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› Aninerel 12000W Solar Hybrid Inverter User Manual

## Aninerel ANJ-12000W-LVP-WIFI

# Aninerel 12000W Solar Hybrid Inverter User Manual

Model: ANJ-12000W-LVP-WIFI

## 1. INTRODUCTION

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This manual provides essential information for the safe and efficient operation of your Aninerel 12000W Solar Hybrid Inverter. Please read this manual thoroughly before installation and use, and retain it for future reference. This inverter is designed to convert 48V DC power from solar panels or batteries into 120V single-phase or 240V split-phase AC power, providing a continuous output of 12,000W and a peak output of 24,000W.

# ANENJI PHASE-SPLIT HYBRID INVERTER

12,000W Rated Power

# 12000W



**6000W\*2**

Maximum input power



**6units**

Parallel Capability



**90~450VDC**

MPPT operating voltage range



**120V/230V**

(Single-phase)(Phase-Split)

Figure 1: Front view of the Aninerel 12000W Solar Hybrid Inverter.

## 2. SAFETY INFORMATION

Always observe safety precautions during installation, operation, and maintenance. Failure to follow these instructions may result in serious injury or damage to the equipment.

- Ensure all electrical connections are secure and correctly polarized.
- Do not attempt to open or repair the inverter yourself. Refer to qualified personnel.
- The inverter is equipped with comprehensive protection mechanisms including overvoltage, undervoltage, reverse polarity, and short circuit protection.
- This unit is UL1741 certified for reliable and safe use.
- Install the inverter in a well-ventilated area, away from flammable materials and moisture. The IP65 dustproof enclosure allows for indoor and semi-outdoor use.

# Low-noise operation

Adopting noise reduction technology, it is quiet and does not disturb sleep.



Figure 2: Inverter protection features including overcharge, overload, overcurrent, overvoltage, short circuit, overheat, overspeed, and undervoltage protection.

## 3. PRODUCT OVERVIEW

### 3.1 Key Features

- **Output & Voltage Flexibility:** 12,000W continuous, 24,000W peak output. Converts 48V DC to 120V single-phase or 240V split-phase AC.
- **Dual MPPT & High-Efficiency Charging:** Two MPPT solar charging controllers with a maximum 220A battery charging current. Supports high-voltage PV arrays up to 500VDC.
- **Parallel Capability:** Connect up to 6 units for a maximum output of 72kW. Supports 120V single-phase, 240V split-phase, or 208V three-phase output with multiple units.
- **Advanced Design & Operation:** Features an OLED light-touch screen for intuitive monitoring and parameter adjustment. WIFI-enabled for real-time status checks.
- **Durability & Safety:** IP65 dustproof enclosure, smart variable-speed cooling, and comprehensive protection mechanisms. UL1741 certified.
- **Low-Noise Operation:** Incorporates noise reduction technology for quiet performance.

# FEATURES

**12KW 48V-120V**  
Hybrid Solar Inverter Charger



## Battery Compatibility

Compatible with LiFePO4/Lithium, AGM/SLA, Gel, Flooded batteries.



## Grid Connection (No Feedback)

Charge your batteries and power your home from the grid or generator.



## Scale Your Power

Connect up to six units in parallel for 72KW loads



## Versatile Design

Wire your inverters for 120V/240V Split Phases or 208V 3-Phase to cover all power your needs.



## Flexible Settings

Customise your charging profile, alarms, and cut-offs for complete control over your system.



## Wireless Communication

Search [Smart Value] APP in Google Play to monitor the status of the inverter in real time!

Figure 3: Overview of key features including battery compatibility, grid connection (no feedback), scalability, versatile design, flexible settings, and wireless communication.

MODEL	ANJ-12000W-LVP-WIFI
Rated Output Power	Split phase:12000VA/12000W Single phase: 7200VA/7200W(limited by the wiring terminals)
Max.Peak Power	Split phase: 18000VA Single phase: 18000VA
Rated Output Voltage	120Vac (L1/N, L2/N)/240Vac(L1/L2)
Load Capacity of Motors	6HP
Rated AC Frequency	50Hz/60Hz
Parallel capacity	1~6
Output Voltage Waveform	Pure sine wave
Overload	(102%<load<125%)+10%: report error, turn off the output after 5 minutes; (125%<load<150%)+10%: report error, turn off the output after 10 seconds; load>150%+10%: report error,turn off the output after 5 seconds;
Battery Type	Lithium/lead-acid batteries
Rated Battery Voltage	51.2V (Minimum starting voltage 44V)
Mains/Generator Input Range	(90Vac~140Vac)+2%
Safety Certification	UL STD.1741
Max.MPPT Charging Current	160A
Max.Mains/Generator Charging Current	160A
Max.Hybrid Charging Current	200A
Num. of MPP Trackers	2
Max.PV array power	6000W×2
Max.input current	22A×2
Max.Voltage of Open Circuit	500Vdc
MPPT Voltage Range	90Vdc~500Vdc
Max. Bypass Phase Overload Current	2P, 63A/63A(L1/L2)
MPPT Tracking Efficiency	95%
Support Communication	WiFi Modules/RS485/CAN/USB/Dry contact
Dimensions	24.4*17.7*5.19 IN
Weight	23.8KG/52.47LB

Figure 4: Illustration of the inverter's low-noise operation, comparing its sound level (45dB) to other common sounds.

### 3.2 Product Components

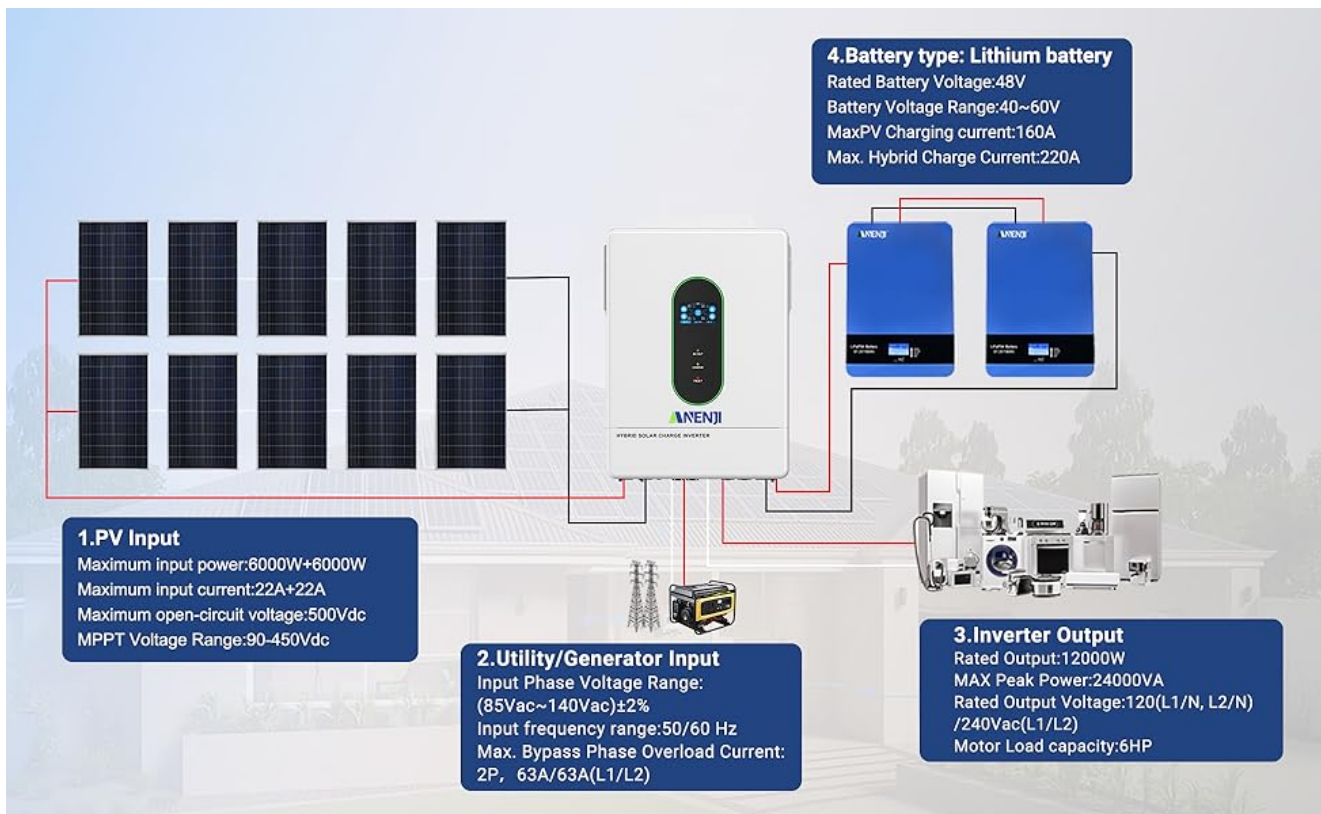
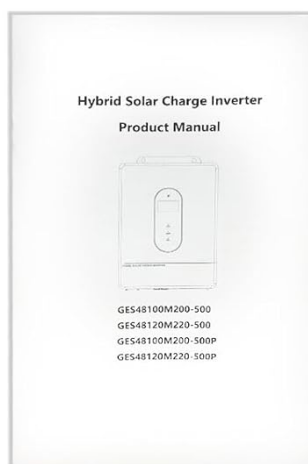


Figure 5: Detailed view of the inverter's components and ports.

1. Display screen
2. Pilot lamp
3. AC output port
4. AC input port

5. WIFI port (optional)
6. USB communication port
7. RS485-1 communication port
8. RS485-2/CAN communication port
9. Dry contact port
10. CT current sensing for self-consumption (optional)
11. ON/OFF rocker switch
12. Photovoltaic (PV) parameters
13. Battery parameters
14. Parallel communication port (parallel module only)
15. AC input breaker
16. Grounding screw hold

### 3.3 Included Accessories



**Instruction\*1**



**Installation Toolkit\*1**



**Parallel Cable\*1**



**Anti-reverse current CT\*2**



**WiFi Module\*1**

Figure 6: Standard accessories included with the inverter.

- Instruction Manual

- Installation Toolkit
- Parallel Cable (x1)
- Anti-reverse current CT (x2)
- WIFI Module (x1)

## 4. INSTALLATION

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Proper installation is crucial for the inverter's performance and safety. Refer to the detailed wiring diagrams in the full instruction manual for specific connection procedures.

- **Mounting:** Securely mount the inverter in a location that allows for adequate ventilation and access for connections.
- **Battery Connection:** The inverter is compatible with 48V AGM, GEL, Lead-acid, Li-ion, and LiFePO4 batteries. Ensure correct polarity when connecting.
- **PV Input:** Connect your solar panels to the designated PV input ports. The inverter supports up to 6,000W+6,000W PV input with a maximum of 500VDC.
- **AC Input/Output:** Connect the AC input from the grid or generator and the AC output to your loads.
- **Grounding:** Ensure the inverter is properly grounded using the grounding screw hold.
- **No-Battery Operation:** The inverter supports direct solar-to-load use without a battery, depending on solar availability.

# PRODUCT INTRODUCTION



- |                          |  |   |
|--------------------------|--|---|
| 1. Display screen        | 7.RS485-1 communication port                         | 12.Photovoltaic (PV) parameters                       |
| 2.Pilot lamp             | 8.RS485-2/CAN communication port                     | 13.Battery parameters                                 |
| 3.AC output port         | 9.Dry contact port                                   | 14.Parallel communication port (parallel module only) |
| 4.AC input port          | 10.CT current sensing for self-consumption(optional) | 15.AC input breaker                                   |
| 5.WiFi port (optional)   | 11.ON/OFF rocker switch                              | 16.Grounding screw hold                               |
| 6.USB communication port |  |   |

Figure 7: The inverter supports various 48V battery types including GEL, FLD, LI, and SLD.

# Built-in 200A MPPT

Adding a battery management system (BMS) monitors the battery status and prevents overcharging and deep discharge, thereby extending battery life.



Figure 8: Example of a single-phase hybrid inverter system showing power supply from grid and selling electricity to the state grid.

## 5. SETUP PREFERENCES

The inverter allows you to configure charging and load priorities to optimize energy management.

# SETUP PREFERENCES

## Charging Priority

Control how the battery bank gets charged from different power sources.



### Solar Priority

The inverter will prioritize 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 at the same time.



### Solar Only

The inverter will only charge the battery bank from available solar power.

## Load Priority

Control how your appliances get powered so you never run out of power.



### Solar Priority

The inverter will invert solar power to supply the loads first, if the solar input is not enough it will compensate from the AC input.



### AC Priority

The inverter will redirect the AC input to power all loads and will only use DC inputs when AC input power is not available.



### DC Priority

The inverter will prioritize inverting from solar first, if solar is not enough it will invert from battery power and will only power loads from AC input once the low battery warning triggers.

Figure 9: Setup preferences for controlling battery charging and appliance power sources.

## 5.1 Charging Priority

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 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 charges the battery bank exclusively from available solar power.

## 5.2 Load Priority

Control how your appliances receive power:

- **Solar Priority:** The inverter supplies the load first with solar power. If solar is insufficient, it will compensate from the AC input.
- **AC Priority:** The inverter redirects AC input to power all loads and uses DC inputs when AC input power is unavailable.
- **DC Priority:** The inverter prioritizes drawing power from the battery first. If the battery level is low, it will convert from AC input to power loads.

## 6. OPERATION

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The inverter features an OLED light-touch screen for monitoring and adjusting parameters. The intuitive interface allows for easy control of the system's functions.

- **Power On/Off:** Use the ON/OFF rocker switch (component 11) to power the unit.
- **Display Monitoring:** The display screen (component 1) shows real-time operational data such as input/output voltage, current, power, and battery status.
- **Parameter Adjustment:** Navigate through the menu on the OLED screen to customize settings like charging current, output voltage range, and priority modes.

## 7. WI-FI MONITORING

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The inverter includes a Wi-Fi module for remote monitoring of its operating status. This allows you to check system performance anytime, anywhere.

- **App Download:** Download the "Smart Value" application from the Google Play Store or Apple App Store.
- **Connection:** Follow the in-app instructions to connect your inverter to the Wi-Fi network.
- **Real-time Data:** Monitor parameters such as PV input, battery charge/discharge, AC output, and system alerts.
- **Web Monitoring:** Web-based monitoring is also available at [ValueClouds.com](http://ValueClouds.com).

# Wi-Fi MONITORING

Equipped with a WiFi module, allowing real-time monitoring of the inverter's operating status via a mobile app. Search for and download the app named "**Smart Value**" from the Google Play Store.

**WIFI module**

Download on the [App Store](#)

Get it on [Google Play](#)

Figure 10: Wi-Fi module connection and mobile app monitoring for the inverter.

## 8. PARALLEL CONNECTION

The Aninerel 12000W Solar Hybrid Inverter supports parallel connection of up to 6 units to meet higher power demands, expanding the maximum output power to 72kW.

# VERSATILE DESIGN

## SINGLE-PHASE: MAX.6 PARALLEL CONNECTION

FOR MAXIMUM 72KW POWER DELIVERY OF 120V RESIDENTIAL SYSTEMS.



## SPLIT-PHASE: SERIES AND PARALLEL CONNECTION

UP TO SIX INVERTERS FOR 240V AND 120V SYSTEMS FOR LARGE RESIDENTIAL APPLICATIONS.



**A** One inverter in each phase (alternatively: One inverter in single phase, second for split phase)

**B** Two inverters in each phase (alternatively, two pairs in split-phase)



**C** Up to six inverters in two groups of three parallel

Combine the hybrid solar inverters in up to 15 different configurations and up to six inverters in total to match any of your power needs for either residential or commercial use in either 3-Phase 208V, Split Phase 240V, or 120V.

Figure 11: Various parallel connection configurations for single-phase, split-phase, and three-phase systems.

- **Single-Phase Parallel:** Up to 6 units can be connected in parallel for 120V residential systems, delivering up to 72kW.
- **Split-Phase Parallel:** For 240V systems, units can be configured in series and parallel. For example, two inverters in each phase (two pairs in split-phase).
- **Three-Phase Output:** Three units can be configured to achieve 208V three-phase output.

These configurations allow for scalable power solutions for both residential and small commercial solar systems.

## 9. MAINTENANCE

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

- **Cleaning:** Periodically clean the exterior of the inverter to prevent dust accumulation, especially around ventilation openings. The IP65 rating provides dust protection.
- **Ventilation:** Ensure that the inverter's cooling system (smart variable-speed fans) operates without obstruction. Avoid blocking air inlets and outlets.
- **Connection Checks:** Regularly inspect all electrical connections for tightness and signs of corrosion.

- **Firmware Updates:** Check the manufacturer's website or the Smart Value app for any available firmware updates to ensure optimal performance and new features.

## 10. TROUBLESHOOTING

If you encounter issues with your inverter, refer to the following general troubleshooting steps. For specific error codes and detailed solutions, consult the comprehensive manual.

- **No Power Output:** Check AC input breaker, battery connections, and PV input. Ensure the inverter is switched ON.
- **Error Codes on Display:** Note down any error codes displayed on the OLED screen and refer to the manual's troubleshooting section for their meaning and recommended actions.
- **Overload Protection:** If the inverter trips due to overload, reduce the connected load and restart the unit.
- **Battery Not Charging:** Verify PV input, MPPT settings, and battery connections. Check battery health.
- **Wi-Fi Connectivity Issues:** Ensure the Wi-Fi module is correctly installed and within range of your router. Restart the module and the app.

## 11. SPECIFICATIONS

Key technical specifications for the Aninerel 12000W Solar Hybrid Inverter (Model ANJ-12000W-LVP-WIFI).

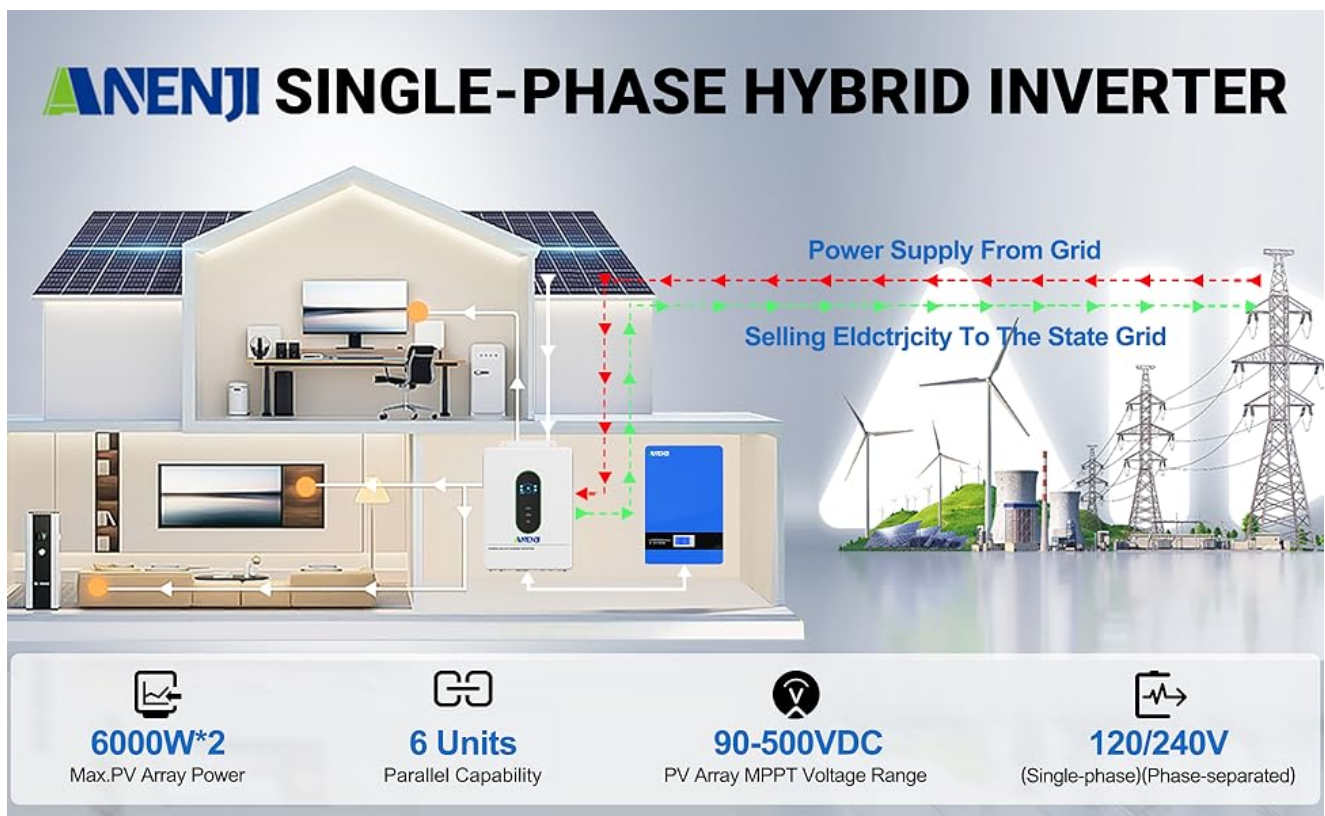


Figure 12: Comprehensive technical specifications of the inverter.

Parameter	Value
Model	ANJ-12000W-LVP-WIFI
Rated Output Power	Split phase 12000VA/12000W, Single phase: 7200VA/7200W (limited by wiring terminals)
Max. Peak Power	Split phase 18000VA, Single phase: 18000VA

Parameter	Value
Rated Output Voltage	120Vac (L1/N, L2/N) / 240Vac (L1/L2)
Load Capacity of Motors	6HP
Rated AC Frequency	50Hz/60Hz
Parallel Capacity	1~6 units
Output Voltage Waveform	Pure Sine Wave
Overload Protection	102%<load<125%)+10%: report error, turn off output after 5 minutes; (125%<load<150%)+10%: report error, turn off output after 10 seconds; load>150%)+10%: report error, turn off output after 5 seconds;
Battery Type	Lithium/Lead-acid batteries
Rated Battery Voltage	51.2V (Minimum starting voltage 44V)
Mains/Generator Input Range	(90Vac~140Vac) $\pm$ 2%
Safety Certification	UL STD.1741
Max. MPPT Charging Current	160A
Max. Mains/Generator Charging Current	160A
Max. Hybrid Charge Current	220A
Number of MPPT Trackers	2
Max. PV Array Power	6000W $\times$ 2
Max. Input Current	22A $\times$ 2
Max. Voltage of Open Circuit	500Vdc
MPPT Voltage Range	90Vdc~500Vdc
Max. Bypass Phase Overload Current	2P, 63A/63A (L1/L2)

Parameter	Value
MPPT Tracking Efficiency	95%
Support Communication	WiFi Modules/RS485/CAN/USB/Dry contact
Dimensions	24.4 × 17.7 × 5.19 inches
Weight	23.8KG / 52.47LB

## 12. WARRANTY AND SUPPORT

Aninerel is committed to providing excellent customer support. For warranty information, technical assistance, or any inquiries, please contact us through the following channels:

- **Email:** [anenji168@outlook.com](mailto:anenji168@outlook.com)
- **Phone/WhatsApp:** +86 188 0375 9233
- **Operating Hours:** PDT: 9 AM - 6 PM

Our technical support team is available to assist with setup, operation, and troubleshooting.



-  PDT: 9AM -6PM
-  [anenji168@outlook.com](mailto:anenji168@outlook.com)
-  +86 188 0375 9233

Exceptional customer support

Figure 13: Aninerel customer support contact details.