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In.Clear™ Model No. 0605-500002

Automatic Bromine Generator

For Spa Sanitizing

DOMESTIC

A maximum of 2000 Litres of water can be treated with one In.Clear Automatic Bromine Generator unit.

Maximum output of Hypobromus Acid equivalent to 0.04 kg of free available bromine per day.

A range of 3 – 5 ppm of free available bromine must be maintained.

READ THE LABEL AND OPERATION/INSTALLATION MANUAL BEFORE USING THIS DEVICE

KEEP OUT OF REACH OF CHILDREN

REGISTRATION No. 29628 PEST CONTROL PRODUCT ACT

WARNING:

Operating the In.Clear Automatic Bromine Generator without water flow through the cell can cause a build up of flammable gases which can result in FIRE or EXPLOSION.

NOTICE TO USER:

This pest control product is to be used only in accordance with the instructions shown on the label. Any use not in accordance with these instructions is an offence under the Pest Control Products Act. The user assumes the risk to persons or property arising from the use of this product.

Tested and Listed to standards
ANSI/UL – UL 1081, UL 1563
CAN/CSA - C22.2 No. 108-1

Gecko Alliance Group Inc.
450, Des Canetons, Québec (Québec)
Canada G2E 5W6
800-784-3256 ext. 350
418-872-4411 ext. 350

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CONNECT ONLY TO A CIRCUIT PROTECTED BY A CLASS A, GROUND FAULT CIRCUIT INTERRUPTER. (GFCI)

SUITABLE FOR INDOOR USE ONLY OR WHEN INSTALLED UNDER A WEATHERPROOF SPA SKIRT.

THIS UNIT MUST NOT BE INSTALLED IN PROXIMITY TO HIGHLY FLAMMABLE MATERIALS.

CSA ENCLOSURE NUMBER 2.

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In.Clear™

Water sanitation systems for spas

With its waterproof enclosure, its sturdy design, the new In.Clear™ is the most efficient water sanitation system offered to the spa and hot tub industry today.

In.Clear™ is a system that generates and releases bromine into the spa water to rapidly control and destroy any microbiological contaminants such as waterborne bacteria, algae, body chemicals, organic matter given off by spa bathers and other organisms known to be linked to recreational water illnesses.

The new In.Clear™ system eliminates the need to add extra chemicals in the water to destroy unsightly pollutants and achieves impeccable results. The In.Clear™ system does not produce any offensive odors, it rather reduces eye irritation and it's easy to handle, making the In.Clear™ a good choice for hot tub sanitation.

Spas using the new In.Clear™ system need very little maintenance, and In.Clear™ can be easily installed on new or existing spas.

Warnings! Important safety instructions

- For Canada, In.Clear™ must only be used with sodium bromide (such as BromiCharge™) scheduled or registered under the Pest Control Product Act. For USA, the source of sodium bromide (such as BromiCharge™) must be registered under EPA.
- Read and follow this manual carefully and make sure to save it for later.
- This manual contains important information on In.Clear's installation, use and safety recommendations. It is your responsibility to install and use your In.Clear™ unit safely.
- In.Clear™ must be connected to a circuit protected by a ground fault interrupter device (GFCI) in North America or residual current device (RCD) having a rated residual operating current not exceeding 30 mA in Europe.
- Make sure all electrical power is off before installing the In.Clear™ unit. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Use only an electrical cord in good condition to power In.Clear™.
- Always clean or replace your filter cartridges at regular intervals, otherwise part of the bromine generated by In.Clear™ will only serve to oxidize the dirt accumulated in the filter.
- Do NOT add any other sanitation chemicals in the spa other than registered sodium bromide (such as BromiCharge™)
- Operating the In.Clear™ at reduced sodium bromide (such as BromiCharge™) levels will shorten the life of the cell.
- Do not open the In.Clear™ unit; there are no serviceable parts inside.
- Disposal of the product: the In.Clear™ unit must be done separately in accordance with the local waste disposal legislation in force.

Warnings!

- This unit is not intended for use by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the unit by a person responsible for their safety.
 - To reduce the risk of injury, do not allow children to operate this device.
 - In.Clear™ may not be suitable for in ground spas, it may affect some materials used in their construction.
 - The unit must be installed in a location that is inaccessible to a person in the bath or spa and must be located or fixed so that it cannot fall into the bath or spa.
 - The unit is not intended for in-ground spas as it may affect certain materials used in the spa's construction.
- The unit is not designed to be submersed but may be installed underneath the waterproof skirt of the spa.
- A means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
 - Do not add chemical products for pool or spa directly into the skimmer. This may damage the cell.
 - It is the responsibility of the user to test the spa water regularly to ensure that adequate amounts of bromine are generated to achieve proper sanitizer levels.
 - Heavy spa usage may require higher bromine output to maintain proper quantity of free available bromine.
 - The expected life time of the electrodes is 30 000 hours when used in normal operating conditions.

Warnings!

- Maintaining overly high sodium bromide and bromine levels above recommended range can contribute to corrosion of spa equipment and may damage components of the spa.
- The cell is installed after the heater in the circulation pump line.
 - Do NOT use any ozone or UV sanitizer.
- Check the expiry date of the test kit as test results may be inaccurate if used after that date.
- Follow all aspects of the local and National Electrical Code(s) when installing the In.Clear™ Automatic Bromine Generator.
- People with a medical condition should consult a physician before entering spa water.
- Women who are pregnant should NOT enter the spa.
- Maximum spa water usage temperature is 40°C. Bathing in spa water at 40°C should not exceed 15 minutes.
- For proper sanitation, spa must be completely drained periodically. The number of days between COMPLETE SPA DRAINAGE is equal to the volume of the spa water in liters, divided by 10 times the maximum number of daily spa users. Refill spa with water and repeat DIRECTION FOR USE of the device.
 - For a 1500 liters (400 US gallons) spa used by 2 adults twice a week: $1500 / (10 \times (4/7)) = 262$ days or 8 months
- In.Clear™ is meant for a covered spa NOT swimming pools.
- Users should always shower before entering a spa.

How In.Clear™ works!

When sodium bromide (such as BromiCharge™) is added to the water, it separates into sodium ions and bromide ions. As the water passes through the In.Clear™ bromine generator, a low-voltage source supplies a current that electrolytically reduces the bromine ions into bromine which reacts with the water molecules to form free bromine. Bromine is known to be a highly effective bactericide and algacide. This process releases bromide ions back into the water for continuous recycling until the spa is emptied. It is important to note that the amount of bromine needed will vary in direct proportion to the number of bathers in the spa (bather load).

Effects of bromine

- Bromine destroys waterborne bacteria.
- Bromine destroys algae in water (e.g. Black, Green, Mustard).
- Bromine swiftly eliminates the presence of organic matter left behind by spa users (oil, sweat, dead skin cells).
- Because bromine doesn't contain calcium, it can be used to sanitize hard water without increasing the calcium hardness.

Bromine in a spa!

Bacteria require a certain period of time before forming into micro colonies and becoming attached to a surface. Rapid elimination of bacteria is a key element in the proper maintenance of the spa water. In.Clear™ achieves this while oxidizing odors and reducing eye irritation. In.Clear™ enhances the clarity and quality of spa water. For bathers this translates into a more enjoyable warm water therapy experience.

Installing the in.k200™

The keypad should be installed directly onto the spa (or very close to it) so that it is easily accessible to the user.

- To install the in.k200™, drill two 25 mm (1") diameter holes at 67 mm (2 5/8") from center to center as illustrated.
- Cut out the material between the two holes (see illustration).
- Clean the installation surface and peel the adhesive gasket from the back of the keypad.
- Insert keypad and align it correctly, then ensure it's properly glued by gently pressing evenly on the entire surface.

If the keypad is equipped with an optional holder plate remove the two wing nuts in the back of the keypad and remove the mounting bracket.

Insert the keypad into opening you have cut out. Put the mounting bracket and the wing nuts back on their respective bolts and fix the keypad securely in place (see illustration above).

Note: It is the installer's responsibility to ensure that no obstructions (cables, piping, etc.) are present below the deck at the drill hole location.

Note: If the installation location is not perfectly even (e.g. wood surface) , make a silicone joint between the installation location and the back of the unit to ensure a proper seal around it.

Figure: in.k200

Skirt mount installation

For a skirt mount installation the keypad should be installed directly on a spa panel so that it is easily accessible to the user. Insure that the keypad control is located accordingly.

Drill from the finished side of the spa to prevent chipping of the surface. Start by pilot drilling the hole centers using a 3 mm (1/8") drill bit. Using the appropriate hole saw slowly drill two 25 mm (1") diameter holes at 67 mm (2 5/8") from center to center as illustrated.

Cut out the material between the two holes (see illustration).

Figure: Skirt mount installation

Clean the installation surface and route the keypad cable from the wall cutout to the In.Clear™ unit.

Peel the adhesive gasket from the back of the keypad, insert it in the cutout and align it correctly, then ensure it's properly glued by gently pressing evenly on the entire surface.

If the keypad is equipped with an optional holder plate, remove the two wing nuts in the back of the keypad and remove the holder plate. Insert the keypad into the opening you have cut out. Put the wing nuts back on their respective bolts and fix the keypad securely in place (see illustration above).

Note: It is the installer's responsibility to ensure that no obstructions (cables, piping, etc.) are present below the deck at the drill hole location.

Note: If the installation location is not perfectly even (e.g. wood surface), make a silicone joint between the installation location and the back of the unit to ensure a proper seal around it.

Connecting in.k200™ main keypad to In.Clear™

The in.k200™ comes with a 3.3 m (10 ft) cable and an in.link connector.

To connect the in.k200™, simply insert its in.link connector into the appropriate keypad connector "C" (as illustrated).

Figure: Connecting the in.K200 main keypad to In.Clear

In.Clear™ installation scheme with circulation pump

Figure A: In.Clear installation scheme with circulation pump

Water jet circulation pump 11 to 150 liters/min (3 to 40 US GPM).

Note: The pressure in the piping must be at least 3 PSI when water is circulating.

Installation

In.Clear™ unit must be installed before the spa is filled with water.

The In.Clear™ unit must be installed on the pressure side of the circulation pump (refer to Fig.A for details). It should be installed after the heater.

If the spa is equipped with a circulating pump, refer to Figure A.

The In.Clear™ system can be installed in an upright position or horizontally.

Installing valves on both sides of the In.Clear™ may help for maintenance purposes.

!!! We do not recommend to install the In.Clear™ on a spa equipped with a dual-speed pump. The In.Clear works only when the pump is running, therefore the dual speed pump will require to run around 8-10 hours to have optimum bromine production. Running a large pump for that period of time may be difficult in warm weather, without overheating the spa.

!!! The In.Clear™ system should be installed at the pressure side on a 11,4 to 151 liters/min (3 to 40 US GPM) flow line. It's important not to exceed 151 liters/min (40 US GPM) to prevent excessive electrode wear and damage to the In.Clear™ unit.

!!! For all types of installation make sure there's no pinch in the plumbing and that water flows.

!!! Water flow must run from bottom to top.

!!! If water flow is as low as 11.4 liters/min (3 US GPM) and In.Clear is to be installed horizontally, an air gap may appear at the top which may decrease the performance of the unit. In that case, raise the outlet about 1 inch above the water inlet level. The exact location and the method of installation of the In.Clear™ may vary depending on the plumbing design of

the spa.

Installation

For an optimal connection to spa plumbing , please note that we recommend the compression fittings & nuts as illustrated below.

(figure)

Use adapters to connect the In.Clear™ system to 3/4" tubing or directly to 2" tubing.

Slide the two plastic union nuts over the In.Clear™ unit's threaded ends and tighten the nuts.

!!! Hand tighten! Do not use tools!

!!! In.Clear™ must be protected by the same ground fault interrupter (GFCI) circuit as the spa system

!!! A blinking "AC" message on the keypad means that the input signal is not 240 VAC, and may likely be 120 VAC. Please check connection.

Connect the in.k200™ keypad to the unit (see keypad installation section of this manual for more details).

Installation

The In.Clear™ system operates in two modes: Maintenance Mode and Boost Mode

Maintenance Mode:

The primary function of the Maintenance Mode is to keep the bromine bank levels at a stable and acceptable range when the spa is not being used. Maintenance Mode is the “everyday” mode and is automatically ON when the system is activated.

To maintain the residual bromine level within a normal range, the user has to set the Maintenance Level of the In.Clear™ system by adjusting the value of the Maintenance Mode. The higher the value, the more bromine generated. A bromine level between 3 and 5 PPM must be maintained.

The goal is to maintain bromine at a constant level between the limits of 3-5 ppm when the spa is not being used or left unused for an extended period of time. Once the proper maintenance level is determined, keep the same setting unless the spa usage changes.

!!! Finding the right bromine generation level is a crucial step for the In.Clear™ system to be stable and effective. Refer to section “6 -Determining the proper bromine generation Maintenance Level for my spa” for more information.

!!! The spa filtration should be set at a minimum of 8hrs per day. **It is important to note that the In.Clear™ system can ONLY generate bromine when the water is circulating.** If you are having problems maintaining a stable level of bromine, or determining the proper maintenance level for your spa, you may have to increase the daily filtering time. Longer filtration produces a more steady level of bromine.

Boost Mode:

The Boost Mode should be activated every time you use your spa. Boost Mode increases the bromine generation rate to attack pollutants in the water and helps rebuild the necessary residual bromine in the water after each use of the spa. Pollutants are introduced to the water by the bathers causing the bromine levels to decrease. Activating the Boost Mode when you enter the spa will prevent inadequate bromine levels and will regenerate your bromine to the proper residual level.

Finding the right Boost level is another crucial step for the In.Clear™ system to be stable and effective. Refer to section “7 - Determining the boost mode level for my spa”.

!!! If water quality is not good after use, only the Boost level should be adjusted, not the Maintenance level.

Start up procedure: (see video: www.geckoal.com/inclear)

1 - Draining and cleaning the spa

It's important to completely drain and clean the spa to remove all residues accumulated on the surface and inside or around the jets area. After draining the spa, use spa cleaning products only. Household cleaners contain additives such as phosphates which may affect the bromine production. When the spa is clean, rinse it off thoroughly with a garden hose.

!!! It's extremely important to clean your filter cartridge with a filter soaking solution or replace your filter cartridges.

It is important that the spa is well cleaned and rinsed prior to the startup of the new system. Some biofilms may have formed in the spa that could prevent the system from functioning properly. We strongly recommend the use of a flushing product such as Spa System Flush, Swirl Away or National Chemistry Spa Purge to clean the plumbing even if the spa is brand new.

2 - Refilling the spa

Fill up the spa with fresh water. After the In.Clear™ unit has been installed, check the TDS concentration (Total Dissolved Solids) of the water you'll use to refill the spa. The TDS range should be within 50 and 400 PPM. Verifying the TDS range can be done by your local spa dealer or with TDS test strip. When you're certain the water is within the proper TDS range, refill your spa.

!!!If your TDS is higher than 500 PPM, ask your spa dealer for additional information to help reduce initial TDS.

!!! DO NOT use water from a "Salt Water Softener" system.

Make sure there is adequate flow and that no airlocks are trapped in the unit's plumbing. If airlocks are formed, start the pump and slowly loosen one of the union nuts to release the air trapped in the plumbing. Tighten the nut again after you are done.

3 - Adjusting water chemistry in the spa

Proper chemical maintenance of a spa is essential for the health of bathers. Maintaining the quality of the spa water within these specified values will enhance your enjoyment of the spa and prolong the life of the In.Clear™ system.

For best results, adjust to the following water chemistry parameters.
Check these parameters periodically.

Calcium hardness: between 150 and 200 PPM

Total Alkalinity: between 100 and 120 PPM

pH: between 7.2 and 7.8

!!! Water chemistry should be balanced before adding sodium bromide into the water. It's essential that the water chemistry parameters are within the proposed range to obtain optimal system performance.

!!! High Calcium Hardness may lead to faster calcification of the electrolytic plates.

4 - Adding sodium bromide (such as BromiCharge™)

!!! Water temperature between 32° C and 38° C (90° F and 100° F) helps dissolve sodium bromide and facilitates the adjustment of the maintenance level.

Start the pump to allow water to circulate and slowly add sodium bromide uniformly in the spa by simply pouring it from the container.

Metric Calculation:

Add 0.143Kg of sodium bromide which has a guarantee of at least 98% active ingredient , such as BromiCharge™ per 100 liters of water to attain the 1 400 ppm TDS value (Total Dissolved Solids).

Example, if your spa holds 1200 liters of water, add 1,72 Kg of sodium bromide (12 X 0,143 Kg).

Imperial Calculation:

Add sodium bromide which has a guarantee of at least a 98% active ingredient , such as BromiCharge™ per 100 US gallons of water.

Example, if your spa holds 300 US gallons of water, add 3.6 lbs of sodium bromide (3 X 1.2Lb). Note: Your spa manufacturer can tell you how much water your spa holds (in liters or gallons).

5 – Activating the system:

Power up your spa and activate the system by pressing the Boost key.

6 – Determining the proper Maintenance Level for my spa (refer to page 24 for details)

Determining the proper maintenance level for your spa is an extremely important step. DO NOT use your spa during this step as it will slow the process. Be patient. Make sure you follow steps 1 through 6 previously described before performing the following steps.

Your maintenance value was set at the factory. It should read 15 to start.

Since the In.Clear™ bromine generation is not an instantaneous process, at least 24 hours should be allowed for the bromine bank to reach stabilization. After that period, check bromine level to make sure it is back between 3-5 PPM.

If the bromine level is within that range, you are ready to use your spa.

If the bromine level is above 5 PPM, decrease the maintenance level.

If the bromine level is below 3 PPM, increase the maintenance level.

Always allow at least 24 hours for the bromine bank to stabilize.

Repeat these steps until you are able to stabilize your bromine level between 3 and 5 PPM.

!!! Do NOT increase/decrease maintenance level in steps greater than 2.

!!! Setting the maintenance level to a value that's too high can cause damage to your equipment.

!!! Check bromine level and always test water before entering the spa.

!!! If the bromine level is higher than 5 PPM, lower the maintenance level and turn off the system until the bromine level is back below 5 PPM. Then, restart the system and continue monitoring the bromine level.

!!! To lower the bromine level, expose your spa water to the sun and activate all pumps for a few cycles.

!!! Testing bromine levels with FAS-DPD drop count method is more accurate than using pf test strips. Bromine FAS-DPD is available at www.geckodepot.com under number 0699-300008.

7 – Determining the Determining the Boost Mode level for my spa

Every time you use your spa, activate the Boost Mode using the Boost Key on the keypad. As a rule of thumb, the Boost level may correspond to the number of bathers using the spa. For example, activate the Boost level to 2 indicators if two (2) bathers are entering the spa.

At the end of the Boost period, verify that the bromine level has returned to the 3-5 PPM range. If the bromine level is too low or too high after the Boost period, the Boost level should be adjusted the next time the spa is used. For example, if bromine level is higher than 5 PPM after Boost, lower the Boost level by one at next use under the same conditions. Repeat these steps until you are able to determine the ideal Boost level for your usage.

Note: Boost levels depend on the number of bathers using the spa. We recommend you validate the Boost level after each use to determine the ideal Boost level for every condition (number of bathers).

Other tips:

For Canada, In.Clear™ must only be used with sodium bromide (such as BromiCharge™) scheduled or registered under the Pest Control Product Act. For USA, the sodium bromide (such as BromiCharge™) must be registered under EPA.

Your warranty will be void if a product other than sodium bromide is used as a substitute.

!!! Do not breathe it or get into your eyes! First Aid instructions should appear on the sodium bromide container.

!!! Do not use any sanitation chemicals (including shock) other than sodium bromide in the spa.

!!! When adding fresh water to the spa, start a Boost to help build a residual bromine bank.

Boost key

The first press of the Boost key turns the In.Clear™ ON and puts the In.Clear™ into maintenance mode. ON appears on the keypad display.

Press and hold the Boost key for 2 seconds to turn In.Clear™ OFF. OFF will appear on the keypad display.

With the system in Maintenance Mode, press the Boost key to activate the Boost Mode.

Note: The Boost mode should be activated every time you use your spa.

The keypad display will show a numeric value that corresponds to the selected level. There are 8 possible levels available with the Boost Mode.

As a rule of thumb, the Boost level corresponds to the number of bathers using the spa.

Set the Boost level by using the up and down arrow to select the number of bathers that use the spa (i.e., husband and wife = 2, and so on).

Note: In.Clear™ keeps your boost level in memory.

Press the Boost key during a Boost cycle will cancel the remainder of that Boost cycle and return the In.Clear™ system to maintenance mode.

Confirm the selection by pressing the Boost key again or wait 5 seconds for the system to save the desired level and activate the Boost Mode cycle.

The Bromine Generation Indicator (LED), located above the Boost key, lights up when the cell is producing bromine and is OFF when no bromine is being produced.

Note: The Bromine Generation Indicator will blink if the In.Clear™ system cannot generate bromine due to low or no water flow.

Maintenance Adjustment

Press and hold the “Prog” key for 2 seconds to enter Maintenance level adjustment mode.

Use the +/- keys to adjust maintenance level.

Press the Prog key again to enter Diagnostic Mode. This mode may be used to monitor the sodium bromide level of your spa and may be a useful tool to use when adding sodium bromide (such as BromiCharge™) to the water. See details next page.

Maintenance level adjustment changes the rate at which bromine will be released into the spa water. The bromine generation rate ranges from 1 to 50, where 1 corresponds to the system’s minimum generating rate and 50 corresponds to the maximum generation rate allowed by the system.

!!! Changing the water temperature setpoint of your spa, or using the economy mode, could require a change in the maintenance level of your In.Clear™. Lower water temperatures may require a lower maintenance level than higher temperature setpoints. Please check your bromine level when changing your temperature setpoint or using the economy mode of your spa.

!!! Never adjust the maintenance level of your In.Clear™ without allowing at least 24 hours following the end of the Boost period. Boost cycles allow the residual bromine level to stabilize. Bromine levels outside the 3-5 PPM range may result from pollutants following usage.

Diagnostic Mode

The primary function of this mode is to indicate the approximate sodium bromide level of your spa. This is a useful tool when adding sodium bromide (such as BromiCharge™) to the water.

Press and hold the “Prog” Key for 2 seconds, then press a 2nd time to enter Diagnostic Mode. An animation will be displayed and within 10 seconds a numerical value will be displayed. The sodium bromide gauge will indicate the level of sodium bromide in the spa water.

Diagnostic Mode can be used to periodically adjust sodium bromide level or to check warnings and errors on the keypad.

Press the “Prog” key to exit Diagnostic Mode or the system will automatically exit after 15 minutes.

!!! Diagnostic mode and sodium bromide Level Monitoring are tools to help spa owners maintain proper sodium bromide levels but do not replace the need to perform water TDS checks periodically at a local spa dealer.

BromiCharge™ gauge (LEDs)

In Diagnostic mode, the BromiCharge™ gauge (LEDs) indicates the approximate sodium bromide level of your spa water.

When adding sodium bromide (such as BromiCharge™), the gauge indicator will gradually shift to the right. When adding clean water to the spa the indicator will shift to the left. In order to achieve the proper level, start circulation pumps and add 454 Grams (1 Pound) at a time and always allow 5 minutes for the gauge to react before adding more sodium bromide (such as BromiCharge™).

The green zone in the center area of the gauge and a 12.0 value should be targeted for optimal performance.

!!! Water must be circulating through the In.Clear™ cell in order for the Diagnostic Mode to work. If no water is circulating through the In.Clear™ unit, a FLO message will appear on the keypad display. Make sure the pump is circulating water through the In.Clear™.

!!! Be aware that the gauge will move according to the sodium bromide level. Make sure your water temperature is at least 32° C (90° F).

Low BromiCharge™ Error

Low Sodium Bromide Error (Err) occurs when the sodium bromide level is too low. The (Lo) LED indicator will blink when the error is present. The In.Clear™ system will not generate bromine until the Low Sodium Bromide Error (Err) is cleared.

To clear the Low Sodium Bromide Error (Err), add sodium bromide (such as BromiCharge™) to the spa water. Let water circulate for 5 minutes. Activate diagnostic mode and add more sodium bromide (such as BromiCharge™) until gauge is back in the green zone. Exit diagnostic mode.

Low BromiCharge™ Warning

Low Sodium Bromide Warning (Lo) indicates the need to add sodium bromide (such as BromiCharge) to the spa water.

In Diagnostic Mode, add sodium bromide (such as BromiCharge™) to the water until the gauge reaches the green zone to clear a Low Sodium Bromide Warning (Lo).

!!! If after adding sodium bromide (such as BromiCharge™) the Sodium Bromide Warning (Lo) or Low Sodium Bromide Error (Err) still occurs it could be the result of:

- calcification of the electrolytic plates;
- airlocks trapped in the In.Clear™ unit or insufficient flow;
- internal pressure switch problem.

High BromiCharge™ Warning

High Sodium Bromide Warning (Hi) occurs when too much sodium bromide (such as BromiCharge™) is present in the water or there is a high TDS level (water hardness, alkalinity, organic compounds, ...).

To clear a High Sodium Bromide Warning, readjust the sodium bromide (such as BromiCharge™) content of your water in Diagnostic Mode, into green zone by draining some water from your spa and adding fresh water.

Blinking “AC”

A blinking “AC” message displayed on the keypad indicates that there is a problem with the power input. The most common reason is that the In.Clear™ unit is supplied with 120 VAC instead of 240 VAC. Please make sure power cord is connected properly to a 240 VAC source.

Bromine Generation indicator blinking

A blinking Bromine Generation LED means that the system is unable to generate bromine because no water flow is detected by the In.Clear™ system. This situation is normal if the pump is not running and no water is flowing through the In.Clear™. However, if water is circulating through the In.Clear™ unit, and the Bromine Generation LED is still blinking, make sure that the In.Clear™ is installed on the pressure side of the pump and that water is properly flowing through the In.Clear™ unit.

Bromine Generation indicator is off

The Bromine Generation LED indicator is OFF when there is no need for bromine generation. This situation is normal, especially with low maintenance level of bromine generation set on the keypad.

In.Clear is turned off

The OFF message indicates that the In.Clear™ is turned Off. Press Boost key to reactivate the In.Clear™.

Low or no bromine reading

Make sure the maintenance level is properly set according to the procedure described in section 6 - “Determining the proper Maintenance Level for my spa ”.

Make sure there is no error or warning message on the display, the cell is activated and that water is circulating properly through the cell.

Make sure water chemistry is balanced. Refer to section “3 - Adjusting water chemistry in the spa” for more details.

Test your spa water for phosphate to make sure there is no contamination. Phosphates should never exceed 100 ppb. Phosphates can be introduced to your spa water by household cleaners, soaps and lotions.

Change your filter or clean it with a filter cleaner and rinse thoroughly with cold water.

Make sure the In.Clear™ cell is not damaged and that no calcium or lime deposits appear on the cell plates. Clean your cell regularly (at least once a year).

Long recovery time after usage

Activate Boost Mode every time you use your spa to the appropriate level. Refer to section 7 - “Determining the Boost Mode level for my spa”.

Heavy bather loads will require longer boost periods. If bromine level is below 3 PPM following a boost period, re-activate Boost Mode to bring the bromine bank within 3-5 PPM.

Bromine bank should always be regenerated following a boost period.

If high Boost level does not regenerate bromine bank properly, increase the daily filtration time. If bromine production is still inadequate after following all of the instructions above, biofilm deposits could be causing the lack of bromine generation. Flushing products such as Sea Klear Spa System Flush, Swirl Away or National Chemistry Spa Purge have shown to be affective for biofilm removal.

Frequently asked questions

Q1 - My spa water is cloudy /oily

A1 - If your spa becomes cloudy or oily due to bather load perform an additional Boost and wait for 24 hours to see if conditions return to normal. If the problem persists consult a spa/pool dealer to have your water balanced properly.

Q2 - Does the sodium bromide evaporate?

A2 - No. sodium bromide is only lost through splash out, leaks or when draining your spa.

Q3 - What should I use to clean my spa?

A3 - Always use a non-sudsing cleaner found at your spa store.

Q4 - When my In.Clear™ bromine generator is off does the sodium bromide continue sanitizing my spa?

A4 - No, the In.Clear™ system does not sanitize if inactive. If there is a residual bank of bromine, bromine continues to sanitize the spa water. In.Clear™ may be OFF at certain times and the spa will still be fine and clean.

The sodium bromide is converted to bromine as it passes through the electrodes of the In.Clear™ system and the pump associated with the In.Clear™ is running.

T.D.S.

Total Dissolved Solids (TDS) is an expression for the combined content of all inorganic and organic substances contained in a liquid which are present in a molecular, ionized or micro-granular (colloidal sol) suspended form.

pH

pH (potential hydrogen) is a measure of the acidity or basicity of a solution.

P.P.M.

"Parts-per million" notation is used to denote relative proportions or a comparative ratio in a given measured quantity.

The expression "1 PPM" means a given property exists at a relative proportion of one part per million parts examined, as would occur if a water-borne pollutant was present at a concentration of one-millionth of a gram per gram of sample solution.

Total Alkalinity (TA)

Alkalinity or TA is a measure of the ability of a solution (such as water) to neutralize acids to the equivalence point of carbonate or bicarbonate.

Calcium Hardness (CH)

Calcium Hardness describes the concentration of calcium in your spa water.

Total Hardness (TH)

Total Hardness describes the concentration of calcium and magnesium in your spa water.

Organic Matter

Substances left behind by spa users such as oil, sweat and dead skin cells that serve as "food" for bacteria.

Bather Load

This term is used to describe the number of bathers using a spa, combined with the length and frequency of its usage. The higher the bath usage, the greater quantity of chemicals needs to be added to maintain the same spa water quality.

Cell cleaning:

In.Clear™ includes a self-cleaning feature to prevent scale deposits on the graphite electrodes of the In.Clear™ system. However, deposits may still form due to hard water. If that happens the cell should be cleaned in an acidic solution.

To clean the In.Clear™ cell, follow these steps:

Figure: Cell cleaning

!!! All power must be disconnected before any service procedure is performed. Disconnect the communication cable and power cable of the In.Clear™ unit.

!!! Refer to acid manufacturer's instructions.

!!! Wear eye protection and rubber gloves during these operations. Splashing or spilling acid can cause severe personal injuries and/or property damage.

!!! Always work in a well-ventilated area.

!!! Always add acid to the water; never add water to the acid.

!!! Do not pour acid outside of the unit where the connectors are located.

!!! Never use Acetic acid to clean the cell, as this will cause permanent damage to cell components and void the warranty.

- To remove scales from the cell, we recommend to use Phosphoric acid (non-diluted) as the preferred cleaning product.
- Close the spa Flow Shut Off Valves. Unscrew both unions from the unit and remove the cell from the spa equipment compartment.

Cell cleaning

- Install the rubber washer and the plastic nut on the threaded end of the cell. Tighten plastic nut firmly.
- Place the cell vertically with the cap end down into a plastic 19 liters (5 U.S. gallons) bucket and carefully pour the acid solution into the cell until the 4 plates are covered (careful not to overflow). The acid solution will begin to produce bubbles to clean the electrodes. A foaming action will follow, which is caused by the scale deposits being dissolved from the plates. If rigorous foaming action does not begin, the cell does not need to be cleaned. Rinse and reinstall the cell.
- Allow the electrodes to remain in the solution until the foaming has stopped. However, DO NOT leave in acid for more than fifteen minutes. Excessive acid cleaning will damage the electrolytic cell.
- Pour the acid solution back into the bucket and rinse the cell thoroughly with clean tap water. If deposits are still visible, repeat operation for fifteen minutes maximum (some acid may need to be added to the solution).
- Remove the plastic nut and washer from the cell and keep them for future cell cleaning.
- Rinse the In.Clear™ with fresh water.
- Reinstall the In.Clear™ unit into spa system plumbing, tighten all connections by hand. Open the spa flow Shut Off Valves.
- Reconnect the keypad and power cable.
- Turn power on and start up the pump. Check the keypad to see that the bromine generation LED is on and resume normal operation.

Dimensions:

Figures: Dimensions

General specifications:

Environmental:

Operating temperature:

0°C (32°F) to 50°C (122°F)

Storage temperature: -25°C (-13°F) to 85°C (185°F)

Humidity: up to 85% RH, non condensing

Water Ingress protection: IPx5

In.Clear™ electrical specifications:

Input rating : 230-240 VAC nominal (+ 5/- 10 %)

Frequency : 50/60 Hz nominal (+ 1.5 / -1.0 Hz).

Operating current: 0.09 A (90mA)

In.Clear™ flow rate:

11,3 liters/min (3 US GPM) minimum flow rate (required)

151 liters/min (40 US GPM) maximum flow allowed.

In.Clear™ pressure: 207 kPa (30 psi) maximum

Mechanical:

Weight: 2.25 kg (5.0 lbs)

Dimensions (W x H x D): Chassis: 276.2mm x 153.6mm x 119mm (10.875" x 6.046" x 4.682")

General specifications:

North America:

UL 1081 sixth Ed, UL 1563 Fifth Ed. File: E305676

CSA No. 22.2 - 108-01 4th Ed.

EPA Reg. No. 8622-69-73578

EPA Reg. No. 69470-wv-2

REGISTRATION No. 29628 PEST CONTROL PRODUCTS ACT (Canada)

Europe:

EN/IEC 60335 - 2 - 60: 2003/2002

EN/IEC 60335 - 1: 2002/2001 (incl. Corr. & Am. up to 2006)

EN 55014-1

EN 55014-2

EN 61000-3-2

EN 61000-3-3

Australia / New Zeland:

AS/NZS 60 335.2.60: 2006+A1

in.k200 general specifications:

Keypad dimensions:

Figures: Keypad dimensions

Environmentals:

Storage temperature: -30°C (-22°F) to 70°C (158°F)

Operating temperature: -20°C (-4°F) to 60°C (140°F)

Humidity: 100% condensing

Mechanical Specs:

Weight: 0.41 kg (0.9 lbs)

Dimensions (W x H x D): Front Panel: 120 mm x 51 mm x 43 mm (4.75" x 2" x 1.7") Soft gasket

Standards: UV resistance (ASMT D4329) UL, CSA, TUV and CE