Installing & Running your “Series III” Swimming Pool Ioniser.

Issue: 090923

This product is not intended for installation in classified zones which require IP ratings. It is not intended for use by persons with reduced physical, sensory, or mental capabilities or lack of experience and knowledge unless given supervision or instruction concerning its use by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance. If the supply cord is damaged it must be replaced by the manufacturer or authorised agent or other suitably qualified person.

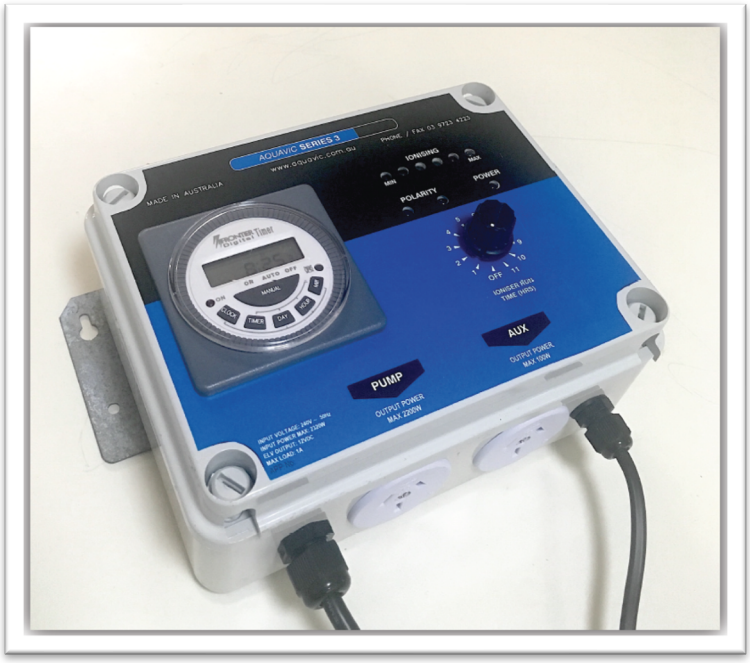
Foreword

In drafting these instructions we have assumed that the installer has a good all round knowledge of filters, pumps and piping systems, and is comfortable with the use of PVC adhesives and hand tools.

Installing the Series III Control Module

The product must be housed in a weatherproof enclosure of at least IPx3 if installed outside the pool zone or IPX4 if installed in the pool zone and comply with Clause 4.10 of AS/NZS 3100 for mechanical strength. Contact our office for details.

Evidence of water ingress will void your Lifetime Warranty.



Aquavic Series III Swimming Pools Ioniser

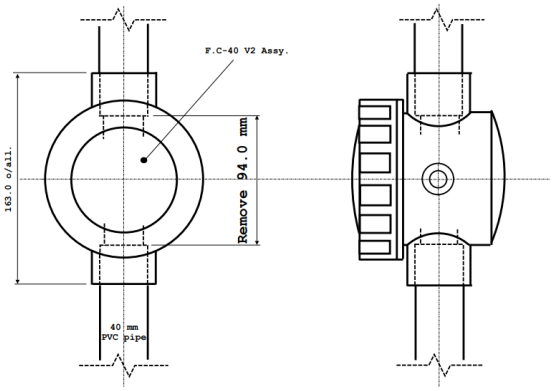
For ease of monitoring, we recommend that it should be mounted on a vertical surface approximately 1500 mm from the floor and in close proximity to a regulation 240 VAC 10A GPO. In the event that the flowcell is beyond the reach of the standard low voltage electrode lead, it may be extended by up to 10 metres with twin core cable of equal or greater cross-sectional conductor area.

! Note that the **PUMP** and **AUX** outputs are CB protected. Loads which exceed their rated output will trip their respective circuit breakers. **PUMP** max. is 2200 Watts and the **AUX** max. is 200 Watts. See also "***Safety***" below.

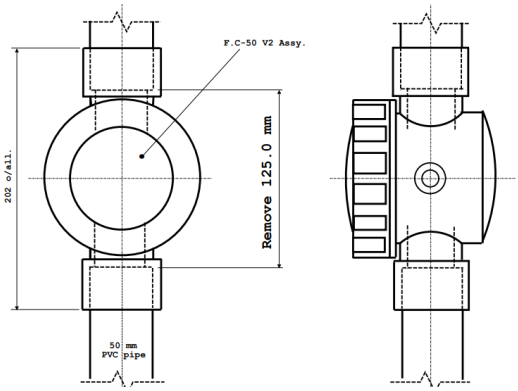
Installing the Flowcells

These units can be installed in the "return-to-pool" line (first preference) or between the pump and the filter (second preference) or, as a last resort, in the pump's suction line. To avoid the possibility of air-trapping, the flowcell should be vertical or inclined. Avoid installing the flowcell in horizontal pipework.

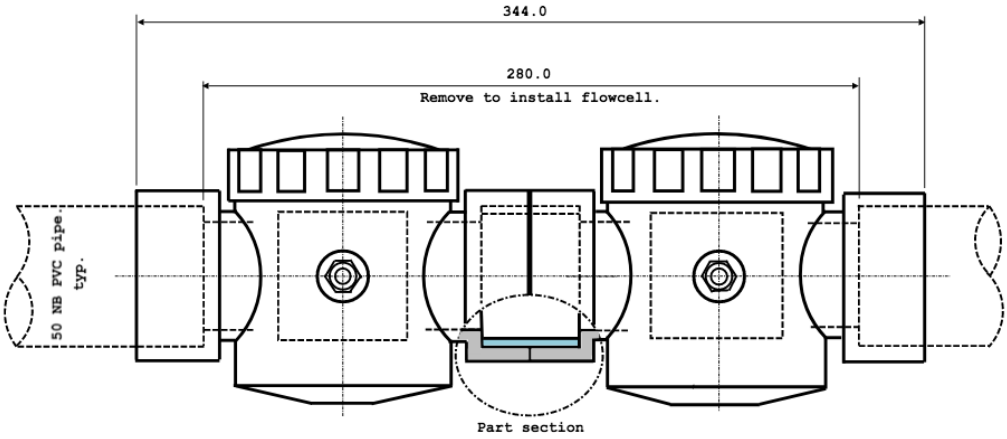
Pictured below are the **C-40** (40-mm sockets) the **C-50** (50-mm sockets) and the **Duplex** 50-mm versions of our in-line flowcells. Note that apart from the obvious differences in socket size, the electrodes, locking rings, "O" ring seals, and inspection window are all interchangeable.



40-mm Flowcell



50-mm Flowcell



Duplex 50-mm Flowcell

Flowcell Install

Having decided on a location, refer to the relevant flowcell drawing, (above) measure and remove a length of pipe, deburr, prime all contact surfaces with pink primer, apply type 'P' solvent cement and install the flowcell. Although the system can be run 30 minutes later, we recommend that the installer allows 24 hours before commissioning.

And Finally

Connect the low voltage leads to the electrodes – it doesn't matter which goes to which terminal - and tighten the terminal nuts finger tight + 30%. Do not over-tighten. To do so is to risk serious damage to the flowcell body. The Duplex 50-mm flowcell is supplied with both cells connected in parallel. The low voltage leads can be connected to either cell.

Plug the control unit into the nearest GPO, plug the pool pump into the "**PUMP"** outlet in the bottom of the control unit. If using our **Aquavic Chemical Dosing Pump** (see next page) or similar, this should be plugged into the "**AUX"** outlet which is located beside the "**PUMP"** outlet. Both outlets are configured in parallel - both will start and stop together. (See also "*Safety*" below.)

Check that the pump is primed, then select "**MANUAL**" option on the time clock. (A red LED on the time clock will confirm selection.) The pump and the ioniser will start immediately, as will whatever is plugged into the "**AUX"** outlet. Check immediately for any sign of leaks or loose connections.

Getting Started

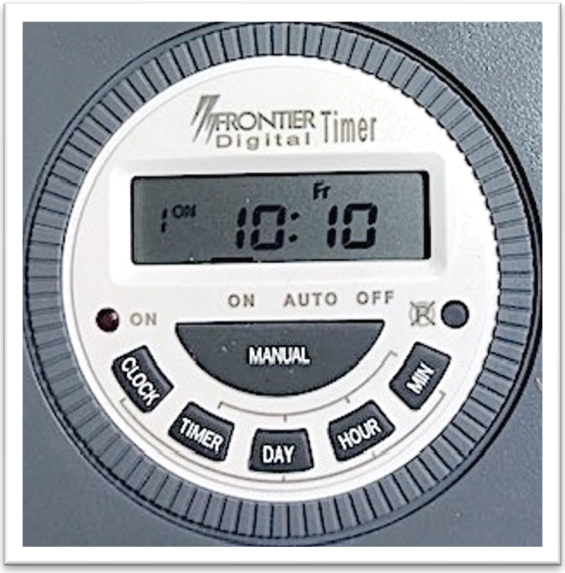
Having confirmed that all is in order, we now turn our attention to real-time programming. As a rule of thumb, the (summer) pump running time should be approximately 1.0 hr. for every 10,000 litres of pool water, and the ionising cycle about half that of the pump. But the absolute arbiter of ioniser run time is the level of copper in the water. See water chemistry instructions attached. A copper test kit is provided with each **Series III** package.

Ionising

With reference to the 6 "**IONISING**" LED's (L to R: 1 & 2 green, 3 & 4 yellow, 5 & 6 red) the number and colour on the LED's in this display is directly proportional to the conductivity of the water, and therefore an indication of just how hard the ioniser is working. In the event that there are no "**IONISING**" LED's, this is an indication that the conductivity of the water is very low, or that the electrodes are in need of replacement (unlikely on a new installation) or one or both of the flowcell terminals is loose or corroded.

Assuming that the flowcell connections are OK, the next most common cause on new installations is that the conductivity of the water is too low, a situation easily remedied by adding pool salt to the water until the mid-rage "**IONISING**" LED is on. This is a once-only exercise. If, on the other hand, the 6th. LED is bright red and/or flashing (as would be the case if retrofitting to a salt water pool) the water is highly conductive and consideration must be given to either dumping the water and replacing with fresh (preferred) or dumping a percentage and diluting with fresh (2nd. preference.) This system is, after all, a fresh water ioniser. For a more detailed explanation, see "**Annexure 1**" below.

Please note!
If altering the ioniser run times, it is important to wait until the ionising cycle has timed out.
Alternatively, turn off the power at the GPO or via the time clock's "**MANUAL**" button (see pic below).
The time clock's battery back-up will ensure that all run time programs will be retained.



Time clock front panel. Note the "Manual ON-AUTO-OFF" button and cursor.

Copper Level

Measuring the copper levels of the water is the only practical on-site method of determining just how hard the ioniser is working. If, after a reasonable running in time of 3 to 5 days, the copper levels are low, it will be necessary to increase the "**IONISING RUN**" time. Conversely, if too high, it may be necessary to reduce the "**IONISER RUN**" time. As copper levels will only increase / decrease slowly, allow plenty of time before making adjustments.

Polarity

A key feature of our ioniser is that the polarity of the ELV DC supply to the electrodes must be electronically switched every three minutes. This not only ensures that the electrodes are self-cleaning, but also that both "*burn away*" at the same rate. Any significant mismatch in the size of the electrodes indicates a polarity reversal problem. In the highly unlikely event that this happens, return the control unit to our Head Office for assessment.

Dosing Pump

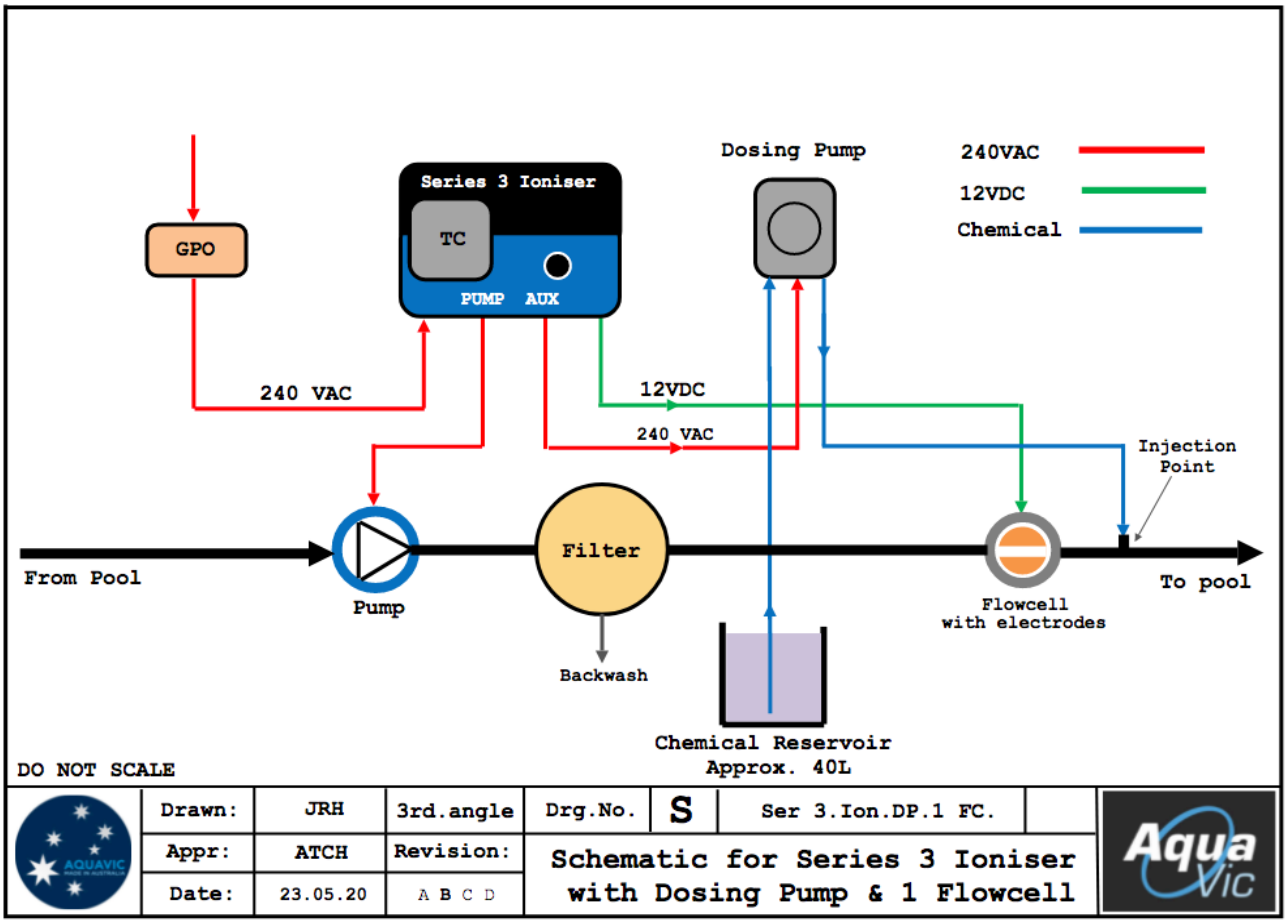
Maintaining the “balance” of your pool water is most important* and to make a pool owner’s task a little easier, our standard package includes a chemical dosing pump. This versatile little unit, which runs in parallel with the pool’s filtration pump, will handle virtually any aqueous solution. If your preferred chemical is in powder or granular form, thoroughly dissolve in water prior to adding to the reservoir.

Irrespective of your choice of chemical, it is important to follow the manufacturer's instructions re dosing rate. For example, if the stipulated dosing rate for your pool is 1.0 kg per week, dissolve 1.0 kg in - say - 40 litres** and set the dosing rate such that the whole 40 litres - *and therefore the recommended 1.0 kgs of your chosen chemica*l - is injected into the pool in one week. The size of the reservoir is not important, but adherence to the recommended dosing rate is.

* See Owner's Guide to Fresh Water Pool Chemistry attached.

** Our recommendation is that a 40 litre reservoir is the most practical size.

Aquavic Series 3 ioniser and the versatile oxidiser dosing pump.



Schematic showing how the Series 3 controls all primary pool functions – filtration, ionising and chemical dosing. No other hardware items required.

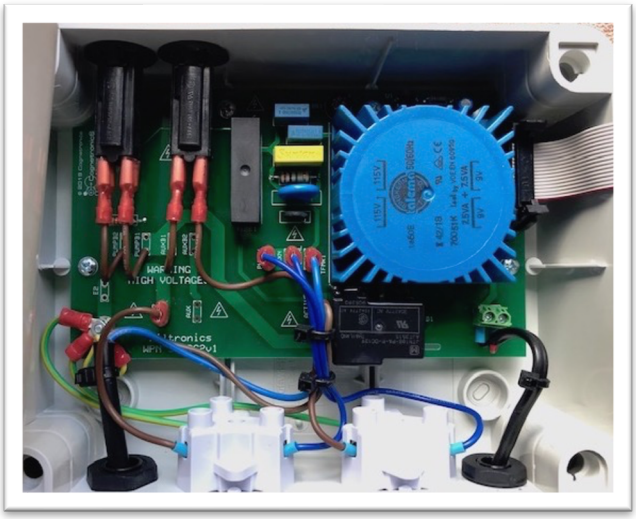
Safety

Fuses and circuit breakers are vital components of all electrical and electronic equipment. Their primary purpose is to protect the user, the unit, and auxiliaries from damage. Both of the 240V "**PUMP**" and "**AUX**" outlets are protected by manually resettable circuit breakers. Should either circuit breaker trip, this will be confirmed by the CB "*popping up*" and exposing a white indicator, and all LED's flashing in unison. If satisfied that there is no obvious reason for the failure, reset the unit by turning the power supply to the controller OFF then ON, then reset the CB. If the CB trips again, disconnect the controller and return to our service department for attention.

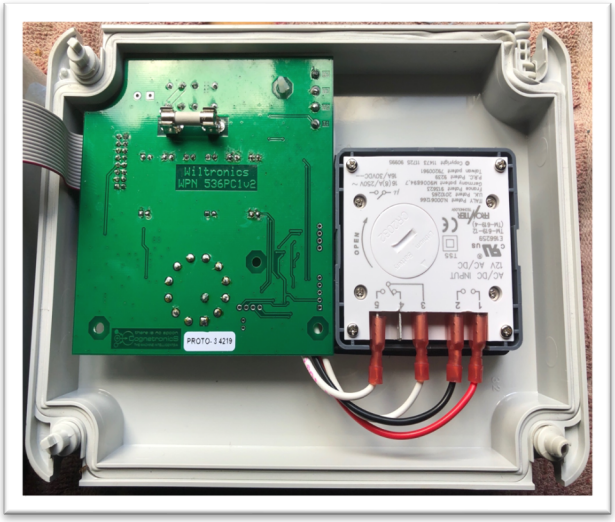
Fuse Protection

Aside from the two external Circuit Breakers mentioned above, there are two fuses inside the enclosure. One protects the high voltage supply components, and the other the low voltage components. Each has its own circuit board. See pics below for exact location.

! Unauthorised removal of the front cover will void our unique **Lifetime Warranty.**



Aquavic Series 3 High Voltage Circuit Board.
HV fuse is located under the black lift-off cover between the 1.0 A CB and the transformer.



Aquavic Series 3 Low Voltage Circuit Board.
LV fuse on the underside of the circuit board.

Retrofitting an Aquavic Fresh Water Ioniser to a Salt Water Pool

When retro-fitting an **Aquavic** ioniser to a salt water pool, be aware that the water will be highly conductive and not compatible with our fresh water ionisers. For electrolysis by ionisation to be effective, the DC current supplied to the electrodes must flow freely through the water from one electrode (anode) to the other (cathode).

If the electrical conductivity of the water is very low, (as in tap water) the current flow may be retarded to the point where it does not flow at all. Conversely, if the electrical conductivity of the water is too high, a condition confirmed a bight red flashing LED on the control unit the current flow will be electronically retarded until this condition is rectified.

Should this occur, the most effective remedy is to dump the highly saline pool water and refill with fresh. Although this is the technically correct remedy, it is not always well received by pool owners in which case, the next alternative is to dump a percentage and top up / dilute with fresh water. This has the effect of reducing the conductivity of the water to the point where the ioniser will function as designed.

Just how much water should be dumped depends on just how saline the water is. This is easily measured and usually expressed as **TDS** - **Total Dissolved Solids**. It may also appear on a pool water analysis as "***conductivity in mS/cm***" in which case, multiplying this number by 2 will give the equivalent **TDS** number.

The optimum **TDS** for an **Aquavic** ionised pool is in the range 250 ppm to 1500 ppm. By way of example, the **TDS** of most salt-water pools is 4000 ppm to 6000 ppm. In older salt-water pools, this number may well be very much higher! If for any reason the pool owner refuses to "Dump or Dilute" as recommended, we have one more option. Should this situation arise, please contact our office for details of this procedure.

NOTES

AQUAVIC

ABN 23 093 121 076

An Owner's Guide to Fresh Water Pool Chemistry

with APVMA approved "*AlgaeNON+*" (copper / silver alloy) electrodes.

Preamble:
In drafting this advice, we have assumed that your pool, fountain or water feature is structurally sound, free of substantial water leaks, has good circulation, and the filter, if fitted, is in good order. Contrary to popular belief, the maintenance of your water chemistry is simple and straightforward and only requires about 10 minutes of your time each week in the peak season and monthly in the off-season.

Consumables:
The chemicals we require are *Sodium bi-carbonate* (common baking soda) *hydrochloric Acid or Dry Acid* (Sodium bi-sulphate) and an approved sanitiser/oxidiser. In some soft water areas, it may also be necessary to use a tad of c*alcium chloride*. And we strongly recommend that you acquire a good quality 4 in 1 test kit.

Total Alkalinity 80 – 130 ppm.
Follow the test kit manufacturer's directions to establish the **TA** of the water. If the level is too low, add *Sodium bi-carbonate** (always dissolve in a bucket or watering can of water prior) until the correct level is achieved. Allow plenty of time for the additive to mix before re-testing. It may take a day or two to reach the correct level. Higher is always better at this stage.

pH 6.8 – 7.4: ***Caution: Never attempt to read pH until the TA is established !***

The readings will almost certainly be wildly inaccurate and could result in the addition of chemicals far in excess of requirements. Determine the **pH** of the sample and if the reading is too low, see **TA** above and add *Sodium bi-carbonate*. If it is too high add *Hydrochloric* or *Dry Acid**. (always add the acid to a bucket or watering can of pool water). Once again, allow plenty of time for the acid to combine with the water and the closer to 7.0 the better. (See also Oxidiser below).

Copper (Cu) 0.1 to 0.9 ppm:
The Copper level was probably established during commissioning and may change slowly. Should the copper level begin to drop, increase the Ioniser/Pump running time. If the copper level begins to increase, reduce the Ioniser/Pump running time. Test weekly until correct running time is achieved, then monthly thereafter. Optimum level is **0.3 to 0.6 ppm**.

Oxidiser / Sanitiser:
Some pool owners find that an ioniser works quite well unsupported by any other chemicals whatsoever, and some choose to use supplementary doses of chlorine, but, generally speaking, you will need to add an approved oxidiser/sanitiser. The oxidiser is required to "*burn out*" organic matter such as sunscreen, cosmetics, faeces etc., and the sanitiser to enhance the bug-killing potential of the silver. Contact our office for details of ioniser-friendly products.

Total Dissolved Solids: 250 – 1500 ppm:
TDS is the arithmetic sum of *everything* that is dissolved in the water– just a sugar is dissolved in tea, salt and other minerals are dissolved in sea water etc. It will only ever increase with time – never decrease. If you believe that your pool water has a high TDS and is highly conductive (> 2000 ppm) contact our office for advice. See also "***Ionising***" in your installation and running instructions. * For quantities, refer to Pool Chemistry Tables. Copies available on request.

Phone / Fax: + 61 3 9723 4223 **www.aquavic.com.au** **email:** aquavic@optusnet.com.au

AQUAVIC

ABN 23 093 121 076

Warranty

(Domestic)

We at Angus Horwood & Associates Pty. Ltd. trading as **AQUAVIC** – "**The Company**" - have every confidence that, if installed and operated as per the installation and operating instructions, this product will perform to your satisfaction, but be aware that nothing in this warranty negates any rights that you have under a **Trade Practices Act** or any other **Commonwealth** or **State** legislation. Such rights cannot be changed by this warranty.

Conditions of the Warranty

This warranty, which applies only to **Australia**, its **States** and **Territories**, and **New Zealand**, or to our **Agent's Defined Territory - applies only to our "New Millennium Series 1 and 2, our "*Aqua Soleil*" and our "Series 3" control modules,** is valid **for the life of the unit*** applies only to the **original buyer**, and is not transferable to any other person. It is suggested that you retain copies of proof of purchase to support any or all claims made on **The Company**.

* ***Providing the control module has not been used contrary to the installation and operating instructions, used only for its intended purpose, has not suffered water ingress or physical abuse, or retro fitted to a flowcell and electrodes of another maker.***

During the warranty period, **The Company** will pay the cost of replacement, or repair, of any parts found by **The Company** to be defective.

This warranty does not cover wilful damage, damage caused by unauthorised repairs, alterations by others, power surges, electrical storm damage and connection to incompatible power supplies,

This warranty does not apply to normal wear and tear, service subsequent to fire or flood or tempest, pairing with electrodes of another maker, or the cost of transporting the item to / from the premises of our **Accredited Agent** and / or **The Company** (See below for details)

Postal address for the return of warranty items:

AQUAVIC SERVICE DEPT.
PO Box 576
Croydon
Victoria
3136

OR

AQUAVIC's Accredited Agent

< Agent's stamp here >

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Angus Horwood & Associates Pty. Ltd. t/a AQUAVIC ACN 093 121 076