Aninerel SPI4836M80-300P

Aninerel 3600W Hybrid Solar Inverter Charger Instruction Manual

Model: SPI4836M80-300P

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your Aninerel 3600W Hybrid Solar Inverter Charger, Model SPI4836M80-300P. This advanced inverter is designed to efficiently convert 48Vdc solar power to 110Vac for various applications, featuring a built-in 80A MPPT controller and pure sine wave output. It supports both battery-less operation and compatibility with AGM and Lithium battery systems.

2. Product Features

The Aninerel 3600W Hybrid Solar Inverter Charger offers a range of features for optimal performance and flexibility:

- **High Power Output:** 3600W continuous power output.
- **Voltage Conversion:** Converts 48Vdc to 110Vac.
- **Advanced MPPT Controller:** Integrated 80A MPPT (Maximum Power Point Tracking) solar charge controller for efficient solar energy harvesting, supporting up to 500Vdc maximum PV input.
- **Pure Sine Wave Output:** Ensures compatibility and safe operation for all types of home appliances.
- **Battery Compatibility:** Supports battery-less operation or connection with AGM, Lithium, and Flooded batteries. Includes Lithium Battery Communication (BMS).
- **Grid Connection:** Designed for grid-tied systems with no feedback to the grid.
- **Scalable Power:** Capable of connecting up to six units in parallel for a total output of 21.6kW.
- **Versatile Design:** Supports 120V/240V split-phase and 208V 3-phase configurations for various residential and commercial applications.
- **Flexible Settings:** Customizable charging profiles, alarms, and cut-off parameters.
- **Wireless Monitoring:** Built-in Wi-Fi for remote monitoring of your system via a smartphone application.
- **Generator Connection:** Allows for integration with a generator for additional power input.
- **Communication Ports:** Includes RS485 for communication.

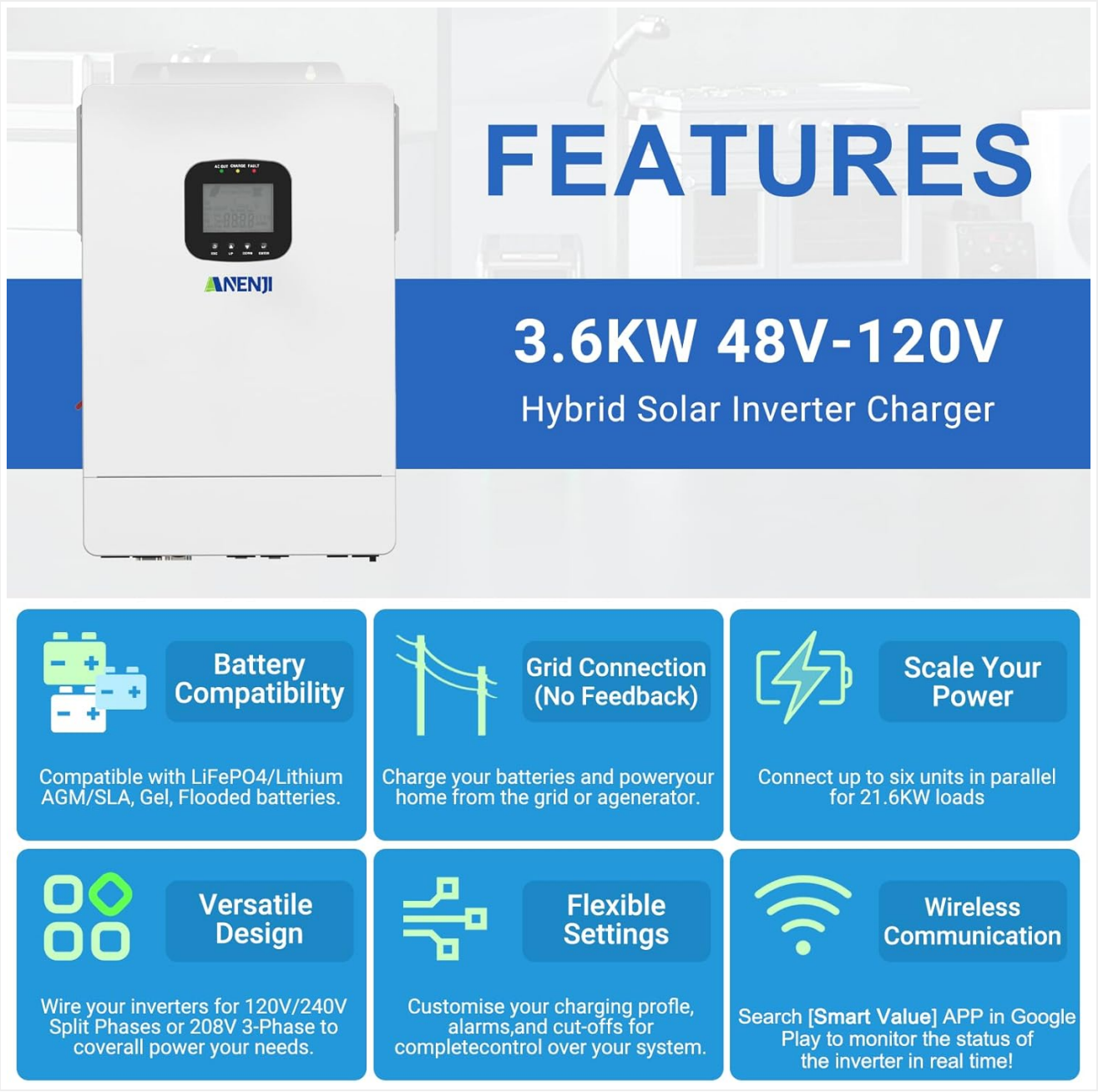

Figure 1: Overview of Aninerel 3600W Hybrid Inverter features, including battery compatibility, grid connection, scalable power, versatile design, flexible settings, and wireless communication.

3. Product Overview and Components

Familiarize yourself with the main components and connection ports of the inverter:

Figure 2: Detailed diagram showing the various components and ports of the Aninerel Hybrid Solar Inverter.

1. **Indicator Light:** Provides status indications.
2. **LCD Screen:** Displays operational data and settings.
3. **Keypad:** Buttons for navigation and setting adjustments.
4. **Overload Protector:** Safety mechanism against excessive current.
5. **Grounding Screw Hold:** Point for system grounding.
6. **AC Output Port:** Connects to household loads.
7. **WiFi Port (Optional):** For wireless monitoring module connection.
8. **AC Input Port:** Connects to grid or generator AC power.
9. **RS485-2 Communication Port:** For external communication.
10. **RS485-1 Communication Port:** For external communication.
11. **USB Communication Port:** For data transfer or firmware updates.
12. **Cooling Fan:** Dissipates heat during operation.
13. **ON/OFF Rocker Switch:** Main power switch for the inverter.
14. **Dry Contact Port:** For external control signals.

15. **Current Sharing Port (Parallel Module Only):** For parallel operation.
16. **Parallel Communication Port (Parallel Module Only):** For parallel operation.
17. **Battery Port:** Connects to the battery bank.
18. **PV Port:** Connects to solar panel arrays.

4. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your inverter. Please follow these steps carefully.

4.1. Wiring Guide

This video demonstrates the basic wiring procedure for the inverter, including connecting AC output and battery terminals.

Video 1: This video demonstrates general wiring steps for an Aninerel Solar Inverter, including connecting AC output and battery terminals. While the video features a 3KW 24V model, the wiring principles are similar for the 3600W 48Vdc inverter.

1. **Remove Port Cover:** Carefully remove the bottom port cover of the inverter to access the wiring terminals.
2. **Connect AC Output:** Connect the Live (L) and Neutral (N) wires of your main AC output to the designated terminals.
3. **Connect Battery:** Connect the positive and negative terminals of your battery bank to the corresponding battery ports on the inverter. Ensure correct polarity.
4. **Reinstall Port Cover:** Once all connections are secure, reinstall the port cover.

Important: Always ensure the inverter is powered off before making any electrical connections. Consult a qualified electrician if you are unsure about any wiring procedures.

4.2. Battery Compatibility

The inverter is compatible with various battery types, including Lead-Acid (AGM, GEL, Flooded) and Lithium batteries. For Lithium batteries, the inverter supports communication with Battery Management Systems (BMS) for optimized charging and discharge.

Figure 3: Illustration showing the inverter's compatibility with various 48V battery types, including GEL, FLD (Flooded), LI (Lithium), and SLD (Sealed Lead-Acid).

4.3. Parallel Connection

For increased power output, multiple inverters can be connected in parallel. The system supports up to six units for a maximum of 21.6kW power delivery in 120V residential systems. It also supports split-phase and 3-phase configurations.

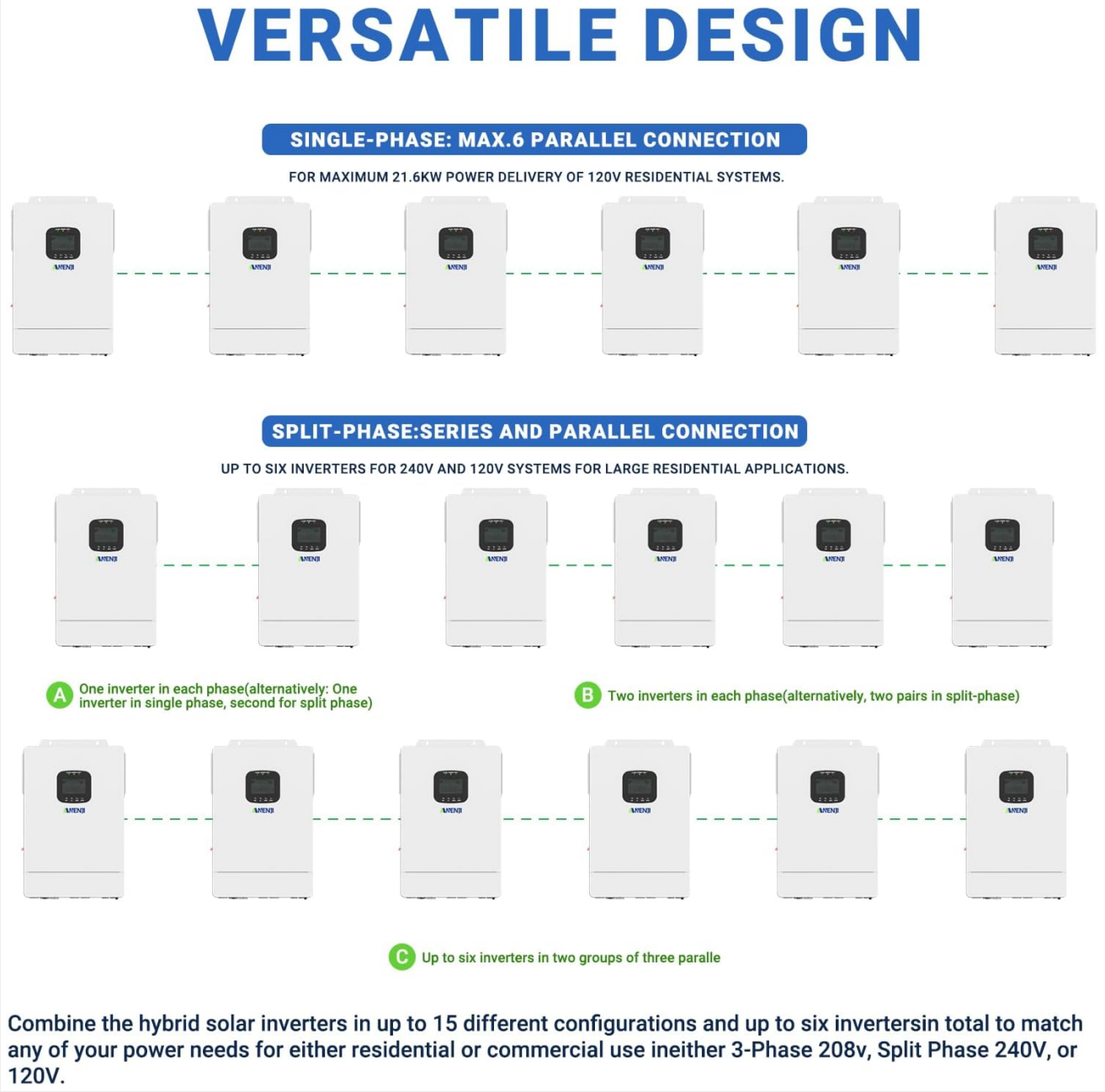

Figure 4: Diagrams illustrating single-phase and split-phase parallel connection options for the Aninerel Hybrid Inverter, showing how to combine multiple units for higher power output.

5. Operating Instructions

5.1. Charging Priority Settings

The inverter allows you to configure how the battery bank is charged from different power sources. You can select from the following priorities:

- **Solar Priority:** The inverter prioritizes solar power for charging. AC input will only charge the battery when solar power is no longer available.
- **Solar and AC Input:** The inverter charges 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 Settings

Control how your appliances are powered to ensure continuous operation. Options include:

- **Solar Priority:** The inverter uses solar power first. If solar is insufficient, it will compensate with AC input.

- **AC Priority:** The inverter uses AC input to power all loads. DC input is used only if AC input is unavailable.
- **DC Priority:** The inverter prioritizes inverting from solar first. If solar is not enough, it will convert from battery power and will only power loads from AC input once the low battery warning triggers.

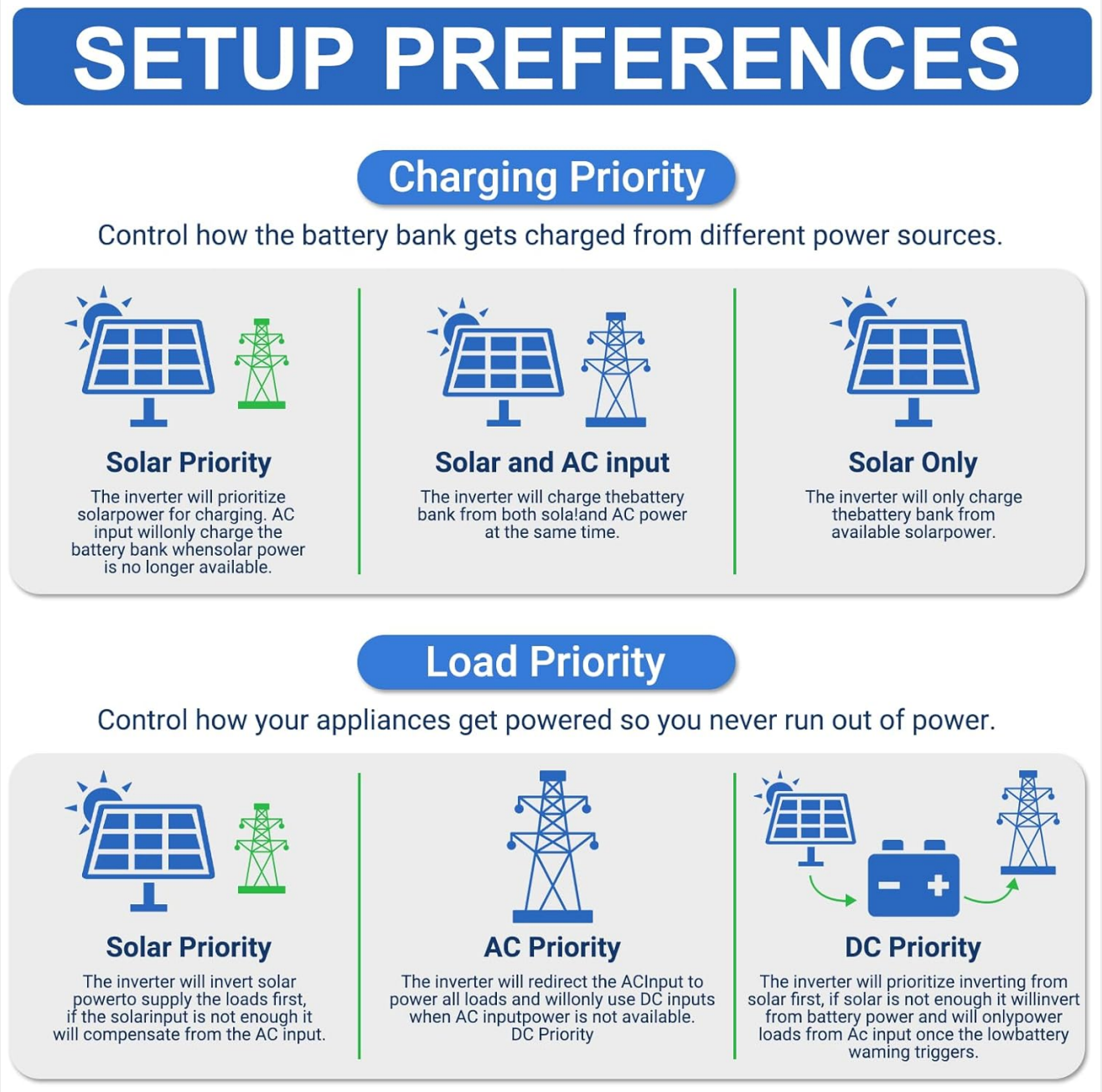

Figure 5: Visual guide to setting charging and load priorities on the Aninerel Hybrid Inverter, explaining Solar Priority, Solar and AC Input, Solar Only, AC Priority, and DC Priority modes.

5.3. Wi-Fi Monitoring

The inverter includes a built-in Wi-Fi module, allowing you to monitor its status and performance remotely via a smartphone application. Registration may be required to use the monitoring features.

Figure 6: Diagram illustrating the Wi-Fi module connection and remote monitoring capabilities of the Aninerel Hybrid Inverter via a smartphone app.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your Aninerel Hybrid Solar Inverter. Always disconnect all power sources (solar, battery, AC input) before performing any maintenance.

- **Cleaning:** Keep the inverter's exterior clean and free from dust and debris. Use a dry, soft cloth. Do not use liquid cleaners.
- **Ventilation:** Ensure that the cooling fans and ventilation openings are not blocked. Proper airflow is essential to prevent overheating.
- **Connections:** Periodically check all electrical connections for tightness and signs of corrosion. Loose connections can lead to poor performance or safety hazards.
- **Battery Inspection:** If using batteries, regularly inspect them for any signs of damage, leakage, or swelling. Ensure battery terminals are clean and secure.
- **Firmware Updates:** Check the manufacturer's website or the monitoring app for any available firmware updates to ensure your inverter has the latest features and bug fixes.

7. Troubleshooting

This section provides solutions to common issues you might encounter with your inverter. For problems not listed here, please contact customer support.

Problem	Possible Cause	Solution
Inverter not turning on	No DC input from battery/solar; Main switch off; Loose connections.	Check battery voltage and solar input. Ensure the ON/OFF switch is in the 'ON' position. Verify all wiring connections are secure.
No AC output	Overload; Short circuit; Inverter fault; AC output breaker tripped.	Reduce load. Check for short circuits in the AC wiring. Reset AC output breaker. Check LCD for error codes.
Low battery voltage alarm	Insufficient charging; Excessive load; Battery degradation.	Check solar panel output and connections. Reduce load. Consider battery health and replacement if necessary. Adjust charging priority.
Overheating alarm	Blocked ventilation; High ambient temperature; Excessive load.	Ensure clear airflow around the inverter. Reduce ambient temperature if possible. Decrease the connected load.
Wi-Fi monitoring not working	Wi-Fi module not connected; Network issues; App not configured.	Ensure the Wi-Fi module is securely connected. Check your local Wi-Fi network. Reconfigure the monitoring app settings.

8. Specifications

Key technical specifications for the Aninerel 3600W Hybrid Solar Inverter Charger:

Attribute	Value
Model Number	SPI4836M80-300P
Brand	Aninerel
Wattage	3600 watts
Voltage	48 Volts (DC input)
AC Output Voltage	110 Vac
MPPT Controller Current	80A (Built-in)
Max PV Input Voltage	500 Vdc
Power Source	Solar and Battery Powered
Product Dimensions (L x W x H)	29.5L x 10W x 38.5H Centimetres (29.49 x 10.01 x 38.51 cm)
Item Weight	9.18 kg
Manufacturer	Shenzhen Anenji Energy Technology Co.,Ltd
ASIN	B0FLX9RHDG

Attribute	Value
UPC/GTIN	757577193368

9. Product Accessories

The following accessories are typically included with your Aninerel 3600W Hybrid Solar Inverter Charger:

Figure 7: Image displaying the standard accessories included with the inverter, such as the instruction manual, installation toolkit, current sharing detection line, parallel cable, anti-reverse current CT, and WiFi module.

- Instruction Manual (x1)
- Installation Toolkit (x1)
- Current Sharing Detection Line (x1)
- Parallel Cable (x1)
- Anti-reverse Current CT (x1)
- WiFi Module (x1)

10. Product Application Scenarios

The Aninerel 3600W Hybrid Solar Inverter is versatile and suitable for a wide range of applications, including:

Figure 8: Examples of where the Aninerel Hybrid Inverter can be used, such as Solar Home Systems, Solar RV Systems, Solar Street Light Systems, Solar Power Plant Systems, Solar Vessels (Boat) Systems, and Hybrid Energy Systems.

- Solar Home Systems
- Solar RV Systems
- Solar Street Light Systems
- Solar Power Plant Systems
- Solar Vessels (Boat) Systems
- Hybrid Energy Systems

11. Warranty and Support

For warranty information, technical support, or service inquiries, please refer to the contact details provided with your purchase documentation or visit the official Aninerel website. Keep your purchase receipt as proof of purchase

for warranty claims.