



User Manual

English
Français

in.clear

bromine based water sanitization system for spas



Constant sanitization

Free of harsh chemicals

Low maintenance





in.clear™ Model No. 0605-500002

Bromine based water sanitization system for spas
(using Bromitron Bromine Generator Technology)

Automatic Bromine Generator

For Spa Sanitizing

DOMESTIC

A maximum of 2000 Liters of water can be treated with one in.clear Automatic Bromine Generator unit.

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

For spas, 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 buildup 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.

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Warnings



Warnings! Important safety instructions

- For Canada, in.clear (using Bromitron Bromine Generator Technology) 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.
- 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.
- The 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 the in.clear.
- Follow all aspects of the local and National Electrical Code(s) when installing the in.clear Automatic Bromine Generator.
- 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).
- Do not add chemical products for pool or spa directly into the skimmer. This may damage the cell.
- The cell is installed after the heater in the circulation pump line.
- Operating the in.clear at reduced sodium bromide (such as BromiCharge) levels will shorten the life of the cell. 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.
- Do not open the in.clear unit; there are no serviceable parts inside.
- Disposal of the product: the in.clear unit must be disposed of separately in accordance with the local waste disposal legislation in force. 
- This unit is not intended for use by persons (including children) 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 appliance by a person responsible for their safety.
- To reduce the risk of injury, do not allow children to operate this device.
- The 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 designed to be submersed but may be installed underneath the waterproof skirt of the spa.

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Warnings

- A means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
- 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 free available bromine residuals.
- The expected lifetime of the electrodes is 30 000 hours when used in normal operating conditions.
- Check the expiry date of the test kit as test results may be inaccurate if used after that date.
- 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.





in.clear clean water done right

Easy to use and built to last, the in.clear is one of the most efficient water sanitization systems offered to the spa and hot tub industry today. The in.clear generates and releases bromine into the spa water, rapidly destroying any microbiological contaminants such as water borne bacteria, algae, and organic matter given off by spa bathers.

The in.clear system eliminates the need to add bromine or chlorine to your spa on a regular basis. The in.clear system oxidizes odors, reduces eye irritation, and is easy to use, making it the best choice for hot tub sanitization. Spas using the in.clear system need very little maintenance, and the in.clear can be easily installed on new or existing spas.

Accessories

In order to use the in.clear system you must also have an in.k200 keypad or a compatible main spa keypad, and a government approved sodium bromide product (such as BromiCharge). See below for more in.clear accessories.

in.clear parts and accessories:

in.clear: linked (in.link)	0605-500005
in.clear: linked (AMP)	0605-500006
in.clear: linked (QCM)	0605-500007
in.clear: linked (1.5 PSI, in.link)	0605-500008
in.clear: linked (1.5 PSI, QCM)	0605-500010
in.k200 keypad	0607-008010
Bromine test kit	0699-300008
Reducer (2" to 3/4")	0699-300007
Mounting stand	9920-101464

BromiCharge

Canada	0699-300006
United States	0699-300005
Europe	0699-300009

Compatibility

The linked version of the in.clear is compatible with the in.xe, in.xm, in.ye, in.yt and in.yj spa packs with necessary software revisions and hardware.



Introduction

How the 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 bromide ions into bromine. The bromine destroys bacteria and algae, and then 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).

Versions

There are two versions of the in.clear module: a stand alone version that uses the in.k200 keypad directly, and the linked version, which communicates with the spa pack for more control and precision.

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 (e.g. 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. The in.clear achieves this while oxidizing odors, reducing eye and skin irritation. The in.clear enhances the clarity and quality of spa water. For bathers this translates into a more enjoyable warm water therapy experience.



Before starting

(see video: www.inclear.ca)

1. Drain and clean 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 jet 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. Refill the spa with fresh water

After the in.clear unit has been installed, check the TDS (Total Dissolved Solids) of the water you'll use to refill the spa. Verifying the TDS range can be done by your local spa dealer. The TDS range should be within 50 and 400 PPM. 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. Adjust 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 (TH): 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. Add sodium bromide (such as BromiCharge)

Water temperature between 32° and 38° C (90° 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 0.143 kg of sodium bromide which has a guarantee of at least a 98% active ingredient, such as BromiCharge, per 100 L of water to attain 1 400 ppm TDS value (Total Dissolved Solids).

Example, if your spa holds 1200 L 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 1.2 lb).

Note: Your spa manufacturer can tell you how much water your spa holds (in liters or gallons).

Sodium bromide information

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

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

- ⚠ Do not inhale the product or get into your eyes! First Aid instructions should appear on the label of the registered sodium bromide container.
- ⚠ Do not use any other 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.



in.clear operating modes

This manual details the functions of the in.clear with the default keypad (in.k200). If your spa pack uses a compatible keypad (ex. in.k800) please see its manual for more specific information.

Maintenance Mode

Maintenance Mode keeps 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. Maintenance level adjustment changes the rate at which bromine will be released into the spa water.

Finding and setting the right maintenance level will keep the residual bromine level between 3 and 5 PPM (the recommended range) when the spa is not being used or is left unused for an extended period of time. Once the proper maintenance level is determined, keep the same setting unless the spa conditions change (change in water temperature, spa location etc).

Finding the right bromine generation level is a crucial step for the in.clear system to be stable and effective (see Set Maintenance Mode).

- ⚠ With the stand alone version, the spa filtration should be set to a minimum of 8 hours per day. To check the minimum filtration time for your spa, see the Program Key section.
- ⚠ With the linked version, it is not necessary to set the filtration duration, as communication between the pack and in.clear allows the system to stop and start the associated pump at the best times.

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.

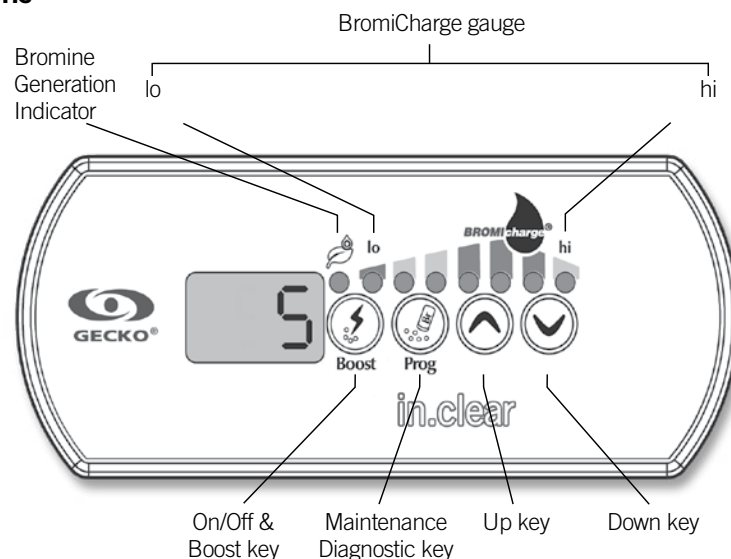
Boost Mode

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 restore 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.

- ⚠ If water quality is not good after use, only the boost level should be adjusted, not the maintenance level.

Keypad functions





Keypad functions

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 the Boost key once while in maintenance mode to start a boost, or to adjust boost settings.*

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.

Press and hold the Boost key for 2 seconds to turn the in.clear off. OFF will appear on the keypad display. Do not turn the in.clear off unless required for maintenance, or if advised by a technician or Gecko representative. Turning the in.clear off will cancel the boost.

Note: With the standalone version the Bromine Generation indicator will blink if the in.clear system cannot generate bromine due to low or no water flow.

* In older versions, pressing the Boost key during a boost cycle will cancel the remainder of that boost cycle and return the in.clear system to maintenance mode.

Program key



Press and hold the Program key for 2 seconds to change the maintenance mode level.

Once in maintenance mode adjustment, press the Program key again to view the suggested minimum filtration time* (stand alone version only). Press the Program key once more for Diagnostic mode.

* Not displayed in older versions.

Diagnostic mode

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

The BromiCharge Gauge will indicate the level of sodium bromide in the spa water. As you add sodium bromide to the spa an animation will indicate rising levels*.

If the levels go down (when adding fresh water, for example) the animation will indicate diminishing levels.

+ / - Keys



Use the Up and Down keys to adjust the maintenance and boost levels while in the appropriate mode.

Press the Prog key to exit diagnostic mode or the system will automatically exit after 15 minutes.

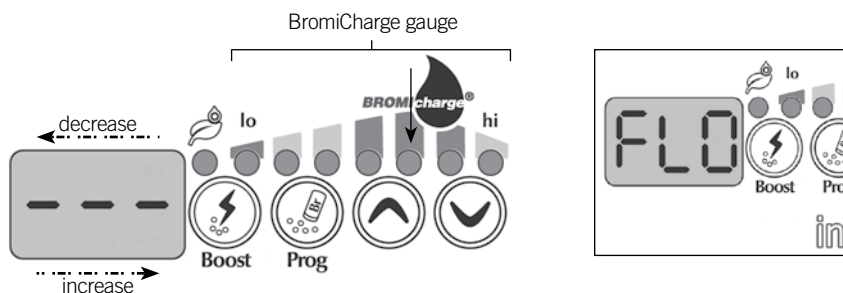
*In older versions a number will be displayed instead of an animation to indicate the level. The target number is 12.

BromiCharge gauge (LEDs)

In diagnostic mode, the BromiCharge gauge (LEDs) indicates the approximate sodium bromide level of your spa water. Do not add sodium bromide if the indicator is in the green zone.

When adding sodium bromide, 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 pumps and add 227g (.5 lb) at a time and always allow 5 minutes for the gauge to react before adding more sodium bromide.

The green zone in the center area of the gauge 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 sodium bromide level. Make sure your water temperature is at least 32° C (90° F).



Start up procedure

Set the maintenance level

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 4 of the Before Starting section before performing the following steps.

1. Power up your spa and activate the system by pressing the Boost key.
2. Make sure your maintenance level is set to 15.
To adjust the level, press and hold the Program key for 2 seconds, then use the Up and Down keys to adjust the maintenance level. 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.

OPTIONAL: Set the boost to level 2 to help build up the bromine bank faster and speed up the startup process.

3. Use a test kit to check the bromine level every 12-24 hours*. The bromine level should be between 3-5 PPM. If the bromine level is within that range for 3 consecutive days, 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.
4. Repeat step 3 until bromine is stable between 3 and 5 PPM for 3 consecutive days.

- ⚠ 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 test strips. Bromine FAS-DPD is available at www.geckodepot.com under number 0699-300008.

Determine the boost level

Every time you use your spa, activate the boost mode. As a rule of thumb, the boost level corresponds to the number of bathers using the spa. For example, activate the boost level to 2 if two bathers are entering the spa.

1. With the system in maintenance mode, press the Boost key to activate the Boost mode.
2. The keypad display will show a numeric value that corresponds to the selected level. There are 8 possible levels available with the boost mode. Set the boost level by using the up and down arrow to select the number of bathers that use the spa.
3. 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 cycle.

Note: The in.clear keeps the last used boost level in memory.

4. 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 a boost of 2, lower the boost level to 1 the next time. Repeat these steps until you are able to determine the ideal boost level for your usage.

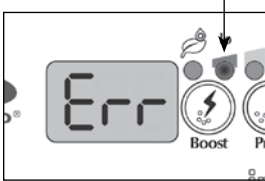
Note: Boost levels depend on the number of bathers using the spa. We recommend you validate the Boost level after each use to determine the ideal boost level for all numbers of bathers.

- ⚠ 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.

Linked version only: If the pack connected to the in.clear detects spa use (pumps, blower, or lights active) for 5 minutes without a boost, it will automatically start a boost at the last used level. This is a security feature only, and should not be used to replace the boost setting. Incorrect boost settings for the bather load could damage spa parts and/or be hazardous to bathers.



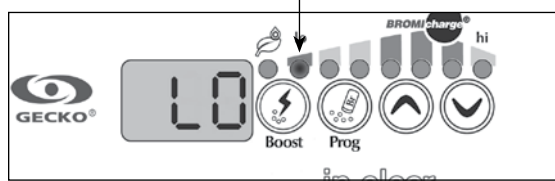
Troubleshooting



Low Sodium Bromide 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 to the spa water. Let water circulate for 5 minutes. Activate diagnostic mode and add more sodium bromide until gauge is back in the green zone. Exit diagnostic mode.



Low Sodium Bromide Warning

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

In diagnostic mode, add sodium bromide to the water until the gauge reaches the green zone to clear a Low Sodium Bromide Warning (Lo).

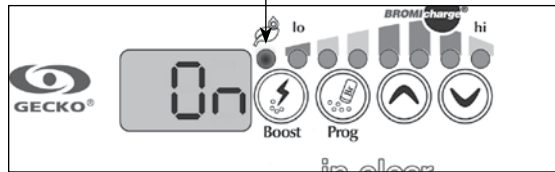
⚠ If after adding sodium bromide the Low Sodium Bromide Warning (Lo) or Low Sodium Bromide Error (Err) still occurs it could be the result of:

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



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 V instead of 240 V. Please make sure power cord is connected properly to a 240 V source.



Standalone version only: 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.



Troubleshooting



High Sodium Bromide Warning

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

To clear a High Sodium Bromide Warning, readjust the sodium bromide content of your water in diagnostic mode, into the green zone by draining some water from your spa and adding fresh water.



in.clear is turned off

The OFF message indicates that the in.clear is turned off.

Press the Boost key to reactivate the in.clear.

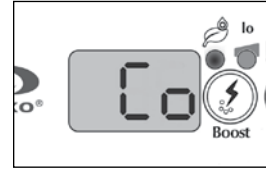


FLO error (out of diagnostic mode)

With the linked version the FLO error appears when the in.clear's pressostat is open for longer than 3 minutes and the pump associated with it was activated by the spa pack.

Verify that the in.clear unit was installed on the right pump (must be installed on the circulation pump if present).

Check that the in.clear is installed on the pressure side of the pump and that water is flowing through the in.clear unit.



Communication Error

The Co error indicates that a linked version of the in.clear is being used, but a pack cannot be detected. Ensure that you are using a compatible pack with appropriate software, and that all connections are secure. If this does not clear the message, contact your dealer for help.



Troubleshooting

Low or no bromine reading

Make sure the maintenance level is properly set according to the procedure described in the section Set Maintenance Level. 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 the section Adjust 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 at the appropriate level every time you use your spa. Refer to the section Determine the Boost Level.

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.

The bromine bank should always be regenerated following a boost period. If a high boost level does not regenerate the 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 effective for biofilm removal.

Frequently Asked Questions

Q: Why is my spa water cloudy/oily?

A: 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.

Q: Does the sodium bromide evaporate?

A: No. Sodium bromide is only lost through splash out, leaks or when draining your spa.

Q: What should I use to clean my spa?

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

Q: When my in.clear bromine generator is off does the sodium bromide continue sanitizing my spa?

A: 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. The 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.



Glossary

TDS

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.

PPM

"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)

Total 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.

All power must be disconnected before any service procedure is performed.

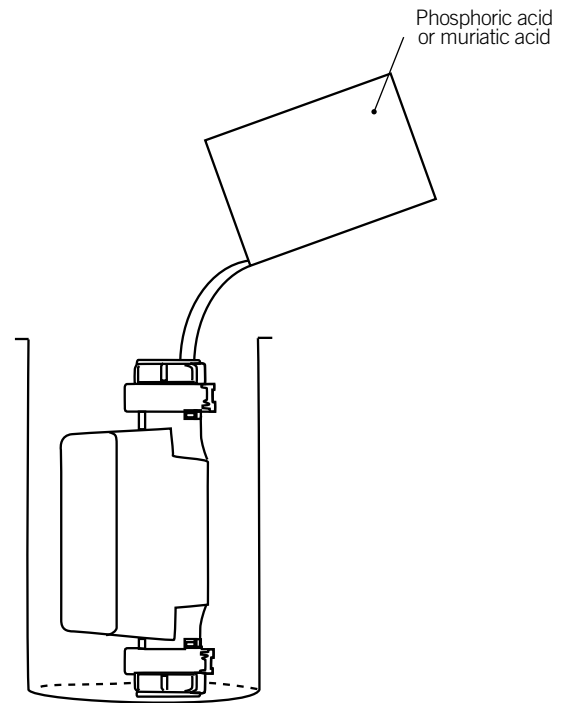
Disconnect the communication cable and power cable of the in.clear unit.

To clean the in.clear cell, follow these steps:

- To remove scales from the cell, we recommend using 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.
- 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 L (5 U.S. gallon) 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.
- Re-install 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.

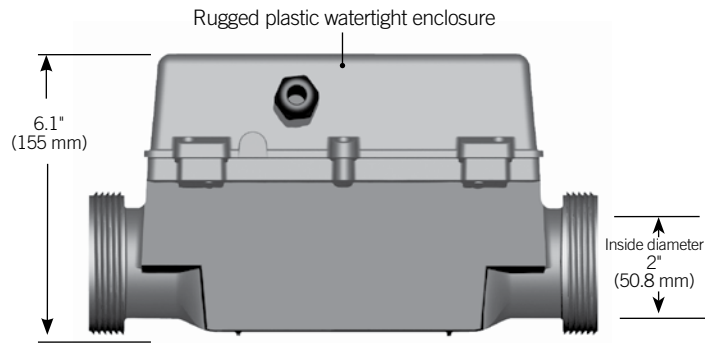
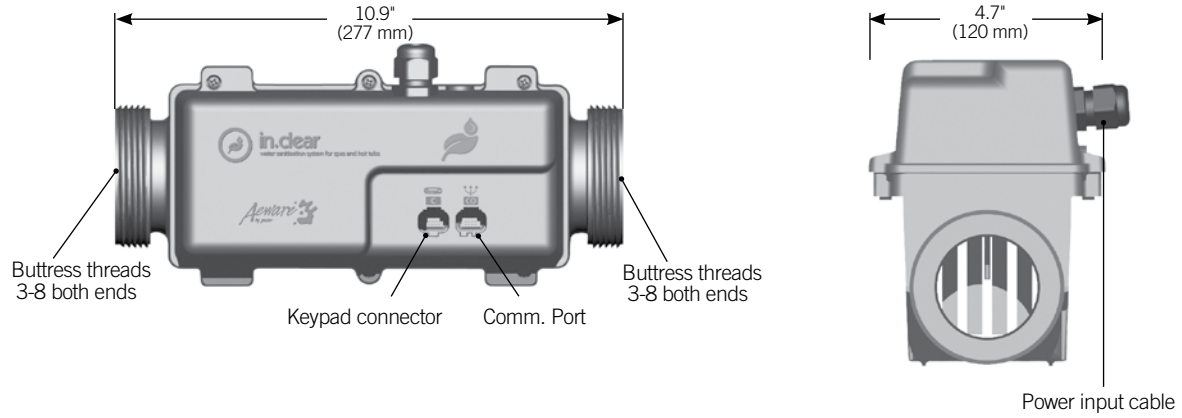


- ⚠ Refer to acid manufacturer's instructions.
- ⚠ Wear eye protection and rubber gloves during these operations. Splashing or spilling acid can cause severe personal injuries and/or property damage.
- ⚠ Always work in a well-ventilated area.
- ⚠ Always add acid to the water; never add water to the acid.
- ⚠ 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.

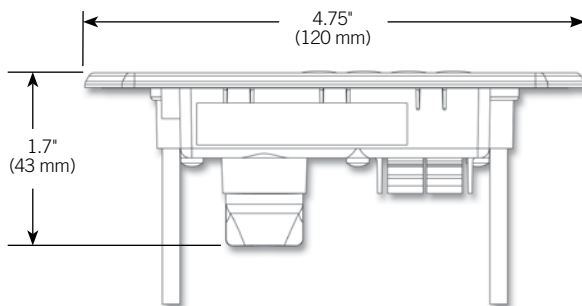
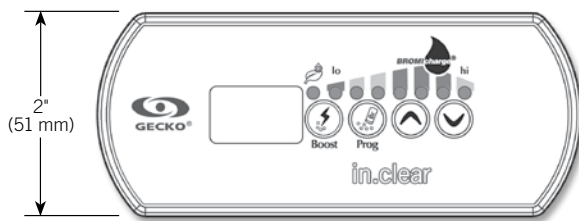


Dimensions

in.clear dimensions



Keypad dimensions





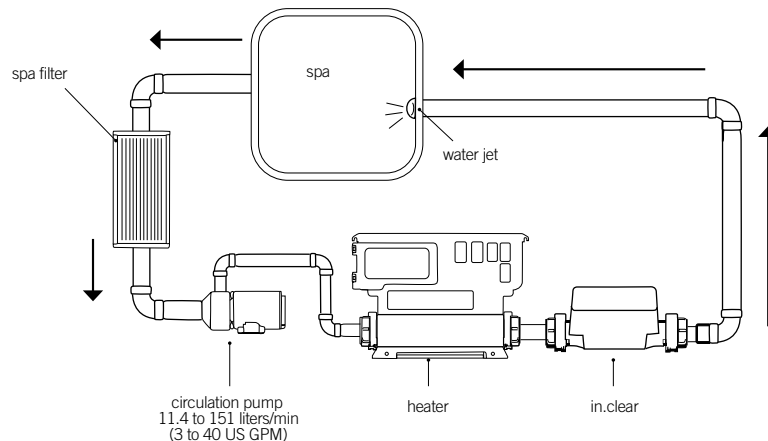
Installation

in.clear installation

Warnings!

- ⚠ **The in.clear must be installed on a circulation pump if one is present.**
- ⚠ We do not recommend installing the in.clear on a spa equipped with a dual-speed pump. The in.clear works only when the pump is running; therefore a dual-speed pump will need to run 8-10 hours for optimum bromine production. This may be difficult for a large pump to do in warm weather, without overheating the spa.
- ⚠ Install the in.clear on the pressure side on a 11.4 to 151 l/min (3 to 40 US GPM) flow line. Do not to exceed 151 l/min (40 US GPM) to prevent excessive electrode wear and damage to the in.clear unit.
- ⚠ Make sure there are no kinks in the plumbing.
- ⚠ Water flow must run from bottom to top if installed vertically.
- ⚠ If water flow is as low as 11.4 l/min (3 GPM) and the in.clear is to be installed horizontally, an air gap may appear at the top which may decrease the performance of the unit. In this case, raise the outlet 1" above the water inlet level.
- ⚠ We do not recommend installing the linked version of the in.clear on a heat recovery system, as the in.clear forces filtration and risks raising the water temperature above the Set Point.

Fig.A: in.clear installation scheme with circulation pump

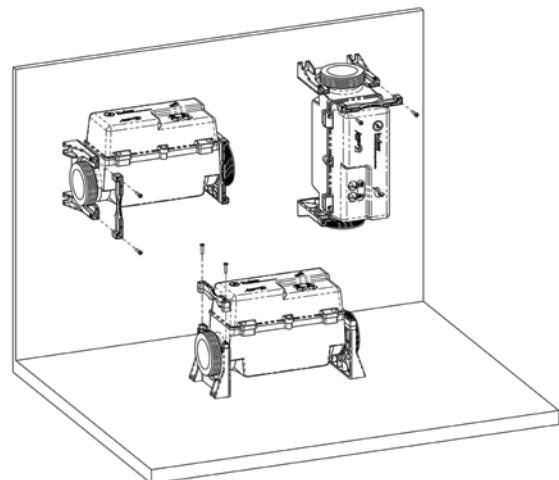


Note: The pressure in the piping must be at least 3 psi when water is circulating

in.clear installation with stand

The stand can be used for floor mounting and for wall mounting.

The stand includes the required screws to mount the device to the stand. The mounting screws to attach the stand to the spa are not included.



Floor and side mounting

The following material is recommended:

4- # 10 screws of appropriate length with round, truss or pan head.

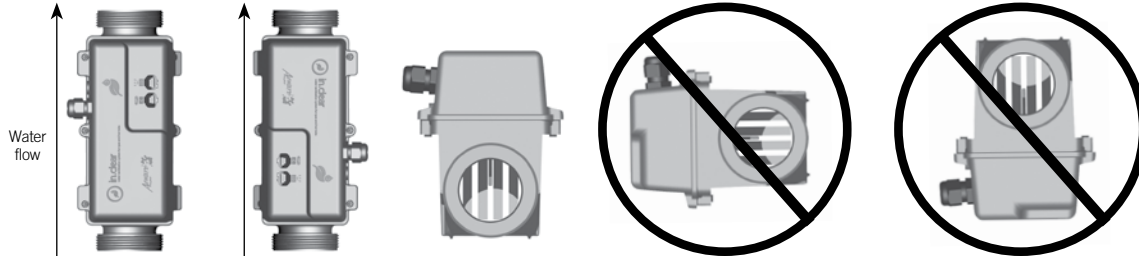
4- washers 12 mm OD x 1.5 mm thickness (1/2" OD x 1/16").

Select the most appropriate location for in.clear and firmly attach each stand to wooden base with 2 screws backed by 2 washers.



Installation

The exact location and the method of installation of the in.clear may vary depending on the plumbing design of the spa.



1. Secure the device in place and attach to plumbing



Use adapters to connect the in.clear system to 19 mm (3/4") tubing or directly to 50 mm (2") tubing.



For an optimal connection to spa plumbing, please note that we recommend these compression fittings & nuts.



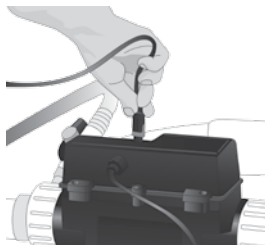
Slide the two plastic union nuts over the in.clear unit's threaded ends and tighten the nuts.

⚠ Hand tighten!
Do not use tools!

- Install the in.clear before the spa is filled with water.
- The in.clear system must be installed in an upright position or horizontally.
- Install the in.clear on the pressure side of the pump, after the pack. (see Fig. A)
- Installing valves on both sides of the in.clear may help for maintenance purposes.

2. Install the keypad on the spa (see Installing the in.k200)

3. Connect the keypad and low voltage accessories and connect power

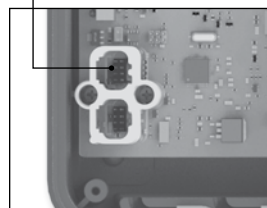


Connect the in.k200 keypad to the keypad port on the in.clear unit.

Linked version only:

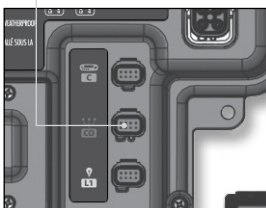
Plug the cable with the low voltage in.link connector into the CO port of the spa pack. If the CO port is in use, unplug the accessory and replug it into the CO port of the in.clear.

Communication connector



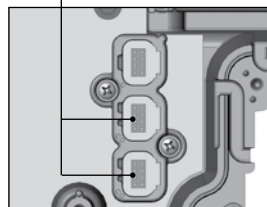
in.yj

Communication connector



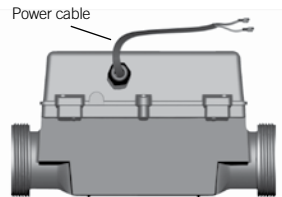
in.xe

Communication connector



in.ye & in.yt

Plug power cable into direct or unswitched output of the spa pack.



⚠ The in.clear must be protected by the same ground fault interrupter (GFCI) circuit as the spa system.

⚠ The input must be 240 V. A blinking "AC" message on the keypad means that the input signal is not 240 V, probably 120 V. Please check connection.

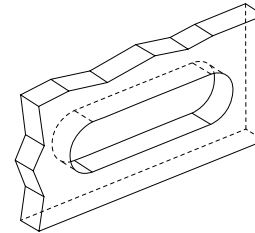
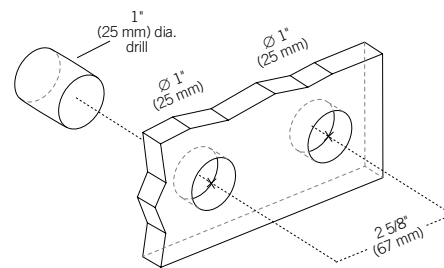
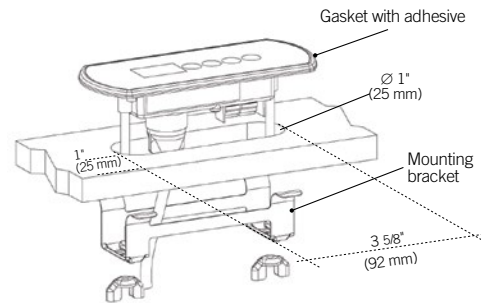


Installation

in.k200 installation

The keypad should be installed directly onto the spa (or very close to it) so that it is easily accessible to the user. For a skirt mount installation the keypad should be installed directly on a spa panel (make sure it is still 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.
- In the case of a skirt mount installation, start by pilot drilling the hole centers using a 3 mm (1/8") drill bit, drilling from the finished side of the spa to prevent chipping. 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).
- 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.



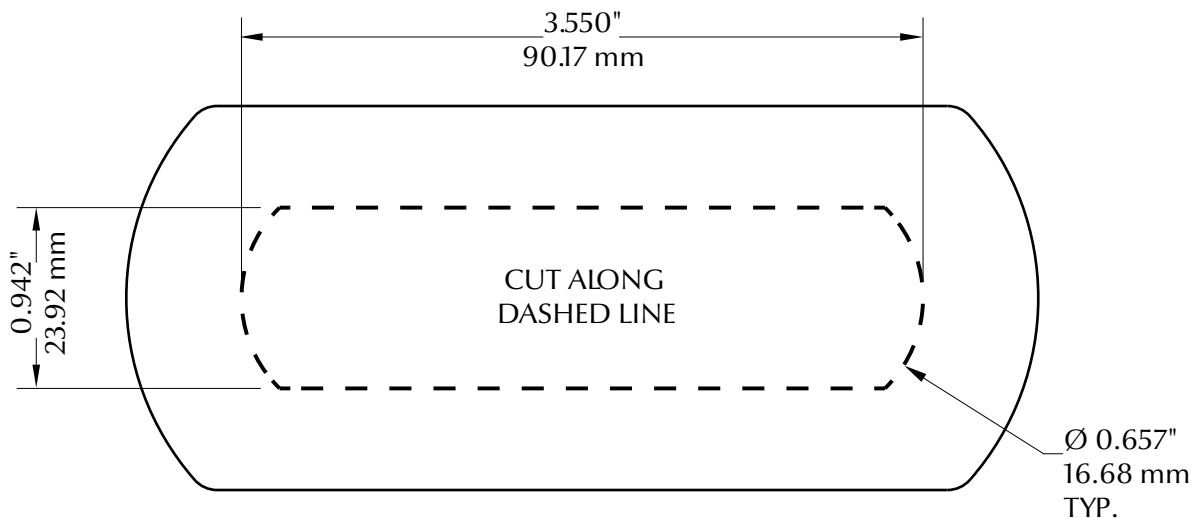
If the keypad is equipped with an optional holder plate remove the two wing nuts from the back of the keypad and remove the mounting bracket.

Insert the keypad into the 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).

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.

in.k200 drill template





Specifications

in.clear general specifications

Environmental ratings:

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 V nominal (+ 5/- 10 %)
Frequency:	50/60 Hz nominal (+ 1.5 / -1.0 Hz).
Operating current:	0.09 A (90mA)

in.clear flow rate: 11.4 l/min (3 US GPM) minimum flow rate (required)
151 l/min (40 US GPM) maximum flow allowed.

in.clear pressure: 207 kPa (30 psi) maximum

Mechanical:

Weight:	2.25 kg (5 lb)
Dimensions (W x H x D):	Chassis: 276.2mm x 153.6mm x 119mm (10.875" x 6.046" x 4.682")

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-ww-2

REGISTRATION No. 29628 PEST CONTROL PRODUCT ACT (Canada)



European Union:

EN 60335-2-60:2003/A12:2010

EN 60335-1:2012

EN 62233:2008

EN 55014-1:2006/A2:2011

EN 55014-2:1997/A2:2008

EN 61000-3-2:2014

EN 61000-3-3:2013



International:

IEC 60335-2-60:2002/A2:2008

IEC 60335-1:2010

IEC 62233:2005

in.k200 general specifications

Environmental:

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:

Weight:	0.41 kg (0.9 lb)
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

Specifications and design are subject to change without prior notice.