in.clear

bromine based water sanitization system for spas

TechBook

Water so clear !

You'll want to touch it ! You'll need to feel it !

Aeware by gecko

Waterproof!

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Water sanitation systems for spa

With its waterproof enclosure, its sturdy design, the new in.clear is one of the most efficient water sanitation systems offered to the spa and hot tub industry today.

in.clear is an environmentally friendly system that generates and releases bromine into the spa water with the primary purpose of control and destroy rapidly any microbiological contaminants such as waterborne bacteria, algaes, body chemicals, organic matter given off by spa bathers and other organisms known to be linked to recreational water illnesses.

Due to its superior disinfection properties, the new in.clear system eliminates the need to add extra chemicals in the water to destroy these unsightly pollutants and achieve impeccable results. The fact that the in.clear system does not produce any offensive odors, reduces eye irritation and it's easy to handle, makes the in.clear the best choice in the market today.

The spas using the new in.clear system need very little maintenance. Also, in.clear can be easily installed on new or existing spas.

Warnings!
Important safety instructions

- 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).
- Make sure all electrical power is off before installing the in.clear unit.
- Use only an electrical cord in good conditions 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 disinfect the dirt accumulated in the filter.
- The cell is installed after the heater in the circulation pump line
- In.clear must be used only with BromiCharge Sodium Bromine Salt.
- Operating the in.clear at reduced salt 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 disposed of separately in accordance with the local waste disposal legislation in force.

Warnings!

- To reduce the risk of injury, do not allow children to operate this device.
- 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.
- Maintaining overly high salt and bromine levels above recommended range can contribute to corrosion of spa equipment and may damage components of the spa.
- Do NOT add any other sanitation chemicals in the spa other than BromiCharge.
- 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.
- Refill spa with water and repeat ***Directions For Use*** of the device.
- 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.
- Drainage of the spa should be done in accord with local laws and regulations.
- In.clear is meant for a covered spa NOT swimming pools.

How in.clear works!

When 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 current 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 algaecide. This process releases bromide ions back into the water for continuous recycling until the the spa is emptied. 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 (e.g. Coli form, Pseudomonas Eruginosa, Legionella, Pneumophila, Mycobacterium avium, Streptococcus and Salmonella).
- 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.
- Bromamines are much less likely to cause skin irritation. This, makes them more suitable to use in the higher temperatures of spa baths.

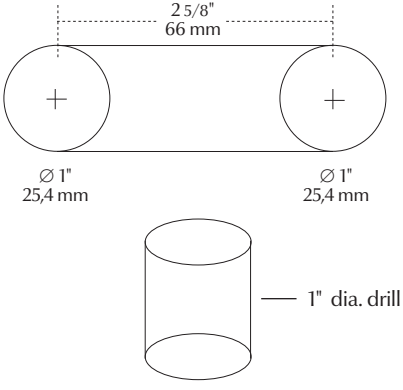
Bromines in a spa!

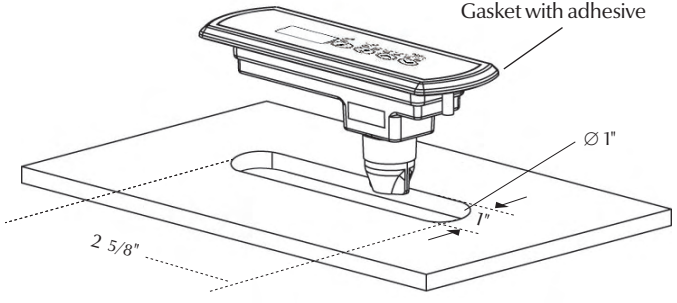
The in.clear system releases bromine into the spa water through a process of electrolysis to quickly eliminate common water contaminants such as bacteria, algaes and organic matter. Because bacteria requires a certain period of time before forming into micro colonies and becoming attached to a surface, rapid elimination of bacteria is a key element in the proper maintenance of the spa water. In.clear does all of this while oxidizing odors and reducing eye irritation. Thus enhancing the aesthetic aspect and quality of the spa water. For the spa user this means a healthier and more enjoyable use of their spa.

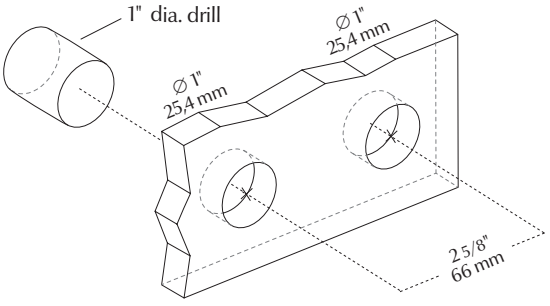
Installing the in.k200

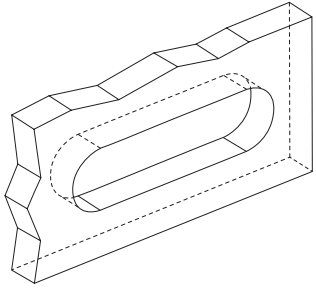
The keypad should be installed directly onto the spa (or very close to it) so that it is easily accessible to the user.

- To install the in.k200, drill two 1″ (25 mm) diameter holes at 2 5/8″ (67 mm) 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.









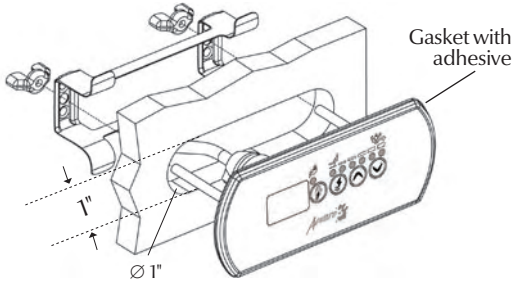
Skirt mount installation

For a skirt mount installation the keypad should be installed directly on a spa panel so that it is easily accessible to the user. The keypad cable length is 10 feet. 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 1/8″ drill bit. Using the appropriate hole saw slowly drill two 1″ (25 mm) diameter holes at 2 5/8″ (67 mm) from center to center as illustrated.

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

Clean the installation surface and route the keypad cable from the wall cutout to the in.clear unit. (continues on next page).



Skirt mount installation

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

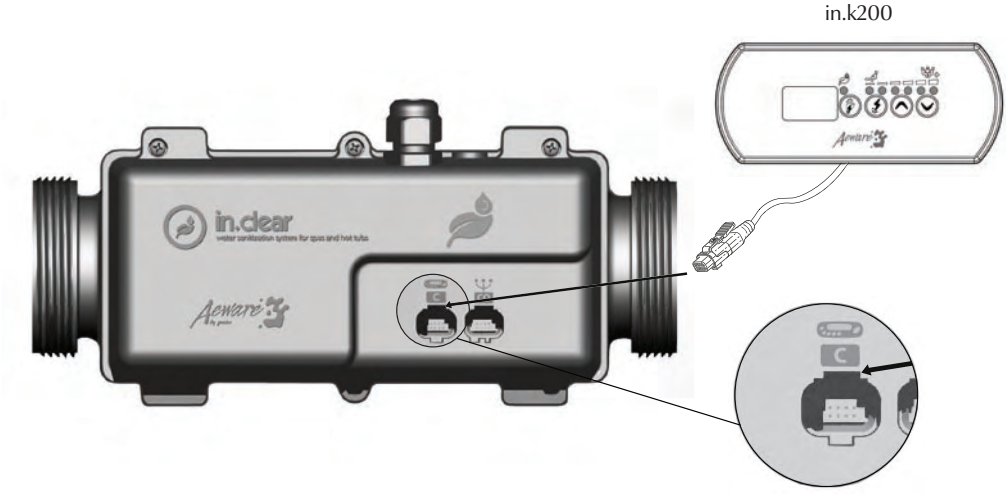
Note: It is the installer's responsibility to ensure that no obstructions (cables, piping, etc.) are present below the deck at the drill hole location.

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 10 ft cable and an in.link connector.

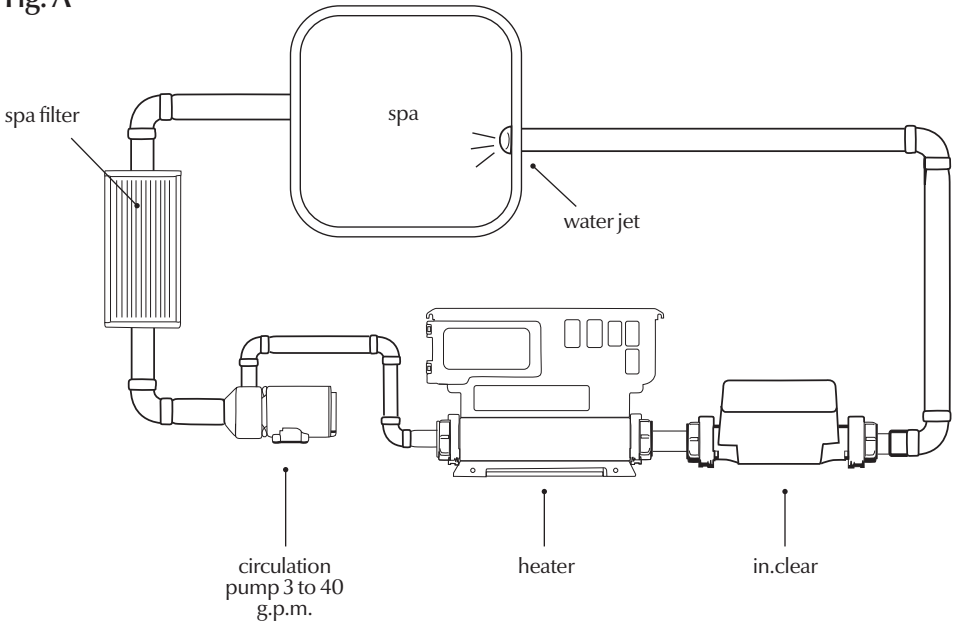
To connect the in.k200, simply insert its in.link connector into the appropriate keypad connector "**C**" (as illustrated).



Connect the main keypad in.k200 as indicated here.

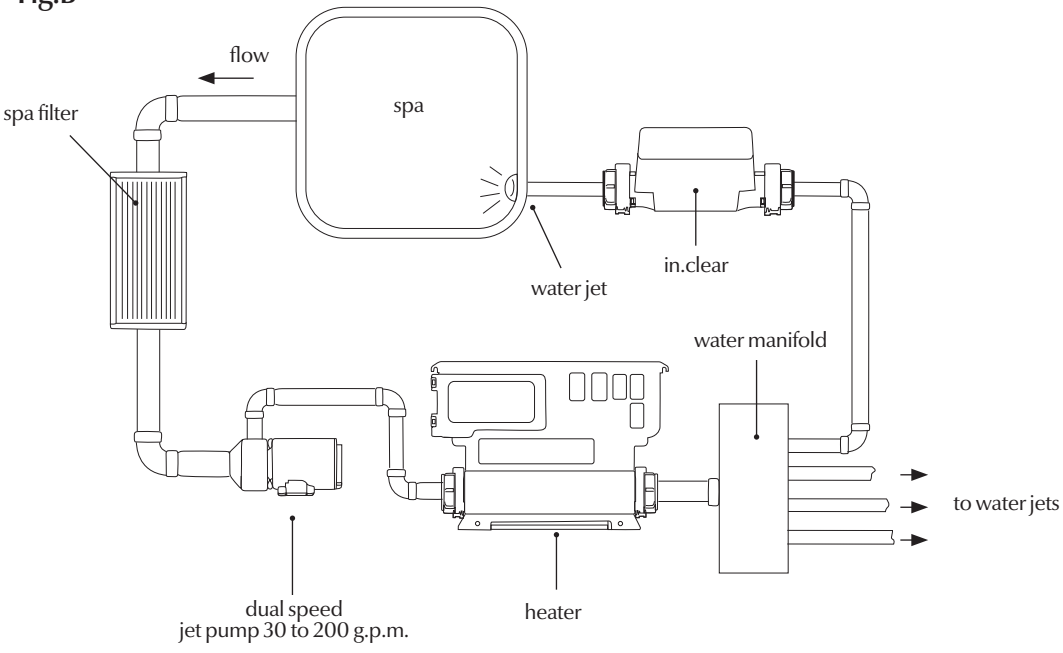
in.clear installation scheme with circulation pump

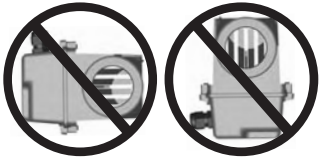
Fig. A

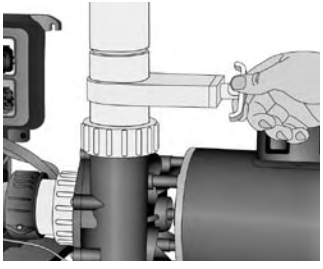


in.clear installation scheme with dual speed pump

Fig.B







Lets get started

It's recommended that the in.clear unit be installed before the spa is filled with water.

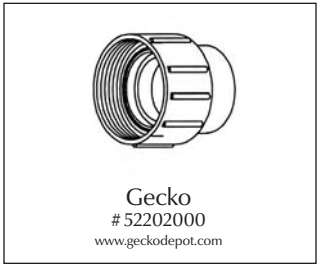
The in.clear unit must be installed on the pressure side of the main pump. It should be installed on the other side of the heater. If your spa is equipped with a circulation pump refer to fig. **A**. For a spa equipped with a dual-speed pump refer to fig **B**.

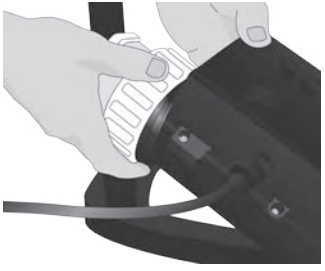
The in.clear system can be installed in an upright position or horizontally.

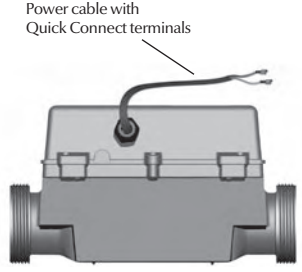
⚠ The in.clear system should be installed at the pressure side on a 3 to 40 g.p.m flow line. It's important not to exceed 40 g.p.m to prevent excessive electrode wear and damage to the in.clear unit.

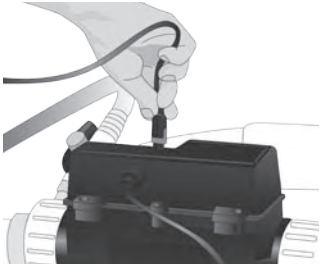
The exact location and the method of installation of the in.clear may vary depending on the plumbing design of each spa manufacturer.

Carefully revise the spa plumbing schematics and identify the spa Flow Shut Off Valves. When servicing the unit make sure that both Flow Shut Off valves which control water inlet before and after the selected section of the piping where the in.clear is installed are closed.









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

⚠ If the in.clear is installed on a jet flow line, make sure is installed on a line without adjustable flow (diverter valve) to avoid the risk of turning off the water jet by accident.

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

⚠ Hand tight!
Do not use tools!

⚠ If your spa is not equipped with a Circulation pump, install the unit after the water manifold on a 3 to 40 g.p.m. line (see fig. **B**).

Connect the power cord to a 240 Vac; 90mA terminal inside the spa controller.

⚠ in.clear unit must be connected to a circuit protected by a ground fault interrupter (GFCI).

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

Start up procedure:

1 - Draining and cleaning the spa

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

⚠ It's extremely important to clean or replace your filter cartridges, otherwise the system will only disinfect the accumulated dirt in the filter.

2 - Refilling the spa

After the in.clear unit has been installed, refill the spa with fresh tap water.

It's recommended to check the TDS (Total Dissolved Solids) of the water you are about use to refill the spa. The TDS range should be within 50 and 400 PPM. This can be done by your local spa dealer or with test strips.

⚠ If your starting TDS is above 500PPM, we recommend to use a carbon block spa pre-filter when filling your spa to reduce the TDS.

⚠ Do not use water coming from a "Salt Water Softener" system.

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

Activate the heater to heat the water up to 32°C (89.6 °F).

3 - Adjusting water chemistry in the spa

Proper chemical maintenance of a spa is essential for the health of the people using it. 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.

Test and adjust these parameters in the water prior to each use of the spa.

Total hardness:	**between 125 to 200 ppm**
Alkalinity:	**between 80 to 90 ppm**
Ph:	**between 7.2 to 8.0**

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

4 - Adding Bromine salts

By adding 1.2 pounds of BromiCharge per 100 U.S. gallons of water, the total TDS of the water in the spa should increase by approximately 1440 ppm. e.g. if the spa water capacity is 300 U.S. gallons, 1 full bottle of BromiCharge would need to be added to the water (3.5 lbs).

Tap water TDS :	**400 ppm**
BromiCharge:	**1440 ppm**
Total ppm after BromiCharge:	**1840 ppm**

It's important to note that BromiCharge is only one of many contributors of the TDS count in the spa water. The TDS concentration will increase with time due to residues, chemicals, minerals and other materials that cannot be filtered by the spa filter.

4 - Adding Bromine salts: (continued)

Start up the pump to allow the water to circulate and slowly add BromiCharge anywhere in the spa by simply pouring it from the container.

Some unit conversions to facilitate calculations.

1 gallon (US, liquid) = 3.785 liters.

E.g.: if we need 1.2 lbs per 100 U.S. gallons, we can quickly conclude that: **Spa capacity (U.S. gallons) x 1.2 lbs / 100 = BromiCharge (lbs).**

E.g. if the spa volume is 500 U.S. gallons:

500 U.S. gallons x 1.2 lbs / 100 = 6 lbs.

5 - Activating the system:

Activate the system by pressing the On/OFF key and adjust the maintain level to 50* (refer to keypad operations section of this manual for more details). Once the maintain level is set, activate the Burst mode by pressing the Burst key and adjust level to 2 (2 LEDs). By activating the burst mode, you will help the system building the initial bromine bank in the water faster. Verify bromine level after 24 hours.

If the Bromine level is above 5 ppm, decrease the maintain level by 5. If the bromine level is below 2 ppm, increase the maintain level by 5. Repeat these steps until you are able to stabilize your Bromine Levels between to 2 and 5 ppm.

⚠ The spa filtration should be set at a minimum of 8 hrs per day.

The in.clear system cannot generate bromine when there is no circulation of water. If you are having problems maintaining the desired level of bromine, increase the daily filtering time.

* The maintain level of 50 has been calculated on a system installed on a 350 U.S. gallons spa with a continuous-running pump. The maintain level will vary depending on the spa size (water volume) and daily filtration time.

5 - Activating the system (continued)

Use the following table as a guideline to help you determine the proper initial maintain level for your spa.

Recommended maintain setup values at start up

Spa Size (U.S. gallons)	Continous running pump	8hrs daily filtration
350	50	60
500	55	65

For reference only! Settings may vary depending on spa size and water chemistry.

Other tips:

It's important to drain the spa every sixty days and repeat the same treatment upon draining and refilling the spa with fresh water.

Note that the in.clear generator has been designed to work with BromiCharge products. Your warranty will be void if another product is used as a substitute. For health purposes DO NOT USE A SUBSITUTE!

⚠ Do not breathe it or get into your eyes! First Aid instructions are on the BromiCharge container.

⚠ Do not use any other chemicals in the spa.

Operating modes:

Maintain mode:

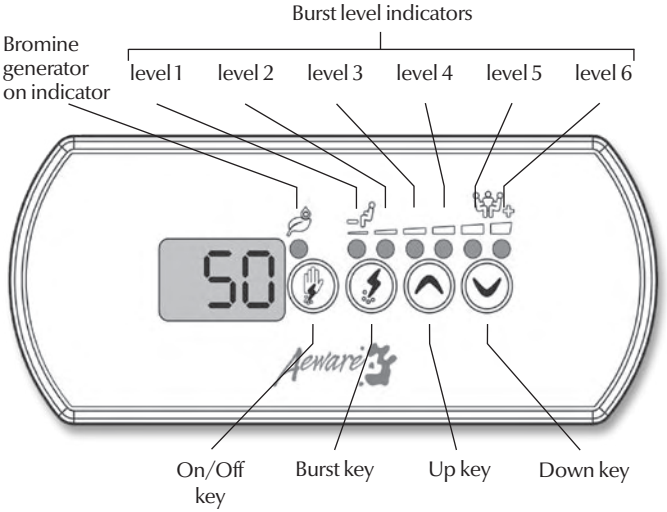
The maintain mode is used to keep the Bromine bank levels at an acceptable range (we recommend a bromine level between 2 and 5 ppm when the spa is not being used). To maintain this bank level in normal range, the user has to adjust the Bromine generation levels of the in.clear system by adjusting the value shown on the keypad display with the Plus and Minus keys. The idea is to maintain the Bromine Bank level at a constant value.

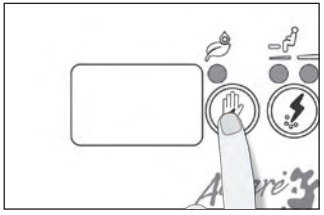
Burst mode:

This mode will produce higher levels of bromine to attack pollutants in the water and help rebuilding bank levels of bromine in the spa water after its use.

If the Bromine bank levels are too low or too high after the Burst period expired, meaning the bank was not properly regenerated, the Burst intensity will have to be adjusted next time the spa is used under similar conditions (i.e. same number of bathers).

Keypad functions





On/Off key

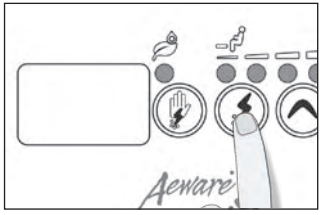
The first press of the On/Off key activates the system in maintain or normal mode. The display will then show a value corresponding the rate at which bromine will be released in the spa water when nobody is using the spa.

A second press of the On/Off key deactivates the system and stops bromine generation.

The Bromine generation LED, located above the On/Off key lights up when the bromine generation is active.

It will blink if no water flow is detected. The LED is off when there is no need for the system to generate bromine.

Note: The system automatically calculates and controls the quantity of bromine to be produced daily. As a result, there might be some "off" periods during the day where the LED won't be active, this is normal.



Burst Key

With the system on normal mode press of the Burst key to activate the Burst mode.

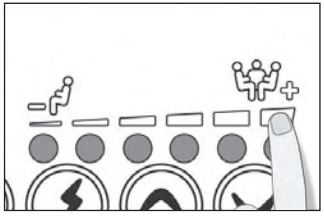
Note: The Burst mode should be activated before entering the spa.

At key press, the user can adjust the Burst desired level using the + / - keys.

As a rule of thumb the number of selected Burst levels may correspond to the number of bathers using the spa; however settings may vary from one spa to another.

Confirm the selection of the desired level by pressing the Burst key again or wait 5 seconds for the system to automatically save the desired choice and immediately activate the Burst mode period.

Note: That the last saved value will be loaded by default next time this mode is activated. So, a single press of the Burst key will automatically start the Burst mode at the last saved value after 5 seconds if no new level adjustment is entered. The system will automatically exit this mode when the Burst period expires.

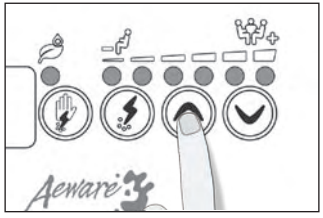


If the Burst key is pressed during a Burst period, the active period is reset to the default value that can be changed like previously described.

Press and hold the Burst Key for 2 seconds to cancel the Burst period and to go back to normal or maintain mode.

There are 6 possible levels available with the Burst mode. The keypad display will show a numeric value that corresponds to the selected level.

These levels are also represented by LED indicators that light up with each level. The number of the LED indicators on will increase or decrease depending on the selected level.



+ / - Keys

Use these keys in maintain mode to adjust the desired rate at which the produced bromine will be released in the spa water. The bromine generation rate range goes from 1 to 100, where 1 corresponds to the system's minimum generating rate and 100 corresponds to the maximum generation rate allowed by the system.

Use the + / - keys during an Burst level adjustment to select the desired Burst level.

⚠ **Only trained technicians should be able to change low level parameters.**
It is strongly recommended that users should not change these parameters.

Low Level settings

Press and hold the On/Off key for 20 seconds to access the low level settings menu.

The display indicates "Cur" which represents the current that will circulate through the electrolytic cell to produce extra Bromine during Burst mode. This current can range from 300 to 600 mA.

Press the + or - key to display and modify a current value between 300 and 600.

Following "Cur" adjustment press the Burst key to access the first Burst level. The display shows B1.

Press the + or - key to select a value between 0,5 and 24. This value represents the time in hours that the system will enable extra bromine generation during Burst mode.

After B1 adjustment, press the Burst key to access the second Burst level. The display shows B2.

Press the + or - key to select a value between 0,5 and 24. Where this value represents the time in hours that the system will enable extra bromine generation during Burst mode.

Press the Burst key to access the next Burst mode level. Repeat these steps to set all during Burst levels from B1 to B6.

Press the Burst key repeatedly to go the next level in the menu.

During low level parameters adjustment, if the Burst key is not pressed within 2 minutes the system will go to the Off mode without saving any modifications.

Q 1- I'm having a problem producing bromine

A1- Check your TDS (Totally Dissolved Solids) level to make sure your BromiCharge is at 1440ppm. This can be done by using a TDS meter found at any spa/pool store or they will check it for you. If you are adding a lot of water, beyond what is evaporated or splashed out, then you may have a leak. If you have a leak you are not only losing water but also BromiCharge. Leaks should be fixed immediately due not only to the expense but also health issues that may be related to a low sanitizer level.

Q2 - My spa water is cloudy /oily

A2 - If your spa becomes cloudy or oily due to bather load you may want to consult a spa/pool dealer for a clarifier.

Q3 - Does the BromiCharge evaporate?

A3 - No. BromiCharge is only lost through splash out, leaks or when draining your spa.

Q4 - What do I use to clean my spa?

A4 - Always use a non-sudsing cleaner found at your spa store.

Q5 - When my in.clear bromine generator is off does the BromiCharge continue disinfecting my spa?

A5 - No, the in.clear system does not disinfect if inactive. BromiCharge is only converted in bromine as it passes through the electrodes of the in.clear system. Bromine disinfects.

Q6 - Does bromine turn to a gas like chlorine at normal spa temperatures?

A6- No. Chlorine becomes a gas at 92 degrees. Bromine, although a halogen like chlorine, is over twice as heavy and will not gas off at normal spa temperatures.

T.D.S :

Total Dissolved Solids (often abbreviated 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.

P.H

PH is a measure of the acidity or basicity of a solution.

P.P.M

“Parts-per” 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.

Alkalinity

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

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 bather load, the greater quantity of chemicals need to be added to maintain the same spa water quality.

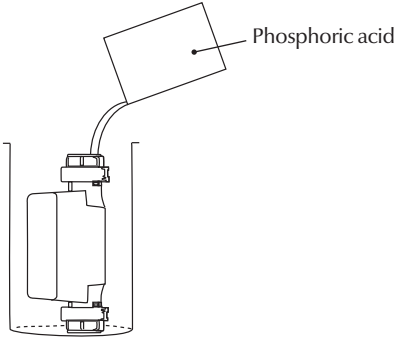
water hardness

Water hardness describes the concentration of calcium and magnesium in your spa water. The ideal calcium hardness level for hot tubs and spas is 125-200 PPM.

Automatic cell cleaning:

This feature has been designed to prevent scale deposits on the graphite electrodes of the in.clear system. However, deposits may still form due to water unbalance conditions. If that happens the unit electrodes should be cleaned in an acidic solution.

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



⚠ All power must be disconnected before any service procedure is performed. Disconnect the communication cable and power cable of the in.clear unit.

⚠ 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.

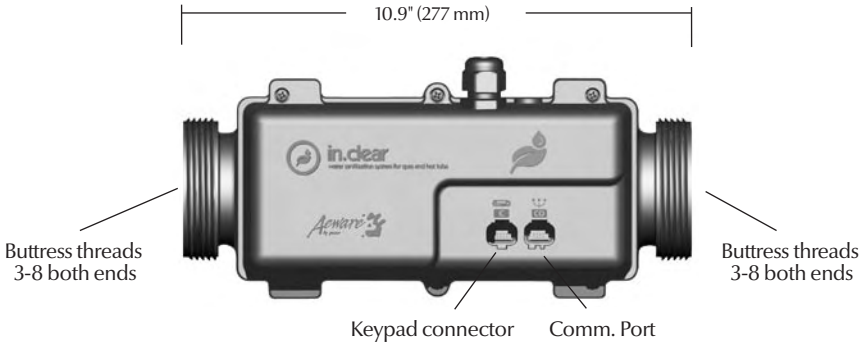
⚠ Make sure not to pour acid at the outside of the unit where the connectors are located.

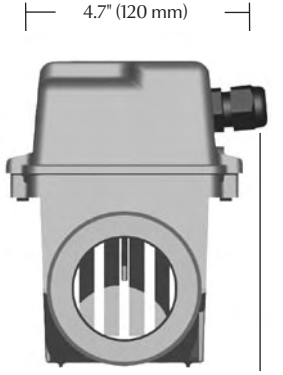
⚠ Never use Acetic acid to clean the cell, as this will cause permanent damage to cell components and void the warranty.

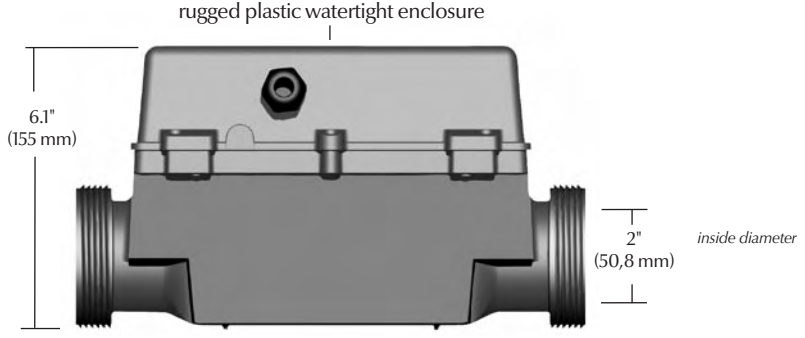
- To remove scales from the cell, we recommend to use Phosphoric acid (non-diluted) as the preferred cleaning product. Muriatic acid can be used as a second choice.
- If you use muriatic acid, mix one quart of muriatic acid with one U.S. gallon of tap water.
- Close the spa Flow Shut Off Valves. Unscrew 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. Tight plastic nut firmly.

- Place the cell vertically with the cap end down in a plastic five (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 and 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 reinstalled 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.
- Re-install the in.clear unit back in system plumbing, tight firmly all connections. Open the spa Flow Shut Off Valves.
- Reconnect the communication cable and power cable of the in.clear unit.
- Turn power on and start up the pump. Check on the keypad if the brome generation LED is on and resume normal operation.

Dimensions:


10.9" (277 mm)
in.clear
Aeware
Buttress threads
3-8 both ends
Buttress threads
3-8 both ends
Keypad connector
Comm. Port


4.7" (120 mm)
Power input cable (4' cord) with
Quick Connect Terminals


rugged plastic watertight enclosure
6.1"
(155 mm)
2"
(50,8 mm)
inside diameter

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: IPx5

in.clear electrical specifications

Input rating :	240 VAC nominal (+ 5/- 10 %)
Frequency	60 Hz nominal (+ 1. 5 / -1.0 Hz).
Operating current	0.09 A (90mA)

in.clear flow rate: **3 g.p.m minimum flow rate (required)**
40 g.p.m maximum flow allowed.

Mechanical:

Weight: 2.25 kg (5.0 lbs)

Dimensions (W x H x D):

Chassis: 10.875" x 6.046" x 4.682" (276.2mm x 153.6mm x 119mm)

UL/CSA Standards:

UL 1563 Fifth Ed; UL 1081 6th Ed.

File: E305676

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

CE Standards: coming soon

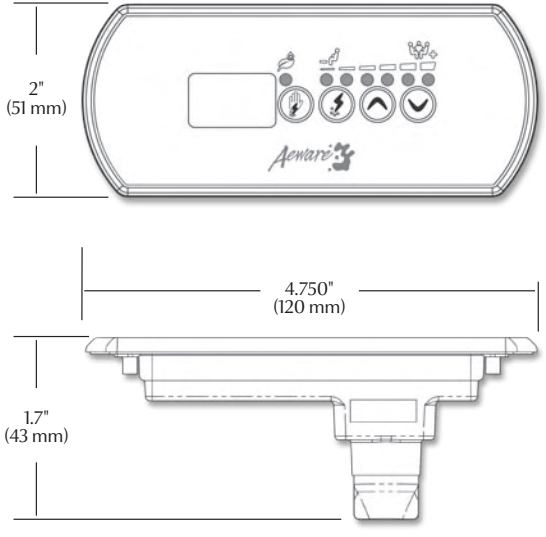
AS/NZ Standards: coming soon

EPA Reg. No. 8622-69-73578

EPA Reg No. 69470-WV-2

Health Canada Reg No. coming soon

Keypad dimensions:



in.k200 general specifications:

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

Specifications and design are subject to change without notice.

BromiCharge™ for use with the

in.clear

bromine based water sanitization system for spas

with BROMITRON™
Bromine Generator Technology

Operation Instructions

IMPORTANT: Read instructions before using.

SPA BROMINE GENERATOR

INSTALL AND OPERATION
MANUAL

The purpose of the **in.clear** water sanitation system for spas and hot tubs (with BROMITRON™ BROMINE GENERATOR technology) is to reliably and automatically maintain a halogen presence in a given recreational body of water, whether the hot tub owner remembers to treat the water, or not.

Proper bromine levels and chemistry should be checked regularly by hot tub owners with the use of a standardized test kit.

The **in.clear** water sanitation system for spas and hot tubs (with BROMITRON™ BROMINE GENERATOR) should be installed before your hot tub is filled with water. If this is an after market installation, drain the water and install it in the return line after the heater circulation pump.

Adding BromiCharge™

When you add BromiCharge™ to your spa, the TDS (Total Dissolved Solids) of the water will increase about 1150 PPM (Parts Per Million) per 100-U.S. gallons for every pound of BromiCharge™ added. Normal operating range of BromiCharge™ should be between 1400 to 1500 PPM for best results.

By adding 1.2 pounds of BromiCharge™ per 100 U.S. gallons of water you should increase the total TDS in your spa by 1440 ppm.

EXAMPLE: If you have a 300 U.S. gallon spa, add 3.5 lbs of BromiCharge™.

BASE TDS..... 400 ppm
3.5 lbs. BromiCharge™ .....1440 ppm

TOTAL ppm after BromiCharge™ .....1840 ppm

You will want to maintain a TOTAL TDS of 1600 to 1900 ppm in your spa for best performance based on the above example. This will give you a 1400 to 1500 ppm of BromiCharge™ in your spa at all times.

IDEAL WATER CHEMISTRY FOR SPA WATER

BromiCharge™ ..... Add 1.2 pounds per 100 U.S. gallons of water (1440 ppm)
Calcium Hardness - CaCo: .....125 to 200 adjust if necessary
Alkalinity .....80 to 90 adjust if necessary
pH .....7.0 to 7.8 adjust if necessary

Adjust the above factors to meet optimum range values.

DIRECTIONS FOR USE

For Spas ONLY (Not for swimming pool use)

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

BromiCharge™ is designed to be used in conjunction with in.clear water sanitation system for spas and hot tubs (with BROMITRON™ BROMINE GENERATOR technology), an electrolysis unit that converts bromide into hypobromite solution. The produced hypobromite solution (bromine) is then introduced into the spa to be treated as a sanitizer for spa water.

BromiCharge™ DOSAGE:

Upon dumping of spa water, every 60 days add 1.2 pounds of BROMICharge™ per 100 U.S. gallons of spa water to a spa equipped with in.clear water sanitation system (with BROMITRON ™ BROMINE GENERATOR). This will establish sufficient bromide reserve for the bromine generator to operate properly. This same treatment should be followed every 60 days upon draining and refilling the spa with fresh water.

MAINTENANCE:

An in.clear water sanitation system (with BROMITRON ™ BROMINE GENERATOR) will operate to produce bromine as designed until the bromide reserve drops below required levels. BromiCharge™ should be added if the bromide level drops below 10-30% of the initial charge. Dilution, splash out and leaks are primary reasons for the bromide level to drop. If the bromine generator does not produce enough bromine make sure the recommended level of 1440 ppm is still present in the spa water. The level can be tested with a TDS meter (Total Dissolved Solids), or by taking a water sample to a spa/pool store. If BromiCharge™ is being added repeatedly the spa should be checked for leaks. **Before entering the spa, the bromine level should be tested.**

The bromine level should be maintained between 2-5 PPM and can be tested with a DPD test kit, or Bromine test strips, such as “Aquacheck”, found at any spa/pool store. The bromine generator only produces bromine when the spa is circulating. For more immediate results, dilution with fresh water will lower the bromine level.

It is important to empty the spa every sixty days.

The in.clear water sanitation system (with BROMITRON™ BROMINE GENERATOR) is for spa use **only** and is not to be used in swimming pools. It is important to know how many U.S. gallons of water it takes to fill your spa. The water capacity is usually listed on the spa and is always in the spa information book. If you cannot determine the number of U.S. gallons, call your spa dealer, this information is essential to the proper use of your spa. As the water passes through the in.clear water sanitation system (with BROMITRON™ BROMINE GENERATOR) a low-voltage current electrolytically reduces the bromide ions to bromine, which reacts with the water molecules to form free bromine. Bromine is known to be a very effective bactericide and algaecide. This process releases bromide ions back into the water for continuous recycling until the BromiCharge™ is emptied from the spa.

When BromiCharge™ is added to a spa the water is separates it into sodium ions and bromide ions. BromiCharge™ can be added anywhere in the spa by simply dumping it from the container. Do not breathe or get into your eyes. First Aid instructions are on the BromiCharge™ container.

1. Upon initial filling your spa, allow the water to circulate for one minute or so, before adding the BromiCharge™. Always refill the spa with "new" water out of the tap before starting to use BromiCharge™.

2. BromiCharge™ is designed for use with the in.clear water sanitation system (with BROMITRON™ BROMINE GENERATOR) and your warrantee will be void if another product is used as a substitute.

   FOR HEALTH PURPOSES DO NOT USE A SUBSTITUTE!
   Add 1440 PPM of BromiCharge™ to the spa water.
   (1.2 lbs per 100 U.S. gallons)
   For example if the spa were 300 U.S. gallons you would add 3.6 lbs. of BromiCharge™.

3. After adding the proper amount of BromiCharge™, set the in.clear water sanitation system (with BROMITRON™ BROMINE GENERATOR) in Burst mode to build the bromine bank and bring it within 2-5 ppm range.

THE RECOMMENDED BROMINE LEVEL IS BETWEEN 2-5 ppm.

4. When the bromine level reaches 2-5 ppm the spa is ready for use.

   YOU SHOULD ALWAYS CHECK YOUR BROMINE LEVEL BEFORE USING YOUR SPA!

   A bromine test kit, or test strips, can be purchased at your spa/pool store.

5. If you are having a problem producing bromine, check your TDS (Totally Dissolved Solids) level to make sure your BromiCharge™ is 1440 ppm. Purchasing a TDS meter at any spa/pool store can do this or they will check it for you.

   If you are adding water often, beyond what has evaporated or splashed out, then you may have a leak. If you have a leak you are not only losing water but also BromiCharge™.

   Leaks should be fixed immediately, due not only to the expense but also, health issues that may be related to low sanitizer levels.

6. If your bromine level is below 2 ppm you should not enter the spa.

   Activate the burst mode and wait until 2 ppm of bromine is present in the spa. If the bromine level is above 5 ppm lower the run time.

   Remember your bromine generator can only produce bromine when the spa is running and your bromine generator is in the proper mode. For immediate relief of high bromine you may empty a small amount of spa water until the bromine level is between 2-5 ppm.

7. If your spa becomes cloudy or oily due to bather load, you may want to consult a spa/ pool dealer for a clarifier.

MOST FREQUENTLY ASKED QUESTIONS

Q 1- Does the BromiCharge™ evaporate?

A1- BromiCharge™ is only lost through splash out, leaks or emptying your spa.

Q2 - What do I use to clean my spa?

A2 - Always use a non-sudsing cleaner found at your spa store.

Q3 - When my in.clear water sanitation system (with BROMITRON™ BROMINE GENERATOR) is off does the BromiCharge™ continue disinfecting my spa?

A3 - No! BromiCharge™ does not disinfect. BromiCharge™ is only the compound used to make bromine as it passes through the electrodes.

BROMINE disinfects.

Advanced electronics! Water resistance!

Aeware 3 by gecko

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