



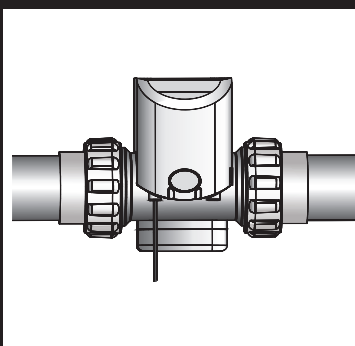
HAYWARD®

1023483 RevA

Hayward Sense

Water Chemistry Monitor

Owner's Manual



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HLSENSE

Hayward Industries
1415 Vantage Park Dr., Suite 400
Charlotte, NC 28203
Phone: (908) 355-7995
www.hayward.com



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IMPORTANT SAFETY INSTRUCTIONS

This device can only be used in swimming pools and swimming pools with a built-in spa. All electrical work must be performed by a licensed electrician and conform to all national, state (provincial), and local codes. When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:



READ AND FOLLOW ALL INSTRUCTIONS

⚠ WARNING – Read and follow all warnings and instructions in this owner's manual and on the equipment. Failure to follow instructions can cause property damage, severe injury and/or death.

⚠ WARNING – This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment by the jurisdiction in which the product will be installed where such state or local requirements exist. The maintainer must be a professional with sufficient experience in pool equipment installation and maintenance so that all of the instructions in this manual can be followed exactly. Improper installation and/or operation may void the warranty.

Improper installation and/or operation can create unwanted electrical hazard which can cause serious injury, property damage, or death. **DO NOT MODIFY THIS EQUIPMENT.**

ATTENTION INSTALLER – This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.

⚠ WARNING – **Hazardous Pressure.** **TURN OFF THE PUMP BEFORE INSTALLATION.** Pumps, filters, and other equipment/components of a swimming pool filtration system operate under pressure. Filtration equipment and/or components that are incorrectly installed and/or improperly tested may fail, resulting in severe personal injury or death. Consult your pump manual for more information.

⚠ WARNING – **Drowning Risk to Children.** To reduce unintended or unsupervised access to the pool by children, all pool system operational equipment shall be positioned no less than 5 ft (1.5 m) from the pool. Children must be supervised at all times. Individuals, especially young children, must not sit on, step on, lean against or climb any operational equipment, as such actions may result in serious injury or drowning.

⚠ WARNING – **To avoid risk of potential property damage and personal injury:**

- Only use the Hayward Sense for water chemistry analysis.
- The Hayward Sense is not a toy. Only use the Hayward Sense as intended.
- Do not permit children to use this product. Keep the Hayward Sense and calibration products out of reach of children, especially when handling chemicals.
- Do not allow the pH and ORP sensors to dry. When removing the sensors from the unit, submerge them into the provided storage caps with commercially available pH and ORP electrode storage solution or a salty dilute acetic acid.
- Install the included winterization plugs into Hayward Sense electrode ports when sensors are not in use.
- Do not use demineralized water in the sensor storage caps.
- **MAINTAIN WATER CHEMISTRY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.**

⚠ WARNING – **Risk of Hyperthermia.** To avoid hyperthermia the following "Safety Rules for Hot Tubs" are recommended by the U.S. Consumer Product Safety Commission.

1. Spa or hot tub water temperatures should never exceed 104°F [40°C]. A temperature of 100°F [38°C] is considered safe for a healthy adult. Special caution is suggested for young children. Prolonged immersion in hot water can induce hyperthermia.
2. Drinking of alcoholic beverages before or during spa or hot tub use can cause drowsiness, which could lead to unconsciousness and subsequently result in drowning.



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3. Pregnant women beware! Soaking in water above 100°F [38°C] can cause fetal damage during the first three months of pregnancy (resulting in the birth of a brain-damaged or deformed child). Pregnant women should adhere to the 100°F [38°C] maximum rule.
4. Before entering the spa or hot tub, users should check the water temperature with an accurate thermometer; spa or hot tub thermostats may err in regulating water temperatures by as much as 4°F (2.2°C).
5. Persons taking medications, which induce drowsiness, such as tranquilizers, antihistamines or anticoagulants, should not use spas or hot tubs.
6. If the pool/spa is used for therapy, it should be done with the advice of a physician. Always stir pool/ spa water before entering the pool/spa to mix in any hot surface layer of water that might exceed healthful temperature limits and cause injury. Do not tamper with controls, because scalding can result if safety controls are not in proper working order.
7. Persons with a medical history of heart disease, circulatory problems, diabetes or blood pressure problems should obtain a physician's advice before using spas or hot tubs.
8. Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above normal body temperature of 98.6°F [37°C]. The symptoms of Hyperthermia include: drowsiness, lethargy, dizziness, fainting, and an increase in the internal temperature of the body.

The effects of Hyperthermia include:

1. Unawareness of impending danger.
2. Failure to perceive heat.
3. Failure to recognize the need to leave the spa.
4. Physical inability to exit the spa.
5. Fetal damage in pregnant women.
6. Unconsciousness resulting in danger of drowning.

⚠ CAUTION – When exposed to pool chemicals, such as acids, chlorine, salt, and stabilizers, certain materials in and around the pool may be susceptible to damage. To avoid premature damage of property:

- Select plants that can withstand pool water chemicals in the instance the plants were to be splashed.
- Use high-grade stainless steel for all metal components used in and around the pool.
- Consult a builder or stone contractor for guidance on the best masonry material suited for the area around your pool or spa.
- Professionally seal all stone products with the appropriate sealer for your masonry material to prevent weathering, staining, and premature damage.
- Reapply sealers regularly in accordance with the manufacturer's instructions.
- Always use chemicals as directed by the manufacturer. Failure to follow manufacturer instructions may result in hazards, including property damage.

⚠ WARNING – When mixing acid or other chemicals with water, ALWAYS ADD THE ACID OR CHEMICALS TO WATER. NEVER ADD WATER TO THE ACID OR CHEMICALS.

⚠ CAUTION – Place pool equipment at a sufficient distance from direct water exposure, including sprinklers, runoff from rooftops, drainage, etc. Failure to comply may cause equipment failure and void warranty.

⚠ WARNING – The pool system shall not be connected to any unregulated municipal water or external pressurized water supply capable of exceeding 35 psi. Exposure of filters, pumps, and pH and ORP sensing devices to system pressure testing may result in serious injury or death. Pressure tests mandated by local codes are generally limited to piping infrastructure and not intended for associated pool equipment, including filters, pumps, water chemistry monitoring devices, and chlorination equipment. In the event the piping system must be pressure tested with the filter, pump, water chemistry monitor and/or chlorinator installed, ADHERE TO THE FOLLOWING SAFETY INSTRUCTIONS:

- Ensure all clamps, bolts, lids, lock rings, and system accessories are properly installed and secured before testing.
- Remove the pH and ORP sensors from Hayward Sense and store them in the included winterization plugs.
- Release all air in the system before testing. DO NOT USE AIR PRESSURE FOR PRESSURE TESTING.
- Water pressure used for test must NOT EXCEED 35 PSI (25 PSI if Hayward Sense is installed).



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- Water temperature used for test must NOT EXCEED 100°F (38°C).
- Do not run test longer than 24 hours. To ensure system is suited for operation, check the system after testing.

NOTICE – Pressure testing instructions apply to Hayward equipment only. For non-Hayward equipment, consult the manufacturer.



⚠ WARNING – Risk of Electric Shock. All electrical wiring **MUST** be in conformance with applicable local codes, regulations, and the National Electric Code (NEC). Hazardous voltage can shock, burn, and cause death or serious property damage. Provide a properly located electrical receptacle. Before working on the equipment, turn off power supply to the equipment.



⚠ WARNING – Risk of Electric Shock. Failure to bond pump to the system structure will increase risk for electrocution and could result in injury or death. To reduce the risk of electric shock, see installation instructions and consult a professional electrician on how to bond pump. Also, contact a licensed electrician for information on local electrical codes for bonding requirements.

Notes to electrician: Use a solid copper conductor, size 8 or larger. Run a continuous wire from external bonding lug to reinforcing rod or mesh. Connect a No. 8 AWG (8.4 mm²) [No. 6 AWG (13.3 mm²) for Canada] solid copper bonding wire to the pressure wire connector provided on the pump housing and to all metal parts of the system and to all electrical equipment, metal piping (except gas piping), and conduit within 5 ft. (1.5 m) of inside walls of the water vessel. **IMPORTANT** – Reference NEC codes for all wiring standards including, but not limited to, grounding, bonding and other general wiring procedures.



⚠ WARNING – To reduce the risk of electric shock, replace damaged wiring immediately.

SAVE THESE INSTRUCTIONS



Overview

The Hayward Sense is an oxidation reduction potential (ORP) and pH sensing module offered as an accessory for the Hayward OmniLogic®, OmniPL®, OmniHub®, and AquaRite S3 Omni® automation controllers. When working with Omni® controllers, the Sense provides a fully integrated chemistry solution for a pool or spa. The Sense continuously tests the pool's water quality, allowing the Omni controller to automatically begin chlorine dispensing/generation, as well as acid dispensing. Together, the Hayward Sense and Omni controllers provide an automated system balancing both sanitization and pH.

Oxidation reduction potential (ORP) indicates the pool's overall oxidizing activity and disinfection potential (measured in millivolts [mV]), integrating the effects of chlorine, pH, and other water chemistry factors to give a more meaningful measure of water quality than chlorine concentration (in ppm or mg/L) alone. With balanced pool chemistry, the ORP should fall between +650 and +750 mV for ideal disinfection conditions.

NOTE: Excessive levels of cyanuric acid (CYA) and other chlorine stabilizers can reduce the effectiveness of chlorine in sanitization. Refer to "Pool Chemistry Guidelines" on page 6 for acceptable levels.

pH measures the acidity level in the pool water. Maintaining proper pH levels enhances chlorine sanitization by allowing for a higher proportion of hypochlorous acid, the most effective form of chlorine for sanitization.

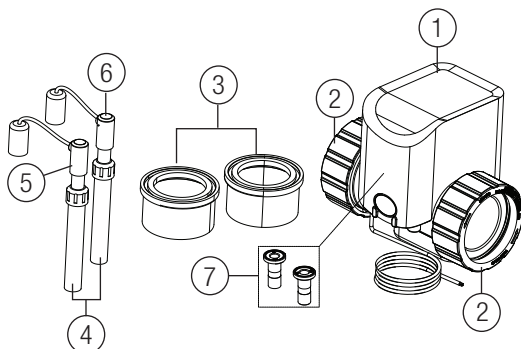
The pool pH level should be between 7.4 and 7.6 to achieve the ideal amount of hypochlorous acid. If pH is maintained below 7.4 (too acidic), eye and skin irritation, corrosion of equipment, and damage to the pool or spa surface can occur. pH maintained above 7.6 (too alkaline) may cause reduced sanitizer activity, scale build up, cloudy water, and eye irritation.

What's Included

IMPORTANT – Unpack the new Hayward Sense system carefully. **DO NOT USE a razor or sharp instrument to remove contents.**

Before beginning installation, confirm that the items listed below are included. Please report any shortages to the supplier. Report any shipping or handling damage immediately to the shipping company.

Item	Description	Qty
1	Hayward Sense Module	1
2	Union Nuts	2
3	PVC Tail Pieces with O-Rings	2
4*	Electrode Storage Caps*	2
5	pH Electrode (Blue)	1
6	ORP Electrode (Yellow)	1
7	Winterization Plugs (Shipped in electrode ports)	1



* Keep for winterization

NOTE: A flow switch (P-KIT) is required to operate the Sense.



Product Specifications

Materials

- Tail Piece: Rigid PVC
- All other items: ABS

ORP and pH Specifications

	Electrode Range	Resolution	Max. Operating Pressure*	RS485	Pressure Rating
ORP	+450 mV to +900 mV	10 mV	25 psi (1.7 bar)	10 – 24 VDC; 50 mA	60 psi (Body with Winterization Plugs)
pH	7.0 to 8.0	0.1 units			

***IMPORTANT – Do not perform pressure testing with electrodes installed. Use winterization plugs for pressure testing.**

Compatibility and Required Accessories

Remote Control Compatibility

Sense and Dispense System	S3 Omni	OmniHub	OmniPL	OmniLogic
Hayward Sense (HLSense)	☑	☑	☑	☑
pH Dispense, Acid Feed System, 120V (AQL-CHEM4-ACID)	☑	☑ *	☑	☑
Liquid Chlorine Dispense System, 120V (AQL-CHEM4-CHLOR)	☑	☑ *	☑	☑

* Requires Hayward Omni RS485 Smart Relay (HLH485RELAY)

Electrolytic Cell Compatibility

Cell Model	S3 Omni	OmniHub	OmniPL	OmniLogic
AquaRite 900 Cells		☑ *	☑ **	☑
AquaRite S3 Cells	☑	☑ *	☑ **	☑

* Requires AQR9XX Generator and an AquaRite Daughter Board (HLAQRPCB)

** S Models Only



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Installation

Before You Begin



▲ WARNING – Risk of Electric Shock. Power to the Omni **MUST** be shut off before installing the Sense. This means a complete shutdown of power to the entire control.

IMPORTANT – Review the following notes before proceeding to installation:

- The Sense is designed to be installed in 2" plumbing. Use adapters (not included) for pools plumbed with 1-½" pipe.
- Always plumb the Sense after the filter and before the heating system and water care devices (such as chlorinator salt cell, solar heater system, and liquid/tablet dispense systems). See "Hayward Sense Installation in Pool System" on page 8 for details.
- Insert the winterization plugs if performing pressure testing with the Sense installed. **DO NOT pressure test with electrodes installed.**

Pool Chemistry Guidelines

Confirm that your pool or spa water adheres with the following guidelines before installing the Sense. Always maintain water chemistry according to your local or state requirements.

Chemical	Acceptable Range
Salt (if applicable)	2700 – 3400 ppm
Free Chlorine	1.0 – 3.0 ppm
pH	7.2 – 7.8
Cyanuric Acid (Stabilizer)	30 – 50 ppm
Total Alkalinity	80 – 120 ppm
Calcium Hardness	200 – 400 ppm
Metals	0 ppm
Saturation Index	-0.2 – +0.2 (0.0 is best)

Tools Required

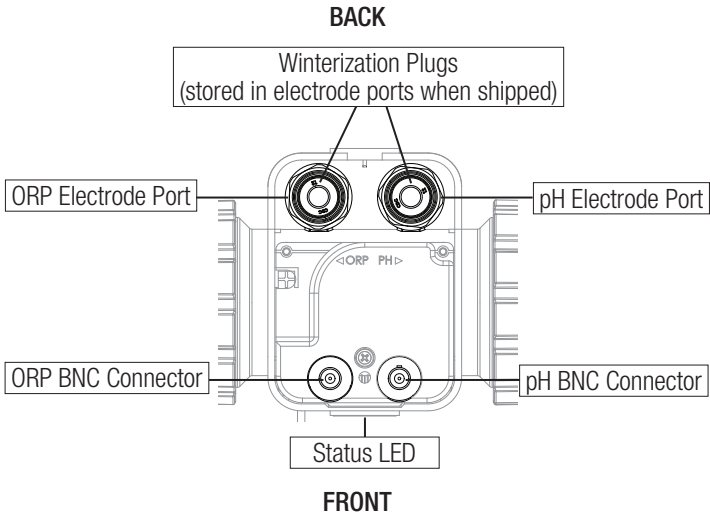
- PVC Cutter
- Small Flathead Screwdriver (for RS485 Wiring Harness)
- PVC Primer and Glue
- Wire Strippers



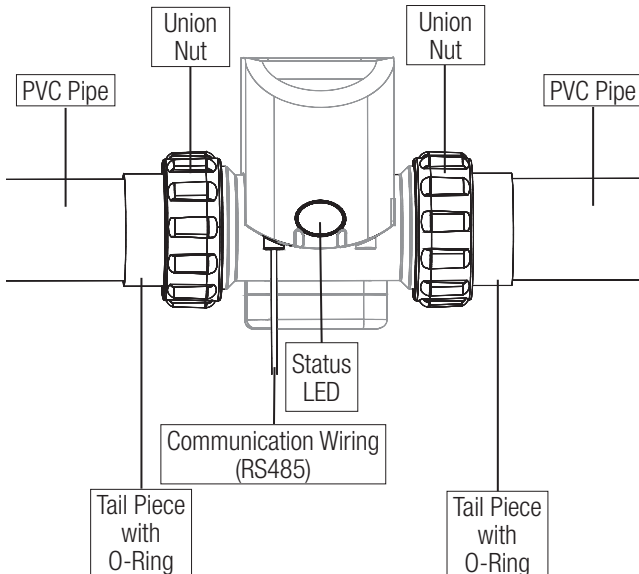
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Product Overview

Hayward Sense with Cover Removed - Top View



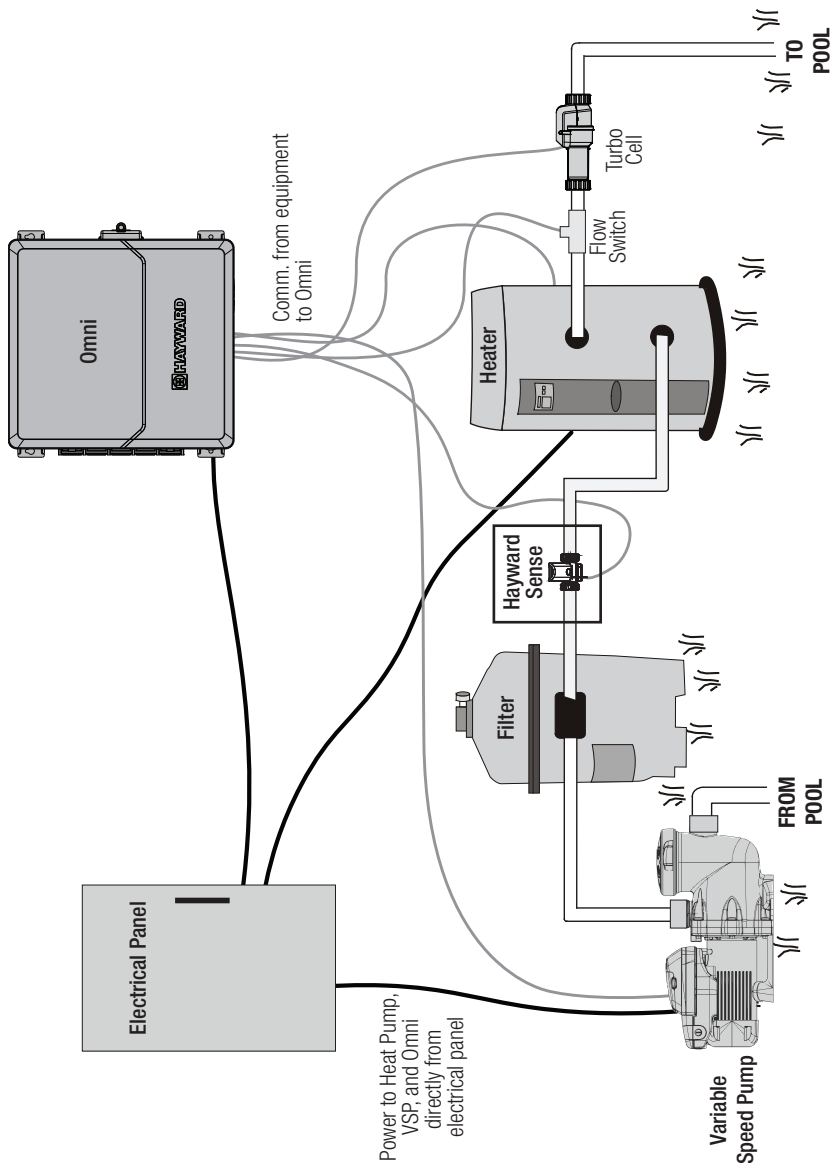
Final Installation Overview - Front View





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Hayward Sense Installation in Pool System



⚠ WARNING – Risk of Electric Shock. Install at least 5 feet (1.5 m) from the inside wall of the hot tub or spa using nonmetallic plumbing.

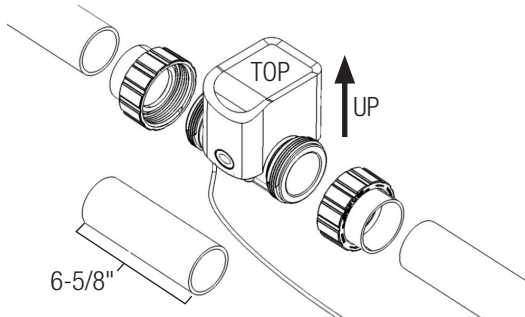


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Plumbing the Hayward Sense

IMPORTANT – Refer to page 8 for plumbing location. If installing the Sense below waterline piping, install a 2" ball valve before AND after the Sense to prevent water discharge during electrode removal.

1. Confirm that the required Flow Switch (P-KIT) is installed and wired to the Omni controller.
2. Turn off main power supply to the system and close any valves.
3. Cut 6-5/8" from the existing pipe between the system filter and heater.



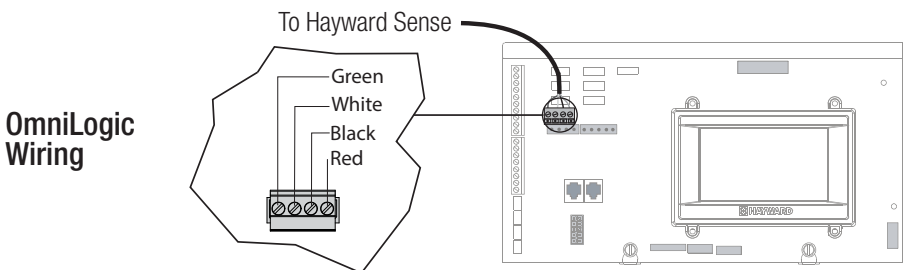
IMPORTANT – Hayward Sense must be installed in a vertical upright position.

4. Clean the plumbing of any residue. Push the union nut onto the pipe with the threads facing the Sense, then use PVC primer and glue to attach the tailpiece to the pipe. Repeat on the other side.
5. After the glue is dry, install the Sense. Ensure the O-Rings are secure inside the groove of the tailpiece and tighten by hand.
6. Open any closed valves and restore power to the system. Run the pump and check for leaks.

Wiring Automation to Hayward Sense

The Sense must be connected through the Low Speed Bus Connections on the Omni controllers. **Do not connect the Sense to the High Speed Bus Connections.** Consult your Omni control manual for more information.

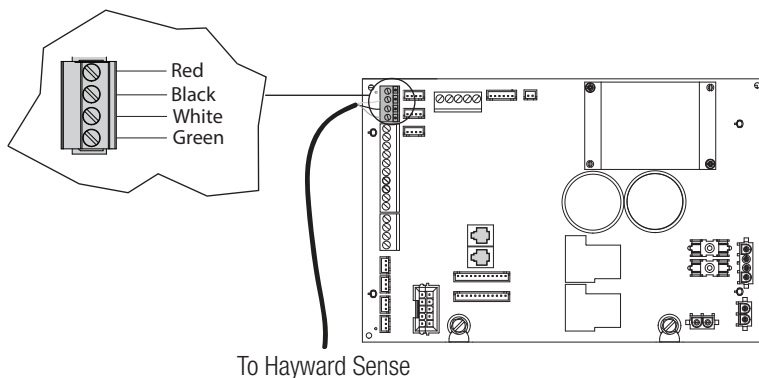
Refer to the following diagrams to wire the Sense to OmniLogic, OmniPL, OmniHub, and S3 Omni.



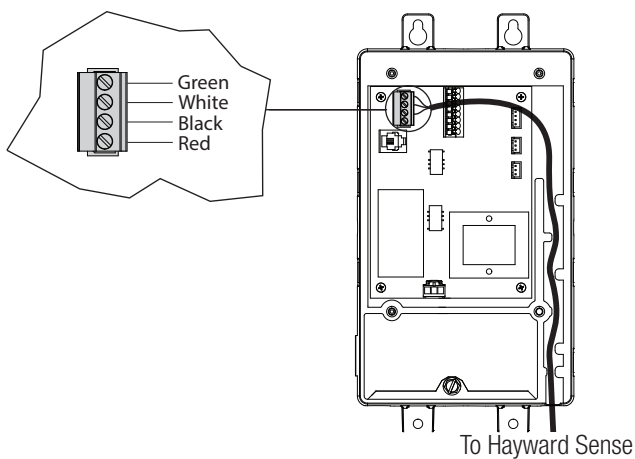


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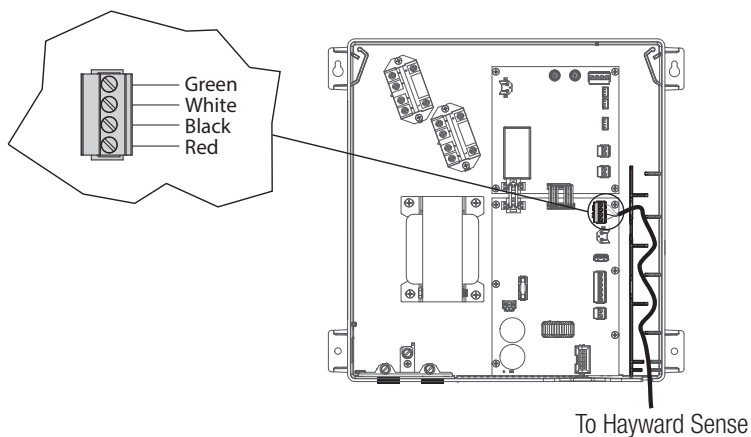
OmniPL Wiring



OmniHub Wiring



S3 Omni Wiring





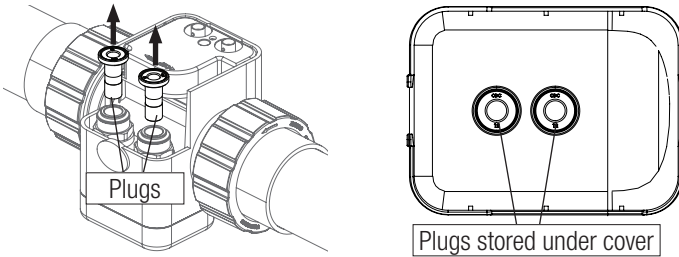
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Installing ORP and pH Electrodes

Refer to Figure 1 and Figure 2 below to complete the following steps.

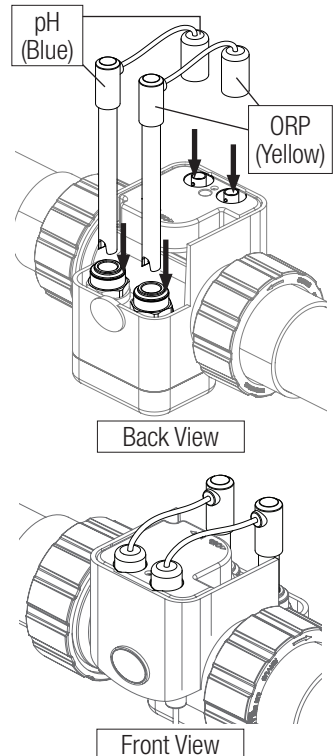
1. Confirm the pool chemistry falls within the recommended guidelines (See page 6).
2. Turn off main power supply to the system and close any valves.
3. Remove the Sense cover.
4. Remove the winterization plugs from the electrode ports by pushing down on the outer retaining rings while pulling each plug upward. Store the plugs in the holders under the Sense cover.

Figure 1: Remove and Store Winterization Plugs



5. Unscrew the lid on the storage cap for the ORP electrode (yellow top).
6. Remove the solution-filled cap and the lid from the electrode. **Never touch the glass bulb on the sensing end of the electrode.**
7. Insert the ORP electrode into the fitting labeled "ORP" and slowly push down until the electrode rests on the bottom of the flow cell. DO NOT PUSH TOO HARD.
8. Connect the ORP electrode to the BNC connector directly behind it by gently pressing down on the connector and turning clockwise.
9. Unscrew the lid on the storage cap for the pH electrode (blue top).
10. Remove the solution-filled cap and the lid from the electrode. **Never touch the glass bulb on the sensing end of the electrode.**
11. Insert the pH electrode into the fitting labeled "pH" and slowly push down until the electrode rests on the bottom of the flow cell. DO NOT PUSH TOO HARD.
12. Connect the pH electrode to the BNC connector directly behind it by gently pressing down on the connector and turning clockwise.
13. Rinse and save the electrode storage caps for future storage or winterization. Ensure the storage cap O-Ring is secure.

Figure 2: Connecting Electrodes





Perform the following to verify proper operation upon installation and at the beginning of each pool season:

⚠ WARNING – If the electrodes are broken, depleted, dirty, fouled with oils, lotions, or other contaminants, they will report inaccurate results to the system causing incorrect water chemistry, which at worst, could harm people and equipment.

- Check the controller display for proper operation and alarms before entering the water.
- If there is an alarm, consult the "Troubleshooting" section of this manual to understand and rectify the condition.
- If the display is blank or reporting a communications error, troubleshoot the equipment and rectify the failure before entering the water.

Configuration

Before configuring the Hayward Sense, ensure your Omni controller has the latest available firmware as described in the "Upgrading Firmware" section or by visiting <https://hayward.com/support/resources/firmware>.

Navigation



Power - Shut down controller and enter/exit Service Mode.



Done - Complete your selection.



Cancel - Cancel your selection.



Advance - Advance to the next configuration screen.



Back - Return to the previous configuration screen.



Add - Add an item.



Delete - Delete a highlighted item.



Turn On or Enable - Manually turn on pool equipment or enable a function.



Turn Off or Disable - Manually turn off pool equipment or disable a function.



Schedule - Schedule a function.



Countdown Timer - Set a countdown timer.



Back - Return to the previous screen.



Save - Save configuration changes in Quick Edit. This button only appears on the Quick Edit Home Screen.



Upgrading Firmware

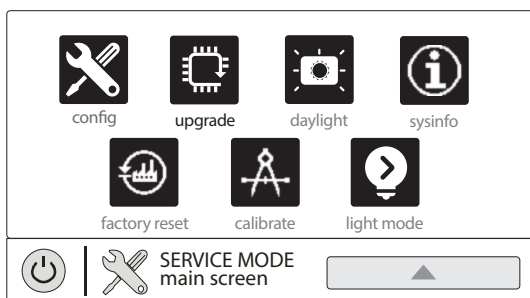
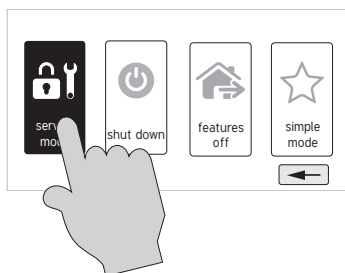
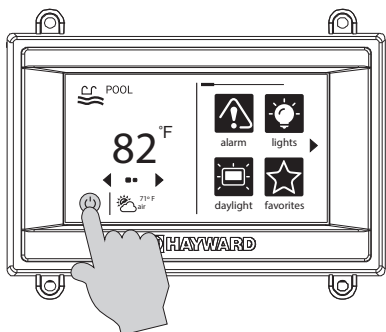
Enter Service Mode

Firmware upgrades can be accessed in Service Mode. Service Mode turns off all pool equipment and disables all networked devices, pausing scheduled operations and disabling remote operation while servicing the pool.

There are two ways to use Service Mode:

- **Standard Service Mode:** The Omni controller will remain in Service Mode until you manually exit.
- **Timed Service Mode:** This is the amount of time that the Omni will stay in Service Mode before automatically exiting. This is a user-configurable feature and can be set between 1–96 hours. Though possible, there is no need to manually exit Service Mode.

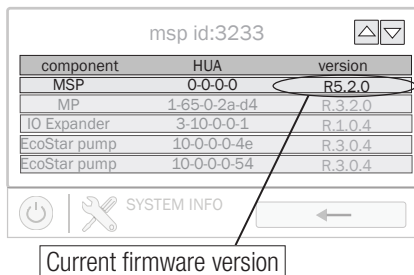
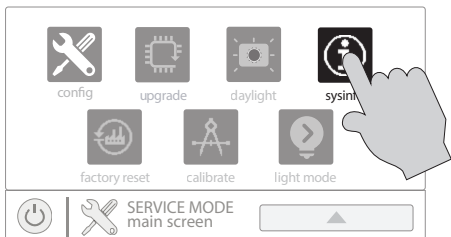
To enter Service Mode, select **Power** (⏻) on the Home screen, then select **service mode**. The Service Mode main screen appears.



Service Mode Main Screen

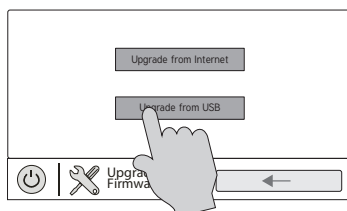
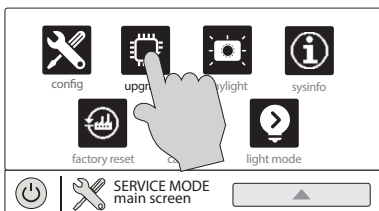
Determine Current Omni Firmware

Once in Service Mode, select **sysinfo** and ensure your Omni controller has the latest firmware. If you require a firmware upgrade, see the "Upgrade from USB" or "Upgrade from Internet" sections.

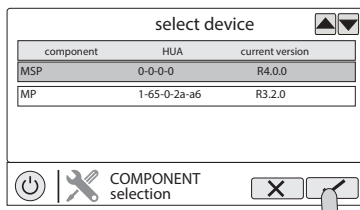
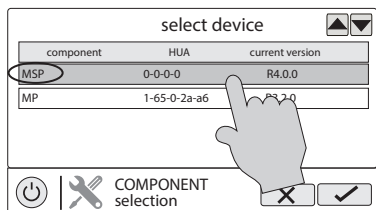


Upgrade from USB

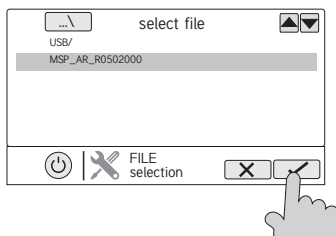
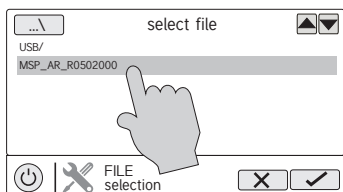
1. Download the latest firmware from www.hayward.com/firmware and save to a USB drive.
2. Connect the drive to the USB port on the bottom of the Omni controller.
3. Enter the Service Mode main screen. Select **upgrade**, then select **Upgrade from USB**.



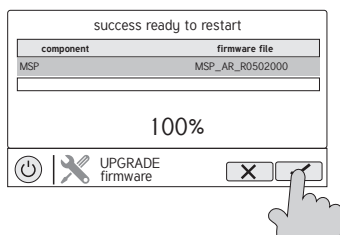
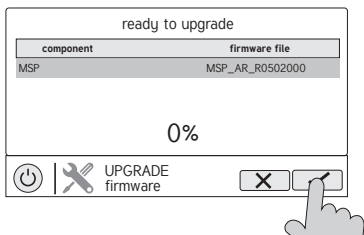
4. Select **MSP**, then select **Done** ☒ to view the contents of the USB drive.



5. Choose the latest firmware file and select **Done** ☒ .



6. On the "UPGRADE firmware" screen, select **Done** ☒ to begin upgrade. After upgrade is complete, select **Done** ☒ again to restart the Omni controller.

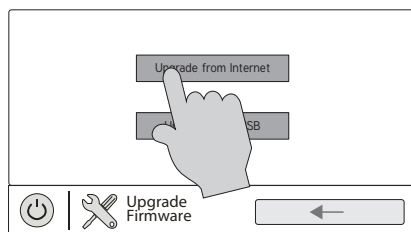
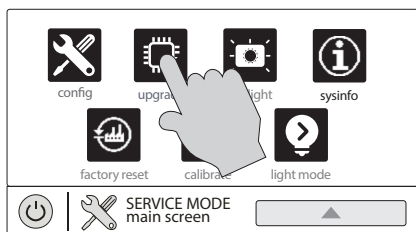


7. After the Omni controller restarts, exit Service Mode by selecting **Power**  then **Service Mode Exit**.

Upgrade from the Internet

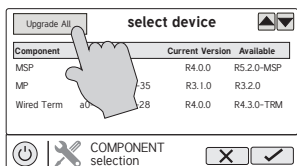
When updated to 4.0.0 or later and connected to the internet, the Omni controller displays an alert when there are available updates.

1. To manually check for updates, select **upgrade** from the Service Mode main screen, then select **Upgrade from Internet**.

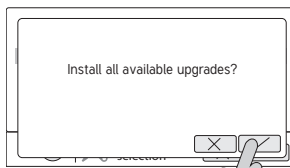




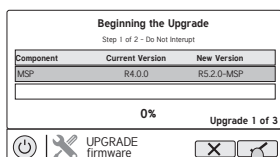
2. Select **Upgrade All** to upgrade all components (recommended). Alternatively, you can upgrade devices individually by selecting the component name.



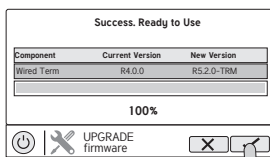
a. Select **Upgrade All**.



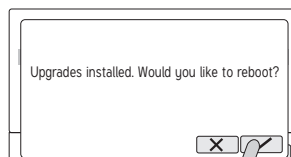
b. Select **Done** to confirm.



c. Select **Done** to begin upgrade.



d. Upgrade complete.
Select **Done** to continue.



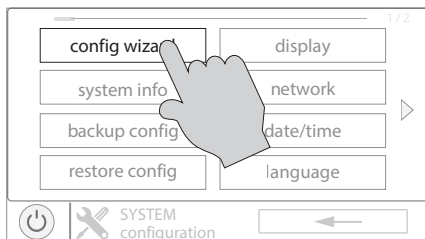
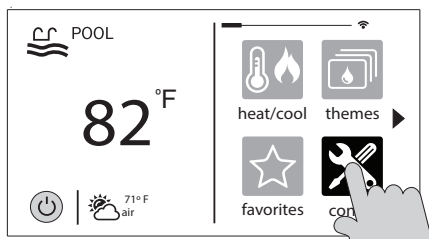
e. Select **Done** to reboot controller.

3. After the Omni controller restarts, exit Service Mode by selecting **Power** then **Service Mode Exit**.

Configuring the Hayward Sense

Enter Configuration Wizard

With the latest firmware installed, select **config** on the Home screen, then select **config wizard**.





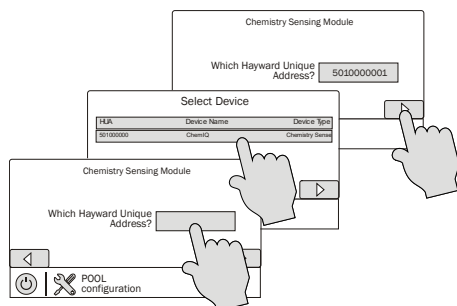
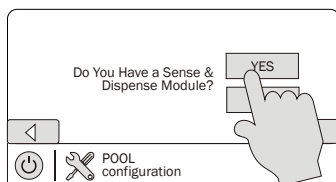
Configure the Hayward Sense: New Omni Installations

Follow the steps below if installing the Sense as part of a new Omni installation. For installations with existing Omni systems, see "Configure the Hayward Sense: Existing Omni Installations" section.

1. Once you enter the configuration wizard, select **New**.

NOTE: If you have an S3 Omni, select either **New Typical Configuration** or **New Advanced Configuration**. Consult your S3 Omni manual for details on which configuration is appropriate for your system.

2. Follow the configuration steps until the screen displays "Do You Have a Sense & Dispense Module?". Select **YES**. The Omni automatically discovers the Sense.
3. Select the box next to "Which Hayward Unique Address?".
4. Choose the Hayward Unique Address (HUA) of the Sense from the device list, then select **Advance**.
5. Select **Advance** again to continue configuration.



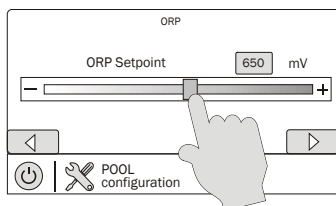
ORP Control

When the Hayward Sense controls ORP, it will monitor ORP and prompt the Omni controller to automatically dispense or generate the correct amount of chlorine to maintain the specified setpoint. If ORP control is not enabled, the Omni will not display system ORP levels.

Select **YES** to configure the Sense for ORP control and follow the steps below.

1. ORP Setpoint

Set the desired ORP level (the default is 650 mV). The Hayward Sense will continuously measure ORP, and the Omni controller will dispense and generate the proper amount of chlorine to maintain this setpoint. Due to the nature of water chemistry, the pool's ORP level may vary slightly from this setpoint during normal operation.

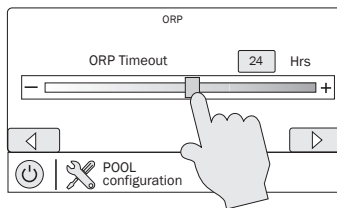




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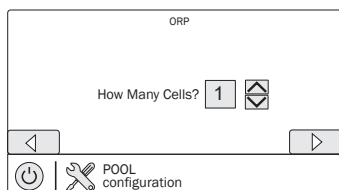
2. *ORP Timeout*

An ORP timeout prevents the Omni from continuously dispensing or generating chlorine. If the Omni chlorinates for longer than the selected ORP timeout and has not reached the desired level, the Omni controller will turn off the chlorinator and display an alarm. The alarm must be cleared to resume chlorination. The default setting is 24 hours.

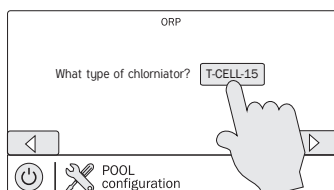


3. *Type of Chlorinator*

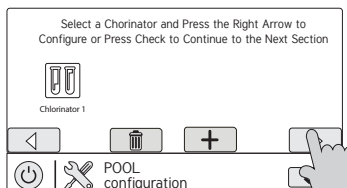
Select an installed Hayward TurboCell Salt Cell model, liquid chlorinator, or tablet feeder. **A flow switch must be installed when using a chlorinator.** Consult the "Compatibility and Required Accessories" section to determine which cells or chlorine dispensers are compatible with your Omni controller and if there are any required accessories.



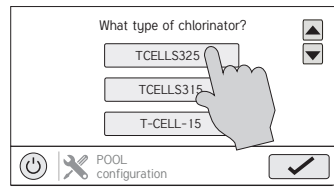
a. Select the number of cells.



b. Select the box to choose chlorinator type.



c. Choose a chlorinator and select **Advance**.



d. Choose your chlorinator from the list (TurboCell, Liquid Chlorinator, or Tablet Feeder) and select **Done**.

For TurboCells:

1. Select from the following options.

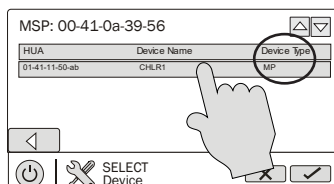
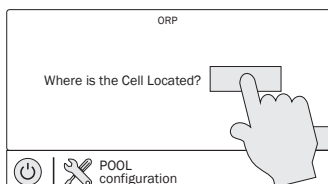
- TCELLS325 • T-CELL-15 (940) • T-CELL-5
- TCELLS315 • T-CELL-9 (925) • T-CELL-3

NOTE: Use of a non-genuine Hayward replacement salt chlorination cell on any Hayward automation or chlorination product will void the warranty for that product and could potentially damage the unit.



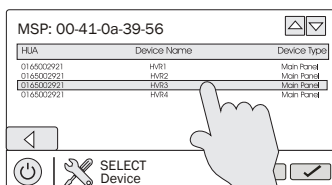
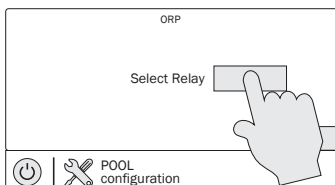
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2. Select one of the salt monitoring levels based on your system:
 - **Low Salt:** Systems with salt readings of 1200 – 1800 ppm, 1500 ppm optimal.
 - **Standard Salt:** Systems with salt readings of 2700 – 3400 ppm, 3200 ppm optimal.
3. Select the box to display a list of cell locations. Choose the location labeled "MP" under Device Type. Select **Done** then **Advance** .



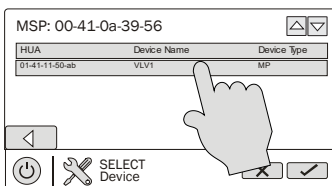
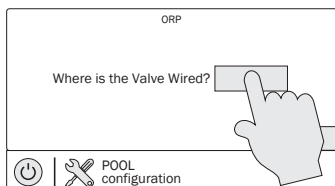
For Liquid Chlorinators:

Select the box to display the list of all high voltage (HV) relays. Choose the relay connected to the liquid chlorinator. Select **Done** then **Advance** .



For Tablet Feeders:

Select the box to display the list of all valve outputs. Choose the valve connected to the Tablet Feeder, then select **Advance** .



After choosing a type of chlorinator, the display returns to the "Select a Chlorinator..." screen. Select **Done** to continue to the next section.

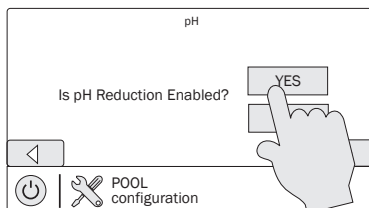


pH Control

A dispensing device must be connected to one of the relays on the Omni controller to control the pH of the pool or spa. If pH control is not enabled, the Omni will not display system pH levels.

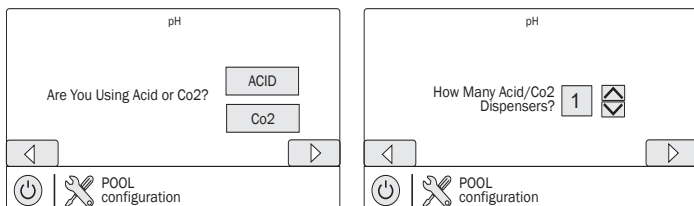
Hayward's acid and CO₂ dispensing systems eliminate the need to handle acid and are economic and efficient methods for pH control. When the CO₂ gas is injected into water, it dissolves and becomes carbonic acid, a weak acid effective at lowering pH levels. Refer to the "Compatibility and Required Accessories" section to determine which dispensers are compatible with the your Omni controller and if there are any required accessories.

Select **YES** to configure pH reduction and follow the steps below.



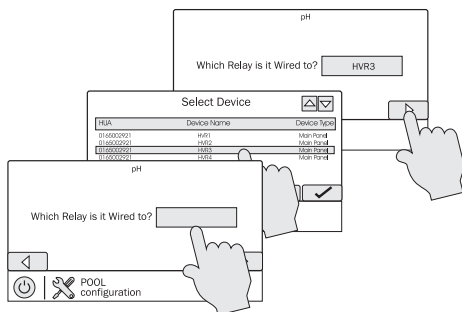
1. pH Dispenser Configuration

Select whether the pool or spa uses acid or CO₂ for pH reduction, then select how many dispensers are being configured.



Select Relay

Select the box to display the list of all high voltage (HV) relays. Choose the relay connected to the acid dispenser, then select **Advance** .

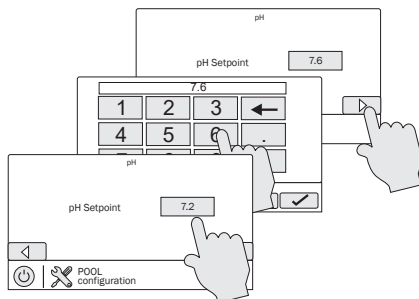




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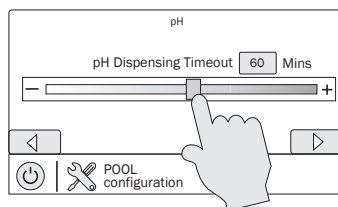
2. pH Setpoint

If needed, adjust the targeted pH setpoint. The adjustable range is from 7.0 to 8.0 at 0.1-unit intervals (7.5 is the default). Select **Advance**  when finished.



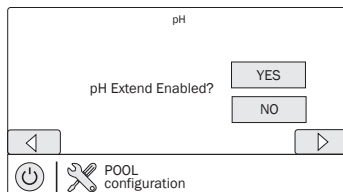
3. pH Timeout

A pH timeout prevents the Omni from continuously dispensing acid or CO₂. If the Omni dispenses for longer than the selected pH timeout and doesn't reach the desired level, the Omni controller will shut down pH reduction and display an alarm. The alarm must be cleared to resume pH reduction. The default setting is 60 minutes.



4. pH Extend

If enabled, the Omni controller will continue to run the filter pump regardless of schedule until the pH level in the pool has reached the setpoint.



Complete Configuration

1. Configuration Summary

Review the list of all configured equipment and ensure everything is properly assigned.

2. Customize or Save Configuration

Now that the equipment has been configured, select one of the following:

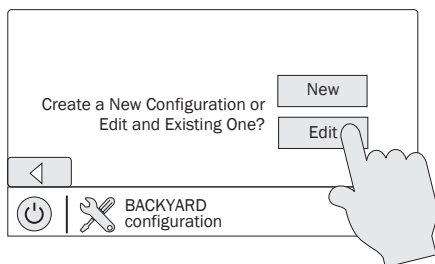
- **Customize/Add Components:** Select to make changes to configuration.
- **Save and Restart:** Select to save the new configuration and restart the Omni controller.



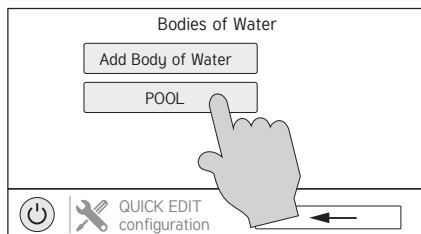
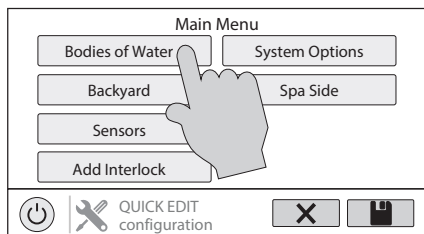
Configure the Hayward Sense: Existing Omni Installations

To configure your new Hayward Sense with an existing Omni configuration:

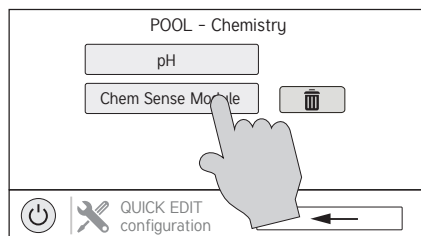
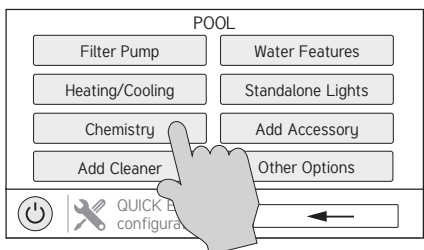
1. Select **config** on the Home screen.
2. Select **config wizard** and enter the MSP ID.
3. Select **Edit** to enter the Quick Edit Main Menu



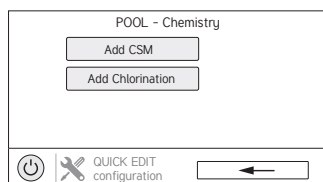
4. Select **Bodies of Water** and choose the body of water where the Hayward Sense is installed.



5. Select **Chemistry**, then select **Chem Sense Module**.

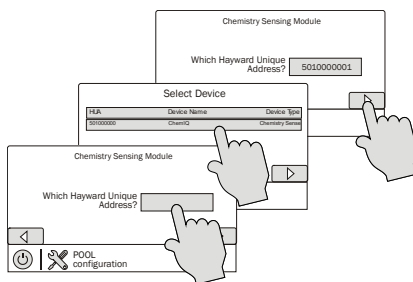


NOTE: If pH or chlorination is not configured on your Omni, select **Add CSM** or **Add Chlorination**. Follow the configuration instructions in the "ORP Control" and "pH Control" sections.





6. Select the box next to "Which Hayward Unique Address?" and choose the Hayward Sense HUA.
7. Select **Done** .



Edit Chlorination Settings

NOTE: Chlorination must be configured and a flow switch must be installed to adjust chlorination settings.

Once chlorination is configured, the following options appear. Refer to the "ORP Control" section for more details.

- **Cell Type:** Select the type of dispenser used (TurboCell, liquid chlorinator, or tablet feeder).
- **Salt Settings:** Select whether the pool is low salt or high salt, if applicable.
- **Cell Relay:** Select the output that controls the dispenser.
- **ORP/Timed:** Enable or disable ORP control of chlorination.
- **ORP Timeout:** Choose the ORP timeout time and desired ORP setpoint. This option is only available if ORP controls chlorination.

After completing changes, select **Back** .

Edit pH Reduction Settings

Now that the Hayward Sense is added to the Omni controller, options for pH reduction configuration appear. Refer to the "pH Control" section for more information.

- **Reduction ON:** Enable or disable pH reduction.
- **Chemical Type:** Select acid type (liquid acid or CO₂).
- **pH Dispenser:** Configure the pH dispense unit.
- **pH Timeout:** Choose the pH timeout time.
- **pH Extend:** Enable or disable pH Extend.

After completing changes, select **Back** .

Delete Chem Sense Module/Chlorination

The list of configured chemistry devices appears on the "Chemistry" screen. To delete existing chemistry configuration options, select the trash can to the right of the item name.

Save Changes

To save changes to your configuration, select **Back**  until you reach the Quick Edit Main Menu, then select **Save** . After confirming changes, the Omni will restart.

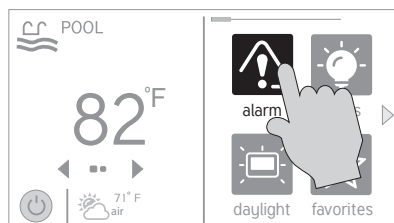
Operation

Viewing Alarms

Alarms for both ORP and pH enable after configuration is complete. To view active alarms, select **Alarm** from the Home screen. Refer to your Omni controller manual for more information about alarms.

ORP Alarm

The Omni controller has an alarm that notifies when ORP levels are too high (above +850 mV) and too low (below +350 mV). If the ORP level exceeds these values, an alarm message displays locally and on all remote controls. If the ORP level is too high, chlorine dispensing and generation will shut down.



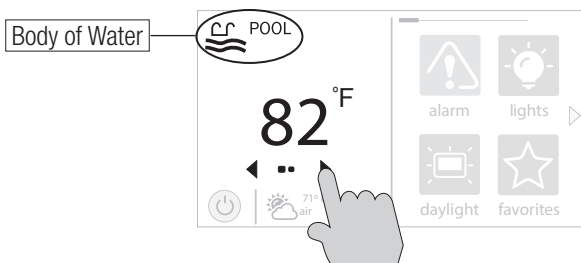
pH Alarm

The Omni controller has an alarm that notifies when the pH level is too high (above 8.1) and too low (below 6.9). If the pH level meets or exceeds these values, an alarm message displays locally and on all remote controls. If the pH level is too low, acid dispensing will shut down.

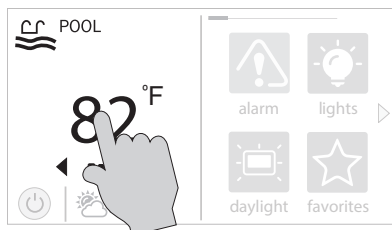
Modifying ORP and pH Settings

To modify ORP and pH setpoints and the pH offset:

1. On the Home screen, select the black arrows on the left side of the screen until the desired body of water shows in the top left corner.



2. Tap on the left side of the display to enter the Features screen of the selected body of water.



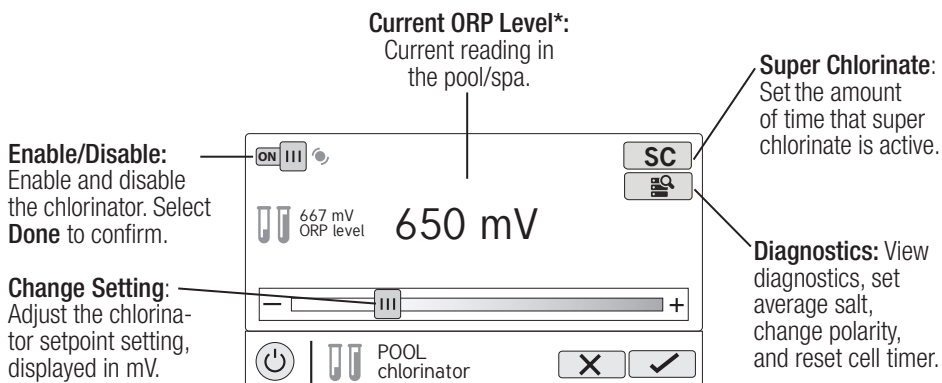


Adjust ORP Setpoint

The Omni controller defaults to an ORP setpoint of +650 mV. Adjust the ORP setpoint from +450 mV to +900 mV depending on the needs of your system.

IMPORTANT – Balance the pool water to the ideal levels as shown in "Pool Chemistry Guidelines" on page 6.

1. Adjust the chlorine to the ideal level (1-3 ppm).
2. Allow the system to run for 30–60 minutes.
3. Select **chlorinator** from the Features screen to view the reported ORP level for your body of water. If ORP control for the Sense is configured and enabled, the Chlorinator control screen displays the following:



***NOTE:** If the Omni controls the salt cell, the current level shows as a percentage.

4. Set the ORP setpoint to the current ORP level.
5. Monitor the free chlorine and ORP every day for one week. If adjustments to the ORP setpoint are needed, adjust in increments of 10 or 20 mV units. Larger adjustments of the ORP setpoint should not be necessary if the pool started balanced with the appropriate amount of free chlorine.
6. If the system is not stabilizing (or does not seem to be stabilizing):
 - Clean the electrode (See "Cleaning Electrodes" section).
 - Rebalance the pool chemistry.
 - Check for combined chlorine. If the reading is high (> 0.5 ppm), shock treat with chlorine or non-chlorine shock.
7. After completing configuration, select **Done** ☒.



Adjust pH Setpoint and pH Electrode Offset

pH Setpoint

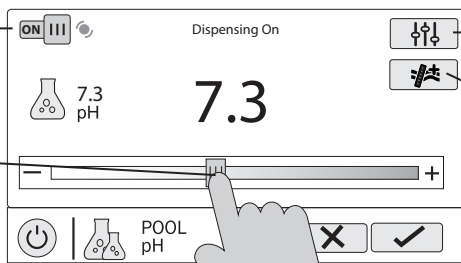
The Omni controller defaults to a pH level of 7.5. You can adjust the pH level in 0.1-unit increments between 7.0 and 8.0.

Select **pH** from the Features screen, then use the slider to adjust the pH setpoint. Refer to the figure below for additional settings.

Enable/Disable:

Enable and disable acid dispensing, if configured.

Select pH Setpoint



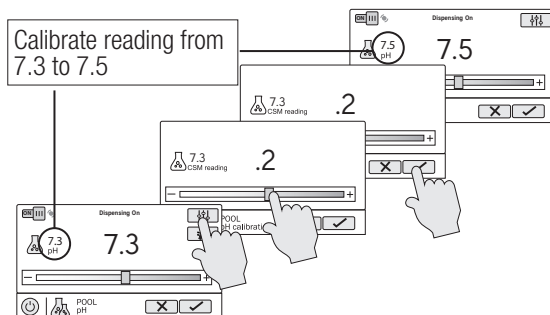
Offset: Update the pH electrode offset.

Force 15 Minute Run: Force dispenser to run for 15 minutes (Service Mode Only).

pH Electrode Offset

Always adjust pH offset during initial setup, periodically when pH reading differs from independent water tests, and after any maintenance and cleaning actions. The Hayward Sense provides the ability to have instrument-grade accuracy that exceeds that of liquid test kits by verifying the observed pH against a commercially prepared reference (buffer) solution and adjust the system as needed.

1. Test the pH of the pool with a quality test kit or a calibrated electronic pH tester.
2. Record the pH value.
3. Select **Offset** on the pH Settings screen. The screen shows the current reading and the current pH offset.
4. Move the slider to the right or left to adjust the setpoint. Set the offset value to equal the difference between the current Hayward Sense pH and the user-confirmed pH value.
5. Select **Done** to save the offset adjustment.



NOTE: Clean the electrode if the system requires frequent offset adjustment or does not provide stable readings (See "Cleaning Electrodes" section).



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Maintenance

Water Chemistry

Be aware that temperature, pH, cyanuric acid, total dissolved solids, and sanitizer type can influence ORP reading. Maintain total alkalinity to support stable pH. Refer to the "Pool Chemistry Guidelines" section on page 6 for ideal pool chemistry levels.

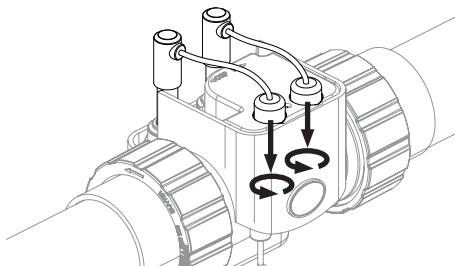
Cleaning Electrodes

Clean the pH and ORP electrodes at the beginning and end of the pool season or when there is:

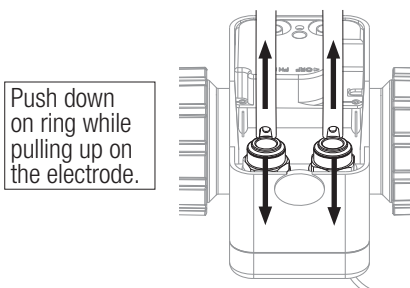
- A buildup of oil or other contamination on the electrodes.
- Increased bather load.
- Slow response times, drifting pH, or inconsistent readings.
- Increased need to adjust the pH offset.

To clean the electrodes:

1. Turn off power to the system and close any valves.
2. Disconnect the electrode from the BNC connector by gently pressing down and rotating counterclockwise.



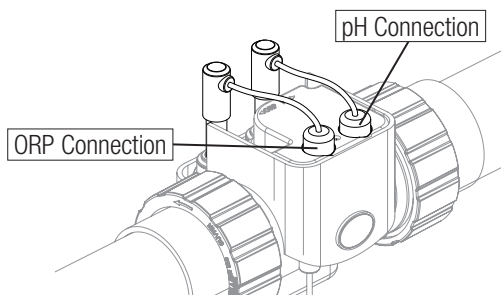
3. Remove the electrode by pressing down on the retention rings and pulling the electrode straight up. **Do not force the electrode.** If experiencing resistance, confirm that the retention ring is properly depressed.





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4. Rinse the electrode gently with clean water. **Never scrub or touch the sensing bulb or reference junction.**
5. If there is oil, film, scale, or mineral deposits on the electrode, soak the electrode in pH cleaning solution or in a dilute acid (such as an acetic acid solution).
6. Once cleaned, reinstall the electrode, connect it to the appropriate BNC plug, and check the offset (See "Modifying ORP and pH Settings" section).



Replace electrodes if you still experience unstable readings or frequent verification and adjustments after proper cleaning.

Storing Electrodes

IMPORTANT – Electrodes will dry out if exposed to air and will not work according to specifications until they are rehydrated.

Store Electrodes

If removed from the flow cell for longer than one hour: Store electrodes in their plastic storage caps with commercially available pH and ORP electrode storage solution or a salty dilute acetic acid.

For missing caps or temporary electrode storage: Place electrodes in a small glass or plastic container with clean pool water covering the bulb and junction. Replacement storage caps are also available for purchase (GLXHLSENSESKIT).

For long-term storage: Place the electrodes in storage caps and store where they will not freeze. Refer to the "Winterizing and Storing Long Term" section for additional details.

Rehydrate Electrodes

If electrodes are left dry for longer than one hour, place them in storage solution or a salty dilute acetic acid, covering the bulb and junction, for one hour.

Always check the offset of the electrodes after rehydration (See "Modifying ORP and pH Settings" section).

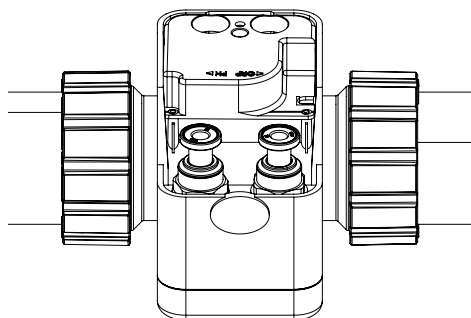


Winterizing and Storing Long Term

The Hayward Sense electrodes must be protected from freezing conditions and stored indoors over the winter or when the pool is not in use.

To winterize the Hayward Sense:

1. Complete the steps in the "Cleaning Electrodes" and "Storing Electrodes" sections.
2. Drain the flow cell and other related plumbing.
3. Remove water from the Hayward Sense by loosening the union nuts and tilting in the direction of the electrodes. **DO NOT TILT TOWARD THE BNC PLUGS.**
4. Position the unit upright, tighten the union nuts, and install the storage plugs into the electrode ports. The plugs were stored under the Hayward Sense cap during installation.



5. Replace the top cover.

Installing Electrodes After Winterization

Follow the steps in "Installing ORP and pH Electrodes" section to prepare the Hayward Sense for the upcoming pool season.



Troubleshooting

Status LEDs

The LED on the front panel of the flow cell blinks in various sequences to indicate the status of the Hayward Sense. The meanings of the blink sequences are detailed below with suggested solutions.

Status	Blink Sequence	Indication	Solution
Error	Solid Off	Hardware Failure	Check the power connection.
	Solid On	Bootloader Error	Check the RS485 wiring.
	1 s on, 6s off	Communication Error	Check the RS485 wiring. Confirm pump is grounded correctly.
Normal Operation	½s on, ½s off	Firmware upgrade in progress	Normal operation for firmware upgrade
	6s on, 3s off	Configured safe mode	Normal operation for service mode when configured
	6s on, 1s off	Safe mode not configured	Normal operation for service mode when not configured
	6s on, 6s off	Normal Operation	N/A

Contact Hayward support if errors persist.

ORP and pH Troubleshooting

ORP		
ORP measurement does not display	- Hayward Sense and Omni have lost communication. - Pump is off.	Check the ORP connection (Yellow BNC is connected to ORP BNC port).
Measured ORP is <50 mV	- Electrode is not connected to the Hayward Sense. - ORP electrode is connected to pH BNC. - Electrode is broken. - Pool has observable algae or suspended solids.	- Check the ORP connection (yellow BNC is connected to ORP BNC port). - Check the electrode for cracks. Consider replacing it. - Clean pool and rebalance the chemistry.
ORP reading does not match calibrated electronic ORP tester, commercial ORP standard solution, or chlorine level	- Electrode measurement is drifting. - Electrode is subject to stray current. - Cyanuric acid (CYA) in pool is > 70 ppm.	- Confirm CYA is < 70 ppm by partially draining and refilling pool. - pH is > 8.0. - Clean the electrode. - Attempt offset adjustment. - If there is still an issue, replace electrode.
ORP offset needs frequent adjustment or is not stabilizing	- Electrode needs to be cleaned. - Electrode is broken.	



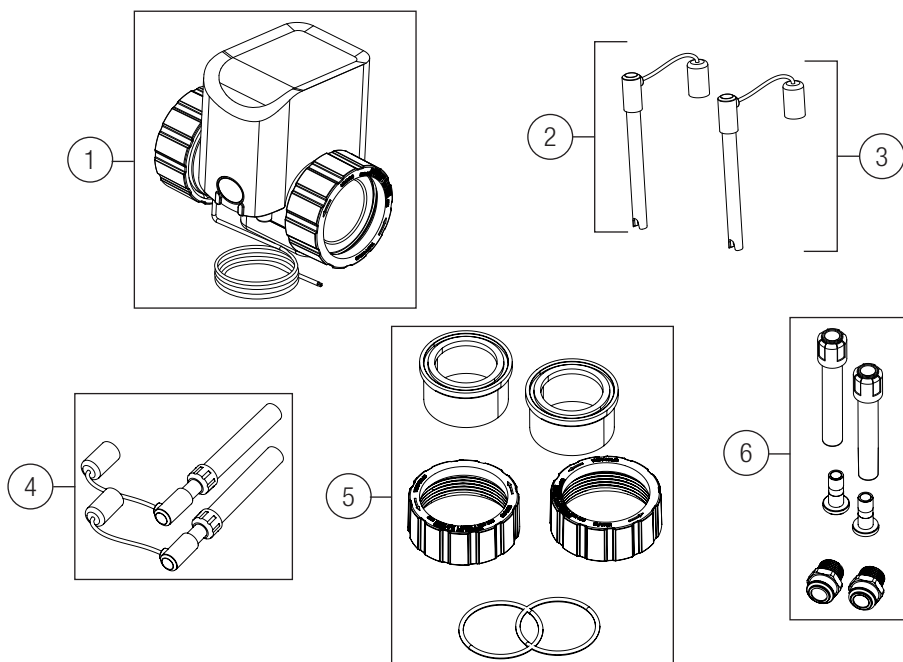
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pH		
pH measurement does not display	• Hayward Sense and Omni have lost communication. • Pump is off.	Check the pH connection (blue BNC is connected to pH BNC port).
Measured pH is > 12.0	• Electrode is connected to ORP BNC. • Electrode is broken.	• Check the pH connection (blue BNC is connected to pH BNC port). • Check electrode for cracks. Consider replacement.
pH reading consistently does not match pool store value, manual testing with quality test kit, or calibrated electronic pH tester	• Electrode is disconnected from the Hayward Sense. • Electrode measurement is drifting. • Electrode is subject to stray current.	• Clean the electrode. • Attempt offset adjustment. • If there is still an issue, replace electrode.
pH offset needs frequent adjustment or is not stabilizing	• Electrode needs to be cleaned. • Electrode is broken.	



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Replacement Parts



Item	Part Number	Description	Qty
1	HLSENSE	Hayward Sense	1
2	GLXHLSSENSEORP	ORP Electrode	1
3	GLXHLSSENSEPH	pH Electrode	1
4	GLXSENSEPROBEKT	Electrode Yearly Maintenance Kit (Both Electrodes)	1
5	GLXHLSSENSEPLKIT	Hayward Sense Plumbing Kit - Includes: • Union Nut (x 2) • Union Tail Piece (x 2) • O-Rings (x 2)	1
6	GLXHLSSENSESKIT	Hayward Sense ORP and pH Electrode Accessories Includes: • Electrode Storage Caps (x 2) • Winterization Plugs (x 2) • Electrode Retention Rings (x 2)	1

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HAYWARD® Pool Products Limited Warranty

Hayward Pool Products, Inc., warrants the components of this product to be free from defects in materials and workmanship during the warranty period. Please visit <https://hayward.com/support/resources/warranty> for product warranty details.

The limited warranty excludes damage from freezing, negligence, improper installation, improper use or care, Acts of God or as specified in installation and operations manual. Parts that fail or become defective during the warranty period shall be repaired or replaced, at our option.

Proof of purchase is required for warranty service. In the event proof of purchase is not available, the manufacturing date of the product will be the sole determination of the purchase date.

To obtain warranty service, please contact the place of purchase or the nearest Hayward Authorized Service Center. For assistance on your nearest Hayward Authorized Service Center, please visit us at <https://hayward.com/dealerlocator>.

Hayward shall not be responsible for cartage, removal, repair or installation labor or any other such costs incurred in obtaining warranty replacements or repair.

The Hayward Pool products warranty does not apply to components manufactured by others. For such products, the warranty established by the respective manufacturer will apply.

The express limited warranty above constitutes the entire warranty of Hayward Pool Products with respect to its pool 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 Hayward Pool products be responsible for any consequential, special or incidental damages of any nature.

Some states do not allow a limitation on how long an implied warranty lasts, or the exclusion of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Hayward Industries, 1415 Vantage Park Dr., Suite 400, Charlotte, NC 28203

***Supersedes all previous publications**

Register your product at <https://hayward.com/support/resources/warranty/product-registration>

For further information or consumer
technical support, visit our website at
www.hayward.com



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