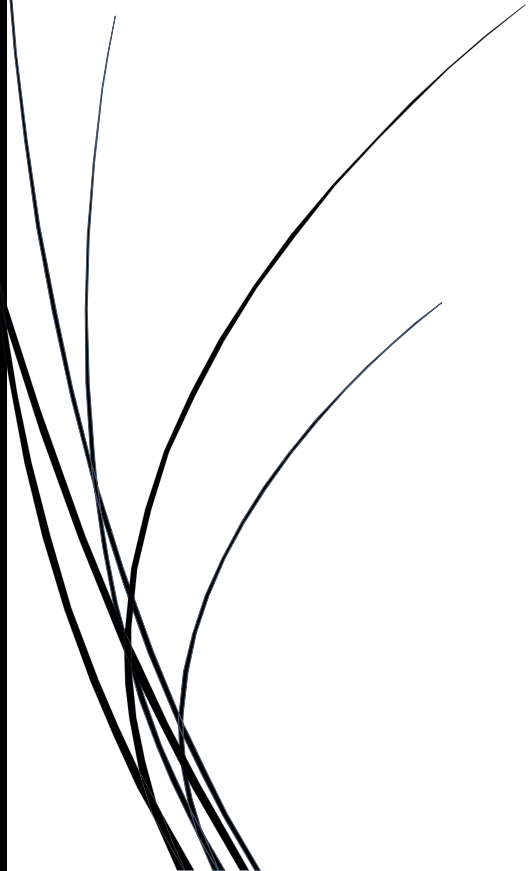


Solar Battery Backup



Delivery check material on delivery

Apparent damage on delivery

The system was properly packed and accepted by the freight carrier for the shipment. It is their responsibility to deliver the system in perfect condition. If the equipment or boxes are damaged customer will need to indicate (DAMAGED IN TRANSIT) on the carrier's freight bill of lading.

Concealed Damage

If damage is discovered, that was not visible upon delivery, notify the transportation company immediately to inspect damaged equipment. The inspector will be required to provide a "CONCEALED BAD ORDER" report. Inspections must be requested within 10 days of delivery. Do not move damaged goods from original point of delivery. Retain all original packing and containers for inspection. Photos will be needed of any damage

Warranty

Outdoor Water Solutions Limited Warranty

Warranty covers all aeration systems from purchase date against defects in workmanship.

1. Outdoor Water Solutions, Inc. (OWS) will replace or repair any part deemed to be defective by Outdoor Water Solutions, Inc., due to defects in quality and/or workmanship within a 2 year period from the initial date of purchase. Note: Wearable parts are considered routine maintenance.
2. Warranty does not apply to OWS products which were installed incorrectly, subject to an accident or neglect.
3. Product returned must have a return merchandise authorization number. Warranty repair must be returned to the address specified by the Manufacturer freight prepaid, and any warranty product sent to the customer will be sent freight prepaid.
4. Warranty coverage may be void if parts other than genuine Outdoor Water Solutions parts are utilized for repair or attached to an Outdoor Water Solutions Aeration system.
5. Proof of purchase/Serial # is required for warranty repairs.
6. If you have any warranty concerns, please contact Outdoor Water Solutions Inc. at 1-866-471-1614 in Canada or USA. International customers can call 1-479-756-1614 with any warranty concerns

Avoid the following Installation Missteps that will VOID warranty

Installing a cabinet inside a box, shed decorative rock or other enclosures. Cabinet is designed to ventilate compressor/motor exhaust. Compressor air requires significant energy and generates heat. The cabinet has high-capacity cooling fans to reduce the heat.

Cabinet is powder coated in a light color to reduce temperatures. Painting exterior causes elevated cabinet temperatures and possible motor failure.

Installing a cabinet in too low of an elevation (below pond/lake level) will be subject to flooding potential. Water that enters cabinet will destroy compressor, fans, and receptacle.

Installation of the cabinet in unusually dirty surroundings will damage the compressor and fans. Outdoor Water Solutions suggests changing the cabinet cooling fans during every compressor rebuild cycle. Not replacing non-working fans can cause compressor(s) failure as the fans will in time will not work

Safety/Warnings

Risk of electric shock - this pump is supplied with a grounding conductor and grounding-type. To reduce risk of electric shock, be certain that it is connected only to a properly grounded.

An improper connection to the aerator grounding conductor can result in electrical shock.

Children being supervised are not to play with the system.

1. Do not place the cabinet where people may step or trip on the PV cords.
2. Follow all warnings and instructions that are marked on or supplied with the aeration system.
3. Never override or "cheat" on installation of electrical.
4. Always locate the cabinet on a solid ground support with adequate strength for the weight of the unit.
5. Install the cabinet at a distance and location safe from standing water or flooding per National Electric Code.
6. Place the cabinet away from irrigation sprinklers.
7. Never push objects of any kind into the slots in the covers, as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock.
8. Never attempt any maintenance function that is not specified in the user manual.
9. In no way remove any covers or guards that require a tool for removal, unless you are instructed

to do so. Ensure that you read all Warnings and Cautions, and follow each step in the instructions exactly as they are written.

10. Never attempt any activity that is not specified in the user manual, or that is not specifically directed by an authorized OWS representative.
11. Never operate the system if unusual noises or odors are detected. Turn system off at disconnect switch and call OWS to correct any problems.
12. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent, or similarly qualified persons in order to avoid a hazard.
13. Before performing any maintenance and troubleshooting, turn breakers to the off position. Disconnect the electricity by turning unplugging the unit from panels.
14. When in or around water, wear a Coast Guard approved life jacket and follow all water safety guidelines.
15. Refer to these instructions as needed in order to ensure the safe operation of the aerator
16. When on site with performance issues call Outdoor Water Solutions Compressor fan, outlet or any other electrical component is in need of service.
 - If the PV cord is frayed or damaged.
 - If the compressor or fan is producing unusual noises and/or odors.
 - Breakers continuously is tripping

Installing solar panels and solar panel rack

Hardware for top pole racking

List of parts for top pole racking

Qty:2- 50" cross pipe poles

Qty:2- Panel kit rail 82" each

Qty:2- L-Bracket

Qty:2- U-Bolt with saddle bracket

Qty:2- Pipe end cap

Qty:4- 2" Hex bolts with nuts and lock washers

Qty:1- Safety hex bolt 5 1/2" with nut and two washers





Tools/Supplies needed to install vertical pole

1. Shovel
2. Tape measure
3. Level
4. (4) bags of 80lbs cement
5. Pile for water to mix cement
6. ½" wrench
7. ¾" wrench

Pole hole dimensions

18"-20" Wide

28"-30" Depth



After hole is dug add provided rebar to pole as shown. This will prevent the pole from rotating in cement.

Important Make sure predrilled hole opening on the top is North and South. This allows the top pole bucket to fasten with a safety bolt and nut



Important Make sure predrilled hole opening on the top is North and South. This allows the top pole basket to fasten with a safety bolt and nut

Start to add cement and water mixture into hole

Check halfway point level front to back and side to side



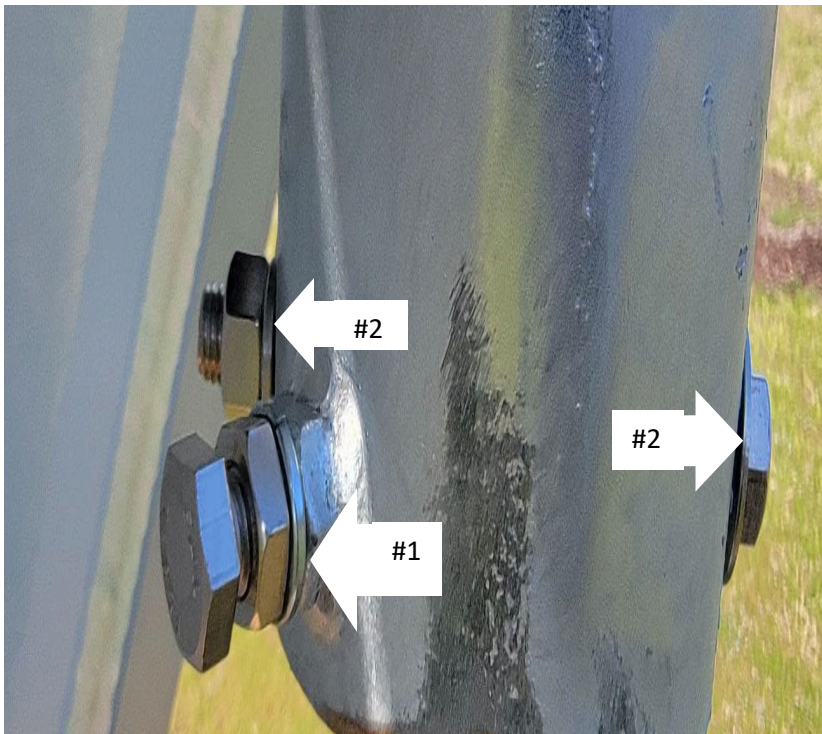
Once cement is mixed now check that the pole is level front to back and side to side

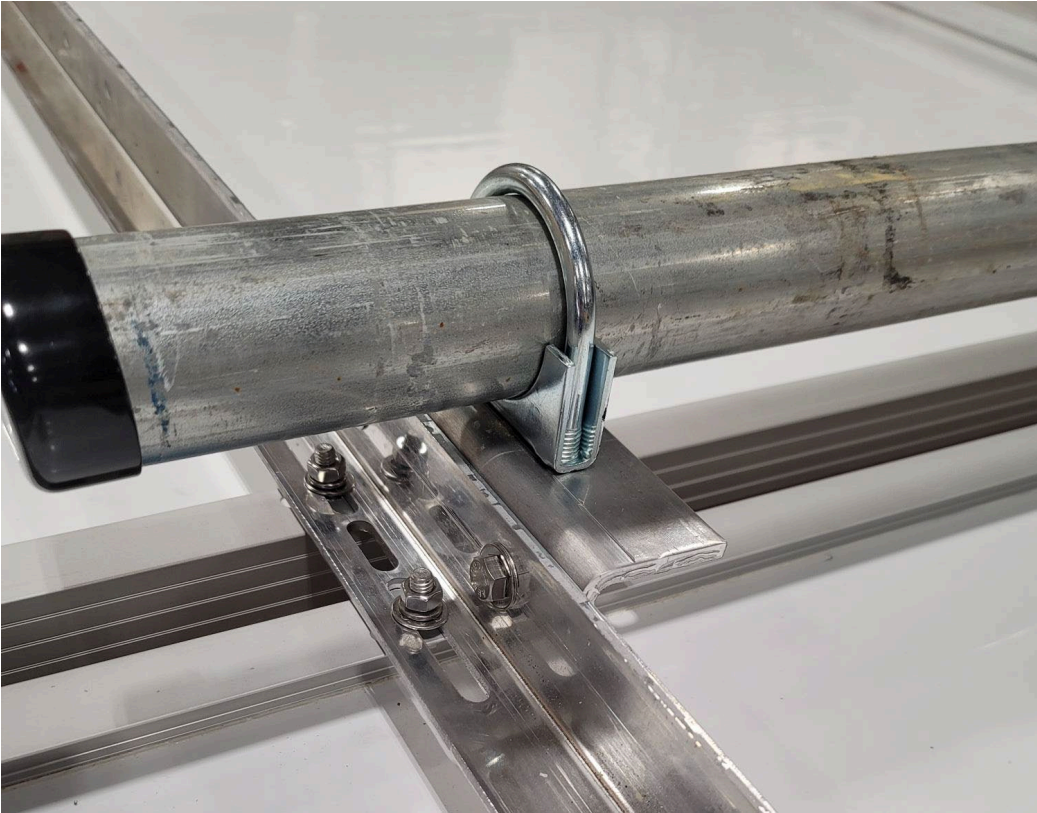
Important Make sure predrilled hole opening on the top is North and South. This allows the top pole basket to fasten with a safety bolt and nut



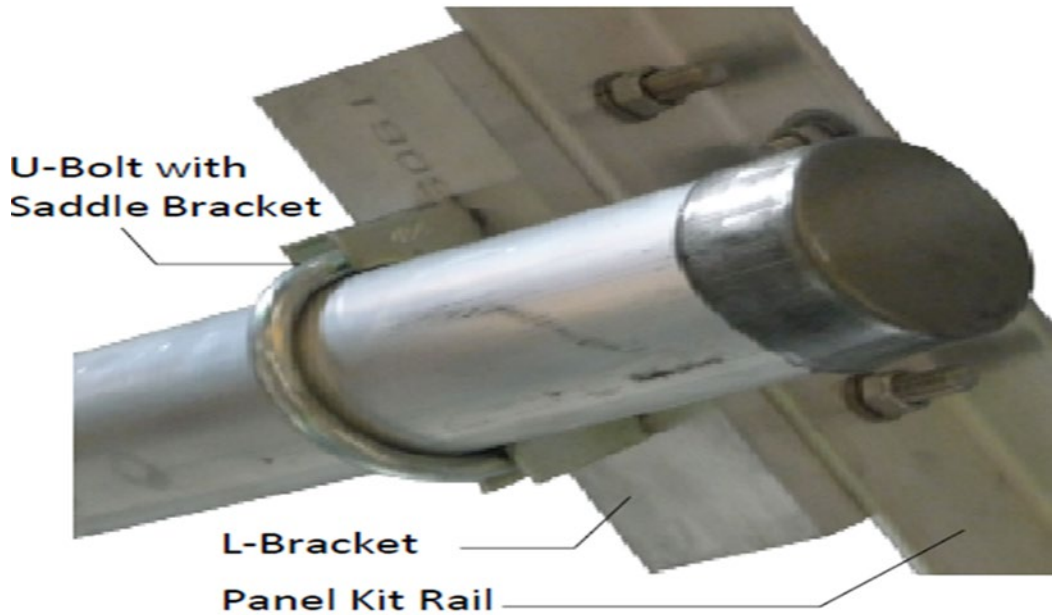
(#1) Bolt and lock washer will insert into pre-threaded inserts.

(#2) safety bolt (Long bolt) will go completely through predrilled hole through pole and tightened





Attachment to Panel Kit Rail





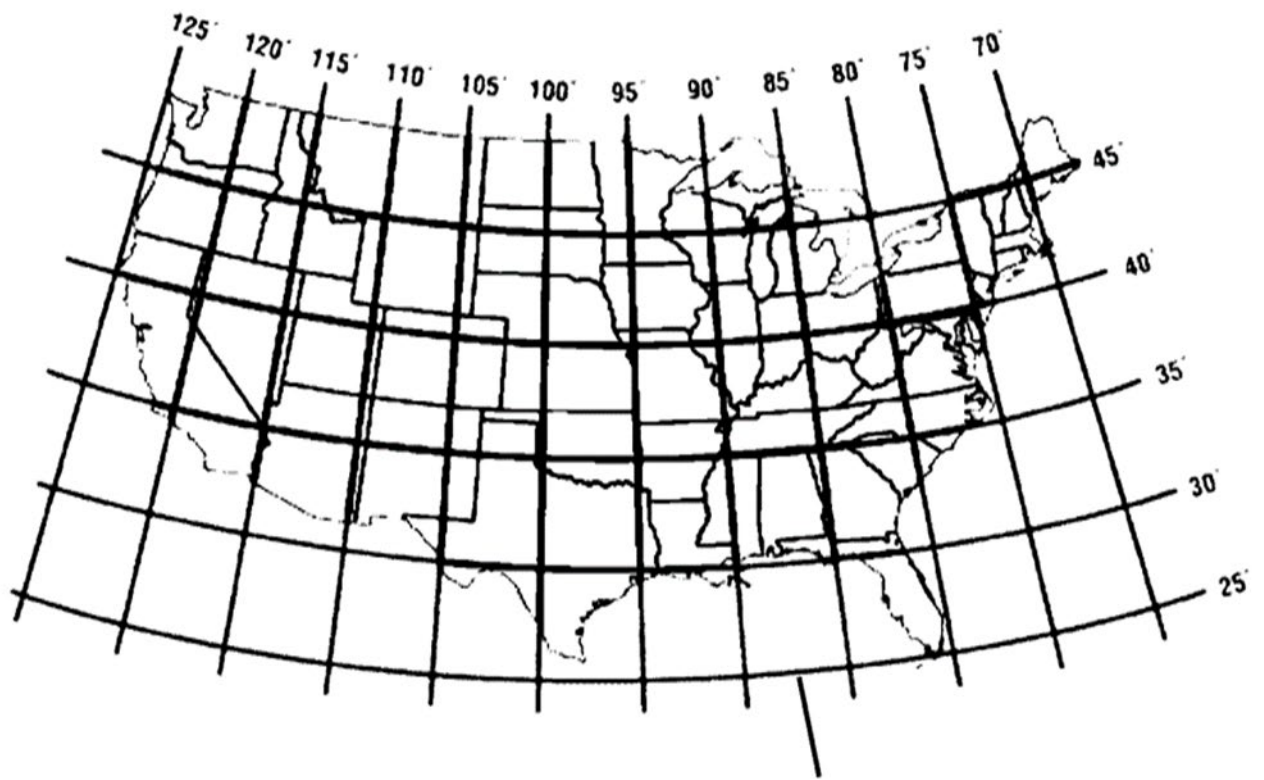
Setting the tilt for your solar panels:

To get the most power from your solar panel the adjustable mounting bracket must be set correctly.

The tilt should be equal to your latitude, plus 15 degrees in winter or minus 15 degrees in summer.

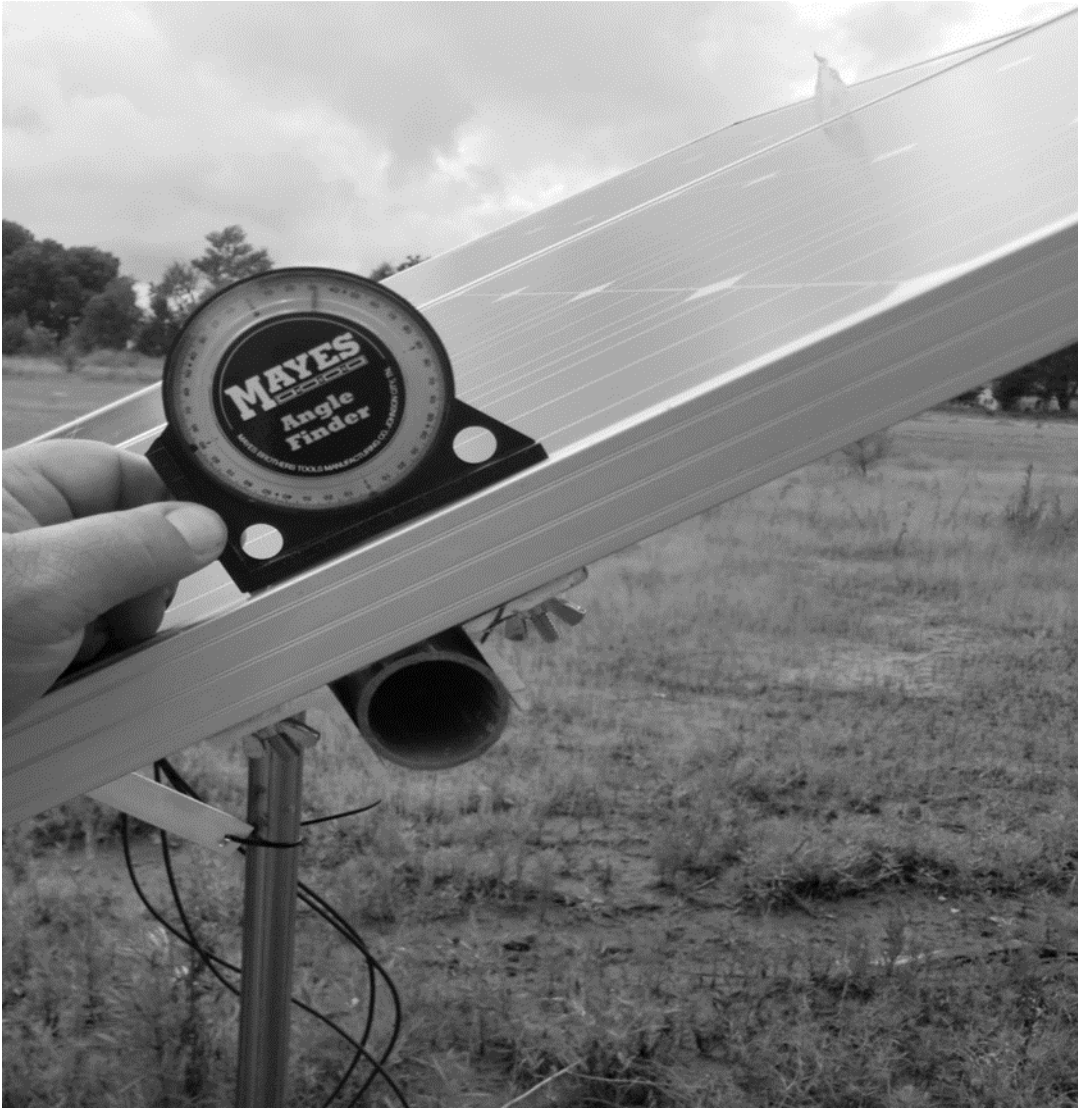
Example: If the Solar Panel is located near Denver, CO which has a latitude of 40 degrees, then:

- 40 plus 15 equals 55 degrees for the winter.
- 40 minus 15 degrees equals 25 degrees for the summer.
- Set the adjustable mounting bracket to correct degrees



Latitude Lines

Use provided Angle Finder to correctly set the right degree for your panel location

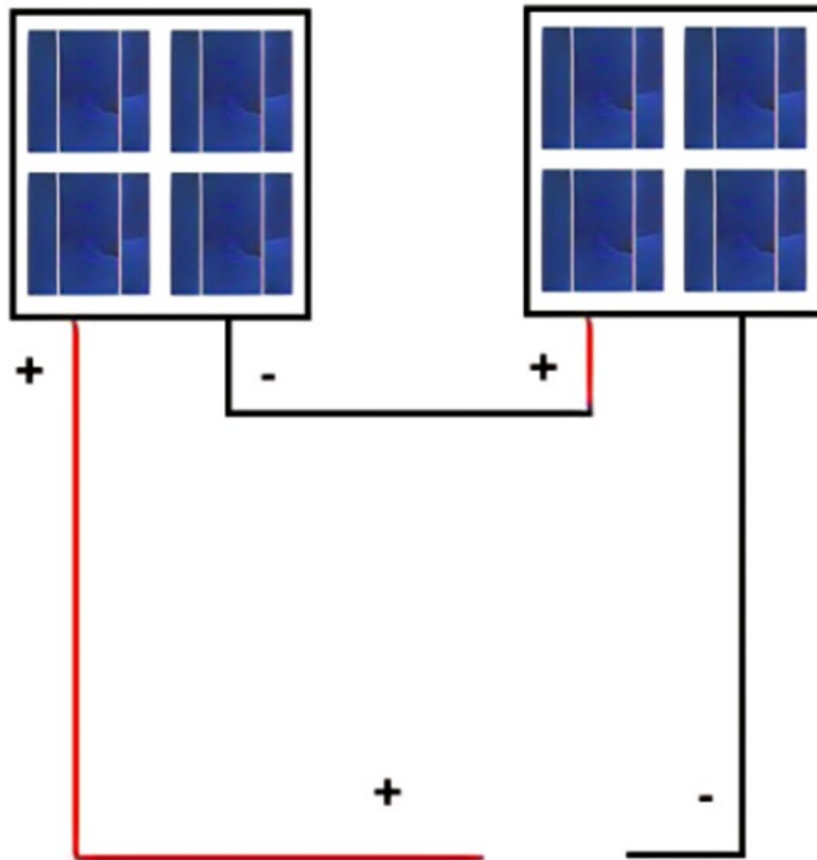


Solar Panels Wired in Series-(amount of panels may vary)

When solar panels are wired in series, the positive terminal of one solar panel is wired to the negative terminal of the next solar panel. When panels are connected in series:

- Voltage accumulates (adds) for each panel in series.
- Wattage accumulates (adds) for each panel in series.

Current (Amps) remains the same as a single panel in the series



The Outdoor Water Solutions Electric Aerator is designed to help keep your pond clean and healthy year around. We hope you enjoy your Aeration system for many years to come.

Installation Instructions:

On install decide on placement of cabinet and solar array. Once determined the position of the cabinet level the ground where placing the cabinet. To reduce vibration noise OWS suggest adding one bag of mulch under cabinet pad. Adding mulch helps reduce the vibration noise. If mulch is not available, use a soft (flexible) organic material.

- Outdoor Water Solutions does not suggest installing the cabinet on a cement pad. Cement will allow for additional vibration noise.
- Do not anchor cabinet to ground.

Installing diffusers

Note: Teflon tape is NOT recommended, not required for threaded connections on diffuser or diffuser plate

While cabinet is powered on keep the longest/deepest airline run open valve fully then turn all other valves off. By completing this you will be able to install the diffuser at the correct position by the boil of bubbles. When finish with first run turn next longest airline run valve on then turn off first valve. Continue same process for each diffuser. Run each airline out to the place in the pond where you would like your diffuser and attach your diffuser. **Note:** Air will travel to the point of least resistance or to the shallow diffusers first. Adjusting the airflow so that it goes to the longest run/deeper diffusers is usually required. **Never retrieve diffuser from bottom of pond by airline.**

Lowering diffusers(See next page for pictures)

We suggest installing your diffuser into the deep part of the pond to ensure complete circulation of your water. For diffusers with a weighted base plate, lower the diffuser down to the bottom of the pond. Using rope will help with control the diffuser sinking to bottom of the pond. You don't have to tie the rope on, just fold the rope in half, lower the diffuser, then pull the rope up by pulling on one half. You can also leave rope attached to the diffuser plate if you would like to pull up years later. It is not necessary to pull back up the diffuser once installed. The diffuser membrane is self-cleaning.

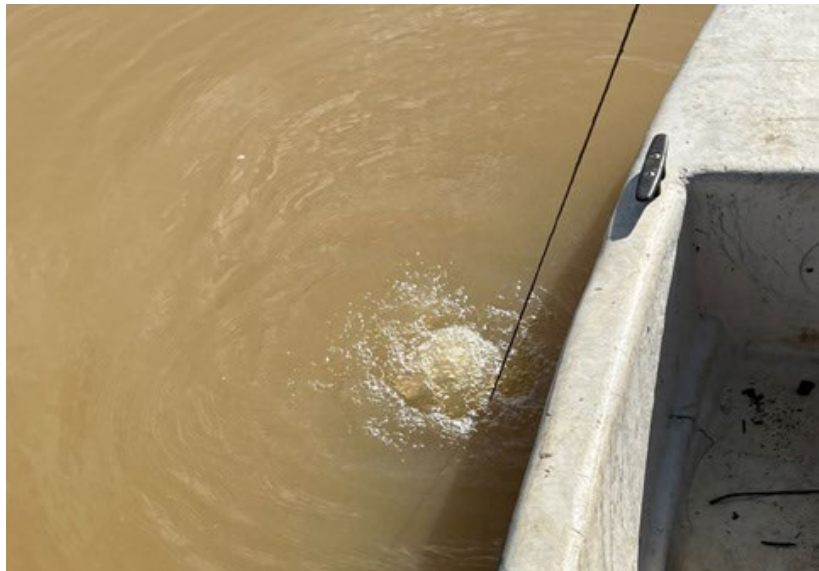
Attaching airline



Attaching rope to lower diffuser



Installing diffuser into lake



Retrieving diffusers from bottom of pond/lake

If necessary to pull up diffuser you can complete the following to avoid pulling up by airline.

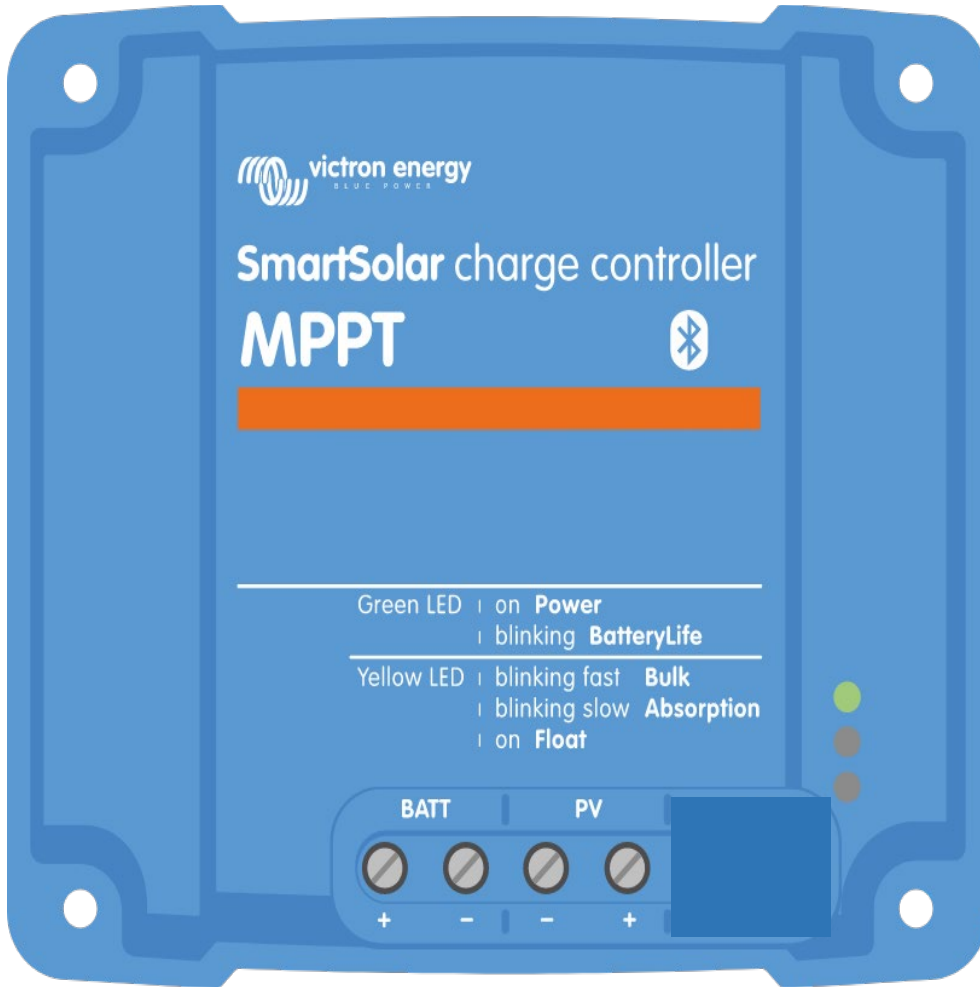
- Add a buoy or float to end of rope that is attached to diffuser
- When installing diffuser attach nylon rope securely to plate. Sink plate to bottom. Cut nylon rope approximately 8-12" above water line. Once rope is cut tie multiple knots in the same position on the rope. By tying multiple knots this will create a float on the end of the rope.

First time and Spring startup:

To prevent a fish kill, OWS has created the following general start-up procedures, this should take 6 days. We recommend turning your electric aerator on for an hour the first day, then turn system off the remainder of the day. Next day increase the time by doubling your hours each day until it is running continuously. On rare occasions, you can have a pond “turnover” if you turn aeration on continuously in a pond not previously aerated. This means the oxygen deprived water in the bottom of the pond rises to the top and your fish cannot survive due to the low oxygen conditions. Doing this startup procedure can prevent any potential issues.

Winter diffuser placement

If you would like to keep the water open for watering livestock in the winter, then you can put the diffuser closer to the shoreline (or move it there in the fall). You can also place the diffuser in a shallower area if you are in a northern climate and have trout, walleye, Northern pike or Muskie in the pond and want the deep parts of the pond to remain colder in the summer months. **Never retrieve diffuser from bottom of pond by airline.**



Important

- Read this manual carefully. It contains important instructions that need to be followed during installation, operation and maintenance.
- Save these instructions for future reference on operation and maintenance

Warning

- Danger of battery explosion from sparking
- Danger of electric shock
- Install the product in a Outdoor Water Solutions cabinet. Ensure therefore that there are no chemicals, plastic parts, curtains or other textiles, etc. in the immediate vicinity of the equipment.
- The product is not allowed to be mounted in a user accessible area.
- Ensure that the equipment is used under the correct operating conditions. Never operate it in a wet environment.
- Never use the product at sites where gas or dust explosions could occur.
- Ensure that there is always sufficient free space around the product for ventilation.
- Refer to the specifications provided by the manufacturer of the battery to ensure that the battery is suitable for use with this product. The battery manufacturer's safety instructions should always be observed.
- Protect the solar modules from incident light during installation, e.g. cover them.
- Never touch uninsulated cable ends.
- Use only insulated tools.
- This product is designed and tested in accordance with international standards. The equipment should be used for the designated application only.
- Connections must always be made in the sequence described in the [Installation](#) chapter of this manual.
- The installer of the product must provide a means for cable strain relief to prevent the transmission of stress to the connections.
- In addition to this manual, the system operation or service manual must include a battery maintenance manual applicable to the type of batteries used.

Automatic battery voltage detection

The solar charger automatically detects supported (e.g 12V, or 24V) system voltage (battery voltage) on first power up. If a different system voltage is required at a later stage, or if the solar charger is connected to a 36V system, this can be manually configured in the solar charger settings.

Optimal solar yield

The solar charger has an innovative tracking algorithm. It will always maximize energy harvest by locking to the optimum MPP (Maximum Power Point). If partial shading occurs, two or more maximum power points may be present on the power-voltage curve. Conventional MPPTs tend to lock to a local MPP, which may not be the optimum MPP.

VictronConnect App

The [VictronConnect App](#) can be used to:

- Monitor the solar charger and view real time solar and battery data.
- Operate solar charger features.
- Access up to 30 days historical data and error history.
- Configure solar charger settings.
- Update firmware.
- All controllers firmware will need updating

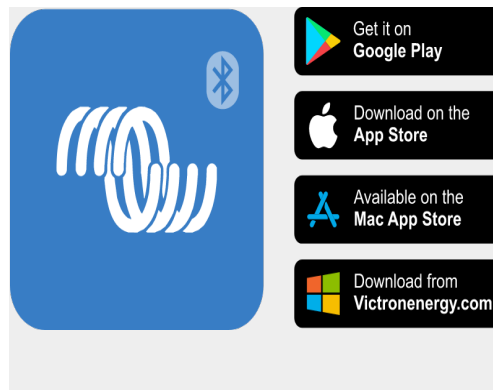
Screenshot of the VictronConnect App, showing real time data and historic data



Bluetooth set-up

The VictronConnect App can be downloaded from app stores or from the [Victron Energy downloads page](#). The app is available for the following platforms:

- Android
- Apple iOS (Note that USB is not supported, it is only possible to connect via Bluetooth)
- MacOS
- Windows (Note that Bluetooth is not supported, it is only possible to connect via USB)



Where to download the VictronConnect App from

The VictronConnect App can connect to the solar charger via its built-in Bluetooth.



VictronConnect App connection via built-in Bluetooth

Load output

The DC loads in the system can be connected to the load output. The load output is controlled by the solar charger and will disconnect the loads in case of a low battery voltage. This will prevent a too deeply discharged battery. The disconnect voltage of the load output and the battery management algorithm can be selected.

Tip

If the firmware of the solar charger needs to be updated, while keeping the automatic voltage detection active, for example before shipping the unit to an end-user, do the following:

- Update the firmware.
- Once the firmware update is complete, go to the settings page on VictronConnect.
- On the settings page click on the three vertical dots in the upper right corner and select "Reset to defaults" from the drop-down menu.
- Un-power the solar charger.

When the unit is powered up the next time it will again perform the initial automatic voltage detection.

BatteryLife

When the solar charger is not able to recharge the battery to its full capacity within one day, the result is often that the battery will continually be cycled between a 'partially charged' state and the 'end of discharge' state. This mode of operation (no regular full recharge) will destroy a lead-acid battery within weeks or months.

The BatteryLife algorithm will monitor the state of charge of the battery and, if needed, day by day slightly increase the load disconnect level (i.e. disconnect the load earlier) until the harvested solar energy is sufficient to recharge the battery to nearly the full 100%. From that point onward, the load disconnect level will be modulated so that a nearly 100% recharge is achieved about once every week

Battery charging

Adaptive 3-stage battery charging

The solar charger is a 3-stage charger. The charge stages are: Bulk – Absorption – Float.

Bulk During the bulk stage the solar charger delivers the maximum charge current, to rapidly charge the batteries. During this stage the battery voltage will slowly increase. Once the battery voltage has reached the set absorption voltage, the bulk stage stops and the absorption stage will commence.

Absorption During the absorption stage the solar charger has switched to constant voltage mode. The current flowing to the battery will gradually decrease. Once the current has dropped below 1A (tail current), the absorption stage stops and the float stage will commence.

When only shallow discharges occur the absorption time is kept short. This to prevent overcharging of the battery. But if the battery was deeply discharged, the absorption time is automatically increased, to make sure that the battery is fully recharged.

Float

During the float stage the voltage is reduced and batteries full charged state is maintained.

BatteryLife continued

Temperature sensing (MUST be Disabled)

Temperature sensing allows for temperature compensated charging. The absorption and float charge voltages are adjusted based on either the battery temperature (accessory needed) or otherwise on the solar charger internal temperature.

Temperature compensated battery charging is needed when charging lead-acid batteries in hot or cold environments.

The temperature compensation can be enabled or disabled in the solar charger settings and the amount of compensation, the compensation coefficient (mV/°C), is adjustable.

Internal temperature sensor

The solar charger has a built-in internal temperature sensor. (MUST be Disabled)

The internal temperature is used to set the temperature compensated charge voltages. For this, the internal temperature when the solar charger is "cold" is used. The solar charger is "cold" when there is only little current flowing into the battery. Be aware that this is only an estimation of the ambient and the battery temperature. Should a more accurate battery temperature be needed, consider using an external battery temperature sensor, see chapter [External temperature and voltage sensor](#).

[External temperature and voltage sensor](#). (Disabled)The temperature compensation range is 6°C to 40°C (39°F to 104°F).

The internal temperature sensor is also used to determine if the solar charger is overheated.

Configuration and settings

Caution

Do not change solar charger settings unless you know what they are and what the effect of changing these settings is going to be.

Incorrect settings may cause system problems including damage to batteries. When in doubt, seek advice from an experienced Victron Energy installer, dealer or distributor.

Charger enabled

This setting Enables or disables the battery charger. It is by default set to "enabled".

This setting can be used when work needs to be carried out on the installation. When this setting is disabled, the batteries will not be charged.

Battery-Life algorithm:

This is a self-adapting algorithm to maximize life of the battery.

Operation

Start up

The solar charger will power up as soon as it has been connected to a battery and/or to a solar panel. As soon as the solar charger has been powered up, it can communicate via the VE.Direct port and Bluetooth. The solar charger's data can be read out and setting configurations can be made using the VictronConnect or the optional display.

The solar charger will commence battery charging as soon as the PV voltage is 5V higher than the battery voltage. For charging to continue, the PV voltage must remain at least 1V higher than the battery voltage.

Battery charging

The charge controller will start a new charge cycle every morning, when the sun starts shining and when the PV voltage is 5V higher than the battery voltage.

Default method to determine length and end of absorption for Lead-acid batteries




The solar charger settings can be configured so it can be tailored specifically for the system it is used in. Do not change solar charger settings unless you know what they are and what the effect of changing these settings is going to be. Incorrect settings may cause system problems including damage to batteries. When in doubt, seek advice from an experienced Victron Energy installer, dealer or distributor.



















Do not change solar charger settings unless you know what they are and what the effect of changing these settings can be. Incorrect settings may cause system problems including damage to batteries. When in doubt, seek advice from an experienced Victron Energy installer, dealer or distributor.

LED indications

The solar charger has three LEDs to indicate operational status, a blue, green and a yellow LED. These LEDs respectively indicate the charge stages bulk, absorption and float, but are also used to indicate other charge situations and fault situations.

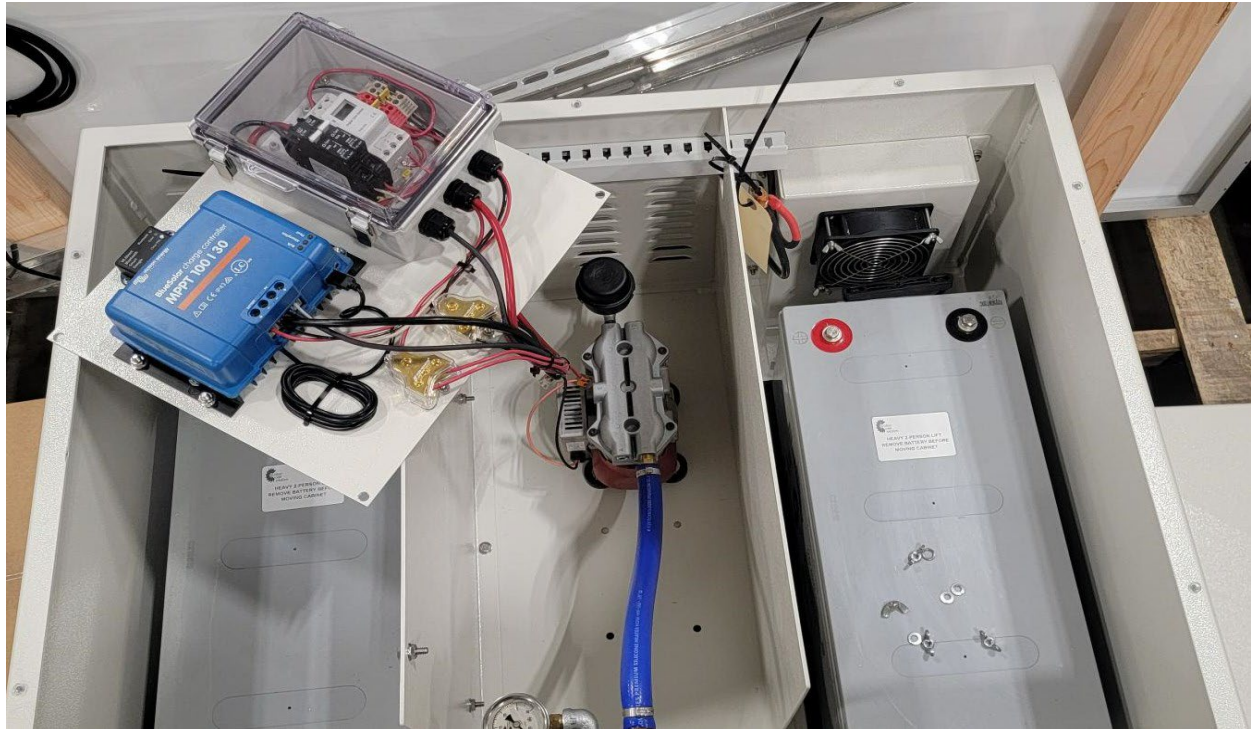
Errors are indicated via a combination of LEDs that are on, off, or are blinking. Each LED combination has a meaning, indicating either a normal operation mode, or indicating an error.

Symbol	Meaning
	Permanent on
	Blinking
	Off

Operation mode	Bulk LED	Absorption LED	Float LED
Not charging ¹			
Bulk ¹			
Absorption ²			
Manual equalisation (alternating blinking) ²			
Automatic equalisation ²			
Float ²			

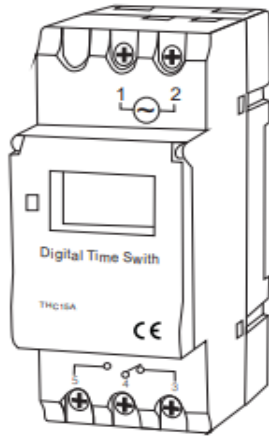
Timer, controller and breaker easy out

For easy access to controller, timer and breakers. You can easily remove the four wing nuts holding the plate. The plate has extra length of wire to set as seen on picture below.



The timer will be preset for Sunday – Saturday, four hour turn off to charge batteries. The timer is preset to Central time zone 10am to 2pm

THC15A WEEKLY PROGRAMMABLE TIMER



■ DIN Rail Installation:

Advanced pre-setting one week before
 Digital electronic time switch with daily programs
 Repeat programs with 16 on/off setting: and manual over-ride
 Lithium battery power reserve
 Auto time error correction ± 60 sec, weekly

■ Technical Data:

Voltage rating: AC 220V 50/60Hz
 Voltage limit: AC 180V~250V
 Hysteresis: ≤ 1 sec/day (25°C)
 ON/OFF operation: 16 ON & 16 OFF
 Power consumption: 2VA(max)
 Display: LCD
 Service life: Mechanical 10'
 Electrically 10'
 Minimum interval: 1 minute
 Weight: approx 120g

Order voltage

12V, 24V, 36V, 48V, 110V

Count down: 1 sec-99min 56sec

Pulse: 1 sec-59min 59sec

Load capacity: resistive load: 16A/250V AC

Lagging load: 10A/250Vac
 lamp load: 2000W

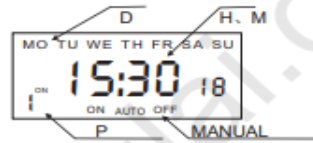
Switching contact: 1 changeover switch

Power reserve: 3 years (Lithium battery)

Ambient temperature: -10~+40°C

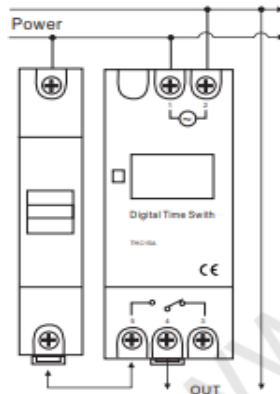
Ambient humidity: 35~85%RH

■ DISPLAY:

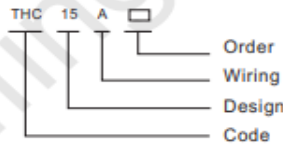


1	Ⓟ	TIMER
2	D+	DAT
3	H+	HOUR
4	M+	MIN
5	🕒	CLOCK
6	C	RESET
7	MANUAL	MANUAL C/R

■ Connection Diagram:



■ Meaning:



■ Operating instruction:

- To start switch: press reset Key. At the first time, if you want to the present time, please press "🕒" On Board, then press D+, H+, M+ to adjust the number to the present time.
- Enter into programming as belows:

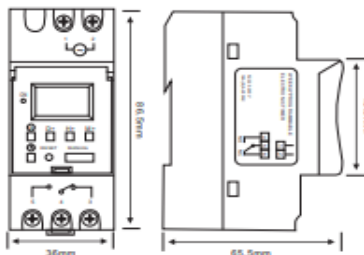
Step	Key	Programming
1	Press Ⓟ	Setting 1 ON time (display 1 on)
2	Press H+/M+	Setting hours and minutes
3	Press D+	To select same every day, or different time each day
4	Press Ⓟ	Setting 1 off time (display 1 off)
5	Press H+/M+	Setting hours and minutes turn off time
6	Press D+	If you want the same every day, you need not press this key
7	Repeat step 2-6	Set 2-16 on/off time
8	Press 🕒	End

If you do not require 16 settings, press "🕒" to the end.

■ Note:

- Time setting should according to the time sequence, couldn't be set crossly
- System will quit automatically if there's no operating within 10 seconds and no data is saved.
- Function 3, 4, 5 can not be used simultaneously.

■ Dimensions:



Maintenance

It is suggested to open cabinet quarterly to reset unit and check for any firmware updates.

- Flip down breakers to the off position wait 30 seconds then flip breakers to on position
- On your application for the system check to make sure the unit is reading and back on

Clean interior of the cabinet from any dirt and debris.

Change filter element every six months

Air Filter replacement/Cleaning

Air filter replacement or cleaning: Unplug system from power source. Remove compressor air intake filter and wash with soap and water or replace with new filter cartridge. Washing or replacing should be completed 2-4 times per year. Ideally every three months for changing filter and cleaning inside of cabinet. Do not reinstall a wet or damp filter cartridge.



Remove top of filter housing



Twist to unlock



Line the notches twist and lock clean or replace

Compressor Routine Maintenance

System should be checked on a regular basis. Suggested every other week check boils in lake. At the least once a month clear any grass or weed debris from around cabinet. When compressor has a loss of compression the boils “Bubbles” in the lake will be not as visible or the boil area becomes smaller from shore. At this time the compressor will need a piston maintenance kit. The kit includes all new seals, flapper valves and piston rings.

Safety first – follow the system on/off procedure in your manual for shutting down the system before commencing cleaning.

Cabinet care- Every six months check the interior cabinet for outside debris and remove if any. Add ant/bug spray in and around cabinet. (as needed)

Inspect for bugs/ants/spiders Remove

Solar Panel Maintenance

For safety reasons, it’s also wise to clean your panels from the ground if possible. A good quality soft brush and a squeegee with a plastic blade on one side and a cloth covered sponge on the other coupled with a long extension can make for the perfect tool allowing you to stay on the ground. Use a hose with a suitable nozzle to allow the stream of water to reach the panels.

What to look for when cleaning: Dust, bird droppings, pollution, pollen, tree sap, plant matter residue, etc., all reduce the overall effectiveness of solar panel generation capacity. Panels must be cleaned regularly to maximize system performance and longevity.

When to clean solar panels: Clean your panels on an overcast day, early in the morning or in the evening. If the sun is beating down on the panels, any water used can quickly evaporate and dirt will become smeared. Early morning can be a particularly good time for cleaning as dew that has settled on the panels overnight will likely have softened grime; meaning you’ll need to use less water and less energy to clean your solar panels. If the panels are dry, before tackling the modules with water, brush off any loose materials first – this will make cleaning easier and faster.

Solar panel cleaning warning: DO NOT use common car-wash soaps and window cleaners which contain alkalines that promote oxidation and require a deionized water rinse. Never use an abrasive soap or a cleaning sponge - the goal is to get the glass as clean and clear as possible and you don't want to scratch it. Outdoor Water Solutions recommends using warm water and dishwashing soap.

Drying solar panels after washing: Dry solar panels with a towel making sure the towel does not scratch the panels. A chamois that you would use for your car is a good choice.

Troubleshooting Guide

Compressor shakes erratically and makes unusual noises	Check for high pressure. Are all diffusers working?	Make sure all airline is open and not clogged. Check all panels have direct sun on a clear day.	Make sure check valves are working properly. There should be no water in the airline.
	Evaluate intake filter for blocked or clogged silencer tube in top of filter housing	Filter needs to be replaced or blockage in silencer tube in filter housing	Clean or replace filter never use a wet filter. Remove any debris that maybe clogging silencer tuber
Compressor stops working for periods of time, then restarts	Inspect cabinet cooling fan for proper function	Compressor overheating from non-working fan	Contact Outdoor Water Solutions or your local dealer. Leave lid open if possible if not unplug system until fan is replaced
No bubbles from any diffuser or airstone, but compressor and fan are running	Check for air leaks, Compressor is running louder and excessive vibration	Compressor intake filter is dirty/clogged or silencer tube is blocked	Clean or replace filter.
No bubbles at one or more diffuser or airstone, compressor and fan are running	Are all valves in cabinet wide open?	Improper balancing of airstones or diffusers	Adjust valves on manifold in cabinet until all diffuser or airstones operate properly
	Valves in cabinet manifold properly balanced and no leaks.	Compressor is beginning to lose compression and needs a rebuild kit.	Contact Outdoor Water Solutions or your local dealer
Compressor stop working, fan is still running	Is there a check valve with bleed off on system. Check valves are located from tubing coming out of cabinet to weighted airline	Double check all panels are clear to direct sun. Check to make sure compressor quick disconnect is connected	Add check valves with bleed off and replace compressor