Anern Anern-3600

Anern 3600W Hybrid Solar Inverter User Manual

Model: Anern-3600

1. Introduction

This manual provides essential information for the safe and efficient operation of your Anern 3600W Hybrid Solar Inverter. This all-in-one unit integrates a 3600W pure sine wave inverter, a 120A MPPT solar charge controller, and a battery charger. It is designed to convert 24V DC power to 110V/120V AC power, suitable for various home backup, RV, and off-grid applications. Please read this manual thoroughly before installation and use.

Figure 1: Anern 3600W Hybrid Solar Inverter (Model Anern-3600)

2. Safety Information

Observe the following safety precautions to prevent injury and damage to the inverter or connected equipment:

- Installation must be performed by qualified personnel.
- Ensure all wiring complies with local and national electrical codes.
- Do not disassemble the inverter. There are no user-serviceable parts inside.
- Disconnect all power sources (PV, battery, AC input) before performing any wiring or maintenance.
- Avoid contact with live terminals.
- Install the inverter in a well-ventilated area, away from flammable materials and moisture.
- Ensure proper grounding of the inverter.
- This inverter is equipped with multiple protection features including overcurrent, low-voltage, short-circuit, overheating, and overload protection.

Figure 2: Inverter Protection Features and Wi-Fi Monitoring Capability

3. Product Features

The Anern 3600W Hybrid Solar Inverter offers a range of features for reliable power management:

- **Integrated System:** Combines a 3600W pure sine wave inverter, 120A MPPT solar charge controller, and battery charger.
- **High Efficiency:** Solar charge module utilizes optimized MPPT tracking technology for up to 98% efficiency.
- **Battery Compatibility:** Supports 24V Lead-Acid (Sealed, AGM, Gel, Flooded) and Lithium batteries. Includes built-in lithium activation.
- **Battery-Free Operation:** Capable of powering loads directly from the PV array without a connected battery.
- **Dual AC Output:** Provides two AC outputs for flexible load management.
- **LCD Display:** Features a responsive RGB LCD screen and indicator LEDs for real-time monitoring and configuration.
- **Multiple Operating Modes:** Offers 4 charging modes and 2 output modes to suit diverse application needs.
- **Comprehensive Protection:** Includes protection against overvoltage, undervoltage, reverse polarity, short circuits, overheating, and overload.
- **Remote Monitoring:** Supports Wi-Fi monitoring for system control via a mobile application.

Anern®

Hybrid Solar Inverter

3.6KW/24V

24Vdc
Nominal DC Input Voltage

120A
Max Charging Current

60~500VDC
High PV Input Voltage Range

Pure Sine Wave

AN-FGI-AS3600

Figure 3: Key Specifications and Features Overview

Figure 4: Battery Compatibility and Battery-Free Operation

4. Package Contents

Verify that all items are included in your package:

- Anern 3600W Hybrid Solar Inverter (Model Anern-3600)
- User Manual (this document)
- Mounting accessories (if applicable, check packaging)
- Communication cable (if applicable, for Wi-Fi module)

5. Setup Instructions

5.1. Unpacking and Inspection

Carefully unpack the inverter and inspect it for any shipping damage. If any damage is found, contact your supplier immediately.

5.2. Mounting the Inverter

Select a suitable location for mounting the inverter. It should be:

- Indoors, protected from direct sunlight, rain, and dust.
- Well-ventilated to ensure adequate heat dissipation.
- Mounted vertically on a solid surface.
- Accessible for wiring and maintenance.

Use appropriate mounting hardware (not always included) to secure the inverter to the wall.

5.3. Wiring Connections

All wiring must be performed with all power sources disconnected. Refer to the wiring diagram (usually found on the inverter or in a detailed wiring section of the full manual) for specific terminal connections.

1. **Battery Connection:** Connect the 24V battery bank to the inverter's battery terminals. Ensure correct polarity (+ to + and - to -). Use appropriately sized cables and fuses.
2. **PV Array Connection:** Connect the solar panel array to the PV input terminals. Observe correct polarity and ensure the PV input voltage and current are within the inverter's specifications (Max PV Power 4200W, Max DC Voltage 500VDC).
3. **AC Input Connection (Grid/Generator):** If connecting to a utility grid or generator, connect the AC input to the designated terminals.
4. **AC Output Connection (Loads):** Connect your AC loads (appliances) to the inverter's AC output terminals. The inverter features dual AC outputs.
5. **Grounding:** Connect the inverter's ground terminal to a reliable earth ground.

5.4. Initial Power-Up and Configuration

After all connections are secure and verified:

1. Turn on the battery breaker/switch.
2. Turn on the PV array breaker/switch.
3. If applicable, turn on the AC input breaker.
4. The inverter will power on and the LCD display will illuminate.
5. Use the control buttons on the LCD panel to configure system settings such as charging current, voltage thresholds, and priority modes according to your requirements.

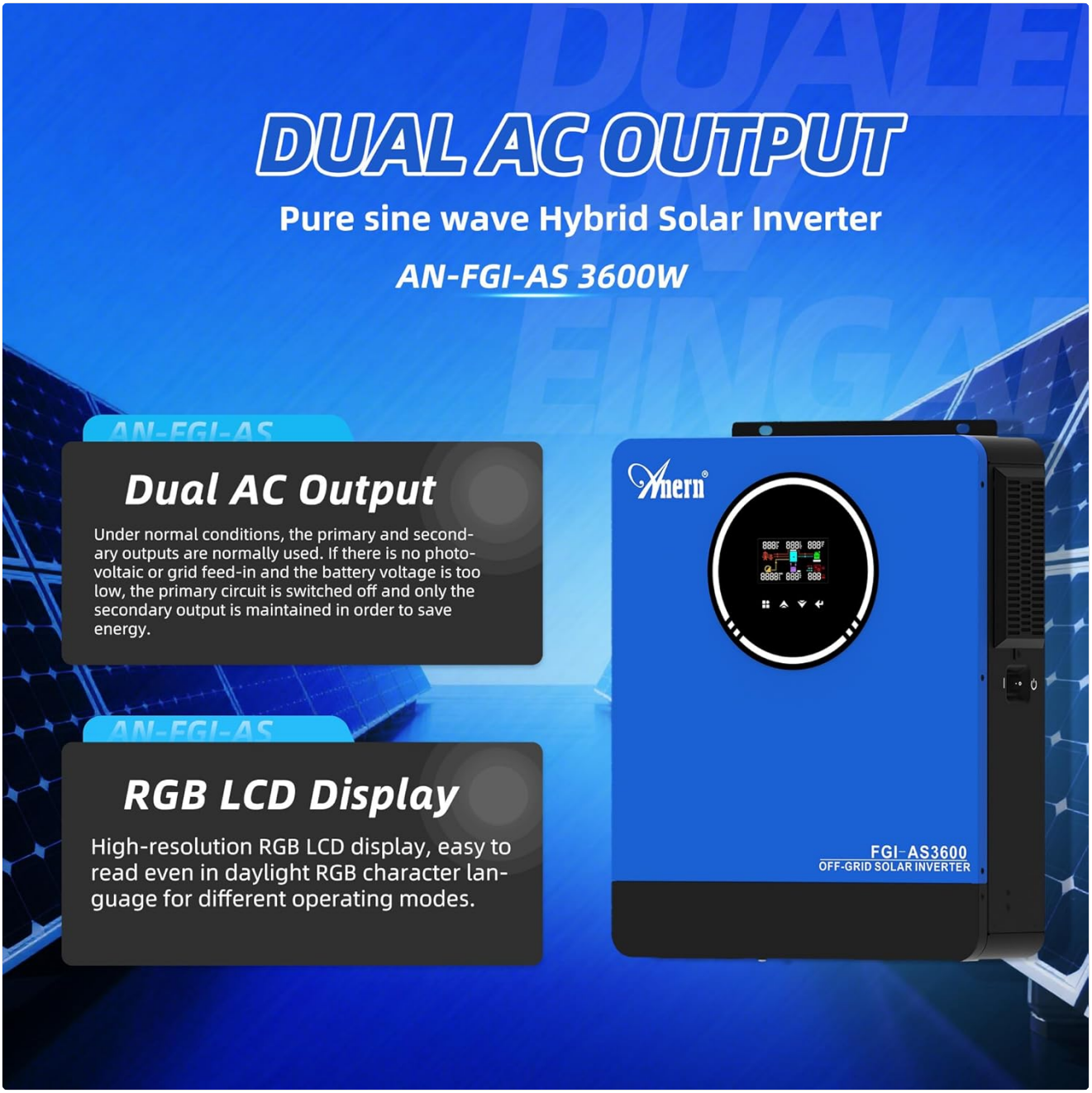

Figure 5: Dual AC Output and RGB LCD Display for Configuration

6. Operating Modes

The inverter supports various charging and output modes to optimize power usage.

6.1. Charging Modes

You can select one of four charging modes:

- **Only Solar:** The inverter charges the battery exclusively from solar energy.
- **Mains Supply Priority:** The inverter prioritizes charging from the utility grid (mains supply). Solar energy will supplement if available.
- **Solar Priority:** The inverter prioritizes charging from solar energy. The utility grid will be used if solar power is insufficient.
- **Mains Supply and Solar Charging Combination:** The inverter uses both mains supply and solar energy to charge

the battery simultaneously.

6.2. Output Modes

The inverter offers two output modes for continuous power supply:

- **Power Bypass:** In this mode, loads are powered directly from the AC input (utility grid or generator), bypassing the inverter. The inverter acts as a charger.
- **Inverter Output:** Loads are powered by the inverter, drawing energy from the battery or directly from the PV array (if in battery-free mode).

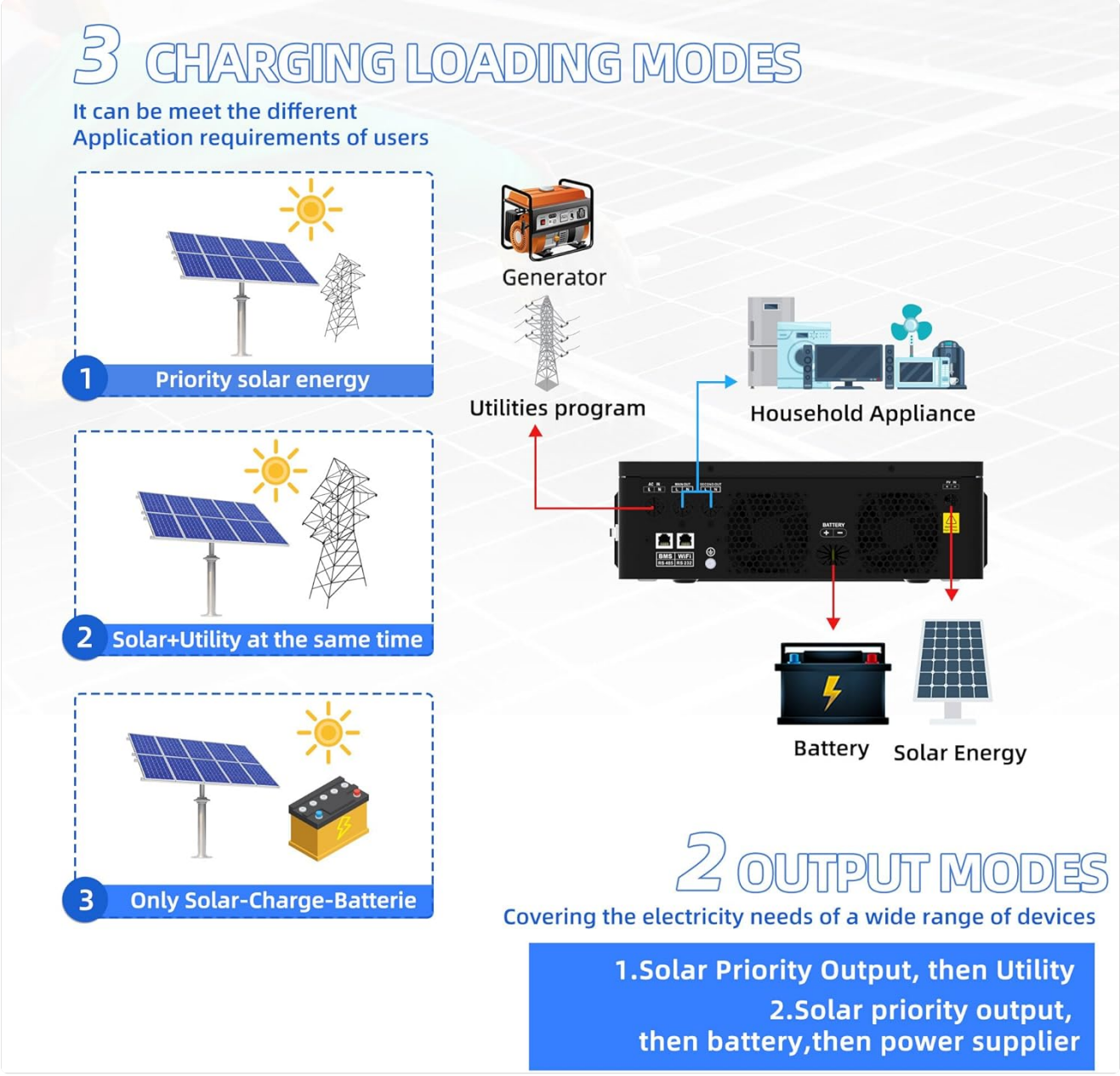

Figure 6: Charging and Output Mode Diagram

7. Maintenance

Regular maintenance ensures optimal performance and longevity of your inverter:

- **Cleaning:** Periodically clean the inverter's exterior and ventilation openings to prevent dust buildup, which can hinder cooling. Use a dry, soft cloth.

- **Connection Check:** Annually inspect all electrical connections for tightness and corrosion. Loose connections can cause overheating and poor performance.
- **Environmental Check:** Ensure the installation environment remains within specified temperature and humidity ranges.
- **Battery Inspection:** If using lead-acid batteries, check electrolyte levels and terminal condition as per battery manufacturer guidelines.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates for improved performance or new features.

8. Troubleshooting

This section provides solutions to common issues. For problems not listed here, contact technical support.

Problem	Possible Cause	Solution
Inverter does not power on	No battery connection; Battery voltage too low; Loose wiring; Blown fuse.	Check battery connections and voltage; Ensure battery breaker is on; Inspect fuses.
No AC output	Overload; Short circuit; Inverter fault; AC output breaker tripped.	Reduce load; Check for short circuits in wiring; Reset AC output breaker; Restart inverter.
Battery not charging from PV	PV array disconnected; Insufficient sunlight; PV voltage too low/high; MPPT controller fault.	Check PV connections; Verify sunlight conditions; Ensure PV voltage is within range; Check MPPT settings.
Overload warning/shutdown	Connected load exceeds inverter capacity.	Reduce the total load connected to the inverter.
High temperature warning	Poor ventilation; Ambient temperature too high; Fan malfunction.	Ensure adequate airflow around the inverter; Relocate to a cooler area; Clean vents.

9. Specifications

Detailed technical specifications for the Anern 3600W Hybrid Solar Inverter:

Feature	Specification
Model Number	Anern-3600
Rated Power	3600W
Peak Power	7200W
DC Input Voltage	24VDC
AC Output Voltage	110V/120VAC

Feature	Specification
AC Output Frequency	50Hz/60Hz (Auto detection)
Waveform	Pure Sine Wave
MPPT Charge Controller Current	120A
Max PV Array Power	4200W
Max PV DC Voltage	500VDC
Battery Compatibility	24V Lead-Acid (Seal, AGM, Gel, Flooded), Lithium
Product Dimensions	20.47 x 17.72 x 8.46 inches
Item Weight	22.2 pounds

10. Warranty and Support

For warranty information, please refer to the documentation provided with your purchase or contact Anern customer service. If you encounter any issues or require technical assistance, please reach out to Anern support through their official website or contact channels.

Related Documents - Anern-3600

	Anern Pure Sine Wave Hybrid Inverter User Manual: Installation, Safety, and Operation Guide This user manual provides comprehensive safety, installation, and operation guidelines for the Anern Pure Sine Wave Hybrid Inverter. It covers essential information on tools, wiring, and system setup for reliable power solutions.

	2.0KVA/3.2KVA Inverter MPPT SCC AC Charger User Manual Comprehensive user manual for the 2.0KVA/3.2KVA Inverter with MPPT SCC and AC Charger. Covers installation, operation, features, specifications, and troubleshooting. Includes safety instructions, system architecture, and detailed settings for optimal performance.
	MPPT Hybrid Solar Inverter User Manual This user manual provides detailed information on the features, installation, operation, and maintenance of the MPPT Hybrid Solar Inverter. It covers technical specifications, troubleshooting, and safety precautions for the AN-MPSG model.
	Посібник користувача Anern AN-SCI-EVO-2000 / AN-SCI-EVO-3200: Інвертор / MPPT SCC / AC Зарядний пристрій Детальний посібник користувача для інверторів Anern AN-SCI-EVO-2000 та AN-SCI-EVO-3200. Охоплює встановлення, експлуатацію, технічні характеристики та усунення несправностей для цих гібридних сонячних інверторів.
	ANERN AN-SCI-EVO-3600/6200 Hybrid Inverter User Manual Comprehensive user manual for the ANERN AN-SCI-EVO-3600 and AN-SCI-EVO-6200 Hybrid Solar Inverters, covering installation, operation, specifications, troubleshooting, and maintenance.
	Anern AN-SCI-EVO Series Hybrid Inverter User Manual User manual for the Anern AN-SCI-EVO series hybrid inverters, including models AN-SCI-EVO-4200 and AN-SCI-EVO-6200. Provides information on installation, operation, and specifications for powering home and office appliances.