INSTALLATION GUIDE AND OWNER'S MANUAL

PolarisAutoClear

IMPORTANT INFORMATION

SERIAL NUMBER

IMPORTANT SAFETY INFORMATION

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

READ AND FOLLOW ALL INSTRUCTIONS

Installation of this equipment should be performed by a licensed electrician and conform to all National Electric Code (NEC), state and local codes. Installations in Canada must comply to CEC requirements.

WARNING: To reduce the risk of electrical shock:

- Install all electrical equipment at least 10 feet (3 m) from inside wall of pool or spa.
- Connect this device only to a grounding-type receptacle protected by a ground-fault circuit interrupter (GFCI).
- Do not use an extension cord, connect controller directly into outlet.
- Do not bury the cord but position it to eliminate contact with lawn mowers, hedge trimmers and other such equipment.
- Disconnect power before servicing this equipment.

Use a solid copper bonding conductor, no smaller than No. 8 AWG (8.4 mm^2) US or No. 6 AWG (Canada) to connect the accessible wire connector to all metal components (rails, ladders, drains, etc.) located within 5 feet (1.5 m) of the pool or spa.

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

Damaged cell cords must be replaced by a Polaris Authorized Service Center.

SAVE THESE INSTRUCTIONS

For customer service or support:

- For on-line support: www.polarispool.com
- To contact Polaris:

US and Canada
Customer Service
2620 Commerce Way
Vista, CA 92081-8438
1-800-822-7933

Specifications

Input Power:	120 VAC 50/60 Hz, 3.0 Amps or 240 VAC 50/60 Hz, 1.5 Amps
Output Power:	26-28 VAC @ 5.2 Amps (max.)
Capacity:	40,000 Gallons
Operating Temp:	50° - 104° F
Display	LED

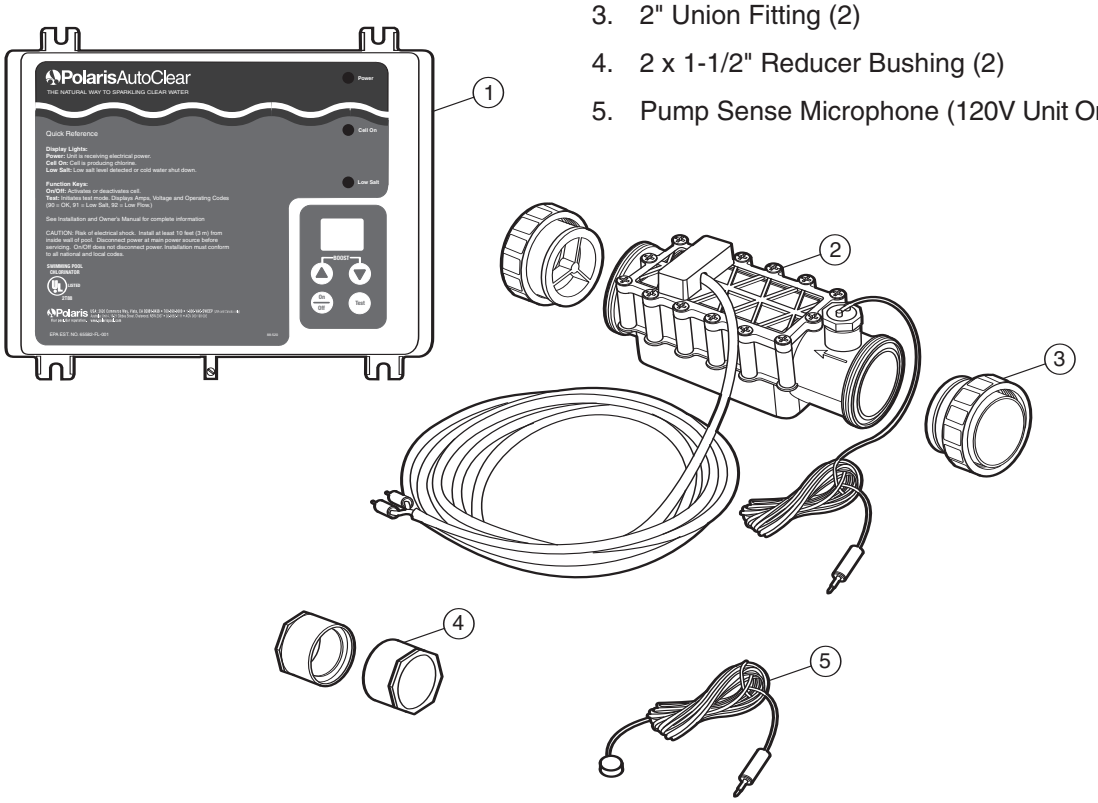
Introduction

The Polaris AutoClear® automated pool chlorination system sanitizes pools and spas naturally, providing clean, clear water with no harsh chemicals and no eye or skin irritation.

Using an electrolytic cell installed on the pool return line, the AutoClear converts salt (NaCL) dissolved in the pool water into pure chlorine. The chlorine is used to sanitize the pool, then converts back to salt. This process is repeated indefinitely, supplying all pool and spa chlorine needs.

Polaris AutoClear Components

1. Controller
2. In-Line Cell with Integrated Flow Switch
3. 2" Union Fitting (2)
4. 2 x 1-1/2" Reducer Bushing (2)
5. Pump Sense Microphone (120V Unit Only)



Installation Instructions

Simple installation in four easy steps:

- Determine pool/spa capacity (total gallons) and prepare the pool water
- Install the cell
- Install the controller
- Start and set the system

1 Prepare the Pool Water

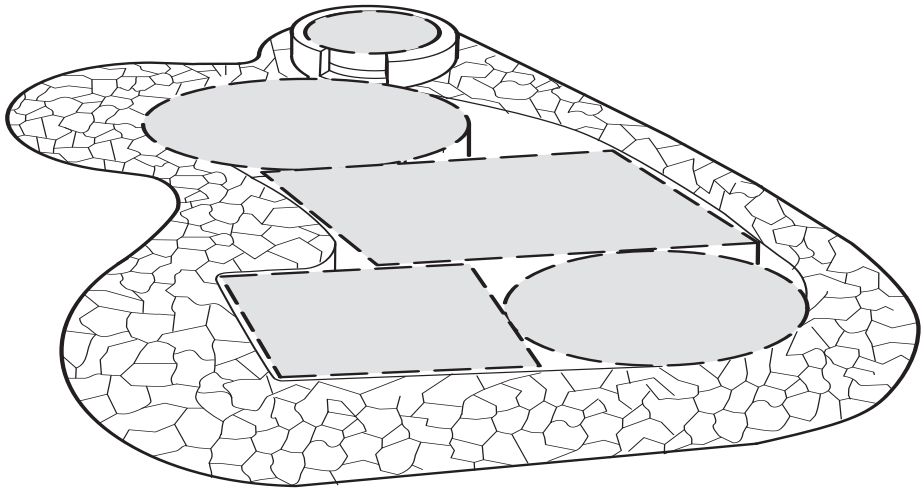
Figure the pool/spa capacity, total gallons being circulated by the primary pump, using the guidelines specified below.

Rectangular Pools: Length x Width x Average Depth x 7.48

Round Pools: Radius x Radius x 3.14 x Average Depth x 7.48

Oval Pools: Maximum Length x Minimum Width x Average Depth x 5.7

Irregular Shaped Pools: Divide the overall shape into smaller forms and figure the capacity in each. Then add all areas together to obtain total gallons.



Superchlorinate (shock) the pool to eliminate any chlorine demand. Then test and balance the pool to the following specifications. For specific chemical requirements, refer to the **Reference** section of this document. For vinyl or fiberglass pools, refer to manufacturer's guidelines.

Free Chlorine	1.0 - 3.0 parts per million (ppm)
pH	7.4 - 7.6 ppm
Total Alkalinity	80 - 120 ppm
Calcium Hardness	200 - 400 ppm (Do not install system if hardness is over 1200 ppm.)
Cyanuric Acid (Stabilizer)	Per local requirements
Metals, Phosphates and Nitrate	0 ppm

Use a test strip (AquaChek or equivalent) to determine the salt content of the water. Add enough salt to attain a level between 3000-3500 ppm, the optimum level is 3250 ppm. Use only granulated, evaporated sodium chloride (99%-plus pure) and never use salt with anti-caking additives or Yellow Prussiate of Soda. Water conditioning pellets (with no additives) can be used but may take longer to dissolve. When sodium bromide is used, it is in addition to the required sodium chloride levels. Refer to the sodium bromide requirements chart in the **Reference** section.

Per gallon salt requirements are approximately, 50 lbs. per 2000 gallons of water. Refer to the chart below for exact dosages.

Pounds Of Salt Needed For 3250 ppm

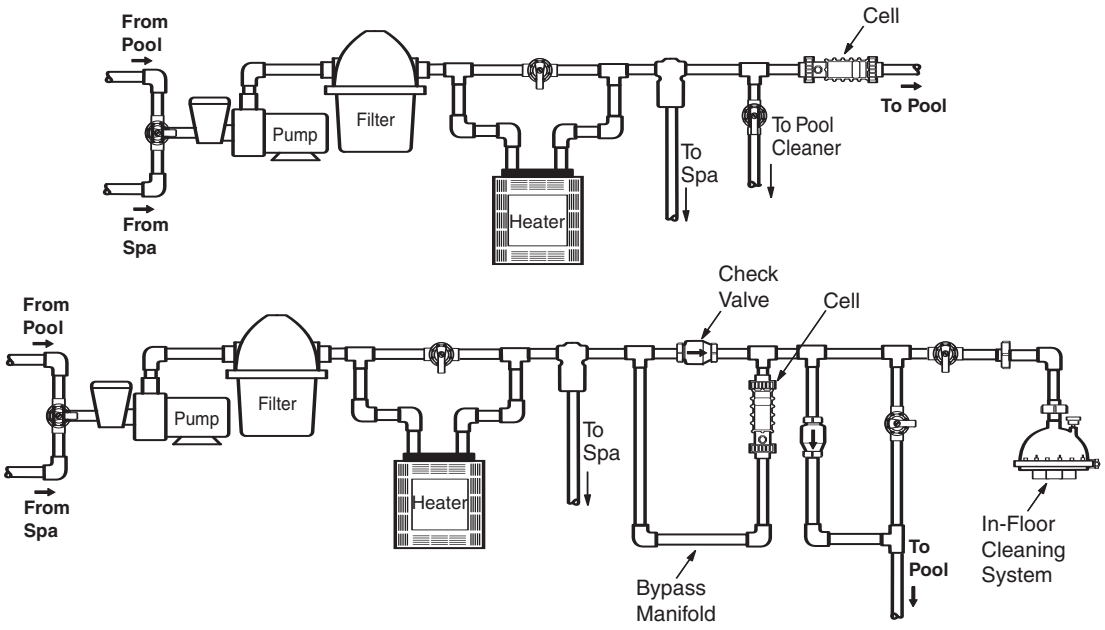
Existing Salt Concentration	Pool Volume in Gallons						
	10,000	15,000	20,000	25,000	30,000	35,000	40,000
0 ppm	271 lbs.	407 lbs.	542 lbs.	678 lbs.	813 lbs.	949 lbs.	1084 lbs.
250 ppm	250 lbs.	375 lbs.	500 lbs.	626 lbs.	751 lbs.	876 lbs.	1001 lbs.
500 ppm	229 lbs.	344 lbs.	459 lbs.	573 lbs.	688 lbs.	803 lbs.	917 lbs.
750 ppm	209 lbs.	313 lbs.	417 lbs.	521 lbs.	626 lbs.	720 lbs.	834 lbs.
1000 ppm	188 lbs.	281 lbs.	375 lbs.	469 lbs.	563 lbs.	657 lbs.	751lbs.
1250 ppm	167 lbs.	250 lbs.	334 lbs.	417 lbs.	500 lbs.	584 lbs.	667 lbs.
1500 pm	146 lbs.	219 lbs.	292 lbs.	365 lbs.	438 lbs.	511 lbs.	584 lbs.
1750 ppm	125 lbs.	188 lbs.	250 lbs.	313 lbs.	375 lbs.	438 lbs.	500 lbs.
2000 ppm	104 lbs.	156 lbs.	209 lbs.	261 lbs.	313 lbs.	365 lbs.	417 lbs.
2250 ppm	83 lbs.	125 lbs.	167 lbs.	209 lbs.	250 lbs.	292 lbs.	334 lbs.
2500 ppm	63 lbs.	94 lbs.	125 lbs.	156 lbs.	188 lbs.	219 lbs.	250 lbs.
2750 ppm	42 lbs.	63 lbs.	83 lbs.	104 lbs.	125 lbs.	146 lbs.	167 lbs.
3000 ppm	21 lbs.	31 lbs.	42 lbs.	52 lbs.	63 lbs.	73 lbs.	83 lbs.
3250 ppm	0 lbs.	0 lbs.	0 lbs.	0 lbs.	0 lbs.	0 lbs.	0 lbs.

- **To add salt to existing pools**, pour salt around the perimeter and mix with a brush to ensure quick and even distribution.
- **For new or colored plaster**, wait 10-14 days after pool is filled to allow adequate time for the plaster to cure. Use only fine granulated salt. Pour salt evenly around the pool and run pump continuously for three hours.

2 Install the Cell

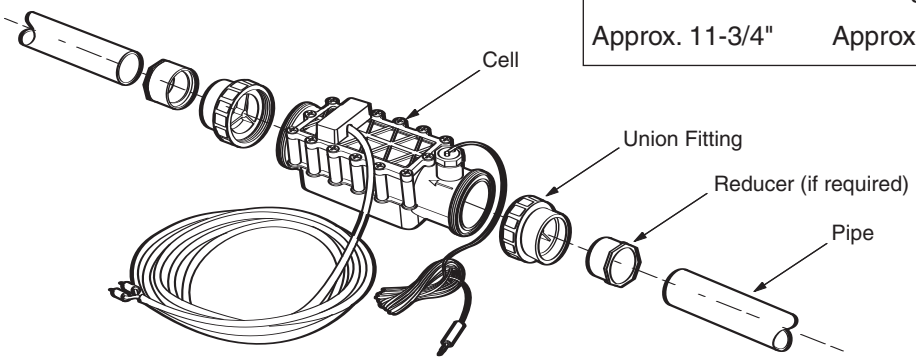
Install the cell in a section of straight pipe, at least 22 inches long, downstream from all pool equipment. Position the cell within 10-12 feet of the controller location to accommodate the 12 ft. cell cord. If an in-floor cleaning system or other high-flow application is present, install the cell on a bypass manifold and include a check valve.

The cell can be positioned vertically, horizontally or at an angle.



1. Turn off pool pump.
2. Measure and cut the pipe based on the piping configuration. Leave at least **6 inches of straight pipe in front of the cell**.

2" Pipe	**1-1/2" Pipe**
Length of cell and union fittings	Length of cell, union fittings and reducer bushings
Approx. 11-3/4"	Approx. 12"



3. Clean all surfaces and apply primer to cut pipe.
4. Glue union fittings (and reducer bushings if using 1-1/2" pipe) straight onto pipe.
5. Install cell and hand tighten unions.
6. Verify that cell wire and flow switch wire are secure.

3 Install the Controller

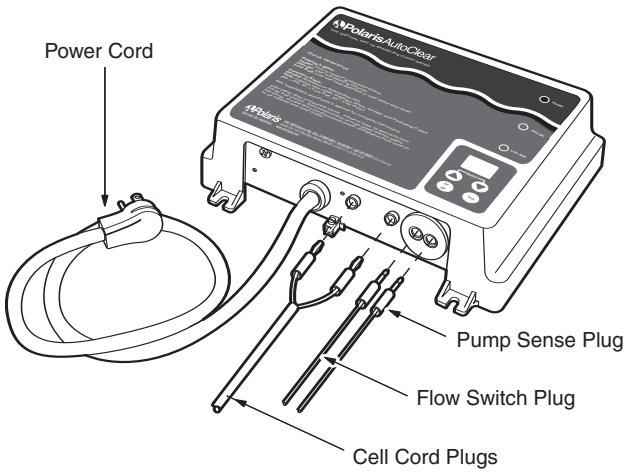
Install the controller within 10 - 12 feet of the cell to accommodate the 12 ft. cell cord. Mount (hard-wired unit after making junction box wire connections) slightly above eye level on a wall, protected from direct sunlight, rain and flooding.

Connect AC power:

120 VAC (Plug-In) Unit:

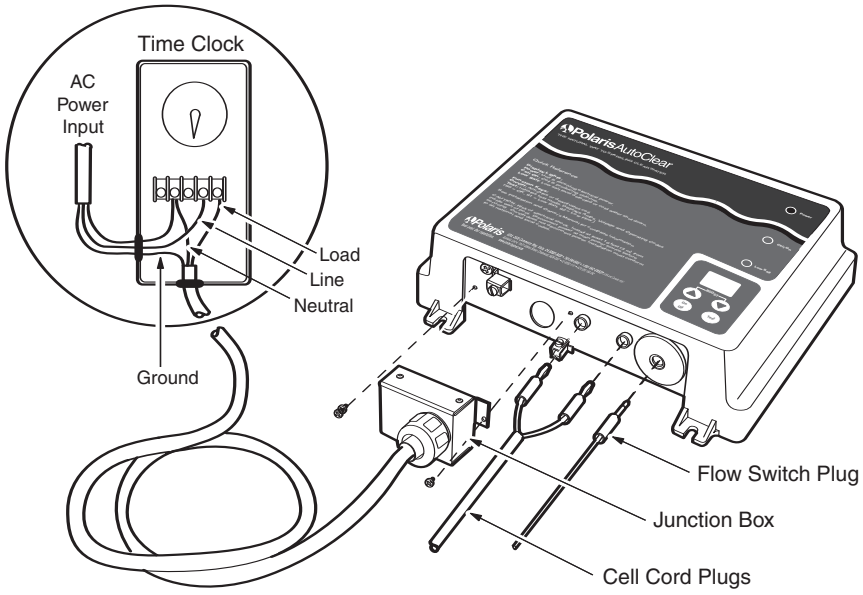
1. Plug controller into a 120 VAC, GFCI protected outdoor receptacle. Do not use an extension cord.
2. Connect the cell cord plugs, the flow switch plug and the pump sense plug.
3. Route pump sense cable to pool motor. Secure cable with cable ties.

   With all cables connected, turn on power to controller and pool pump. Position sensor near motor. When the **Cell On** light illuminates (and - stays lit) the sensor has sufficient "field" to activate. Attach the sensor at this location; clean the spot with rubbing alcohol, remove plastic film from adhesive tape on back of sensor and attach to motor.



240 VAC (Hardwired) Unit:

1. A liquid-tight connector is mounted to the AC junction box on the controller. Locate and remove the box.
2. Use 18AWG wire (min.) and 12AWG ground wire (in non-metallic conduit) to connect controller. Use copper bonding wire (8AWG min.) to ground the controller to the common bonding grid for the pool equipment. Attach at grounding lug.
3. Reinstall junction box and mount the controller.
4. Wire the AC power to the load side of the time clock or pump.
5. Connect the cell cord plugs and flow switch plug.



4 Start and Set the System

Wait 24 hours from last pool water adjustments to make certain that the salt is completely dissolved and all chemicals have been thoroughly circulated.

1. Turn on pool pump to activate system.
2. A clicking noise will sound and the **Power** and **Cell** lights will illuminate. If Cell light does not light, press the **On/Off** button to activate power.

   At startup, the LCD display will flash the two-digit, factory-set system run time. The display will then go dark.

   To adjust the run time, press the **Up** ▲ or **Down** ▼ button. The pre-programmed time will again flash on the display. Press the Up or Down arrow again quickly to set the run-time hours (i.e. 06 = 6 hours).

   A flashing dot at the bottom of the display indicates proper sensing on the pump.

   To temporarily stop the system, set the run time to zero (00).

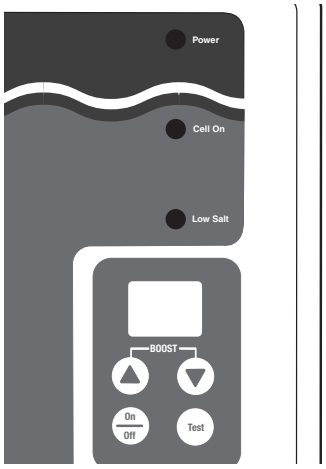
   Use the **On/Off** button to manually control cell activation.

   If the amber **Low Salt** light flashes at startup, brush the bottom of the pool to make sure all salt is dissolved and properly circulated. Test for salt concentration and adjust as necessary to bring the concentration into the 3000-3500 ppm range. The optimum range is 3250 ppm.

3. **The pool pump must be set to run longer than the AutoClear unit. A minimum of five hours per day is required for proper circulation and filtration**.

Operation and Maintenance

Once installed, the Polaris AutoClear will continuously use existing salt in the pool to provide chlorination.



In normal operation, the controller runs on a 24-hour timer. Power is supplied to the cell for the preset **run time**, then disabled for the remainder of the 24-hour period. Press the **Up** ▲ or **Down** ▼ button once to display the current run time and again to adjust it.

The **Low Salt** light will flash if a low salt condition is detected. Test the pool water for the salt concentration and adjust as necessary. If the light stays lit, a problem condition exists. Refer to the **Troubleshooting** section. After correcting the condition, reset the light by pressing the Test button.

Press the **Test** button to review the unit's current operational readings. The screen will flash an LED test (88), then display the amperage (with decimal point), the voltage (no decimal) and the operational status code.

Status Codes	Definition
90	System OK
91	Low salt, cell needs cleaning or cell wire problem*
92	Insufficient flow, flow switch problem or pump microphone problem*

* See Troubleshooting section for fault resolution procedures.

Optimizing Performance

To optimize system performance and extend the life of the cell:

- Keep pool water balanced, maintaining salt levels at the optimum level of 3250 ppm and stabilizer (cyanuric acid) at levels appropriate for the regional climate.
- Adjust system run time and consequent chlorine output to correspond with chlorine demand. Lengthen run times for heavy bather activity, sunny days and water temperatures above 85° F. Shorten run times for indoor pools that are shielded from the sun and require less sanitizer or for cooler water temperatures in the off season. See **Run Time Recommendations** table in Reference section.

  Always adjust/readjust pump cycles to match or exceed system run time.
- Maintain chlorine levels of 1.0 - 3.0. Chlorine levels above 3.0 ppm at a pH below 7.2 are known to cause corrosion of pool metals.
- Do not use copper-based algaecides or salt with anti-caking agents.
- Do not add bi-carb or calcium chloride directly to skimmer while AutoClear is running.
- Do not operate system if water temperature is below 55° F or salt concentration is less than 2200 ppm.

  To avoid damage to the cell plates, the unit is programmed to automatically shutdown if water temperatures fall into the 50-55° F range or salt is below 2200 ppm.

If pool water appears cloudy or algae forms, test pool water for all values and make adjustments to balance. **The AutoClear is not designed to balance pool water.** To eliminate a full algae bloom, superchlorinate (shock) the pool.

Cleaning the Cell

The AutoClear is self-cleaning under normal, balanced water conditions. The controller will initiate a cell cleaning cycle every two hours indicated by a 30-second flashing of the **Service** light. This cleaning feature is not designed to eliminate excessive build-up caused by improper water balance or low flow. **Scaling situations are not covered by the warranty.**

To manually clean cell:

1. Turn off pump, loosen unions and remove cell from plumbing noting the orientation of the cell and flow switch (gray wire).
2. Use a garden hose with nozzle to remove debris or scale build up. **Do not put foreign objects into the cell as plate damage may occur.**

   If scale remains, immerse the cell, with flow switch intact, in a solution of Muriatic acid and water (1 part acid added to 4 parts water). Soak the cell until all foaming stops. Remove cell and rinse thoroughly.
3. Reinstall cell in the proper orientation. Hand tighten the unions.

Boosting Chlorine Production

If pool traffic is heavy or other demands require increased chlorine production, press the **Up** ▲ and **Down** ▼ simultaneously to activate a continuous 24-hour run cycle. **The pool pump timer must be adjusted to run for 24 hours as well**. At the end of the cycle, the normal run time cycle will resume. To terminate the boost cycle, press the **On/Off** key.

Resetting the Internal Timer

If the current to the cell is off, the internal 24-hour timer can be reset by changing the run time and then pressing the **On/Off** button. The controller will restart.

Maintaining Salt and Stabilizer Levels

Salt can be lost through backwashing, splash-out, rain water and other dilution. Pool water should be tested routinely, on average 1-2 times monthly, and adjusted as needed. Stabilizer or conditioner (cyanuric acid) keeps chlorine from being destroyed by UV light. Salt and stabilizer are lost at approximately the same rate.

If the Low Salt light flashes:

- Test the pool water to get the actual salinity of the water.
- Add salt as indicated in the **Salt Requirements** chart.
- Test for stabilizer level and add as needed (see **Stabilizer Requirements** chart in **Reference** section).

Troubleshooting

If the system displays any of these actions, adjustments may be necessary to restore performance. Contact Polaris Customer Service at 1-800-822-7933 for further assistance, and for service or repair information.

Action: Low Salt light is flashing.

Solution:
1. Test salt level of pool water and add salt if necessary.

Action: Low salt light illuminated steadily and test button displays status code "91."

Solution:
1. Salt level is too low. Test for current level and add salt as needed.
2. Visually inspect and clean cell.
3. Verify that the cell cord is connected properly and connections are clean. Contact a Polaris Service Center to replace cord if damaged.
4. Verify that the pool water temperature is above 55° F.

Action: Test displays status code "92."

Solution:
1. Clean pump basket and filter, backwash if necessary, to ensure free water flow to the cell.
2. Visually inspect and clean cell.
3. Verify that the valve (if installed) upstream of the cell is open.
4. Check cell installation; arrows on flow switch and cell housing should point in direction of water flow.
5. Verify that flow switch wires (and pump sensor if installed) are connected and intact.

Action: Power light is not illuminated and nothing is displayed.

Solution:
1. Check circuit breaker and reset if necessary.
2. Verify that unit is wired correctly.

Action: Pool water test indicates low chlorine levels.

Solution:
1. Increase system run time.
2. Verify that stabilizer level is 80 ppm. Increase level if necessary.
3. Test pool water for nitrates and phosphates and adjust as required.

If a new pool, shock to eliminate chlorine demand.

Reference

Stabilizer Requirements

Stabilizer requirements vary depending on the climate. Adjust to standards for local conditions.

Pounds Of Cyanuric Acid Needed For 80 ppm

Existing Salt Concentration	Pool Volume in Gallons						
	10,000	15,000	20,000	25,000	30,000	35,000	40,000
0 ppm	7 lbs.	10 lbs.	13 lbs.	17 lbs.	20 lbs.	23 lbs.	27 lbs.
10 ppm	6 lbs.	9 lbs.	12 lbs.	15 lbs.	18 lbs.	20 lbs.	23 lbs.
20 ppm	5 lbs.	8 lbs.	10 lbs.	13 lbs.	15 lbs.	18 lbs.	20 lbs.
30 ppm	4 lbs.	6 lbs.	8 lbs.	10 lbs.	13 lbs.	15 lbs.	17 lbs.
40 ppm	3 lbs.	5 lbs.	7 lbs.	8 lbs.	10 lbs.	12 lbs.	13 lbs.
50 ppm	3 lbs.	4 lbs.	5 lbs.	6 lbs.	8 lbs.	9 lbs.	10 lbs.
60 pm	2 lbs.	3 lbs.	3 lbs.	4 lbs.	5 lbs.	6 lbs.	7 lbs.
70 ppm	1 lbs.	1 lbs.	2 lbs.	2 lbs.	3 lbs.	3 lbs.	3 lbs.
80 ppm	0 lbs.	0 lbs.	0 lbs.	0 lbs.	0 lbs.	0 lbs.	0 lbs.

Bromide Requirements

General guide: add one (1) pound of sodium bromide each time 50 pounds of salt (sodium chloride) is added.

Pounds Of Bromide Needed For 50 ppm

Existing Salt Concentration	Pool Volume in Gallons						
	10,000	15,000	20,000	25,000	30,000	35,000	40,000
0 ppm	4 lbs.	6 lbs.	8 lbs.	10 lbs.	13 lbs.	15 lbs.	17 lbs.
10 ppm	3 lbs.	5 lbs.	7 lbs.	8 lbs.	10 lbs.	12 lbs.	13 lbs.
20 ppm	3 lbs.	4 lbs.	5 lbs.	6 lbs.	8 lbs.	9 lbs.	10 lbs.
30 ppm	2 lbs.	3 lbs.	3 lbs.	4lbs.	5 lbs.	6 lbs.	7 lbs.
40 ppm	1 lbs.	1 lbs.	2 lbs.	2 lbs.	3 lbs.	3 lbs.	3 lbs.
50 ppm	0 lbs.	0 lbs.	0 lbs.	0 lbs.	0 lbs.	0 lbs.	0 lbs.

Run Time Recommendations

System cycle times in hours based on water temperature and pool size.

Pool Size In Gallons	Water Temperature 55°F to 78°F	78°F to 85°F	Above 85°F
15,000	1.0 to 2.0 hrs	4.0 to 5.0 hrs	6.0 to 7.0 hrs
20,000	1.5 to 2.0 hrs	5.0 to 6.0 hrs	7.0 to 8.0 hrs
25,000	2.0 to 2.5 hrs	6.0 to 7.0 hrs	8.0 to 9.0 hrs
30,000	2.5 to 3.0 hrs	7.0 to 8.0 hrs	9.0 to 10.0 hrs
35,000	3.0 to 3.5 hrs	8.0 to 9.0 hrs	10 plus hrs
40,000	3.5 to 4.0 hrs	9.0 to 10.0 hrs	10 plus hrs

Polaris AutoClear Limited Warranty

This limited warranty is extended to the original consumer purchaser (commercial use is excluded) of this Polaris AutoClear salt chlorinator manufactured by Polaris Pool Systems, Inc., 2620 Commerce Way, Vista, CA 92081-8438, USA.

Polaris warrants the AutoClear, including all parts and components thereof, to be free of defects in material and workmanship. This limited warranty applies only if the AutoClear is installed and maintained in strict accordance with the installation and operating instructions set forth in the Installation Guide and Owner's Manual.

This limited warranty commences on the date of purchase of the AutoClear or, if purchase date is not verified, sixty (60) days from the date the unit left the manufacturing facility as determined by the product serial number, and shall remain in effect for:

Three (3) years on all parts with the exception of the chlorine cell.

One (1) year on all parts of the chlorine cell, with an additional two (2) years on a pro-rated basis based on the following formula. (Beginning the first day of the 13th month and ending on the last day of the 36th month: current suggested retail price divided (÷) by length of original limited warranty (36 months) multiplied (x) by number of months elapsed since purchase. For calculation purposes, warranties processed after the 15th of the month will be calculated as the next month.)

One (1) year on labor for removal or reinstallation of the initial system due to defects in materials and workmanship. The consumer will be responsible for any additional fees or expenses imposed by the service center.

This limited warranty does not apply if failure is caused or contributed to by any of the following: improper handling, improper usage, abuse, damage in transit or during installation, improper installation, unsuitable application of the unit, improper maintenance, lack of reasonable and necessary maintenance, improper water balance and/or insufficient flow, or repairs/modifications made or attempted by other than Polaris Pool Systems or one of its Authorized Service Centers.

Polaris will repair or replace, at its option, a unit or part proved to be defective within the warranty period and under the conditions of the warranty.

Authorization to return a unit or part to the plant of manufacture must be obtained from Polaris Customer Service. Check with your dealer for local procedures before exercising this warranty. If further information is needed, contact Polaris Customer Service at 1-800-822-7933 (USA and Canada only) or 1-760 599-9600. Please have the serial number and proof-of-purchase available when you call.

REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS LIMITED WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL SUCH OTHER WARRANTIES ARE DISCLAIMED EXCEPT TO THE EXTENT ANY IMPLIED WARRANTY MAY BE IMPOSED BY STATE CONSUMER LAW. ANY SUCH IMPLIED WARRANTY IMPOSED BY STATE CONSUMER LAW IS LIMITED TO THE WARRANTY PERIODS STATED HEREIN, AND NO WARRANTIES SHALL APPLY AFTER THE EXPIRATION OF THE WARRANTY PERIODS STATED HEREIN.

IN NO EVENT SHALL POLARIS POOL SYSTEMS BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE OR KIND, OR FOR DAMAGES TO PERSONS OR PROPERTY, INCLUDING ANY DAMAGE RESULTING FROM THE USE OF THE POLARIS AUTOCLEAR WITH A SUBSTANDARD POOL CIRCULATION SYSTEM OR IMPROPERLY BALANCED POOL.

Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you.

This limited warranty is valid only in the United States of America and Canada, and it does not apply to Polaris AutoClear chlorinators sold or installed in any other country.

DISCLAIMER OF LIABILITY

A multitude of factors contribute to the life of a pool. The Polaris AutoClear is a passive product that has no direct impact on pool life.

AutoClear will maintain an effective level of chlorine production when the guidelines set forth in this manual are followed. Over chlorination is known to cause corrosion in pool metals. It is extremely important to test chlorine levels frequently and maintain proper chemical balance in accordance with pool industry standards.

All types of pool surfaces, including plaster, tile, pebble, vinyl liners and fiberglass can deteriorate, discolor, and become brittle over time separately by, or in combination with, age, the environment, an imbalance in pool water chemistry, improper installation, sunlight, and other factors. A build-up of scale and mineral deposits can negatively affect materials in the pool's surface. The existence of these conditions is not caused by the use or operation of the AutoClear.

The pool owner is responsibility for the maintenance and condition of the pool's surface, water and deck. Polaris Pool Systems, Inc. disclaims any liability for repairs or replacement to any of these pool structures or components.

Your pool. Our reputation.

2620 Commerce Way, Vista, CA 92081-8438 • 760-599-9600 • 1-800-822-7933

www.polarispool.com