

ROCKSOLAR 3000W 12V Off-Grid Solar System

User Manual

1. Safety Information

Please read this manual carefully before installation and operation.

WARNING:

- Disconnect all power sources before wiring.
- Follow local electrical codes.
- Installation should be performed by a qualified technician.
- Never short-circuit battery terminals.
- Keep equipment dry and properly ventilated.

2. System Overview

The system consists of:

1. 6X 200W Solar Panels
2. 1X 100V 20A MPPT Charge Controller
3. 2 String Solar combiner box with DC breaker and surge protector
4. 2X 12V 200Ah LiFePO4 Battery
5. 1X Battery Disconnect Switch
6. 1X 12V 3000W Pure Sine Wave Inverter

Power Flow:

Solar Panels → MPPT Controller → Battery Bank → Inverter → AC Loads

3. Installation Procedure

Step 1: Mount Solar Panels

- Install panels facing south (Canada).
- Avoid shading.
- Secure panels using supplied mounting hardware.

Step 2: Connect Solar Panels

- Connect panels according to wiring diagram.
- Connect 6 panels in two strings with each string of 3 panels in series connection.
- Then connect these two strings of solar panels to a Y branch connector.
- Then connect to 2 String combiner box
- Then to the MPPT charge controller

- Then to the Battery

Step 3: Install Batteries

- Place batteries in a dry, ventilated location.
- Secure batteries to prevent movement.
- Verify polarity before connecting.
- Two batteries will be connected in parallel

Step 4: Install Battery Disconnect Switch

- Install between battery bank and inverter.
- Ensure switch remains accessible.

Step 5: Connect MPPT Charge Controller

Connect in this order:

1. Battery connection FIRST
2. Solar panel connection SECOND

Step 6: Connect Inverter

- Connect inverter directly to battery bank using properly sized cables.
- Verify correct polarity.
- Tighten all terminals securely.

4. Startup Procedure

1. Turn ON battery disconnect switch.
2. Power ON MPPT charge controller.
3. Verify battery voltage.
4. Connect solar array.
5. Turn ON inverter.
6. Connect AC loads.

5. Recommended Loads

Suitable Loads:

- LED lighting
- WiFi routers
- Refrigerators
- Freezers
- TVs
- Computers
- Power tools
- Small kitchen appliances

Maximum Continuous Load:

3000W

Maximum Surge Load:

6000W

6. Battery Operation

For longest battery life:

- Avoid complete discharge.
- Recharge batteries promptly.
- Maintain State of Charge above 20% when possible.
- Store batteries between 30%–60% charge for long-term storage.

7. Maintenance

Monthly:

- Inspect wiring connections.
- Check for corrosion.
- Verify panel cleanliness.

Every 6 Months:

- Tighten electrical connections.
- Inspect mounting hardware.
- Clean solar panels using water and a soft cloth.

8. Troubleshooting

Issue	Possible Cause	Solution
Inverter will not start	Low battery voltage	Recharge battery
No solar charging	PV disconnect open	Check solar connections
Low power output	Dirty panels	Clean panels
Overload alarm	Excessive load	Reduce connected loads
Battery not charging	Incorrect wiring	Verify controller connections

9. System Shutdown

1. Turn off AC loads.
2. Turn off inverter.
3. Disconnect solar input.
4. Turn off battery disconnect switch.

Technical Support

ROCKSOLAR Support

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