Aninerel ANJ-HHS-11000W-48V-WIFI

Aninerel 11000W 48V Hybrid Solar Inverter User Manual

Model: ANJ-HHS-11000W-48V-WIFI

1. Introduction

This manual provides essential information for the safe and efficient operation of your Aninerel 11000W 48V Hybrid Solar Inverter. This device is designed to convert 48V DC power from solar panels or batteries into 220V/230V AC power, suitable for various household and office applications. It features a built-in 160A MPPT solar controller and supports grid-tie functionality, allowing power to be fed into the mains. Please read this manual thoroughly before installation and use.

Figure 1: Aninerel 11000W 48V Hybrid Solar Inverter with WiFi module.

2. Safety Instructions

Always observe the following safety precautions to reduce the risk of injury or damage to the inverter:

- Installation must be performed by qualified personnel.
- Ensure all wiring is correctly sized and properly connected.
- Do not disassemble the inverter. There are no user-serviceable parts inside.
- Keep the inverter away from flammable materials, moisture, and direct sunlight.
- Ensure adequate ventilation around the inverter to prevent overheating.
- Always disconnect all power sources (PV, battery, AC grid) before performing any maintenance or wiring.

3. Product Overview

3.1 Key Features

- **High Power Output:** 11000W hybrid solar inverter, 48V DC to 220V/230V AC.
- **Dual MPPT Controllers:** Built-in 2 MPPT trackers (160A total charging current) for connecting two independent PV systems, each up to 5500W.
- **Battery-Optional Operation:** Can operate with or without batteries, powering loads directly from PV or AC grid.
- **Pure Sine Wave Output:** Provides high-quality AC power suitable for sensitive electronics.
- **Grid-Tie Capability:** Can feed excess solar power into the mains grid.
- **Integrated BMS Communication:** Supports communication with compatible 48V 200AH/100AH batteries for optimized battery management.
- **Comprehensive Protection:** Includes short circuit, over-current, over-voltage, undervoltage, overload, charging, and over-temperature protection.
- **Real-time Monitoring:** LCD display and 3 LED indicators for system status, plus built-in WiFi for mobile app monitoring.
- **Flexible Charging & Output Modes:** Multiple configurable modes for power priority (PV, grid, battery).

Figure 2: Key specifications including 11000W rated power, 230Vac output, 50/60Hz frequency, 5500W*2 Max. PV array power, 60-500Vdc PV array MPPT voltage range, and 160A Max. charge current.

Figure 3: The inverter features built-in WiFi for real-time monitoring via a mobile application, available on Google Play and App Store.

Figure 4: The inverter provides a pure sine wave output, ensuring high-quality AC power for sensitive devices like computers, refrigerators, TVs, and water heaters.

3.2 Components and Indicators

Familiarize yourself with the inverter's external components, display, and indicators for proper operation.

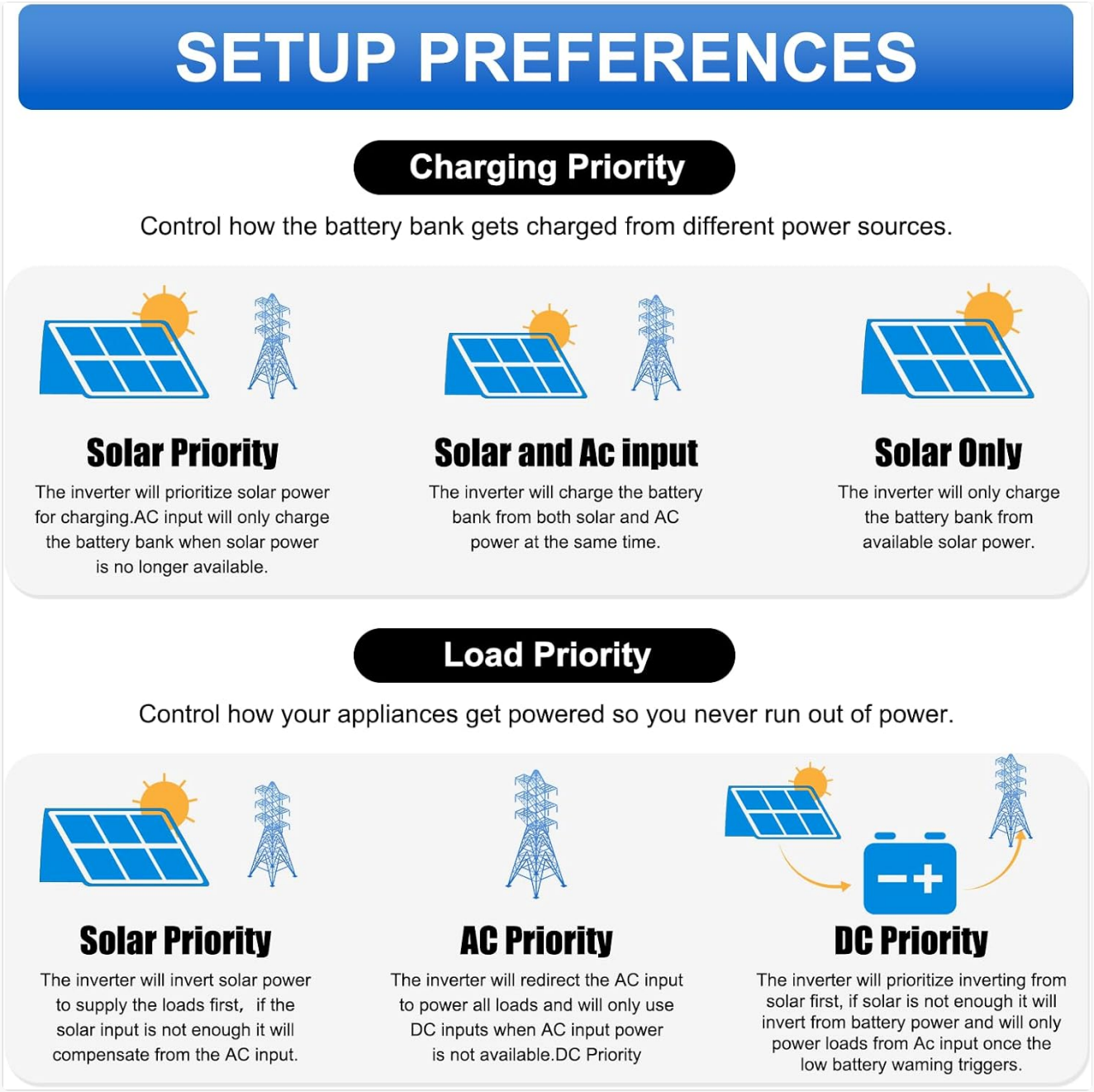

Figure 5: Front panel features an LCD display, status indicator, charging indicator, fault indicator, and function buttons (ESC, UP, DOWN, ENTER). The rear panel includes PV1 input, PV2 input, AC input, Main out, Second out, RS485 port, WiFi antenna port, dry contact port, grounding terminal, battery negative/positive outlet holes, and a power on/off switch.

- **LCD Display:** Shows real-time system data and operating status.
- **Status Indicator:** Indicates the inverter's operational status.
- **Charging Indicator:** Shows battery charging status.
- **Fault Indicator:** Illuminates when an error occurs, often accompanied by an error code on the LCD.
- **Function Buttons:** Used for navigating menus and configuring settings.
- **PV Inputs (PV1, PV2):** Connections for solar panel arrays.
- **AC Input:** Connection for grid power.
- **Main Out** / **Second Out:** AC output connections for loads.
- **Battery Terminals:** Connections for the 48V battery bank.
- **WiFi Antenna Port:** For wireless monitoring.
- **RS485 Port:** For communication with external devices, including BMS.
- **Dry Contact Port:** For external control signals.

4. Setup and Installation

Proper installation is crucial for the inverter's performance and safety. Consult a qualified electrician for installation.

4.1 Mounting Location

- Mount the inverter vertically on a solid surface.
- Ensure sufficient clearance (at least 20 cm) around the inverter for proper airflow.
- Avoid direct sunlight, high temperatures, and high humidity.
- The installation environment should be free from corrosive gases and dust.

4.2 Wiring Connections

Follow the wiring diagram carefully. All connections must be secure and correctly polarized.

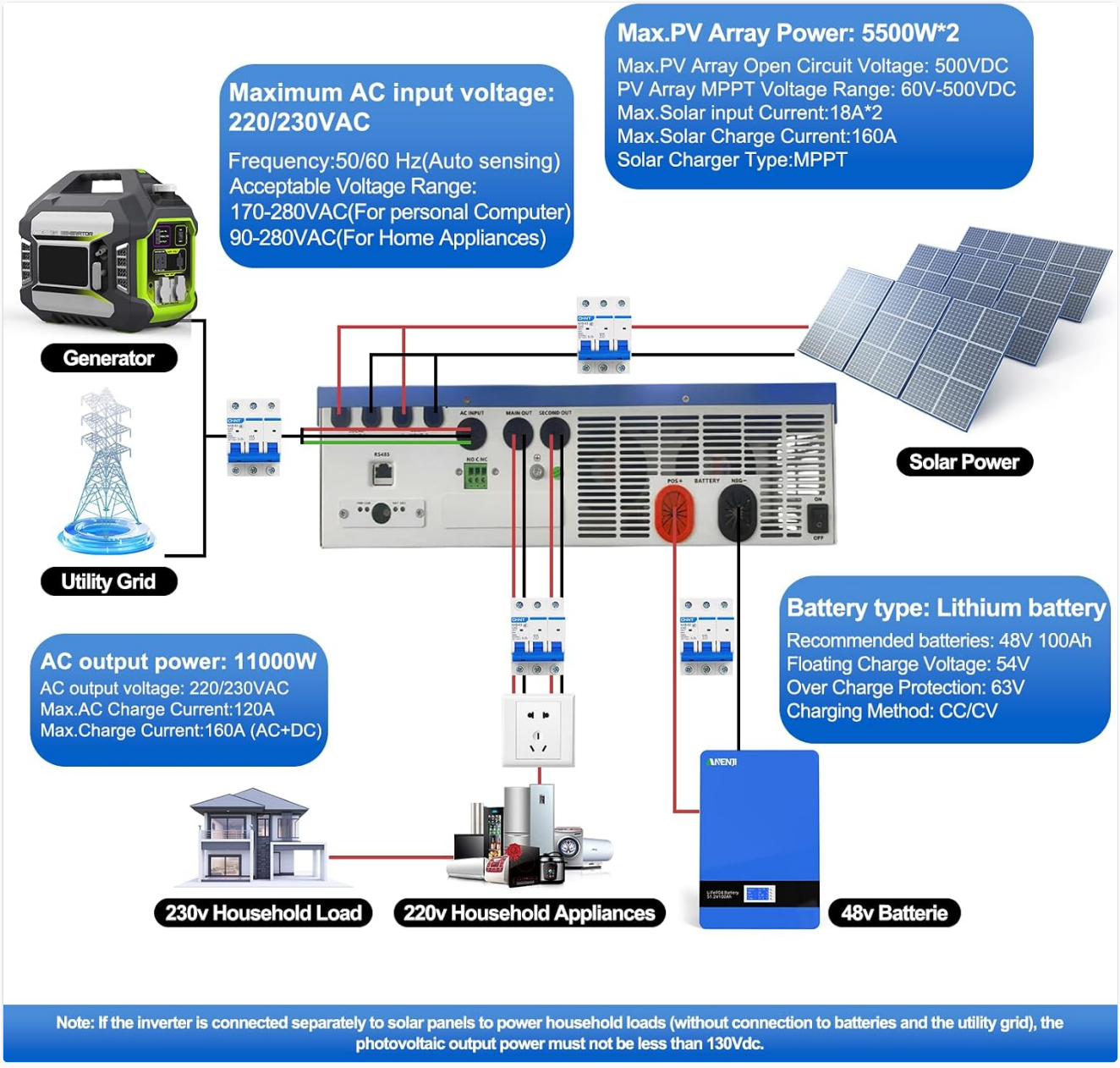

Figure 6: Detailed wiring diagram showing connections for solar panels (PV array), utility grid, generator, 48V battery, 230V household load, and 220V household appliances. Note the maximum AC input voltage, AC output power, and maximum PV array power specifications.

- **PV Array Connection:** Connect solar panels to PV1 and PV2 inputs. Ensure the PV array voltage is within the 60-500V DC MPPT range and the open circuit voltage does not exceed 500V DC.

- **Battery Connection:** Connect the 48V battery bank to the battery terminals. The inverter is compatible with various battery types including AGM, GEL, FLD, LI, SLD, and USER-defined settings.
- **AC Input Connection:** Connect the utility grid or a generator to the AC input.
- **AC Output Connection:** Connect your household loads to the Main Out and Second Out terminals.
- **Grounding:** Ensure the inverter is properly grounded.

Figure 7: The inverter is compatible with multiple battery types, including AGM, GEL, FLD, LI (Lithium), SLD, and user-defined settings, with a maximum battery charging current of 100A (AC + DC).

5. Operating Modes

The Aninerel hybrid inverter offers flexible configuration options for charging and load priority.

5.1 Charging Priority Modes

These settings control how the battery bank is charged from different power sources.

- **Solar Priority:** The inverter prioritizes solar power for charging. AC input will only charge the battery bank

when solar power is no longer available.

- **Solar and AC Input:** The inverter will charge the battery bank from both solar and AC power simultaneously.
- **Solar Only:** The inverter will only charge the battery bank from available solar power.

5.2 Load Priority Modes

These settings determine how your appliances receive power.

- **PV Output Priority:** The inverter will prioritize solar power to supply the loads first. If solar input is not enough, it will compensate from the AC input.
- **National Network Output Priority (AC Priority):** The inverter will redirect the AC input to power all loads and will only use DC inputs (battery/PV) when AC input power is not available.
- **Battery Output Priority (DC Priority):** The inverter will prioritize inverting from solar first. If solar is not enough, it will invert from battery power. Only when battery power is low will it switch to AC input.

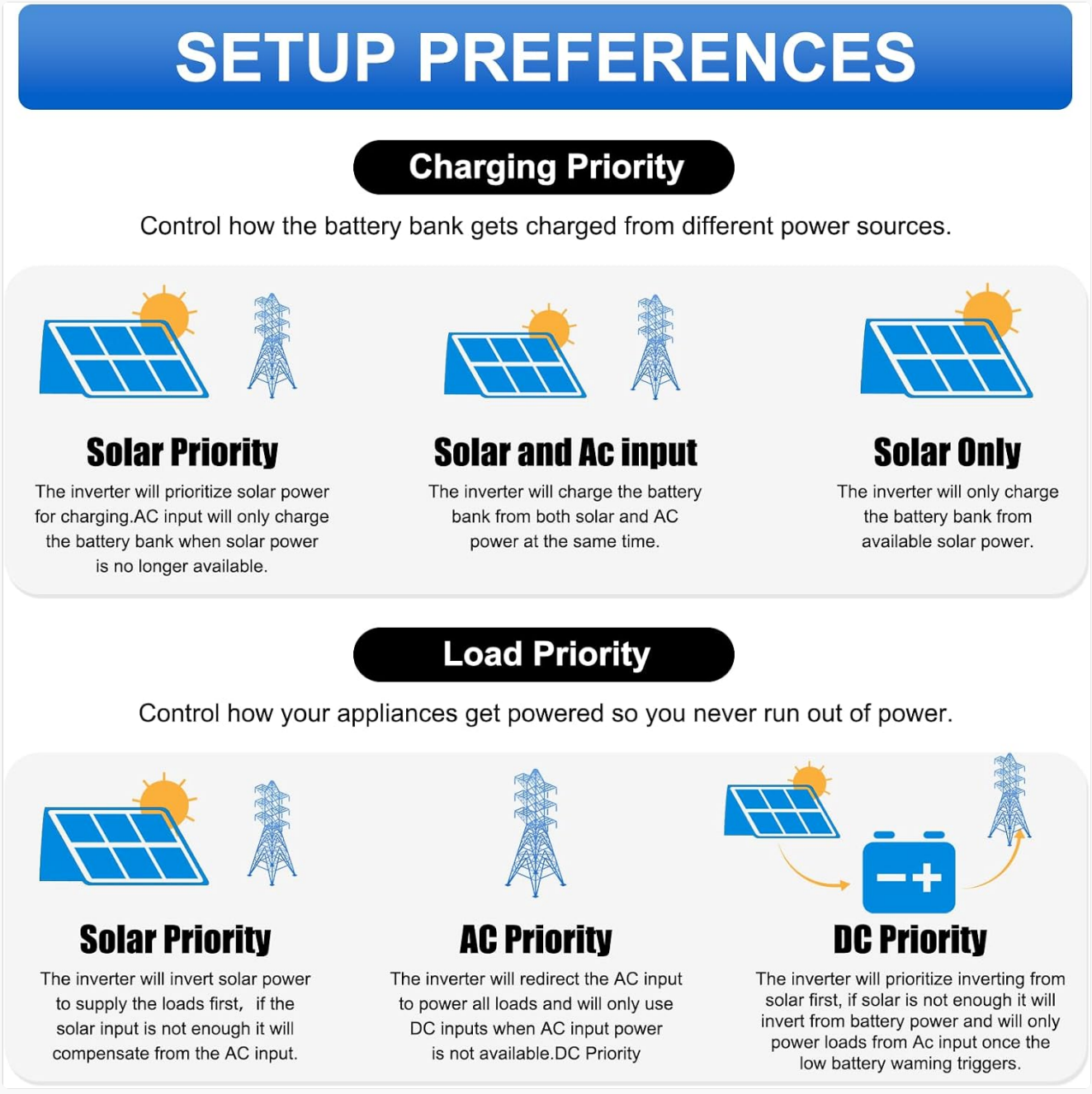

Figure 8: Visual representation of charging priority (Solar Priority, Solar and AC input, Solar Only) and load priority (Solar Priority, AC Priority, DC Priority) settings, which can be configured via the inverter's display.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your inverter.

- **Cleaning:** Periodically clean the inverter's exterior with a dry cloth. Ensure ventilation openings are free from dust and debris.
- **Connections:** Annually check all electrical connections for tightness and signs of corrosion.
- **Environment:** Ensure the operating environment remains within specified temperature and humidity ranges.
- **Battery Health:** If using batteries, monitor their health and ensure they are properly maintained according to their manufacturer's guidelines.

7. Troubleshooting

The inverter's LCD display will show error codes if a fault occurs. Refer to the specific error code in the full product manual (if available) for detailed troubleshooting steps. General troubleshooting tips include:

- **No Power:** Check all power connections (PV, battery, AC input). Ensure the power switch is ON.
- **Overload:** Reduce the connected load. The inverter has overload protection and may shut down.
- **Overheating:** Ensure adequate ventilation. Clean any dust from vents.
- **Battery Issues:** Check battery voltage and connections. Ensure battery type settings are correct.
- **PV Input Issues:** Verify solar panel connections and ensure sufficient sunlight. Check PV array voltage.

If the problem persists after basic troubleshooting, contact Aninerel customer support or a qualified technician.

8. Specifications

Feature	Specification
Model Name	ANJ-HHS-11000W-48V-WIFI
Output Power	11000 Watts
Input Voltage (DC)	48 V
Output Voltage (AC)	220 V / 230 V
Max. PV Input Power	11000 W
Max. PV Array Power	5500 W x 2
PV Array MPPT Voltage Range	60 ~ 500 V DC
Max. Open Circuit Voltage (PV)	500 V DC
Max. Charging Current	160 A
Max. Solar Input Current	18 A x 2
Product Dimensions	52L x 41.5W x 12.2H centimeters
Item Weight	17 Kilograms
Display Type	LCD
Recommended Uses	Home, Office, Vehicle

9. Warranty and Support

For warranty information, technical support, or service inquiries, please contact your retailer or the manufacturer, Aninerel. Keep your purchase receipt and product model number (ANJ-HHS-11000W-48V-WIFI) readily available when seeking support.