OPERATION MANUAL

For the consumer

resilience

Model: 305PX

June 2019

This is an installation manual for qualified installers; a separate operating manual is included for the homeowner.

solaxx
WATER TREATMENT SOLUTIONS
An AWG Company

MET US
UL 1081

35405035

IMPORTANT SAFETY INSTRUCTIONS

Read and follow all instructions:

All electrical work must be performed by a licensed electrician and conform to all national, state, and local codes. Improper use or installation can badly harm the unit and its surroundings. When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

DO NOT OPEN THE DISPLAY COVER OF THE BOX – NOT A SERVICABLE UNIT

- Disconnect all AC power before installation.
- **WARNING** – To reduce the risk of injury, do not permit children to use this product.
- The Control Box must be mounted **vertically** on a flat surface and at a minimum horizontal distance of 5 ft (1.5m) (or more, if local codes so require) from the pool/spa.
- **WARNING Risk of electric shock**! Connect only to a grounding type circuit protected by a ground-fault circuit-interrupter (GFCI) outlet. The installer should provide this GFCI requirement. The GFCI should be rated for minimum 6 Amps and tested on a regular basis by pushing the test button. If the GFCI fails to operate correctly, there is ground current flowing indicating the possibility of electric shock. Do not use this unit. Disconnect unit and have a qualified professional correct the problem before using.
- The Input circuit (LN1 & N/LN1) must be connected only after OVER CURRENT DEVICES, such as fuse or circuit breaker to limit the amperage in the input wire to the maximum that is permitted by the National Electrical Code.
- The Unit must be permanent connected, with copper wire, not less than 14 Awg (1.5 mm).
- Wiring of the unit must be performed according to the wiring instructions on the Installation manual for Certified Professional.
- A build-up of flammable fumes can result in a hazardous condition if the cell is allowed to operate without flow. This device must be operated only with an approved in- line flow sensor.
- The Flow Sensor must be installed between the last piece of apparatus and the Cell.
- Ensure that equipment and materials used in or around the pool and spa are compatible with salt-based sanitation systems. Certain materials may be susceptible to salt and chlorine damage.
- ALWAYS ADD ACID TO WATER, NEVER WATER TO ACID.
- Make sure the pool's machine room is properly vented to avoid damage from acid vapors.
- Under no circumstances should the machine room be used to store equipment, furniture, sports gear or any other equipment that is not related to the pool including spare acid containers. The machine room must be aired and vented prior to entering it.
- Acid container must be stored inside a spill containment vessel (a basin to hold acid in case of overflow or tipping of the acid container).
- SAVE THESE INSTRUCTIONS.

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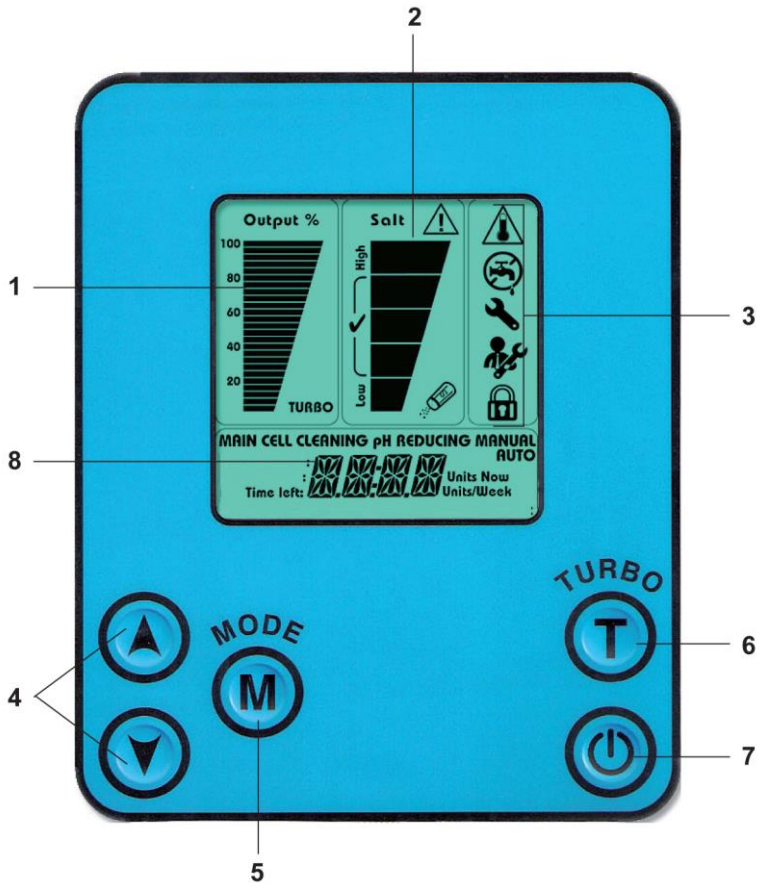
WELCOME

Congratulations on the purchase of your new Resilience D Natural Chlorine Generator. Your purchase will minimize the efforts needed to maintain your pool and maximize your enjoyment for many years. Before installation or operation, please read these instructions carefully. This manual contains easy to follow step-by-step procedures to properly operate your system. A little time spent understanding your system and its functions will assure successful, trouble-free operation. If you are unsure about any of the information in this manual please contact your installer, dealer or feel free to contact us directly.

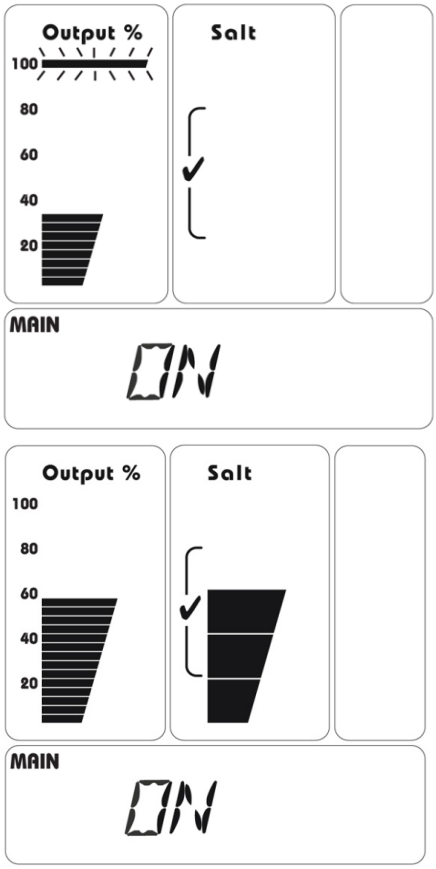
OPERATING INSTRUCTIONS



1. Chlorine output display
2. Salinity bar
3. Special icons
4. Up/Down buttons
5. Mode button (confirm)
6. Turbo button
7. ON/OFF
8. Numerical display

BASIC OPERATION

1. Ensure that the main circulation pump is on.
2. Press the ⏻ button.
3. Adjust the chlorine production level using the ▼ or ▲ buttons.



Wait up to 1 minute for the system to test and display the output % and salinity readings. A blinking bar in the "output %" area shows the amount of chlorine the system is trying to produce, while the solid bars show the amount of chlorine the system is actually producing.

TURBO SETTING

Pressing the Turbo button starts turbo operation. The unit goes to 100% output for the adjusted time interval; the Turbo icon starts flashing.

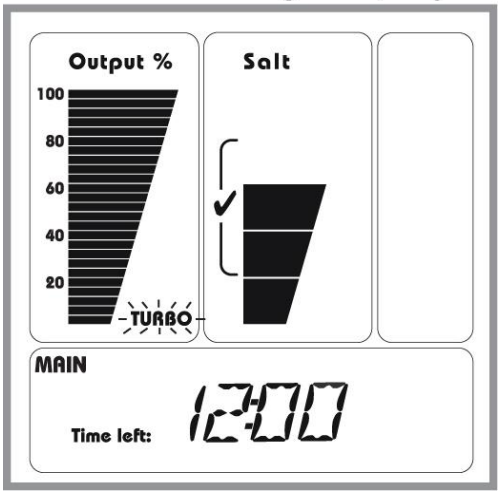
The default turbo setting is 12 hours. To increase the turbo setting in 12 hour intervals, press the Turbo button one/two more times just after the first press. Then you may set the turbo time for 24, 36, 48, 60 or 72 hours.

The unit starts a Turbo time counter. The turbo counter is displayed on the numerical display.

Pressing ▲ or ▼ allows extending or shortening the Turbo time in intervals of minutes.

Minimum 0 and Maximum 72 hours values are accessible (use the same method of short and long pushes on the ▲ and ▼ buttons).

Turbo Setting Display



Cancelling Turbo Setting –

To cancel the adjusted Turbo setting you may do one of the following actions:

1. Wait for 5 seconds and press the Turbo button again. Verify that the Turbo icon stops blinking.
2. Turn the unit ON and OFF using the ON/OFF button.
3. During the first 5 seconds of Turbo adjusting procedure, press the Turbo button several times until the countdown display goes from 72 hours to 00:00.

Turbo mode additional information –

- Counting is performed only when the unit is ON.
- During the first 5 seconds in Turbo screen, additional presses on the Turbo button increases the timer in increments of 12 hours with each press: 12, 24, 48, 72 or 0 hours.
- Cancelling the Turbo option reverts back to the previous output selection.
- Pressing the Mode button while Turbo is on, allows changing between screens, while the Turbo icon continues to blink.
- If Turbo mode is activated, the numerical display in the main screen shows the turbo timer and not the word ON.
- Power rises to 100%. In case of low salinity, the reading is similar to low salinity condition (i.e. the maximum output might be 60% so the blinking bar will show 100% setting and the solid output bar will show 60%).

SALT READOUT

Normal salt level

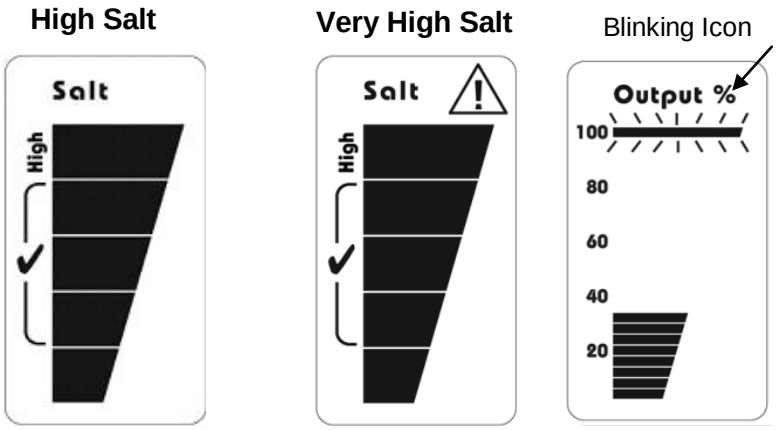
Salt level is normal when the salt level bar is in the "✓" area.

NOTE: the salt readout takes up to one minute to test and display the salt level.

High salinity indication

The system safely operates in up to 6,500ppm of salt, but the "High" salt indications illuminate to warn against adding more salt. If the High salt indicators stay on, a pool professional should test the water and dilute it as necessary.

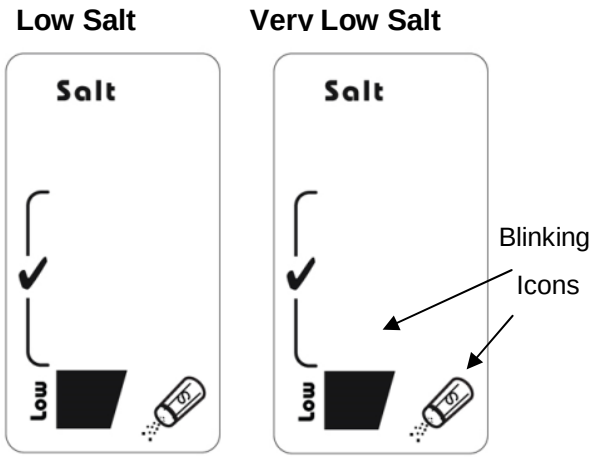
CAUTION: Check with your local pool professional prior to draining or diluting the pool.



Low salinity indication

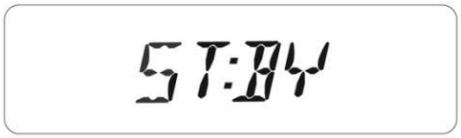
Scaling or coating of the cell blades affects the salinity readout. Insure the cell is clean, then have the pool water tested by a pool professional and adjust the salt level to 3000-4000ppm. See the "**Adding the Salt**" section of this manual.

The system safely operates in low levels of salt, but its ability to produce chlorine decreases as the salt level drop below 3000ppm. A blinking bar in the "Output %" area shows the amount of chlorine the system is trying to produce, while the solid bars show the amount of chlorine the system is actually producing.



Standby Mode

When the main circulation pump turns off, the system automatically goes into standby mode. This is a safety action that prevents chlorine production without flow to the chlorinator cell. Automatic cell cleaning is executed during the standby mode. See "**Dosing acid pump Functions**" section of this manual.



Pool cover function / AUX MODE (for use with automated retractable covers)

The unique pool cover function enables the chlorinator to reduce the chlorine output while the pool is covered. When the pool cover is closed, the chlorinator will automatically reduce its chlorine output to 20% from the maximum level and an "AUX" sign will appear on the numerical display.

Pressing or buttons while the system is in "AUX" mode permanently sets a new output values to the unit for operation when the pool is covered.

For example: the default setting is 20%, but when the pool is covered you may change the default setting to 40%. The setting will return to 40% the next time the pools is covered. In order to activate this function, make sure that the chlorinator unit is getting a "closed" contact from the pool cover control when the pool is covered.

ACID DOSING PUMP FUNCTIONS

If you purchased an acid dosing pump, your system can automatically reduce pH levels and wash the cell.

The pH reducing modes enable the system to reduce pH levels by periodically infusing small amounts of acid into the pool. More acid units bring pH levels down.

PH REDUCING MODES

Ensure the circulation pump is ON, the press the (M) button to enter the "pH Reducing: Auto".

pH reducing: Auto

Press the ▼ or ▲ buttons to adjust the amount of acid to infuse into the water each week

(e.g. 5 units/week).

1 Unit ≈ 2.5 oz (70 cc).

To eliminate this function, set the "Units/Week" to 0.

pH reducing: Manual

Use the ▼ or ▲ buttons to infuse the desired number of acid units immediately (e.g. "3 Units Now").

1 Unit ≈ 2.5 oz (70 cc).

To eliminate this function, set the "Units Now" to 0. Turning off the circulation pump also cancels this manual acid infusion.

CELL CLEANING MODES

The acid dosing pump ensures the cell remains clean by automatically washing it with acid when the circulation pump if off. The factory preset (Level 9) allows a cell wash after the circulation pump logs at least 6 hours of run time. A small amount of acid is used, so this cleaning function has little influence on the pH level in average pools. In small bodies of water or in acidic environments, the automatic cleaning should be rescheduled less frequently.

Adjust frequency of the Automatic cell cleaning

Turn the circulation pump OFF to get to standby mode.

Press the M button to get to the "**Cell Cleaning Auto**" mode.

Use the ▼ or ▲ buttons to adjust the cleaning level (e.g. Level 3).

LVL 0 = No cleaning; LVL 9 = most frequent cleaning.

Initiate immediate cell cleaning

Turn the circulation pump OFF to get to standby mode. Press the M button to get to the "**Cell Cleaning Manual**" mode.

Use the ▼ or ▲ buttons to adjust the strength of the cleaning (e.g. Level 3).

LVL 1 uses 1 unit of acid; LVL 4 uses 4 units of acid.

1 Unit ≈ 2.5 oz (70 cc).

Turning the circulation pump ON cancels this manual cleaning function.

If the cell is heavily calcified, the cleaning process can take more than 3 hours. If the cell remains calcified, purge it out by turning the circulation pump on for a few minutes, and then repeat the cleaning function.

NOTE: Regularly check the integrity of the container, the integrity of the suction tube, and the acid level in the container.

MAINTENANCE

POOL BALANCE

The following chemistry levels must be monitored and adjusted regularly. They significantly affect the system's ability to maintain pure healthy water as well as the bathers comfort and safety.

Factors	Ideal levels
Salt	**3000 – 4500 ppm**
Free Chlorine	**1 – 3 ppm**
pH	**7.0 – 7.6**
Total alkalinity	**80 – 120 ppm (depending on the saturation index)**
Stabilizer (a.k.a Cyanuric acid or conditioner)	**20-60 ppm**
Calcium Hardness	**100-400**
Saturation index	**-0.3 to 0.3 (0 is ideal)**

FILTRATION

Proper filtration is critical for maintaining clean healthy water. It is customarily required in the pool industry that all the water in the pool pass through the filter at least one and a half (1½) times per a day (at least eight hours in most pools) and that the run time should be during the strongest sunlight hours.

During very heavy use, the filter run time should be increased. If needed, the filter circulation pump and chlorine generator may be run continuously.

Inadequate filtration reduces water clarity and causes harder work for the generator.

Factors such as sunlight, bathers load, debris, chemical imbalance and water temperature increase the amount of chlorine needed to keep water clean and safe.

WINTERIZING

Just like the pool plumbing, freezing may damage the system Cell and Flow Sensor. If severe or extended periods of freezing temperatures are possible, drain all the water from the pump, filter, cell, supply and return lines before any freezing conditions occur.

SPRING STARTUP

DO NOT turn on the system until the pool water chemistry has been brought to required levels!

CELL MAINTENANCE

The clear cell body allows easy, regular inspection for scale and calcium build up. Monthly inspection and cleaning of the cell will prolong its life span. The cell **MUST** be visually inspected **every month** for scale build up (white flakes or crust on or between the plates) and cleaned. Cleaning the cell does not damage it! If in doubt, the cell should be cleaned. **Warranty does not cover cells with scale!**

Cell cleaning

CAUTION – do not use metal or other hard objects to clean the cell.

DO NOT insert anything into the cell.

Both actions detailed above may scratch the precious coating on the plates and void the warranty.

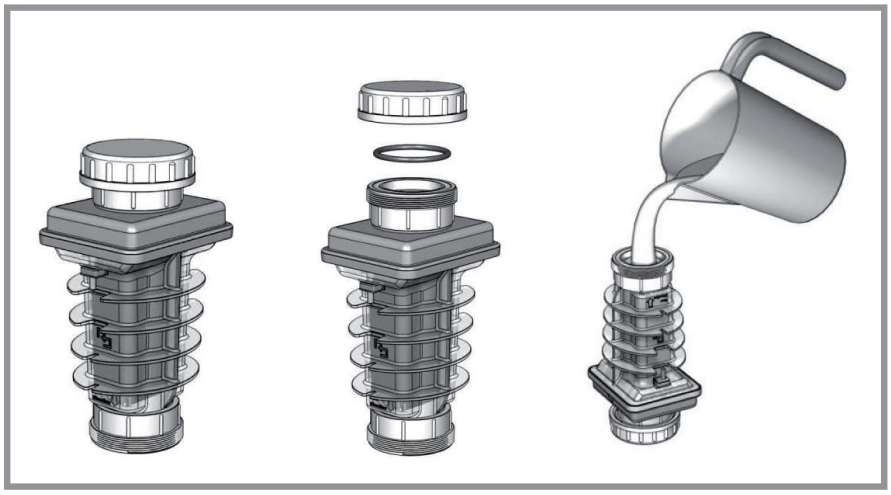
Always add acid to water NOT water to acid.

Diluted muriatic acid solution = 1 part acid to 10 parts water.

Follow the instructions of the acid manufacturer.

Cleaning using the cleaning cap

1. Disconnect the wires connecting the control box to the cell.
2. Remove the cell from the line by unthreading the barrel unions from the cell ends.
3. Remove the black O'ring on one end of the cell.
4. Attach the cell cleaning cap to the other end of the cell.
5. Pour into the cell, either undiluted white distilled vinegar, or a solution of diluted muriatic acid (one part muriatic acid to 10 parts water).
6. Wait for foaming to stop (5-10 minutes when using muriatic acid; vinegar takes longer).
7. Safely dispose of the acid solution by pouring it into your pool.
8. Rinse the cell with water hose.
9. Put the O'ring back in place and re-install the cell in the line.
10. Reconnect the wires from the control box to the connectors at the sides of the cell **until they "click" together**.



SALT LEVELS SETTINGS

BEFORE ADDING THE SALT

1. **Balance the chemicals**: See the section titled "Understanding the chemistry" on page 16 for recommended water balance. This will ensure that the transition to the natural chlorine generator system is quick and reliable.
2. **New Pools**: wait 30 days or longer if specified by your pool builder, for plaster to cure before adding salt or operating the natural chlorine generator.
3. **Biguanide Pools:** if installing the system in a pool that has Biguanide sanitizers, all Biguanide must be removed prior to system startup.
4. Now that your new controller has been physically installed, water chemistry should be tested and adjusted prior to initiating automated control of the pool. Check that your pool water conforms to the following ranges before powering on and setting up the Resilience D Plus.

IMPORTANT! It is compulsory to control and adjust water balance parameters **BEFORE** operating the system.

Parameter	Value
Salt	3000-4500
pH	7.0-7.6
Free Chlorine (ppm)	1-3
Stabilizer - Cyanuric Acid (ppm)	20-60
ORP (mV)	650-850
Total Alkalinity	80-120
Calcium Hardness	100-400

ADDING THE SALT

1. Measure the pre-existing salinity of your pool. Previous chlorine use may cause the salinity reading to be higher due to residual salt in the chlorine.
2. Determine how much salt is needed from the Salinity Demand Table on the page 15. This table is based on a salt concentration of 4000 ppm (approximately ⅓ %). More may be added for larger pools (e.g. 4500 ppm).
3. Keep the circulating pump on.
4. Distribute the determined amount of salt evenly around the pool. To avoid clogging the filter or damaging the control box and pump, do not add salt through the skimmer or surge tank. Brush the bottom to help dissolve the salt.
5. The readout on the chlorine generator may fluctuate until the salt is fully dissolved.
6. Turn the control box OFF. **Failure to do so will cause the fuse to blow**.
7. Keep the pump on to circulate the water.
8. Distribute the required amount of salt evenly around the pool. It will take about 8 hours for the salt to disperse evenly in the water.
9. Once the salt has fully dissolved, adjust the chlorinator to the desired setting.

Calculating the size of the pool

	Gallons (dimensions in feet)	**Liters** (dimensions 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.	7Length X Width X Average Depth X 893

What type of salt should I use?

Good	Bad – do not use!
The best salt is an evaporated, granulated pool salt	Iodized salt
99.9% pure salt	Salts with more than 1% anti caking agents (e.g. yellow prussiate of soda or sodium ferrocyanide) – because they contain iron and will yellow the fittings. These anti caking agents are commonly found in water softener salts
	Rock salt – because of the dirt mixed with the rock salt
	Calcium chloride- is not a salt. Use only sodium chloride

Salinity demand table (in lbs.)

Salt level before addition (in ppm)

Water volume in thousands of Gallons	0	500	1000	1500	2000	2500	3000	3500	4500
	How much salt to add (in pounds)								
4	117	100	83	67	50	33	17	0	OK
6	175	150	125	100	75	50	25	0	OK
8	234	200	167	133	100	67	33	0	OK
10	292	250	209	167	125	83	42	0	OK
12	350	300	250	200	150	100	50	0	OK
14	409	350	292	234	175	117	58	0	OK
16	467	400	334	267	200	133	67	0	OK
18	525	450	375	300	225	150	75	0	OK
20	584	500	417	334	250	167	83	0	OK
22	642	550	459	367	275	183	92	0	OK
24	701	600	500	400	300	200	100	0	OK
26	759	651	542	434	325	217	108	0	OK
28	817	701	584	467	350	234	117	0	OK
30	876	751	626	500	375	250	125	0	OK
32	934	801	667	534	400	267	133	0	OK
34	992	851	709	567	425	284	142	0	OK
36	1051	901	751	600	450	300	150	0	OK
38	1109	951	792	634	475	317	158	0	OK
40	1168	1001	834	667	500	334	167	0	OK
42	1226	1051	876	701	525	350	175	0	OK
44	1284	1101	917	734	550	367	183	0	OK
46	1343	1151	959	767	575	384	192	0	OK
48	1401	1201	1001	801	600	400	200	0	OK
50	1460	1251	1043	834	626	417	209	0	OK

Locate the current salt concentration at the top of the chart (e.g. 1000 ppm).Then locate the size of your pool on the left (e.g. 12,000 gallons). Run these figures down and across until they meet. That number is the number of pounds of salt required for your pool.

UNDERSTANDING THE CHEMISTRY

The table shows the recommended balance levels followed by a more detailed explanation of the factors affecting the water chemistry. Maintaining these levels ensures maximum enjoyment of the pool. You should test your water periodically. If the water chemistry needs adjustment, your authorized dealer or most pool stores can supply you with the appropriate chemicals and procedures. We recommend either taking a copy of the Water Balance Table to the pool store, or notifying the pool store that you are using Magen eco-Energy's natural salt chlorine generator (model PSC5).

Factors	Ideal levels
Salt	**3000 – 4500 ppm**
Free Chlorine	**1 – 3 ppm**
pH	**7.0 – 7.6**
Total alkalinity	**80 – 120 ppm (depending on the saturation index)**
Stabilizer (a.k.a Cyanuric acid or conditioner)	**20-60 ppm**
Calcium Hardness	**100-400**
Saturation index	**-0.3 to 0.3 (0 is ideal)**

Salt is the source of the Natural Chlorine. The ideal salt level to ensure maximum benefits using our system is 3500 ppm (parts per million). A lower concentration of salt may hinder the generator effectiveness. A concentration of salt above 5500 ppm may cause corrosion damage to the pool fixtures. See the "Adding salt" chapter, on page 14 for more information.

Free Chlorine vs. Combined Chlorine: The unpleasant smells and side effects often associated with chlorine are actually caused by combined chlorine (e.g. chloramines). Combined chlorine is a chlorine molecule that attacks a noxious particle in the water but is unable to destroy it. This chlorine particle remains attached to the noxious particle until one of the two is burned off; hence the term Combined Chlorine (a.k.a chloramines). To burn off the noxious particle and free up the chlorine again, pool owners have to periodically shock (with chlorine) the pool. In the natural chlorine generator the noxious particle is burned off within the generator cell and the combined chlorine is continuously converted back to free chlorine.

The free chlorine level in the pool should be maintained at 1 to 3 ppm. This level of free chlorine is comfortable to swim in with no unpleasant smells, and maintains proper sanitizing. Ideal ORP levels range from 650 to 750 mV.

pH is a measure of the acidic or basic solution. A scale of 0 to 14 is used to measure pH. Pure water has a pH of seven (neutral), acid solution have a pH of less than seven, and basic (alkali) solutions have a pH of more than seven. The recommended range is 7.2 to 7.6; chlorine is much more effective within this range and the water is most comfortable for bathers. **pH levels above 7.8 drastically reduce the effectiveness of the chlorine.**

To lower the pH, add muriatic acid or dry acid. Be sure to read and follow the respective manufacturer's instructions.

Total Alkalinity mitigates changes in pH. It is often referred to as the "big brother of pH". Keeping proper levels of total alkalinity helps reduce unwanted fluctuations in pH levels. Total alkalinity is also used to offset high or low levels of calcium hardness.

Add muriatic acid or dry acid to lower the total alkalinity and sodium bicarbonate to raid the total alkalinity. Be sure to read and follow the respective manufacturers' instructions.

Stabilizers (Cyanuric Acid or Conditioner) is necessary in most outdoor pools to maintain appropriate levels of chlorine. Chlorine stabilizer helps provide an appropriate residual chlorine level in the water. Without stabilizer, UV radiation from the sun will destroy most chlorine within 2 hours, but excessive amounts of stabilizer can decrease the effectiveness of chlorine. Chlorine stabilizers should be maintained at 60 ppm to offset the harmful effect of the sun while maintaining the effectiveness of the chlorine. Where pH/ORP automatic sensors are used, 40 ppm of stabilizer suffices.

Phosphates and Nitrates set very high demands on chlorine; most nitrates and phosphates often bring the chlorine level down to zero (0). You can have your water tested for nitrates and phosphates by a local professional. **Your pool should NOT contain Nitrates or Phosphates.** To reduce Phosphate levels, use a phosphate remover from your local pool professional. To reduce Nitrate levels, the pool must be partially or fully drained. Please check with your local professional prior to draining the pool.

Metals can cause loss of chlorine and can stain your pool. If a water test reveals the presence of metals, refer to your local pool professional for recommended methods of removal. Be sure to use a phosphate-free metal remover to avoid replacing a metal problem with a phosphate problem.

Calcium Hardness, like pH and alkalinity, affects the water tendency to be aggressive or scale forming. Lower levels of calcium hardness improve the chorine generators' ability to stay clean and provide softer silkier water for the swimmers. Check with your local pool professional for proper calcium levels for your pool surface.

Total Dissolved Solids (TDS) is a measure of many types of dissolved materials, including salt. High effective TDS levels (e.g. 1500 ppm and up) cause cloudy water and significantly increase chlorine demand.

To obtain the effective TDS level in a pool using a salt system, subtract the salt level from the TDS reading (e.g. 5000 TDS – 4000 salt = 1000 effective TDS).

TROUBLESHOOTING

NOTE: Evaluating the possible causes for each problem from top to bottom (first to last) will void extra labor.

Problem	Possible Causes	What to do
Chlorine level is low	• System is turned off	• Turn the system on to the desired setting
	• Output level too low in relation to chlorination demand (e.g. higher number of bathers, warmer weather, increased debris in pool)	• Increase output setting and/or increase pool pump operation time
	• Low salt level	• Check the salinity level (see the "salinity readout" chapter) adjust accordingly
	• Pump operation time is too short	• Run the pump at least eight hours per day (1.5 turnovers of all the pool water) or more if necessary
	• Low stabilizer (cyanuric acid)	• Check water chemistry; stabilizer should be 60-80 ppm. If low, add stabilizer (see "Understanding the Chemistry" chapter)
	• High phosphate levels	• Check phosphate levels at your local professional and reduce to below 100 ppb
	• Chemical imbalance	• Check other chemistry and balance chemicals (see "Understanding the Chemistry" chapter)
Green Pool	• Chemical imbalance	• See "chlorine level low" above
	• Chemical imbalance, dirty filter	• Have water tested by a pool professional, clean filter
LCD is totally OFF – No power	• System is turned off	• Turn the system on to the desired setting
	• Breaker activated	• Check the breaker leading to the pool control
	• Power wires cut, disconnected or incorrectly wired	• Check for correct wiring (see "Installation manual for certified professionals")
	• Other malfunctions in control box	• Contact customer service
Flow icon turn on and off (blinking)	• Normal at initial start-up or if air bubbles are in the pipes	• Wait a few minutes for air to release. If continuous, check plumbing to see if air enters the system in any way

Problem	Possible Causes	What to do
Flow icon is on and NO FLOW message appears in the numerical display	• Insufficient water flow from pump to flow sensor and cell	• This is normal if there is air in the lines or for a few minutes at initial startup • Clean filters and strainers • Check for closed valves, pump cavitation, faulty pump etc'
	• Obstruction or lime-scale build up in cell	• Clean cell according to instruction manual (see "maintenance" section of this manual)
	• Flow sensor was not installed in the correct direction	• Turn flow sensor so arrow faces direction of water flow
	• Flow sensor is not fully threaded into the Tee connector	• Fully thread the Flow sensor into the Tee connector. Be careful not to damage the wires or sensors.
	• Cut wires or insufficient wire connections	• Check the connection to ensure proper wire contact
Output bar lights but does not reach 100%	• Output bar set too low	• Push the ▲ button to set the output level to a higher setting
	• Dirty cell	• Check the cell to ensure that the blades are in good condition and not coated with calcium buildup. Cleaning the cell is recommended if it is calcified or if the readout seems questionable. See "cell cleaning" in the "maintenance" chapter
	• Poor connection of quick connectors	• Check for debris inside the connectors. Ensure that the quick connectors are connected
	• Low pool water temperature	• In cold water (lower than 80 ^{O}F) the salt meter may indicate a lower salinity level. This is normal
	• Not enough salt due to heavy rain, initial miscalculation etc'	• Add salt to the pool. See :"Adding salt" chapter for more information • It is recommended to periodically test the salt level by a professional and adjust according to the salinity demand table in this manual
	• Worn cell	• If none of the above resolves the problem the cell may be worn out.

Problem	Possible Causes	What to do
Salinity high	• Salinity high - Enough salt has been added causing the red light above the power meter to light	• This does not harm the natural generator, but simply indicates that the salt level is high • It is recommended to periodically test the salt levels by a professional. If above 5000 ppm, it is recommended to drain part of the pool water and refill with fresh water (please check with your local pool professional prior to draining the pool)
	• Salinity is very high - Too much salt has been added causing the high salinity icon to light up	• The salt level in the water is very high. Drain part of the water and refill the pool to bring the salinity levels down. • It is recommended to periodically test the salt levels by a professional. If above 5000 ppm, it is recommended to drain part of the pool water and refill with fresh water (please check with your local pool professional prior to draining the pool)
	• Salinity far too high – way too much salt has been added causing the unit to display a SHRT CELL message	• The salt level is exceeding high. Drain part of the water and refill the pool to bring the salinity levels down. • It is recommended to periodically test the salt levels by a professional. If above 5000 ppm, it is recommended to drain part of the pool water and refill with fresh water (please check with your local pool professional prior to draining the pool)
Salinity low	• Low salinity in the pool	• Add salt according to the table
	• Scale buildup in cell	• Check for debris in the cell; inspect blades for wear and tear or calcium buildup. Clean if necessary, instructions to be found in "maintenance" chapter
	• Faulty Temp. sensor	• Replace temperature sensor
	• During start up there is air in the system	• Air should be cleared after about one hour of run time
NO Cell message is displayed on the numerical display	• Short circuit in the cell wires	• Check cell wires, connections and inspect cell for damage
	• Disconnected cell cables	• Check cell wires, connections and inspect cell for damage
	• Salinity low	• See "Salinity low" above
	• Dirty or worn cell	• Clean cell (see "maintenance" chapter) or replace cell if worn

Problem	Possible Causes	What to do
SHRT CELL message is displayed on the numerical display	• Salinity is very high	• Drain part of the water and refill the pool to bring the salinity levels down. See troubleshooting section – salinity high (above) for more information • It is recommended to periodically test the salt levels by a professional. If above 5000 ppm, it is recommended to drain part of the pool water and refill with fresh water (please check with your local pool professional prior to draining the pool)
	• Short circuit in the cell wires	• Check that the cell wires are properly fastened and there is no reason for short circuit between them
Scale build-up inside cell	• Standard occurrence that needs cleaning approximately once a month	• Clean cell as instructed in the maintenance chapter
	• Chemical imbalance	• Balance chemicals (see "Understanding the chemistry" chapter
White flakes in the water	• Normal occurrence when cell cleans itself	• Keeping the water well balanced reduces this occurrence focus mostly on the Saturation index in the "Understanding the chemistry chapter"
Cloudy water	• May be due to chemical imbalance or insufficient water flow	• Make sure your filtration system is working properly (e.g clean filter and/or skimmer) • Make sure the circulation time is adequate – if not, increase pump run time • Balance all chemicals referenced in the "Understanding the Chemistry" • Shock the water to eliminate build-up of any organic matter
Colored water	• Metals in the fill water may have been oxidized • Algae may be trying to form	• Have a pool professional test the pool water. If high in metals use phosphate-free metal remover • Increase circulation time if needed and clean the filter

Problem	Possible Causes	What to do
Algae	• May be due to low chlorine levels or a chemical imbalance	• Have the water tested for chemical balance including pH, phosphates and nitrates • If chlorine level is low, see "Chlorine level low" in this troubleshooting section • Use nonmetallic (polyquat) algaecide as instructed on the bottle and brush the side of the pool often • Clean the filter and shock the pool with chlorine daily until the water clarity returns