

# ECO-WORTHY

— Reliable Solar Expert —

## 3000W 24VDC to 110VAC Solar Charge Inverter (USER MANUAL)



- UPS Function
- Lightweight and Portable
- All-In-One Solar Charge Inverter

Email: [info@eco-worthy.com](mailto:info@eco-worthy.com)

Call: 1-866-939-8222

## Feature

- 1.Pure sine wave output, DSP control, stable voltage and frequency design, stable output
- 2.Intelligent temperature-controlled cooling fan, which automatically adjusts the fan speed according to the load and temperature, can reduce the use of noise and save electricity
- 3.Undervoltage protection, Overvoltage protection,Overload protection, Short circuit protection,Overtemperature protection
- 4.Intelligent LCD display function, which can display the working parameter information of the inverter in real time like : battery charging mode,solar voltage input,grid voltage input,output voltage, total power consumption...

## Specification

Rated output wattage(W)	3000W
Rated pv input voltage(Vdc)	24V
Rated output voltage (Vac)	110Vac
Maximum pv input wattage(Vdc)	2000W
Output waveform	Pure sine wave
Number of AC output sockets	3
Number of cooling fans	3

### UPS Function

Rated input voltage(Vac)	110Vac
Input voltage(Vac)range	93-127Vac

Controller charge mode	PWM
Rated input voltage(Vdc)	24V
Rated input currebt(A)	80A
Max solar power input	2000W

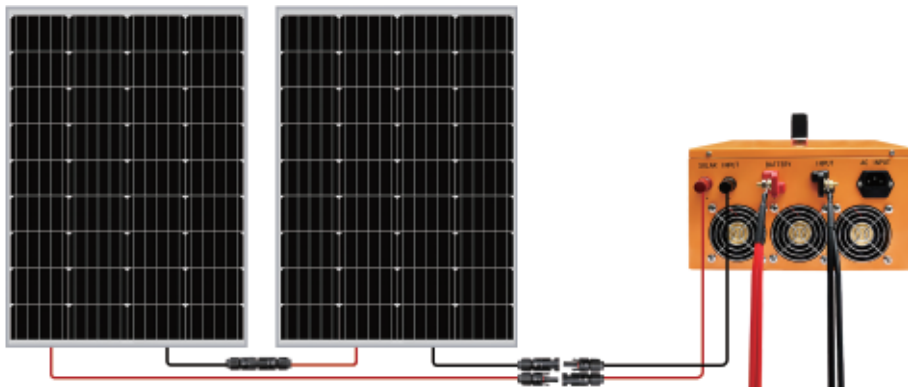
## Product detail



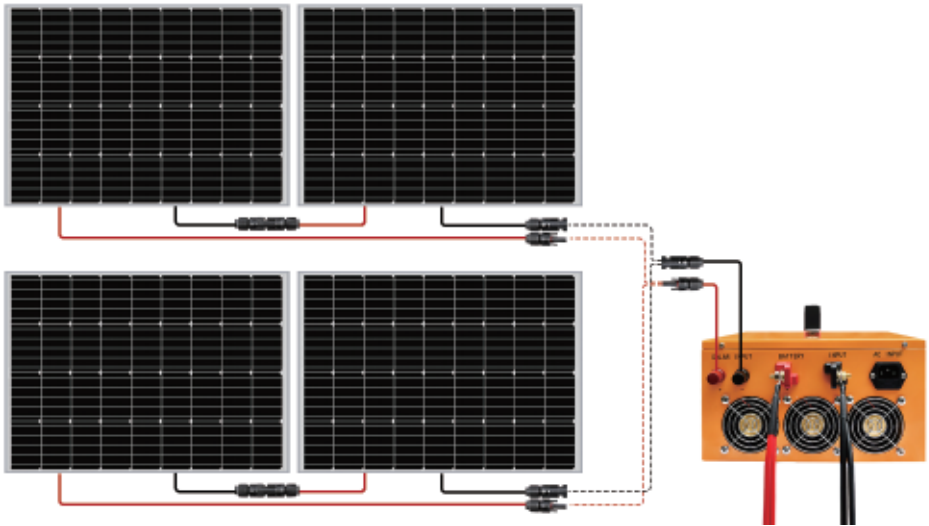
## About Wiring

### Solar panel wiring

When using solar panels to charge the battery, Solar panels with a maximum input voltage of 18V need to be connected in series. The wiring method is as follows



Solar panels with a maximum input voltage of 36V. When multiple solar panels are needed, please connect them in parallel



## Battery connection



## Calculation method for battery selection

Since the inverter needs a relatively large working current when working at full load, if the capacity of the battery is insufficient and the maximum output current is insufficient, it will cause the battery to be deeply discharged in a short time and cause damage to the battery. Therefore, the scientific and reasonable choice of the battery is to increase the inverter And battery life guarantee

## Choose a suitable battery

Since the inverter requires a relatively large working current when working at full load, if the capacity of the battery is insufficient and the maximum output current is insufficient, the battery will be deeply discharged for a short time and cause damage to the battery

Therefore, the scientific and reasonable selection of batteries is a guarantee to improve the service life of inverters and batteries

## Calculation formula for battery model selection

Maximum battery discharge current =  
inverter rated power / (battery voltage \* 0.85)

Battery capacity (C) =  
maximum discharge current (I) \* continuous working time (H)

For example:

the maximum load is 500W,

need to continue to use for 2 hours,

the calculation method is as follows:

maximum discharge current =  $500 / (24 * 0.85) = 147A$ ;

battery capacity (C) =  $147 * 2 = 294AH$ ,

so you can choose six 100AH battery,

3 batteries in parallel and then in series

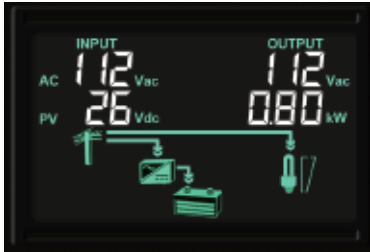
## UPS uninterruptible power supply function

The UPS includes a 120W AC charger, which can charge the battery when there is AC input

UPS includes a function for automatic switching between battery power supply and mains power supply

Optional AC priority power supply mode or battery priority power supply mode

Electric power first mode: when the mains power is available, the mains power is given priority to the load. When the mains power is abnormal, it will automatically switch to photovoltaic power supply. Power supply to the load (in this mode, the AC charger starts and will continue to charge the battery)



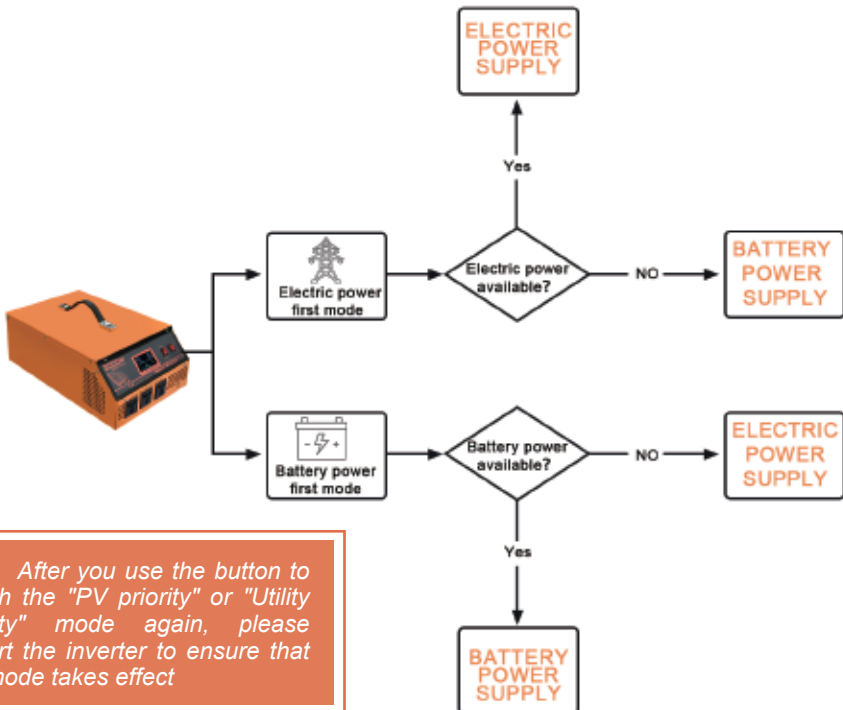
Electric power first mode



Battery power first mode

Battery power first mode: When the battery has power, priority is given to the load from the battery to the load. When the battery power is insufficient, it automatically switches to mains power supply. When the battery power is restored, it automatically switches to battery power supply (AC charger is prohibited in this mode, (No longer charge the battery))

Installation and operation steps



**TIP:** After you use the button to switch the "PV priority" or "Utility priority" mode again, please restart the inverter to ensure that the mode takes effect

## Electrical cable connection

It is necessary to confirm that the inverter switch is in a safe disconnection state, and the equipment is properly placed before connecting the cables. Do not reverse the battery's positive and negative poles, this may cause damage to the inverter. The inverter electrical cables must be connected in the following order:



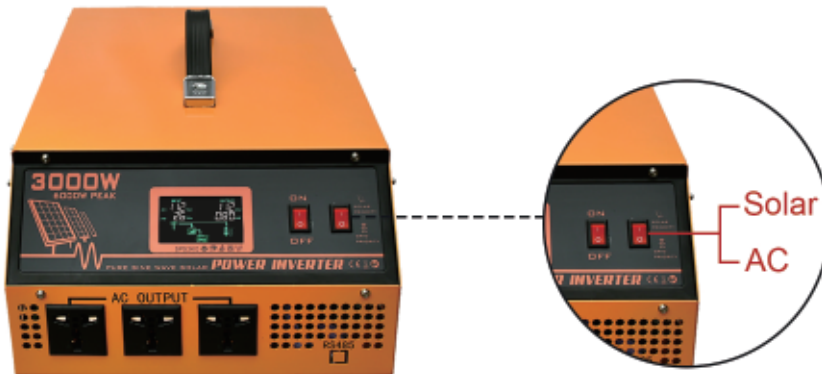
1. Turn off the inverter switch



2. Connect the battery terminal to the battery positive and negative terminals: the battery positive terminal is connected to the battery positive terminal, and the battery negative terminal is connected to the battery negative terminal (Make sure the battery terminals and cable terminals are in good contact, otherwise it is easy to cause cable heating)



3. Turn on the inverter switch, start the inverter



4. Connect the load to the AC output socket on the output side panel of the inverter

Note that the car cigarette lighter is only allowed to output 150 watts of power, and exceeding the power may affect the safety of use

## Recommended environment

The installation and use environment of the inverter should be well ventilated, away from water sources, heat sources, and flammable and explosive materials. Avoid installing the inverter in an environment with direct sunlight, dust, volatile gases, corrosive substances, and excessive salt

## Note

The operating temperature range of the inverter is  $-10 \sim 40$ . If you want to use it in an environment of more than 40, please use the standard of derating 10% for every more than 1. The best temperature for battery operation is  $20 \sim 30$ . Working in an environment will reduce the battery life, and working in an environment with a temperature below 20 will shorten the battery backup time

The front and rear panels of the inverter should be at least 60mm away from the wall or adjacent equipment

Avoid any objects covering the ventilation holes of the front and rear panels of the inverter, so as not to hinder the ventilation and heat dissipation of the inverter, causing the internal temperature of the machine to rise and affecting the service life

## Matters needing attention

1. The AC output of this machine is strictly prohibited to be connected in parallel or connected to the power grid in any way, otherwise it will burn the equipment

2. To ensure safe and normal use, the load power should be gradually increased, and the total power of the electrical appliances must not exceed the rated power of the machine

3. When using inductive loads, please select 2 to 3 times the load power

4. Vacuum pump motors should be turned off before starting because the instantaneous starting current is too large. It is strictly forbidden to start frequently

5. The machine should be placed indoors. In a well-ventilated place, the device should not be covered by other objects, and there should be no flammable or explosive products nearby
6. It is strictly forbidden to connect to the input end of the device

## Warning

Read and ensure that you understand all the contents of this manual. Failure to follow the instructions may lead to severe injury or property damage

- The warnings, precautions, and instructions contained in this manual do not cover every possible scenario. When using this product, you should exercise common sense and take necessary precautions. Remain aware of your environment and ensure that you use this product in a safe and responsible manner
  - Users should not operate or assemble this product before reading the manual and becoming familiar with how the product operates
  - Please do not modify this product in any way. Unauthorized modification of this product may impact the product's functionality or safety, and could reduce the product's service life
  - Please do not modify this product in any way. Unauthorized modification of this product may impact the product's functionality or safety, and could reduce the product's service life
  - Use an appropriate electrical load (less power than this product's power output). Do not attempt to forcefully increase this product's load. This product is designed for certain conventional uses. Following these conventions will enable the product to function safely and in accordance with expectations. Do not use this product in ways that fall beyond the scope of product design
- Avoid scratching the surface with hard objects during use, and
- should not be in contact with strong corrosive chemicals, avoiding bending force and causing internal battery rupture, affecting power generation efficiency