



# HAYWARD®



## pH Upgrade Kit For the AquaRite™+

### Owner's Manual

To prevent potential injury and to avoid unnecessary service calls, read this manual carefully and completely.

## **SAVE THIS INSTRUCTION MANUAL**

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**WARNING: Electrical hazard.**  
Failure to comply with these instructions can result in serious injuries or death.

**THE EQUIPMENT IS INTENDED TO BE USED ONLY ON PERMANENTLY CONSTRUCTED POOLS AND SPAS**

**⚠ WARNING** - Disconnect/isolate the equipment from the electricity supply before any installation/service/repair.

**⚠ WARNING** - All electrical wiring must be performed by a qualified and licensed electrical contractor in accordance with all Local/State/Federal Government electrical regulations and the latest edition of the AS/NZS 3000 Wiring Rules.

**⚠ WARNING** - Ensure that the device is plugged into a power outlet that is protected against short-circuits. The device must also be powered via an isolating transformer or through a residual current device (RCD) with a fixed residual operating current not exceeding 30 mA.

**⚠ WARNING** - Check that the supply voltage required by the product corresponds to the voltage of the distribution network.

**⚠ WARNING** - To reduce the risk of electric shock, do not use an extension cord to connect the device to the mains. Use a suitably rated GPO as per the standard AS/NZS 3000.

**⚠ WARNING** - If the power supply cord is damaged the device must not be used. The power supply cord must be replaced by the manufacturer, the after-sales service professional or similarly qualified persons to avoid danger.

**⚠ WARNING** - Carefully read the instructions that appear in this manual and on the device. Failure to comply with the instructions can cause injuries. This document must be given to the pool owner, who should keep it in a safe place.

**⚠ WARNING** - The appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

**⚠ WARNING** - Use only genuine Hayward replacement parts.

**⚠ DANGER** - Chemical Hazard: Mixing Chemicals or adding water to acid may result in explosion, fire and/or toxic gas release. To avoid death, serious injury or major property damage, do not mix Chlorine tablets with Calcium Hypochlorite, or with any other form of concentrated Chlorine. Do not mix any chemicals with Hydrochloric Acid (HCL). Chlorine and Hydrochloric Acid must be used and stored apart in well ventilated areas as per local codes and regulations.

**⚠ DANGER** - Chemical Hazard: Hydrochloric Acid (HCL) & Chlorine (liquid and vapour) can cause severe burns; may be fatal if swallowed or inhaled. Inhalation can cause severe lung damage. To avoid death or serious injury:



- Wear eye and skin protection while maintaining or servicing this unit.
- If inhaled move to an area of fresh air and seek medical attention immediately.
- If swallowed contact local poison information service center or physician immediately. Give large amounts of milk or water.
- Wear chemical resistant clothing including chemically resistant gloves. If skin contact occurs, wash with soap and water for at least 20 minutes. Remove contaminated clothing and shoes. Contaminated clothing should be discarded or at least cleaned before reuse.
- Use splash resistant safety goggles. If eye contact occurs, seek immediate medical attention. Flush eyes immediately with clean clear water continuously for at least 20 minutes.
- Use in a well-ventilated area only

**⚠ WARNING** - Hazardous Waste: Hydrochloric Acid and Chlorine can cause corrosion, which can cause injury or property damage. To avoid, dispose of used/unwanted acid and/or liquid chlorine at an approved hazardous waste facility. Call your local fire department in the case of significant spills on 000.

## INTRODUCTION

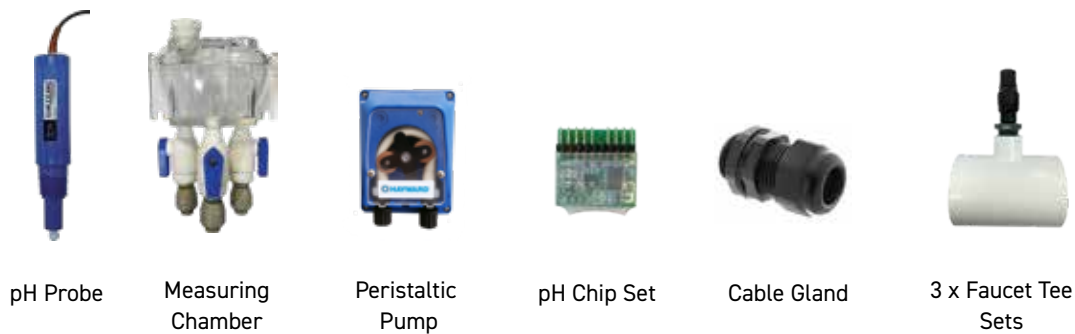
The pH Upgrade Kit is an optional accessory to the Hayward AquaRite+ Chlorinator. The kit assesses the pH level of the pool's water and automatically calculates and injects the necessary amount of acid needed to bring the body of water to ideal acidity levels. Once the pH Upgrade Kit is installed, the optional ORP Upgrade Kit can then also be installed to measure the quality and/or the ability of the chlorine present in the water to oxidize or burn up unwanted substances in the water and then automatically activate the TurboCell to produce chlorine when the level is reducing.

Maintaining safe water pH levels is imperative to the longevity of the pool structure and mechanical equipment, as well as the physical health of pool users. If the water is not balanced, bathers are at risk of experiencing forms of discomfort such as skin rashes and sore eyes. Acidic or basic pool water also affects chlorine production efficiency and the elimination of algae and bacteria. It is recommended that the pool water remains at pH levels between 7.2 - 7.8. This allows the Chlorinator to work effectively and avoids any corrosion or scale damage to the pool/spa and associated equipment.

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

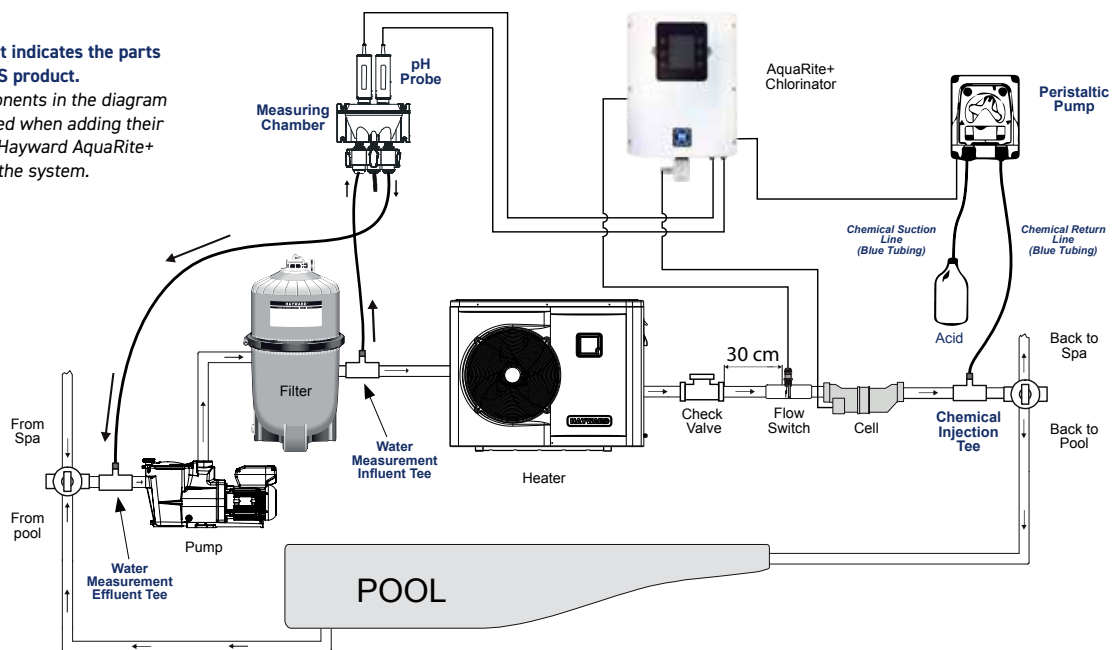
**NOTE: The use of dry acid (sodium bisulfate) to adjust pool pH is discouraged especially in arid regions where pool water is subject to excessive evaporation and is not commonly diluted with fresh water. Dry acid can cause a buildup of by-products that can damage your chlorinator cell.**

## COMPONENTS



### NOTE

» **Blue bolded text indicates the parts included in THIS product.**  
 All other components in the diagram are only installed when adding their corresponding Hayward AquaRite+ Upgrade Kit to the system.



Installation Schematic

## INSTALLATION

### Peristaltic Pump

The Peristaltic Pump is used to inject **diluted liquid hydrochloric acid**. The unit should be located within 3.5 metres of the location on the return to pool piping. Although the pump is designed for outdoor use, it is advised to mount the device in the shade to shield it from continuous direct heat while ensuring adequate free flowing ventilation. Fasten the pump to a rigid structure with screws or similar. The device must be installed last on the water return line, after any equipment (heater, cell, etc.). Use the blue 6 mm tubing for suction (connecting the acid tank and the peristaltic pump) and the blue 6 mm tube for injection via the Chemical Injection Tee (connecting the peristaltic pump and the injection valve). Ensure the Faucet Tee is glued in appropriately to the existing plumbing. (See page 3 for the Installation Schematic)

#### Connecting the Chemical Suction and Chemical Return Lines:

It is recommended where a chemical drum leak could create a safety hazard or damage flooring, that the drum is located within a containment vessel or bund made from a suitable material to contain the chemical.

1. Remove the lid from the drum or container and take a 6.0 mm drill bit and drill a hole through the middle of the lid.
2. Pass the blue 6 mm tubing through the hole in the lid and extend by approximately 30 cm and then slide the white tube weight over the tube so that the tube exits it from the chamfered end.
3. Soak the tube weight end of the tube in hot water to soften and then push it over the nipple on the suction filter. Slide/screw the tube weight down over the tube and suction strainer nipple until the weight is sitting on top of the suction strainer.
4. Slide tube through lid so that when it is fastened to the drum or container the suction filter just sits on the bottom of the drum or container.
5. Run the blue 6 mm Chemical Suction Line tube to the inlet of the pump (left hand side) and trim to length.
6. Remove the compression fitting nut on the squeeze tube and slide it over the blue tube.
7. Soak the blue tube in hot water to soften and then push it over the short male nipple on the squeeze tube and firmly hand tighten the nut.
8. Repeat steps 6-7 for the Chemical Return Line, connecting the blue tubing to the outlet of the pump (right hand side). Then run the tubing to the Chemical Injection Tee, trim to length and insert into the push fit fitting and tighten.

**The ACID feed system and any Liquid Chlorine feed system should NOT be stored in the same room as other chemicals or chemical tanks.**

The diluted Hydrochloric Acid (HCL) is stored in the appropriately sized drum or closed container near the pump. The Hydrochloric Acid is sucked from the drum or closed container via the 6 mm blue suction tube, through the squeeze tube of the pump, and then pumped through the 6 mm blue tube and check valve into the Return to Pool Line.

**⚠ WARNING – Pool and spa components have a finite life. All components should be inspected weekly and the Squeeze Tube, Non-Return Valve, along with the suction and discharge hoses should be replaced at least every 6 months or sooner if component degradation is evident.**

**Nb** These components are wear items and are only covered by warranty for manufacture defects.

**This system is designed for the following:**

- » Hydrochloric Acid (HCL) diluted to **16.5% for pools or 11% for Spas or Pool/Spa combinations.**

**Hayward recommend the following when the system is used with Hydrochloric Acid:**

- » For pools, Hydrochloric Acid diluted to 16.5% must be used. This is commercially available already diluted or can be achieved by diluting commercially available 33% HCL at a rate of 1 part HCL to 1 part water.
- » For Spas or Pool/Spa combinations, the dilution rate of 33% HCL will need to be changed to 1:2 or 1 part of HCL to 2 parts water to become HCL diluted to 11%.
- » Using diluted Hydrochloric Acid, the container **MUST be limited** to a volume of **5 litres** for spas or per **12,500 litres** of pool volume. So a 25,000 Ltr pool would have a 10 Ltr container of 16.5% diluted HCL.

**⚠ WARNING - ALWAYS ADD ACID TO WATER - NOT WATER TO ACID!**

### Measuring Chamber

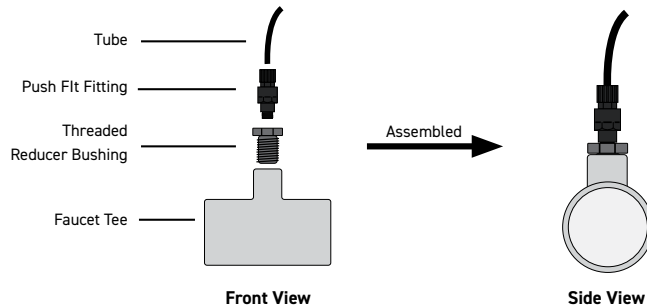
Assemble the measuring chamber by applying thread tape to the threads of the valves and plugs and then fitting them to the chamber as shown in the diagram on page five(5). Only tighten the valves and plugs by hand - **DO NOT USE TOOLS TO TIGHTEN - YOU WILL CRACK THE MEASURING CHAMBER.** If they leak, remove them and apply extra thread tape. Fasten the measuring chamber to a rigid structure with screws or similar so that when the pH probe is installed the cable will reach the pH BNC connection on the unit. **DO NOT CUT THE PROBE CABLE.** If its too long, coil it up. If its too short, move the Measuring Chamber closer to the unit. The inlet line connects to the Influent Tee after the filter and before the temperature probe. The outlet line then connects to the Effluent Tee before the pump intake. Ensure the faucet tees are glued in appropriately to the existing plumbing. (See page 3 for the Installation Schematic and page 5 for detailed instructions.)

**All the metal components of the swimming pool should be equipotentially bonded as per AS/NZS 3000 Wiring Rules' Latest Edition if required.**

## INSTALLATION

### Connecting the Water Supply Points For Measuring Chamber

Install the measuring chamber as close as possible to the pool pipes to avoid head losses. Install the Influent Tee to the Measuring Chamber's inlet tube just before the Pump. Insert the reducer bushing into the faucet tee followed by the push fit fitting as illustrated below. Ensure to use thread tape on the threads and screw in hand tight plus half a turn. If the threads leak water, remove and re-apply more thread tape. Over tightening can cause the the bush or the tee to split. Ensure the end of the black 3/8" tube is cut square and has no burrs, then push it into the fitting until you feel it hit the base of the fitting. If it is not inserted correctly, has burrs or cut crooked, it will leak. For the outlet tube, install Effluent Tee on the Filter return pipe and repeat the above instructions as for influent tee.



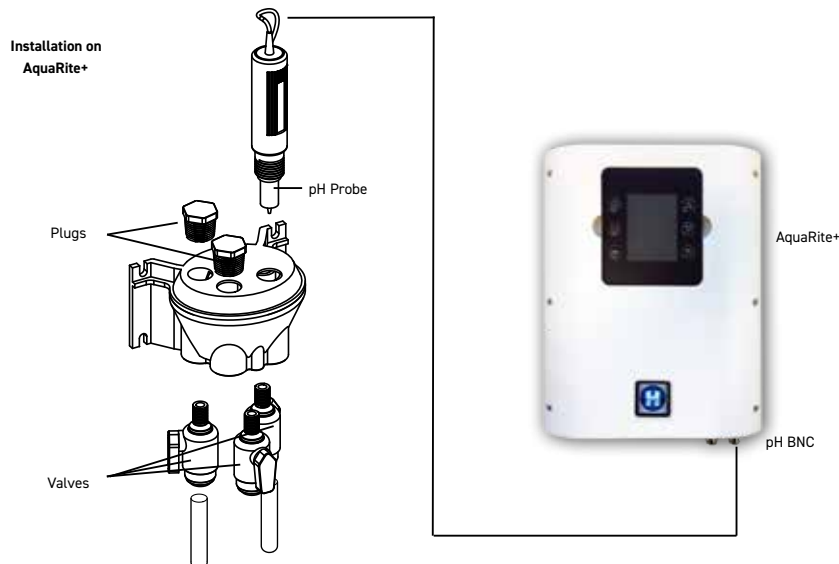
### Installing the pH Probe on the Measuring Chamber

The pH probe is "wet" packed and protected by a plastic cap. The probe tip must always remain wet. If the probe is allowed to dry, it will be permanently unusable (not covered by the warranty).

Remove the pH probe from its plastic protective cap and set the cap aside for later use (winterising). To ensure that the probe remains wet at all times, fill the measuring chamber with pool water before installing the probe. Apply a length of thread tape to the probe's threads.

**Tighten the probe by hand only.** Check that they are watertight at startup. If the probe leaks, do not tighten it further. Remove the probe and reapply the thread tape, then reinsert the probe.

After installation, check that the probe is constantly in contact with the water in the chamber. The measuring chamber will hold sufficient water to protect the probe when the pump is off during day to day filtration. If the pump will be off for extended periods of greater than one week, it is recommended to remove the probe and fill the plastic cap that came with the probe full of water and screw it to the probe for storage.



### Installing the pH Probe to the AquaRite+

Once the pH probe is installed correctly in the measuring chamber, it can now be connected to the AquaRite+. The pH probe needs to be physically connected to the AquaRite+ and activated by installing the pH chip set.

Installation should follow these steps:

- » Insert the pH probe into the Measuring Chamber
- » Remove the Dead Front Panel
- » Connect the BNC connector on the pH probe to the pH BNC input on the AquaRite+ (Shown above)
- » Fit the pH Chip Set in the terminal labelled pH on the AquaRite+ PCB

## ELECTRICAL

### Removing the Dead Front Panel

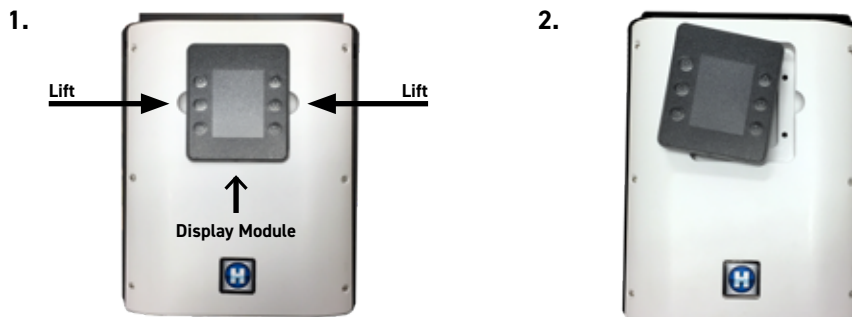
In order to install the pH chip set and Peristaltic Pump to the AquaRite+ circuitry, the Dead Front Panel needs to be carefully removed. Follow the instructions below to avoid damaging the device and/or its casing.

#### **Caution - Risk of Electric Shock.**

Ensure that the unit has been disconnected from all power supplies before removing the Display and Dead Front Panel. Only a suitably qualified person should remove the Dead Front Panel in accordance with Local/ State/Federal Government regulations and the latest edition of the AS/NZS 3000 Wiring Rules.

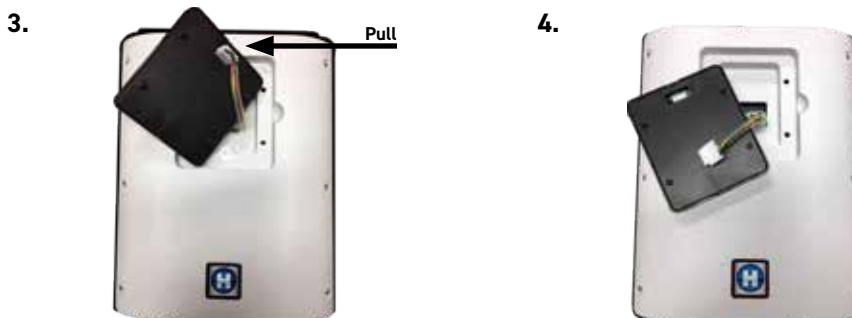
#### **Lift Out Interactive Display Module:**

Remove display module from its compartment. Use the grooves on either side to pry it out by hand. Take care to not use excessive force as the module is still wired to the PCB at this stage.



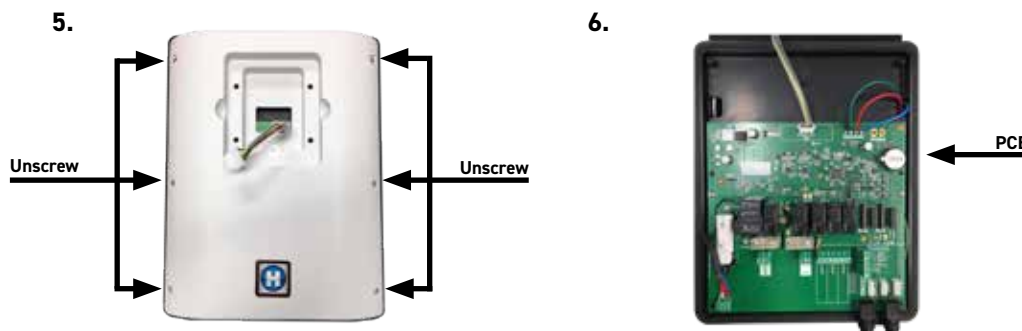
#### **Detach Interactive Display Module:**

Turn over the display module and remove the wired plug from the port on the back of the unit. Store the Display Module where it will not get damaged until it is re-installed.



#### **Unscrew Dead Front Panel:**

Remove the six (6) screws fastening the panel to the unit. Once all loose, lift the panel off the unit to access the PCB.

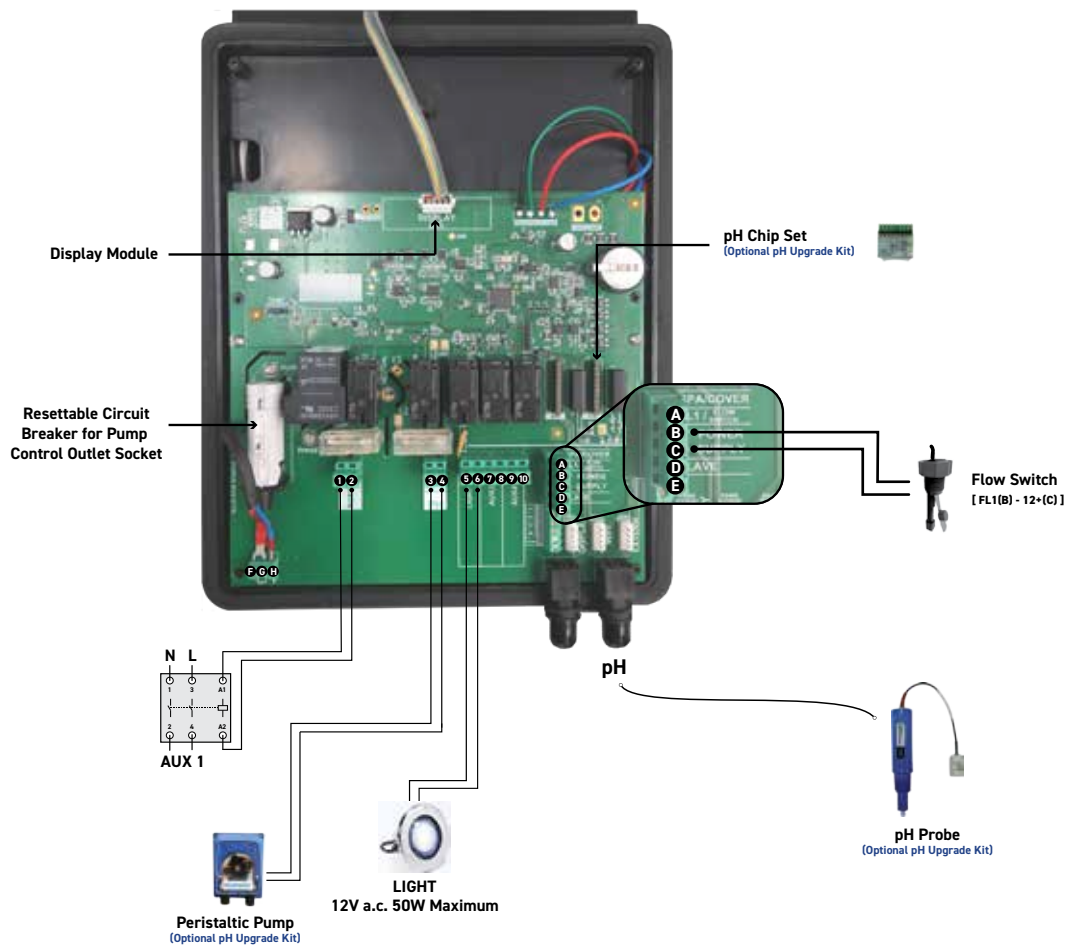


## ELECTRICAL CONTINUED

### Wiring to the AquaRite+

Connect the AquaRite+ to a GPO with a permanent power supply only.

**CAUTION** - This circuit must be protected by a residual current device (RCD) with a fixed residual operating current not exceeding 30 mA.



Wiring Schematic

### Description of Outgoing Relays

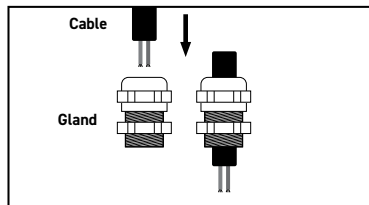
Name	Description	Terminals	Type of output	Max Load
Filter Pump	Filtration pump control	Socket Outlet	240 V a.c.	7 A
Aux 1	Auxiliary voltage output (for contactor switching control)	1 - 2	240 V a.c.	1 A
pH	Peristaltic acid pump	3 - 4	SELV 24 V a.c.	1 A
Light	Lighting control (One {1} LED light only)	5 - 6	SELV 12 V a.c.	50 W
Aux 3	Auxiliary dry contact	7 - 8	Dry contact	1 A
Aux 4	Auxiliary dry contact (or heating control).	9 - 10	Dry contact	1 A



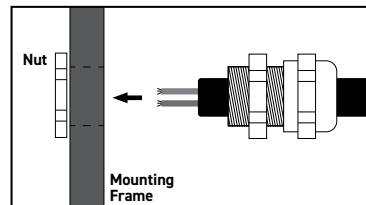
## ELECTRICAL CONTINUED

### Cable Gland Installation

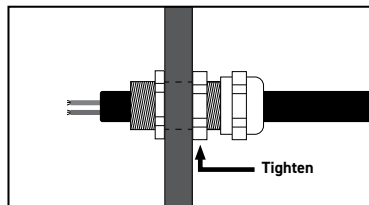
In order to ensure watertight wire connections to the PCB through the AquaRite+ housing, wire cables are to be secured with the black cable glands supplied. The cable gland supplied with the pH Kit is for the Peristaltic Pump connection.



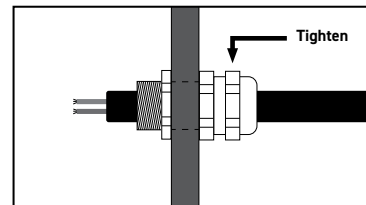
1. Insert the cable into the domed end of the gland and pull through.



2. Hold the nut against the hole on the inside of the mounting frame. Push the cable and gland into the hole whilst simultaneously rotating to screw the nut on to the thread.



3. Tighten gland with a spanner whilst still holding the nut to secure the gland in place.



4. Pull the cord through the gland until the intended input point can be reached. Secure and seal the cord in place by fastening the domed cap with a spanner until firm.

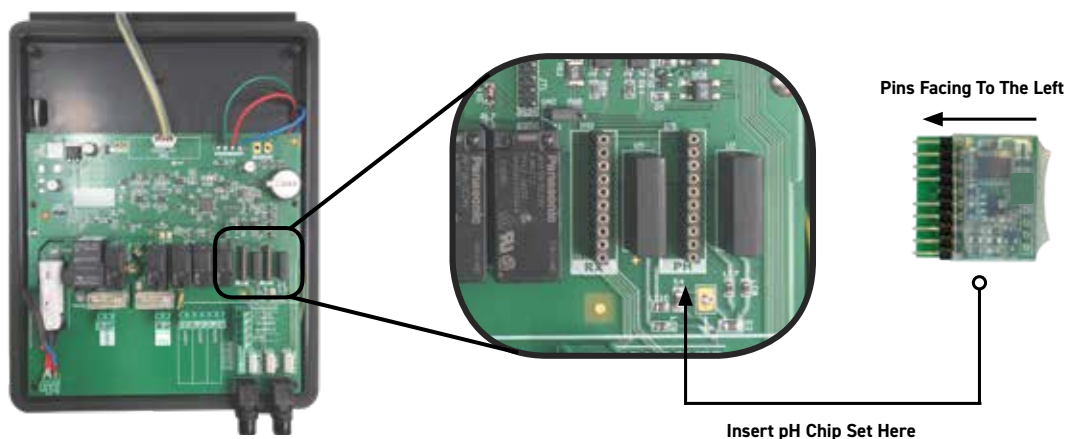
**Note:** Use the gland location holes in the bottom of the unit before the sides to ensure all cables are pointing downward.

### Wiring the Peristaltic Pump

Once the Cable Gland installation is complete, the Peristaltic Pump can be wired to its corresponding relay. If the wires aren't already stripped back, do so. Screw in the brown wire to terminal 3 and the blue wire to terminal 4, as labelled on page 7.

### Fitting the pH Chip Set

Installing the chip set updates the firmware of the AquaRite+, unlocking the ability to control the pH level of the pool or spa when used in conjunction with the pH probe and peristaltic pump. Insert the pH Chip Set into the terminal on the AquaRite+ PCB as shown below, ensuring the pins are facing to the left. After this, access to the PCB is no longer required and the Dead Front Panel can be screwed back on. Ensure that the gasket is fitted correctly before securing the Dead Front Panel and then reinstall the display module.





## WATER CHEMISTRY

### Preparing the Pool/Spa Water

The pool's water chemistry must be balanced **BEFORE** activating the AquaRite+. Adjustments to the chemical balance of the pool can take several hours or a day, so the "water balancing" procedure must therefore be started well before the AquaRite+ is turned on.

**Adding salt:** Add the salt several hours or, if possible, a day before turning on the AquaRite+. Ensure that the recommended amount of salt is used. Measure the salt content 6 to 8 hours after adding the salt to the swimming pool.

**NOTE:** If the water in the pool is not fresh water, add a metal remover and a non-copper based algacide to the pool, following the manufacturer's instructions.

**NOTE:** If your water has previously been treated with a product other than chlorine (bromine, hydrogen peroxide, PHMB, etc.), neutralise this product or replace all the water in the pool.

### Salt Concentration

Use the following table to determine the quantity of salt (in kg) needed to reach the recommended concentration level. Use the formulae below if you do not know the volume of your swimming pool.

	<b>Litres</b> (Pool Size in Metres)
Rectangular	Length x Width x Average Depth x 1000
Round	Diameter x Diameter x Average Depth x 785
Oval	Length x Width x Average Depth x 893

**IMPORTANT:** The ideal salt concentration is between 2.7 and 3.4 g/L, with 3.2 g/L being optimal.

Before adding any salt, test the salt level. This is especially important for retrofit installations to older pools where all of the chlorine added to the pool over time is ending up as salt. If the level is low, determine the number of Litres in the pool and add salt according to the table below. A low salt level will reduce the efficiency of the electrolysis and result in low chlorine production. A high salt level can cause the AquaRite+ to stop chlorinating or prematurely wear out componentry. The salt in your pool/spa is constantly recycled and the loss of salt throughout the swimming season should be minimal. This loss is due primarily to the addition of water because of splashing, backwashing, or draining (because of rain). Salt is not lost due to evaporation.

### Type of Salt to Use

Use only salt intended for chlorinators and only sodium chloride (NaCl) that is more than 99% pure. This can be found at most pool stores in 20-25 kg bags labeled "for use in swimming pools". Alternatively, use common food quality or water softener salt that is at least 99.0% pure. It is also acceptable to use water conditioning salt pellets, however, it will take longer for them to dissolve. Do not use rock salt, iodized salt, salt containing more than 1% yellow prussiate of soda or salt containing anti-caking additives.

### How to Add or Remove Salt

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

Always check stabiliser (cyanuric acid), when checking salt. These levels will most likely decline together. Use the chart on page 10 to determine how much stabiliser must be added to raise the level to 30 ppm. Start with a stabiliser level of 30 ppm and only increase it if there are issues with maintaining the desired free chlorine level.

To remove salt, drain the pool down and replenish with fresh water. Repeat until the desired level is achieved.

**Do not add stabiliser to indoor pools.**

## WATER CHEMISTRY

### Quantity of Salt (kg) Required for 3.2 g/L

Current Salt Concentration (g/L)	Volume of water in the pool in Litres (L)																
	30,000	37,500	45,000	52,500	60,000	67,500	75,000	82,500	90,000	97,500	105,000	112,500	120,000	127,500	135,000	142,500	150,000
0	97	121	145	170	194	218	242	267	291	315	339	364	388	412	436	460	484
0.2	91	114	136	159	182	205	227	250	273	295	318	341	363	385	408	430	453
0.4	85	106	127	148	170	191	212	233	255	276	297	318	339	360	382	403	424
0.6	79	98	118	138	158	177	197	217	236	256	276	297	317	337	358	378	398
0.8	73	91	109	127	145	164	182	200	218	236	255	273	291	310	328	346	364
1	67	83	100	117	133	150	167	183	200	217	233	250	267	283	300	317	333
1.2	61	76	91	106	121	136	152	167	182	197	212	227	243	258	274	289	304
1.4	55	68	82	95	109	123	136	150	164	177	191	205	218	232	246	259	263
1.6	48	61	73	85	97	109	121	133	145	158	170	182	195	207	219	231	243
1.8	42	53	64	74	85	95	106	117	127	138	148	159	169	180	190	201	211
2	36	45	55	64	73	82	91	100	109	118	127	136	145	154	163	172	181
2.2	30	38	45	53	61	68	76	83	91	98	106	114	121	129	137	144	152
2.4	24	30	36	42	48	55	61	67	73	79	85	91	98	104	110	117	123
2.6	18	23	27	32	36	41	45	50	55	59	64	68	73	77	81	86	90
2.8	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
3	6	8	9	11	12	14	15	17	18	20	21	23	24	26	27	29	30
3.2	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal
3.4	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

### Quantity of Stabiliser (CYANURIC ACID in kg) Required for 40 ppm

Current Stabiliser Level (ppm)	Volume of water in the pool in Litres (L)																
	30,000	37,500	45,000	52,500	60,000	67,500	75,000	82,500	90,000	97,500	105,000	112,500	120,000	127,500	135,000	142,500	150,000
0	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6.0
10	0.9	1.1	1.4	1.6	1.8	2.0	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5
20	0.6	0.8	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0
30	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.4	1.5
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## WATER CHEMISTRY

### Water Balance

The water must be balanced manually **BEFORE** the device is started up.

The following table summarises the ideal chemical levels recommended by Hayward. Your water should be checked regularly to maintain these ideal levels in order to minimise surface corrosion, scaling or deterioration and to ensure maximum performance from your AquaRite+ Chlorinator.

CHEMICAL	IDEAL LEVELS
Salt	2.7 to 3.4 g/L (2700 ppm - 3400 ppm)
Free chlorine	1.0 to 3.0 ppm
pH	7.2 to 7.8
Cyanuric acid (Stabiliser)	30 to 50 ppm max. (Add stabiliser only if necessary) 0 ppm in indoor pool
Total alkalinity	80 to 120 ppm
Calcium hardness	200 to 400 ppm
Metals	0 ppm
Saturation index	-0.2 to 0.2 (0 best)

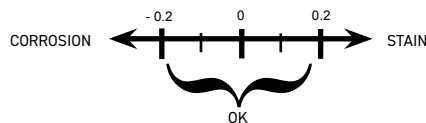
### Saturation Index

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

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

°C	°F	Ti	Hardness (Calcium) Ci	Total Alkalinity Ai	Total Dissolved Solids TDS			
12	53	0.3	75	1.5	75	1.9	0-1000	12.10
16	60	0.4	100	1.6	100	2.0	1001-2000	12.29
19	66	0.5	125	1.7	125	2.1		
24	76	0.6	150	1.8	150	2.2	2001-3000	12.35
29	84	0.7	200	1.9	200	2.3		
34	94	0.8	250	2.0	250	2.4	3001-4000	12.41
39	100	0.9	300	2.1	300	2.5		
			400	2.2	400	2.6	4001-5000	12.44
			600	2.4	600	2.8		
			800	2.5	800	2.9		

Use: Measure the pH of the pool water, the temperature, water hardness, total alkalinity and total dissolved solids. Use the table above to determine Ti, Ci, Ai and TDS from your measurements. Insert your values of pH, Ti, Ci, Ai and TDS into the formula shown above. If the Si is equal to 0.2 or more, stains may appear. If the Si is equal to -0.2 or less, corrosion or deterioration may occur.



**⚠ WARNING – Chemicals can cause internal and external burns. To avoid death, serious injury and/or damage to equipment, wear personal protective equipment (gloves, goggles, mask, etc.) when servicing or maintaining this device. The treatment products must be installed and/or stored in an adequately ventilated place as per the manufacturer's recommendations.**

# OPERATION

Inserting the pH Chip Set updates the AquaRite+ interface to include the pH Upgrade Kit set-up options. The existing set-up instructions detailed in the AquaRite+ Owner's Manual still stand, just more settings options appear that are specific to the pH Upgrade Kit functions. Below is the updated home screen and instructions on configuring the pH settings now available.

## Home Screen Configuration

**BUTTONS KEY**

- OK** Enter Main Menu/ Select & Save
- ↶** Go Back
- △** Navigate Up & Down Through Lists
- ▽** Navigate Up & Down Through Lists
- +** Make Adjustments/ Scroll Through Options
- Make Adjustments/ Scroll Through Options

State of auxiliary relays (On/Off)

Time: 12:30

Chlorine production rate in gr/h: electrolysis

Automatic measuring of pH: 22 gr/h

Filtration relay state: man Manual, aut Automatic, smt Smart

Communication: Red = Communication fault

Current water temperature: 25°C

Pol 1 Polarity 1, Pol 2 Polarity 2

SPA Production automatically reduced to % selected (20% by default)

--- Wait time

LOW Insufficient salt / cell scaled up or the water temperature is very low (<15°C)

Flow Filtration stopped or insufficient flow

7.5 pH set point

ON/OFF Peristaltic pump operation

AL3 Max. injection time reached

FL1 Insufficient Flow

Lighting relay state: man Manual, aut Automatic

15/01/16 Date of the last salinity measurement

25°C Water temperature

3.2 Salt concentration (when measurement taken)

## pH Acid Pump Operation Parameters

**1 Setting the pH correction time.**  
The water balance of the pool must be set manually before the device is started up. If these adjustments are not made in advance, unwanted AL3 alarms may be tripped.

**2 Enter the password:** △ ▽ ⊙ ⊕ ↶

**3 Select the "Dos. pumps" menu.**

**4 Select the "pH Pump" menu.**

**5** The unit is factory set in "REPETITIVE" Interval with the on-time of the pump set for 3 seconds and the off-time time of the pump set for 40 seconds. When the pH of the water is above the pH set point this is the duty cycle the pump will run to dose the diluted liquid acid to reduce the pH of the water. This on/off timing will be adequate to meet the pH target for pools with volumes between 25,000 and 50,000 litres when controlling pH drift due to the electrolysis process.  
**N.B:** We recommend to only operate the pH Pump in Repetitive Interval mode.

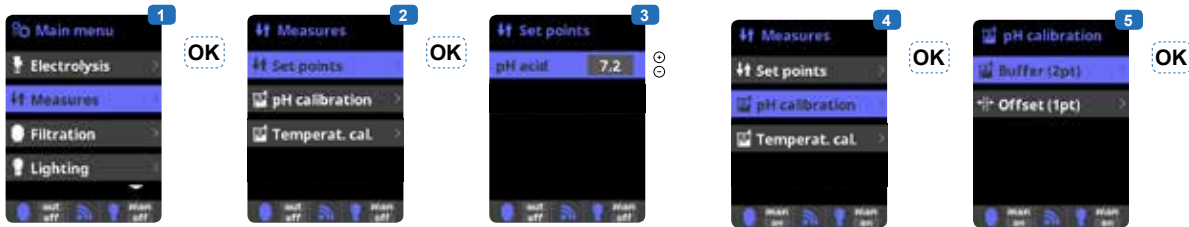
If the AL3 alarm is triggered because the pH target was not met, the duration of the AL3 alarm could be increased in one (1) minute steps from its factory setting of eight (8) minutes to ensure the pH target is met before timing out.

Adding large amounts of buffer to the body of water to raise the TA will spike the pH and cause the pump to run. Ensure if the AL3 alarm has triggered it is not due to buffer being added to the water.

On small bodies of water, if pH set-point overshoot is occurring, the pH pump off-time could be increased to allow more time for the acid to mix before introducing more to the body of water.

## OPERATION CONTINUED

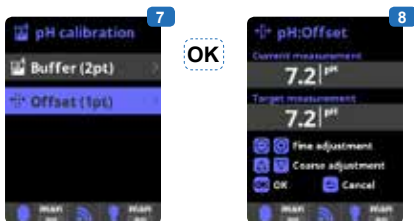
### pH Set Point & Probe Calibration



- 1 **Measures:** Adjustment of set points and probe calibration.
- 2 **Set points** for each measurement.
- 3 **Setting** the set points.

- 4 **pH probe calibration:** Recommended once a month during the pool season.
- 5 **Calibration** using buffer solutions (liquids models pH7 / pH10 / neutral). Follow the on-screen instructions (fig. 6, below).

**Note:** Probe must be cleaned before calibration begins. See 'Serving the Probes' on page 14 for instructions on how to clean the probe.



- 7 **Manual calibration:** Allows you to set the probes to 1 point (without buffer solution) – recommended only for adjusting small deviations in readings.

- 8 Without removing the probe from the water, use the + / - keys to adjust the reading to your reference value (pool shop pH test value or test from a photometer test instrument).

## SERVICING

### Settling Period

During the first 10-15 days, your system will require more attention:

- » Check that the pH remains at the ideal level (7.2 to 7.8).
- » If the pH is exceptionally unstable and uses a lot of acid, check the Total Alkalinity (see table on page 11).

If the water balance is highly unstable, contact your pool shop or installer/builder.

#### REMEMBER:

- » That the system needs a certain amount of time to adapt to your pool and will require additional chemicals during the first 3-5 days.
- » The pool must be regularly maintained and the skimmer baskets emptied whenever necessary. Also check that your filter is not clogged.
- » **Add Water**
  - › It is preferable to add water via the skimmers so that it passes through the chlorinator cell before entering the pool. Remember to check the salt level after adding water.
- » **Dosing Pump**
  - › Regularly check the diluted acid level to ensure that the pump does not run dry. The dosing pump must be checked and serviced at regular intervals.

### Servicing the Probe

The probe must be clean and free from oil, chemical deposits and contamination to function properly. As it is in continuous contact with the water in the pool/spa, the probe may need to be cleaned weekly or monthly, depending on the number of bathers and other specific pool characteristics. A slow response, more frequent pH calibration and inconsistent readings indicate that the probe needs to be cleaned.

To clean the probe, turn off the power to the AquaRite+ and disconnect from the power supply.

Unplug the probe connector from the control box, unscrew the probe and carefully remove it from the chamber. Clean the probe bulb (white ring at the bottom of the body of the probe) with a soft toothbrush and regular toothpaste.

A household washing-up liquid detergent may also be used to remove any oil. Rinse with fresh water, replace the thread tape on the thread, and reinstall the probe.

If the probe continues to give inconsistent readings or requires excessive calibration after it has been cleaned, it should be replaced.

### Probe Storage

The end of the probe must always be in contact with water or it will dry out. If it is removed from the measuring chamber, it should be stored in the plastic cap provided (filled with water). If the storage cap has been misplaced, the probe should be stored separately in a small glass or plastic container with its end immersed in water. The probe must always be in a frost-free environment.

## TROUBLESHOOTING

### Alarm AL3: pH Acid Dosing Pump Stopped

- » The maximum time allowed to attain the pH set point has been reached. The pH acid dosing pump is stopped to avoid overdosing and making the water too acidic.
- » Please carry out the following checks to avoid equipment failure:
  - › Check that the container of diluted liquid hydrochloric acid is not empty.
  - › Check whether the pH read on the display corresponds to the pH in the pool (use a pH test kit). Otherwise, please calibrate the pH probe or replace it, if necessary.
  - › Check that the pH pump is running normally.
  - › To delete this message and reset the dosing, press the "Return" key.

## WARRANTY

**STANDARD CONDITIONS** - Australia and New Zealand Hayward Pool Products (Australia) Pty Ltd (ABN 66 083 413 414) ("Hayward Pool Products (Australia)") distributes Hayward Pool Products in Australia and New Zealand and provides the following warranties:

#### STATUTORY RIGHTS

1. The benefits to the consumer under this warranty are in addition to other rights and remedies of the consumer under the laws in relation to the goods and services to which the warranty relates; and
2. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You may be entitled to a replacement or refund for a major failure and for compensation for any other loss or damage. You are also entitled to have the goods repaired if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

#### LIMITED WARRANTY

Hayward Pool Products (Australia) warrants that its products are free from defects in materials and manufacture for 12 months from date of supply by Hayward Pool Products (Australia) plus 90 days to allow for installation and supply (unless otherwise specified). Hayward Pool Products (Australia) will at its discretion, except in the circumstances described below, either repair or replace any

## WARRANTY CONTINUED

product proven to be defective during the warranty period for either materials of manufacture or alternatively pay the cost of repair or replacement within 90 days of the receipt of the defective product, barring unforeseen delays. This warranty is for domestic installation only, is personal to the original purchaser and does not pass to any subsequent purchaser(s).

- To the extent permitted by law, Hayward Pool Products (Australia) will not be liable for products which fail or become defective during the warranty period as a result of freezing, accident, negligence, improper installation, water chemistry, misuse, tampering or lack of care.
- To the extent permitted by law, except as set out in this Warranty, Hayward Pool Products (Australia) excludes all statutory or implied conditions and warranties and any other liability it may have to the Customer (including liability for indirect consequential loss) that may arise under statute or at law including without limitation for breach of contract, in tort (including negligence) or under any other cause of action.
- To the extent permitted by law, except as set out in this Warranty, Hayward Pool Products (Australia) limits its liability under any condition or warranty which cannot be legally excluded in relation to the supply of Goods and Services to:
  1. Repairing the Goods;
  2. Replacing the Goods or supplying equivalent Goods or Services again;
  3. Paying the cost of replacing the Goods or of supplying equivalent Goods or Services again; or
  4. Paying the costs of repairing the Goods.

Claims made for warranty, labour or infield support will not be accepted by Hayward Pool Products unless evidence is provided that installation has been completed in accordance with standard warranty conditions. Please refer to specific program document for details.

### WHAT TO DO IF YOU HAVE A WARRANTY CLAIM

The faulty product is to be returned to the place of purchase, or where installed by an approved agent to an authorised warranty agent. No returns will be received directly from end consumers by Hayward Pool Products (Australia). You are responsible for arranging removal of the defective product and arranging installation of the repaired or replacement product, all transportation (and any applicable insurance costs) of transporting the product to the supplier and transporting the replaced or repaired product from the supplier. All returns are subject to Hayward Pool Products (Australia)'s written approval and must be accompanied by either:

1. A Field Inspection Report authorised by the Local Customer Service Manager or Authorised Agent; or
2. A "Return Goods Authorisation" form obtained from Hayward Pool Products (Australia) prior to shipment.

### UNAUTHORISED RETURNS WILL NOT BE ACCEPTED

- All Hayward Pool Products (Australia) warranty parts taken as an across the counter warranty exchange must be held for inspection authorisation has been given by the Local Branch Customer Service Manager to dispose of them. Hayward Pool Products (Australia) reserves the right to provide replacement or credit for any items authorised under this warranty program.
- All claims must be accompanied by a copy of original purchase receipt, clearly stating date of purchase. All serial numbers must place the product within the warranty period or a proof of purchase is required. No claims in respect of the product can be made after the expiration of the warranty period.

Warranty service requests can be faxed to:  
**Hayward Pool Products (Australia) Pty Ltd.**  
**Fax: 1300 POOLS2 (1300 766571)**  
Or submitted to your local Hayward Pool Products (Australia)  
Branch Office.

A standard form is available to request warranty service. We will require:

- Installation contact information including address, daytime telephone numbers, home phone number, email etc.
- Complete model and serial number
- Proof of purchase (if the serial number was manufactured > 1 year ago).
- Evidence that purchase and Installation was completed in one transaction, by the one business or organisation.
- Nature of problem including specific faults and error codes

**To determine if you are eligible for an extended warranty register your  
Hayward pool products online today at:  
[www.hayward-pool.com.au](http://www.hayward-pool.com.au)**





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