AQUA LOGIC

Automation and Chlorination

(actuators, cell & remote display not included - order separately)

Operation Manual

for models

AQL-PS-4
AQL-PS-8
AQL-PS-16

GOLDLINE
CONTROLS INC.
A HAYWARD COMPANY

www.goldlinecontrols.com
888-921-7665

IMPORTANT SAFETY INSTRUCTIONS

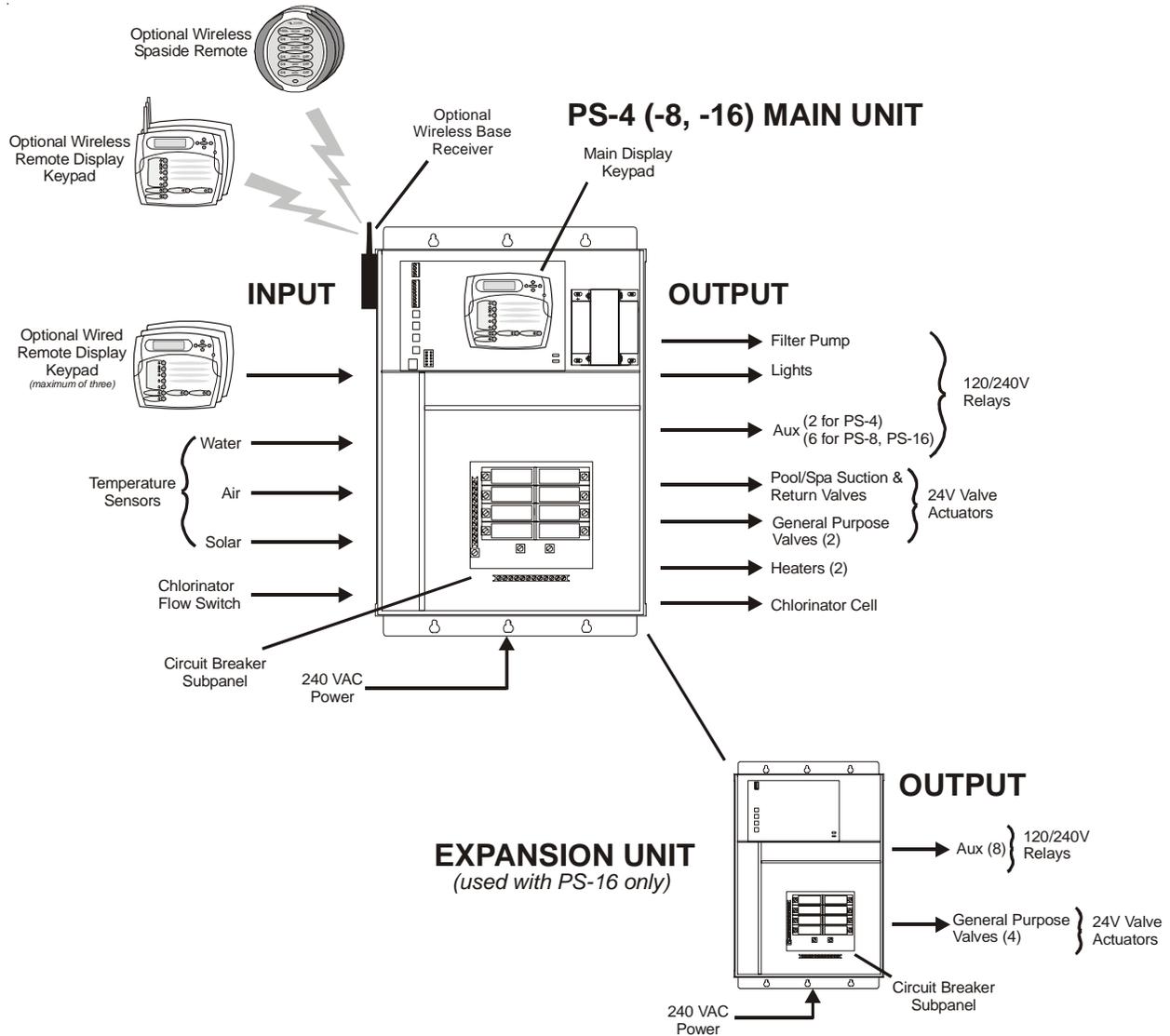When using this electrical equipment, basic safety precautions should always be followed, including the following:

- ## 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

Table of Contents

System Overview

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

Optional Wireless
Spaside Remote

Optional Wireless
Remote Display
Keypad

Optional
Wireless Base
Receiver

PS-4 (-8, -16) MAIN UNIT

Main Display
Keypad

INPUT

OUTPUT

Optional Wired
Remote Display
Keypad
(maximum of three)

Filter Pump

Lights

120/240V
Relays

Aux (2 for PS-4)
(6 for PS-8, PS-16)

Temperature
Sensors

Water

Air

Solar

Pool/Spa Suction &
Return Valves

24V Valve
Actuators

General Purpose
Valves (2)

Chlorinator
Flow Switch

Heaters (2)

Chlorinator Cell

Circuit Breaker
Subpanel

240 VAC
Power

EXPANSION UNIT
(used with PS-16 only)

OUTPUT

Aux (8)

120/240V
Relays

General Purpose
Valves (4)

24V Valve
Actuators

Circuit Breaker
Subpanel

240 VAC
Power

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

Automation

The AQL-PS-4 (-8, -16) can control up to 4 (8, 16) high voltage (120/240V) pieces of equipment, up to 4 (8 for the PS-16) automatic valve actuators, and 2 conventional heaters plus a 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.

Chlorination

With the use of the optional AQL-CL chlorination kit, the Aqua Logic 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 Logic 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 Logic 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). 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.

Default Display

Turn power on at the main panel and turn the Aqua Logic 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 unusual circumstances, additional displays may be added to the default menu to inform you about system operation. The Aqua Logic will automatically scroll through all of the default menu displays or you can press "<" or ">" to manually scroll.
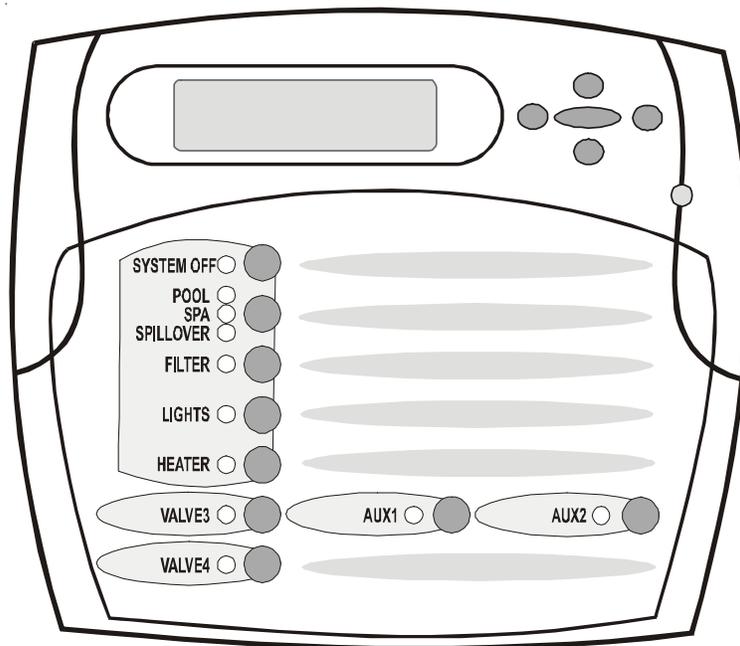
Optional Remote Display/keypad shown--the display keypad on the main control unit will have a "Service" button in the upper left corner instead of the "System Off" button.

Manual System Operation

While the main objective of the Aqua Logic 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.

Display — Menu and Navigation Buttons

Check System LED

System Off (remote displays)
or
Service (main unit display)

Aux1 - Aux6
(On/Off)

SYSTEM OFF
POOL
SPA
SPILLOVER
FILTER
LIGHTS
HEATER
VALVE3
VALVE4

PS-8
Display

AUX1   AUX2
AUX3   AUX4
AUX5   AUX6

Valve4 or Heater2
(See Configuration Menu)
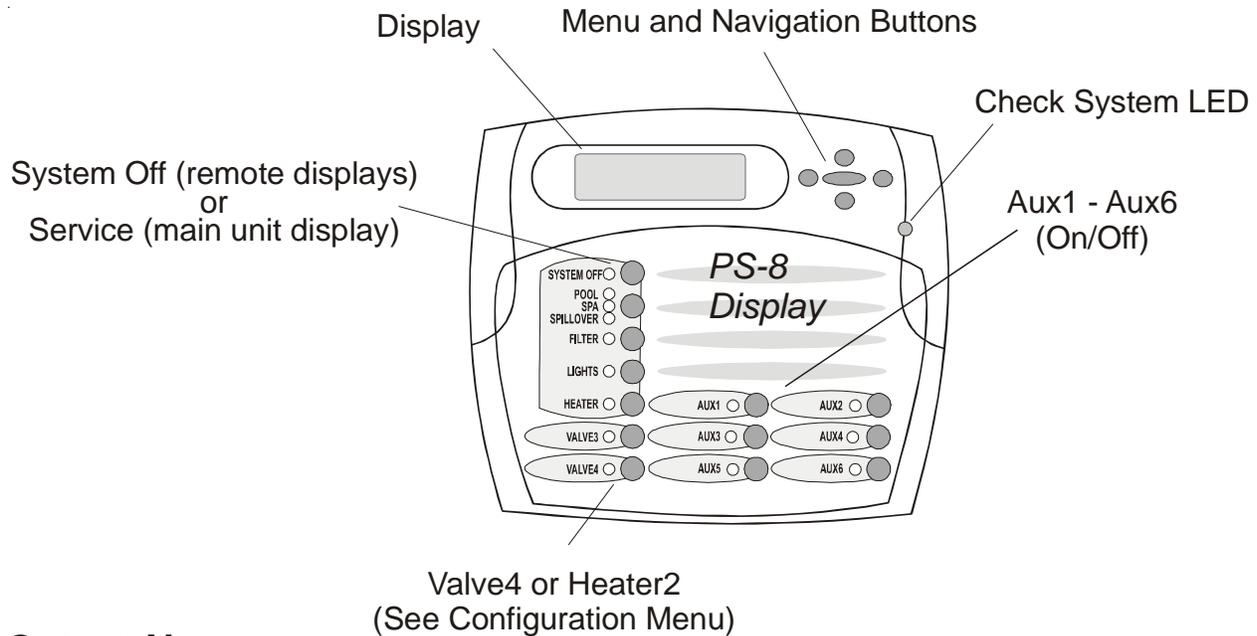
Output Names

The Aqua Logic is shipped from the factory with each output labeled with a generic name (e.g. AUX1, VALVE3, etc.). One of the features in the software (see Configuration Menu, page 14) is that each output can be assigned a new name that is more descriptive of the equipment being controlled. This makes it much easier to operate all of the equipment on your pool without having to memorize what each output controls. Insert name labels are also provided to be placed next to each display pushbutton. Since there is no way to know how your particular system is configured, this manual will use the original generic names for each output.

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 15 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 38°F, the Aqua Logic 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.

Lights and Aux Outputs

Manual operation of all relays (AUX1 and AUX2 for a PS-4 model, AUX1 - AUX6 for a PS-8 model, or AUX1 - AUX14 for a PS-16 model) 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.

Pool/Spa Valves

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

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

Standard Pool and Spa systems with spa spillover: When currently in the pool-only mode ("POOL" LED illuminated), press the "POOL/SPA/SPILLOVER" button to switch to spa-only operation ("SPA" LED illuminated). Press the button again to switch to spa spillover operation ("SPILLOVER" LED illuminated). Pressing the "POOL/SPA/SPILLOVER" button again will switch back to pool-only mode. Note that the filter pump will turn off while the pool/spa valves are turning.

Dual Equipment Pool and Spa systems without spa spillover: The POOL/SPA/SPILLOVER button has no function. The "POOL" LED will always be illuminated.

Dual Equipment Pool and Spa systems with spa spillover: When currently in the separate Pool and Spa loops mode ("POOL" LED illuminated) and the Spa Filter is off, press the POOL/SPA/SPILLOVER button to switch to spa spillover operation ("SPILLOVER" LED illuminated). Press the POOL/SPA/SPILLOVER button again to return to the separate Pool and Spa loops mode of operation. Note that the Pool Filter pump will shut off while the pool/spa return valve is turning. The system will automatically switch out of spillover whenever the spa filter pump is turned on.

Note: For Dual Equipment Pool and Spa systems, there is no Spa Only mode.

Heaters

This description applies to Heater1 and to Heater2, if programmed (note that the function of the Valve4 button changes to Heater2 when Heater2 is enabled). Pressing the "HEATER" button causes the Aqua Logic to switch the heater control output between a "forced off" state and a normal, automatic thermostatic control operating state.

System Off

Each remote display/keypad has a red "SYSTEM OFF" button on the upper left corner of the keypad. Pressing this button will turn all outputs off and they will remain off, regardless of any programmed control logic, until either the "SYSTEM OFF" button (on any remote display/keypad) is pressed again or the "SERVICE" button is pressed on the display/keypad at the main unit. The red "SYSTEM OFF" LED will illuminate to indicate that all outputs and being forced off.

⚠ **WARNING: pressing the "SYSTEM OFF" button overrides any programmed freeze protection and may cause damage to your system in freezing conditions.**

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 Logic will remain in this mode of operation until manually taken out of service mode.

Pressing the "SERVICE" button again will cause the Aqua Logic to switch to service-timed mode which is very similar to service mode, except that the Aqua Logic 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 Logic to normal (automatic) operation.

See Troubleshooting/Diagnostic Information (page 31) for more information about the service modes.

Automatic System Operation

The Aqua Logic 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).
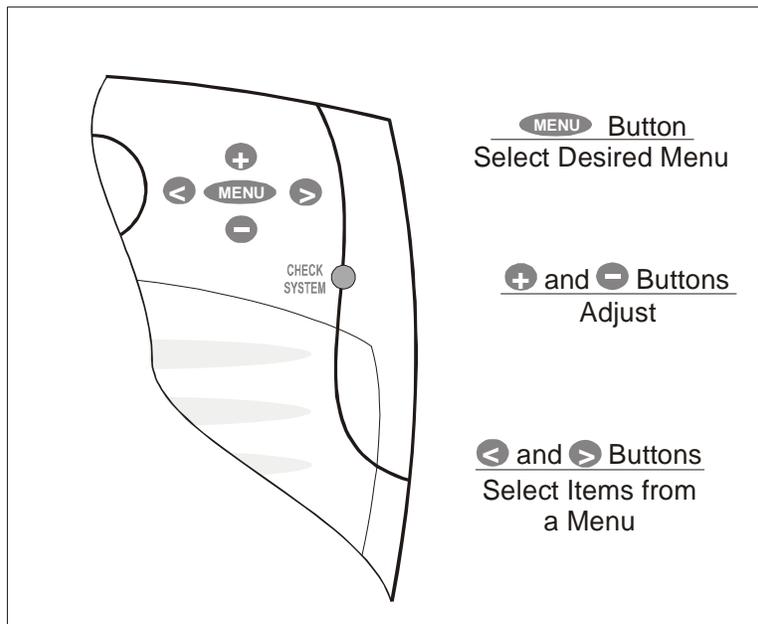
There are 4 steps to programming any function:

1. **Menu**   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) or, in other cases the "+" and "-" may toggle between 2 options (example: turning superchlorination ON or OFF).

4. **< > Menu**   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 Logic memory will maintain the setting, even if power is removed for an extended period.

Programming Menu Flowchart

default menu
- day and time
- air/water temperature
- chlorinator setting
- salt level

denotes conditional items

settings menu
- spa heater1 temp (off, 65ºF-104ºF)
- pool heater1 temp (off, 65ºF-104ºF)
- spa heater2 temp (off, 65ºF-104ºF)
- pool heater2 temp (off, 65ºF-104ºF)
- spa solar temp (off, 65ºF-104ºF)
- pool solar temp (off, 65ºF-104ºF)
- superchlorinate (on/off)
- spa chlorinator setting (0-100%)
- pool chlorinator setting (0-100%)
- day and time
- display light (always on/60 sec)
- teach wireless remote
- wireless channel

timers menu
- filter pump -- all days --(or)-- filter pump -- weekends / filter pump --weekdays
- low speed -- all days --(or)-- low speed -- weekends / low speed --weekdays
- spa -- all days --(or)-- spa -- weekends / spa --weekdays
- lights -- all days --(or)-- lights -- weekends / lights -- weekdays --(or)-- lights -- countdown

PS-4 only
(Aux1- Aux6 for PS-8)
(Aux1-Aux14 for PS-16)
- aux1 -- all days --(or)-- aux1 -- weekends / aux1 -- weekdays --(or)-- aux1 -- countdown
- aux2 -- all days --(or)-- aux2 -- weekends / aux2 -- weekdays --(or)-- aux2 -- countdown

- valve3 -- all days --(or)-- valve3 -- weekends / valve3 -- weekdays
- valve4 -- all days --(or)-- valve4 -- weekends / valve4 -- weekdays
- super chlorinate hours (1-96)

diagnostic menu
- chlorinator diagnostics
- instant salt
- flow switch
- cell temperature sensor
- water sensor
- air sensor
- solar sensor
- main software revision
- display software revision
- expansion unit software revision
- RF base software revision

configuration menu
- chlor config.
  - chlorinator (enabled/disabled)
  - display salt/minerals
- pool/spa config.
  - pool only / spa only / pool & spa-std / pool & spa-dual
  - spa countdn
  - spillover (enabled/disabled)
  - filter operation (pool only/spa spillover)
  - v1=aux1 v2=aux2 (enabled/disabled)
- filter config.
  - filter name
  - 1 speed, 2 speed
  - freeze protection (enabled/disabled)
  - freeze temp
- heater1 config
  - heater1 (enabled/disabled)
  - heater1 name
  - heater cooldown (enabled/disabled)
  - heater extend (enabled/disabled)
- heater2 config
  - heater2 (enabled/disabled)
  - heater2 name
  - heater cooldown (enabled/disabled)
  - heater extend (enabled/disabled)
- solar config.
  - solar (enabled/disabled)
  - solar extend (enabled/disabled)
  - solar priority (enabled/disabled)
- lights config
  - lights name
  - function (manual on/off, timeclock, countdown timer)

PS-4 only
(Aux1- Aux6 for PS-8)
(Aux1-Aux14 for PS-16)
- aux1 config
  - aux1 name
  - function (manual on/off, timeclock, countdown timer, solar, low speed filter pump)
  - interlock (enabled/disabled)
  - freeze protection (enabled/disabled)
- aux2 config
  - aux2 name
  - function (manual on/off, timeclock, countdown timer, solar, low speed filter pump)
  - interlock (enabled/disabled)
  - freeze protection (enabled/disabled)
- valve3 config
  - valve3 name
  - function (manual on/off, timeclock, countdown timer, solar, in-floor cleaner)
  - interlock (enabled/disabled)
  - freeze protection (enabled/disabled)
- valve4 config
  - valve4 name
  - function (manual on/off, timeclock, countdown timer, solar, in-floor cleaner)
  - interlock (enabled/disabled)
  - freeze protection (enabled/disabled)

- all timeclocks (7 or 2/5 day)
- time format (12 or 24 hr)
- units (english/metric)
- reset config to default

The Aqua Logic'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 Logic'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 Logic 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 the Aqua Logic 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.

⚠ **Important: All of the displays shown below use the default generic names for each function or output. The Aqua Logic allows more descriptive names to be assigned to each piece of equipment (refer to the section regarding the Configuration Menu for more information).**

Spa Heater1 Off

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

not shown if Pool and Spa-Dual is selected

Spa Heater2 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 "Heater1" and/or "Heater2" 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.

For Pool and Spa dual equipment operation ("Pool and Spa -Dual" selected), Spa Heater1 is tied to the Spa Filter (AUX1).

not shown if Pool and Spa-Dual is selected

Pool Heater1 Off

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

Pool Heater2 85°F

➕➖ 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 "Heater1" and/or "Heater2" 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.

For Pool and Spa dual equipment operation ("Pool and Spa -Dual" selected), Pool Heater2 is tied to the Pool Filter (FILTER).

Spa Solar 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 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.

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 heater 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 Off

⊕⊖ Turn super chlorinate on or off
◀▶ Move to previous/next menu item

This display only appears if the chorinator function is enabled (see Configuration Menu). 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 Logic Super-Chlorinate function. The Aqua Logic 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 chorinator function is enabled and system has been setup for "spa only" or "pool and spa-std". 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.

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 chorinator function is enabled and 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:**37**P | ➕➖ 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 Logic and are also displayed as part of the default menu.

The Aqua Logic 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 blue backlight on the display. If the "On for 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.

| Teach Wireless + to start | ➕ Push to start process |
| | ◀▶ Move to previous/next configuration menu item |

| Press and hold wireless button | Press any button on wireless remote |

| Teach Wireless Successful | ◀▶ Move to previous/next configuration menu item |

| Teach Wireless NOT Successful | ◀▶ Move to previous/next configuration menu item |

| Teach Wireless Base NOT Found | ◀▶ Move to previous/next configuration menu item |

This menu will only appear if a wireless base station is connected to the Aqua Logic. Perform this procedure each time a wireless remote control is added to the Aqua Logic system. During this procedure the wireless remote "learns" and remembers the ID code for the wireless base station connected to this particular Aqua Logic unit and will reject messages with any other ID codes. If "Base NOT found" is displayed, then the Aqua Logic 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 using the "Change Channel" command (see next page) and then repeat the "Teach Wireless" command.

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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, the wireless remote will have to be re-taught. This menu will only appear if a wireless base station is connected to the Aqua Logic.

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 "0:00" to a maximum of "21:00". When "0:00" is programmed, the countdown timer is disabled and the output will be manually controlled. When a countdown timer is greater than "0:00", 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.

⚠ **Important: All of the displays shown below use the default generic names for each function or output. The Aqua Logic allows more descriptive names to be assigned to each piece of equipment (refer to the section regarding the Configuration Menu for more information).**

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

or

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 page 11 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 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".

```
┌─  ┌─────────────────────┐
│   │   Filter  T2-all    │    ⊕⊖  Adjust time setting
or  │   8:30A to 4:00P    │    ◁▷  Move between start and stop times & to previous/next menu item
│   └─────────────────────┘
│   ┌─────────────────────┐
│   │  Filter  T2-wkend   │    ⊕⊖  Adjust time setting
│   │   8:30A to 4:00P    │    ◁▷  Move between start and stop times & to previous/next menu item
│   └─────────────────────┘
│   ┌─────────────────────┐
│   │  Filter  T2-wkday   │    ⊕⊖  Adjust time setting
└── │   8:30A to 4:00P    │    ◁▷  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 solar heating operation. Refer to page 11 for general notes regarding timeclock programming.

```
┌─  ┌─────────────────────┐
│   │      Spa-all        │    ⊕⊖  Adjust time setting
or  │   6:00P to 9:00P    │    ◁▷  Move between start and stop times & to previous/next menu item
│   └─────────────────────┘
│   ┌─────────────────────┐
│   │     Spa-wkend       │    ⊕⊖  Adjust time setting
│   │   6:00P to 9:00P    │    ◁▷  Move between start and stop times & to previous/next menu item
│   └─────────────────────┘
│   ┌─────────────────────┐
│   │     Spa-wkday       │    ⊕⊖  Adjust time setting
└── │   6:00P to 9:00P    │    ◁▷  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 Logic 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 (see page 8). 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. Refer to page 11 for general notes regarding timeclock programming.

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

```
┌─  ┌─────────────────────┐
│   │     Lights-all      │    ⊕⊖  Adjust time setting
or  │   8:00P to 11:00P   │    ◁▷  Move between start and stop times & to previous/next menu item
│   └─────────────────────┘
│   ┌─────────────────────┐
│   │    Lights-wkend     │    ⊕⊖  Adjust time setting
│   │   8:00P to 11:00P   │    ◁▷  Move between start and stop times & to previous/next menu item
│   └─────────────────────┘
│   ┌─────────────────────┐
│   │    Lights-wkday     │    ⊕⊖  Adjust time setting
│   │   8:00P to 11:00P   │    ◁▷  Move between start and stop times & to previous/next menu item
│   └─────────────────────┘
```

This menu will appear only if the Lights are configured for timeclock. The lights will turn on and off at the designated times. The only override on this function is manual on/off control by the "Lights" button. Refer to page 11 for general notes regarding timeclock programming.

```
or
│   ┌─────────────────────┐
│   │  Lights-CountDn     │    ⊕⊖  Adjust time setting (Manual On/Off, 0:05, 0:10, 0:015...)
└── │       0:20          │    ◁▷  Move to previous/next menu item
    └─────────────────────┘
```

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 Logic automatically turns off the

lights. You can also manually turn off the lights at an earlier time by pressing the LIGHTS button. Refer to page 11 for general notes regarding timeclock programming.

For PS-4, Aux1 and Aux2 configurations are identical. For PS-8 models, Aux1 - Aux6 configurations are identical. For PS-16 models, Aux1 - Aux14 configurations are identical.

| Aux1-all
8:30A to 4:00P | ⊕⊖ Adjust time setting
◄► Move between start and stop times & to previous/next menu item |

or

| Aux1-wkend
8:30A to 4:00P | ⊕⊖ Adjust time setting
◄► Move between start and stop times & to previous/next menu item |

| Aux1-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 the Aux1 is configured for timeclock. The Aux output will turn on and off at the designated times. If the Aux relay is off during the programmed on time— note that some pool equipment (example pressure side pool cleaner) can only be operated when the filter pump is running and the pool/spa valves are in the pool-only position—the Aqua Logic will keep the relay off until these other conditions are suitable for operation. If the Aux relay is on during the programmed off time, it may be because of freeze protection. Also, manual operation overrides the timeclock. Refer to page 11 for general notes regarding timeclock programming.

or

| Aux1-CountDn
0:20 | ⊕⊖ Adjust time setting (Manual On/Off, 0:05, 0:10, 0:15...)
◄► Move to previous/next menu item |

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 Logic automatically turns off the relay. You can also manually turn off the relay at an earlier time by pressing the AUX1 or AUX2 button. Refer to page 11 for general notes regarding timer programming.

NOTE: The configurations for Valve3 and Valve4 are identical. However, if Heater2 was enabled, then the Valve4 configuration will not appear (a single relay is used to implement either the Heater2 function or the Valve4 function--it can not do both).

| Valve3-all
8:30A to 4:00P | ⊕⊖ Adjust time setting
◄► Move between start and stop times & to previous/next menu item |

or

| 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. Refer to page 11 for general notes regarding timeclock programming.

or

| Valve3-CountDn
0:20 | ⊕⊖ Adjust time setting (Manual On/Off, 0:05, 0:10, 0:15...)
◄► Move to previous/next menu item |

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 Logic automatically turns off the relay. You can also manually turn off the relay at an earlier time by pressing the AUX1 or AUX2 button. Refer to page 11 for general notes regarding timer programming.

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 Logic MUST BE CONFIGURED before attempting to operate. Configuration information is entered at the keypad and "tells" the Aqua Logic 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 Logic requires that you navigate through the Configuration Menu and input various information. For more detailed information about using the Aqua Logic 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.

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 previous/next configuration menu item

Chlorinator
Enabled

⊕ ⊖ Toggle between Chlorinator Enabled and Disabled (default)

◄ ► Move to previous/next configuration menu item

Display
Salt

⊕ ⊖ Toggle between Display Salt (default) and Minerals

◄ ► Move to previous/next configuration menu item

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 Logic 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.

Display

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

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-Std	⊕⊖ Rotates between Pool and Spa-Std (default), Pool and Spa-Dual, Spa Only, and Pool Only options ◄► Move to next menu item

if "Pool and Spa-Std" 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-Std or Dual" is selected

Spa Spillover Enabled	⊕⊖ Toggle between Enabled and Disabled (default) Spa Spillover ◄► Move to next menu item

if "Pool and Spa-Std or Dual" is selected and if "Spa Spillover" is enabled

Filter Operation Spa Spillover	⊕⊖ Toggle between Pool Only (default) and Spa Spillover options ◄► Move to next menu item

if "Pool Only" or "Spa Only" is selected

V1=Aux1, V2=Aux2 Disabled	⊕⊖ Toggle between Enabled and Disabled (default) ◄► Move to next menu item

Pool/Spa Setup

If "Pool Only" or "Spa Only" are selected, then the pool/spa valves are deactivated and pushing the POOL/SPA button on the display/keypad will have no effect. If "Pool and Spa-Std" is selected, then the pool/spa suction and return valve actuators should be connected to the Aqua Logic. Pressing the POOL/SPA button on the display/keypad will allow the homeowner to alternate between pool and spa operation. If "Pool and Spa-Dual" is selected, then only the Pool/Spa return valve actuator should be connected to the Aqua Logic.

Spa CountDn

This menu will appear only if Pool/Spa Setup is set to "Pool and Spa-Std". This setting is the time, after you manually switch the Pool/Spa valves to "Spa Only", until the Aqua Logic 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-Std", 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. For "Pool and Spa-Dual", only "Pool Only" and "Spillover" are available.

Filter Operation

If "Spa Spillover" is selected, the Aqua Logic will automatically switch the pool/spa suction and return valves to the "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 Logic will switch the pool/spa valves to the "pool only" position during super chlorinate. 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 Name Pool Filter	⊕ Rotates between all available names ◀▶ Move to next menu item
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
Freeze Temp 38ºF	⊕⊖ Adjust the desired freeze protection temperature (33ºF - 42ºF) ◀▶ Move to next menu item

Filter Name
The Aqua Logic allows you to assign any one of a number of names (e.g. "Filter Pump, Pool Filter, Spa Filter, etc.) to the filter relay. This will make the Aqua Logic more user friendly to the homeowner when they want to control the filter equipment. A sheet of small name labels is included with the Aqua Logic main unit and each remote display/keypad so that appropriate pushbuttons can be labeled the same as the name that you have assigned.

Filter Pump
For 2-speed pumps: When 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 13 for wiring and page 24 for AUX configuration). See the Operation manual 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 Logic will turn on the filter pump to circulate the water. If "Pool and Spa" is selected in the Pool/Spa sub-menu (see page 20), 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 heater(s) and 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 33ºF - 42ºF (1ºC - 6ºC). 38ºF (3ºC) is default. This threshold will be used for all outputs that have freeze protection enabled.

NOTE: Heater1 and Heater2 configuration are identical. If Heater2 is enabled then Valve4 will automatically be disabled due to the fact that they use the same output relay and only 1 function can be assigned to that relay.

Heater1 Config. + to view/change	➕ Push to access heater options ◄► Move to previous/next configuration menu
Heater1 Disable	➕➖ Toggle between Enabled and Disabled (default) Heater 1 ◄► Move to next menu item
if "Heater1" is enabled Heater1 Name Gas Heater	➕➖ Rotates between all available names ◄► Move to next menu item
if "Heater1" is enabled Heater1 Cooldown Disabled	➕➖ Toggle between Enabled and Disabled (default) Heater 1 Cooldown ◄► Move to next menu item
if "Heater1" is enabled Heater1 Extend Disabled	➕➖ Toggle between Enabled and Disabled (default) Heater 1 Extend ◄► Move to next menu item

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 Name
The Aqua Logic allows you to assign any one of a number of names (e.g. "Gas Heater, Heatpump, etc.) to each of the heater control functions. This will make the Aqua Logic much more user friendly to the homeowner when they want to turn various heaters on or off or set temperatures. A sheet of small name labels is included with the Aqua Logic main unit and each remote display/keypad so that appropriate pushbuttons can be labeled the same as the name that you have assigned.

Heater Cooldown
This feature ensures that the heater cools down before water circulation is stopped. When enabled, The Aqua Logic will continue to run the filter pump for 15 minutes after the heater turns off. During this period the filter pump LED will flash and also a "Heater Cooldown, Filter Pump On" 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.

For a Pool/Spa Setup selection of "Pool Only", "Spa Only" or "Pool and Spa-Std", Heater1 and/or Heater2 cooldown affect the filter pump. For "Pool and Spa-Dual", Heater1 is associated with the spa filter and Heater2 with the pool filter.

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.

For a Pool/Spa Setup selection of "Pool Only", "Spa Only" or "Pool and Spa-Std", Heater1 and/or Heater2 will keep the filter pump running. For "Pool and Spa-Dual", Heater1 will keep the spa filter running and Heater2 will keep the pool filter running.

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
if "Solar" is enabled Solar Extend Disabled	⊕⊖ Toggle between Enabled and Disabled (default) Solar Extend ◄► Move to next menu item
if "Solar" is enabled Solar Priority Disabled	⊕⊖ Toggle between Enabled and Disabled (default) Solar Extend ◄► Move to next menu item

Solar

The Solar configuration menu will **NOT** appear if "Pool and Spa - Dual" has been selected in the Pool/Spa setup menu. 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 (page 25). If the solar is operated by a pump, then one of the AUX relays must be set up for solar logic (page 24). 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 Name Pool Light	⊕⊖ Rotates between all available names ◄► Move to next menu item
Lights Function Manual On/Off	⊕⊖ Rotates between Manual On/Off (default), Countdown Timer, and Timeclock ◄► Move to next menu item

Lights Name

The Aqua Logic allows you to assign any one of a number of names (e.g. "Pool Light, Spa Light, Deck Light, etc.) to this control function. Note that other lights may be assigned to some of the Aux outputs. This will make the Aqua Logic much more user friendly to the homeowner when they want to turn various lights on or off. A sheet of small name labels is included with the Aqua Logic main unit and each remote display/keypad so that the "Lights"

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pushbutton can be labeled the same as the name that you have assigned. At this time it is also a good idea to make sure that the relay in the control box is also labeled (hand written) with the same name as a help to technicians who may service this system at a later date.

Lights Function

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 the Operations Manual). The LIGHTS button can also be used to turn the output off.

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

NOTE: The configuration parameters for all Aux outputs are same as shown below for Aux1. PS-4: Aux1 and Aux2. PS-8: Aux1 through Aux6. PS-16: Aux1 through Aux14. Also note that for the PS-16, Valves7, 8, 9 and 10 are turned On/Off with the control function selected for Aux7, 8, 9, and 10, respectively.

Aux1 Config. + to view/change	⊕ Push to access Aux1 options ◁▷ Move to previous/next configuration menu item
Aux1 Name Cleaner Pump	⊕⊖ Rotates between all available names ◁▷ Move to next menu item
Aux1 Function Manual On/Off	⊕⊖ Rotates between Manual On/Off (default), Countdown Timer, Timeclock, Solar, and Low speed of a 2-speed pump options ◁▷ Move to next menu item

for all functions except solar and low speed of 2-speed filter pump

| Aux1 Interlock
Disable | ⊕⊖ Toggle between Enabled and Disabled (default) Aux1 Interlock
◁▷ Move to next menu item |
| Aux1 Freeze
Disabled | ⊕⊖ Toggle between Enabled (default) and Disabled Aux1 Freeze
◁▷ Move to next menu item |

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

NOTE: If "Pool and Spa-Dual" is selected, Aux1 is dedicated to use as the spa filter. Its Name is set to Spa Filter, the Function is set to Timeclock and Interlock is set to Disabled. These can't be changed.

Aux1 Name

The Aqua Logic allows you to assign any one of a number of names (e.g. "Cleaner Pump, Waterfall, Gazebo Light, etc.) to each of the aux outputs control function. This will make the Aqua Logic much more user friendly to the homeowner when they want to turn various aux equipment on or off or program the timeclocks. A sheet of small name labels is included with the Aqua Logic main unit and each remote display/keypad so that the "Aux" pushbutton can be labeled the same as the name that you have assigned. At this time it is also a good idea to make sure that the relay in the control box is also labeled (hand written) with the same name as a help to technicians who may service this system at a later date.

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 in the Operations 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 (aux2) timeclock in the Timers Menu (see Operations Manual). The AUX button can also be used to turn the output on and off.

Solar – the aux relay operates a solar booster pump which will turn on when the filter pump in running <u>and</u> solar heat is available <u>and</u> 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 Logic 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.

Aux1 Interlock

If "Enabled", this feature will override the function (manual on/off, countdown timer, timeclock, selected above and turn the aux1 or aux2 relay off. This forced off condition occurs 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", for 3 minutes after solar turns on (allows air in the solar panels to be purged). Interlock is not available for solar or low speed filter pump functions.

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 38°F, the Aqua Logic 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.

NOTE: The configuration for Valve3 and Valve4 are identical. However, if Heater2 was enabled, then the Valve4 configuration will not appear (a single relay is used to implement either the Heater2 function or the Valve4 function--it can not do both). For PS-16, see aux logic on previous page for control of Valves7, 8, 9 and 10.

Valve3 Config.
+ to view/change

➕ Push to access Valve3 options
◀▶ Move to previous/next configuration menu item

Valve3 Name
Waterfall

➕➖ Rotates between all available names
◀▶ Move to next menu item

Valve3 Function
Solar

➕➖ Rotates between Timeclock, Manual On/Off, Solar (default), Countdown and In-Floor Cleaner
◀▶ Move to next menu item

for all functions except solar

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 next menu item

Valve3 Name
The Aqua Logic allows you to assign any one of a number of names (e.g. "Cleaner Valve, Waterfall valve, Solar Valve, etc.) to each of the valve output control function. This will make the Aqua Logic much more user friendly to the homeowner when they want to turn various valves on or off or program the timeclocks. A sheet of small name labels is included with the Aqua Logic main unit and each remote display/keypad so that the "Valve3" (and "Valve4") pushbutton can be labeled the same as the name that you have assigned.

Valve3 Function
Timeclock – 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.

Manual On/Off —the valve3 relay will alternate between turning on and off when the VALVE3 button is pressed. There is no automatic control logic. The VALVE3 button can also be used to turn the valve output on or off.

Solar (default) – the valve operates when the filter pump is running <u>and</u> solar heat is available <u>and</u> the water is less than the desired temperature setting. Solar heating must be enabled in the "Solar Config. menu for proper operation to occur.

Countdown Timer – the valve3 relay will turn on when the VALVE3 button is pressed and then will turn off automatically after a programmed time (see Timers Menu in the Operations Manual). The VALVE3 button can also be used to turn the output off.

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.

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.

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Valve3 Freeze Protection

This function protects the pool and plumbed equipment against freeze damage. If Freeze Protection is enabled and the AIR temperature falls sensor falls below 38°F, the Aqua Logic 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.

```
All Timeclocks
     7-day
```
+ − Toggle between 7-day (default) and Weekend/Weekday time options
< > Move to previous/next configuration menu item

This selection affects ALL of the timeclock logic in the Aqua Logic. 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).

```
  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 item

```
    Units
 ºF and PPM
```
+ − Toggle between ºF and PPM (default) and ºC and g/L (Metric) options
< > Move to previous/next configuration menu item

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

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

```
Config. reset
  Confirmed
```
< > Move to previous/next configuration menu item (config reset)

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

Quick "How To" Guide

Operate the Spa—Manually

1. Press the "Pool/Spa" button to go to "spa-only" operation ("SPA" 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 days" or "Spa—weekends" 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 Logic 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 Heater" or "Pool Heater" 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

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 per 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 Supechlorination 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 the "xxx—all days" or "xxx—weekends" 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" 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 by 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.

Enter/Exit Service (or Service—Timed) Mode

1. Go to Aqua Logic 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 Logic 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 time period.

Chlorinator Operation / Water Chemistry

The table below summarizes the levels that are recommended by the National Spa and Pool Institute (NSPI). The only special requirements for the Aqua Logic are the salt level and stabilizer. It is important to maintain these levels in order to prevent corrosion or scaling and to ensure maximum enjoyment of the pool. Test your water periodically. Your Authorized Aqua Dealer or most pool stores can provide you with the chemicals and procedures to adjust the water chemistry. Be sure to tell the pool store that you are using an Aqua Logic chlorine generator.

| 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 ±.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.

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

ºC	ºF	Ti	Calcuim Hardness	Ci	Total Alkalinity	Ai
12	53	.3	75	1.5	75	1.9
16	60	.4	100	1.6	100	2.0
			125	1.7	125	2.1
19	66	.5	150	1.8	150	2.2
24	76	.6	200	1.9	200	2.3
			250	2.0	250	2.4
29	84	.7	300	2.1	300	2.5
34	94	.8	400	2.2	400	2.6
			600	2.4	600	2.8
39	103	.9	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.

CORROSIVE ◄——————————► SCALING
        -.2   0   .2

OK
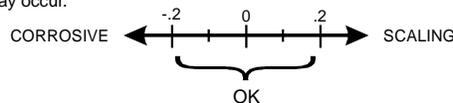
Salt Level (When using optional chlorinator function - requires AQL-CL chlorination kit)

Use the chart on page 28 to determine how much salt in pounds or (Kgs) need to 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 ideal salt level is between 2700-3400 PPM (parts per million) with 3200 PPM being optimal. If the level is low, determine the number of gallons in the pool and add salt according to the chart on page 28. A low salt level will reduce the efficiency of the Aqua Logic and result in low chlorine production. The salt in your pool/spa is constantly recycled and the loss of salt throughout the swimming season should be small. 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% pure. This is common food quality or water softener salt and is usually available at building supply stores in 40-80 lb. bags labeled "Coarse Solar Salt". It is also acceptable to use water conditioning salt pellets, however, it will take longer for them to dissolve. Do not use rock salt, salt with yellow prussiate of soda, salt with anti-caking additives, or iodized salt.

How to Add or Remove 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.

The only way to lower the salt concentration is to partially drain the pool and refill with fresh water.

Always check stabilizer (cyanuric acid) when checking salt. These levels will most likely decline together. Use the chart on page 29 to determine how much stabilizer must be added to raise the level to 80 PPM.

POUNDS and (Kg) OF SALT NEEDED FOR 3200 PPM

Gallons and (Liters) of Pool/Spa water

Current salt level ppm	8,000 (30,000)	10,000 (37,500)	12,000 (45000)	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

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

Gallons and (Liters) of Pool/Spa water

Current Stabilizer Level (ppm)	8,000 (30000)	10,000 (37500)	12,000 (45000)	14,000 (52500)	16,000 (60000)	18,000 (67500)	20,000 (75000)	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 (2.2)	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 (.91)	1.7 (1.1)	2.0 (.91)	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 (.45)	0.8 (.54)	1.0 (.45)	1.2 (.54)	1.4 (.64)	1.5 (.68)	1.7 (.77)	1.8 (.82)	2.0 (.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

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 Logic will remind you to do this by displaying the message "Inspect/Clean Cell" after approximately 500 hours of operation.

The Aqua Logic 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 Aqua Logic Cell

Turn off power to the Aqua Logic 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 to 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 Logic. 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 Logic 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 Logic system may be set up to circulate the pool water whenever the air sensor drops to 38ºF. 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 (Settings Menu/Pool Sanitizer & Spa Sanitizer) 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 26). 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.

Troubleshooting and Diagnostic Information

The Aqua Logic 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 Dept. from Monday through Friday, 8AM to 8PM EST at 888-9221-7665.

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 Logic will remain in this mode of operation until manually taken out of service mode.

Pressing the "SERVICE" button again will cause the Aqua Logic to switch to service-timed mode which is very similar to service mode, except that the Aqua Logic 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 Logic to normal (automatic) operation.

Check System Indicator

The "CHECK SYSTEM" LED will alert you when the Aqua Logic 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 Logic chlorinator cell approximately every 3 months and clean the cell if necessary. The Aqua Logic 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, pg 28) 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 Logic will generate less chlorine and the life of the cell is degraded. Check the cell and clean if necessary (see instructions, pg 28) before adding salt (see instructions, pg 25).

- **High Salt/Amps/Minerals** -- the Aqua Logic 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/Pool Sensor** -- if the water or pool (if Dual Equipment) 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/Spa sensor -**- if the solar (if solar is enabled), (Configuration Menu/Solar Config.) or spa (if Dual Equipment) sensor is either an open or short circuit.

- **Chlorinator Cell sensor -**- if the chlorinator function enabled (Configuration Menu/Chlorinator) and the cell sensor is either an open or short circuit.

- **PS-16 Communciation Error** -- if an AQL-PS-16 and the Expansion Unit is not responding.

- **Low Volts** -- if the chlorinator cell voltage is too low.

- **No Cell Power** -- if a chlorinator cell power problem is detected on the printed circuited board.

- **No Flow** -- if the filter pump is on and the flow switch indicates no flow for 3 minutes or more.

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.

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
84°F   3200PPM

⊕⊖ Press to switch chlorinator operation to opposite polarity (15 second delay)
◁▷ 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
84ºF is the water temperature at the cell
3200PPM is the "instant" salt level at this time

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 50ºF and 140ºF, 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 Logic 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 Logic default display.

Instant Salt
3200 PPM (+=save)

⊕ Press to load the "Instant Salt" into the averaged salt display
◁▷ Move to previous/next menu item

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
Flow

⊕⊖ No function
◁▷ Move to previous/next menu item

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.

Cell Temp Sensor 77ºF	➕➖	No function
	◀▶	Move to previous/next menu item

Water Sensor Open circuit	➕➖	No function
	◀▶	Move to previous/next menu item

Air Sensor 94ºF	➕➖	No function
	◀▶	Move to previous/next menu item

Solar Sensor Short circuit	➕➖	No function
	◀▶	Move to previous/next menu item

NOTE: If Pool and Spa-Dual is selected, the solar sensor will display as "Spa Sensor" and the water sensor will display as "Pool Sensor".

If the sensor appears to 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 Logic main unit.

Main Software Revision 2.01	➕➖	No function
	◀▶	Move to previous/next menu item

Display Software remote-08 r3.10	➕➖	No function
	◀▶	Move to previous/next menu item

for PS-16 only

Exp. Unit Software Revision 1.00	➕➖	No function
	◀▶	Move to previous/next menu item

RF Base Software r1.00 ID:1234	➕➖	No function
	◀▶	Move to previous/next menu item

If you call the Goldline Technical Service Dept. 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.

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

Limited Warranty—Pool Automation & Chlorination Products
10/1/2004

This warranty statement is applicable to all pool automation and chlorination products manufactured by Goldline Controls, Inc. (Goldline) **on or after October 1, 2004**. See the appropriate warranty statement for other Goldline products or for pool automation and chlorination products produced prior to October 1, 2004.

Aqua Rite/Trol/Logic—Residential pools in USA or Canada:

Goldline warrants Aqua Rite, Aqua Trol, and Aqua Logic products (products with Goldline part numbers starting with AQ-RITE-, AQ-TROL-, AQ-LOGIC-, AQL-P-, AQL-PS-,or AQL-CL-) installed on private, residential swimming pools within the USA or Canada to be free from defects in material or workmanship, under normal use and service for **five years** from date of the initial system installation, provided it is 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 Trol, or Aqua Logic electronics unit will be the sole determinant of the date of the initial system installation.

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 Controls will, at its option, either repair or replace the defective product and return it freight prepaid. If the defective product is returned freight prepaid to Goldline more than three (3) years but within five (5) years of the date of the initial system installation, Goldline, at its option, will either repair or replace the defective product and will charge sixty percent (60%) of the current list price for such repairs or replacements, plus shipping charges. The costs incurred in removal and/or reinstallation of the product are NOT covered under this warranty.

Aqua Rite/Trol/Logic— Commercial pools or any pool outside of the USA or Canada:

Goldline warrants Aqua Rite, Aqua Trol, and Aqua Logic products (products with Goldline part numbers starting with AQ-RITE-, AQ-TROL-, AQ-LOGIC-, AQL-P-, AQL-PS-,or AQL-CL-) installed on commercial pools anywhere or any non-private single family residential pool or any pool outside of the USA or Canada to be free from defects in material or workmanship, under normal use and service for **one year** from date of the initial system installation, provided it is 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 Trol, or Aqua Logic electronics unit will be the sole determinant of the date of the initial system installation.

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. The costs incurred in removal and/or reinstallation of the product are NOT covered under this warranty.

Accessory Products and Replacement parts—any pools, anywhere:

Goldline warrants any replacement parts or accessory products (any pool automation or chlorination product or part with a part number other than AQ-RITE-, AQ-TROL-, AQ-LOGIC-, AQL-P-, AQL-PS-,or AQL-CL-) to be free from defects in material or workmanship, under normal use and service for **one year** from date of the initial system installation, provided it is 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 product or part will be the sole determinant of the date of the initial system installation.

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. The costs incurred in removal and/or reinstallation of the product are NOT covered under this warranty.

Warranty exclusions:
1. Material supplied or workmanship performed by others in the 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 products in accordance with recommended instructions contained in product's owners manual.
4. Problems resulting from failure to maintain pool water chemistry in accordance with recommended levels.
5. Problems resulting from tampering, accident, abuse, negligence, unauthorized repairs or alterations, fire, flood, lightning, freezing, external water, war, or acts of God.

THE EXPRESS LIMITED WARRANTY ABOVE CONSTITUTES THE ENTIRE WARRANTY OF GOLDLINE CONTROLS, INC. 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. IN NO EVENT SHALL GOLDLINE CONTROLS, INC. BE RESPONSIBLE FOR ANY CONSEQUENTIAL, SPECIAL OR INCIDENTAL DAMAGES OF ANY NATURE WHATSOEVER.

NO WHOLESALER, AGENT, DEALER, CONTRACTOR, OR OTHER PERSON IS AUTHORIZED TO GIVE ANY WARRANTY ON BEHALF OF GOLDLINE CONTROLS, INC. THIS WARRANTY IS VOID IF THE PRODUCT HAS BEEN ALTERED IN ANY WAY AFTER LEAVING THE FACTORY.

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.

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