

# PWP2 IONISER

## Instruction Manual



## DESCRIPTION

The PWP2 provides a filtration pump timer and uses an ionisation process of passing a controlled current through the water between the copper and silver alloy electrodes.

This process called electrolysis, enables copper and silver ions to enter the water. The copper works to inhibit algae growth and the silver as an aid to fighting bacteria.

The pool water purifier PWP2 is suitable for swimming pools, spas and ponds up-to 100,000 litres.

## INSTALLATION INSTRUCTIONS

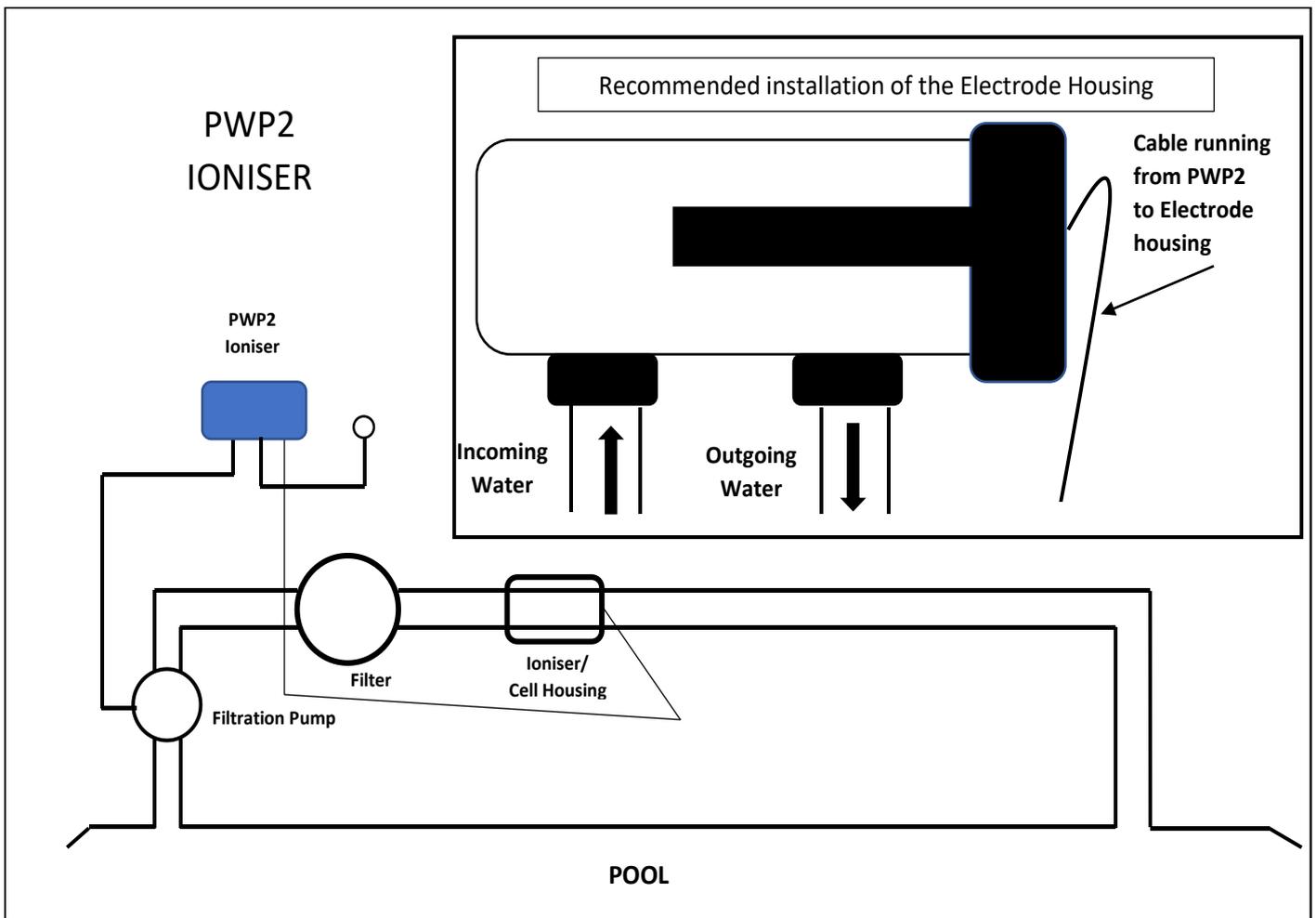
THIS APPLIANCE ISN'T INTENDED FOR USE BY YOUNG CHILDREN OR INFIRM PERSONS WITHOUT SUPERVISION. PLEASE ENSURE CHILDREN ARE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE APPLIANCE.



**Ideally, as with all pool equipment, the controller should be installed out of direct weather.**

<p><b>CONTROLLER MOUNTING</b></p>	<p>Find a suitable location to mount the control box.</p> <p>The controller should be no closer than 3 metres from the water's edge and a minimum 600mm above ground. The power cable is 1.8m long and should be plugged directly into a general power outlet, <b>not into an extension lead.</b></p> <p>Lift-up the two mounting tabs and use two appropriate screws to mount the control box to the wall</p> <p>To remove unit, undo the screws slightly, push the controller upwards and gently pull away from structure.</p>
<p><b>PUMP CONNECTION</b></p>	<p>The Circulation pump plugs into the 240V socket labelled FILTER PUMP.</p> <p>The maximum load is 9.98 AMPS at 2395W.</p>
<p><b>CONTROLLER INFORMATION</b></p>	<p>The pool water purifier PWP2 is suitable for swimming pools, spas and ponds up-to 100,000 litres for a standard unit.</p> <p>The filter pump and ionisation is controlled for up-to 2 run times per day and will remember the settings indefinitely and the clock will remain accurate if the power is switched off for a period of up-to 10 days. The PWP2 can be used on interrupted power supplies [e.g. tariff 33 in QLD].</p> <p>The ions active L.E.D. indicates that the ionisation process is working. The polarity L.E.D.'s, indicate the polarity of the output current applied to the electrodes, the polarity will change every 15 minutes to allow the electrodes to wear evenly.</p>
<p><b>WATER BALANCE</b></p>	<p>On new pools the conductivity of the water can be low so it may take a few weeks (if not months) to obtain a copper reading. As the copper level increases, the conductivity will also increase and the copper level will start to rise quicker.</p> <p>You will need to monitor the copper levels every couple of weeks. When the copper level has risen towards 0.4ppm, start reducing the Ions Output.</p> <p>Filter run time and Ions Output can both be used to achieve correct copper levels.</p> <p><b>Note</b> - If the copper level in the water exceeds 0.8ppm, turn the Ions Output to Zero.</p> <p><b>Note</b> - Copper levels can climb quicker in pools with salt, as the conductivity of the water is higher.</p> <p>Water balance should be checked at least weekly during the swimming season and monthly over the winter period. The level of Copper is maintained between 0.4 – 0.8 ppm.</p> <p style="padding-left: 40px;">Total Alkalinity 100 - 150 ppm</p> <p style="padding-left: 40px;">Water pH 7.4 - 7.8</p> <p style="padding-left: 40px;">Copper 0.4 – 0.8 ppm</p> <p style="padding-left: 40px;">Chlorine – 1.0ppm Plus</p> <p><b>Note</b> - Without regular checking of the water balance and the addition of pool chemicals, copper <b>may</b> become unsettled and can plate out of solution. This causes staining on the swimming pool surface. The manufacturer and the dealer of the PWP-2 bare no responsibility for such staining, pool water chemistry is the responsibility of pool owner/s.</p> <p><b>Note</b> - Adding a large quantity of chemicals [Bombing/Shocking] to an ionised pool <b>may</b> have the negative effect of plating the copper out of water suspension and onto the walls and floor of your pool. This can be quite hard to rectify. It is recommended if adding large quantities of chemicals, to do so in more doses of smaller quantities.</p>

## PLUMBING CONFIGURATIONS



## OPERATING INSTRUCTIONS

<b>LCD SCREEN</b>	The LCD screen displays the set Filtration Cycle time/s, the Ionising Run Hours (if utilised), the current Ions Output level and the time of day & date [clock].
<b>LED INDICATORS</b>	The LED lights are there to indicate the pump being on or not, which of the 2 copper Ion rods is currently active [polarity], and whether Ionisation is currently active or not.

## CONTROLLER SETTINGS

To enter the SETTINGS MENU push either the up or down buttons and the following will be displayed.

SETTINGS MENU

1) MANUAL MODE

All items on the LCD that flash are adjustable items, use the UP or DOWN buttons to modify the adjustable item. Press the Enter button to accept the adjustable value.

All menu items are shown below, use the UP or DOWN buttons to scroll to different items in the menu.

SETTINGS MENU

1) MANUAL MODE

2) FILTER TIMER

3) IONS OUTPUT

4) SEASON MODE

5) SYSTEM SETUP

6) SAVE & EXIT

<p><b>1) MANUAL MODE</b></p>	<p>This menu is for the manual control of the pump, whenever you enter this menu the pump will be switched ON.</p> <p>ON xx HRS ↑ ↓ ENTER = AUTO</p> <p>You can adjust the period that manual pump mode runs for (4, 12 or 24 hours) by pressing the UP or DOWN buttons and after the required time the controller reverts to automatic operation. To exit manual mode and return to AUTOMATIC MODE press the ENTER/MANUAL button.</p> <p><i>Note that there will be no Ionisation in manual mode.</i></p>
<p><b>2) FILTER TIMER</b></p>	<p>When the FILTER TIMER is selected the following is displayed.</p> <p>No. OF TIMES PER DAY TO RUN: OFF/1/2</p> <p>Select the number of times per day you wish the pump to operate for filtration purposes. If OFF is selected then the pump will not operate, otherwise the following is displayed.</p> <p>Once per day FILTER CYCLE menu:</p> <p>FILTER CYCLE hr:mn TO hr:mn</p> <p>Twice per day FILTER CYCLE 1 menu:</p> <p>FILTER CYCLE 1 hr:mn TO hr:mn</p> <p>Twice per day FILTER CYCLE 2 menu:</p> <p>FILTER CYCLE 2 hr:mn TO hr:mn</p> <p>Adjust the hours [hr] and minutes [mn] for the required Start and End time/s for each of the filtration cycle[s]. The pump will run between these times for filtration purposes.</p> <p><i>Note 1: Take care not to overlap filter cycle 2 times with the filter cycle 1 times as the result will be one cycle per day.</i></p> <p><i>Note 2: For 24 hour filtration set to run 1 time per day with the start &amp; end times the same [E.g. 12:00 – 12:00].</i></p> <p><i>Note 3: In Winter mode the 2<sup>nd</sup> filter cycle does not run.</i></p> <p><b>Summer Filtration Time:</b> 8 hours is recommended.</p> <p><b>Winter Filtration Time:</b> 4 hours is recommended.</p> <p><i>The above recommended times will also be dependent on whether [or not] a standard pool pump is being used or an energy efficient variable speed pump.</i></p>
<p><b>3) IONS OUTPUT</b></p>	<p>When you enter the IONS OUTPUT menu you can change the current output of ionisation.</p> <p>IONS OUTPUT SET FOR xxx mA</p> <p>Adjust the Output, according to copper levels as determined by a water quality test. Copper should be in the range of 0.4 – 0.8 ppm. If the level of copper is below 0.4 ppm then increase the current output.</p> <p>If it is above 0.6 ppm then decrease the current output.</p> <p>If it is above 0.8 ppm then set the current output to 0mA.</p>

<p><b>4) SEASON MODE</b></p>	<p>When the season mode menu is selected the following is displayed.</p> <p>SET SEASON MODE SUMMER MODE/ WINTER MODE</p> <p>SUMMER MODE is the normal operation of filtration, up to 2 cycles per day.</p> <p>When selecting WINTER MODE you will be prompted to select the start month of Winter and the start month of Summer. At the start of Winter, the 2<sup>nd</sup> filter cycle is automatically disabled to allow for reduce filtration requirements in the off-season, when the Summer month start the 2<sup>nd</sup> filter cycle will automatically be re-applied. You can also start Winter mode in August and finish in March if required [i.e. for Northern Hemisphere].</p> <p><i>Note: The two filter cycles can be overlapped. If cycle 1 is from 10am-2pm and cycle 2 is from 8am to 4pm, in winter mode the time is reduced by 2 hours at the start and end.</i></p>
<p><b>5) SYSTEM SETUP</b></p>	<p>When the system setup menu is selected 5 options are available.</p> <p>SET CLOCK INSTALLER SETUP FACTORY DEFAULTS RUNTIME LOGS EXIT</p> <p>SET CLOCK – Allows you to adjust calendar date and time of day. EXIT – Will return you to 5) SYSTEM SETUP with no changes. RUNTIME LOGS – displays run times for pump and ionisation, NO support is offered for this feature. FACTORY DEFAULTS – Restores ALL the settings to the factory default state. INSTALLER SETUP - This sub-menu contains the following advanced settings.</p> <ul style="list-style-type: none"> <li>• IONISE AT FILTER TIMES ONLY? YES/NO</li> </ul> <p>If you select 'YES', ionisation will always occur during filtration times and you will skip the run hours menu as described below. For example, 4hrs of filtration equals 4hrs of Ionisation or 8 hrs of filtration equals 8hrs of Ionisation.</p> <p>If 'NO' is selected, a separate menu for run hours is displayed.</p> <ul style="list-style-type: none"> <li>• IONISING RUN HOURS hr:mn</li> </ul> <p>If ionising at filtration times is producing too much copper, you can adjust the number of hours that ionisation occurs during filtration times in 1 hour steps. The maximum available time is calculated from the filtration settings. This feature will only be active from the start of the next filtration cycle. For example, Filter for 8hrs, Ionise for 4hrs.</p> <p>The next option to be displayed is,</p> <ul style="list-style-type: none"> <li>• AUTO IONS REDUCE YES/NO</li> </ul> <p>This feature automatically adjusts the IONS OUTPUT to a lower value after 30 days, if NO is selected you will return to 5)SYSTEM SETUP, if YES is selected then you are prompted for the fall back current;</p> <ul style="list-style-type: none"> <li>• IONS FALLBACK SET FOR xxx mA</li> </ul>
<p><b>6) SAVE &amp; EXIT</b></p>	<p>When this menu is selected, push Enter to save ALL settings.</p> <p>The unit will return to normal operation automatically. If any of the menu items are left unattended for 3 minutes the menu will time out and automatically save all settings and return to automatic operation.</p>

<p><b>ENTER/MANUAL BUTTON</b></p>	<p>If at any time the ENTER/MANUAL button is pressed the pump is switched on and the following will be displayed.</p> <p>ON/OFF ↑ ↓ ENTER = AUTO</p> <p>This function is used for a system back wash, pool vacuuming, spa heating, etc. The filter pump is allowed to run, but the Ions Output is turned to OFF.</p> <p>Use the Up/Down buttons to turn the pump ON/OFF, after four hours the system will automatically return to normal automatic run mode.</p>
<p><b>SPECIAL TEST MENU</b></p>	<p>This menu is for special access and should normally not be required.</p> <p>To enter test mode, press and hold the Enter button while the power to the unit is turned on, after 2 seconds release the Enter button. The Controller will display.</p> <p>OUTPUT CURRENT: NORMAL [DEFAULT]/HIGH</p> <p>When output current is set to HIGH, it enables higher values to be set under the '3] IONS OUTPUT' menu.</p> <p>When set to normal the maximum value is 250mA but when set to high it can be set as high as 400mA.</p> <p>If you select NORMAL [DEFAULT] it will also enter the production test and will perform a short output current test, then re-set itself and return to normal operation.</p> <p>Normal Operation for factory default settings: Between 09:00 and 13:00 or 16:00 and 20:00 the PUMP will be on, as well as IONS ACTIVE &amp; PUMP ON LEDs, ionising current is set for 200mA. When minutes of the day is between; 0-14 then TOP POLARITY LED is ON, 15-29 then BOTTOM POLARITY LED is ON, 30-44 then TOP POLARITY LED is ON, 45-59 then BOTTOM POLARITY LED is ON. At other times ALL LED's should be OFF.</p> <p><i><b>Note</b> – Setting the Output Current to High (400mA) on a new pool may help with getting the copper level in the pool to an appropriate level a little quicker. However, if you do set the Output Current too High, it would also be recommended to activate the Auto Ions Reduce and set the Ions Fallback level to 200mA. This will ensure that the pool doesn't get over Ionised if forgotten about the Ion Output Level.</i></p>
<p><b>NOTES:</b></p>	<ol style="list-style-type: none"> <li>1. If any of the menu items are left unattended for 3 minutes the menu will time out and automatically save all settings and return to automatic operation.</li> <li>2. Should power be interrupted for any reason, the controller will resume normal operation when power is restored. All stored information is kept for up to 10 days.</li> <li>3. MAX combined rated output load for the 240V socket[s] is 9.98 Amps / 2395 Watts.</li> <li>4. Degree of protection against moisture: IP23.</li> <li>5. Store pool chemicals safely, at least 3 metres away from all pool equipment.</li> <li>6. Putting a large quantity of chemicals [shocking] into an Ionised pool all at once may cause the copper to be plated out of water suspension onto the pool walls and floor.</li> <li>7. If the copper level of the pool gets too high, it can cause a swimmer's hair to turn green.</li> <li>8. A Copper Ionised pool needs to have an Oxidiser utilised to maintain optimum performance. The most common form the oxidiser is Chlorine. Low quantities of chlorine can be used to oxidise the pool water or chlorine free oxidisers are available if you wish to have a chlorine free pool system. See your local pool shop.</li> <li>9. Sometimes a blue coloured crust can appear coating the electrodes. This crust is oxidised copper. If you scrape it off, you will reduce the lifespan of your electrodes leading to replacing them earlier than needed. Leave the crust as it is, unless large pieces start breaking off and ending up in your pool. Have the rest of your pool balances checked as most likely one or more will be out and this will be causing the oxidisation of the electrodes.</li> </ol>

<p><b>ELECTRODE REPLACEMENT</b></p>	<p>When the electrodes erode to about 10mm in diameter it is time to replace them. Turn the power off to the Controller, undo the two electrode cable wing nuts, (close any appropriate valves if the electrode housing is below water level), unscrew the large retaining nut on the side of the housing. Gently prize the black electrode carrier from the housing. Undo the two brass electrode retaining nuts, <b><i>use a cloth or gloves to handle the spent electrodes.</i></b></p> <p>Fit replacement electrodes, ensuring that two of the flat surfaces are parallel to one another, ensure the brown silicon gaskets are located, in the carrier. Correctly, fit washers and tightening nuts firmly. Align the carrier locator and fit into the housing, tighten lock nut. Open any closed valves and switch back on power to the controller – check for leaks and tighten as required.</p> <ul style="list-style-type: none"> <li>• If you are unable to install the Electrode housing as pictured in the Plumbing Configuration, to ensure even wear of the electrodes, it is advisable to rotate the electrodes every 12months.</li> </ul> <p>You can do this by turning the controller off at the power point, then loosen the 2 wings nuts that secure the electrodes in the housing. When the wing nuts are loose enough, turn the electrodes in the housing. Once the electrodes have been rotated, tighten the wing nuts to properly secure the electrodes and ensure no leaks. Turn the power back on to the controller. Press the Backwash Button to ensure there are no leaks. If there is, tighten the wing nuts a little more. If there are no leaks, press the Backwash Button again to return the controller to its normal functions.</p> <p><b><i>NOTE - If you don't rotate the electrodes, one side of the will wear more than the other. This will result in the electrodes needing to be replaced earlier than otherwise needed, as water will leak through the back of the housing via the threaded shaft of the electrodes.</i></b></p>
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**WARRANTY**

- This range of product is covered by a limited 3 year warranty against component failure or faulty workmanship from the date of installation.
- Faulty units should be returned in the first instance to the dealer from which the unit was purchased. (Return to Base)
- Damage to the unit due to misuse, power surges, corrosion from pool chemical fumes, lightning strikes and or installation that is not in accordance with the manufacturer's instruction may void the warranty.
- Warranty does not include on-site labour or travel costs to or from installation site.

**If the power cord is damaged, do not use the controller. Return the unit to the supplier for repair.**

**CUSTOMER RECORD (To be retained by the customer)**

DEALER/INSTALLER NAME

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SERIAL NUMBER

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DATE INSTALLED

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For service assistance visit [www.dontek.com.au](http://www.dontek.com.au)

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## TROUBLE SHOOTING

### NO POWER TO THE DISPLAY:

**Power point is faulty.** Test power point with a known working appliance. If the power point is operational, check the controller in another power point and if there is still no display then send the controller for repair.

**RTC-FAIL** – This can occur if the unit has been turned off for a prolonged period of time. Leave the unit on for ~30 seconds, then turn it off for ~30 seconds before turning it back on.

### PUMP FAULTS:

#### FILTRATION PUMP WILL NOT START:

Ensure that the filtration pump is plugged into the PWP2 Ioniser properly. Check the Clock time and the Filtration Times set in the controller, adjust if required.

Check the power to the FILTER PUMP socket by pressing the Enter/Manual button. The controller should turn the Filter pump on.

If it still won't start plug the filtration pump straight into a power point and turn on. If the pump doesn't start then you have an issue with your pump. If the pump is ok, your controller requires repair.

#### PUMP WILL NOT STOP:

Turn off power to the controller and ensure the pump stops. If the pump continues to operate then unplug it from the power point and connect it to the 240Vac socket marked FILTER PUMP at the bottom of the controller.

If the pump is plugged into the controller and won't stop, check to see what is displayed on the controller screen. The controller may be running for filtration purposes.

If the pump is still running, and the controller states that nothing should be running, your controller requires repair.

### IONISATION ISSUES:

**Ions Active & Polarity LEDs not working.** Check and make sure that the Ions Output hasn't been turned to OFF. Check and ensure clean contact of the ring terminals to the thread at the end of the Electrodes.

Check to see if Ionising Run Hours has been set, as the Ionising will occur at the start of the filtration cycle, ie first 2hrs of an 8hr filtration cycle.

If the above is ok, controller may need to be repaired.

**No Copper/Low Copper levels in the pool water.** Check as above.

In the instance of a new pool, it may take a month or two for the water to show any copper levels. Be patient.

Copper Electrodes may need to be replaced.

Change the filtration times to be longer, or increase the Ionising Run Hours, or increase the Ions Output.

Brush the sides and floor of the pool and re-test the copper levels as the copper may have been plated out of suspension which can lead to a low copper reading.

**High Copper levels in the pool.** If you are converting a salt chlorinated pool to copper ionisation, because of the salt levels in the pool, the copper levels will rise quite quickly. Constant testing will be required to ensure that it doesn't rise to far.

Check and reduce or turn OFF the Ions Output.

Select and hour or 2 under Ionising Run Hours to reduce the amount of time that ionising is occurring and reduce the Ions Output.

If the copper level is too high, use an appropriate pool chemical to reduce the metal level of the pool. Follow the instructions as directed by either the bottle or your local pool shop.

**Water leaking out from the cell end cap.** This will be due to one or more issues.

It will be the result of either the copper electrodes being worn away completely, or they have been worn to the point that the threads are exposed and water is working its way up the thread and through the end cap. The electrodes will need to be replaced.

The grommets around the electrodes are cracked, or the O-ring in the end cap is cracked. They will need replacing or need tightening.

Either the cell housing or the end cap is broken or cracked and will need replacing.

### FACTORY RESET:

Hold down ENTER when power is off, hold down after powering up, releasing after 2 seconds.

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PWP2 IONISER rA.1

