

EcoLine™

RESIDENTIAL
CHLORINE
GENERATOR



INSTRUCTION MANUAL

This manual is for: **ECOLINE 20T**
ECOLINE 30T

AIS™
Australian Innovative Systems



DISCLAIMER

- While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions.
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- Australian Innovative Systems Pty Ltd makes no warranties for damages resulting from lack of supply of chlorine due to a mistaken operation or malfunction of the chlorine generator or use of non-genuine replacement parts.

TRADEMARK ACKNOWLEDGEMENTS

EcoLine™ is a trademark of Australian Innovative Systems Pty Ltd.

USE OF GENUINE REPLACEMENT PARTS IS RECOMMENDED

This product is designed to perform as specified when used with genuine Australian Innovative Systems replacement parts. Australian Innovative Systems Pty Ltd shall not be liable for any damages to this product caused by the use of non-genuine replacement parts (e.g. cell). Please note that this warranty does not apply to repairs arising out of the malfunction of non-genuine replacement parts, although you may request such repairs on a chargeable basis.

PURCHASED FROM: _____

PURCHASED DATE: _____

NOTE: Proof of purchase / installation is required for warranty claims. Please keep your records in a safe place.

THE ECO LINE FRESH WATER CHLORINATION SYSTEM

Congratulations on your choice of EcoLine chlorine generation system for your swimming pool. The EcoLine chlorinator you have purchased is designed for easy and simplistic operation and maintenance. By following these instructions you are assured years of trouble free operation. These instructions have been compiled and produced to help you get the maximum results from your unit and to assist you to fully understand and correctly operate your EcoLine chlorinator. Please take the time to read these instructions thoroughly before attempting to operate your unit. Should you require additional information or further assistance, please do not hesitate to contact your local EcoLine representative or visit our website www.aiswater.com.au.

SPECIAL NOTE:

Please remember that your fresh water chlorinator is not designed to chemically maintain your pool water and keep it balanced, but rather to produce chlorine from low Total Dissolved Solids (TDS) solution in the water. We encourage regular water testing, balancing and correction if & when required to maintain the recommended chemistry of your pool water. This is a vital part of a complete maintenance program and will ensure trouble free chlorinator performance as well as a healthy and sparkling clean pool.

Components supplied with the Ecoline Chlorine Generator System:

1. Ecoline Power Supply Unit
2. Main Power Cable
3. Tubing to Acid Container
4. Ceramic Weight
5. 1-Way Fitting
6. Cell Cable
7. Ecoline Cell
8. Cell to Acid Pump Tubing
9. Wall Bracket
10. Wall Fittings
11. Ecoline Manual



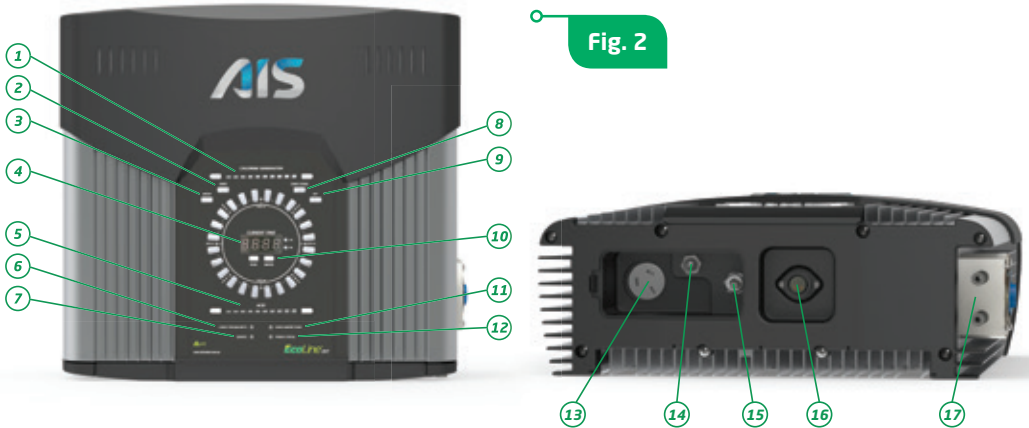


Fig. 2

CHLORINE GENERATOR Functions:

1. Chlorine generator output

Each light represents 10% increments from 0% (off) to 100% maximum output, left button used to decrease output, right button to increase output.

2. Timer button

Sets the unit into timer mode, selected buttons on circular front display determine time of operation in 1 hour segments (page 13).

3. Boost button

Sets the unit to work for 24h at 100% output chlorine generation then returns to previously chosen operation mode. Note: previously chosen mode will continue to be displayed.

4. Current time

Displays time shown in 12 hour (AM/PM) format.

5. Acid Dosing

Each light represents 10% increments from 0% (off) to 100% maximum acid dosing, left button used to decrease acid dosing, and right button to increase acid dosing. No lights represent acid dosing off. (page 9).

6. Check TDS (salinity) light

Low salt indicator, add salt as required (see page 6).

7. Service light

Switch off chlorine generator for 2 minutes and restart. Contact your local Ecoline representative if problem persists.

8. Timer override button

Sets the unit into continuous "on" mode.

9. Off button

Switches off chlorine generator and disables 240V pool pump outlet and acid dosing.

10. Hours/minutes buttons

Use the buttons to set correct time.

11. Check water flow light

No flow or check pool pump operation.

12. Power status light

Cell powered (chlorine generation is "on"). Blinking light during reverse polarity self-cleaning process.

13. Pool Pump Outlet

Used to plug in pool pump (page 12).

14. Circuit Breaker

Press to reset if tripped (page 12).

15. Main power cable

Plug into standard 10A GPO to operate chlorine generator.

16. Cell Spin socket

Plug in cable attached to cell.

17. Acid Pump

Attach all pipes and fittings to control pH (page 9).

ADDITION OF SALT

IMPORTANT: Whilst adding salt to your pool, please ensure that your chlorinator power supply is switched off to prevent overload situations and/or damage to the cell plates or power supply.

For normal operation of EcoLine, pool water with minimum 1200ppm TDS should be used. Fresh water from the tap already has some salts (150-300ppm) and further increase should be done by addition of pool salt (sodium chloride) or mineral blends.

The amount of salt required to achieve the desired level is determined by the capacity of the pool. By measuring your pool and multiplying the average length by the average width by the average depth you can easily establish this. This will give you your pool's water capacity in cubic metres. 1kg of salt per cubic meter of water is needed to adequately achieve the required dosage for your pool capacity.

For example: Pool size = 9 metres by 4.5 metres by 1.6 metres in depth

Multiply $9 \times 4.5 \times 1.6 = 64.8$ (cubic metres of water)

Therefore 64.8 kg of salt is required

Use only refined swimming pool salt add the desired quantity to the swimming pool water. To assist in the rapid dissolving and mixing, sweep or brush the solids until they are fully dissolved. Undissolved salt may result in staining your pool finish.

WATER BALANCING

As previously advised, for best performance and operation of your EcoLine water chlorination system, pool water must be balanced. Please check your pool water and ensure it meets the following guidelines.

- **Free Chlorine 2-4ppm**
- **pH 7.2-7.5**
- **TA (Total Alkalinity) 80ppm -120ppm**
- **Calcium hardness, 150-350ppm for concrete pools, 50-300 for other types**
- **Cyanuric acid, 15ppm-25ppm**
- **Phosphate, 0-200ppb**
- **TDS 1,200 ppm or more**

For acid dosing concentrated hydrochloric acid is used (32%-36%). Please use appropriate personal protective equipment when handling acid (refer to manufacturer MSDS).

Adjust your pool water chemistry to achieve the above levels. Your local pool shop can assist here to give you accurate readings and aid in correct dosages as necessary.

SPECIAL NOTE ON CHLORINE

In rare events such as massive bather loads or contamination, additional chlorine should be manually added rather than running your filtration system and chlorinator excessively to maintain lost chlorine level. Doing this could put your chlorinator and cell under unnecessary strain which could shorten their life span.

In these situations we recommend the use of liquid chlorine (sodium hypochlorite) to supplement and maintain chlorine levels. The use of dry chlorine (calcium hypochlorite) is not recommended unless liquid chlorine is unavailable and even then only in limited amounts.

FITTING THE CHLORINATOR CELL

The Ecoline cell must be plumbed into the return line of the pool filter system after the filter and any diversion valves. Pay attention to water flow direction indicator located on cell housing. Please refer to the installation diagram and plumbing outline for the correct method of installation (Fig. 3).

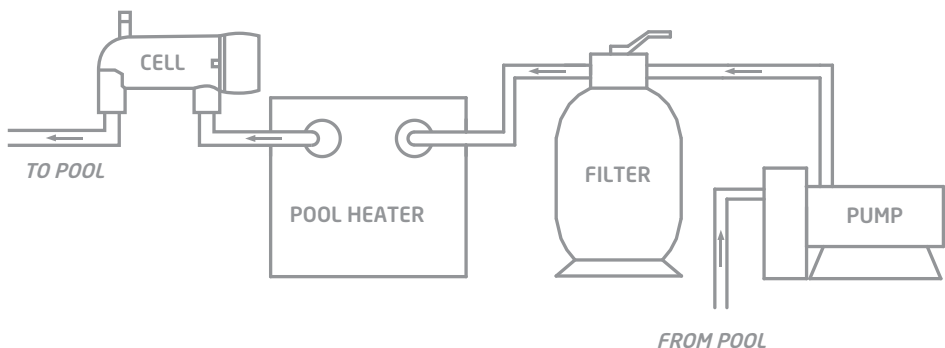
In situations where a heater is incorporated, the Ecoline housing must be installed after the heater. Should a solar system be installed on the pool filtration return line, the cell housing must be plumbed before heated water returns to the pool.

This will keep the chlorination and heating processes separated and will prevent any possible damage to the heater and the chlorine generator cell.

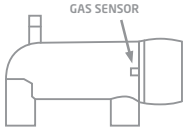
Please note that your cell housing has been manufactured so that 40 mm PVC pipe will fit both inlet and outlet ports internally, and 50 mm couplings will fit externally. This allows the use of either 40 mm or 50 mm PVC pipes in the pool return line.

PRIMARY ELECTRODE INSTALLATION CONFIGURATION

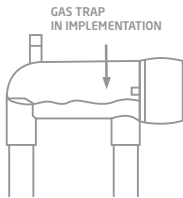
Fig. 3



GAS TRAP INSTALLATION PRIMARY ELECTRODE INSTALLATION CONFIGURATION



- Each Cell housing contains a sensor that detects gas presence. If water was to stop flowing and the chlorine generator continue running, chlorine gas pressure will build up in the housing and pipe work and cause damages.



Cell

- The gas trap displaces water around the sensor terminal, which then turns off the chlorine generator power supply and sounds the “water flow” alarm
- Shown in Fig. 4 are the correct ways to implement gas traps across sand and cartridge filters.

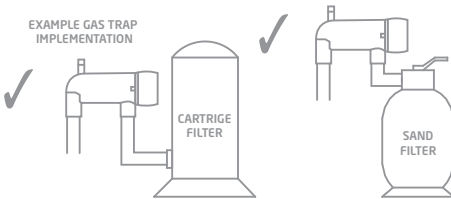


Fig. 4

INSTALLING THE POWER SUPPLY

IMPORTANT: Power Supply is approximately 15kgs and may require 2-person lift!

The EcoLine power supply is mounted on a wall or firm structure within 1.5 metres from the cell plumbing (refer to Fig. 5). Mount using the mounting bracket and fittings supplied. Ensure that this position is within reach for access to EcoLine controls before mounting. It is preferable that the power supply is mounted in a location where it is protected from inclement weather. It is strongly recommended that the unit is also protected and screened from the harsh sun. You should also ensure that the power supply is not used to store or pack heavy objects, as this can also impede air flow, causing overheating and/or damage to the unit that is not covered by warranty.

After securing the bracket in the appropriate position relative to your needs, the power supply is hung on the bracket and locked into position by ensuring that the unit slips into the slots provided on the mounting bracket. Connect and secure cell cable to power supply, see 16 Fig. 2.

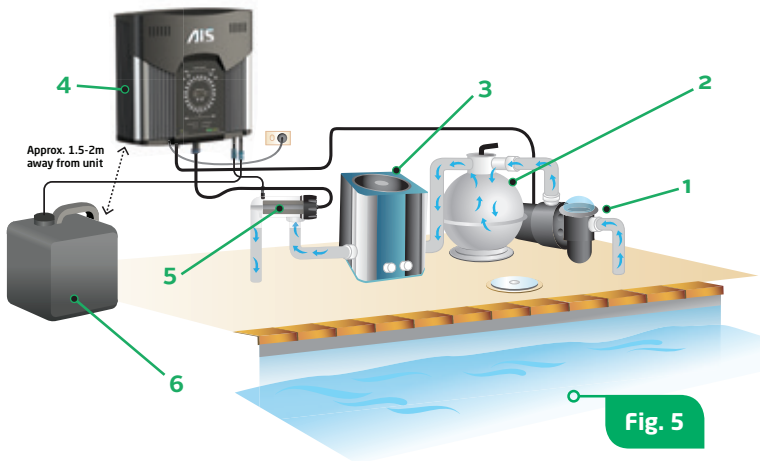


Fig. 5

1. Pump
2. Filter
3. Water heater (if applicable)
4. Power supply for chlorine generator
5. Chlorine generator cell
6. Acid container (not supplied)

ACID DOSING OPERATION AND INSTALLATION

Your Chlorinator is designed to operate with a built-in Acid Pump to control pH of pool water. Acid Dosing Rate is controlled via the user interface and is set at 50% by default. Weekly checks are required for the first month of operation and Acid Dosing Rate should be adjusted as required (see p.14 for further details). Overall system diagram of Acid Dosing is shown in Figure 6.

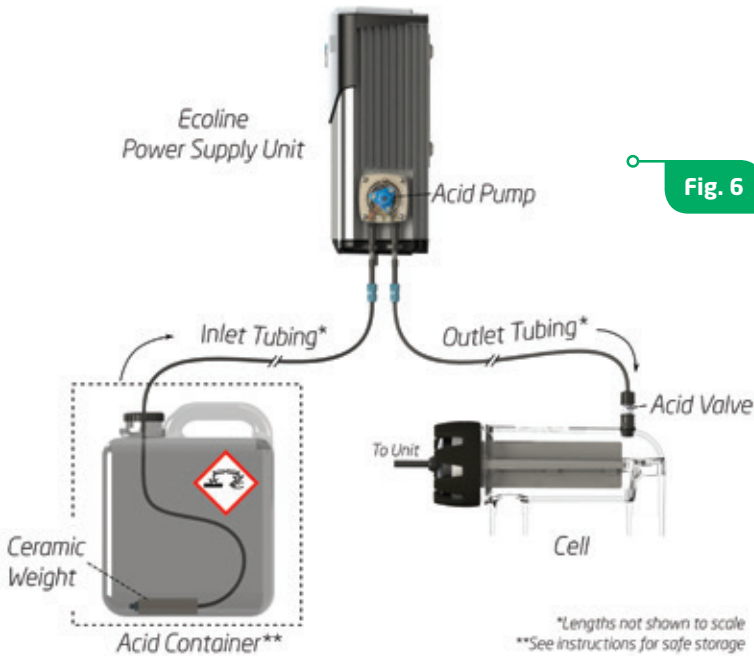


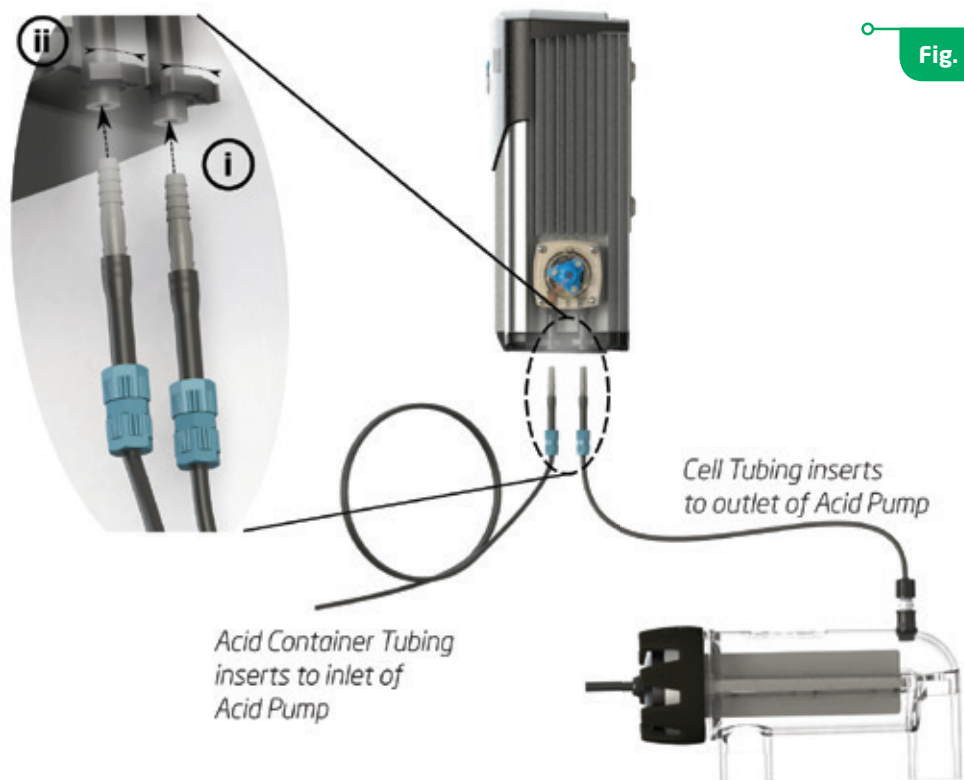
Fig. 6

*Lengths not shown to scale
 **See instructions for safe storage

INSTALLATION STEPS

(1)

Fully Insert 2x supplied **8mm Fitting + Connector tubing** into the **Acid Pump (i)** making note of inlet and outlet tubings. Then, using flat nose pliers tighten the black locking clips until clicked all the way together **(ii)**. Refer to Figure 7.



INSTALLATION STEPS (Cont.)

(2)

Remove cap from your **acid container**, then drill 8mm hole* into cap as shown (i) and thread tubing through (ii), followed by **Ceramic Weight** (iii). Unscrew the cap on supplied **1-Way Fitting** and push onto the end of tubing. Finally, push tubing onto the **1-Way Fitting** and screw the cap to secure (iv). Refer to Figure 8.

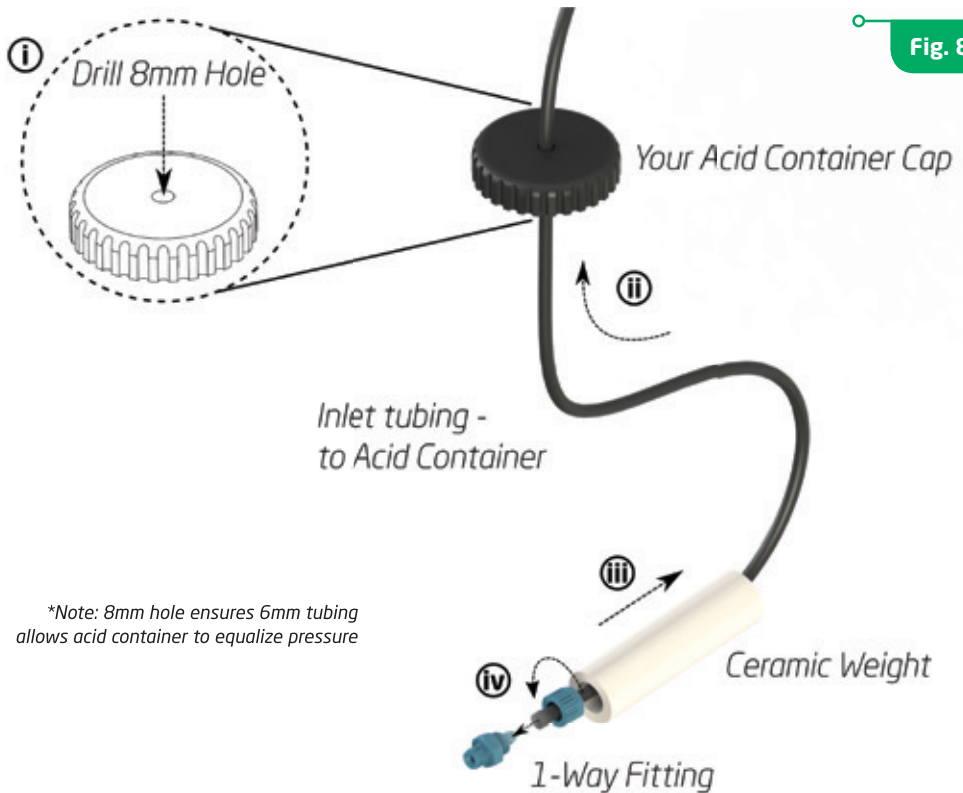


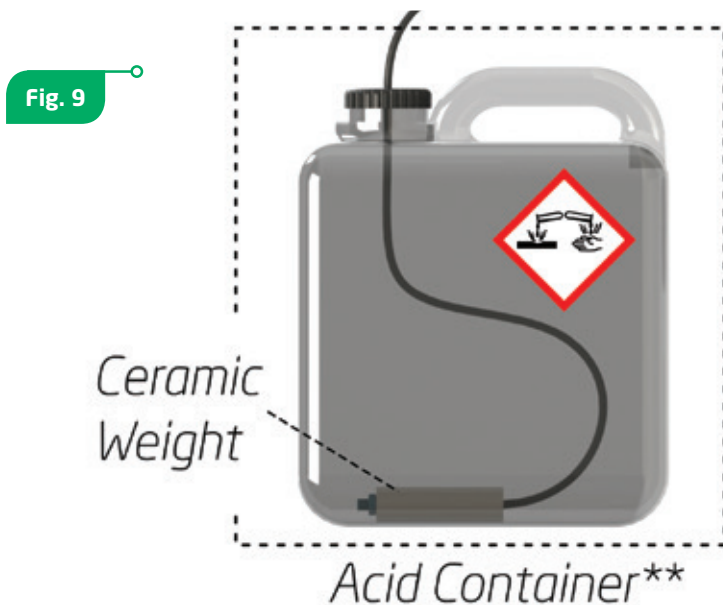
Fig. 8

*Note: 8mm hole ensures 6mm tubing allows acid container to equalize pressure

INSTALLATION STEPS (Cont.)

(3)

Insert end of tubing with **Ceramic Weight** into **Acid Container**, ensuring enough slack that **Ceramic Weight** is laid down as shown. Tighten **Acid Container Lid** and place Acid Container as per Safe Storage of Chemicals below. Refer to Figure 9.



SAFE STORAGE OF CHEMICALS

- Keep acid at least 1.5 meters away from power supply, in a well-ventilated and covered area.
- Keep out of reach of children.
- Refer to safe storage of hazardous materials guidelines from your acid container instructions.

POOL PUMP OUTPUT SOCKET

A 240-volt pump output power socket (13 on Figure 2) is supplied and located on the bottom panel of the unit under the hatch. This hatch is accessible with use of a flat head screwdriver to lever the hatch out. This will be required to plug in the Pool Pump Cable. Fit supplied rubber grommet around cables and ensure it remains in place within the hatch cover as originally supplied. Your pool pump power supply lead should be plugged into this socket so that when the time clock switches at your designated times both the water chlorinator and pool pump will activate in unison.

Please make sure that water flow is sufficient. If water flow is not sufficient it will cause unit to stop operation and "Check Water Flow" warning light appear. Do not attempt to operate the chlorinator power supply without adequate water flow as this will lead to a gas build-up inside the cell housing causing it to overheat resulting in damage to your chlorinator equipment that is not covered by warranty.

In extreme cases, such as complete obstruction of water flow e.g a closed valve or foreign objects, gas build-up may cause the cell housing to rupture and explode, possibly resulting in personal injury.

The pool pump socket is designed to operate a single pool pump of a maximum of 1.5 hp (horsepower) / 7.5A AC only. Do not attempt to operate any equipment other than your pool pump from this socket as damage might occur to the power supply unit that is not covered under warranty.

CIRCUIT BREAKER

Ecoline chlorine generator has a circuit breaker (14 on Figure 2) located on the bottom panel of the unit under the hatch.

The circuit breaker is designed to trip out in the event of a fault or power overload. When tripped the centre button will pop out shutting down the unit to prevent damage. To reset and resume chlorination of your pool the centre button of the circuit breaker must be pressed in to allow normal operations to resume. Mains power to the unit must be turned off prior to resetting the circuit breaker.

Should the circuit breaker continue to trip after this exercise then you should consult your local Ecoline AIS representative for assistance.

CHLORINATOR START-UP

IMPORTANT: Before switching on your Ecoline water chlorination system please ensure that you have added the correct amount of pool salt, it has fully dissolved and is distributed throughout the pool water and water is correctly balanced (Refer to page 6).

1. Plumb in cell housings and connect all cables according to "FITTING THE CHLORINATOR CELL" page 6 and "INSTALLING THE POWER SUPPLY" page 8.
2. Plug the unit into a standard 10A GPO. When turned on, current time display, chlorine generator and acid scale displays are fully lit.

3. Set the current time on "current time display (④ on Figure 2)" using hours/minutes buttons.
4. Set output on chlorine generator scale (① on Figure 2) on top of the panel. Minimum chlorine dosing is "0" and set by left button on the chlorine generator scale. This option allows to run swimming pool recirculation pump without chlorine generation (Backwash for example).
5. Set acid dosing rate on acid dosing scale (⑤ on Figure 2). Minimum acid dosing is "0" and set by left button on the acid dosing scale. This option will disable acid dosing pump if acid injection is not used (not recommended). Monitor pH during the first month of operation and adjust acid dosing as required.
6. Choose operation mode, - timer (② on Figure 2) or timer o/ride (⑧ on Figure 2)
 - In timer mode lit buttons (to be pushed) on the round clock define hours of chlorine generation.
 - Timer o/ride mode keeps continuous chlorine generation.

If pH of pool water is above or below recommended amounts, adjust Acid Dosing Rate as required. To ensure appropriate usage of acid, ensure Total Alkalinity is within limits as it works as a buffer preventing sudden pH imbalances.

CHLORINATOR RUNNING TIMES

Chlorinator running times will vary from pool to pool, and are dependent upon the situation they are installed into including pool size and the overall usage of the pool in general.

AIS recommends as a general starting point to begin with: 4 hours during winter days, and 8 hours during summer days. During the summer days, it is recommended to split the 8 hours into 4 hours in the morning, and 4 during the afternoon, with a 2-hour gap in between for cooling purposes. This starting point should then be adjusted accordingly to the individual needs of your pool and factors below.

Several factors will determine the operational time of the chlorinator to be able to produce sufficient chlorine for your pools' requirements:

TIME: The longer you run your filter plant and chlorinator, the more chlorine you will produce.

RATE: The higher the chlorine output indicator lights up, the more chlorine is being produced.

CELL CONDITION: The cleaner the cell, the higher the chlorine production rate.

BASIC POOL CHEMISTRY: The more correctly maintained, the higher efficiency of chlorine generation.

TEMPERATURE: During summer months more chlorine is consumed, increasing running time and output will be required.

BATHER LOADS: Excessive bathers consume more chlorine and additional sodium hypochlorite may be required.

CLEANING THE ELECTROLYTIC CELL

The Ecoline Chlorine Generator has a reverse polarity feature to reduce cleaning of the electrodes. Acid is injected directly into the cell housing which helps to reduce calcium scaling. Periodic cell inspections are still required to see if the cell needs cleaning due to calcification. It is recommended to perform a manual acid wash procedure every 6 months as instructed below.

Cell removal:

1. Ensure the power to the Ecoline Chlorine Generator is switched off.
2. Unplug the cell lead from Ecoline Power Supply.
3. Close any shut off valves that may be fitted to your system.
4. Unscrew (anticlockwise) large threaded locking nut on the cell housing (Fig. 10).
5. Gently remove cell cassette from housing. Look inside the cassette for signs of calcium build up (white deposits).

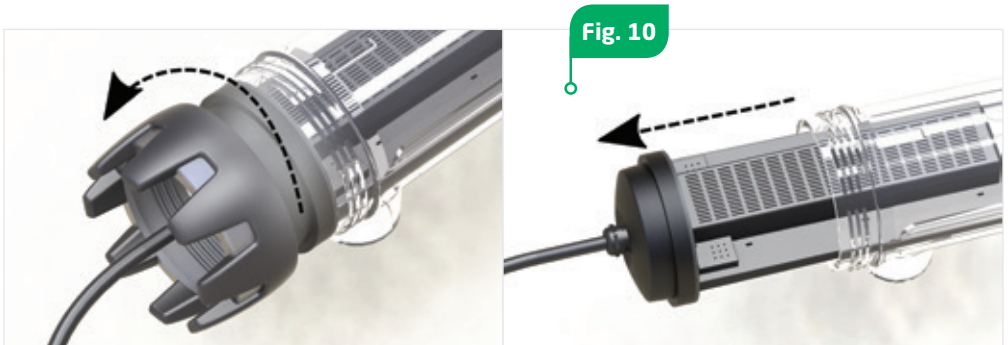


Fig. 10

Cell cleaning:

IMPORTANT: This is always to be done wearing the correct protective equipment in a well ventilated area. Do not use any brushes, harsh scrubbing, chemical cleaners, high pressure cleaners or attempt to scrape/chip off the deposits as this can cause damage to the electrodes special coating, this may reduce cell life and will void warranty.

1. Mix up one part of hydrochloric acid to four parts of water (**IMPORTANT:** always add acid into water, NEVER water to acid) in a plastic bucket or container. Avoid glass and ceramics and never use items used for chlorine storage. You should make sufficient amount of acidic solution to immerse the electrode completely but not the cell head and cable. (Fig. 11)
2. Lower cell in the solution where a chemical reaction will occur, causing the liquid to bubble. This is a normal reaction as the calcium deposits are being rapidly dissolved by the acid. Swirl cell in solution to ensure a good mix.
3. Continue to submerge until reaction stops. This may take up to eight to ten minutes for the process to be completed, and the cell should then be cleansed of all deposits. If not, you may repeat the above steps one more time, but not more than twice in one cleaning session.

4. Once cleaned, rinse the cell in fresh water and replace cell into the housing. Tighten the large threaded locking ring (clockwise) whilst ensuring black o-ring is in place and in good condition.
5. Open any valves that you previously closed and observe for any water leaks that might occur from improper reassembly.
6. Connect cell cable into the power supply and return to standard operation.

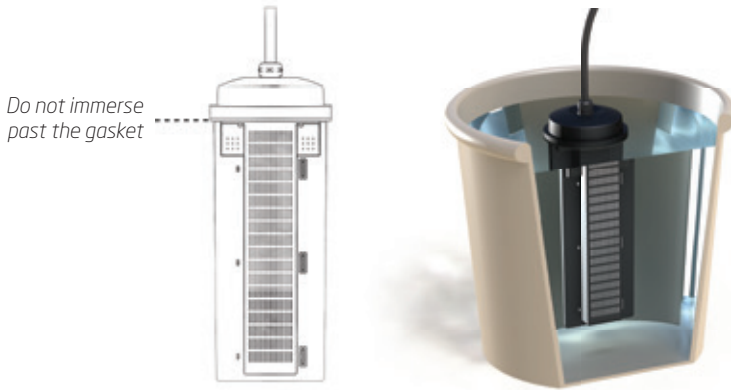


Fig. 11

TECHNICAL SPECIFICATIONS

	Ecoline-20T	Ecoline-30T
Chlorine output	20gr/hr (grams of active chlorine per hour)	30gr/hr (grams of active chlorine per hour)
Input voltage (AC)	220 - 240VAC 50-60Hz	
Ecoline Input Current (AC)	2.1 A MAX	
Pool Pump Input Current (AC)	7.5 A Max	
Output voltage (DC)	20-36V	
Output Current (DC)	10A	15A
Unit cooling	Fan forced air flow through internal heatsinks	
No flow protection	Automatic water flow sensing	
Water flow	150 - 450L/min @ 500kpa max. pressure	
IP rating	56	
TDS level	1200ppm or more	

TROUBLESHOOTING GUIDE

Problem	Reason	Solution
There are no lights on the chlorine generator and the pump is not running	There is no mains power	Unplug the chlorine generator from the power point and test for power with another known working appliance.
Lights are on but chlorine generator is not running when it should	<ol style="list-style-type: none"> 1. Chlorine generator is not in timer mode 2. Wrong time 	<ol style="list-style-type: none"> 1. Ensure timer mode is selected 2. Adjust to correct time
The chlorine generator is not generating enough chlorine	<ol style="list-style-type: none"> 1. Chlorine production is reduced on chlorine generator 2. Chlorine generator is not operating long enough 3. Calcified cell 4. Water chemistry is incorrect 	<ol style="list-style-type: none"> 1. Press the right chlorine generator output button to increase chlorine production 2. Increase running time via the circular front display 3. Clean the cell (page 13.) 4. Ensure TDS is at least 1200ppm and consult with local pool shop to ensure balanced water chemistry
The check water flow light is on	<ol style="list-style-type: none"> 1. The pump is not running, there is a blockage in return line or pump has air lock (not primed) 2. Water pump is faulty 	<ol style="list-style-type: none"> 1. A large air bubble in the cell housing will cause this alarm. Clean out the skimmer basket, check and clear any blockages and re-prime the pump 2. Check water pump by connecting directly to power outlet and repair/replace if necessary
Check TDS (salinity) light is blinking	<ol style="list-style-type: none"> 1. Water salinity is below operational parameters 2. Cell is calcified 3. Faulty Cell 	<ol style="list-style-type: none"> 1(a). Have salinity level tested by pool professional 1(b). Ensure TDS is between 1,200ppm and 2,500ppm 2. Clean cell (page 13.) 3. Have the cell tested and replaced if necessary
Check TDS (salinity) light is on	<ol style="list-style-type: none"> 1. Water salinity is above operational parameters 	<ol style="list-style-type: none"> 1(a). Have salinity level tested by pool professional 1(b). Ensure TDS is between 1,200ppm and 2,500ppm
SERVICE light is on	<ol style="list-style-type: none"> 1. Disconnected Cell Cable 2. Chlorine generator has a fault and requires servicing 	<ol style="list-style-type: none"> 1. Ensure Cell Cable firmly connected to Power supply 2. Contact AIS or authorised distributor for service

WARRANTY AND SERVICE

The manufacturer offers a three (3) year warranty on the power supply and electrolytic cell on all EcoLine™ chlorine generators when used in a domestic application. Any model used in a commercial application is covered by a one (1) year warranty.

All chlorine generators are fully tested at the factory prior to distribution. If, within applicable warranty period, mechanical or electrical faults occur due to poor workmanship or faulty components, then, upon manufacturer approval, such parts will be repaired or replaced at no cost to the owner (including labour). No replacement parts will be provided without the return of the defective components and proof of purchase of the unit. The manufacturer liability extends to the workmanship and replacement of faulty components only.

The manufacturer will not be liable for any consequential loss or damage caused by operation outside of the prescribed limits as outlined in the instruction manual. Incorrect installation or connection to incorrect power supply, use of generic spare parts, changing internal wiring for tariff connections, misuse, abuse, negligence, accidental damage (e.g. during transit), wear and tear, pest infestation or damage caused by water entry are not covered by this warranty.

In case of fault, online warranty request form must be submitted via www.aiswater.com.au. Alternatively, contact the manufacturer for further instructions. Once warranty claim is approved, the complete unit must be returned to the manufacturer, distributor or one of the manufacturer's recognized service warranty agents, along with proof of purchase.

Please note, unless specified, all warranty work is strictly factory repair. The manufacturer reserves the right to modify any model without notice.

**FOR ALL WARRANTY ENQUIRIES PLEASE
CALL 1800 676 076 OR VISIT OUR WEBSITE:
WWW.AISWATER.COM.AU**





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