

# User Manual

## Digital Chlorinator (Therachlor SMC)



## Page

1	Introduction	2
2	Chlorinator	3
3	Installation	4
4	Water Preparation	5
5	Adding Mineral/Salt	7
6	Operation	8
7	Recommendations and Warnings	15
8	Manual Cell Cleaning	16
9	Warranty, Technical Service and Spare Parts	17
10	Technical Characteristics	18



## 1. INTRODUCTION

We thank you for your purchase of a Theralux chlorinator. Theralux chlorinators are manufactured following the strictest quality controls using the most advanced technology of electrolysis resulting from our many years of swimming pool industry experience.

With minimum maintenance and following elementary rules for installation and use, you will enjoy an extremely efficient device for many years.

Please read this manual carefully before installation or start-up and keep it for further reference.

The sections concerning the installation require certain technical knowledge and we always recommend that installation is conducted by an industry professional.

Please pay special attention to the points marked with the following symbol:



Any damage caused to the chlorinator resulting from not complying with these warnings may lead to a void of warranty.

We trust you will enjoy your chlorinator- Thank you for choosing Theralux.

## 2. CHLORINATOR DESCRIPTION

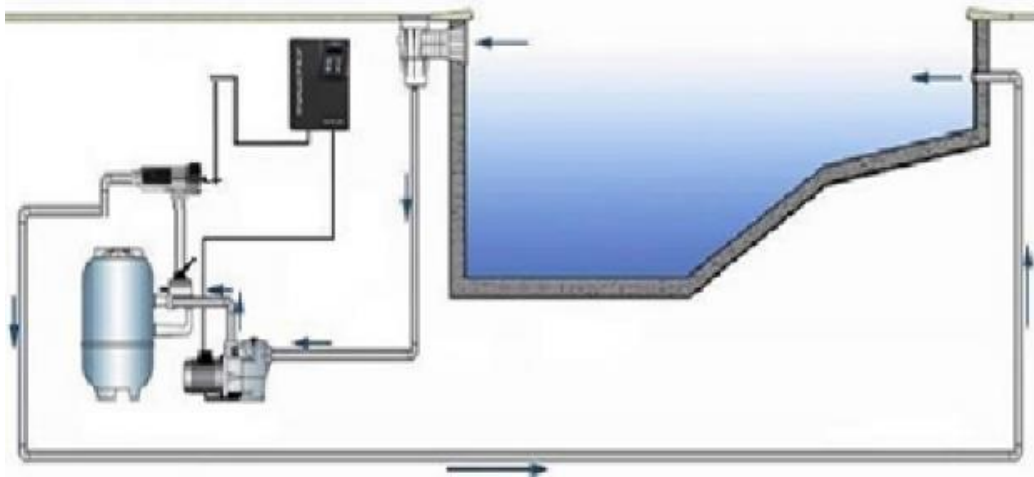
You will find the following items in your Digital Chlorinator (previously known as Therachlor SMC) box:



1. Control unit
  - a. LCD screen
  - b. Keyboard
  - c. DC cell cable and connector
2. Power supply cable
3. Electrolytic cell
4. Cell housing
5. Thread lock
6. Cell O Ring



### 3. INSTALLATION



#### Chlorinator Control Unit

Mount the control unit on a wall using the bracket on the back and the screws provided. Choose a place for easy access and reading.

The control unit can only be placed at a maximum of 1.5 meters away from the electrolytic cell due to cable length.

Choose a place with good ventilation and protection from the rain and other possible water leaks or splashing.

Power Pack must not be installed in direct sun light.



We recommend that you have an electrical safety circuit breaker fitted to your swimming pool electrical circuit.

Once mounted you can connect your swimming pool pump power cable to the power socket located at the bottom of the chlorinator control unit. Your chlorinator is designed to automate your pool pump operation

#### Cell housing

The cell housing must be installed on the return flow plumbing line which runs to the swimming pool and it should usually be the last element the water goes through before returning to the pool. For positioning this means either always after the filter or if you are running pool heating like a heat pump or solar panels, then the cell should be positioned after these components. Use special glue for rigid PVC connection and wait until it completely dries before inserting the cell.



If an automatic pH regulation system has been installed, the injection of the acid must take place unconditionally after the cell. Otherwise, the electrodes will corrode due to the acid contact and the warranty will be void. Do not place the acid tank near the chlorinator with insufficient ventilation as the gases will corrode the electronic components quickly. Any acid containers should be kept outside of the plant room.

Whenever it is possible, a by-pass installation with three valves is recommended. This allows the amount of water flowing through the cell to be adjusted and the swimming pool to work with the cell housing disassembled. In any case, when there is a high flowing single speed pump, the by-pass is necessary to reduce the speed of water through the cell housing to lower the pressure and avoid vibrations.

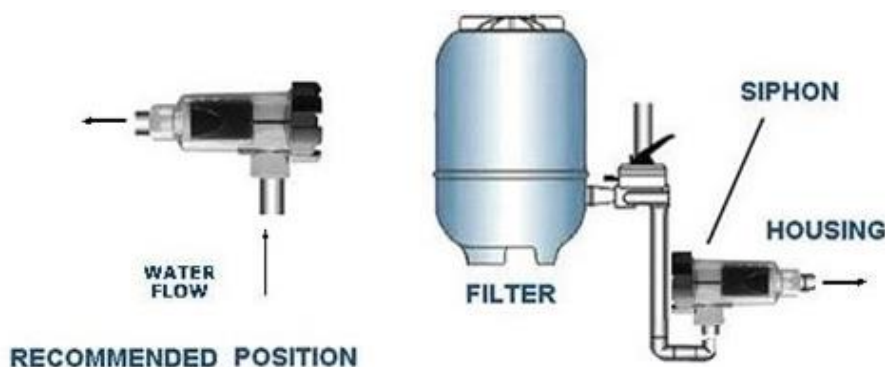
The mineral cell position is recommended to be Installed horizontally only.

**WATER MUST ENTER THE CELL THROUGH THE LOWER OPENING.**

**NEVER INSTALL THE CELL WITH ITS SIDE WATER INLET FACING UPWARDS.**



You must install the cell horizontally. please install a gas trap siphon as per the diagram below.



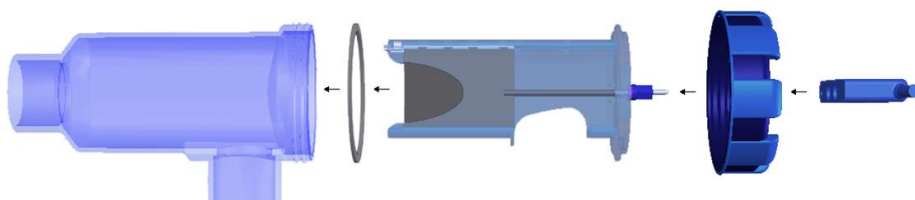
## Cell

Insert the cell in the cell housing making sure that its open window is on the water inlet side as per the diagram below. Make sure the o ring is fitted correctly & tighten the threaded nut. Then, connect the power cable to the cell terminals via the cell connector.

**PLEASE NOTE:** The cell connector is designed to ensure optimum electrical contact with the cell terminals and a certain pressure may be required for its connection. Verify that the small hole in the connector is aligned with the thin rod on the cell before trying to push the cell connector on.



A good filtration is essential in salt chlorination. Please, verify that your filter and filtrating materials are in optimal working conditions.



## 4. WATER PREPARATION

Local metropolitan source water is usually fine to use however if water from a different origin has to be used, have it tested to ensure that the source water is free from excessive metal content. Your local pool professional can assist you here.

We always recommend that you balance the pool water before starting your chlorinator.

**PLEASE NOTE :** The production of sanitizer via your chlorinator can at times be burnt out by the sun. Stabilizer prevents this disintegration due to UV radiation. A lack of stabilizer could make it difficult to reach a chlorine residual concentration during high sunshine and high bathing periods. Please discuss the use of stabilizer with your pool professional to determine if it is suitable for your situation and please be very careful to not exceed ideal levels.

## 5. ADDING MINERALS/SALT

Your chlorinator is compatible with the use of pool salt and also Theralux Essential Earth Minerals.



The chlorinator must remain OFF during this operation and until the additive is completely dissolved. Operating the chlorinator with non dissolved mineral/salt could irreversibly damage the cell and the power supply, and lead to a void of the warranty.

Calculate the volume of your swimming pool and as a general guide: 1kg of salt in 1000 litres will raise your level by 1000ppm, essentially 150kgs of salt in a 50,000 litre pool would raise your level up to 3000 ppm.

When adding the mineral/salt please disconnect the chlorinator from power, disconnect the pool pump from the chlorinator & plug the pool pump power cable directly into the power point and run the pump only for a 24 hour period to allow the additive to dissolve.

For any new pool builds please wait for four weeks before adding salt into any recently cement coated pool or discuss this with your pool builder.

Check that the mineral/salt concentration is between 3000-4000 ppm by visiting your local pool professional.



The mineral/salt chlorination process does not consume the additive itself. However, the concentration may be reduced over time due to rain or other periodic freshwater contributions (topping up, filter cleaning, etc.). Whenever the concentration needs to be corrected, pour the additive into the pool aiming for the shallow end floor. The natural progression of your pool floor from shallow to deep end should allow the additive to flow downward assisting in a quicker dissolving time. Never pour mineral/salt directly into the skimmer box area.

### 5.1 Adding Theralux Essential Earth Minerals

Once the chlorinator is at TDS of 4000ppm, please use the Theralux Essential Earth Minerals dosage rates to convert your pool to mineral.

Theralux Essential Earth Minerals dosage rates:

Pool Volume	Dosage Rate (Initial Start-up)	Dosage Rate (Maintenance / 6 monthly)
40,000	24kg	12kg
50,000	30kg	15kg
100,000	60kg	30kg

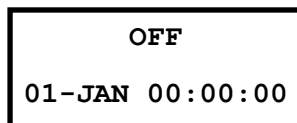


## 6. OPERATION

The chlorinator and its different menus are controlled with a four key keypad. Three of these keys, **Λ**, **MENU** and **OK**, also have a secondary function accessible by pressing and holding down the corresponding key for 2 seconds

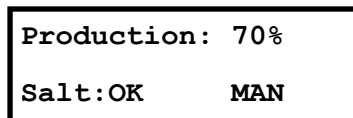
**NOTE:** At some points of activity or during a change of function the keyboard may seem as it is not responding immediately. This is completely normal. Just wait a few seconds for the task to be completed and the display will respond.

### 6.1 ON/OFF



The ON/OFF function (**MENU** key held for 2 seconds) turns the chlorinator alternatively ON and OFF.

**NOTE:** The pump relay has been provided with a safety relay. Every time the chlorinator is turned OFF, the pump will take about 3 seconds to stop. This allows the cell to be rinsed. Once the chlorinator is switched on, the main production screen will appear:



This screen indicates the current production rate and the existing mineral/salt level in the water (it may take a few seconds for this level to appear) and the timer mode (MAN/AUTO). If you are on a different screen, you can always come back to the main production screen by pressing the **MENU** key repeatedly.

To increase or decrease the chlorine production rate press the **Λ** or **V** arrows. The production is controlled by varying the cell operating time in periods of 10 minutes. At 100% the cell produces constantly. At 0% the production is halted.

You will get to know the needs of your pool which will depend on the different conditions (number of users, temperature, etc.) allowing you to anticipate the best setting. In general, to enjoy the benefits of mineral/saltwater chlorination, we recommend setting the minimum production rate that produces a crystal clear water in your pool. Avoid chlorinating during high sunshine periods because chlorine will quickly disappear due to the UV radiation and will not have the time to disinfect your pool thoroughly. We recommend programming the chlorinator to work during the night or at sunrise.

## 6.1 TIMER MODE

Press the **AUTO** function (OK button held for 2 seconds) to alternatively jump between manual and automatic timer modes.

In manual mode, **MAN** will be displayed in the main screen. The pump will run constantly unless you switch the chlorinator OFF. If you want to halt the chlorine production but want the pump to keep running, just set the production to 0%.

In automatic mode, **AUTO** will be displayed in the main screen. The cell and the pump will work together according to a daily schedule programmed in the **TIMER MENU**.

In **AUTO** mode, the inactive periods will be displayed as:

<b>AUTO: TIMER OFF</b> <b>01-JAN 00:00:00</b>
--

From this screen you can go to the menu to change the schedule or switch the unit OFF

## 6.2 SHOCK FUNCTION

The shock function allows you to apply a shock treatment (chlorinator at 100%) for a selectable period of time with automatic return to the previous production rate once the shock period has ended. This feature is useful if the chlorine level has fallen suddenly for some reason and you want to recover it quickly.

To activate the shock, go to the production screen and press **Λ SHOCK** for a few seconds. The following screen will appear:

<b>Shock</b> <b>7 h</b> <b>Select duration</b>
---

Select a number of hours, by using the **Λ** or **V** arrows and press **OK** to accept or **MENU** to exit. If you click **OK**, you will enter the Shock function and the following screen will be displayed:

<b>SHOCK</b> <b>7 h</b> <b>Remaining: 07:00</b>
--

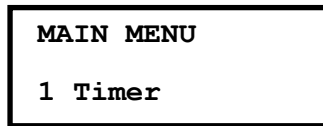
If you want to quit the Shock function press any key. The following screen will be displayed:

<b>Exit Shock?</b> <b>YES:OK NO:MENU</b>
---

Press **OK** to exit the shock function or **MENU** to continue the shock treatment.

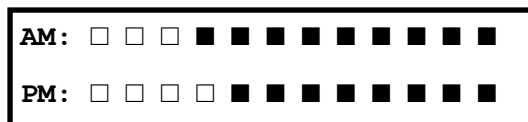
## 6.3 MENUS

### 6.3.1 Timer Menu



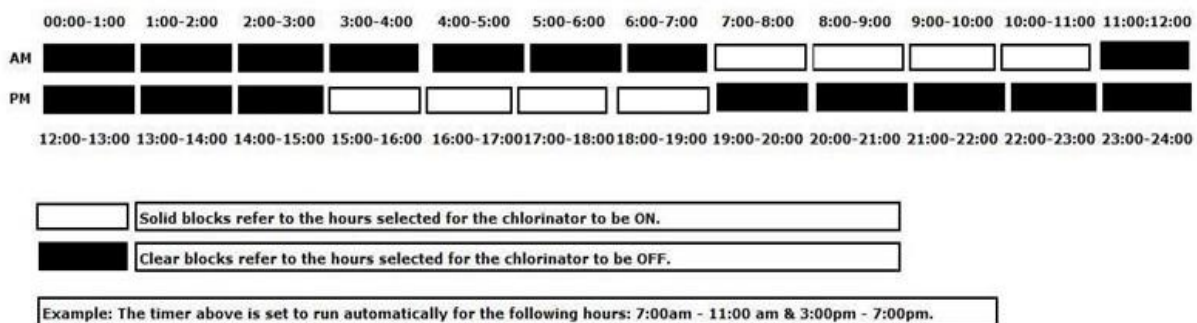
This menu allows you set the working periods for the **AUTO** mode. You can program a daily schedule with 1-hour increments. The 24 hours of a day are divided in two rows AM and PM and are represented with a rectangle. The first rectangle from the left represents 00 h. The last to the right, 12 h. A solid rectangle represents a working (ON) hour. An empty rectangle represents an non-working hour (OFF). You can set the hours at which the chlorinator will work along the day by choosing the corresponding solid or empty rectangle.

From the main screen press MENU. The following screen will appear:



The cursor position is indicated by a blinking rectangle. Use **Λ** and **V** to change between an ON or an OFF running hour. Press **MENU** to jump to the next hour. Once you have finish press **OK** to save and exit. Press **MENU** again to return back to the main screen.

To simplify the **TIMER** configuration please view the diagram below:



### 6.3.2. Language menu

From the main screen press MENU. Press **V** until the following screen will appear:



Press **OK** to enter the Language menu. Choose a language using the arrows **Λ** **V** and confirm by pressing **OK**. Press

**MENU** to return back to the production screen. You can also exit without saving the setting by pressing **MENU**.

### 6.3.3. Polarity Menu

The polarity applied to the cell is periodically reversed to remove calcium build-up. The factory pre-programmed period is 8 hours and this is recommended. Depending on the conditions of your pool it may be necessary to reduce this period in order to increase the frequency of cleaning. Note that the longer this period is, the longer the cell duration will be. A period of less than 4 hours will drastically reduce the life of the cell. Inversely, you can increase this period if your cell doesn't need to be cleaned that frequently (f/glass or vinyl pools). We recommend, in general, to set this period to the larger number of hours as long as there is not calcium build-up on the electrodes.

**MAIN MENU**  
**3 Polarity per.**

To change the polarity period, go to the production screen and press **MENU**. Press the **Λ** or **V** keys once or more until the screen on the left will appear. Then press **OK**.

**Polarity 6h**  
**Select period**

Use the **Λ** or **V** buttons to select the period and then press **OK** to confirm and save the setting. Then press **MENU** once or more to return to the production screen. You can also exit without saving the setting by pressing **MENU**.

**Change. polarity**  
**remaining: 8 min**

**NOTE:** When a polarity change is taking place, the unit will enter a pause mode lasting 10 minutes. This will be indicated by the screen on the left.

### 6.3.4 T V I Readings

**MAIN MENU**  
**4 T V I readings**

TVI readings are used to assist us in diagnosing if any issues arise.

**T= 29.8°C**  
**V= 23.40V I=3.4A**

T: Temp of unit  
V: Volts  
I: Amp @ Cell

### 6.3.5. Date and Time Menu

**MAIN MENU**  
**5 Date and time**

Press **OK** to set the date and the time.

**01-JAN-2018**  
**00:00:00**

Change the values using the **Λ** **V** keys and jump to the next field with **MENU**. Press **OK** to save and exit.

### 6.3.6. LCD contrast

**MAIN MENU**  
**6 LCD Contrast**

Adjust the LCD contrast using the **Λ** or **V** keys.

**LCD contrast**  
- ■ ■ ■ ■ ■ ■ +

Press OK to save and exit.

### 6.3.7 Spa Mode

SPA mode setting can be used when you have a pool and spa combination. Spa mode is automated via the use of an external flow switch that is connected to the chlorinator. Spa mode allows the production setting to be decreased automatically when spa is activated.

**SPA MODE**

### 6.3.8. Motor protection menu

**MAIN MENU**  
**8 Motor protect.**

This menu allows you to activate (YES/NO) and set the pool pump motor protection which is a highly recommended safety feature. If activated, and the probe detects no water flow, the pump will be stopped after a programmable delay of 5 seconds,

**Motor protect.**  
**YES      NO**

If the probe detects water for a second occasion the pump will be started (**NO**) seconds after the detection. You can set the value for YES, and NO using the **Λ** **V** keys to give you ultimate adjustment. You can jump to next field with **MENU**. Press OK to save and exit.

### 6.3.9. pH configuration

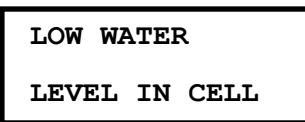
This function is not available with this model.

### 6.3.10. Program menu

This function only applies for internal servicing.

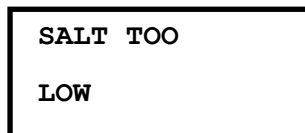


#### 6.3.4 Fault messages



This screen is displayed when the water does not contact the probe in the cell and the control system stops the production. Firstly verify that there is water in the cell and that its level reaches the top where the probe is located.

A low water level in the cell may be due to a dirty filter, obstructed skimmer basket, obstructed pump basket or to a pump not powerful enough. As soon as the water level is restored the fault disappears.



This screen appears when the mineral/salt concentration in the water is too low. At this stage it would be best to take a water sample up to your local pool professional for testing and then add the required amount to maintain a level between 3000-4000 ppm. As previously advised, wait until the additive is completely dissolved before running the chlorinator. Then press any key to restart the chlorinator.

**PLEASE NOTE:** This screen can also be displayed if the water temperature is too low, if there is a bad electrical connection between the control unit and the cell or if there is calcium built up on the electrodes. If the water test shows your mineral/salt levels to be correct please assess the cleanliness of your cell, the cell connection or it may be a fact of cold water temperature only.

## 7. RECOMMENDATIONS AND WARNINGS

The bipolar cells of your chlorinator have been manufactured using an exclusive technique and rigorous quality controls conferring extraordinary duration and resistance. However, there are several factors that may irreversibly reduce the properties of any electrode that you should avoid in order to obtain the best performance and longest lifespan of your chlorinator. These are:

- Operating with calcium build up on the electrodes
- Excessive chlorine concentration (chlorine is corrosive above 3.0 ppm)
- pH too low or too high
- Insufficient mineral/salt concentration
- Adding mineral/salt to the pool with the chlorinator working
- pH corrector acid injection before the cell housing, in the  
skimmers or in the bottom drain inlet

We recommend you to periodically check the cell for calcium build up, corrosion or leakage. The rods insulation and top sealing must be in perfect condition. If there is any damage please send the cell to the technical service for replacement.



**NEVER** operate the chlorinator if:

- Your installation is not provided with a residual current circuit breaker
- Water is not flowing through the cell
- Valves are closed
- The filter is being cleaned
- The swimming pool is being emptied
- The water is frozen
- Electrodes are blocked by calcium build-up

## 8. MANUAL CELL CLEANING

Your chlorinator is provided with a self-cleaning polarity change system that in normal conditions eliminates maintenance work. However, in exceptional cases, when the calcium concentration is very high (very hard water, old concrete pools), polarity change may not be enough to completely eliminate the calcium build up. Visually inspect the cell regularly to detect the presence of calcium and, if necessary, clean the cell manually. Let the cell dry completely during one or more days for the calcium build up to detach by itself. You can help this by slightly knocking the cell but do not introduce any element that could scratch the electrodes. Their coating is fragile. You can also use a high pressure water jet. **DO NOT USE ANY METALLIC OR STABBING ELEMENT TO SCRATCH THE ELECTRODES.**

If you are not able to remove the calcium build up in the way described, proceed as follows:

1. Turn off the pump and the chlorinator.
2. Disconnect the power cable for the cell, unscrew the thread lock and extract the cell.
3. Immerse the electrodes in a hydrochloric acid solution made from 1 part of acid and 9 parts of water. Do not immerse the rods or the cap of the cell. The hydrochloric acid will react with the calcium and will dissolve it producing a fizzing sensation.
4. Once the calcium build up has dissolved, rinse the cell immediately with freshwater, dry the terminal area properly and reinstall the cell in its housing.



Never leave the cell in the acid solution for more than 5 minutes. Do not scratch the electrodes with metal objects. For safety reasons, always add the acid into the water and never inversely.

## 9. WARRANTY, TECHNICAL SERVICE AND SPARE PARTS

### Warranty

1. The electrolytic cell and the control unit will be guaranteed for 3 years against any manufacturing defect
2. The manufacturer declines any responsibility in the following cases:
  - a. If the instructions in this manual are not followed
  - b. Faulty electrical connections
  - c. Accidental damage
  - d. Damage due to water in the control board
  - e. Pump of more than 1.5 V power without installation of a “By-Pass” (according to assembly diagram on page 4)
  - f. If acids are poured into the skimmers or cell without having disconnected the rectifier.
  - g. Presence of an acid tank near the chlorinator with insufficient ventilation.
  - h. Operation with calcium built up on the electrodes.
  - i. If Power Pack is installed in direct sun light.
3. The chlorinator shipping cost will be paid by the client/distributor.
4. It should be clarified that the chlorinator installation is completely independent from the filtration equipment, pump or multi-port valve. All they have in common is their connection.

### Spare parts

Theralux have spare parts available at your disposal via a network of pool shops around Australia. The use of non-original parts or the manipulation of the equipment by personnel not authorised by Theralux may cause serious problems to your chlorinator and will void the warranty.

If you do require any servicing or spare parts, please contact us directly at [www.theralux.com.au](http://www.theralux.com.au)

## 10. TECHNICAL CHARACTERISTICS

	SMC25	SMC35
Maximum flow	450 lt/min	450 lt/min
Maximum pressure	320 kpa	320 kpa
Pressure drop	5 kpa	5 kpa
Chlorine production	25 gr/h	35 gr/h
Output voltage (max)	24 VDC	24 VDC
Output current (max)	3.3 amp	5.0 amp
Cell type	Bipolar	Bipolar
TDS	3000-4000	3000-4000
Cell housing material	PC	PC
Electrode material	Titanium Grade1	Titanium Gr1
Maximum Swimming pool size:		
-Cool climate	75,000	100,000
-Tropical climate	55,000	80,000
Power supply	240 VAC	240 VAC
Power consumption	190 Watt	200 Watt
Weight	3.3 kg	3.5 kg



## Installation Notes:



Visit [theralux.com.au](http://theralux.com.au) or call  
Australia 1300 131 788  
New Zealand +64 9 527 0753

 **theralux**  
POOL WATER AT ITS BEST™