

# HYDROCHLOR MK3

mineral chlorinator 

## Owners Manual



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### WARNING

This equipment must be installed and serviced by a qualified technician. Improper installation can create electrical hazards which could result in property damage, serious injury or death. Improper installation will void the warranty.



# WATERCO

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## What's In the Box?

- Hydrochlor MK3 Control Unit
- Manual Warranty Booklet

**NOTE:** If bought as Salt Water Chlorinator unit, the electrolytic cell is provided in a separate carton.

## FEATURES

### Chlorine Generation

Through the process of electrolysis, a saline solution pass over an electrolytic cell, then the saline solution is separated into its basic components: chlorine and sodium. The chlorine is instantaneously transformed into hypochlorous acid; this the chlorine form that kills algae and other harmful organism in the water.

A chlorine generator's main function is to produce chlorine for the pool. This keeps a residual of chlorine in the pool that prevents algae and bacteria from growing. The chlorine then turns back into salt and the system continues as long as the generator is functioning properly.

Consistently maintained sanitizer levels in the pool water will prevent the growth of all common algae and bacteria. A salt-water chlorinated pool requires much less attention than a chlorine pool.



## HYDROCHLOR MK3

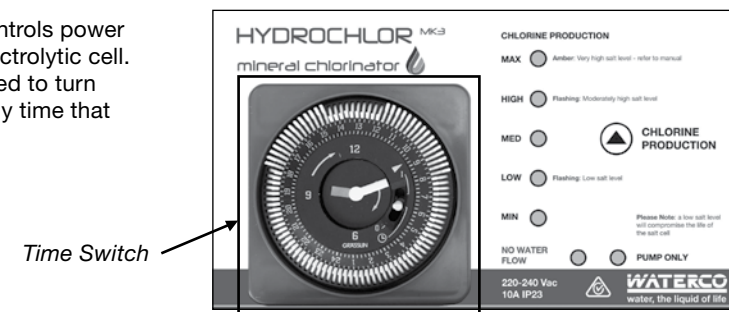
Hydrochlor consists of a Control Unit (power supply)with a built in timer (Time Switch) and a electrolytic salt cell (where the chlorine is produced).

### Hydrochlor Control Unit

The Control Unit monitors and regulates chlorine production by regulating the amount of electrical energy supplied to the electrolytic salt cell.

### Time Switch

The Time Switch controls power to the pump and electrolytic cell. It can be programmed to turn "ON" or "OFF" at any time that suits your lifestyle.



Time Switch

## Electrolytic Salt Cell

Waterco's salt cell consists of a series of titanium electrodes with opposite charges. Waterco's clear salt cell housing allows visual inspection of the salt cell plates and enables monitoring of chlorine production.

The cell housing is constructed using clear U.V. stabilized acrylic. Both anode and cathode of the self-clean chlorinator are made from uniquely coated titanium plates for extra durability.



## Self-Cleaning

Waterco's Self Clean Salt Cell has the added ability to reverse the polarity of the voltage to clean calcium build up off its electrodes.

The Hydrochlor Control Unit power up the salt cell (anode and cathode) and hold an electrical potential difference between them for a designated period of time. This difference is reversed after that period of time has expired and then the anode becomes the cathode and the cathode becomes the anode.

The reversing of polarity or electrical potential difference will then start to remove any calcium build-up, which may have been deposited onto the cathode.

This continuous reversing of polarity will keep the cell clean from calcium deposits during its operation, providing the chemical balance and flow of the pool water thru the cell is maintained within normal parameters.

It is recommended that you obtain regular water chemistry tests from your local pool professional to ensure your water balance is within range.

## Battery Backup

The Time Switch comes with a super capacitor incorporated to save your settings in the event of a power failure.

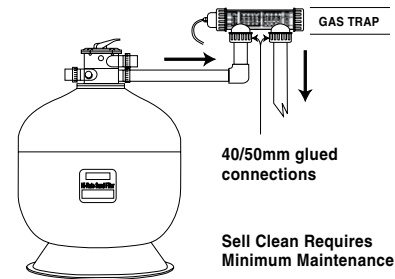
Note: the super capacitor requires continuous power supply of at least 150 hours to achieve full charge.

## INSTALLATION

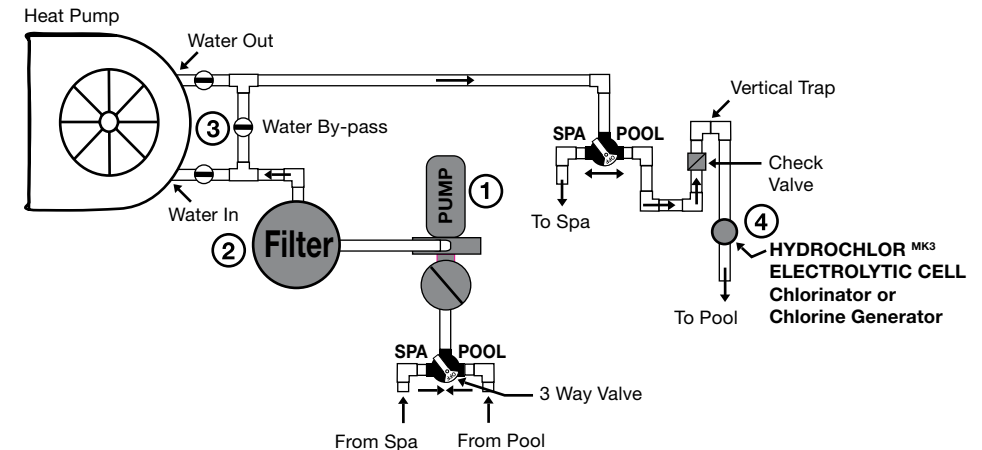
These guidelines should be followed to install the Hydrochlor MK3:

- Ensure that the electrolytic cell is the last piece of equipment installed on the filtration system – this is so the chlorine produced will not damage other equipments such as heaters.
- The electrolytic cell may be installed above or below water level. If it is below water level, please ensure that an isolation valve is installed so the unit can be serviced without losing water from the pool.
- The cell may be mounted on different angles so long as a gas trap is provided.

**GAS TRAP:** The cell must be positioned in such a way as to provide a gas trap. The bottom of the cell must be above the top surface of the pipe from the previous piece of equipment, as per the below diagram.



## PLUMBING DIAGRAM



## Installing the Control Unit

Choose a location for the Control Unit close enough to the Cell/Housing and filtration pump so that both may be connected/disconnected easily. The Control Unit should not be mounted in areas where chemicals are stored (e.g. acid and chlorine). Also ensure the Control Unit can be connected to the mains power outlet of the pool area. Note that this outlet must meet the current applicable local standards at the time of installation.

The PUMP socket outlet in the base of the Control Unit is dedicated to the filtration pump only. Do not use a double adaptor to connect another pump as this will overload the system and void warranty.

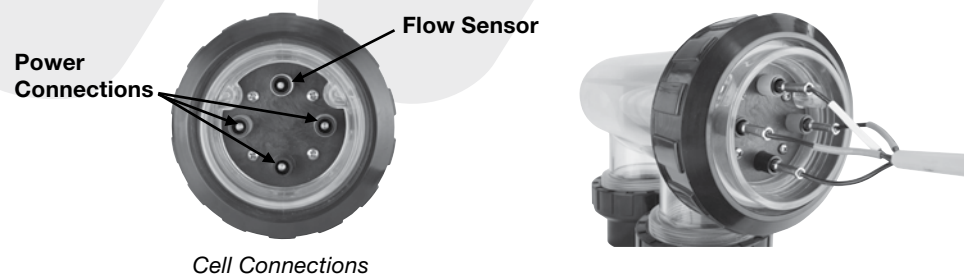
**NOTE:** For installations running on off-peak electricity supply, like Queensland Tariff 33, it is required to connect the Control Unit to power supply for a period of at least of 170 hours to fully charge the backup super capacitor of the Time Switch.

## Installing/Connecting Electrolytic Cell

The Cell/Housing assembly should be plumbed into the pool return line after all other accessories (and prior to any heating take-offs). Note any water flow direction on the Cell/Housing. The Cell will need to be removed from the housing periodically for cleaning – do not place it where its removal can be difficult/obstructed.

The Electrolytic Cell is connected to Control Unit using the cell cable.

Ensure that the 4 connections (3 for Cell Power and 1 for flow detection) are not loose. A loose connection is likely to cause arcing which may damage the entire system.



**NOTE:** Connect all plumbing to the Cell Housing taking care that all joints are glued or tightened securely to prevent leaking.

Allow 24 hours for glue (solvent) to set before starting the Hydrochlor MK3.

## OPERATION

### Setting the time

To set current time, rotate minute hand until arrow-head aligns with correct time. The clock operates in a 24 hour time sequence

### Setting Filtration and Chlorinator Operation Time.

To set ON/OFF times, move all tappets between ON and OFF times required to outer position.

I.E. to set ON at 7.30 a.m. and OFF at 10.30 a.m. move all tappets between 7.30 and 10.30 to outer position (see fig. 1).

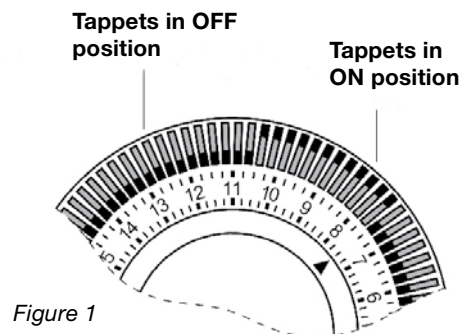


Figure 1

### Manual Override switch (see fig. 2)

#### ON Position:

the time switch is permanently ON irrespective of tappet positions. This is the recommended setting to work in combination with Waterco's Aquamaster or ChemfloPlus.

#### AUTO Position:

the time switch is operating on timed control as determined by tappet positions. This the automatic operation position.

#### OFF Position:

the time switch is permanently OFF irrespective of tappet positions.

Figure 2



"ON" Position

"AUTO" Position

"OFF" Position

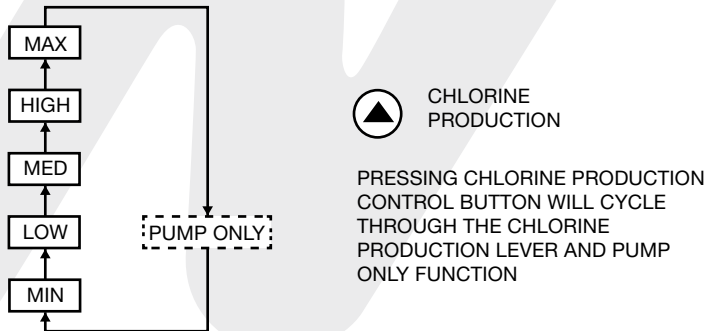
## CHLORINE PRODUCTION LEVELS

The output of the chlorinator can be adjusted to reflect the different seasonal requirements in order to maintain satisfactory chlorine sanitizer levels.

The amount of chlorine produced can be adjusted by pressing the **CHLORINE PRODUCTION** key. Press button to raise production. If production already set at maximum it will turn to zero and each press will raise production by one LED till MAX.

If the pool water is over chlorinated, simply reduce the chlorine production set level.

**Pump Only Mode:** The Chlorinator can be set to activate the pump only for maintenance purposes (e.g. backwashing the filter). The pump only mode will disable the flow detection and chlorine production in the cell. To set press CHLORINE PRODUCTION key until Pump Only mode LED is lit.



## ALARMS

Hydrochlor MK3 includes alarm signals to indicate potential problems associated with its functionality and to protect the control unit/electrolytic cell. The chlorine production LEDs will blink/lit or change the colour to indicate the correspondent situation.

- **Low Chlorine Production Level LED blinking:** Salt level is below the minimum allowed, please add salt to pool. Consult your pool professional how to increase the salt level. This condition may affect the longevity of the cell and void its warranty.
- **High Chlorine Production Level LED blinking:** Salt level is moderately above the maximum operational level. It needs to be reduced below the maximum recommended. Consult your pool professional how to reduce the salt level. This condition may affect the longevity of the cell and void its warranty.
- **Max Chlorine Production Level LED Amber:** Salt level is too high. The control unit will stop the chlorine production until it's reduced below the maximum recommended. Consult your pool professional how to reduce the salt level.
- **No Water Flow:** The flow sensor is not detecting water flowing through the cell housing. Control Unit will stop chlorine production and power to pool pump. Please refer to trouble shooting guide or consult your pool professional.

## WATER CHEMISTRY

### Salt Level

The Hydrochlor MK3 chlorinators must operate between the salt level ranges listed below.

- MINIMUM = 4000 TDS
- OPTIMUM = 5500 TDS
- MAXIMUM = 6000 TDS

Testing kits are available from the local pool professional and should be used to accurately check the salt level in the pool water.

## Water Chemistry

It is important to maintain the correct water chemical balance in the swimming pool; this will help protect the Hydrochlor chlorinator and its cell.

Consult the local pool professional for the correct water balance according to the swimming pool type.

The Hydrochlor chlorinator will run correctly at the following chemistry levels

|                         | Range        | Suggested   |
|-------------------------|--------------|-------------|
| pH.                     | 7.2 – 7.8    | 7.2 – 7.6   |
| Total alkalinity        | 60 – 200ppm  | 80 – 150ppm |
| Calcium hardness        | 100 – 500ppm | 60 – 250ppm |
| Stabilizer (Sun screen) | 30 – 60ppm   |             |

## SALT CELL CLEANING PROCEDURE

- Set the Time Switch to “off” position.
- Unscrew the barrel unions from the salt cell and disconnect the cables from the salt cell's brass connectors.
- Turn the salt cell housing upside down with both ports facing upwards.
- Pour the Cell Wash cleaning solution into the housing to dissolve the calcium build-up from the salt cell plates. There should be just enough solution to cover the salt cell plates.
- Allow enough time for the solution to dissolve the calcium build-up from the salt cell plates. Approximately 5 to 10 minutes.
- Once the calcium build-up has been removed, pour out the Cell Wash solution into a bucket and lightly rinse-off excess calcium and Cell Wash solution from the salt cell assembly, with fresh water.
- Reconnect the salt cell onto the filter system
- Set the time back to original “ON” or “AUTO” position on the power pack to reactivate the Hydrochlor.

**Never use products that are not specifically manufactured to clean the Hydrochlor MK3's salt cell. Do not use raw acids such as Hydrochloric acid. This will damage the salt cell and severely life and will void warranty. Please consult your local pool professional for advice on salt cell cleaning products.**

## TROUBLESHOOTING

| SYMPTOM                           | POSSIBLE CAUSE                                   | REMEDY  |
|-----------------------------------|--|---|
| <b>Low chlorine level in pool</b> | Operating time too short                         | Increase operating time                             |
|                                   | Production control set too low                   | Set production higher                               |
|                                   | Low salt   | Add required amount of salt                         |
|                                   | Pool chemistry not correct                       | Have water tested                                   |
| <b>Unit does not operate</b>      | No electrical power<br>Hydrochlor MK3 switch off | Connect power, check fuse, switch on Hydrochlor MK3 |



| SYMPTOM                       | POSSIBLE CAUSE                           | REMEDY   |
|-------------------------------|--|--|
| <b>Not keeping time</b>       | Time clock setting, power outage         | Make sure battery have been charged for a least 48hrs to achieve max capacity                      |
|                               | Electrical fault                         | Return to distributor for repair   |
| <b>All LEDs blinking</b>      | Electrical fault                         | Return to distributor for repair   |
| <b>No chlorine production</b> | Control unit set to pump only            | Press Chlorine Production button to set the desired level  |
|                               | Time Switch in OFF position              | Set Time Switch to ON or AUTO position   |
| <b>Pump not working</b>       | Pump not connected to pump socket outlet | Plug pump lead to Pump Socket outlet   |
|                               | No flow detected                         | Check pool water level<br>Check position of multiport valve<br>Check connection of flow sensor pin |

## TECHNICAL SPECIFICATIONS

### Power Unit

|                        |                                     |
|------------------------|-------------------------------------|
| Input                  | 220-240V AC                         |
| Frequency              | 50/60 Hz                            |
| Current                | 1.6 A                               |
| Socket Outlet          | 220-240V AC                         |
| Maximum Current Output | 8A                                  |
| Minimum Salt Level     | 4000 TDS                            |
| Maximum Salt Level     | 6000 TDS                            |
| Type of Salt           | Standard Pool Salt/<br>Mineral Salt |

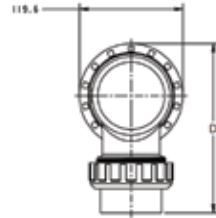
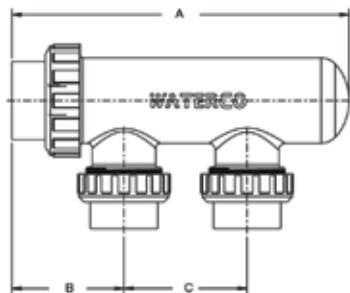
### Waterco Salt Cell

|                        |        |
|------------------------|--------|
| Input                  | 20V DC |
| Maximum Current Output | 6A DC  |

### Recommended Pool Sizes

| Waterco Salt Cell | Chlorine Production (g/hr) | Max Pool Size/ Climate |          |
|-------------------|----------------------------|------------------------|----------|
|                   |                            | Temperate              | Tropical |
| Series 2000       | 20                         | 60,000                 | 48,000   |
| Series 2500       | 25                         | 80,000                 | 60,000   |
| Series 3000       | 30                         | 100,000                | 72,000   |

### Cell Housing dimensions



| A (mm) | B (mm) | C (mm) | D (mm) |
|--------|--------|--------|--------|
| 423.5  | 136.5  | 280.0  | 188.8  |

## GENERAL SAFETY RULES

- 1) The equipment mentioned in this manual is specially designed for the sanitizing of water in swimming pools.
- 2) It is designed to work with clean water at a temperature not exceeding 35°C (95°F).
- 3) The installation should be carried out in accordance to the safety instructions of swimming pools especially Standard HD 384.7.702 and the specific instructions for each facility.
- 4) The rules enforced on accident prevention should be carefully followed.
- 5) Any modification of the chlorinator requires the prior consent of the manufacturer. Original replacement parts and accessories authorized by the manufacturer ensure a high level of safety. The manufacturer accepts no liability for the damage and injuries caused by unauthorized replacement parts and accessories.
- 6) During operation, some parts of the chlorinator are subject to dangerous electric voltage. Work may only be performed on the chlorinator or on the equipment connected to it after disconnecting them and the starting device from the mains power.
- 7) The user should make sure that assembly and maintenance tasks are carried out by qualified authorized persons and that these persons have first carefully read the Service and Installation Instructions.
- 8) The operating safety of the chlorinator is only guaranteed if the Installation and Service instructions are correctly followed.
- 9) The limit values stated in the Technical Specifications should not be exceeded under any circumstance.
- 10) In the event of defective operation or fault, contact the manufacturer's Technical Support Department or its nearest Authorized Agent.
- 11) If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person.
- 12) This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- 13) The appliance is not intended for use by young children. Young children should be supervised to ensure that they do not play with the appliance.

These chlorinators are approved and conformed to AS3136 Swimming Pool Equipment, as a prescribed article under Australian Registration.

These chlorinators conform to the Australian Electromagnetic Compatibility Standard marked by the C-tick.

## WARRANTY

### Two Years Warranty:

| Hydrochlor MK3           | 2 years* |
|--------------------------|----------|
| Electrolytic Salt Cell   | 2 years  |
| Power pack               | 2 years  |
| Commercial Installations | 1 year   |

\*Please refer to Waterco's Warranty terms and conditions