



SALT CHLORINE GENERATOR



USER'S MANUAL

(PL7154, PL7155, PL7116)

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IMPORTANT SAFETY INSTRUCTIONS

Use basic safety precautions when using electrical equipment, including the following:

READ AND FOLLOW ALL INSTRUCTIONS

- Disconnect all AC power during installation.
- Do not permit children to use this product.
- To reduce the risk of personal injury, the power supply pack must be installed on and wired to the load side of the time clock or relay load side.
- To reduce the risk of electric shock, the Power supply pack must be grounded.
- All field-installed metal components such as rails, ladders, drains, or other similar hardware located within 10 feet (3 meters) of the pool, spa or hot tub shall be bonded to the equipment grounding bus with copper conductors not smaller than 8 AWG US/ 6 AWG Canada.
- Consult professional pool service man to advice you on proper use, especially on material selection, installation advises, pool care. As the salt is an inherently corrosive material, Crystal Pure can not make sure any other equipments in or around pool will not corrosion.
- Avoid chlorine gas build up. When pump is OFF, A build up of flammable gases will result in hazardous conditions.
- Add acid to water, do not do opposite.

Water Chemistry

CAUTION: Dry acid can cause a buildup of by-products that can damage chlorinator cell.

CHEMISTRY TIPS

New Pool Water: A recently filled or newly-refinished pool may contain undesirable matter. This undesirable matter could interfere with the PL71 ability to chlorinate properly. Make sure the water is tested by a pool professional and properly balanced before switching on the PL71.

Super Chlorination burns out the swimmer waste 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 ten (10) times the amount of combined chlorine the pool water is said to have been super chlorinated. As pool water is continuously passed through the PL71 while the unit is powered on, the water inside the PL71 is being super chlorinated.

***Note:** On initial start-up of a pool, it is best to super chlorinate using an outside source, i.e., use a shock treatment available at your local pool supplier.*

Chloramines should not be present in pool water. Chloramines are formed when ammonia (which is found in urine and sweat) combine with free chlorine. This ties up the free chlorine in your pool and does not allow the chlorine in your pool to disinfect. Chloramines also burn the eyes and are foul smelling. Super Chlorinate to remove chloramines at the initial start-up of the pool and as needed to maintain proper levels of free chlorine.

Cyanuric acid is needed in outdoor pools to help to stabilize and maintain proper levels of chlorine.

90% of unstabilized chlorine is destroyed by the UV radiation from the sun within two hours. Cyanuric acid stabilizes chlorine in water from UV degradation. When using the PL71, the cyanuric acid level should be maintained between 30-50 ppm. (See on page 8)

NOTE: DO NOT USE CYANURIC ACID IN INDOOR POOLS.

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 to the PL71 system. The individual performing the TDS test (see page 17) may then subtract the salinity level to arrive at a TDS level that would be compatible to a TDS reading for a non-salt water pool.

Metals - Some metals, i.e. copper and iron, can cause loss of chlorine. Also, metals can stain your pool. Metals can also damage the PL71. Have your local pool professional check for metals and recommend methods of removal.

Nitrates and Phosphates can cause extremely high chlorine demands and will deplete chlorine from your swimming pool. In some cases nitrates may even lower your chlorine levels to zero. Your local pool professional can test for nitrates and phosphates. While a 0 ppm level of nitrates is the ideal, the pool owner should make sure that nitrates **DO NOT** exceed 10 ppm.

IDEAL WATER CHEMISTRY LEVEL

Voltage input:	230VAC/115VAC
PH:	7.2-7.8
Calcium Hardness:	200-400 ppm
Total Alkalinity:	80-100 ppm
Salt:	2800-4500 ppm (ideal 3400 ppm)
Cyanuric Acid:	30-50 ppm
Chlorine:	1-3 ppm

How to test chlorine

It is recommended that chlorine test samples be taken from two (2) locations in the pool. Compare the samples. A higher level should be found at the pool return line. The higher level at the pool return line indicates PL71 is producing chlorine. Take chlorine samples for testing at:

- The pool return line.
- 18 inches (457 mm) below the surface and well away from the pool return line.

What kind of salt?

It is important to use only sodium chloride (NaCl) that is 99% pure. This is common food quality or water softener salt available in 40-80 lb/bag at your local store. 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 more than 1% yellow prussiate of soda, salt with more than 1% of anti-caking additives, or iodized salt.

FOR ALL NEWLY SURFACED PLASTER POOLS:

Do not operate PL71 with newly surfaced pool plaster. Salt is a corrosive element and severe salt damage can occur to your pool. Wait at least ONE (1) MONTH after construction to allow plaster to cure before adding salt and operating PL71. Follow the pool surface manufacturer's guidelines for your specific pool. salt and operating PL71.

FOR NEW VINYL LINER POOLS, contact the manufacturer for recommended guidelines before adding

How Much Salt to Use?

Use table on page 7 to determine how much salt will be needed. Most pools contain some salt, depending on the water source and chemicals used for sanitizing. Therefore, the pool owner must always test salt levels before adding salt. A hand held meter calibrated for NaCl (salt) can be used to determine the salt levels of the water. The LED Lights will give info on the salt level

- 3400 ppm of salt is recommended for optimum water condition.
- Low salt concentration below 2300 ppm or above 6000 ppm will cause the unit to turn off

***Note:** Salt measurements will vary between measuring devices (salt test strips, electronic testers, and titration). The salt sensor reading is within +/- 300 ppm accuracy. For more troubleshooting information about high salt levels, see "Troubleshooting," on page 21.*

Saturation Index

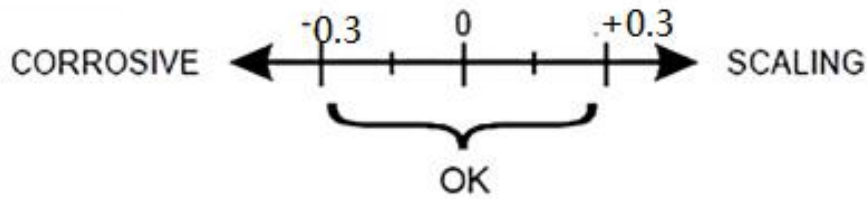
The saturation index is a formula that measures a solution ability to dissolve or deposit calcium carbonate and is used as an indicator of the corrosivity of the solution and temperature. A well balanced water will have a formula result ranging between -0.3 and +0.3, Outside this range, the pool water is considered out of balance, potentially damaging pool equipment or scaling PL71. The equation to calculate Si is:

$$\text{SI} = \text{pH} + \text{CHF} + \text{AF} + \text{TF} + \text{TDSF}$$

Cyanuric acid in the form of cyanurate ions contribute to alkalinity. Thus, a correction must be made to total alkalinity. We subtract 1/3 of the cyanuric acid level from the reading obtained in the total alkalinity test.

$$\text{Total Alkalinity} - \frac{1}{3} \text{Cyanuric Acid} = \text{Corrected Alkalinity}$$

This correction can be considerable in established pools with high cyanuric acid levels; for example, at 100 ppm cyanuric acid, the correction amounts to 33 ppm ($100/3 = 33.3$).



°C	°F	T _i	Calcium Hardness	C _i	Total Alkalinity	A _i
12	53	0.3	75	1.5	75	1.9
16	60	0.4	100	1.6	100	2.0
19	66	0.5	125	1.7	125	2.1
24	76	0.6	150	1.8	150	2.2
29	84	0.7	200	1.9	200	2.3
34	94	0.8	250	2.0	250	2.4
39	103	0.9	300	2.1	300	2.5
			400	2.2	400	2.6
			600	2.4	600	2.8
			800	2.5	800	2.9

Note: Use the reading on the chart that is closest Total alkalinity in this context refer to the total of carbonate and bicarbonate alkalinity. If cyanuric acid is used, a correction factor must be used

How to Add or Remove Salt

Check salt level before add or remove salt

IN GROUND POOLS: Turn the filter pump on and add the salt directly into the pool at the shallow end.

ABOVE GROUND POOLS WITH MAIN DRAINS: Add directly in front of the return jet to pool. Run the filter pump for 24 hours with the suction coming from the main drain (use the pool vacuum if there is no main drain) to allow the salt to evenly disperse throughout the pool.

ABOVE GROUND POOLS WITHOUT MAIN DRAINS: Add directly into the pool. Brush the salt to speed up the dissolving process—to not allow the salt to sit in a pile on the bottom of the pool. -----
ELIMINATE THE FOLLOWING--(Run the filter pump for 24 hours with the suction coming from the main drain (use the pool vacuum if there is no main drain) to allow the salt to evenly disperse throughout the pool).

ON ANY POOL, DO NOT ADD SALT DIRECTLY TO THE SKIMMERS OR DIRECTLY ONTO THE MAIN DRAIN. THIS WILL SHUT DOWN OR SHORTEN THE LIFE OF THE CELL DUE TO HIGH SALT CONCENTRATION AND REDUCED FLOW TO THE PUMP.

POUNDS and (Kg) OF SALT NEEDED FOR 3400 PPM

Current salt level ppm	6,000 (22,500)	8,000 30,000	10,000 37,500	12,000 45,000	14,000 52,500	16,000 60,000	18,000 67,500
0	180 (82)	239 (109)	301 (136)	360 (163)	419 (190)	481 (218)	540 (245)
200	170 (78)	226 (103)	284 (129)	340 (154)	396 (180)	454 (206)	510 (232)
400	160 (73)	213 (97)	267 (121)	320 (145)	373 (170)	427 (194)	480 (218)
600	150 (69)	200 (91)	250 (114)	300 (136)	350 (159)	400 (182)	450 (205)
800	140 (64)	187 (85)	233 (106)	280 (127)	327 (148)	373 (170)	420 (191)
1000	130 (59)	173 (79)	217 (98)	260 (118)	303 (138)	347 (158)	390 (177)
1200	120 (55)	160 (73)	200 (91)	240 (109)	280 (127)	320 (145)	360 (164)
1400	110 (51)	147 (67)	183 (83)	220 (100)	257 (117)	293 (133)	330 (150)
1600	100 (46)	133 (61)	167 (76)	200 (91)	233 (106)	267 (121)	300 (136)
1800	90 (41)	120 (55)	150 (68)	180 (82)	210 (95)	240 (109)	270 (123)
2000	80 (36)	107 (48)	133 (61)	160 (73)	187 (85)	213 (97)	240 (109)
2200	70 (32)	93 (42)	117 (53)	140 (64)	163 (74)	187 (85)	210 (95)
2400	60 (27)	80 (36)	100 (45)	120 (55)	140 (64)	160 (73)	180 (82)
2600	50 (23)	67 (30)	83 (38)	100 (45)	117 (53)	133 (61)	150 (68)
2800	40 (18)	53 (24)	67 (30)	80 (36)	93 (42)	107 (48)	120 (55)
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	OK
3800	OK	OK	OK	OK	OK	OK	OK	OK
4000	OK	OK	OK	OK	OK	OK	OK	OK
4200	High	High	High	High	High	High	High	High
4400	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute

Amount of stabilier (cyanuric acid) to obtain 40 ppm in pool (The cyanuric acid should be at 30-50 ppm)

Current cyanuric acid level-ppm	10,000g 38,000L	12,000g 45,425L	14,000g 53,000L	16,000g 60600L	18,000g 68137L	20,000g 76000L	22,000g 83300L	24,000g 90,850L	26,000g 98,421L	30,000g 134000L
0	3.25 (1.47 kg)	3.9 (1.77kg)	4.5 (2.06kg)	5.2 (2.36 kg)	5.85 (2.65 kg)	6.50 (2.94kg)	7.15 (3.24 kg)	7.8 (3.53 kg)	8.45 (3.83 kg)	9.75 (4.42kg)
10	2.43 (1.10 kg)	2.92 (1.32kg)	3.4 (1.54kg)	3.89 (1.75kg)	4.37 (1.98 kg)	4.86 (2.20kg)	5.35 (2.42 kg)	5.83 (2.64 kg)	6.32 (2.86 kg)	7.29 (3.30kg)
20	1.62 (0.73 kg)	1.94 (0.87kg)	2.2 (1.03kg)	2.59 (1.17 kg)	2.92 (1.32 kg)	3.24 (1.47kg)	3.56 (1.61 kg)	3.89 (1.75 kg)	4.21 (1.91 kg)	4.86 (2.20kg)

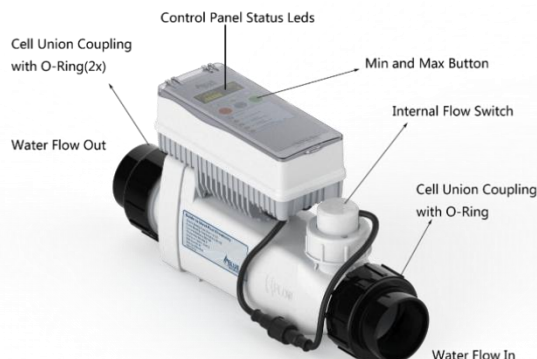
Introduction: PL71 Salt Chlorinator

The PL71 chlorine generator, by electrolysis, creates chlorine to sanitize your pool from the salt molecules (NaCl) in your water. A small electric charge is applied across a set of titanium plates inside the Electrolytic Cell. This produces Sodium Hypochlorite (NaOCl). In water, Sodium Hypochlorite dissociates into sodium (Na⁺) and hypochlorite (OCl⁻) ions. It is the hypochlorite ions that form with the hydrogen (H⁺) ions (from the water) to form hypochlorous acid (HOCl), which is the active agent that destroys bacteria and algae, and oxidizes organic matter. This form of chlorine works quickly in the pipe, leaving only a mild residual in the pool. In addition, the Electrolytic Cell continuously “shocks” the incoming water- burning off any oils, organic matter, or other particles that need to be oxidized.

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

PL71 Salt Chlorinator consist of Cell unit and Power Center

Cell unit has LED screen readings and buttons and also temperature sensor and salt level sensor to produce chlorine at the defined output. If the salt level in the pool water is too low or too high, the Red LED will be on, the cell is turned off until salt or water is added to the pool. PL71 has a self-cleaning cycle which reverses polarity, reducing calcium buildup. This feature turns the cell on and off at regular intervals to minimize calcium and scale buildup and further maximizes cell life.



PL71 includes
Flow sensor:
Temperature sensor:
Salt sensor
**Mark: The salt reading is around
+/-300 ppm accuracy.**

PL71 Dual Voltage 115V-230V Power Center

PL71 Power Center is a dual voltage power supply which means 115V/230V no wiring is required, The Power Supply converts AC

electrical current to a low-voltage DC electrical current which is required to produce chlorine.

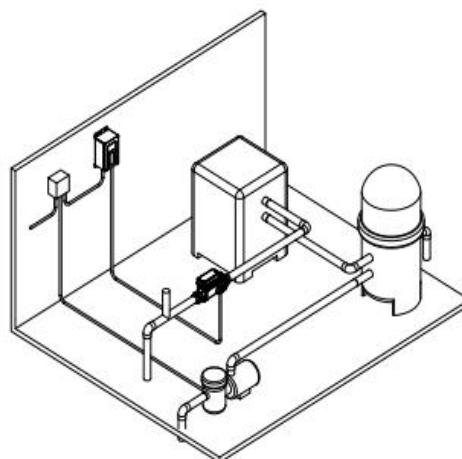
The Power Center contains the transformer, fuse ,connector to the cell and the AC electrical current wiring configuration with the DC electrical current output cable to PL71. A fuse is mounted in the enclosure for additional protection. For information about installing and proper use of the Power Center, see the “PL71 installation”

WARNING: CHLORINE GAS BUILDUP CAN OCCUR WITH IMPROPER WIRING:

To reduce the risk of personal injury, the Power Center must be installed on and wired to the load side of the time clock, electronically controlled switch, or relay load side, so that it will receive power only when the pool pump is on. Otherwise, dangerous chlorine gas buildup can occur. The PL71 should never be energized when the pool pump is OFF and water is not flowing through the unit.

Before plugging and unplugging the model, shall turn off the AC power to power center.

PL71 can be used in 115v/230v, and convert the automatically.



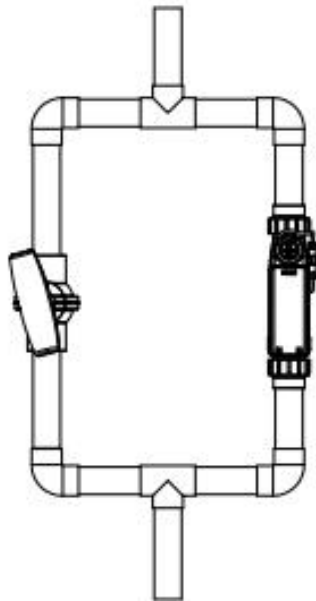
PL71 Installation

Ensure to Install Chlorine/Bromine Feeders after PL71Cell

When using the PL71 with an in-floor cleaning system, it is recommended that a separate return line be used for the cleaner to reduce the increased water pressure stress on the PL71 cell.

Loop Plumbing Diagram

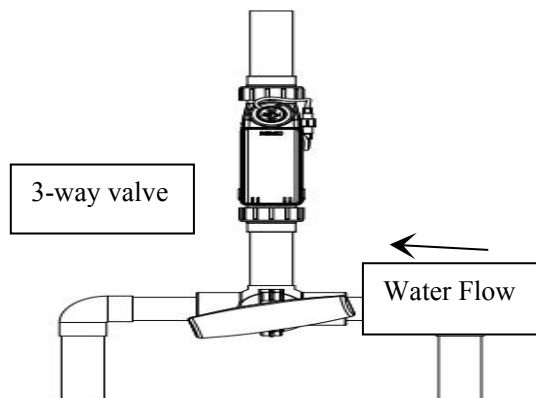
PL71 is designed to operate with water flow rates from 25+/-5 gallons per minutes (gpm) up to 105 gpm. Over 80 gpm you must use a bypass loop for the best chlorine production. Installations with flow rates over 80 gpm include those that have in-floor cleaning systems or booster pumps. These systems must use a bypass loop with the PL71 with a flow control valve that assures that the flow through the PL71 is maintained within its designed operating water flow rates.



Plumbing Diagram

- Always install the PL71 AFTER the filter and heater. The PL71 should be at least three (3) feet away from the heater outlet.
- If PL71 is installed on a pool/spa combination system, install (see diagram below) BEFORE the pool/spa return valve to allow proper chlorination of both the pool and spa and also to avoid creating gas being trapped in the pool plumbing.

- Horizontal install the PL71 cell.



Determining Pool Size (Gallons of Water in Your Pool)

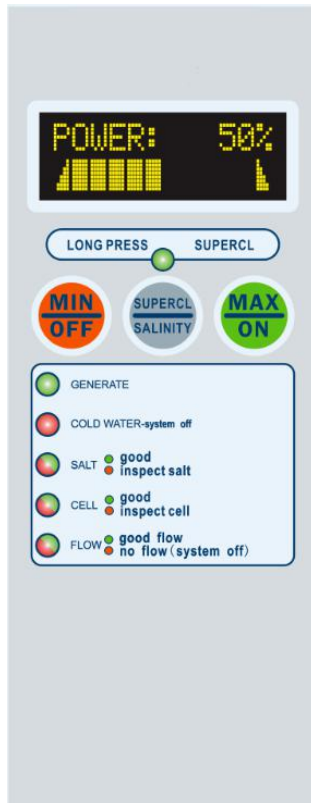
Rectangular Pools:	Length x width x average depth x 7.5
Circular Pools:	Diameter x diameter x average depth x 5.9
Oval Pools:	Length x width x average depth x 6.7
Sloping Sides:	Multiply total gallons by 0.85 = gallon capacity

Determining Pool Size (liters of water in your pool)

Rectangular Pools:	Length x width (meters) x average depth x 1000
Circular Pools:	Diameter x diameter x average depth x 785
Oval Pools:	Length x width (meters) x average depth x 893
Sloping Sides:	Multiply total liters by 0.85 = liter capacity.

CAUTION - To protect the lifetime of PL71, never use dry acid (sodium bisulfate) to adjust pH in arid geographic areas with excessive evaporation and minimal dilution of pool water with fresh water.

LED Light Instruction



SUPERCL /SALINITY: SHORT PRESS: Show the salinity

LONG TIME PRESS: Enter into SuperChlor mode, long time press again to exit setup.

SuperChlor mode will auto-exit after 24 hours.

GENERATE: The cell is operational and ready.

COLD WATER: It warns water temperature either below 10°C or above 50°C--system off.

SALT: GOOD LED ON: Good salt. It shows the Ideal Salinity: 2800 PPM to 4500 PPM

INSPECT SALT RED ON: Salt Level below 2300 PPM or above 6000 PPM

INSPECT SALT RED (flashing): Salt Level: 2300 PPM to 2800 PPM/4500 PPM to 6000 PPM

CELL: GOOD LED ON: The cell is good and producing chlorine.

INSPECT CELL RED: The cell needs to be inspected. The blades may have calcium. The cell is not producing chlorine.

FLOW: GOOD FLOW LED ON: Sufficient water flow to produce chlorine.

NO FLOW LED FLASHING: There is water flow. Continuous detection of water for one minute

SANITIZE OUTPUT SETTING: Press the button MIN and MAX, 10% each setting.

Operation

IMPORTANT! Use of an external Pool Pump Timer is Required

The PL71 is designed to supply a sufficient amount of chlorine to sanitize pool water on a daily basis. If the pool pump is continuously running 24 HOURS and the PL71 is operated at 100%, too much chlorine would be generated than would be needed by most pools (2-4 ppm). The PL71 has its own internal timer which cycles the electrolytic cell on and off depending on what percent the Sanitizer output is set. For instance, at 100% the cell works all the time while the pool pump is running. When set at 80%, the cell is allowed to rest 20% of the time while the pool pump is running and prolong cell life. In order to fine tune PL71 to your pool size just increase or decrease the Sanitizer Output from 10% to 100% of the time.

CAUTION - The PL71 is designed to only produce chlorine. The PL71 does not monitor or control chlorine levels in the pool or spa water. It is the pool owner's responsibility for monitoring and maintaining free chlorine levels at 2.0 to 4.0 parts per million (ppm) according to APSP recommendations. It is the pool owner's responsibility to check the free chlorine level while the pool pump is running on a regular basis, and adjust the Sanitizer Output on the PL71 accordingly.

Start-up Procedure (Super Chlorination)

Super Chlorination is recommended before pool start-up.

Super Chlorination should start with clear, chlorinated pool water.

The PL71 will build up a sufficient level of chlorine for sanitation in several hours. PL71 will not be able to produce enough chlorine to reach breakpoint chlorination. It is better at super chlorination at the time of pool start-up until the chlorine level has returned to 2.0 to 4.0 ppm before switching on the PL71.

Output Settings and Adjustments

Chlorine output is show by LED DISPLAY, before working, there will be 1/2 minutes self checking the salt level. If salt is in the normal level, it will begin working, if not, adjust according to the warning showed on the LED DISPLAY.

For example, if salt level at 2600 ppm, both LED DISPLAY and LED Salt inspect salt will indicate that there is not enough salt in the pool to produce chlorine

To set at output, just press the **MIN** or **MAX** button.

First time installation, after running 24 hours, use a reliable test method to test the pool water for free available chlorine. The ideal range to maintain is 2.0-4.0 ppm.

If the free chlorine level of the pool water is too low, increase chlorine production by pressing the Max button. If the free chlorine level of the pool water is too high, decrease chlorine production by pressing the MIN button.

Due to a varying free chlorine demand of pool water, it may take a few days to determine the number of daily pool operating hours and “Sanitizer Output” percentage setting for your pool. Continue adjusting as necessary, allowing 24 hours between adjustments until the free chlorine level of the pool water is stabilized at 2.0 - 4.0 ppm, per APSP recommendations.

Cautions

- Do not get fertilizer in your pool. Fertilizers contain nitrates, which cause a high chlorine demand.
- Never use dry acid to adjust pH in arid geographic areas with excessive evaporation and minimal dilution of pool water with fresh water. A buildup of byproducts can damage PL71.
- Do not add any pool water balancing chemicals (including salt) unless PL71 is switched off.
- Do not let the Cyanuric Acid level drop below 30 ppm in outdoor pools.

NOTE: DO NOT USE CYANURIC ACID IN INDOOR POOLS.

Maintenance

Every salt system need maintenance after use, this section concern with it.

Weekly service

pH Level Test: 7.4 to 7.6, although 7.2 to 7.8 is an acceptable range under APSP's guidelines.

Note: Never use dry acid (sodium bisulfate) to adjust pH in arid geographic areas with excessive evaporation and minimal dilution of pool water with fresh water. A buildup of byproducts can damage PL71.

Total Alkalinity Test: Test the pool water for total alkalinity with a reliable test method. Adjust according to your pool professional's recommendations. APSP's recommended ideal range for total alkalinity is 80 to 120 ppm.

Chlorine Test: Test the pool water free chlorine level with a reliable test method. Maintain ideal range by adjusting PL71 Sanitize Output settings. See "MIN", "MAX". Desired Free Chlorine is 2.0-4.0 ppm.

Note: Above 4.0 ppm of chlorine may cause excessive corrosion of metal components and possibly cause damage to associated pool equipment.

Monthly Service

To ensure that the correct chemical balance is maintained in your pool, it is important to perform the following recommended salt and pool water tests every month using a reliable test method.

- Adjust the salinity according to the LED warning and LED DISPLAY.
- Test the salinity: Press the Salinity button to see the reading. or Take a sample of the pool water to your local pool store for testing.
- Cyanuric Acid: Sample the pool water and test for cyanuric acid level using a reliable test method. When using PL71 the recommended ideal cyanuric acid level is 30-50 ppm.
- Calcium Hardness: Test pool water for calcium hardness level using a reliable test method. If necessary, adjust according to your pool professional's recommendations. APSP's recommended ideal range for calcium is 200 to 400 ppm for pools.

- **Metals Test:** It is recommended that the pool water be sampled and tested periodically for the presence of metals such as copper, iron, and manganese. These metals can damage cell and other related pool equipment and should not be present in the pool water. If those metals are present, contact your pool professional.
- **TDS (Total Dissolved Solids):** Test pool water for TDS level using test kit or by having a water sample tested by a pool professional. If necessary, adjust according to your pool professional's recommendations. APSP standard of 3000 minimum to 5700 - 6000 maximum ppm (which includes the salt) is recommended for salt pools.

Cleaning Blades

Note: Before acid washing, remove the calcium buildup in cell: Use a garden hose on the jet setting and spray directly into both ends of the cell. Most of this calcium buildup has a slushy consistency and will be blown out of the cell. Once the majority of the calcium has been removed, continue with acid washing which will now be more effective since most of the calcium has been removed.

Automatic Cleaning: PL71 has an automatic cell blade cleaning feature (cell reversing) that helps remove scale deposits from PL71 blades. **Note:** Automatic cleaning does not interrupt chlorine production. "Scale" is a white crusty deposit that forms in excessively hard water or from pool water that is out of balance and in a scaling condition. If the blades show excessive scaling, you need to perform an acid wash cleaning.

Acid Wash Cleaning: If PL71 blades show a tendency to scale, it is recommended that every two (2) months PL71 be removed and inspected for scale formation and/or debris on PL71 blades. High hardness areas may require more frequent cleaning. Some filters allow debris to pass through to PL71, possibly lodging between the blades in PL71. A small amount of scale formation is normal. If by looking through PL71 it is observed that there is excessive scale formation between the blades or debris is present, PL71 must be cleaned as follows:

Use a high-pressure jet of water from a garden hose. If the blades cannot be reasonably cleaned in Disconnect the AC power from the Power Center.

- Mix one (1) quart of muriatic acid with one (1) gallon of tap water in a plastic bucket.

When cleaning PL71 always wear rubber gloves and eye protection. Always add acid to water, do not add water to acid.

- Screw the cap with washer and o-ring onto the threaded end of PL71 cell (*the cap, o-ring and washer are provided with the cleaning kit*).
- Place PL71 horizontal in a five (5) gallon bucket. Pour the acid solution (as described in step) into PL71 until the cell blades and salinity probes are just covered. Allow the acid solution to bubble, and to clean the blades.

***Note:** The acid should only be contained inside PL71 covering the blades. Try not to spill the acid on the outside of the PL71. If acid does spill on the outside of PL71 wash it off with water.*

- A foaming action will begin, which is caused by scale (calcium carbonate) being dissolved from the blades. If rigorous foaming action does not begin, the blades do not need to be cleaned

STOP THE CLEANING PROCESS and continue to next step. Otherwise, allow the blades to remain immersed in the solution until the foaming has stopped. However, do not leave acid in PL71 for more than thirty (30) minutes. Excessive acid washing will damage the blades.

- Remove PL71 from the bucket and place in an empty five (5) gallon bucket. Rinse the inside and outside of PL71 thoroughly with clean tap water and inspect. If deposits are still visible, repeat the acid cleaning process.
- Once clean, replace the cell and resume normal operation.
- If the acid wash procedure is necessary, it is recommended that a sample of pool water be analyzed by a pool professional for excessive calcium hardness (i.e. ideal range is 200 to 400 ppm) and/or improper water balance.
- **Inspect the inside of PL71 every two (2) months (or more frequent in hard water areas).** If no scale or debris deposits are observed inside PL71 after four (4) months, it is not necessary to
- continue inspections every two (2) months. However, due to possible changes in pool water chemistry and filtering effectiveness, it is recommended that the cell be removed for inspection at least twice a year.
- Reconnect PL71 communication cable plug in the Power Center, then reconnect AC power to PL71 Power Center.

Installation

Attention: Before installation, ensure power is disconnected!

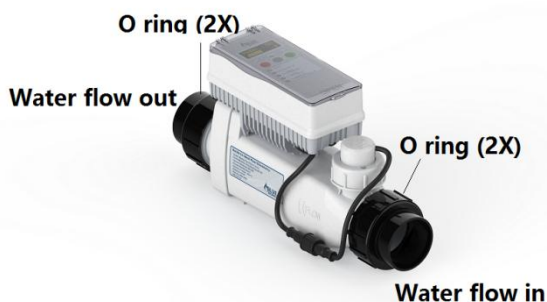
Grounding (earth bonding) is required. The unit should be installed by a qualified service person and grounded. Install to allow access to cell buttons and power center.

Read Safety Precautions and Important Instructions on page 1. Before attempting any electrical wiring, be sure to read and follow Safety Instructions. Wiring should only be performed by a qualified professional.

- Install the PL71 unit a minimum of three (3) feet away from the heater outlet.
- Pipe couplings: Schedule 80, maximum pressure 75 psi at 70F (21 °C).

How to install Cell:

1. Using PVC glue, mount the PVC couplings to the plumbing pipe. Allow the glue to dry.
2. Mount the cell vertically. Allow access to the cell operator control panel. Install the cell onto the couplings. Ensure the O-rings are seated properly.
3. Switch on the pump and visually inspect for leaks around the couplings.



Connecting PL71 Cell Cable to the Power Center

WARNING - Switch OFF main system power to the Power Center before making any connections.

1. Be sure that AC power is switched OFF before connecting the power cord to the Power Center.
2. Align the three (3) pins of the cell power cord connector with the socket on the top of the Power
3. Center and insert the connector. Turn the round socket nut until it locks the connector in place.

The power center is dual voltage 115V-230V, it will auto convert, no additional wiring needed.

Troubleshooting

Problem	POSSIBLE CAUSE:	SUGGESTED ACTION:
Low or no chlorine residual in pool	Sanitizer Output percentage set too low or off at 0%	Increase Output Level.
	Insufficient run time	Increase run time to at least 1 hour per 10° ambient temp.
	Heavy pool use, inclement weather, organic matter	Activate Super CL mode or chemically shock pool.
	Water chemistry issues: Low Chlorine Stabilizer Low salt in pool (less than 2300 ppm) Phosphates in pool Nitrates in pool	Contact pool professional, ensure all chemicals
	Cell is dirty, clogged, or Has excessive scaling or mineral build-up	Remove Cell from plumbing, inspect and clean (see p.13).
Low or no Chlorine residual in pool after recent installation	Water chemistry was not balanced prior to system installation and a high chlorine demand persists	Contact pool professional, ensure all chemicals on p.6 are within range, chemically shock pool if necessary.
Red Inspect cell Led is on	It is time to clean the Electrolytic Cell.	The Cell must be cleaned
	Cell efficiency has been greatly reduced	Inadequate water flow exists, or Cell must be replaced.
Red Inspect Salt LED is on	Pool water salt is too low or too high, system is off. Less than 2300 or Over 6000 ppm	Correct the salinity level.
Red Inspect Salt Led is flashing	Pool water salt is low or high, 2300 PPM to 2800 PPM/4500 PPM to 6000 PPM 2300-2600, system is still working	Correct the salinity level.
No Power	Fuse/Reset has tripped	Check fuses on power center
	No AC Power to the power center	Check the connection

No Flow LED is on	Incorrect installation	Verify Sensor probe correct orientation
	Sensor probe is dirty or clogged	Ensure correct connection, clean Sensor probe if necessary.
	Insufficient circulation	Ensure operation of pump, at least 25-30 GPM. Check water level, filter pressure, or for air or blockages in PVC plumbing.
Water leak	O-Ring improperly seated	Ensure O-Rings are clean and in good condition.
	Threaded collars are cross-threaded	Inspect threads for damage, ensure that each screws back on without resistance.
Cell frequently has mineral buildup	This is due to imbalanced water chemistry and a high Saturation Index	Ensure that your Saturation Index is at or near zero, in order to avoid damage or premature cell failure.
Cell never or rarely has mineral buildup	Water may be corrosive due to imbalanced water chem. and a low Saturation Index	Ensure that your Saturation Index is at or near zero, in order to avoid damage or premature cell failure.
COLD Water Led is on	Water temperature is too hot or cold for operation	Check operation of heater, or turn off until water temp is between 50° F TO 122 °F.
	Bad contact line contact of Sensor probe	Ensure Sensor probe well- connected.
	Damaged Sensor probe	Contact manufacturer.

WARRANTY

PL71 is warranted to be free from defects in materials and workmanship, under normal use and non-commercial application, for a period of ONE (1) years, per the schedule below. Proof of purchase is required. This limited warranty is extended exclusively to the original purchaser of the PL71 system and is non-transferable. PL71 is intended for residential pool use and any commercial application voids all warranties.

Exclusions:

- Problems arising from failure to maintain proper water chemistry levels, per manufacturer's recommendations, as outlined in the Owner's Manual.
- Problems arising from failure to use PL71 in accordance to manufacturer's recommendations, as outlined in the Owner's Manual.
- Problems resulting from tampering, accident, electrical surges, abuse, neglect, unauthorized or unqualified repairs, product alteration, fire, flood, freeze damage, Acts of Nature or Acts of God.
- Damage or degrading of concrete, natural stone, wood or synthetic surfaces adjacent to the swimming pool or spa.
- Problems or damages incurred due to improper installation and/or improper electrical supply.

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

Some states do not allow the exclusion of limitations of incidental or consequential damages. Listed exclusions and limitations may not apply to you.

Please visit www.purelinepool.com for more information, useful tips, and troubleshooting assistance, or call us at 1-877-372-6038.