SolarEpic HP3541-AH0630P20A

SolarEpic EPEVER 3500W Hybrid Inverter User Manual

Model: HP3541-AH0630P20A

1. Introduction

This manual provides essential information for the safe and efficient operation of your SolarEpic EPEVER 3500W Solar Hybrid Inverter. This all-in-one unit integrates a 3500W inverter, a 60A MPPT solar charger, and a 60A AC battery charger, designed for 48V lead-acid and LiFePO4 battery systems. It supports multiple power sources including solar, utility grid, and generator, offering flexible energy solutions for various applications. Please read this manual thoroughly before installation and use.





Figure 1: Front view of the EPEVER 3500W Solar Hybrid Inverter, showcasing its clean design and integrated LCD display.

2. Safety Instructions

Please observe the following safety precautions during installation, operation, and maintenance of the inverter. Failure to comply may result in personal injury or damage to the equipment.

- Installation must be performed by qualified personnel.
- Ensure all power sources are disconnected before performing any wiring or maintenance.
- Do not disassemble the inverter. There are no user-serviceable parts inside.
- Avoid exposure to rain, snow, or liquids. Install in a dry, well-ventilated area.
- Ensure proper grounding of the unit.
- Use appropriate over-current protection for all circuits connected to the inverter.
- Verify battery voltage and polarity before connecting to the inverter.



Figure 2: The inverter incorporates multiple protection features including over-temperature, battery undervoltage, PV night anti-backcharging, overload, load output short circuit, and battery overvoltage protection.

3. Product Features

- **Triple-Source Hybrid Charging & All-in-One Design:** Integrates a 3500W inverter, 60A MPPT solar charger, and 60A AC charger. Supports solar, grid, and generator inputs. Features three-stage smart charging (Bulk/Absorption/Float) for optimal battery life. Operates with or without batteries, allowing direct solar-to-load use during the day.
- **High-Efficiency MPPT & Dual PV Input Options:** Advanced MPPT technology with over 99.5% tracking efficiency. Supports dual PV inputs, configurable for independent or parallel connection to adapt to various panel setups and shading conditions.
- **Pure Sine Wave Output & Expandable Parallel Operation:** Delivers clean, stable AC power (THD ≤3%) suitable for sensitive electronics. Supports parallel connection of up to 12 units (expandable to 16) for single/three-phase systems, scaling power from 3.5kW to 42kW+.
- **Remote Monitoring & User-Friendly LCD Interface:** Features a 3.5-inch LCD for real-time parameter tracking and

system customization. Offers RS-485 communication with optional WiFi/4G modules for remote control and data logging (stores up to 25,000 records).

- **Industrial Protection & Wide-Temperature Operation:** Built with comprehensive protections (overload, short-circuit, temperature). Functions reliably from -20°C to 50°C and up to 4,000 meters in altitude. IP20-rated housing and transformer-based design ensure durability.



Figure 3: Overview of the 3500W All-in-One Solar Inverter Charger, highlighting wide PV voltage range, dual solar input, and rapid utility/generator charging capabilities.

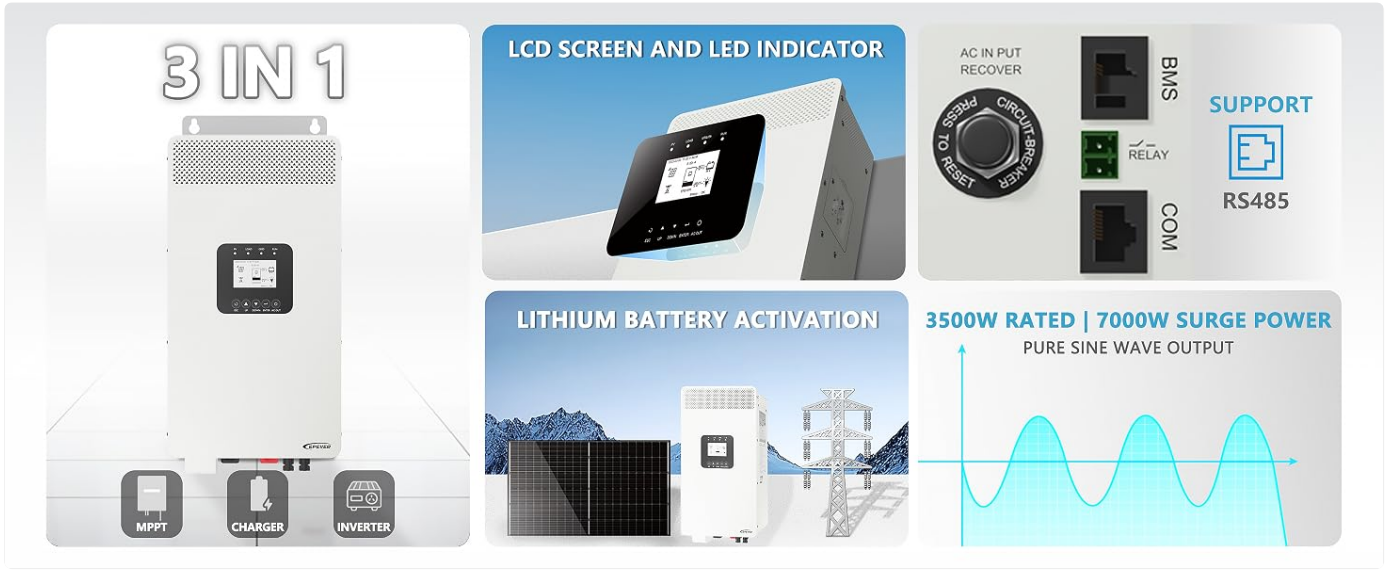


Figure 4: The inverter combines MPPT solar charging, AC battery charging, and pure sine wave inversion into one compact unit.

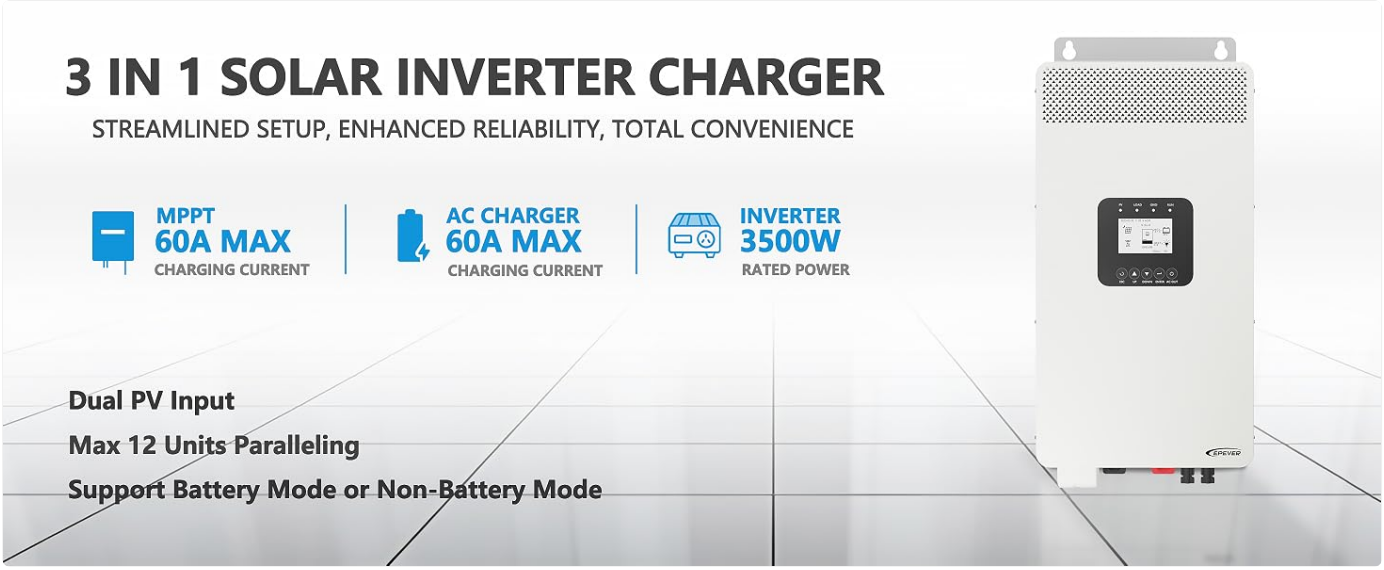


Figure 5: Key specifications for the integrated MPPT (60A Max), AC Charger (60A Max), and Inverter (3500W Rated Power).

4. Package Contents

Upon unpacking, please verify that all items listed below are included and undamaged. If any items are missing or damaged, contact your supplier immediately.

- Inverter Unit
- Instruction Manual (this document)
- Mounting Brackets

5. Product Overview

5.1 Physical Dimensions



Figure 6: Diagram illustrating the physical dimensions and weight of the inverter, including mounting specifications. The unit weighs 36.3 lbs (16.5 kg) and measures approximately 11.47" x 6.41" x 25.7" (L x W x H) without mounting parts.

5.2 Front Panel Components

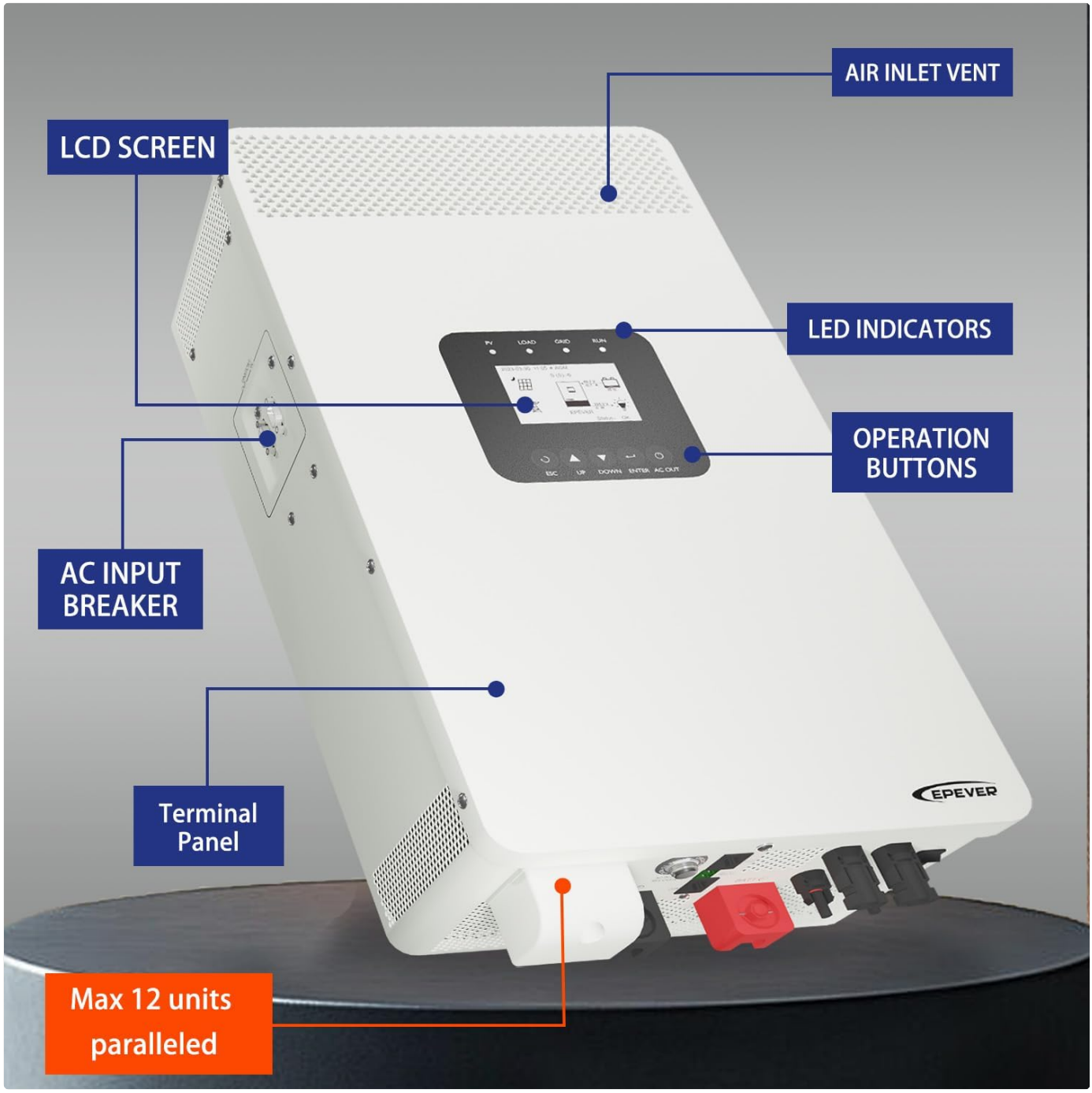


Figure 7: Detailed view of the inverter's front panel, highlighting the LCD screen, LED indicators (PV, LOAD, GRID, RUN), operation buttons (ESC, UP, DOWN, ENTER, AC-OUT), AC input breaker, and terminal panel.

5.3 Rear/Side Panel Connections

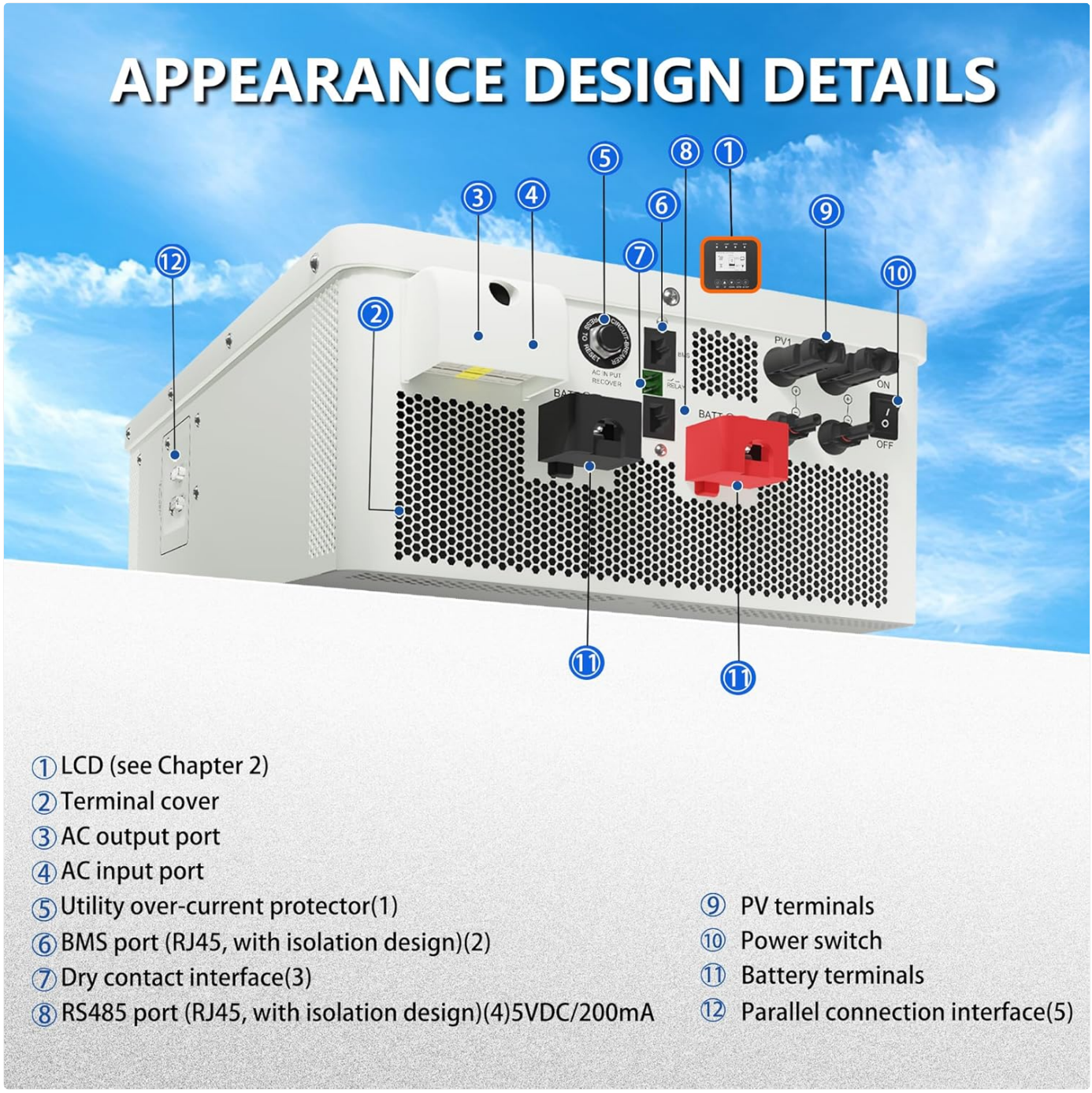


Figure 8: An annotated image showing various ports and switches on the inverter. Key components include the LCD, terminal cover, AC output port, AC input port, utility over-current protector, BMS port (RJ45), dry contact interface, RS485 port (RJ45), PV terminals, power switch, battery terminals, and parallel connection interface.



Figure 9: Close-up view of the inverter's rear connection panel, showing AC output (L, N), AC input (L, N), AC Input Recover, BMS, Relay, COM, PV1 (+,-), PV2 (+,-), ON/OFF switch, and battery terminals (BATT+ and BATT-).

5.4 Battery Compatibility



Figure 10: The inverter is compatible with various 48V battery types, including both Lead-Acid and LiFePO4 batteries, offering flexibility for different energy storage solutions.

6. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your hybrid inverter. Refer to local electrical codes and standards.

6.1 Mounting the Inverter

1. Choose a suitable mounting location:
    - Mount on a solid, non-flammable surface (e.g., concrete or solid brick walls). Do not mount on hollow brick walls.
    - Ensure adequate ventilation. Leave a minimum 50cm (20 inches) clearance around the device for natural convection heat dissipation.
    - Protect from direct sunlight, water, and excessive dust.

2. Use the provided mounting brackets and hardware to securely fasten the inverter to the wall.

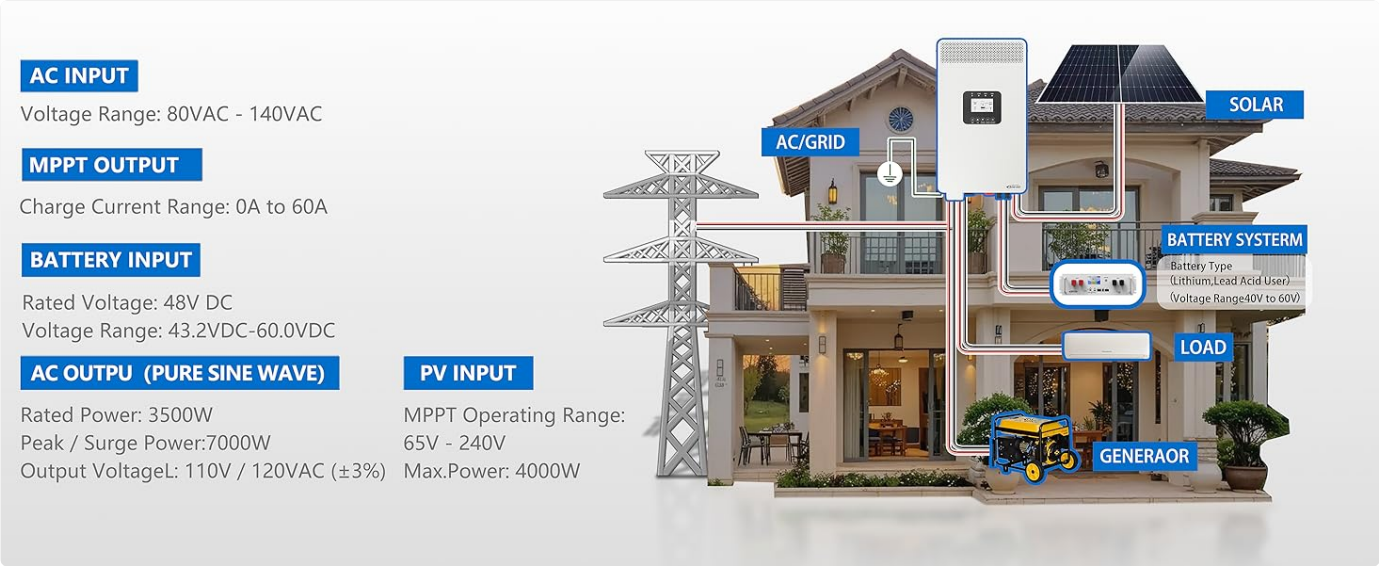


Figure 11: Illustration of proper inverter mounting on a solid wall and recommended 50cm clearance for heat dissipation.

6.2 Wiring Connections

All wiring must be performed by a qualified electrician. Ensure all circuit breakers are OFF before making any connections.

1. **Battery Connection:** Connect the 48V battery bank to the designated battery terminals (BATT+ and BATT-) on the inverter. Ensure correct polarity.
2. **PV Input Connection:** Connect the solar panel array(s) to the PV1 and PV2 terminals. Observe correct polarity and ensure PV voltage is within the specified range.
3. **AC Input Connection (Grid/Generator):** Connect the utility grid or generator AC supply to the AC Input terminals.
4. **AC Output Connection (Load):** Connect your AC loads to the AC Output terminals.
5. **Grounding:** Connect the inverter to an earth ground using appropriate grounding wire.
6. **Communication Ports:** Connect optional communication modules (e.g., WiFi/4G) to the RS485 or BMS ports as needed for remote monitoring.



Figure 12: A typical system wiring diagram showing connections for AC input (grid), solar panels (PV input), battery system, and AC output (load).

7. Operation

7.1 Initial Startup

1. After all connections are secure, switch on the battery breaker first.
2. Then, switch on the PV input breaker (if applicable).
3. Next, switch on the AC input breaker (if connected to grid/generator).
4. Finally, switch on the inverter's main power switch. The LCD will illuminate, and the system will begin operation.

7.2 LCD Display and Buttons

The 3.5-inch LCD provides real-time operational data and allows for system parameter configuration.

- **ESC:** Exit current menu or return to previous screen.
- **UP/DOWN:** Navigate through menu options or adjust parameter values.
- **ENTER:** Confirm selection or enter a submenu.
- **AC-OUT:** Manually control AC output (on/off) in certain modes.

7.3 Operating Modes

The inverter supports various operating modes, including:

- **Solar Priority:** Solar power is the primary source for loads and battery charging. Grid/generator acts as backup.
- **Utility Priority:** Grid/generator is the primary source. Solar power is used when the grid is unavailable or for supplementary charging.
- **Battery Priority:** Loads are powered by batteries. Grid/generator or solar charges batteries.
- **No Battery Mode:** Allows the inverter to power loads directly from solar during the day without a connected battery bank.

Refer to the detailed menu structure in the full manual for specific mode configurations.

7.4 Parallel Operation

For increased power output or three-phase systems, multiple inverters can be connected in parallel. The system supports up to 12 units (expandable to 16). Consult the dedicated parallel operation manual for detailed wiring and configuration instructions.

8. Maintenance

Regular maintenance ensures optimal performance and longevity of your inverter.

- **Cleaning:** Keep the inverter clean and free from dust. Use a dry cloth to wipe the exterior. Ensure ventilation openings are not obstructed.
- **Connections:** Periodically check all electrical connections for tightness and signs of corrosion.
- **Environment:** Ensure the operating environment remains within specified temperature and humidity ranges.
- **Battery Health:** Monitor battery voltage and health according to battery manufacturer guidelines.

Always disconnect all power sources before performing any maintenance.

9. Troubleshooting

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

Problem	Possible Cause	Solution
Inverter not turning on	No battery connection; Battery voltage too low; Power switch off; Blown fuse/breaker.	Check battery connections and voltage; Ensure power switch is ON; Check and reset breakers.
No AC output	Overload; Short circuit; Inverter fault; AC output breaker tripped.	Reduce load; Check for short circuits; Reset AC output breaker; Restart inverter.
Battery not charging	PV input too low/disconnected; AC input not present; Battery fault; Charging parameters incorrect.	Check PV connections and sunlight; Verify AC input; Inspect battery; Adjust charging settings via LCD.
Error code on LCD	Specific system fault.	Refer to the full manual's error code section for detailed explanations and solutions.

10. Specifications

Parameter	Value
Model Name	HP Series 3500W 120VAC Hybrid Inverter
Rated Power	3500 watts
Peak/Surge Power	7000 watts
Power Source	Solar Powered
Recommended Uses	Backup Power, Marine Applications, Off-grid Power, RV Power Systems, Solar Power Systems
Brand	SolarEpic
Manufacturer	HUIZHOU EPEVER TECHNOLOGY CO., LTD.
Item model number	HP3541-AH0630P20A
Product Dimensions	18.5 x 8.5 x 18.5 inches
Item Weight	36.3 pounds
MPPT Operating Range	65V - 240V
Max PV Power	4000W
AC Input Voltage Range	80VAC - 140VAC
Battery Rated Voltage	48V DC
Battery Voltage Range	43.2VDC - 60.0VDC

11. Warranty and Support

For warranty information, please refer to the warranty card included with your product or visit the official SolarEpic website.

For technical support, troubleshooting assistance, or to inquire about replacement parts, please contact SolarEpic customer service.

- **Manufacturer:** HUIZHOU EPEVER TECHNOLOGY CO., LTD.
- **Brand:** SolarEpic
- **Website:** Visit the SolarEpic Store on Amazon

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