



# FRESH WATER POOL PURIFIER

## Installation and Operation Manual

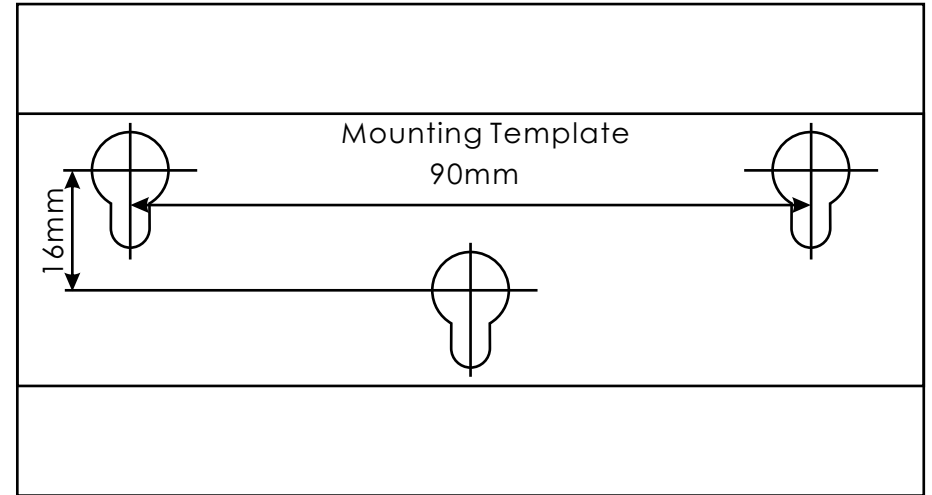


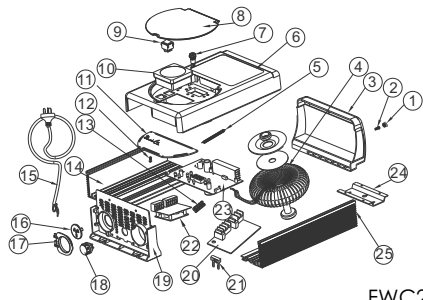
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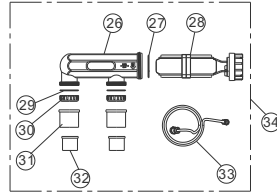
## 13. INSTALLATION TEMPLATE

Ratio 1:1





FWC25-T



Item	Part No.	Description	Qty
1	111212512	Plastic Caps for Chlorinator Top Cover	4
2	112002636	M4 x 10 Screw	20
3	530060442	Chlorinator Top Cover	1
4	106167983	Ring transformer	1
5	112062661	Spring	1
6	530080442	Salt machine surface cover	1
7	E130010	Fuse Seat 6.3A	1
8	530090442	Door Model	1
9	106171405	Switch I O II 250VAC / 6A	1
10	106591524	Timer Analogue Battery Pack	1
11	530070442	Fense Cover	7
12	112232743	Round head cross tapping screw M3 x 8	1
13	106271455	Terminal Jumper	1
14	116093339	Profile A	1
15	105021259	Cable with Euro Plug	1
	105061351	Cable with America Plug	1
	105011249	Cable with Australian Plug	2
16	106111391	250V/10A Jack for Australia	1
17	E130017	Component Enclosure Plate	1
18	106481502	SP Power Point	1
19	530100444	Bottom Panel Comp	1
20	E130056	FWC25 Silicon controlled combination	1
21	106147502	Fuse 15A	1
22	106015532	EMC Board (without Light)	1
23	E130057	FWC25 PCB Control Complete	1
24	116113342	Hanging Bracket	1
25	116093340	Profile B	2
26	530040442	Cell Housing	2
27	111192492	O-Ring for Housing	2
28	9130034	Replacement Cells for FWC	2
29	111202472	O-Ring for Union	1
30	430170991	2.0" Union Nut (White)	1
31	430300989	2.0" Union (A/E)	1
32	430300943	1.5" Union	1
33	9130021	FWC Salt Chlorinator Cable Set	1
34	9130035	Complete Cell kits for FWC25 (with cable)	1

## 1. SAFETY WARNINGS



This appliance must be installed in accordance with national wiring codes and with a means of disconnection incorporated in any fixed wiring.

High voltage can shock, burn, or cause death or serious property damage.

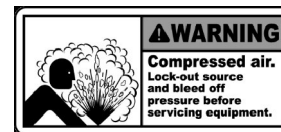
- (1) In order to reduce the risk of electric shock, DO NOT use an extension cord to connect the unit to the electric supply.
- (2) If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or a qualified electrician.
- (3) The system must be permanently connected to an individual circuit breaker, especially when pump power is connected from pump socket of the device.
- (4) This electricity supply must be connected through a residual current device (RCD) or Ground Fault Circuit Interrupter (GFCI) with a rated residual operating current not exceeding 30 mA.
- (5) Electrical grounding must be connected before connecting to electrical power. Failure to ground all electrical equipment can cause electric shock or serious or fatal injury.
- (6) Before servicing, unplug the power plug from the electrical socket and allow the device to cool for at least 15 minutes.
- (7) Never unplug the cell cable during operation.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.



### HYPERthermia

Always unplug the device from its socket or power source and allow it to cool before opening the enclosure. There is a high risk of shock and burn injuries from touching the internal component.



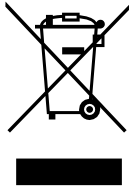
### COMPRESS AIR HAZARDOUS

This system enclosed titanium cell in a plastic enclosure that can become pressurized. Pressurized air can cause the plastic enclosure to explode causing serious injury or death. The cell must be operated with the pump running

and the valves fully open allowing water to flow unrestricted through the cell enclosure.

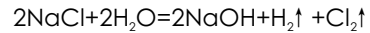
This device is intended for use with swimming pools and spas only; it must not be used for disinfecting drinking water.

Only one pump and one underwater light may be connected to this unit (FWC-TLT Series Only) The current loading of the pumped connected must not exceed 8 Amp. (FWC-TLT Series Only)

Correct disposal of this product	
	<p>This symbol on the product, or in its packaging, indicates that this product may not be treated as household waste. Instead, it should be taken to the appropriate waste collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by the inappropriate waste handling of this product. For more detailed information about the recycling of this product, please contact your local council, your household waste disposal service, or the shop where you purchased the product.</p>

## 2. SAFE POOL SANITIZING WORKING PRINCIPLE

Chlorine is a highly effective sanitizing agent which is commonly used in swimming pools. It can prevent the growth of bacteria and fungi. This chlorinator uses the process of electrolysis to break down the salt (NaCl) in the swimming pool water to produce chlorine gas. (Cl<sub>2</sub>). Chlorine production can be regulated from the control unit by altering the electric current flowing through the titanium electrode in the cell housing.



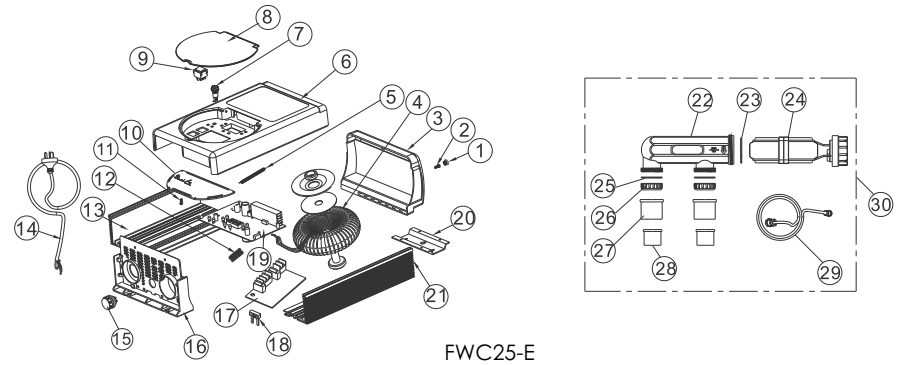
### 2.1 Water Chemistry:



It is important to note that the Fresh Water Pool Purifier does not maintain the water chemistry of your swimming pool water; it produces merely chlorine from a mild salt solution.

To ensure that your chemical balance is within the guidelines listed below and encourage a sparkling clean pool, you should also have your water regularly tested at your local pool shop.

## 12. SPARE PART DIAGRAM



FWC25-E

Item	Part No.	Description	Qty
1	111212512	Plastic Caps for Chlorinator Top Cover	4
2	112002636	M4 x 10 Screw	20
3	530060442	Chlorinator Top Cover	1
4	106167983	Ring transformer	1
5	112062661	Spring	1
6	530080442	Salt machine surface cover	1
7	E130010	Fuse Seat 6.3A	1
8	530090442	Door Model	1
9	106171404	Switch I O 250VAC / 6A	1
10	530070442	Fense Cover	1
11	112232743	Round head cross tapping screw M3 x 8	7
12	106271455	Terminal Jumper	1
13	116093339	Profile A	1
14	105021259	Cable with Euro Plug	1
	105061351	Cable with America Plug	1
	105011249	Cable with Australian Plug	1
15	106481502	SP Power Point	2
16	530100444	Bottom Panel Comp	1
17	E130056	FWC25 Silicon contrlled combination	1
18	106147502	Fuse 15A	1
19	E130057	FWC25 PCB Control Complete	1
20	116113342	Hanging Bracket	1
21	116093340	Profile B	1
22	530040442	Cell Housing	1
23	111192492	O-Ring for Housing	1
24	9130034	Replacement Cells for FWC	1
25	111202472	O-Ring for Union	2
26	430170991	2.0" Union Nut (White)	2
27	430300989	2.0" Union (A/E)	2
28	430300943	1.5" Union	2
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### Caution

The mixture required for cleaning is extremely corrosive and protective clothing should be worn.

### Procedures

Make up a dilute mixture of 1:10 parts of Hydrochloric (muriatic) Acid to water



#### Always add Hydrochloric acid to water

- (1) Turn the filtration system off.
- (2) Remove the salt cell from the housing.
- (3) Add the salt cell to the cleaning mixture making avoiding contact with the terminals.
- (4) Wait five to ten minutes for the Salt Cell to be cleaned.
- (5) If any parts of calcium are stuck or will not dissolve, carefully remove them with a smooth plastic instrument.
- (6) Once the salt cell is clean, rinse with fresh water and place back in the housing and tighten the cell or collar.
- (7) Turn system back to automatic setting or timer. Dispose of cleaning mixture.



If the salt cell has a heavy deposit of calcium that has not been removed after ten minutes in the cleaning solution, we recommend using a "Cell Cleaner" product which is not as corrosive as hydrochloric acid. The cell can then be left in the cleaner for up to a hour and will completely remove the calcium.

We recommended using Salt Cell Cleaner at all times over the traditional Hydrochloric mixture, it is a safer alternative and not harmful to your Salt Cell at all and reusable.

Salt level	FWC25-E / FWC25-T / FWC25-TLT	1500 - 2000 ppm
Free Chlorine	1.0 – 3.0 ppm	
pH	7.2 – 7.6	
Cyanuric acid (stabilizer)	30 – 50 ppm	
Total Alkalinity	80 – 120 ppm	
Calcium Hardness	200 – 400 ppm	
Metals	0 ppm	

### 2.2 Water Chemistry:

$$\text{Required Chlorine Production Rate (g/hr)} = \frac{\text{Pool Volume(litre)} \times \text{Standard Chlorine(g/litre)}}{\text{Turnover Rate (Hr)}}$$

Standard Chlorine Level not less than 2mg/liter = 0.002g/liter

Example:

Pool Volume: 65m<sup>3</sup> = 65,000litre

Turnover Rate: 4 Hour

$$\text{Required Chlorine Production Rate (g/hr)} = \frac{65,000 \text{ liter} \times 0.002\text{g/liter}}{4 \text{ Hr}} \text{ g/hr}$$

### 2.3 Salt Level

The amount of salt required is between 1500 and 2000 ppm. This is achieved by adding 1.5-2Kg of salt per 1,000 liters of water directly into the pool water. The fresh water chlorinator can work as low as 1000 ppm in warm water. A salt level higher than 2,000PPM is recommended for cold water.

Salt required according to the volume of the pool at salinity 2000ppm:

Pool volume (m <sup>3</sup> )	Salt (kg)	Pool volume (Gallon)	Salt (Pound)
10	20	2,642	88
15	30	3,963	132
20	40	5,283	176
25	50	6,604	220
30	60	7,925	264
35	70	9,246	308
40	80	10,567	352
50	100	13,209	440
60	120	15,850	528
70	140	18,492	616
80	160	21,134	704
90	180	23,775	792
100	200	26,417	880
110	220	29,059	968
120	240	31,700	1,056
150	300	39,626	1,320

NOTE: Table based on 2000 ppm of salt per m<sup>3</sup> of water.

#### 2.4 Type of Salt

The most common salt used in swimming pools with Salt Electrolysis is 99% pure Sodium Chlorine (NaCl).

DO NOT use the following types of salts:

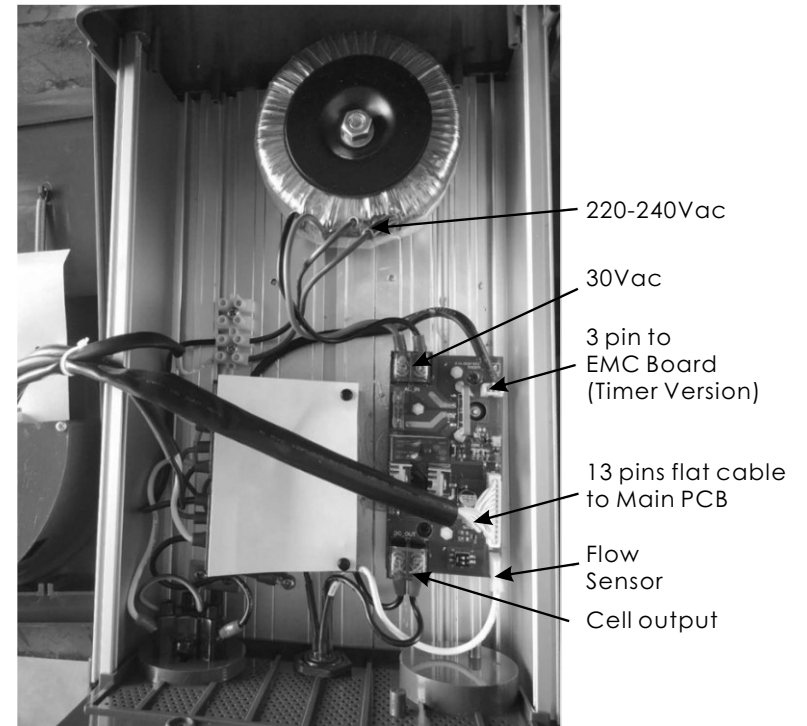
- (1) Rock salt.
- (2) Salt with more than 1% yellow prussiate of soda.
- (3) Salt with more than 1% of anti-caking additives.  
Iodized salt.

Salt with additives or impurities will cause premature cell failure.

#### 2.5 Addition and Removing Salt in The Swimming Pool Water

Before adding the salt into the pool, place the multiport valve on "Filtration" or "Recirculation" and then turn the filtration pump on.

## 10. ELECTRICAL WIRING



## 11. CLEANING THE TITANIUM CELL



Although the system is designed with a self-cleanig function for the cell (reverse polarity), it will occasionally be necessary to manually clean the cell to remove calcium deposit.



## 8. MAINTENANCE AND TROUBLESHOOTING

A salt chlorinator is a valuable piece of pool sanitizing equipment. Regular care and maintenance will ensure the best performance and long life. Keep the water chemical balance

- (1) Maintain the correct water chemical balance
- (2) Maintain a good operating environment
- (3) Regularly check the condition of the titanium plates. During the chlorination process white calcium scale may naturally build up on the titanium plates in the cell. Regular monitoring of the cell will prevent excessive buildup of scale. Excessive scale will damage the cell and significantly reduce its life and efficiency.
- (4) If the control box fails or there is excessive calcium deposit, maintenance must be carried out by a pool professional.
- (5) Prevent insects from entering the control box, they may damage the electrical components inside.

## 9. TROUBLE SHOOTING

i. Low / no chlorine production	How to handle
Salt level is too high and causing over heating.	Check the salt level is within operation range, refer to individual model recommendation. It will resume output when salt level is normal.
Check the electrical plug/control box/pump power	Connect the power properly
System setting is too low	Turn the system control to maximum
Automatically stopped by the timer setting	Adjust the timer setting
excessive scale build upon the cell	Switch off the salt chlorinator and request cleaning the salt cell by professional pool service.
Water temperature too low	Turn on the winter switch
Salt level too low	Add salt to the pool
ii. No flow	
Pump malfunction	Stop the filtration system and repair the pump
Filter Backwashing	Once the backwash is complete, turn the filter back to normal filtration
The gas sensor is not connected	Connect the gas sensor according to this manual
iii. No display	
Blown fuse	Unplug the power and replace the fuse



Add the salt directly into the pool evenly around the pool or ballast tank. Do not allow the salt to sit in a pile on the bottom of the pool. Do not add large amount of salt nearby the skimmer at the same time. It will damage the unit.

Keep the filtration system running for 24 hours using the Main Drain or vacuum suction nozzle as a main suction line.

The only way to remove the salt in the pool water is to partially drain the pool and refill with fresh water.

## 3. PRODUCT FEATURES

- (1) Convenience and the constant delivery of pure chlorine-based sanitizer.
- (2) No more artificial chemical cleaning agent which could cause skin and eye irritation. You just need to add natural salt in the pool.
- (3) The salt in the water is so little you do not taste or smell the salt.
- (4) The electrode is made of titanium, which is durable and resistant to corrosion.
- (5) Easy to install and operate.
- (6) The water does not have the heavy smell of chlorine because chlorine is not directly added to the pool.

## Product Picture



1x control box



1x cell unit



1 set 1.5"/ 2" Universal Union



1 x cell cable

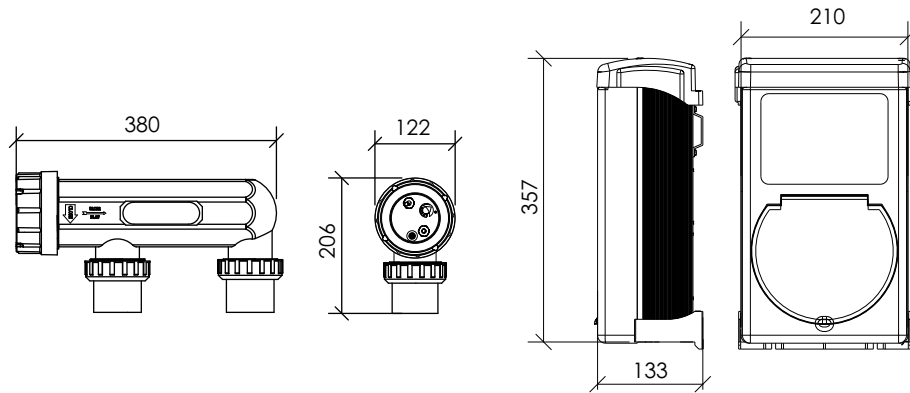


1 set screws and Fuse



User Manual

### 3.1 Product Dimension



### 3.2 Product Specification

Model	Cell Power Rating	Chlorine Generation	Fiberglass Pool	Concrete Pool
	(VA)	(g/hr)	(Liter)	(Liter)
FWC25-E	225	25	75000	70000
FWC25-T	225	25	75000	70000

\* All the cells are Self Cleaning type

#### FWC-T Series (Chlorinator with Time Clock)

Model	Input Voltage / Frequency	Power Rating
FWC25-T	220-240VAC50/60Hz	225A

### 4. INSTALLATION GUIDE

The Emaux Fresch Water Pool Purifier unit is contained in a rain tight enclosure that is suitable for outdoor mounting (IPX4 waterproof). However, the following points must be taken into consideration for a correct installation of the Fresh Water Chlorinator unit:

**SALT CHLORINATOR ON/OFF/AUTO:** ON/Off Switch. In Auto mode, the chlorinate is operated by the timer setting

**Light On/Off:** Switch for underwater light connected to the control unit (For certain models)

**System Control Volume:** Adjust the chlorinator production.

For example:

Set at 100% = the salt cell output is 25g/h.

Set at 50% = the salt cell output is 12.5g/h.

Set at 30% = the salt cell output is 7.5g/h.

**Winter Mode Switch and On/Off LED:** Turn on to change the chlorine production to 85% of the system production setting.

**Cell Polarity LED:** Shows the polarity of the electrodes; the polarity of the electrode will reverse every 8 hours, in order to remove any deposit on the electrode.

**Timer:** (timer models only) Programmes the on and off times for the unit and pump to run automatically.

**Stand-By LED:** Displays when the chlorinator is in stand-by mode. When the chlorinator is turned on, the stand-by LED will go off after 35 seconds.

**No Flow LED:** Displays when there is no water flow. If there is no water in the cell enclosure, the pump and salt chlorinator will stop automatically.

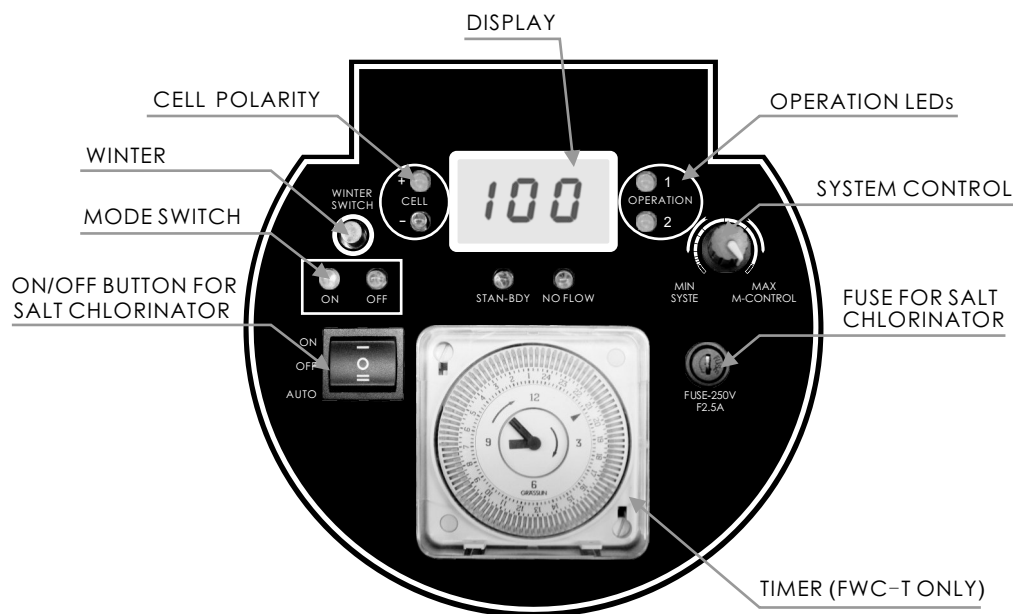
### 7. TIMER SETTING FOR TIMER VERSION

- (1) Turn the clock face until the time of the day is aligned with the clock at the center of the timer hand.
- (2) The 24-hour dial has 15 minutes division. The timer can be programmed by pushing the captive trippers to the outer ring position for the entire period that the load is to return ON.
- (3) The timer clock will rotate with time; the chlorinator will be turned on automatically if its captive tripper is pushed outward.





## 6. CONTROL PANEL OPERATION



### Digital display

There are three display functions:

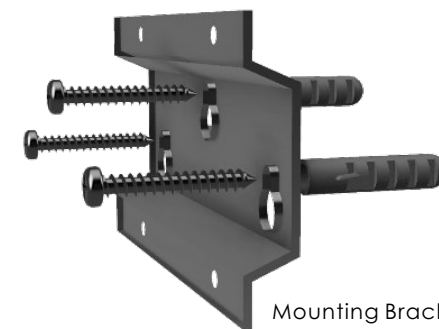
When system control button is tuned from left to right, it adjust the cell output percentage. The cell output 100% chlorinate when it is 100, 50% chlorine output when it is adjusted to 50.

### LED display

	1	2	Description
Operation	Green	Green	Normal Operation
	Green	Red	Low salt / Deposition on the electrode / Low water Temperature
	Red	Red	Extremely low salt level/series deposition on the electrode/extremely low water temperature
Cell Polarity	+	-	Deposition
	Red	-	The cell current in positive direction
	-	Red	The cell current in negative direction



- (1) Select a convenient well-ventilated location within one meter of filter equipment.
- (2) The cell must be installed above the sand filter discharge outlet water level.
- (3) If the chlorinator and cell are installed below water level, the pump and chlorinator must have a common power switch in order to prevent the chlorinator from generating chlorine while the pump is not running. Otherwise the cell enclosure will overheat and explode if only the pump is shut off.



Typical system installation and Cell location with gate valve and water flow direction

- (4) Install the Control Panel using the template paper sheet provided with the package in a minimum distance of 3.5 meters (11.5 ft.) from the swimming pool, 1.5 meters (5 ft.) from the ground, within 2 meters (6.5 ft.) from the protected outlet, and within 4.5 meters (15 ft.) from where the cell will be installed, in a ventilated area and leaving enough free space of min. 50 cm (20") in each side for servicing.
- (5) Two self-tapping screws and wall plugs are provided for fast and simple installation. Simply cut out the template provided for the location of the drilling points. Use a 8mm masonry drill when fitting the control unit to a brick or concrete wall. When mounting to a post, drill pilot holes and fit the screws provided. Once the screws are in position simply hang the chlorinator via the bracket on back of the control box.
- (6) The cell must be installed horizontally
- (7) The electrolytic cell housing must be plumbed into the return line after the filter. The cell housing can be fitted to 1.5" or 2" PVC piping by provided universal union.
- (8) Connect the water inlet and outlet to the Cell Unit. The water flow direction must be as indicated on the Cell.
- (9) To avoid loss of chlorine, the Cell should be installed at the end of the filtration system, right before the pool water return.

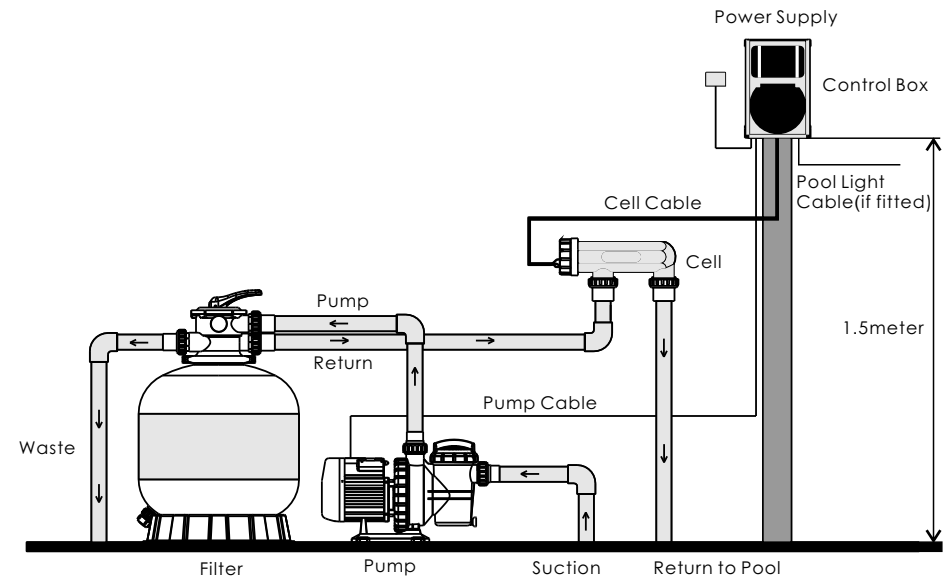


- (10) The cell should preferably be installed on a bypass with input and output gate valves. This will permit uninterrupted filtration while the chlorinator is being serviced. The inlet and outlet valves must not be closed during operation, otherwise pressure will build up in the plastic enclosure and it will explode.
- (11) Glue the salt cell horizontally on the pool return pipe, allow the pipe glue to cure for 24 hours.
- (12) Use the provided cable to connect the control unit and the salt cell together.



- (13) For model with power socket for pump, the maximum allowed power rating is 1,500 Watt or 1.5HP. Refer to pump model plate for power rating confirmation.
- (14) DO NOT mount the Control Panel under direct sun light.
- (15) The Control Panel must be installed far away from the chemical storage, especially from acid because it can corrode the electronics inside the unit.
- (16) It must be kept away from heat sources and any equipment which produce heat.
- (17) Plug-in power supply into a suitable weatherproof outlet socket with circuit breaker.
- (12) Before fixing the Control Panel, make sure that the power cable and cell cable also reach the Control Panel.

For model with built-in lighting power output:  
 Mount the control unit vertically onto a post or wall 1.5 meters above ground level.  
 (Australian Standards requires that the electric control unit shall not be located within 3 meters of the pool water.)



### 5. START UP



Never allow the Fresh Water Chlorinator to operate without water flow. The pump and chlorinator must operate simultaneously.

- (1) Recommended pool salt level: 1500- 2000PPM
- (2) Run chlorinator at the Salt Levels stated within this document and on the product to ensure optimum sanitizer output and cell life.
- (3) Operating this device at low salt levels will damage the cell and reduce its life.
- (4) The control panel will display a RED indicator when the salt level is low.
- (5) If no action is taken to rectify the salt level, damage to the cell may result which will not be covered under warranty.
- (6) During extreme hot weather conditions or high bather load, the pool water need to be super-chlorinated using powder, granulated, or liquid chlorine or the running time of the chlorinator should be increased.
- (7) Always turn down the system control to zero before adding salt, once the salt is completely dissolved, return to the set position.
- (8) The aluminum casing at the back of the Control Unit acts as a heat sink, do not touch it with bare hands.