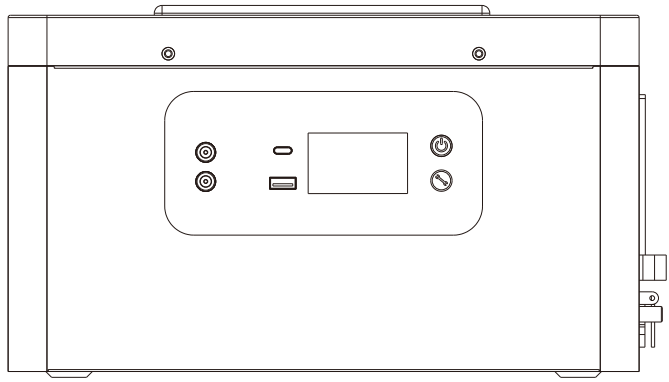
USER MANUAL

iPower Mobile Series
iBox-AD2000/100W



No: 510-054000-019 V1.0

Disclaimer

Users are expected to read this User Manual carefully and ensure they have fully understood the content before using this product. Please keep this User Manual for future reference. Any incorrect usage may result in severe injury to the user or others, damage to the product or loss of property. By using this product, the user will be deemed as having understood, recognized and accepted all the terms and contents of the User Manual, and will be responsible for any incorrect usage, and all the consequences arising therefrom. Hereby disclaims any liability for any losses due to the user's failure to use the product according to the User Manual.

Subject to compliance with laws and regulations, our company has the final right to interpret this document and all documents of and related to this product. Any update, revision or termination of the content thereof, if necessary, will be made without prior notice, and users must visit the official website of company for the latest information regarding the product.



Use indoor only.



The crossed-out wheeled bin indicates that the electrical and electronic (EE) product should not be discarded as unsorted waste but must be sent to separate collection facilities for recovery and recycling.

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Safety Instruction

General safety

1. Please carefully read the documents before installing,operating or maintaining the equipment.

2. The documents are subject to change due to product updates or other reasons.

3. Do not put heavy objects on the equipment.

4. Ensure that all cables and connectors are intact and dry before connecting to prevent electricshocks.

5. Use insulation tools or wear personal protective equipment when you install or operate theequipment.

6. Do not install or operate the equipment in extreme weather events such as lightning, snow,heavy rain,strong wind and so on.

7. Do not damage,smear or rip off any warning labels on the equipment.

8. Do not hit,pull,drag,squeeze or step on the equipment,or throw it into the fire,as there isrisk of explosion.

9. After installing,please clean the remains of the installation,such as boxes,clipped cable ties,ripped insulation materials,etc.

10. Do not modify or repair the equipment,please contact our customer service or qualifiedpersonnel if necessary.

11. Use tools and the equipment correctly to prevent personal injuries and product damage.

12. Understand the components and function of the iPower Mobile.Make sure that all electrical connections,and voltage and frequency at the connection point meet the local utility requirements.

13. If the iPower Mobile is connect to the solar panel,the iPower Mobile shall be grounded.

14. In order to extend the cycle life of the built-in lithium battery,please needs to be charged and discharged at least once within 3 months,the capacitance should not be less than 50%.

15. The equipment may get more than 60(140°F)while in use.Do not touch its enclosurebefore it cools down. Also always keep the equipment out of reach of children and pets.

16. The installation location should be convenient for you to pull out the connectors.

17. Make sure the iPower Mobile is off during the whole connection process.

Environment requirements

1. Make sure the equipment is installed, operated or stored in a well ventilated place.

2. Do not install or operate the equipment near flammable, explosive, corrosive, caustic or moist sources.

3. Do not expose the equipment to strong electromagnetic fields to avoid radio interference.

Explanation of Symbols

Symbols on the documentation

Symbol	Explanation	Symbol	Explanation
DANGER	A hazard with a high level of risk which, if not avoided, will result in death or serious injury.		Indicates additional information on correct use or useful tips.
CAUTION	A hazard with a low level of risk which, if not avoided, will result in minor injury, or damage to the device.		In a basic set.
NOTICE	Important information that you need to pay attention to.		Optional (not in the box).

Symbols on the device

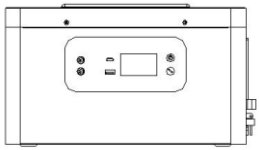
DANGER

- Do not damage, smear or cover any warning labels on the device. All labels must be visible after installation.

Symbol	Explanation	Symbol	Explanation
	Refer to the operation instructions.		Caution, risk of electric shock; energy storage timed discharge
	Caution, hot surface.		The position for connecting the protection ground cable
	Caution, risk of danger.	IP21	Ingress Protection rating

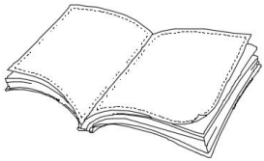
What’s in the box

A iPower Mobile Box



X1

B User manual



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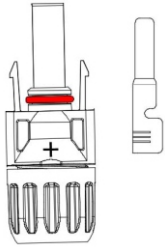
C 1.2 meters long AC input cable



X1

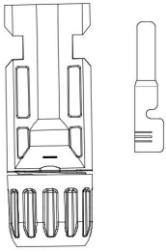
D MC4 positive terminal kit



X1

(Optional according to different country and region)

E MC4 negative terminal kit



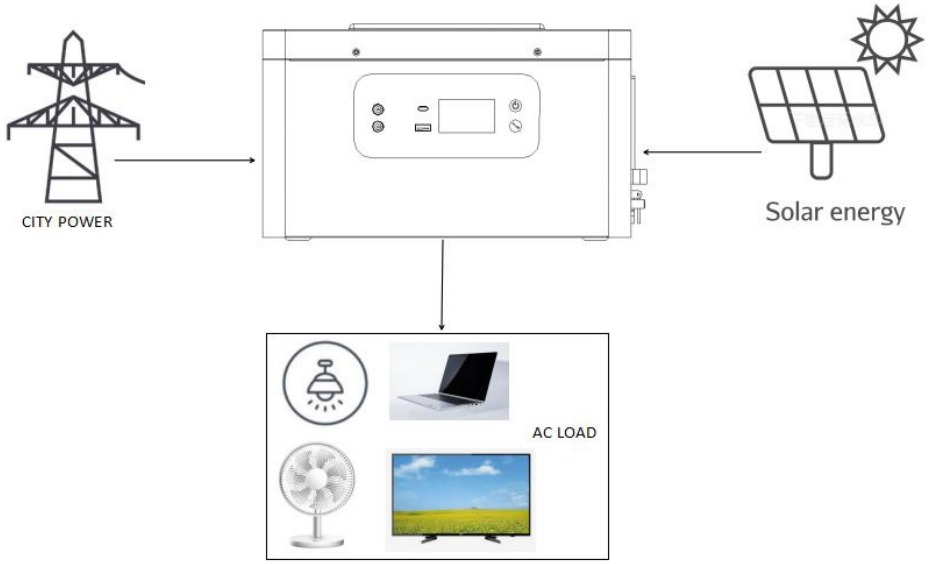
X1

C	Used for the AC input cable connection between the Alpha, the grid and AC input. See "Connecting to the grid" for details.
D E	Used for the MC4 terminal kit connection between the Alpha, the solar panel and PV input. See "Connecting solar panel" for details.

- The images of the product and components may differ from the actual product.
- If there are missing or defective components, please contact customer service.

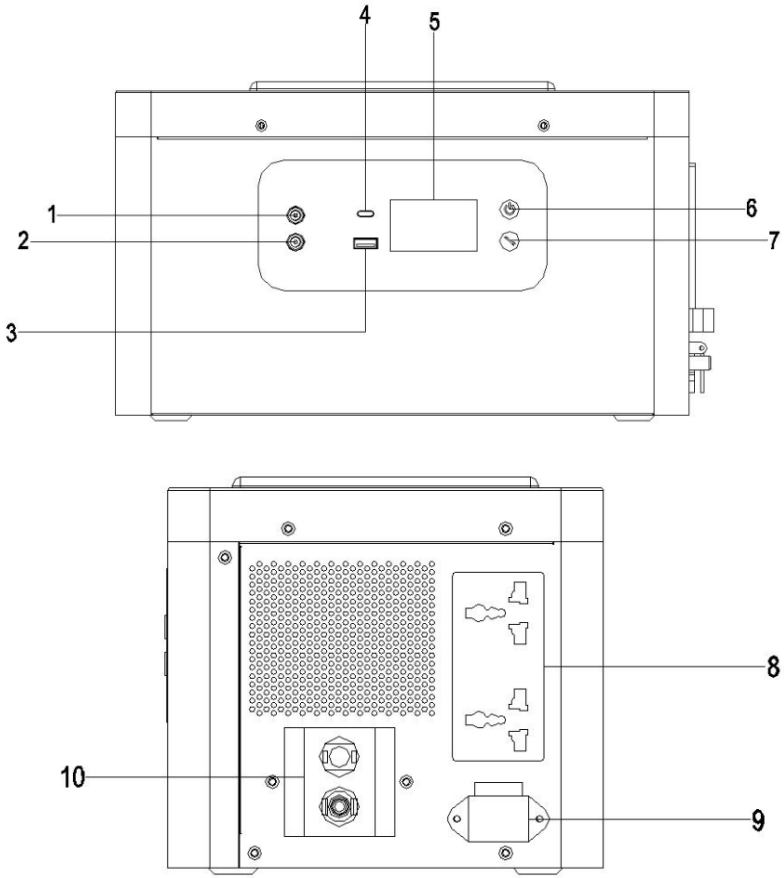
Overview

System overview



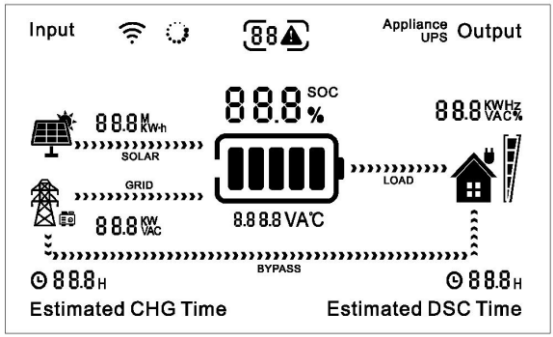
No.	Name	Description	In a basic set / Optional (not in the box)
1	Solar panel	Only 1 piece 150~550W solar panels can be connected to the ESS.	
2	1.2 meters long AC input cable	Used for AC input cable the connection between the grid and the AC input socket.	
3	iPower Mobile	/	
4	MC4 positive terminal kit	Used for solar panel connecting wire connector accessories.	
5	MC4 negative terminal kit	Used for solar panel connecting wire connector accessories.	

Product overview



1	DC OUTPT1	12VDC 2A
2	DC OUTPT2	12VDC 2A
3	USB	5VDC 1A
4	TYPE-C	5VDC 1A
5	LCD	LCD Display
6	POWER Button	Press and hold for 3 seconds to turn on, press and hold for 3 seconds to turn off.
7	SET Button	Press and hold for 3 seconds to switch between UPS and Appliance modes. The default mode is Appliance mode:mains power range of 90-280VAC; Appliance mode: 90-280VAC
8	AC output socket	230VAC OUTPUT
9	AC input socket	230VAC INPUT
10	Photovoltaic input interface	Be careful not to connect the positive and negative poles in reverse, and ensure that the input voltage is within the input range

LCD Display Icons



Icon	Function description
Display Information	
	Indicates the AC input.
	Indicates the PV input
	PV voltage, PV power
	AC input voltage, AC input current, AC input power
	Battery voltage, Battery current, Battery temperature
	Battery capacity percentage
	AC output voltage, AC output current, AC output power, AC output percentage.
	Fault code
	UPS mode or Appliance mode

LCD Setting

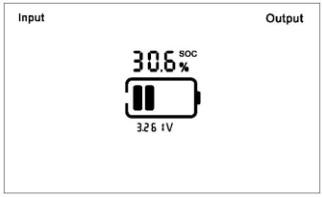
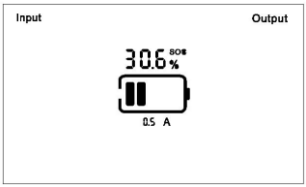
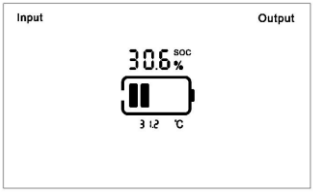
After pressing and holding “SET” button for 3 seconds, switch between UPS and Appliance mode.

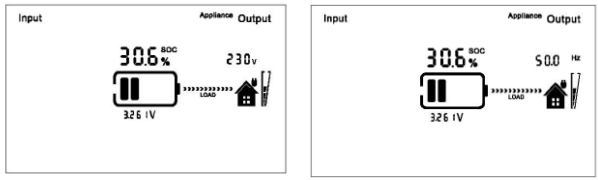
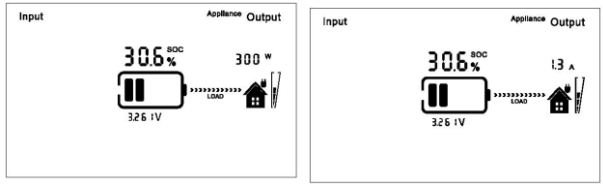
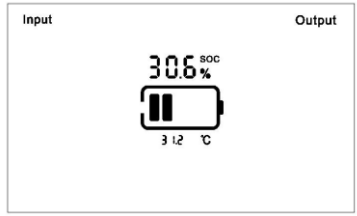
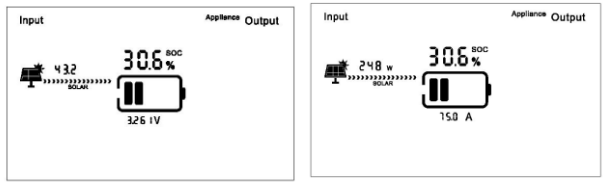
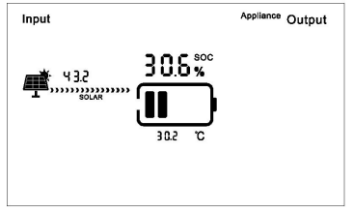
Setting Programs:

Main mode	UPS mode UPS Output	If UPS mode is selected, the working range of mains power is 170-280vac
	Appliancemod(default) Appliance Output	If Appliance mode is selected, the working range of mains power is 90-280vac.

Detailed display of various interface data on LCD

LCD displays automatic switching information. Information that can be displayed includes: input voltage, photovoltaic voltage, MPPT charging power, battery current, charging power, battery temperature, battery voltage, output voltage, output frequency, load percentage, load (watts), fault codes, etc

Information	LCD display
Standby mode	Battery Voltage=3.261V, Battery capacity=30.6% 
	Battery current=0.5A, Battery capacity=30.6% 
	Battery temperature=31.2℃, Battery capacity=30.6% 

<table>
<tr><td rowspan="3">INV mode</td><td>Output voltage=230v, output frequency=50Hz
</td></tr>
<tr><td>AC output power=300W, AC output current=1.3A
</td></tr>
<tr><td>Load percent=60.0%, Battery temperature=31.2℃, Battery capacity=30.6%
</td></tr>
<tr><td rowspan="2">PV mode</td><td>PV voltage=43.2V, PV charging power=248W,PV charging current=75.0A
</td></tr>
<tr><td>PV voltage=43.2V,Battery temperature=31.2℃, Battery capacity=30.6%
</td></tr>
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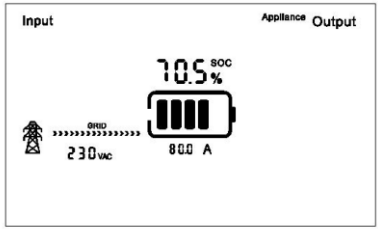
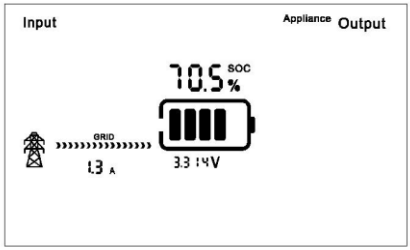
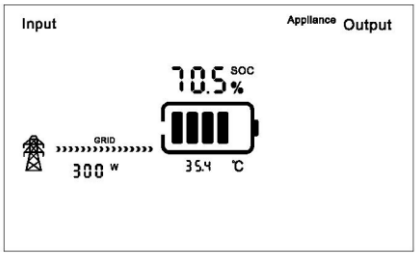
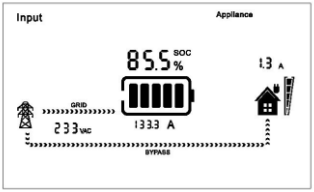
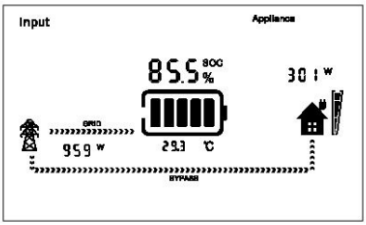
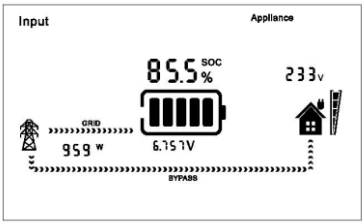
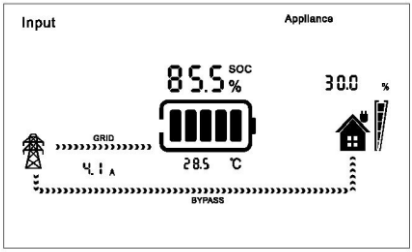
AC charging mode	AC input voltage=230V, Batterycharging current=80A.  AC input current=1.3A, Batteryvoltage=3.314V  AC input power=300W, Batterytemperature=35.4℃ 

BYPASS and AC charging mode	AC charging current=133.3A, Output current=1.3A , AC input voltage=233VAC  AC input power=959W,Battery Temperature=29.3℃, AC output power=30W  AC input power=959W,Battery Voltage=6.757V, AC output voltage=233v  AC input current=4.1A,Battery Temperature=29.3℃, Load percent=30.0%. 

Turn on/off keys

Function key	Detailed explanation	
	Turn on/off operation	Long press the key for 3 seconds to turn on the device。 Long press the key for 3 seconds to turn off the device。

Detailed explanation of system working mode

State	Description
Power off	1. When the battery capacity is less than 0%, or the battery voltage is less than 2.9V, the iPower Mobile is in low capacity protection mode and cannot be turn on.
AC output on	1. The AC output adopts constant power control. When the load power is overload, the AC output voltage will automatically decrease. 2. When the AC output voltage continues to drop below 170VAC, the overload protection will be triggered to shut down the iPower Mobile.
DC output on	1. The maximum total power of DC12V load is 60W, and the power of a single DC Power JACK 5.5*2.1mm is less than 60W. 2. The USB socket provide a maximum of 5V1A phone charging. 3. The TYPE-C socket provide a maximum of 5V1A phone charging.
Charging	1. When the PV voltage is higher than 15V, it will automatically start charging. 2. Please configure the appropriate solar panel power, when the connected solar panel power is higher, the solar panel power generation will be automatically limited. 3. When the grid and solar panel are connected at the same time, solar panel charging is priority and the remaining power is supplemented by the grid. 4. When battery cell temperature is higher than 55℃, the charging power will be limited to 100W. 5. When battery cell temperature is higher than 60℃ or lower than -10℃, the iPower Mobile. stops charging. 6. When battery cell temperature is lower than 0℃ and higher than -10℃, the charging current will be limited to10A. 7. When the cell voltage is lower than 2.5Vdc,the maximum charging current is 3A. 8. When the cell voltage is lower than 3Vdc and higher than 2.5Vdc, the maximum charging current is 10A.
Discharging	1. When the battery capacity is less than 0%, or the battery voltage is less than 2.9V, the iPower Mobile stops discharging. When battery cell temperature is higher than 60℃ or lower than -10℃, the iPower Mobile stops discharging.

PV Connection

NOTICE

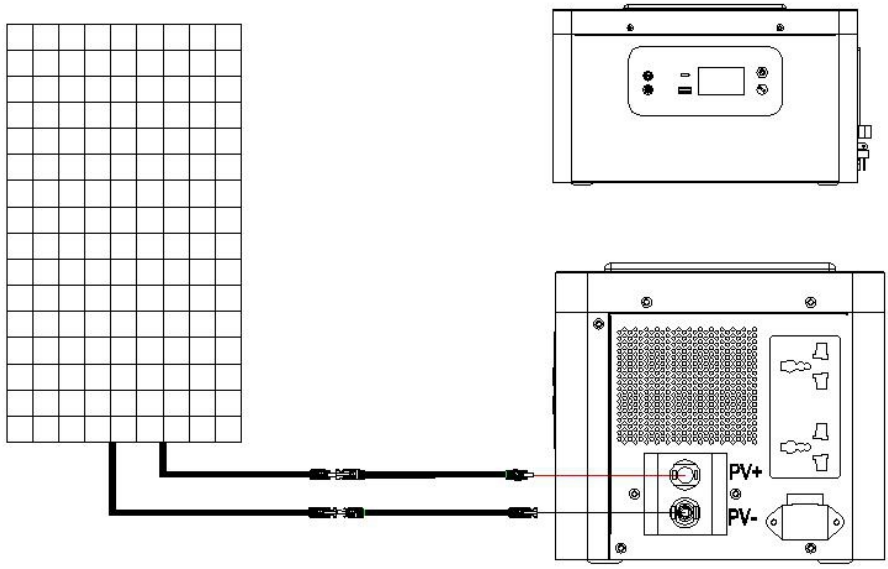
● Only 1 piece solar is allowed to be connected, with a range of 150~550W.

Please follow below steps to implement PV input connection

1.Turn off the **iPower Mobile** before connecting the solar panel input **.**

2.Please follow the printing text on the MC4 PV plug to connect the solar panel **.**

3.Only 1 piece glass PV module can be connected.



Grid Connection

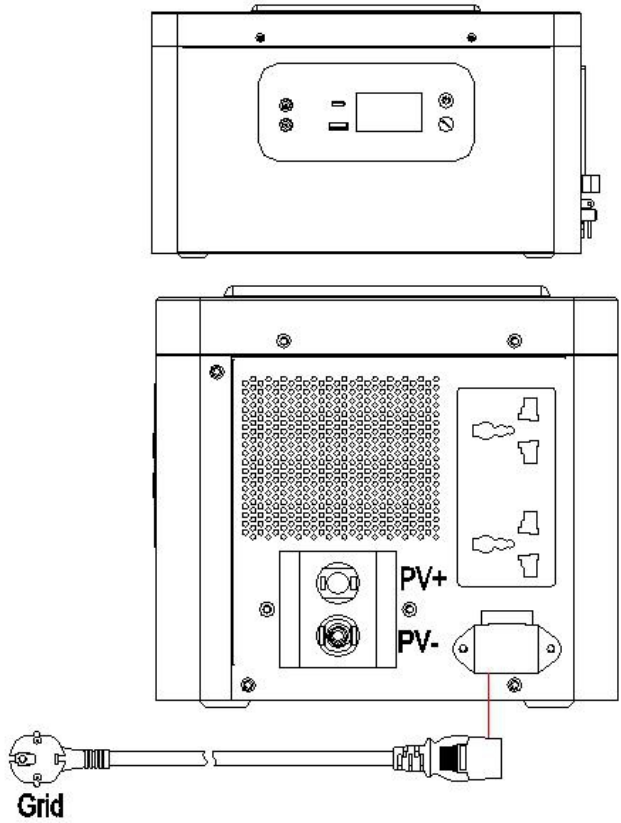
NOTICE

- Turn off the **iPower Mobile** before connecting to the grid. Avoid loose sockets that may cause sparks from AC input.
- The AC input must be connected to the ground wire.

Please follow below steps to implement grid connection

1.Turn off the **iPower Mobile** before connecting the grid **.**

2.Use power supply cable accessories to connect to grid, the grid socket needs to be grounded.



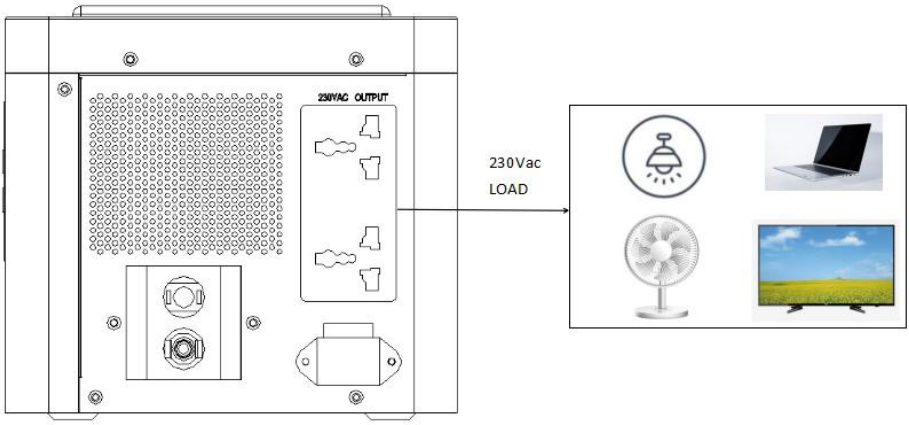
AC Output Connection

NOTICE ● The AC output must be connected to the ground wire.

Please follow below steps to implement AC output connection

1.Turn off the **iPower Mobile** before connecting the grid.

2.Connect 1 set load device, or use a power strip.



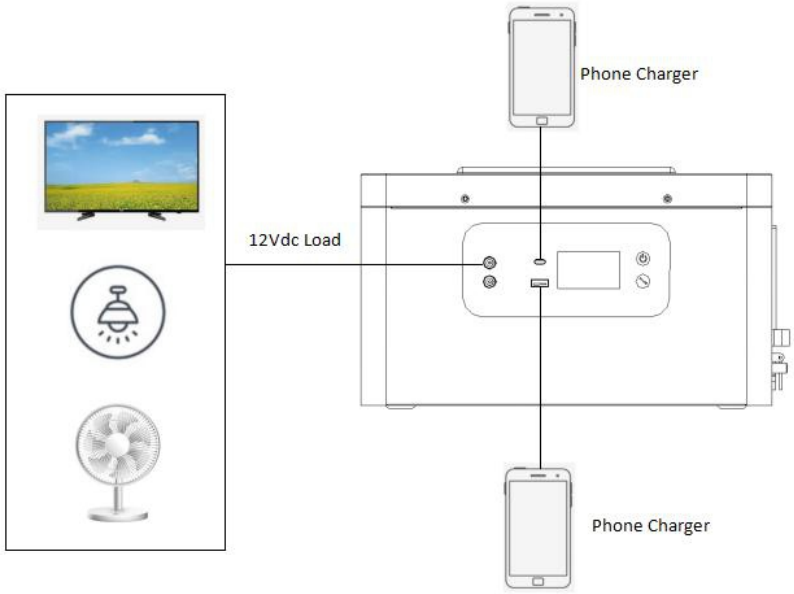
DC Output Connection

NOTICE

- DC Power JACK 5.5*2.1mm only DC12V devices can be connected.
- The maximum power of a single DC interface is 60W, and the total power of double DC interface is 60W.

Please follow below steps to implement DC output connection

1. Please select DC12V device connection.
2. The DC Power JACK is positive inside and negative outside.



Fault code

Fault code	Fault Event	Solution
14	The AC input voltage is too high	The power grid is abnormal, and the fault will disappear after the power grid voltage returns to normal
27	Battery voltage too high	Check if the battery is connected in series or parallel incorrectly
40	PV input voltage too high	Check the specifications of solar energy, with a maximum input voltage of 55VDC
2	Low output voltage of battery discharge mode inverter	Overloaded or damaged internal power components
15	The AC input voltage is too low	The power grid is abnormal, and the fault will disappear after the power grid voltage returns to normal
28	Low battery voltage	The battery is empty, charge it in time
3	Battery mode AC output over current	Overloaded, reduce the usage of some load
16	Over current output from the mains bypass	Overloaded, reduce the usage of some load
29	Battery input over current	Overloaded, reduce the use of some load or damage internal power devices
42	Photovoltaic charging over current	The solar energy connection power is too high or there is a malfunction in the internal charging part
4	Communication output short circuit	Check if there is a short circuit in the electrical wiring
43	Photovoltaic input short circuit	There is a malfunction in the internal charging part
5	Battery discharge mode over temperature	The product needs to be used in a ventilated environment, while checking if the fan is not running, if the load power is too high, or if the ambient temperature is too high
31	The temperature of the battery cell is too high	The product needs to be used in a ventilated environment, while checking if the fan is not running, if the load power is too high, or if the ambient temperature is too high
44	Photovoltaic charging over temperature	The power of the solar panel is too high, and at the same time, check if the fan is not turning and if the ambient temperature is too high
32	Low battery cell temperature	The ambient temperature is too low. Use the product in an environment above 0 degrees Celsius
7	BUS voltage high	Internal power components damaged, please contact the dealer for handling
8	BUS voltage low	Internal power components damaged, please contact the dealer for handling

9	Battery discharge mode overload	Overloaded, reduce the usage of some load
22	Overload of mains bypass mode	Overloaded, reduce the usage of some load
23	The input frequency of the mains power is too high	The power grid is abnormal, and the fault will disappear once the power grid frequency returns to normal
24	Low input frequency of mains power	The power grid is abnormal, and the fault will disappear once the power grid frequency returns to normal
25	Fault in the fuse or relay of the mains power input	Please contact the dealer for assistance
38	Battery input fuse malfunction	Please contact the dealer for assistance
51	Photovoltaic input fuse malfunction	Please contact the dealer for assistance
13	Abnormal battery mode startup	Please contact the dealer for assistance
60	Overload alarm	Overloaded, reduce the usage of some load

Specifications

General info			
Model	**300W**	**500W**	**1000W**
AC Input/Output			
Rated AC Output Power	300W	500W	1000W
Output Voltage Waveform	Pure Sine Wave		
Output Voltage	185～230VAC , 50Hz		
Nominal Input Voltage	230Vac		
Low Loss Voltage	90Vac /170Vac ± 7		
Low Loss Return Voltage	100Vac/180Vac ± 7		
High Loss Voltage	280Vac ± 7		
High Loss Return Voltage	270Vac ± 7		
Max. AC Input Voltage	300Vac		
Nominal Input Frequency	45～65Hz		
AC Charging Power	300W Max.	500W Max.	1000W Max.
PV Input			
Commonly used module power	150 to 550W , 1pcs		

MPPT voltage range	10~50Vdc		15~60Vdc
Start-up voltage	10Vdc		15Vdc
Maximum input voltage	55Vdc		70Vdc
Maximum input power	300W Max.	400W Max.	550W Max.
DC Output			
DC output	12V2.5A DC Power JACK 5.5*2.1mm , 2pcs		
USB Charger	5V1A , 1pcs		
TYPE-C Charger	5V1A , 1pcs		
Battery Cell			
Capacity	896Wh	1004.8Wh	2009.6Wh
Nominal Battery Voltage	3.2Vdc	3.2Vdc	6.4Vdc
Typical Capacity	280Ah	314Ah	314Ah
Max.Charge Current	130A	220A	220A
Max.Discharge Current	130A	220A	220A
Operation Voltage Range	2.9Vdc～3.6Vdc	2.9Vdc～3.6Vdc	5.8Vdc～7.2Vdc
Others			
Placed	Indoors		
Ingress Protection rating	IP21		
Operating Temperature	-10℃～+50℃		
Humidity	5%～95% Relative Humidity (Non-condensing)		
Altitude	≤2000 m		
Product size	L294*W207*H146mm	L325*W210*H184mm	L278*W243*H330mm
Package size	L400xW274xH252mm	L432xW277xH255mm	L345*W310*H430mm
Net Weight	10kg	11 kg	19.5kg
Get Weight	11kg	12 kg	21kg

For updated parameters, please go to our website to download the latest user manual.