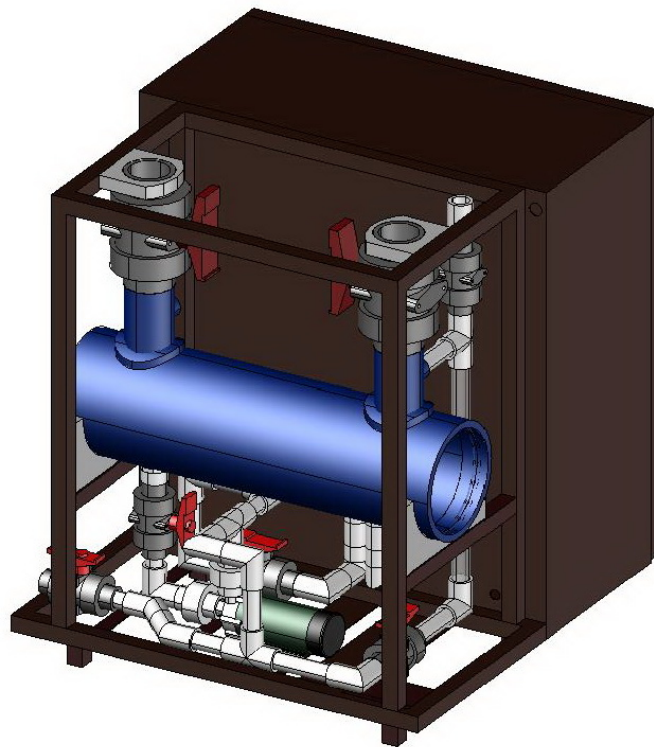




*Commercial
SR/SRC/SA/SAC
Salt Water Chlorine Generator*



*SR(C)-300
User Manual*



CONTENTS

	Page
1.0 Introduction	2
2.0 Spare Parts and Service	2
3.0 Installation Guide	3
4.0 Plumbing Instructions	6
5.0 Electrical Wiring	6
6.0 Water Chemistry	6
6.1 Water Volume	6
6.2 Supper Chlorinate Water	7
6.3 Chemically Balancing	7
6.4 Adding Salt	7
7.0 Checking the Installation	8
8.0 Initial Start-Up and Commissioning Instructions	9
9.0 Operating Instructions	10
10.0 External Control	13
10.1 External Control ON/OFF	13
10.2 Connecting ON/OFF External Control Relay	13
10.3 Connecting External control proportional 4 – 20 mA control	14
11.0 Maintenance of Plant	15
11.1 Rectifier Maintenance	15
11.2 Cell Module Maintenance	15
12.0 Using the Mild Acid Wash	16
Autochlor™ Maintenance Log	18
Appendinx A,B	19

1.0 Introduction

Important: Please read this manual before operating the chlorine generator. Your maintenance personnel should be made familiar with all aspects of the chlorine generator. Improper operation or failure to carry out proper maintenance may cause damage to the unit and void the warranty.

For service, please direct all inquiries to Australian Innovative Systems or your local Australian Innovative Systems dealer.

This commercial chlorine generator has been built to our stringent performance specifications. When operated and maintained correctly the plant will provide effortless and trouble-free operation.

Please take the time to read this manual as it contains installation requirements, operating instructions, and maintenance requirements.

2.0 Spare parts and service

Australian Innovative Systems has a comprehensive service and spare parts network for your convenience. Use of non-genuine parts can seriously damage other components of the unit and may void your warranty. For service and spares, please contact Australian Innovative Systems or your local dealer.

3.0 Installation Guide

It is imperative that you install the Autochlor™ unit in accordance with these instructions.

Positioning

The chlorine generator should be positioned in a room protected from the environment, positioned down stream from the filtration plant. Positioning should allow for ready access to the electrolytic cell, front panel and the side door. When determining the best location of the plant you should consider connection to the following services:

(a) Main Filter Water Outlet Pipe – The unit needs to be connected to the main return pipe to the pool (after pumps, filters etc.) via connection pipes.

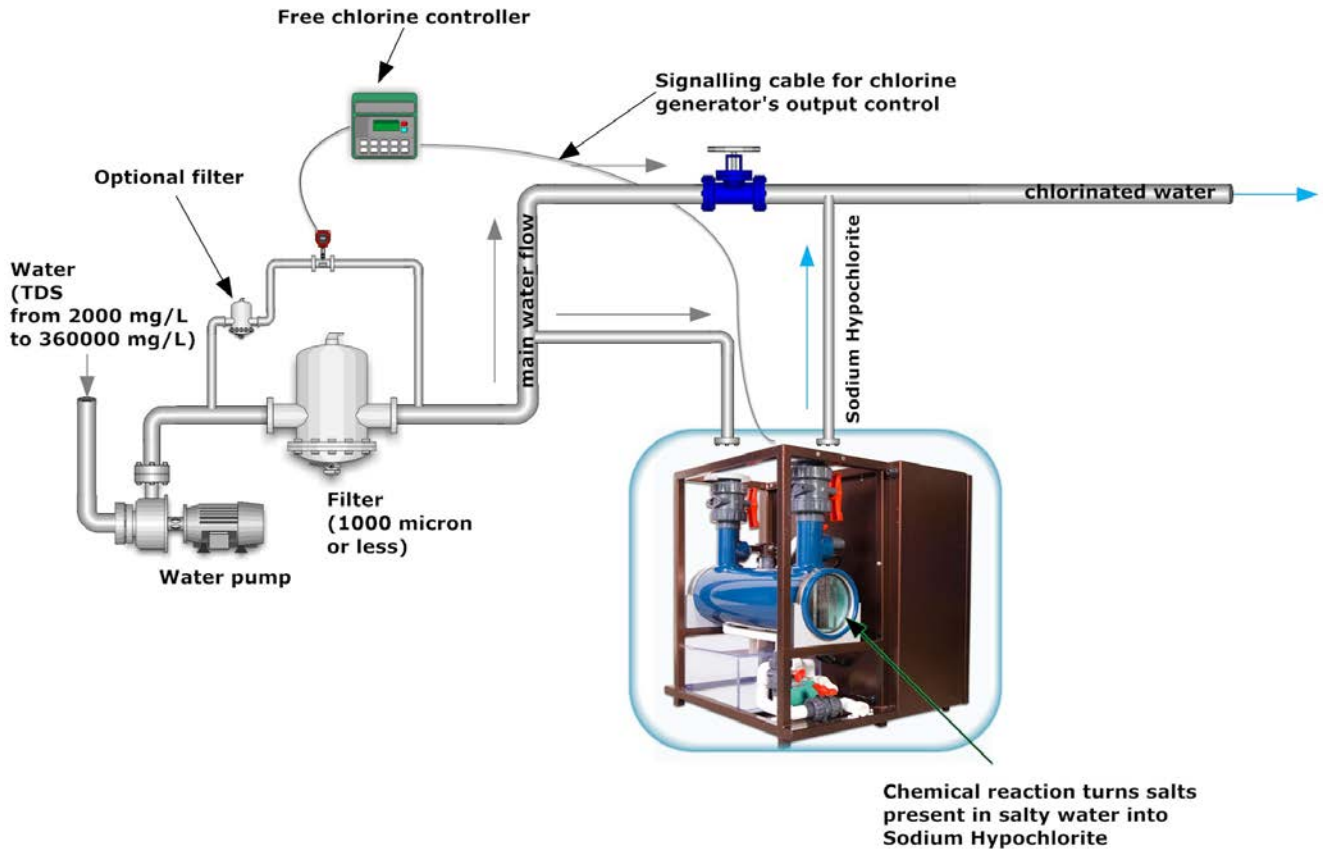
(b) Chlorine Generator - It is desirable (but not essential) that the unit is positioned so that the cell inspection portals and opposing cell termination end are clear of any walls to facilitate easy access. Every 4-5 years the cell electrodes will need replacing. Allowing space of approximately 4/5th of the length of the cell housing at the termination end will enable quick removal of the cell electrode assembly without removal of the cell housing from the frame.

(c) Acid Wash System – Provision must be made for the plumbing of the acid waste management system to a suitable receptacle or to waste water via PVC-pipe connection.

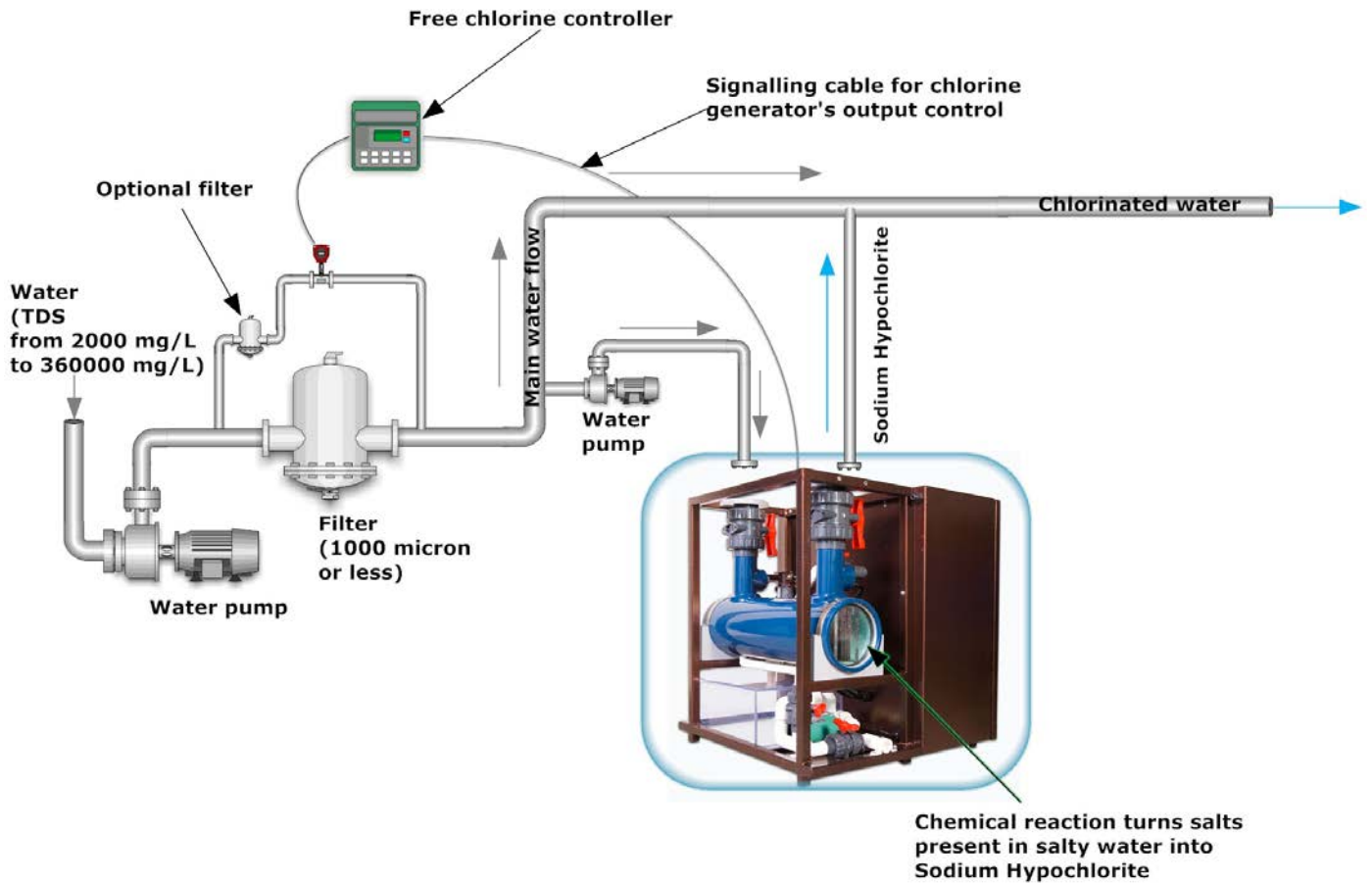
If space in the plant room is at a premium, the chlorine generator can be placed outside of the plant room with appropriate shielding from direct weather. If positioned outside, care should be taken in securing the valves etc. from the risk of tampering by the unauthorised persons.

Installation Diagram

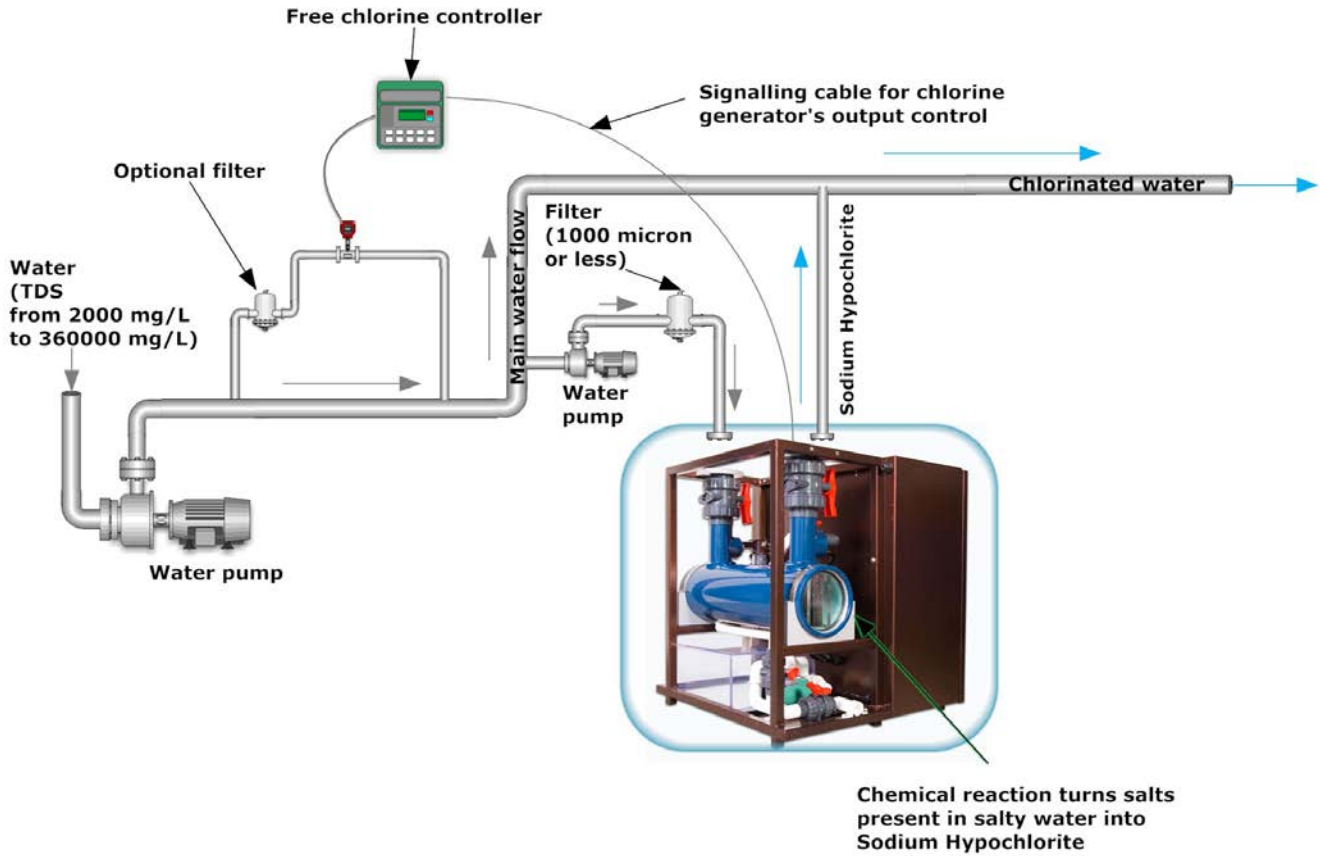
Option 1



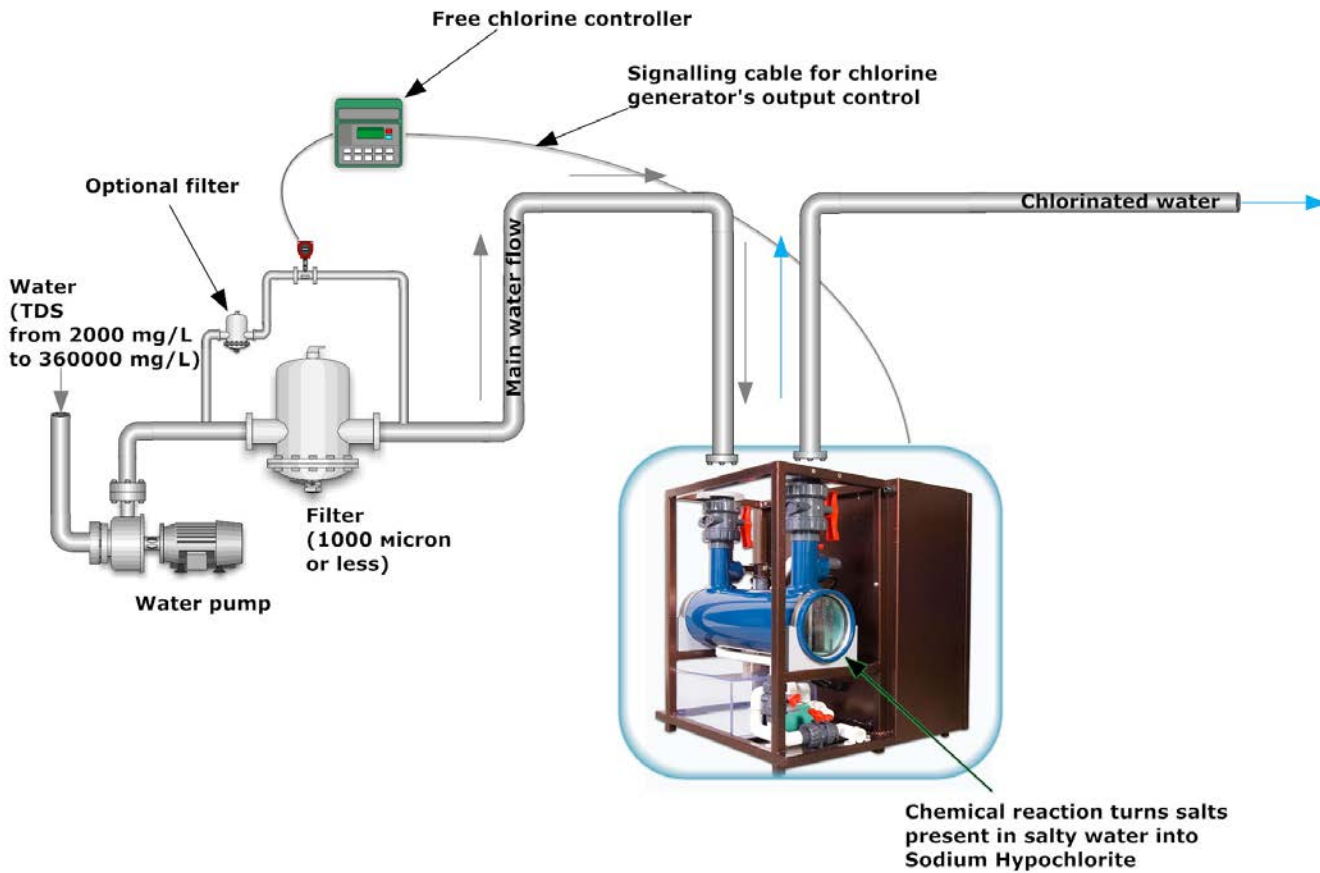
Option 2



Option 3



Option 4



Please note: If option 2 or 3 is chosen from one of the above diagrams, the flow switch which is built into the chlorine generator will not be able to sensor main water flow,

therefore you must have your own main flow switch which has to be connected to the **External ON/OFF control** (see *External control instructions p13*). This is necessary so the chlorine generator stops when your main water flow stops.

4.0 Plumbing Instructions

The inlet valve **M1** must be connected to the return pipe of the filtration system after the main water pump and filter (see Diagrams above). In the case of a heated pool, the heater must be plumbed in parallel with chlorine generator (see Appendix, Appendix B), i.e. hot water from the heater must not enter the chlorine generator as well as chlorinated water from the chlorine generator must not enter the heater! The cell module water outlet valve **M2** should be plumbed back into the main water return pipe directly to the water body.

The unit should be connected as a slipstream to the main filtration return pipe. This will enable you to isolate the cell module from the main filtered water stream, and enable uninterrupted filtration. A slipstream connection also avoids placing excessive pressure on your filtration system where high flow rates are involved. The slipstream connection of valves involves connecting the cell module inlet pipe to the filtration return pipe, via a “T” junction. Turn the electrolytic cell main water flow valves **M1 & M2** to the open position and check for proper hydraulic sealing.

5.0 Electrical Wiring


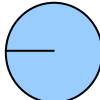
Mains Input

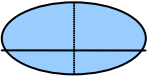
The unit must be wired according to the power source specified in technical specification. The AutochlorTM unit should operate only when the filtration pump is running.

6.0 Water Chemistry

6.1 Water volume

If this is not already known, it can be estimated by using the following formulae. The water volume will determine the amount of salt and other chemicals required for the effective sanitation and cleanliness of your water. To determine the approximate water volume in litres:

Pool Shape	Volume Formula	Volume
Rectangular: 	$\text{Length (m)} \times \text{Width (m)} \times \text{Average Depth (m)} \times 1,000$ Example: 25m x 12m x 3m x 1000	= Volume in Litres = 900,000 L
Circular Shape 	$\text{Radius (m)} \times \text{Radius (m)} \times 3.14 \times \text{Average Depth (m)} \times 1,000$ Example: 5m x 5m x 3m x 3.14 x 1000	= Volume in Litres = 235,500L

<p>Oval</p> 	<p>Average Long Diameter (m). x Average Short Diameter(m) x Average Depth (m)x 668</p> <p>Example 10m x 5m x 2m x 668</p> <p><i>If water body has sloping sides, multiply total litres x 0.668</i></p>	<p>= Volume in Litres</p> <p>= 66800 L</p> <p>= 0.668 x 66800 L</p>

6.2 Super chlorinate water

If the water body is newly constructed or if it has a high bacteria or algae levels, the treatment process can be sped up by manually super chlorinating the water to remove these contaminants.

Note: It is preferable that you use non-calcium-based chlorine. The use of calcium Hypochlorite will increase the water's calcium concentration resulting in greater calcium build up on the electrolytic cell(s), requiring more frequent cleaning. You should refer to a reputable water treatment professional for recommended dosages.

6.3 Chemically Balancing

Chemically balancing the water before turning ON the Autochlor™ unit.

You should ensure that the pool water is chemically “balanced” before starting the Autochlor™ unit. With proper filtration and chemically balanced water, your pool should be clear and sparkling. Chemical Concentrations should be set within the following ranges:

Chlorine.....	0.5 mg/L – 2.0 mg/L (or as otherwise regulated)
pH	7.2 - 7.6
TA (Total Alkalinity).....	80 – 120 mg/L
Cyanuric Acid (Optional).....	30 – 50 mg/L
Salt (Washed, Refined Salt).....	2000 mg/L or more

Unbalanced water can result in scaling, corrosion of your pool pump and equipment and inefficient operation of the Autochlor™ plant. Water balance should be checked periodically for clean and healthy water. We recommend that you consult with a local water treatment professional to determine recommended chemical levels, as these will vary according to local conditions.

6.3 Adding Salt

The Autochlor™ Hypochlorite plant operates within a broad range of salinity levels: from 2,000 mg/L of salt (minimum) to completely saturated brine (350,000 mg/L). The

process of electrolysis at the electrolytic cell converts the salty water into sodium hypochlorite (liquid chlorine).

Due to the quantity of salt required to reach the appropriate salt level, we recommend purchasing commercially available bagged swimming pool salt. **Only washed refined salt (NaCl) should be used.** Certain commercial supplies of salt contain impurities that can inhibit effective operation of the Autochlor™ unit. We therefore recommend you consult with your local Australian Innovative Systems dealer to determine appropriate suppliers of acceptable salt.

For example: To achieve the concentration of 5,000 mg/L of salt in the fresh water, you must add pure salt in the following quantities:

For every 1000 litres of fresh water	5.0 Kilograms (kg) of salt	= 5000 mg/L concentration
For 200,000 litres of fresh water	1000 Kg (approx. 40 x 25kg bags) of salt	= 5000 mg/L concentration
For 500,000 litres of fresh water	2500 kg (approx. 100 x25kg bags)	= 5000 mg/L concentration
For 1,000,000 litres of fresh water	5000 kg (approx. 200 x 25kg bags)	= 5000 mg/L concentration

With the Autochlor™ unit switched off add salt around the perimeter of the pool to aid its rapid distribution.

Since salt is heavier than water, it may remain in the deepest sections of the pool, even though it appears to be fully dissolved.

To assist in its permanent distribution, vacuum and run the filtration system until salt is fully dissolved.

**PLEASE READ THE NEXT FEW SECTIONS CAREFULLY
BEFORE ATTEMPTING TO RUN
THE FILTRATION SYSTEM**

7.0 Checking the Installation

Before powering ON the Autochlor™ plant, you should ensure that the following checks have been carried out, in sequential order:

Important: Water is required to be chemically balanced before the Autochlor™ unit is switched ON.

Electrical Checks:

Check the mains input is according to technical specification.

Plumbing checks:

1. Ensure cooling water valve **CW1 and AW1** is in open position.
2. Ensure that the Acid Wash system valves **AW2, AW3, AW4 and V1** are closed.
3. Open Valves **M2 first and then M1**.
4. Check the plumbing to ensure there are no leaks by running the filtration plant with the Autochlor™ main power switch turned off.
5. Check that the chlorine generator is plumbed after the filtration system. The outlet pipe should be plumbed directly to the return line to water body.
6. Heater (if any) must be installed as shown on a diagram attached (Appendix A and B)
7. Check the salt has been fully dissolved in the water

8.0 Initial Start Up & Commissioning Instructions



To commence start up, follow the undermentioned procedure:

1. Ensure that the Acid Wash System Valves **AW2, AW3, AW4** and **V1** are closed.
2. Ensure the Main Water Flow Valves **M1** and **M2** are in the “open” position.
3. Ensure cooling water valve **CW1** is in open position.
4. Connect the Autochlor™ unit to the main power supply
5. Main power switch/s inside electrical box in “ON” position. (30 seconds delay start will commence)
6. The LCD screen will illuminate.
7. Ensure there is water flow in the housing, observe through clear window.

8. Press the “” button to start chlorine production.





For the Autochlor™ unit to start producing chlorine there must be water flowing through the electrolytic cell(s). That is, relevant valves must be open and the circulation pump running. If the “NO WATER FLOW” message is indicated, there is not enough water flow through the unit.

- Press the “” button for a second time. If the message still appears on the screen refer to the Warning Messages table below.

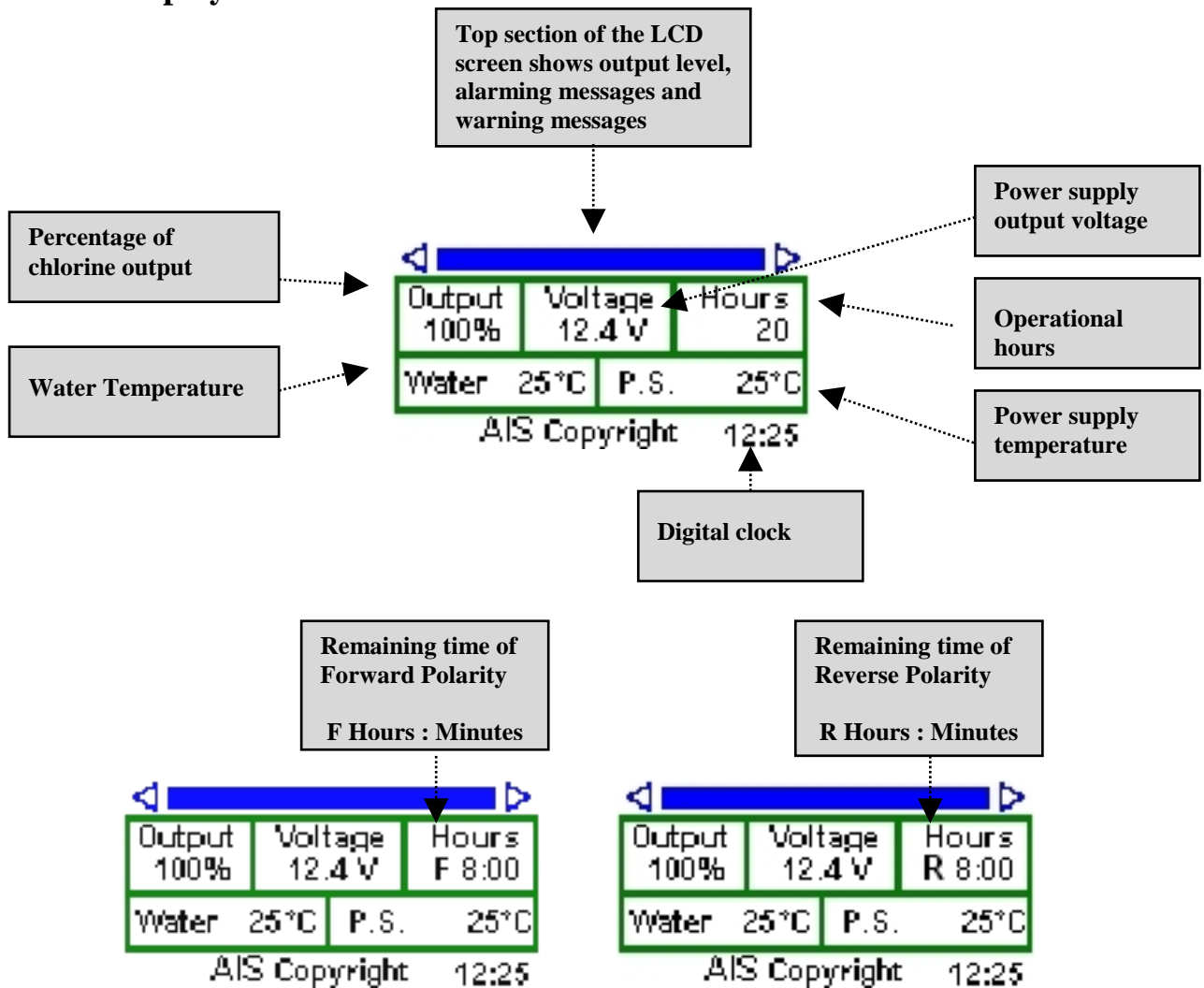
9. To change the output of chlorine use “ / ” buttons.

9.0 Operating Instructions

You should become familiar with the function of the various buttons and displays:

FEATURE		FUNCTION
	Increase button	Regulates chlorine output.
	Decrease button	
	Start/Stop button	Turns the Autochlor™ unit on/off.
	Cell cleaning button	Starts cell cleaning procedure
LCD Display		Shows alarms and operational parameters

LCD Display



DISPLAY MESSAGES

<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;"> <p style="text-align: center; font-weight: bold;">SALT WATER GEN.</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td>Output</td> <td>Voltage</td> <td>Hours</td> </tr> <tr> <td>0%</td> <td>0.0V</td> <td>0</td> </tr> <tr> <td>Water</td> <td>25°C</td> <td>P.S. 25°C</td> </tr> <tr> <td colspan="3" style="text-align: center;">AIS Copyright 12:25</td> </tr> </table> </div>	Output	Voltage	Hours	0%	0.0V	0	Water	25°C	P.S. 25°C	AIS Copyright 12:25			<p>Start up Screen (Appears when the chlorine generator is switched on)</p>												
Output	Voltage	Hours																							
0%	0.0V	0																							
Water	25°C	P.S. 25°C																							
AIS Copyright 12:25																									
<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;"> <p style="text-align: center; font-weight: bold;">CLEANING</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td>Output</td> <td>Voltage</td> <td>Hours</td> </tr> <tr> <td>0%</td> <td>0.0V</td> <td>0</td> </tr> <tr> <td>Water</td> <td>25°C</td> <td>P.S. 25°C</td> </tr> <tr> <td colspan="3" style="text-align: center;">AIS Copyright 12:25</td> </tr> </table> </div> <div style="border: 1px solid black; padding: 2px;"> <p style="text-align: center; font-weight: bold;">15 MIN LEFT</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td>Output</td> <td>Voltage</td> <td>Hours</td> </tr> <tr> <td>0%</td> <td>0.0V</td> <td>0</td> </tr> <tr> <td>Water</td> <td>25°C</td> <td>P.S. 25°C</td> </tr> <tr> <td colspan="3" style="text-align: center;">AIS Copyright 12:25</td> </tr> </table> </div>	Output	Voltage	Hours	0%	0.0V	0	Water	25°C	P.S. 25°C	AIS Copyright 12:25			Output	Voltage	Hours	0%	0.0V	0	Water	25°C	P.S. 25°C	AIS Copyright 12:25			<p>Cell cleaning is in progress.</p> <p>Note: Cleaning should only be performed when there is calcium deposit build of up to 0.5 – 1 mm. Calcium build up can be observed through clear windows of the housings.</p>
Output	Voltage	Hours																							
0%	0.0V	0																							
Water	25°C	P.S. 25°C																							
AIS Copyright 12:25																									
Output	Voltage	Hours																							
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AIS Copyright 12:25																									
<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;"> <p style="text-align: center; font-weight: bold;">REVERSING</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td>Output</td> <td>Voltage</td> <td>Hours</td> </tr> <tr> <td>0%</td> <td>0.0V</td> <td>0</td> </tr> <tr> <td>Water</td> <td>25°C</td> <td>P.S. 25°C</td> </tr> <tr> <td colspan="3" style="text-align: center;">AIS Copyright 12:25</td> </tr> </table> </div> <div style="border: 1px solid black; padding: 2px;"> <p style="text-align: center; font-weight: bold;">45 SEC LEFT</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td>Output</td> <td>Voltage</td> <td>Hours</td> </tr> <tr> <td>0%</td> <td>0.0V</td> <td>0</td> </tr> <tr> <td>Water</td> <td>25°C</td> <td>P.S. 25°C</td> </tr> <tr> <td colspan="3" style="text-align: center;">AIS Copyright 12:25</td> </tr> </table> </div>	Output	Voltage	Hours	0%	0.0V	0	Water	25°C	P.S. 25°C	AIS Copyright 12:25			Output	Voltage	Hours	0%	0.0V	0	Water	25°C	P.S. 25°C	AIS Copyright 12:25			<p>Chlorine generator is changing the polarity of the cell. (Applicable only to polarity reversible models)</p>
Output	Voltage	Hours																							
0%	0.0V	0																							
Water	25°C	P.S. 25°C																							
AIS Copyright 12:25																									
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<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;"> <p style="text-align: center; font-weight: bold;">100%</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td>Output</td> <td>Voltage</td> <td>Hours</td> </tr> <tr> <td>100%</td> <td>12.4 V</td> <td>F 8:00</td> </tr> <tr> <td>Water</td> <td>25°C</td> <td>P.S. 25°C</td> </tr> <tr> <td colspan="3" style="text-align: center;">AIS Copyright 12:25</td> </tr> </table> </div>	Output	Voltage	Hours	100%	12.4 V	F 8:00	Water	25°C	P.S. 25°C	AIS Copyright 12:25			<p>Output is set to 100% Output can be changed to a lower output percentage.</p>												
Output	Voltage	Hours																							
100%	12.4 V	F 8:00																							
Water	25°C	P.S. 25°C																							
AIS Copyright 12:25																									
<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;"> <p style="text-align: center; font-weight: bold;">50%</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td>Output</td> <td>Voltage</td> <td>Hours</td> </tr> <tr> <td>50%</td> <td>12.4 V</td> <td>R 8:00</td> </tr> <tr> <td>Water</td> <td>25°C</td> <td>P.S. 25°C</td> </tr> <tr> <td colspan="3" style="text-align: center;">AIS Copyright 12:25</td> </tr> </table> </div>	Output	Voltage	Hours	50%	12.4 V	R 8:00	Water	25°C	P.S. 25°C	AIS Copyright 12:25			<p>Output is set to 50%</p>												
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50%	12.4 V	R 8:00																							
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<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;"> <p style="text-align: center; font-weight: bold;">EXTC OFF</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td>Output</td> <td>Voltage</td> <td>Hours</td> </tr> <tr> <td>0%</td> <td>0.0V</td> <td>0</td> </tr> <tr> <td>Water</td> <td>25°C</td> <td>P.S. 25°C</td> </tr> <tr> <td colspan="3" style="text-align: center;">AIS Copyright 12:25</td> </tr> </table> </div>	Output	Voltage	Hours	0%	0.0V	0	Water	25°C	P.S. 25°C	AIS Copyright 12:25			<p>When there is no supply to the coil, the chlorine generator is not producing chlorine and “EXTC OFF” message is displayed on the screen.</p>												
Output	Voltage	Hours																							
0%	0.0V	0																							
Water	25°C	P.S. 25°C																							
AIS Copyright 12:25																									
<h2 style="margin: 0;">WARNING MESSAGES</h2>																									

<p style="text-align: center;">◀ NO WATER FLOW ▶</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Output</td> <td style="width: 33%;">Voltage</td> <td style="width: 33%;">Hours</td> </tr> <tr> <td style="text-align: center;">0%</td> <td style="text-align: center;">0.0V</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Water</td> <td style="text-align: center;">25°C</td> <td>P.S. 25°C</td> </tr> </table> <p style="text-align: center; font-size: small;">AIS Copyright 12:25</p>	Output	Voltage	Hours	0%	0.0V	0	Water	25°C	P.S. 25°C	<p>For the chlorine generator to start producing chlorine, there must be water flowing through the electrolytic cell(s). That is, relevant valves must be open and the filtration pump running. If there is “NO WATER FLOW” message is indicated, there is no water flow.</p> <ol style="list-style-type: none"> 1. Ensure cooling water valve CW1, AW1- in open position. 2. Ensure that the Acid Wash system valves AW2, AW3, AW4 and V1 are closed. 3. Open Valves M2 first and then M1. <p>If the message still appears on the screen, contact AIS for assistance with the model and serial number at hand.</p>									
Output	Voltage	Hours																	
0%	0.0V	0																	
Water	25°C	P.S. 25°C																	
<p style="text-align: center;">◀ CHECK CELL ▶</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Output</td> <td style="width: 33%;">Voltage</td> <td style="width: 33%;">Hours</td> </tr> <tr> <td style="text-align: center;">89%</td> <td style="text-align: center;">10.9 V</td> <td style="text-align: center;">F 8:00</td> </tr> <tr> <td>Water</td> <td style="text-align: center;">25°C</td> <td>P.S. 25°C</td> </tr> </table> <p style="text-align: center; font-size: small;">AIS Copyright 12:25</p> <p style="text-align: center;">◀ LOW SALT ▶</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Output</td> <td style="width: 33%;">Voltage</td> <td style="width: 33%;">Hours</td> </tr> <tr> <td style="text-align: center;">89%</td> <td style="text-align: center;">10.9 V</td> <td style="text-align: center;">F 8:00</td> </tr> <tr> <td>Water</td> <td style="text-align: center;">25°C</td> <td>P.S. 25°C</td> </tr> </table> <p style="text-align: center; font-size: small;">AIS Copyright 12:25</p>	Output	Voltage	Hours	89%	10.9 V	F 8:00	Water	25°C	P.S. 25°C	Output	Voltage	Hours	89%	10.9 V	F 8:00	Water	25°C	P.S. 25°C	<ol style="list-style-type: none"> 1. Perform a visual test of electrolytic cell(s) through a clear window of the housings. 2. If the calcium build up on the plates of the cells is higher than 1.0 mm it needs to be cleaned 3. Check the water temperature is higher than 20 degrees 4. Check the water salt level is above 2000 mg/L. 5. Check all connections between power supply and cells are tight. <p>NOTE: If your cell is older than 5 years it may need replacement. Contact AIS for assistance with the model and serial number at hand.</p>
Output	Voltage	Hours																	
89%	10.9 V	F 8:00																	
Water	25°C	P.S. 25°C																	
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<p style="text-align: center;">◀ PS TEMP HIGH ▶</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Output</td> <td style="width: 33%;">Voltage</td> <td style="width: 33%;">Hours</td> </tr> <tr> <td style="text-align: center;">0%</td> <td style="text-align: center;">0.0V</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Water</td> <td style="text-align: center;">25°C</td> <td>P.S. 50°C</td> </tr> </table> <p style="text-align: center; font-size: small;">AIS Copyright 12:25</p>	Output	Voltage	Hours	0%	0.0V	0	Water	25°C	P.S. 50°C	<p>The temperature inside the unit is higher than normal operational temperature.</p> <ol style="list-style-type: none"> 1. The temperature sensor is not functioning properly 2. Fans or air-conditioning is not functioning properly. <p>Turn the unit off, let it cool down then turn it back on. If the problem is not resolved contact AIS for assistance with the model and serial number at hand.</p>									
Output	Voltage	Hours																	
0%	0.0V	0																	
Water	25°C	P.S. 50°C																	
<p style="text-align: center;">◀ WATER TEMP HIGH ▶</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Output</td> <td style="width: 33%;">Voltage</td> <td style="width: 33%;">Hours</td> </tr> <tr> <td style="text-align: center;">0%</td> <td style="text-align: center;">0.0V</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Water</td> <td style="text-align: center;">40°C</td> <td>P.S. 25°C</td> </tr> </table> <p style="text-align: center; font-size: small;">AIS Copyright 12:25</p>	Output	Voltage	Hours	0%	0.0V	0	Water	40°C	P.S. 25°C	<p>Water temperature is too high.</p> <ol style="list-style-type: none"> 1. The water heater is incorrectly positioned (See diagrams P.16) 2. Temperature sensor is not functioning properly <p>Contact AIS for assistance with the model and serial number at hand.</p>									
Output	Voltage	Hours																	
0%	0.0V	0																	
Water	40°C	P.S. 25°C																	
<p style="text-align: center;">◀ OVERLOAD CUT OFF ▶</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Output</td> <td style="width: 33%;">Voltage</td> <td style="width: 33%;">Hours</td> </tr> <tr> <td style="text-align: center;">0%</td> <td style="text-align: center;">0.0V</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Water</td> <td style="text-align: center;">25°C</td> <td>P.S. 25°C</td> </tr> </table> <p style="text-align: center; font-size: small;">AIS Copyright 12:25</p>	Output	Voltage	Hours	0%	0.0V	0	Water	25°C	P.S. 25°C	<p>Current overload occurred. Current is higher than defined maximum current.</p> <ol style="list-style-type: none"> 1. Amperage is higher than programmed amperage. <p>Contact AIS for assistance with serial number at hand.</p>									
Output	Voltage	Hours																	
0%	0.0V	0																	
Water	25°C	P.S. 25°C																	
<p style="text-align: center;">◀CHECK CONNECTIONS▶</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Output</td> <td style="width: 33%;">Voltage</td> <td style="width: 33%;">Hours</td> </tr> <tr> <td style="text-align: center;">0%</td> <td style="text-align: center;">0.0V</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Water</td> <td style="text-align: center;">25°C</td> <td>P.S. 25°C</td> </tr> </table> <p style="text-align: center; font-size: small;">AIS Copyright 12:25</p>	Output	Voltage	Hours	0%	0.0V	0	Water	25°C	P.S. 25°C	<p>Contact AIS for assistance with serial number at hand.</p>									
Output	Voltage	Hours																	
0%	0.0V	0																	
Water	25°C	P.S. 25°C																	

10.0 External control

Unit is equipped with two types of external control:

- External control for ON/OFF operation (e.g. Timer, ORP, Free chlorine controller, Flow switch, etc.)
- External control for Proportional 4 – 20 mA signal (only applicable for ORP or Free chlorine controllers for variable chlorine dosing.)

Both external control ON/OFF and External control Proportional can be used together. For example; External control ON/OFF for timer operation as well as External control Proportional for free chlorine operation.

10.1 External control ON/OFF

Unit is equipped with external control relay. This relay comes with 220-240 V AC coil as a standard. (Different voltage coil can be installed as per customer's requirements). Nothing is connected to the relay coil terminals (A1 and A2) when chlorine generator comes from the factory, and the relay is manually bypassed with the push-button or flag so that COM and NO are closed.

When connecting external control signal, please put push-button or flag into position so that COM and NO are open, and then connect 220-240 V AC supply to A1 and A2 coil terminals of the relay. When 240 V AC feeds the coil, the chlorine generator is producing chlorine. When there is no supply to the coil, the chlorine generator is not producing chlorine and "EXTC OFF" message is displayed on the screen.

External control can be wired to any external device (e.g. Timer, or ORP Controller, etc...).

Important: The external control must be wired to your main flow sensor if option 2 or 3 is chosen (as per Installation diagrams above). In-case your filtration system stops, the chlorine generator must also shut down.

External control contact can be wired in series, for example you can have a timer, ORP, main flow, etc. all disconnecting the external control's contact.

10.2 Connecting ON/OFF external control relay

1. Ensure that the Autochlor™ unit is switched off and unplugged from main power supply.
2. Feed the External control signaling cable through a spare wire slot which is located on the back of the cabinet wall.
3. Connect the External control signaling cable to A1 and A2 terminal. (*see figure 2 p.12*)
4. Ensure the yellow flag is in **down** position as shown on the next page.

External control ON/OFF relay

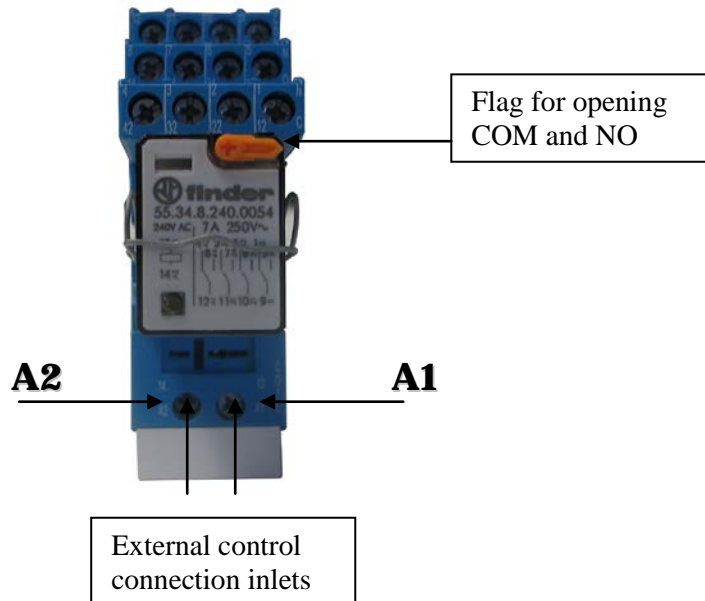


Figure: 2

The Autochlor™ unit is programmed to return to the operating level at which it was working before switching off. Thus if there is a power cut off the unit will return to its last known operating state. Also the Autochlor™ unit will always remain at its programmed operating level unless it is manually changed or the unit is not operating properly.

10.3 Connecting External control proportional 4 – 20 mA control

1. Ensure that the Autochlor™ unit is switched off and unplugged from main power supply.
2. Feed the External control signaling cable through a spare wire slot which is located on the back of the cabinet wall.
3. Connect the External control signaling cable as labeled on circuit index. (also, see figure 3 below)

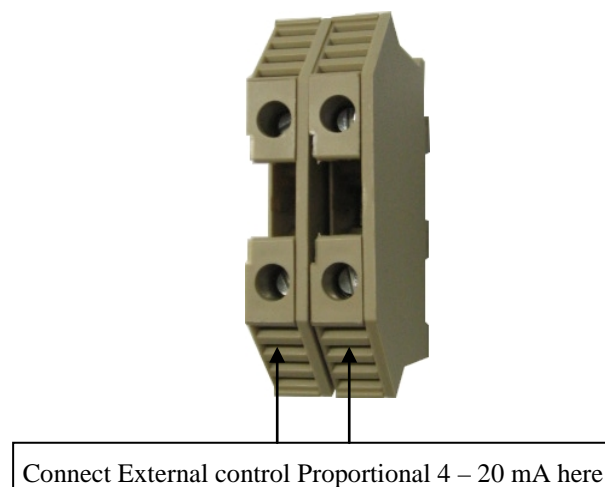




Figure: 3

11.0 Technical Menu





Prior entering technical menu ensure that the chlorine generator is in stand by mode that is “SALT WATER GEN” or “FRESH WATER GEN” display message must be displayed on the LCD screen.

To enter Control Board technical menu; press and hold  and  buttons on the keypad and press RESET button located on the back of the control board.

Technical menu allows you to enable and disable Temperature sensor*, Power Supply temperature, Set the local time, Change language to Spanish or English, change pH setting, Change External Control setting to (External Control ON/OFF or External Control 4-20mA) to enable or disable Network mode and to define master or slave.

Name	Description	Value
Water Temp * Only available in models with temperature sensor installed	Enable/Disable water temperature sensor	ON/OFF
PS Temp	Enable/Disable box temperature sensor	BOARD/EXT/OFF
Hour	Clock Time	Hours
Min	Clock Time	Minutes
Language	Main working menu language	English/Spanish/Eng-Spa
PH Board	Enable/Disable pH sensor	ON/OFF
pH Calibration	Start pH sensor calibration	
pH Control	pH set point	
EXTC	Set external control type. ON/OFF or 4-20mA input signal	EXT/4-20mA
Network	Enable/Disable mode. Select Master or Slave	OFF MASTER SLAVE: 1, 2, 3..

Table 1: Main Menu Settings

Use  and  buttons to move up and down the menu, and  and  buttons to change settings.

To exit Technical menu, move all the way down the menu.

12.0 Maintenance of Plant

Apart from the preventative maintenance to the rectifier, the only scheduled maintenance required on the Autochlor™ plant is the periodic cleaning of the Electrolytic Cells to remove calcium deposits and regular checks on the water chemistry.

By maintaining salt concentrations at 2000 mg/L or more, cleaning the electrolytic cell(s) regularly (with care) and maintaining an overall steady current to your cells, you will increase the Electrolytic cells life expectancy and maintain chlorine production with minimum effort.

12.1 Rectifier Maintenance

Every 6 months all external electrical circuitry must be inspected to ensure that it is clean and free from dust and moisture.

1. Contacts on electrode cells should be inspected and cleaned and sprayed with a corrosion prevention product.
2. Check all terminals for tightness.

Of particular importance to the life expectancy and trouble free operation of the rectifier is the environment in which it must operate.

The plant room should be well ventilated and kept in a dry state. Water leaks, no matter how small, should be attended to immediately. A wet floor will allow condensation to form on electrical components, which could result in supply malfunction. This will not be covered by warranty.

12.2 Cell/Module Maintenance

Properly maintained and under normal operating conditions, the electrode plates in the electrolytic cells should last approximately 5 years. The electrodes are made of solid titanium plate coated with precious metals. These metals are sacrificial which means they will ultimately wear out with use.

The electrodes need to be cleaned periodically to remove any calcium build-up that occurs (appearing as a white deposit on the electrodes). The extent of the calcium deposit on the cell electrodes can be visually inspected through the clear side of each electrolytic cell.

As calcium builds up and covers more of the electrodes surface area, the cell efficiency is reduced which reduces chlorine production.


When the calcium deposit builds up to 0.5 – 1 mm it is time to clean the cells.

Cleaning is a relatively simple task, however care should be taken. Failure to follow the operational instructions can result in potential damage to the electrodes.

12.0 Using the mild acid wash

IMPORTANT: You should familiarise yourself with these operating instructions before attempting to clean the electrolytic cells.




1. Press the  button on the keypad to stop the chlorine production.
2. Shut off the main water flow valves **M1** and **M2**.
3. Shut off cooling water valve **CW1**. Leave **AW1** open.
4. Open valves **AW2**, **AW4** and **V1**.

IMPORTANT: V1 valve must remain open during electrolytic cell cleaning to prevent gas build up.

5. **Carefully** open **AW3** valve and watch water level drop through the clear tube on the side of the housing until the water level drops to “_____ **Water level** _____” indicator mark. Close **AW3** valve. If water level dropped below the mark, add tap water through **V1** valve
6. **Carefully pour 32% hydrochloric acid (HCl)** through **AW4** valve using funnel into the cell housing until the total solution reaches “_____ Acid Level _____” mark
7. Add water by filling up through **V1** valve until the cell housing is completely full.
8. Do not overfill the cell housing to omit spillage through **V1** valve which remains open.

Under no circumstances should you attempt to strengthen this mixture as it may result in costly damage to the electrode coatings.



9. Press”  ” button on the keypad to start acid wash cleaning.
10. The pump will then run for the preset time (20 mins) and automatically turn off. Remaining cleaning time will be shown on the LCD screen.


NOTE: If you wish to stop cleaning procedure due to any unforeseen circumstances press



button to stop the cleaning progress.




Do not leave acid solution in the housings for over 45 mins. Maximum of 2 cleaning cycles (20 min each) can be performed in sequence.

Note: If you wish to inject the waste acid in the water body follow steps 11 - 15; if you do not wish to inject acid into water body skip up to section 16.

11. After cleaning process is complete: close acid wash valves **AW2**, **AW4** ensure **AW3** valve is fully closed.
12. Close valve **V1**
13. Resume cooling water flow by opening **CW1** valve.
14. Immediately open main water flow valves **M2** and **M1**.
15. Press the”  ” button to resume chlorine production.

If you do not wish to inject waste acid into the water body follow steps 16 – 21.

After cleaning process is complete waste acid can be drained through AW3 valve. Do not drain acid waste onto the concrete as it will deteriorate the surface

16. Ensure **CW1** valve is closed.
17. Open **AW3** valve
18. Press  button to start the pump. As soon as the blue housing is completely drained press  button to stop the pump.
19. Close **AW4**, **AW3**, **AW2** and **V1** valves. Leave **AW1** valve open.
20. Open **CW1** and Main water flow valves **M1** and **M2**.
21. Press the”  ” button to resume chlorine production

Important: Enter the service history in the maintenance log

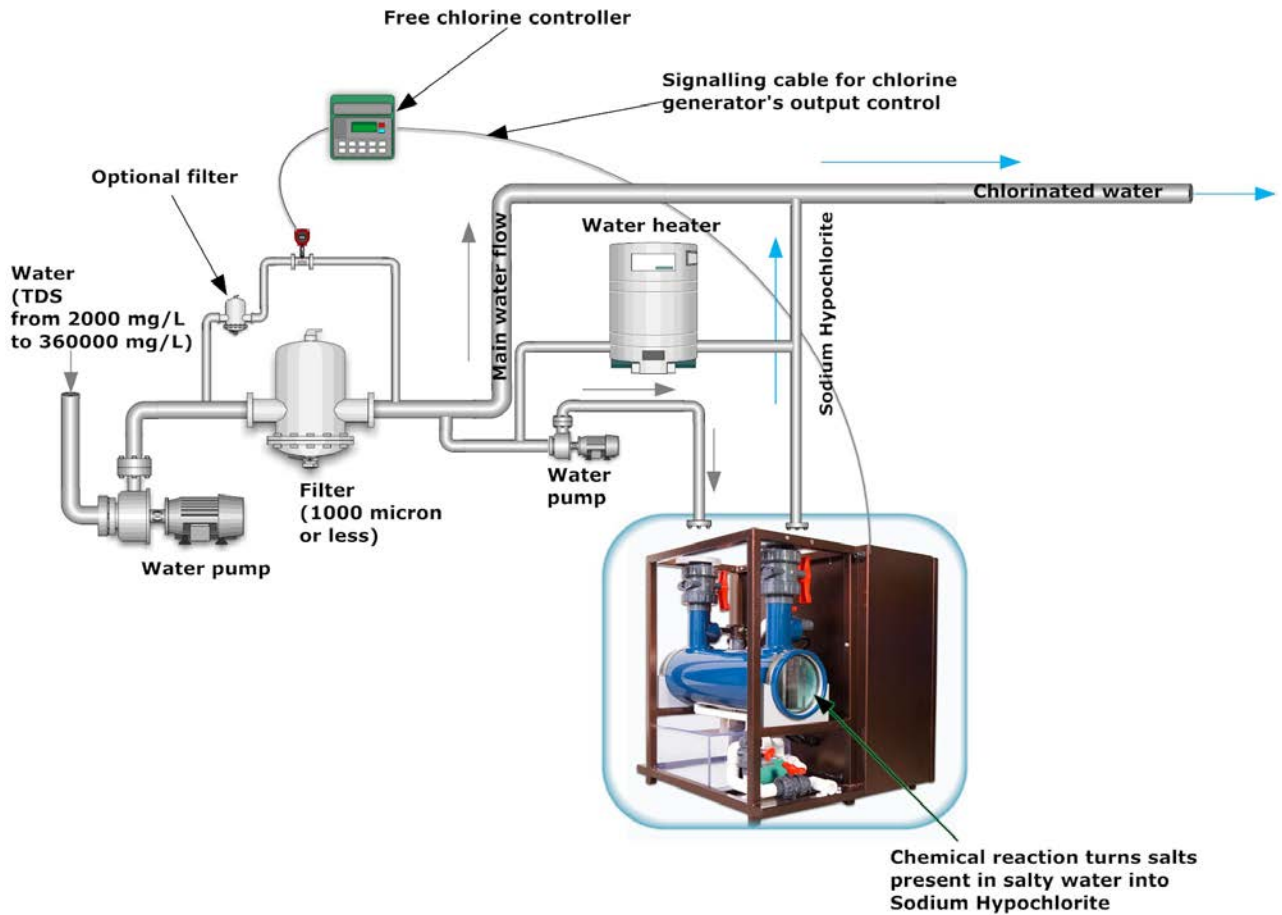
The system should now be fully operational.

Autochlor™ Maintenance Log

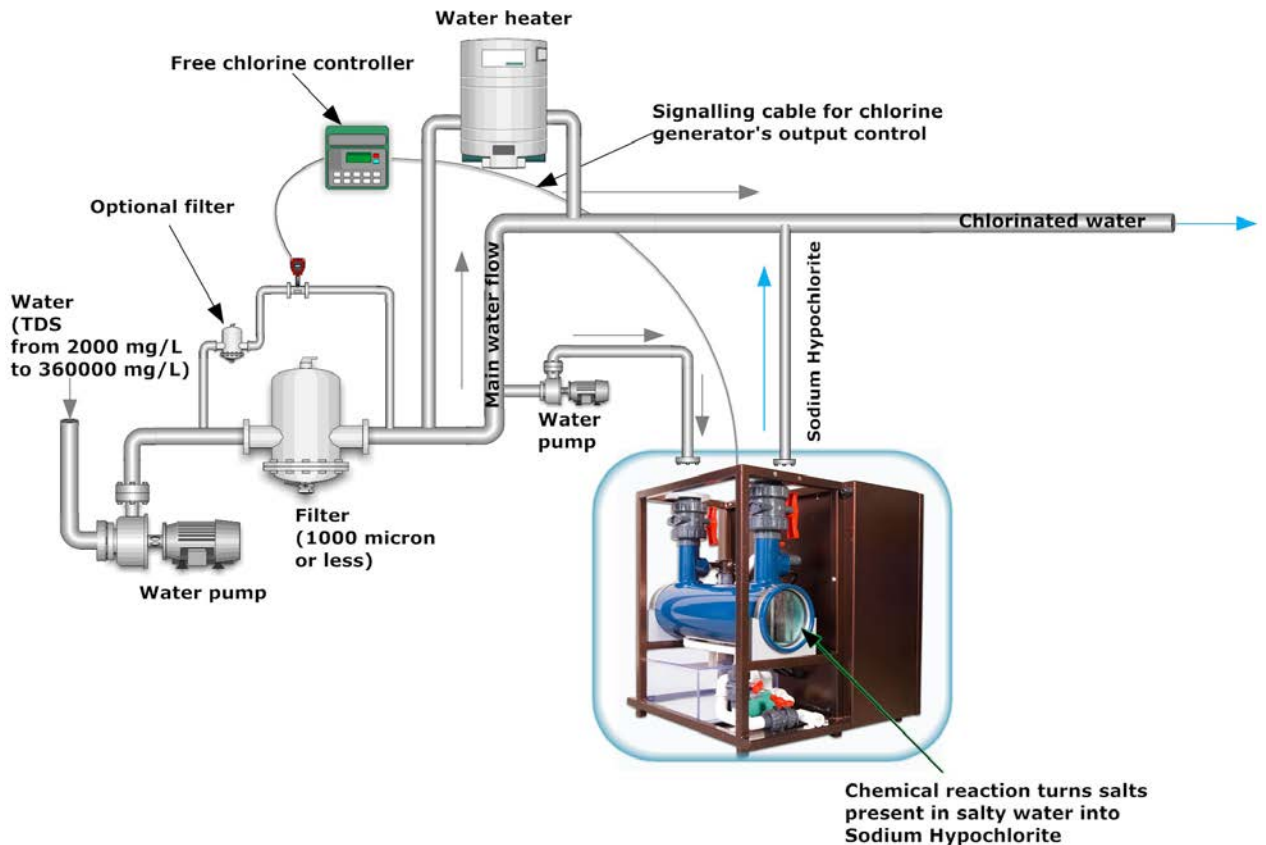
This maintenance log **MUST BE FILLED IN** every time the chlorine generator is cleaned or serviced.
Failure to do so will **VOID THE WARRANTY**. Please make a copy of it in case more pages needed.

Date	Time	Purpose of maintenance (e.g. scheduling service, repairing work)	Acid wash cleaning time(min)	Comments	Company Officer

Appendix A



Appendix B



Thank you for choosing an AIS AUTO CHLOR salt-water chlorine generator unit. Your support is greatly appreciated.



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