Hayward **ECOMMAND**

Automation



Operation Manual



IMPORTANT SAFETY INSTRUCTIONS

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

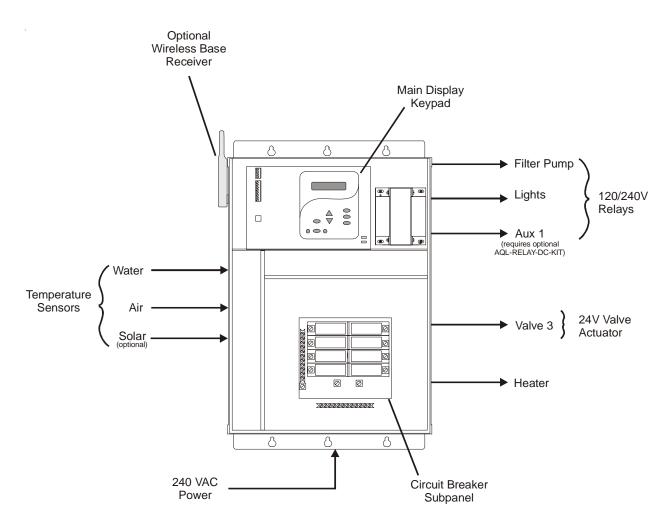
- READ AND FOLLOW ALL INSTRUCTIONS
- WARNING: Disconnect all AC power during installation.
- WARNING: Water in excess of 100 degrees Fahrenheit may be hazardous to your health.
- WARNING: To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all 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

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System Overview

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



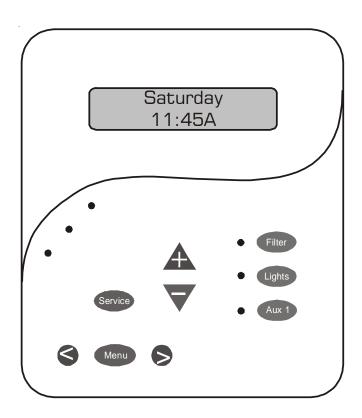
NOTE: This manual assumes that the ECOMMAND has been wired and configured according to the Installation Manual. Aspects of the ECOMMAND that pertain to system setup are not covered in this manual.

Automation

The ECOMMAND can control up to 3 high voltage (120/240V) pieces of equipment, an automatic valve actuator, and a conventional and solar heater. Both manual and automatic (programmed) operation are available. All of the control functions can be programmed at the display/keypad which is part of the main unit (typically located near the pool equipment). In addition, some functions can be controlled remotely using an optional HPC-2-RF-KIT remote control kit.

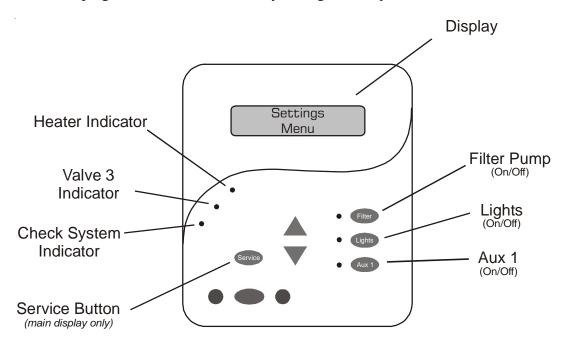
Default Display

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



Manual System Operation

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



Filter Pump

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

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

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

Lights Output & Optional Aux1 Output

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

Dimmer Relay: If the Lights or optional Aux1 output is configured as a dimmer, pressing the corresponding button will generate a temporary display which shows the dimmer output level (Off - On 100%). Pushing the "+" or "-" button changes the level in increments of 20%. When the desired output level is displayed, press the corresponding button again to turn off the display and return to normal operation. When the Lights or Aux1 output comes on again (either manually or automatically), the dimmer output level will be the same as the last time that it was set.

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 HPC-2-RF-KIT optional remote control is disabled (except for manual turn off for emergencies). The red SERVICE LED will be illuminated and the ECOMMAND will remain in this mode of operation until manually taken out of service mode.

Pressing the SERVICE button again will cause the ECOMMAND to switch to service-timed mode which is very similar to service mode, except that the ECOMMAND 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 ECOMMAND to normal (automatic) operation. See Troubleshooting/Diagnostic Information (page 20) for more information about the service modes.

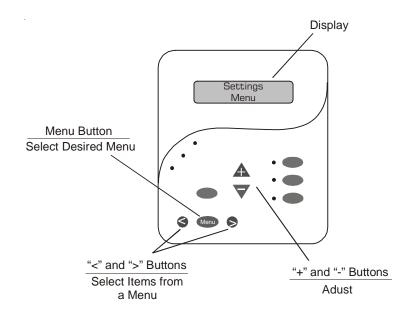
Automatic System Operation

The ECOMMAND 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 water temperature and 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:



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.



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).



Once a menu item has been selected above, the current setting/selection will appear (flashing) on the display. Use the "+" and/or "-" keys to change this selection. Sometimes "+" and "-" will adjust a value up or down (example: heater temperature setting or timeclock on/off time). In this case, pushing the "+" or "-" will change the value by one increment and holding the "+" or "-" button in for more than one second will make the values auto scroll. In other cases, the "+" and "-" may toggle between 2 options.

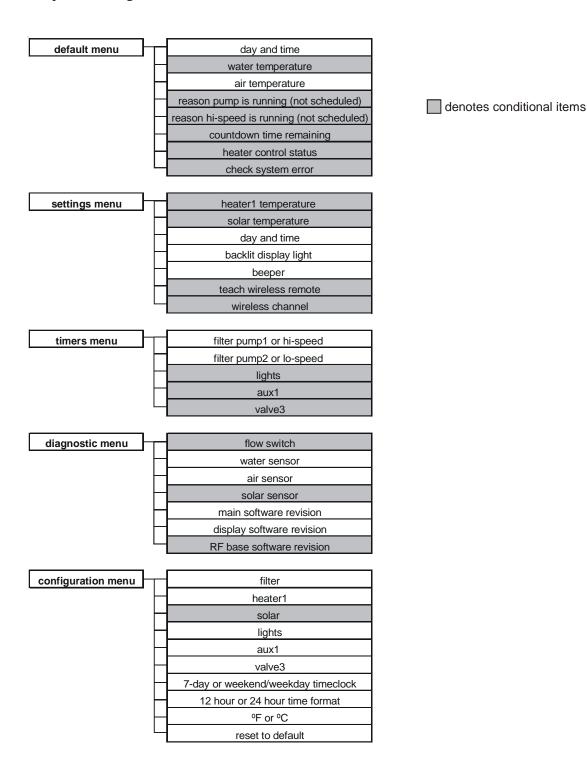




After you have adjusted the item to the desired value, simply move on to the next menu item to "lock in" your new setting. The ECOMMAND memory will maintain the setting, even if power is removed for an extended period.

Programming Menu Flowchart

The ECOMMAND'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 ECOMMAND's five menus as well as each menu's specific settings



The Default Menu is a series of informative displays with nothing to set. The ECOMMAND will automatically switch to the default menu when no keys have been pressed for 2 minutes and will then scroll through each display.

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

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

Settings Menu

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

Water Heater1 Off Adjust the desired water temperature (Off, 65°F, 66°F, ...103°F, 104°F, Off)

Move to previous/next menu item

The water heater setting will only appear if the heater control is enabled. The heater will turn on whenever the filter pump is running <u>and</u> the 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.

Solar 88°F Adjust the desired water temperature (Off, 65°F, 66°F, ...103°F, 104°F, Off)

Move to previous/next menu item

The solar setting will only appear if the solar control is enabled. The solar system will turn on whenever the filter pump is running <u>and</u> the water temperature is less than the desired temperature setting <u>and</u> solar heat is available.

Set Day and Time
Wednesday 10:37P

Adjust the current day of the week

Move to hours setting

Set Day and Time Wednesday **10:**37**P** 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 ECOMMAND and are also displayed as part of the default menu.

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

Display Light On for 60 sec. Toggle between Always On and On for 60 sec.

Move to previous/next menu item

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

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

Beeper Enabled Toggle between Beeper Enabled (default) and Disabled

Move to previous/next menu item

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

Teach Wireless + to start A Push to start process

Move to previous/next menu item

Press and hold wireless button

Press any button on wireless remote

Teach Wireless Successful

Move to previous/next menu item

Teach Wireless NOT Successful

Move to previous/next menu item

Teach Wireless Base NOT Found

Move to previous/next menu item

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

Wireless Channel: 1 Change the desired wireless channel (1 - 5)

If channel is changed, move to confirmation menu
If channel is not changed, move to previous/next menu item

Confirm Change: + to proceed Push to confirm the channel change
Move to previous/next menu item

Reteach all wireless units

Move to previous (Teach Wireless) menu

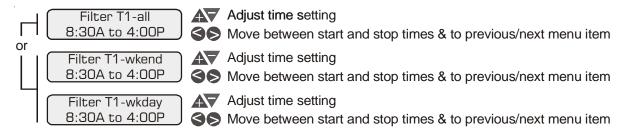
This setting changes the channel to be used by the wireless base station and remote(s). If the channel is changed and confirmed, all of the wireless remotes will have to be retaught. This menu will only appear if a wireless base station is connected to the ECOMMAND.

Timers Menu

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

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

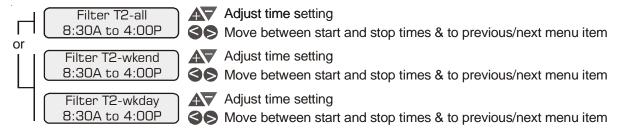
The Countdown timer is programmed in increments of 5 minutes from "Manual On/Off" (0 minutes) to a maximum of "21:00" (21 hours). When "Manual On/Off" is displayed, the countdown timer is disabled and the output will be manually controlled. When a countdown timer is equal or greater than "0:05", pressing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



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

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

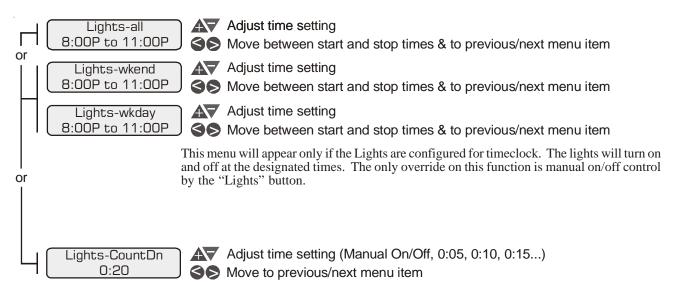
There are several reasons the filter pump may be running at times other than the timeclock period set above. These include manual operation, heater cooldown, freeze protection and "solar-extend".



For one speed pumps, this is the second filter timeclock

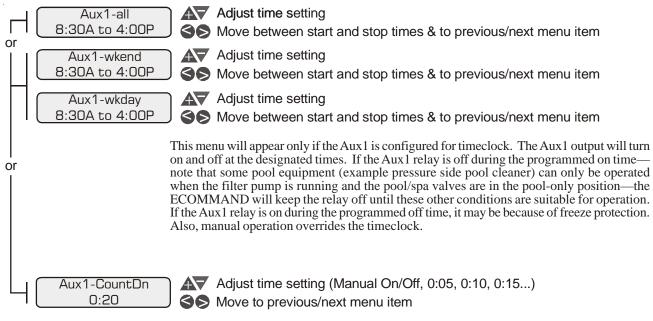
For two speed pumps, this timeclock will set the normal time period for <u>filter pump low speed operation</u> (the word "Filter T2" in the display will be replaced with "Filter Lo"). If the filter pump was off prior to the start of this time period, the filter pump will first turn on at high speed for 3 minutes to prime and establish water flow. Afterwards, it will drop down to low speed for the remainder of the programmed low speed time period. While this time clock will

override the high speed timeclock (see above), there are several reasons why the pump will automatically switch to high speed operation during this programmed time period. These include manual operation, spa operation, or heating operation. Refer to page 9 for general notes regarding timeclock programming.

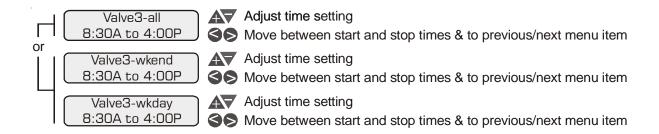


This menu will appear only if the Lights are configured for countdown timer. This setting is the time after you manually turn on the lights until the ECOMMAND automatically turns off the lights. You can also manually turn off the lights at an earlier time by pressing the LIGHTS button. If the Lights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

If Aux1 is enabled. Note that the Aux1 function requires the use of the optional AQL-RELAY-DC-KT.



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



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

Configuration Menu

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

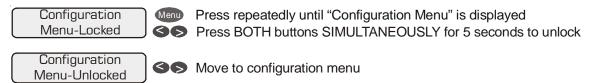


CAUTION: When changing an existing configuration, it is important to understand how the pool system operates and what specific equipment is connected to each output. Incorrect settings in the configuration menu could lead to damaged equipment and improper operation of the pool system.

Accessing the Configuration Menu

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

To access the Configuration Menu



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.

Filter Pump Config.
+ to view/change
Filter Pump
1 Speed

A Push to access pump options

Move to previous/next configuration menu

Toggle between 1-speed (default) and 2-speed options

Move to next menu item

Toggle between Enabled (default) and Disabled Freeze Protection

Move to next menu item or previous/next configuration menu

if "Freeze Protect" is enabled and "2-speed Filter" is selected

Freeze Protect Enabled

Freeze Protect

Toggle between high speed (default) and low speed

High Speed Move to next menu item

Freeze Temp 38°F Adjust the desired freeze protection temperature (33°F - 42°F)

Move to previous/next configuration menu

Filter Pump

Select single speed or 2-speed pump. If a 2-speed pump is configured, either the LIGHTS relay or an option AQL-RELAY-DC-KT relay must also be configured to control the low speed motor winding on the pump (in the Installation manual, see page 7 for wiring and page 17 for AUX1 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 ECOMMAND will turn on the filter pump to circulate the water.

Freeze Protection Speed

This menu only appears if freeze protection is enabled and the pump is configured for 2-speed. This is the speed that the pump will run at during freeze protection operation. Select high (default) or low speed operation.

Freeze Protection Temperature

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

Heater1 Config. + to view/change A Push to access heater options

Move to previous/next configuration menu

Heater1

Disabled

Toggle between Enabled and Disabled (default) Heater 1

Move to next menu item or previous/next configuration menu

Move to next menu item or previous/next configuration menu

if "Heater1" is enabled
Heater1 Cooldown
Disabled

if "Heater1" is enabled

if "Heater1" is enabled

Toggle between Enabled and Disabled (default) Heater 1 Cooldown

Move to next menu item

Toggle between Enabled and Disabled (default) Heater 1 Extend

Move to previous/next configuration menu

Heater1 Extend
Disabled

if "Heater1" is enabled and
2-speed filter pump is enabled

Allow Low Speed Disabled Toggle between Enabled and Disabled (default)

Move to next menu item or previous/next configuration menu

Heater1

If the heater is "Enabled", the heater relay will turn on when the water temperature is less than the desired temperature setting and the filter pump is running. The desired temperature is in the "Settings Menu".

Heater Cooldown

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

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

Heater Extend

If "Enabled", the filter extend logic keeps the filter pump running beyond the normal turn-off time until the water 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.

Allow Low Speed

This menu only appears if the pool filter is configured for 2-speed operation. During default operation, high speed mode is used whenever the heater is on. If Allow Low Speed is "Enabled", low speed will be allowed whenever the heater is on.

Solar Config. Push to access solar options + to view/change Move to previous/next configuration menu Toggle between Enabled and Disabled (default) Solar Solar Disabled Move to next menu item or previous/next configuration menu if "Solar" is enabled Toggle between Enabled and Disabled (default) Solar Extend Solar Extend Disabled Move to next menu item if "Solar" is enabled Toggle between Enabled and Disabled (default) Solar Priority Solar Priority So Move to next menu item or previous/next configuration menu Disabled if "Solar" is enabled and "2-speed Filter" is selected Toggle between Enabled and Disabled (default) Allow Low Speed Disabled Move to previous/next configuration menu

Solar

If the solar control logic is "Enabled", several additional steps must be taken to ensure proper operation of the solar system. If the solar is operated by a valve, then the Valve3 output must be setup for solar logic (see page 18 in the Installation manual). If the solar is operated by a pump, then one of the AUX1 relay must be set up for solar logic (see page 17 in the Installation manual). 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.

Allow Low Speed

This menu only appears if the pool filter is configured for 2-speed operation. During default operation, high speed mode is used whenever the solar heater is on. If Allow Low Speed is enabled, low speed pump operation will be allowed during solar heating except for the first 3 minutes after solar heat turns on.

Lights Config. + to view/change Push to access Lights options

Solution Move to previous/next configuration menu item

Lights 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 manual on/off, countdown timer and timeclock functions

Lights Relay Standard Toggle between Standard (default) and Dimmer

So Move to next menu item or previous/next configuration menu

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

Lights Interlock
Disabled

Toggle between Enabled and Disabled (default) Lights Interlock

Move to next menu item

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

Lights Freeze Disabled Toggle between Enabled and Disabled (default) Lights Freeze Protection

Move to previous/next configuration menu

Lights Function

Although designated as the "Lights" output, the function of the lights relay is similar to the Aux1 relay. If pool lights are wired to the lights relay, some options including Solar function, Low Speed of a 2-Speed Filter Pump, Lights Interlock and Lights Freeze Protection will not be necessary and should be disabled. If no pool lights are used, the lights relay can be used to control other pool devices that may require these options. The function of each option is shown below.

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

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

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

Solar – the lights relay can operate a solar booster pump which will turn on when the filter pump is running <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 ECOMMAND will turn on the lights relay whenever the low speed operation of the filter pump is required. It is very important that the "2-speed" filter pump option be selected under the "Filter Config." Menu for proper operation.

Lights Relay

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

Lights Interlock

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

Lights Freeze Protection

This function helps protect equipment that is wired to the lights relay against freeze damage. If Freeze Protection is enabled and the AIR temperature sensor falls below the selected freeze temperature threshold, the ECOMMAND will energize the lights relay. IMPORTANT: this only enables operation of the lights relay during freeze—see the "Filter Pump Config." menu to enable freeze protection for the main circulation system.

Requires the use of the optional AQL-RELAY-DC-KT

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

Aux1 Output

Swimmers may become entrapped underneath the cover.

The ECOMMAND features an optional auxiliary function that can be used to control a variety of pool equipment. This feature is disabled by default. If the auxiliary function is desired, the optional AQL-RELAY-DC-KT must be installed and the Aux1 output must be enabled.

Aux1 Function

Manual On/Off (default)—the aux1 relay will alternate between turning on and off when the AUX1 button is pressed. There is no automatic control logic.

Countdown Timer – the aux1 relay will turn on when the AUX1 button is pressed and then will turn off automatically after a programmed time (see Timers Menu, Operation Manual). The AUX1 button can also be used to turn the output off.

WARNING: Do not use the ECOMMAND to control an automatic pool cover.

Timeclock – the aux1 relay will turn-on and turn-off at the times set for the Aux1 timeclock in the Timers Menu. The AUX1 button can also be used to turn the output on and off.

Solar – the aux1 relay operates a solar booster pump which will turn on 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. 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 ECOMMAND will operate the aux1 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 Relay

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

Aux1 Interlock

If "Enabled", this feature will override the function (Manual On/Off, Countdown Timer, Timeclock), selected above and turn the Aux1 off when: filter pump is off, first 3 minutes of filter pump operation (allows the pump to prime and get water flowing), when the pool/spa suction return valves are in any position other than "pool only", or for the first 3 minutes after solar turns on (allows air in the solar panels to be purged). Interlock is not available for solar, low speed filter pump, or dimmer.

Aux1 Freeze Protection

This function protects the pool, plumbing, and equipment against freeze damage. If Freeze Protection is enabled and the AIR temperature sensor falls below the selected freeze temperature threshold, the ECOMMAND will turn on the aux1 relay to circulate the water. IMPORTANT: this only enables operation of the aux1 output during freeze--see the "Filter Pump Config." menu to enable freeze protection for the main circulation system.

Valve3 Config. + to view/change A Push to access Valve3 options

Move to previous/next configuration menu item

Valve3 Function Solar Rotates between Timeclock (default), Solar, In-Floor Cleaner, and Valve3=Filter, Valve3=Lights, and Valve3=Aux1

Move to next menu item

for all functions except solar and valve3=x

Valve3 Interlock
Disabled

▲▼ Toggle between Enabled and Disabled (default) Valve3 Interlock

Move to next menu item

for all functions except solar and valve3=x

Valve3 Freeze Disabled ▲▼ Toggle between Enabled and Disabled (default) Valve3 Freeze

Move to previous/next configuration menu

Valve3 Function

Timeclock (default) – the valve turns on/off at the times set for the Valve3 timeclock in the Timers Menu (see Operations Manual).

Solar – 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.

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=Filter – the valve operates whenever the Filter relay is on.

Valve3=Lights – the valve operates whenever the Lights relay is on.

Valve3 = Aux1 – the valve operates whenever the Aux1 relay is on.

Valve3 Interlock

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

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 the selected freeze temperature threshold, the ECOMMAND 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

This selection affects ALL of the timeclock logic in the ECOMMAND. 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

Units °F and PPM ▲▼ Toggle between °F and PPM (default) and °C and g/L (Metric) options

Move to previous/next configuration menu

Reset Config. to Default Press + Initiate reset of all configuration parameters

Move to previous/next configuration menu (config. not reset)

Are you sure? + to proceed Reset all configuration parameters

Move to previous/next menu (config. not reset)

Config. reset Confirmed

Move to previous/next configuration menu

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

Quick "How To" Guide

Operate the Pool or Spa—Manually

- 1. If the filter pump is not already on, press the "FILTER" button to turn it on.
- 2. If the water is below the desired temperature, the heater will turn on automatically when the filter pump is on. If you have not already set the desired temperature for the water, see "Set Heater Temperature" below
- 3. If the pool or spa has a separate jet pump and or blower, determine if the jet pump/blower is controlled by Aux1 (it should be marked on the label inside the door). Then press the appropriate button to turn on the jets/blower.

Operate the Pool or Spa—Automatically

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

Note: During the programmed filter time, the filter pump will turn on, and, if the water 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.

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 "Heater1" is displayed.
- 3. Press the "+" or "-" buttons repeatedly to adjust the temperature. If you adjust the temperature below 65°F or above 104°F the display will indicate "off" and the heater will not operate regardless of temperature.

Program a Timeclock

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

Note: During the programmed time, there may be other automatic or manual operations that prevent the relay/valve from operating—see a more detailed discussion under Automatic System Operation/Timers Menu/Aux1 Timeclock or in Troubleshooting/Diagnostic Information.

Program a Countdown Timer

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

Note: A setting of 0:00 will display as "manual on/off". The countdown automatic turn off function is disabled but manual operation is still permitted. There may be other automatic or manual operations that prevent the relay/valve from operating—see a more detailed discussion under Automatic System Operation/Timers Menu/Aux1 Timeclock or in Troubleshooting/Diagnostic Information.

Enter/Exit Service (or Service—Timed) Mode

- 1. Go to ECOMMAND 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 ECOMMAND unit. Both "Service" and "Service-Timed" disable all automatic programmed operations and allow manual operation from the main unit only. The buttons on the optional wireless remote will still be able to turn equipment off in case of an emergency, but will not turn any equipment on. If the system is in "Serviced-Timed" it will automatically switch back to normal operation at the end of the 3 hour time period.

Troubleshooting and Diagnostic Information

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

While both of the features are primarily intended for the use of the professional service technician, their function is fully explained below. If you believe your system is not operating properly or have questions regarding the operation, call the Goldline Technical Service Department from Monday through Friday, 8AM to 8PM EST at 908-355-7995.

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 and the optional wireless remote control is 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 ECOMMAND will remain in this mode of operation until manually taken out of service mode.

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

Check System Indicator

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

- Water Sensor -- if the water sensor is either an open or short circuit.
- **Air sensor -** if the freeze protection feature is enabled (Configuration Menu/Filter Config.) and the air sensor is either an open or short circuit.
- Solar Sensor -- if the solar sensor is either an open or short circuit.

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:

Water Sensor
Open circuit

No function
Move to previous/next menu item

Air Sensor
94°F

No function
Move to previous/next menu item

Solar Sensor
Short circuit

No function
Move to previous/next menu item

Available displays depend on configuration. If the sensor appears to 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 ECOMMAND main unit.

Main Software
Revision 2.65

No function
Move to previous/next menu item

No function
No function
Move to previous/next menu item

RF Base Software
r1.20 ID:1234

No function
Move to previous/next menu item

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

The following statement is applicable if a wireless accessory is connected to the ECOMMAND system.

FCC Statement

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

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

Industry Canada Statement

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

Interference

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

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

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

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

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

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

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

WARRANTY EXCLUSIONS:

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

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

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

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

DETACH HERE: Fill out bottom portion completely and mail within 10 days of purchase/installation, OR REGISTER YOUR WARRANTY ONLINE AT WWW.HAYWARDPOOL.COM.

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HAYWARD

Mail to: Hayward Pool Products, 620 Division Street, Elizabeth, NJ 07207, Attn: Warranty Dept.

Years pool has been in service \Box less than 1 \Box 1-3 \Box 3-5 \Box 5-10 Purchased from Address____ _____State_____Zip____ Company name____ E-mail Address____ _____ State_____ Zip____ Product Model No. SP3220VSC Product Serial No._____ Please send me more information on these other ☐ New Installation ☐ Replacement products from Hayward: Type of In-Ground Pool: ☐ Filter ☐ Automatic Pool Cleaner ☐ Light □ Pump □ Vinyl □ Fiberglass □ Gunite ☐ Chlorinator ☐ Skimmer ☐ Heater ☐ Heat Pump

WWW.HAYWARDPOOL.COM

Size of Pool (U.S. gallons)____

USE ONLY HAYWARD GENUINE REPLACEMENT PARTS

 \square Salt/Chlorine Generator \square Controls

Warranty Registration Card

