

USER MANUAL

ROCKSOLAR 500W 24V Off-Grid Solar Water Pump Kit

1. Introduction

Thank you for choosing the ROCKSOLAR 500W 24V Off-Grid Solar Water Pump Kit. This system is designed to provide reliable, sustainable water pumping in off-grid and remote locations using solar energy.

This manual provides instructions for installation, operation, maintenance, and safety.

2. System Overview

Key Components

- 440W Monocrystalline Solar Panel
- 24V 50Ah LiFePO4 Battery (with BMS)
- 20A MPPT Solar Charge Controller
- 24V DC Submersible Well Pump (0.4 HP)
- Pump Controller (integrated)
- Cables and connectors

Typical Applications

- Remote water supply
 - Irrigation systems
 - Livestock watering
 - Cabin or off-grid homes
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3. Specifications

Pump

- Voltage: 24V DC
- Power: 0.4HP
- Max Flow Rate: 15.3 GPM (0 ft head)

- Max Head: 130 ft
- Type: Brushless DC Submersible Pump
- 3 inch pump with 1.5 inch outlet

Solar Panel

- Power: 440W
- Type: Monocrystalline


Battery

- Type: LiFePO4
- Capacity: 24V 50Ah
- Protection: Built-in BMS

Controller

- Type: MPPT
 - Rating: 20A
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4. Safety Instructions

 Read all instructions before installation.

- Do not operate the pump dry (without water).
 - Ensure all wiring is correct before powering on.
 - Keep electrical components away from water exposure.
 - Use proper grounding where applicable.
 - Disconnect power before servicing.
 - Do not modify system components.
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5. Installation

5.1 Site Preparation

- Choose a location with full sun exposure for the solar panel.
- Ensure the well or water source is clean and suitable.

5.2 Solar Panel Setup

1. Mount the solar panel facing south (in Northern Hemisphere).
2. Tilt angle: approximately equal to your latitude.
3. Secure firmly to withstand wind.

5.3 Electrical Connections

Follow this sequence:

1. Connect battery to MPPT controller.
2. Connect solar panel to MPPT controller.
3. Connect pump controller to battery output.
4. Connect pump to pump controller.

⚠ Ensure correct polarity (+ / -) at all times.

5.4 Pump Installation

- Submerge pump fully in water.
 - Maintain minimum submersion level.
 - Secure pump cable properly.
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6. Operation

1. Ensure all connections are secure.
2. Turn on the controller.
3. System will begin charging via solar.
4. Pump operates when sufficient power is available.

Notes

- Performance depends on sunlight conditions.
 - Battery provides backup during low sunlight.
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7. Maintenance

- Clean solar panels regularly.
 - Inspect wiring monthly.
 - Check pump for debris or blockage.
 - Ensure battery terminals are clean.
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8. Troubleshooting

Issue	Possible Cause	Solution
Pump not working	No power	Check battery and connections
Low water flow	Low sunlight or blockage	Clean pump and check panel output
Controller error	Wiring issue	Recheck connections

9. Storage

- Store battery in a cool, dry place.
 - Disconnect system if unused for long periods.
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10. Warranty

- Solar Panel: Up to 10 years
 - Battery: Up to 10 years
 - Pump: 5 Years
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11. Support

For assistance, contact ROCKSOLAR support:

- Website: <https://rocksolar.io>
 - Email: support@rocksolar.io
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12. Disclaimer

This manual is for guidance only. Improper installation may result in damage or injury. Always follow local electrical and safety regulations.

END OF MANUAL