



# UPC Series

Off-Grid Inverter

## User Manual





# Contents

<b>1 Notes on this Manual</b> .....	02
1.1 Scope.....	02
1.2 Target Group.....	02
1.3 Symbols Used.....	02
<b>2 Safety</b> .....	03
2.1 Important Safety Instructions.....	03
2.2 Explanation of Symbols.....	04
<b>3 Introduction</b> .....	05
3.1 Scope of application.....	05
3.2 Product Model Description.....	05
3.3 Datasheet.....	06
<b>4 Installation Instructions</b> .....	07
4.1 Safety Tips.....	07
4.2 Packing List.....	07
4.3 Determine the installation method and location.....	08
4.4 Installation.....	09
<b>5 Electrical Connections</b> .....	11
5.1 Electrical Interface Description.....	11
5.2 System Wiring Schematic.....	11
5.3 Battery Wiring.....	11
5.4 PV Input Wiring.....	13
5.5 AC in/AC out Wiring.....	13
5.6 Monitor Installation (optional).....	14
<b>6 Local Configuration</b> .....	15
6.1 Local Interface Introduction.....	15
6.2 Home Page.....	15
6.3 Detail Info Page.....	16
6.3.1 I/O Info Page.....	16
6.3.2 System Info Page.....	16
6.4 Fault Page.....	17
6.5 Statistics Page.....	18
6.6 Setting Page.....	19
6.6.1 Brightness Setting Page.....	19
6.6.2 Inverter Setting Page.....	19
6.6.3 Version Page.....	29
6.6.4 Clear Page.....	29
6.7 Start up the System.....	30
6.8 Shut Down the System.....	30
<b>7 Fault Codes and Common troubleshooting</b> .....	31
<b>8 System Maintenance</b> .....	36
8.1 Storage.....	36
8.2 Cleanliness.....	36

# 1 Notes on this Manual

## 1.1 Scope

This manual is an integral part of UPC.

Off-Grid Inverter		
UPC-3.5KSW	UPC-5KSW	UPC-5.5KSW

This manual describes the assembly, installation, commissioning, maintenance and failure of the product. Please read it carefully before operating.

The manual is only for this batch of shipment.

## 1.2 Target Group

This manual is for qualified electricians. The tasks described in this manual only can be performed by qualified personnel.

## 1.3 Symbols Used

The following types of safety instructions and general information appear in this document as described below:

 Danger	<p><b>Danger!</b></p> <p>“Danger” indicates a hazardous situation which, if not avoided, will result in death or serious injury.</p>
 Warning	<p><b>Warning!</b></p> <p>“Warning” indicates a hazardous situation which, if not avoided, could result in death or serious injury.</p>
 Caution	<p><b>Caution!</b></p> <p>“Caution” indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.</p>
	<p><b>Note!</b></p> <p>“Note” provides tips that are valuable for the optimal operation of our product.</p>

## 2 Safety

### 2.1 Important Safety Instructions

 <p><b>Danger</b></p>	<p><b>Danger!</b></p> <ul style="list-style-type: none"> <li>• Electric shock and high voltage.</li> <li>• Do not expose the system to temperatures in excess of 45°C.</li> <li>• Do not subject the system to any strong force.</li> <li>• Do not touch uninsulated cable termination.</li> <li>• Do not soak the system in water or expose it to moisture environment.</li> <li>• Do not touch the case of the system when it is wet in case of electric shock.</li> <li>• Do not place the system near a heat source, such as direct sunlight, a fireplace.</li> <li>• Keep inflammable and explosive dangerous items or flames away from the system.</li> <li>• Do not charge or discharge damaged system.</li> <li>• Before performing any work on the system, please disconnect the system from all voltage sources as described in this document.</li> </ul>
 <p><b>Warning</b></p>	<p><b>Warning!</b></p> <ul style="list-style-type: none"> <li>• Installation, repair, recycling, and disposal of system must be performed by qualified personnel in accordance with national and local standards and regulations.</li> <li>• Risks of chemical burn electrolyte or toxic gases.</li> <li>• Do not place heavy objects on the top of the system.</li> <li>• If the moisture penetrates the system (e.g., due to casing damage), please do not install or operate the system.</li> <li>• Do not use wet hands to touch the system.</li> <li>• Any behavior to change the functionality of the product without permission will cause fatal injury to the operator, third parties, and equipment. UPC is not responsible for these losses and warranty claims.</li> <li>• To ensure property and personal safety, the UPC shall be well grounded.</li> </ul>

 <p>Caution</p>	<p><b>Caution!</b></p> <ul style="list-style-type: none"> <li>• Do not modify or tamper with system and other components of the system.</li> <li>• Risk of injury by hoisting or falling system.</li> <li>• UPC is heavy and personal injury can be caused if the UPC is improperly lifted or dropped during transport or improper operation when attached or removed from walls. Lifting and moved the products shall be conducted by more than two people.</li> </ul>
	<p><b>Note!</b></p> <ul style="list-style-type: none"> <li>• Do not reverse output of these two AC terminals of the UPC.</li> </ul>

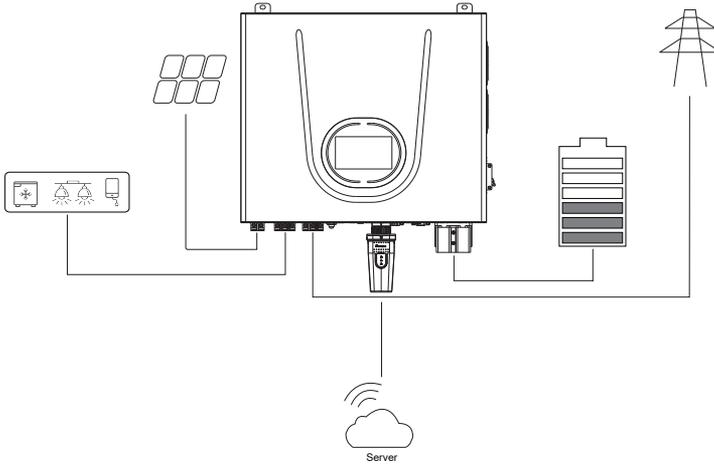
## 2.2 Explanation of Symbols

This section explains all the symbols shown on the UPC and on the type label.

	<p>CE mark. The system complies with the requirements of the applicable CE guild lines.</p>
	<p>Dangerous electrical voltage The device is directly connected to public grid, thus all work to the system shall only be carried out by qualified personnel. Do not touch any internal parts of the UPC being disconnected from the mains, battery and PV input for 5 minutes.</p>
	<p>Danger of hot surface The components inside the device will release a lot of heat during operation. Do not touch metal plate housing of the UPC during operating.</p>
	<p>Danger. Risk of electric shock!</p>
	<p>An error occurred Read the usage manual to troubleshoot problems</p>
	<p>Recyclable</p>

## 3 Introduction

### 3.1 Scope of application



In daytime, solar power supports the loads first while the surplus power will be stored by system, to improve self-consumption rate.

In case of grid fault, system will make sure no outage in the loads, achieving UPS function.

### 3.2 Product Model Description

UPC - 3.5K S W

①      ②      ③      ④

- ① UPC is the name of Off-Grid Inverter.
- ② 3.5K indicates the rated power of the system, such as 3.5K for 3.5kW.
- ③ S indicates that the system is a single-phase system.
- ④ W indicates a horizontal version of the product.

### 3.3 Datasheet

Model	UPC-3.5KSW	UPC-5KSW	UPC-5.5KSW
<b>Battery</b>			
Rated Voltage	51.2V		
Voltage Range	44.8~57.6V		
Max. Discharge Current	80A	110A	125A <sup>[1]</sup>
Max. Charge Current	80A	80A	80A
Battery Type	Li-ion (LFP)		
<b>AC Output (Backup)</b>			
Rated Power	3500W	5000W	5500W
Output Voltage	208/220/230/240Vac ± 5%		
Output Frequency	50/60Hz ± 1%		
Max Output Current	16A	22.7A	26.4A
Rated Current	15.2A	21.7A	23.9A
Peak Power	7000W	10000W	11000W
Over Load Ability <sup>[1]</sup>	Battery Mode ( Battery Max Output Current > 200A ) : 1min@102~110% Load; 10s@110~130% Load; 3s@130~150% Load; 200ms@ > 150%Load		
Output Wave	Pure Sine Wave		
Peak Efficiency (Battery Mode)	>92%		
Transfer Time	UPS Mode: 10ms/ APL Mode: 20ms		
<b>AC Input</b>			
Input Sources	L+N+PE		
AC Input Voltage Range	APL Mode: 154~264Vac/ UPS Mode: 185~264Vac		
Rated Input Voltage	208/220/230/240V		
AC input frequency	50/60Hz (Auto Adaptive)		
<b>PV Input</b>			
Max PV Input Power	4500W	5500W	5500W
Max. PV Input Voltage	450Vdc		
MPPT Voltage Range	120~430Vdc		
Best Voltage Range	300~340Vdc		
Max. DC Input Current	18A		
Max. DC Short Circuit Current	20A		
<b>General Data</b>			
Range of working temperature	Charge: 0°C~50°C/Discharge: -10°C~55°C		
Optimal working temperature range	20°C~30°C		
Storage temperature	-15°C~60°C		
Humidity	20-95% non-condensing		
Cooling strategy	Fan		
Altitude	<1000m		
Weight	10kg		
Dimension [W x H x D]	420*360*120 mm		
Enclosure protection rating	IP20		
Communication	Wi-Fi (Optional)/RS485/CAN		
Certificate	CE		

[1]More than two batteries need to be connected to satisfy

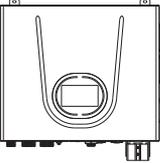
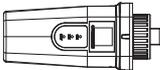
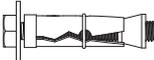
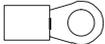
## 4 Installation Instructions

### 4.1 Safety Tips

	<p><b>Danger!</b></p> <ul style="list-style-type: none"> <li>● Potential fires and electric shocks that are life threatening.</li> <li>● Do not place any flammable or explosive materials beside system.</li> <li>● Equipment connected to high-voltage power generation equipment must be performed by qualified personnel in compliance with national and local standards and regulations.</li> </ul>
---	--

	<p><b>Note!</b></p> <ul style="list-style-type: none"> <li>● The pollution level applicable to system is Class II.</li> <li>● Inappropriate or inconsistent installation environment can shorten the life of system.</li> <li>● Do not install UPC directly by exposing it under strong sunlight.</li> <li>● Please do not install in damp places.</li> <li>● The installation location must be well ventilated.</li> </ul>
---	---

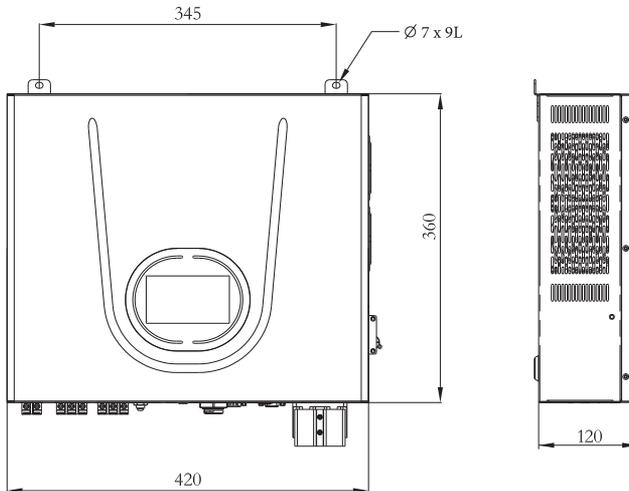
### 4.2 Packing List

			
UPC OFF-GRID Inverter X 1 pcs	Tube Terminal Red X 3 pcs	Tube Terminal Black X 3 pcs	Tube Terminal Yellow X 2 pcs
			
Monitor Module (Optional) X 1 pcs	Expansion Screw X 2 pcs	Network Cable (1.5m) X 1 pcs	OT Terminal X 2 pcs

			
USB Cable X 1 pcs	Parallel Line (DB9) X 1 pcs	User Manual X 1 pcs	Packing List X 1 pcs
			
Qualified Certificate X 1 pcs			

### 4.3 Determine the installation method and location

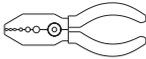
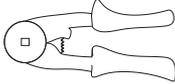
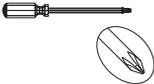
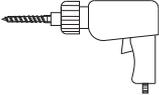
UPC dimension (mm) :



UPC heat dissipation by fan cooling. It is recommended to install in indoors or sheltered areas to avoid direct sunlight, rain and snow.

Please ensure that the air at the installation point is circulated. Bad air ventilation will affect the working performance of internal electronic components and shorten the service life of UPC.

### 4.4 Installation

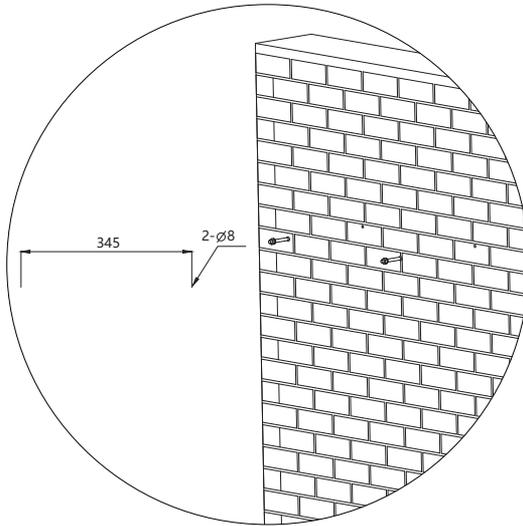
		
Crimper	Knife	Crimping Pliers (Tube Terminals)
		
Phillips Screwdriver	Marker Pen	Electric Drill

#### Wall-mounted installation

The device shall be indoor installed and vertical placed. The place where it is installed shall be able to ensure the stability and safety of the product.

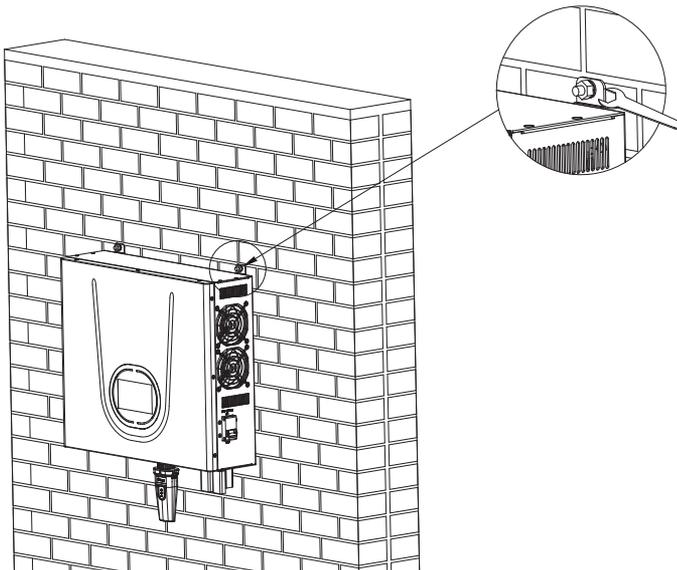
#### Step1: Drilling hole

Choose a suitable location to place the mounting bracket, and there should be no obstructions within 200mm to avoid affecting heat dissipation. Put the mounting bracket properly on the wall, mark these 2 drill holes using a marker pen. Drill 2 holes on the wall, Insert the expansion screw vertically into the hole.



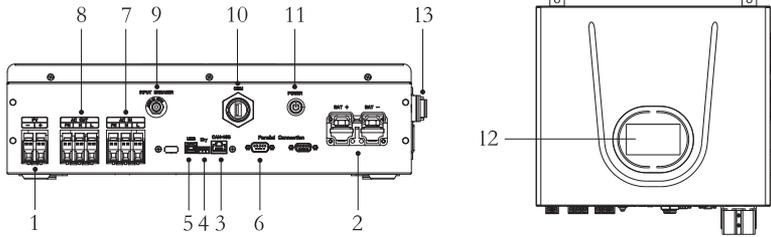
**Step2: Installation**

Lift the UPC up and install it according to the position of the screws on the wall, tighten the nuts after installation.



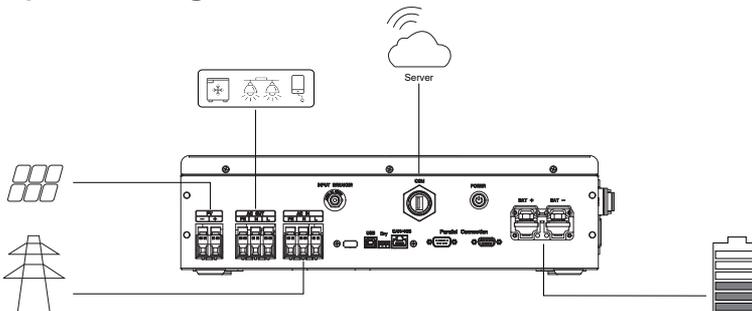
## 5 Electrical Connections

### 5.1 Electrical Interface Description



Object	Description	Object	Description
1	PV Input	8	AC Output
2	Battery Input	9	Reset Button
3	BMS(CAN/RS485) port	10	COM(Wi-Fi) (Optional)
4	Dry port	11	Inverter Button
5	USB Type B port	12	LCD Screen
6	Parallel communication port	13	Battery Breaker
7	AC Input		

### 5.2 System Wiring Schematic



### 5.3 Battery Wiring

Cable type	Conductor Diameter (mm)	
	Outside diameter (mm)	Conductor core section (mm)
4 AWG	10	6.8

**Step 1:** Prepare the cable. The stripping operation must not cut any cable strands, insulation or jacket at places other than specified by the cable stripping dimensions. Take care that the individual strands of the cable are not bent and that the insulation or jacket is not damaged. The surface must be clean and free of contamination.

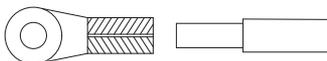


**Step 2:** Apply the cable onto the crimping position

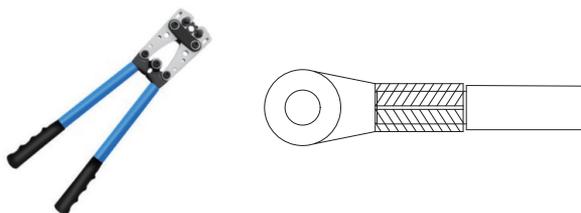
Before crimping, the center terminal must be positioned to fulfill following conditions:

- A max. air gap of 1 mm is allowed between the shoulder of the cable insulation.

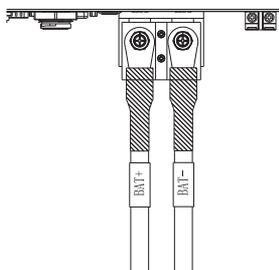
Cable	Color
BAT +	Red
BAT -	Black



**Step 3:** Use a special tool to crimp the cable to ensure that the crimping is intact.



**Step 4:** Unscrew the battery cover screws and lock the positive and negative battery cables.



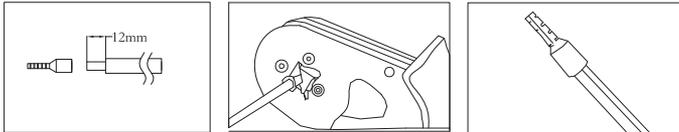
## 5.4 PV Input Wiring



### Note!

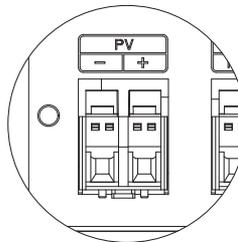
- Use 4 mm<sup>2</sup> DC cable for the DC input cable.
- Remove the side bezel before installation.

**Step 1:** Prepare PV positive and negative power cables.



Cable	Color
PV+	Red
PV-	Black

**Step 2:** Insert the crimped photovoltaic positive and negative power cable into the PV Input Terminal.



### Warning!

- Make sure that the DC voltage of each PV string is less than 450V and the polarity of PV cables are correct.
- Ensure wiring is not energized.

## 5.5 AC in/AC out Wiring



### Warning!

- Turn off the external AC breaker after unpacking in any cases before and during wiring in case of electric shock.

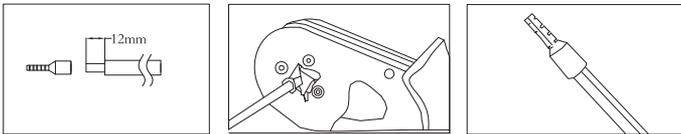
**Step 1:**

① Choose the right cable.

Cable type	Conductor Diameter (mm)	
	Outside diameter (mm)	Conductor core section (mm)
10 AWG	4.9	3.22

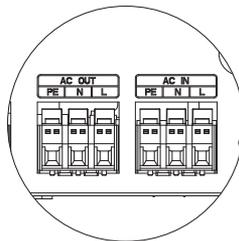
② Peel off the cable insulation sleeve for 12mm, as shown in Figure:

**Step 2:** Crimp terminals with special tools.



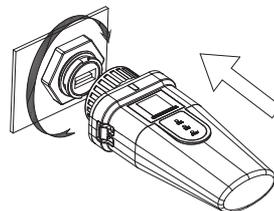
Cable	Color
L	Red
N	Black
PE	Yellow-green

**Step 3:** Connect cable to AC in/AC out terminals.



**5.6 Monitor Installation (optional)**

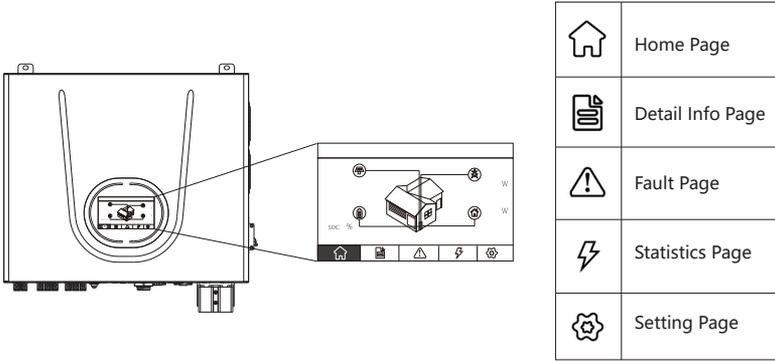
Installation of monitor. Refer to the monitor's manual (in the monitor box) for specific instructions on how to use it.



## 6 Local Configuration

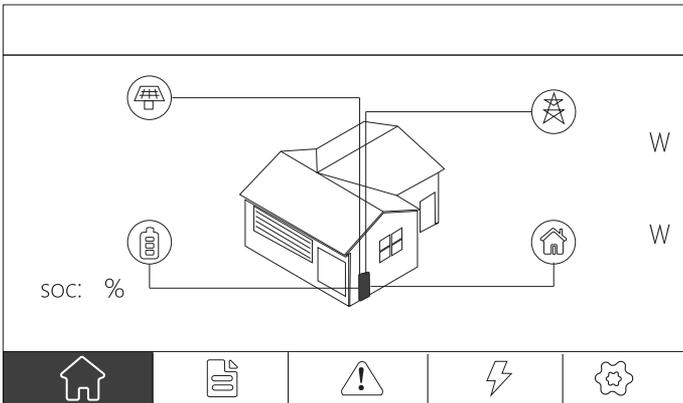
### 6.1 Local Interface Introduction

UPC has a touch screen on the front.



### 6.2 Home Page

This page shows the total PV input power, AC grid power, battery power and SOC, load power.



### 6.3 Detail Info Page

#### 6.3.1 I/O Info Page

This page shows the PV, Grid, Load and Battery information.

PV		Grid		Load		Battery	
Volt	V	Volt		Volt	V	Volt	V
Current	A	Current		Current	A	Current	A
Power	W	Power		Power	W	Power	W
		Freq.		Freq.	Hz	SOC	%

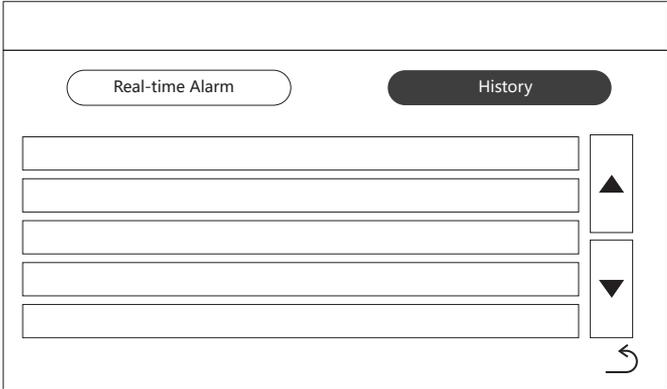
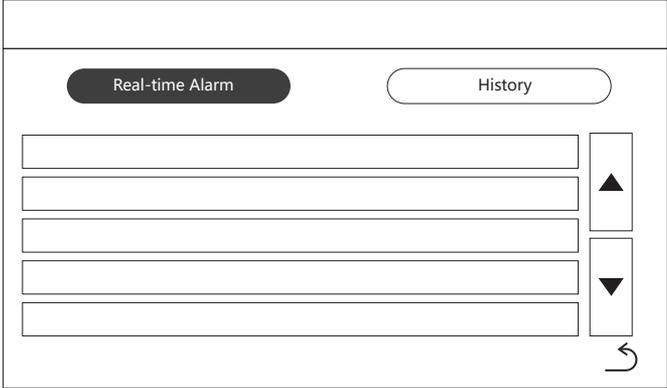
#### 6.3.2 System Info Page

This page shows the Work Mode, Batt. Type and other system information.

Work Mode		AC Input		Batt. Type	
Chg Source		Out Volt.		Out Freq.	
Batt ChgC.(A)		AC ChgC.(A)		Bypass	
Batt Switch To Ac		AC Switch to Batt		Batt Cut-off	

### 6.4 Fault Page

This page shows the real-time fault alarm and fault history of the system.



## 6.5 Statistics Page

These two pages show statistics info of Grid, Battery, PV and Load.

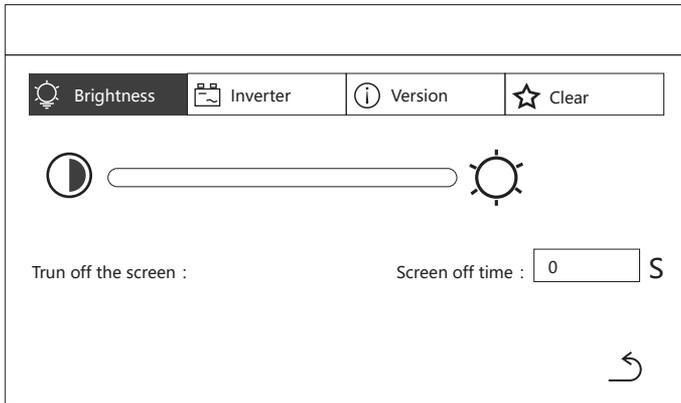
	(KWH)	Day	Total
	Production	0	0
	(KWH)	Day	Total
	Discharge	0	0
<a href="#">Next</a>			

	(KWH)	Day	Total
	To Bat	0	0
	(KWH)	Day	Total
	Consump	0	0
<a href="#">Next</a>			

## 6.6 Setting Page

### 6.6.1 Brightness Setting Page

This page shows the brightness setting and screen off time setting.

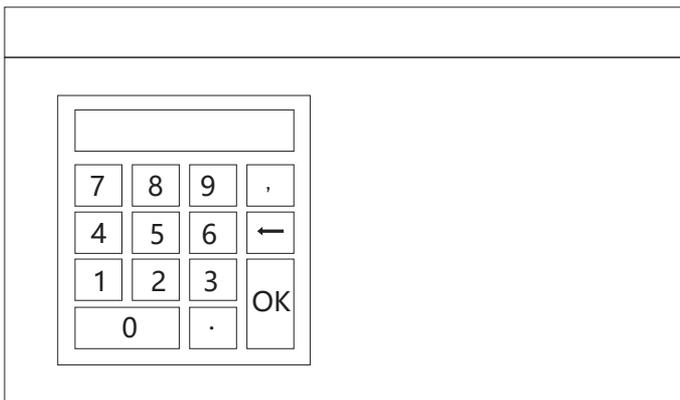


The value range is shown as below:

Item	Description	Range
Brightness	the brightness of screen	Min - Max
Screen off time	the time to turn off the screen	5 - 500 s
Turn off the screen	the switch to turn off the screen	ON/OFF

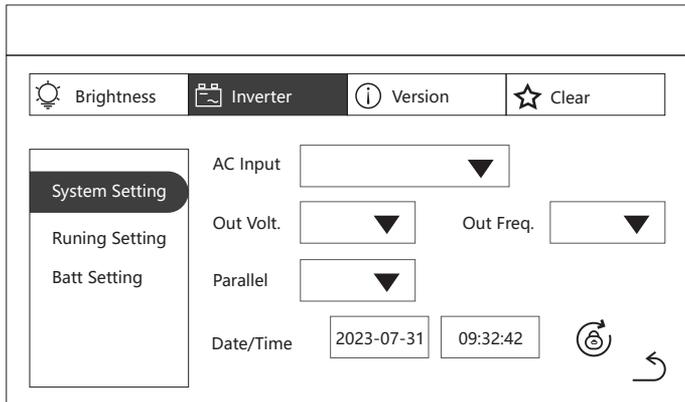
### 6.6.2 Inverter Setting Page

This page needs a password. The default password is "12345". Installer can change it in this menu.



### 1) System Setting

This page shows the AC Input setting, Out Voltage setting, Out Frequency setting, Parallel setting, Date and Time setting.



The value range is shown as below:

Item	Description	Default Setting	Range	
AC Input	AC input voltage range	APL	APL 154~264Vac	
			UPS 185~264Vac	
Out Vol.	Output Voltage setting	230V	208V	
			220V	
			230V	
			240V	
Out Freq.	Output Frequency setting	50Hz	50Hz	60Hz
Parallel	Parallel setting: SIG: single mode. PAR: parallel mode. 3P1: R-phase mode. 3P2: T-phase mode. 3P3: S-phase mode.	SIG	SIG	
			PAR	
			3P1	
			3P2	
			3P3	
Date	Date	-	20000101 – 20991231	
Time	Time	-	000000 – 235959	
Password	Reset the password	12345	10000 - 65535	

	<p><b>Note!</b></p> <ul style="list-style-type: none"> <li>• The “Date” should be set with 8 numbers. First 4 numbers are “year” . Second 2 numbers are “Month” . Last 2 numbers are “Day” . “20000101” means January 1<sup>st</sup>, 2000.</li> <li>• The “Time” should be set with 6 numbers. First 2 numbers are “hour” . Second 2 numbers are “minute” . Last 2 numbers are “second” . “120101” means 12:01:01.</li> </ul>
---	--

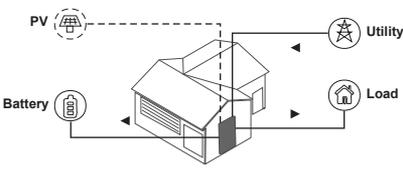
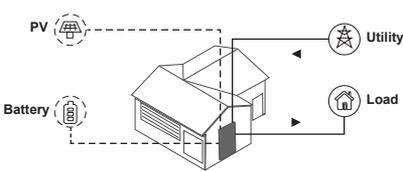
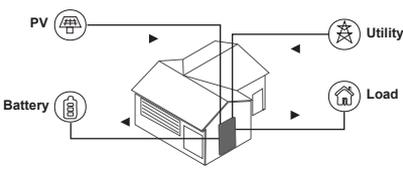
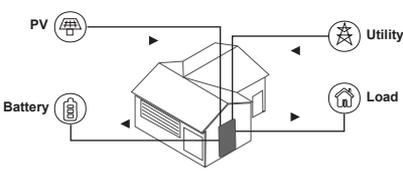
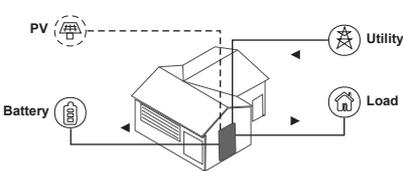
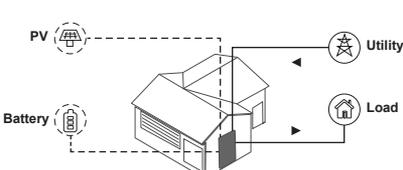
## 2) Runing Setting

This page shows the Work mode setting, Charge Source setting, Overload Restart setting, OverTemp Restart setting, Buzzer setting, Energy-Saving setting and Bypass setting.

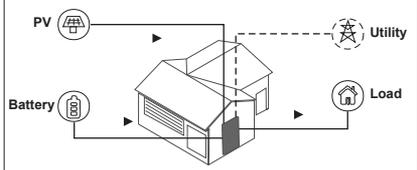
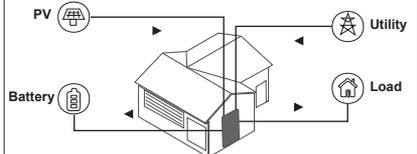
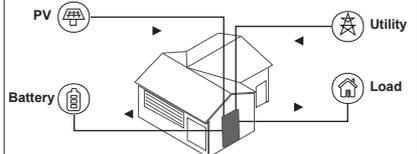
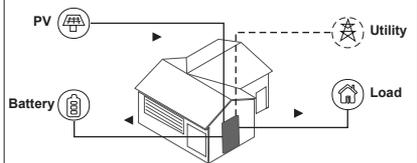
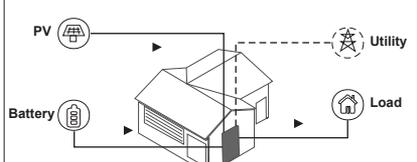
 Brightness	 Inverter	 Version	 Clear
System Setting	Work Mode	<input type="text"/>	<input type="text"/>
Runing Setting	Charge Source	<input type="text"/>	<input type="text"/>
Batt Setting	OverLoad Restart	<input type="text"/>	<input type="text"/>
	OverTemp Restart	<input type="text"/>	Buzz <input type="text"/>
	Energy-Saving	<input type="text"/>	Bypass <input type="text"/>
			

The value range is shown as below:

Item	Description	Default Setting	Range
Work mode	Output priority setting: Bat First: PV first, Battery second, Grid third output. Pv First: PV priority output. Uti Firs: Grid priority output.	Bat First	Bat First
			PV First
			Uti First
Charge Source	Charging priority setting: Pv First: PV charging priority. Pv&Uti: PV and Grid are charged at the same time. Pv Only: Only PV charging.	Pv&Uti	Pv First
			Pv&Uti
			Pv Only
Overload Restart	Overload restart setting: ON: Automatic restart when the machine is overloaded and shut down. OFF: the function is not turned on.	OFF	ON
			OFF
OverTemp Restart	Over temperature restart setting: ON: Automatic restart when the machine is over temperature and shut down. OFF: the function is not turned on.	OFF	ON
			OFF
Buzz	Buzzer setting: ON: the buzzer does not sound under any circumstances, such as alarms, faults, etc. OFF: the function is not turned on.	ON	ON
			OFF
Energy-Saving	Power Save setting: ON: In battery mode, if the load is lower than 25W, the system will temporarily stop the output. If the load is higher than 35W, the system will resume continuous normal output. OFF: Continuous output regardless of load.	OFF	ON
			OFF
Bypass	Over load to Bypass: ON: under the condition of PV priority output with load, if overload, the system will immediately transfer to bypass (Grid output, namely bypass mode). OFF: Continuous output regardless of load.	OFF	ON
			OFF

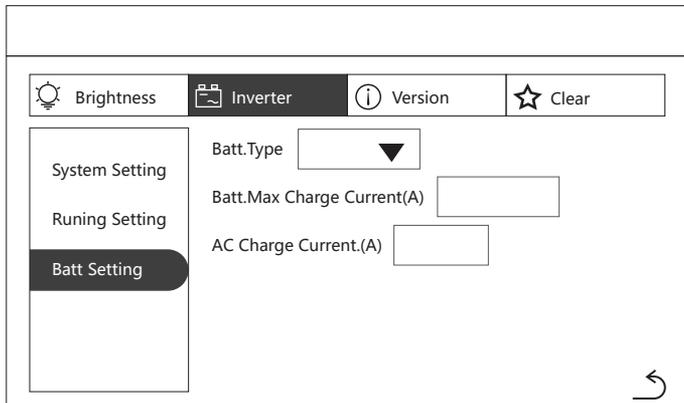
<b>Work Mode: Uti First (Grid priority output)</b>	
	<p>When the charging mode is set Pv&amp;Uti/Pv First: There is no PV, the grid prioritizes the output of the load while charging the battery.</p>
	<p>When the charging mode is set Pv Only: There is no PV, the grid prioritizes load output and the battery is on standby.</p>
	<p>When the charging mode is set Pv&amp;Uti/Pv First: The grid prioritizes the output to the load, the PV charges the battery, and when the battery charging current is high, the shortfall is supplemented by the grid.</p>
	<p>When the charging mode is set Pv Only: The grid prioritizes output to the load, the PV charges the battery, and the grid does not charge the battery.</p>
<b>Work Mode: Pv First (PV priority output)</b>	
	<p>When the charging mode is set Pv&amp;Uti/Pv First: There is no PV, the grid prioritizes the output of the load while charging the battery.</p>
	<p>When the charging mode is set Pv Only: There is no PV, grid output load and no charging, battery standby.</p>

	<p>When charging mode setting Pv&amp;Uti/Pv First/Pv Only: PV power &gt; load power, PV carries and charges, charging current depends on remaining PV energy; utility standby.</p>
	<p>When the charging mode is set Pv&amp;Uti/Pv First/Pv Only: PV power &lt; load power, grid replenishes load power, battery standby.</p>
<p><b>Work Mode: Bat First (PV first, Battery second, Grid third output)</b></p>	
<p>Mode 1:</p>	<p>When there is no PV and the charging mode is set Pv&amp;Uti/Pv First:  Mode 1: Battery power &gt; load power, battery output to load, utility standby.</p>
<p>Mode 2:</p>	<p>Mode 2: Battery power &lt; load power (Battery SOC &lt; "Batt. Switch to AC SOC"), grid carry and charge until Battery SOC &gt; "AC Switch to Batt. SOC", switch to mode 1.</p>
	<p>When the charging mode is set Pv Only: There is no PV, battery power &lt; load power (SOC &lt; "Batt. Switch to AC SOC"), grid loaded, battery standby.</p>
	<p>When charging mode setting Pv&amp;Uti/Pv First/Pv Only: PV power &gt; load power, PV with load and charging, charging current depends on PV residual energy, utility standby.</p>

<p>Mode 1:</p>  <p>Mode 2:</p>  <p>Mode 3:</p> 	<p>When PV power &lt; load power:</p> <p>Mode 1: PV + battery together with load, utility standby.</p> <p>Mode 2: When the charging mode is set to Pv&amp;Uti/Pv First and the battery SOC &lt; "Batt. switching to AC SOC", utility output to load, utility + PV to charge battery (PV priority), charge until Battery SOC &gt; "AC Switch to Batt. Switch to Batt. SOC", turn to Mode 1.</p> <p>Mode 3: When the charging mode is set to Pv Only and the battery SOC &lt; "Batt. switch to AC SOC", utility output to load, PV charging to Battery SOC &gt; "AC Switch to Batt. SOC", turn to Mode 1.</p>
<p><b>When the power grid is absent (regardless of operating/charging mode)</b></p>	
	<p>PV power &gt; load power, PV output to the load and charging the battery at the same time.</p>
	<p>PV power &lt; load power, battery power is sufficient, PV and battery output to load at the same time.</p> <p>When battery SOC &lt; "Batt. Switch to AC SOC", stop load output, 15s later PV charge the battery, charge to 52V, stop charging, 8s later PV and battery carry load at the same time.</p>

### 3) Batt Setting

This page shows the battery type setting, battery max charge current setting, AC charge current setting.



The value range is shown as below:

Item	Description	Default Setting	Range
Batt Type	Battery Type: Lead-acid: lead-acid battery. Lithium: lithium battery. USE2: customer setting type.	Lithium	Lead-acid Lithium USE2
Batt. Max Charge Current	The maximum PV and Gird charging current.	30A	2/10/20/30/ 40/50/60/ 70/80A
AC Charge current	The maximum Gird charging current.	30A	1~80A

	<p><b>Note!</b></p> <ul style="list-style-type: none"> <li>The “Batt Type” should be set as “Lithium” . Don’t choose others during the installation.</li> </ul>
---	---

After selecting the lithium battery:

The screenshot shows a settings interface with a top navigation bar containing 'Brightness', 'Inverter', 'Version', and 'Clear'. A left sidebar lists 'System Setting', 'Runing Setting', and 'Batt Setting' (which is highlighted). The main area displays three settings with input boxes: 'Batt. Switch to AC SOC(%)', 'AC Switch to Batt. SOC(%)', and 'Batt. Cutoff SOC(%)'. A back arrow is visible in the bottom right corner.

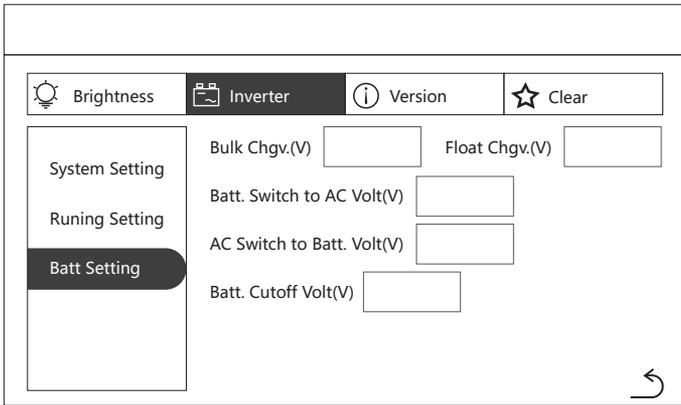
Item	Description	Default Setting	Range
Batt. Switch to AC SOC (%)	Work mode selection Bat First: Switch to gird mode only when the SOC is above the set point.	30%	10~90%
AC Switch to Batt. SOC (%)	Work mode selection Bat First: Switch to battery mode only when the SOC is above the set point.	65%	10~100%
Batt. Cutoff SOC (%)	When the SOC of lithium battery reaches the set value in battery mode, the power will be turned off and the alarm fault code 103.	20%	5~50%



#### Note!

- The AC Switch to Batt. SOC needs to be higher than The Batt. Switch to AC SOC.
- The fault code 103 will be cleared when the SOC returns to the cutoff SOC + 5%. When the standby is on, the SOC of lithium battery reaches the cutoff SOC + 10% before it can be transferred to battery mode, and the alarm fault code 103 will be alarmed when the SOC does not reach the cutoff SOC + 10%. When the function is turned on, the fault code 103 is warned when the lithium battery SOC reaches the cutoff SOC + 5%, and clears warning 103 when it returns to the cutoff SOC + 10%.

After selecting the lead-acid battery/USE2 setting:



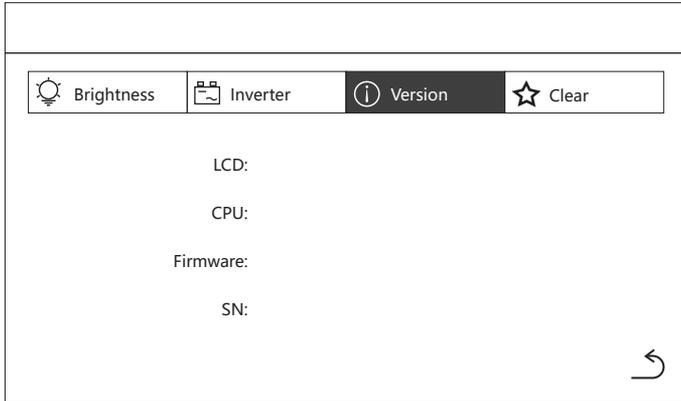
The value range is shown as below:

Item	Description	Default Setting	Range
Bulk ChgV. (V)	Constant voltage point setting Lead-acid battery cannot be set.	57.6V	48~56V
Float ChgV. (V)	Float voltage point setting	57.6V	50~58V
Batt. Switch to AC Volt (V)	Switch to Gird mode when the battery voltage reaches the set value in battery mode.	46V	44~50V
AC Switch to Batt. Volt (V)	Switch to battery mode when the battery voltage reaches the set value in battery mode.	55V	48~58V
Batt. Cutoff Volt (V)	When the battery voltage reaches the set value in battery mode, the power will be turned off.	44V	40~48V

	<p><b>Note!</b></p> <ul style="list-style-type: none"> <li>• The AC Switch to Batt. Volt needs to be higher than The Batt. Switch to AC Volt.</li> </ul>
---	--

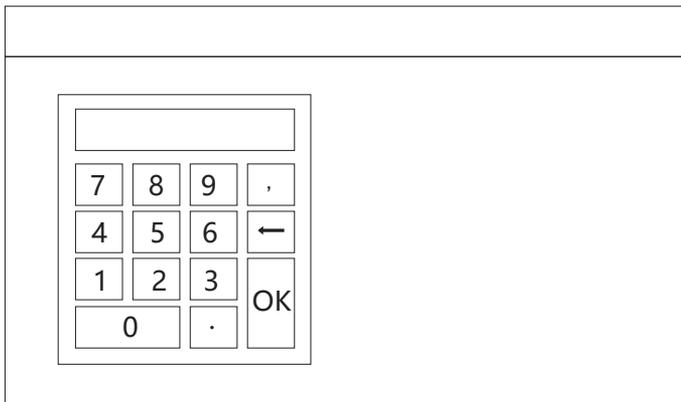
### 6.6.3 Version Page

This page shows the version and serial number of the system.

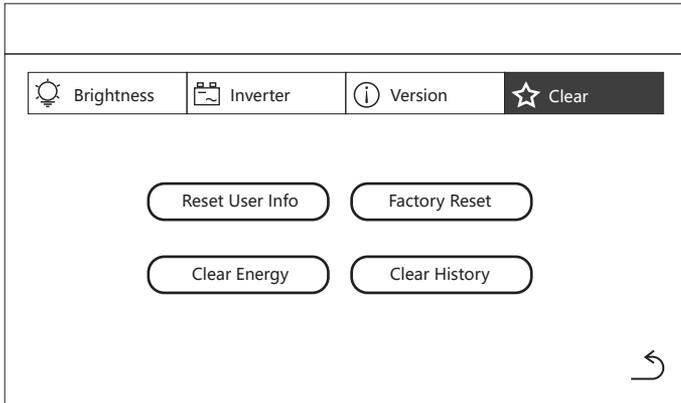


### 6.6.4 Clear Page

This page needs a password. The default password is "12345" . Installer can change it in the setting.



This page shows the clear options of the storage.



	<p><b>Note!</b></p> <ul style="list-style-type: none"><li>• All the data can not be restored after the clearance!</li></ul>
---	---

## 6.7 Start up the System

The system shall be turned on in the correct sequence as follows:

- 1) Turn on the BAT Breaker.
- 2) Press Inverter button.
- 3) Wait for 30s and observe the LCD to check the running status.
- 4) If the system is running normal, please do commission configuration.  
If the system is not work normally, please re-check the wiring and setting until the system runs normal.
- 5) Set the details on the local screen.

## 6.8 Shut Down the System

System shall be turned OFF in the correct sequence as follows:

- 1) Press Inverter button.
- 2) Turn off the BAT Breaker.

## 7 Fault Codes and Common troubleshooting

Fault Codes	Content	Fault/Alarm	Explanation	Troubleshooting
001	Fan Lock	Fault	Fan speed signal not detected.	Recoverable after reboot. If it is not recoverable, please contact us.
002	Over Temperature	Fault	High inverter temperature.	After six occurrences, a reboot is required to recover. If it is not recoverable, please contact us.
003	Batt. Volt High	Fault	High battery voltage.	Reduce battery voltage and reboot to recover. If it is not recoverable, please contact us.
004	Batt. Volt Low	Fault	Low battery voltage.	Reboot after charging the battery/ Reboot after setting battery low voltage cutoff point. If it is not recoverable, please contact us.
005	Output short	Fault	Output short circuit.	Reboot after disconnecting load. If it is not recoverable, please contact us.
006	Output Volt High	Fault	Output voltage too high.	Recoverable after reboot. If it is not recoverable, please contact us.
007	Overload	Fault	Loads out of specification.	After six occurrences, a reboot is required to recover. If it is not recoverable, please contact us.
008	Bus Volt High	Fault	High bus voltage.	Recoverable after reboot. If it is not recoverable, please contact us.
009	Bus star Fail	Fault	Bus soft start, unable to reach the set voltage.	Recoverable after reboot. If it is not recoverable, please contact us.
011	Main Relay Fail.	Fault	Relay failure.	Recoverable after reboot. If it is not recoverable, please contact us.
051	Over Current	Fault	Output over current.	Recoverable after reboot. If it is not recoverable, please contact us.
052	Bus Volt Low	Fault	Low bus voltage.	Recoverable after reboot. If it is not recoverable, please contact us.
053	Inv. Soft start Fail	Fault	Inverter soft start failure.	Recoverable after reboot. If it is not recoverable, please contact us.
054	DC Volt High	Fault	DC overvoltage.	Recoverable after reboot. If it is not recoverable, please contact us.
056	Batt. Open	Fault	Battery not connected.	Check battery wiring and circuit breaker. If it is not recoverable, please contact us.
057	Current Sensor Fail	Fault	Current detection failure.	Recoverable after reboot. If it is not recoverable, please contact us.

Fault Codes	Content	Fault/Alarm	Explanation	Troubleshooting
058	Output Volt Low	Fault	Low output voltage.	Recoverable after reboot. If it is not recoverable, please contact us.
060	Negative Power	Fault	Output Negative Power.	Recoverable after reboot. If it is not recoverable, please contact us.
061	PV Volt High	Fault	PV voltage too high.	Reduce voltage and reboot to recover. If it is not recoverable, please contact us.
062	SCI Comm. Error	Fault	Internal communications failure.	Recoverable after reboot. If it is not recoverable, please contact us.
063	IGBT Over Current	Fault	IGBT overcurrent.	Recoverable after reboot. If it is not recoverable, please contact us.
064	Ver Different	Fault	Inconsistent versions.	Check the version and reboot. If it is not recoverable, please contact us.
080	Can fault	Fault	In parallel mode, CAN bus communication is abnormal.	Check parallel communication and restart. If it is not recoverable, please contact us.
081	Host Loss	Fault	In parallel mode, host lost.	Check parallel communication and restart. If it is not recoverable, please contact us.
099	Device Comm. Fail	Fault	LCD display communication failure.	Recoverable after reboot. If it is not recoverable, please contact us.
200	DCDC Abnormal	Fault	DC/DC circuit abnormality.	Recoverable after reboot. If it is not recoverable, please contact us.
201	Bus Input Boost Fail,	Fault	Bus input boost failed.	Recoverable after reboot. If it is not recoverable, please contact us.
202	Bus short	Fault	Busbar short-circuit faults.	Recoverable after reboot. If it is not recoverable, please contact us.
203	Inv. High Volt	Fault	Inverter High Voltage.	Recoverable after reboot. If it is not recoverable, please contact us.
204	Inv. Low Volt	Fault	Inverter Low Voltage.	Recoverable after reboot. If it is not recoverable, please contact us.
205	Inv. short	Fault	Inverter short circuit.	Recoverable after reboot. If it is not recoverable,
206	Machine Model Fail	Fault	Faulty machine type.	Recoverable after reboot. If it is not recoverable, please contact us.
207	No Boot Program	Fault	No bootloader.	Recoverable after reboot. If it is not recoverable, please contact us.
208	Machine Burn-in Fail	Fault	Machine burn-in failure.	Recoverable after reboot. If it is not recoverable, please contact us.

Fault Codes	Content	Fault/Alarm	Explanation	Troubleshooting
209	PV OverCurrent	Fault	PV input overcurrent.	Check the PV input and restart, please do not exceed the specification power. If it is not recoverable, please contact us.
210	Parallel sn same Fault	Fault	The parallel serial number is the same.	Recoverable after reboot. If it is not recoverable, please contact us.
212	Parallel Bat Volt Diff	Fault	Excessive voltage difference between parallel batteries.	Check parallel wiring. If it is not recoverable, please contact us.
213	Parallel Grid Volt Diff	Fault	Excessive difference in parallel mains voltage.	Check mains voltage. If it is not recoverable, please contact us.
214	Parallel Grid Freq. Diff	Fault	Excessive difference in parallel utility frequency.	Check the mains input frequency. If it is not recoverable, please contact us.
215	Parallel Output Set Error	Fault	Parallel output setting error.	Check the parallel setting. If it is not recoverable, please contact us.
216	Parallel Lost Synchronous	Fault	Parallel loss of synchronization.	Check parallel wiring. If it is not recoverable, please contact us.
217	BMS Fail	Fault	BMS communication failure.	Recoverable after reboot. If it is not recoverable, please contact us.
218	EEPROM Fail	Fault	EEPROM failure.	Recoverable after reboot. If it is not recoverable, please contact us.

Fault Codes	Content	Fault/Alarm	Explanation	Troubleshooting
101	Fan Lock	Alarm	Fan speed signal not detected.	Recoverable after reboot. If it is not recoverable, please contact us.
102	Over Charge	Alarm	Battery voltage is higher than the set value.	Recoverable after reboot. If it is not recoverable, please contact us.
103	Batt. Volt Low	Alarm	The battery low voltage point.	Reboot after charging the battery/ Reboot after setting battery low voltage cutoff point. If it is not recoverable, please contact us.
104	Overload	Alarm	Load>102%.	Reboot after disconnecting load. If it is not recoverable, please contact us.
105	Op Power derating	Alarm	Output derating.	Check that information such as temperature and elevation meets specifications. If it is not recoverable, please contact us.
106	solar stop due to Batt. Low	Alarm	Low battery voltage stops solar charging.	Check the batteries. If it is not recoverable, please contact us.
107	solar stop due to PV High	Alarm	Solar voltage too high Solar stops charging.	Check PV input. If it is not recoverable, please contact us.
108	solar stop due to overload	Alarm	Overloaded solar power stops charging.	Check the load. If it is not recoverable, please contact us.
109	Grid different	Alarm	Inconsistent parallel utility input.	Recover when it detects that the mains voltage and frequency errors of each machine are reasonable. If it is not recoverable, please contact us.
110	Grid phase error	Alarm	Parallel grid input phase sequence error.	Check grid wiring. If it is not recoverable, please contact us.
111	Parallel phase loss	Alarm	Parallel output phase loss.	Check parallel settings and output. If it is not recoverable, please contact us.
112	Over Temperature	Alarm	The temperature sensor of PFC or INV is higher than the set value.	The temperature sensor of PFC or INV is lower than the set value. If it is not recoverable, please contact us.

Fault Codes	Content	Fault/Alarm	Explanation	Troubleshooting
113	Buck Curr. Over	Alarm	Buck current is too high.	Recoverable after reboot. If it is not recoverable, please contact us.
114	Batt. Disconnected	Alarm	Battery not connected.	Ensure reboot with normal battery output. If it is not recoverable, please contact us.
115	BMS Comm. Error	Alarm	Battery BMS communication error.	Reboot after checking communications. If it is not recoverable, please contact us.
116	PV Power Insufficient	Alarm	When the battery is not connected, the bus voltage is lower than the set value.	Recover after 10mins. If it is not recoverable, please contact us.
117	No Batt. No parallel	Alarm	No batteries, no paralleling.	Ensure reboot with normal battery output. If it is not recoverable, please contact us.
118	Parallel Ver Different	Alarm	There are incompatible version numbers in the parallel system.	Recoverable after reboot. If it is not recoverable, please contact us.
120	Capacity Different	Alarm	Inconsistent capacity of parallel machines.	Check parallel wiring. If it is not recoverable, please contact us.
121	Host Loss	Alarm	Loss of parallel host.	Check parallel wiring. If it is not recoverable, please contact us.
122	BMS Cell Over Volt	Alarm	BMS Single Overvoltage.	Recoverable after reboot. If it is not recoverable, please contact us.
123	BMS Total Over Volt	Alarm	Overvoltage of the BMS as a whole.	Recoverable after reboot. If it is not recoverable, please contact us.
124	BMS. Dsichg Over Curr	Alarm	BMS discharge overcurrent.	Recoverable after reboot. If it is not recoverable, please contact us.
125	BMS. Chg Over Curr	Alarm	BMS charging overcurrent.	Recoverable after reboot. If it is not recoverable, please contact us.
126	BMS. Over Temp.	Alarm	BMS over-temperature.	Recoverable after reboot. If it is not recoverable, please contact us.

Fault Codes	Content	Fault/Alarm	Explanation	Troubleshooting
127	Batt. Volt Consistent	Alarm	Battery voltage inconsistency.	Check the batteries. If it is not recoverable, please contact us.
128	PV IOS Fail	Alarm	PV insulation impedance is too low.	Check PV input. If it is not recoverable, please contact us.
129	Low soc During Runtime	Alarm	Running with low soc.	Check the battery level. If it is not recoverable, please contact us.
130	Low soc start-up Fail	Alarm	Low soc boot failure.	Check the battery level. If it is not recoverable, please contact us.
131	Generator Abnormal	Alarm	Abnormal generator fluctuations.	Check the generator. Check the battery level. If it is not recoverable, please contact us.

## 8 System Maintenance

### 8.1 Storage

Do not dispose of the original packing case. It is recommended to store the device in the original packing case when the device is decommissioned.

- ② The storage temperature and humidity should be in the range of -15°C and +60°C, and less than 90%, respectively.
- ③ If a batch of inverters needs to be stored, the height of each pile should be no more than 6 levels.

### 8.2 Cleanliness

Clean the enclosure lid, LCD of the inverter with moistened cloth with clear water only. Do not use any cleaning agents as it may damage the components.





## **UPOWER ELECTRIC CO.,LTD**

Add : 4F-A Block, No.62, Yinhe Road, Longgang District,  
Shenzhen, Guangdong, China

Email : [info@ucanpower.com](mailto:info@ucanpower.com)

Web : [www.ucanpower.com](http://www.ucanpower.com)