



## Instruction Manual

**Congratulations**, you are now the proud owner of one of the most advanced water purification systems in the world. We have spent 20 years researching and developing the process until we are now fully confident that we hold the key to safe water treatment for the future.

Please take a moment to read these simple instructions and learn how to use your Aligator System. Proper installation and maintenance is important and will ensure healthier swimming and cost savings for many years to come. In the unlikely event you do need further assistance please do not hesitate to contact us.



# Contents

<b>Page 3</b>	Installation The Control Unit The Electrode Chamber
<b>Page 4</b>	Positioning the Chamber Operation Connections
<b>Page 5</b>	Pump Operating Times Display
<b>Page 6</b>	Pool Size Setting Summer/Winter Setting Language Setting Elapsed Time Delay
<b>Page 7</b>	Electrode Replacement
<b>Page 8</b>	Water Preparation pH Correction
<b>Page 9</b>	Alkalinity Correction
<b>Page 10</b>	Chlorine Levels Chlorine Dosing Cyanuric Acid
<b>Page 11</b>	Shock Treatment Stabilized Chlorine/Cyanuric/Cyanurate Copper Levels
<b>Page 12</b>	Test Kits

# Installation

## The Control Unit

The Aligator control unit needs to be placed inside your pump-room with access to a 13amp 220/240 volt mains socket. On the rear of the unit is a male/female mounting bracket. The male part should be attached to the pump-room wall, located as closely as possible to the pump, using raw plugs and screws. The control unit can now be slid onto the male bracket attached to the wall. Do not switch on at this stage.

The Aligator control unit should be connected to the mains supply directly, and not via the pump time switch.

## The Electrode Chamber

The chamber is fitted with two electrodes and a flow switch. The flow switch is designed to move with the flow of water and indicates to the control unit when the pump is operating, so it is important that the flow switch is fitted correctly. Study the movement of the flow switch noting how it moves.

Ideally, the chamber should be fitted between the pump and the filter, see the separate installation sheet.

The chamber comes as standard for 2" pipe work. If 1.5" or 50mm pipe work is used then the supplied reducers will be required.

If they are required, then these must be glued into the chamber, but make sure they are fitted with the flange to the inside the chamber.



## Positioning the chamber

It is usually a good idea to assemble the pipework before gluing to allow for any adjustments.

Using ordinary PVC pipe cleaner and glue, clean all surfaces to be glued with PVC cleaner, then glue the chamber to the pipe leading to the filter. Now glue the pipe you have removed from the pump, making sure that after the glue has dried you can still attach the screw flange to the pump. It is advisable to leave the glue to dry for 2 hours before attaching the screw flange to the pump and switching the system on.

Once installed, you can now connect the grey four core cable from the control unit to the chamber. The cable has 4 plugs, 2 for the electrodes and 2 for the flow switch. Identification is simple as both pairs of plugs are distinctly different. Polarity of either the electrodes or the flow switch is unimportant so the plugs can be fitted either way.

**You are now ready to switch your Aligator System on.**

# Operation

## Connections

The system is designed to be connected to a constant power supply 220/240 volts via the mains cable. This supply should not be timed or interrupted as the unit is programmed to operate within a 12 hour cycle. The swimming pool size programmed into the unit will determine for how long there will be power to the electrodes within this 12 hour period. The user must then set the pump operating times to suit the times shown in the table on page 5.

### Note

There will be times when there will be no power to the electrodes, even with the pump running, and the display will show Current: "Off" this is normal and just indicates that the Aligator has worked for the required time within that 12 hour period.



# Pump Operating Times

## ON Hours For 12 Hour Period

LCD DISPLAY				
Litres	Gallons	Size	Summer	Winter
9 – 27,000	2 – 6,000	1	2	1
27 – 50,000	6 – 11,000	2	3	2
50 – 70,000	11 – 16,000	3	4	3
70 – 100,000	16 – 22,000	4	5	4
100 – 150,000	22 – 34000*	5	6	5
150 – 200,000	34 – 45000*	6	8	6

\* Requires the larger Aligator Unit

The unit is fully automated and will operate as soon as power has been established and the pool size entered. However, the electrodes will only be powered when the pump is on and water is flowing in the correct direction through the chamber.

### Display

On power-up the unit will display “Welcome to Aligator” for 10 seconds, for this time the electrodes will remain off while the current detection circuit automatically zeros itself.

The home screen will then be displayed as below. This default display shows the actual current into the electrodes dependent upon your pool setting.

<i>Current:</i>	<i>82mA</i>	<i>OK</i>
<i>Current Alarm</i>		<i>ON</i>

Should the “OK” be replaced by “LOW” or “----“ the alarm will be activated. The red LED light will flash and the unit will beep.

If the alarm is activated this indicates that either the pool water balance or the electrodes need attention

You can toggle the modes by simply pressing the Mode button on the unit. You will cycle through the following settings:

Pool Size • Summer/Winter • Language • Elapsed Time

## Pool Size Setting

Select the correct pool size from the table on page 5, and by using the UP/DOWN buttons select the number appropriate to your pool size. The display shown below shows the unit set for the smallest pool size:

<i>POOL Ltrs:</i>	<i>9-27000</i>
<i>SIZE Gals:</i>	<i>2-6000</i>

## Summer/Winter Setting

The display shown below indicates which summer or winter settings have been selected. Use the UP/DOWN buttons to select ON/OFF as appropriate. Actual timing effects are shown in the table on page 5.

<i>Summer Timing:</i>	<i>ON</i>
<i>Winter Timing</i>	<i>OFF</i>

## Language Setting

The Aligator has been programmed with English, French, German and Spanish Languages. Select these by pressing the UP/DOWN buttons.

## Elapsed Time Display

The last display shows the time elapsed as appropriate:

The hours shown are the total hours the electrodes have worked, the pump has worked and finally the total hours the alarm has been activated. (Elapsed times are timed on the half hour for best accuracy).

<i>Electr:</i>	<i>Pump:</i>	<i>Alarm:</i>
<i>0000</i>	<i>0000</i>	<i>0000</i>

# Electrode Replacement

The electrodes are a composition of a number of metals. Under good pool management i.e. keeping a good water balance, the electrodes can last up to 18 months. The correct wear pattern should be a progressive reduction in the diameter until the electrode is slightly more than the width of a pencil. At this point they should be replaced.

Access to the electrodes is by unscrewing the top ring flange of the chamber and gradually easing out the transparent lid with a screw driver. A rubber 'O' ring situated round the edge of the lid creates a seal. Once the lid has been removed the electrodes can be checked and replaced if necessary.

Carefully unscrew the electrodes from the lid using a pair of pliers. Always ensure



when replacing the electrodes, that the rubber seal is placed against the lid followed by the plastic washer then the electrode nut. Please contact your supplier if any of these parts need replacing. When replacing the lid, make sure the lugs are in line before pushing the lid onto the chamber, ensuring the water flow will operate the flow switch.

Replace the electrodes only with genuine Alligator Electrodes. If other types are used the result will be a reduction in sanitation and possible staining of the pool walls.

## Water Preparation

It is very important to bring the pool water balance to the correct levels and maintain as below:

pH	7.2	to	7.4
Alkalinity	90	to	120
Chlorine	1.2	to	1.5ppm (start-up)
Chlorine	0.6	to	0.8ppm (Normal Operation)
Cyanuric	40	to	60ppm (No Higher than 80ppm)
Copper	0.2	to	0.6ppm (No Higher than 0.6ppm)

### To establish the size of your pool:

Multiply the Length x Width x Average Depth = m<sup>3</sup> (Cubic Metres)

i.e.:- 10m x 5m x 1.5m = 75 m<sup>3</sup> 1 cubic meter = 1000 litres

### pH Correction

For high readings of pH use Dry Acid (Sodium Bisulphate) to reduce as per table below:

		ph reading			
Size of Pool		7.6	7.8	8.0	8.2
50,000 litre	11,000 gals	300gram	600gram	900gram	1.2kg
75,000 litre	16,000 gals	600gram	900gram	1.2kg	1.5kg
100,000 litre	22,000 gals	900gram	1.2kg	1.5kg	1.8kg
125,000 litre	28,000 gals	1.2kg	1.5kg	1.8kg	2.1kg

With the pump on filtration, mix a small amount of dry acid (no more than 1kg at a time), in a bucket of warm water and dilute. Once dissolved, pour contents around the swimming pool. **Extreme care should be taken when handling acid as it is very corrosive.**

For a low reading of pH use Sodium Bicarbonate (Bi-Carb of Soda) to increase pH as per table below:

Size of Pool		pH Reading 6.8
50,000 litre	11,000 gals	500gram
75,000 litre	16,000 gals	750gram
100,000 litre	22,000 gals	1.0kg
125,000 litre	28,000 gals	1.25kg

Turn multiport valve to recirculate then turn the pump on, mix the sodium bicarbonate in a bucket of warm water and dilute. Once dissolved, pour contents around the swimming pool.

Leave pump running until water looks, clear, turn pump off then turn valve back to filtration turn pump back on.

## Alkalinity Correction

For high readings of Alkalinity use Dry Acid (Sodium Bisulphate) to reduce as per table below:

Size of Pool		Test Reading of Alkalinity			
		250	220	200	180
50,000 litre	11,000 gals	2kg	1kg	750g	500g
75,000 litre	16,000 gals	4kg	3kg	2kg	1kg
100,000 litre	22,000 gals	6kg	5kg	4kg	3kg
125,000 litre	28,000 gals	8kg	7kg	6kg	5kg

With the pump circulating, mix a small amount of dry acid (no more than 1kg at a time), in a bucket of water and dilute. Once dissolved, pour contents around the swimming pool. ***Extreme care should be taken when handling acid as it is very corrosive.***





For a low reading of Alkalinity use Sodium Bicarbonate (Bi-Carb of Soda) to increase Alkalinity as per table below:

Size of Pool		Test Reading of Alkalinity			
		80	60	40	30
50,000 litre	11,000 gals	2kg	3kg	4kg	5kg
75,000 litre	16,000 gals	3kg	4kg	5kg	6kg
100,000 litre	22,000 gals	4kg	5kg	6kg	7kg
125,000 litre	28,000 gals	5kg	6kg	7kg	8kg

Turn multiport valve to recirculate then turn the pump on, mix the sodium bicarbonate in a bucket of warm water and dilute. Once dissolved, pour contents around the swimming pool.

Leave pump running until water looks, clear, turn pump off then turn valve back to filtration turn pump back on.

***WARNING: Do not mix chemicals together. Mixing chemicals causes Fire, Explosion and Toxic fumes.***

## Vacuuming and Backwashing

During the first two weeks, frequent vacuuming and backwashing must be done to clear away the residue of solids being solidified by the action of the Aligator. This action makes the water crystal clear. After a period, depending on how contaminated the water was before the Aligator was fitted, the vacuuming and backwashing may be resumed at the normal frequency. Visual inspection of the bottom of the pool showing no solids present indicates this situation. A frequent vacuuming and backwashing policy however, is absolutely essential for the good management of your pool.



## Chlorine levels

During the start-up period of 2 to 3 weeks, Chlorine levels should be maintained between 1.2 – 1.5ppm. After this time the level can be reduced further and maintained at 0.6-0.8ppm.

### Chlorine Dosing

The dosage of chlorine and the frequency at which it must be added can only be determined by trial and error as each pool size and bather load is different. Once you have established the dosage for your pool it becomes a simple matter to maintain the levels required.

A point to remember is both Aligator and chlorine work together to sanitise your pool and protect you from bacteria. Neither will work effectively if the balance of the water is incorrect. Administering chlorine is pointless if the pH and alkalinity are incorrect. Make sure you have a regular testing programme.

Choose the larger chlorine tablet these can be placed in the skimmer/weir basket. A good quality slow dissolving tablet should last approx. 5 to 7 days.

Do not pour chlorine directly into the pool. This may cause black staining to appear on the floor of the pool. Instead, dilute in water and pour slowly throughout the pool.



# Cyanuric Acid

Cyanuric acid is a stabilising compound used to stabilise chlorine against dissipation by sunlight. If the level is above 80ppm it must be reduced by replacing with fresh water until you have acquired the correct level. It is advisable not to use stabilized chlorine in an indoor pool.

## Shock Treatment

The only time a swimming pool needs shock treatment is when it has been neglected and the water has turned green. In any other circumstances such as the water being cloudy, we recommend testing the water and readjusting the balance will normally bring the clarity back to a swimming pool.

In the case where a pool has been neglected vacuum thoroughly and backwash the system ensuring there is no debris left in the pool. Test the water balance is correct; it is advisable to lower the pH to 7.0. Apply a granular or liquid chlorine pool shock treatment strictly in accordance with the manufacturer's instructions. After 24hours test the water as it may be necessary to re-balance. Vacuum and backwash for the next 2 days, periodically checking and correcting the water balance as required.

Where a high content of cyanuric acid is present the same procedure can be carried out and the water may clear. This would only be a temporary solution as the water would almost certainly cloud up again. Simply replace 20% of the pool water with fresh water until the cyanuric level has been reduced to the correct level. Repeat as necessary.



## **Stabilized Chlorine / Cyanuric / Cyanurate**

All stabilized chlorine forms cyanuric acid in the water, this substance is the stabiliser. The level at which it is at its most efficient is between 40-60ppm. Anything over this level reduces the power of the chlorine and the effect of the Aligator. If you find you are approaching the danger level, simply revert to using non-stabilized chlorine for a period and allow normal backwashing to lower the level. If the level exceeds 80ppm you must take immediate action by removing water and adding fresh. If the level is 100ppm at least 50% of the water should be replaced, anything over this and all the water in the pool should be replaced.

## **Copper Levels**

We recommend you obtain a copper test kit and check the level on a monthly basis. The correct level of free copper should be between 0.2 – 0.6ppm. If the levels are above or below this, please consult your dealer or contact us directly.

## **Test Kits**

There are a number of different test kits available. For the successful operation of Aligator it is important that your kits tests for: pH, Alkalinity, Chlorine, Cyanuric and Copper.

**Test kits are essential for good water management of your swimming pool.**

Test kits should be kept in a cool, dry place away from direct sunlight. Most test kits have a use by date and these should be observed as they deteriorate with age. If you have a defective test kit you will never achieve good management of your swimming pool.

Successful management of your pool depends on understanding and implementing the information in this instruction manual.

**We wish you many happy hours of healthy swimming.**

