

AQUASCAPE

POOL TECHNOLOGIES

SALTWAVE PRO AI

SALT CHORINE GENERATOR WITH WIFI



IMPORTANT SAFETY INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS READ AND FOLLOW ALL INSTRUCTIONS

WARNING

To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times

WARNING

When mixing acid with water, **ALWAYS ADD ACID TO WATER. NEVER ADD WATER TO ACID**

WARNING

To reduce the risk of electric shock, fire or injury, service should only be attempted by a qualified Pool Service Professional

WARNING

Do not operate electrolytic cell without proper flow or water circulation. A buildup of flammable gases would result in hazardous conditions

WARNING

Installation must be done in accordance with the National Electric Code (NEC, NFPA-70) and/or any other applicable local and national installation codes.

RISK OF ELECTRIC SHOCK, FIRE, PERSONAL INJURY, OR DEATH Connect only to a circuit that is protected by a ground-fault circuit-interrupter (GFCI). Such a GFCI should be provided by the installer and should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push the reset button. Power should be restored. If the GFCI fails to operate in this manner, there is ground current

flowing, indicating the possibility of an electric shock. Do not use this unit. Disconnect this unit and contact a qualified service representative before using.

A green colored terminal (or a wire connector marked "G", "GR", "Ground" or "Grounding") is provided within the terminal compartment. To reduce risk of electric shock, connect this terminal or connector to the grounding terminal of your electric service or supply panel with a conductor equivalent in size to the circuit conductors supplying this equipment.

Power supply must be interconnected with Pool Pump motor power source. This ensures the chlorinator and pool pump will turn on and off together.

Use of chemicals other than those recommended may be hazardous. Follow the Chemical Manufacturers Instructions. It is recommended that the water Flow/Temp/Salinity Sensor is installed in the same piping as the electrolytic cell, without any valves or diverters between them.

POOL WATER PREPARATION

ATTENTION INSTALLER

Various application notes (more detailed instructions) are available from the Dealer cover in installation, operation, maintenance and plumbing of the chlorinator system

DETERMINING POOL SIZE (GALLONS OF WATER IN YOUR POOL)

- Rectangular Pools

Average length (feet) x average width (feet) x average depth (feet) x 7.5 = gallon capacity.

- Circular Pools

Diameter (feet) x diameter (feet) x average depth (feet) x 5.9 = gallon capacity.

- Oval Pools

Long diameter (feet) x short diameter (feet) x average depth (feet) x 5.9 = gallon capacity.

- Sloping Sides

Multiply total gallons by 0.85 = gallon capacity

CHEMISTRY YOU NEED TO KNOW

1. Chlorine Stabilizer (cyanuric acid) is needed to maintain proper levels of chlorine. Most unstable chlorine is destroyed by the UV radiation from the sun within 2 hours. Chlorine stabilizer should be maintained between 50 - 75 PPM.
2. Chloramines should not be present in pool water. When organic materials combine with Free Chlorine, Chloramines are formed. This ties up the Free Chlorine in your pool and does not allow the chlorine in your pool to disinfect. Chloramines also cloud pool water and burn the eyes. (Super Chlorinate (shock) to remove Chloramines at the initial startup of the pool).
3. Super Chlorination (Shocking) burns out the organic material that has combined with chlorine. This frees the chlorine for sanitizing. This is accomplished by raising the chlorine level quickly and dramatically. When the chlorine level is raised to 5 - 15 PPM the pool water is said to have been Super Chlorinated (shocked). As pool water is continuously passed through the Electrolytic Cell, all pool water inside the cell is being Super Chlorinated. When the SWS is used on pools the pool water sparkles and does not burn the eyes because of the absence of Chloramines.

NOTE: On initial startup of a pool, it is best to Super Chlorinate from an outside source, i.e., use a shock treatment available at your local pool supplier.

4. pH produced by the Salt Generator is close to Neutral pH. However, other factors usually cause the pH of the pool water to rise. Therefore, the pH in a pool chlorinated by a SWS tends to stabilize at approximately 7.8. If the pool pH rises above 7.8 have a pool professional test to see if other factors such as high Calcium Hardness or Total Alkalinity are the cause and then balance accordingly.

5. **Total Dissolved Solids (TDS)** Adding salt to pool water will raise the TDS level. While this does not adversely affect the pool water chemistry or clarity, the pool water professional testing for TDS must be made aware salt has been added for the SWS system. The individual performing the TDS test will then subtract the salinity level to arrive at the correct TDS level.
6. **New Pool Water** in a recently filled or newly refinished pool may contain undesirable matter. This undesirable matter could interfere with the SWS's ability to chlorinate properly. Make sure the water is tested by a pool professional and properly balanced before turning on the SWS Chlorinator.

OPTIMUM POOL WATER CONDITIONS

In accordance with Association of Pool & Spa Professionals (APSP) standards, we recommend the following water balance conditions be maintained on an on-going basis to protect the pool finish and equipment and ensure the pleasing appearance of the water. The SWS Salt Generator is warranted to operate properly only if these conditions are met:

Free Chlorine **1.0 - 3.0 PPM. Above 3.0 PPM** may cause corrosion of pool metals

**Combined Chlorine
(Chloramines)** **None** (Super Chlorinate to remove all Chloramines)

pH **7.2 - 7.8**

**Chlorine Stabilizer
(Cyanuric Acid)** **50 - 75 PPM**

Total Alkalinity **80 - 120 PPM**

Calcium Hardness **150 - 400 PPM**

Chlorine Testing

It is recommended that chlorine test samples be taken from two places. Compare the samples. A higher level should be found at the pool return line. The higher level at the pool return line indicates the SWS is producing chlorine.

1. At the pool return line.
2. 18 inches (457 mm) below the surface and well away from the pool return line.

Salt (NaCl sodium chloride)

When to Add Salt?

For a new pool or newly resurfaced pool it is recommended to wait 14 days (surface should be completely cured) before adding salt. Follow the pool surface Manufacturer's guidelines for your particular pool. For vinyl and fiberglass pools, salt can be added at start up.

What Type of Salt to Use?

- The purer the salt the better the life and performance of the electrolytic cell. Use a salt that is at least 99.8% pure NaCl. The preferred salt is an evaporated, granulated, food quality, non-iodized salt.

How Much Salt to Use?

Use Table 1 to determine how much salt will be needed. Most pools contain some salt depending on the water source and chemicals used for sanitizing. If the SWS has not been wired and turned on yet, a hand held meter calibrated for NaCl (salt) can be used to determine the existing salt concentration of the water. If the SWS is wired in (connected), use it to determine the salinity.

Recommended Water Chemistry

Salt	3000 to 4000 ppm
Cyanuric Acid (Stabilizer)	50 to 100 ppm
pH	7.2 to 7.6
Total Alkalinity	80 to 120 ppm
Free Chlorine	1.0 to 3.0 ppm
Calcium Hardness	200 to 400 ppm
Metals	0 ppm
Saturation Index	-.2 to .2

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 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 on page 5 to determine the saturation index.

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

SALT LEVEL

- Use the chart below to determine the amount of salt needs to be added to reach the recommended levels. Use the equations below to determine the gallons of your pool.

	GALLONS (Pool size feet)
Oval	Length × Width × Average Depth × 6.7
Round	Length × Width × Average Depth × 5.9
Rectangular	Length × Width × Average Depth × 7.5

- The ideal salt level is between **3000-4000 ppm**. (parts per million) with 3400 ppm being the optimal level. Calculate the number of gallons in the pool and add salt according to the chart on page 8.
- A LOW Salt Level** will reduce the efficiency of the SWS and result in low chlorine production.
- Excessively **HIGH Salt Levels** will cause the SWS to shut down, making pool water unsafe for bathers. LOW salt levels can cause the SWS not to operate efficiently, causing the same problem.

ADDING SALT

POUNDS and (Kg) OF SALT NEEDED FOR 3400 PPM

Current salt level ppm	8,000 (30,000)	10,000 (37,500)	12,000 (45,000)	14,000 (52,500)	16,000 (60,000)	18,000 (67,500)	20,000 (75,000)
0	239 (109)	301 (136)	360 (163)	419 (190)	481 (218)	540 (245)	599 (272)
200	226 (103)	284 (129)	340 (154)	396 (180)	454 (206)	510 (232)	566 (257)
400	213 (97)	267 (121)	320 (145)	373 (170)	427 (194)	480 (218)	533 (242)
600	200 (91)	250 (114)	300 (136)	350 (159)	400 (182)	450 (205)	500 (227)
800	187 (85)	233 (106)	280 (127)	327 (148)	373 (170)	420 (191)	467 (212)
1000	173 (79)	217 (98)	260 (118)	303 (138)	347 (158)	390 (177)	433 (197)
1200	160 (73)	200 (91)	240 (109)	280 (127)	320 (145)	360 (164)	400 (182)
1400	147 (67)	183 (83)	220 (100)	257 (117)	293 (133)	330 (150)	367 (167)
1600	133 (61)	167 (76)	200 (91)	233 (106)	267 (121)	300 (136)	333 (152)
1800	120 (55)	150 (68)	180 (82)	210 (95)	240 (109)	270 (123)	300 (136)
2000	107 (48)	133 (61)	160 (73)	187 (85)	213 (97)	240 (109)	267 (121)
2200	93 (42)	117 (53)	140 (64)	163 (74)	187 (85)	210 (95)	233 (106)
2400	80 (36)	100 (45)	120 (55)	140 (64)	160 (73)	180 (82)	200 (91)
2600	67 (30)	83 (38)	100 (45)	117 (53)	133 (61)	150 (68)	167 (76)
2800	53 (24)	67 (30)	80 (36)	93 (42)	107 (48)	120 (55)	133 (61)
3000	OK	OK	OK	OK	OK	OK	OK
3200	OK	OK	OK	OK	OK	OK	OK
3400	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal
3600	OK	OK	OK	OK	OK	OK	OK
3800	OK	OK	OK	OK	OK	OK	OK
4000	OK	OK	OK	OK	OK	OK	OK
4200	High	High	High	High	High	High	High
4400	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute

**POUNDS OF SALT
Needed for 3400 PPM**

CURRENT SALT LEVEL PPM	GALLONS OF POOL WATER													
	14,000	16,000	18,000	20,000	22,000	24,000	26,000	28,000	30,000	32,000	34,000	36,000	38,000	40,000
3000 3200	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
3400 3600	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal

**POUNDS OF SALT
Needed for 3400 PPM**

CURRENT SALT LEVEL PPM	GALLONS OF POOL WATER													
	14,000	16,000	18,000	20,000	22,000	24,000	26,000	28,000	30,000	32,000	34,000	36,000	38,000	40,000
4200+	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute

STABILIZER (CYANURIC ACID)

- Always test for stabilizer (cyanuric acid) level, when testing for salt. This test should be done at least once per month. Use the chart below to determine how much stabilizer must be added to raise the level to 80 ppm .

POUNDS and (Kg) OF STABILIZER NEEDED FOR 80PPM

Current Stabilizer Level(ppm)	8,000 (30000)	10,000 (37500)	12,000 (45000)	14,000 (52500)	16,000 (60000)	18,000 (67500)	20,000 (75000)
0 ppm	5.3 (2.4)	6.7 (3.0)	8.0 (3.6)	9.4 (4.3)	10.7 (4.9)	12.0 (5.4)	13.4 (6.1)
10 ppm	4.7 (2.1)	5.8 (2.6)	7.0 (3.2)	8.2 (3.7)	9.4 (4.3)	10.5 (4.8)	11.7 (5.3)
20 ppm	4.0 (1.8)	5.0 (2.3)	6.0 (2.7)	7.0 (3.2)	8.0 (3.6)	9.0 (2.2)	10.0 (4.5)
30 ppm	3.3 (1.5)	4.2 (1.9)	5.0 (2.3)	5.9 (2.7)	6.7 (3.0)	7.5 (3.4)	8.4 (3.8)
40 ppm	2.7 (1.2)	3.3 (1.5)	4.0 (1.8)	4.7 (2.1)	5.4 (2.4)	6.0 (2.7)	6.7 (3.0)
50 ppm	2.0 (.9)	2.5 (1.1)	3.0 (1.4)	3.5 (1.6)	4.0 (1.8)	4.5 (2.0)	5.0 (2.3)
60 ppm	1.3 (.6)	1.7 (.8)	2.0 (.91)	2.4 (1.1)	2.7 (1.2)	3.0 (1.4)	3.3 (1.5)
70 ppm	0.7 (.3)	0.8 (.4)	1.0 (.45)	1.2 (.54)	1.4 (.64)	1.5 (.68)	1.7 (.77)
80 ppm	0.0	0.0	0.0	0.0	0.0	0.0	0.0

POLYMERS

- It is advised to use polymers (commonly sold as poly algaecide) when using salt water sanitizing systems. The poly algaecide is sold in 30% and 60% concentrations.
- Application rate is 1 quart of Poly30 (or ½ quart of Poly 60) per 15,000 gallons (60,000 liters) of pool water, per month. Apply directly in front of the return jet.

CONTROLS

1.1 Initial Setup

After the salt chlorine generator is powered on, it will detect the water flow, water temperature, and salinity automatically. Then it will enter the normal working state and at the same time, the pool size needs to be entered by users. If the pool size has not been set initially, the display interface will jump directly to remind the user to enter the pool size interface. When the time is up, it will enter the regular display interface. If the pool size has been set, the AI LED lights will turn on and enters the regular display interface.

1.2 Water Flow Detection

When the system is powered on, No Flow light will flash for a few minutes until it detects water flow. Once the flow is detected, the light will turn off.

1.3 Temperature Detection

(1) When the water temperature is too low, the Generating light flashes, and the screen displays "COLD". When the temperature rises to the normal range, chlorine production automatically resumes.

(2) When the water temperature is too high, the Generating light flashes, and the screen displays "HOT". When the temperature drops to the normal range, chlorine production automatically resumes.

1.4 Salinity Detection:

(1) Low Salt Protection Display:

The Check Salt light and Check Cell light are on, and the electrode does not produce chlorine.

(2) Low Salt Warning Display:

The Check Salt light flashes, and the electrode produces chlorine.

(3) High Salt Protection Display:

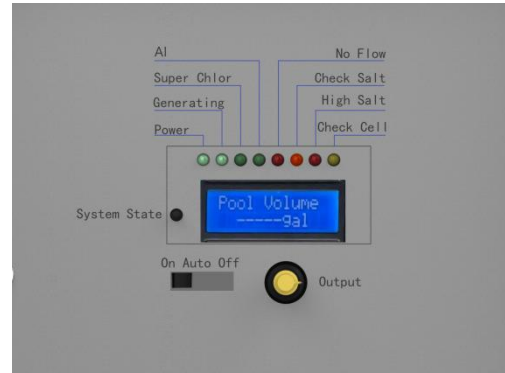
The High Salt light is on, the Check Cell light is on, and the electrode does not produce chlorine.

(4) High Salt Warning Display:

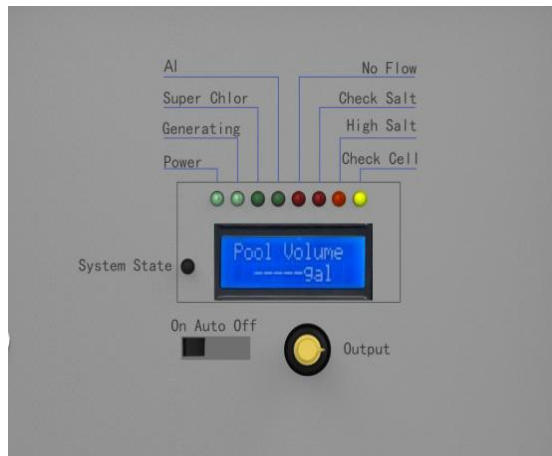
The High Salt light flashes, and the electrode produces chlorine.



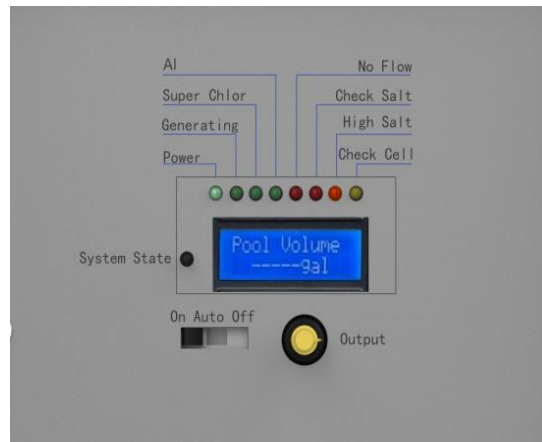
LOW SALT Protection



LOW SALT WANING WITH
BLINKING LIGHT



High salt protection



HIGH SALT WANING WITH
BLINKING LIGHT

1.5 Enter Pool Size

(1)How to Enter Pool Size

Under the pool volume display interface, it is necessary to rotate the Output Dial clockwise to 100% and then counterclockwise to 0%. The pool volume input function is activated only when the pool volume value blinks. At this time, the pool size can be adjusted only by rotating the Output Dial.

(2)Switch AI(INTELLIGENCE) mode under Pool Volume interface

Press System State to confirm the pool size, AI light on and activate AI mode. Under Pool Volume Interface, if the switch is on AUTO, move the switch to ON to exit AI mode, if the switch is in the ON position, switch it to AUTO and then back to ON to exit AI mode. AI light will turn off.

The system can not enter AI mode if pool volume not set by users.

AI (INTELLIGENCE) Activate Interface

2.Regular display

Press System State to show every regular display:

2.1 Average Salt Level:



2.2 Temperature:

Switch °F and °C by push button from Auto to On



2.3 Voltage:



2.4 Amperage:



2.5 Chlorine Output:



2.6 Instant Salt Level:

Switch PPM and PPT by moving switch from Auto to On.



2.7 Hardware Version:



2.8 Software Version:



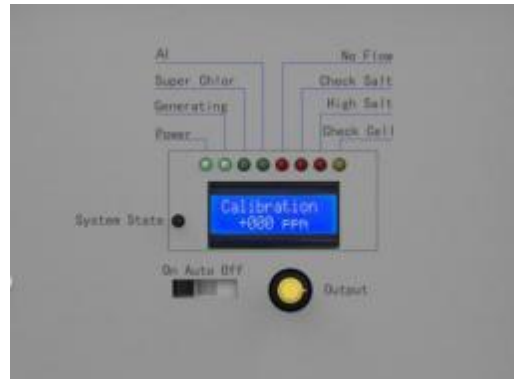
2.9 Cell type:

Under cell type interface, switch P+10, P+25, P+40 by moving button from Auto to On.



2.10 Calibration:

Under Calibration interface, it is necessary to rotate the Output potentiometer clockwise to 100% and then counterclockwise to 50%. The screen shows 000 ppm and blinking to activate the calibration. Dial clockwise show +100,+200,+300,...+700,+800, dial counterclockwise show -100,-200,-300...-700,-800



2.11 Automatic Calculation for Salt (Sub menu under AI mode)

2.11.1 Show Instant Salt again



2.11.2 Automatic Calculation for Salt need to be add:



2.11.3 Automatic Calculation for working hours:

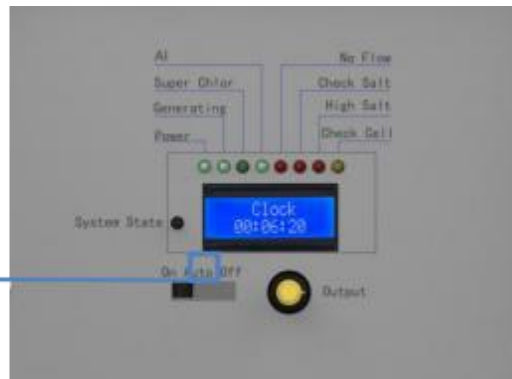
System automatically calculate generating hours based on the pool volume set to show users external timers need to be set accordingly:



2.13 Clock

It is necessary to rotate the Output potentiometer clockwise to 100% and then counterclockwise to 0%. Users can set HOUR when it blinking by dial the Output, press System State to confirm and switch to Minute, same operation as HOUR.

Dial Output when the figure blinking



3. Super Chlor

(1) Press button to ON to enter SuperChlor mode, The Power light, Generating light, Super Chlor light will turn on, The system is working at 100% output and running for 24 hours. After 24 hours, the system will exit SuperChlor automatically, SuperChlor light will turn off and will revert to the previous output.



INSTALLATION

Before installation, make sure all the water chemistry is in normal range. Using 2-inch pipes and should be performed by qualified personnel in case there is a 1.5-inch pipe, a reducer can be used to fit the system; be sure to pay attention to any changes. Check each measurement carefully before cutting.

Mounting the Control

Install the control box as close as possible to the pump and filter system. For safety reasons, please do not install the control box within 10 feet of the edge of the pool and comply with all applicable regulations. Verify cell and flow switch cable can reach the control box.

As with most electronic devices, avoid using the controller above the heater or in a tightly enclosed or insulated space can avoid excessive heat accumulation and also avoid being close to acid chemicals, it may damage the control.

Use screws to fix the mounting bracket of the control box on the wall or vertical bracket comfortably horizontally.

At least 3 feet above the ground. Hang the control on the bracket.

Plumbing

These instructions apply to 2-inch pipe (typical). Make sure to choose with existing pool pipe size (1.5 inches or 2 inches), and discard other unnecessary joints.

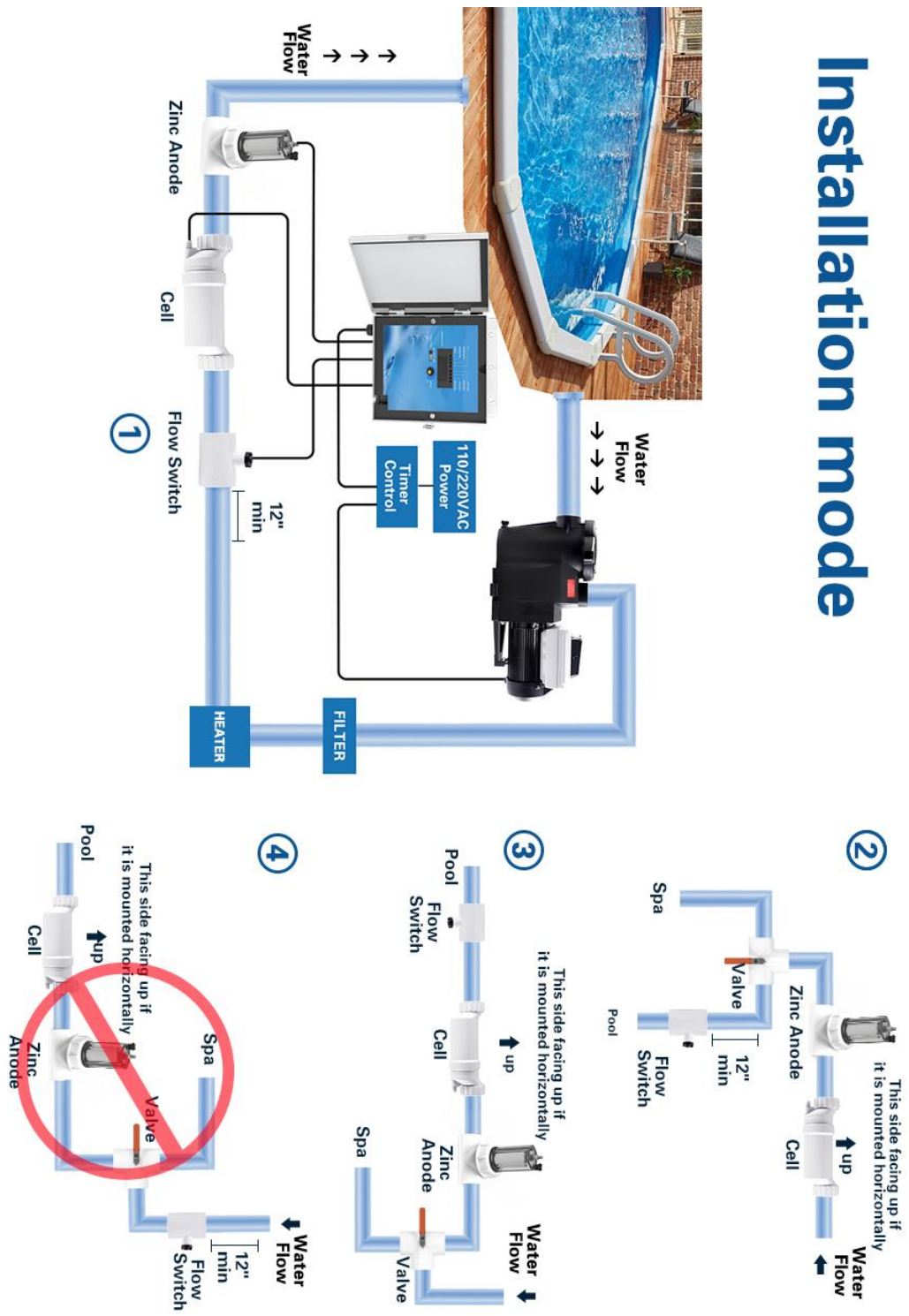
For articulated connections, you will also use the included 2" to 1.5" reducer bushing to accommodate the flow switch. For 1½" installations, be sure to pay attention to any new or other measurements before cutting the tube.

Flow Switch

Flow switch, confirm that the arrows on the flow switch (located on the side) point in the same direction of water flow.

Installation mode

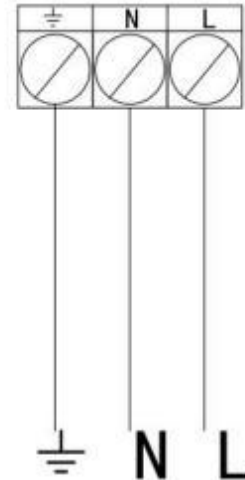
System overview



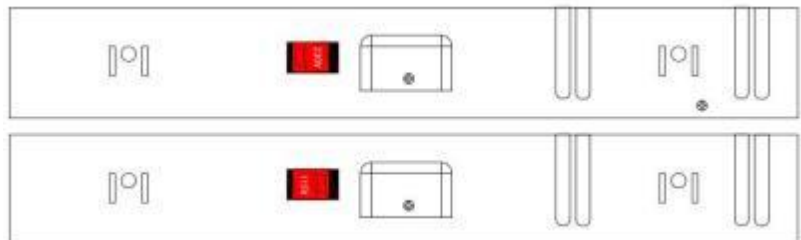
VOLTAGE SELECTION

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

1. Wire the power cord



2. Switch with Screwdriver or Pencil when you need to change factory set voltage to the other voltage. The Slide Switch is at the side of the power supply which below the PC board:



TROUBLESHOOTING

Situation	Possible Cause	Suggestion
Start the system without reaction, no display	Check the power connection	Use test pencil to check if there is electricity
		Change the socket
		Check the wire connection
		Check the overload protection device
	Check the fuse	If fuse blow out, replace it
	If the PCB board just be replaced	Check the connection of the PCB is right or wrong
"NO FLOW" light on	No flow or too little low	Check if pump is connected, if use variable speed pump, speed up the water flow. Keep flow rate at least 25-30 GPM
	Wrong flow direction	Remain the flow direction same as the arrow outside the flow switch
	Flow switch or crystal plug is broken	Change the flow switch
"NO FLOW" light is blinking	Start the machine, it is normal that the light blink because it need time to detect the water flow	Normal
	Variable speed pump, water flow too slow	Change the flow switch
"Inspect Cell" light is flashing	The machine worked around 500 hours	Press the "System Status" button for 3 seconds to stop
"Generating" light is flashing	Check the temperature in the swimming pool is whether too high or too low	Check the temperature, water temp should be above 55° F, less than 122° F
"Check Salt" and "Inspect Cell" light on	Check cell type	Match the right cell type with the program
	If use variable speed pump, water flow too slow	Speed up the water flow

		Actual Salinity is less than 2300PPM	Add salt, ideal salt level 3500-3600ppm
		Cell is blocked	Clean the cell
		Temperature sensor is broken	If not, replace flow switch with a temperature sensor
		PCB or cell may be broken	Contact distributor
	"Check Salt" light is flashing	Check cell type	Match the right cell type with the program
		Actual Salinity is between 2300-2500PPM	Add salt, ideal salt level 3500-3600ppm
		Cell is blocked	Clean the cell
	"High Salt" light blinking	Check cell type	Match the right cell type with the program
		Actual Salinity is between 4500-6400PPM	Add water, ideal salt level 3500-3600ppm
		Temperature sensor is broken	If not, replace flow switch with a temperature sensor
		The cell plates are short-circuit because they are not fixed in the housing	Change the cell
		PCB is broken	Change the PCB
	"High Salt" and "Inspect cell" light is on	Check cell type	Match the right cell type with the program
		Actual Salinity is more than 6500PPM	Add water, ideal salt level 3500-3600ppm
		Temperature sensor is broken	If not, replace flow switch with a temperature sensor
		The cell plates are short-circuit because they are not fixed in the housing	Change the cell
		PCB is broken	Change the PCB
	Low or no Chlorine in pool	The water temp too high or too cold	Check the temperature, water temp should be above 55° F, less than 122° F
		PH not normal, the water in alkalinity will influence the chlorine	Keep PH 7.2-7.7
		Bad water quality has large quantity of microorganism or germ will consume the chlorine	Change good quality water
		With chemistry, like Chemical Fertilizers and Pesticides	Ensure all chemicals on page.6 are within range

AQUASCAPE 2 YEAR WARRANTY

Aquascape Pool Technologies warrants the unit to be trouble free for 2 full years with a full parts or replacement warranty at no charge*.

Whether you need technical advice, repair, or genuine factory replacement parts, please contact your dealer sales team for service.

Our 2 year warranty does not cover failures due to abuse, accidental damage, or when repairs have been made or attempted by anyone other than manufacturer authorized agent. The seller's use of any trademark of others does not imply its affiliation, partnership, dealership, joint venture with or endorsement by others and is only for informational purposes. Contact us at 1-833-766-2333 or go to our website.

*Warranty cover parts only - labor charges not covered.

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aquascapepooltech.ca/

1-833-766-2333