicate the operating status and input/output power information.

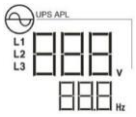
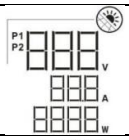
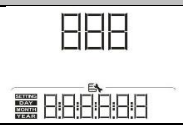
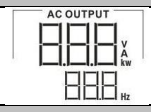


Touchable function key

Function keys		Description
↻	ESC	Exit the setting
▲	Up	To last selection
▼	Down	To next selection
↵	Enter	To confirm/enter the selection in setting mode

LCD Display Icons



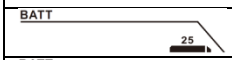
Icon	Function description
Input Source Information	
	Indicates the AC input voltage and frequency.
	Indicates the PV voltage, current and power.
	Indicates the battery types, battery voltage, charging stage, configured battery parameters, charging or discharging current.
Charging stage	
Configuration Program and Fault Information	
	Indicates the setting programs.
	Indicates the warning and fault codes. Warning: flashing with warning symbol. Fault: lighting with fault character.
Output Information	
	Indicates the output voltage, load in VA, load in Watt and output frequency.
Battery Information	
	Indicates battery level by 0-24%, 25-49%, 50-74% and 75-100% in battery mode and charging status in line mode.
When battery is charging, it will present battery charging status.	

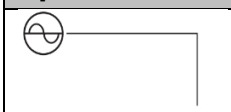
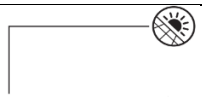
Icon		
Charging stage		

Icon	Charging stage	Icon	Charging stage
CC	CC mode	FLOAT	FLOATING mode
CV	CV mode	FLOAT END	Full charged (Charger OFF)

Status	Battery capacity	LCD Display
C.C. mode C.V. mode	25%	4 bars will flash in turns.
	50%	The right bar will be on and the other three bars will flash in turns.
	75%	The right two bars will be on and the other two bars will flash in turns.
	100%	The right three bars will be on and the left bar will flash.
Floating mode. Batteries are fully charged.		4 bars will be on.

In battery mode, it will present battery capacity.

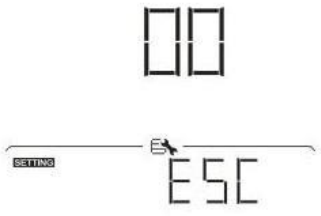
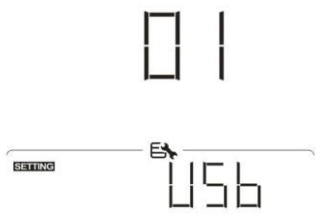
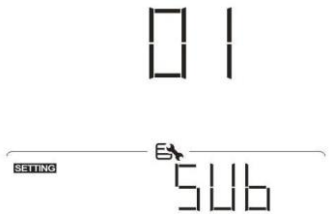
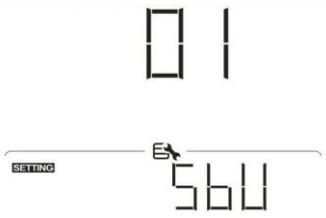
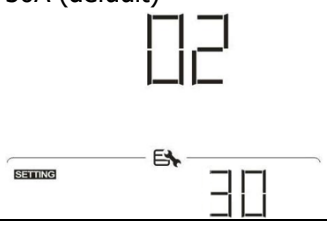
Icon	Battery capacity	Icon	Battery capacity
	25%		75%
	50%		100%

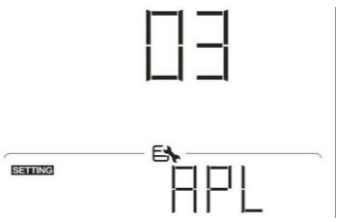
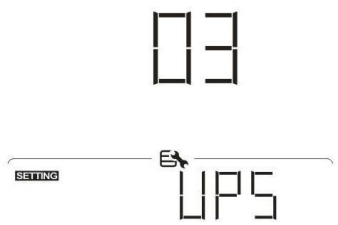
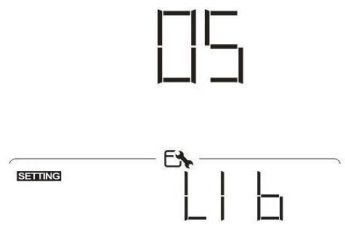
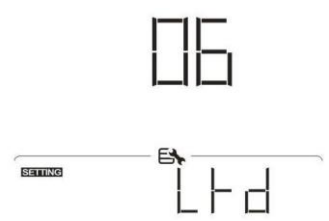
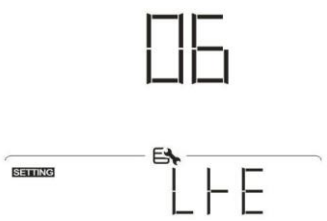
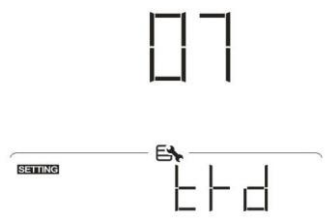
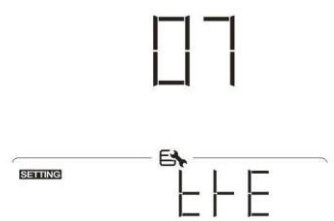
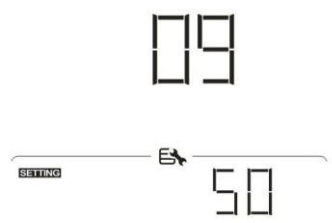
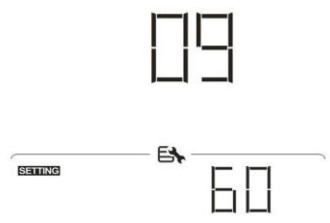
Load Information	
	Indicates overload.
	Indicates the load level by 0-24%, 25-49%, 50-74% and 75-100%.
Charger Source Priority Setting Display	
	Indicates setting program 16 "Charger source priority" is selected as "Solar first".
	Indicates setting program 16 "Charger source priority" is selected as "Solar and Utility".
	Indicates setting program 16 "Charger source priority" is selected as "Solar only".
Output source priority setting display	
	Indicates setting program 01 "Output source priority" is selected as "Utility first".
	Indicates setting program 01 "Output source priority" is selected as "Solar first".
	Indicates setting program 01 "Output source priority" is selected as "SBU".
AC Input Voltage Range Setting Display	
UPS	Indicates setting program 03 is selected as "UPS". The acceptable AC input voltage range will be within 170-280VAC
APL	Indicates setting program 03 is selected as "APL". The acceptable AC input voltage range will be within 90-280VAC
Operation Status Information	
	Indicates unit connects to the mains.
	Indicates unit connects to the PV panel.
	Indicates battery type.
	Indicates parallel operation is working.
	Indicates unit alarm is disabled.
	Indicates Wi-Fi transmission is working.
	Indicates USB disk is connected.

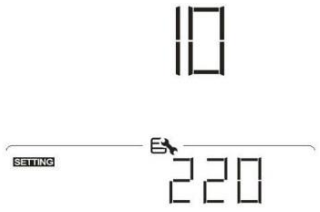
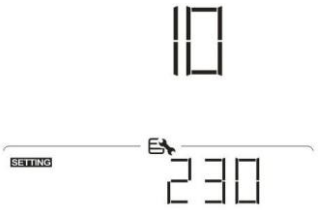
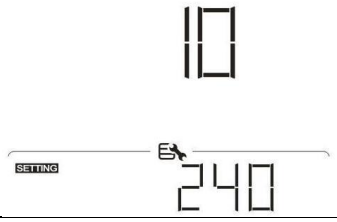
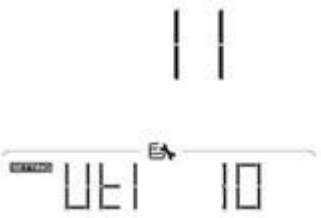
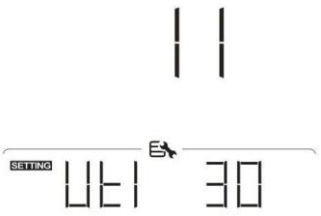
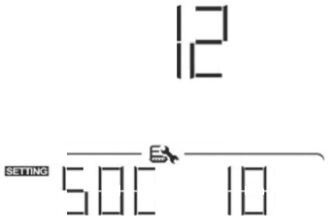
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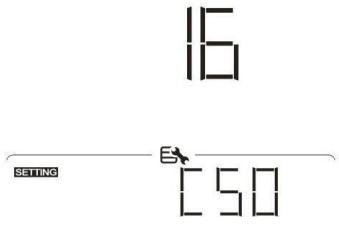
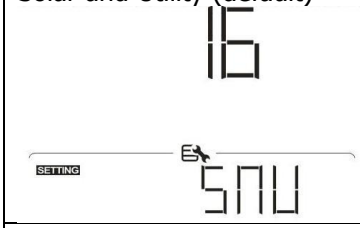
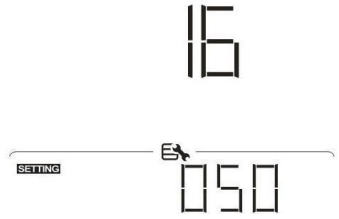
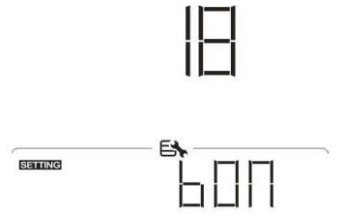
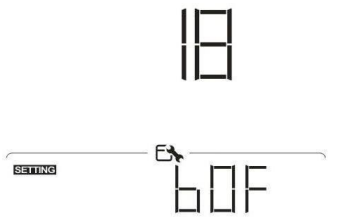
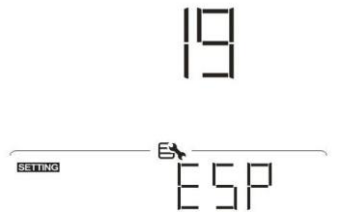
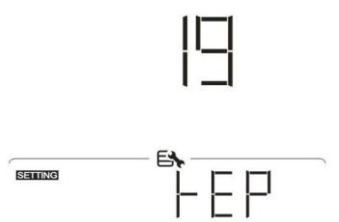
After pressing and holding "↵" button for 3 seconds, the unit will enter the Setup Mode. Press "▲" or "▼" button to select setting programs. Press "↵" button to confirm you selection or "↻" button to exit.

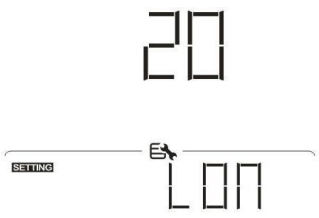
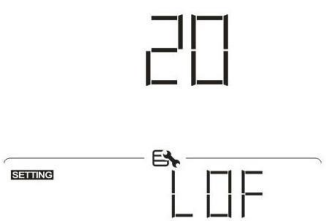
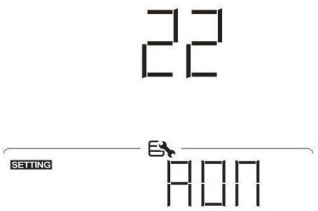
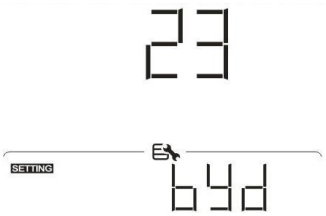
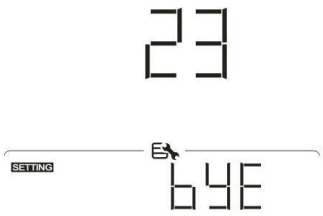
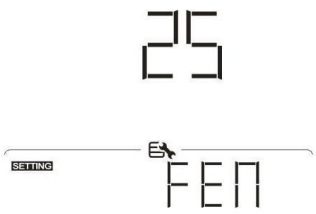
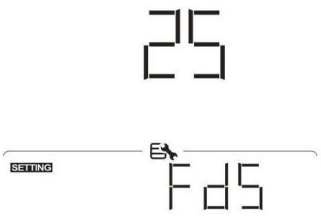
Setting Programs:

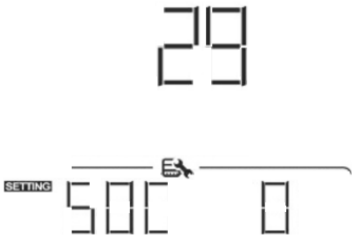
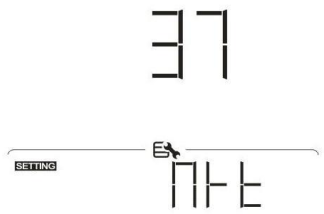
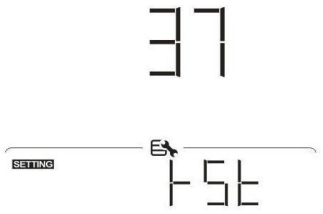
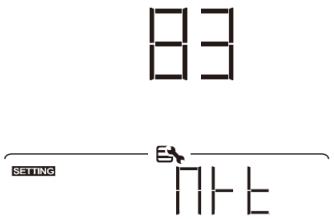
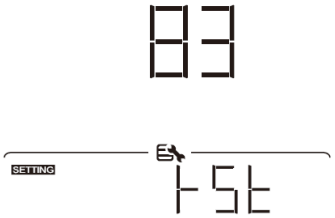
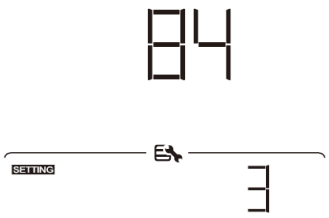
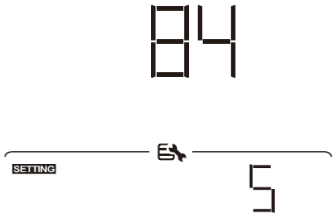
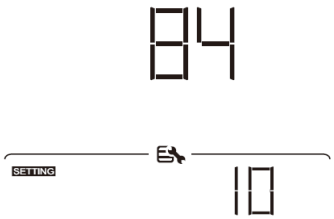
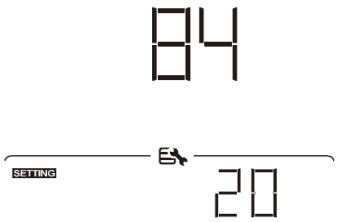
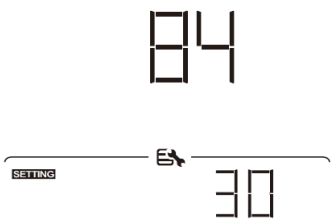
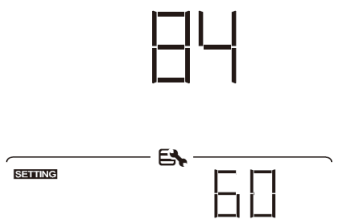
Program	Description	Selectable option	
00	Exit setting mode	Escape 	
01	Output source priority: To configure load power source priority	Utility first (default) 	Utility will provide power to the loads as first priority. Solar and battery energy will provide power to the loads only when utility power is not available.
		Solar first 	Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, Utility energy will supply power to the loads at the same time.
		SBU priority 	Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, battery energy will supply power to the loads at the same time. Utility provides power to the loads only when battery voltage drops to either low-level warning voltage or the setting point in program 12.
02	Maximum charging current: To configure total charging current for solar and utility chargers. (Max. charging current = utility charging current + solar charging current)	30A (default) 	Determined by battery pack and cannot be adjusted.

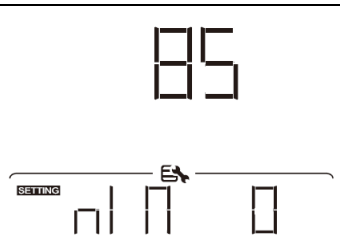
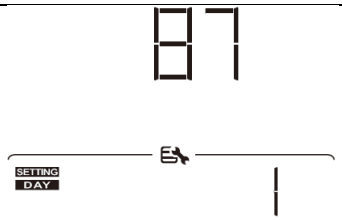
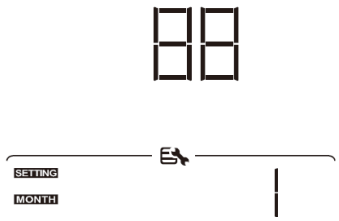
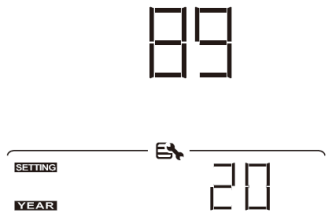
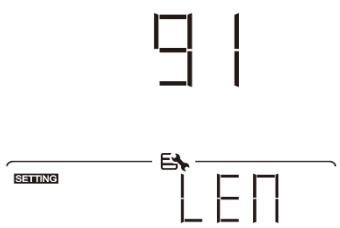
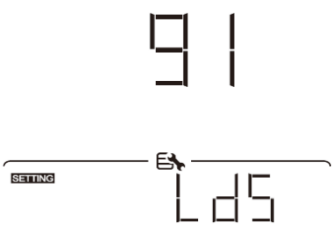
03	AC input voltage range	Appliances (default) 	If selected, acceptable AC input voltage range will be within 90-280VAC
		UPS 	If selected, acceptable AC input voltage range will be within 170-280VAC
05	Battery type	LIb-protocol compatible battery 	This program cannot be revised.
06	Auto restart when overload occurs	Restart disable (default) 	Restart enable 
07	Auto restart when over temperature occurs	Restart disable (default) 	Restart enable 
09	Output frequency	50Hz (default) 	60Hz 

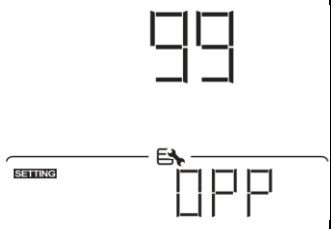
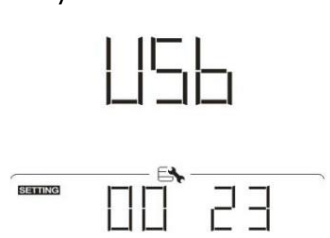
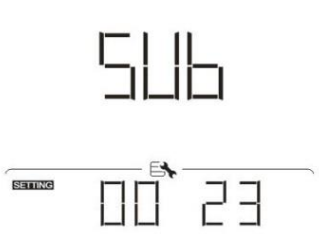
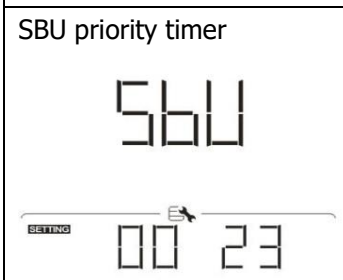
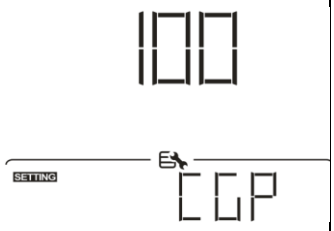
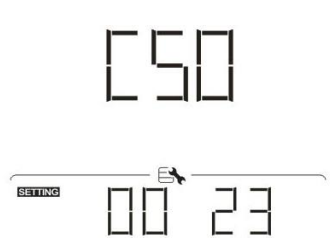
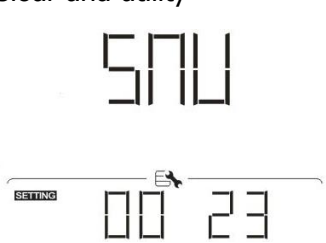
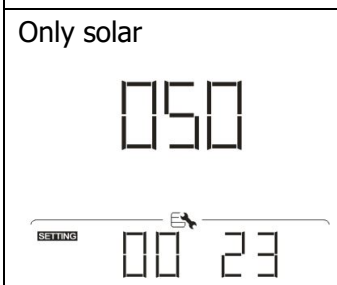
10	Output voltage	220V 	230V (default) 
		240V 	
11	Maximum utility charging current Note: If setting value in program 02 is smaller than that in program in 11, the inverter will apply charging current from program 02 for utility charger.	2A 	10A 
		20A 	30A (default) 
12	Setting SOC point back to utility source when selecting "SBU" (SBU priority) in program 01.	SOC 10% (default) 	Adjustable range is 5% to 95%. Increment of each click is 1%.
13	Setting SOC point back to battery mode when selecting "SBU" (SBU priority) in program 01.	SOC 80% (default) 	Setting range is 10% to 100%. Increment of each click is 1%.

16	Charger source priority: To configure charger source priority	If this inverter/charger is working in Line, Standby or Fault mode, charger source can be programmed as below:	
		Solar first 	Solar energy will charge battery as first priority. Utility will charge battery only when solar energy is not available.
		Solar and Utility (default) 	Solar energy and utility will charge battery at the same time.
		Only Solar 	Solar energy will be the only charger source no matter utility is available or not.
18	Alarm control	Alarm on (default) 	Alarm off 
19	Auto return to default display screen	Return to default display screen (default) 	If selected, no matter how users switch display screen, it will automatically return to default display screen after no button is pressed for 1 minute.
		Stay at latest screen 	If selected, the display screen will stay at latest screen user finally switches.

20	Backlight control	Backlight on (default)  	Backlight off 
22	Beeps while primary source is interrupted	Alarm on (default)  	Alarm off 
23	Overload bypass: When enabled, the unit will transfer to line mode if overload occurs in battery mode.	Bypass disable (default)  	Bypass enable 
25	Record Fault code	Record enable (default)  	Record disable 
26	Bulk charging voltage (C.V voltage)	56V (default)  	Determined by battery pack and cannot be adjusted
27	Floating charging voltage	56V (default)  	Determined by battery pack and cannot be adjusted

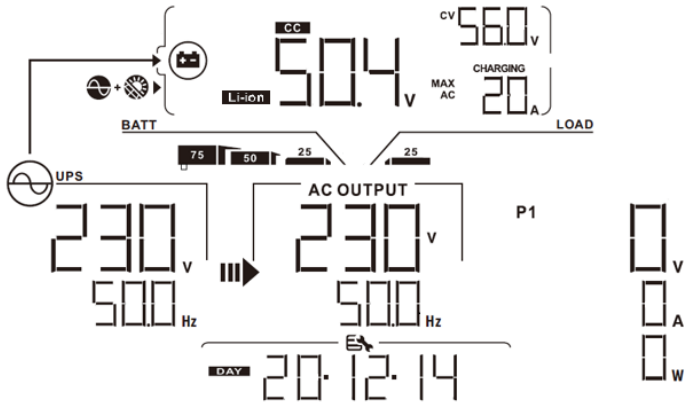
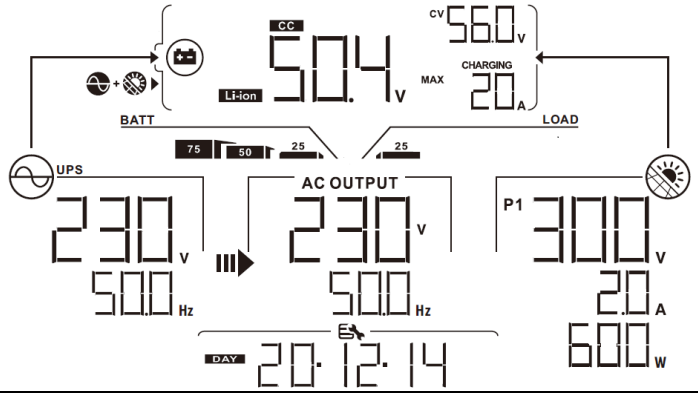
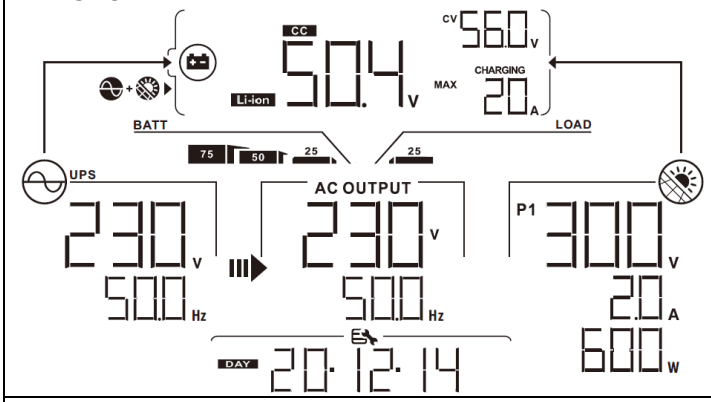
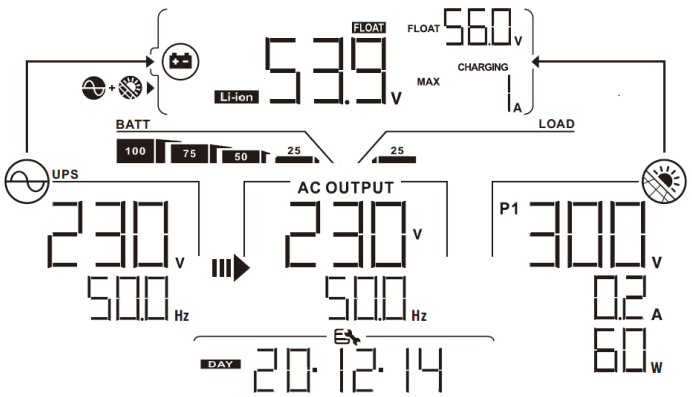
29	Low DC cut-off capacity: ● If battery power is only power source available, inverter will shut down. ● If PV energy and battery power are available, inverter will charge battery without AC output. If PV energy, battery power and utility are all available, inverter will transfer to line mode	SOC 5% (default) 	Setting range is from 0% to 90%. Increment of each click is 1%.
37	Reset all stored data for PV generated power and output load energy	Not reset(Default) 	Reset 
83	Erase all data log	Not reset (Default) 	Reset 
84	Data log recorded interval *The maximum data log number is 1200. If it's over 1200, it will re-write the first log.	3 minutes 	5 minutes 
		10 minutes (default) 	20 minutes 
		30 minutes 	60 minutes 

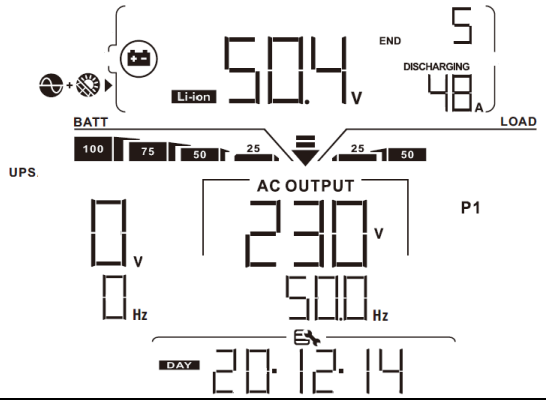
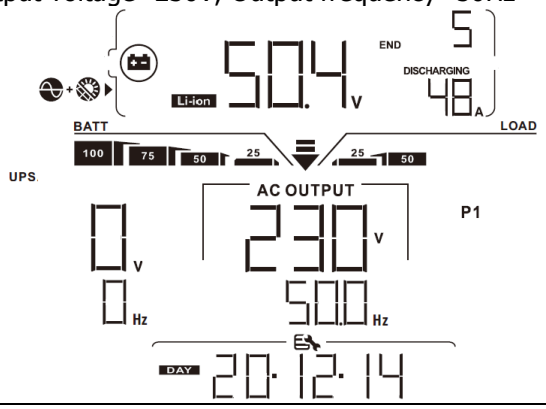
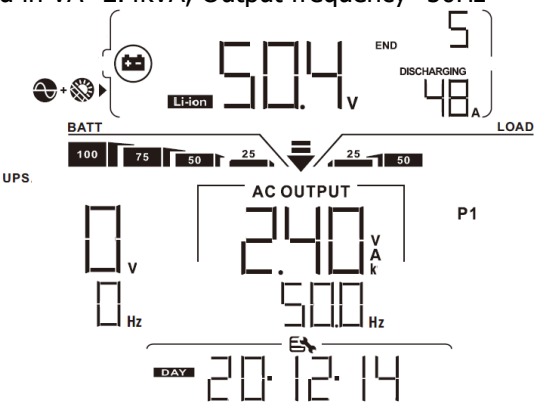
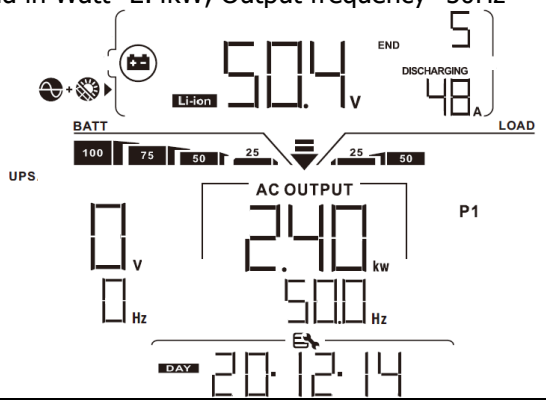
85	Time setting – Minute		For minute setting, the range is from 0 to 59.
86	Time setting – Hour		For hour setting, the range is from 0 to 23.
87	Time setting– Day		For day setting, the range is from 1 to 31.
88	Time setting– Month		For month setting, the range is from 1 to 12.
89	Time setting – Year		For year setting, the range is from 17 to 99.
91	On/Off control for LED bar *It's required to enable this setting to activate LED lighting function.	Enabled (default) 	Disable 

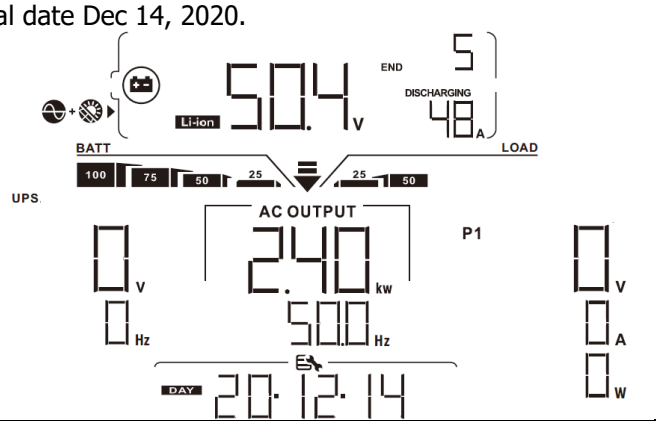
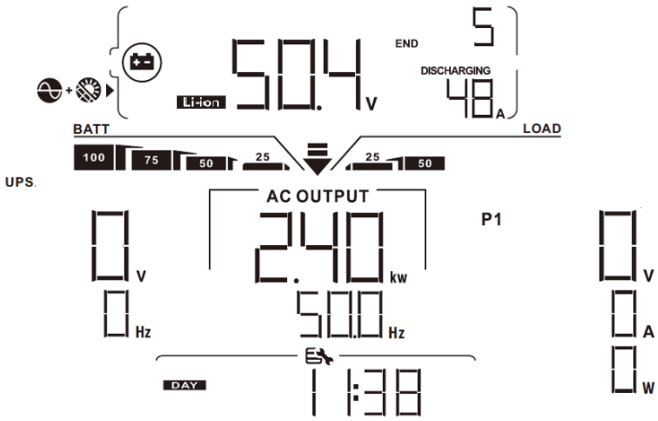
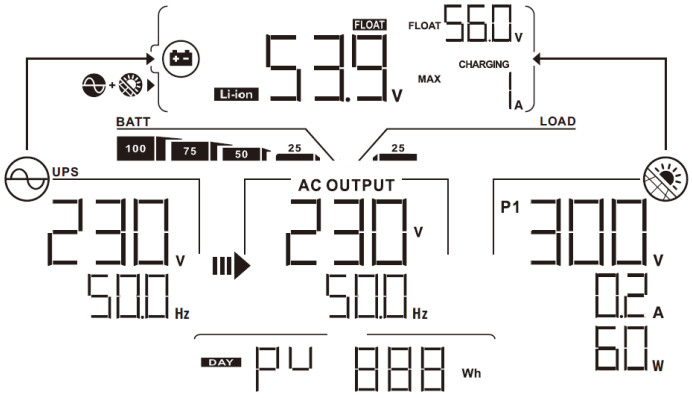
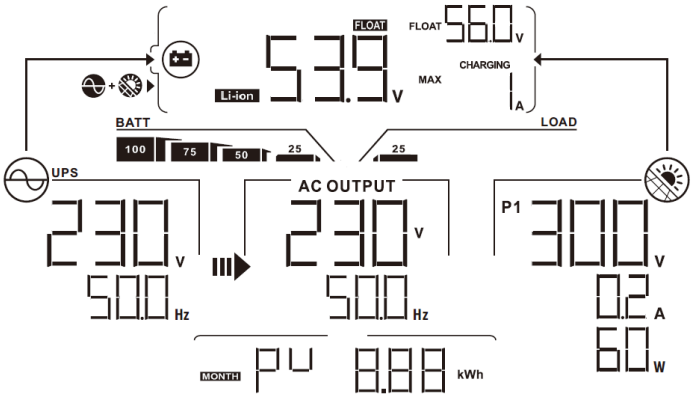
<table>
<tr><td rowspan="3">99</td><td rowspan="3">Timer Setting for Output Source Priority
</td><td colspan="2">Once access this program, it will show “OPP” in LCD. Press “↵” button to select timer setting for output source priority. There are three timers to set up. Press “▲” or “▼” button to select specific timer option. Then, press “↵” to confirm timer option. Press “▲” or “▼” button to adjust starting time first and the setting range is from 00 to 23. Increment of each click is one hour. Press “↵” to confirm starting time setting.Next, the cursor will jump to right column to set up end time. Once end time is set completely, press “↵” to confirmall setting.</td></tr>
<tr><td>Utility first timer
</td><td>Solar first timer
</td></tr>
<tr><td>SBU priority timer
</td><td></td></tr>
<tr><td rowspan="3">100</td><td rowspan="3">Timer Setting for Charger Source Priority
</td><td colspan="2">Once access this program, it will show “CGP” in LCD. Press “↵” button to select timer setting for charger source priority. There are three timers to set up. Press “▲” or “▼” button to select specific timer option. Then, press “↵” to confirm timer option. Press “▲” or “▼” button to adjust starting time first and the setting range is from 00 to 23. Increment of each click is one hour. Press “↵” to confirm starting time setting.Next, the cursor will jump to right column to set up end time. Once end time is set completely, press “↵” to confirmall setting.</td></tr>
<tr><td>Solar first
</td><td>Sloar and utility
</td></tr>
<tr><td>Only solar
</td><td></td></tr>
</table>

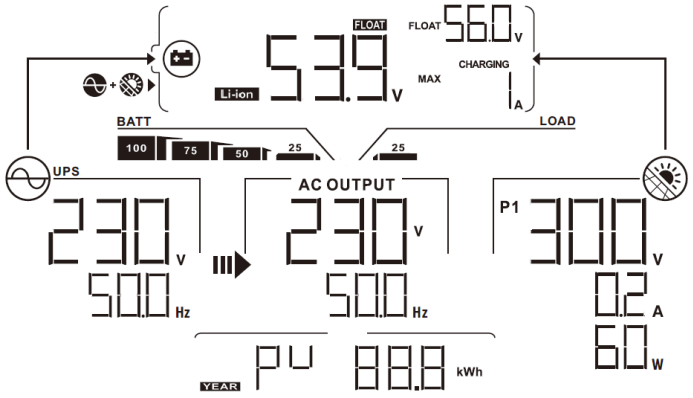
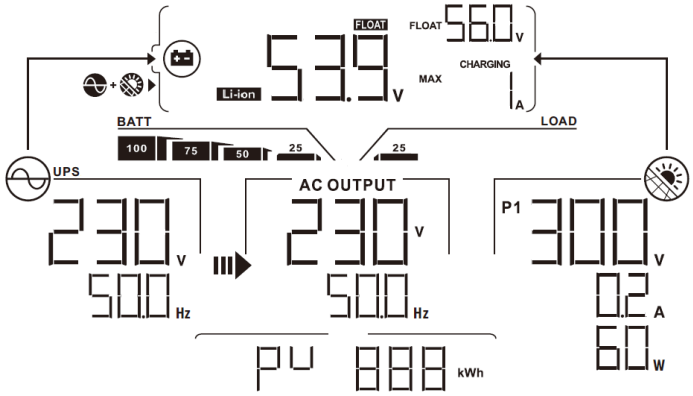
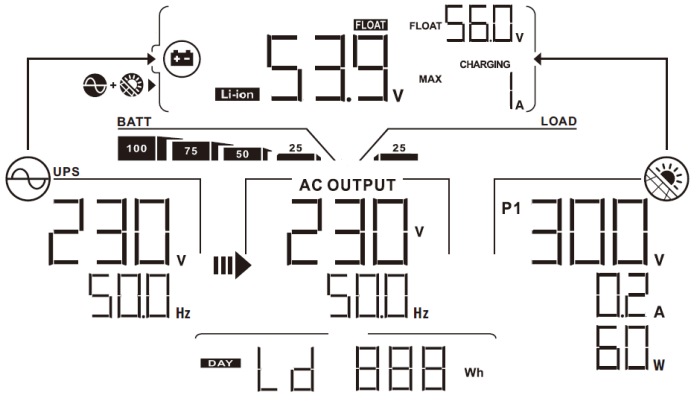
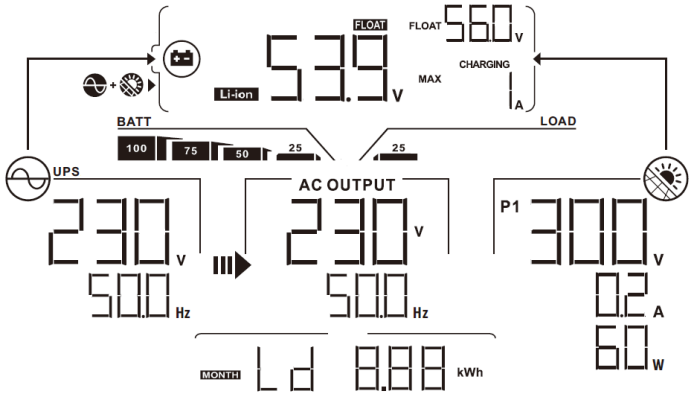
LCD Display

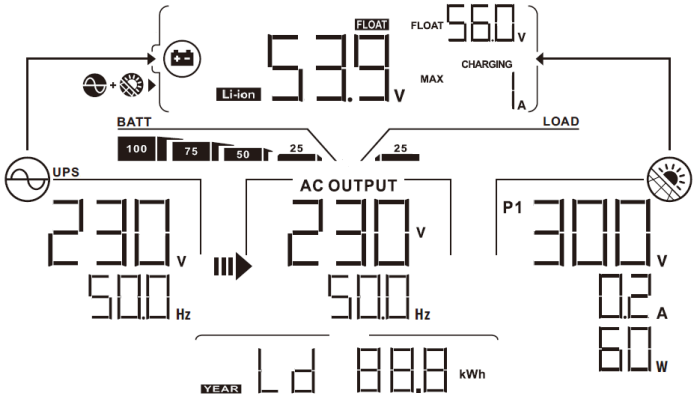
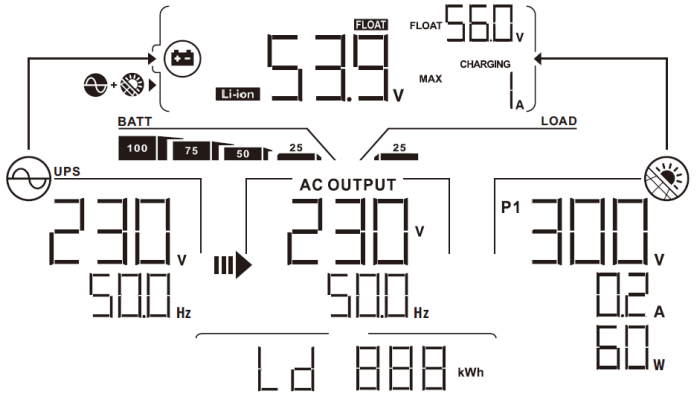
The LCD display information will be switched in turn by pressing the "▲" or "▼" button. The selectable information is switched as the following table in order.

Selectable information		LCD display
Default Display Screen	Utility voltage/ Utility frequency	Input Voltage=230V, Input frequency=50Hz 
	PV voltage/ PV current/ PV power	PV1 voltage=300V, PV1 current=2.0A, PV1 power=600W 
	Battery voltage, charging stage/ Configured battery parameters/ Charging or discharging current	Battery voltage=50.4V, Bulk charging voltage=56.0V, Charging current=20A 
		Battery voltage=53.9V, Floating charging voltage=56.0V, Charging current=1A 

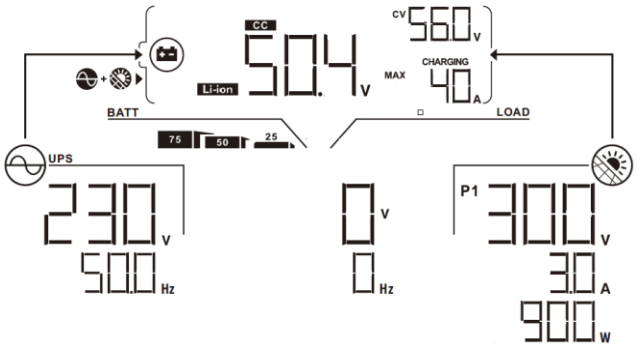
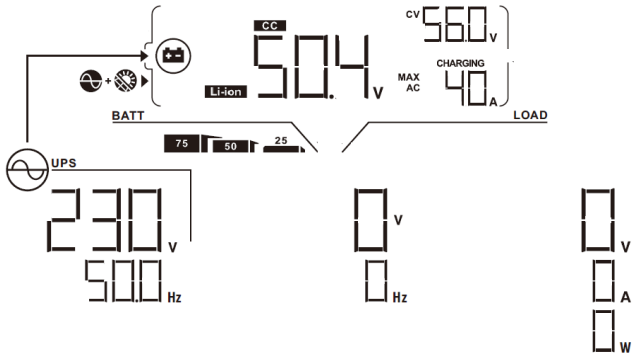
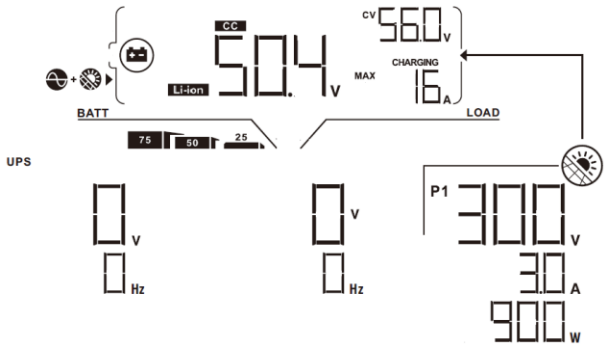
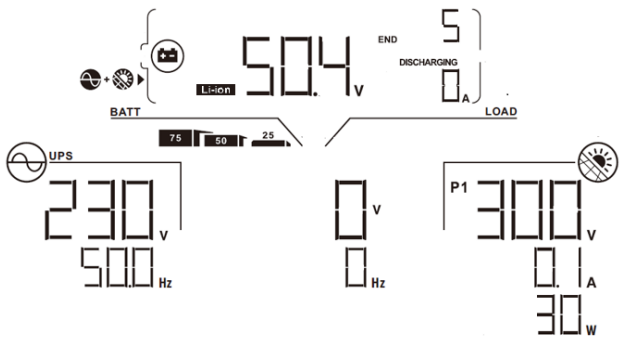
<table>
<tr><td rowspan="4">Default Display Screen</td><td>Battery voltage, charging stage/ Configured battery parameters/ Charging or discharging current</td><td>Battery voltage=50.4V, Low DC cut-off voltage=SOC 5%, Discharging current=48A
</td></tr>
<tr><td rowspan="3">Output voltage, load in VA, load in Watt switch every 5 second/ Output frequency</td><td>Output voltage=230V, Output frequency=50Hz
</td></tr>
<tr><td>Load in VA=2.4kVA, Output frequency=50Hz
</td></tr>
<tr><td>Load in Watt=2.4kW, Output frequency=50Hz
</td></tr>
</table>

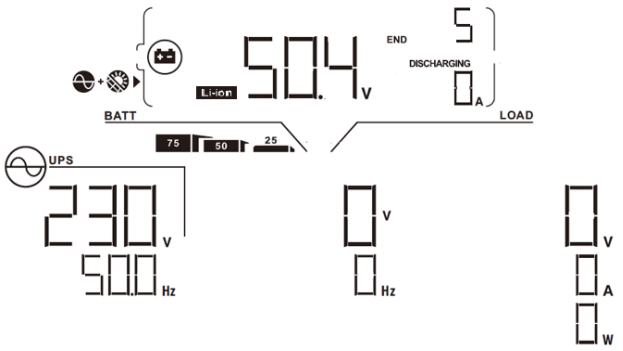
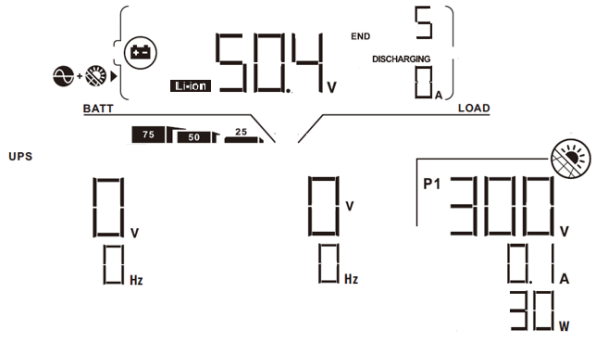
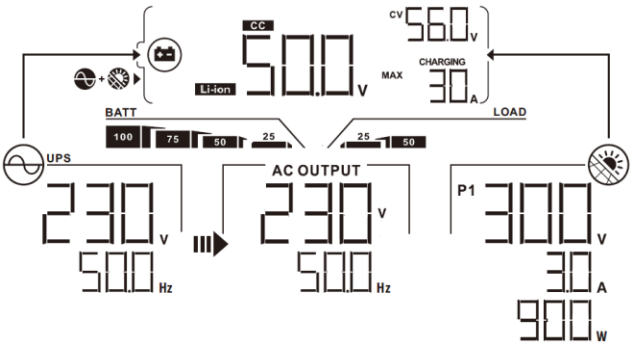
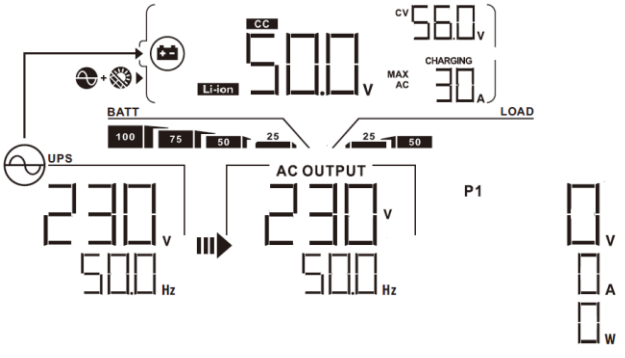
Default Display Screen	Real date.	Real date Dec 14, 2020. 
Real time.		Real time 11:38. 
PV energy generation today		PV energy generation today =888Wh. 
PV energy generation this month		PV energy generation this month =8.88kWh. 

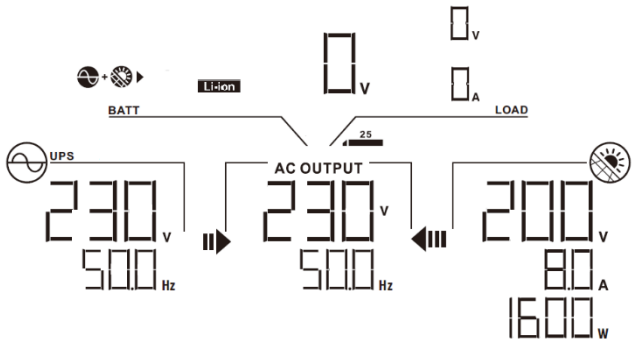
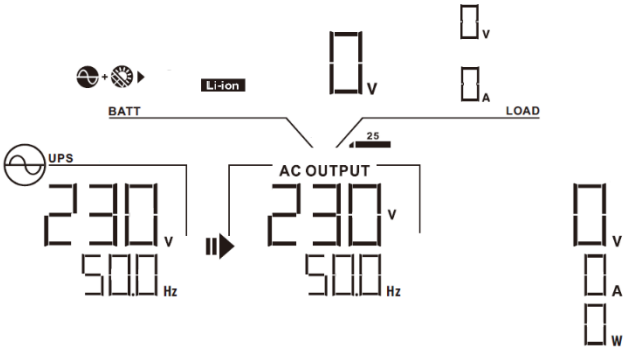
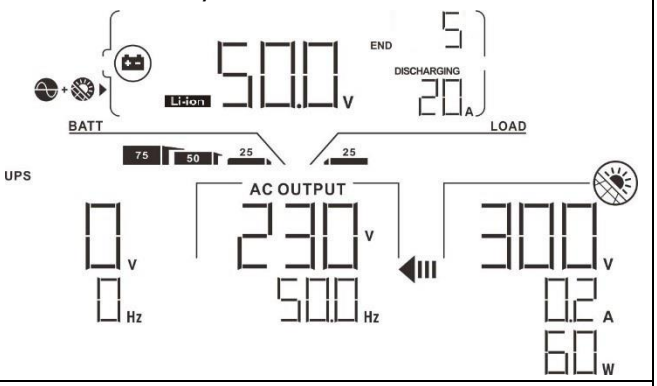
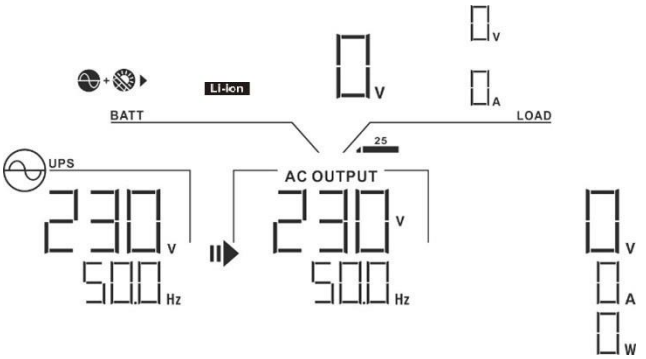
PV energy generation this year	PV energy generation this year =88.8kWh. 
Total PV energy generation	Total PV energy generation =888kWh. 
Load output energy today	Load output energy today =888Wh. 
Load output energy this month	Load output energy this month =8.88kWh. 

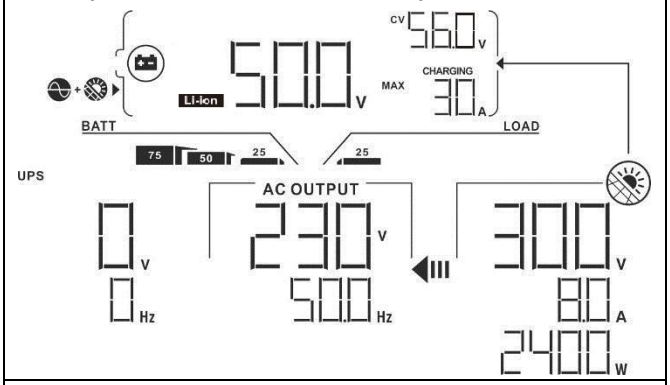
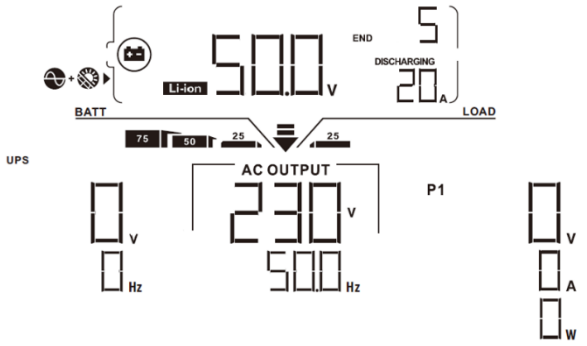
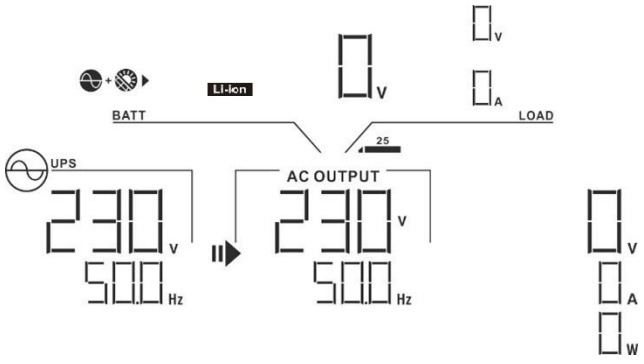
Load output energy this year	Load output energy this year =88.8kWh. 
Total load output energy	Total load output energy =888kWh. 
Main CPU version checking.	Main CPU version 00050.72. 
Secondary CPU version checking.	Secondary CPU version 00022.01. 

Operating Mode Description

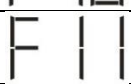
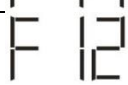
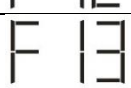
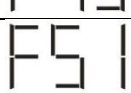
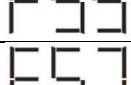
<table>
<tr><th>Operation mode</th><th>Description</th><th>LCD display</th></tr>
<tr><td rowspan="4">Standby mode
Note:
*Standby mode: The inverter is not turned on yet but at this time, the inverter can charge battery without AC output.</td><td rowspan="4">No output is supplied by the unit but it still can charge batteries.</td><td>Charging by utility and PV energy.
</td></tr>
<tr><td>Charging by utility.
</td></tr>
<tr><td>Charging by PV energy.
</td></tr>
<tr><td>No charging.
</td></tr>
<tr><td>Fault mode
Note:
*Fault mode: Errors are caused by inside circuit error or external reasons such as over temperature, output short circuited and so on.</td><td>No charging at all no matter if grid or PV power is available.</td><td>Grid and PV power are available.
</td></tr>
</table>

Operation mode	Description	LCD display
Fault mode Note: *Fault mode: Errors are caused by inside circuit error or external reasons such as over temperature, output short circuited and so on.	No charging at all no matter if grid or PV power is available.	Grid is available. 
		PV power is available. 
		No charging. 
Line Mode	The unit will provide output power from the mains. It will also charge the battery at line mode.	Charging by utility and PV energy. 
		Charging by utility. 

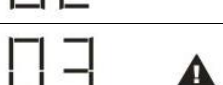
Operation mode	Description	LCD display
Line Mode	The unit will provide output power from the mains. It will also charge the battery at line mode.	If "SUB" (solar first) is selected as output source priority and solar energy is not sufficient to provide the load, solar energy and the utility will provide the loads and charge the battery at the same time. 
		If either "SUB" (solar first) or "SBU" is selected as output source priority and battery is not connected, solar energy and the utility will provide the loads. 
		Power from utility 
Battery Mode	The unit will provide output power from battery and/or PV power.	Power from battery and PV energy. 

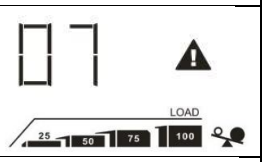
Operation mode	Description	LCD display
Battery Mode	The unit will provide output power from battery and/or PV power.	PV energy will supply power to the loads and charge battery at the same time. No utility is available. 
		Power from battery only. 
		Power from PV energy only. 

Faults Reference Code

Fault Code	Fault Event	Icon on
01	Fan is locked when inverter is off.	
02	Over temperature	
03	Battery voltage is too high	
04	Battery voltage is too low	
05	Output short circuited.	
06	Output voltage is too high.	
07	Overload time out	
08	Bus voltage is too high	
09	Bus soft start failed	
10	PV over current	
11	PV over voltage	
12	DCDC over current	
13	Battery discharge over current	
51	Over current	
52	Bus voltage is too low	
53	Inverter soft start failed	
55	Over DC voltage in AC output	
57	Current sensor failed	
58	Output voltage is too low	

Warning Indicator

Warning Code	Warning Event	Audible Alarm	Icon flashing
01	Fan is locked when inverter is on.	Beep three times every second	
02	Over temperature	None	
03	Battery is over-charged	Beep once every second	

04	Low battery	Beep once every second	
07	Overload	Beep once every 0.5 second	
10	Output power derating	Beep twice every 3 seconds	
15	PV energy is low.	Beep twice every 3 seconds	
16	High AC input (>280VAC) during BUS soft start	None	
32	Communication failure between inverter and display panel	None	

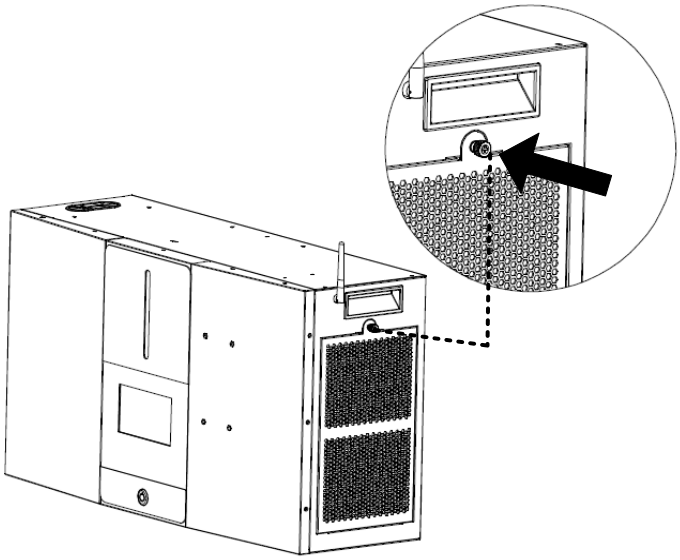
CLEARANCE AND MAINTENANCE FOR ANTI-DUST KIT

Overview

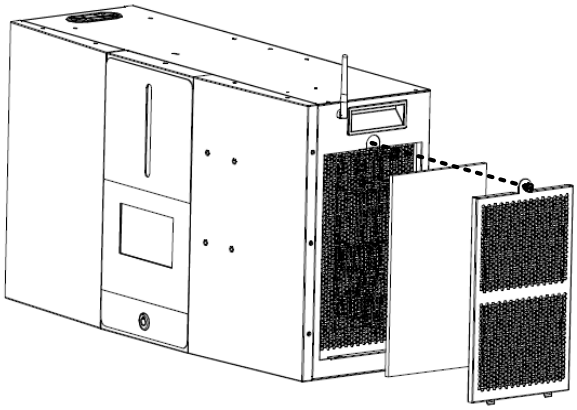
Each inverter is already installed with the anti-dusk kit from the factory. This kit keeps dusk from your inverter and increases product reliability in a harsh environment.

Clearance and Maintenance

Step 1: Please remove the side cover of the inverter.



Step 2: Then, the dustproof case can be removed, and take out air filter foam as shown in the below chart.



Step 3: Clean air filter foam and dustproof case. After clearance, re-assemble the dust-kit back to the inverter.

NOTICE: The anti-dust kits should be cleaned every other month.

SPECIFICATIONS

Table 1 Line Mode Specifications

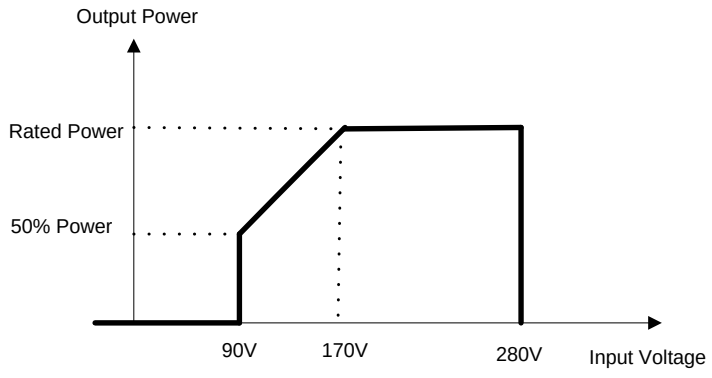
Inverter Power Rating	5KW
Input Voltage Waveform	Sinusoidal (utility or generator)
Nominal Input Voltage	230Vac
Low Loss Voltage	170Vac±7V (UPS) 90Vac±7V (Appliances)
Low Loss Return Voltage	180Vac±7V (UPS); 100Vac±7V (Appliances)
High Loss Voltage	280Vac±7V
High Loss Return Voltage	270Vac±7V
Max AC Input Voltage	300Vac
Max AC Input Current	60A
Nominal Input Frequency	50Hz / 60Hz (Auto detection)
Low Loss Frequency	40±1Hz
Low Loss Return Frequency	42±1Hz
High Loss Frequency	65±1Hz
High Loss Return Frequency	63±1Hz
Output Short Circuit Protection	Line mode: Circuit Breaker Battery mode: Electronic Circuits
Efficiency (Line Mode)	>95% (Rated R load, battery full charged)
Transfer Time	10ms typical (UPS); 20ms typical (Appliances)
Output power de-rating: When AC input voltage under 170V the output power will be de-rated.	

Table 2 Inverter Mode Specifications

Utility Inverter Mode	
Rated Output Power	5000W
Output Voltage Waveform	Pure Sine Wave
Output Voltage Regulation	230Vac±5%
Output Frequency	50Hz or 60Hz
Peak Efficiency	93%
Overload Protection	5s@≥130% load; 10s@105%~130% load
Surge Capacity	2* rated power for 5 seconds
Low DC Warning capacity	Setting of Program 29 + 10%(SOC)
Low DC Cut-off level	Setting of Program 29
High DC Recovery Voltage	56Vdc
High DC Cut-off Voltage	57.5Vdc
DC Voltage Accuracy	+/-0.3V@ no load
THDV	<5% for linear load,<10% for non-linear load @ 50Vdc
DC Offset	≦100mV
No Load Power Consumption	<50W

Table 3 Charge Mode Specifications

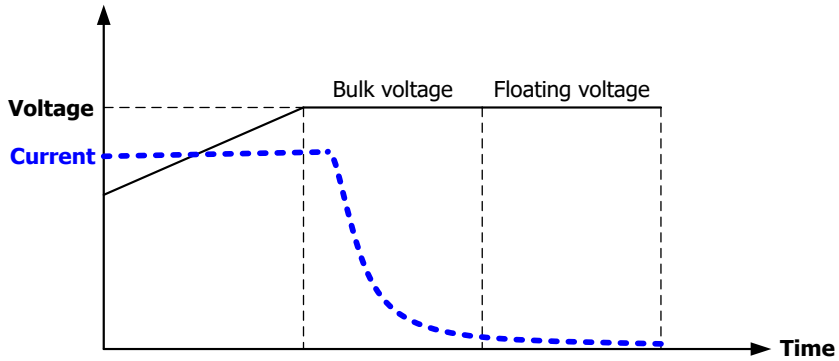
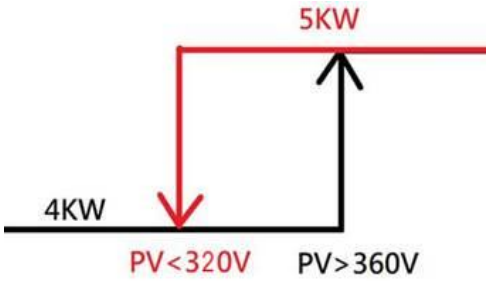
Utility Charging Mode	
Charging Current (UPS) @ Nominal Input Voltage	30A (@$V_{I/P}$=230Vac)
Bulk Charging Voltage	56.0Vdc
Floating Charging Voltage	56.0Vdc
Overcharge Protection	57.5Vdc
Charging Algorithm	3-Step
Charging Curve	
Solar Input	
Rated Power	5000W
Max. PV Array Open Circuit Voltage	500Vdc
PV Array MPPT Voltage Range	120Vdc~450Vdc
Max. Input Current	18A
Start-up Voltage	150V +/- 10Vdc
Power Limitation	

Table 4 General Specifications

Safety Compliance	CE
Operating Temperature Range	-10°C to 50°C
Storage temperature	-15°C~ 60°C
Humidity	5% to 95% Relative Humidity (Non-condensing)
Dimension (D*W*H), mm	214 x 621 x 350
Net Weight, kg	15

Table 5 Battery Module Specifications

Capacity (Wh)	5120 Wh
Nominal Voltage	51.2VDC
Typical Capacity	100 Ah
Full Charge Voltage (FC)	56 V
Full Discharge Voltage (FD)	42 V
Max Discharging Current	150A
Protection	BMS, breaker
Dimension, D X W X H (mm)	214 x 621 x 550
Net Weight (kgs)	55
Certifications	UN38.3, IEC 62619

TROUBLE SHOOTING

Problem	LCD/LED/Buzzer	Explanation / Possible cause	What to do
Unit shuts down automatically during startup process.	LCD/LEDs and buzzer will be active for 3 seconds and then complete off.	The battery voltage is too low (<1.91V/Cell)	1. Re-charge battery. 2. Replace battery.
No response after power on.	No indication.	1. The battery voltage is far too low. (<1.4V/Cell) 2. Battery polarity is connected reversed.	1. Check if batteries and the wiring are connected well. 2. Re-charge battery. 3. Replace battery.
Buzzer beeps continuously.	Fault code 07	Overload error. The inverter is overload 110% and time is up.	Reduce the connected load by switching off some equipment.
	Fault code 05	Output short circuited.	Check if wiring is connected well and remove abnormal load.
	Fault code 02	Internal temperature of inverter component is over 100°C.	Check whether the air flow of the unit is blocked or whether the ambient temperature is too high.
	Fault code 03	Battery is over-charged.	Return to repair center.
		The battery voltage is too high.	Check if spec and quantity of batteries are meet requirements.
	Fault code 01	Fan fault	Replace the fan.
	Fault code 06/58	Output abnormal (Inverter voltage below than 190Vac or is higher than 260Vac)	1. Reduce the connected load. 2. Return to repair center
	Fault code 08/09/53/57	Internal components failed.	Return to repair center.
	Fault code 51	Over current or surge.	Restart the unit, if the error happens again, please return to repair center.
	Fault code 52	Bus voltage is too low.	
	Fault code 55	Output voltage is unbalanced.	

Appendix I: BMS Communication Installation

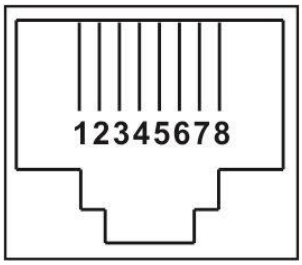
1. Introduction

This BMS communication cable delivers information and signal between the lithium battery and the inverter. This information is listed below:

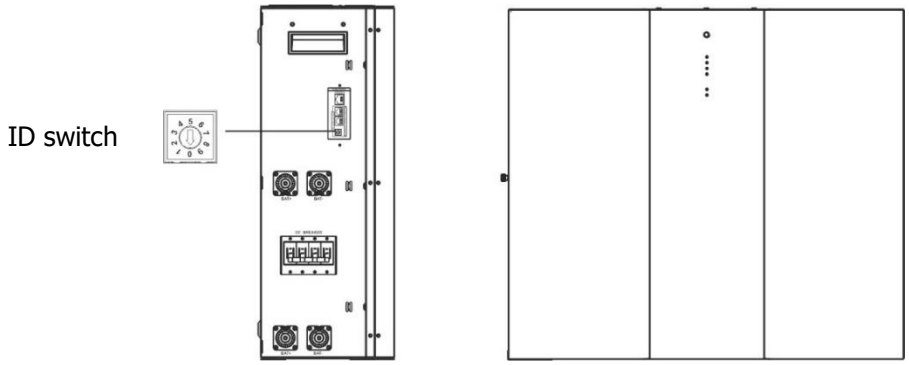
- Re-configure charging voltage, charging current, and battery discharge cut-off level according to the lithium battery parameters.
- Have the inverter start or stop charging according to the status of the lithium battery.

2. Pin Assignment for BMS Communication Port

	Definition
PIN 1	RS232TX
PIN 2	RS232RX
PIN 3	RS485B
PIN 4	NC
PIN 5	RS485A
PIN 6	CANH
PIN 7	CANL
PIN 8	GND



3. Lithium Battery Communication Configuration

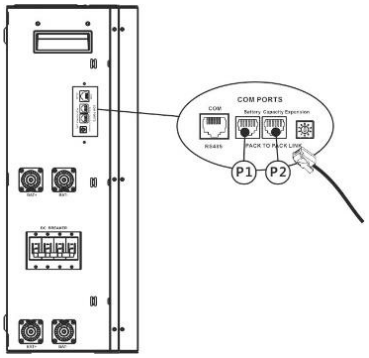


ID Switch indicates the unique ID code for each battery module. It's required to assign a unique ID to each battery module for normal operation. We can set up the ID code for each battery module by rotating the PIN number on the ID switch. From numbers 0 to 9, the number can be random; in no particular order. Maximum of 10 battery modules can be operated in parallel.

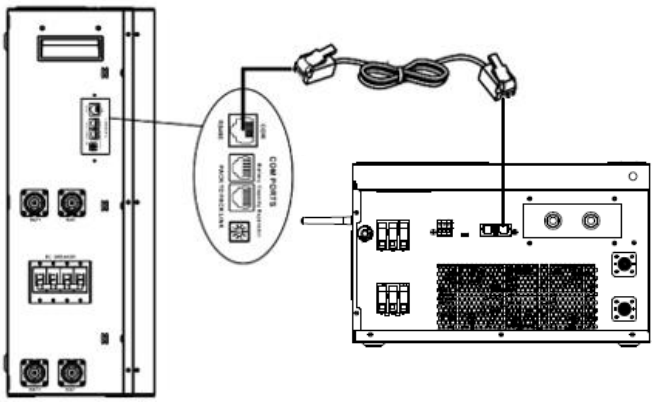
4. Installation and Operation

After ID no. is assigned for each battery module, please set up the LCD panel in the inverter and install the wiring connection as following steps.

Step 1: Use supplied RJ11 signal cable to connect to the extension port (P1 or P2).



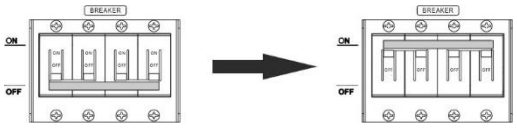
Step 2: Use supplied BMS cable (from battery module package) to connect inverter and Lithium battery.



Note for parallel system:

1. Only support common battery installation.

Step 3: Turn the breaker switch "ON". Now, the battery module is ready for DC output.



Step 4: Press Power on/off button on the battery module for 5 secs, and the battery module will start up.

Step 5: Turn on the inverter.

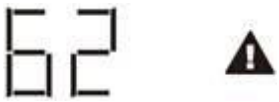
If communication between the inverter and battery is successful, the battery icon  on the LCD display will flash. Generally speaking, it will take longer than 1 minute to establish communication.

Active Function

This function is to activate the lithium battery automatically while commissioning. After battery wiring and commissioning is successful, if the battery is not detected, the inverter will automatically activate battery if the inverter is powered on.

5. Code Reference

Related information code will be displayed on LCD screen. Please check inverter LCD screen for the operation.

Code	Description
	If battery status is not allowed to charge and discharge after the communication between the inverter and battery is successful, it will show code 60 to stop charging and discharging battery.
	Communication between inverter module and BMS of battery lost. ● After battery is connected, communication signal is not detected for 3 minutes, buzzer will beep. After 10 minutes, inverter will stop charging and discharging to lithium battery. ● Communication lost occurs after the inverter and battery is connected successfully, buzzer beeps immediately.
	Internal communication failure of batteries.
	If battery status is not allowed to charge after the communication between the inverter and battery is successful, it will show code 69 to stop charging battery.
	If battery status must to be charged after the communication between the inverter and battery is successful, it will show code 70 to charge battery.
	If battery status is not allowed to discharge after the communication between the inverter and battery is successful, it will show code 71 to stop discharging battery.

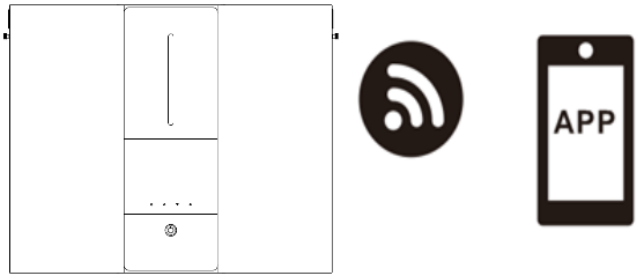
Appendix II: The Wi-Fi Operation Guide

1. Introduction

Wi-Fi module can enable wireless communication between off-grid inverters and monitoring platform. Users have complete and remote monitoring and controlling experience for inverters when combining Wi-Fi module with WatchPower APP, available for both iOS and Android based device. All data loggers and parameters are saved in iCloud.

The major functions of this APP:

- Delivers device status during normal operation.
- Allows to configure device setting after installation.
- Notifies users when a warning or alarm occurs.
- Allows users to query inverter history data.



2. WatchPower App

2-1. Download and install APP

Operating system requirement for your smart phone:
iOS system supports iOS 9.0 and above
Android system supports Android 5.0 and above

Please scan the following QR code with your smart phone and download WatchPower App.

Android system

iOS system

Or you may find "WatchPower" app from the Apple® Store or "WatchPower Wi-Fi" in Google® Play Store.

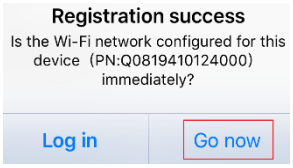
2-2. Initial Setup

Step 1: Registration at first time

After the installation, please tap the shortcut icon to access this APP on your mobile screen. In the screen, tap "Register" to access "User Registration" page. Fill in all required information and scan the Wi-Fi module PN by tapping icon. Or you can simply enter PN directly. Then, tap "Register" button.

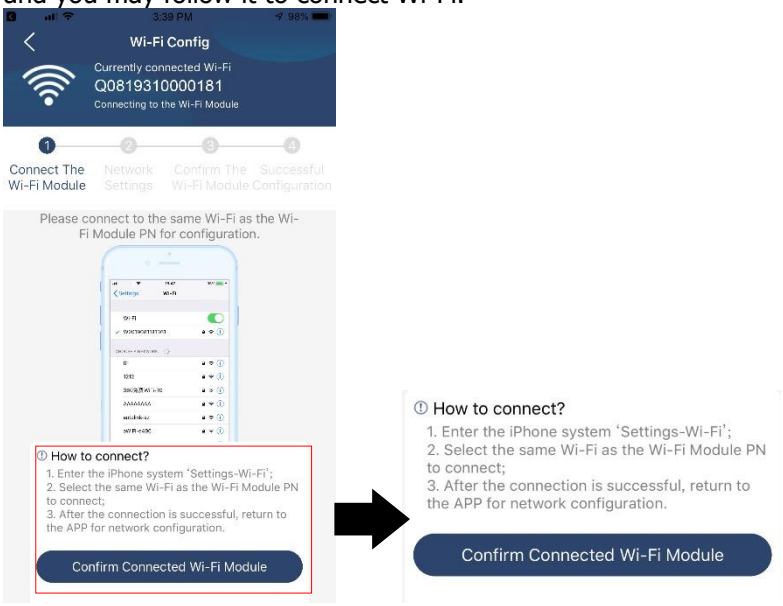


Then, a "Registration success" window will pop up. Tap "Go now" to continue setting local Wi-Fi network connection.

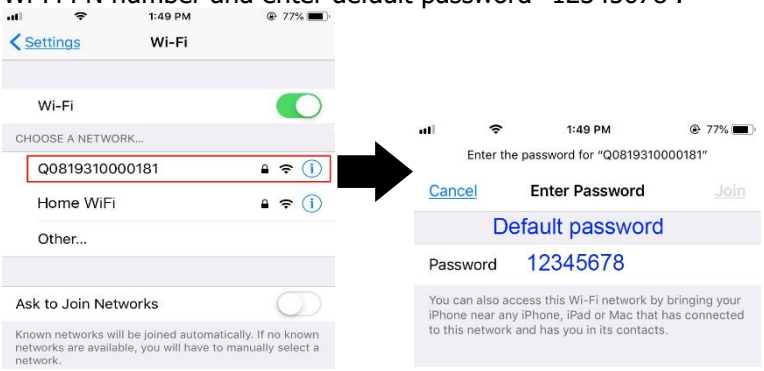


Step 2: Local Wi-Fi Module Configuration

Now, you are in "Wi-Fi Config" page. There are detailed setup procedure listed in "How to connect?" section and you may follow it to connect Wi-Fi.



Enter the "Settings→Wi-Fi" and select connected Wi-Fi name. The connected Wi-Fi name is the same to your Wi-Fi PN number and enter default password "12345678".



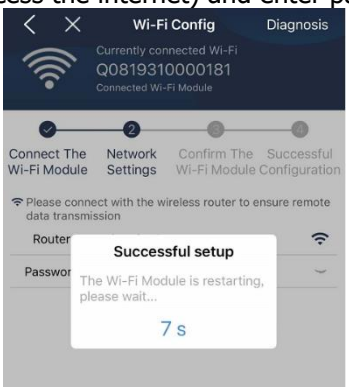
Then, return to WatchPower APP and tap " Confirm Connected Wi-Fi Module " button when Wi-Fi module is connected successfully.

Step 3: Wi-Fi Network settings

Tap icon to select your local Wi-Fi router name (to access the internet) and enter password.

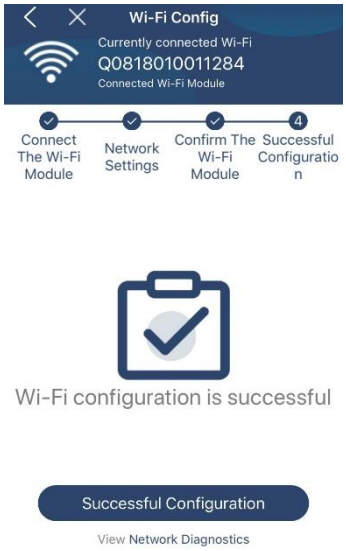




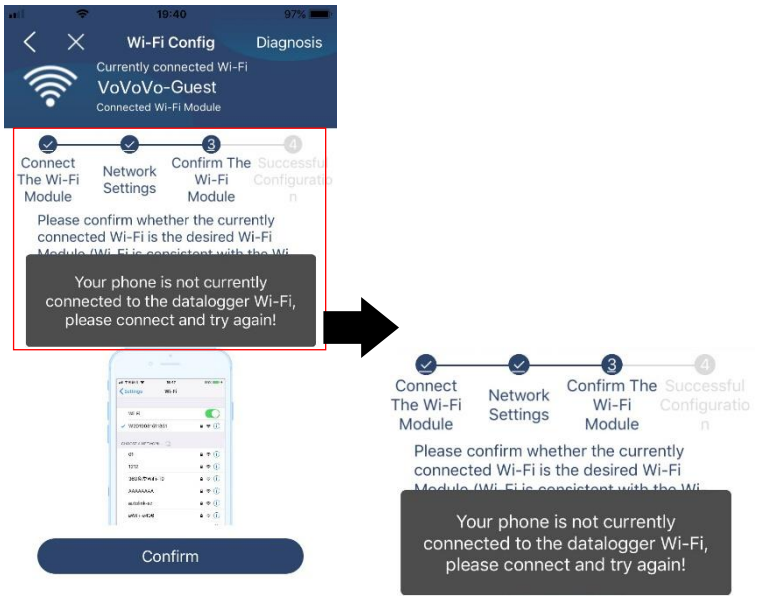


Step 4: Tap "Confirm" to complete the Wi-Fi configuration between the Wi-Fi module and the Internet.



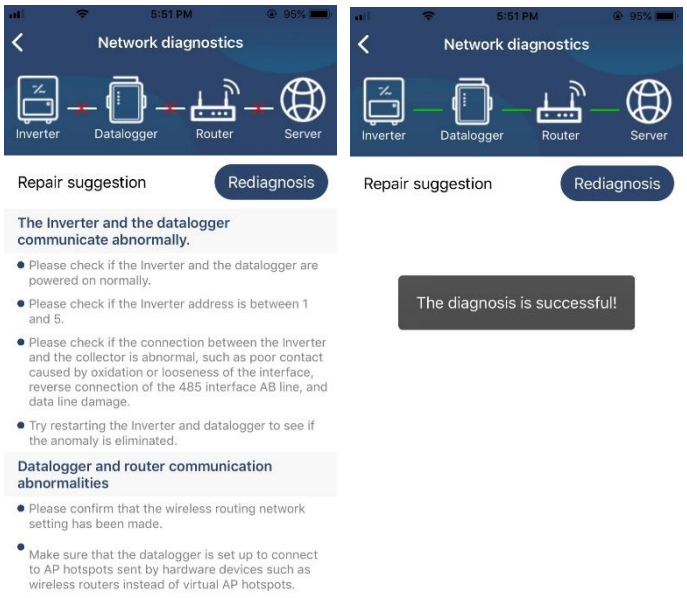


If the connection fails, please repeat Step 2 and 3.



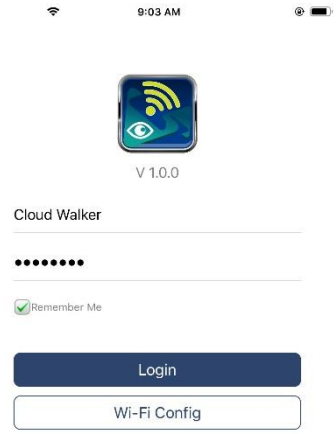
Diagnose Function

If the module is not monitoring properly, please tap "Diagnosis" on the top right corner of the screen for further details. It will show repair suggestion. Please follow it to fix the problem. Then, repeat the steps in the chapter 4.2 to re-set network setting. After all setting, tap "Rediagnosis" to re-connect again.



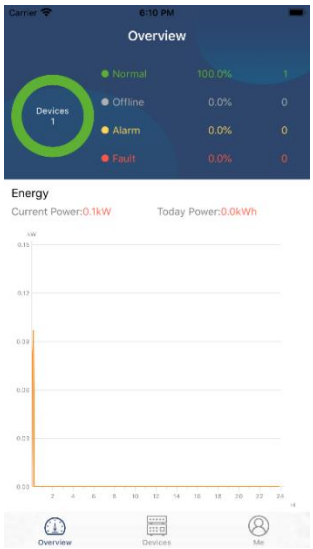
2-3. Login and APP Main Function

After finishing the registration and local Wi-Fi configuration, enter registered name and password to login.
Note: Tick "Remember Me" for your login convenience afterwards.



Overview

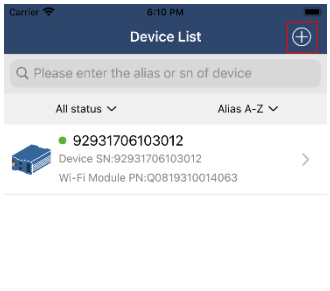
After login is successfully, you can access "Overview" page to have overview of your monitoring devices, including overall operation situation and Energy information for Current power and Today power as below diagram.

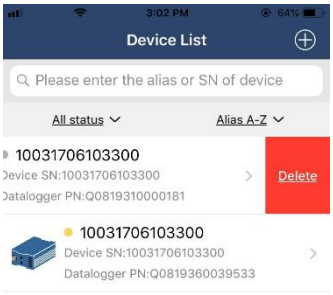


Devices

Tap the Devices icon (located on the bottom) to enter Device List page. You can review all devices here by adding or deleting Wi-Fi Module in this page.

Add device **Delete device**

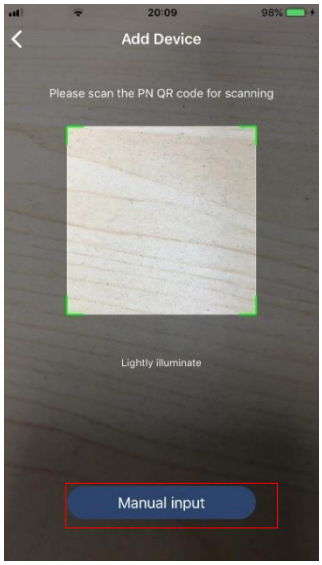


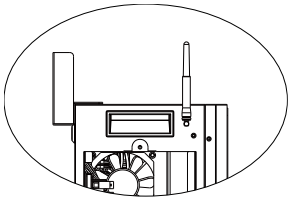




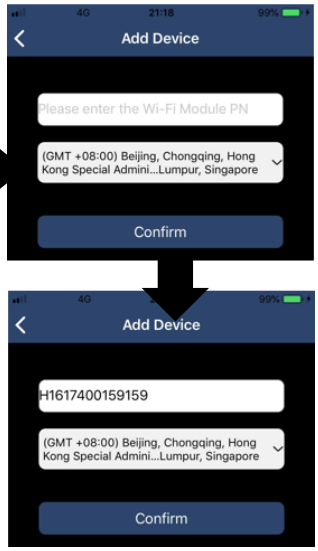


Tap icon on the top right corner and manually enter part number to add device. Or you may simply scan QR code label. No matter it's part number or QR code, the label is pasted nearby wirelss antenna. After entering part number, tap "Confirm" to add this device in the Device list.





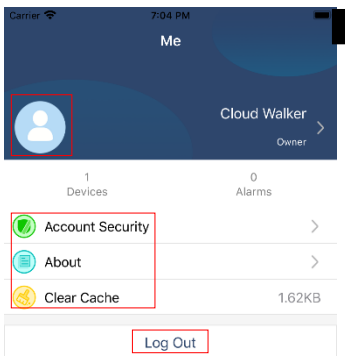
Part number or QR code label is pasted nearby wireless antenna.

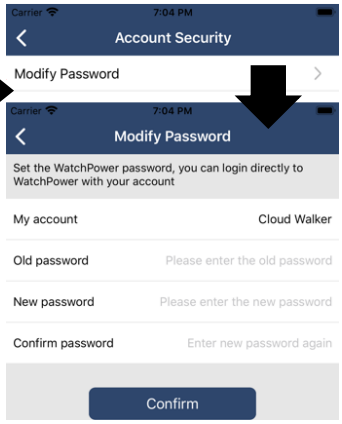


For more information about Device List, please refer to the section 2.4.

ME

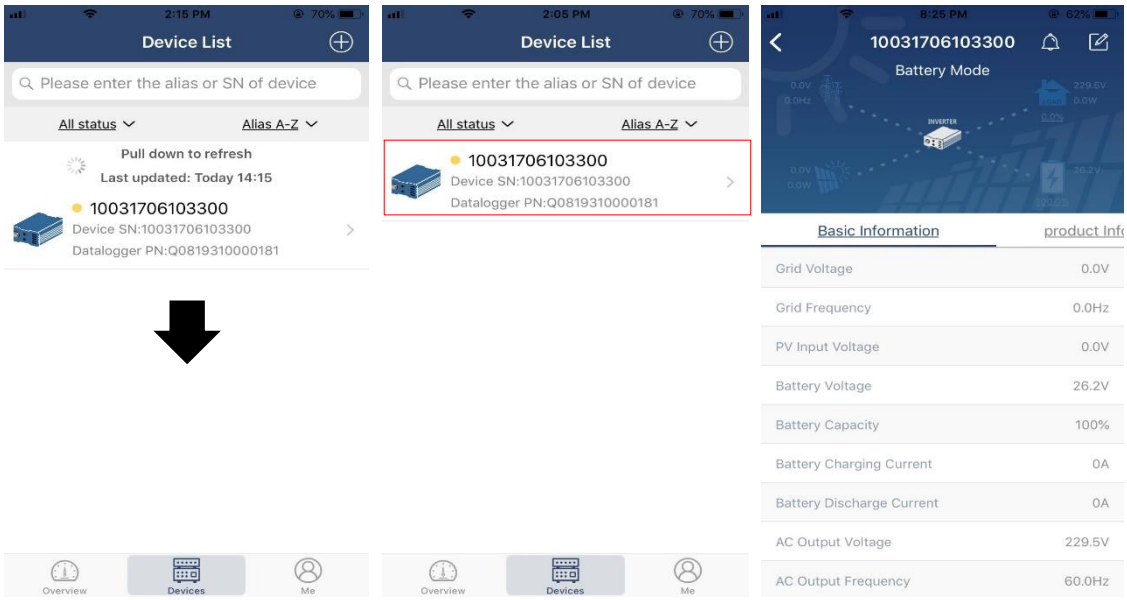
In ME page, users can modify "My information", including【User's Photo】,【Account security】, 【Modify password】,【Clear cache】,and【Log-out】, shown as below diagrams.





2-4. Device List

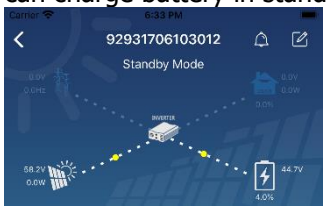
In Device List page, you can pull down to refresh the device information and then tap any device you want to check up for its real-time status and related information as well as to change parameter settings. Please refer to the parameter setting list.



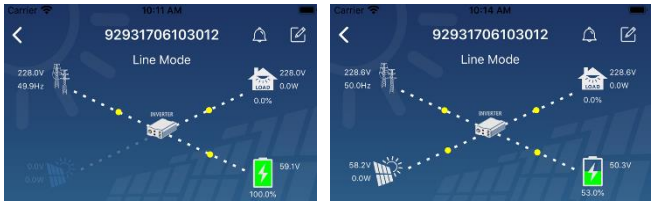
Device Mode

On the top of screen, there is a dynamic power flow chart to show live operation. It contains five icons to present PV power, inverter, load, utility and battery. Based on your inverter model status, there will be【Standby Mode】,【Line Mode】,【Battery Mode】.

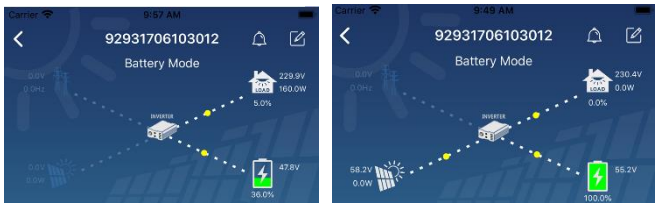
【Standby Mode】 Inverter will not power the load until "ON" switch is pressed. Qualified utility or PV source can charge battery in standby mode.



【Line Mode】 Inverter will power the load from the utility with or without PV charging. Qualified utility or PV source can charge battery.

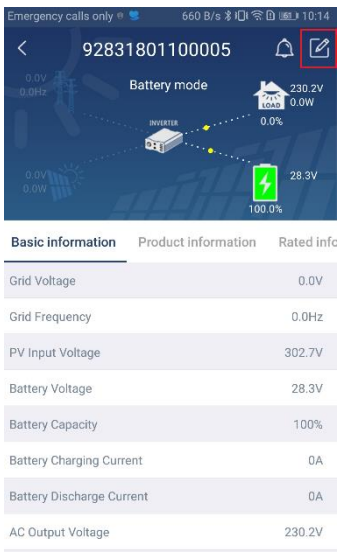


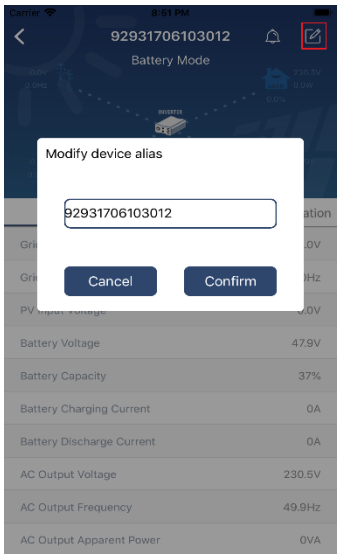
【Battery Mode】 Inverter will power the load from the batter with or without PV charging. Only PV source can charge battery.



Device Alarm and Name Modification

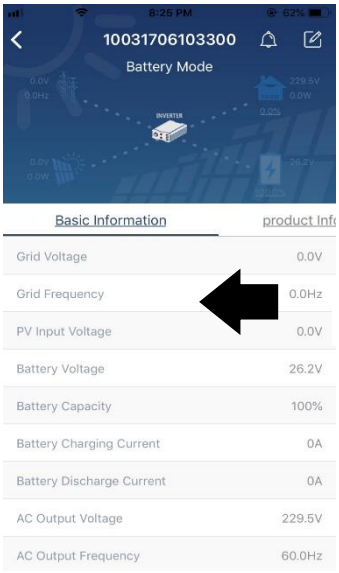
In this page, tap the icon on the top right corner to enter the device alarm page. Then, you can review alarm history and detailed information. Tap the icon on the top right corner, a blank input box will pop out. Then, you can edit the name for your device and tap "Confirm" to complete name modification.





Device Information Data

Users can check up 【Basic Information】,【Product Information】,【Rated information】,【History】, and【Wi-Fi Module Information】by swiping left.



Swipe left

【Basic Information】displays basic information of the inverter, including AC voltage, AC frequency, PV input voltage, Battery voltage, Battery capacity, Charging current, Output voltage, Output frequency, Output apparent power, Output active power and Load percent. Please slide up to see more basic information.

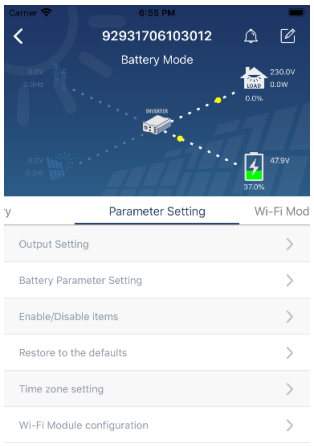
【Rated Information】displays information of Nominal AC voltage, Nominal AC current, Rated battery voltage, Nominal output voltage, Nominal output frequency, Nominal output current, Nominal output apparent power and Nominal output active power. Please slide up to see more rated information.

【History】displays the record of unit information and setting timely.

【Wi-Fi Module Information】displays of Wi-Fi Module PN, status and firmware version.

Parameter Setting

This page is to activate some features and set up parameters for inverters. Please be noted that the listing in "Parameter Setting" page in below diagram may differ from the models of monitored inverter. Here will briefly highlight some of it,【Output Setting】,【Battery Parameter Setting】,【Enable/ Disable items】,【Restore to the defaults】to illustrate.



There are three ways to modify setting and they vary according to each parameter.

a) Listing options to change values by tapping one of it.

b) Activate/Shut down functions by clicking "Enable" or "Disable" button.

c) Changing values by clicking arrows or entering the numbers directly in the column.

Each function setting is saved by clicking "Set" button.

Please refer to below parameter setting list for an overall description and be noted that the available parameters may vary depending on different models. Please always see the original product manual for detailed setting instructions.

Parameter setting list:

Item		Description
Output setting	Output source priority	To configure load power source priority.
	AC input range	When selecting "UPS", it's allowed to connect personal computer. Please check product manual for details.
		When selecting "Appliance", it's allowed to connect home appliances.
	Output voltage	To set output voltage.
	Output frequency	To set output frequency.
Battery parameter setting	Battery type:	To set connected battery type.
	Battery cut-off SOC	To set the battery stop discharging SOC. Please see product manual for the recommended SOC range based on connected battery type.
	Back to grid SOC	When "SBU" or "SOL" is set as output source priority and battery voltage is lower than this setting SOC, unit will transfer to line mode and the grid will provide power to load.
	Back to discharge SOC	When "SBU" or "SOL" is set as output source priority and battery voltage is higher than this setting SOC, battery will be allowed to discharge.
	Charger source priority:	To configure charger source priority.

	Max. charging current	It's to set up battery charging parameters. The selectable values in different inverter model may vary. Please see product manual for the details.
	Max. AC charging current:	
	Float charging voltage	
	Bulk charging voltage	It's to set up battery charging parameters. The selectable values i different inverter model may vary. Please see product manual for the details.
Enable/Disable Functions	LCD Auto-return to Main screen	If enable, LCD screen will return to its main screen after one minute automatically.
	Fault Code Record	If enabled, fault code will be recorded in the inverter when any fault happens.
	Backlight	If disabled, LCD backlight will be off when panel button is not operated for 1 minute.
	Bypass Function	If enabled, unit will transfer to line mode when overload happened in battery mode.
	Beeps while primary source interrupt	If enabled, buzzer will alarm when primary source is abnormal.
	Over Temperature Auto Restart	If disabled, the unit won't be restarted after over-temperature fault is solved.
	Overload Auto Restart	If disabled, the unit won't be restarted after overload occurs.
	Buzzer	If disabled, buzzer won't be on when alarm/fault occurred.
Restore to the default	This function is to restore all settings back to default settings.	