

## LM4 Saltwater Chlorinator

Models: LM4-25, LM4-35



### ⚠ WARNING

FOR YOUR SAFETY – This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment by the jurisdiction in which the product will be installed where such state or local requirements exist. The maintainer must be a professional with sufficient experience in pool equipment installation and maintenance so that all of the instructions in this manual can be followed exactly. Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in property damage, personal injury, or death. Improper installation and/or operation may void the warranty.

Improper installation and/or operation can create unwanted electrical hazard which may cause serious injury, property damage, or death.



**ATTENTION INSTALLER** – This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.

<p>WARRANTY REGISTRATION</p>	<p>Record your equipment details here for quick reference:</p> <p>Model No. : _____</p> <p>Serial No. : _____</p>
	<p>AUSTRALIA WARRANTY:</p> <p>For full warranty terms and conditions and to register your warranty, visit <a href="http://www.zodiac.com.au/warranty">www.zodiac.com.au/warranty</a> and complete your details.</p> <p>◀ Or scan the QR code to go directly to the registration page.</p>
	<p>NEW ZEALAND WARRANTY:</p> <p>For full warranty terms and conditions and to register your warranty, visit <a href="http://www.zodiac.co.nz/warranty">www.zodiac.co.nz/warranty</a> and complete your details.</p> <p>◀ Or scan the QR code to go directly to the registration page.</p>

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## Section 1. Important Safety Instructions

# READ AND FOLLOW ALL INSTRUCTIONS

All electrical work must be performed by a qualified installer and conform to all national, state, and local codes. When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

### **WARNING**

The LM4 Saltwater Chlorinator power supply has an IPX3 rating, meaning it is suitable for installation outdoors. For safe operation the power supply must be installed in the correct orientation, with the cables leaving from the bottom of the device. If installing the power supply near the pool or spa, you must ensure that the rules of AS/NZS 3000 are followed at all times. Zodiac strongly recommends that installation be performed by a registered pool builder, electrician or other suitably qualified person.

**Children should not be allowed to operate or perform maintenance on this product.** No one should sit, step, lean, or climb on any of your pool's operational system. Children should be supervised to ensure that they do not play with the appliance.

**Risk of electric shock** - Install the controller at least 3.5m from the inside wall of the pool and/or hot tub.

If the supply cord is damaged, it must only be replaced by Zodiac, its service agent or a similarly qualified person, in order to avoid a hazard. The transformer is not intended for series/parallel connection.

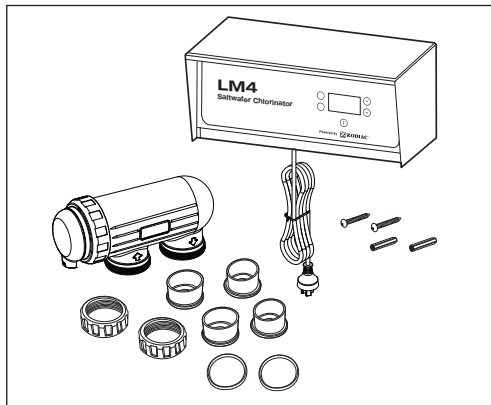
## SAVE THESE INSTRUCTIONS

## Section 2. System Overview

### 2.1 Contents

Before starting, check that you have the correct parts as indicated in *Table 1*. If any parts are missing or incorrect, please call your local distributor or technical support at 1300 763 021 for assistance.

#### 2.1.1 Salt Chlorinator System



LM4-25 / LM4-35 Saltwater Chlorinator	
Controller	
Wall Mount Bracket	
Wall Mount Screws Ø7 mm (x2)	
Wall Mount Anchor (x2)	
Electrolytic Cell	
Unions (x2)	
40mm and 50mm Glue on Adapter (x2)	
O-Ring (x2)	

Table 1. Salt Chlorinator System Contents

### 2.2 Specifications

#### 2.2.1 Salt Chlorinator System

	LM4-25	LM4-35
Nominal chlorine production	25 g/h	35 g/h
Nominal output amps	4.4 A	5.8 A
Required salt level	4000ppm	
Power supply voltage	230 - 240 VAC	
Protection index	IPX3	
Flow through the cell	Min. 80 lpm / Max. 300 lpm	
Operating water temperature	10°C - 40°C	

Table 2. Salt Chlorinator System Specifications

### 2.3 Dimensions

#### 2.3.1 Controller

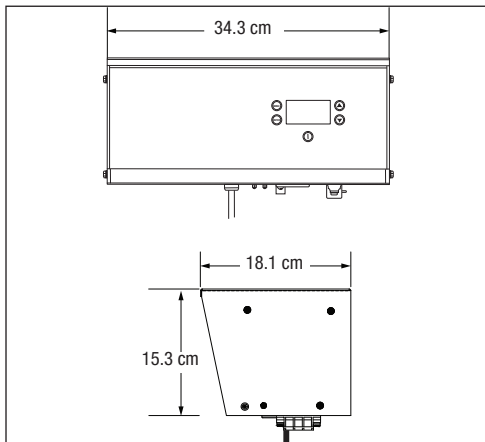


Figure 1. Controller Dimensions

#### 2.3.2 Cell

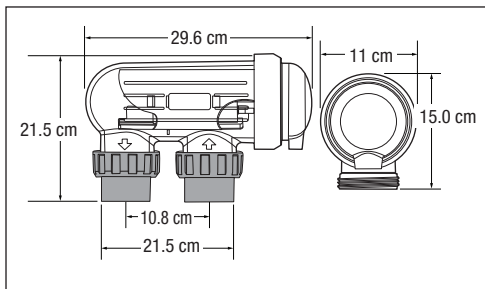


Figure 2. Electrolytic Cell Dimensions

### 2.4 Materials and Tools

#### 2.4.1 Controller

##### Tools Needed for Installation

- Power Drill
- 7 mm Drill Bit - Hammer Drill Bit (only necessary to drill into brick or concrete)
- Pencil or Marking Pen
- Pozidriv Screwdriver

#### 2.4.2 Cell

##### Tools Needed for Installation

- PVC Cutter
- PVC Cement
- Pencil or Marking Pen
- Check Valve
- 50 mm PVC Pipe (40mm optional)

## Section 3. Plumbing

The cell must be plumbed in a position that is accessible for maintenance and within 1.2 meters of the controller. The cell should be the last piece of equipment in the circulation system. The cell must be installed horizontally, level and with correct flow orientation.

1. If you intend to plumb the cell on a bypass, the bypass must be equipped with isolation valves.
2. Plumb the cell inlet and outlet on vertical lengths PVC pipe. The cell inlet and outlet ports are 11.5cm apart

(see *Figure 2*). The cell inlet is on the side closest to the electrical lead (see *Figure 3*).

3. Place the lock nuts onto the inlet and outlet pipes in the correct orientation.
4. Glue the unions directly onto the pipes.
5. Ensure the O-rings are seated properly on the unions.
6. Secure the cell to the plumbing by tightening the unions hand tight. **DO NOT OVERTIGHTEN.**
7. Double check cell orientation. The cell inlet is closest to the cell electrical lead.

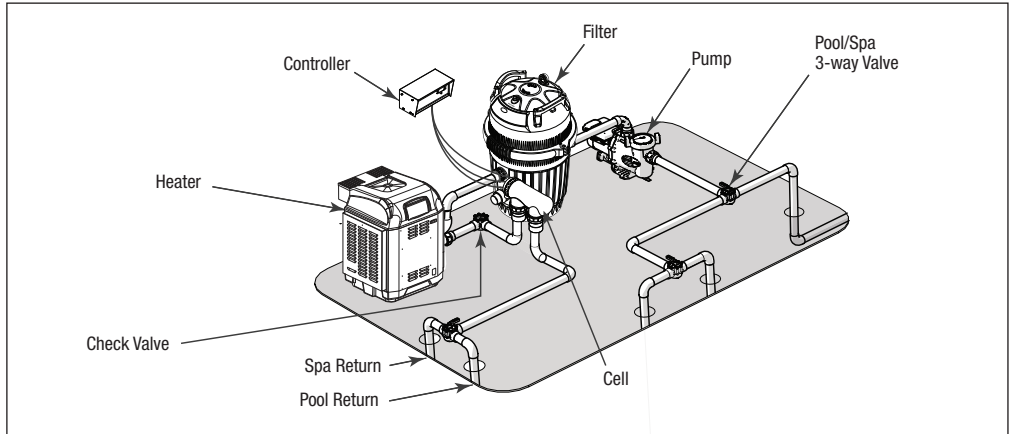


Figure 3. Typical Installation Diagram

### **⚠ WARNING**

The cell must be installed horizontally and level. Improper installation can lead to gas build up which could result in equipment damage or serious injury.

The cell must be the last piece of equipment on the return line, see *Figure 3*.

It is recommended in all installations that the cell is installed on a bypass equipped with isolation valves, see *Figure 3*.

In order to avoid load loss, installing the cell on a bypass is **MANDATORY** if system flow rate exceeds 300 lpm, see *Figure 3*.

If installing on a bypass, use a downstream check valve instead of a manual valve to prevent improper backflow into the cell.

## Section 4. Install Controller

The controller should be located at or near the equipment pad, at least 3.5 metres or more away from the inside wall of the pool/spa, 1.5 metres off the ground, and within 1.2 meters of the cell. All national, state, and local codes are applicable.

### 4.1 Mount the Controller

1. Determine the controller location.
2. Use the screw holes at the rear of the controller to mark the mounting surface.
3. Drill surface with 7 mm bit.
4. Install the included wall anchors and screws.
5. Insert the screw heads into the screws holes at the rear of the controller and slide down to secure in place.

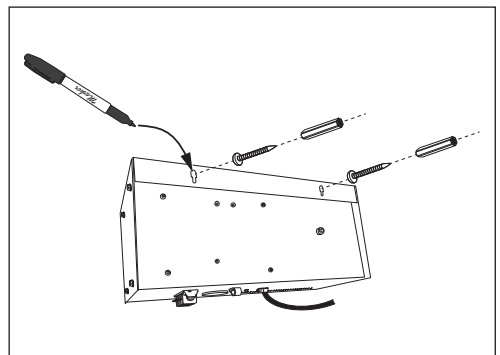


Figure 4. Controller Mount

## 4.2 Electrical Connections

### **⚠ WARNING**

**FOR YOUR SAFETY:** This product must be serviced by a professional pool/spa service technician as described on the front cover of this manual. The procedures in this manual must be followed exactly. Failure to follow warning notices and instructions may result in property damage, serious injury, or death. Improper installation and/or operation will void the warranty.

The controller must be permanently powered by connection to a 30 mA residential circuit breaker.

A non-replaceable backup power source is incorporated to maintain time-setting memory in the event of an intermittent power interruption.

### 4.2.1 Controller and Chlorinator Cell Wiring

1. Connect the Chlorinator Cell Cable to the appropriate ports on the cell.
2. Connect the Controller to the power source.

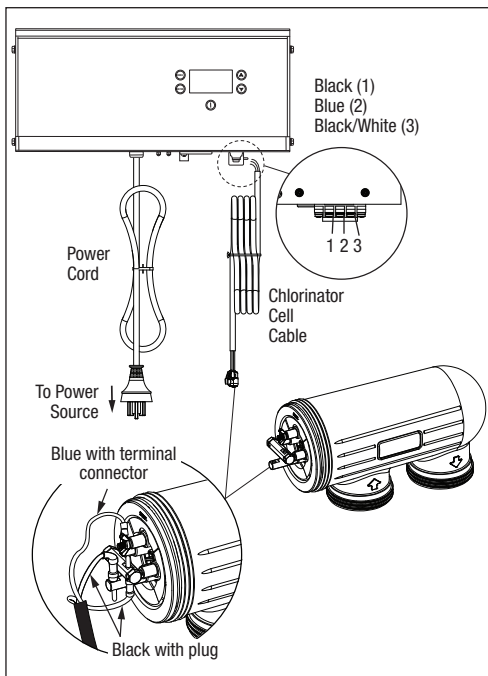


Figure 5. Chlorinator Cell Cable Connections

## Section 5. Prepare and Balance the Pool

### 5.1 Water Chemistry Table

Test and maintain correct water balance throughout the season, according to the table.

	Free Chlorine	pH	Total Alkalinity (ppm)	Calcium Hardness (ppm)	Cyanuric Acid (ppm)	Salt Level (ppm)	Metal
<b>Australian Standard</b>	1 -3	7.2 - 7.8	60 - 200	100 - 400 ***	up to 50	4000 - 7000	x
<b>Ideal range</b>	1 - 3	7.4	80 - 140	90 - 300	up to 50	4000 at 27°C	x
<b>To Increase</b>	Add chlorine or increase equipment output	Add buffer or soda ash (sodium carbonate)	Add sodium bicarbonate	Add calcium chloride	Add cyanuric acid	Add salt or minerals **	x
<b>To Decrease</b>		Add muriatic acid	Add muriatic acid or dry acid	Partially drain and refill pool*	Partially drain and refill pool*	Partially drain and refill pool*	Use "Metal Remover"
<b>In Season Testing Frequency</b>	Weekly	Weekly	Weekly	Weekly	Weekly	Monthly	Monthly

\* Fill pool with water from the mains water supply. Do not use rain water or well water.

\*\* Do not add salt directly into the skimmer. Do not initiate electrolysis until salt has fully dissolved.

\*\*\* Reading is True Calcium Hardness, not Total Hardness.

Table 3. Water Chemistry Table

## Section 6. Operation

### 6.1 User Interface Overview

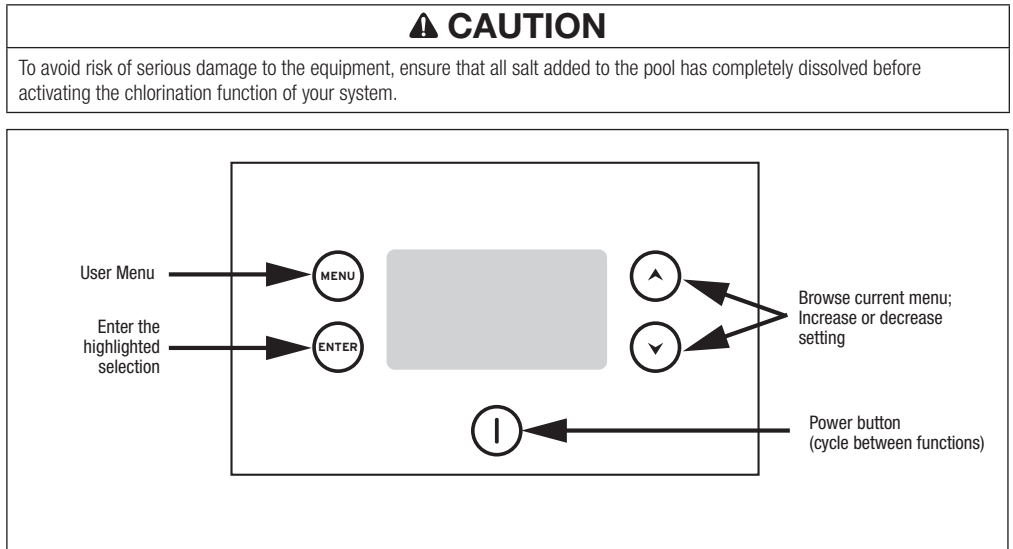


Figure 6. Controller User Interface

#### 6.1.1 Understanding the features of your LM4

The LM4 has a number of features designed to make running your pool easier, ensure less maintenance and allow you more time to enjoy your pool.

The system has a number of different modes for operation that are explained in more details in the following chapters, these include:

- Pool Mode
- Timer operation (a total of 4 x daily timers)
- Boost Mode
- Spa/Low mode
- Backwash Mode

#### 6.2 Initial Startup

The following setting must be configured at the initial start up of the device. Settings can be changed or updated at a later time using the general menu, details can be found in *Section 7, Installing Equipment*.

Output can be set between levels 1 to 8 (P1 to P8), this is controlled in increments from the "main screen" by pressing  $\uparrow$  to increase and  $\downarrow$  to decrease. The set value is valid until the next modification.

#### 6.2.1 System Power

1. Press the POWER  $\text{⏻}$  button to cycle between the various operational functions
  - AUTO
  - MANUAL ON
  - SPA
  - MANUAL OFF

For further explanation of each function see section 7.2.1

#### 6.2.2 Set Clock

1. Press MENU  $\text{⌂}$  and screen should display CLK. Press ENTER  $\text{⏎}$ .
2. Press ENTER  $\text{⏎}$  and the hour digit will flash. Use UP  $\uparrow$  and DOWN  $\downarrow$  to adjust.
3. Press ENTER  $\text{⏎}$  to change to minutes and set. Use UP  $\uparrow$  and DOWN  $\downarrow$  to adjust.
4. Press ENTER  $\text{⏎}$  and select AM or PM. Use UP  $\uparrow$  and DOWN  $\downarrow$  to adjust.
5. Press MENU  $\text{⌂}$  to save.

## Section 7. Installing Equipment

### 7.1 Programming/Timers

The controller has an internal operating timer that is used to define the length of time for the filter pump to operate during separate time periods each day.

In order to complete the timer program, it is necessary to enter and validate both ON and OFF times. If no timer is set, the filtration and / or chlorination will run continuously if the system is in Auto.

The filtration operating times must be sufficient to correctly treat the water.

#### Example - single speed pump:

In Season filtration time: 8-10 hours per day.










Off Season filtration time: 4-5 hours per day.

#### Example - variable speed pump (when running at lower speeds):

In Season filtration time: 12-14 hours per day

Off Season filtration time: 8-10 hours per day

### Filter Pump Programming

1. Press MENU .
2. Press the MENU  again and screen should display TMR. Press ENTER .
3. Use UP  and DOWN  to adjust start time for TIMER1. Press ENTER .
4. Use UP  and DOWN  to adjust the stop time for TIMER 1. Press ENTER .
5. Repeat for any additional Timers, up to a maximum of 4 per day.

### 7.2 Operation and User Modes

The user mode buttons enable you to select and to automatically or manually control the chlorinator/pump. Functions are as follows:

#### 7.2.1 Power Button - Modes







- Auto - Running/Stopped: The chlorinator/pump will run according to how you have set the timers.
- Manual - Running: The chlorinator/pump will run continuously.
- Spa - Turns the output to a minimum (level 1) making it ideal for spas. Will stay in this mode continuously unless changed to manual off or auto.
- Manual - Stopped: The chlorinator/pump will stay off continuously.

To adjust chlorine output during operation simply press the up or down arrows to reach your desired output. Output can be set between levels 0 to 8.

The increments are: 0 = 0%, 1 = 12.5%, 2 = 25%,  
3 = 37.5%, 4 = 50%, 5 = 62.5%,  
6 = 75%, 7 = 87.5%, 8 = 100%.






#### 7.2.2 Boost Mode

This allows for the maximum amount of chlorine to be generated over a 24hr time period by keeping the pump running continuously. To access this mode:

1. Press the MENU  until BOOST appears on screen, then press ENTER .
  2. A boost time option of 12 hours or 24 hours is shown. Use UP  and DOWN  to select the desired time, then press ENTER .
- Boost mode is now running. The display will cycle between the following: Boost indicator > Current Time > Boost Time Remaining. It will continue to cycle while the Boost mode is active.
  - To leave the Boost mode, press POWER  button. The unit will go to AUTO. If no timers are enabled, it will go to OFF.
  - After the Boost mode timer expires, the system will go to AUTO. If no timers are enabled, it will go to OFF.

#### 7.2.3 Backwash Mode

This allows for the pump to run only (no chlorination will occur). This setting is ideal to complete a backwash of your media filter. To access this mode:

1. Press the MENU  until BWSH appears, then press ENTER .
2. Select a time period of 1, 2 or 3 minutes by scrolling the UP  and DOWN  buttons, then press ENTER .

A count down timer will appear with the remaining time till the cycle is complete. Once finished it will automatically return to its previous state.



## Section 8. Inspecting and Cleaning the Electrode

In areas that experience calcium hardness the cell electrode will benefit from cleaning.

1. Switch off the filter pump and chlorine generator, close necessary valves and unplug the cell terminal cap.
2. Unscrew the retaining ring and remove the electrode. If calcium buildup is present, immerse the electrode in cell cleaning solution without immersing the terminals.
3. We recommend using Zodiac Salt Chlorinator Cell Cleaner to clean the electrode. However, you can mix your own by carefully adding one (1) part of Hydrochloric (Muriatic) acid to ten (10) parts water. Stronger solutions will shorten terminal life.
4. Allow the cleaning solution to dissolve the calcium deposits for about 10 minutes.

**NOTE:** Dispose of the cleaning solution at an approved Council Dept and never into storm water or sewage drains.

5. Rinse the electrode in clean water and re-fit the electrode in the cell housing.
6. Replace the cell head and plug assembly.

7. Reset valves and switches.
8. Turn pump and controller on.
9. Confirm chlorine output and settings on the power pack. Timer programs will be automatically retained.

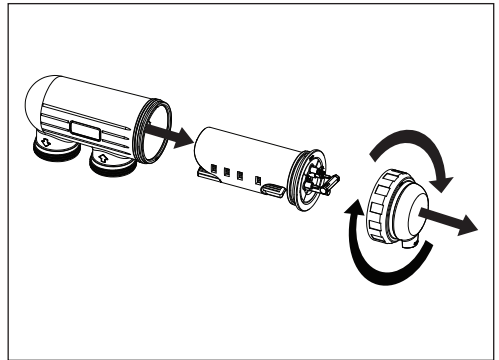


Figure 7. Opening the Cell

## Section 9. Maintenance

Timing	Maintenance Check	Service Action If Required
Weekly or sooner	Check cell for calcium buildup	Soak electrode in mixture of 10 parts water to 1 part acid. Use a soft brush only if required.
	Check water chemistry	Balance pH in pool and adjust output of unit to ensure satisfactory production of chlorine.
	Check cable connections to Cell	Ensure no water contact is occurring with pins.
Every Three Months	Check cell connections for leaks	Isolate Pump, turn power off, clean and grease O-rings or replace if necessary
	Check for insects/ants	Spray a surface insecticide on the surfaces around the unit to prevent ant and insect ingress
Every Six Months	Check chlorine levels and pump operating hours	Adjust timer and output depending on demand for current season.
	Prevent insect ingress to controller	Turn controller off, use an insect spray and spray onto walls around controller. Do not spray directly into unit.

Table 4. LM4-25 / LM4-35 Saltwater Chlorinator Maintenance Schedule

## Section 10. Troubleshooting

When there is an error condition, "ERROR" flashes on the display along with the error code.

Fault Indication	Possible Cause	Solution
NO FLOW	<ul style="list-style-type: none"> <li>• Pump turned off/disconnected or valves closed</li> <li>• Blue wire disconnected from cell</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure valves/pump ON.</li> <li>• Connect BLUE sensor wire to cell.</li> </ul>
LOW SALT	<ul style="list-style-type: none"> <li>• Salt level in pool has dropped too low</li> <li>• Pool water temperature is low</li> <li>• Cell has calcified</li> <li>• Cell has failed</li> </ul>	<ul style="list-style-type: none"> <li>• Take sample of water to retailer and check salt level - add salt as recommended.</li> <li>• Add salt and turn chlorinator output down until the water is warmer.</li> <li>• Clean the cell.</li> <li>• Call for service.</li> </ul>
Pump Protect	<ul style="list-style-type: none"> <li>• No or insufficient flow through cell</li> </ul>	<ul style="list-style-type: none"> <li>• Check pump basket for debris.</li> <li>• Check that all valves are open.</li> <li>• Check that skimmer is not blocked.</li> <li>• If Pump Protect has activated, clear the message by pressing the power button.</li> </ul>
Display Blank	<ul style="list-style-type: none"> <li>• No power to controller</li> <li>• Fuse blown</li> </ul>	<ul style="list-style-type: none"> <li>• Plug in controller and ensure main power available.</li> <li>• Have a service technician replace fuse (2A slow blow).</li> </ul>
Low/No Chlorine in pool	<ul style="list-style-type: none"> <li>• Cables not connected to cell</li> <li>• Timer period too short</li> <li>• Chlorine output level too low</li> <li>• Filter needs backwashing</li> <li>• pH too high</li> <li>• Pool stabiliser (cyanuric acid) too low</li> <li>• Salt level too low</li> </ul>	<ul style="list-style-type: none"> <li>• Connect cables.</li> <li>• Increase timer period (particularly during summer).</li> <li>• Increase chlorine output.</li> <li>• Backwash filter.</li> <li>• Balance pH level to 7.4 - 7.6</li> <li>• Increase stabiliser between 30 - 60 ppm.</li> <li>• Increase salt.</li> </ul>
Clock loses time when main power is removed	<ul style="list-style-type: none"> <li>• Clock power backup failed</li> </ul>	<ul style="list-style-type: none"> <li>• Call a technician.</li> </ul>
Timer is set to OFF in the TMR menu	<ul style="list-style-type: none"> <li>• The timer has been turned off</li> </ul>	<ul style="list-style-type: none"> <li>• Use DOWN (lower right button) to turn the timer back on. Adjust timer start and stop times to suit.</li> </ul>

**Table 5. Troubleshooting**

# NOTES

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