PART NO.
DIY

DIY

ELECTROLYTIC CHLORINE GENERATOR CELL

DOMESTIC

READ THE LABEL AND MANUAL BEFORE USING

REGISTRATION NUMBER 28325.30
PEST CONTROL PRODUCTS ACT

Goldline Controls, Inc.
A Hayward Company 61 Whitecap Drive
North Kingstown, RI. 02852 USA

Hayward Pool Products Canada
2880 Plymouth Drive
Oakville, ON L6H 5R4
(905) 829-2880

DIY

ELECTROLYTIC CHLORINE GENERATOR CELL

DOMESTIC REGISTRATION

NUMBER 28325.30
PEST CONTROL PRODUCTS ACT Replacement cell for

the DIY Electrolytic Chlorine Generator

This cell must only be used on this model of chlorine generating device. Read the label, the Installation and Operation Manual of the DIY Electrolytic Chlorine Generator before using.

C-ETL Listed, NSF Certified to ANSI/NSF Standard 50 Swimming Pool and Spa Chlorinator

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DIY
Electrolytic Chlorine Generator

CONTROLS BACTERIA AND ALGAE
In Residential Swimming Pools and Spas

READ THIS LABEL AND OPERATION MANUAL BEFORE USING. PRECAUTION:

A Maximum of 95,000 Litres (25,000 Gallons) of water can be treated with one DIY Electrolytic Chlorine Generator unit. Operating the DIY Electrolytic Chlorine Generator without water flow through the DIY Electrolytic Chlorine Generator cell can cause a build-up of flammable gases which can result in fire or explosion. The DIY Electrolytic Chlorine Generator protects itself against this condition via the FLO sensor by cutting off the power to the DIY Electrolytic Chlorine Generator cell whenever flow is not detected. The DIY Electrolytic Chlorine Generator MUST be wired to the same circuit as the filter pump. This ensures that the DIY Electrolytic Chlorine Generator will only generate chlorine when the filter pump is providing flow. The DIY Electrolytic Chlorine Generator generates a maximum output of hypochlorous acid equivalent to 0.45kg of chlorine per day. Do not use this device with bromide products.

KEEP OUT OF REACH OF CHILDREN

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.

SWITCH:
(The switch is ignored when operation is Remotely Controlled)

Super-Chlorinate: Chlorine is produced at the maximum rate, regardless of the "Desired Output %" dial for the remainder of the current filtering period (maximum 24 hours).
Auto: Chlorine is produced at the rate determined by the "Desired Output %" dial.
Off: Chlorine production is turned OFF. The power is controlled by the filter pump timer.

CHLORINE LEVEL DIAL:
(The Desired Output dial is ignored when the operation is Remotely Controlled)

Adjust the "Desired Output %" dial to control the amount of chlorine produced. Periodically check the pool chlorine level and adjust the dial up or down as required. For swimming pools, a minimum of 1ppm of free available chlorine must be maintained.
For Spas, a minimum of 3ppm of free available chlorine must be maintained.

LCD Display: Displays salt level in ppm (parts per million).

ELECTRICAL RATINGS:

All wiring must conform to local and NEC/CEC codes. Copper wire only.

PRECAUTION: Connect only to a circuit protected by a class-A ground fault interrupter.

Power: 110-130 VAC, 2A, 50/60 Hz or 220-250 VAC, 1A, 50/60Hz.
Timer: Connect to load side. Remove Control unit: Connect to line power.

{Diagram}

ENCLOSURE 3 – SUITABLE FOR INDOOR OR OUTDOOR MOUNTING

Goldline Controls Inc.
A Hayward Company
61 Whitecap Drive
North Kingstown, RI. 02852
USA

Registration 28325.3
Pest Control Products Act
DOMESTIC

Hayward Pool Products Canada
2580 Plymouth Dr
Oakville, Ontario, L6H 5R4

C-ETL Listed, NSF Certified to ANSI/NSF STANDARD 50 Swimming Pool and Spa Chlorinator

LED Indicator	Flashing	Continuous
Power		Power is present
Generating	Water is too hot or too cold to operate	Chlorine is being produced
Super Chlorinate		Super Chlorinate – Chlorine generation is at 100% regardless of "Desired Output" setting.
Remotely Controlled	Remote Control is in Service or Time-Out mode – The DIY Electrolytic Chlorine Generator switch and dial temporary control operation	Remote control system is controlling the operation of the DIY Electrolytic Chlorine Generator.
No Flow	Time delay after flow is established	Water is not flowing through the DIY Electrolytic Chlorine Generator cell – Chlorine generation is halted.
Check Salt	Salt is below 2600ppm. DIY Electrolytic Chlorine Generator is working at reduced efficiency. Check DIY Electrolytic Chlorine Generator cell and clean if necessary. If problem persists, have the salt level professionally tested before adding salt to the pool.	Salt is below 2300 ppm. Chlorine generation is halted. Check DIY Electrolytic Chlorine Generator cell and clean if necessary. If problem persists, have the salt level professionally tested before adding salt to the pool.
High Salt		Cell current too High. Chlorine generation is halted. See owner's manual for directions on decreasing salt level.
Inspect Cell	Reduce DIY Electrolytic Chlorine Generator cell efficiency or scheduled 3 month cell inspection time. Inspect DIY Electrolytic Chlorine Generator cell and clean if necessary, and press display button for 3 seconds to turn off flashing indicator	DIY Electrolytic Chlorine Generator cell efficiency greatly reduced. Inspect DIY Electrolytic Chlorine Generator cell and clean if necessary. If DIY Electrolytic Chlorine Generator cell is clean it may be at the end of it's life and needs to be replaced.

Inspect DIY Electrolytic Chlorine Generator cell every 3 months/clean if necessary.

DIY
Electrolytic Chlorine Generator
By
Goldline Controls Inc., A Hayward Company

CONTROLS BACTERIA AND ALGAE
in Residential Swimming Pools and Spas

DOMESTIC

READ THE LABEL AND MANUAL BEFORE USING

REGISTRATION NUMBER 28325.30
PEST CONTROL PRODUCTS ACT

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IMPORTANTSAFETYINSTRUCTIONS

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

- READ AND FOLLOW ALL INSTRUCTIONS
- Disconnect all AC power during installation.
- KEEP OUT OF REACH OF CHILDREN
- A green colored terminal marked "Earth Ground" is located inside the wiring compartment. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire equivalent in size to the circuit conductors supplying the equipment.
- One bonding lug for US models (two for Canadian models) is provided on the external surface. To reduce the risk of electric shock, connect the local common bonding grid in the area of the swimming pool, spa, or hot tub to these terminals with an insulated or bare copper conductor not smaller than 8 AWG US / 6 AWG Canada.
- All field installed metal components such as rails, ladders, drains, or other similar hardware within 3 meters of the pool, spa or hot tub shall be bonded to the equipment grounding bus with copper conductors not smaller than 8AWG US / 6 AWG Canada.
- NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.
- WARNING: Heavy pool or spa usage, and higher temperature may require higher chlorine output to maintain proper free available chlorine residuals.
- Follow all aspects of the local and National Electric Code(s) when installing the DIY Electrolytic Chlorine Generator.
- If additional chlorine is required due to heavy bather load, use a chlorine sanitizer to maintain an appropriate free available chlorine residual in the water.
- For proper sanitation, spas must 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 the DIRECTIONS FOR USE of the DIY Electrolytic Chlorine Generator.
- People with a medical condition should consult a physician before entering a pool or spa.
- Maximum spa water usage temperature is 40^{o}C. Duration in spa water at 40^{o}C should not exceed 15 minutes.
- Do not use this device with bromide products.
- SAVE THESE INSTRUCTIONS
- C-ETL Listed, NSF Certified to ANSI/NSF Standard 50 Swimming Pool and Spa Chlorinator

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OPERATION

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WARRANTY

OPERATION

The DIY Electrolytic Chlorine Generator is an automatic chlorine generation system for pool or spa sanitation. A Maximum of 95,000 Litres (25,000 Gallons) of water can be treated with one DIY Electrolytic Chlorine Generator unit. The operation requires a low concentration of salt (sodium chloride) in the pool water. These levels are low enough that it normally will not be tasted. The DIY Electrolytic Chlorine Generator automatically sanitizes your pool by converting the salt into free chlorine which kills bacteria and algae in the pool. Chlorine will revert back to sodium chloride after killing bacteria. These reactions will continuously recycle virtually eliminating the need to add sanitizing chemicals to your pool. The only time you may need to add more salt to the pool is when water is replenished due to backwashing, draining, or splashing (not evaporation).

The DIY Electrolytic Chlorine Generator is designed to produce hypochlorous acid for most residential pools up to 95,000 Litres (25,000 Gallons). The maximum output of hypochlorous acid is equivalent to 0.45 Kg of chlorine per day. Check local codes for other restrictions. The actual amount of chlorination required to properly sanitize a pool varies due to bather load, rainfall, temperature, and the pool's cleanliness.

Water Chemistry

The table below summarizes the recommended water parameters. The only special requirements for the DIY Electrolytic Chlorine Generator are the salt level 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. Your Authorized Aqua Rite Dealer (AARD) or most pool stores 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 DIY Electrolytic Chlorine Generator.

- Do not add pool or spa chemicals directly to the skimmer. This may damage the DIY Electrolytic Chlorine Generator Cell.
- Maintaining high salt and chlorine 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 the expiration date.
- NOTE: For outdoor pools, chlorine residuals can be protected from destruction by sunlight by the addition of stabilizer (cyanuric acid).
- Regulation may exist regarding the use of cyanuric acid. Please consult with your local authority.
- For swimming pools, a minimum of 1ppm of free available chlorine must be maintained. For spas, a minimum of 3 ppm of free available chlorine must be maintained.

{Diagram}

Saturation index

The saturation index (Si) relates to the calcium and alkalinity in the water and is an indicator of the pool water "balance". Your water is properly balanced if the Si is 0 ±.2.If the Si is below -0.2, the water is corrosive and plaster pool walls will be dissolved into the water. If the Si is above +0.2, scaling and staining will occur. Use the chart below to determine the saturation index.

$$Si = pH + Ti + Ci + Ai - 12.1$$

{Diagram}

{Diagram}

Salt Level

Use the chart on page 4 to determine how much salt in Kg (or Pounds) need to be added to reach the recommended levels. Use the equations below (measurements are in feet/gallons and meters/liters) if pool size is unknown.

	Gallons (pool size in feet)	Liters (pool size in meters)
Rectangular	Length x Width x Average Depth x 7.5	Length x Width x Average Depth x 1000
Round	Diameter x Diameter x Average Depth x 5.9	Diameter x Diameter x Average Depth x 785
Oval	Length x Width x Average Depth x 6.7	Length x Width x Average Depth x 893

The ideal salt level is between 2.7-3.4 g/l (2700-3400 ppm) with 3.2 g/l (3200 ppm) being optimal. If the level is low, determine the number of liters (gallons) in the pool and add salt according to the chart on page 4. A low salt level will reduce the efficiency of the DIY Electrolytic Chlorine Generator and result in low chlorine production. A high salt level can cause the DIY Electrolytic Chlorine Generator to shutdown and may begin to give a salty taste to your pool (generally, the salt will begin to be tasted at a level of about 3.5-4.0 g/l (3500-4000 ppm)). The salt in your pool/spa is constantly recycled and the loss of salt throughout the swimming season should be small. This loss is due primarily to the addition of water because of splashing, backwashing, or draining (because of rain). Salt is not lost due to evaporation.

Type of Salt to Use

It is important to use only sodium chloride (NaCl) salt that is greater than 99% pure. This is common food quality or water softener salt and is usually available at building supply stores in 18 – 36 Kg (40-80 lb.) bags labeled "Coarse Solar Salt". It is also acceptable to use water conditioning salt pellets; however, it will take longer for them to dissolve. Do not use rock salt, salt with yellow prussiate of soda, salt with anti-caking additives, or iodized salt.

How to Add or Remove Salt

For new plaster pools, wait 10-14 days before adding salt to allow the plaster to cure. Turn the circulating pump on and add salt directly into the pool. Brush the salt around to speed up the dissolving process--do not allow salt to pile up on the bottom of the pool. Run the filter pump for 24 hours with the suction coming from the main drain (use pool vac if there is no main drain) to allow the salt to evenly disperse throughout the pool. The salt display may take 24 hours to respond to the change in salt concentration.

The only way to lower the salt concentration is to partially drain the pool and refill with fresh water.

Always check stabilizer (cyanuric acid) when checking salt. These levels will most likely decline together. Use the chart on page 5 to determine how much stabilizer must be added to raise the level to 0.08 g/l (80ppm).

{Diagram}

{Diagram}

Controls

Main Switch

AUTO: For normal operation, the Main Switch should be left in the AUTO position. In this position the DIY Electrolytic Chlorine Generator will produce chlorine according to the "Desired Output %" adjustment setting for the entire filtering/pumping cycle.

SUPER CHLORINATE: When you have an abnormally high bather load, a large amount of rain, a cloudy water condition, or any other condition which needs a large amount of purification to be introduced, put the Main Switch in the SUPER CHLORINATE position. This electronically “super chlorinates” (shocks) the water for 24 hours (filter pump must be on during this time) or until the power has been turned off, whichever comes first. At the end of the super chlorinate time, be sure to put the switch back into the AUTO position.

OFF: The OFF position prevents the DIY Electrolytic Chlorine Generator from energizing the DIY Electrolytic Chlorine Generator cell. In this position there is no chlorine generation. NOTE: To service any of the pool equipment or the DIY Electrolytic Chlorine Generator, turn the power off at the circuit breaker.

Indicator LED's

POWER When illuminated, the DIY Electrolytic Chlorine Generator has input power.

GENERATING This LED is on steady during normal operation. When flashing, the pool water is too hot or cold to operate.

SUPER CHLORINATE Illuminates during super-chlorination. See description above.

REMOTELY CONTROLLED When illuminated, indicates that a remote pool automation control (Goldline Aqua Logic, Pentair Intellitouch, Polaris Eos, etc.) is controlling the DIY Electrolytic Chlorine Generator -- the main switch and "Desired Output %" adjustment are inactive. When flashing, the Aqua Logic, Intellitouch or Eos is in SERVICE or TIME-OUT mode and the Main Switch and "Desired Output %" adjustment are active.

NO FLOW When illuminated, the flow switch has detected no water flowing and the DIY Electrolytic Chlorine Generator has stopped generating chlorine. A flashing LED indicates a 15-60 second time delay period.

CHECK SALT When flashing, the salt level is low (below 2700 ppm) and DIY Electrolytic Chlorine Generator is generating at low efficiency. When illuminated steady, the salt level is too low and DIY Electrolytic Chlorine Generator has shut down. Before adding large quantities of salt, it is advisable to have your salt level professionally checked.

HIGH SALT When illuminated, the salt level is too high and DIY Electrolytic Chlorine Generator has shut down.

INSPECT CELL A flashing indicator signifies that either the DIY Electrolytic Chlorine Generator Cell efficiency is reduced or that it is time for regularly scheduled cell inspection. In either case, inspect the DIY Electrolytic Chlorine Generator cell and clean if necessary. When illuminated steady, DIY Electrolytic Chlorine Generator cell efficiency is greatly reduced and the DIY Electrolytic Chlorine Generator has stopped producing chlorine. Inspect, clean or replace if necessary.

"Desired Output %" adjustment knob

The "Desired Output %" adjustment knob is located in the lower center of the DIY Electrolytic Chlorine Generator control panel. This setting is used to control the amount of chlorine the DIY Electrolytic Chlorine Generator generates. Raise this setting to increase chlorine level and lower it to decrease chlorine level. Note: The "Desired Output %" adjustment will not function when the DIY Electrolytic Chlorine Generator is being controlled by a remote pool automation control.

Salt Display

The Salt Display shows the current salt concentration of the pool water. Readings are in ppm (parts per million). Refer to the Water Chemistry section for recommended salt levels as well as how to add/remove salt.

The factory default display is in English units (ppm). If Metric units (grams per liter) are preferred, push the small button next to the display once. The display will now show the pool temperature. With the temperature displayed, move the main switch from AUTO to SUPER CHLORINATE and back to AUTO. The temperature display will instantly switch to Celsius and the salt display will switch to grams/liter. Repeat this process to switchback to English units. (ppm and Fahrenheit)

Operation

Assuming that the water chemical levels are in the recommended range, there are three factors that you can control which directly contribute to the amount of chlorine the DIY Electrolytic Chlorine Generator will generate:

1. Filter time each day (hours)
2. The "Desired Output %" setting
3. The amount of salt in the pool

The filter pump timer should be set so that all of the water in the pool passes through the filter each day. For pools with high chlorine demand, the timer may have to be set longer to generate enough chlorine.

To find the optimum "Desired Output %" setting, start at approximately 50%. Test the chlorine level every few days and adjust the dial up or down accordingly. It usually takes 2-3 adjustments to find the ideal setting for your pool/spa and after that, it should only take minor, infrequent adjustments. Because the chlorine demand of the pool increases with temperature most people find they have to adjust the dial up at the peak of the summer and down during the colder periods. The DIY Electrolytic Chlorine Generator automatically stops generating when the pool water temperature drops below 10°C (50°F). This is usually not a problem because bacteria and algae stop growing at this temperature. You can override this low temperature cutoff by switching to SUPER CHLORINATE for a day.

Prevent over-chlorination during cold weather: Check chlorine levels periodically. Most pools require less chlorine during cold weather and the “Desired Output %” dial should be turned down accordingly.

When connected to a pool automation control (Pentair Intellitouch or Polaris Eos):

The DIY Electrolytic Chlorine Generator is designed to operate with all pool automation controls except Jandy AquaLink RS. The Intellitouch and Eos can fully control the function of the DIY Electrolytic Chlorine Generator chlorinator in addition to the other pool equipment. The "Remote Control" LED on the DIY Electrolytic Chlorine Generator chlorinator will be illuminated when the automation control is activated. Adjustment of the DIY Electrolytic Chlorine Generator "Desired Output %" and also Super chlorination can be controlled from the pool automation display/keypad. Refer to the pool automation control instructions for more information. The DIY Electrolytic Chlorine Generator salt display and LED indicators operate as normal, but the main switch and "Desired Output %" dial are disabled.

Maintaining the DIY Electrolytic Chlorine Generator System

To maintain maximum performance, it is recommended that you open and visually inspect the DIY Electrolytic Chlorine Generator Cell every 3 months or after cleaning your filter. The DIY Electrolytic Chlorine Generator will remind you to do this by flashing the "Inspect Cell" LED after approximately 500 hours of operation. After you inspect the DIY Electrolytic Chlorine Generator (and clean, if necessary) press the small "diagnostic" button next to the display for 3 seconds to stop the flashing "Inspect Cell" LED and start the timer for the next 500 hours.

The DIY Electrolytic Chlorine Generator Cell has a self cleaning feature incorporated into the electronic control's logic. In most cases this self cleaning action will keep the DIY Electrolytic Chlorine Generator cell working at optimum efficiency. In areas where water is hard (high mineral content) and in pools where the water chemistry has been allowed to get "out of balance", the DIY Electrolytic Chlorine Generator cell may require periodic cleaning. The "Inspect Cell" LED will indicate if cell efficiency is decreased and servicing is necessary. If the "Inspect Cell" LED remains on after a thorough cleaning, the DIY Electrolytic Chlorine Generator cell may be worn and require replacement.

Servicing and Cleaning the DIY Electrolytic Chlorine Generator cell

Turn off power to the DIY Electrolytic Chlorine Generator before removing the DIY Electrolytic Chlorine Generator cell. Once removed, look inside the DIY Electrolytic Chlorine Generator cell and inspect for scale formation (light colored crusty or flaky deposits) on the plates and for any debris which has passed through the filter and caught on the plates. If no deposits are visible, reinstall. If deposits are seen, use a high pressure garden hose and try to flush the scale off. If this is not successful, use a plastic or wood tool (do not use metal as this will scratch the coating off the plates) and scrape deposits off of plates. Note that a buildup on the DIY Electrolytic Chlorine Generator cell indicates that there is an unusually high calcium level in the pool (old pool water is usually the cause). If this is not corrected, you may to have to periodically clean the DIY Electrolytic Chlorine Generator cell. The simplest way to avoid this is to bring the pool chemistry to the recommended levels as specified.

Mild Acid Washing: Use only in severe cases where flushing and scraping will not remove the majority of deposits. To acid wash, turn off power to DIY Electrolytic Chlorine Generator. Remove DIY Electrolytic Chlorine Generator cell from piping. In a clean plastic container, mix a 4:1 solution of water to muriatic acid (one gallon of water to one quart of muriatic acid). ALWAYS ADD ACID TO WATER NEVER ADD WATER TO ACID. Be sure to wear rubber gloves and appropriate eye protection. The level of the solution in the container should just reach the top of the DIY Electrolytic Chlorine Generator cell so that the wire harness compartment is NOT submerged. It may be helpful to coil the wiring before immersing the DIY Electrolytic Chlorine Generator cell. The DIY Electrolytic Chlorine Generator cell should soak for a few minutes and then rinse with a high pressure garden hose. If any deposits are still visible, repeat soaking and rinsing. Replace the DIY Electrolytic Chlorine Generator cell and inspect again periodically.

- When replacing the DIY Electrolytic Chlorine Generator cell, only use replacement cells having a label that clearly states that it is a replacement cell for the DIY Electrolytic Chlorine Generator, REGISTRATION NUMBER 28325.30*, PEST CONTROL PRODUCTS ACT*.
- The life expectancy of the DIY Electrolytic Chlorine Generator cell is 10,000 hours under normal use conditions.

Winterizing

The DIY Electrolytic Chlorine Generator Cell and flow detection switch will be damaged by freezing water just as your pool plumbing would. In areas of the country which experience severe or extended periods of freezing temperatures, be sure to drain all water from the pump, filter, and supply and return lines before any freezing conditions occur. The electronic control is capable of withstanding any winter weather and should not be removed.

Spring Start-up

DO NOT turn the DIY Electrolytic Chlorine Generator on, until the pool water chemistry has been brought to the proper levels. This information can be found on page 1.

INSTALLATION

Installation must be performed in accordance with Local and NEC codes.

{Diagram}

Preparing Pool/Spa Water

Refer to page 1 for recommended chemical levels. The pool's chemistry must be balanced BEFORE activating the DIY Electrolytic Chlorine Generator. NOTE: If the pool does not have new water, add 1 liter (1 quart) of metal remover and 1 liter (1 quart) of non-copper based algaecide to the pool, per manufacturer's instructions. This ensures a quick, trouble free transfer to the DIY Electrolytic Chlorine Generator system.

Mounting the DIY Electrolytic Chlorine Generator Control

The DIY Electrolytic Chlorine Generator is contained in a raintight enclosure that is suitable for outdoor mounting. The control must be mounted a minimum of 2 meters (5 ft.) horizontal distance (or more, if local codes require) from the pool/spa.

The control is designed to mount vertically on a flat surface with the knockouts facing downward. Because the enclosure also acts as a heat sink (disperses heat from inside the box), it is important not to block the four sides of the control. Do not mount DIY Electrolytic Chlorine Generator inside a panel or tight enclosed area.

Plumbing

Ensure that the DIY Electrolytic Chlorine Generator installation does not constitute a cross connection with the local potable water supply. Consult local plumbing codes.

The DIY Electrolytic Chlorine Generator flow switch and cell should be plumbed in the return line to the pool/spa. The preferred installation is after (downstream) all the pool equipment (filter, heater, solar, etc.). The DIY Electrolytic Chlorine Generator cell and flow switch tee fitting are designed to be plumbed into 51mm (2") PVC pipe. Adapters (not included) can be used for systems with 38mm (1 ½") plumbing.

For proper plumbing, refer to the overview diagram on page 9. Alternate configurations #1 shows the flow switch can also be in front of the DIY Electrolytic Chlorine Generator cell. Configurations #2 and#3 allow for chlorination of both the pool and spa during spa spillover operation, but prevent over chlorination of the spa during "spa only" operation. Never use configuration #4.

{Diagram}

Flow Switch:	IMPORTANT: There must be at least a 25cm (12") straight pipe run before (upstream) the flow switch. If the switch is plumbed after the DIY Electrolytic Chlorine Generator cell, the DIY Electrolytic Chlorine Generator cell can be counted as the 25cm (12") of straight pipe. To ensure proper operation, verify that the arrow on the flow switch (located on top of gray hex) points in the direction of water flow.
DIY Electrolytic Chlorine Generator Cell:	Install using the unions provided. Tighten unions BY HAND for a watertight seal. For pool/spa combination systems with spillover, use configurations #2 or #3 above to allow chlorination of both the pool and spa during spillover but preventing over chlorination when operating the spa only.

Wiring

Power must be shut off at the circuit breaker before performing any wiring. Be sure to follow Local and NEC electrical codes. To provide safe operation, the DIY Electrolytic Chlorine Generator must be properly grounded and bonded.

Input Power For stand alone operation:

Wire the DIY Electrolytic Chlorine Generator to the LOAD SIDE of the filter pump timer. It is very important that the DIY Electrolytic Chlorine Generator is powered only when the pump is running.

Refer to the wiring label on the DIY Electrolytic Chlorine Generator as well as the diagram below to determine correct wiring connections. The DIY Electrolytic Chlorine Generator is shipped from the factory with the configuration jumpers in 240VAC position. If using 120VAC, move the jumpers as shown below. For Canadian models, the DIY Electrolytic Chlorine Generator shall be connected to a circuit protected by a class A ground fault interrupter. Be sure to connect the ground wire to the green ground screw terminal located on the bottom of the enclosure.

{Diagram}

Bonding:

A lug used for bonding is attached to the bottom of the DIY Electrolytic Chlorine Generator enclosure (see diagram below). The DIY Electrolytic Chlorine Generator must be bonded with a 6 AWG copper wire (8 AWG USA) to the pool bonding system.

DIY Electrolytic Chlorine Generator Cell and Flow Switch:

The DIY Electrolytic Chlorine Generator cell and flow switch cables are terminated with connectors which plug into the DIY Electrolytic Chlorine Generator, for easy attachment and removal. The door of the DIY Electrolytic Chlorine Generator must be open to access the DIY Electrolytic Chlorine Generator cell cable connector. The flow switch plugs into a connector (similar to a telephone jack) located outside, on the bottom of the enclosure. Refer to the diagram below for the location of these connections.

{Diagram}

Input Power for use with Pentair and Polaris controls:

Wire the DIY Electrolytic Chlorine Generator DIRECTLY to 120/240VAC power (not through timer or relay).

{Diagram}

Optional Pentair and Polaris controls:
The Pentair and Polaris controls use a 4 wire connection to communicate to the DIY Electrolytic Chlorine Generator and can be wired up to 152 meters (500 feet) apart. Any outdoor rated 4 conductor cable can be used. Refer to each manufacturer's instructions and the wiring diagrams below for proper wiring connection to the DIY Electrolytic Chlorine Generator. NOTE: There must be only 1 "primary" unit. All other DIY Electrolytic Chlorine Generator units must be configured as "secondary".

{Diagram}

Pentair -Attach wires to opposite numbered screw terminals as shown below. Note that the colors marked on the Pentair PCB do not match the DIY Electrolytic Chlorine Generator.

{Diagram}

Polaris - Attach wires to proper screw terminals as shown below. Note that screw terminal "1" is marked on the Polaris PCB.

{Diagram}

Troubleshooting

You may also call for technical assistance at 888-921-POOL. Technicians at the factory are available from 8:00 AM to 8:00 PM Eastern time, Monday through Friday. Be sure to have the following information when you call:

1. Model and Serial # of control and cell
2. Date of installation
3. Installing Company or Dealer
4. Salt level

Diagnostic Displays Sequential pushes of the small "diagnostic" button next to the LCD display will cause the DIY Electrolytic Chlorine Generator to display the following information:

1. Pool temperature (xx degrees Fahrenheit or Celsius)
2. Cell voltage (typically 22.0 to 25.0 volts when chlorine is being generated, otherwise 30-35V)
3. Cell current (typically 4.50 to 7.80 amps when chlorine is being generated, otherwise 0 amps)
4. Desired Output % ("0P" -- "100P" depending on knob position or input from remote pool automation controller)
5. Instant salinity (-xxxx ppm or -x.xx grams/Liter)
6. Product name sent to the pool automation control display ("AL-0" which signifies "Aqua Rite")
7. Software revision level (r1.xx)

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 to the standard salt display.

Common Problems and Solutions

1. "Power" LED not on

Check to make sure either 120VAC or 240VAC input power is connected to the proper screw terminals at the DIY Electrolytic Chlorine Generator control. Verify input voltage with a voltmeter. If there is input power, the fuse may have blown. The DIY Electrolytic Chlorine Generator is protected by a 20 amp mini ATO fuse located on the circuit board above the cell connector.

2. "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 DIY Electrolytic Chlorine Generator will run at maximum output for the remainder of the current pump cycle or 24 hours, whichever comes first.

3. "No Flow" LED illuminated

The DIY Electrolytic Chlorine Generator 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 25cm (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.

4. "Check Salt" LED illuminated or flashing

Check salt level in pool/spa. If salt level is low, add salt according to chart on page 4.Before adding large quantities of salt, it is advisable to have your salt level professionally checked.

5. "HighSalt" 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.

6. "Inspect Cell" LED flashing

Inspect and clean DIY Electrolytic Chlorine Generator cell according to directions on page 8. When done, press the "diagnostic" button for 3 seconds to stop the "Inspect Cell" LED flashing.

7. "Inspect Cell" LED illuminated

Remove and inspect the DIY Electrolytic Chlorine Generator cell for scale. If the DIY Electrolytic Chlorine Generator cell is scaled, follow the directions on page 8 for cell cleaning. If the pool has the proper amount of salt and the "Inspect Cell" LED is still illuminated, the cell may be worn and need replacement.

8. Possible causes of little or no free chlorine residual

- DIY Electrolytic Chlorine Generator switch in OFF position.
-Desired Output % adjustment setting is too low.
-Low stabilizer (Cyanuric Acid).
-Filter pump time too short (8 hours for average size pools, more for large pools)
-Salt level too low (below 2500 ppm, Check Salt LED on).
-Salt level too high (High Salt LED on).
-Very warm pools increase chlorine demand--increase Output %, or filter run time.
-Cold water (below 50F) causes DIY Electrolytic Chlorine Generator to stop generating (Generating LED flashing).
-Excessive scaling on DIY Electrolytic Chlorine Generator cell.
-High level of Nitrogen in pool water.
-"Yellow Out" or similar treatment recently used. 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.

9. "-Pcb-" displayed and all 4 red/yellow LEDs are illuminated.

A possible Printed Circuit Board fault has been detected. Call for service.

Limited Warranty—Pool Automation & Chlorination Products 10/1/2004

This warranty statement is applicable to all pool automation and chlorination products manufactured by Goldline Controls, Inc. (Goldline) on or after October 1, 2004. See the appropriate warranty statement for other Goldline products or for pool automation and chlorination products produced prior to October 1, 2004.

Aqua Rite/Trol/Logic—Residential pools in USA or Canada:
Goldline warrants Aqua Rite, Aqua Trol, and Aqua Logic products (products with Goldline part numbers starting with AQ-RITE-, AQ-TROL-, AQ-LOGIC-, AQL-P-, AQL-PS-,or AQL-CL-) installed on private, residential swimming pools within the USA or Canada to be free from defects in material or workmanship, under normal use and service for five years from date of the initial system installation, provided it is installed in accordance with the Goldline installation instructions and specifications provided with the product. If written proof of the date of the initial system installation is not provided to Goldline, the manufacturing datecode on the Aqua Rite, Aqua Trol, or Aqua Logic electronics unit will be the sole determinant of the date of the initial system installation.

If a product is defective, in workmanship or materials and is removed and returned freight prepaid within three (3) years after the date of the initial system installation, Goldline Controls will, at its option, either repair or replace the defective product and return it freight prepaid. If the defective product is returned freight prepaid to Goldline more than three (3) years but within five (5) years of the date of the initial system installation, Goldline, at its option, will either repair or replace the defective product and will charge sixty percent (60%) of the current list price for such repairs or replacements, plus shipping charges. The costs incurred in removal and/or reinstallation of the product are NOT covered under this warranty.

Accessory Products and Replacement parts—any pools, anywhere: Goldline warrants any replacement parts or accessory products (any pool automation or chlorination product or part with a part number other than AQRITE-, AQ-TROL-, AQ-LOGIC-, AQL-P-, AQL-PS-, or AQL-CL-) to be free from defects in material or workmanship, under normal use and service for one year from date of the initial system installation, provided it is installed in accordance with the Goldline installation instructions and specifications provided with the product. If written proof of the date of the initial system installation is not provided to Goldline, the manufacturing date code on the product or part will be the sole determinant of the date of the initial system installation.

If a product is defective, in workmanship or materials and is removed and returned freight prepaid within one (1) year after the date of the initial system installation, Goldline will, at its option, either repair or replace the defective product and return it freight prepaid. The costs incurred in removal and/or reinstallation of the product are NOT covered under this warranty.

Warranty exclusions:
1. Material supplied or workmanship performed by others in the process of installation
2. Damage resulting from improper installation including installation on pools larger than the product rating.
3. Problems resulting from failure to operate the products in accordance with recommended instructions contained in product's owner's manual.
4. Problems resulting from failure to maintain pool water chemistry in accordance with recommended levels.
5. Problems resulting from tampering, accident, abuse, negligence, unauthorized repairs or alterations, fire, flood, lightning, freezing, external water, war, or acts of God.

THE EXPRESS LIMITED WARRANTYABOVE CONSTITUTES THE ENTIRE WARRANTY OF GOLDLINE CONTROLS, INC. WITH RESPECT TO ITS POOL AUTOMATION AND CHLORINATION PRODUCTS AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL GOLDLINE CONTROLS, INC. BE RESPONSIBLE FOR ANY CONSEQUENTIAL, SPECIAL OR INCIDENTAL DAMAGES OF ANY NATURE WHATSOEVER.

NO WHOLESALER, AGENT, DEALER, CONTRACTOR, OR OTHER PERSON IS AUTHORIZED TO GIVE ANY WARRANTY ON BEHALF OF GOLDLINE CONTROLS, INC. THIS WARRANTY IS VOID IF THE PRODUCT HAS BEEN ALTERED IN ANY WAY AFTER LEAVING THE FACTORY.

{Diagram}

Goldline Controls, Inc., A Hayward Company

N. Kingstown, RI 02852 USA
888-921-POOL (7665)