Garden Green
EcoSolutions, LLC.

Solar Rain Pump
Owners Manual

Version 2

Digital Edition

Garden Green EcoSolutions, LLC.
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www.gardengreenecosolutions.com
Engineered, Designed and Built in the U.S.A.

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INTRODUCTION

The Solar Rain Pump is a **Patent Pending Device** designed for pumping collected rain water from rain barrels or other water collection devices. It is lightweight, portable and designed to meet the needs of novice gardeners, master gardeners, or anyone who would like to help the environment by conserving municipal water supplies by using rain water and reducing the demand upon electrical power grids by utilizing free solar power.

TECHNICAL SPECIFICATIONS

The model of the Solar Rain Pump you have selected can be found next to the fuse panel. Model numbers ending in “D” have the standard pump.

Standard Diaphragm Pump
3.3 Gallons per minute (198 Gallons per hour)
40 PSI Shut-off switch
12 VDC – 4 Amp operating current
10 Amp (3AG) fuse protected

INSTALLATION INSTRUCTIONS

Detailed instructions and videos on setup and installation of the Solar Rain Pump are available on www.gardengreenecosolutions.com

Topics:
Converting a Rain Barrel to work with the Solar Rain Pump
Attaching the Adapter Plug on the Solar Panel
Installing the battery in the Solar Rain Pump
Installing an Irrigation bypass
Connecting a Solar Rain Pump to a drip irrigation system
Setting up and operating the programmable timer
Mounting a Solar Panel
And More!

SAFETY PRECAUTIONS

- Read this manual in its entirety before operating the unit.
- Do not use the unit if under the influence of alcohol or drugs. Check prescriptions for indications of whether or not it is safe to operate machinery.
- Always be alert and aware of surroundings.
- Keep children away from unit. Children are not advised to use the Solar Rain Pump.
- Keep loose clothing away from input and output ports on the unit.
- Do not stick foreign objects in the input and output ports as it may damage the pump.
- When moving the Solar Rain Pump keep balance and maintain awareness of surroundings to prevent injury. Always use the convenient carrying handle when transporting unit.
- Commercial enterprises should always comply with OHSA standards.
- Keep unit free from debris that might clog the pump.
- Never run the pump without a filter on the intake side of the pump. Diaphragm pumps do not pass solids.

SAFETY WARNINGS

- Never pump flammable liquids with the Solar Rain Pump. The Solar Rain Pump is for WATER ONLY.
- Never store or operate the Solar Rain Pump on an uneven, unstable, or otherwise unfit surface.
- Never flip the unit on its side or upside down, always keep upright. Flipping the unit may dislodge or damage components and may allow battery acid to leak. Always take extreme caution with lead acid batteries. If you contact battery acid, seek appropriate medical attention.
- Only use a sealed lead acid battery with the Solar Rain Pump. The recommended battery is a deep cycle AGM style battery.

LOCAL LAWS AND ORDINANCES

- Always conform to local laws and ordinances as pertaining to rain barrels and water collection.
- Never pump water out of a river, lake, stream, creek, retention pond, etc unless permitted by law.

GETTING TO KNOW THE SOLAR RAIN PUMP

1. The Handle
2. Switch (Depending on model can be either a mechanical timer or a programmable timer)
3. Solar Panel Connection – used to connect Solar Rain Pump to a solar panel
4. Charge Controller – regulates voltage from the solar panel to the battery
5. Electric Connection – used to connect Solar Rain Pump to an electrical trickle charger
6. Water Output Connection – used to connect Solar Rain Pump to hose, drip system, etc.
7. Fuse Panel
8. Protective Cover
9. Water Input Connection (Not Pictured) – used to connect Solar Rain Pump to water source

The Solar Rain Pump is water resistant. It may be stored outside. It is not designed to be submerged in water or operated in freezing temperatures.

SWITCHES

All Solar Rain Pumps have a method for turning the pump on and off. The current product offering includes and manual on/off switch and a programmable timer.

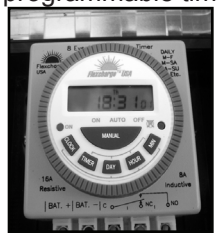
MODEL SRP T: MECHANICAL TIMER (MANUAL ON, AUTOMATIC OFF)

The most basic model is the mechanical timer unit (SRP-T). It allows the user to set a time, in minutes, for which the pump will run then automatically shut off. To operate turn the dial clockwise to the desired time of operation, say 10 minutes, and the pump will run for approximately10 minutes then turn off automatically.

Caution: Always check water source (barrel, etc.) to make sure there is an adequate amount of water to pump for the desired time. If the water level is low it would be advised to set the pump to run for a shorter period of time.

MODEL SRP A: PROGRAMMABLE AND AUTOMATIC

The most advanced method for controlling the Solar Rain Pump is the automatic programmable timer option (SRP-A). It allows the user to set up to eight on/off events for total control of watering while home or away. Ancillary instructions for the programmable timer are provided from Garden Green EcoSolutions. The programmable timer has a manual override feature to activate the pump manually.



Caution: The SRP A is most susceptible to running dry as the auto timer activates the water pumping cycle without the interaction of an operator. Running the pump dry will not ruin the pumping unit but it will cease to irrigate.

See video on website for further instruction.

FUSE PANEL

The pump is fuse protected in case the pump runs dry for too long or has an unexpected surge in power. If the fuse needs replacement, simply turn the cap counter clockwise to unscrew it from the holder and discard the blown fuse. Replace the old fuse with a new one and place it back into the holder and turn clockwise until tight.

The standard fuse for both the Standard Diaphragm Pumps “D” and the Large Diaphragm Pumps “L” are 10 Amp AGC (3AG) fuses.

SOLAR PANEL CONNECTION

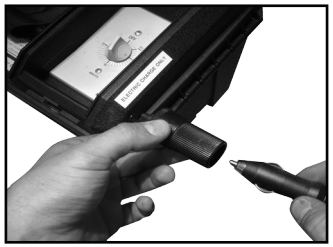
The Solar Panel Connection is found near the “SOLAR PANEL ONLY” label on the Solar Rain Pump. This connection is used to recharge the Solar Rain Pump’s battery with a solar panel. To make the connection press the solar panel side of the connector into the Solar Rain Pump side. Make sure the connection is tight and that the red light on the charge controller (circled in black) lights up. The red light indicates that the battery is charging with the solar panel voltage.

DO NOT connect electric chargers to this port, they will compete with the circuitry in the charge controller and lead to either damage of the unit or an improper charge in the battery.

See video on website for further instruction.

ELECTRICAL CONNECTION (OPTIONAL EQUIPMENT REQUIRED)

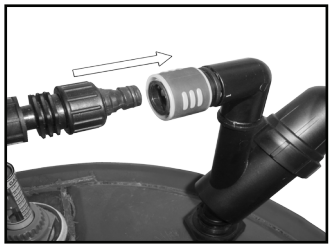
The Electrical Connection is found near the “ELECTRICAL CHARGE ONLY” label on the Solar Rain Pump. This connection is used to recharge the Solar Rain Pump’s battery with an electric trickle charger that plugs into standard 120V home wall outlets. To make the connection press the male “cigarette” style plug of the electric trickle charger into the female “cigarette” fitting on the Solar Rain Pump. Make sure the connection is tight and that the “Charging” light on the electric trickle charger lights up. The yellow “charging” light indicates the battery is charging and when the yellow light dims out and only the green light remain it indicates the battery is fully charged.



DO NOT connect solar panels to this port. Doing so can overcharge the battery and cause it to EXPLODE.

See video on website for further instruction.

WATER INPUT



The water input allows for the quick connection of the Solar Rain Pump to the water source. Most Solar Rain Pumps connect to a rain barrel through the Rain Barrel Conversion Kit that draws water up from the bottom of the barrel, however, the pump may sit on the ground with a garden hose connection attached to integrate the pump to the rain barrel fittings.

To connect the Solar Rain Pump to the barrel, place the Solar Rain Pump on top of the barrel in its most stable position. Align the Water Input connection to the barrel connection and push together until a “click” is heard. This click insures that the connection between pump and barrel is secure.

Troubleshooting: If the Solar Rain Pump is turned on and the water output is labored or inconsistent, check the connection between the Solar Rain Pump and the Barrel as air may be drawing into the pump. Be aware that there is an “O” ring on the fitting on the input side of the Solar Rain Pump, which is critical to making an air tight connection.

See video on website for further instruction.

WATER OUTPUT

The water output side of the pump is again fitted with a quick connection so that the operator can connect the pump to a variety of hoses or drip-system lines for the delivery of water. Water can always be moved directly to a watering can by activating the unit and allowing water to flow to the container.

To connect, take the end of the drip line or hose to be used and press it firmly against the quick connection. The audible “click” confirms a good seal between the quick connections.

See video on website for further instruction.

OPERATING THE SOLAR RAIN PUMP

Once the Solar Rain Pump is connected to a water source (rain barrel, pond, lake, etc.) the output side of the system can be connected. There are a few basic ways to water plants with the Solar Rain Pump.

1. Garden Hose. The simplest way to water plants with the Solar Rain Pump is to connect a garden hose to the output side of the pump, turn it on, and then water plants manually. If you choose to use a spray-gun type nozzle on your hose the pump will automatically shut off when you close the nozzle. The pump will resume operation when the nozzle is opened again.

2. Micro Drip Irrigation System. By far the best method to irrigate plants. Basically the system works by pumping water through plastic tubing that is pierced with a tool and drip emitters and sprayers are connected to the holes. This method allows for complete customization of the system and runs directly to the base of the plant where the water is used efficiently. Water is conserved and no weeds are watered with this system.

Garden Green EcoSolutions offers consulting, planning, assistance, and installation of micro drip irrigation systems.

3. The Solar Rain Pump can be connected to other irrigation devices such as lawn sprinklers. These are not tested by Garden Green EcoSolutions.

After the Solar Rain Pump is connected to the distribution system the pump can be activated.

After the watering is done and the pump is off, disconnect the quick connection on the output side and then the input side. It is now safe to take the Solar Rain Pump to its “home base” for reconnection with the solar panel, or to another rain barrel for additional irrigation requirements.

TROUBLESHOOTING

Blown fuse:

- Causes: Pump ran dry too long, obstruction in the pump
- Solutions: Replace fuse with the type specified for unit, retry pump. Hint: adding a spoonful of vegetable oil to the input side of the pump can lubricate the pump and help get pump running again. If the pump was run connected to a water supply without a filter there may be debris clogging the pump. Call Garden Green EcoSolutions, LLC for further instruction.

Battery is discharged:

- Causes: Blown fuse, cloudy conditions, overuse of pump.
- Solutions: A dead battery can result from a few different set of circumstances. If the fuse is blown the connection to the solar panel or trickle charger is broken. Check the fuse to see if it needs to be replaced. If the fuse is fine it may be a lack of adequate sunlight to recharge the battery fully for the next use. In this case an electric trickle charger should be used to supplement for cloudy conditions. If the Solar Rain Pump is being used more than recommended for the solar panel installed, an upgraded solar panel might be needed.
- Contact Garden Green EcoSolutions, LLC. or your local dealer for more information on battery life and solar panel efficiencies.

Reduced output flow from the Solar Rain Pump

- Causes: Intake Filter clogged
- Solutions: The filter used on the intake side of the pump needs to be cleaned. The filter prevents debris from passing through the pump and can become clogged with this debris. Clean the filter by twisting off the filter cap to expose the yellow or blue filter inside. Remove the filter from the cap and clean under clear water with a bottle brush. Place the filter back inside the cap and twist back onto the filter assembly.

Solar Rain Pump alternates between turning on and off:

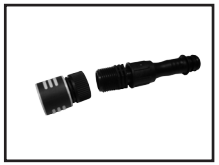
- Causes: Too much pressure in the system.
- Solutions: If the Solar Rain Pump is connected to a drip irrigation system that has few emitters or sprayers, pressure can build in the system causing the pump to shut off briefly then turn back on. To alleviate this pressure a “bypass” is needed so that the pump can be metered to run at the right pressure.
- See video on website for further instruction on installing an irrigation bypass.

WINTERIZATION

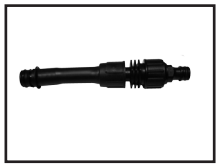
Solar Rain Pumps are designed to remain outdoors during the watering season but should not be left outside where it may freeze, as it may damage its components. Below is a list of winterizing suggestions for the Solar Rain Pump.

- Bring the Solar Rain Pump indoors.
- Activate the pump for 2 to 3 seconds to clear any remaining water in the pump.
- Periodically plug the 3 stage electrical trickle charger into the recharge port. This will maintain the battery and have your unit ready for the spring. Follow directions supplied with the trickle charger. The electrical trickle charger is for indoor use only.
- Solar panels normally may remain outdoors. Caution should be taken to insure solar panel is secure and can withstand heavy snow accumulations.
- Free all drip-lines of water. If the drip lines are to be left outside all winter they will need to be blown out with an air compressor to insure all the water is removed. Water inside plastic lines can expand when frozen and cause the line to rupture.
- Drain Rain Barrel. Using the Solar Rain Pump, pump all of the water out of the rain barrel. Tip the barrel to remove all water. Tip: Keep barrel upside down for the winter or cover openings so water can not enter during the off season.
- Contact Garden Green EcoSolutions, LLC or your local dealer to purchase an electrical trickle charger, or if other assistance is needed.

REPLACEMENT PARTS



Output Side: Replaces all parts on the output side of the pump. Includes: 5/8” barb fitting to pump, tubing, direct-loc fitting, and quick connect fitting.
Item Number: GG-OSP

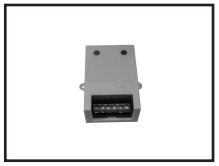


Input Side: Replaces all parts on the input side of the pump. Includes: 5/8” barb fitting to pump, tubing, direc-loc fitting, and quick connect fitting.
Item Number: GG-ISP

Replacement Pump: Only needed if the motor is worn out or misuse resulted in catastrophic failure of the pump. Includes quick wiring fittings for easy installation.
Item Number: GG-RDP

Mechanical Timer: Replaces the mechanical timer found on SRP-T units. May be needed if the cover was left open and the mechanical timer was subjected to rain.
Item Number: GG-RMT

Programmable Timer: Replaces the programmable timer found on SRP-A units. May be needed if the cover was left open and the timer was subjected to rain.
Item Number: GG-RPT



Charge Controller: Replaces the charge controller used to regulate voltage from a solar panel. May be needed if controller was subjected to rain or current greater than 3 amps.
Item Number: GG-ECC

Fuse Holder: Fuse holder only needed if poles are broken off. Item Number: GG-RFH

Fuses: 3AG (AGC) 10 amp fuses are used for Standard Pumps. Item Number: GG-RFU

Battery: Deep-cycle AGM style batteries last an average of 4 to 7 years with proper care. Before replacing, connect to an electric trickle charger to make sure the battery isn’t completely dead.
Item Number: GG-DCB

WARRANTY STATEMENT

Garden Green EcoSolutions, LLC is proud to offer the Solar Rain Pump line and makes every effort to assure that all products meet the highest quality and durability standards.

Garden Green EcoSolutions, LLC, will warrant to the original purchaser that the Solar Rain Pump is free from defects in materials and workmanship for a period of 12 months from the date of delivery to the customer or installation date by a qualified distributor.

This warranty will be extended to all items sold by Garden Green Ecosolutions. Specifically, this warranty applies to all items listed on the most recently published price list as posted on our web site.

This warranty does not apply to damage caused directly or indirectly by the owner, misuse, abuse, negligence or accidents, repairs or alterations performed outside of our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. In no event will Garden Green EcoSolutions, LLC be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you.

This warranty is expressly in lieu of all other warranties, express or implied, including the warranties of merchantability and fitness.

To take advantage of this warranty, please call 1-847-590-5481 to speak with a representative of Garden Green EcoSolutions, LLC. To begin the process you will be asked for the serial number on your Solar Rain Pump.

Garden Green EcoSolutions, LLC may also provide an optional extended warranty. This warranty is available on a yearly basis. Please refer to the official price list as posted on our web site, and a description of what is covered.