



smc chlorinator manual

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1. INTRODUCTION

We thank you for your purchase of an Innowater chlorinator. Innowater 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.

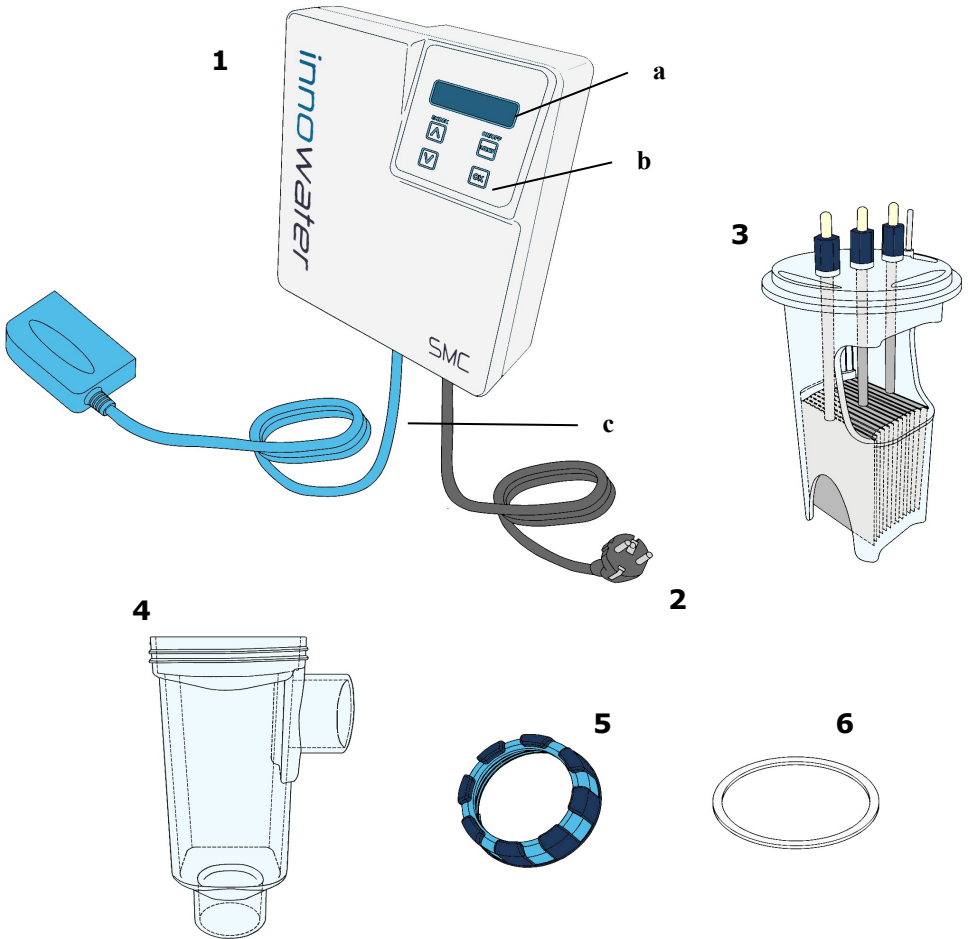
We trust you will enjoy your Innowater chlorinator—thanks for choosing Innowater.

2. TECHNICAL CHARACTERISTICS

	SMC10	SMC15	SMC20	SMC30
Maximum flow lt/min	450	450	450	450
Maximum pressure bar	4	4	4	4
Pressure drop kpa	5	5	5	5
Chlorine production gr/h	10	15	20	30
Max. output voltage VDC	24	24	24	24
Max. Output current ADC	2,0	2,5	3,5	5,0
Cell configuration	Bipolar	Bipolar	Bipolar	Bipolar
Recommended salt concentration gr/l	5-35	5-35	5-35	5-35
Cell housing material	PC	PC	PC	PC
Cell life span h	14.000	14.000	14.000	14.000
Electrode substrate material	Titanium grade 1	Titanium grade 1	Titanium grade 1	Titanium grade 1
Maximum swimming pool size m ³				
- Temperate climate	30	50	90	150
- Tropical climate	20	34	60	100
Power supply VAC	230	230	230	230
Power consumption W	58	75	100	144
Weight Kg	3,2	3,5	4,0	4,3

3. CHLORINATOR DESCRIPTION

You will find the following items in your Innowater SMC box:



1 Control unit

a LCD screen

b Keyboard

c DC cell cable and connector

2 Power supply cable

3 Electrolytic cell

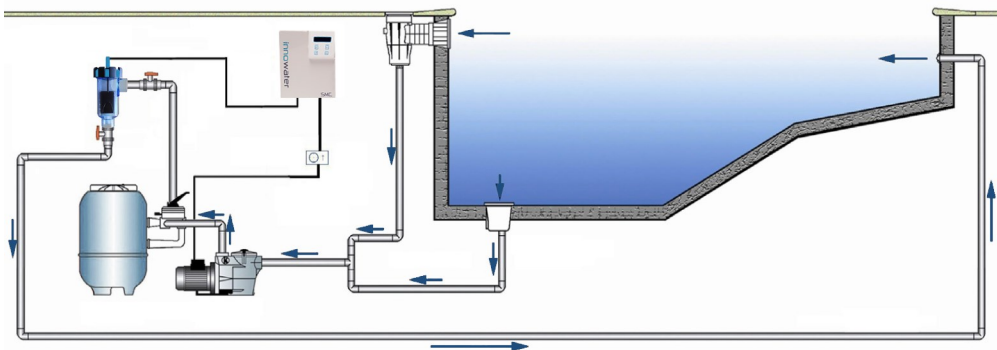
4 Cell housing

5 Thread lock

6 Cell O Ring

7 Cell tap

4 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.



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

Connect the earth wire (yellow and green) of the 230 VAC power supply cable to the earth of the swimming pool electric panel. Connect the phase (brown) and the neutral (blue) to the output contacts of the pump contactor in such a way that the chlorinator will be powered only when the pump is working. Connect the chlorinator wires to non occupied contacts. **Do not use the contacts in use by the pump.** This will prevent the chlorinator to be electrically connected to the pump when the contactor is switched off what could cause serious damage. Verify that the chlorinator switches off itself when the pump stops. This operation should be performed by a professional.

Cell housing

The cell housing must be installed in the return flow to the swimming pool and as the last element the water goes through before returning to the pool: always after the filter and any the heat pumps, solar panels, etc. Use special glue for rigid PVC 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.

Although the vertical cell position is recommended, the cell housing may be installed vertically or horizontally, according to the characteristics of your site. The vertical position also allows for disassembling the cell without water spillage. Allow enough room to unscrew the thread and extract the cell once the housing has been installed. **WATER MUST ENTER THE CELL THROUGH THE HIGHER SIDE OPENING.**



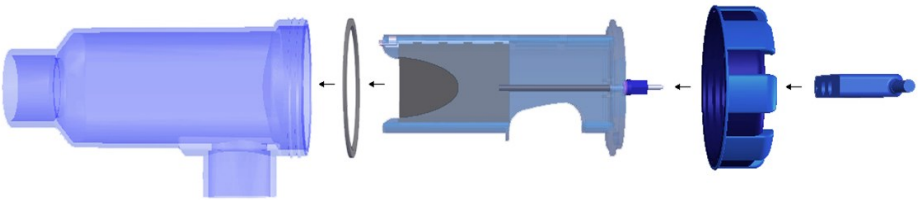
A good filtration is essential in salt chlorination. Please, verify that your filter and filtrating material are in optimal working conditions.

RECOMMENDED INSTALLATIONS	
RECOMMENDED	<div>Cell below the pool water level</div>  <div>Cell above the pool level</div> 
POSSIBLE	 
NOT RECOMMENDED	   

Cell

Insert the cell in the cell housing making sure that its **open side window is pointing to the side water inlet**. Make sure the O-ring is fitted correctly and tighten the thread. Then, connect the cell cable connector to the cell terminals. Verify that the connector is orientated so that its small hole is aligned with the thin pin on the cell before trying to plug the connector.

NOTA: The cell pins should only be tighten slightly and always by hand. Never use a tool because the cell could be damaged. Water tightness is assured by the internal seal.



5. WATER PREPARATION

Use preferably water from the metropolitan network. If water from a different origin is used, have it analyzed and verify so that there is no contraindication regarding salt electrolysis (such as a high concentration of metals or calcium, for example). Make also sure the water complies with health standards.

Balance the water before starting your chlorinator and add the amount of chlorine stabilizer prescribed by the manufacturer (usually 1 kg per 25m³ of water). Do not exceed the dose because this will block the disinfection action of the chlorine.

NOTE : Stabilizer prevents the disintegration of chlorine due to UV radiation. The lack of stabilizer could make it difficult to reach a chlorine residual concentration during high sunshine periods and will oblige you to produce more chlorine reducing the life span of your cell. In general, and specially if you don't use stabilizer, we recommend to chlorine during low sunshine hours.

The water must be clean and clear, presenting the following parameters:

Salt	5-6 kg/m³ (gr/l)
pH	7,2-7,6 (cement) 6,8-7,0 (polyester)
TAC	60-100 ppm
TH	15-20° French
Stabilizer	20-30 ppm (or according to the indications by the manufacturer)
Temperature	>10 ° C

6. ADDING SALT



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

Calculate the volume of the swimming pool and add 5 to 6 Kg of salt per cubic meter. Make sure the chlorinator is disconnected and make the filtration system to work for at least 24 hours.



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.

The salt dissolving process can be accelerated using the pool cleaner. Check the salt concentration is between 5 and 6 kg/m³ using a kit from a specialized pool shop.

The salt chlorination process doesn't consume salt. However, the salt concentration may be reduced over time due to the rain or other periodic freshwater contributions (filling up, filter cleaning, etc.). Whenever the salt concentration needs to be corrected, pour salt as close as possible to the return lines. Never pour salt in the skimmers or in the drain inlet.

7. OPERATION

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

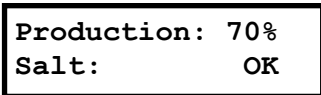
NOTE: At some points of activity or during a change of function the keyboard may seem as it is not responding immediately. This is completely normal. Just wait a few seconds for the task to be completed and the display will respond.

7.1 ON/OFF



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

Once the chlorinator is switched on, the main production screen will appear:



This screen indicates the current production rate and the existing salt level in the water. It may take a few seconds for the salt level to appear. If you are on a different screen you can always come back to the production screen by pressing the **MENU** button repeatedly.

To increase or decrease the chlorine production rate press the **▲** or **▼** arrows. The chlorinator modules the production by varying the operating time in periods of 10 minutes. At 100% the chlorinator works constantly.

You will soon get to know the needs of your pool which will depend on the different conditions (number of users, temperature, etc.) allowing you to anticipate in the production setting. In general, to enjoy the benefits of salt water chlorination, we recommend setting the minimum production rate that produces a crystal clear water in your pool. Avoid chlorinating during high sunshine hours because chlorine will quickly disappear due to the UV radiation and won't have the time to disinfect your pool thoroughly. We recommend to program the chlorinator during the night or at low sunshine hours.

7.2 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 **▲ SHOCK** for a few seconds. The following screen will appear:

Shock 7 h
Select duration

Select a number of hours, by using the **▲** or **▼** 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:

SHOCK 7 h
Remaining: 07:00

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

Exit Shock?
YES:OK NO:MENU

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

8 MENUS

8.1 Language menu

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

MAIN MENU
1 Language

Press OK to enter the Language menu. Choose a language using the arrows **▲ ▼** 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**.

8.2 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. 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.

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.

MAIN MENU
2 Polarity per.

Then press **OK**.

Polarity 7h
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**.

Chang. 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.

8.3 T V I Readings

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

MAIN MENU
3 T V I readings

This menu allows you to read find the temperature inside the control unit, the voltage applied to the cell and the current passing through it. These parameters can be very useful when servicing or diagnosing.

T= 29.8°C
V= 23.40V I=3.4A

8.4 LCD contrast

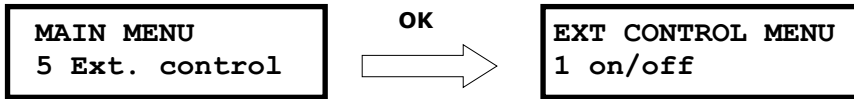
MAIN MENU
4 LCD Contrast

LCD contrast
- ■ ■ ■ ■ ■ ■ +

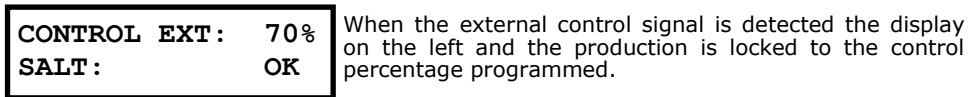
Adjust the LCD contrast using the **Λ** or **V** keys. Press **OK** to save and exit.

8.5 External control

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

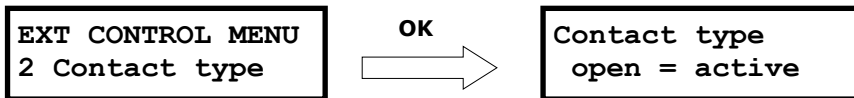


This function allows you to use the external control input to change automatically the percentage of production. External control input works by connecting the two wires of the control cable (optional) to a dry contact. If you have a cover, for example, you can use it to reduce or stop production when the cover is extended. You can also use it to control the chlorinator with a chlorine or redox regulator.



NEVER connect the external control cable to a contact with voltage. Connect it only to a dry contacts (voltage-free).

8.5.1 Contact type

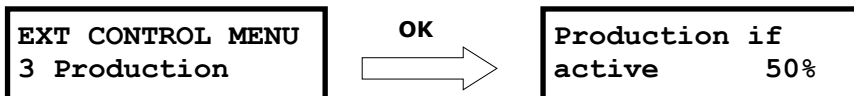


Select the behaviour of the relay to be connected to the external control input:

Open = active
Closed = active

Ext. Control will activate when the contact open
Ext. Control will activate when the contact close

8.5.2 Production



Choose the production percentage when the external control signal is detected.

If you are using an Innwater chlorine or redox regulator, program the relay output of the regulator in ON / OFF mode and the chlorinator input as **Open = active** and **Production if active 0%**

8.6 pH config

MAIN MENU
6 pH config

This menu is used with the pH Wireless option. See the Wireless Pump manual for configure the function.

8.7 Factory configuration

MAIN MENU
7 Factory conf.

This menu is used for factory settings and its parameters must not be modified by the user.

9 Fault messages

LOW WATER
LEVEL IN CELL

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.

SALT TOO
LOW

This screen appears when the 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 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.

10. RECOMMENDATIONS AND WARNINGS

The bipolar cells of your Innowater 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 salt concentration
- Adding 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

11. MANUAL CELL CLEANING

Your Innwater 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.

12. 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.
3. The chlorinator shipping cost will be paid by the client/distributor.
4. It should be clarified that the Innwater chlorinator installation is completely independent from the filtration equipment, pump or multi-port valve. All they have in common is their connection.

Spare parts

Innwater have spare parts available at your disposal via a network of pool shops around the world. The use of non-original parts or the manipulation of the equipment by personnel not authorised by Innwater 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.innwater.es.

