Green Cell INVSOL01

Green Cell MPPT Solar Inverter User Manual

Model: INVSOL01 | Brand: Green Cell

1. Introduction

The Green Cell MPPT Solar Inverter is a versatile device designed to provide continuous power by integrating three essential functions: an MPPT (Maximum Power Point Tracking) charge controller, a pure sine wave inverter, and a battery charger. This system efficiently converts solar energy into usable 230V AC power, charges batteries, and ensures power availability even during grid outages. It is ideal for off-grid photovoltaic systems, offering safety and maximum efficiency. The inverter features an intuitive, multifunctional LCD display for monitoring key parameters and adjusting settings. Dedicated software is also available for advanced device management and real-time data monitoring, allowing users to optimize their energy installation.

2. Safety Instructions

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

- **Qualified Personnel:** Installation and maintenance should only be performed by qualified personnel.
- **Proper Grounding:** Ensure the inverter is properly grounded to prevent electric shock.
- **Ventilation:** Install the inverter in a well-ventilated area to prevent overheating. Maintain adequate clearance around the unit.
- **Avoid Water:** Do not expose the inverter to water, rain, snow, or any liquids.
- **Correct Polarity:** Always connect batteries and solar panels with correct polarity. Incorrect connections can damage the device and pose a fire hazard.
- **Secure Connections:** Ensure all electrical connections are tight and secure to prevent loose contacts and overheating.
- **Emergency Shutdown:** Know how to quickly disconnect power to the inverter and connected components in an emergency.
- **Indoor Use:** This device is designed for indoor use in a controlled environment.

3. Product Overview

The Green Cell MPPT Solar Inverter features a robust design with clearly labeled ports and an informative LCD display for easy monitoring and control.

3.1. System Diagram

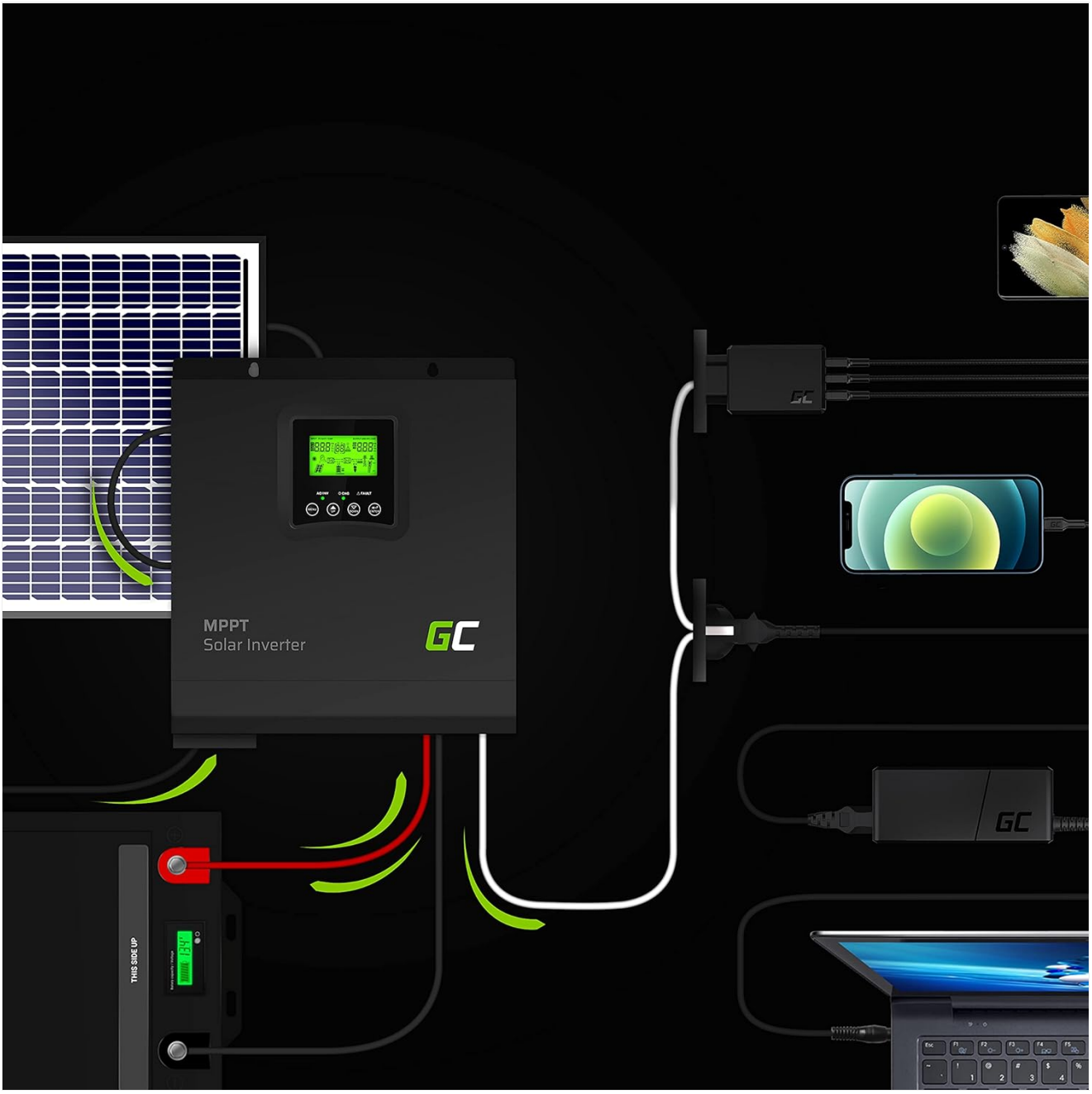

Figure 1: Typical system setup illustrating connections between solar panels, inverter, battery, and AC loads.

3.2. LCD Display and Control Panel

Figure 2: Front panel with LCD display and control buttons.

The LCD display provides real-time information on input voltage, battery status, output power, and operational modes. The control panel includes:

- **MENU:** Accesses the main menu for settings.
- **UP:** Navigates up through menu options or increases values.
- **DOWN:** Navigates down through menu options or decreases values.
- **ENTER:** Confirms selections or enters sub-menus.
- **AC/INV:** Indicates AC input or inverter operation.
- **CHG:** Indicates charging status.
- **FAULT:** Indicates an error or fault condition.

3.3. Connection Ports

Figure 3: Bottom and rear connection ports.

The inverter is equipped with the following connection ports:

- **USB Port:** For connecting to a computer for monitoring and software configuration.
- **COM Port:** For communication with external devices.
- **AC Input Terminals:** For connecting to the utility grid or a generator.
- **AC Output Terminals:** For connecting to household appliances and loads.
- **DC+ / DC- Terminals:** For connecting to the battery bank. Ensure correct polarity.
- **PV+ / PV- Terminals:** For connecting to solar panels. Ensure correct polarity.

4. Setup

Proper installation is crucial for the safe and efficient operation of your inverter.

4.1. Mounting the Inverter

1. Choose a suitable location: The inverter should be mounted indoors, in a dry, well-ventilated area, away from direct sunlight, heat sources, and flammable materials.
2. Ensure adequate clearance: Leave at least 20 cm (8 inches) of space around the inverter for proper airflow and heat dissipation.
3. Secure mounting: Use appropriate screws and anchors to securely mount the inverter to a solid wall or surface.

4.2. Wiring Connections

Before making any connections, ensure all power sources (solar panels, battery, AC grid) are disconnected and turned off.

1. **Battery Connection:** Connect the battery bank to the DC+ and DC- terminals. Observe correct polarity (red for positive, black for negative). Use appropriately sized cables and ensure connections are tight.

2. **Solar Panel Connection:** Connect your solar panels to the PV+ and PV- terminals. Verify correct polarity and ensure the open-circuit voltage of your solar array does not exceed the inverter's maximum PV input voltage.
3. **AC Input Connection (Optional):** If connecting to a utility grid or generator, wire the AC input to the designated AC Input terminals.
4. **AC Output Connection:** Connect your AC loads (appliances) to the AC Output terminals.
5. **Grounding:** Connect the inverter's grounding terminal to a reliable earth ground.

4.3. Initial Power-Up

1. Double-check all connections for correctness and tightness.
2. Turn on the battery breaker/switch.
3. Turn on the solar panel breaker/switch.
4. If connected, turn on the AC input breaker/switch.
5. The inverter will power on, and the LCD display will illuminate.

5. Operating Instructions

5.1. Basic Operation

Once powered on, the inverter will automatically begin operation based on its default or previously configured settings. The LCD display will show real-time data such as battery voltage, solar input, AC output, and charging status.

5.2. Navigating the LCD Menu

Use the **MENU**, **UP**, **DOWN**, and **ENTER** buttons to navigate through the inverter's settings. You can configure parameters such as:

- Battery type and charging voltage.
- AC output voltage and frequency.
- Charging source priority (Solar first, Utility first, Solar and Utility).
- Load source priority (Solar first, Utility first, SBU - Solar, Battery, Utility).

Refer to the detailed menu structure in the full product manual for specific parameter adjustments.

5.3. Software Monitoring and Control

Figure 4: Software interface for advanced monitoring and control.

The Green Cell solar inverter comes with dedicated software that allows for advanced device management. Connect the inverter to a computer via the USB port. The software provides:

- Real-time monitoring of all operational parameters.
- Detailed historical data and logging.
- Remote configuration of inverter settings.
- Firmware updates.

Install the software from the provided CD or download it from the Green Cell website. Follow the on-screen instructions for installation and connection.

6. Maintenance

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

- **Periodic Inspection:** Regularly check all wiring connections for tightness and signs of corrosion.
- **Cleaning:** Keep the inverter's vents and exterior clean and free of dust and debris to ensure proper cooling. Use a dry, soft cloth. Do not use liquid cleaners.

- **Battery Check:** Periodically inspect battery terminals for corrosion and ensure battery voltage is within the recommended range.
- **Environment:** Ensure the installation environment remains dry and well-ventilated.

7. Troubleshooting

This section addresses common issues you might encounter with your Green Cell MPPT Solar Inverter.

Problem	Possible Cause	Solution
Inverter does not power on	No battery connection or low battery voltage; DC breaker off.	Check battery connections and voltage. Ensure DC breaker is on.
No AC output	Overload; Output breaker tripped; Inverter in fault mode.	Reduce load. Check and reset AC output breaker. Check LCD for fault codes.
No solar charging	Solar panels not connected; PV breaker off; Insufficient sunlight; PV voltage too low/high.	Check solar panel connections and polarity. Ensure PV breaker is on. Verify PV voltage is within operating range.
LCD displays error code	Internal fault; Over-temperature; Over-voltage/Under-voltage.	Note the error code and refer to the full manual's error code section. Power cycle the inverter. Ensure proper ventilation.

If the problem persists after attempting these solutions, please contact Green Cell customer support.

8. Specifications

Technical specifications for the Green Cell MPPT Solar Inverter (Model: INVSOL01).

Feature	Specification
Brand	Green Cell
Model Number	INVSOL01
Continuous Power	1000 W
Peak Power	2000 W
Battery Voltage	12 V
Output Voltage	230 V
Output Waveform	Pure Sine Wave
Dimensions (L x W x H)	32.1 x 22.4 x 9.5 cm
Power Source	Battery
Components Included	Inverter
Manufacturer	CSG S.A.
Country of Origin	China

9. Warranty and Support

Green Cell products are designed for reliability and performance. For warranty information, please refer to the warranty card included with your product or visit the official Green Cell website. If you encounter any issues or require technical assistance, please contact Green Cell customer support through their official channels. Ensure you have your product model number (INVSOL01) and purchase details ready when contacting support.