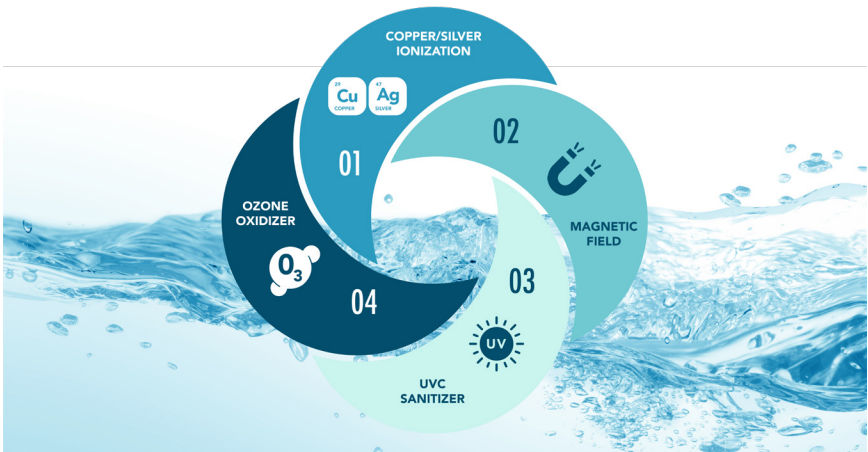


# CLEAR

STATE OF THE ART WATER MANAGEMENT

## USER GUIDE



## CLEAR SYSTEM OVERVIEW

**CLEAR** is a state of the art water management system that is a Clearwater exclusive. It combines four of the best technologies available to provide you the best fresh water experience. We can't say this is a chemical free system, BUT it is the most natural way to have clear water.



**STAGE 1 Copper/Silver Ionization System:** Purifies water using safe and natural minerals which inhibit the growth of algae and bacteria and greatly reduces the need for chemical sanitizers.



**STAGE 2 Magnetic Field:** Water passes by the powerful magnetic field which polarizes molecules and gives water a positive (+) charge. This gives it a silky smooth feel.



**STAGE 3 UVC Sanitizer:** Spa water passes over a focused wavelength ultraviolet (UV) lamp sterilizing the water from microorganisms including algae, bacteria, viruses, and mold.



**STAGE 4 Ozone Generator:** Ozone is an EPA-approved antimicrobial oxidizer, sanitizer, and disinfectant helping to rid water of contaminants, thereby improving water clarity and reducing the need for chemicals.

### Why is it better?

CLEAR allows you to soak in odorless, clear natural water.

To make CLEAR work at its optimum level, we have also included a 35 gallon per minute circulation pump. To put it in perspective, a Clearwater Spa working with our cleaning system and circulation pump, will put every drop of water through the filtration system 5 times an hour.

Most manufacturers use the jets pumps to do two jobs; filter the water on low speed and move water to the jets on high speed. We at Clearwater Spas believe it's more important to dedicate a pump to 24/7 water filtration. Every Clearwater Spa includes a 24/7 circulation pump.

# CONTROLLER OVERVIEW



## Ionizing

When the “Ionizing” light is illuminating, it confirms that the system is ionizing the water. To illuminate, the electrodes must be fully submersed in water, and current must be flowing from the electrodes into the water. The more ions that are being released into the water, the faster the light will blink. The light will look solid at maximum dose.

## Ion/Action

This setting represents the percentage of time in each hour the Ionizer is on for. The suggested setting follows in the operating instructions.

## Large Dose

Press this button to release the maximum amount of ions for the number of hours you choose. The display will count down the number of hours left. The system will return to the previously set Ion/Action setting when the large dose ends.

## “-”

This button will decrease the setting for Ion/Action or Large Dose.

## “+”

This button will increase the setting for Ion/Action or Large Dose.

## Program Lock

This feature will lock the controller at the currently programmed settings. To lock the program, hold down the “-” button and the “+” button simultaneously for 20 seconds. You will see “PL” (program lock) appear on the screen. To unlock, use the same process.

## GETTING STARTED

1. Fill your hot tub with water to the appropriate level (check your spa manual for reference).
2. Test the alkalinity, pH, and calcium levels using the test strips provided. Adjust the water if necessary using the appropriate products.
3. If the TA (total alkalinity) and pH both need adjusting, correct the TA first. Reference the test strip to determine the levels. Your water should read as follows:  
pH: 7.2-7.6 (*too low and the copper cell will erode; too high and copper will precipitate on the spa's surface*)  
TA: 80-120 ppm  
CH: 150-300 ppm
4. Setting the copper level: Set the 'Ion/Action' and 'Large Dose' values according to the chart. Set the 'Ion/Action' first, then set the 'Large Dose'. When the 'Large Dose' expires, test the water with the copper test kit provided. The recommended range is 0.2-0.4 ppm. If the ion level is below 0.2ppm, run the 'Large Dose' function again and repeat until the range of 0.2-0.4ppm is reached.

Liters	Gallons	Ion/Action	Large Dose
750	200	11	11
1,500	400	19	21
1,900	500	24	27
3,800	1,000	35	37
5,700	1,500	53	55
7,550	2,000	72	75
9,500	2,500	90	95

*Please note these are general guidelines only. You will need to adjust the levels based on your copper test kit readings.*

*It will take approximately 2 days to attain the minimum copper residual of 0.2ppm and 5 days to attain the copper residual of 0.4ppm in the maximum spa volume stated above.*

5. **Bacteria Test:** Once the copper has reached optimum level, you may test water for bacteria by following the directions on the bacteria test kit provided. Use the bacteria test strips and repeat as needed. **IMPORTANT! CLEAR IS DESIGNED TO WORK IN CONJUNCTION WITH LOW LEVELS OF CHLORINE.** A minimum of 0.5 to 1 ppm is recommended by the EPA. Check the sanitization levels regularly. **IMPORTANT!** Do not use bromine or chlorine tablets.

If your spa tests positive for bacteria, immediately super-chlorinate your spa using spa chlorine only and do not use for 8 hours.

## GENERAL GUIDELINES

**TESTING:** be sure to develop a routine for testing your water (i.e., weekly, biweekly, etc.) to keep levels within the specified ranges as stated in the 'Getting Started' section of this guide. Remember to check expiration dates of the test strips/kits and replace as needed.

**FILTERS:** cleaning filters is recommended after every 6-8 people have soaked in the spa, or every 6-8 uses. It is recommended that you replace the filters annually.

**SHOCKING:** the CLEAR system includes an ozone generator to oxidize organic material, but an additional oxidizer may be needed if bather load is unusually heavy. Use 2oz. of Potassium Monopersulfate (spa shock) for every 6-8 people or 6-8 uses.

**PHOSPHATES:** the presence of phosphates can keep the system from maintaining the proper level of copper ions. Phosphates can be found in the source water or build up over time from cosmetics or detergents found in swimwear. Ensure phosphates are at 100ppb or less by testing phosphates on an algae free spa (chlorine must be below 5ppm). Use PHOSfree or similar product to treat.

**STAIN & SCALE** or sequestering products conflict with **CLEAR: DO NOT USE.** Stain & scale or other sequestering products will remove the minerals from the water and neutralize new minerals for several weeks. The Magnetic Field portion of CLEAR is designed to prohibit scale. If iron or other contaminants are found in the source water we recommend using a filter that attaches to a garden hose prior to filling.

## EQUIPMENT MAINTENANCE

**COPPER/SILVER IONIZATION SYSTEM:** the copper anode (cell) should be checked every 6 months and will last approximately 2yrs under normal conditions. Additional cells can be purchased from your authorized dealer.

- Cleaning the anode (cell): deposits can be removed using a smooth metal file and water. The surface does not have to be polished; simply remove any traces of oxidation and other sediments.
- Replacing the anode (cell): shut off the circ pump valve and spa system pack valve or drain the spa's water. Turn old cell counterclockwise to release it from the tee. If there is not enough room unthread the spa system pack/heater union adjacent to the anode tee so the plumbing can be moved. Reverse these steps after threading the new cell by hand into the tee. To ensure even wearing of the electrodes, turn until the two prongs are oriented so the water flows between them.
- Cleaning the Controller: The housing of the controller is made from a durable PVC plastic. Clean the outside with mild soap and water, rinse and dry with a soft cloth. Do not use any type of household or abrasive cleaner.

**MAGNETIC FIELD:** no maintenance required!

**UVC SANITIZER:** the UV bulb or lamp should be replaced every 12-18 months even if it is still working to ensure optimum performance. See manufacturer's manual for replacement details.

**OZONE GENERATOR:** no maintenance required! Ozone generators will wear out after a few years. Replace as needed. (Note: the UV and Ozone generator are combined in a single component. The Ozone generator is not replaceable separately)

## **SPECIFICATIONS**

Input Voltage: 120 or 240 Volts AC  
Input Frequency: 50 to 60 Hertz  
Output Voltage: 12 VDC  
Output Current: 2 AMP Max  
Outside Dimensions: 5" x 3" x 2.5"  
Controller: 0-99 variable settings  
Tee: 2" Slip x 2" Slip x 1 1/2" Fipt S40 PVC Tee  
Mineral Cell Size: 3" x 1/2" x 5/16" Each x (2) Bars  
Mineral Cell Weight: 8 ounces  
Typical Mineral Cell Life: 2 years  
Capacity: Max 2,500

## **REPLACEMENT PARTS & ACCESSORIES**

Description / Part No  
Controller (120V) / A-400H  
Controller (240V) / A-400UH  
Mineral Cell / A-750E  
2" PVC tee / PLA-85142

## **NEED HELP?**

Contact your local dealer for assistance.  
Find a local dealer at  
[www.clearwaterspas.com](http://www.clearwaterspas.com)

*Clearwater Spas*