Postage needed

Return to:

Pet Pool Products, Inc.
305 Comstock, Suite 2-3
Chandler, AZ 85225

AQUAPOWER~PLUS

Salt Chlorinator Systems
For pools / Spas / Water Features

OWNERS MANUAL

PUBLISHED 2004

IMPORTANT:

Read this manual carefully BEFORE operating your AquaPower-Plus Chlorinator.

KEEP IN A SAFE PLACE

PLEASE NOTE

1. Always test the salt level of the pool before calculating your salt requirements. This is very important because a pool that has been treated with other forms of chlorine may already have a significant salt level in it. This is due to the fact that chlorine (Sodium Chloride) breaks down into salt and water. If a salt test is not performed, you may actually be adding too much salt which will cause the chlorinator not to perform as intended. If the pool or spa is new then you will not need to test for chlorine, since fresh water contains no salt.

2. When setting the On and Off times, be aware that the time clock and On/Off settings must be in 24 hour format, (i.e. 6:00pm = 18:00 hrs.). The chlorinator will not accept an operating time period which travels from PM to AM (through midnight).

   If you would like the unit to operate on automatic through midnight, you must use two time periods.

   For Example: To turn on at 9pm and turn off at 9am

   On 1 set to 21:00
   Off 1 set to 23:50
   On 2 set to 00:00
   Off 2 set to 09:00

   The first time period must switch off before midnight with the second time period beginning at midnight or later.

AQUAPOWER-PLUS WARRANTY

Please complete on day of installation and return to PET Pool Products, Inc.

Date of purchase _____

Date of Installation _____ Who Installed _____

Name _____

Address _____

City _____ State _____ Zip _____

Telephone _____

Supplied by _____

Telephone _____

Fax _____

E-mail _____

Model:
- AP12RP ☐
- AP15AG ☐
- AP18RP ☐
- AP23RP ☐
- AP30RP ☐
- AP40RP ☐
- AP60RP ☐

Residential application ☐
Commercial application ☐

CONGRATULATIONS
AND THANK YOU
FOR PURCHASING THIS
QUALITY PRODUCT

Manufactured and distributed by:

Pet Pool Products, Inc.
305 Comstock, Suite 2-3
Chandler, AZ. 85225

Local: 480.635.8197
Local Fax: 480.635.8359

Toll Free: 1.866.725.8766
Toll Free Fax: 1.866.807.5546

www.aquapowerplus.com

NOTES

WARRANTY

Residential Applications

AP-RP model
The power supply carries a full 2 year warranty.
Cells carry a 2 year full, 3 year pro-rated warranty

Commercial Applications

All models will have a 1 year warranty on power supply and electrode if installed in a commercial situation. *

<u>* Extended Warranties are available-Please see your Dealer.</u>

Residential: Extends warranty to a full 5 years on entire unit. Parts and Labor.

Commercial: Extends warranty 1 year per warranty purchased. Commercial pools can purchase as many years as they require.

Special Conditions

On site labor, service calls or freight charges are the responsibility of the purchaser. Under no circumstances shall the manufacturer be liable for incidental or consequential damages, inconveniences or expenses in connection with removal or replacement of equipment.

Under no circumstances shall the manufacturer be liable for damage caused to persons or property as a result of use of this equipment.

The following invalidates warranty:

• Incorrect installation

• Failure to clean cell regularly and to the specifications listed in this manual

• Misuse

• Water in excess of 113° F passing through the cell

• Used for a purpose other than that described in this manual

• Operating pressure exceeding 30 psi

• Operating unit at both lower and/or higher than recommended salt levels

Index

INTRODUCTION

Congratulations, you have wisely purchased one of the most technologically advanced salt water chlorinators in the world. The benefits of doing so will be evident for many years to come.

AquaPower's research and development team is committed to producing the finest chlorination systems and being recognized world wide as the leaders in salt chlorination technology.

Maximum customer satisfaction is achieved if the purchaser knows they have installed the very best product for their pool and family. We recognize this and therefore manufacture only the highest quality chlorine generating systems possible using the most innovative and unique technology.

Thank-you once again for choosing Aquapower-Plus, we trust you will be very happy.

Your Aquapower-Plus chlorinator will eliminate the need to store dangerous quantities of chlorine, daily manual chlorine dosing and the risks associated with these practices. It is automatic, clean, safe and economical and for these reasons, salt chlorination as a method for treating pool water is increasing worldwide.

Mild salt water is gentle on eyes and skin and is said to benefit asthma sufferers and those people who find conventional chlorinated pools irritating. The salinity of seawater is approx. 35,000ppm or 3.5%, while Aquapower-plus chlorinators require only 2,500 ppm. The human body has a salinity of approx. 4500 to 6000 ppm and fresh water is zero. It is the similarity between the salinity of the human body and that of a salt pool that make for a silky luxurious swimming experience.

The chlorinator comprises two basic components, the power supply and cell (Electrode). It is within the cell that the electrolytic reactions occur. Chloride ions in the water are converted into chlorine gas, this dissolves immediately into the water to ultimately form sodium hypochlorite, (liquid chlorine). The chlorine oxidizes bacteria, algae and other harmful matter in the pool water and through this process reverts back into available chloride ions. The major by-product of the reaction in the cell is the liberation of Hydrogen gas at the cathode. This explains the small bubbles often seen passing out of the pool returns.

No salt is lost through this process or as a result of evaporation. The necessity to top off the salt level approx. twice per year is because of dilution through events such as backwash and splashing out, or a pool or spa leak. If you are using abnormally large amounts of salt check your pool or spa for a leak.

All Aquapower-Plus models contain digital time clocks, the four ON/OFF periods available are easily programmed for fully automatic operation of your pump & chlorinator.

All models have a built in back up power system that will hold all your programmed information for at least seven days. This suits applications where the main power is switched off every day for a number of hours.
Our units do not contain batteries.

34,000	36,000	38,000	40,000	42,000	44,000	46,000	48,000	50,000	52,000	54,000	56,000	60,000
708	750	791	833	875	916	958	1,000	1,041	1,083	1,125	1,166	1,250
651	690	728	766	805	843	881	920	958	996	1,035	1,073	1,150
595	630	665	700	735	770	805	840	875	910	945	980	1,050
538	570	601	633	665	696	728	760	791	823	855	886	950
481	510	538	566	595	623	651	680	708	736	765	793	850
425	450	475	500	525	550	575	600	625	650	675	700	750
368	390	412	433	455	476	498	520	541	563	585	606	650
312	330	348	367	385	403	421	440	458	476	495	513	550
255	270	285	300	315	330	345	360	375	390	405	420	450
198	210	222	233	245	257	268	280	292	303	315	327	350
142	150	158	167	175	183	192	200	208	217	225	233	250
85	90	95	100	105	110	115	120	125	130	135	140	150
28	30	32	33	35	37	38	40	42	43	45	47	50
Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute

34,000	36,000	38,000	40,000	42,000	44,000	46,000	48,000	50,000	52,000	54,000	56,000	60,000
906	960	1,013	1,066	1,120	1,173	1,226	1,279	1,333	1,386	1,439	1,493	1,599
850	900	950	1,000	1,050	1,100	1,150	1,200	1,250	1,299	1,349	1,399	1,499
793	840	886	933	980	1,026	1,073	1,120	1,166	1,213	1,259	1,306	1,399
736	780	823	866	910	953	996	1,040	1,083	1,126	1,170	1,213	1,299
680	720	760	800	840	880	920	960	1,000	1,040	1,080	1,120	1,200
623	660	696	733	770	806	843	880	916	953	990	1,026	1,100
566	600	633	666	700	733	766	800	833	866	900	933	1,000
510	540	570	600	630	660	690	720	750	780	810	840	900
453	480	506	533	560	586	613	640	666	693	720	746	800
397	420	443	466	490	513	536	560	583	606	630	653	700
340	360	380	400	420	440	460	480	500	520	540	560	600
283	300	317	333	350	367	383	400	417	433	450	466	500
227	240	253	267	280	293	307	320	333	347	360	373	400
198	210	222	233	245	257	268	280	292	303	315	327	350
170	180	190	200	210	220	230	240	250	260	270	280	300
113	120	127	133	140	147	153	160	167	173	180	187	200
57	60	63	67	70	73	77	80	83	87	90	93	100
Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute

SALT QUANTITY CHART

Use to determine the quantity of salt to add to a new pool or to top off a pool that is low on salt.

Chlorine Table at 2500 ppm

Current Salt level (ppm)	POOL SIZE IN GALLONS												
	8,000	10,000	12,000	14,000	16,000	18,000	20,000	22,000	24,000	26,000	28,000	30,000	32,000
0	167	208	250	292	333	375	417	458	500	541	583	625	666
200	153	192	230	268	307	345	383	421	460	498	536	575	613
400	140	175	210	245	280	315	350	385	420	455	490	525	560
600	127	158	190	222	253	285	317	348	380	412	443	475	506
800	113	142	170	198	227	255	283	312	340	368	397	425	453
1000	100	125	150	175	200	225	250	275	300	325	350	375	400
1200	87	108	130	152	173	195	217	238	260	282	303	325	347
1400	73	92	110	128	147	165	183	202	220	238	257	275	293
1600	60	75	90	105	120	135	150	165	180	195	210	225	240
1800	47	58	70	82	93	105	117	128	140	152	163	175	187
2000	33	42	50	58	67	75	83	92	100	108	117	125	133
2200	20	25	30	35	40	45	50	55	60	65	70	75	80
2400	7	8	10	12	13	15	17	18	20	22	23	25	27
2500	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal
2600	0	0	0	0	0	0	0	0	0	0	0	0	0
2800	0	0	0	0	0	0	0	0	0	0	0	0	0
3000	0	0	0	0	0	0	0	0	0	0	0	0	0
over 3000	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute

Chlorine Table at 3200 ppm

Current Salt level (ppm)	POOL SIZE IN GALLONS												
	8,000	10,000	12,000	14,000	16,000	18,000	20,000	22,000	24,000	26,000	28,000	30,000	32,000
0	213	267	320	373	426	480	533	586	640	693	746	800	853
200	200	250	300	350	400	450	500	550	600	650	700	750	800
400	187	233	280	327	373	420	466	513	560	606	653	700	746
600	173	217	260	303	347	390	433	476	520	563	606	650	693
800	160	200	240	280	320	360	400	440	480	520	560	600	640
1000	147	183	220	257	293	330	367	403	440	476	513	550	586
1200	133	167	200	233	267	300	333	367	400	433	466	500	533
1400	120	150	180	210	240	270	300	330	360	390	420	450	480
1600	107	133	160	187	213	240	267	293	320	347	373	400	426
1800	93	117	140	163	187	210	233	257	280	303	327	350	373
2000	80	100	120	140	160	180	200	220	240	260	280	300	320
2200	67	83	100	117	133	150	167	183	200	217	233	250	267
2400	53	67	80	93	107	120	133	147	160	173	187	200	213
2500	47	58	70	82	93	105	117	128	140	152	163	175	187
2600	40	50	60	70	80	90	100	110	120	130	140	150	160
2800	27	33	40	47	53	60	67	73	80	87	93	100	107
3000	13	17	20	23	27	30	33	37	40	43	47	50	53
3200	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal
3300	0	0	0	0	0	0	0	0	0	0	0	0	0
3400	0	0	0	0	0	0	0	0	0	0	0	0	0
3500	0	0	0	0	0	0	0	0	0	0	0	0	0
over 3600	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute

BASIC OPERATING HINTS

1. Ensure water is balanced with respect to pH, total Alkalinity and calcium hardness otherwise corrosive or scaly conditions may result. These conditions may lead to equipment inefficiencies or damage and the resultant water may cause staining and mineral deposits. Chlorine effectiveness may be compromised along with bather comfort.

2. Regular testing of pool water is imperative. A free chlorine level of 1.5ppm to 3.0ppm should be maintained with periodic manual shock dosing to effectively remove contaminants. A correctly sized chlorinator will meet the normal demand requirements of your pool. Your Aquapower-plus chlorinator displays % chlorine output only, not the actual residual chlorine level in the pool.

3. The use of Cyanuric acid (chlorine stabilizer) will ensure no chlorine is lost due to the action of the suns U.V. light is kept to a minimum. The breakdown of chlorine by U.V. light is so significant that we insist on it's use. Keep CYA between 50 - 80 ppm.

4. Although regular acid cleaning is not required, it is good practice to periodically inspect the cell for entrapped debris and remove if necessary. If a mineral deposit appears to build on the electrode, contact Aquapower-plus for advice.

5. Always disconnect automatic pool cleaners when adding salt and only reconnect when salt has fully dissolved.

6. **DO NOT USE COPPER OR BROMINE BASED PRODUCTS IN POOL.** Usage of these may void warranty. Consult your local pool professional for advice.

   (Some copper based products available are acceptable for use - consult with your pool professional or Aquapower-plus)

   Bromine must never be used in conjunction with our systems.

7. Generally the pool pump and chlorinator should operate from 4 to 12 hrs per day depending on the demand placed on the residual chlorine level by the environment or bather numbers.

8. Take note of the diagnostic display, it will inform you of the chlorinators activity and any abnormal conditions that may exist.

9. Read the entire owners manual, seek advice from a pool professional on water balance, or contact AquaPower-Plus directly . It is important to understand not only the operation of your Aquapower-plus salt chlorinator, but indeed some basic water chemistry to ensure the pool, the equipment, you, your friends and family enjoy healthy swimming pleasure.

CONTROL PANEL BUTTONS

MODE BUTTON: 

Press to select ON, OFF or AUTO operation. (When AUTO mode is selected, the ON/OFF times you have set will switch both pump and chlorinator on and off on a daily basis.)

OFF MODE: 

Indicated by way of the anti-clockwise rotation of the top portion of the first digit.
Neither pump or chlorinator will operate.

ON MODE: 

Indicated by way of the clockwise rotation of the top portion of the first digit.
Pump and chlorinator will operate continuously.

AUTO MODE: 

Indicated by way of the clockwise rotation of the lower portion of the first digit. While in the auto mode and during an OFF time period, the display will alternate from displaying OFF to displaying the next ON time. This feature allows for an easy visual of when the unit will next switch on.

VIEW BUTTON: 

Press repeatedly to display, current time, %chlorine output and all four ON/OFF periods. All values remain displayed for 30 sec, the normal real time %chlorine output is then displayed.

Current 24hr. time is displayed.

% Chlorine output, is displayed. Use UP/Down buttons to alter time

ON1 is displayed, wait to see ON1 time. Use UP/Down buttons to alter time

OFF1 is displayed, wait to see OFF1 time. Use UP/Down buttons to alter time

ON2 is displayed, wait to see ON2 time. Use UP/Down buttons to alter time

OFF2 is displayed, wait to see OFF2 time. Use UP/Down buttons to alter time

ON3 is displayed, wait to see ON3 time. Use UP/Down buttons to alter time

OFF3 is displayed, wait to see OFF3 time. Use UP/Down buttons to alter time

ON4 is displayed, wait to see ON4 time. Use UP/Down buttons to alter time

OFF4 is displayed, wait to see OFF4 time. Use UP/Down buttons to alter time

Wiring instructions for AquaPower-Plus Above Ground Units Only

All AquaPower-Plus above ground chlorinator systems are set up to operate at 110 volt only. (If 220 volt system is needed please contact Aquapower-Plus)

110 Volt Wiring (No internal wiring is needed)

1. Plug supplied power cord attached to unit, into GFCI protected circuit.
2. Plug your 110 volt pump into the receptacle located on unit.

Wiring of unit is complete. You just have to set your AquaPower timer to appropriate settings as indicated in your owner's manual.

Above Ground Installation Instructions

You're above ground AquaPower-Plus Salt Water Chlorinator requires very little installation and should not require professional installation. If however you do want professional installation please contact us for assistance.

Without optional A-Frame Stand.

1. Remove unit and electrode from box.
2. If you have not purchased the optional stand than you must mount your power pack in a suitable location (fence, post, block wall, etc.) in close proximity to your existing pool equipment.
3. Mount the mounting bracket in appropriate location using the supplied screws and anchors.
4. After hanging the power box. You may proceed to the cell installation.
5. You may either run pvc piping to cell or use your existing plastic hoses.
6. Your cell must be installed after your pool heater or filter. (The last component before water enters your pool)
7. After cell is plumbed in refer to wiring instructions in your manual.

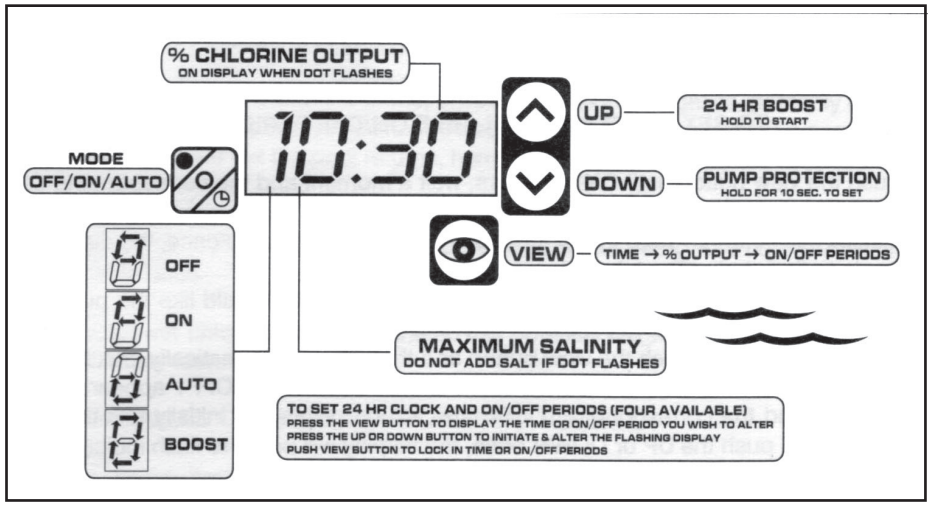
With optional A-Frame Stand

1. Remove unit and electrode from box.
2. Set up stand as with stand instructions.
3. Hang the power box on the hanging bracket included with the AquaPower-Plus unit.
4. Set the cell on the u-brackets below the power box.
5. Turn off your valves to your pool equipment or plug openings in side of pool so water will not discharge during installation.
6. Remove the plastic hose from your return fitting at the pool, and reattach to the large side (inlet) of your AquaPower-Plus. Fasten with a stainless steel clamp.
7. Using the supplied plastic tube, fasten the tube to discharge end of cell. Then fasten the other end to your pool return fitting that you disconnected in step 6.
8. Open the valves you have closed our remove the plug installed and check for any leaks. If leaking tighten down your fittings.
9. Add necessary salt per instruction manual directly to the pool water.
10. Refer to wiring instructions to complete your installation.

UP/DOWN BUTTONS:

These are used to adjust the percent of chlorine level output either during a real time display or if the view button has been used to display the programmed percent of chlorine output. They are also used to alter the time periods displayed by the View button.
(The initial push of an UP/DOWN button will initiate the set mode and the display will begin to flash. Further pushes will alter the display).

POWER PACK CONTROL PANEL



OPERATIONAL UNDERSTANDING

On start-up, power is ramped up to the cell after a 10 second delay. At the end of a time period, the cell will cease production 30 seconds before the pump switches off. This delay allows the system to flush the pipe work and prevent heavily chlorinated water diffusing through and damaging heater tube bundles.

When 100% chlorine output is set, full power is delivered to the cell, however not for the entire ON time period. The cell power cycles on and off to achieve the percentage chlorine output required. The power modulation can be witnessed by observing the gas production at the cell.

TIME AND ON/OFF PERIODS - SETTING GUIDE

Aquapower's digital clock operates on a 24 hour system where 00:00 is 12:00 midnight.

TO SET 24 HOUR TIME CLOCK

1. Press the view button once to display the time.
2. If the time is not current and you wish to after it, press the up or down button once, the display will begin flashing indicating unit is in the set mode.
3. Press the up or down button while the display is flashing and the time will after. When you have attained the correct time, waft 30 seconds or push the view button and the unit will automatically lock the time in.

TO SET THE FOUR AVAILABLE ON/OFF PERIODS

1. Push the view button until ON1 appears, wait a moment and the corresponding ON1 time will be displayed. Initially this time may read 00:00, push the UP or DOWN button once, the display will begin to flash indicating it is in the set mode.
2. Press the up button and adjust the time to that which you would like the pump and chlorinator to switch on. Wait 30 seconds or push the view button and the unit will automatically lock it in.
3. You must then set an OFF1 time. Push the view button until OFF1 appears, wait a moment and the corresponding OFF1 time will be displayed. Initially this time may read 00:00, push the UP or DOWN once, the display will begin to flash indicating it is in the set mode.
4. Press the UP button to adjust the time that you would like the pump and chlorinator to switch off. Wait 30 seconds or push the view button and the unit will automatically lock it in.

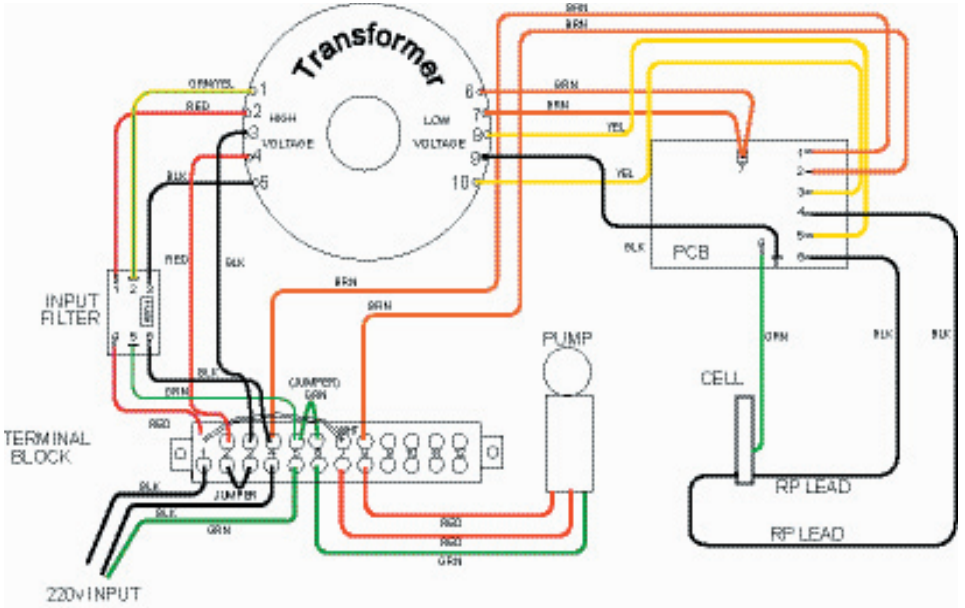
** If you would like the system to operate for two, three or four intervals during a 24 hour period, there is a provision to do so by selecting, ON2, OFF2 etc. and setting a time for each.

TO VIEW ALL PROGRAMMED SETTINGS

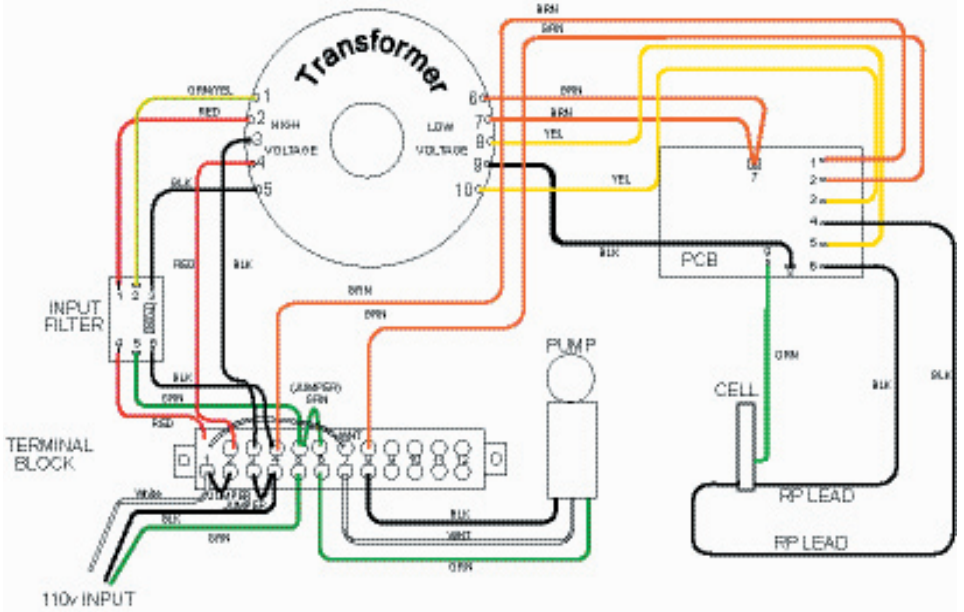
Push the view button repeatedly to scroll through all the settings.

1. **Current time** (24Hr. clock)
2. **Percent of Chlorine output** (Programmed value)
3. **ON1** - wait 2 seconds for the corresponding time to display
4. **OFF1** - wait 2 seconds for the corresponding time to display
5.. **ON2** - wait 2 seconds for the corresponding time to display
6. Continue to view all four on/off times

Note: If the Aquapower-plus chlorinator is unplugged, or the power is switched off, the unit will retain all the programmed settings for at least seven days.



220v WIRING DIAGRAM



110v WIRING DIAGRAM

Wiring instructions for AquaPower-Plus

All AquaPower-Plus systems are set up to operate at 220 volt from the factory. Above fround units are set up to operate on 110 volt only. (For above ground units refer to wiring instructions for above gorund units only.)

To convert a system from 220 volts to 100 volts use the instructions below.

220 Volt Wiring

1. Remove access panel on front of power box.
2. Knock out appropriate hole in bottom of box to match your conduit size.
3. From your 220 volt power source, install your 2 power lines to terminal 1 and terminal 4.

Timer wiring for 220 volt pumps

1. Knock out appropriate hole in bottom of box to match your conduit size.
2. Install (2) power lines to terminal 7 and terminal 8 from your 220 volt pump.
3. Install your ground wire to terminal 6.

Wiring of unit is complete.

110 Volt Wiring

Conversion to 100 volts (In ground pools only!)

1. Remove access panel in front of power box.
2. Knock out appropriaate hole bottom of box to match your conduit size.
3. Remove the (2) jumpers from terminals 2 & 3. Reinstall theses jumpers on terminals 1 & 2 and terminals 3 & 4.
4. Install your black power line to terminal 4.
5. Install your white neutral line to terminal 1.
6. Install your ground wire to terminal 5.

Timer wiring for 110 Volt pumps.

1. Knock out appropriate hole in bottom of box to match your conduit size.
2. Install your black pump wire to terminal 8.
3. Install your white wire to terminal 7.
4. Install your ground wire to terminal 6.

Wiring of unit is complete.

SPECIAL FUNCTIONS

TO ACTIVATE 24 HOUR BOOST - Automatic super-chlorination

1. The unit must be in the AUTO mode.
2. Hold the UP button until the display flashes and the rotating boost mode indicator will begin.
   (The pump & chlorinator will operate at full power for 24Hrs. regardless of current settings and then switch back to the normal auto mode settings for both time & output)

   • Ideal for periods where pool encounters heavy bather loads
   • Avoids the necessity to manually switch unit On and then Off after extended chlorination periods

PUMP PROTECTION MONITOR

Optional function that protects the pump from operating with little or no water. These conditions often exist and may damage the pump. The pump protection function uses the gas sensor in the cell to detect the absence of sufficient water and after a delay period, the pump is switched off.

TO SET MONITOR: Hold the **DOWN** button until the display flashes. If a zero is displayed, this indicates that the pump protection monitor is not activated. While the display is flashing, use the UP/DOWN buttons to activate the monitor and set the delay in minutes that you would allow the pump to run in a starved of water condition. Once set, the display will lock in the value and return to the live display within 30 seconds.

Example: If a delay of 4 minutes is set, the pump will automatically switch off if the chlorinator cell detects a low water flow for a period of 4 minutes. The message **FLO FAIL-OFF** will scroll across the display indicating this condition.
If the unit is in the **AUTO** mode, the system will retest the condition at the next ON time period, if the condition no longer exists, the pump will continue to operate as per normal. Pushing the mode button will also cancel the condition enabling you to operate the system and determine what the problem is.

All pools have different hydraulic characteristics and risk levels with respect to the possibility of pump damage occurring due to lack of water. Pumps also have different tolerance levels to operating dry or in a starved condition. The average delay time would be from 3 to 6 minutes but we would recommend you seek advice from the pump manufacturer or a pool professional.

To **deactivate** the pump monitor, hold the **DOWN** button until the flashing delay time is on display. Use the **DOWN** button to reduce the time to zero, this disables the protection monitor.

Note: Remember, if you backwash the filter, vacuum to waste or perform any other function that bypasses water through the cell, the flow fall function will switch the pump off after It has timed out since it recognizes no water flow. Simply push the mode button to reset or deactivate pump monitor.

PLUMBING FLUSH FEATURE

This feature is automatic, no programming or adjustments are necessary. When in auto mode, the cell power will automatically switch off 30 seconds before the pump to ensure cell housing and plumbing is flushed of concentrated chlorine. This unique feature prevents high chlorine levels in the pipe work diffusing through and corroding heat exchangers and the possibility of damaging other sensitive equipment upstream of the cell.

SALT LEVELS AND DIAGNOSTIC DISPLAY

Refer to the list below to determine the ideal salt level for your model of salt chlorinator. Ideal range is 2800ppm @ 68ºF (25 lbs salt per 1000 gal.)
Allowing the salt level to fall outside the recommended parameters may reduce cell life and efficiency. Aquapower-plus has unique features that prevent the likelihood of this occurring.

VERY LOW OR NO SALT CONDITION - CRITICAL

This condition is common when a new pool is commissioned. The chlorinator & pump may be switched on days or even weeks before the salt has been added. Operating the cell under very low or no salt condition would dramatically reduce the life of the cell. The Aquapower-plus microprocessor constantly senses the salinity and will recognize a very low or no salt condition. It will at this point switch the power off to the cell to protect it from damage and display the condition via a scrolling message.

Lo SALT - OFF

The pump will continue to operate as it should. When the condition improves i.e.; sufficient salt is added, the power to cell will automatically restore.

LOW SALT OR CELL IS IN NEED OF CLEANING CONDITION

If the salt level falls below the ideal operating level, or the cell is calcified sufficiently to reduce the output, a warning message will scroll intermittently across the display. (The power to the cell will remain on)
• Following this scrolling message, the display will show the maximum percentage output that it is able to attain.

CLEAN CELL or Lo SALT

This message will cease when the salt level is topped off sufficiently or the electrode is cleaned or both.

Note: It Is good practice to have your pool water tested by a pool professional on a regular basis. Despite lasting many years, chlorinator electrodes have a limited life. If an electrode begins to fail It may indicate by way of the chlorinator display, that the salt level is low when in fact it is not. It is for this reason we recommend a pool professional test the salt level every four months or if there is a suspicion that the electrode is failing.

POWER PACK - Installation guide

The Aquapower-plus power pack is supplied with a mounting bracket, three screws and three masonry plugs.

The power supply has been tested and approved to attain all relevant electrical and safety authority approvals. The unit is suitable for outdoor installation and has an ETL/ UL rating. Unit should be installed 10 ft. from the pool edge.

Always mount the power pack at least 4 feet above ground level and within 6 feet of the cell. Ensure the pump is close enough such that the lead will plug into the power pack base. The unit comes with an 8 foot cell lead.

Air flow around the power supply must not be restricted or warmed from a heat source.

Unit must be hardwired into an approved power source. (Do not use extension cords)

For vertical cell installation refer to this diagram.

This installation may be preferred when horizontal space is a problem, or the bypass it contains is actually beneficial where high flow in-floor cleaning systems require a minimum pressure drop across the cell. The by-pass is optional. If by-pass is used refer to sizing chart at bottom of this diagram. Also when a vertical install is performed there is not need to loop into the cell as on a horizontal installation.

(BYPASS)

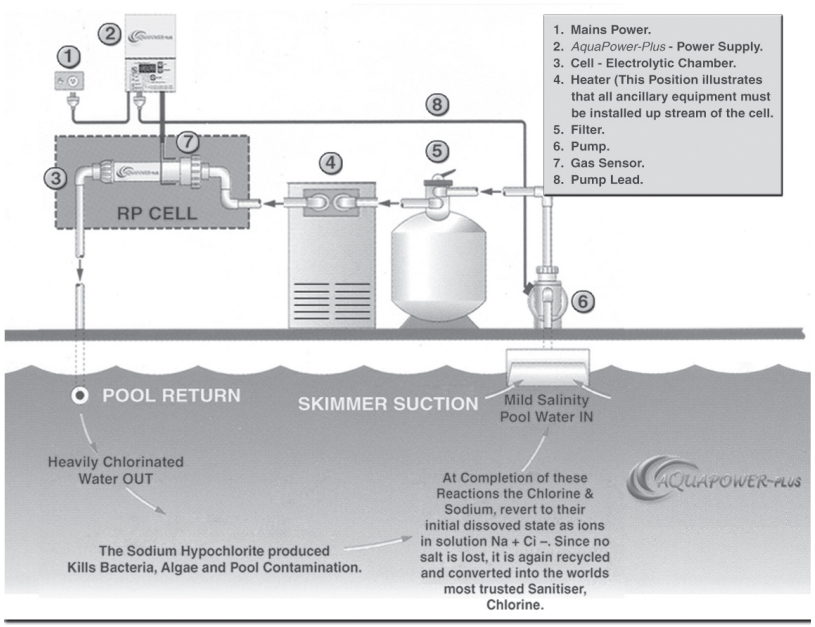
I HP PUMP -
USE 3/4 inch BYPASS

1 1/2 HP PUMP -
USE 1 inch BYPASS

2 HP PUMP -
USE 1 1/4 (1.25”) inch BYPASS

Installation guide

If the cell is installed horizontally, both the inlet & outlet sockets need to face downwards. This may only be achieved by plumbing 90 degree elbows on either end of the cell so that they face downwards. Refer to diagram. If you are having a vertical installation follow the guide on the next page.



Water may flow ONLY in the direction specified on the cell.

Use 2” to 1-1/2” reducers if installed in 1-1/2” plumbing.

Caution: Use only standard type ‘N’ plumbing adhesive. Contact Aquapower-plus if you are unsure of what to use.

The cell must be installed on the pool return line downstream of all other equipment and or equipment take-off and return points. That is after the pump, filter, solar system, heater or other receptacles where in excess of 3/4 oz. of gas could accumulate.

If an air blower is connected directly to venturi spa jets, a vented loop must be installed. This allows any build up of hydrogen gas to escape from the blower line before it becomes in contact with the blower motor. (Contact Aquapower-plus for plumbing advice) Ensure sufficient space is kept free for removal of the cell for inspection purposes.

Where the cell is installed below water level, ensure valves are installed so the water can be isolated for flood free removal of the electrode.

Ensure the male key-way situated on the electrode cap is positioned into the female keyway situated on the clear cell body before screwing on the locking nut.

SALT: MAXIMUM SALT LEVEL

The high salt level light will begin flashing as the level approaches the upper end of the ideal range. Operating the unit at higher salt levels would be of no benefit and these higher levels may affect other pool equipment.

As above, the salt level light will begin flashing as the level approaches the upper end of the ideal range.

Operating the unit at higher than recommended Salt levels will reduce cell life and it’s ability to self clean.

When do I need to dilute the water?

If the maximum salt level light is flashing, have a sample of water tested by a pool professional.

If the salt level Is 20% higher then the Ideal recommendation, dilute the water.

Dilute if salt level is 4000ppm or higher

INITIAL SALT DOSAGE

Simply use the following formulas to calculate the amount of salt required.

Add 21 lbs. of salt for every 1,000 gal (3785 litres) of water

Example: Pool volume is 20,000 gallons.

25 lbs. of salt for every 1,000 gal. of water
Multiply 2.5 x 20 (thousand gallons) = 425 lbs. of salt

RECOMMENDED SALT TYPE & HOW TO ADD

Type of Salt

Use Feed grade type salt whenever possible. Use salt that does not contain yellow Prussiate of Soda. (Prussiate of soda is an anti-caking agent. This may cause yellow stains on your pool or spa bottom if left on the bottom without being dissolved). Salt should be in granular form similar to table salt.

How to add

Never add salt to the skimmer box, this will not harm your Aquapower-plus salt chlorinator however coarse salt granules may seize the pump impeller.

Always disconnect any automatic cleaners before adding salt and leave them off until the salt has fully dissolved. Cleaners too may be affected by the coarse granules and because the salt solution initially formed is denser than water, it remains at the bottom of the pool. If an automatic cleaner operates through this dense solution, the cleaners suction hose will drop to the floor and may be damaged as a result.

Cut open bags (normally 50 lbs.) and pour into pool away from skimmer and suction points. Brush with a pool brush to dissolve quickly.

Do not use salt that contains yellow prussiate of soda. This may cause yellowing on pool surface.

CELL MAINTENANCE

Self cleaning models generally require little or no maintenance. We do however recommend that periodic inspections are made to ensure debris is not obstructing the cell. If a calcium deposit appears to be forming on the electrodes, contact Aquapower-plus or your local dealer for advice.

Note: If debris is collecting at the cell, it indicates a filtration problem that should immediately be repaired. (Water is bypassing the filtration medium)

If calcium deposits have formed on the cell electrodes, the reason for this may be one of the following:

- The cell life is spent and is on the way out. (Replace cell)
- The salt level is too high
- Water quality is very poor with an extremely high mineral content. Contact Aquapower-Plus.
- Poor water flow through cell

To remove mineral deposits from cell (if required):

- Turn unit to off position or switch off power, close all relevant valves and remove cables from cell
- Loosen the nuts at either end of the cell and remove cell
- In a plastic bucket, mix 10 parts water with 1 part Hydrochloric (or Muriatic) Acid (Caution - wear safety glasses and suitable gloves. Avoid spills on decks and cement)
- Place entire cell in this solution. Deposits should dissolve within 15 minutes.
- Rinse cell and cell terminals with plenty of fresh water.
- Reinstall cell, connect terminals, open valves and switch on power. Turn unit back to auto or on position.

SAFETY

Your AquaPower-Plus chlorinator must be installed in accordance with the installation instructions listed in this manual.

The cell, apart from producing chlorine, produces a mixture of gases, primarily hydrogen. Hydrogen is not readily dissolved into the water and under normal filtration conditions it passes through and out the pool returns, harmlessly dissipating into the atmosphere.

If however the water flow is restricted (blocked skimmer box, incorrectly closed valve, etc.) and these gases collect in the system, a potentially explosive mixture could result under certain conditions.

Your Aquapower-plus chlorinator has eliminated this potential hazard with built-in electronic and physical safety features.

WHEN INSTALLED CORRECTLY THE CHLORINATOR WILL:

1. Switch itself off if the cell is not completely full of water. The sensor positioned at the top of the cell will detect the absence of water and switch power to the cell off. It indicates this condition by way of a scrolling message on the display.

   When the condition improves, a delay will follow and the scrolling message will cease. The chlorine output will reappear on the display.

2. As a result of the cell's physical design, contain the gases produced in a non hazardous volume. This being in the unlikely event that the electronic protection device fails. (See installation instructions)

Lo Flow - OFF scrolls across the display

Possible cause: Flow sensor lead is not connected or poor contact is made.

Solution: Connect sensor lead to terminal marked ‘sensor’ on cell.

Possible cause: Flow sensor is detecting insufficient or no water flow through cell.

Solutions:
- Check that pump is operating and actually pumping water.
- Are skimmer and pump baskets clean?
- Are valves in the correct positions?
- Is the filter restricting the flow? If so, backwash filter.
- Is the pool level high enough?
- Is the pump sucking air?
- Is the skimmer door obstructing the water flow?
- Is the inlet to the cell blocked with debris? If so, clean and investigate filter problem. Water is bypassing filtration medium.
- Is the pump losing prime?
- Has the solar system just powered up? On start up, the dis placed air in the system may switch cell off briefly.
- Were you in the process of backwashing or vacuuming to waste?

Chlorine output display reads a lower value than that which was set

Possible cause: Salt level is too low for the unit to operate at full power but not low enough for a warning message to scroll across the display.

Solution: Add more salt.

Possible cause: Fluctuations in main voltage.

Solution: No action required, since effect on output is negligible.

No chlorine residual in swimming pool

Possible cause: Chlorinator is not operating sufficient hours per day.

Solution: Check time clock ON/OFF periods and adjust accordingly.

Possible cause: Cell electrode is coated with a mineral or metal coating.

Solution: Clean electrode as described in this manual.

Possible cause: Percent Chlorine output setting is too low.

Solution: Increase percent Chlorine output setting.

Possible cause: Cyanuric acid (Stabilizer) level in pool is insufficient.

Solution: Increase levels as specified.

Possible cause: Heavy usage of pool.

Solution: Use the BOOST function regularly or shock pool using an approved oxidizing agent as per the manufacturers instructions.

CHLORINE PRODUCTION AND CONTROL

A free chlorine residual of 1.5ppm to 3.0ppm should be maintained. This level will alter with respect to bather load, debris falling into the pool and the pools water temperature. These factors alter the demand for chlorine as will the water balance and filtration’s effectiveness. (Refer to equipment manufactures specifications with regard to maximum chlorine level permissible.)

The percent of chlorine output is displayed on the control box and may be altered using the UP/DOWN buttons. This allows you to increase or decrease the chlorine production without altering the operation time.

Testing for chlorine levels is very important and should be performed regularly by pool owners and periodically cross referenced by using the services of a pool water professional. See your local pool shop or service person.

The sample of water to be tested should be taken at arms depth away from the pool returns. This avoids highly chlorinated water, which has travelled directly from the chlorinator cell and ensures the reading will be a true representation of the pools residual level.

Testing for chlorine production rather than the pools chlorine residual, is performed by taking a sample directly at the pool return. This water is directly from the cell and should indicate a higher chlorine level than that obtained in the pool residual test. (Note: This test must be done while the unit is set to 100%)

The chlorine output may be altered In three ways:

1. Increasing or decreasing the operating time. Depending on the pool and model chosen, the daily operating time may be from 4 to 12 hours per day. *(There are exceptions to this, some pools run 24 hours)*
2. Increasing or decreasing the output percentage. This allows for a finer control over the chlorine level.
3. Linking the unit to a Redox (ORP) probe device. The probe senses the chlorine level in the pool and will switch the chlorinator on and off to maintain the recommended level. *(Highly recommended for use in indoor pools and spa’s) Call your AquaPower Dealer to purchase*

Note: It may be necessary to periodically shock the pool water in high demand situations. Consult with your pool professional regarding how to shock.

WATER BALANCE

The balance of your pool water is no less critical because you have installed a salt chlorinator.

All three components, pH, Total Alkalinity and the Calcium hardness are like a three legged stool, take one leg away or cut it too short and the stool falls over. The analogy simply emphasizes that all three must be maintained within the recommended parameters suggested for your pool finish.

pH

A high pH will reduce the effectiveness of chlorine, potentially cause scale on both the pool and the equipment, and irritate bathers.
A low pH may cause the water to become corrosive, damaging the pool interior finish, equipment (heat exchangers especially) and also irritate bathers.
Each pool finish and type has a specific range in which the pH should remain. Generally a pH of between 7.2 - 7.8 is suitable for most pool types, however those requiring a higher pH will also require a higher chlorine residual. (Consult with your pool professional)

Total alkalinity (T.A.)

The total alkalinity is a measurement of all the alkalis in your pool water, (Carbonates, Bicarbonates and Hydroxides).

When adjusted within the accepted levels, T.A. acts as a pH buffer, resisting change to the pH. The recommended T.A. level of your pool may vary from 40 ppm - 180 ppm depending on the pool finish, again consult with a pool water professional. We recommend levels around 80 ppm.

Calcium Hardness

Probably the most ignored of the three yet just as important.
The hardness of your pool water is very important in controlling scale and the corrosive, effects of water. A low calcium level may cause pool water to become corrosive even if the pH is within its recommended range. A tell tale sign of this is brown stains on the pool finish and in adjoining Spa's especially. This is metal staining, the source is usually the heater. A high calcium level may cause pool water to deposit scale, again even if the pH is within its recommended range. Standard salt chlorinator cell will require very frequent cleaning and scale may deposit on pool finish and equipment. Generally a level of 50ppm - 200ppm is recommended. Consult with your pool builder or pool store.

Note: We strongly recommend you seek advice from a pool professional regarding the balancing of water for your pool. A correctly balanced pool will protect It and the equipment from chemical damage and ensure bathers are swimming In clean clear healthy pool water.

CYANURIC ACID - CHLORINE STABILIZER

The sun's ultraviolet light breaks down chlorine, with this in mind, it is essential in sunny climates to use a chlorine stabilizer.

The importance of it's use is such that our range of chlorinators are sized with the express requirement that chlorine stabilizer be used as per the directions.

Cyanuric acid or chlorine stabilizer, when dissolved in the pool water to achieve levels of between 50 ppm to 80 ppm will effectively reduce the breakdown of chlorine by ultraviolet light.

Higher stabilizer levels may in fact be detrimental and hinder the kill rate of chlorine. Consult with your pool professional.

Maintaining a correct stabilizer level will benefit the cell in an indirect way. The operating output percentage required would be lower than with an unstabilized pool. This factor extends cell life.

TROUBLESHOOTING

Display is not illuminated

Possible cause:	Chlorinator power supply is not wired to 110v or 220v source.
Solution:	Wire into 110v or 220v source.
Possible cause:	Chlorinator is switched off via an external time clock.
Solution:	No action necessary. Perhaps momentarily override time clock to check units operation.
Possible cause:	Chlorinator is wired into a special tariff power supply that switches the power supply off for a period every day.
Solution:	Wait until power is restored to check chlorinator.

Flow Fail - OFF scrolls across the display and pump has switched off

Possible cause:	The pump protection monitor has been set and has timed out.
Solution:	Investigate flow problem by eliminating possible solutions from the Lo Flow - OFF section on next page. (To reset, push the mode button)
Note:	Remember, any filter settings that require the pump to run and where the water is not returned through the cell, eg. back-washing, rinse, waste etc. will cause the pump protection monitor to activate if the period exceeds the programmed time out period.

Note: If the cell Is disconnected for any reason, always remember to disable the pump protection monitor (set to zero) or the pump will continue to switch off after the time out period.