Nairtech 3.6kw 24v With WIFI

Nairtech Solar Power Inverter User Manual

Models: 3.6KW, 4.2KW, 6.2KW Hybrid Solar Inverter

1. Introduction

This user manual provides detailed instructions for the installation, operation, and maintenance of the Nairtech Solar Power Inverter. This multi-function inverter/charger combines the capabilities of an inverter, solar charger, and battery charger to deliver reliable, uninterruptible power support. It is designed for a wide range of applications, including solar AC power systems, vehicle systems, RV power supplies, security monitoring systems, emergency lighting, and household power systems.
The inverter features a comprehensive LCD display for user-configurable settings such as battery charging current, AC/solar charger priority, and acceptable input voltage ranges. Its advanced MPPT technology ensures efficient solar energy harvesting by tracking the maximum power point of the PV array in real-time.

2. Safety Information

Please read all instructions and warnings carefully before installation and operation. Failure to follow these instructions may result in electric shock, fire, or severe injury.

- Installation must be performed by qualified personnel only.
- Ensure all power sources are disconnected before performing any wiring or maintenance.
- Do not disassemble the inverter. There are no user-serviceable parts inside.
- Ensure proper ventilation around the inverter to prevent overheating.
- The battery capacity of the correct matching system is determined according to the specific usage requirements of the load and application scenarios. Incorrect battery sizing can lead to insufficient capacity or excessive waste of power generation.
- Avoid exposing the inverter to rain, snow, spray, or any liquids.

3. Product Features

- Pure sine wave output for sensitive electronics.
- Configurable input voltage range for home appliances and personal computers via LCD setting.

- Configurable battery charging current based on applications via LCD setting.
- Configurable AC/Solar Charger priority via LCD setting.
- Compatible with mains voltage or generator power.
- Automatic restart while AC is recovering.
- Overload, over temperature, and short circuit protection.
- Smart battery charger design for optimized battery performance.
- Cold start function.
- RS-232 communication port for monitoring.
- Integrated circuit breaker for safety.

4. Specifications

The following table details the technical specifications for the Nairtech Solar Power Inverter models:

Parameter	3.6KW Model	4.2KW Model	6.2KW Model
Rated Output Power	3600W	4200W	6200W
Output Voltage Waveform	Pure Sine Wave		
Output Voltage Regulation	230Vac±5%		
Output Frequency	50Hz		
Peak Efficiency	93%		
Nominal DC Input Voltage	24Vdc	24Vdc	48Vdc
Max. PV Array Power	6200W	6200W	6500W
Nominal PV Voltage	360Vdc		
PV Array MPPT Voltage Range	90Vdc~450Vdc		
Max. PV Array Open Circuit Voltage	500Vdc		
Max Charging Current	120Amp	140Amp	120Amp
Nominal Output Current	15.7A	18.2A	26.1A
Power Factor Range	>0.99		
Maximum Conversion Efficiency	97%		
Operating Temperature Range	-10 to 50°C		
Storage Temperature	-15 to 60°C		
Humidity	5% to 95% Relative Humidity (Non-condensing)		
Dimension (D*W*H)	100×300×444 mm		
Net Weight	11.5 kg		

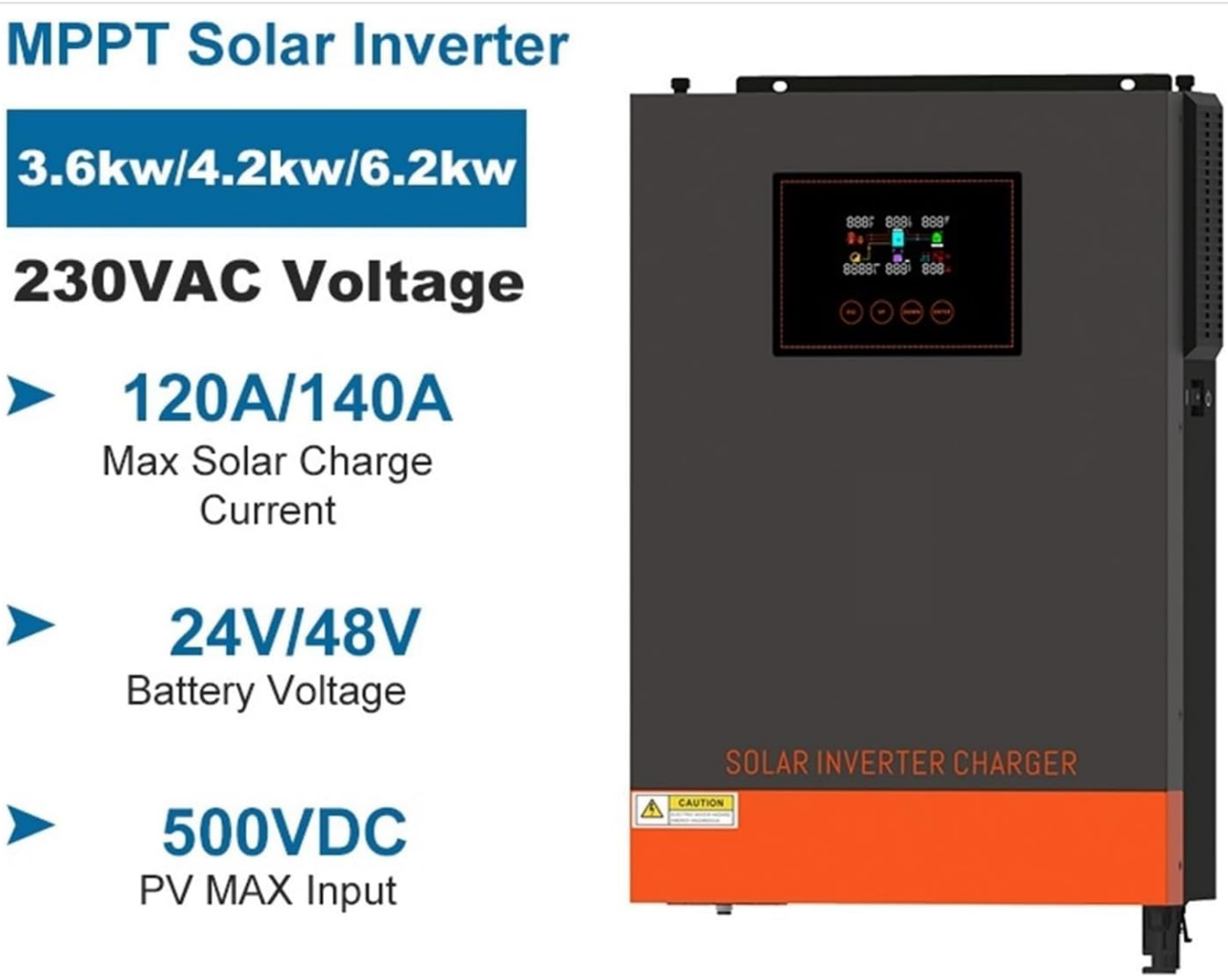

Image 4.1: Key specifications and features of the MPPT Solar Inverter, highlighting power ratings, voltage, and charging capabilities.

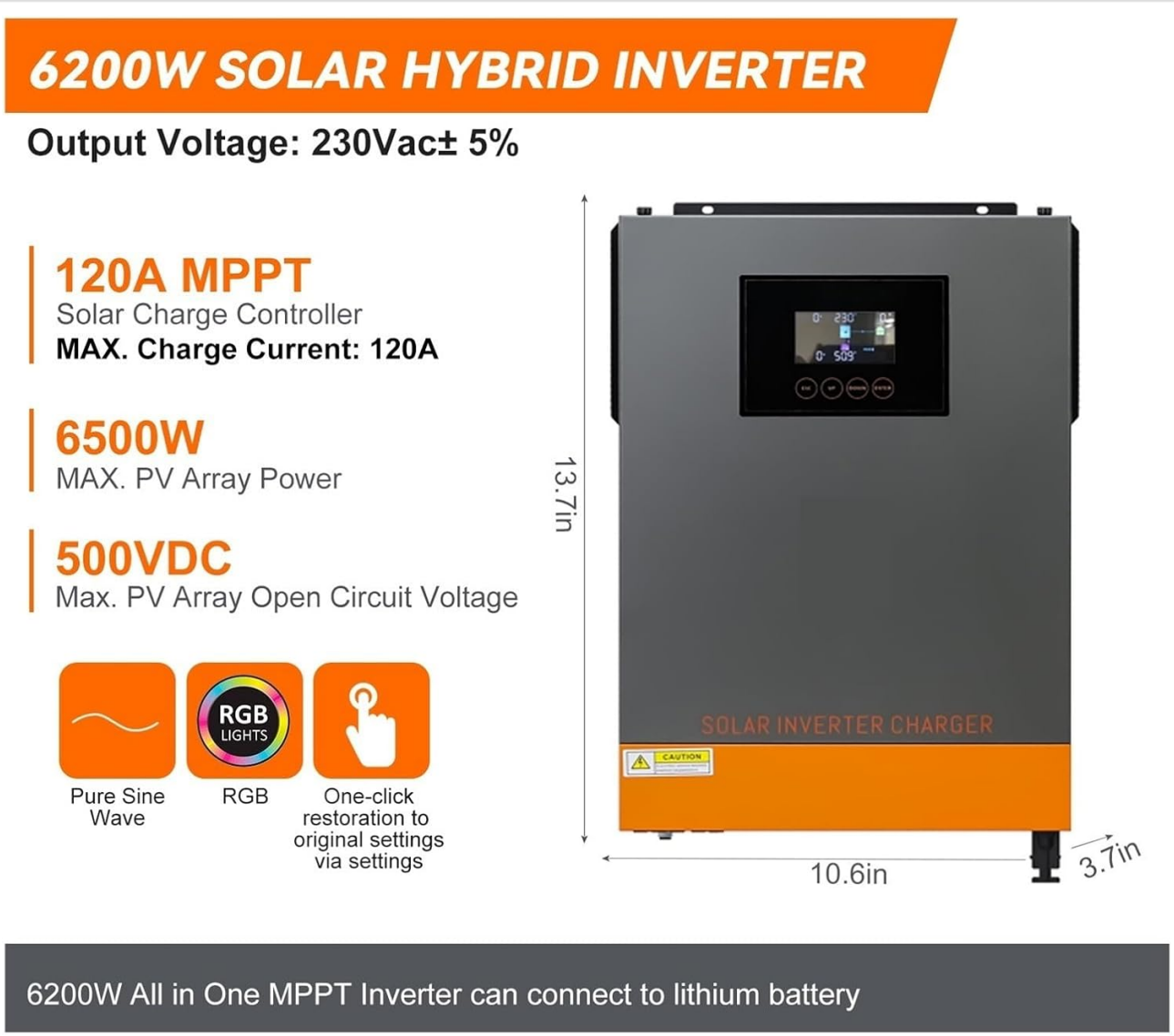

Image 4.2: Detailed view of the 6200W Solar Hybrid Inverter, showing its output voltage, MPPT charge controller current, maximum PV array power, open circuit voltage, and physical dimensions. Also highlights pure sine wave output, RGB lights, and a one-click restoration feature.

5. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your Nairtech Solar Power Inverter. Follow these general guidelines, and always consult a qualified electrician for complex installations.

5.1 Unpacking and Inspection

Upon receiving the inverter, carefully unpack it and inspect for any shipping damage. If any damage is found, contact your dealer immediately.

5.2 Mounting the Inverter

Choose a suitable mounting location that is dry, well-ventilated, and protected from direct sunlight, high temperatures, and moisture. Ensure there is sufficient clearance around the inverter for proper airflow.

5.3 Wiring Connections

Refer to the diagrams below for proper wiring of the PV array, battery bank, AC input, and AC output. Ensure all connections are secure and correctly polarized.

Image 5.1: Rear panel connections of the inverter, illustrating the AC input, AC output, and PV input terminals, along with the integrated circuit breaker.

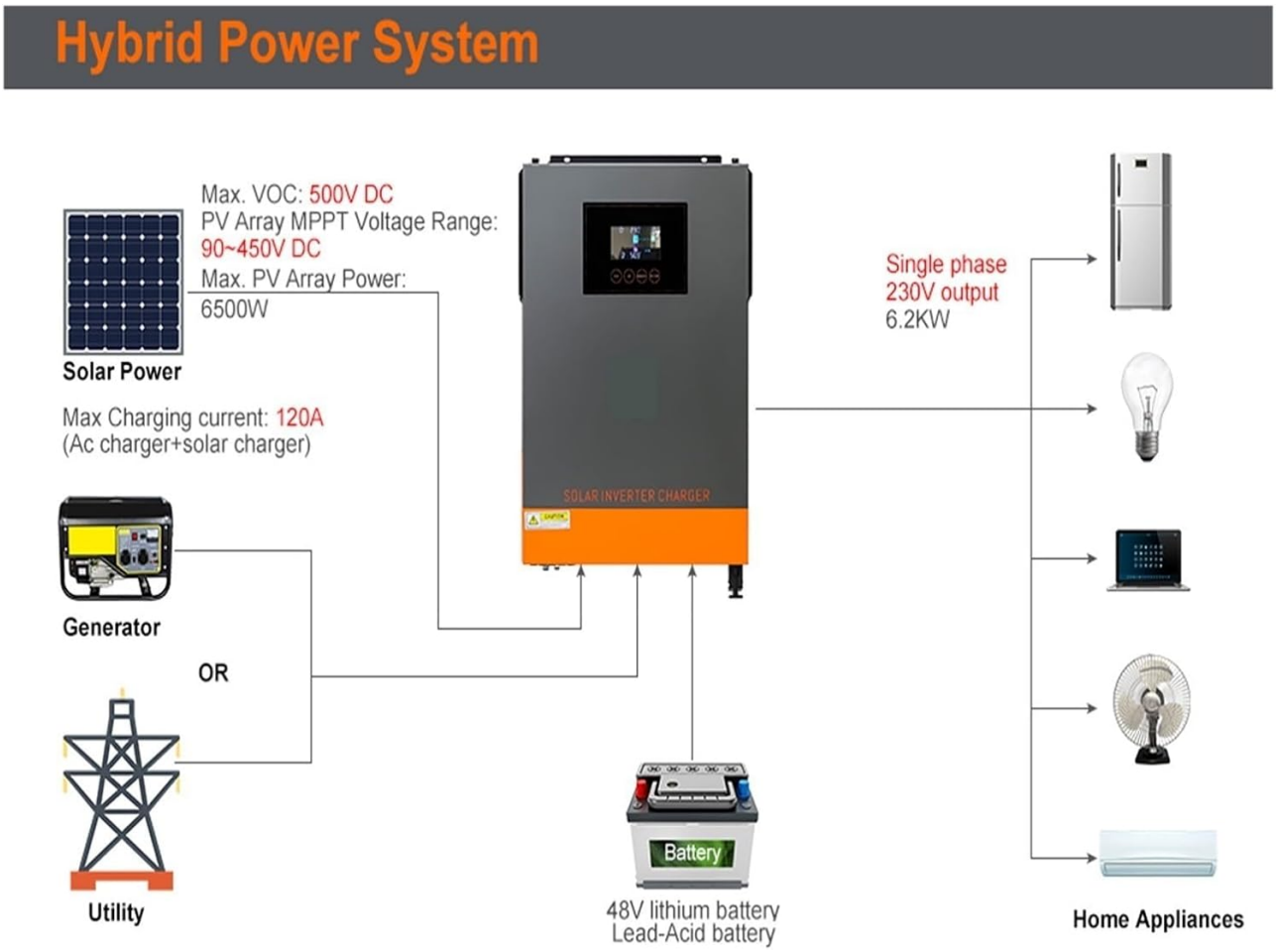

Image 5.2: Schematic of a typical hybrid power system, showing how the inverter integrates solar panels, a generator or utility grid, and a battery bank to power home appliances.

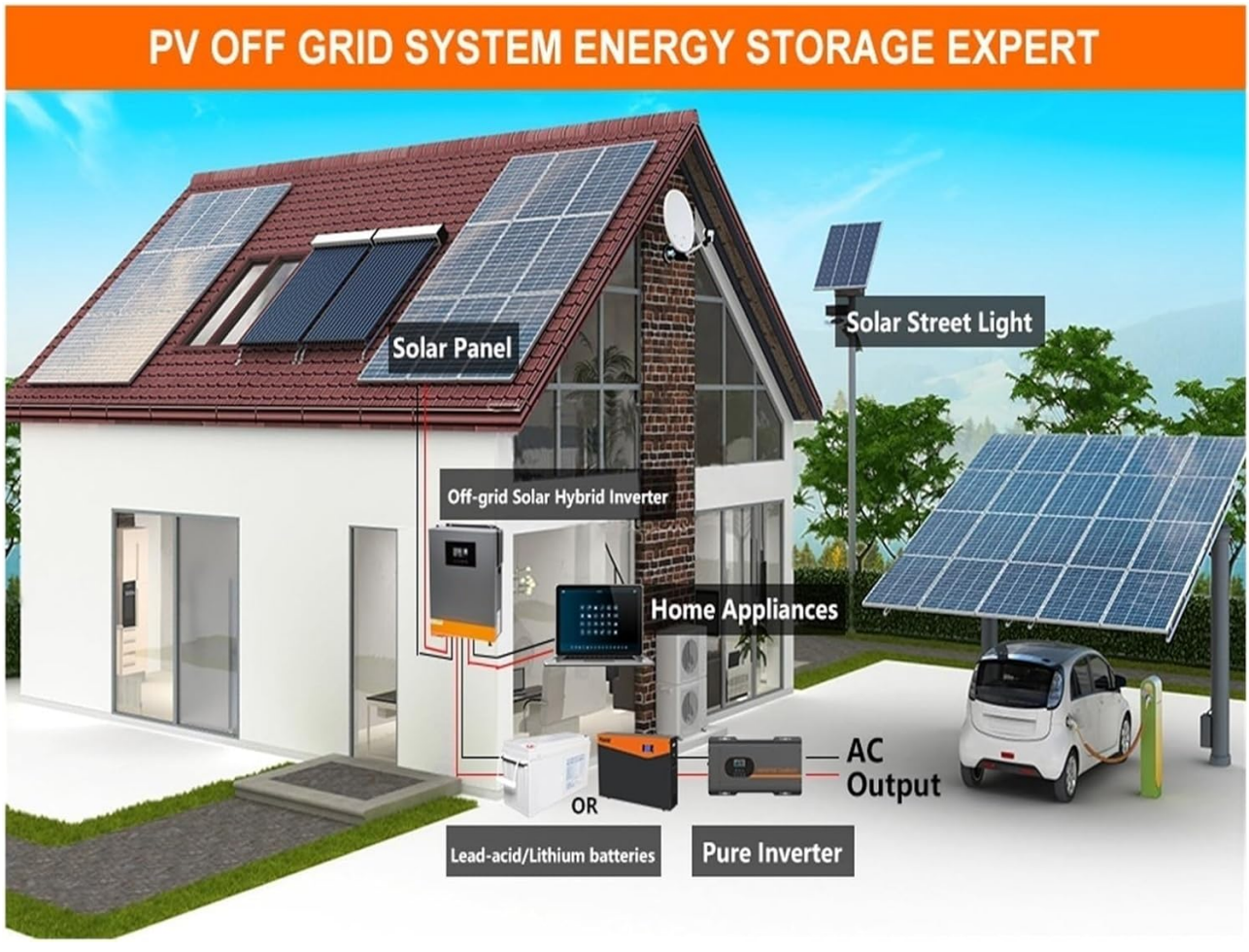

Image 5.3: Illustration of an off-grid PV system, demonstrating the inverter's role in connecting solar panels and battery storage to supply power to a home and other applications like a solar street light.

6. Operating the Inverter

Once installed, the inverter can be operated via its integrated LCD display and buttons. The display provides real-time information on system status, input/output voltages, and charging currents.

6.1 LCD Display and Buttons

Use the 'ESC', 'UP', 'DOWN', and 'ENTER' buttons to navigate through the menu and configure settings. Refer to the on-screen prompts for specific adjustments.

6.2 Status Indicators

The inverter features LED indicators to show its current operating mode:

- **White Light:** Stationary mode.
- **Purple Light:** PV Mode (solar charging active).
- **Blue Light:** Utility Mode (AC input from grid or generator).
- **Red Light:** Battery Mode (inverter is drawing power from batteries).

Image 6.1: Front view of the inverter, highlighting the LCD display and control

buttons for user interaction and monitoring.

7. Maintenance

Regular maintenance helps ensure the longevity and optimal performance of your inverter.

- **Cleaning:** Periodically clean the exterior of the inverter with a dry, soft cloth. Ensure ventilation openings are free from dust and debris.
- **Connections:** Annually check all electrical connections (PV, battery, AC input/output) for tightness and signs of corrosion. Loose connections can cause overheating and damage.
- **Environment:** Ensure the operating environment remains within the specified temperature and humidity ranges.

Image 7.1: Side view of the inverter, illustrating the ventilation grilles critical for heat dissipation and the main power switch.

8. Troubleshooting

If you encounter issues with your inverter, refer to the following general troubleshooting steps. For persistent problems, contact technical support.

- **No Power:** Check all input power connections (PV, battery, AC utility/generator). Ensure the main power switch is ON and the circuit breaker is not tripped.
- **No Output:** Verify that the inverter is in an active operating mode (PV, Utility, or Battery). Check AC output connections and the load.
- **Error Codes:** If the LCD displays an error code, consult the full product manual (if available) or contact Nairtech support for specific interpretations and solutions.
- **Overload Protection:** If the inverter shuts down due to overload, reduce the connected load and restart the unit.
- **Over Temperature:** Ensure adequate ventilation. Clear any obstructions from the air vents and ensure the ambient temperature is within the specified operating range.

9. Warranty and Support

For warranty information and technical support, please contact Nairtech or your authorized dealer. Keep your purchase receipt as proof of purchase for any warranty claims.
Manufacturer: Nairtech