

SALTLOGIC SL MODELS - INSTALLATION AND MAINTENANCE MANUAL

AN INTRODUCTION TO SALT WATER CHLORINATION

- Salt water chlorination is the healthy alternative to chlorinating your pool; the natural way. Very simply, coarse salt is added to your pool to form a mildly saline solution. The salinity is kept at a pleasantly comfortable level, being typically one fifth or less than that of sea water.
- The system works by producing chlorine in the unique SALTLOGIC cell in low concentrations whenever the pump and filter is running, and as the filter runs for many hours of the day, the pool's total chlorine demand will still be met, even at these low concentrations.
- With the SALTLOGIC system, chlorine is produced by electrolysis of the pool water as it flows through the cell and returns to your pool.
- A unique advantage of the SALTLOGIC system is that the chlorine produced in the SALTLOGIC cell has no effect on your pool's pH, total alkalinity or calcium hardness, which is not the case with other chlorination methods, making it easier and less costly for you, the pool owner, to keep your water in balance.
- By chlorinating your pool this way, many of the problems associated with other chlorination methods, are eliminated. The process is effective, economical, and healthy and only requires minimum maintenance.

INSTALLATION INSTRUCTIONS

A) CONTROL BOX

- Mount the control box vertically, preferably out of direct sunlight and out of the direct path of garden sprinklers.
- The control box must be connected with the pool circulation pump electrical source, so that the cell can only operate when the pool pump is on. Failure to install the control box as per the aforementioned may invalidate your warranty.
- The 'A.C.' mains cable must be connected to the household supply in accordance with the regulations and requirements of the local electrical authorities. This must be undertaken or authorised by a registered electrician.
- The chlorinator 'earth' lead (green/yellow) must be connected to the 'earth bus' inside the distribution board (if provided), or in accordance with the earthing and safety requirements of the relevant aforementioned authorities.

B) CELL

- The cell must be installed in either a vertical or horizontal position and in such a manner as to create a "gas trap", as per the installation diagram on the packing sleeve. This is to ensure that any gasses formed in the cell during abnormal operating conditions cannot escape the cell. As the cell is a sealed unit it is necessary to install it with unions fitted at each end of the cell housing so that the cell can be removed from the return line as and when required. Two unions are provided for this purpose. In the event of the packing sleeve being lost or damaged the installation diagram is available on our website at www.saltlogic.com; www.saltpools.co.za
- The cell must be installed as the last piece of equipment in the pool return line, i.e., downstream of any receptacles, pool heaters, solar heaters and other equipment. There must not be any receptacles or pipe layouts where gasses in excess of two litres by volume, could accumulate.
- If the cell is to be installed below the pool water level, an isolating valve, (PVC ball valve or similar) should be fitted after the cell so that the cell can be drained and serviced as required. The pump suction line may also need to be isolated depending on particular site conditions.

SUGGESTED FILTRATION RUN CYCLES

- SALTLOGIC recommends operating your chlorinator for two cycles per day (an early morning and late afternoon cycle). These cycles are particularly necessary if the pool is not stabilised. Depending on the season, bather load and sunlight exposure, each cycle could vary from 3 - 6 hours, i.e., a total of 6 - 12 hours per day.
- If it is necessary to operate the chlorinator only during the daytime, then the addition of stabiliser is recommended.
- In winter, a single daily cycle of 3 - 5 hours should suffice.

Note: In extremely hot climates, or during periods of unusually hot weather, it may be necessary to super-chlorinate your pool once every 2 - 4 weeks. The chlorinator is provided with a "Super Chlorinate" feature in order to accomplish this.

CELL MAINTENANCE AND CLEANING

The cell incorporates a moulded-in strainer at the inlet to prevent any debris that may enter the cell, from fouling the electrodes. Although the chlorinator undergoes periodic polarity reversal in order to keep the electrodes free from scale, scale build-up may occur if calcium hardness exceeds 300ppm. Excessive calcium hardness levels may occur in areas of high water hardness or may be due to incorrect water balance.

The cell is moulded from clear plastic to facilitate visual inspection. Inspect the cell periodically and clean when necessary.

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TO CLEAN YOUR CELL PROCEED AS FOLLOWS

- Turn off mains power to the chlorinator, and turn the multiport valve to the “closed” position.

TO REMOVE THE CELL

- Unscrew the two unions and remove the cell assembly. It should not be necessary to disconnect the cables.
- Carefully remove any debris (if any) from the strainer by hand, or by flushing with a hosepipe. If a hosepipe is used, and the cables have been disconnected from the cell, take time to seal off the cable connections so that they do not become contaminated with water.
- It is recommended that protective rubber gloves are worn when mixing or decanting pool acid.
- Make up a cleaning solution of 10 (ten) parts water to 1 (one) part pool acid (HCl) in a suitable plastic container or jug of sufficient volume to completely fill the cell. Always add the acid to the water and never the other way around.
- Block off one end of the cell housing and stand the cell up vertically. A 50mm union is useful to effect this.
- Pour the cleaning solution into the cell housing until the electrodes are completely submerged and allow to stand for a while.
- When the electrodes are clean, (approx. 5 - 15 minutes) discard the cleaning solution in compliance with any regulatory body regulations that may govern the disposal of waste products and rinse the electrodes with fresh water.

REPLACING THE CELL

- Make sure all contact surfaces are clean and then replace the cell in the pool return line.
- Refit the cell power cables if they have been disconnected for any reason.
- If the chlorine output has been set to the 'OFF' position, reset to the position prior to cleaning.
- Turn the multiport valve back to the “filter” position.

SALT REQUIREMENTS AND CALCULATIONS

- High purity salt is recommended. Iodated salt is NOT suitable.
- Remember; higher salt concentrations = longer cell life and higher chlorine output.
- Lower salt concentrations = reduced cell life and poor chlorine output.
- The “low salt” light will illuminate when salt concentration drops to approximately 0,4%. Always keep your salt levels above 0,5% for best performance.

ADDING SALT TO YOUR POOL

- Adding salt may be needed from time to time to maintain an optimum salt level.
- Use a salt test strip to determine the salt level in the pool water prior to adding any salt.
- Use the table below to calculate the quantity of salt required to adjust the pool salt concentration.

Current Salt Concentration%	Pool Volume, litres					
	Pool Volume = Length x Width x Average Depth (usually 1.2-1.4 meters)					
	25000	50000	75000	100000	125000	150000
0	125	250	375	500	625	750
0.1	100	200	300	400	500	600
0.2	75	150	225	300	375	450
0.3	50	100	150	200	250	300
0.4	25	50	75	100	125	150
0.5	0	0	0	0	0	0

KG of salt needed to raise salt concentration to 0.5%.

- When adding salt, place the unopened bags on the stair area of your pool, with some black refuse bags underneath them to prevent staining.
- Check salt levels once a month, more frequently in rainy weather, and adjust accordingly.

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WATER CHEMISTRY

The industry standards for pool water are as follows:

WATER BALANCE	GUNITE	FIBREGLASS
Free chlorine ppm	1.0 – 3.0	1.0 – 3.0
pH	7.2 – 7.8	7.0 – 7.6
Total alkalinity ppm	80 - 120	110 - 150
Calcium hardness ppm	150 - 300	90 - 180
Stabilizer ppm	40 - 60	40 - 60
Salt concentration %	0.5 – 0.7	0.5 – 0.7

Maintain your pool in accordance with these standards.

REGULAR POOL MAINTENANCE CHECKS

WEEKLY:

- Visually check the cell electrodes. Only if necessary, remove the cell and flush with a garden hose to remove any debris that may have passed through the filter and lodged in the cell housing. Avoid inserting objects into the cell which can scratch or bend the cell plates.
- Check the free chlorine.
- Check the total alkalinity. Adjust if necessary.
- Check the pH of the water. Adjust if necessary.
- Check the pressure gauge on the filter to see if backwashing is necessary.

MONTHLY:

- Check the salt concentration of the pool. Adjust if necessary.
- Check the chlorine stabilizer level. Adjust if necessary.
- Check for calcium scale formation and clean when necessary.

SALTLOGIC CONTROL BOX OPERATION AND SETTINGS

- **“POWER ON” LIGHT:** The control box is receiving power.
- **“CELL ON” LIGHT:** The cell is receiving power.
- **“LOW SALT” LIGHT:** Salt levels are below 0,4%. Have the salt level tested and adjust to 0.5% to ensure adequate levels of chlorine are produced and to avoid foreshortening the life of your cell.
- **“SHUTDOWN” LIGHT:** This light will come on under certain conditions and indicates excessively high resistance at the cell. When this light is illuminated the chlorinator has shut-down power to the cell and an audible alarm is sounded. Turn the chlorine output dial to MIN to cancel the alarm and perform the following checks in sequence to find the cause of the fault:
 1. Check that the cable connections to the cell are tight and that the cables are not damaged.
 2. Check the cell for calcium scale formation and clean if necessary.
 3. Have the salt level tested and if low add the required amount of salt to bring the level up to approximately 0,5%. If the cell is still serviceable normal chlorinator operation should ensue. Don't forget to reset the chlorine output dial! If on start-up the low salt light comes on and 30 seconds thereafter shutdown again ensues, the cell requires replacing.
- **“NO FLOW” LIGHT:** There is no flow, or insufficient water flow for normal cell operation. The power supply will shut down in this event and will only resume normal operation once adequate flow is restored. This light may come on during backwashing, closed valves on either the pump suction or outlet, blockage or restriction within the automatic pool cleaner or skimmer basket, or due to any other possible causes of low or no flow conditions.
- **“CHLORINE OUTPUT”%:** Begin with your chlorine output set on 50%. Check your chlorine residual levels periodically to ensure your pool is being adequately sanitised. Chlorine levels should be kept in the 1 - 3 ppm range. Adjust the output select dial up or down accordingly.

The chlorinator adjusts total chlorine output by switching the cell on and off during 15 minute intervals in proportion to the percentage setting of the chlorine output dial. For example, at 50% setting the **“CELL ON”** light will be on for 7 1/2 minutes and off for 7 1/2 minutes and will repeat this cycle for the duration of the current chlorinator/pump run time.

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CHECKLIST WHEN PROBLEMS OCCUR

Problem	Possible Cause
Chlorine Residual Low or Nil	<ul style="list-style-type: none"> • Insufficient running times • pH too high or low • Strong sunlight and low conditioner levels • Poor circulation • Heavy bather loading • Low chlorine production
Chlorine Production Low or Nil	<ul style="list-style-type: none"> • Low salt levels • Scale build up on the cell • Faulty circulation • Algacide addition within the last 2 to 3 weeks • Cell leads incorrectly connected • Debris levels in the pool too high • Cell too old and worn out
Chlorine Levels High in Mornings and low at Night	<ul style="list-style-type: none"> • Heavy bather loadings • Extreme sunlight conditions • Insufficient pool conditioner levels
pH Alters Rapidly and Easily	<ul style="list-style-type: none"> • A low total alkalinity level in Marblesheen, pebble or tiled pools • Contamination with debris especially urine could be another cause
Poor Circulation	<ul style="list-style-type: none"> • Dirty and clogged filter • Hair and link baskets full of leaves at the skimmer boxes or pump • Faulty pump • Water level is low or cell is clogged with scale
Short Intervals Between Backwashes	<ul style="list-style-type: none"> • Ineffective backwashing • Body fat or oil build-up on pads. With Diatomaceous earth filters the cause may be insufficient diatomaceous earth over the pads
Cloudy Water	<ul style="list-style-type: none"> • Insufficient filtration times • Holes in the filter pads • High pH • Pool walls need brushing • Main drain not working • Algacides have been added in the last few weeks, or • Bather load too great for filtration and chlorine times
Low Salt Level	<ul style="list-style-type: none"> • The result of splash out by bathers • Heavy overflow from rain or accidental filling of the pool • Topping up because of pool leaks or from excessive backwashing
Appearance of Stains	<ul style="list-style-type: none"> • Low chlorine levels • High pH levels • Poor circulation • Infrequent brushing of the pool walls • Incorrect total alkalinity
Algae Formation and High Chlorine Levels	<ul style="list-style-type: none"> • The pH is over 7,4 or • The pool conditioner level is too high
Frequent Cell Cleaning	<ul style="list-style-type: none"> • Hard bore waters being used • Incorrect total alkalinity levels in marblesheen, pebble or tiled or heated pools • pH levels may also be too high • Prior to the CHLORINATOR and currently, are you still adding powered chlorine?

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CONTROL BOX OPERATION AND INDICATOR LIGHTS

INDICATOR LIGHTS					CAUSE	ACTION
POWER ON	CELL ON	LOW SALT	SHUT-DOWN	NO FLOW		
		-	-	-	Normal operation	No action is required
			-	-	<ol style="list-style-type: none"> Low salt level. Low water temperature <15°. Calcium scale build-up on the electrodes. Cell is at the end of its life. 	<ol style="list-style-type: none"> Have salt level checked and adjust to 0.5% It is normal for the "CHECK SALT" light to come on at low water temperatures (<15°) even if salt concentration is 0.5% and this is not a fault. Set the "CHLORINE OUTPUT" control to 50% or lower if water temperature is <15°. De-scale cell. Replace cell.
	-	-		-	<ol style="list-style-type: none"> Damaged cell cables. Cell cables are disconnected. Very low salt level. Cell requires replacing. 	<ol style="list-style-type: none"> Replace cell cables. Reconnect cables. Check salt level and adjust to 0.5%. Replace cell.
	-	-	-	-	Normal operation, cell is off for the required time.	No action is required.
	-	-	-		<ol style="list-style-type: none"> Gas in cell or no water flow. Flow/gas sensor is disconnected. Cable damaged. 	<ol style="list-style-type: none"> Locate cause of low or no water flow and rectify. Reconnect flow/gas sensor. Repair sensor cable.
	-	-	-	-	"CHLORINE OUTPUT" set to "MIN"	