

POOLEX

CHLOE

Salt chlorinator



OWNER'S MANUAL



Economic and ecological



Long life



3 years warranty



Cleaning cell by
Revers polarity

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Electrical specifications: 230V - 50Hz - 2.4A - Double insulation.

Fuse characteristics:

- Supply board: 2AL 250V - Dimensions: 5x20

Environment conditions:


- Indoor use only
- Altitude up to 2000m
- Temperature from 5 to 40°C
- Maximum relative humidity 80% for T < 31°C, with linear decrease down to 50% of relative humidity at 40°C
- Variations of mains supply network voltage must not exceed +/-10% of nominal voltage.
- Occurrence of transitory overvoltage on mains supply is normal.




1. SAFETY INSTRUCTIONS

Important notice

When using electrical equipment, basic safety precautions should always be exercised, including the following:

 **WARNING** - To reduce the risk of injury, do not permit children to operate this device.”

 **WARNING** - heavy pool (or spa) usage, and higher temperatures may require higher chlorine output to maintain proper free available chlorine residuals.”

- Heavy bather loads may trigger the need for additional chlorine (Optional: [Chlorinator]) to be added to maintain an appropriate chlorine residual in the water.

DO NOT add pool or spa chemicals directly to the skimmer. This may damage the cell.

- Maintaining high salt and chlorine/bromine levels above recommended range can contribute to corrosion of pool or spa equipment.

- 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 Canadian Electrical Code(s) when installing this device.

- The life expectancy of the electrode is 7000 hours under normal use conditions.

- When replacing the electrode, only use replacement electrodes having a label that clearly states that it is a replacement electrode for the chlorine generating device salt chlorinator CHLOE.

- NOTE: For outdoor pools, chlorine residuals can be protected from destruction by sunlight by addition of stabilizer (cyanuric acid)

For devices that can be used on spas:

- For proper sanitation, spas should be completely drained periodically. The number of days between COMPLETE SPA DRAINAGE is equal to the volume of spa water in litres, divided by 10 times the maximum number of daily spa users. Refill spa with water and repeat DIRECTIONS FOR USE of the device.

Health and Hyperthermia warnings for spa devices:

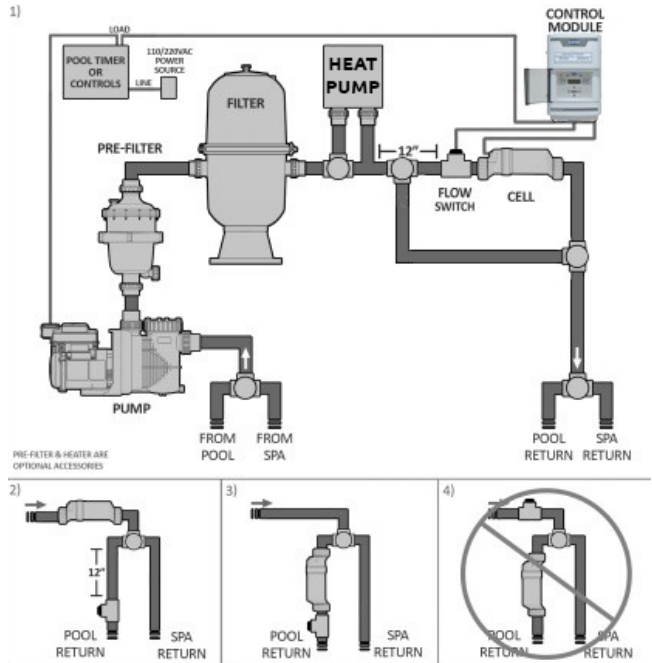
- People with a medical condition should consult a physician before entering pool or spa water.

- Maximum spa water usage temperature is 40°C. Bathing in spa water at 40°C should not exceed 15 minutes.

2. SYSTEM OVERVIEW

List of equipments supplied

- 1 complete electrolysis cell
- 1 electric control unit
- 1 cell power supply cable
- 2 short 63/50 reducers
- 1 paddle-operated flow switch
- 1 wall mounting kit
- 1 installation and user's manual



The chlorinator's cell must be installed on the return circuit downstream from the filter and any heating systems (particularly electric heater)

A « by-pass » installation is recommended so that it is easier to work on the chlorinator and for wintering purposes.

The electrolysis cell can be positioned anywhere but it is preferable to use a configuration that facilitates the evacuation of air bubbles. The accessories' stand must be installed upstream from the cell.

There are three main components to your Chlorinator system: the Control Module, the Electrolytic Cell, and the Flow Switch.

Control Module: This component supplies power to the cell and allows you customize the system's operation, in order to meet your pool's unique needs.

Electrolytic Cell: This component creates chlorine as the water inside passes through and returns to the pool. The Electrolytic Cell ("Cell") contains a set of titanium plates that use a low level of electrical power to generate chlorine from salt in the water. The Cell comes with Unions to connect to the plumbing; each Union has a Threaded Collar that secures the Cell to the Unions, and enables the Cell to be easily removed for cleaning and inspection purposes.

Flow Switch: This component ensures that there is adequate water flow for the Cell to activate.

3. WATER CHEMISTRY

As with any pool, it is important that you maintain proper water chemistry of the pool water, including pH, alkaline content, and calcium levels. The only special requirement for Salt Chlorinator CHLOE is to maintain proper levels of salt and stabilizer. It is important to maintain these levels in order to prevent corrosion or scaling and to ensure maximum enjoyment of the pool. Test your water periodically. It is recommended that pool water be professionally tested a minimum of twice per season. Your local pool store can provide you with the chemicals and procedures to adjust the water chemistry. Be sure to tell the pool store that you are using a salt chlorine generator.

3.1 Ideal chemical level

	Swimming Pools	Spas
Free chlorine	1.0 to 3.0 ppm	3.0 to 5.0 ppm
Salinity	3000 to 4000 ppm	3000 to 4000 ppm
pH	7.2 to 7.8	7.2 to 7.8
Cyanuric Acid (Stabilizer)	50 to 75 ppm	50 to 75 ppm
Total Alkalinity	100 to 200 ppm	100 to 200 ppm
Calcium Hardness	200 to 400 ppm	150 to 450 ppm
Saturation Index	-0.2 to 0.2	-0.2 to 0.2

4. INSTALLATION

From the supplied components, select the plumbing fittings that match the existing pool plumbing

For proper plumbing, refer to the overview diagram on page 4. NOTE: The following are basic plumbing instructions for the typical installation (Configuration #1), which entail positioning the Flow Switch and Cell adjacent to each other on 2" plumbing. Your installation may vary depending on space available and your specific arrangement of equipment. IMPORTANT: Ensure that the pool pump and all AC power is turned off before installation.

TIP: Confirm installation layout first!

The Flow Switch and Cell are to be fitted into the return line as the last pieces of equipment the water passes through before returning to the pool: always after the pump, filter, heater (if applicable), etc. If a heater is present, all equipment must be a minimum distance away, per heater manufacturer recommendations.

Lay out your equipment to ensure there is enough pipe space available.

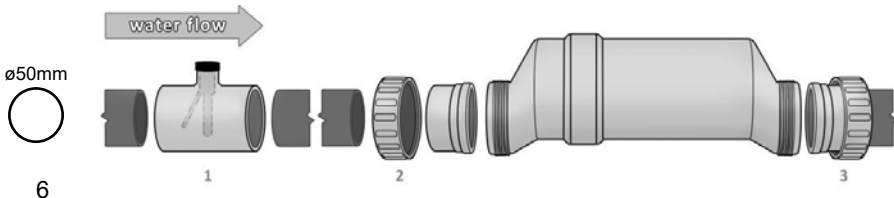
- When positioning the Flow Switch, ensure at least 6 to 12" (30cm) of straight pipe before the Flow Switch. If installed after the Electrolytic Cell, the Cell provides this space. The raised arrow on the black plastic cap must be pointed with the direction of water flow as it returns to the pool. If installed horizontally, ensure that the wire-side faces upwards. The Flow Switch is approximately 4» in length; the typical gap required is 1 ¼" (400mm).

- When positioning the Cell, you can consider the side of the cell with the cord the «inlet» side. If installed horizontally, ensure that the wire- side faces upwards. From end to end, the Cell with both Unions is approximately 15 ¾" (38mm) in length; the typical gap required is 13 ¼" (33mm).

Refer to the overview diagram on page 3 for alternate configurations. For combined pool and spa systems with a spillover, configurations #2 or #3 allow chlorination for both the pool and spa during spillover but preventing possible over-chlorination when operating the spa only. Vertical Installation Kits are also available to minimize plumbing space required and increase ease of installation.

TIP: Double-check that all Cell and Flow Switch cables can reach the Control Panel.

NOTE: For installations with 1 ½" (38mm) plumbing, use 2" to 1 ½" reducer bushings with flow switch, and use alternate 1 ½" Cell Unions; be sure to note any new or additional measurements before cutting pipe



4. INSTALLATION

After determining the section of plumbing to install the Flow Switch and Cell, measure out and mark the selected area.

1.To install the Flow Switch, cut out a section of pipe at the desired installation location. Use PVC Primer to clean and prepare the pipe ends and interior of Flow Switch. Using plumbing Solvent Cement, glue the Flow Switch to the pipe ends. Ensure excess glue does not become affixed to movable parts within Flow Switch. **IMPORTANT:** To insure proper operation, verify that the arrow on the flow switch (located on the black plastic) points in the direction of water flow; the water flow must depress the hinged activator inside of the Flow Switch. This portion is threaded and may be turned during service; additional thread seal tape may be added if necessary.

2.To install the Cell Unions, cut out a section of pipe at the desired installation location. Clean parts and plumbing with PVC Primer to prepare the pipe ends and interior of Unions. Place the Threaded Collars over the pipe ends. Using plumbing Solvent Cement, glue one Union to the pipe end.

3.Hold the Cell and second Union up to the first, to gauge the correct distance before gluing the second Union to the remaining pipe end. Allow sufficient time for glue to dry. Ensure that the O-rings are fitted to the Unions. Place the Electrolytic Cell between the Unions and tighten the Collars onto the Cell. For a watertight seal, do not over-tighten the Collars, and only tighten them by hand.

When using a Variable-Speed or Multi-Speed pump on a low speed setting, the cell should be inverted in order to ensure adequate flow & efficient chlorine production.

4.1 Installing the control Module

Mount the Control Module as close to the pump and filtration system as possible. For safety concerns, do not install the Control Module within 10 feet of the pool edges, and follow all applicable codes. Verify that the Cell and Flow Switch cables can reach the Control Module from the section of pipe selected for plumbing.

Overview: Using screws, secure the Control Module's mounting bracket at a comfortable level on a wall or vertical support, at least 3 feet above ground level. Minimize direct exposure to rain, sunlight, water runoff, and lawn sprinkler systems. As with most electronics, avoid placing the controls in tightly enclosed spaces to avoid a build-up of excess heat. For operation, the Control Module may be wired in to the pump's power source so that both turn on and off together, or energized continuously for use with variable speed pumps (Flow switch will control Cell power but lights will remain on).

TIP: Do not operate unit until all salt is dissolved in pool water

4. INSTALLATION

Wiring:

Power must be shut off at the circuit breaker before performing any wiring. Be sure to follow local and NEC/CEC electrical codes. The system has been designed to easily wire into typical in-ground pool systems. To provide safe operation, the unit must be properly grounded and bonded.

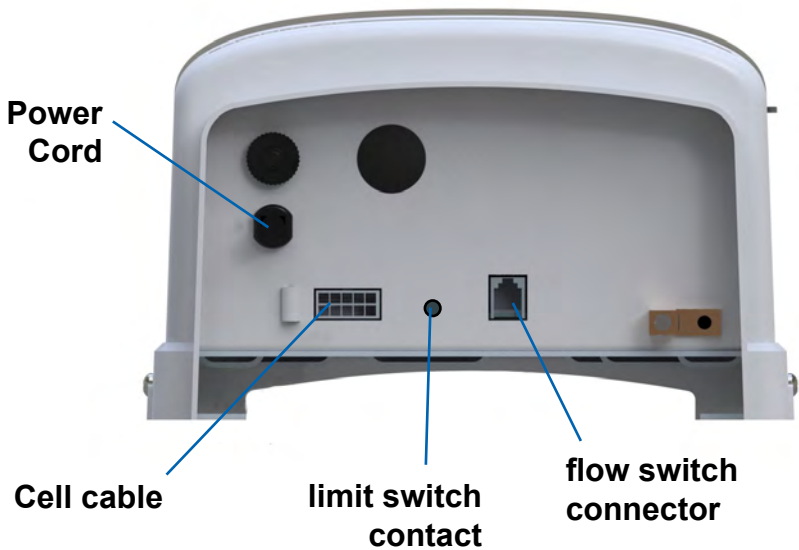
Bonding:

A lug used for bonding is attached to the bottom of the Control Module. The Control Module must be bonded with an 8 AWG copper wire to the pool bonding system.

Electrolytic Cell and Flow Switch Connections:

The Cell and Flow Switch cables have easy plug-in connectors, which attach easily to the Control Module. Refer to the diagram below for the location of these connections.

Install at a height of 1.60m and out of reach of children.



4. INSTALLATION

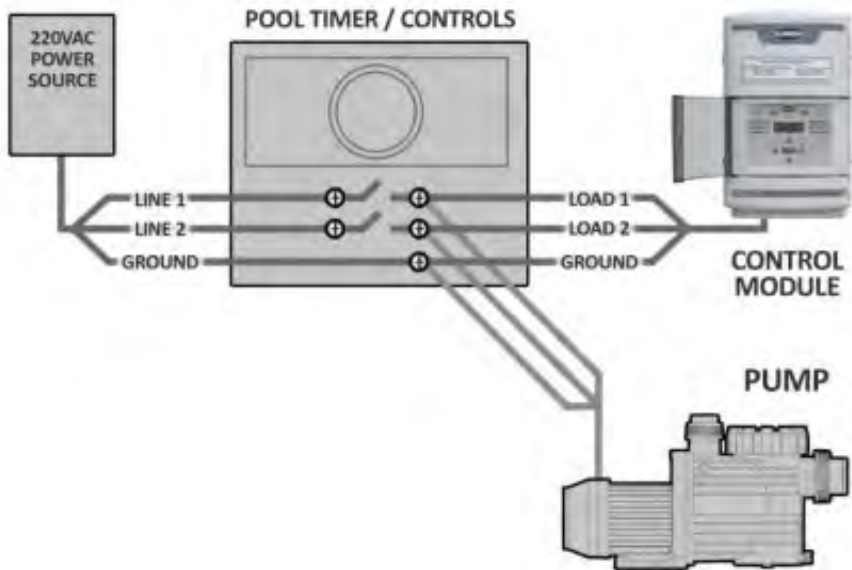
Wiring to Power Source:

The Control Module comes with an un-terminated Power Cord (AC Input) which is typically connected to an external timer, which will turn the pump and Control Module on and off together. Have the Control Module wired to the load side of the timer by a qualified person. See the following diagram for typical wiring. See voltage warning on page 19.

The is shipped from the factory with a 240 VAC configuration. If 120VAC is needed, move the internal jumpers as shown on page 19. If unsure, seek professional advice.

When used with variable-speed or other electronically controlled pumps, you may wish to wire the Control Module directly to your power source. This will allow the pump to determine when the Cell is energized or dormant by activation of the Flow Switch.

Always double-check the voltage of your power source. Connection to improper voltage can: a) cause severe damage/harm, or b) cause lights and screen to power on without system function.



4. INSTALLATION

It is recommended to install the control unit at a height of at least 1m60 above the ground and out of the reach of children.

Be careful not to obstruct the back plate. Leave a 20cm space on sides and a 50cm space above and below the unit to ensure a proper and necessary ventilation.

In hot season, the aluminium base can reach temperatures of 60°C. Remove any material that may be damaged by the heat released by the base.

4.2 Adding Salt

IMPORTANT: Before adding salt, ALWAYS perform an independent water test to measure pre-existing salt levels.

Use only evaporated, granulated, non-iodized salt (Sodium Chloride). The purer the salt (at least 99%), the better the life and performance of the Electrolytic Cell.

DO NOT add chemicals or salt directly to the skimmer. This may damage the cell. If the Electrolytic Cell has already been installed, it should not be turned on before adding salt. For pools, it is best to empty the required salt into the shallow end of the pool and run the filter and pump simultaneously in order to circulate the water and dissolve the salt (the chlorinator is to remain off during this time period). Do not throw the salt bag into the water as chemicals and inks on the bag can interfere with water balance. Salt may take 24 - 48 hours to dissolve in summer, and longer in winter. Finer granules of salt will dissolve faster than compressed pellets.

Water Softener salt (also known as Water Conditioning pellets) is an economical way to buy large quantities of salt. However, only salt that is at least 99% pure NaCl can be used. Pellets are compressed forms of evaporated salt that may take longer to dissolve. Avoid using salt with anti-caking agents (Sodium Ferrocyanide, also known as YPS or Yellow Prussiate of Soda) that could cause discoloration of fittings and surface finishes in pool. Do not use Calcium Chloride as a source of salt. Do not use Rock Salt; insoluble impurities mixed with the rock salt can shorten the life of the unit.

4.3 Salt Levels

The system can work within a broad salinity range, from a minimum of 3000 ppm (parts per million), up to 4000 ppm. However, the ideal level for operation is about 3500 ppm. To achieve this level of salinity, add approximately 30 lbs of salt for every 1000 gallons of water (or 3.6 Kilograms of salt for every 1000 Liters). If you are unsure of the number of gallons in your pool, double-check with the following equations.

TIP: When adding large quantities of salt, start with an independent test of the existing salinity level and add in portions, retesting at each stage.

4. INSTALLATION

Calculating

Rectangular : Length x Width x Average Depth x 7.5

Round : Diameter x Diameter x Average Depth x 5.9

Oval : Length x Width x Average Depth x 6.7

Before adding salt, check your water for any existing salt content and add according to the chart below. If too little salt is added, the result will be reduced efficiency and a low level of chlorine production. In addition, operation at low salt levels will reduce the longevity of the cell. The salt in your pool is constantly recycled, and the loss of salt throughout the swimming season should be small. This loss is due primarily to the addition of extra water to replace water lost from splashing, backwashing, and draining. Salt is not lost due to evaporation.

Salt Level before addition (PPM)

0	500	1000	1500	2000	2500	3000	3500
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How much salt to Add (Kg)

Volume of water (L)	0	500	1000	1500	2000	2500	3000	3500
15	53	45	38	30	23	15	8	0
23	79	68	57	45	34	23	11	0
30	106	91	76	60	45	30	15	0
38	132	113	95	76	57	38	19	0
45	159	136	113	91	68	45	23	0
53	185	159	132	106	79	53	26	0
61	212	181	151	121	91	60	30	0
68	238	204	170	136	102	68	34	0
76	265	227	189	151	113	76	38	0
83	291	249	208	166	125	83	42	0
91	318	272	227	181	136	91	45	0
98	344	295	246	197	147	98	49	0
106	371	318	265	212	159	106	53	0
114	397	341	284	227	170	113	57	0
121	424	363	302	242	181	121	60	0
129	450	386	322	257	193	129	64	0
136	477	409	341	272	204	136	68	0
144	503	431	346	288	215	144	72	0
151	530	454	378	302	227	151	76	0
159	556	477	397	318	238	159	79	0
167	582	499	416	333	249	166	83	0
174	609	522	435	348	261	174	87	0
182	635	545	454	363	272	181	91	0
189	662	567	473	378	284	189	95	0

How much salt to Add (lbs)

Volume of water (thousands of gallons)	0	500	1000	1500	2000	2500	3000	3500
4	117	100	83	67	50	33	17	0
6	175	150	125	100	75	50	25	0
8	234	200	167	133	100	67	33	0
10	292	250	209	167	125	83	42	0
12	350	300	250	200	150	100	50	0
14	409	350	292	234	175	117	58	0
16	467	400	334	267	200	133	67	0
18	525	450	375	300	225	150	75	0
20	584	500	417	334	250	167	83	0
22	642	550	459	367	275	183	92	0
24	701	600	500	400	300	200	100	0
26	759	651	542	434	325	217	108	0
28	817	701	584	467	350	234	117	0
30	876	751	626	500	375	250	125	0
32	934	801	667	534	400	267	133	0
34	992	851	709	567	425	284	142	0
36	1051	901	751	600	450	300	150	0
38	1109	951	762	634	475	317	158	0
40	1168	1001	834	667	500	334	167	0
42	1226	1051	876	701	525	350	175	0
44	1284	1101	917	734	550	367	183	0
46	1343	1151	959	767	575	384	192	0
48	1401	1201	1001	801	600	400	200	0
50	1460	1251	1043	834	626	417	209	0

5. INSTALLATION CHECKLIST

Cell Unions installed and glued into pipe work.

- Threaded Collars on either side of the Cell are hand tight.
- Flow Switch is installed and oriented properly.
- Control Module is affixed to wall and wired correctly.
- Cell Cable and Flow Switch are connected to Control Module.
- You have checked and confirmed that Control Module switches ON and OFF concurrently with filter pump, or is energized continuously for use with variable speed pump.
- You have checked all connections and joints for leaks.
- Sufficient salt has been added and fully dissolved and circulated throughout pool water.
- Pool has properly balanced water chemistry.

5.1 How it works

The chlorine generator, by electrolysis, creates chlorine to sanitize your pool from the salt molecules (NaCl) in your water. A small electric charge is applied across a set of titanium plates inside the Electrolytic Cell. This produces Sodium Hypochlorite (NaOCl). In water, Sodium Hypochlorite dissociates into sodium (Na⁺) and hypochlorite (OCl⁻) ions.

It is the hypochlorite ions that form with the hydrogen (H⁺) ions (from the water) to form hypochlorous acid (HOCl), which is the active agent that destroys bacteria and algae, and oxidizes organic matter. This form of chlorine works quickly in the pipe, leaving only a mild residual in the pool. In addition, the Electrolytic Cell continuously “shocks” the incoming water- burning off any oils, organic matter, or other particles that need to be oxidized.

Best of all, the process continuously recycles the salt: after cleaning the pool, the original molecules reform and the whole process begins again. The salt doesn't get used up!

5.2 Initial Start Up

Once installation is complete, ensure that the added salt has been fully dissolved in the pool, and that the pool is clean and chemically balanced.

Apply power to the pool pump switch (or timer controls). This should activate the system, and within moments the green LED lights for "Power" and "Generating" should be illuminated. During this time, you may also see the "No-Flow" light flash for up to 60 seconds as your pump begins its operation.

5. INSTALLATION CHECKLIST

To find the optimum Chlorine Output setting, start at a setting of 70% and adjust as needed over the initial start up period. Measure your available chlorine in the pool after two to three days, and adjust the Chlorine Output level accordingly. If the available chlorine is too high, lower the Output level; if the available chlorine is too low, raise the Output level. It will take a few adjustments to find the ideal setting for your pool. Once determined, it should only take minor adjustments throughout the season.

5.3 Operation

By familiarizing yourself with the operation of the Chlorinator, you can achieve the maximum performance for your pool. There are typically three factors that you can control which directly contribute to the amount of chlorine the will generate:

1) The chosen percentage of Chlorine Output, 2) Hours of pump run- time each day, 3) Water chemistry balance, including the amount of salt in the pool, and chemicals that minimize chlorine demand, such as stabilizer level in the water. See «Ideal Chemistry Levels» for more important information.

After making the initial adjustments to your chosen Chlorine Output level, additional adjustments are typically only necessary due to changing seasonal temperatures, or changes in pool use and bather load. Ensure that your pump runs long enough each day to move at least two times the amount of water in your pool through the filter daily. This is typically more than a sufficient amount of time for chlorination of the pool, but if the pool has high chlorine demand, running the pool pump longer allows for more chlorination.

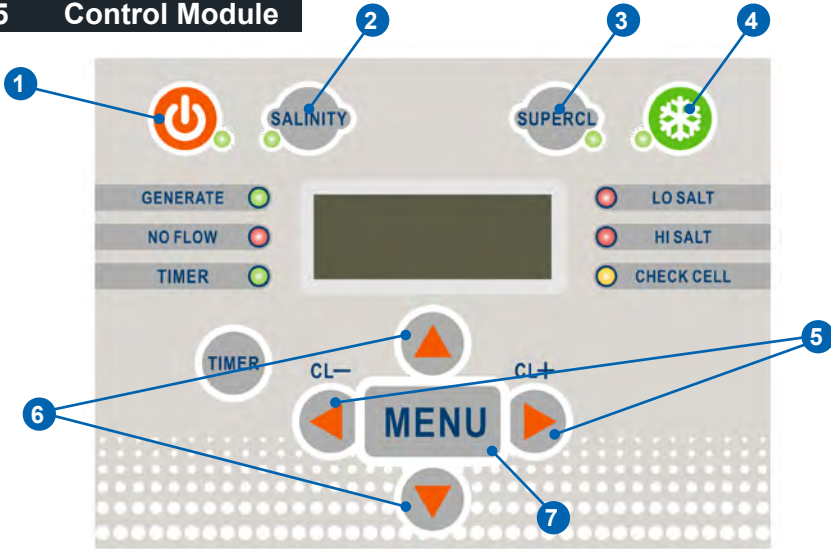
Measure your water chemistry and chlorine level on a regular basis.

5.4 Coverage detector (Optional)

- Open contact or connector not connected, the electrolyser considers that the pool is uncovered or not equipped with a cover.
 - Closed contact, the electrolyser considers that the basin is covered.
- If the pool is equipped with an automatic cover, connect the wire to the terminals of the connection box (not supplied) to the contact of the automatic cover box. Depending on the model of gearboxes, please consult the manufacturer of your equipment.

5. INSTALLATION CHECKLIST

5.5 Control Module



Control buttons:

1. Power: Use this button to manually power the system on or off.

2. Salinity: Displays the average measurement of the most recent salinity levels in the pool water. The average is constantly being updated by real-time salinity readings.

TIP: When first installed, this reading may display the last salinity readings taken at the factory. This average will begin to update with your pool's operation over the first 24 hours.

3. Super CL: Temporarily boosts Chlorine Output to Maximum Power (100%) for 24 hours, or until power is removed from the system.

4. Winter Mode: Reduces the chosen Chlorine Output setting by half, for periods of low chlorine demand during cool weather.

5. Chlorine Output: Use the plus/minus buttons to raise/lower the system's power setting (the rate of chlorine production), in order to customize operation for your pool's needs.

6. Select: While in the Menu, the left/right arrows change options for Pool Temperature, Instant Salinity, and Cell Version.

5. INSTALLATION CHECKLIST

7. Menu: Press sequentially to cycle through the following information:

- Pool Temperature (xx degrees Fahrenheit or Celsius)
- Cell Voltage (in many cases 21.0 to 27.0 volts when chlorine is being generated, otherwise 16-31V)
- Cell Current (in many cases 2.50 to 7.80 amps when chlorine is being generated, otherwise 0 amps during normal rest cycles.)
- Real-Time Salinity reading (xxxx ppm or x.x grams/Liter.)
- System ID
- Software revision level
- Cell Version.

6. LED INDICATOR LIGHT

Indicator light	Working status
Power	Located on the Power Button, this LED indicates that the Control Module is receiving input power when illuminated
Generate	This LED is illuminated during normal operation, and indicates that the system is able to generate chlorine. When flashing, the pool water is either too hot or too cold for chlorine generation
Super CL	Located on the Super CL Button, this LED is illuminated when the Super CL mode is active. (100% - 24h)
Remote:	This part is controlled by a remote control system.
No Flow	This LED is illuminated when the Flow Switch has detected no flow. This causes the Cell to stop generating chlorine. A flashing LED indicates that the flow is restored, but there will be a 60 second delay before generation is reestablished.
Lo Salt:	When this LED is flashing, the salt level is near to its minimum threshold, which is causing the Cell to operate at low efficiency. When this LED is illuminated steadily, the salt level is too low and Cell has shut down. The salt level must be raised before operation is restored. See «Adding Salt» for more information.
Hi Salt	When this LED is flashing, the salt level is higher than necessary. When this LED is illuminated steadily, the salt level is too high and the Cell has shut down. The pool water must be diluted with fresh water before operation is restored.
Check Cell	When this LED is illuminated, Cell efficiency is greatly reduced, or it is time for regularly scheduled Cell inspection. When illuminated, the Cell has stopped producing chlorine. The Electrolytic Cell should be inspected and cleaned (if necessary). Remove power from the system, and inspect the Cell. If mineral build-up is present, clean Cell according to the instructions on page 19. If after inspection, the Check Cell light is still on after restoring power to the system, then cleaning is necessary even if mineral build-up wasn't immediately visible to the eye. If illuminated after cleaning, Cell replacement may be necessary. This light takes priority over any salinity indicators.

SAFETY TIP: Using the Power Button to turn the system OFF does not remove power from the control box. Always disconnect power at the circuit breaker prior to attempting any service procedure.

6. LED INDICATOR LIGHT

6.1 General maintenance

To maintain maximum performance, it is recommended that you remove and visually inspect the cell at least every 3-4 months. The will remind you to do this at the appropriate time by flashing the "Check Cell" LED.

After you inspect the cell (and clean, if necessary) press and hold the System Status button (next to the display) for 5 seconds to reset the flashing "Check Cell" LED.

The Electrolytic Cell has a self-cleaning feature incorporated into the electronic control's logic. In most cases, this self-cleaning action will keep the cell working at optimal efficiency and help to inhibit mineral build-up. In areas with very hard water (high calcium and/or mineral content), and in pools with poor water chemistry, the cell may require more frequent cleaning (see below). If the "Check Cell" LED remains on after a thorough cleaning, it may require additional cleaning, or the cell may be at the end of its life cycle and may require replacement.

See "Maintaining the Electrolytic Cell" for cleaning instructions.

6.2 Maintaining the Electrolytic Cell

As a natural result of the electrolytic process which creates chlorine from salt molecules, a white mineral build-up is attracted to the titanium plates in the Cell. The self-cleaning feature helps to inhibit such build-up and scaling. However, the attraction of minerals is inevitable, and eventually it must to be removed. The Control Module will illuminate the « Cell» light when such cleaning is necessary. With correct water chemistry, the Cell will typically only need cleaning once or twice a season.

When removing the Cell for cleaning or replacement:

1. Turn off all power, close return line valves if applicable.
 2. Unplug the cell cable connecting the Cell to the Control Module.
 3. Unscrew threaded collars around the PVC piping that connect the Cell to the return line plumbing.
 4. Pull entire Cell away from the Unions. DO NOT pull or hold the Cell by its cable.
- Checking the cell for scaling The chlorinator is a reverse polarity system that limits the scaling of the cell. However, in most cases, the cell must be manually descaled in mid-season.

Always use some spirit vinegar to do so.

Recommendations:

- Switch off the chlorinator.
- Close the by-pass of your chlorinator.
- Unscrew the cell's couplings and detach it from the hydraulic circuit.
- Close an extremity and keep the cell in vertical position.
- Pour some vinegar directly into the cell. Once the plates are fully immersed, wait for 10 to 20 minutes shaking the cell regularly according to the quantity of scale to be removed.
- Make sure that there is no more scaling. Do it again if necessary.
- Rinse and reinstall the cell.

The use of an unsuitable product or too highly concentrated substances (pure acid) may cause visible and irreversible damages to the cell that are not covered by the guarantee and may be potentially hazardous.

6. LED INDICATOR LIGHT

6.3 To clean the Cell of mineral buildup

1. Attach Cleaning Cap (sold separately) and orient the Cell vertically. Place on the ground and stabilize so as to remain upright and prevent spilling.
2. In a separate bucket, mix one part muriatic acid into four parts water. Pour this weak acid solution directly into Cell. Ensure that the cleaning solution COMPLETELY fills the inside of the Cell.
3. Allow solution to soak for NO MORE THAN TEN MINUTES.
4. Properly dispose of acid solution and use a hose to generously rinse the Cell.
5. Reinstall Cell into PVC return line.

NOTE: If mineral build-up is severe, more than one cleaning may be necessary to dissolve remaining solids. Cleaning the Cell is only necessary to remove an excessive build-up of minerals on the plates. A light coating of minerals does not impede performance. Excessive cleaning will reduce lifespan of the cell. If submerging entire Cell assembly, do not allow Cell cable to be covered by liquid.

IMPORTANT: When cleaning the Cell always wear adequate protection, such as rubber gloves and eye protection. Always add acid to water, do not add water to acid. Always work in a well-ventilated area. Splashing or spilling acid can cause severe personal injury and/or property damage.

6.4 Winterizing

Very little chlorine is necessary at low temperatures. The will not produce chlorine at very cold temperatures, especially below 50° F. This feature extends the lifespan of the Cell.

The Electrolytic Cell will be damaged by freezing water just as your pool plumbing would. In areas which experience severe or extended periods of freezing temperatures, be sure to drain all water from the pump, filter, supply and return lines before any freezing conditions occur. The Control Module is capable of withstanding any winter weather and does not need to be removed.

Spring Start-up:

When opening the pool after a period of inactivity, do not power on and use the chlorine generator until the pool's water chemistry has been balanced and brought to ideal levels.

Replacing the Cell:

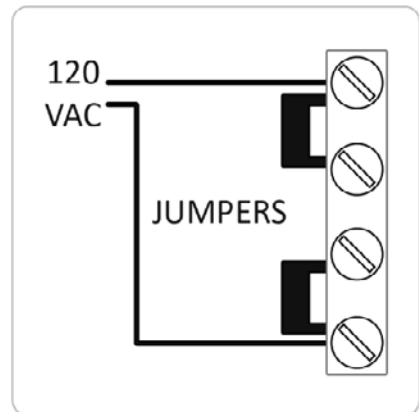
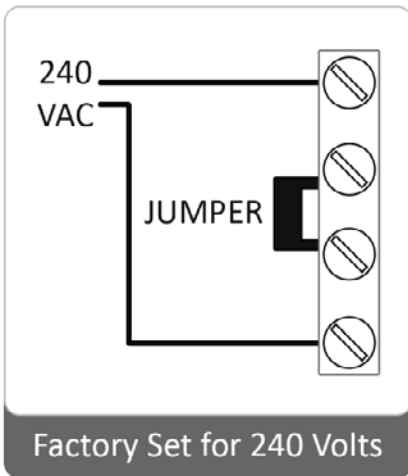
When the titanium blades inside the Electrolytic Cell have reached the end of their lifespan, replacements are available so that the whole system does not have to be removed. Replacements are easily switched out. To ensure quality and value, only genuine replacement parts may be used. Bypass cells are available, and may be used to continue to run water through the plumbing without the Electrolytic Cell in place.

7. VOLTAGE CONVERSION

Always double-check the voltage of your power source. Connection to improper voltage can: a) cause severe damage/harm, or b) cause lights and screen to power on without system function.

All service should only be attempted by a person with appropriate electrical skills, with all equipment disconnected from power.

The is shipped from the factory with a 240 VAC configuration. If 120VAC is needed, move the internal jumpers as shown below. If unsure, seek professional advice.



This set of terminal screws can be located inside of the Control Module, and accessed by removing the six screws from the Control Module's aluminum base. The factory voltage setting is the 240V configuration, with a jumper clip inserted between the second and third terminals. The Control Module can be made to accept 110V by reconfiguring the jumper clips as shown above left, with two jumper clips instead connecting the first and second terminals, and the third and fourth terminals.

8. HELPFUL HINTS

Proper operation of the chlorine generator can be easily verified by checking the lights on the control panel. However, if the pool remains cloudy, or the chlorine residual tests low, then the chlorine being produced is being lost due to high chlorine demand or improper water conditions

To reduce the chlorine demand, check the pH and Stabilizer (Cyanuric Acid) reading. Check for phosphates and nitrates, which commonly contribute to severe chlorine demand. If tests show correct, then a shock treatment with an oxidizer agent is advised. Generally, superchlorination is not necessary if the pool is maintained at correct levels.

Recommended List:

- Read and keep your manual in a safe place.
- Increase Chlorine Production when temperature goes up.
- Increase Chlorine Production when number of guests goes up.
- Use Stabilizer (Cyanuric Acid) to protect free chlorine in pool.
- Mount Control Module in shade or out of the direct sunlight whenever possible.
- Decrease Chlorine Production when temperature goes down.
- Take pool water sample to a Pool Professional at least once per month.

Not Recommended List:

- Do not allow fertilizer anywhere near your pool. Fertilizers are one of many sources that contain Nitrates or Phosphates which cause severe chlorine demand in pool water.
- Never use dry acid to adjust pH. A build-up of by-products can damage the Cell.
- Do not add any pool water balancing chemicals (including salt) unless the Control Module is turned off.
- Do not add any chemicals (including salt) to the skimmers.
- Do not let salinity level drop below 3000 ppm.

9. TROUBLESHOOTING

Diagnostic Displays

Sequential pushes of the small “diagnostic” button next to the LCD display will cause the Chlorinator to display the following information:(Page 16 control button)
On the 8th push of the button the display will revert back to the default salt display. Also if the button is not pushed for 30 seconds, the display will revert back default salt.

Common Problems and Solutions

Problem	Possible Cause	Corrective Action
“Power” LED not on		Check to make sure 120 / 240 VAC input power is connected to the control. Be sure the jumpers are set properly. Verify input voltage with a voltmeter. If there is input power, the fuse may have blown. The board is protected by a 20 amp mini ATO fuse located on the circuit board above the cell connector.
«Generating» LED flashing	The temperature of the pool water is too high or low to operate.	You can override this by switching the main switch to SUPER CHLORINATE. The STH will run at maximum output for the remainder of the current pump cycle or 24 hours, whichever comes first.
«No Flow» LED illuminated or flashing	The STH has sensed a no flow condition and has stopped generating chlorine.	Check that the flow switch is plugged into the connector on the bottom of the control unit and that the wire is not cut or damaged. Make sure you have at least 12» of straight pipe before the flow switch. If there is adequate flow and the LED is still on, check that the arrows on the flow switch (on top of hex) are pointing in the direction of flow. If the light is flashing, the flow is established and the STH will turn on within 1 minute.
«Check Salt» LED illuminated or flashing		Check salt level in pool/spa. If salt level is low, add salt according to chart on page 11. Before adding large quantities of salt, it is advisable to have your salt level professionally checke

9. TROUBLESHOOTING

Problem	Possible Cause	Corrective Action
«High Salt» LED illuminated		Check salt level in pool/spa. If salt level is too high, lower salt level by draining some of the pool water out of the pool and replace with fresh water. Continue until the salt concentration is at recommended levels.
“Inspect Cell” LED flashing		Inspect and clean cell according to directions. When done, press the “diagnostic” button for 3 seconds to stop the “Inspect Cell” LED flashing.
“Inspect Cell” LED illuminated		Remove and inspect the cell for scale. If the cell is scaled, follow the directions on page
“PCB” displayed and all 4 LEDs are illuminated.	A possible printed circuit board fault has been detected.	Call for service.

Possible causes of low chlorine or no chlorine

- Chlorinator switch in OFF position.
- Desired Level% adjustment setting is too low.
- Low stabilizer (Cyanuric Acid).Chlorine is being produced but the pool water is unable to hold on to the chlorine, due to low stabilizer.
- Filter pump switched off or filter pump time too short (8 hours for average size pools, more for large pools).
- Salt level too low (below 2500 ppm, Low Salt LED on).
- Salt level too high (high Salt LED on).
- Low pH. Low pH oxidizes chlorine quickly, making it difficult to maintain desired chlorine levels. Adjust pH levels to re-balance water.
- Warm pool water increases chlorine demand—increase Desired Level% or filter run time.
- Cold water (below 50F) can cause Chlorinator to stop generating (Generating LED flashing).
- Excessive scaling on cell.

9. TROUBLESHOOTING

- High level of phosphates in pool water.
- Some yellow algae treatments will use chlorine at a very high rate and deplete the residual free chlorine. Manually shock the pool if indicated in the directions on the algae treatment. It still may be a matter of days before the pool returns to “normal” and chlorine tests will show the desired 1-3ppm free chlorine reading.

WARRANTY

Chlorinator is warranted to be free from defects in materials and workmanship, under normal use and non-commercial application, for a period of Three (3) years, per the schedule below. Proof of purchase is required. This limited warranty is extended exclusively to the original purchaser of the Chlorinator system and is non-transferable. Chlorinator is intended for residential pool use and any commercial application voids all warranties.

Three (3) years limited warranty schedule for power cell and generating cell.
Two (2) year warranty for the flow sensor.

Exclusions:

- Problems arising from failure to maintain proper water chemistry levels, per manufacturer's recommendations, as outlined in the Owner's Manual.
- Problems arising from failure to use Chlorinator in accordance to manufacturer's recommendations, as outlined in the Owner's Manual.
- Problems resulting from tampering, accident, electrical surges, abuse, neglect, unauthorized or unqualified repairs, product alteration, fire, flood, freeze damage, Acts of Nature or Acts of God.
- Damage or degrading of concrete, natural stone, wood or synthetic surfaces adjacent to the swimming pool or spa.
- Problems or damages incurred due to improper installation and/or improper electrical supply.

Disclaimers: This limited warranty constitutes the entire warranty. No other warranties apply, expressed or implied. This limited warranty gives you specific legal rights, which vary from state to state. Under no circumstances shall authorized agent/installer be responsible for consequential, special, or incidental damage(s) of any kind, including but not limited to personal injury, property damage, or damage to or loss of equipment. Agent/installer is not liable for any other expenses that may be incurred during installation or servicing.

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