# *Bi-Directional Inverter Technology*

## IMPORTANT NOTICE

Before using this product, please read this user manual carefully to familiar with the characteristics of this product. Failure to operate this product correctly may result in damage to the product or personal property, resulting in serious personal injury. Without following the instructions provided by CETCHI outdoor power supply, do not use electrical equipment that is incompatible with this product or change the product in any way. These safety guidelines include instructions for safety, operation, and maintenance. In order to operate the product correctly and avoid product damage or serious injury, you must carefully read and follow all instructions and warnings in the user manual before installation or use.

## Warnings

1. Do not short-circuit the product connection. To avoid short circuits, keep away from all metal objects.
2. Do not heat or incinerate this product, or put it in fire, water, or other liquids. Keep away from high temperature environment. Do not expose the product to direct sunlight.
3. Keep the product away from damp, rain, and dusty environments.
4. Do not disassemble or reassemble this product, otherwise it may damage the equipment and endanger the safety of life.
5. Do not drop, place heavy objects, or subject the product to strong impact.
6. Please keep this product out of reach of children and pets.
7. Please do not cover the product with towels, clothes, and other items.
8. Do not overcharge the product, do not leave it unattended when charging, and disconnect the power immediately after it is fully charged.
9. Please stay away from TV, radio and other equipment when charging to avoid radio wave interference.
10. Do not over-discharge the product. Please charge it in time when the low-voltage warning reminds you to extend the battery life.
11. Please use the power line provided by CETCHI to charge the product to ensure safe operation.
12. If you do not use the product for a long time, please disconnect the cable before storing it in idle, and charge the battery once every 3 months.
13. Do not dispose of this product and garbage together, please recycle and dispose of this product according to local regulations.
14. Pay attention to safety during operation, and don't be smashed to your feet by this product
15. Please refer to the user manual of the corresponding device for confirmation.

**Super fast charging technology:**

**1. Support fast charge, full charge in 4 hours**

**2. Support UPS**

**3. Intelligent inverter system**

**4. Support great work solar charging (500W)**

**5. Support automatic frequency switching (manual setting is required for off-grid)**

**The specifications and pictures in this manual are for reference only.**

## PRODUCT FEATURES
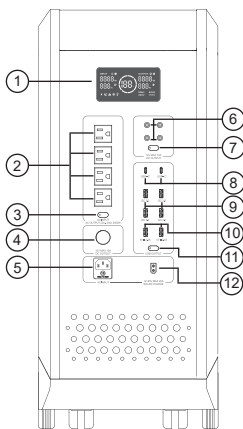


| 1 | LED display |
|---|---|
| 2 | AC output socket |
| 3 | AC switch button |
| 4 | DC car charger output port |
| 5 | Charging port with protector |
| 6 | DC output port |
| 7 | DC switch button |
| 8 | USB-C output port |
| 9 | QC3.0 output port |
| 10 | USB output port |
| 11 | USB switch button |
| 12 | XT60 input port (solar and car charger input port) |

## AC switch button

**Turn on: Long press the AC switch button for 2S to power on, the LED screen and the AC indicator light up at the same time, AC The icon lights up, indicating that the AC output is normal.Turn off:**

1: Click the AC switch button to turn off the AC output. At the same time, the AC indicator flashes, and the AC port enters the turn-off state. After 5 seconds (the AC indicator will turn off), a prompt sound is issued to turn off the AC output;

2: Enter hibernation mode. If there's no operation for more than 8hours, the LED screen will automatically turn off. After 5 seconds (the AC indicator will turn off), a prompt sound is issued to turn off the machine automatically.

## LED DISPLAY
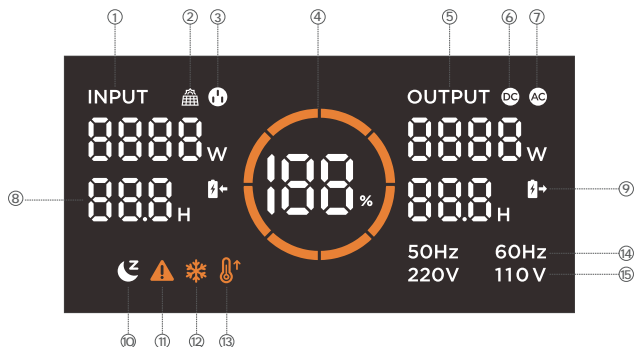


**1: Input power icon:** INPUT 8888 w

When charging, the total input power of charging is displayed. Otherwise, 0W is displayed.

**2: Solar charging icon:** 

Indicates that the solar panel is currently being charged.

**3: AC charging icon:** 

Indicates the current AC charging status.

**4: Battery level icon:** 

The percentage power display indicates the current power of the host, and the orange circle scrolls when charging.

**5: Output power icon:** INPUT 8888 w

After turning on and connecting the appliance, the input power of the appliance is displayed.

**6: DC output power icon:** DC

When the icon is lit, it means that the current power is the total output power of DC, USB and LED light board.

**7: AC output power icon:** AC

When the icon is on, it means that the current power is the inverter output power.

When the two icons are lit at the same time, it indicates the total output power. DC AC

General error code explanations:

dCOC: DC Over current or short circuit Fault, Abnormal USB output will not display the abnormal code；

inOV: input overvoltage fault;

inUV: input undervoltage fault;

B other abnormal display:

E+abnormal source+code number;

Abnormal source: 0 means DC fault, 1 means AC (inverter) fault (If the product is shut down because of AC abnormal, there is no fault code to be displayed. );

Code number: 1/2 means output short circuit or over current, 3/4 means over temperature, 5 means input over voltage, 6 means input under voltage, 9 means abnormal fan, a indicates that the AC power-on or power-off status is not confirmed (automatically cleared).

8: Remaining charging time icon: 888.ₕ

The remaining charging time is displayed.

9: Discharge remaining time icon: 888.ₕ

Display battery available time.

10: No load automatic shutdown status display icon: 🌙

This icon means that it is currently in sleep mode, and the output is less than 3W for more than 8 hours, and the output will be automatically turned off.

11: Abnormal display icon: ⚠️

When it is on, it means that the current working status is abnormal, otherwise it will not be displayed. For example: When the electric quantity≤5%, the alarm icon ⚠️ will be displayed, and when the electric quantity≥5%, the alarm icon ⚠️ will be automatically eliminated.

12: Low temperature warning icon: ❄️

When it is always on, it means charging is prohibited at low temperature, and when it is flashing, it means discharging is prohibited at low temperature. Normally, it does not display.

13: High temperature warning icon: 🌡️↑

When it is always on, it means charging is prohibited at high temperature, and when it is flashing, it means discharging is prohibited at high temperature. Normally, it does not display.

14: Inverter frequency display icon: 50Hz 60Hz

After the inverter is turned on, the current inverter output frequency is displayed as 50Hz or 60HZ, otherwise it will not be displayed.

15: Inverter voltage display icon: 220V 110V

After the inverter is turned on, it will display 110v or 220v, otherwise it will not display.

## DC car charger output port

Long press DC Switch button for 2S, ⊙c The icon lights up, indicating DC(4*5521) port and cigarette lighter can be output at the same time, short press DC Switch the button to turn off the output.

## XT60 input port

XT60 interface, this is input port for charger, adapter, car charging or solar photovoltaic panel for battery charging. The input voltage range is 12-65V, the maximum input current is 20A, and the maximum input power is 500W. When using solar photovoltaic panels alone, ⛫ The icon will automatically light up.

Charging method one:
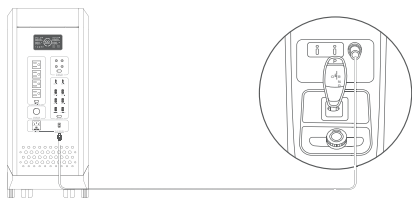


Car charge through XT60 port

Charging method two:
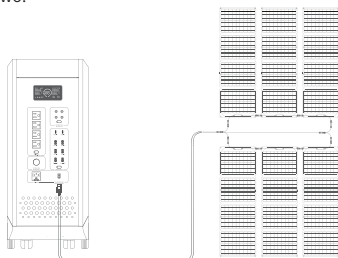


Solar panel charge through XT60 port

**Reminder: The actual charging efficiency of solar energy will vary greatly due to weather, ambient temperature, sunlight intensity, the angle of the solar panel facing the sunlight, and other factors. The actual charging efficiency shall prevail.**

**MPPT technology**

This product has built-in MPPT (Maximum Power Point Tracking) technology, which can be charged efficiently through solar panels. MPPT technology is designed for use in wind turbines and photovoltaic (PV) solar systems to maximize power extraction under all conditions. Through the MPPT technology, the product can compare the output voltage of the solar panel and the battery voltage in real time, and then intelligently identify the best power output for charging to maximize the battery charging efficiency.

## USB switch button

Turn on: Long press the USB switch button for 2S to turn on, at this time, the LED screen and the USB indicator light up at the same time. 🔘 The icon lights up, indicating that the USB output is normal.

Turn off: Short press the USB switch button to turn on.When the host is not using any output port, short press to turn off the screen and shut down;Sleep mode on state: After more than 3 minutes, the LED screen automatically enters the dormant state, and the host enters the off state.

## USB output port

Ordinary USB port, support BC1.2, Apple protocol. Support 5V/2.4A, when used, 🔘 DC icon is on.

## QC3.0 output port

When used alone QC Fast charging port, support QC2.0/3.0, FCP, AFC, BC1.2,Apple,SAM-SUNG,VOOC protocol. 5V when used 🔘 at the same time, support 5V/2.4A. When used, DC icon lights up automatically.

## TYPE-C output port

Support PD60W output. Compatible with PD2.0/3.0, QC2.0/3.0, MTK PE+1.1, FCP,compatible with BC1.2/APPLE/SAMSUNG Charging agreement. This interface can be automatically awakened by plugging and unplugging DC plate. TYPE-C1 support DC board firmware upgrade. TYPE-C port is not controlled by the switch.

## 9.DC switch button

Turn on: Long press the DC switch button for 2S to turn on, at this time the LED screen and the DC indicator light are on at the same time.The DC icon lights up, indicating that the DC output is normal.

Turn off: Short press the USB switch button to turn off When the host is not using any output port, short press to turn off the screen and shut down;Sleep mode on state: After more than 3 minutes, the LED screen automatically enters the dormant state, and the host enters the off state.

## DC output port

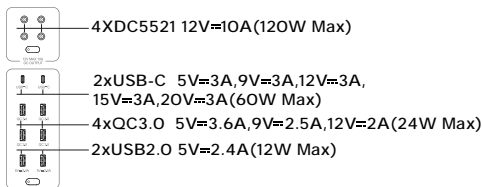The output port DC is used to charge the device adapted to the DC5521. When the DC output port is output, DC The icon will light up automatically, and the maximum support10A (120W).

4XDC5521 12V=1OA(12OW Max)

2xUSB-C 5V=3A,9V=3A,12V=3A,
15V=3A,2OV=3A(6OW Max)
4xQC3.O 5V=3.6A,9V=2.5A,12V=2A(24W Max)
2xUSB2.O 5V=2.4A(12W Max)

DC/USB-C/QC3.O/USB

## AC Input port

Connect AC cable to AC socket to charge the product. AC input port support (15A MAX). The display will light up to show the charging power and duration, and at the same time the AC output is turned on, you can charge. When the input current is continuously greater than 20A during charging, the AC charging port will be protected (shown as a button pop up). After confirming that the machine is not malfunctioning, press the protection switch to reset to resume charging.
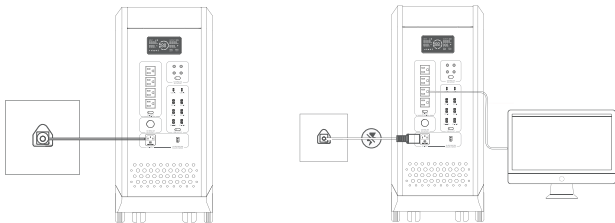
Mains fast charge within 4 hours                UPS function

**UPS Function:**

The product has an entry-level UPS function that supports simultaneous charging and discharging. When the main power grid is suddenly cut off, it can automatically switch to supply power from the product host within 15ms. (This function is a non-professional UPS function, and does not support 0ms switching. Please do not connect it to equipment that requires high level uninterrupted power supply, or please check compatibility after multiple tests, such as data services and workstations).

**Important hint:**

When product is in UPS working mode, AC The output power cannot exceed 1600W, Otherwise AC output will be disconnected within 3S – 10S. Under this situation, you need to remove the load and restart our product and re-connect AC.

When product is in UPS working mode, AC The total input power shall be controlled between 1650W to 1750W. (The priority is to ensure that the electrical appliances work normally, and the excess power is then charged to the product host. As the output power increases, the host charging gradually decreases).

When charging and discharging at the same time: The output power on display is the electrical power, and the input power will change with the change of the output power.

1、screen display value is the total input power-the total output power, and the output power on display is the electrical power.

2. When the input power is greater than the output power, the input power in the screen display value is 0, and the output power on display is the electWhen the input power is less than or equal to the output power, the input power in the rical power.

<div style="background-color:orange;color:white;padding:8px;display:inline-block;font-weight:bold;">Combination key function</div>

The USB switch, LED switch, and DC switch can form a combination key. The combination key is effective for a long time after setting. It needs to be set when the machine is turned on.

The USB switch, LED switch, and DC switch can form a combination key. The combination key is effective for a long time after setting. It needs to be set when the machine is turned on.

Under normal circumstances, the DC interface and USB interface are under no load conditions (current less than 200mA) It will automatically close after 3 minutes. If you don't want to turn off the output in this case, you can press and hold the USB switch while clicking DC switch and release immediately DC Switch, the screen sleep icon is off, that is, the no-load automatic shutdown function is turned off. The same operation can turn on the no-load automatic shutdown function again, and the screen displays the sleep icon.

AC frequency switching: press USB switch and DC switch at the same time and hold for 3S,then release DC switch firstly, then the corresponding frequency icon on the screen flashes, and it is always on after the switch is successful, and the AC frequency can be switched to 50Hz or 60Hz. The default is 50Hz.

Restart combination key: Press and hold the LED switch while pressing the DC switch, release the DC switch first, and then release the LED switch. The screen will refresh, full screen will light up, 3S later the light will be off, the screen will go into the current mode, display the current status.

## Product parameters

| | |
|---|---|
| Product number | PT2000 |
| Cell type | Lithium iron phosphate (LiFePO4) batteries |
| battery capacity | 1664000mAh |
| Battery energy | 5324.8Wh（25.6V/208Ah） |
| AC output waveform | Pure sine wave output (no harm to electrical appliances) |
| Rated output power | Japanese and American version: 100V-120V, 50Hz/60Hz(1800W) International version: 220V-240V, 50Hz/60Hz(2000W) |
| Rated input power | Japanese and American version: 110V 1600W International version: 220V 2200W |
| Peak power | 3000W (soft start technology) |
| USB interface (output) | USB2.0 (x2) 5V⎓ 2.4A(12W Max) |
| QC3.0 interface (output) | QC3.0(x4) 5V⎓ 3A 9V⎓ 2A 12V⎓ 2A(24W Max) |
| Type-C interface (output) | USB-C (x2) 5V⎓ 3A 9V⎓ 3A 12V⎓ 3A 15V⎓ 3A 20V⎓ 3A (60W Max) |
| Car charger DC interface (output) | 12V⎓ 10A(120W MAX) |
| DC5521 interface (output) | DC(x4) 12V⎓ 10A(120W MAX) |
| AC interface (output) | Japanese and American version AC output (x4): total power 1800W, 100V-120V (50Hz/60Hz) International version AC output (x2): total power 2000W, 220V-240V (50Hz) |
| Charging time | About 4 hours (mains charging, super fast charging technology) |
| Charging and discharging method | UPS function, supports simultaneous charging and discharging |
| UPS switching time | ≦15mS |
| Mains charging interface (input) | Mains charging: Y shape interface |
| Solar charging interface (input) | Solar charging: XT60 interface / solar maximum input power 500W |
| Weight | net weight 66kg |
| Product Size | 445*278*622mm |
| Charging temperature | （32°F～104°F）0～40℃ |
| Discharge temperature | （14°F～104°F）-10～40℃ |
| Storage temperature | （14°F～104°F）-10～40℃ |
| Cycle life | Remaining capacity above 80% after 2000+ cycles |
| Idle life | It is recommended to charge the product every 3 months |

## 14.packing list

1.Portable emergency energy storage power supply×1

2.User manual×1

3.Power supply charging line×1

4.Car charging cable x1

5.Photovoltaic cable x1

6. Storage bag x1