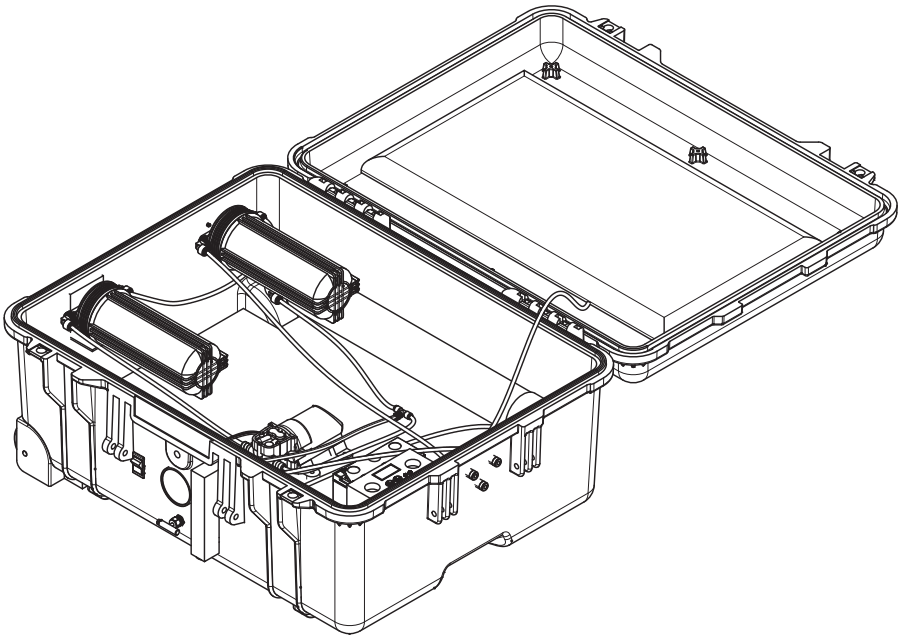
Rover Reverse Osmosis Filtration System

CQE-DR-00350



Installation & User Manual

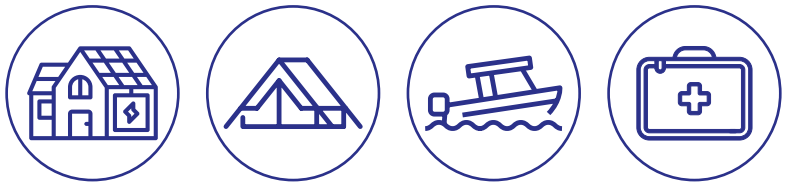
Please read this manual carefully before installation and operation.

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Fresh Water Begins Here®

INTRODUCTION

Welcome to Rover RO, a compact, portable system designed to deliver purified drinking water wherever you go. Ideal for off-grid living, camping, boating, and emergency preparedness, Rover RO combines reverse osmosis, sediment and carbon filtration, and remineralization to treat water from sources such as lakes, streams, and rivers.



Powered by battery and solar energy, Rover RO delivers cleaner, better-tasting water ***wherever your journey takes you.***

WHAT'S INCLUDED

- User's manual
- Filter housing wrench
- Battery charger
- Solar panel
- Red concentrate outlet tubing
- Black inlet tubing
- Blue permeate outlet tubing
- Inlet tube filter

Before start-up, carefully inspect the system for any components that may have shifted or loosened during shipping. Verify that all plumbing connections, nuts, bolts, fasteners, and wiring are secure.

NOTE: *The wires from the controller to the back of the ON/OFF switch and from the controller to the battery are intentionally left disconnected for shipping. These connections will be completed during the installation procedure.*

Follow the steps below in order to ensure proper setup and operation.

- Begin with the pre-start inspection and plumbing setup.
- Connect the battery, solar panel, and DC load.
- Verify the controller settings.
- Prime and flush the system.
- Complete the necessary adjustments for normal operation.

Pre-Start Inspection and Plumbing Setup

① Charge and Connect the Battery

Before use, fully charge the battery using the charger supplied with the system. Connect the charger directly to the battery.

When operating the system with the solar panel, connect the battery before connecting the solar panel. Connect the red battery wire first, followed by the black battery wire.

② Position and Connect the Solar Panel

Position the solar panel in an area where it can receive full sunlight and remain dry. Once the battery is properly connected, plug the solar panel into the designated port on the unit.

IMPORTANT: Connect the battery before connecting the solar panel.

③ Check the Load Wires

Before start-up, verify that the load wires—the red and black wires extending from the right side of the controller—are NOT connected to the ON/OFF switch on the front of the unit. They will be connected later in the start-up procedure to ensure the correct sequence of operation.

④ Connect the Inlet Tube

Insert one end of the **black tube** into the fitting labeled INLET. Position and secure the suction end so that it remains fully submerged in the source water while staying clear of dirt, sediment, and other debris.

⑤ Connect the Concentrate Tube

Concentrate is the water that carries rejected impurities away from the membrane. Insert one end of the **red tube** into the fitting labeled CONCENTRATE OUTLET.

Direct the concentrate line back to the source water, positioned away from the inlet tube, or to an appropriate drain. Make sure the line remains open and is not kinked, blocked, or otherwise restricted.

CAUTION

Any restrictions or blockage in the drain line can cause back pressure, which will increase the system's pressure. This can result in damage to the system's membrane and components.

⑥ Connect the Permeate Tube

Permeate is the filtered water that passes through the reverse osmosis membrane. Insert the **blue tube** into the fitting labeled PERMEATE OUTLET.

Direct the permeate line to the storage unit or point-of-use application. Make sure the line can flow freely without kinks, blockages, or restrictions. Back pressure in the permeate line may reduce or prevent permeate water flow.

⑦ Position Filter Sumps

Extend the handlebar fully, then unfold the white filter sumps from the case and position them upright.

⑧ Unwrap Pre-Filters

Check the pre-filters inside each sump and make sure all packaging has been removed before use.

BATTERY & SOLAR RUN TIME

The pump can operate on battery power alone for **approximately 2.5 hours** on a fully charged battery. Operating the system with the solar panel connected can help maintain the battery charge and extend run time to **approximately 4 hours** under suitable sunlight conditions.

Typical water production during operation is approximately **15–18 GPH (0.25–0.30 GPM).**

NOTE: Actual run time and water production may vary depending on battery condition, sunlight intensity, feed water conditions, system pressure, and other operating conditions.

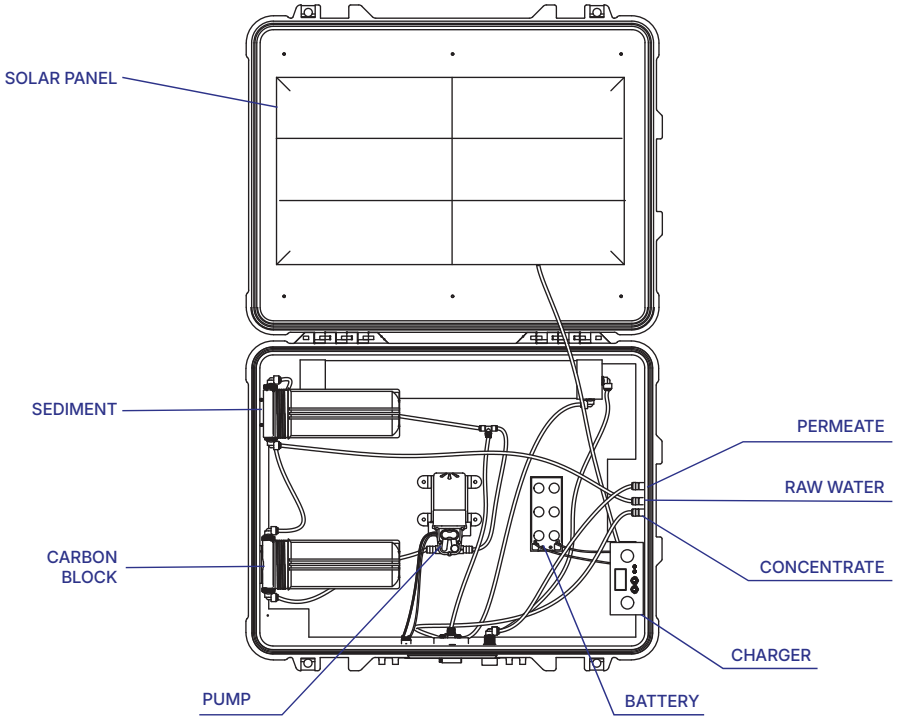
Specifications

Rover RO Filtration System	
Model	CQE-DR-00350
Gallons Per Day	350
Dimensions (approx.)	35″x 22.5″x 13.75″
Weight (approx.)	55 lbs.
Membrane Size (filter)	2.5″ x 2.1″
Membrane (qty.)	1
Working Pressure	100-130 psi
Pump	Diaphragm
Motor	24 V DC
Hertz	60
Feed Connection	3/8″
Product Connection	3/8″
Waste Connection	3/8″
Minimum Feed Pressure	0
Recovery	40% - 60%
2.5″ x 10″ Pre-filter - Sediment	10 micron
2.5″ x 10″ Pre-filter - Carbon	5 micron

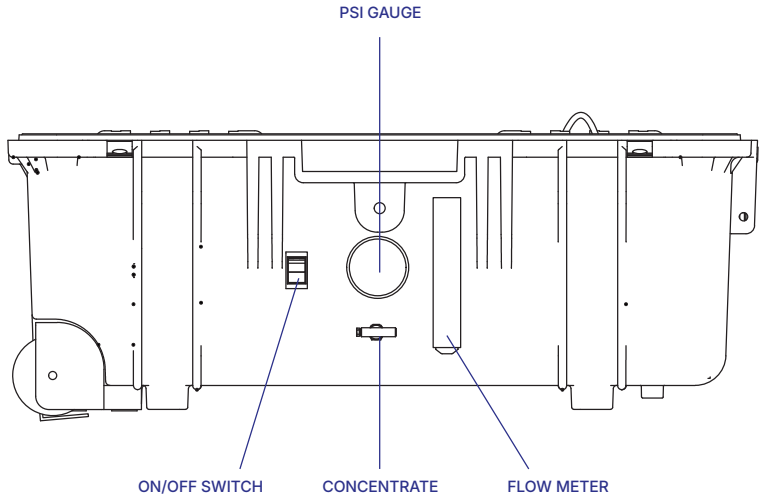
Pump	Pump Voltage	24 V
	Operating Current	3.2 A
	Maximum Current	4 A
	Operating Pressure	100 psi
	Pressure Setting	130 psi
	Inlet Pressure	0-30 psi
	Open Flow Rate	1.0 GPM
	Rated Flow Rate	0.87 GPM
Battery	Battery Type	Rechargeable lithium iron phosphate ($LiFePO_4$)
	Nominal Voltage	25.6 V
	Capacity	9 Ah
	Energy Capacity	230.4 Wh
DC Step-Up Converter	Input	12/24 V DC (9–30 V DC input range)
	Output	36 V DC, 5 A
Solar Charge Controller	System Voltage	12/24 V DC
	Current Rating	40 A
	Additional Output	USB
Battery Charger	AC Input	110-240 V AC, 50/60 Hz
	Input Power	150 W
	DC Output	29.2 DC, 5 A

System Layout

TOP VIEW, OPENED



FRONT VIEW









System Connection Order

IMPORTANT: Always follow the connection sequence below to help prevent damage to the system's electrical components.

1. **Connect the Battery First**
   Wire the controller's positive (+) and negative (–) terminals to the battery. This allows the unit to automatically detect the system voltage (12V or 24V).

2. **Connect the Solar Panel Second**
   The solar panel is pre-wired to the controller through a voltage booster (step-up converter). To connect, simply plug the solar panel into the designated port on the front of the Rover.

3. **Connect the DC Load Last**
   Wire your external low-voltage devices to the load outputs. Connect the DC load wires to the back of the ON/OFF switch. Facing the front of the Rover RO and looking down at the top of the switch:
   - **Red load wire:** Connect to the **top-left** terminal.
   - **Black load wire:** Connect to the **top-right** terminal.

4. **Check the Solar Charge Controller Settings**
   After connecting the system, check the solar charge controller settings. The recommended settings are preset during testing but may reset when the battery is disconnected for shipping.

   Press the **Menu** button on the left to cycle through the available settings.

   To adjust a setting, press and hold the **Menu** button until the selected value flashes. Use the **center button** to increase the value or the **right button** to decrease it. When finished, press and hold the **Menu** button again until the value stops flashing to save the setting.

Preferred Settings

SCREENS 1-5		
Screen 1	Battery Type	$LiFePO_4$ battery: b01
Screen 2	Load Output Timer	24H (optional)
Screen 3	Float Charging Voltage	28 V
Screen 4	Low-Voltage Reconnect (LVR)	24 V
Screen 5	Low-Voltage Disconnect (LVD)	22.4 V

SCREEN & SYMBOL REFERENCE

Refer to the **Solar Charge Controller User Manual** to identify the corresponding display symbol for screens 1 through 5.

SAFE DISCONNECTION SEQUENCE

When Disconnecting:
Disconnect components in the **reverse order**:
DC Load → Solar Panel → Battery.

Initial Startup, Priming, and Flushing

1. Open the Concentrate Valve

Once all connections are secure and the controller settings are confirmed, fully open the concentrate valve by turning the handle **counterclockwise**.

2. Turn On the Pump

Turn on the pump. The system should begin drawing in water and purging trapped air. Allow water to flow until little to no air bubbles are visible in the concentrate discharge or permeate flow meter.

If the pump does not draw water: Turn off the pump. Remove the white sumps, fill them with relatively clean water, and reinstall them securely. Turn the pump back on. This will help prime the system and establish suction.

3. Adjust the Concentrate Valve

Once water is flowing steadily, slowly turn the concentrate valve **clockwise**. This will increase system pressure and the permeate flow.

Adjust the valve until the system reaches the recommended operating range:

- **Operating Pressure:** 100–130 psi
- **Permeate Flow:** 0.25–0.30 GPM (15–18 GPH)

The concentrate line does not have a flow meter. As a general reference, concentrate flow should appear approximately equal to or slightly less than the permeate flow.

CAUTION — HIGH PRESSURE

Do not fully close or excessively restrict the concentrate valve. Excessive pressure may damage the RO membrane or cause fittings to separate from the membrane housing.

4. Flush Before Use

Allow water to flow through the membrane for at least **10 minutes** to flush out residual total dissolved solids (TDS) before drinking.

MAINTAINING MEMBRANE PERFORMANCE

Permeate production may gradually decrease as impurities accumulate on the membrane surface. To flush the membrane, turn the concentrate valve fully **counterclockwise.** The increased concentrate flow helps carry accumulated impurities away from the membrane. After flushing, slowly turn the valve **clockwise** until the recommended operating pressure and permeate flow are restored.

WATER CONDITIONS & PERFORMANCE

Water temperature and quality can affect permeate production. Cold feed water, approximately **65°F or below**, may reduce permeate flow and require greater operating pressure. Higher-TDS feed water, approximately **700 ppm or above**, may also reduce system output.

PUMP & BATTERY PERFORMANCE

Operating above the recommended pressure or permeate flow range increases the load on the pump. This may cause the pump to heat up more quickly, increase battery consumption, and shorten operating time.

When the controller display reaches the **24 V range** (for example, 24.7 V), remaining operating time may be limited. If voltage reaches the programmed **Low-Voltage Disconnect (LVD)** setting, the battery protection system will shut down operation. The system may remain off for approximately **30 minutes** or until sufficient battery charge is restored.

PUMP TEMPERATURE

Limited airflow inside the Rover RO may cause the pump to become hot during extended operation. If the pump becomes excessively hot, **turn off the system and allow the pump to cool** before resuming operation.

Troubleshooting

LOW PUMP PRESSURE: BELOW 30 psi
If pump pressure remains below 30 psi, check the following:
• Inspect the inlet tubing and inlet filter for kinks, debris, or other obstructions that may restrict water flow.
• Check all tubing connections between the pump, pre-filters, and membrane housing. Make sure the tubing is properly connected, secure, and free of kinks.
• **Prime the pump if necessary.** Priming may be required when drawing water from a source significantly below the Rover RO. Hold the inlet tube at or above the height of the Rover and slowly pour clean water into the tube. Once the tube is filled, quickly return the inlet end to the feed-water source and restart the pump.

HIGH PUMP PRESSURE: ABOVE 160 psi
If pump pressure exceeds 160 psi, turn off the pump and check the following before resuming operation:
• Make sure the concentrate valve is open and has not been closed.
• Unscrew the white sumps and inspect the filters for dirt, debris, or excessive buildup that may restrict water flow.
• Inspect the tubing downstream of the pump for kinks, blockages, or other flow restrictions.
• Check the tubing and fittings downstream of the membrane housing for obstructions.
• Inspect the concentrate drain line for any obstructions.
• If pressure remains high, remove the RO membrane from the membrane housing and inspect it for fouling, buildup, or other conditions that may restrict water flow.

CAUTION

Do not operate the Rover RO above the recommended pressure range. Excessive pressure may damage the membrane, housing, tubing, or fittings.

Notes

Support & policies

ONE YEAR LIMITED WARRANTY

Your Rover RO System is warranted against defects in material and workmanship under normal use for one (1) year from the date of original purchase.

This Limited Warranty applies only to the original purchaser. If a covered component is determined to be defective during the warranty period, Crystal Quest® will, at its sole discretion, repair or replace the component in accordance with this warranty. Refunds are not provided in place of repair or replacement.

RETURNS & REFUNDS

Please review the details before purchase, and reach out with any questions before you order. For full terms, policies, and conditions, visit **crystalquest.com/pages/terms-policies-conditions** or email **help@crystalquest.com.**

SUPPORT & FILTERS

Whether you need product support, order updates, or expert advice, our dedicated team is ready to help—visit **crystalquest.com/pages/contact-us** to get in touch today.

Find replacement filters and setup guides at **crystalquest.com.**

Need help?

Contact Crystal Quest support at **help@crystalquest.com** or call us at **1-800-934-0051**, Monday through Friday, 9:00 AM to 5:00 PM EST. Please have your serial number and order number ready before contacting us.

Owner's Record

Keep this page for your records. The details below will help you identify your unit when ordering replacement parts or contacting our team.

Your Rover RO

DATE OF PURCHASE

SERIAL NUMBER

WHERE PURCHASED (DEALER OR RETAILER)

INSTALLATION DATE

MODEL

ORDER OR INVOICE NUMBER

SALES REPRESENTATIVE

NOTES

Questions?
We're here to help.


help@crystalquest.com


1-800-934-0051


Monday through Friday 9am - 5pm EST

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