



Portable Power Station

ESS-2000

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Notice

Due to product version upgrades or other reasons, the content of the document may be subject to periodic updates. Unless otherwise agreed, the document content cannot replace the safety precautions in the product label or user manual.

All descriptions in the documentation are intended solely as guidelines for usage.

Scope of Validity

This manual describes the assembly, installation, operation and troubleshooting of this unit. Please read this manual carefully before installations and operation.

This manual is valid for the following device models: **ESS-2000**

Model Description

ESS -2000

1

2

- | | | |
|---|-----------------------|--|
| 1 | Product Type | Energy Storage System |
| 2 | Rated Capacity | Refers to the rated capacity of 2 kWh. |

Target Group

This document is intended for qualified persons and end users. Tasks that do not require any particular qualification can also be performed end users. Qualified persons must have the following skills:

- Knowledge of how a device works and is operated
- Training in how to deal with the dangers and risks associated with installing and using electrical devices and installations
- Training in the installation and commissioning of electrical devices and installations
- Knowledge of the applicable standards and directives
- Knowledge of the compliance with this document and all safety information

Symbol Description

Different levels of warning messages in this manual are defined as follows:



DANGER!

- Indicates a high-level hazard that, if not avoided, will result in death or serious injury.



WARNING!

- Indicates a medium-level hazard that, if not avoided, could result in death or serious injury.



CAUTION!

- Indicates a low-level hazard that, if not avoided, could result in minor or moderate injury.



NOTICE

- Provide important operation information and techniques for high efficient, proper using and maintenance.

Change History

Version 2.0 (08/14/2025)

Updated the product without paygo.

Version 1.0 (06/24/2025)

Initial release

Table of Contents

1	Safety.....	1
1.1	Symbols on the device.....	1
1.2	Safety Instructions.....	1
2	Introduction.....	4
2.1	System Overview.....	4
2.2	Product Overview.....	5
3	Installation.....	7
3.1	Preparation before Installation.....	7
3.1.1	Packing List.....	7
3.1.2	Selection of Location.....	8
3.2	Wall Mounting (Optional).....	8
3.2.1	Installation Tools.....	8
3.2.2	Installation procedures.....	9
4	Input Connection	10
4.1	AC Input Connection.....	10
4.2	PV Charging Connection.....	10
4.3	Vehicle Charging.....	11
5	Output Connection.....	12
5.1	AC Output Connection.....	12
5.2	DC Output Connection.....	12
6	Troubleshooting.....	14
7	Specifications.....	17
8	Maintenance.....	18
8.1	Operating Environment.....	18
8.2	Long-term Storage.....	18
8.3	Low Battery Handling.....	18
8.4	Regular Inspection and Maintenance.....	18
8.4.1	Filter Cotton Cleaning.....	19

The safety information contained in this document must be followed at all times when operating the equipment.

1.1 Symbols on the device

Table 1-1 Symbols

Symbol	Description
	Do not disconnect under load!
	Danger: High Voltage!
 	Danger: Electrical Hazard!
	Delayed discharge. Wait for minutes after power off completely discharged.
	Read instructions carefully before performing any operation on the device.
	Do not dispose of the device as household waste. Discard the product in compliance with local laws and regulations, or send it back to the manufacturer.
	Grounding: The system must be firmly grounded for operator safety.

1.2 Safety Instructions



DANGER!

- Do not use wires or other metal objects to cause a short circuit of this product.
- Strictly prohibit bringing this product close to heat sources (such as fire or heaters) while it is operating.
- The alternating current (AC) generated by this product is the same as that from household wall sockets and can be fatal. Please do not insert foreign objects into any ports (including AC and DC as well as ventilation openings) and keep children away.



DANGER!

- Adhere strictly to the operating temperature range specified for this product. If the temperature is too high, it may cause the cell to catch fire; if the temperature is too low, the product's performance may be severely reduced or it may become unusable.
- In case of a fire involving this product, use dry powder, carbon dioxide fire extinguishers, or sand to extinguish it. Do not use water directly.
- According to aviation safety regulations, such high-capacity battery devices are generally not allowed to be carried onto airplanes.



WARNING!

- Do not use or store the device in environments with flammable, explosive gases, or smoke.
- Do not disassemble, replace batteries, or internal components without authorization.
- Do not expose the device to liquids. Avoid using it in damp, rainy, or watery conditions. If the device gets wet, it must be thoroughly dried before contacting customer service.
- Do not use the device in strong static electricity, strong magnetic fields, or environments with dust.
- Do not disassemble, puncture, or place heavy objects on the device.
- When operating the device, avoid moving it to prevent impacts, falls, or violent vibrations, which may damage internal components.
- If the device is severely damaged, please immediately disconnect it and move the battery to a safe, open area away from people and flammable materials.
- Do not use this product for medical devices related to personal safety, including but not limited to ventilators (CPAP), artificial lungs (ECMO), etc. For general medical devices, please pay attention to the power status to ensure that the power will not be depleted.
- The use of this product may generate electromagnetic fields, which could affect the normal operation of implantable medical devices or personal medical devices such as pacemakers, cochlear implants, hearing aids, defibrillators, etc. If you use such medical devices, please consult the manufacturer to understand usage restrictions and ensure that this product maintains a safe distance from these medical devices during operation.

**CAUTION!**

- For safety reasons, please use only the original charger and data cable designed for the device. We are not responsible for damage caused by third-party devices and may void your warranty.
- If the device's interface is dirty, please wipe it dry and do not use liquid cleaners.
- Keep the device ventilated and do not block the fan, as this may cause permanent damage.
- In humid environments (such as near the sea), it is recommended to use a moisture-proof bag to prevent moisture or water ingress.

**NOTICE**

- The device should be placed in a dry, ventilated area, away from children and pets.
- Regularly check the device's status to ensure safe use.
- Please read the user manual carefully before use to ensure strict compliance with the relevant terms.

2.1 System Overview

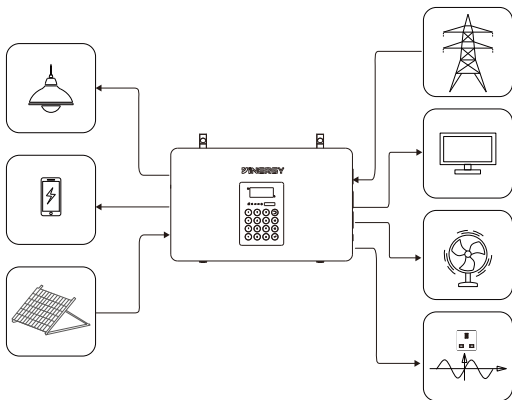


Figure 2-1 System Overview

This product is a Portable Power Station that can achieve bidirectional conversion between AC and DC power, meeting the power needs of various devices.

- **Safety Performance:** Equipped with fireproof, explosion-proof, and impact-resistant features, providing comprehensive 16-dimensional safety protection.
- **High-capacity Battery:** Equipped with a 314Ah high-capacity battery core, with a cycle life of over 8000 cycles, ensuring long-term and stable power supply.
- **Integrated BMS and PCS:** The battery management system (BMS) and power conversion system (PCS) are integrated, enhancing product reliability and stability.
- **Diverse Power Supply Modes:** Supports city power/solar/generator charging modes to meet different power supply needs.
- **Flexible Applications:** Supports PAYGO function, more flexible application, supports UPS function, meeting more application scenarios.

2.2 Product Overview

i NOTICE

- This product supports multiple regional standards, including UK and EU specifications. The illustration below shows the UK version as an example.

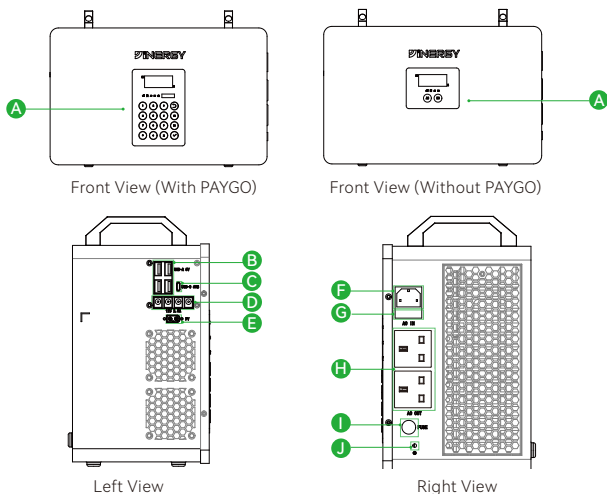


Figure 2-2 Appearance

Table 2-1 Appearance Description

No.	Description	No.	Description
A	Control Panel	F	AC IN, AC power input port
B	USB-A, provides 5V voltage output, each USB-A supports a maximum of 1.5A current	G	AC IN Fuse
C	USB-C, supports up to 60W power output, can quickly charge high-power devices	H	AC OUT, AC power output port
D	DC5521, 4 DC5521 ports support a maximum of 30W output	I	AC OUT FUSE
E	PV terminal	J	PE (Protective Earth)

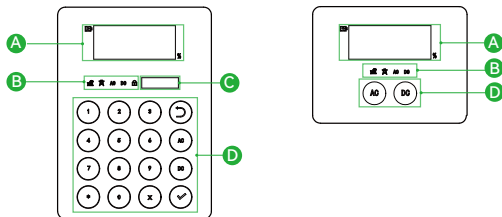


Figure 2-3 Control Panel (left: with PAYGO, right: without PAYGO)

Table 2-2 Control Panel Description

No.	Description	With PAYGO	Without PAYGO
A	Display current remaining SOC, No PAYGO version fault codes are displayed here.	✓	✓
B	 Lights up when PV is connected normally, light goes out when fully charged.	✓	✓
	 Lights up when the grid is connected normally, light goes out when fully charged.	✓	✓
	 Lights up when AC power is turned on.	✓	✓
	 Lights up when DC power is turned on.	✓	✓
	 Lights up when PAYGO authorization expires in 0 days.	✓	
C	Display PAYGO Status Press “  ” for a brief time to check the remaining days of PAYGO. Press and hold “  ” to start entering the password, press the “  ” to display the input result (the password is incorrect or the authorization has been extended by X days).	✓	
Display Fault Codes			
D	 Return Button	✓	
	 AC Output Switch	✓	✓
	 DC Output Switch	✓	✓
	 Confirm Button	✓	
	 Cancel Button	✓	
	 Press and hold this button to enter the PAYGO interface	✓	

3.1 Preparation before Installation

3.1.1 Packing List

Products have been strictly tested before leaving the factory. Please sign for them after inspection. If the product is damaged, please contact the local distributor. Please open the box to check whether the outer packaging is intact or damaged, whether the internal equipment is damaged.

The following figure with PAYGO equipment as an example, subject to the actual product received.

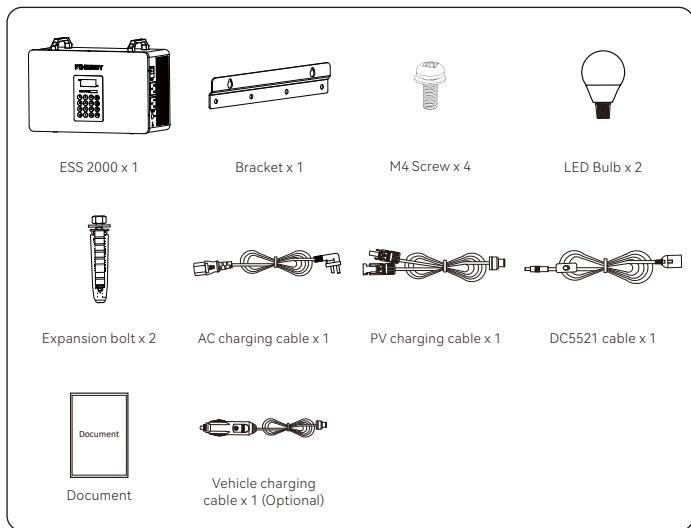
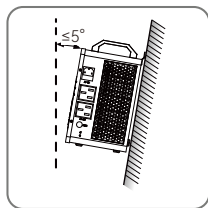
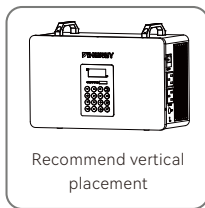
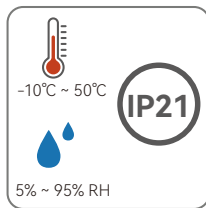


Figure 3-1 Packing List

3.1.2 Selection of Location

Consider the following points before selecting where to install or store:

- The device must be installed indoors. The temperature and humidity at the installation site should be within the appropriate range.
- Mount on a solid surface.
- Install the equipment at a height that is convenient for operation and maintenance, electrical connections, and checking indicators and labels.
- The ambient temperature should be between -10°C and 50°C to ensure optimal operation.
- The recommended installation position is to be adhered to the wall vertically.
- Guarantee enough space for removing wires.



3.2 Wall Mounting (Optional)

3.2.1 Installation Tools



3.2.2 Installation procedures

Step 1: Mark two drilling positions.

Step 2: Drill holes and knock the expansion bolts into the holes.

Step 3: Install the bracket onto the device, tighten the screws.

Step 4: Secure the device to the wall with screws by torque wrench.

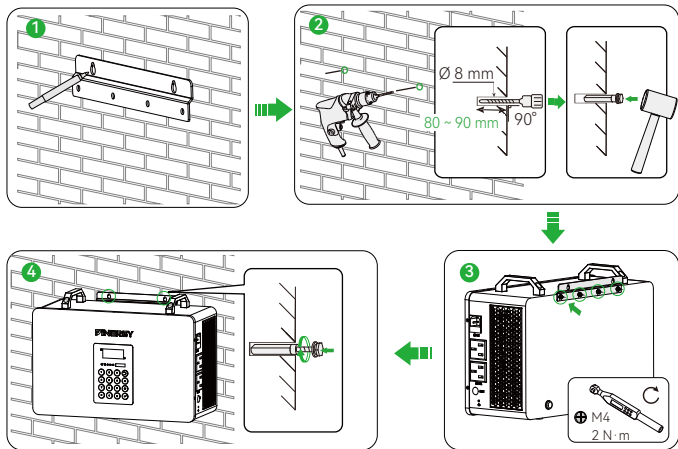


Figure 3-1 Wall Mounting

**DANGER!**

- The AC connection must be connected to the ground wire.

**NOTICE**

- The ambient temperature needs to be higher than 0 °C when charging the device, otherwise the battery cell will be damaged, affecting the performance and life of the device.

4.1 AC Input Connection

- Use power supply cable accessories to connect to grid.
- The device will automatically start charging.
- During charging, the LCD display will show the remaining charging time and the battery capacity percentage.
- After charging is complete, the AC indicator light will turn off.

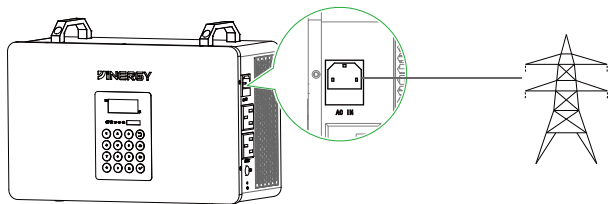


Figure 4-1 AC Input Connection Diagram

4.2 PV Charging Connection

- Connect the PV charging cable to the PV port and connect it to the solar panel.
- The device will automatically start charging.
- During charging, the LCD display will show the remaining charging time and the battery capacity percentage.
- After charging is complete, the PV indicator light will turn off.

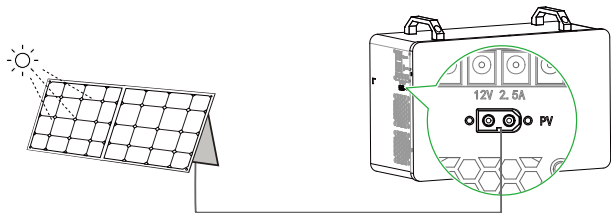


Figure 4-2 PV Charging Connection Diagram

4.3 Vehicle Charging

- Connect the vehicle charging cable to the PV port of the device and plug it into the vehicle's charging port.
- Vehicle power supply will serve as the charging power source for the device.
- During charging, the LCD display will show the remaining charging time and the battery capacity percentage.
- After charging is complete, the PV indicator light will turn off.

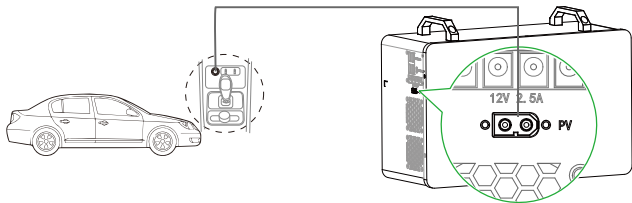


Figure 4-3 Vehicle Charging Connection Diagram

i NOTICE

- The total load capacity of the device is 1000 W, please make sure that the total power of all the loads connected to the AC and DC ports does not exceed 1000 W. If the power of the device is approaching or reaches the rated power, it may cause the device's overload protection to activate, initiating a cut-off of the power supply.

5.1 AC Output Connection

- Connect the AC load.
- Press and hold the AC Output button for 2 seconds to activate the AC Output port.
- To turn off the AC Output, press and hold the button again for 2 seconds.
- If there is no output from the AC output port for 30 minutes, the AC output power will automatically turn off.

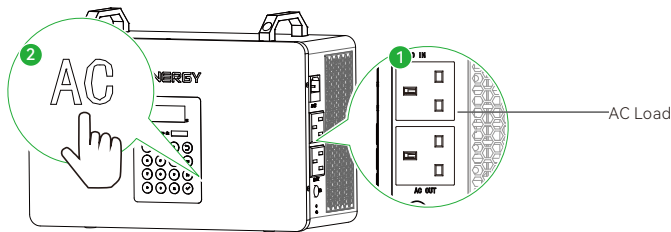


Figure 5-1 AC Output Connection

5.2 DC Output Connection

- Connect the DC load.
- Press and hold the DC output button for 2 seconds to activate the DC output port.
- To turn off the DC output, press and hold the button again for 2 seconds.
- The unit will not automatically shut down when the DC output port is turned on.

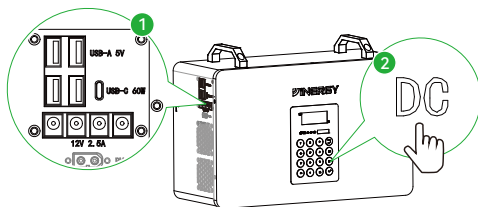


Figure 5-2 DC Output Connection

If the display shows an error code, please follow the instructions the table below to deal with the problem.

If the issue cannot be resolved, please contact Yinergy Customer Service for assistance.

Table 6-1 Troubleshooting

No.	Error Code	Suggestion
01	Cell3 LowTemp	Ensure the equipment is within the appropriate temperature range and wait for the temperature to rise.
02	Cell2 LowTemp	
03	Cell1 LowTemp	
04	Cell3 HighTemp	Ensure the equipment is within the appropriate temperature range and wait for the temperature to drop.
05	Cell2 HighTemp	
06	Cell1 HighTemp	
07	DCDC Overheat	Check if the filter cotton is clogged, clean dust or debris, and ensure good ventilation.
08	MPPT Overheat	
09	PV OverV	Check if the PV input voltage is beyond the allowed range.
10	Grid UnderV	Check if the grid input voltage is below the minimum requirement.
11	Grid OverV	Check if the grid input voltage is above the maximum limit.
12	BUS OverV	Restart the system. If the issue persists, please contact after-sales support.
13	BUS UnderV	
14	Cell <3.0V	
15	Fuse Open	Restart the system. If the issue persists, please contact after-sales support.
16	Cell Bar Loose	
17	Main Relay Fault	
18	Output Short	Ensure normal output, then restart the system. If the issue persists, contact after-sales support.
19	GridChg OCP	Pause charging, try again three times. If it still doesn't work, please contact after-sales personnel.
20	LLC OCP	
21	GridRelayFault	Restart the system. If the issue persists, please contact after-sales support.
22	Grid Overload	
23	PhaseLockFault	Verify that the AC voltage and frequency fall within the specified range. Restart the system. If the issue persists, contact after-sales support.
24	Island Fault	Restart the system. If the issue persists, please contact after-sales support.
25	GridFastLoss	
26	Bypass LowFreq	Ensure the AC frequency range falls within the specified range.

No.	Error Code	Suggestion
27	Bypass OverFreq	Check if the grid frequency is normal, ensure grid stability.
28	Grid OverFreq	Check if the grid frequency is normal, ensure grid stability.
29	BypassOverVolt	Check if the grid frequency is normal, ensure grid stability.
30	Grid OverVolt	Check if the grid frequency is normal, ensure grid stability.
31	Grid Fault	Check if the grid frequency is normal, ensure grid stability.
32	SW Lock	Restart the equipment, if the problem persists, contact technical support.
33	DC Overload	Check if the DC load is too high, reduce the load.
34	DC SW OCP	Check if the DC software overcurrent protection (OCP) is triggered, reduce the load.
35	DC HW OCP	Ensure the equipment is within the proper temperature range, clean the heat dissipator dust.
36	SystemOverTemp	
37	BUS Softstart	Contact technical support.
38	BUS UnderVolt	
39	BUS OverVolt	
40	BUS OverVFast	
41	System Fault	Restart the equipment, if the problem persists, contact technical support.
42	HalfWave Overld	Check if the load is too high, reduce the load.
43	Output UnderV	Contact technical support.
44	SW OCP Fault	Check if the load is too high, reduce the load.
45	HW OCP Fault	
46	SW OCP Fast	
47	OutputOverload	
48	Output Short	Check if there is a short circuit in the load, remove the faulty load.
49	Off-Grid Fault	Contact technical support.
50	PV Rev Cur	Ensure the polarity of the PV modules is correct. After replacement, restart the system. If the issue persists, contact after-sales support.
51	PV Bus OV Fast	Reinsert the PV input terminals and restart the system. If the issue persists, contact after-sales support.
52	PV OV Fast	
53	PV Overheat	Ensure the product's operating temperature is within the specified range.
54	PV Bus OV	Reinsert the PV input terminals and restart the system. If the issue persists, contact after-sales support.
55	PV Short Fast	
56	PV Not Conn	Ensure the PV module is connected. After connection, retest. If the issue persists, contact after-sales support.

Troubleshooting

No.	Error Code	Suggestion
57	PV Short	Reinsert the PV input terminals and restart the system. If the issue persists, contact after-sales support.
58	PV Overcur	
59	PV Out UV	
60	PV Out OV	
61	PV UnderV	Ensure the PV input voltage is within the specified range.
62	PV OverV	Restart the system. If the issue persists, contact after-sales support.
63	PV Fault	Reinsert the PV input terminals and restart the system. If the issue persists, contact after-sales support.
64	Bat OverV	Restart the system. If the issue persists, please contact after-sales support.
65	Bat Not Conn	
66	Bat UnderV	
67	Bat Hi-OverV	

Model	ESS-2000
Rated Capacity	1000 W / 2009 Wh
PV Input	
Max. Input Power	550 W
Max. Open-circuit Voltage	60 Vdc ¹
MPPT Range @Operating Voltage	12 ~ 55 Vdc
Max. Input Current	15 A
Max. Short-circuit Current	20 A
Battery Specifications	
Rated Voltage	6.4 V
Cell Type	Lithium-LFP
Rated Capacity	2009 Wh
Cycle Life	> 8000 Cycles
AC Input	
Rated Voltage	208 / 220 / 230 / 240 Vac; L + N + PE
Voltage Range	90 ~ 280 Vac $\pm$ 5 Vac (normal mode)
Frequency	50 / 60 Hz $\pm$ 5 Hz
Max. Input Power	1500W (Including Bypass, AC charge Max. 1000W)
AC Output * 2	
Rated Capacity	1000 W
Max. Output Power	1000 W
Waveform	Pure Sine Wave
Output Voltage	230 Vac $\pm$ 5 Vac
Nominal Frequency	50/60 Hz
Switching Time	$\leq$ 20 ms
DC Output	
USB-A	4 channels, 5Vdc/1.5A per channel
USB-C	1 channel, 5/9/12/15/20Vdc, 3A 60W Max
DC5521	4 channels, 12 Vdc / 2.5 A
Others	
Ingress Protection	IP21
Operating Temperature	-10 °C ~ 50 °C (When charging, temperature must not be below 0°C)
Dimensions (D * W * H)	160 * 400 * 250 mm
Net Weight	18.7 kg
Ingress Protection	IP21
Humidity	5% ~ 95% (Non-condensing)
Protection	AC input/output UVP/OVP, Battery UVP/OVP, AC Output OLP/SCP, OTP

¹ The PV Max. Input Open-circuit Voltage shall not exceed 60 Vdc. Damage caused by exceeding this limit is not covered under warranty, and the company assumes no liability.

8.1 Operating Environment

- It is recommended to use this product in an environment of 20°C–30°C, away from water sources, heat sources, and other metal objects.
- For safety reasons, do not store the device in an environment with temperatures higher than 45°C for extended periods.

8.2 Long-term Storage

- If long-term storage is required, it is necessary to charge and discharge the device once every three months (discharge to 30%, then charge to 60%). If the battery is severely depleted and left idle for a long time, it will cause irreversible damage to the battery cells, shortening the product's lifespan.

8.3 Low Battery Handling

- If the product's battery is severely depleted and left idle for an extended period, the product will enter a deep sleep mode, and it will need to be charged before it can be used again.

8.4 Regular Inspection and Maintenance

Table 8-1 Proposal of Maintenance

Item	Maintenance Interval
Check the device's cables, ports, and cooling system to ensure the device is in good condition.	Every 3 months
Check if the LCD display is showing normally; if there are any abnormalities, please contact technical support.	-
Regularly clean the dust or debris from the device to ensure the cooling system works properly.	Every 3 months
Regularly wipe the device's surface with a dry, soft cloth to keep the device clean.	Every 3 months
If the battery shows any abnormalities (such as swelling, leakage, etc.), Please stop using it immediately and contact technical support.	Every 3 months

8.4.1 Filter Cotton Cleaning

Step 1: Remove the screws from the vents and store them properly.

Step 2: Remove the filter cotton and clean it.

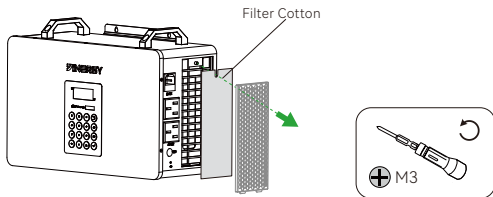


Figure 8-1 Remove the filter cotton

Step 3: Install the cleaned filter cotton and vent back onto the device, tighten the screw.

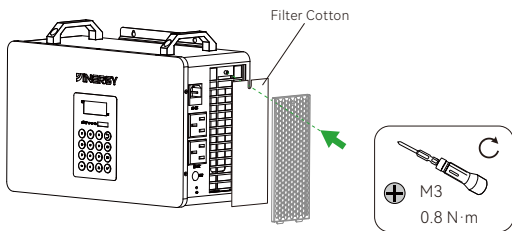


Figure 8-2 Install clean filter cotton

NOTICE

- Make sure the filter cotton is dry when installing it. Otherwise, water may enter the device, which may damage the inverter.



More information in the QR code or
at <http://yinergy-solar.com/>



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