

## Introduction

Congratulations! Your SL-Solar® irrigation controller is designed to maintain the health and quality of your landscape while conserving water to minimize your operation costs. The SL-Solar® controller can perform BASIC timed watering schedules or, with the addition of the optional SLW Series On-Site Weather Sensor, the controller's Smart mode will analyze "on site" weather data to automatically set optimum watering times for each zone, based on Weathermatic's patented methodology. Smart mode will also save water by automatically setting run and soak cycles to minimize runoff.

### ATTENTION INSTALLER:

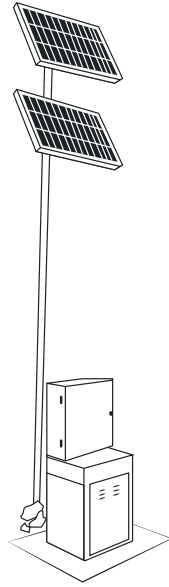
PLEASE READ BEFORE INSTALLING AND SAVE THIS MANUAL FOR SYSTEM OWNER. INSTALLATION INSTRUCTIONS FOR EACH MODEL IS INCLUDED SEPARATELY.

This controller is not intended for use by young children or the infirm without supervision. Young children should be supervised to insure they do not play with this appliance.

If the supply cord is damaged it must be replaced by the manufacturer, an authorized service agent or a similarly qualified person in order to avoid a hazard.

Your SL-Solar is a unique product that allows the actuation of conventional 24 VAC solenoids without the need of being tethered to line voltage. As such, you will need to wire the solenoids in the field using conventional wiring charts and methods for distance and splices.

For information regarding the programming and wiring of the controls, refer to the SmartLine Owner's manual included in the SL-4800 controller cabinet.



## Getting Acquainted with Your SL-SOLAR Controller

Read these instructions thoroughly and completely before beginning installation. A good understanding of the components and assembly will save you a great deal of time. **Check with local building and engineering codes before pouring the concrete pedestal base and the concrete base for the solar panel mounting pole.**

## Materials and Tools Required for Installation

- Mounting brackets and hardware (provided)
- 25' of power cable (provided). This will attach to the bottom solar panel and will run through the mounting pole and through the conduit in the concrete pad into the bottom of the pedestal. You will need to make sure the cable length is adequate. If longer length cable is required, consult your Weathermatic distributor (additional charge required).
- Enough concrete to pour a pad for mounting the controller pedestal and a base for the mounting pole per local engineering and building codes
- 2" metal mounting pole such as 2" SCH. 40 galvanized conduit 12' in length
- 9/16" box end wrench
- 3/8" box end wrench
- 7/16" deep well socket and ratchet
- 7/16" box end wrench

## Step 1: Unpack Your Solar Controller

Your SL-Solar will arrive in 5 separate packages. Make sure all 5 have arrived and are undamaged. Unpack the box labeled 1 of 5. This will contain the pedestal and hardware for mounting the pedestal on the concrete pad.

## Step 2: Install Pedestal and Mounting Pole

1. Pour the concrete pads for the pedestal and the mounting pole with the correct sweeping conduit elbows for wires. You will need a 1 1/4" or larger conduit through the pad that will allow for the solar panel charging wires to be pulled up through the mounting pole. You will also require a separate 1 1/4" or larger sweeping elbow conduit through the pad and attached conduit that extends beyond the poured pad for the installation of the field solenoid wires. It will be helpful to install the pull strings for the wire while you are installing the conduit. Both conduits will need to be positioned so that they come up through the trapezoidal hole in the pedestal-mounting template.
2. Mount pedestal per instructions provided and tighten nuts to elbow bolts securely with 9/16" wrench.

## SL-Solar Accessories

You can now expand your SL-Solar controller to maximize water savings, improve efficiency and improve landscape beauty. Add an on-site Weather Sensor that takes into account rain and freeze and also adjusts for temperature and other conditions that impact the need for supplemental watering. Adding the SmartLink AirCard gives you reliable cellular connectivity and access to the SmartLink web application so you can program your controller and manage it from your computer, tablet or smartphone. This capability also includes water use reporting so you get real-time visibility to the dramatic water savings from Smart irrigation and email alerts for indications of any issues that will impact water savings and landscape beauty.

Model	Description
SL-AIRCARD	SmartLink Aircard
SL-AIRCARDFLOW	SmartLink Aircard with Flow
SLW1	Wired On-Site Weather Station
SLW5	Wireless On-Site Weather Station, 900 mHz
420GLS	Adjustable rain sensor, 20' of wire included, aluminum mount
RFS5	Wireless Rain/Freeze Sensor

### Step 3: Mount Controller Enclosure

1. Unpack package 2 of 5. This contains the enclosure and irrigation controller pre-mounted in the enclosure, along with the required hardware.
2. Remove 5 nuts from the studs on the pedestal and mounting retaining flange from the pedestal.
3. Mount enclosure on top by aligning enclosure with the studs on the pedestal. Place retaining flange by aligning with the studs from pedestal. Then secure nuts on studs and tighten securely with  $\frac{3}{8}$ " wrench.

### Step 4: Install the Batteries

1. Unpack the boxes labeled 3 of 5 and 4 of 5. These will contain the batteries that will store the solar energy and power the controller, solenoids and any Weathermatic accessories.
2. Place both of the batteries in the lower portion of the pedestal. The batteries come complete with wiring harnesses attached. Make sure the battery is not installed on top of any portion of the wiring harness and that it can move freely.

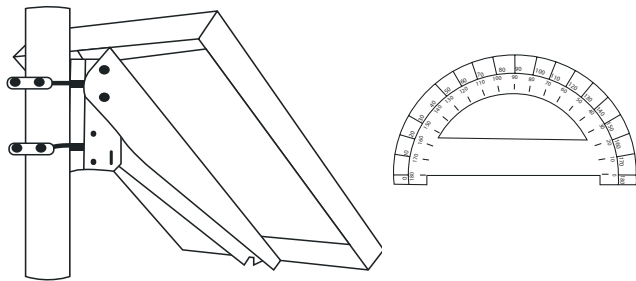
**Warning: Use only Weathermatic approved GEL Cell type batteries. Use of wet cell or Absorbed Glass Mat (AGM) batteries is not authorized and will cause damage to the batteries, charge controller and irrigation controller.**

### Step 5: Install the Solar Panels

1. Mount solar panels per the enclosed instructions to the mounting pole with the lower solar panel at least 8' above ground with hardware included. Solar panels MUST be oriented at 30 degrees and facing due south (for customers in the Northern Hemisphere).

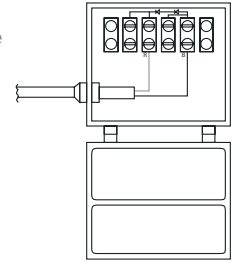
You may find it helpful to assemble the U-Bots and mounting brackets to the solar panel before attaching to the mounting pole.

2. Remove the conduit fittings and wire nuts from the end of the solar charging cable. Now fish the 25' solar power charging cable through the conduit and up through the top of the mounting pole. Replace the conduit fittings and wire nuts after successfully retrieving the end of the wire from the top of the mounting pole.



### Step 6: Wire Top Solar Panel

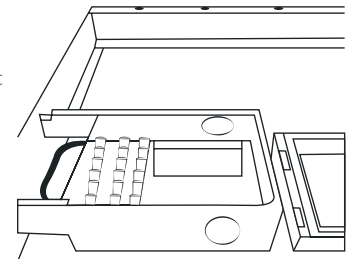
1. Remove the bottom  $\frac{1}{2}$ " knockout from terminal box located on the back of the top solar panel.
2. Connect solar panel interconnect cable to top panel to terminals B (red) and D (black)



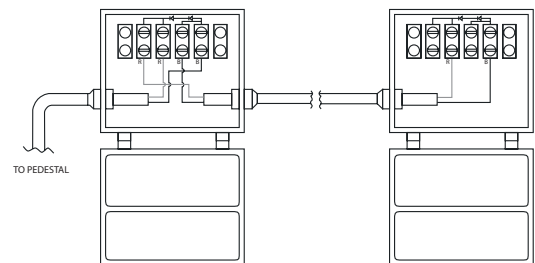
### Step 7: Wire the Top and Bottom Solar Panels Together

1. Remove the top and bottom  $\frac{1}{2}$ " knockouts from terminal box located on the back of the bottom solar panel.
2. Insert the power cable (labeled "pwr cable") through the bottom  $\frac{1}{2}$ " knock out of the bottom panel.
3. Connect power cable to bottom panel to terminal B (red) and D (black).

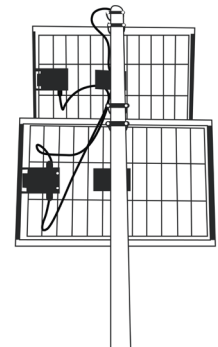
4. Insert the interconnect cable through the top  $\frac{1}{2}$ " knock out of the bottom panel.



5. Connect solar panel interconnect cable to bottom panel to terminals A (red) and C (black).

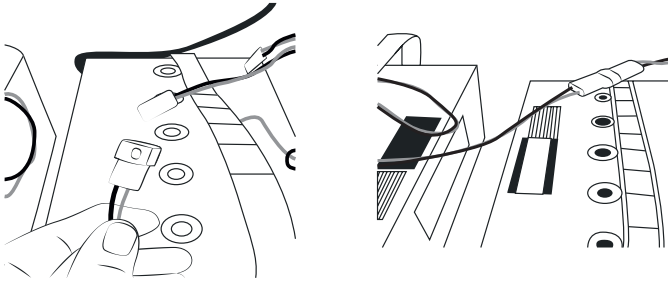
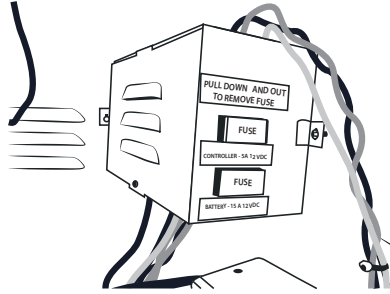


6. When finished wiring solar panels, it should look like this.



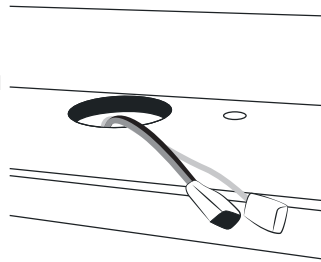
### Step 8: Connect the Batteries

1. If your controller has a flip down fuse holder, open both the 15 amp and the 1.5 amp fuse holders to display each of the fuses. If your controller is equipped with 15 amp and a 1.5 amp circuit breakers, turn each of those breakers to the off position.
2. Connect wires from battery to solar charger using the supplied connectors (E and G). Each battery connects to a separate wire connection. Make sure each connection is fully inserted into the terminal. They will only attach one way to keep polarity.



### Step 9: Connect the Power Supply

1. Run the red /black wires from the power supply up through center hole between the pedestal and the cabinet, then connect appropriate red/black wires from inverter which is mounted in upper cabinet next to controller.
2. Run the green wire from the power supply up through center hole and connect to appropriate green wire coming from lower controller.
3. Connect the wires using supplied connectors. Make sure each connection is fully inserted into the terminal. They will only attach one way to keep polarity.
4. Re-insert your fuse holder clips or return the circuit breakers to the on position. Your SL-Solar Solar controller is now assembled and operational. The control panel for the irrigation controller should be lit and functional. If you previously installed the 9V battery, than the "NO A/C" message at the bottom of the LCD display should no longer be lit.
5. You will want to view the current diagnostics on the remote meter display to check for correct input and solar charging. Under sunny skies you should be reading: 17VDC



### Troubleshooting

Problem	Cause	Solution
No display in controller	Open fuses for inverter and battery	Fuse for inverter is 1.5A Fuse for battery is 15A.
	No display on remote meter and no battery charge	If fuses are good, check battery voltage. This controller is designed to shut down when battery voltage drops below 11v to protect batteries.
	No power from inverter	Using your voltmeter, check for incoming power to the inverter as DC power; check for output power from the inverter as A/C .
No display on charging meter	Faulty wiring connections to solar panels and interconnect cable	Inspect terminal connections Using a voltmeter, check incoming power (DC).  Under sunny skies, you should be reading: 17 VDC  If battery voltage and fuses are good, inspect Solar Manager by removing cover and reviewing diagnostic LED lights on manager
Controller powers up during day, but fails to run cycle at night	Check battery charge. Batteries may not be receiving a full charge or fully charging and therefore do not have the capacity to complete the cycle once solar energy is no longer provided	Check battery charge. The batteries may not be receiving a full charge or may not be fully charging. This diminished charge does not allow for the capacity to complete the irrigation cycle once solar energy is no longer provided. You can check the remote meter for the last charge value.  Review wiring and output voltage from panels  Check wiring and wiring harnesses for correct connections  Remove batteries for testing under load

#### Parts identification and part numbers

Controller: SL4800

Solar panels: SOLARPAN-50

Solar Battery Assembly: SOLARBATT-48

Solar charge control box assembly: SOLARCHG