

# CONTROLOMATIC

## SmarterSpa Saltwater Chlorine Generator



## Installation & Operation Manual

**ControlOMatic, Inc.**

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Manuals also available at:


<https://www.controlomatic.com/support/documents>

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# IMPORTANT WARNING AND SAFETY INSTRUCTIONS

- 1 READ AND FOLLOW ALL INSTRUCTIONS
- 2 SAVE THESE INSTRUCTIONS
- 3 **WARNING** – To reduce the risk of injury, do not permit children to use this product
- 4 **WARNING** – Use SmarterSpa only according to these instructions. Any modification or misuse of this product will void the warranty.
- 5 **WARNING** – Install SmarterSpa in accordance with all national and local electrical, plumbing, safety, and other applicable codes.
- 6 **WARNING** – Connect SmarterSpa to a GFCI (ground fault circuit interrupt) or GFI (ground fault interrupt) protected VAC power source only.
- 7 **WARNING** – Protect the power supply and outlet from exposure to the elements including direct sun, rain, snow, condensation, etc.
- 8 **WARNING** – Cutting the cord from the power supply to the SmarterSpa cell voids the warranty. Damage will occur if the connection is reversed.
- 9 **WARNING** – DO NOT use with extension cord. Injury may result.
- 10 **WARNING** – DO NOT operate SmarterSpa if damaged in any way.
- 11 **WARNING** – DO NOT pull on the cord to disconnect the Power Supply from power source. Do not allow the cord be walked on, or to rest on sharp edges or corners. Do not drop, throw, or otherwise rough handle SmarterSpa.
- 12 **WARNING** – Disconnect, remove and store SmarterSpa indoors when spa has been winterized or drained.
- 13 **CAUTION** – Leave spa cover open at least 1 minute to allow trapped gases to escape prior to use.
- 14 **CAUTION** – Measure water quality parameters and adjust if necessary prior to each spa use.

## IMPORTANT WARNING AND SAFETY INSTRUCTIONS

- 15 **CAUTION** – Although SmarterSpa does assist in monitoring chlorine levels, manual water sampling and testing periodically by the owner is required to ensure safe water conditions.
- 16 **WARNING** – Remove the SmarterSpa cell from the SPA when using the SPA.
- 17 **WARNING** – DO NOT handle the SmarterSpa cell during chlorine production (visible bubbling). Slight discomfort may be felt in cuts, sores, or sensitive skin areas due to chlorine concentration and the electrolysis process.
- 18 **WARNING** – DO NOT insert objects into, or tamper with the SmarterSpa cell in any way. Inserting metal objects into the cell may cause damage and void the warranty.
- 19 **WARNING** – DO NOT plug SmarterSpa control box directly into the VAC supply, this will damage the SmarterSpa . Always use the low voltage power supply.
- 20  DO NOT throw away. Please visit [www.controlomatic.com](http://www.controlomatic.com) for recycling instructions.



# SmarterSpa Overview

**SmarterSpa** is a semi-automated, salt water chlorine generation system specifically designed for portable spas up to 1000 Gallons. SmarterSpa generates chlorine from a small amount of ordinary salt (Sodium Chloride, NaCl) dissolved in the spa water. The amount of salt added is very small in relation to the volume of the water in the spa. The concentration required for the SmarterSpa is only about 5% of the salt level of ocean water and below the typical taste level of most humans.

The small addition of salt also benefits spa users by providing a softening effect on the water, leaving hair and skin feeling smoother and healthier than with traditional sanitizing products. 2.5 Cups of salt per 100 gallons (379 liters) of water is all it takes for SmarterSpa to keep your spa water fresh and clean.

SmarterSpa produces chlorine in its pure form using electrolysis in order to sanitize the spa water. The SmarterSpa will start a chlorine production cycle when the chlorine level is low enough. The chlorine in a spa will dissipate quickly due to the warmer temperatures of the water, SmarterSpa's ability to turn on when needed will help to maintain the chlorine level without making too much. After the salt is converted to chlorine, unused chlorine converts back to salt, keeping the salt level steady. When you use the spa your body attracts some salt and when you get out the salt level will drop slightly.

## Water Preparation & Maintenance

To ensure proper operation, the spa must be drained, rinsed, refilled with fresh water, and balanced to the recommended levels indicated in this section before installing the product. Use the included test strips to measure water chemistry and verify that the water is properly balanced. Replacing the filter is recommended but not required unless the spa was previously sanitized with a hydrogen peroxide system. The combination of hydrogen peroxide and chlorine may cause gum-like build up, water discoloration, and skin irritation.

It is important to properly maintain your spa for the health and safety of its users. Spas are unique in both size and usage patterns. SmarterSpa will significantly reduce the amount of spa maintenance required, but regular chemical checkups, including chlorine levels and pH, are recommended. Proper water maintenance will prolong the life of SmarterSpa and the spa. The table lists the generally accepted optimum water chemistry for portable spas.

It is recommended that chlorine and PH levels are checked before each use, or at least once per week when not in use. Alkalinity, Calcium Hardness, and Salt Concentration should be checked at least once per month. It is recommended that the spa is manually shocked after high usage (example: after a party with multiple users), or biweekly if used frequently. Always remember to leave the spa circulating for several hours before retesting. Phosphates in the spa water will increase the demand for chlorine and will reduce the life expectancy of the generator. Remove Phosphates upon start up and each month thereafter. Phosphate Remover can be purchased at any local Pool & Spa supply store.

Parameter	Recommended Level
Free Chlorine	2.0 to 3.0
pH	7.2 to 7.6
Total Alkalinity	80 to 120 PPM
Calcium Hardness	200 to 400 PPM

**WARNING: Consistent chlorine levels above 5.0 PPM (parts per million) or consistent salt concentration levels above 5,000 PPM may lead to corrosion of metal components in the spa.**

**WARNING: Consistently low Calcium Hardness levels below 150 PPM may lead to spa equipment damage and failure. Make sure Calcium Hardness levels are within the recommended range above.**

# Salt Requirement

SmarterSpa will generate either Chlorine or Bromine depending on the type of salt used. Use Sodium Chloride Salt if you prefer Chlorine Generation or Sodium Bromide Salt if you prefer Bromine. Please Note: Each salt requires a different level of salinity for the SmarterSpa to operate effectively. **WARNING: SALT ONLY NEEDS TO BE ADDED ONCE AND BROUGHT TO THE APPROPRIATE SALT LEVEL (BLUE LIGHTS) PER SPA WATER CHANGE. DO NOT KEEP ADDING SALT.**

**CHLORINE SALT - SODIUM CHLORIDE (NaCl):** Raise Salt Level to 1,500 to 2,000 PPM (Parts Per Million). Approved salts include “pool salt” made for salt water chlorine generating systems, canning and pickling salt from your local market, and some water softener salts that are 99% pure sodium chloride or better. Some high-end, mineral enriched salts can be used but require higher quantities to achieve 2,000 PPM sodium chloride salt level. These approved salts are generally available at pool & spa supply stores, home improvement centers and On-Line stores in a variety of sizes. Never use rock salt or salts that have more than 1% “anti-caking agents”, “yellow prussiate of soda”, or “sodium ferrocyanide”, as these compounds may cause surface staining.

**BROMINE SALT - SODIUM BROMIDE (NaBr):** Raise Salt Level to 3,000 PPM (Parts Per Million). There are several manufacturers of Sodium Bromide Salt to choose from. Please make sure the Sodium Bromide you purchase is 99% pure or better. Ask your local pool and spa dealer for assistance.

Salt Type	Pounds	kg	Cups	Salt Level
99% Pure Sodium Chloride (NaCl)	1.5	0.681	2.5	1500-2000 PPM
99% Pure Sodium Bromide (NaBr) Fine Grain Salt	2.5	1.135	4	2500-3000 PPM

## Chart is Based on 100 Gallons or 379 Liters of Spa Water

The amount of salt to add and dissolve is dependent upon the size of the spa. Determine the volume of water in gallons or liters by checking the spa owner’s manual or use any Internet volume calculator.

- 99% Pure Sodium Chloride (NaCl) Coarse Grain Example:
  - For a 350 Gallon Spa: Divide 350 Gal by 100 and multiply by 2.5 to get the amount to add in cups.
    - $(350 / 100 * 2.5) = 3.5 x 2.5 = 8.75$  Cups
  - For a 1250 liter Spa: Divide 1250 liters by 379 and multiply by 0.681 to get the amount to add in kg.
    - $(1250 / 379 * 0.681) = 3.3 x 0.681 = 2.25$  kg and for cups  $(1250 / 379 = 3.3 x 2.5 = 8.25$  cups)

Simply pour the recommended amount of salt directly into the spa water to bring the concentration to the recommended level. Turn the spa jets on. If the water is cold it may take several hours for the salt to fully dissolve, warmer water will help dissolve the salt faster.

**NOTE:** It may take the SmarterSpa a few hours to register the salt level the first time. Wait a couple of hours for the salt to dissolve, and then turn on the SmarterSpa.

**NOTE:** When putting salt in, do not add too much as the SmarterSpa will shut down and display **RED/GREEN** lights at the same time. It is always better to put less in, and then add a little more later if needed. If you have a water softener then your water source may already have some salt, in this case let the water get to temperature and turn the SmarterSpa on before adding any salt to check the current level.

**NOTE:** If you are trying to decide which salt you want to use, ControlOMatic recommends pool salt (NaCl). Sodium bromide (NABR) is around \$13 per pound and pool salt (NaCl) is around \$0.18 per pound. To use NaBr on a 400 gallon spa would cost around \$130 for the salt, and then you would have to buy it again when you drain your spa. ControlOMatic has also received feedback that the smell from Bromine is noticeable.

# SmarterSpa Installation

## Prepare the Spa

Drain and clean the spa, refill and add salt. Allow the water to get to over 95°F and balance the water.

## Installation Steps

1. Add salt.
2. Install a protected electrical outlet, if not already available near, the spa for the Power Supply.
3. Mount the control Box.
4. Drape the SmarterSpa cell over the side of the spa, ensure it is hanging vertically.
5. Turn the SmarterSpa on.
6. Set the power level.



## Power Supply

The power supply supports 100 to 240 VAC with an output voltage of 5.5 VDC. The supply cord from the Power Supply to the SmarterSpa control box is 15 feet. Installing any equipment inside the spa equipment compartment may void the spa warranty or void the safety certification of the spa and is not recommended.

### 110 VAC Electrical Outlet

Locate a GFCI protected outlet near the spa. **WARNING: A 110 VAC GFCI or GFI protected outlet is required.** A weather protective cover is required to house the power supply at the power source connection. Weather protective covers are available at most local hardware stores. If an outlet needs to be installed, have a licensed electrician add a 110 VAC GFI protected outlet.

### 220 VAC Electrical Outlet

The power supply plug style is for 110 VAC. Have a licensed electrician install a 220 VAC GFI protected connection near the spa that will accept a 110 VAC style plug. The outlet may need to be a minimum distance from the spa and the local electrical codes should be checked.

### Power Supply Connector

Remove the tie straps from the SmarterSpa power supply cable and route the cable to the outlet, do not plug in yet. The cable should already be attached to the power supply, the connector has 2 metal pins, one is round and the other is rectangular and can only go in one way, reversing the connection will damage the SmarterSpa. The SmarterSpa includes 2 cable clips, use one (3/16" with a #6 x 1/2" screw) to attach the cable to a solid surface if necessary.

## Cold Weather Operation

The power supply is not designed to operate in temperatures below -4°F or -20°C. If this can't be avoided store the power supply in a warm location when the temperature is low or install the power supply in the spa equipment area where there is some protection.





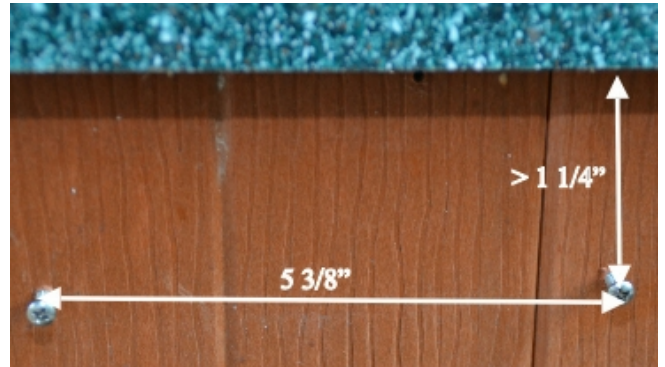
## Mount the Control Box

Find a suitable location to mount the control box meeting the following requirements:

1. Vertical installation with the two cables coming out the bottom
2. Out of direct sunlight
3. A location that will minimize rain and moisture. Even though the box is waterproof, minimizing moisture exposure will minimize the chance of moisture getting inside the box
4. A flat location on the spa skirt that is close enough for the power supply cable to reach the electrical outlet and the cable can be protected or locate on a post or wall near the spa, close enough to the spa for the 10 foot cell cable to reach, with the cell hanging in the deepest part of the spa

The SmarterSpa box mounting flange has two large holes allowing for installing the screws first. There are also 4 corner holes that can be used to mount the control box to the surface.

1. Install the two small screws  $5\frac{3}{8}$ " apart and  $1\frac{1}{4}$ " or more below the top edge of the shell part of the spa
2. Place the box onto the screws and slide the box down
3. Tighten the screws



## SmarterSpa Cell

Lift the lid off the spa and drape the cell over the side into the water. Use the following guidelines for the placement of the cell:

1. For best results place the cell in the deepest location in the spa. When generating chlorine the bubbles will travel up and, if in the deepest location in the spa, will be in contact with the spa water longer
2. The cell must be in a vertical orientation. If lying flat it will generate less chlorine
3. The cell can be located in the filter area if it will fit - but this is not recommended, as the bubbles will not be in contact with the water as long as in a deeper location. When the pump is off the filter door closes and the chlorine level will be much higher in the filter area.
4. The SmarterSpa includes 2 cable clips. Use one of the clips ( $\frac{1}{4}$ " clip and a #6 x  $\frac{1}{2}$ " screw) to fasten the cable to the side of the spa if necessary.

# SmarterSpa-IL Installation

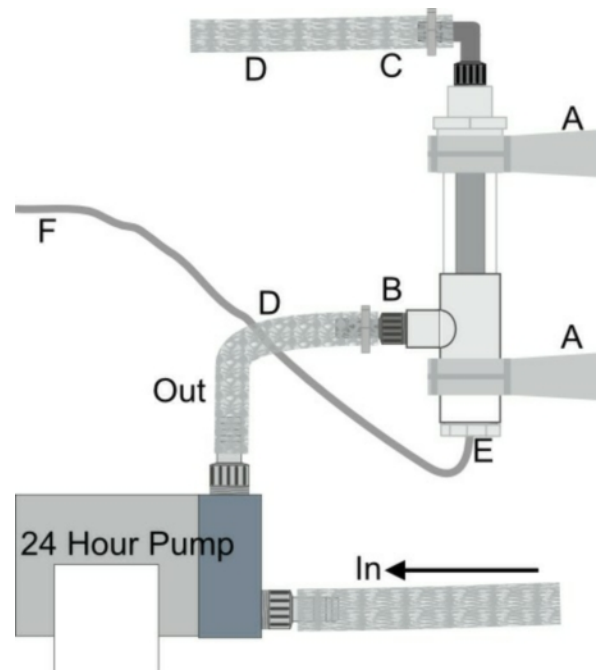
The SmarterSpa in-line installation requires an existing circulation pump in the spas equipment area that is on 24 hours a day. These pumps are very small and usually have 3/4" vinyl tubing which makes installation relatively easy. If there isn't a 24 hour pump the SmarterSpa can be a challenge to install and isn't recommended for the following reasons:

1. The chlorine production will be unpredictable, the main pump is typically not on the same amount of time per day.
2. The existing pump time will need to be increased to give the SmarterSpa enough time to make the needed amount of chlorine, this will lead to higher energy costs.
3. There will not be a suitable location to install the cell; a bypass will be needed from the main plumbing. **WARNING:** Do not install the cell with the main water flow, damage will occur.

The power supply will need to be controlled with the same voltage that turns on the circulation pump. You do not want the SmarterSpa making chlorine when there is no water flow because gasses will accumulate in the plumbing.

## In-Line Installation

1. Open the spas equipment panel. Turn the SPA off at the circuit panel.
2. Locate the continuous (24 Hour) circulating pump and the 3/4" tubing connected to the pump. If the pump has a different size tubing, adapters will be needed. The cell has 3/4" NPT female threads.
3. Install the cell on the **OUTPUT** side of the pump. The tube will need to be cut and reconnected to the cell. Additional tubing may be needed if the existing tube is not long enough or is hard to access.
4. The location of the cell should have no obstructions at the cable end of the cell. This is to allow for cell removal, replacement and cleaning.
5. Water shut-off valves (not included) may be installed at (D) to aid in future maintenance and cleaning of the cell
6. Install the two pipe brackets (A) with the 2 screws. A suitable location also includes an appropriate mounting surface for the screws. Do not install the brackets to insulation.
7. Install the two 3/4" barb fittings to the cell using Teflon tape. The cell should be mounted vertically to prevent chlorine gas from being trapped inside the cell. Based on the location of the install, decide if the 90 degree barb fitting should go on the side or the top (B and C).
8. **Connect Tubing To Cell:** Cut the existing tube and reconnect the ends to the two 3/4" barb fittings on the cell. Use the supplied clamps at (B and C) to securely fasten the tube to the barbs on the cell. Note that some water will spill from the cut tube even though the spa has been drained or shut-off.
9. The cell cable ( F ) needs to be routed to the SmarterSpa box. Follow the instructions in CM-CELL-HIDE to remove the cable and install the cable grip.
10. Apply Teflon tape to the electrode and install the electrode into the in-line cell.
11. When the cell (E) is removed for cleaning or during installation, use the plug to seal the hole.





# SmarterSpa Operation

The SmarterSpa has **3** buttons and **4** lights built into the overlay on the control box. With the buttons you can check the power level, change the power level and put into boost mode. The lights indicate the salt level and the current mode (making chlorine or standby).

## Power Up

To turn on the SmarterSpa plug in the power supply (wall transformer). When the SmarterSpa turns on it will flash the lights as follows:

1. **WHITE & BLUE** - Blinks three times
2. **WHITE, RED, BLUE, GREEN** - will flash in that order
3. Chlorine production may start within a few minutes depending on the chlorine level. Typically the **WHITE** LED will flash at the 10 second rate indicating standby mode until the unit determines that the chlorine level is low enough to start a chlorine production cycle.

## Making Chlorine (Salt Level Indication)

When making chlorine, SmarterSpa will indicate (with a solid colored light) if the salt level is high, low or normal. If it is low that is OK, you could add more salt if you want, but not required. The salt indicator isn't a measurement of the actual salt concentration, it is more of a measurement of the power going to the titanium plates. When using Dead Sea salt or salts that have a high mineral content SmarterSpa will display a salt value that is higher than the actual salt level because of the added minerals, chlorine is only produced from the actual salt (NACL) and not the minerals.

If the lights are on solid, SmarterSpa is producing chlorine:

- Solid **GREEN** - Salt Level High, don't add salt
- Solid **BLUE** - Salt Level Normal, can add salt if not making enough chlorine
- Solid **RED** - Salt Level On The Low Side, should add salt, especially if not making enough chlorine
- Solid **RED / GREEN at the same time** - Salt Level has exceeded the maximum and the SmarterSpa has shut down to protect the power supply and the cell. Drain out some water and refill to dilute the salt level. Cycle power or press the boost button to have it check again. Perform the tests in the troubleshooting section.

## Standby Mode (Not Making Chlorine)

The SmarterSpa does not have a cycle time, it turns on when needed. When the chlorine level is low SmarterSpa will detect that and start an on cycle that will last 30 minutes for power level 1, 1 hour for power level 2 and an additional hour per power level. On level 3 it will be on for 2 hours. There will be visible bubbles coming out of the cell and you can tell the salt concentration from the light color. When the time is up it will turn off and wait for the chlorine to drop again and then repeat, this may take many hours. When it is in the off mode (standby) the lights will flash **WHITE** every 10 seconds.

## Sanitizer Voltage

SmarterSpa measures the sanitizer as a voltage that is only an indicator of if there is or isn't sanitizer. If the voltage is low enough that means the chlorine is gone, if the voltage isn't low then there is chlorine. SmarterSpa doesn't measure the actual chlorine that you would measure with a test kit, only that the chlorine is gone. There may be periods of a few hours when you would measure no chlorine and SmarterSpa hasn't turned on yet and that is normal. When you manually maintain a Spa, it may not have chlorine for much longer.

# Power Levels

SmarterSpa includes 10 power level settings that are set based on water volume, usage and testing. The SmarterSpa factory setting is 3 (2 hours). The output power to the cell is always the same. The power levels change the amount of time the cell is energized when it turns on.

## View the Current Power Level Setting

Simply press the UP or DOWN arrow button once and count the **WHITE** flashes. Each flash represents a power level. For example: 3 **WHITE** flashes = power level 3, 7 **WHITE** flashes = power level 7. After the power level is displayed SmarterSpa will display either the chlorine value, current to the electrode or the zero point, see the Advanced section at the end of this manual.

## Change Power Levels

1. Press both the UP arrow and the DOWN arrow at the same time. The **WHITE** Light will turn on solid indicating that it is in power change mode. If the **WHITE** light flashes the power level try again.
2. Press the UP arrow to increase power - the **GREEN** light will flash each time the UP arrow is pressed. If set at the maximum power level of 10, the **GREEN** light will be on solid.
3. Press the DOWN arrow to decrease power - the **RED** light will flash each time the DOWN arrow is pressed. If at the minimum power level of 1, the **RED** light will be on solid.
4. When finished do not press any buttons for 3 seconds. The **WHITE** light will flash (count the flashes) confirming the new power level setting.

## Selecting the Right Power Level

Selecting the right power level requires some testing and adjustment. There are many factors that affect the sanitizing needs of a spa such as: Frequency of spa use, number of people, if there is an Ozone Generator, spa temperature, last drain and refill, phosphate level, etc. After the testing and adjustment period, SmarterSpa will take care of your sanitation needs day after day.

As a starting point, set the power level to the general recommendations shown in the chart below. This is only a starting point and the final level may be very different. Use the following procedure to find the power level for your spa.

**Day 1:** Set the power level according to the table and the size of your spa.

**Day 2:** Measure the chlorine level **at the end of a chlorine production cycle**. If it is higher than you want lower the power level by 1. If it is lower than the level you want raise the power level by 1.

**Day 3:** Repeat the Day 2 step until the chlorine remains constant at the required level for a couple days.

**NOTE:** If the chlorine level is 0 PPM, 24 hours after installation, the initial chlorine demand on the spa may be above what SmarterSpa can produce in order to break away from zero. In this case, manually add chlorine or shock (according to the product label) to assist in the initial set-up. If the salt indicator is low you can add a little salt.

If spa usage drops (vacation, winter, etc), **it isn't necessary to change anything, SmarterSpa will automatically increase the time between chlorine production cycles**. If the spa isn't going to be used for an extended period of time it is OK to lower the power level.

Power Level	Gallons	Liters
1 - 3	< 200	< 760
4	200 to 300	760 to 1150
5	300 to 400	1150 to 1500
6	400 to 500	1500 to 1900
7	> 500	> 1900

## Boost Mode & Power Level Times

Activating Boost Mode will start a chlorine production cycle. To activate Boost Mode simply press the Boost Mode Button, the **GREEN** and **BLUE** led's will flash letting you know a production cycle will start. **IMPORTANT: The SmarterSpa can't make chlorine faster. The Boost Mode simply turns it on for a single cycle. If the spa chlorine has dropped to 0 PPM from heavy usage, chlorine may need to be added.** If currently in a production cycle pressing the Boost button will terminate the production cycle and place the SmarterSpa in standby mode. The boost button is an easy way to start or stop a chlorine production cycle. When Boost Mode is active, the salt level light will flash.

Power Level	ON Time	Power Level	On Time
1	00:30:00	6	05:00:00
2	01:00:00	7	06:00:00
3	02:00:00	8	07:00:00
4	03:00:00	9	08:00:00
5	04:00:00	10	09:00:00

# SmarterSpa Advanced Operation

SmarterSpa makes chlorine for a while, then stops and waits for the chlorine to drop to 0 and repeats. The best time to manually measure the chlorine is after you observe the SmarterSpa making chlorine for a couple hours.

Reading the flashing color values: Count the **GREEN/BLUE/RED** flashes to get the value. The calculation is: **GREEN**\*100 + **BLUE**\*10 + **RED** = the value. No **GREEN**, three **BLUE** and 4 **RED** flashes would be 34.

## **DOWN Arrow Display**

### **Sensor Voltage - If in Standby Mode**

The built in sensor measures for the absence of sanitizer as a small voltage. To view the current voltage reading - press the Down Arrow while in standby mode - The **WHITE** light will flash the power level and then the current sensor value is displayed. When this value is low enough (Zero Point), SmarterSpa determines the chlorine is gone and will start a cycle.

### **Electrode Current (Salt Level) - If in a Chlorine Production Cycle**

When in a chlorine production cycle the SmarterSpa is measuring the power going to the electrode and the actual reading can be displayed by pressing the down arrow. Press the down arrow in standby mode to display the sensor value, and when in a production cycle display the electrode power. If the value is over 160 the salt is too high and exceeds the limit, SmarterSpa will suspend chlorine production. If SmarterSpa isn't making enough chlorine and this value is lower than 125 add salt.

## **UP Arrow Display**

### **Chlorine Production Zero - Standby mode or Chlorine Production Cycle**

SmarterSpa measures for the absence of sanitizer as a voltage with a built in sensor. When the sensor value drops below the Zero Point, SmarterSpa will start a chlorine generation cycle. The Zero Point should be set to a value that represents no chlorine when measured with a test kit, SmarterSpa will turn on when the chlorine is gone. The default value from the factory is 15, and will most likely never need to be changed.

To view the zero point - press the Up Arrow - The **WHITE** light will flash the power level and then the zero point is displayed.

### **Changing the Zero Point**

If you need to adjust the Zero Point press and hold the Up Arrow until after the current zero point has displayed and the **WHITE** led is on solid. While the **WHITE** led is solid pressing the up arrow will increase the zero point by 1 and pressing the down arrow will decrease it by one. The range is 10 to 60 and when at 10 the **RED** led will be on solid and when at 60 the **GREEN** led will be on solid. Increasing the value will tend to increase the chlorine level (turn on quicker when the chlorine is gone), decreasing the value will increase the length of time in standby mode which will lower the chlorine level.

# Troubleshooting Guide

It is always a good idea to revisit the user manual to make sure installation or maintenance steps were not overlooked before referring to the trouble shooting section.

## Red and Green Light on at the Same Time

This is by far the most common problem and is an indication of too much salt. Even if you added the correct amount and the salt level measures OK, the indication is dependant on water temperature and other minerals in the water. It is always a good idea to start off low and add more salt after a couple days.

If you contact ControlOMatic with this problem you will be asked for the results of the following tests.

- **Easy First Test**

Take the electrode out of the water and turn it on (or press boost) so it starts making chlorine, if the lights still turn green/red then there is a problem and it isn't the water.

- **Second Test – The Bucket Test**

Fill a 5 gallon bucket 2/3 with spa water and 1/3 with fresh water. Turn the unit off and leave in the bucket for 5 minutes to adjust to the temperature. Turn it on and see if the lights are blue when making chlorine, if they are then remove 1/3 of the spa water and replace with fresh water. If not try again but fill the bucket 1/2 with spa water and 1/2 with fresh water and try again.

- **Power Supply Test**

There is a slight chance it is the power supply, if you have a voltmeter measure the DC voltage and it should be around 5.5 Vdc. If it is higher, like 8 then that would cause the problem and the supply is bad.

- **Disconnect Electrode Test**

The problem is either the circuit board or the electrode. Open the control box and disconnect one of the two wires to the electrode so the electrode is now disconnected. Turn the unit on and when it starts making chlorine if the problem goes away then it is the electrode, if the problem doesn't go away it is the circuit.

If after performing these tests the led's remain red and green then there may be a short in your saltwater system so please contact us.

## Plates Need Cleaning - White Calcium Deposits

- If there is a white calcium buildup between the titanium plates, this will interfere with the chlorine production. Disconnect the power before cleaning. Soak the cell in a mild acid (white vinegar or pH down) for 10 to 30 minutes and rinse in clean water. Repeat until the white deposits are gone

## RED Lights While Making Chlorine

- Salt level low: Add salt. Before adding salt it is a good idea to measure the salt level first
- Check the cell for white calcium buildup and if present clean the plates
- Plates damaged: Unit needs to be replaced. The plates will last 7000 to 10000 hours of chlorine production and the SmarterSpa may be at the end of its life. Note: The lower the power level you can operate on, the longer the SmarterSpa will last

## Consistently Low Chlorine

- Power level too low: Increase the power level
- **Make sure you are measuring the chlorine at the end of a chlorine production cycle**
- Raise the Zero Point so the chlorine doesn't have to get as low for a production cycle to start. See the Advanced section.

- If the salt indicator is low add a little salt.
- Plates need cleaning: See above
- High bather load: Additional chlorine or shock may be needed
- Very high salt level: The **RED** and **GREEN** lights may be on indicating a very high salt level. When this happens the SmarterSpa shuts down and will stop making chlorine to protect the power supply. Drain out some of the water and refill with fresh water to lower the salt level. Cycle power or press the boost button to start a production cycle to test again.
- Just doesn't keep up:
  - Remove organic material such as leaves and clean the filter
  - Make sure the SmarterSpa DO cell is at the deepest point in the spa and in a **VERTICAL ORIENTATION!**
  - Remove the phosphates: Phosphates are food for algae and consume chlorine. The SmarterSpa makes chlorine slowly and removing the phosphates will help lower the spas chlorine consumption demand
  - Shock the water: You can use either a chlorine based shock or chlorine free

## Consistently High Chlorine

- Power level too high: Lower the power level
- Lower the salt level by adding some water

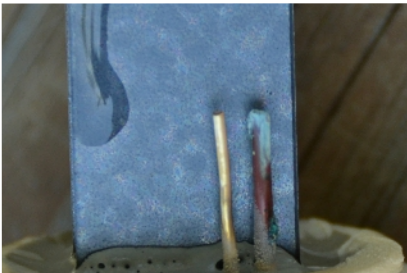
## The SmarterSpa is off, No Lights

- Check if in the standby part of the cycle, watch and see if the **GREEN** lights flash every 10 seconds
- The GFCI circuit breaker has tripped. Verify that there is input VAC.
- The power supply has been damaged. The rain cover didn't prevent moisture from the power supply, was subjected to freezing weather or the cord has been cut.

## Sensor Maintenance

The chlorine sensor is part of the electrode and includes a gold and copper wire. The wires are visible through the holes in the electrode cell and should be inspected from time to time to make sure they are clean. In the picture the gold wire is clean and the copper wire has some buildup on it. To clean the wires:

- Soak in a mild acid, and then use a brush.
- Carefully clean, as to not damage the sensors.





# Replacement Parts & Accessories

The titanium plates of any saltwater chlorine generator will eventually wear out and need replacing. Visit [www.controlomatic.com](http://www.controlomatic.com) and select Shop which will take you to our store.

Item	Part Number	Type	Description
1	TCPSa	Power Supply	Replacement power supply for ChlorMaker & SmarterSpa
2	SS-Electrode	Electrode	SmarterSpa replacement electrode with chlorine detection technology
3	SS-IL-Electrode	Electrode	SmarterSpa-IL replacement electrode with chlorine detection technology
4	Insta-Test-4	Test Kit	Insta-Test 4 Spa Test Strips, Chlorine, pH, Hardness & Alkalinity
5	Insta-Test-Salt	Test Kit	Insta Test Salt Pool and Spa Test Strips Sodium Chloride
6	CELL-HIDE	Kit	Includes 2 cable grips to hide the electrode with the filter
7	PS-HIDE	Kits	Includes a 2 foot pigtail and 1 cable grip to connect the control box to the spa pack

# Limited Warranty

Models: This warranty applies to SmarterSpa models referenced as “System”.

ControlOMatic, Inc. Warrants the system to be free of all defects in material and workmanship for one (1) year from the owners original purchase date. The system includes the power supply unit, cable, electronics, and electrolytic generator for residential use only. The product must be installed properly and used in accordance with this manual and all applicable local codes and regulations. This warranty is not transferable (proof of purchase may be necessary). Damage to the system from improper water maintenance is not covered in this warranty.

In no event shall ControlOMatic, Inc. be liable for consequential damages for breach of this warranty. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply. The warranty does not cover any loss or damage to the product due to improper installation, product abuse, misuse, negligence, or improper maintenance of the system, pool or spa. The warranty does not cover any loss or damage to the spa, spa components, users, or anything outside the system due to system failure. Since ControlOMatic has no control of the use of this system the purchaser assumes all responsibility for using the system.

This warranty does not apply to any costs, repairs, services, damages, claims or losses for all of the following: Service calls to install, re-install or correct the installation of the product, or to explain the usage of the system to the buyer, repairs necessitated by use other than normal home use, damage resulting from misuse, unintended use, unforeseen use, non pool or spa use, abuse, accidents, alterations, improper installation, or corrective work necessitated by repairs made by anyone other than an authorized service technician.

THE FOREGOING WARRANTIES ARE CONTINGENT ON THE PROPER USE OF THE SYSTEM IN ACCORDANCE WITH THESE INSTRUCTIONS AND SPECIFICATIONS AND SHALL NOT APPLY TO ANY SYSTEM THAT HAS BEEN REPAIRED OR MODIFIED BY PERSONS OTHER THAN THE MANUFACTURER.

THE EXPRESS WARRANTIES SET FORTH IN THIS AGREEMENT ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. MANUFACTURER HEREBY SPECIFICALLY DISCLAIMS ANY OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT WILL MANUFACTURER'S LIABILITY FOR ANY CLAIM, WHETHER IN CONTRACT, TORT OR UNDER ANY OTHER THEORY OF LIABILITY, EXCEED THE AMOUNT NECESSARY TO REPAIR OR REPLACE THE COVERED SYSTEM.

Should any problem develop during the warranty period contact ControlOMatic, [www.controlomatic.com](http://www.controlomatic.com).

## Product Registration

Register your SmarterSpa online at [www.controlomatic.com/support](http://www.controlomatic.com/support)

or

fill out the registration form and mail it to:

**ControlOMatic, Inc.**

**12659 Arbor Lane, Grass Valley, CA 95949**