

AQUA PLUS

Automation and Chlorination

TEST	IDEAL RANGE	ADJUSTMENT REQUIRED
Free Chlorine	1.0 - 3.0 ppm	Turn output dial up to increase, down to decrease -OR- increase or decrease pump filtration time.
pH	7.2 - 7.6	Too high - add muriatic acid Too low - add soda ash.
Alkalinity	80 - 120 ppm	Add baking soda to increase. Add acid as required to decrease.
Salt	2700 - 3400 ppm	Add salt as required to increase.
Stabilizer	60 - 80 ppm	Add cyanuric acid to increase.
Calcium	200 - 400 ppm	Add calcium to increase. Drain and add water to decrease.
Electrolytic Cell	inspect & clean	Refer to section in manual.






Operation Manual

for model
AQL-PLUS
AQL-PLUS-20

IMPORTANT SAFETY INSTRUCTIONS

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

- **READ AND FOLLOW ALL INSTRUCTIONS**
-  **WARNING: Disconnect all AC power during installation.**
-  **WARNING: Water in excess of 100 degrees Fahrenheit may be hazardous to your health.**
-  **WARNING: To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.**
- A green colored terminal marked “Earth Ground” is located inside the wiring compartment. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire equivalent in size to the circuit conductors supplying the equipment.
- One bonding lug for US models (two for Canadian models) is provided on the external surface. To reduce the risk of electric shock, connect the local common bonding grid in the area of the swimming pool, spa, or hot tub to these terminals with an insulated or bare copper conductor not smaller than 8 AWG US / 6 AWG Canada.
- All field installed metal components such as rails, ladders, drains, or other similar hardware within 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.
- **SAVE THESE INSTRUCTIONS**

LIMITED WARRANTY Goldline warrants its Aqua Rite, Aqua Rite Pro, Aqua Trol, Aqua Logic and Pro Logic products (products with Goldline part numbers starting with AQ-RITE-, AQ-RT-PRO, AQ-TROL-, AQ-LOGIC-, AQL-P-, AQL-PS-, AQL-CL-, PL-P-, PL-PS-, and HPC-2) to be free from defects in material or workmanship, under normal use and service:

For **three years** from the date of the initial system installation on private, residential swimming pools within the USA or Canada and **one year** from the date of initial system installation on commercial installations, installations outside of the USA or Canada and for any replacement parts or accessory products, provided they are installed in accordance with the Goldline installation instructions and specifications provided with the product. If written proof of the date of the initial system installation is not provided to Goldline, the manufacturing datecode on the Aqua Rite, Aqua Rite Pro, Aqua Trol, Aqua Logic and Pro Logic electronics unit will be the sole determinant of the date of the initial system installation.

For residential installations in USA or Canada: If a product is defective in workmanship or materials and is removed and returned freight prepaid within three (3) years after the date of the initial system installation, Goldline will, at its option, either repair or replace the defective product and return it freight prepaid.

For commercial installations, installations outside the USA and Canada, and accessory products and replacement parts: If a product is defective in workmanship or materials and is removed and returned freight prepaid within one (1) year after the date of the initial system installation, Goldline will, at its option, either repair or replace the defective product and return it freight prepaid.

Contact any Goldline dealer or contact Goldline at 61 Whitecap Drive, North Kingstown, RI 02852 for warranty service. The costs incurred in removal and/or reinstallation of the product are NOT covered under this warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

WARRANTY EXCLUSIONS:

1. Material supplied or workmanship performed by others in process of installation.
2. Damage resulting from improper installation including installation on pools larger than the product rating.
3. Problems resulting from failure to operate the product(s) in accordance with the recommended instructions contained in product’s owners manual(s).
4. Problems resulting from failure to maintain pool water chemistry in accordance with the recommendations in the owners manual(s).
5. Problems resulting from tampering, accident, abuse, negligence, unauthorized repairs or alternations, fire, flood, lightning, freezing, external water, degradation of natural stone used in or immediately adjacent to a pool or spa, war or acts of God.

DISCLAIMER. THE EXPRESS LIMITED WARRANTY ABOVE CONSTITUTES THE ENTIRE WARRANTY OF GOLDLINE WITH RESPECT TO ITS POOL AUTOMATION AND CHLORINATION PRODUCTS AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE. IN NO EVENT SHALL GOLDLINE BE RESPONSIBLE FOR ANY CONSEQUENTIAL, SPECIAL OR INCIDENTAL DAMAGES OF ANY NATURE WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, PERSONAL INJURY, PROPERTY DAMAGE, DAMAGE TO OR LOSS OF EQUIPMENT, LOST PROFITS OR REVENUE, COSTS OF RENTING REPLACEMENTS, AND OTHER ADDITIONAL EXPENSES, EVEN IF THE SELLER HAD BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OF LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

NO WHOLESALE, AGENT, DEALER, CONTRACTOR OR OTHER PERSON IS AUTHORIZED TO GIVE ANY WARRANTY ON BEHALF OF GOLDLINE.

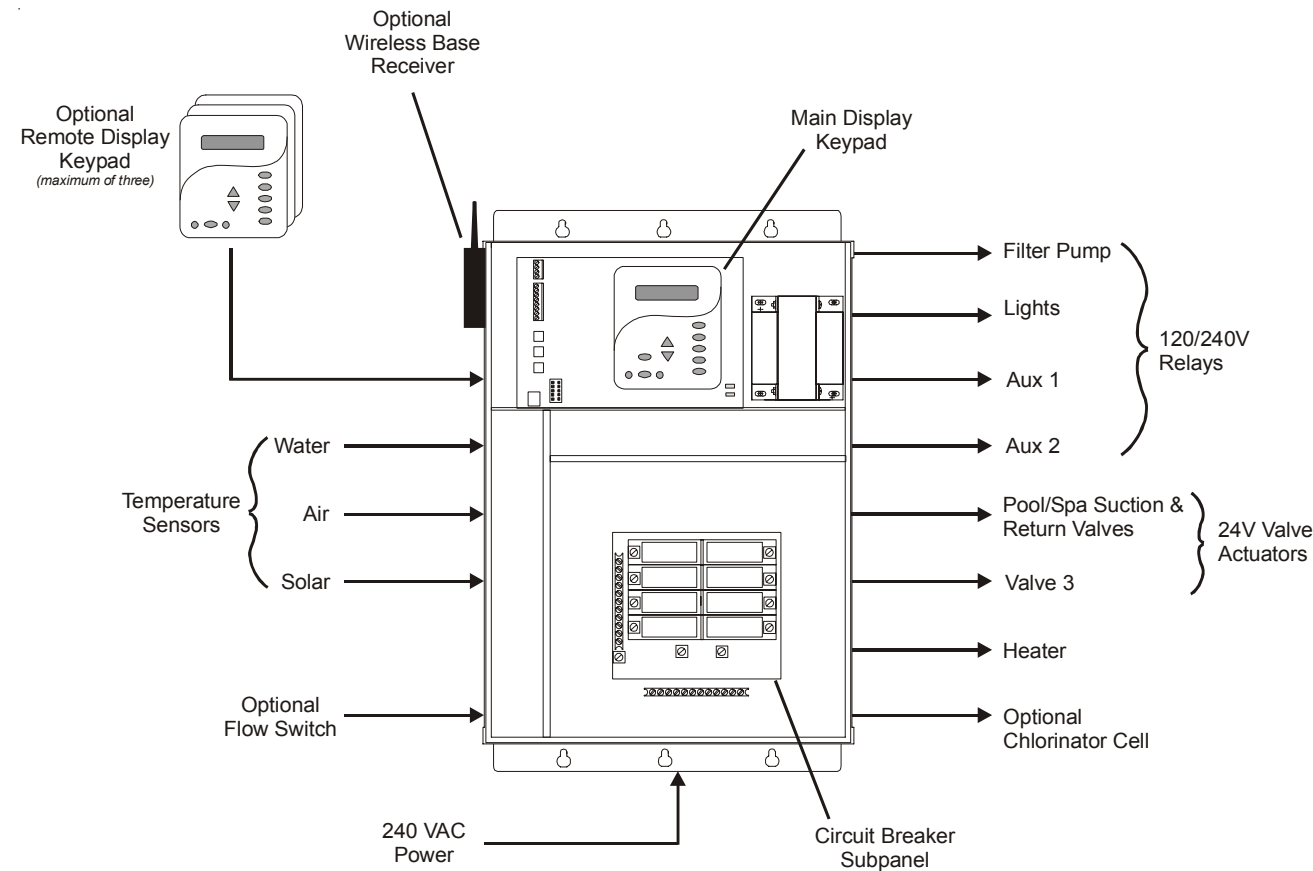
THIS WARRANTY IS VOID IF THE PRODUCT HAS BEEN ALTERED IN ANY WAY AFTER LEAVING THE FACTORY.

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System Overview

The Aqua Plus is a multifunction pool controller used to fully manage your pool/spa system. The Aqua Plus can control pumps, valves, lighting, heaters, and chlorination. Although the Aqua Plus is easy to use, it is important to completely read through this operating manual before attempting to operate the control.



NOTE: This manual assumes that the Aqua Plus has been wired and configured according to the Installation Manual. Aspects of the Aqua Plus that pertain to system setup are not covered in this manual.

Automation

The Aqua Plus can control up to 4 high voltage (120/240V) pieces of equipment, up to 3 automatic valve actuators, and a conventional and solar heater. Both manual and automatic (programmed) operation are available. All of the control functions can be programmed at a display/keypad which is part of the main unit (typically located near the pool equipment) or at one or more remote display/keypads.

The following statement is applicable if any of the wireless accessories are connected to the Aqua Plus system.

FCC Statement

(Compliance Statement, Part 15.19): This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

WARNING (Part 15.21): Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Industry Canada Statement

The term "IC" before the certification/registration number only signifies that the Industry Canada technical specifications were met.

Interference

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, then the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into a power source on different circuit than the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Cell Temp Sensor 77°F	▲▼ No function
	◀▶ Move to previous/next menu item
Water Sensor Open circuit	▲▼ No function
	◀▶ Move to previous/next menu item
Air Sensor 94°F	▲▼ No function
	◀▶ Move to previous/next menu item
Solar Sensor Short circuit	▲▼ No function
	◀▶ Move to previous/next menu item

Available displays depend on configuration. If the sensor appears to be operating properly, then the temperature will be displayed. If this temperature is not correct then check the placement of the sensor. If the problem is not placement related, then the sensor will, most likely, require replacement. If the display is "Open Circuit" or "Short Circuit" then check the wiring to the sensor and also make sure that the wires are secure in the terminal block in the Aqua Plus main unit.

Main Software Revision 2.40	▲▼ No function
	◀▶ Move to previous/next menu item
Display Software remote-08 r3.10	▲▼ No function
	◀▶ Move to previous/next menu item
RF Base Software r1.20 ID:1234	▲▼ No function
	◀▶ Move to previous/next menu item
6B Spa Software Remote A r1.00	▲▼ No function
	◀▶ Move to previous/next menu item

Available displays depend on configuration. If you call the Goldline Technical Service Department for assistance, they may ask for the software revisions of both the main unit and each of the display/keypads or other devices that are attached to the system. Note that it is possible that different display/keypads have different software revision levels. For this reason, it is advisable to check this diagnostic menu item on every display.

Chlorination

With the use of the included AQL-CL chlorination kit, the Aqua Plus is also an automatic chlorine generation system for pool and/or spa sanitization. If enabled (see Configuration Menu), this operation requires a low concentration of salt (sodium chloride) in the pool/spa water. The Aqua Plus automatically converts the salt into free chlorine which kills bacteria and algae in the pool/spa. Chlorine will revert back to sodium chloride after killing bacteria. These reactions will continuously recycle, virtually eliminating the need to add sanitizing chemicals to your pool/spa. The only time you may need to add more salt to the pool/spa is when water is replenished due to backwashing, draining, or splashing (not evaporation).

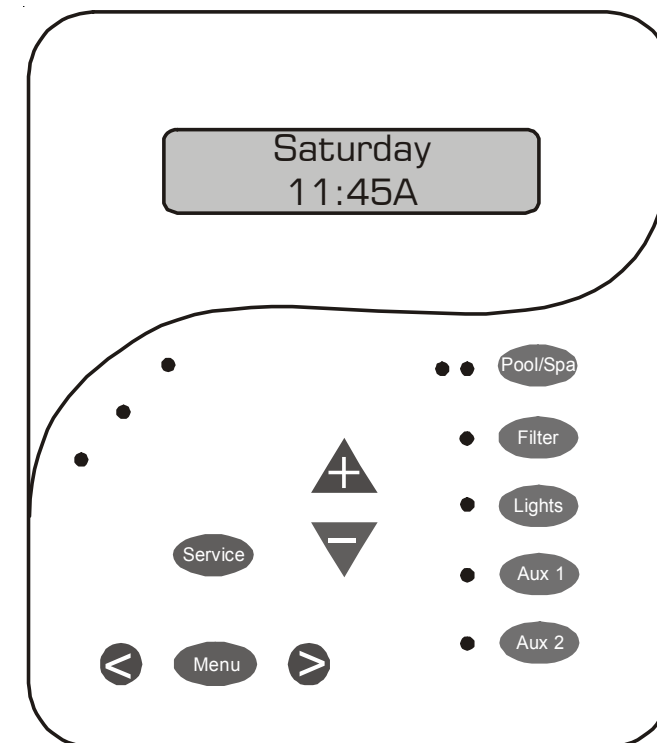
The Aqua Plus is designed to handle the purification needs of most residential swimming pools up to 40,000 gallons (150,000 liters), or the needs of most commercial pools up to 25,000 gallons (95,000 liters). The AQ-PLUS-20 should be used for pools up to 20,000 gallons (75,000 liters). Check local codes for other restrictions. The actual amount of chlorination required to properly sanitize a pool varies due to bather load, rainfall, temperature, and the pool's cleanliness.

For pools larger than 40,000 gallons, the Aqua Plus can control one or more Goldline Aqua Rite chlorinators to supplement chlorine production.

NOTE: Before installing this product as part of a saline water purification system in a pool or spa using natural stone for coping or for immediately adjacent patios/decking, a qualified stone installation specialist should be consulted regarding the appropriate type, installation, sealant (if any) and maintenance of stone used around a saline pool with electronic chlorine generator in your particular location and circumstances.

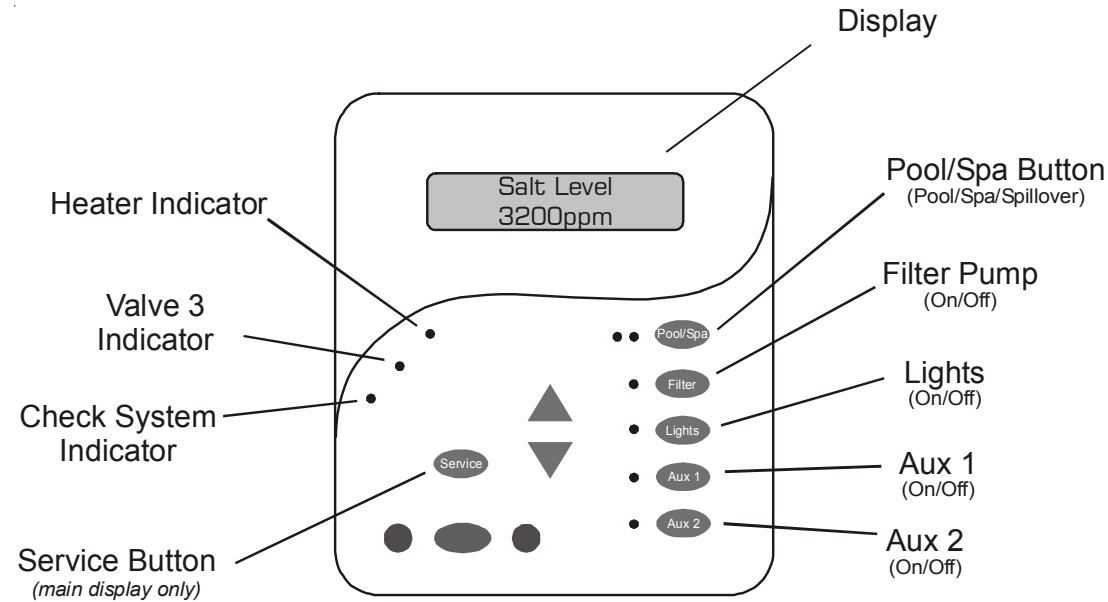
Default Display

Turn power on at the main panel and turn the Aqua Plus control power circuit breaker on. The keypad will show the default display. The default display alternates between the day/time, air and pool (or spa) temperature, pool/spa sanitizer setting, and salt level. Under certain circumstances, additional displays may be added to the default menu to inform you about system operation. Refer to the Programming Menu Flowchart on page 6 to view all possible displays. The Aqua Plus will automatically scroll through all of the available default menu displays or you can press "<" or ">" to manually scroll.



Manual System Operation

While the main objective of the Aqua Plus is to automate the operation of your pool/spa system, there may be certain times when you want to override the automatic operation and control the equipment manually. To operate the pool equipment manually while keeping the automation active, perform the following procedures. Note that if you turn a relay on manually, it will remain on until either you turn it off manually, or the next time the programmed automatic operation would normally turn that relay off. Example: the filter pump is programmed to run from 9:00A to 5:00P daily. If you turn the filter pump on manually at 8:00PM, it will run continuously until the next day at 5:00PM at which time it will turn off and follow the normal program from then on. Manually turning off a relay works in a similar fashion.



Filter Pump

Single Speed Filter Pump: If the pump is currently off, press the FILTER button to turn on the pump. Pressing the FILTER button again will turn off the pump. However, if there is a heater in the system, and it is operating, and the "Heater Cooldown" feature is enabled (Configuration Menu) then: when you press the FILTER button to turn off the filter, only the heater will turn off, the Filter LED will flash and the display will indicate "Heater Cooldown". At this point the filter pump will automatically turn off after 5 minutes of heater cooldown operation. If you want to override the heater cooldown, simply press the FILTER button again to turn off the filter pump.

Two Speed Filter Pump: If the pump is currently off, simply press the FILTER button to turn on high speed operation of the filter pump. The "Filter" LED will illuminate continuously. Pressing the FILTER button again will switch to low speed operation and the "Filter" LED will flash. If you attempt to switch to low speed shortly after turning on high speed the filter pump will automatically remain in high speed for 3 minutes before switching to low speed to allow the pump to prime and establish normal water flow.

Freeze Protection: This function protects the pool, plumbing, and equipment against freeze damage. If Freeze Protection is enabled and the AIR temperature sensor falls below the preset freeze protection temperature (see Filter Pump Configuration), the Aqua Plus will turn on the filter pump to circulate the water.

Diagnostic Menu

To enter the Diagnostic Menu, press the "Menu" button repeatedly until the display shows "Diagnostic Menu". At this point, you can use either the "<" or ">" buttons to scroll through the various menu items which are described below:

+23.45	+6.75A	▲▼ Press to switch chlorinator operation to opposite polarity (15 second delay)
84°F	3200PPM	◀▶ Move to previous/next menu item

+/- 23.45V is the voltage applied to the chlorinator cell
 +/-6.75A is the current (amps) through the cell
 84°F is the water temperature at the cell
 3200PPM is the "instant" salt level at this time

This display will be shown only if the chlorinator is enabled. For the chlorinator to be operating, several other things must be happening: the filter pump must be running, the flow switch must be detecting flow, the chlorinator setting must be set greater than 0%, the water temperature at the cell must be between 50°F and 140°F, and the salt level must be within the operating range. If any of these conditions are not met, the chlorinator diagnostic display will tell you the reason. It's possible to have more than one reason, in which case after you rectify what was displayed the first time, a second display will appear.

If the current (amps) display is 0.00A, then the chlorinator is operating normally but is in the off part of its normal operating cycle. Simply press either the "+" or "-" key to start a new cycle.

The Aqua Plus periodically reverses the polarity of the voltage applied to the cell in order to automatically clean off any calcium deposits. It is important that you check the chlorinator operation in both polarities. To do this, press either the "+" or "-" buttons and the chlorinator will turn off, wait for 15 seconds and then turn on in the opposite polarity.

If a conventional or solar heater is operating, it is likely that the temperature of the water at the cell is higher than the pool/spa water temperature displayed on the Aqua Plus default display.

Instant Salt	▲ Press to load the "Instant salt" into the averaged salt display
3200 PPM (+ =save)	◀▶ Move to previous/next menu item

This display will be shown only if the chlorinator is enabled. This display shows "Instant Salt" or "Instant Minerals" (if Chlor. Config. is set for "Display Minerals"). The "Instant Salt" is calculated based on the voltage, current (amps), and water temperature at the cell. This is different than the "average salt" value which is displayed as part of the default menu. There are a number of reasons why instant and average salt readings may differ. Some of these include salt having just been added to the pool and not yet thoroughly mixed, calcium buildup on the cell, and the cell aging.

Flow Switch	▲▼ No function
Flow	◀▶ Move to previous/next menu item

This display will be shown only if the chlorinator is enabled. The current status of the flow switch is displayed. There is a short delay when transitioning from flow to no-flow and a longer delay on the transition from no-flow to flow. The delay time is displayed.

Check System Indicator

The “CHECK SYSTEM” LED will alert you when the Aqua Plus detects any of the following conditions that are abnormal and require attention for optimal operation of your pool.

- **Inspect Cell** -- for optimum operation, you will need to inspect the Aqua Plus chlorinator cell approximately every 3 months and clean the cell if necessary. The Aqua Plus will automatically remind you when it is time and display “Inspect Cell, + to reset” as part of the rotating Default Menu. Clean the cell (see instructions, page 29) and then press the “+” button during the “Inspect Cell” display to reset the timer.
- **Low Salt/Minerals or Very Low Salt/Minerals** -- when the salt is too low the Aqua Plus will generate less chlorine and the life of the cell is degraded. Check the cell and clean if necessary (see instructions, page 29) before adding salt (see instructions, page 26).
- **High Salt/Amps/Minerals** -- the Aqua Plus will stop generating chlorine under certain high salt conditions in order to protect the internal electronics from damage. The only way to lower the salt level is to partially drain the pool and add fresh water.
- **Water Sensor** -- if the water sensor is either an open or short circuit.
- **Air sensor** -- if the freeze protection feature is enabled (Configuration Menu/ Filter Config.) and the air sensor is either an open or short circuit.
- **Solar Sensor** -- if the solar sensor is either an open or short circuit.
- **Chlorinator Cell Sensor** -- if the chlorinator function is enabled (Configuration Menu/Chlorinator) and the cell sensor is either an open or short circuit.
- **Low Volts** -- if the chlorinator cell voltage is too low.
- **No Cell Power** -- if no chlorinator cell power is detected on the printed circuit board.
- **Check Flow Switch** -- if the flow switch input is invalid.
- **Cell Power Error** -- if a chlorinator cell power error is detected on the printed circuit board.
- **Cell Missing** -- if the chlorinator is enabled but no cell is detected.

For helpful troubleshooting information on any of these issues, go to the Diagnostic Menu and then scroll through the various items until you see the cause for the “CHECK SYSTEM” LED being illuminated.

Lights, Aux1 and Aux2 Outputs

Standard Relay: Manual operation of all 3 relays is identical. Assuming that the relay is currently off, simply press the appropriate button to turn on the relay. If the relay does not turn on, it probably is due to the “interlock” feature (which was set up in the Configuration Menu) being activated that requires the filter pump to be running and the valves to be in the pool-only position. This protects pumps and other equipment from possible damage. If the controlled output is on, pressing the appropriate button again will turn off the relay. Manual turn off is disabled if the “Freeze Protection” feature is enabled and the air temperature is less than the selected freeze temperature threshold.

Dimmer Relay: If Lights or an Aux output is configured as a dimmer, pressing the corresponding button will generate a temporary display which shows the dimmer output level (Off - On 100%). Pushing the “+” or “-” button changes the level in increments of 20%. When the desired output level is displayed, press the corresponding button again to turn off the display and return to normal operation. When the Lights or Aux output comes on again (either manually or automatically), the dimmer output level will be the same as the last time that it was set.

Pool/Spa Valves

Pool-only or spa-only systems: The POOL/SPA button has no function.

Pool and Spa systems without spa spillover: In pool-only mode, the left LED next to the POOL/SPA button is illuminated. Pressing the POOL/SPA button will switch the Aqua Plus to spa-only operation (right LED illuminated). Pressing the POOL/SPA button again will switch back to pool-only. Note that the filter pump will turn off while the pool/spa valves are turning.

Pool and Spa systems with spa spillover: In pool-only mode, the left LED next to the POOL/SPA button is illuminated. Pressing the POOL/SPA button will switch the Aqua Plus to spa-only operation (right LED illuminated). Pressing the POOL/SPA button again will switch to spa spillover operation (both LED's illuminated). Pressing the POOL/SPA button again will switch back to pool-only. Note that the filter pump will turn off while the pool/spa valves are turning.

Service

The main unit keypad has a SERVICE key. This button is used primarily during servicing of the pool equipment. If you want to completely disable the automatic operation and operate the system manually, you can put the system into Service or Service-Timed mode by pressing the SERVICE button. Pressing the SERVICE button once will switch the system into service mode which means that all automatic functions are disabled, and the remote display/keypads are disabled (except for manual turn off for emergencies). The red SERVICE LED will be illuminated and the Aqua Plus will remain in this mode of operation until manually taken out of service mode.

Pressing the SERVICE button again will cause the Aqua Plus to switch to service-timed mode which is very similar to service mode, except that the Aqua Plus will automatically return to normal operation after 3 hours. During service timed operation, the “Service” LED will flash and the time remaining will be displayed on the remote display/keypad(s).

Pressing the SERVICE button again, will return the Aqua Plus to normal (automatic) operation. See Troubleshooting/Diagnostic Information (page 30) for more information about the service modes.

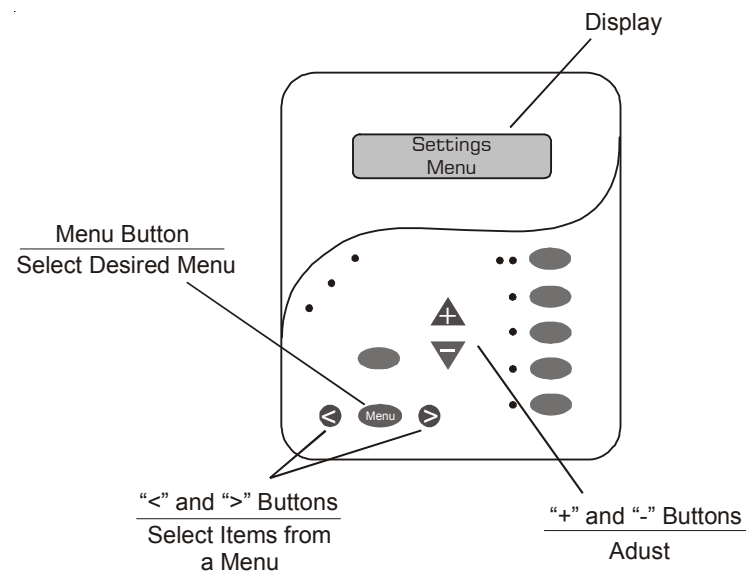
Automatic System Operation

The Aqua Plus controls most of your pool equipment automatically in order to minimize the time spent working on your pool. Most of the pool equipment can be programmed to operate on a timeclock basis. In addition, the desired pool and spa temperatures and pool and spa chlorinator settings can be programmed. This section will guide you on how to program the automatic operation for each function.






The programming of automatic functions can be performed at either the main display/keypad located at the pool equipment pad or the in-home remote display/keypad.

Using the programming buttons

There are 5 buttons on each keypad that are used for programming (refer to diagram).



There are 4 steps to programming any function:

1.  Press the "MENU" button to get to the desired menu. Multiple pushes of the button will rotate through all 5 menus and return to the starting point.
2.  Press either key to scroll through the various items in the selected menu. Multiple pushes of the button will rotate through all menu items and return to the starting point. Only menu items that are applicable to your pool will appear. (Example: if you don't have a spa, then no spa related menu items will appear).
3.  Once a menu item has been selected above, the current setting/selection will appear (flashing) on the display. Use the "+" and/or "-" keys to change this selection. Sometimes "+" and "-" will adjust a value up or down (example: heater temperature setting or timeclock on/off time). In this case, pushing the "+" or "-" will change the value by one increment and holding the "+" or "-" button in for more than one second will make the values auto scroll. In other cases, the "+" and "-" may toggle between 2 options (example: turning superchlorination ON or OFF).
4.   After you have adjusted the item to the desired value, simply move on to the next menu item to "lock in" your new setting. The Aqua Plus memory will maintain the setting, even if power is removed for an extended period.

Troubleshooting and Diagnostic Information

The Aqua Plus provides 2 different tools to aid in troubleshooting any problems that may occur in your pool and/or spa system. The Service mode will allow you to disable automatic operation and manually control most of the equipment (the heater and general purpose Valve3 output are the exceptions). The Diagnostic Menu will provide some detailed information regarding system operation.

While both of the features are primarily intended for the use of the professional service technician, their function is fully explained below. If you believe your system is not operating properly or have questions regarding the operation, call the Goldline Technical Service Department from Monday through Friday, 8AM to 8PM EST at 888-921-7665.

Service Mode

The main unit keypad has a SERVICE button that is used primarily during servicing of the pool equipment.

If you want to completely disable the automatic operation and operate the system manually, you can put the system into Service or Service-Timed mode by pressing the "Service" button. Pressing the "SERVICE" button once will switch the system into service mode which means that all automatic functions are disabled, the optional remote display/keypads are disabled (except for manual turn off for emergencies). The outputs can be manually controlled by pressing the buttons on the local display/keypad. The red "SERVICE" LED will be illuminated and the Aqua Plus will remain in this mode of operation until manually taken out of service mode.

Pressing the "SERVICE" button again will cause the Aqua Plus to switch to service-timed mode which is very similar to service mode, except that the Aqua Plus will automatically return to normal operation after 3 hours. During service timed operation, the "SERVICE" LED will flash and the time remaining will be displayed on the remote display/keypad(s).

Pressing the "SERVICE" button again, will return the Aqua Plus to normal (automatic) operation.

System Maintenance

To maintain maximum performance, it is recommended that you open and visually inspect the cell every 3 months or after cleaning your filter. The Aqua Plus will remind you to do this by displaying the message “Inspect/Clean Cell” after approximately 500 hours of operation.

The Aqua Plus electrolytic cell has a self cleaning feature incorporated into the electronic control’s logic. In most cases this self cleaning action will keep the cell working at optimum efficiency. In areas where water is hard (high mineral content) or in pools where the water chemistry has been allowed to get “out of balance”, the cell may require periodic cleaning.

Servicing and Cleaning the Turbo Cell

Turn off power to the Aqua Plus before removing the electrolytic cell. Once removed, look inside the cell and inspect for scale formation (light colored crusty or flaky deposits) on the plates and for any debris which has passed through the filter and caught on the plates. If no deposits are visible, reinstall. If deposits are seen, use a high pressure garden hose and try to flush the scale off. If this is not successful, use a plastic or wood tool (do not use metal as this will scratch the coating off the plates) and scrape deposits off of plates. Note that a buildup on the cell indicates that there is an unusually high calcium level in the pool (old pool water is usually the cause). If this is not corrected, you may have to periodically clean the cell. The simplest way to avoid this is to bring the pool chemistry to the recommended levels as specified.

Mild Acid Washing: Use only in severe cases where flushing and scraping will not remove the majority of deposits. To acid wash, turn off power to Aqua Plus. Remove cell from piping. In a clean plastic container, mix a 2:1 solution of water to muriatic acid (one gallon of water to two quarts of muriatic acid). ALWAYS ADD ACID TO WATER - NEVER ADD WATER TO ACID. Be sure to wear rubber gloves and appropriate eye protection. The level of the solution in the container should just reach the top of the cell so that the wire harness compartment is NOT submerged. It may be helpful to coil the wiring before immersing the cell. The cell should soak for a few minutes and then rinse with a high pressure garden hose. If any deposits are still visible, repeat soaking and rinsing. Replace cell and inspect again periodically.

Winterizing

The Aqua Plus electrolytic cell and flow detection switch will be damaged by freezing water just as your pool plumbing would. In areas of the country which experience severe or extended periods of freezing temperatures, be sure to drain all water from the pump, filter, and supply and return lines before any freezing conditions occur. The electronic control is capable of withstanding any winter weather and should not be removed.

If you are in an area that only experiences occasional freezing conditions, your Aqua Plus system may be set up to circulate the pool water whenever the air sensor drops to the selected freeze temperature threshold. Make sure the air sensor is recording the correct temperature and is NOT located in the direct sunlight to ensure proper freeze protection operation.

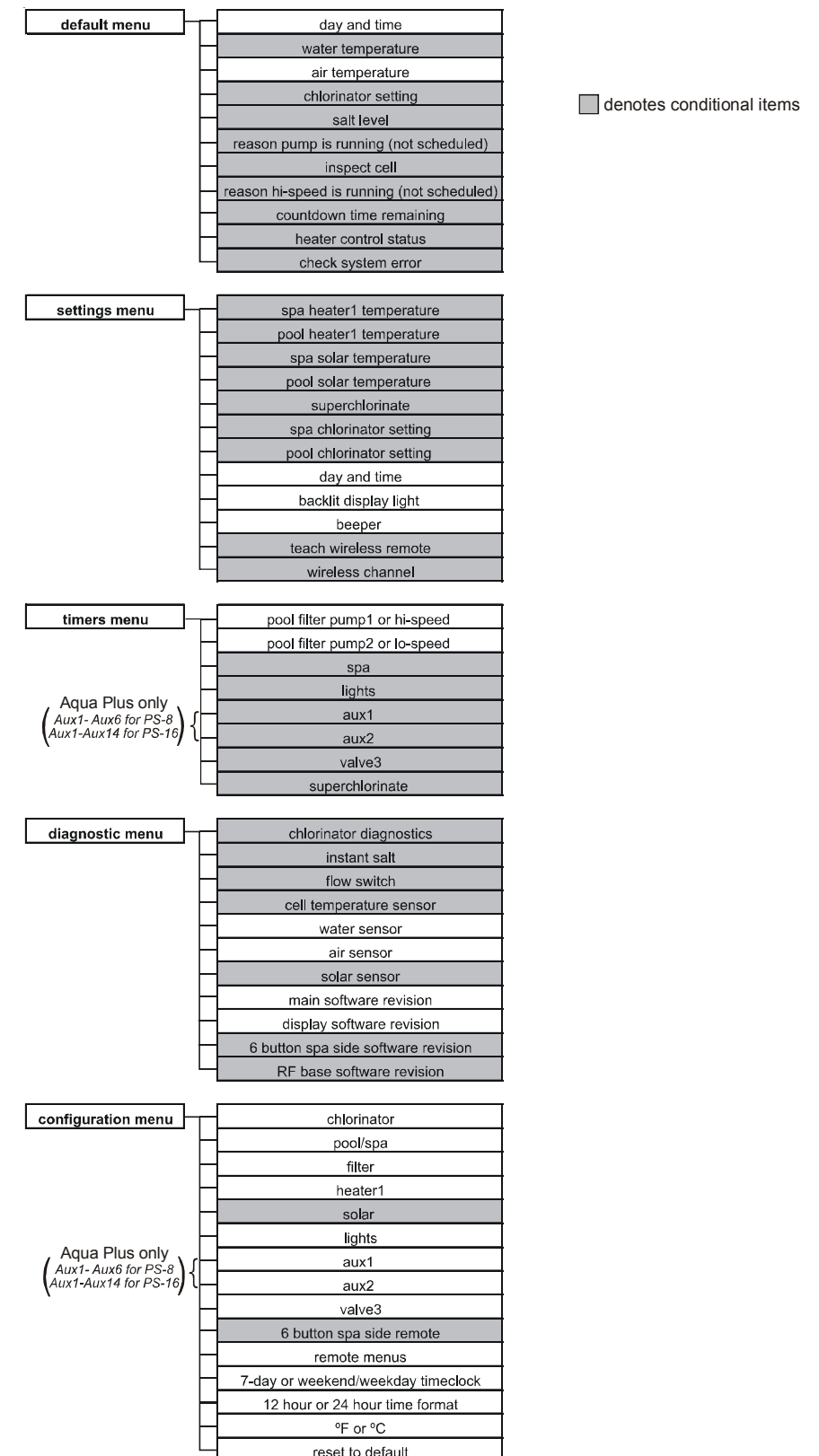
Spring Start-up

When first starting the pool in the spring time, it is highly recommended that you temporarily set the pool and spa chlorinator settings (Pool Sanitizer & Spa Sanitizer in the Settings Menu) to 0% (off) and then manually shock the pool with any chlorine based shock product and balance the pool water chemistry per the levels indicated in the Chlorinator Operation section (page 25). Make sure to check the salt and stabilizer levels and bring them up to the recommended levels. Your local Authorized Aqua Dealer or pool store can recommend the best chemical treatment for your pool. After the water is clear and balanced, then go back and adjust the pool and spa chlorinator settings to the appropriate levels. Test the pool chlorine level weekly and adjust the chlorinator settings up or down accordingly.

It is usually a good idea to also inspect the cell and clean if necessary at the start of the season. See instructions above.

Programming Menu Flowchart

The Aqua Plus’s five menus have many items in each menu that allow you to customize the operation of your pool/spa equipment. The chart below shows the Aqua Plus’s five menus as well as each menu’s specific settings



The Default Menu is a series of informative displays (temperatures, salt levels, chlorinator settings, etc.) with nothing to set. The Aqua Plus will automatically switch to the default menu when no keys have been pressed for 2 minutes and will then scroll through each display.

The Settings Menu and the Timers Menu are the menus you will be using most often to adjust the operation of your pool. The Configuration Menu is used when the system is installed and defines what equipment is connected to each output and the operational logic that will control the equipment. This menu is normally “locked” and should only be used by a pool professional. Details regarding the Configuration menu are included in both the Operation and the Installation Manual.

The “Diagnostic Menu” is primarily intended for the service technician and contains information and details about the system operation that are helpful in troubleshooting, if problems occur.

Settings Menu

The Settings Menu allows you to set all system operating parameters except the timeclock and countdown timers which are part of the Timers Menu.

Spa Heater1
102°F

▲▼ Adjust the desired spa temperature (Off, 65°F, 66°F, ...103°F, 104°F, Off)
◀▶ Move to previous/next menu item

The spa heater setting will only appear if the system has been setup for “spa only” or “pool and spa” operation and the heater control is enabled. The heater will turn on whenever the pool/spa valves are in the “spa only” position and the filter pump is running and the spa water temperature is less than the desired temperature setting. If you have both solar heat and a conventional heater and the solar priority option is selected (Configuration Menu), then the conventional heater will only operate when solar heat is NOT available.

Pool Heater1
Off

▲▼ Adjust the desired pool temperature (Off, 65°F, 66°F, ...103°F, 104°F, Off)
◀▶ Move to previous/next menu item

The pool heater setting will only appear if the system has been setup for “pool only” or “pool and spa” operation and the heater control is enabled. The heater will turn on whenever the pool/spa valves are in the “pool only” or “spa spillover” position and the filter pump is running and the pool water temperature is less than the desired temperature setting. If you have both solar heat and a conventional heater and the solar priority option is selected (Configuration Menu), then the conventional heater will only operate when solar heat is NOT available.

Spa Solar
104°F

▲▼ Adjust the desired spa temperature (Off, 65°F, 66°F, ...103°F, 104°F, Off)
◀▶ Move to previous/next menu item

The spa solar setting will only appear if the system has been setup for “spa only” or “pool and spa” operation and the solar control is enabled. The solar system will turn on whenever the pool/spa valves are in the “spa only” position and the filter pump is running and the spa water temperature is less than the desired temperature setting and solar heat is available.

POUNDS and (Kg) OF STABILIZER (CYANURIC ACID) NEEDED FOR 80 PPM

Current Stabilizer Level (ppm)	Gallons and (Liters) of Pool/Spa water																
	8,000 (30000)	10,000 (37500)	12,000 (45000)	14,000 (52500)	16,000 (60000)	18,000 (67500)	20,000 (75000)	22,000 (82500)	24,000 (90000)	26,000 (97500)	28,000 (105000)	30,000 (112500)	32,000 (120000)	34,000 (127500)	36,000 (135000)	38,000 (142500)	40,000 (150000)
0 ppm	5.3 (3.6)	6.7 (4.3)	8.0 (3.6)	9.4 (4.3)	10.7 (4.9)	12.0 (5.4)	13.4 (6.1)	14.7 (6.7)	16.0 (7.3)	17.3 (7.9)	18.7 (8.5)	20.0 (9.1)	21.3 (9.7)	22.7 (10.3)	24.0 (10.9)	25.3 (11.5)	26.7 (12.0)
10 ppm	4.7 (3.2)	5.8 (3.7)	7.0 (3.2)	8.2 (3.7)	9.4 (4.3)	10.5 (4.8)	11.7 (5.3)	12.9 (5.9)	14.0 (6.4)	15.2 (6.9)	16.4 (7.4)	17.2 (8.0)	18.7 (8.5)	19.8 (9.0)	21.0 (9.5)	22.2 (10.0)	23.3 (10.5)
20 ppm	4.0 (2.7)	5.0 (3.2)	6.0 (2.7)	7.0 (3.2)	8.0 (3.6)	9.0 (3.2)	10.0 (4.5)	11.0 (5.0)	12.0 (5.4)	13.0 (5.9)	14.0 (6.4)	15.0 (6.8)	16.0 (7.2)	17.0 (7.7)	18.0 (8.1)	19.0 (8.6)	20.0 (9.0)
30 ppm	3.3 (2.3)	4.2 (2.7)	5.0 (2.3)	5.9 (2.7)	6.7 (3.0)	7.5 (3.4)	8.4 (3.8)	9.2 (4.2)	10.0 (4.5)	10.8 (4.9)	11.7 (5.2)	12.5 (5.6)	13.3 (6.0)	14.2 (6.3)	15.0 (6.7)	15.8 (7.1)	16.7 (7.5)
40 ppm	2.7 (1.8)	3.3 (2.1)	4.0 (1.8)	4.7 (2.1)	5.4 (2.4)	6.0 (2.7)	6.7 (3.0)	7.4 (3.3)	8.0 (3.6)	8.7 (3.9)	9.3 (4.2)	10.0 (4.5)	10.7 (4.8)	11.3 (5.1)	12.0 (5.4)	12.7 (5.7)	13.3 (6.0)
50 ppm	2.0 (1.4)	2.5 (1.6)	3.0 (1.4)	3.5 (1.6)	4.0 (1.8)	4.5 (2.0)	5.0 (2.3)	5.5 (2.5)	6.0 (2.7)	6.5 (2.9)	7.0 (3.2)	7.5 (3.4)	8.0 (3.6)	8.5 (3.9)	9.0 (4.1)	9.5 (4.3)	10.0 (4.5)
60 ppm	1.3 (0.9)	1.7 (1.1)	2.0 (0.9)	2.3 (1.1)	2.7 (1.2)	3.0 (1.4)	3.3 (1.5)	3.7 (1.7)	4.0 (1.8)	4.3 (2.0)	4.7 (2.1)	5.0 (2.3)	5.3 (2.4)	5.7 (2.6)	6.0 (2.7)	6.3 (2.8)	6.7 (3.0)
70 ppm	0.7 (0.45)	0.8 (0.54)	1.0 (0.45)	1.2 (0.54)	1.4 (0.64)	1.5 (0.88)	1.7 (0.77)	1.8 (0.82)	2.0 (0.91)	2.2 (1.0)	2.3 (1.1)	2.5 (1.2)	2.7 (1.2)	2.8 (1.3)	3.0 (1.3)	3.2 (1.4)	3.3 (1.5)
80 ppm	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

POUNDS and (Kg) OF SALT NEEDED FOR 3200 PPM

Current salt level ppm	Gallons and (Liters) of Pool/Spa water																
	8,000 (30,000)	10,000 (37,500)	12,000 (45,000)	14,000 (52,500)	16,000 (60,000)	18,000 (67,500)	20,000 (75,000)	22,000 (82,500)	24,000 (90,000)	26,000 (97,500)	28,000 (105,000)	30,000 (112,500)	32,000 (120,000)	34,000 (127,500)	36,000 (135,000)	38,000 (142,500)	40,000 (150,000)
0	213 (97)	267 (121)	320 (145)	373 (170)	427 (194)	480 (218)	533 (242)	587 (267)	640 (291)	693 (315)	747 (339)	800 (364)	854 (388)	907 (412)	960 (436)	1013 (460)	1067 (484)
200	200 (91)	250 (114)	300 (136)	350 (159)	400 (182)	450 (205)	500 (227)	550 (250)	600 (273)	650 (295)	700 (318)	750 (341)	800 (363)	850 (385)	900 (408)	950 (430)	1000 (453)
400	187 (85)	233 (106)	280 (127)	327 (148)	373 (170)	420 (191)	467 (212)	513 (233)	560 (255)	607 (276)	653 (297)	700 (318)	747 (339)	793 (360)	840 (382)	887 (403)	933 (424)
600	173 (79)	217 (98)	260 (118)	303 (138)	347 (158)	390 (177)	433 (197)	477 (217)	520 (236)	563 (256)	607 (276)	650 (297)	693 (317)	737 (337)	780 (358)	823 (378)	867 (398)
800	160 (73)	200 (91)	240 (109)	280 (127)	320 (145)	360 (164)	400 (182)	440 (200)	480 (218)	520 (236)	560 (255)	600 (273)	640 (291)	680 (310)	720 (328)	760 (346)	800 (364)
1000	147 (67)	183 (83)	220 (100)	257 (117)	293 (133)	330 (150)	367 (167)	403 (183)	440 (200)	477 (217)	513 (233)	550 (250)	587 (267)	623 (283)	660 (300)	697 (317)	733 (333)
1200	133 (61)	167 (76)	200 (91)	233 (106)	267 (121)	300 (136)	333 (152)	367 (167)	400 (182)	433 (197)	467 (212)	500 (227)	533 (243)	567 (258)	600 (274)	633 (289)	667 (304)
1400	120 (55)	150 (68)	180 (82)	210 (95)	240 (109)	270 (123)	300 (136)	330 (150)	360 (164)	390 (177)	420 (191)	450 (205)	480 (218)	510 (232)	540 (246)	570 (259)	600 (263)
1600	107 (48)	133 (61)	160 (73)	187 (85)	213 (97)	240 (109)	267 (121)	293 (133)	320 (145)	347 (158)	373 (170)	400 (182)	427 (195)	453 (207)	480 (219)	507 (231)	533 (243)
1800	93 (42)	117 (53)	140 (64)	163 (74)	187 (85)	210 (95)	233 (106)	257 (117)	280 (127)	303 (138)	327 (148)	350 (159)	373 (169)	397 (180)	420 (190)	443 (201)	467 (211)
2000	80 (36)	100 (45)	120 (55)	140 (64)	160 (73)	180 (82)	200 (91)	220 (100)	240 (109)	260 (118)	280 (127)	300 (136)	320 (145)	340 (154)	360 (163)	380 (172)	400 (181)
2200	67 (30)	83 (38)	100 (45)	117 (53)	133 (61)	150 (68)	167 (76)	183 (83)	200 (91)	217 (98)	233 (106)	250 (114)	267 (121)	283 (129)	300 (137)	317 (144)	333 (152)
2400	53 (24)	67 (30)	80 (36)	93 (42)	107 (48)	120 (55)	133 (61)	147 (67)	160 (73)	173 (79)	187 (85)	200 (91)	213 (98)	227 (104)	240 (110)	253 (117)	267 (123)
2600	40 (18)	50 (23)	60 (27)	70 (32)	80 (36)	90 (41)	100 (45)	110 (50)	120 (55)	130 (59)	140 (64)	150 (68)	160 (73)	170 (77)	180 (81)	190 (86)	200 (90)
2800	27 (12)	33 (15)	40 (18)	47 (21)	53 (24)	60 (27)	67 (30)	73 (33)	80 (36)	87 (39)	93 (42)	100 (45)	107 (48)	113 (51)	120 (54)	127 (57)	133 (60)
3000	13 (6)	17 (8)	20 (9)	23 (11)	27 (12)	30 (14)	33 (15)	37 (17)	40 (18)	43 (20)	47 (21)	50 (23)	53 (24)	57 (26)	60 (27)	63 (29)	67 (30)
3200	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal
3400	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
3600+	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute

Pool Solar
88°F

- Adjust the desired pool temperature (Off, 65°F, 66°F, ...103°F, 104°F, Off)
- Move to previous/next menu item

The pool solar setting will only appear if the system has been setup for “pool only” or “pool and spa” operation and the solar control is enabled. The solar system will turn on whenever the pool/spa valves are in the “pool only” or “spa spillover” position and the filter pump is running and the pool water temperature is less than the desired temperature setting and solar heat is available.

Super Chlorinate
On

- Turn super chlorinate on or off
- Move to previous/next menu item

This setting will only appear if “chlorinator” is enabled. When you have an unusually high bather load, a large amount of rain, a cloudy water condition, or any other condition that requires a large amount of chlorine to be introduced to the pool, activate the Aqua Plus Super-Chlorinate function. The Aqua Plus will turn on the filter pump, set the pool/spa valves to the correct position, and set the chlorine generator to maximum output. The superchlorinate function will continue for the programmed number of hours (see Timers/ Super Chlorinate Hours below) overriding the normal filter pump timeclock settings. At the end of the super chlorinate period, the pool will return to normal operation.

If you manually turn off the filter pump (using the “Filter” button on any display/keypad), the super chlorinate function terminates. When you turn the filter pump back on, super chlorinate will resume for the balance of the programmed number of hours.

Spa Chlorinator
3%

- Adjust the desired chlorinator output for spa (0,1,2,3...9,10,15,20...95,100%)
- Move to previous/next menu item

This setting will appear only if the system has been setup for “chlorinator” and “spa only” or “pool and spa”. It will determine the chlorinator output when the system is operating in spa-only mode. The actual amount of chlorine introduced into the spa is determined by: this setting, the amount of time the pool operates in spa-only mode, the water temperature, and the amount of salt in the water. If the filter pump is running due to the freeze protection feature, then the chlorinator will not operate during this time.

Pool Chlorinator
60%

- Adjust the desired chlorinator output for pool (0,1,2,3...9,10,15,20...95,100%)
- Move to previous/next menu item

This setting will appear only if the system has been setup for “pool only” or “pool and spa”. It will determine the chlorinator output when the system is operating in pool-only or spa spillover modes. The actual amount of chlorine introduced into the pool is determined by: this setting, the amount of time the filter pump is running, the water temperature, and the amount of salt in the water. If the filter pump is running due to the freeze protection feature, then the chlorinator will not operate during this time.

Set Day and Time
Wednesday 10:37P

▲▽ Adjust the current day of the week
◀▶ Move to hours setting

Set Day and Time
Wednesday 10:37P

▲▽ Adjust the current hour (including AM/PM, if applicable)
◀▶ Move to minutes setting

Set Day and Time
Wednesday 10:37P

▲▽ Adjust the current minute
◀▶ Move to previous/next menu item

Use this function to set the current day of the week and time. These values are used for all the automatic timeclock functions of the Aqua Plus and are also displayed as part of the default menu.

The Aqua Plus is designed to keep the clock running during power outages lasting less than 7 days. If power has been off for longer than 7 days, then the time may have to be reset.

Display Light
On for 60 sec.

▲▽ Toggle between Always On and On for 60 sec.
◀▶ Move to previous/next menu item

This function controls the backlight on the display. If the “60 seconds” option is selected, then the backlight will automatically turn off 60 seconds after the last key is pressed and will stay off until next time a key is pressed.

Note that the Display Light selection only applies to the display keypad that you are currently using. Other display/keypads will not be affected. In other words, you need to individually set this option for each display/keypad in the system.

Beeper
Enabled

▲▽ Toggle between Beeper Enabled (default) and Disabled
◀▶ Move to previous/next menu item

When “Enabled”, the keypad will beep every time a key is pressed. If this is not desired, select “Disabled”.

This function only applies to the display/keypad that you are currently using. You need to set this option for each display/keypad in your system.

NOTE: This function is not supported on all display/keypads. If the “Enabled” selection is not blinking, then the current software revision of that particular keypad/display does not support the option and it will default to Beeper Enabled.

Teach Wireless
+ to start

▲ Push to start process
◀▶ Move to previous/next menu item

Press and hold
wireless button

Press any button on wireless remote

Teach Wireless
Successful

◀▶ Move to previous/next menu item

Teach Wireless
NOT Successful

◀▶ Move to previous/next menu item

Teach Wireless
Base NOT Found

◀▶ Move to previous/next menu item

This menu will only appear if a wireless base station is connected to the Aqua Plus. Perform this procedure each time a wireless remote control is added to the Aqua Plus system. During

The pool’s chemistry must be balanced BEFORE activating the Aqua Plus’s optional chlorinator function. NOTE: If the pool does not have new water, add metal remover and non-copper based algaecide to the pool, per manufacturer’s instructions. This ensures a quick, troublefree transfer to the Aqua Plus system.

Salt

Salt Level

Use the chart on the following page to determine how much salt in pounds or (Kgs) should be added to reach the recommended levels. Use the equations below (measurements are in feet/gallons and meters/liters) if pool size is unknown.

	Gallons (pool size in feet)	Liters (pool size in meters)
Rectangular	Length x Width x Average Depth x 7.5	Length x Width x Average Depth x 1000
Round	Diameter x Diameter x Average Depth x 5.9	Diameter x Diameter x Average Depth x 785
Oval	Length x Width x Average Depth x 6.7	Length x Width x Average Depth x 893

The operating salt level is between 2700-3400 PPM (parts per million) with 3200 PPM being optimal. Before adding any salt, test the salt level. This is especially important for retrofit installation to older pools where chlorine added to the pool over time has ended up as salt. If the level is low, determine the number of gallons in the pool and add salt according to the chart below. A low salt level will reduce the efficiency of the sanitization and result in low chlorine production. A high salt level can cause the Aqua Plus to stop chlorinating. The salt in your pool/spa is constantly recycled and the loss of salt throughout the swimming season should be minimal. This loss is due primarily to the addition of water because of splashing, backwashing, or draining (because of rain). Salt is not lost due to evaporation.

Type of Salt to Use

It is important to use only sodium chloride (NaCl) salt that is greater than 99.0% pure. This can be found at most pool stores in 40-80 lb. bags labeled “for use in swimming pools”. Alternatively, use common food quality or water softener salt that is at least 99.0% pure. It is also acceptable to use water conditioning salt pellets, however, it will take longer for them to dissolve. Do not use rock salt, or salt with more than 1% of yellow prussiate of soda, salt with anti-caking additives, or iodized salt.

How to Add Salt

For new plaster pools, wait 10-14 days before adding salt to allow the plaster to cure. Turn the circulating pump on and add salt directly into the pool. Brush the salt around to speed up the dissolving process—do not allow salt to pile up on the bottom of the pool. Run the filter pump for 24 hours with the suction coming from the main drain (use pool vacuum if there is no main drain) to allow the salt to evenly disperse throughout the pool. The salt display may take 24 hours to respond to the change in salt concentration.

Always check stabilizer (cyanuric acid), when checking salt. These levels will most likely decline together. Use the chart on page 28 to determine how much stabilizer must be added to raise the level to 80 ppm.

Chlorinator Operation / Water Chemistry

General Water Chemistry

Salt is required only if you are using the chlorinator features on the Aqua Plus Control. If you are NOT using the chlorinator, it is recommended that you follow all of the other chemistry recommendations besides salt. Refer to the description of the Aqua Plus configuration menu for information on enabling/disabling the chlorinator (see page 14).

Water Chemistry

The table below summarizes the levels that are recommended by the Association of Pool and Spa Professionals (APSP). The only special requirements for the Aqua Plus are the salt level and stabilizer.

CHEMICAL	IDEAL LEVELS
Salt	2700 to 3400 ppm
Free Chlorine	1.0 to 3.0 ppm
pH	7.2 to 7.6
Cyanuric Acid (Stabilizer)	60 to 80 ppm (80 ppm best)
Total Alkalinity	80 to 120 ppm
Calcium Hardness	200 to 400 ppm
Metals	0 ppm
Saturation Index	-0.2 to +0.2 (0.0 best)

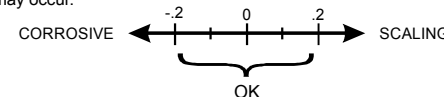
Saturation index

The saturation index (Si) relates to the calcium and alkalinity in the water and is an indicator of the pool water "balance". Your water is properly balanced if the Si is 0 ±0.2. If the Si is below -0.2, the water is corrosive and plaster pool walls will be dissolved into the water. If the Si is above +0.2, scaling and staining will occur. Use the chart below to determine the saturation index.

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

°C	°F	Ti	Calcium Hardness	Ci	Total Alkalinity	Ai
12	53	.3	75	1.5	75	1.9
16	60	.4	100	1.6	100	2.0
19	66	.5	125	1.7	125	2.1
24	76	.6	150	1.8	150	2.2
29	84	.7	200	1.9	200	2.3
34	94	.8	250	2.0	250	2.4
39	103	.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

How to use: Measure pool pH, temperature, calcium hardness, and total alkalinity. Use the chart above to determine Ti, Ci, and Ai from your measurements. Insert values of pH, Ti, Ci and Ai into the above equation. If Si equals .2 or more, scaling and staining may occur. If Si equals -.2 or less corrosion or irritation may occur.



this procedure the wireless remote "learns" and remembers the ID code for the wireless base station connected to this particular Aqua Plus unit and will reject messages with any other ID codes. If "Base NOT found" is displayed, then the Aqua Plus can not communicate with the transmitter/receiver base station attached to the main unit. If "NOT Successful" is displayed, then the base station did not receive a signal from the remote control. This may be due to the distance between the Base Receiver and the remote device being too great or may be due to interference caused by other RF equipment operating in the neighborhood. Try changing the channel and then repeat the "Teach Wireless" command.

Wireless Channel: 1

- Change the desired wireless channel (1 - 5)
- If channel is changed, move to confirmation menu
- If channel is not changed, move to previous/next menu item

Confirm Change: + to proceed

- Push to confirm the channel change
- Move to previous/next menu item

Reteach all wireless units

- Move to previous (Teach Wireless) menu

This setting changes the channel to be used by the wireless base station and remote(s). If the channel is changed and confirmed, all of the wireless remotes will have to be retaught. This menu will only appear if a wireless base station is connected to the Aqua Plus.

Timers Menu

The Timers Menu allows you to set all timeclock and countdown timers which control the automatic operation of your pool/spa system.

Each timeclock has a single on/off program per day. All of the timeclocks are setup (Configuration Menu) either as "all days" or "weekends/weekdays". If "weekends/weekdays" are selected, you will need to program on times for both weekdays and weekends and off times for both weekdays and weekends, even if you want them to be the same. All times are adjusted in 15 minute increments (9:00A, 9:15A, 9:30A, etc.). If you program the on time equal to the off time ("10:00A to 10:00A") the output will NEVER turn on. If you want to disable a timeclock, you can set the on time equal to the off time and you will notice the times disappear and the display simply shows "Off". If, at a later time, you wish to re-activate the timeclock, simply press either the "+" or "-" buttons to go back to a normal timeclock programming display.

The Countdown timer is programmed in increments of 5 minutes from "Manual On/Off" (0 minutes) to a maximum of "21:00" (21 hours). When "Manual On/Off" is displayed, the countdown timer is disabled and the output will be manually controlled. When a countdown timer is equal or greater than "0:05", pressing the appropriate output button will turn the output on and start the timer. Pressing the button again will turn the output off or, when the programmed time has elapsed, the output will automatically turn off.

Filter T1-all 8:30A to 4:00P

- Adjust time setting
- Move between start and stop times & to previous/next menu item

Filter T1-wkend 8:30A to 4:00P

- Adjust time setting
- Move between start and stop times & to previous/next menu item

Filter T1-wkday 8:30A to 4:00P

- Adjust time setting
- Move between start and stop times & to previous/next menu item

For one speed pumps, this is the first filter timeclock and will determine the normal hours of filtration for the pool. For pool/spa combination systems with spillover enabled, the valves will automatically switch to spillover mode at the start of the filtration period. For all other systems, the valves will switch to the pool-only position. Refer to the text above for general notes regarding timeclock programming.

For two speed pumps, this setting will be the period of time when the pump runs at high speed (the word “Filter T1” in the display will be replaced with “Filter Hi”). There is a separate timeclock for the low speed operation (see “Filter T2” below). If the high speed and low speed periods overlap, then the pump will operate in low speed during the overlap period.

There are several reasons the filter pump may be running at times other than the timeclock period set above. These include super-chlorination, spa operation, manual operation, heater cooldown, freeze protection and “solar-extend”.

- | | | |
|----|-----------------------------------|-------------------------------------------------------------------|
| or | Filter T2-all
8:30A to 4:00P | ▲▼ Adjust time setting |
| | | ◀▶ Move between start and stop times & to previous/next menu item |
| | Filter T2-wkend
8:30A to 4:00P | ▲▼ Adjust time setting |
| | | ◀▶ Move between start and stop times & to previous/next menu item |
| | Filter T2-wkday
8:30A to 4:00P | ▲▼ Adjust time setting |
| | | ◀▶ Move between start and stop times & to previous/next menu item |

For one speed pumps, this is the second filter timeclock

For two speed pumps, this timeclock will set the normal time period for **filter pump low speed operation** (the word “Filter T2” in the display will be replaced with “Filter Lo”). If the filter pump was off prior to the start of this time period, the filter pump will first turn on at high speed for 3 minutes to prime and establish water flow. Afterwards, it will drop down to low speed for the remainder of the programmed low speed time period. While this time clock will override the high speed timeclock (see above), there are several reasons why the pump will automatically switch to high speed operation during this programmed time period. These include manual operation, spa operation, or heating operation. Refer to page 10 for general notes regarding timeclock programming.

- | | | |
|----|-----------------------------|-------------------------------------------------------------------|
| or | Spa-all
6:00P to 9:00P | ▲▼ Adjust time setting |
| | | ◀▶ Move between start and stop times & to previous/next menu item |
| | Spa-wkend
6:00P to 9:00P | ▲▼ Adjust time setting |
| | | ◀▶ Move between start and stop times & to previous/next menu item |
| | Spa-wkday
6:00P to 9:00P | ▲▼ Adjust time setting |
| | | ◀▶ Move between start and stop times & to previous/next menu item |

This menu is only available if the system has been setup for “spa only” or “pool and spa”. During the programmed spa time, the Aqua Plus will turn on the filter pump and move the pool/spa valves into the “spa-only” position. The heater will automatically heat the spa up to the programmed spa temperature (page 7). This programmed spa operation will take precedence over all other automatic functions, only manual operation of the filter button or pool/spa valve button will override this function.

If your pool has a separate jet pump or blower controlled by Aux1 and/or Aux2, you will have to program those separately (see page 12).

Enter/Exit Service (or Service—Timed) Mode

1. Go to Aqua Plus main unit (normally mounted near the pool equipment)
2. Pressing the “Service” button rotates through normal operation (red LED off), service mode (red LED on continuously) and service-timed mode (red LED flashing).

Note: This operation can only be performed at the main Aqua Plus unit. Both “Service” and “Service-Timed” disable all automatic programmed operations and allow manual operation from the main unit only. The buttons on the remote display/keypads will still be able to turn equipment off in case of an emergency, but will not turn any equipment on. If the system is in “Serviced-Timed” it will automatically switch back to normal operation at the end of the 3 hour time period.

Note: Separate chlorinator output levels for the pool and spa must be set. If the valves are in the pool-only or spa spillover positions, then the chlorinator will operate according to the pool setting. If the valves are in the spa-only position then the chlorinator will operate according to the spa setting. The actual amount of chlorine introduced into the pool/spa is determined by: this output setting, the amount of time the filter pump is running, the water temperature, and the amount of salt in the water. Also see Start/Stop Superchlorination below.

Start/Stop Superchlorination

1. Press the “MENU” button repeatedly until “Settings Menu” is displayed
2. Press the “>” button repeatedly until “Super Chlorinate” is displayed.
3. The display will show whether superchlorination is “on” or “off”.
4. Press “+” or “-“ to toggle between “on” and “off”

Note: Once started, superchlorination will run for the programmed number of hours (Timers Menu/Super Chlorinate Hours) or until you manually turn it off. Superchlorination may be temporarily interrupted for a programmed spa operation.

Program a Timeclock

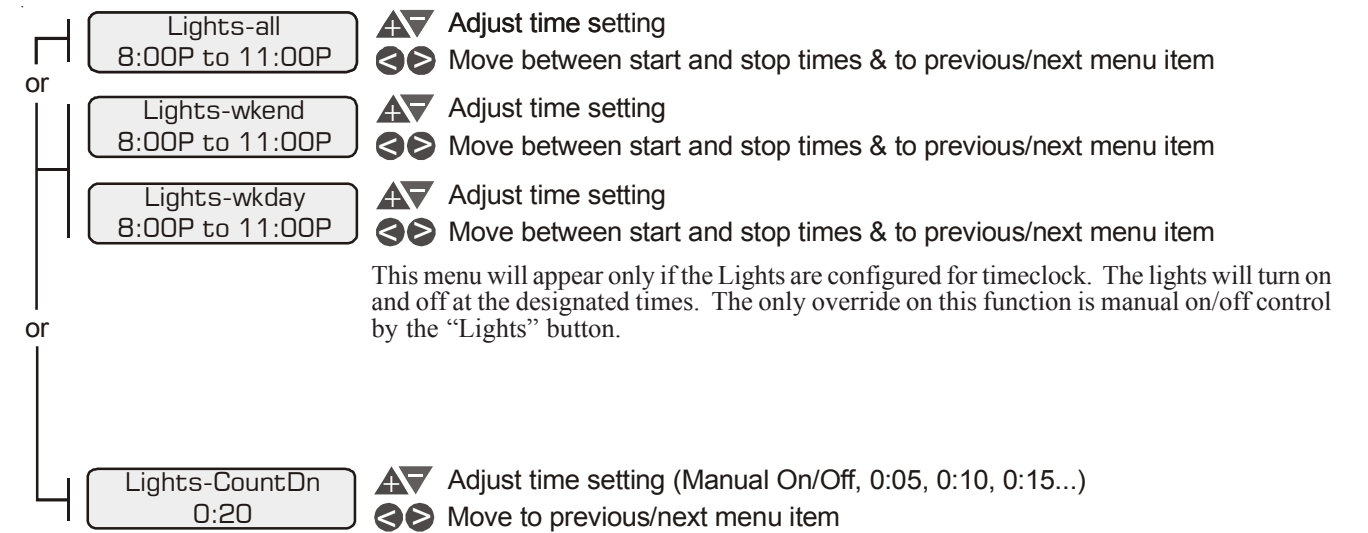
1. Press the “MENU” button repeatedly until “Timers Menu” is displayed
2. Press the “>” button repeatedly until “xxx—all” or “xxx—wkend” (where xxx is the parameter that you want to program) is displayed.
3. Use the “+” and “-“ buttons to set the desired start time, then press “>” to switch to the off time. Use the “+” and “-“ buttons to adjust the off time. If you are setting the “weekend” timeclock, press “>” to go to the “weekday” settings.

Note: During the programmed time, there may be other automatic or manual operations that prevent the relay/valve from operating—see a more detailed discussion under Automatic System Operation/Timers Menu/Aux Timeclock or in Troubleshooting/Diagnostic Information.

Program a Countdown Timer

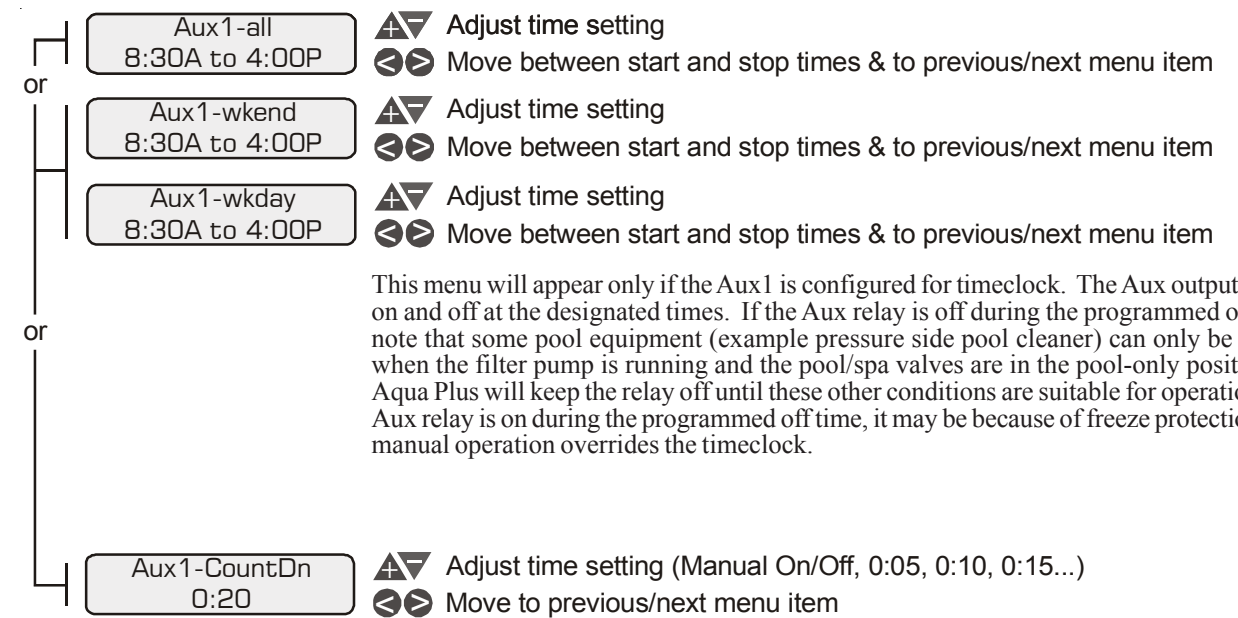
1. Press the “MENU” button repeatedly until “Timers Menu” is displayed
2. Press the “>” button repeatedly until the “xxx—Timer” (where xxx is the parameter that you want to program) is displayed.
3. Use the “+” and “-“ buttons to set the desired timer period.

Note: A setting of 0:00 will display as “manual on/off”. The countdown automatic turn off function is disabled but manual operation is still permitted. There may be other automatic or manual operations that prevent the relay/valve from operating—see a more detailed discussion under Automatic System Operation/Timers Menu/Aux Timeclock or in Troubleshooting/Diagnostic Information.



This menu will appear only if the Lights are configured for countdown timer. This setting is the time after you manually turn on the lights until the Aqua Plus automatically turns off the lights. You can also manually turn off the lights at an earlier time by pressing the LIGHTS button. If the Lights relay is on during the programmed off time, it may be because of freeze protection.

Aux1 and Aux2 configurations are identical.



This menu will appear only if the Aux1 is configured for countdown timer. This setting is the time after you manually turn on the Aux relay until the Aqua Plus automatically turns off the relay. You can also manually turn off the relay at an earlier time by pressing the AUX1 button.

- or
- Valve3-all
8:30A to 4:00P
 - ▲▽ Adjust time setting
 - ◀▶ Move between start and stop times & to previous/next menu item
 - Valve3-wkend
8:30A to 4:00P
 - ▲▽ Adjust time setting
 - ◀▶ Move between start and stop times & to previous/next menu item
 - Valve3-wkday
8:30A to 4:00P
 - ▲▽ Adjust time setting
 - ◀▶ Move between start and stop times & to previous/next menu item

This menu will appear only if Valve3 is configured for timeclock. The valve will rotate on and off at the designated times. There is no manual override. If the Valve3 relay is on during the programmed off time, it may be because of freeze protection.

- Super Chlorinate
24 hours
 - ▲▽ Adjust Superchlorination period (1 - 96 hours)
 - ◀▶ Move to previous/next menu item

Larger pools or when you have an unusually high bather load, a large amount of rain, a cloudy water condition, or any other condition that requires a large amount of chlorine to be introduced to the pool, may require more hours of Superchlorination. Smaller pools require less hours of Superchlorination.

Configuration Menu

The Aqua Plus MUST BE CONFIGURED before attempting to operate. Configuration information is entered at the keypad and “tells” the Aqua Plus what equipment is connected and how each should be controlled.

CAUTION: When changing an existing configuration, it is important to understand how the pool system operates and what specific equipment is connected to each output. Incorrect settings in the configuration menu could lead to damaged equipment and improper operation of the pool system.

Accessing the Configuration Menu

Configuring the Aqua Plus requires that you navigate through the Configuration Menu and input various information. For more detailed information about using the Aqua Plus menu system, refer to the Operation Manual.

To access the Configuration Menu

- Configuration Menu-Locked
 - Menu Press repeatedly until “Configuration Menu” is displayed
 - ◀▶ Press BOTH buttons SIMULTANEOUSLY for 5 seconds to unlock

- Configuration Menu-Unlocked
 - ◀▶ Move to configuration menu items

NOTE: The configuration menu automatically “locks” after 2 minutes of no buttons being pressed to prevent unauthorized people from changing the control logic inadvertently and possibly damaging the pool equipment or causing a “call back” to fix the configuration.

Quick “How To” Guide

Operate the Spa—Manually

1. Press the “Pool/Spa” button to go to “spa-only” operation (right LED illuminated). In some cases, this may take more than one press of the button.
2. If the filter pump is not already on, press the “FILTER” button to turn it on.
3. If the spa is below the desired temperature, the heater will turn on automatically when the filter pump is on and the valves are in the spa-only position. If you have not already set the desired temperature for the spa, see “Set Heater Temperature” below
4. If the spa has a separate jet pump and or blower, determine if the jet pump/blower is controlled by Aux1 or Aux2 (it should be marked on the label inside the door). Then press the appropriate button to turn on the jets/blower.

Operate the Spa—Automatically

1. Press the “MENU” button repeatedly until “Timers Menu” is displayed
2. Press the “>” button repeatedly until the “Spa—all” or “Spa—wkend” is displayed.
3. Use the “+” and “-“ buttons to set the desired start time, then press “>” to switch to the off time. Use the “+” and “-“ buttons to adjust the off time. If you are setting the “weekend” timeclock, press “>” to go to the “weekday” settings.

Note: During the programmed spa time, the valves will automatically switch to the “spa-only” position, the filter pump will turn on, and, if the spa is not up to the desired temperature, the heater will start. This operation is the highest priority and will take precedence over other automatically programmed operations. At the end of the spa period, the Aqua Plus will return to its normally programmed operation state.

Set the Heater Temperature (or turn heater permanently off)

1. Press the “MENU” button repeatedly until “Settings Menu” is displayed
2. Press the “>” button repeatedly until the “Spa Heater1” or “Pool Heater1” is displayed.
3. Press the “+” or “-“ buttons repeatedly to adjust the temperature. If you adjust the temperature below 65°F or above 104°F the display will indicate “off” and the heater will not operate regardless of temperature.

Note: Separate temperatures for the pool and spa must be set. If the valves are in the pool-only or spa spillover positions, then the heater will use the pool setting. If the valves are in the spa-only position then the heater will operate according to the spa setting.

Set the Chlorinator Output

1. Press the “MENU” button repeatedly until “Settings Menu” is displayed
2. Press the “>” button repeatedly until the “Spa Chlorinator” or “Pool Chlorinator” is displayed.
3. Press the “+” or “-“ buttons repeatedly to adjust the setting. If you adjust the setting to 0% the chlorinator will be off all the time

Time Format
12 hour AM/PM Toggle between 12 hour AM/PM (default) and 24 hour time format options
 Move to previous/next configuration menu

Units
°F and PPM Toggle between °F and PPM (default) and °C and g/L (Metric) options
 Move to previous/next configuration menu

Reset Config. to
Default Press + Initiate reset of all configuration parameters
 Move to previous/next configuration menu (config. not reset)

Are you sure?
+ to proceed Reset all configuration parameters
 Move to previous/next menu (config. not reset)

Config. reset
Confirmed Move to previous/next configuration menu

Use this function to erase all previous system configuration and reset all configuration parameters back to the factory default values. This function is NOT reversible--be careful.

Configuration Menu Items

Each item needs to be programmed and may contain additional sub-menu items. Refer to the following pages for information on programming.

Chlor. Config.
+ to view/change Push to access Chlorinator option
 Move to next configuration menu

Chlorinator
Disabled Toggle between Chlorinator Enabled and Disabled (default)
 Move to next menu item

Display
Salt Toggle between Display Salt (default) and Minerals
 Move to previous/next configuration menu

Chlorinator

If the chlorinator is enabled (requires the use of the AQL-CL chlorination kit), then the cell and flow switch must also be installed and the Aqua Plus will automatically chlorinate both the pool and spa according to the desired output setting (see Settings Menu in the Operation manual). If disabled (default), then neither the cell nor flow switch need to be installed and all displays relating to the chlorinator will be suppressed.

When the chlorinator is enabled, the Aqua Plus will automatically detect and control any Aqua Rite(s) that is installed in the system.

Display

Allows for the display of salt (default) or mineral values.

Cell Type
T-CELL-15 Toggle between T-CELL-5 and T-CELL-15 (default)
 Move to next menu item

Cell Type Selection

The Cell Type Menu appears after “Display Salt/Minerals” in the Chlorinator Configuration Menu. The options are T-CELL-5 or T-CELL-15 (default). Make the proper selection based on the electrolytic cell that is used in your system. For pools up to 20,000 gallons, the T-CELL-5 is typically used. The T-CELL-15 is for pools up to 40,000 gallons.

Pool/Spa Config.
+ to view/change Push to access Pool/Spa options
 Move to previous/next configuration menu item

Pool/Spa Setup
Pool and Spa Rotates between Pool and Spa, Spa Only, and Pool Only (default) options
 Move to next menu item

if “Pool and Spa” is selected
Spa - CountDn
00:30 Adjust time setting (Manual on/off, 0:05, 0:10, 0:15..., (default is 4:00))
 Move to next menu item

if “Pool and Spa” is selected
Spa Spillover
Enabled Toggle between Enabled and Disabled (default) Spa Spillover
 Move to next menu item or previous/next configuration menu

*if “Pool and Spa” is selected
and if “Spa Spillover” is enabled*
Filter Operation
Spa Spillover Toggle between Pool Only (default) and Spa Spillover options
 Move to previous/next configuration menu

if “Pool Only” or “Spa Only” is selected
V1=Aux1, V2=Aux2
Disabled Toggle between Enabled and Disabled (default)
 Move to previous/next configuration menu

Pool/Spa Setup

If “Pool Only” or “Spa Only” are selected, then the pool/spa valves are not needed and pushing the POOL/SPA button on the display/keypad will have no effect. If “Pool and Spa”

is selected, then the pool/spa suction and return valve actuators should be connected to the Aqua Plus. Pressing the POOL/SPA button on the display/keypad will allow the homeowner to alternate between pool and spa operation.

Spa CountDn

This menu will appear only if Pool/Spa Setup is set to “Pool and Spa”. This setting is the time, after you manually switch the Pool/Spa valves to “Spa Only”, until the Aqua Plus automatically returns the valves to their previous positions. It is programmed in increments of 5 minutes, from “Manual On/Off” (0 minutes) to “21:00” (21 hours). The filter is forced on during this time period.

Spa Spillover

When spa spillover is “Enabled” and “Pool and Spa”, the homeowner will be able to rotate through “Pool Only” (both suction and return valves switched to pool), “Spa Only” (both suction and return valves switched to spa) and “Spillover” (suction valve switched to pool and return valve switched to spa) by successive presses of the “Pool/Spa) button.

Filter Operation

If “Spa Spillover” is selected, the Aqua Plus will automatically switch the pool/spa suction and return valves to “spillover” at the start of the programmed pool filtering time period or when the super-chlorinate function is turned on. The valves will remain in this position for the remainder of the super-chlorinate period. This option is usually preferable because both the pool and spa water will be filtered and sanitized.

If “Pool Only” is selected, then the Aqua Plus will switch the pool/spa valves to the “pool only” position at the start of the programmed pool filtering time period or when the super-chlorinate function is turned on. This may be desirable on some systems with in-floor cleaners because it allows the cleaner to operate all the time the pool is being filtered and/or the super chlorinate is running.

V1=Aux1, V2=Aux2

This menu appears only if the Pool/Spa Setup is “Pool Only” or “Spa Only”. When enabled, Valve 1 (return) will follow the Aux1 output and Valve 2 (suction) will follow the Aux2 output. When disabled (default), the return and suction pool/spa valves function normally.

- Filter Pump Config.
+ to view/change

▲ Push to access pump options
◀▶ Move to previous/next configuration menu
- Filter Pump
1 Speed

▲▼ Toggle between 1-speed (default) and 2-speed options
◀▶ Move to next menu item
- Freeze Protect
Enabled

▲▼ Toggle between Enabled (default) and Disabled Freeze Protection
◀▶ Move to next menu item or previous/next configuration menu
- Freeze Temp
38°F

▲▼ Adjust the desired freeze protection temperature (33°F - 42°F)
◀▶ Move to previous/next configuration menu

Filter Pump

Select single speed or 2-speed pump. If a 2-speed pump is configured, one of the AUX relays must also be configured to control the low speed motor winding on the pump. See page 3 for specific information regarding the control logic for 2-speed pump operation.

Freeze Protection

Freeze protection is used to protect the pool and plumbed equipment against freeze damage. If freeze protection is enabled and the AIR temperature sensor falls below the freeze threshold (see below), the Aqua Plus will turn on the filter pump to circulate the water. If “Pool and Spa” is selected in the Pool/Spa sub-menu, the valves will also alternate between the pool and spa every 30 minutes and the filter pump will turn off while the valves are turning. The chlorinator will not operate if freeze protection is the only reason the pump is running.

Freeze Protection Temperature

Select the temperature to be used for freeze protection. Temperature is adjustable from 33°F - 42°F (1°C - 6°C). 38°F (3°C) is default. This threshold will be used for all outputs that have freeze protection enabled.

Super Chlorinate – if “Chlorinator” is enabled, this option allows the user to start a Super Chlorinate cycle when the Valve3 button is pressed, rather than using the Settings Menu. Note that only one button can be assigned to this function.

Valve3 Interlock

If “Enabled”, this feature will override the function (timeclock or in-floor cleaner) selected above and turn the valve off whenever the filter pump is off or the pool/spa suction/return valves are set to “spa only” or “spillover” operation. Interlock is not available with solar.

Valve3 Freeze Protection

This function protects the pool and plumbed equipment against freeze damage. If Freeze Protection is enabled and the AIR temperature falls below the selected freeze temperature threshold, the Aqua Plus will turn on the valve to allow circulation of the water. IMPORTANT: this only enables operation of the Valve3 output during freeze--see the “Filter Pump Config.” menu to enable freeze protection for the main circulation system.

if AQL-SS-6B is connected

- 6B Spa Config.
+ to view/change

▲ Push to access the 6 Button Spa Side Remote options
◀▶ Move to previous/next configuration menu
- Select 6B Spa
A

▲▼ Rotates between all available remotes
◀▶ Move to next menu item
- 6B A, Button 1
Pool/Spa

▲▼ Rotates between Pool/Spa, Filter, Lights, Heater1, Aux1, and Aux2
◀▶ Move to previous/next menu item or next configuration menu

Select 6B Spa

This menu only appears if more than one AQL-SS-6B is detected at power up. Select which of the available remote controls (A, B or C) is to be configured.

6B A, Button 1

This menu allows the user to map each button of the AQL-SS-6B to one of the standard Aqua Plus functions. The default selections are: Button 1 - Pool/Spa, Button 2 - Filter, Button 3 - Lights, Button 4 - Heater1, Button 5 - Aux1 and Button 6 - Aux2.

- Remote Menus
Enabled

▲▼ Toggle between Enabled (default) and Disabled Remote Menus
◀▶ Move to previous/next configuration menu

This feature will prevent unauthorized access to the Settings, Timers, and Configuration menus from any of the Aqua Plus’s remote display/keypads. When disabled, the remote display/keypads will only show the default menu and allow on/off control via the pushbuttons. Note that the function of the Aqua Plus’s built-in display/keypad is unchanged by this selection. Once disabled, the only way to enable “Remote Menus” is to use the local display/keypad.

- All Timeclocks
7-day

▲▼ Toggle between 7-day (default) and Weekend/Weekday time options
◀▶ Move to previous/next configuration menu

This selection affects ALL of the timeclock logic in the Aqua Plus. If “7-day” is selected, each timeclock will have one set of turn-on/turn-off settings that operate every day of the week. If “Weekend/Weekdays” option is selected then the user can enter one set of turn-on/turn-off times for the weekend (fixed as Saturday/Sunday) and another set of turn-on/turn-off times for weekdays (Monday through Friday).

Solar – the aux relay operates a solar booster pump which will turn on when the filter pump is running and solar heat is available and the water is less than the desired temperature setting. It is important to note that “Solar Control” must be enabled in the “Solar Config.” menu for proper operation to occur.

Low Speed of a 2-speed Filter Pump – the Aqua Plus will operate the aux relay whenever the low speed operation of the filter pump is required. It is very important that the “2-speed” filter pump option be selected under the “Filter Config.” Menu for proper operation.

Super Chlorinate – if “Chlorinator” is enabled, this option allows the user to start a Super Chlorinate cycle when the Aux button is pressed, rather than using the Settings Menu. Note that only one button can be assigned to this function.

Aux1 Relay

This feature allows the user to select either “Standard” (default) or “Dimmer” type relay for the Aux1 output. The optional AQL-DIM dimmer kit must be installed if “Dimmer” is desired. When “Dimmer” is selected, and the Aux1 output is manually turned on, the “+” and “-” buttons adjust the level from 20% to 100% (default). The level is saved for the next time the aux1 output is turned from off to on.

Aux1 Interlock

If “Enabled”, this feature will override the function (Manual On/Off, Countdown Timer, Timeclock), selected above and turn the aux1 off when: filter pump is off, first 3 minutes of filter pump operation (allows the pump to prime and get water flowing), when the pool/spa suction return valves are in any position other than “pool only”, or for the first 3 minutes after solar turns on (allows air in the solar panels to be purged). Interlock is not available for solar, low speed filter pump, or dimmer.

Aux1 Freeze Protection

This function protects the pool, plumbing, and equipment against freeze damage. If Freeze Protection is enabled and the AIR temperature sensor falls below the selected freeze temperature threshold, the Aqua Plus will turn on the aux relay to circulate the water. IMPORTANT: this only enables operation of the AUX output during freeze--see the “Filter Pump Config.” menu to enable freeze protection for the main circulation system. Freeze Protection is not available for low speed filter pump or dimmer.

Valve3 Config. + to view/change	▲ Push to access Valve3 options ◀▶ Move to previous/next configuration menu item
Valve3 Function Solar	▲▼ Rotates between Timeclock (default), Solar, In-Floor Cleaner, and Super Chlorinate ◀▶ Move to next menu item
<i>for all functions except solar</i>	
Valve3 Interlock Disabled	▲▼ Toggle between Enabled and Disabled (default) Valve3 Interlock ◀▶ Move to next menu item
Valve3 Freeze Disabled	▲▼ Toggle between Enabled and Disabled (default) Valve3 Freeze ◀▶ Move to previous/next configuration menu

Valve3 Function

Timeclock (default) – the valve turns on/off at the times set for the Valve3 timeclock in the Timers Menu (see Operations Manual). The Valve 3 button can also be used to turn the valve output on or off.

Solar – the valve operates when the filter pump is running and solar heat is available and the water is less than the desired temperature setting. Solar heating must be enabled in the “Solar Config. menu for proper operation to occur.

In-Floor Cleaner – the valve switches the water returning to the pool between the in-floor cleaner and the normal return jets which facilitate efficient surface skimming. The valve will operate the in-floor cleaner for the first half of each clock hour and then switch to the jets/skimming for the last half of the hour.

Heater1 Config. + to view/change	▲ Push to access heater options ◀▶ Move to previous/next configuration menu
Heater1 Disabled	▲▼ Toggle between Enabled and Disabled (default) Heater 1 ◀▶ Move to next menu item or previous/next configuration menu
<i>if “Heater1” is enabled</i> Heater1 Cooldown Disabled	▲▼ Toggle between Enabled and Disabled (default) Heater 1 Cooldown ◀▶ Move to next menu item
<i>if “Heater1” is enabled</i> Heater1 Extend Disabled	▲▼ Toggle between Enabled and Disabled (default) Heater 1 Extend ◀▶ Move to previous/next configuration menu

Heater1

If the heater is “Enabled”, the heater relay will turn on when the water temperature is less than the desired temperature setting and the filter pump is running. The desired temperature is in the “Settings Menu”. If applicable, the homeowner will be prompted to enter separate “pool” and “spa” settings. Depending on the position of the pool/spa suction valve, the proper temperature setting will be used.

Heater Cooldown

This feature ensures that the heater cools down before water circulation is stopped. When enabled, the Aqua Plus will continue to run the filter pump for 5 minutes after the heater turns off. During this period the filter pump LED will flash and also a “Heater Cooldown, X:XX remaining” message will scroll on the display.

When the filter pump is running and the heater is on: Pressing the “Filter” button once will cause the heater to turn off, but the filter pump will continue to run for heater cooldown (filter LED flashing and message on display). Pushing the filter button a second time will override the heater cooldown operation and turn the filter pump off.

Heater Extend

If “Enabled”, the filter extend logic keeps the filter pump running beyond the normal turn-off time until the pool (or spa) is heated up to the desired temperature setting (see Settings Menu). Heater extend will NOT cause the filter pump to turn on, it will only delay the turn off time when the heater is operating.

Solar Config. + to view/change	▲ Push to access solar options ◀▶ Move to previous/next configuration menu
Solar Disabled	▲▼ Toggle between Enabled and Disabled (default) Solar ◀▶ Move to next menu item or previous/next configuration menu
<i>if “Solar” is enabled</i> Solar Extend Disabled	▲▼ Toggle between Enabled and Disabled (default) Solar Extend ◀▶ Move to next menu item
<i>if “Solar” is enabled</i> Solar Priority Disabled	▲▼ Toggle between Enabled and Disabled (default) Solar Priority ◀▶ Move to previous/next configuration menu

Solar

If the solar control logic is “Enabled”, several additional steps must be taken to ensure proper operation of the solar system. If the solar is operated by a valve, then the Valve3 output must be setup for solar logic. If the solar is operated by a pump, then one of the AUX relays must be set up for solar logic. Also, the “solar” temperature sensor must be installed. This sensor is typically mounted near the collector array and is used to sense whether sufficient solar heat is available.

If solar is “Enabled”, the valve or solar pump relay will turn on when the water temperature is less than the desired temperature setting AND the solar sensor is hotter than the water. The

desired temperature is in the “Settings Menu”. If applicable, the homeowner will be prompted to enter separate pool and spa desired temperature settings. Depending on the position of the pool/spa suction valve, the proper temperature setting will be used.

Solar Extend

If “Enabled”, the filter extend logic keeps the filter pump running beyond the normal turn-off time if solar heat is still available. When solar heat is no longer available, both the solar valve/pump and filter pump will turn off simultaneously. Solar extend will NOT cause the filter pump to turn on, it will only delay the turn off time when solar is operating.

Solar Priority

If both “Solar Control” and “Heater Control” are enabled, the Solar Priority feature will keep the conventional heater off whenever solar heat is available. This provides the most cost effective way of heating the pool. When solar heat is not available, the conventional heater will operate normally.

Lights Config. + to view/change	▲ Push to access Lights options ◀▶ Move to previous/next configuration menu item
Lights Function Manual On/Off	▲ Rotates between Manual On/Off (default), Countdown Timer, Timeclock, Solar, Low speed of a 2-speed pump options, and Super Chlorinate ◀▶ Move to next menu item
<i>for manual on/off, countdown timer and timeclock functions</i>	
Lights Relay Standard	▲ Toggle between Standard (default) and Dimmer ◀▶ Move to next menu item or previous/next configuration menu
<i>for all functions except solar and low speed of 2-speed filter pump and dimmer</i>	
Lights Interlock Disabled	▲ Toggle between Enabled and Disabled (default) Lights Interlock ◀▶ Move to next menu item
<i>for all functions except low speed of 2-speed filter pump</i>	
Lights Freeze Disabled	▲ Toggle between Enabled and Disabled (default) Lights Freeze Protection ◀▶ Move to previous/next configuration menu

Lights Function

Although designated as the “Lights” output, the function of the lights relay is similar to the aux1 and aux2 relays. If pool lights are wired to the lights relay, some options including Solar function, Low Speed of a 2-Speed Filter Pump, Lights Interlock and Lights Freeze Protection will not be necessary and should be disabled. If no pool lights are used, the lights relay can be used to control other pool devices that may require these options. The function of each option is shown below.

Manual On/Off—the lights relay will alternate between turning on and off when the LIGHTS button is pressed. There is no automatic control logic.

Countdown Timer—the lights relay will turn on when the LIGHTS button is pressed. The lights relay will turn off automatically after a programmed time (see Timers Menu in Operation Manual). The LIGHTS button can also be used to turn the output off.

Timeclock—the lights relay will turn-on and turn-off at the times set for the lights timeclock in the Settings Menu (see Settings Menu in Operation Manual). The LIGHTS button can also be used to turn the output on and off.

Solar—the lights relay can operate a solar booster pump which will turn on when the filter pump is running and solar heat is available and the water is less than the desired temperature setting. It is important to note that “Solar Control” must be enabled in the “Solar Config.” menu for proper operation to occur.

Low Speed of a 2-speed Filter Pump—the Aqua Plus will turn on the lights relay whenever the low speed operation of the filter pump is required. It is very important that the “2-speed” filter pump option be selected under the “Filter Config.” Menu for proper operation.

Super Chlorinate—if “Chlorinator” is enabled, this option allows the user to start a Super Chlorinate cycle when the Lights button is pressed, rather than using the Settings Menu. Note that only one button can be assigned to this function.

Lights Relay

This feature allows the user to select either “Standard” (default) or “Dimmer” type relay for the Lights output. The optional AQL-DIM dimmer kit must be installed if “Dimmer” is desired. When “Dimmer” is selected, and the Lights output is manually turned on, the “+” and “-” buttons adjust the level from 20% to 100% (default). The level is saved for the next time the lights are turned from off to on.

Lights Interlock

If enabled, this feature will override the function (Manual On/Off, Countdown Timer, Timeclock) selected above and turn the lights relay off when: filter pump is off, first 3 minutes of filter pump operation (allows the pump to prime and get water flowing), when the pool/spa suction return valves are in any position other than “pool only”, or for the first 3 minutes after solar turns on (allows air in the solar panels to be purged). Interlock is not available for solar, low speed filter pump, or dimmer.

Lights Freeze Protection

This function helps protect equipment that is wired to the lights relay against freeze damage. If Freeze Protection is enabled and the AIR temperature sensor falls below the selected freeze temperature threshold, the Aqua Plus will energize the lights relay. IMPORTANT: this only enables operation of the lights relay during freeze--see the “Filter Pump Config.” menu to enable freeze protection for the main circulation system. Freeze Protection is not available for low speed filter pump or dimmer.

NOTE: The configuration parameters for the Aux2 output is the same as shown below for Aux1.

Aux1 Config. + to view/change	▲ Push to access Aux1 options ◀▶ Move to previous/next configuration menu item
Aux1 Function Manual On/Off	▲ Rotates between Manual On/Off (default), Countdown Timer, Timeclock, Solar, Low speed of a 2-speed pump options, and Super Chlorinate ◀▶ Move to next menu item
<i>for manual on/off, countdown timer and timeclock functions</i>	
Aux1 Relay Standard	▲ Toggle between Standard (default) and Dimmer ◀▶ Move to next menu item or previous/next configuration menu
<i>for all functions except solar and low speed of 2-speed filter pump and dimmer</i>	
Aux1 Interlock Disabled	▲ Toggle between Enabled and Disabled (default) Aux1 Interlock ◀▶ Move to next menu item
<i>for all functions except low speed of 2-speed filter pump</i>	
Aux1 Freeze Enabled	▲ Toggle between Enabled (default) and Disabled Aux1 Freeze ◀▶ Move to previous/next configuration menu

⚠ WARNING: Do not use the Aqua Plus to control an automatic pool cover. Swimmers may become entrapped underneath the cover.

Aux1 Function

Manual On/Off (default)—the aux relay will alternate between turning on and off when the aux button is pressed. There is no automatic control logic.

Countdown Timer—the aux relay will turn on when the AUX button is pressed and then will turn off automatically after a programmed time (see Timers Menu, Operation Manual). The AUX button can also be used to turn the output off.

Timeclock—the aux relay will turn-on and turn-off at the times set for the aux1 timeclock in the Timers Menu. The AUX button can also be used to turn the output on and off.