Heliatos 077.0078

Heliatos 8 Panel Freeze Protected Hybrid Solar Water Heater Kit Instruction Manual

Model: 077.0078

Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your Heliatos 8 Panel Freeze Protected Hybrid Solar Water Heater Kit. This system is designed to integrate with your existing water heater, providing an efficient and environmentally friendly method for heating water. The kit features a double-row installation of eight solar panels and utilizes a stainless steel heat exchanger with non-toxic antifreeze for year-round operation, even in freezing conditions down to -30 degrees F.
Please read this manual thoroughly before beginning installation or operation to ensure proper setup and safe use of the system.

Safety Information

- Always follow local building codes and regulations during installation.
- Installation should be performed by qualified personnel or with proper supervision.
- Wear appropriate personal protective equipment (PPE) such as gloves and eye protection during installation and maintenance.
- Ensure all electrical connections are made safely and according to electrical codes. The PV panel generates electricity; handle with care.
- The heat transfer fluid (propylene glycol) is non-toxic but should still be handled with care. Avoid ingestion and contact with eyes.
- Do not attempt to modify the system components. Use only genuine Heliatos replacement parts.
- This system is not compatible with Marathon non-metallic (plastic) water heaters. Attempting to connect to such heaters may result in damage or system failure.
- Ensure proper roof attachment for solar panels to prevent wind damage or dislodgement.

Package Contents

Verify that all components listed below are present and undamaged before beginning installation.



Image: All components included in the Heliatos 8 Panel Freeze Protected Hybrid Solar Water Heater Kit. This includes eight solar panels, a PV panel, pumps, heat exchanger, expansion tank, glycol, and various fittings.

- 8 x SW-38 Solar Panels
- 1 x Grade A 25W PV panel (for pump power) with wire and mounting kit
- 1 x Heliatos HS-21 Pump
- 1 x TopsFlo TD5 Stainless Pump
- 1 x Glycol Fill Valve
- 1 x Bottom Feed Connector
- 1 x Stainless Steel (Alloy 316) Heat Exchanger
- 1 x Extrol Expansion Tank
- 1 x Complete Set of Fittings and Adapters
- 2 Quarts Food Grade Propylene Glycol Heat Transfer Fluid
- Installation Instructions (this manual)

Items to be supplied by installer:

- 1/2" Pipe from panels to water heater (Copper, CPVC, or PEX)
- Fasteners to attach panels to the roof
- Insulation for the pipes
- Your existing Water Heater (not compatible with Marathon non-metallic heaters)

Setup and Installation

This section outlines the steps for installing your solar water heating system. Refer to the system diagram for a visual

representation of the connections.

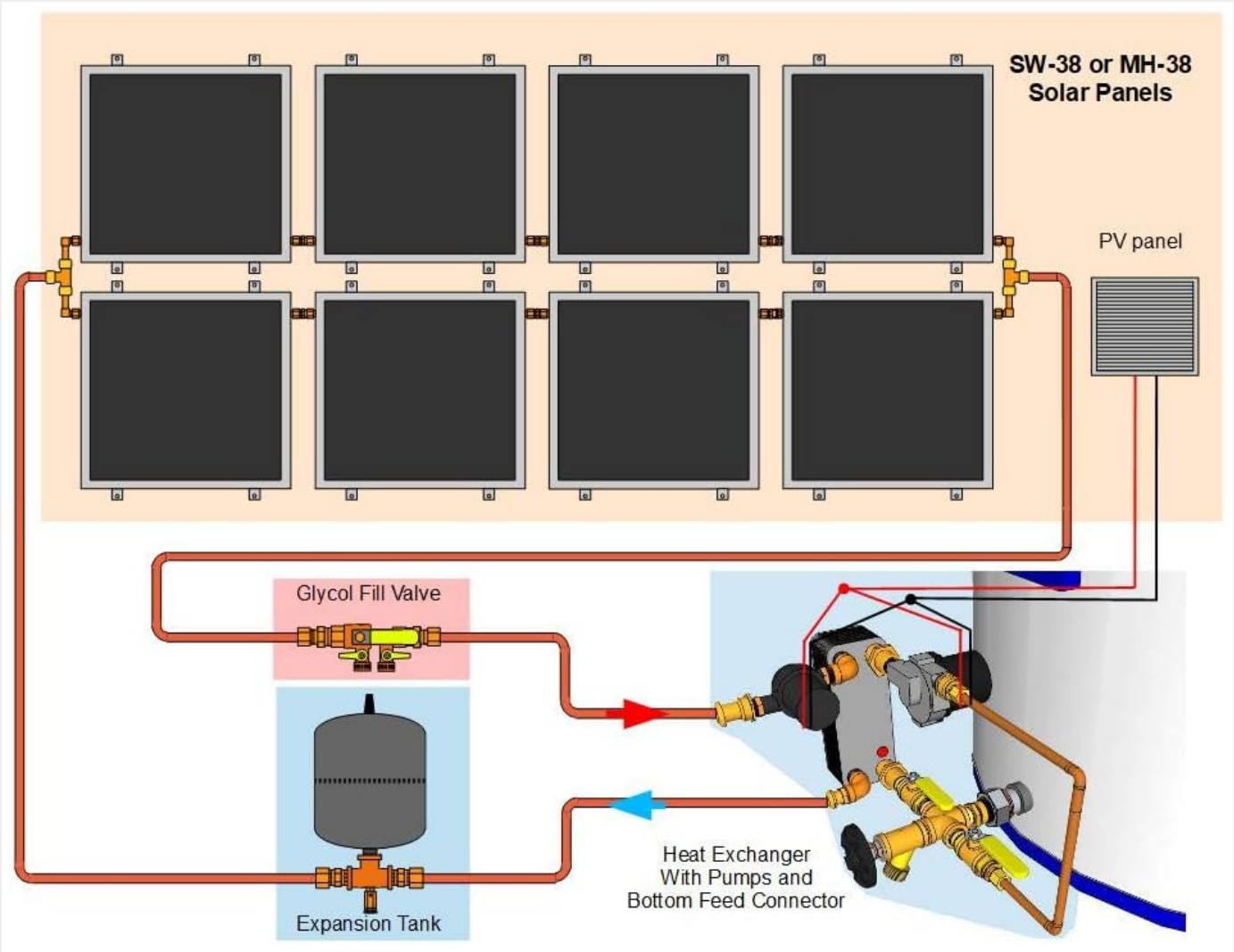


Image: Schematic diagram illustrating the connection of eight solar panels in a double row, a PV panel, glycol fill valve, expansion tank, heat exchanger, and pumps to an existing water heater.

1. Solar Panel Installation

The kit includes 8 SW-38 panels designed for a double-row installation (two rows of four panels each). Securely attach the panels to your roof using appropriate fasteners (not included) suitable for your roofing material and local wind load requirements. Ensure proper spacing for maintenance and optimal sun exposure.

2. PV Panel Installation



Image: A 25W photovoltaic (PV) panel and its associated electrical wiring kit, used to power the system's pumps.

Install the 25W PV panel in a location with maximum sun exposure, ideally near the solar thermal panels. Use the provided mounting kit and wire to connect it to the pumps. This PV panel powers the circulation pumps, eliminating the need for a grid connection for pump operation.

3. Pump and Heat Exchanger Assembly

Assemble the Heliatos HS-21 pump and TopsFlo TD5 pump with the stainless steel heat exchanger and bottom feed connector. Refer to the system diagram for correct flow direction and connection points.



Image: The Heliatos HS-17 solar circulation pump, a key component for fluid movement within the system.



Image: The TopsFlo TD5 stainless steel DC circulation pump, used for circulating the heat transfer fluid.

The system uses two pumps for efficient circulation. Ensure electrical connections from the PV panel are correctly wired to both pumps.

4. Glycol Fill Valve and Expansion Tank



Image: A close-up of the glycol fill valve assembly with various brass fittings.



Image: The Extrol expansion tank, designed to accommodate the thermal expansion of the heat transfer fluid.

Install the glycol fill valve and the Extrol expansion tank as indicated in the system diagram. The expansion tank is crucial for managing pressure changes due to temperature fluctuations of the heat transfer fluid.

5. Piping and Connections



Image: A collection of various brass and copper fittings, adapters, and pipe sealant, used for connecting the solar water heater components.

Connect the solar panels to the heat exchanger assembly using 1/2" pipe (Copper, CPVC, or PEX, supplied by installer). The kit includes a complete set of fittings and adapters to facilitate these connections without soldering. Ensure all connections are tight and leak-free. Insulate all pipes, especially those exposed to outdoor temperatures, to minimize heat loss.
Connect the heat exchanger to your existing water heater. The system is designed to work in conjunction with your current water heater, not replace it. **Important: This system will NOT work with Marathon non-metallic (plastic) water heaters.**

6. Filling with Glycol

Once all plumbing connections are secure, fill the solar loop with the provided food-grade propylene glycol heat transfer fluid through the glycol fill valve. Ensure the system is completely purged of air. The glycol protects the system from freezing down to -30 degrees F.

Operating Instructions

The Heliatos solar water heating system operates automatically. The PV panel powers the circulation pumps, which activate when sufficient sunlight is available to heat the fluid in the solar panels. The heated glycol then transfers its heat to your domestic water supply via the heat exchanger.

- **Automatic Operation:** The system is designed for hands-off operation. The pumps will start and stop based on the solar radiation detected by the PV panel, ensuring efficient heat transfer when conditions are favorable.
- **Integration with Existing Heater:** Your existing water heater will continue to function as a backup, providing hot water during periods of low solar gain (e.g., cloudy days, night) or high demand.

Maintenance

Regular maintenance ensures the longevity and efficiency of your solar water heating system.

- **Annual System Check:** Annually inspect all visible pipes and connections for leaks. Check the PV panel for any obstructions or damage.
- **Glycol Fluid Check:** Periodically check the level and condition of the propylene glycol heat transfer fluid. If the fluid appears discolored or the level is low, consult a professional for inspection and replenishment.
- **Panel Cleaning:** If solar panels accumulate excessive dirt, dust, or debris, gently clean them with water and a soft brush or cloth. Avoid abrasive cleaners or high-pressure washing, which could damage the panel surface.

- **Pump Operation:** Listen for unusual noises from the pumps during operation, which could indicate a problem.

Troubleshooting

Problem	Possible Cause	Solution
No hot water from solar system	◦ Insufficient sunlight ◦ Pumps not operating ◦ Air in the system ◦ Low glycol level ◦ PV panel obstructed or damaged	◦ Check weather conditions. ◦ Verify PV panel is clean and receiving sunlight. Check pump wiring. ◦ Bleed air from the system. ◦ Check glycol level and refill if necessary. ◦ Clear obstructions, inspect PV panel for damage.
System leaks	◦ Loose fittings ◦ Damaged pipes or components	◦ Inspect all connections and tighten as needed. ◦ Identify and replace damaged parts.
Pumps making unusual noise	◦ Air in the pump ◦ Debris in pump ◦ Pump malfunction	◦ Bleed air from the system. ◦ Consult a professional for inspection and cleaning. ◦ Contact customer support for replacement if faulty.

If you encounter issues not covered here or require further assistance, please contact Heliatos customer support.

Specifications

Feature	Specification
Model Number	077.0078
Panel Type	SW-38 Solar Panels (8 panels total)
Installation Type	Double Row (2x4 panels)
Freeze Protection	Down to -30 degrees F (with propylene glycol)
PV Panel Power	25 Watts (Grade A)
Pumps Included	Heliatos HS-21, TopsFlo TD5 Stainless
Heat Exchanger Material	Stainless Steel (Alloy 316)
Heat Transfer Fluid	Food Grade Propylene Glycol
Panel Dimensions (each)	24" x 24"
Panel Weight (each)	Slightly over 12 lbs
Total Item Weight	133 pounds
Product Dimensions (packaged)	28 x 12 x 28 inches
Material	Stainless Steel, Plastic

Warranty and Support

For warranty information or technical support regarding your Heliatos 8 Panel Freeze Protected Hybrid Solar Water Heater Kit, please contact Heliatos Solar directly. Refer to your purchase documentation for specific warranty terms and contact details.

Customer support is available to assist with installation questions, troubleshooting, and replacement parts.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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