

Water that's fresher, clearer, easier

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### **SAVE THESE INSTRUCTIONS**

These instructions noted below are specific to the Saltwater Generator:

### INTRODUCTION

Welcome to the Master Clear Salt System by Master Spas. By fully understanding the operation of each of the features of your new saltwater chlorinator, you will be able to sit back and relax enjoying low maintenance hot water therapy and fun.

Your safety is of paramount importance to the Master Spas family. We urge you to carefully read, understand, and follow all the information in this user manual before installing and using the Master Clear Salt System. These warnings, instructions, and safety guidelines address some common risks when using automated systems with water recreation, but they cannot cover all risks and dangers in all cases. Always use caution, common sense, and good judgment when enjoying any water activity.

Retain this information for future use.

# IMPORTANT SAFETY INSTRUCTIONS

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

# READ AND FOLLOW ALL INSTRUCTIONS

**WARNING** – To reduce the risk of injury, do not permit children to use or contact this product.

**CAUTION** – Test the ground fault circuit interrupter before each use of the pool/spa and operation of the Master Clear Salt System.

**CAUTION** – Connect only to a circuit protected by a class A ground fault circuit interrupter

**WARNING** – To reduce the risk of electric shock, replace damaged cord immediately.

**WARNING** – To reduce the risk of electric shock, do not use an extension cord to connect unit to electric supply; provide properly located outlet.

**WARNING** – Install Master Clear Salt System in accordance with all national and local electrical, plumbing, safety, and other applicable codes

**WARNING** – Protect the power supply and outlet from exposure to the elements, i.e. direct sun, rain, snow, condensation, etc.

**WARNING** – Cutting the cord from the power supply to the Master Clear Salt System Smart Cell voids the warranty.

**WARNING** – Check Smart Cell and associated wires for damage before use.

**WARNING** – **DO NOT** operate Master Clear Salt System if it is damaged in any way.

**WARNING** – **DO NOT** pull on the wires to disconnect the power supply from the power source.

**WARNING** – **DO NOT** allow water to get inside any electrical connections, especially the connections regularly exposed to water in the filter housing. Water intrusion may contribute to premature system damage and risk of electric shock.

**CAUTION** – Disconnect, remove and store Master Clear Salt System indoors if spa has been winterized or drained.

**CAUTION** – Leave the spa cover open at least 1 minute to allow trapped gases to escape prior to use.

**CAUTION** - **ALWAYS** install protective, water resistant cap and gasket over the wall connector in the spa when the Smart Cell is removed. Leaving wall connector open and exposed can result in unwarranted deterioration and damage to the connections and Master Clear Salt System. Replacement cap and gasket can be purchased from your Master Spas dealer or local service center.

**CAUTION** – **ALWAYS** check chemical levels regularly and adjust as needed prior to use to ensure safe water conditions.

**CAUTION** – **DO NOT** exceed the maximum salt concentrations listed in this document, or unwarranted damage may occur to spa system components.

**CAUTION** – The use of Master Clear Salt Plus is **HIGHLY** recommended for optimal system operation and user experience. Other forms of salt may be used but may not provide the most desirable experience. If an alternative salt is used, ensure that it is pure sodium chloride (NaCl) and does NOT contain high mineral, iodine, or anti-caking additives, as these contaminants will adversely affect system operation, lifespan, and warranty.

**WARNING** – **DO NOT** touch or handle the Master Clear Smart Cell during chlorine generation (visible bubbling, when submerged under water). Discomfort may be felt in cuts, sores, or sensitive skin areas due to the chlorine concentration from operation.

**CAUTION** – To reduce the risk of overchlorination, **ONLY** increase the cycle level by **ONE** level at a time, waiting at least 24-48 hours before adjusting further.

## ADDITIONALLY, FOR AFTERMARKET, ACTIVATION KIT INSTALLATIONS:

**WARNING** - If powering this device through the spa pack using the provided Power Cable, verify the spa is connected to a branch circuit protected by a ground-fault circuit interrupter (GFCI). Contact a qualified electrician if you cannot verify that the circuit is protected by GFCI.

**WARNING** - Do not modify the cables on this product. Only connect power using the supplied Master Spas power cables.

### SAVE THESE INSTRUCTIONS

#### MANUAL (US AND CANADA):

Contains TX FCC ID: 2ABCB-RPI4B Contains IC: 20953-RPI4B

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1. This device may not cause harmful interference.
- 2. This device must accept any interference received, including interference that may cause undesired operation.

#### **CAUTION**

Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply within the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Re-orient or relocate the receiving antenna.

### SAFETY INSTRUCTIONS

- 2. Increase the separation between the equipment and receiver.
- **3.** Connect the equipment into an outlet on a different circuit from that to which the receiver is connected.
- **4.** Consult the dealer or an experienced radio/TV technician for help. For products available in the USA/Canada market, only channels 1 to 11 are available for 2.4GHz WLAN. This device and its antenna(s) must not be co-located or operated in conjunction with any other antenna or transmitter except in accordance with FCC's multi-transmitter procedures. This device operates in the 5.15–5.25GHz frequency range and is restricted to indoor use only.

#### ISED CANADA COMPLIANCE

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- 1. This device may not cause interference.
- 2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- 1. L'appareil ne doit pas produire de brouillage.
- 2. L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement

For products available in the USA/Canada market, only channels 1 to 11 are available for 2.4GHz WLAN Selection of other channels is not possible.

Pour les produits disponibles sur le marché USA / Canada, seuls les canaux 1 à 11 sont disponibles pour le réseau local sans fil 2,4 GHz. La sélection d'autres canaux n'est pas possible.

This device and its antenna(s) must not be co-located with any other transmitters except in accordance with IC multi-transmitter product procedures.

Cet appareil et son antenne/ses antennes ne doivent pas être colocalisés avec un autre émetteur, sauf en conformité avec les procédures de Industry Canada pour les produits multi-émetteurs.

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

Les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques

de brouillage préjudiciable aux systèmesde satellites mobiles utilisant les mêmes canaux.

## IMPORTANT NOTE IC RADIATION EXPOSURE STATEMENT

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum separation distance of 20cm between the device and all persons.

Cet équipement est conforme aux limites d'exposition au rayonnement IC RSS-102 définies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance de séparation minimale de 20 cm entre l'appareil et toutes les personnel.

#### **MANUAL (INTERNATIONAL)**

In accordance with Article 10.8 of the Radio Equipment Directive: The device 'Raspberry Pi 4B' operates in compliance with harmonised standard EN 300 328 v2.2.2 and transceives within the frequency band 2,400 MHz to 2,483.5 MHz and, as per Clause 4.3.2.2 for wideband modulation type equipment, operates at a maximum e.i.r.p. of 20dBm.

The Raspberry Pi 4B also operates in compliance with harmonised standard EN 301 893 V2.1.1 and transceives within the frequency bands 5150-5250MHz, 5250-5350MHz, and 5470-5725MHzw and, as per Clause 4.2.3.2 for wideband modulation type equipment, operates at a maximum e.i.r.p. of 20dBm (5150-5350MHz) and 20dBm (5450-5725MHz).

In accordance with Article 10.10 of the Radio Equipment Directive, and as per below list of country codes, the operating bands 5150-5350MHz are strictly for indoor usage only.

## WEEE DIRECTIVE STATEMENT FOR THE EUROPEAN UNION

This marking indicates that this product should not be disposed of with other household waste throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmentally safe recycling.





## **OVERVIEW**

The Master Clear Salt System makes maintaining crystal-clear water easier than ever! The system uses a Smart Cell to automatically produce chlorine in your spa from highly purified salt that has been dissolved in the water. The salt concentration is much lower than other systems

on the market, while still providing the luxurious soaking experience that comes from relaxing in salt water. The Master Clear Salt System allows you to spend more time enjoying your spa and spend less time maintaining it.

## MASTER CLEAR SALT SYSTEM FACTORY INSTALL

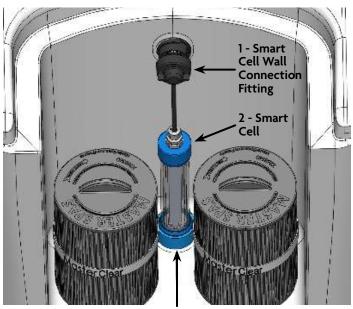


The Master Clear Salt System comes pre-installed from the factory when the spa is ordered with the optional upgrade. The Master Clear Salt System will help reduce the amount of water care and maintenance





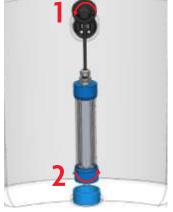
required for your Master Spa. Substitute these instructions for filling and maintenance instead of the general chemical instructions listed in the spa owner's manual.



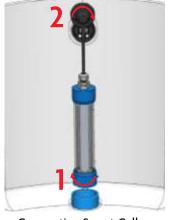
3 - Smart Cell Base Connection Fitting







Removing Smart Cell



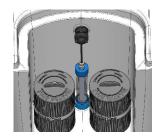
Connecting Smart Cell





### **INITIAL STARTUP**

Before filling your spa, check your filter housing to confirm everything is in order. You should see the Smart Cell locked into the base connection fitting at the bottom of the filter housing. Its cord should be connected securely to the Wall Connection fitting. There will also be 2 standard filter elements.



**NOTE:** The Master Clear Salt System is not compatible with the Eco Charge mineral

cartridge. If you see an orange handle/insert in one of your filters, contact your Master Spas Dealer.

In addition to the installed Smart Cell, the system controller will be located in the spa equipment area.

#### **NECESSARY STARTUP SUPPLIES:**

- ♦ Master Clear Salt System Startup Chemical Kit
  - 1-Micron Garden Hose Filter
  - Metal Protect
  - Test Strips
  - pH Increaser
  - pH Reducer
  - Oxidizer
  - Fast & Clear Water Boost
- ♦ Master Clear Salt Plus 10 lbs.

**NOTE:** As needed, contact your Master Spas authorized dealer or local service center to acquire these necessary supplies.

#### **STARTUP STEPS**

**NOTE:** When adding any chemical or salt, turn on all pumps to high speed, position any diverter(s) to the middle position and sprinkle the chemical across a broad area of the water. This helps the chemicals dissolve and disperse throughout the entirety of the spa. Always wait at least 15 minutes (1 pump cycle) after adding any chemicals before retesting the water to allow time for it to dissolve and circulate throughout the spa.

- 1. Your spa should be filled with fresh tap water using the 1-micron filter provided in the startup kit. This filter will help remove as many minerals as possible from the water. Lower mineral levels will help provide optimal performance and longevity of the system and Smart Cell. It is best to use unsoftened water to further reduce excess minerals in the solution, but never fill with more than 50% softened water. Remove the filters from the filter housing and drape the 1-micron filter attached to your garden hose into the filter area to help prevent air locks from occurring during the filling process.
- 2. During the initial filling of the spa, add the bottle of Metal Protect to combat any remaining suspended minerals in the water. Always follow the instructions listed on the bottle and allow water to circulate and filter for at least 30 minutes (or per bottle recommendations) before adding any other chemicals.
- **3.** Test water for pH and Total Alkalinity. There are two different methods you can use to test your water.
  - a. TEST STRIPS: The pads on these thin strips react by changing colors when you dip them in the hot tub water. To avoid faulty test results, use care when removing a testing strip from the packaging. Open the package and shake one strip out into your hand, avoiding contact, if possible, with the remaining strips. Seal the container immediately so the remaining strips are not exposed to moisture. Dip the test strip into the water and follow the instructions supplied with test strips as instructions may vary. Note and compare the colors on your testing strip to the key on the test strip container to determine if each category is neutral, high, or low.
  - b. TESTING KIT: When using a testing kit, you will be examining an actual water sample from your hot tub, rather than a strip. Be careful to follow the instructions on your kit, filling the

- container to the appropriate level and then dropping the instructed liquid into the container. Compare the new color of your water to the key provided with the kit to determine how to proceed. Depending on which kit has been purchased, it can test each of the elements: total alkalinity, pH, chlorine and calcium hardness.
- 4. Adjust pH and Total Alkalinity (TA) utilizing the directions on the pH Increaser and pH Reducer chemical bottles. The ideal pH level for the Master Clear Salt System is between 7.0-7.2 for optimal performance. Adjusting these chemical levels may require multiple rounds of testing and additional chemical treatments to help achieve the proper balances. Refer to bottle labels for further details and timing between each water test.

PARAMETER	VALUE <sup>a</sup>
Water Clarity	Clear view of bottom
Color of Water	No color should be observed <sup>b</sup>
Total Alkalinity (TA)	60 - 120 PPM
pH Value <sup>c,d</sup>	7.0 - 7.2
Chlorine	2 - 4 PPM
Calcium Hardness	180 - 250 PPM

When using alternative/additional disinfectants other appropriate parameters may be considered.

<sup>a</sup>Consult national regulations and guidelines for any deviations.

<sup>b</sup>Natural water sources may introduce water coloration.

<sup>c</sup>Subject to the flocculant(s) used (if any).

When pH is greater than 7.5, the free active chlorine is less than 50%.

**NOTE:** Improper use of chemicals may result in unsanitary and unsafe water conditions as well as unwarranted discoloration, degradation, damage and other imperfections to both the Master Clear Salt System and spa surfaces and components.

5. Once Alkalinity and pH are balanced (pH 7.0-7.2), use the one-cup measuring scoop to slowly add up to half of the recommended salt quantity using the salt measurement table below (see spa owner's manual for correct water volume specifications). Initially, you should only add half of the recommended Master Clear Salt Plus. It will take 15-30 minutes to completely dissolve and circulate throughout the spa. Continue to Step 6 before adding any more Salt Plus.

**NOTE:** To avoid adding too much Salt Plus to your water, allow the water temperatures to reach **AT LEAST** 80°F, preferably even closer to your **DESIRED** water temperature, **BEFORE** adding Salt Plus. The salt, as well as most chemicals, will mix and dissolve into the solution faster as water temperatures rise. Be sure to keep the pumps running when adding Salt Plus. Continue running the pumps until all the salt has dissolved, with no visible accumulation seen throughout the spa.

## FIRST DOSE (VALUES BELOW ARE HALF OF MAX RECOMMENDED SALT)

GALLONS	CUPS (Half of Max)	POUNDS (Half of Max)
200	15/8	1
250	2	11/4
300	2 3/8	11/2
350	2 3/4	13/4
400	3 1/8	2
450	3 1/2	2 1/4
500	3 7/8	2 1/2
550	4 1/4	2 3/4
600	4 5/8	3

**6.** While waiting for the Salt Plus to dissolve and absorb into the water (15-30 minutes), it is time to get connected to the Master Clear Salt

System through either the iOS or Android app. If you haven't already, download the Master Clear app from your app store.

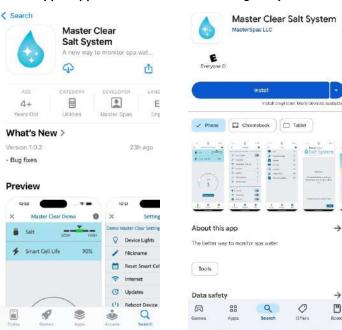
**NOTICE:** The app connection process, through Bluetooth, is a critical step that **MUST BE** completed to engage the Master Clear Salt System. The system will not operate and remains in a "paused" state until the proper spa model or fill volume are entered in the app.



**Apple App Store** 



**Google Play Store** 



- 7. Follow the prompts in the app to set up the Bluetooth connection and select the spa model/fill volume. Bluetooth is required to operate the Master Clear Salt System on startup. You can also connect the system to Wi-Fi, allowing you to check the system anywhere as long as you have a valid internet connection. If you do not want to connect your unit to Wi-Fi, you can use the app locally through Bluetooth whenever you are near the spa (roughly 5'). You can also operate the system directly through the controller in the spa equipment area after the initial startup.
  - **a.** Open the app on your mobile device, while standing within 5 feet of your spa and the Master Clear Salt System controller.
  - **b.** During the initial startup, the app will request permissions from your operating system, such as permission to use Bluetooth. Be sure to allow these requests on your mobile device for proper connection and operation to occur. Also, be sure Bluetooth is turned on in your device settings.
  - c. Follow the app prompts for configuring your Master Clear Salt system. It will also have you create an account/login for controlling the system through Wi-Fi.

**NOTE:** If Wi-Fi signal is a problem, or you do not wish to set up the Wi-Fi login and connection, you can connect with the basic configuration and engage the Master Clear Salt System strictly through Bluetooth on the app by selecting the "Skip for now, (you can always come back!)" on

the opening page of the app.

- d. After entering the spa model or volume in the app, the Master Clear Salt System will be engaged to start normal operations.
  - **NOTE:** For further details, see the Master Clear Salt System App section of this manual.
- 8. With the app connected, the salt indications at the top of the app screen may show the salt concentration is low initially. Make sure the system has engaged and shows "Cancel Cycle" below the level indicator. If it has not engaged, select "Cycle Now," to activate the Smart Cell. Bubbles will be rising visibly from the Smart Cell when it is running a cycle. After a few minutes of running the first cycle, the app will update the salt level indication. Whenever a cycle is running, the LED indicator on the Master Clear Salt System controller will display the updated salt level indication as well.

#### Master Clear Salt System Controller LED Indicators:

Solid Red – Salt level high when running a cycle

Solid Green - Salt level balanced when running a cycle

Solid Yellow - Salt level low when running a cycle

Solid Yellow & Red — Excessively high salt levels and the Master Clear Salt System has shut down to protect the power supply and the Smart Cell.

Solid Blue - Editing mode is activated

Flashing Blue - (once every ten seconds) - System is in standby mode

Flashing **Blue** (twice every ten seconds) - Smart Cell is nearing the end of its service life and is within one month or less of needing replacement.

**NOTE:** At startup it is better for the salt to be at the lower end of the balanced (**Green**) range, especially if the salt was added at water temperatures lower than your desired water temperature. This helps prevent adding too much salt into the system during use. It is always easier to add than to take away from the solution.

**NOTE:** After making the initial Bluetooth connection, if you would like to use the system controller directly, it is located behind the front cabinet panel below the spa control pack.



9. It may take the system several minutes to register an accurate salt level as the salt is still dissolving, especially if the salt is added at water temperatures lower than your desired water temperature. If the indicator in the app and on the controller remain low (Yellow) 30 minutes after the first cycle has started, add Salt Plus in increments of no more than 1 cup at a time. Wait at least 15 minutes after each additional cup is added before adding more Salt Plus. Repeat until the salt level enters the balanced (Green) range.

**CAUTION - DO NOT** exceed the measurements listed in the Maximum Salt Concentration table, especially if the salt was added

#### INITIAL START UP CONT.

at water temperatures lower than your desired water temperature. Excessive salt concentration can result in unwarranted, accelerated deterioration, corrosion and failure of both Master Clear Salt System and spa components.

#### MAXIMUM SALT CONCENTRATION

(ideal amount, assuming no salt present in source water)

GALLONS	CUPS	POUNDS
200	3 1/4	2
250	4	2 1/2
300	4 3/4	3
350	5 1/2	3 1/2
400	6 1/4	4
450	7	4 1/2
500	7 3/4	5
550	8 1/2	5 1/2
600	9 1/4	6

**NOTE:** To avoid adding too much Salt Plus to your water, allow the water temperatures to reach **AT LEAST** 80°F, and preferably even closer to your **DESIRED** water temperature, **BEFORE** adding Salt Plus. The salt, as well as most chemicals, will mix and dissolve into the solution faster as water temperatures rise. Be sure to keep the pumps running when adding Salt Plus. Continue running the pumps until all salt has dissolved, with no visible accumulation seen throughout the spa.

**10.** Monitor the system over the next 24-48 hours to ensure the generator is producing sanitizer before use by testing the water for chlorine levels.

**NOTE:** The Master Clear Salt System works to maintain the sanitizer levels by regularly running generation cycles. At the initial startup, the Master Clear Salt System may take as much as 24-48 hours to bring the chlorine up to sufficient sanitization levels. Fast & Clear Water Boost can be used to jump-start and sanitize the system initially for more immediate use

- (Optional) Once salt levels are in the balanced (Green) range, turn
  on all spa pumps and add Fast & Clear Water Boost to jump-start the
  system.
  - a. If the spa was simply drained and refilled for normal maintenance or to add the Master Clear Salt System, add a couple of teaspoons at a time until sufficient sanitizer levels are achieved.
  - **b.** If this is the initial startup of the spa or the spa has been winterized or drained for some time, add Fast & Clear Water Boost, a couple of teaspoons at a time, until 5-10 PPM of chlorine level is achieved. **DO NOT** enter the spa until chlorine levels drop below 5 PPM. This chlorine treatment helps sanitize the system while the Master Clear Salt System starts to operate.

**NOTE:** When the high sanitizer levels from the Fast & Clear Water Boost are present in the water, the Master Clear Salt System operation will automatically measure these high sanitizer levels and delay system operation. It will begin engaging again once the Smart Cell detects the sanitizer level is low enough to start a generation cycle. Fast & Clear Water Boost (sodium dichlor granules) should only be used on initial startup and should not be used regularly.

## WATER MAINTENANCE

#### **BEFORE EACH USE**

- Test the spa water for proper pH and chlorine and adjust as needed.
- The pH may increase during the first few weeks after filling the spa.
  This is completely normal when using a salt system. Simply check and
  adjust the pH as needed to ensure the pH is in the proper range for
  use.
- Verify that the sanitizer level is within the recommended range. If
  either lower than recommended or no sanitizer is seen when testing
  the water, adjust the cycle level on the controller or in the app to
  increase the sanitation provided by the Smart Cell. ONLY increase the
  cycle level by ONE level at a time, waiting at least 24-48 hours before
  adjusting further.
- Check the Master Clear Salt System app or controller for current salt levels and ensure operational parameters are balanced.

#### **AFTER HEAVY USE**

 The Master Clear Salt System is designed to check the sanitizer regularly and run a generation cycle as needed. After heavy use, it may be helpful to manually start a cycle by pressing "Cycle Now," in the app, or pressing the \* button on the controller to immediately begin generating sanitizer.

#### **ONCE A WEEK**

- Add Oxidizer shock treatment to help with water clarity, by freeing up any combined sanitizer.
- Test the spa water and adjust pH levels as needed.
- Test the spa water for sanitizer levels. If tests regularly show levels below the recommended range, use the Master Clear Salt System app

or controller to adjust the cycle level, if needed. **ONLY** increase the cycle level by **ONE** level at a time, waiting at least 24-48 hours before adjusting further.

#### **ONCE A MONTH**

Physically inspect your Smart Cell and look for signs of white residue on the electrode plates. White residue indicates there is calcium buildup forming. Calcium buildup can shorten the life of the Smart Cell if it is not removed periodically. If there is calcium buildup, remove the Smart Cell, and install the protective water resistant cap and gasket over the Smart Cell electrical connection in the filter area. Soak the Smart Cell in vinegar for about 15 minutes and wash it off with a hose before reinstalling in the spa. If there is a high water hardness and this calcium buildup is occurring, a Scale Defense water treatment regiment should be considered to help reduce and slow scaling. Consult your Master Spas dealer or local service center to acquire Scale Defense product.

#### **EVERY 180 DAYS**

Drain and refill your spa with fresh water, clean the filters, and repeat the startup procedure. Over time and bather use, biofilm buildup can occur. Chemical products are available to help remove biofilm and can be used periodically before draining.

#### **EVERY 1 YEAR**

It is necessary to replace the Master Clear Smart Cell after about a year. Make sure to monitor your Smart Cell lifespan, in the app or using the system controller, and replace the Smart Cell when it has reached 0% lifespan. High water hardness and mineral content in the water may result in more frequent replacement, especially if the Smart Cell is not regularly inspected and scaling cleaned off of it.

#### **AS NEEDED**

If the water looks hazy, make sure pH is in the proper range and make sure the output level is maintaining the proper sanitizer levels. Treat with Oxidizer shock if free chlorine is less than total chlorine. Always refer to the chemical manufacturer's dosage recommendations listed on the container. Free chlorine levels should be maintained per the Water Chemistry Guide.

A defoamer may be used when excessive foaming occurs. Overuse of a defoamer will result in cloudy, milky water. These are general recommendations for water maintenance that may vary by usage and bather load. Depending on bather load and frequency of use, drain and refill times may vary.

#### **USE ONLY SPA CHEMICALS**

Do not use chemicals designed for use in swimming pools. With a spa, you are working with a small volume of hot water instead of a larger volume of relatively cool water in a swimming pool. Because of this, chemicals will have a shorter lifespan, and bacteria can grow more quickly than in a swimming pool. A spa is less forgiving than a pool and requires whatever is put into it to have a pH as close to neutral as possible. This is why only chemicals made for spas should be used. Always refer to the chemical manufacturer's dosage recommendations listed on the container.

### WATER CHEMISTRY GUIDE

Before treating your water, refer to the Model Specifications section in the spa's manual for the correct gallons listed for your spa, to ensure you are adding the correct amount of chemicals. The concentration of active ingredients in spa chemicals varies by manufacturer, so always consult the chemical manufacturer's instructions. When adding spa chemicals, make sure to always spread them across the surface of the water while the pumps are running. See the chart for recommended ranges.

\*Chemical names and recommendations listed in this manual are specific to the Master Clear Salt System chemicals by Master Spas. Chemical amounts and instructions will vary by manufacturer.

PARAMETER	VALUE <sup>a</sup>
Water Clarity	Clear view of bottom
Color of Water	No color should be observed <sup>b</sup>
Total Alkalinity (TA)	60 - 120 PPM
pH Value <sup>c,d</sup>	7.0 - 7.2
Chlorine	2 - 4 PPM
Calcium Hardness	180 - 250 PPM

When using alternative/additional disinfectants other appropriate parameters may be considered.

<sup>a</sup>Consult national regulations and guidelines for any deviations.

<sup>b</sup>Natural water sources may introduce water coloration.

<sup>c</sup>Subject to the flocculant(s) used (if any).

<sup>d</sup>When pH is greater than 7.5, the free active chlorine is less than 50%.

**NOTE:** Improper use of chemicals may result in unsanitary and unsafe water conditions as well as unwarranted discoloration, degradation, damage and other imperfections to both the Master Clear Salt System and spa surfaces and components.

## MASTER CLEAR SYSTEM CONTROLS

# MASTER CLEAR SALT SYSTEM APP

 When you open up the app you will see the main screen. Here you will choose to connect using Wi-Fi or Bluetooth.



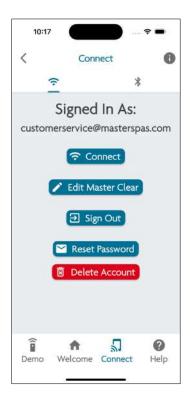
2. Selecting the Wi-Fi option will bring you to the registration page. Here, you can register/ create an account, allowing connection to the Master Clear Salt System as long as you have a valid internet connection.





#### MASTER CLEAR SYSTEM CONTROLS CONT.

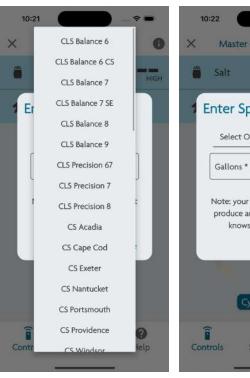
 After creating your account, anytime you open up the app and select the Wi-Fi option, it will display the connection page where you can connect and manage your account.



4. If you choose the Bluetooth option for operation within about 5' from the system, the system will search for and display the Master Clear Salt System present to connect to.

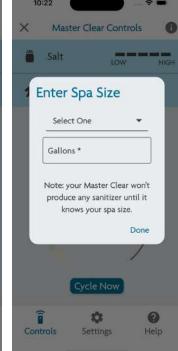


5. The first time you open the app, you will be asked to enter the specific spa model or enter the gallons listed for your spa. Selecting the spa model will automatically generate the appropriate gallons listed for that model.



6. The Controls section of the

is always easier to add than to take away from the solution.



- app allows you to monitor and engage your Master Clear Master Clear Controls Salt System. a. Salt level indicator **b.** Smart Cell lifespan c. Cycle level -Smart Cell Life **d.** "Cycle Now"/"Cancel Cycle" button **CONTROLS** 1. Salt level indicator – This shows whether the salt concentration is listed to be low, high or balanced. When the salt indication shows Level balanced, the bar will be green. At startup it is better for the salt to be at the lower end of the balanced range, especially if the salt was added at water temperatures ► d Cancel Cycle lower than your desired water temperature. This helps ů 0 prevent adding too much salt Controls Settings Help into the system during use. It
- 2. Smart Cell lifespan Here you can monitor the lifespan of the Smart Cell. When the lifespan reaches 0%, it has reached the end of its service life. It is time to change the Smart Cell.
- 3. Cycle level This value determines how the Smart Cell monitors and generates sanitizer (chlorine). Any time the level is changed, **ONLY** adjust the level by increments of **ONE** level at a time, waiting at 24-48 hours before adjusting again.

#### MASTER CLEAR SYSTEM CONTROLS CONT.

"Cycle Now"/"Cancel Cycle" button – Press this button to manually start or stop a generation cycle.

#### **SETTINGS**

The app allows you to change some of the basic settings for the Master Clear Salt System and the App.

#### **Master Clear Salt System Settings**

- Device Lights Enable or disable the indicator lights on the controller behind the skirting.
- Nickname Name your Salt System
- Bluetooth Password Add, change or adjust your Bluetooth password
- Spa Size Model/Gallons
- Reset Smart Cell Life Used when a new Smart Cell is added
- Internet Settings Add, change or update your Internet connection settings
- Sync Account Add, change or update your user account
- Updates Displays any firmware updates available for the Master Clear Salt System
- Support Data Used for troubleshooting
- Reboot Device Typically used to reset settings
- Factory Reset Used for troubleshooting or connecting to a new system.

#### **Master Clear Salt System App Settings**

- Sounds Toggle app sounds on or off.
- Animations Toggle app animations on or off.
- Analytics This anonymously tracks the app functions and sends crash reports for app improvement. Toggle on or off.
- Units Toggle between Imperial and Metric
- Reset Walkthrough If you would like to change some of the initial settings, you can reset the walkthrough from when first setting up the app.
- Name You can change your app account details
- Bluetooth Takes you directly to your device's Bluetooth settings
- Notifications Takes you directly to your device's notification settings.

## MASTER CLEAR SALT SYSTEM CONTROLLER

**NOTE:** This section is only applicable if the Master Clear Salt System app is not utilized to control and monitor the Master Clear Salt System after the initial startup.

#### **OPERATION**

Use of the Master Clear Salt System app through Bluetooth or Wi-Fi connection is highly recommended for the easiest user experience. However, the system may also be monitored and adjusted through



the buttons and LEDs on the Controller. The information below only pertains to system operation using the Controller buttons and LEDs.

The Master Clear Salt System utilizes 3 buttons and 4 lights on the control unit to operate the Smart Cell without using the App.

#### **LED LIGHTS**

- Solid **Red** Salt level high when running a cycle
- Solid Green Salt level balanced when running a cycle
- Solid Yellow Salt level low when running a cycle
- Solid Yellow & Red Excessive salt levels and the Master Clear Salt System has shut down to protect the power supply and the Smart Cell.
  - Drain some water and refill with fresh water to dilute the salt level
  - Cycle the power to press the \* button to have it check again
- Solid Blue Editing mode is activated.
- Flashing Blue (once every ten seconds) System is in standby mode.
- Flashing Blue (twice every ten seconds) Smart Cell is nearing the end of its service life and is within one month or less of needing replacement.

**NOTE:** The indicator lights can be disabled from the app. If this option has been disabled, reboot the controller to re-enable the lights.

#### How to Read the LED Lights Representing Numbers:

There are a couple of troubleshooting features that will flash different colored lights to represent numbers. The LED lights will flash repeatedly to represent the 1s, 10s, and 100s places. Each flash will indicate 1 of its respective number category.

Red = 100

Green = 10

Yellow = 1

#### **Examples:**

Red flashes once. The system is indicating the value of 100.

Green flashes 7 times and Yellow flashes 3 times. The system controller is saying the value is 10+10+10+10+10+10+1+1+1 or 70+3 = 73.

#### **BUTTONS**

- Press "\*" to manually start/stop the generation cycles.
- Press and hold "\*" during startup to reset the Bluetooth password.
  - When resetting the Bluetooth password, all lights will light up and remain solid.

#### Up

- Press **Up** to show the current output level.
  - The lights flash the value on a scale of 1-10. To indicate this
    the Red light will flash between 1 and 9 times to indicate
    levels 1-9. The light will flash Green once for level 10.
  - This provides the same function as pressing **Up + Down** if the button is held throughout the level readout indication.

#### Down

- Press Down to display the Smart Cell value. This is used for troubleshooting purposes and is not needed for average use.
  - When the Smart Cell is actively in a cycle/producing chlorine, the LED indicators will flash to show the current amperage value.
  - When the Smart Cell is between cycles/standby, the LED indicators will flash to show the sensor millivolt value.

#### Up + Down

- Press **Up + Down** to enter the level editing mode.
  - The Blue light becomes solid, indicating the editing mode is active
  - While in the level editing mode, press Up or Down to adjust the output level. Each time Up or Down is pressed, the Yellow or Red light will flash: Yellow for Up and Red for Down.
    - At Level 1, the Red light stays solid, indicating the low end of the scale.

#### MASTER CLEAR SYSTEM CONTROLS CONT.

- At Level 10, the Yellow light stays solid, indicating the high end of the scale.
- Wait a few seconds after the level has been adjusted, and the lights will display the final value before resuming operation. To indicate this the **Red** light will flash between 1 and 9 times to indicate levels 1-9. The light will flash **Green** once for level 10.

#### Up + Down + \*

 Press Up + Down + \* to reset the Smart Cell life. Press all three buttons at the same time and all 4 lights will flash to indicate the Smart Cell life has been reset.

#### Up + \*

- During the initial power up of the unit, press and hold Up + \* to perform a factory reset.
  - When pressing and holding **Up** + \* during the startup sequence, you will see the unit flash all the lights twice. After the second flash, the reset option has been initiated. Continue holding the buttons for about 5 seconds (15 flashes) until the lights turn solid. Let the buttons go and the system will reset.

**CAUTION** – Factor Reset should only be done at recommendation of Master Spas support. Factory Reset will require reconnecting to the controller through the app to re-engage operation, once spa model or volume is set.

## WATER MAINTENANCE TROUBLESHOOTING

#### Strong Chlorine Odor - Test the water.

- Excessive chlorine The smell could be from chloramines.
   Compare the free and total chlorine levels. If your free chlorine levels test lower than total chlorine levels, it would indicate the need to shock the water with an Oxidizer/non-chlorine shock treatment. If total chlorine levels test high, output level of the Master Clear Salt System controller may need lowered. Do not enter spa water if chlorine levels exceed 5 PPM.
- pH out of range Adjust the pH using pH increaser or reducer as needed.

#### Water Odor - Test the water.

#### Chlorine is Low

- If both total and free chlorine read low, check the Master Clear Salt System app of the system controller to determine salt content.
  - If the salt level is in the balanced range, adjust the cycle level setting by one. Wait 24-48 hours while the system adjusts, monitoring the system to determine if more level adjustment is needed. ONLY increase the cycle level by ONE level at a time, waiting at least 24-48 hours before adjusting further.
  - If the salt level is in the low range, add salt in half-cup increments, waiting at least 15 minutes to allow the salt to dissolve and mix through the system before adding any more.
  - If the salt level is in the high range, it is possible the Smart Cell has shut down to protect itself. Drain some of the water, refill with fresh water, using the 1-micron filter, and adjust water chemistry as needed.

**pH out of range** – Adjust the pH using pH increaser or reducer as needed.

**Bacteria or Algae growth** – If chlorine has been adjusted and is in the appropriate range, it may be necessary to super-chlorinate the system or perform a system flush.

 Super-chlorinating the system involves adding chlorine granules (fast dissolving, sodium dichlor) to bring the system up between 5-10 PPM, letting the chlorine level drop back down over time.
 DO NOT enter the spa until the chlorine level drops below 5 PPM

**NOTE:** When the high chlorine levels from the Fast & Clear Water Boost are present in the water, the Master Clear Salt System operation will automatically measure these high sanitizer levels and delay system operation. It will begin engaging again once the Smart Cell detects the sanitizer level is low enough to start a chlorine generation cycle.

 A system flush would involve adding a spa purging agent to the spa. Remove the Smart Cell from the system, install the water resistant cap and gasket over the Smart Cell electrical connection in the filter area and circulate the spa purging agent throughout the spa, following manufacturer's instructions for the spa purging agent.

#### **Cloudy Water**

- Dirty filters or inadequate filtration Clean the filters with a filter cleaner or replace them as necessary. Adjust the filtration cycles for the spa.
- Unbalanced water chemistry Test the water and adjust pH, salt, and/or the cycle levels as needed.
- Old Water Drain, clean the spa shell, and refill using the 1-micron filter and start up instructions.

#### Cloudy and Green Water - Test the water.

- Total Alkalinity levels are low Adjust using pH increaser
- Chlorine levels are low Apply Oxidizer/non-chlorine shock treatment and adjust salt or cycle level as needed.

#### Clear Green Water

- High iron or copper content Use a metal sequestering (Metal Protect) agent to suspend the minerals in the water.
- Chlorine levels are low Apply Oxidizer/non-chlorine shock treatment, and adjust salt or cycle level as needed.

#### Brown water

 High Iron or manganese level – Use a metal sequestering agent (Metal Protect) agent to suspend the minerals in the water.

#### **Foaming**

- High levels of body oils, lotions, soap, etc. Apply Oxidizer/nonchlorine shock treatment. Add a small amount of defoamer or an enzyme product and check the water chemistry.
- Low calcium hardness Use a calcium hardness increaser.
- Unbalanced water chemistry Test the water and adjust pH, salt, and/or the cycle levels as needed.

#### Eye or skin irritation

- Unsanitary water Test the water and adjust pH, salt, and/or the cycle levels as needed.
- Total chlorine level above 5 PPM Apply Oxidizer/non-chlorine shock treatment. Wait for chlorine levels to drop below 5 PPM

#### WATER MAINTENANCE TROUBLESHOOTING CONT.

before use. Consider lowering cycle level by **ONE** (waiting 24-48 hours before further adjustment of levels).

#### Scum deposits at waterline

 Body oils and dirt – Use a multi-purpose cleaner to clean the spa surface and add an enzyme product to the spa water.

#### Chalky, white scale deposits

- Minerals present in the water and lack of sequestering agent use

   When the spa is drained, use a multi-purpose cleaner or white vinegar and scrub with a soft cloth.
- Add a Scale Defense treatment to water care regiment, to help reduce and slow scaling.

#### Pitting and corrosion of metal fixtures

- Low pH or total alkalinity Test the water and adjust using pH increaser or reducer.
- High chlorine level and off gases Adjust the cycle Levels as needed.
- Excessive, high salt levels –Adjust Salt levels down into the balanced range by draining some water and diluting concentration by filling with fresh water using 1 micron garden hose filter.
- Lack of regular care and maintenance to rinse/clean metal fixtures of chemical and organic buildup.

### MASTER CLEAR SYSTEM OPERATION TROUBLESHOOTING

**Controller lights are flashing continuously** – If all four lights flash continuously and the app connections become unresponsive, the controller is experiencing an error and is not producing chlorine.

- Power down the system and wait at least 10 seconds before powering up again.
- Check the system components.
  - Power supply/controller Check for loose connections or damaged wires.
  - Smart Cell Check for buildup on the plates or wires due to water hardness. Remove the Smart Cell from the spa, install the water resistant cap and gasket and soak in white vinegar to reduce buildup. The Smart Cell may need to be replaced.

The system is not running chlorine generation cycles – Test your water to confirm free and total chlorine levels.

- Bubbles should be visible, rising from the Smart Cell when it is running a cycle.
- If both total and free chlorine read low on the test strip, check the Master Clear Salt System app or the system controller to determine salt content.
- If the salt level is in the balanced range, adjust the cycle level setting up by one level. Wait 24-48 hours while the system adjusts, monitoring the system to determine if more is needed. ONLY increase the cycle level by ONE level at a time, waiting at least 24-48 hours before adjusting further.
- If the salt level is in the low range, add salt in half-cup increments, waiting at least 15 minutes to allow the salt to dissolve and mix through the system before adding any more.

 If the salt level is in the high range, it is possible the Smart Cell has shut down to protect itself. Drain some of the water, and refill with fresh water using the 1-micron filter and adjust water chemistry as needed.

#### The system controller keeps resetting

- Check the power supply/system controller for loose connections.
   Power off the system, unplug each connection, and reconnect them, making sure they make good solid connections.
- Your Master Clear Salt System may also be resetting because of extremely high salt levels. Check your salt levels in the app or on the controller. If the salt level is in the high range on the app or the Yellow and Red lights are both solid, drain some of the water, refill with fresh water using the 1-micron filter, and adjust water chemistry as needed.

#### The controller buttons or lights are not working

- Check your app settings to make sure the lights have not been deactivated.
- Check the power supply/system controller for loose connections.
   Power off the system, unplug each connection and reconnect them, making sure they make good solid connections.
- If lights are engaged in the app and cycling power does not resolve the problem, the power supply or controller may need replaced. Contact your Master Spas authorized dealer or service center for support or to purchase replacement.

## MASTER CLEAR SALT SYSTEM LIMITED WARRANTY

#### NOTE: This standard Limited Warranty applies to residential use.

#### 1 YEAR - CONTROLLER AND HARNESSES

Master Spas warrants to the original retail purchaser that the Master Clear Salt System controller and harnesses will not malfunction due to defects in materials or workmanship for a period of 1 year from the date of the original retail purchase. If the Master Clear Salt System were to malfunction due to a defect in materials or workmanship, Master Spas will repair or replace the applicable components (parts only).

#### 90 DAYS - SMART CELL

Master Spas warrants to the original retail purchase that the Master Clear Smart Cell will not malfunction due to defects in materials or workmanship for a period of 90 days from the date of the original retail

purchase. If the Master Clear Smart Cell were to malfunction due to a defect in material or workmanship, Master Spas will repair or replace the Smart Cell generator (parts only).

#### **EXCLUSIONS**

This limited warranty is enforceable only by the original retail purchaser from the date of original retail purchase but is voidable if the entire purchase price has not been paid to the retail dealer. Normal wear and weathering of finishes and components are not defects and specifically excluded from this limited warranty. All warranties are void if the system is operated for commercial use (including use at rental properties). Shipping costs associated with sending replacement components are excluded from this limited warranty.

### MASTER CLEAR SALT SYSTEM LIMITED WARRANTY CONT.

#### **LIMITATIONS**

This limited warranty is voidable if the Master Clear Salt System has been subject to misuse, alteration or attempted alteration, repairs or attempted repairs not approved my Master Spas or if a failure or malfunction is due to improper installation, improper water chemistry, improper salt levels, improper maintenance or lack of normal maintenance as prescribed in the Master Spas Owner's Manual, an act of God, weather conditions, animals, rodents, pests or any damage from causes beyond the control of Master Spas. Misuse or abuse shall mean operation of the spa other than in conformity with the Master Spas Owner's Manual. Such misuse and abuse shall include but not be limited to the following:

- Damage to the components caused by contact with unapproved cleaners or solvents.
- Damage caused by operation of water temperatures outside the range of 34° F-104° F.
- Freeze Damage
- Damage caused to the salt system and/or the spa and its components due to use of unapproved sanitizers such as calcium hypochlorite, sodium hydroxide, "tri-chlor" type chlorines.
- Damage caused to the salt system and/or the spa and its components due to repeat treatment of products containing cyanuric acid (most forms of tablet or granule chlorine products).
- Damages or malfunction caused from improper aftermarket installation of the Master Clear Salt System.
- Damages or malfunction caused from overfilling the spa, over the Smart Cell Connector (for Activation Kit, OE Installation systems).
- Damages or malfunction caused by not placing protective, water resistant gasket and cap over the wall fitting connector, when Smart Cell is removed (for Activation Kit, OE Installation systems).
- Damages or malfunctions caused to the Master Clear Salt System and/ or the spa and its components due to high salt concentrations in the spa water (such as, but not limited to, corrosion of components).
- Damages or malfunctions caused by excessive force when disconnecting and reconnecting Smart Cell and its wall fittings.
- Damages or malfunctions caused by calcium and mineral scaling on the Smart Cell due to hardness of the source water.

## WARRANTY REGISTRATION AND WARRANTY CLAIM PROCEDURE

The original retail purchaser must retain legible proof of purchase, clearly showing their date of original retail purchase and being the original retail purchaser of the product. Upon any warranty claim, legible proof of purchase must be provided to confirm warranty status based on the original retail purchase date with the original retail

purchaser. In the event of a warranty claim of a defect covered under the provisions of this limited warranty, the retail purchaser must provide detailed description of the claimed problem and submit any applicable picture(s) or short video(s) supporting the claim to the retail dealer or Master Spas Customer Service department within ten (10) days of the initial malfunction or discovery of the defect. If the retail dealer does not provide support, then the purchaser should contact Master Spas Customer Service department, via the web site or email, or provide written notice including pictures or a video of the defect at the address below. Upon notice of the warranty claim, the retail dealer or Master Spas Customer Service department will work with the retail purchaser to determine if the claimed defect is covered under this limited warranty.

If it is determined that the defect is covered under this limited warranty, Master Spas will cover the applicable replacement component(s). Shipping costs are not covered by this limited warranty. In the event of replacement, the replacement component(s) will carry the balance of the original limited warranty from the original retail purchase date. The limited warranty is extended only to the original retail purchaser and is not transferable.

#### **DISCLAIMERS:**

MASTER SPAS LLC, NEITHER ASSUMES NOR DO WE AUTHORIZE ANY OTHER PERSON TO ASSUME FOR US, ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF THE MASTER CLEAR SALT SYSTEM. THIS LIMITED WARRANTY SHALL BE THE EXCLUSIVE REMEDY AVAILABLE TO A PURCHASER AND MASTER SPAS SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM MISUSE OF THE MASTER CLEAR SALT SYSTEM OR CAUSED BY ANY DEFECT, FAILURE OR MALFUNCTION OF THE MASTER CLEAR SALT SYSTEM, WHETHER A CLAIM IS BASED UPON WARRANTY, CONTRACT, NEGLIGENCE OR OTHERWISE. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS LIMITATION MAY NOT APPLY TO YOU.

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