

AQUAMATICS MK5 SERIES IONISER



Code	Description
PAMK5	MK5 Series Ioniser Control Unit complete with Flow Cell and Barrel Unions 40mm or 50mm

This unit uses 2 electrodes of silver/copper alloy and an in built variable timer designed to ionise a variable volume of water up to a maximum of 60,000litres. The unique circuitry also enables variation to the current flow which saves on electrode wear during non swimming seasons. This unit treats 10,000 litres every hour.

INSTALLATION

COPPER & SILVER IONIC WATER PURIFICATION SYSTEM

The Ionic water purifier consists of two main parts, a control box and a pair of special rods or electrodes (silver/copper alloy). The electrodes are normally installed in the lid of the lint filter – just in front of the pool pump (Where no lint filter is fitted, a special flow cell is used). This should be fitted into the return to pool pip (after the filter and heater).

Installation of the electrodes is achieved in this following manner.

Carefully drill two holes of 8mm (5/6”) diameter approximately 60mm (2 1/2”) apart in the lid of the lint filter (see diagram). If the lint pot lid is held into position by a vertical steel post, this must be insulated with a length of tubing. Remove metal handle from lint basket (if fitted). Should electrodes be angled towards each other due to curvature of the lint pot lid, then the separation distance should not be less than approximately 20mm.

The position of the pool pump and the power supply to the pump will determine where the control box may be installed – usually on a vertical surface between the pump and power supply, under suitable cover and out of direct sunlight or warranty will be void.

If this is impractical, the cable which supplies the two electrodes may be extended up to 20 metres using good quality cable. For installation of the control box see the diagrams.

The power supply lead to the control box is fitted with a piggy-back type mains plug. The pool pump and Ionic Water Purifier must be plugged into the same time clock controlled power point for correct operation. The timer built into the control box is reset to zero each time the pool pump is switched on. The Ionic Water Purifier must not operate unless the pool pump is working. When first installed in a new pool the conductivity lamp may not be illuminated, if not, add calcium chloride to raise the pool water hardness to 200 ppm the pool and the conductivity lamp should be constantly visible. The continuity lamp (red-flashing) indicates that the electrodes are connected to the control box and that there is water between them. The polarity lamps alternate approximately every 2 minutes and indicate a polarity reversal has taken place at the electrodes to even the wear and remove deposits. A test button is provided in case of suspected instrument fault.

START-UP

1. Fill the pool to the top of the skimmer plate then add either 1 Kg Calcium Hypochlorite or 6L Sodium Hypochlorite. Add all chemicals slowly through the skimmer to prevent discolouration of the pool surfaces
2. Adjust the total alkalinity (T.A.) to within the range 80 – 100 ppm* (paint & F/glass 60)
3. Adjust the total hardness (T.H.) within the range 100 – 200 ppm**
4. Run the pool pump continuously in FILTER mode for 12 hours, or 2 hours for each 10,000L
5. Backwash the filter and adjust the water level in the pool to half-way up the skimmer plate. Adjust the pool pH to within the range 6.8 – 7.2 for fibreglass linings and 7.0 – 7.4 for all others.
6. Add Ionic Starter Kit followed by 1 Kg pack of Aquabrite. Plus in the Ionic Water Purification System with the pool pump plugged into the piggy-back plug and operate according to the following instructions
 - Operate the pool pump for 1 hour per day for each 10,000L of water in the pool ensuring that the Ionic Water Purifier can operate for that period of time. This is the summer running time. For winter, use half summer settings.
 - It is very important to maintain the pH of the pool water within the range 7.0 – 7.4
 - Measure the copper concentration (using the test kit provided) each week
 - Measure the Aquabrite concentration (using a DPD test kit) each week
 - The demand for Aquabrite varies from pool to pool and it is necessary to measure the Aquabrite in the water by using DPD #1 tablet test kit (like measuring chlorine) except that full colour development takes 15 minutes. Maintain a level Aquabrite, which produces a reading of not less than 2 ppm on the chlorine scale.

Note

From time to time check the condition of electrodes especially near the end of their expected life. They will form mud-like coating on the surface. This is normal – Do not clean off unless the electrodes have been allowed to dry out or the power supply has been disconnected for several weeks. Electrodes need changing when they have reduced in size to 2 joints of your little finger (approximately 40mm long).

*1 To increase T.A. by 100 ppm add 170 grams of sodium bicarbonate (buffer) per 1000L of water

** To increase T.H. by 100 ppm add 150 grams of calcium chloride per 1000L of water

RUNNING INSTRUCTIONS FOR POOLS

Initially, add the start-up kit to the skimmer box followed by 1 packet of Aquabrite per 50,000 litres of pool water but ensure that pH does not exceed 7.4. Check the level of copper in the water by using the copper test kit provided. When colour is observed of similar intensity to that of the comparator card the timer / output control may be adjusted to a lower setting. Check the Aquabrite level using a DPD test kit – follow the instructions printed on every pack. Maintain a total alkalinity reading between 80 and 100 ppm.

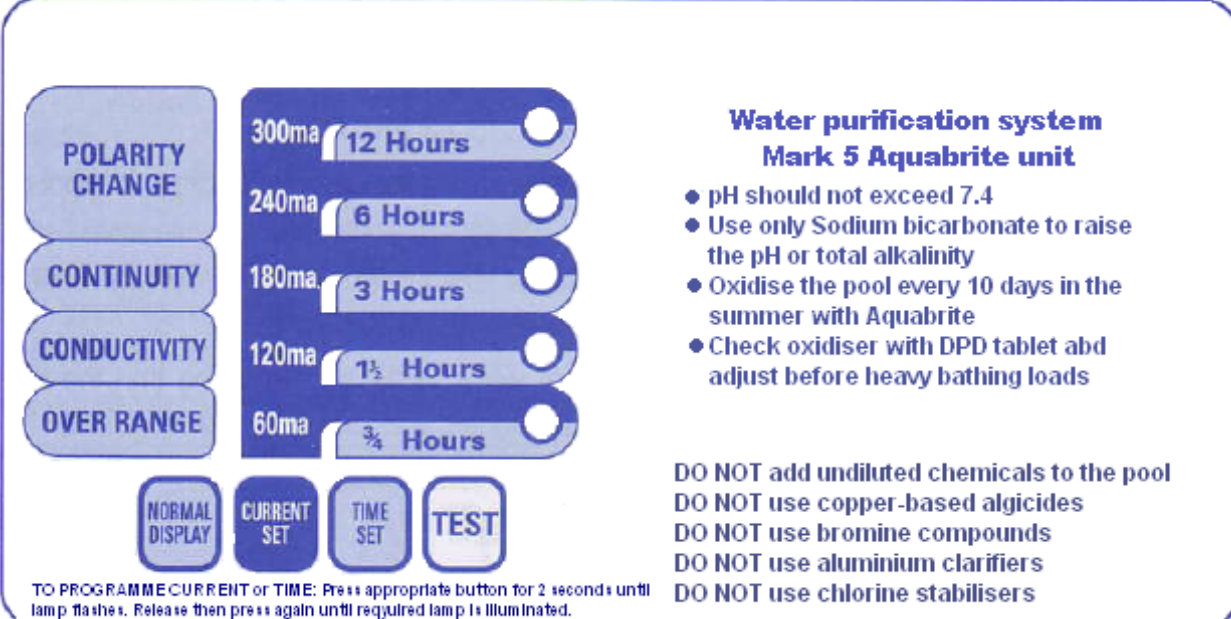
It is recommended that the Ionic Water Purifier should be operated for 1 hour per 10,000L of pool water per day in the summer months supplemented by a dosage of oxidiser every 7 to 14 days depending on usage. If a heavy bathing load (more than 6 bathers – hours) is expected on a single day Aquabrite should be added to the pool at the beginning of the day. The recommended winter setting is 3 hours per day supplemented with Aquabrite (as above) once per month. Aquabrite may be obtained from Aquamatics or through seeking pool shops. Chlorine may also be used, but always dissolve dry chlorine in a bucket before applying to the pool.

Never throw dry chlorine granules into the pool.

TO OBTAIN THE BEST RESULTS FROM YOUR IONIC WATER PURIFIER

1. Do not allow the pH of the water to rise above 7.4.
2. Do not throw undissolved chemicals into the pool.
3. Install the control box out of direct sunlight, and in a dry position.
4. Clean out the leaf trap and lint pot frequently.
5. Remove debris from the bottom of the pool (leaves etc)
6. Check the condition of the electrodes every few months.
7. Check the copper level in the water and adjust the timer.
8. Avoid using alum flocculants, chelating agents or copper-based algicides.
9. Do not use bromine compounds or pool conditioner (iso-cyanuric acid).
10. Do not use Sods Ash (pH up) with a copper/silver ioniser as this may lead to discolouration of pool surfaces.

MARK 5 CONTROL CENTRE FEATURES



The diagram shows a control panel with four main modes on the left: POLARITY CHANGE, CONTINUITY, CONDUCTIVITY, and OVER RANGE. Each mode has a corresponding current setting and a time setting. Below these are four buttons: NORMAL DISPLAY, CURRENT SET, TIME SET, and TEST. A note at the bottom explains the programming process.

Mode	Current	Time
POLARITY CHANGE	300ma	12 Hours
CONTINUITY	240ma	6 Hours
CONDUCTIVITY	180ma	3 Hours
OVER RANGE	120ma	1½ Hours
OVER RANGE	60ma	¾ Hours

**Water purification system
Mark 5 Aquabrite unit**

- pH should not exceed 7.4
- Use only Sodium bicarbonate to raise the pH or total alkalinity
- Oxidise the pool every 10 days in the summer with Aquabrite
- Check oxidiser with DPD tablet and adjust before heavy bathing loads

DO NOT add undiluted chemicals to the pool
DO NOT use copper-based algicides
DO NOT use bromine compounds
DO NOT use aluminium clarifiers
DO NOT use chlorine stabilisers

TO PROGRAMME CURRENT or TIME: Press appropriate button for 2 seconds until lamp flashes. Release then press again until required lamp is illuminated.

- POLARITY CHANGE:** these two indicator lamps reverse every 2 minutes to show that a polarity change has occurred at the electrodes.
- CONTINUITY:** this lamp indicates that there is a complete circuit between the control centre and the electrodes (flashes once per second)
- CONDUCTIVITY:** this lamp indicates that there is sufficient current flowing for normal ionisation (only operates in upper range of current settings)
- OVER RANGE:** this lamp is illuminated in the event of a short-circuit of the output terminals or the water conductivity is too high. This may also occur if chemicals are added to the pool via the skimmer, until flushed through the filter.

FUNCTION OF THE PROGRAMME & DISPLAY BUTTONS



NORMAL DISPLAY

Press to revert to NORMAL display after programme adjustment – does this automatically after a few secs

CURRENT SET

To check the current flows press the CURRENT SET button once. The LED opposite one of the current reading positions will be illuminated. When checking the current a reading lower than the set current may be indicated. This is due to low water conductivity.

To set the new selected current set (press "NORMAL DISPLAY"). CURRENT SET is normally set on 100% (300mA) unless a unit is shared between two systems such as between a pool and a spa for example.

TIME SET

To check the timer setting press the TIME SET button once. The LED opposite one of the time positions will be illuminated.

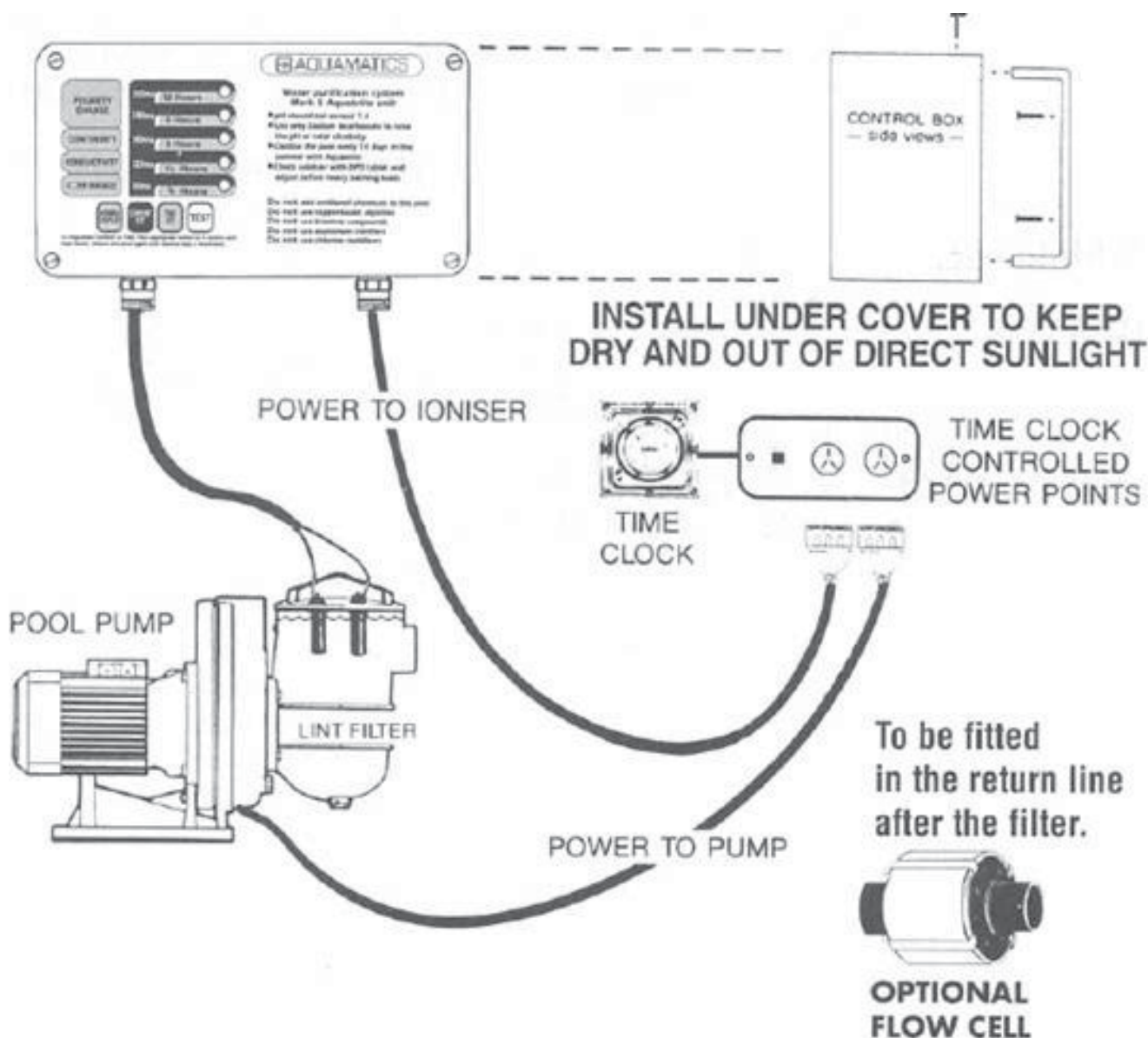
To change the timer setting press the TIME SET button and hold pressed until the LED begins flashing. Release and press repeatedly until the LED next to the desired time is illuminated in the timing cycle. Continuous operation is indicated by all LEDs flashing. The select sequence is "CONTINUOUS" 12 HOURS' 6 HOURS' 3 HOURS' 1 1/2 HOURS' 3/4 HOUR' "CONTINUOUS" ETC.

To set the new time press "normal display".

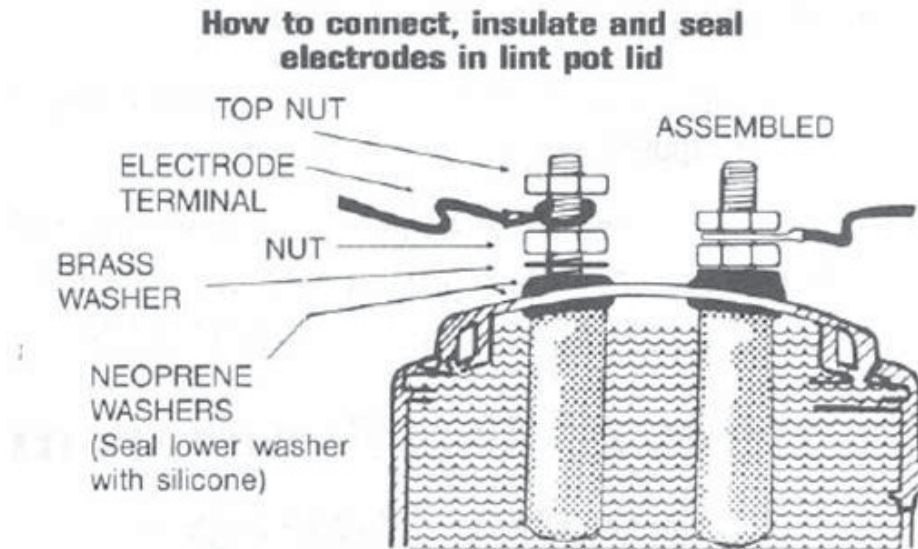
TEST

Check for normal polarity reversal. The top two polarity lamps alternate for a few seconds.

HOW TO CONNECT THE POWER



HOW TO CONNECT, INSULATE AND SEAL ELECTRODES IN THE LINT POT LID



RUNNING INSTRUCTIONS FOR SPAS

Run the purifier for 5 hours per thousand litres of spa water to build up the silver and copper residual, but ensure that the pH does not exceed 7.4 and that the filter can operate for that period. Check the level of copper in the water by using the copper test kit provided. When colour is observed of similar intensity to that of the comparator card the timer / output control may be adjusted to a lower setting. Maintain a total alkalinity reading between 80 and 100 ppm.

It is recommended that the Ionic Water Purifier should be operated for $\frac{3}{4}$ hours per 1000 litres per day supplemented by a dosage of oxidiser every 1 to 3 days depending on usage. If a heavy bathing load (more than 6 bathers – hours) is expected on a single day an oxidiser should be added to the spa at the beginning of the day. Add Aquabrite at the rate of 50 grams per 1000 litres. Must be diluted prior to adding to the spa (never add undiluted chemicals to a spa). Check the copper levels in the spa regularly and adjust as necessary to obtain the proper level.

SAFETY INSTRUCTIONS

The supply cord cannot be replaced. If the cord is damaged the controller should be scrapped or returned to the supplier. The appliance is not intended for use by young children or infirm persons without supervision. Young children should be supervised to ensure that they do not play with the appliance. The appliance must be positioned so that the plug is accessible.

SPECIFICATIONS

CONTROL BOX: H=130mm W=200mm D=65mm

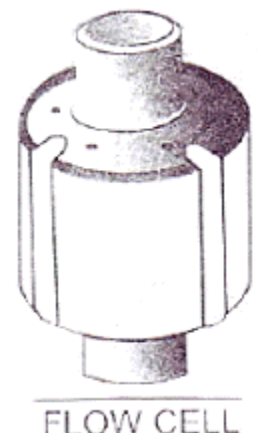
FLOW CELL: DIA=130mm L=205mm

L=225mm (fitted with 40mm barrel unions)

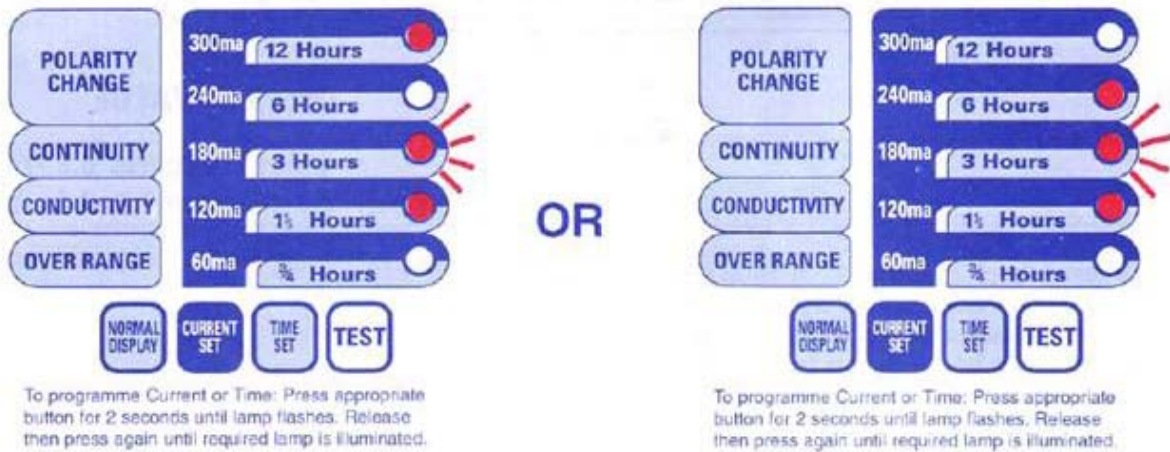
L=265mm (fitted with 50mm barrel unions)

IONIC ELECTRODES: DIA=25mm L=75mm

THREAD LENGTH=30mm 5/16" BSW



DISPLAY LAMP INFORMATION



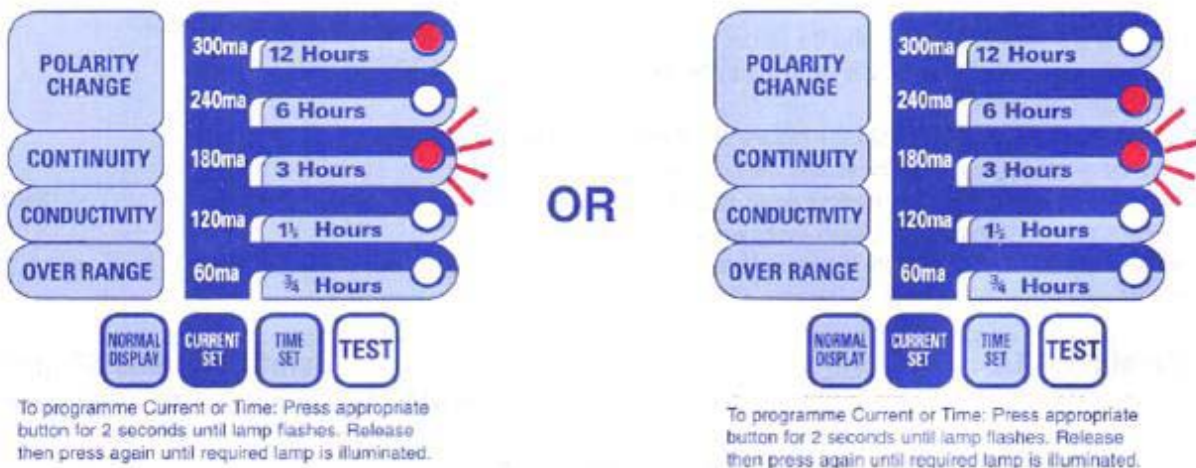
NORMAL DISPLAY

POLARITY CHANGE lamps alternate every 2 minutes.

CONTINUITY lamp flashes once per second.

CONDUCTIVITY lamp must be on continuously.

OVER RANGE lamp must not be on unless chemicals have just been added.



WATER CONDUCTIVITY TOO LOW

Check that “current set” is set to maximum 300MA. The mineral concentration of the pool water is LOW. Add calcium chloride at 1.5 Kg per 10,000 litres of water. Check the Total Alkalinity and adjust by adding sodium bicarbonate (Buffer), 1 Kg/day max. The CONDUCTIVITY lamp should be on after addition of the above chemicals.

DISPLAY LAMP INFORMATION



To programme Current or Time: Press appropriate button for 2 seconds until lamp flashes. Release then press again until required lamp is illuminated.

OR



To programme Current or Time: Press appropriate button for 2 seconds until lamp flashes. Release then press again until required lamp is illuminated.

CONDUCTIVITY TOO HIGH

The mineral content of the water is too high.

1. If the chemicals have just been added to the pool via the skimmer then the above display(s) is normal.
Check again after a few minutes.
2. Drain some water from the pool and replace it with fresh water until OVER RANGE lamp turns off.

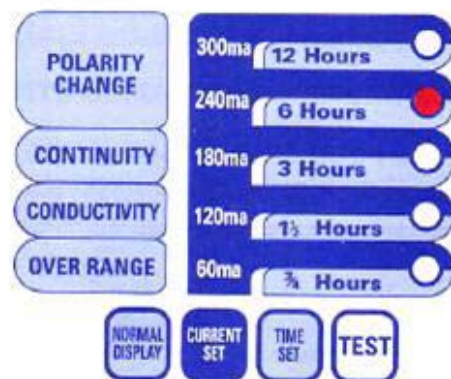
NO IONS ARE PRODUCED WHILE THE OVER RANGE LAMP IS ON.

WHEN OVER RANGE LIGHT IS ON THE UNIT HAS SHUT DOWN.



To programme Current or Time: Press appropriate button for 2 seconds until lamp flashes. Release then press again until required lamp is illuminated.

OR



To programme Current or Time: Press appropriate button for 2 seconds until lamp flashes. Release then press again until required lamp is illuminated.

CIRCUIT NOT CONTINUOUS

CONTINUITY and CONDUCTIVITY lamp off. Check low voltage cables and connectors. Check there is water between electrodes. Electrodes may need replacing.

HOW TO USE AQUA-BRITE

For use with Aquamatics Ionic Water Purifiers. AQUABRITE is a non-chlorine oxidiser.

Continue to operate your Ionic Water Purifier as per instructions.

PRETREATMENT:

Before using AQUABRITE check the pH and total alkalinity of the swimming pool water. Adjust the pH to within the range 7.0 to 7.4 and the total alkalinity should be higher than 80 parts per million. To increase the total alkalinity, add sodium bicarbonate (pH buffer). 1 Kg will increase the total alkalinity by 10 parts per million in the average 10 metre pool (50,000L). Add all chemicals slowly to the skimmer while the filtration system is operating. Good pool housekeeping is essential. Keep lead and lint filters free of leaves and rubbish.

POOLS (50,000 to 60,000L)

Add one sachet of AQUABRITE slowly to the skimmer. After about an hour (with the filter running) measure the concentration using a DPD (tablet type) test kit.

1. Fill the small vial with pool water to the mark – as though testing for chlorine.
2. Add a DPD No. 1 tablet shake to dissolve and wait exactly 15 minutes before reading the concentration.
3. The red colour produced should compare to above the 3 ppm colour on the chlorine scale. Do the DPD test about once a week initially. When the level drops to 2 ppm on the “Chlorine” scale add another sachet of AQUABRITE. Check the total alkalinity and add sodium bicarbonate to maintain a level at – or above 80 ppm, 60 ppm for paint, fibreglass.

SPAS

Initially add 50g of AQUABRITE per 1000L of spa water. Operate the ionic water purifier to maintain a copper reading equal to the maximum colour on the comparator scale. Excessive concentrations of AQUABRITE may cause the red colour of the DPD tablet solution to bleach colourless and thus give a false indication that there is insufficient AQUABRITE present.

NOTE: Maintain correct spa water chemistry to ensure that there is no acid build-up in the spa, which may damage the heater.

Please note that Aquabrite alone is not sufficient to disinfect water – it complements the action of the ionic water purifier.

NEVER USE BROMINE COMPOUNDS WITH THE AQUABRITE SYSTEM.

AS WITH ALL POOL CHEMICALS HANDLE WITH CARE – DO NOT MIX WITH OTHER CHEMICALS.

KEEP IN A COOL, DRY PLACE – KEEP AWAY FROM CHILDREN AND PETS.