

# SALTIGEM<sup>®</sup>

## **Advanced Settings Manual for SG Series Saltwater Chlorinators**



**pool**  
CONTROLS

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## Important

***If the power cord is damaged the unit must be returned to Pool Controls for repair.***

***Always read the instructions and warnings on chemical containers before using chemicals!***



## Manufacturer's Warranty

Pool Controls products come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. The benefits under this warranty are in addition to other rights and remedies under a law in relation to the goods.

**Pool Controls** warrants all components of the following products to be free from defects in material and/or workmanship for a period of 2 years from the original date of purchase or installation:

CHEMIGEM D10 Water Management System  
SALTIGEM SG Series of Salt Water Chlorinators  
CHLORTROL Chemical Dosing Units

### **Additional Pro-rata Warranty on Multi-electrodes and Cells**

**Pool Controls** warrants the following components to be free from defects in material and/or workmanship for a period of 2 years, followed by 36 months pro-rata warranty:

- Chemigem Multi-electrode (Probe)
- SaltiGem Electrode (Cell)

### **WARRANTY OBLIGATIONS OF POOL CONTROLS**

If a defect in workmanship or materials in any Pool Controls product covered by this warranty is discovered during the term of the warranty, and provided the warranty holder follows the procedure set out below, Pool Controls will, at its option, repair or replace that item.

### **PROCEDURE FOR CLAIMING UNDER THIS WARRANTY**

In order to claim under this warranty, the warranty holder must:

- Contact Pool Controls Service as soon as possible after the discovery of the defect and in any event, within the relevant warranty period;
- Provide proof of purchase and confirm date of installation;
- Confirm that the installation was completed by a suitably qualified technician, as set out in the installation manual; and
- If required, arrange for the relevant Pool Controls' product to be returned to Pool Controls for repair, and the warranty holder is responsible for the cost and risk of any freight or transportation to and from Pool Controls.

## **CALL OUT FEES**

- If the Pool Controls product needs to be serviced, replaced or repaired at a place other than Pool Controls' premises, a call out fee will be charged to cover the cost of travel by an authorised Pool Controls technician. Please note that this call out fee will NOT be charged when the relevant Pool Controls product is returned to Pool Controls for repair.
- If an authorised Pool Controls technician repairs or replaces a Pool Controls Product and this warranty does NOT apply, a fee for labour and parts supplied will be charged in addition to the call out fee.
- If the Pool Controls product needs to be returned for repairs under this warranty, the warranty holder is responsible for the cost and risk of any freight or transportation to and from Pool Controls.

## **WARRANTY EXCLUSIONS**

- This warranty extends to the original owner only, beginning on the date of installation and is not enforceable by any other party without the prior written consent of Pool Controls.
- Pool Controls is not responsible for any cost of freight or transportation to or from its Service Department.
- Pool Controls is not liable under this warranty if the installation of the Pool Controls product was not carried out by a suitably qualified technician.
- To the extent permitted by law, Pool Controls is not liable for any incidental or consequential loss incurred in connection with the removal or replacement of the Pool Controls product under this warranty.
- To the extent permitted by law, Pool Controls disclaims all other warranties, either express or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose with regard to Pool Controls products, parts and/or any accompanying written materials.

## **REGISTER YOUR WARRANTY NOW**

Go to [www.poolcontrols.com.au](http://www.poolcontrols.com.au), click on the warranty registration tab and fill in your details.

## **CONTACT POOL CONTROLS**

Pool Controls is based at 20 Abrams Street, Balcatta, Western Australia. We also have service technicians based in NSW, Queensland and Victoria.

- Service Email: [service@poolcontrols.com.au](mailto:service@poolcontrols.com.au)
- Service Phone: 1300 550 010

# Introducing the SaltiGem®



## What's in the box?

The image above shows the main parts of the SaltiGem system (clockwise from top left):

- SaltiGem® Cell and Cell Cable
- SaltiGem® Power Supply and Mains Cable
- Tubing
- Valve bracket, Valve and filter (if pH model)
- Mounting brackets

Also included in the box, but not illustrated:

- User Manual
- Mounting hardware (raw plugs, screws and paper template)

## How it works:

A salt chlorinator works by putting a dc current through an electrolytic cell in a flow of salt water. Salt is made up of sodium and chloride ions. Electrolysis of salt produces chlorine gas, which dissolves almost instantly to form free chlorine in the water. This free chlorine is a highly effective sanitiser for your pool.

The SaltiGem® constantly adds a dose of chlorine to the water over the operating period of the system. The amount of chlorine added depends upon the cell output and the running time.

Generally, a salt water pool is run for around 8 hours per day in summer and 2 to 4 hours per day in winter. The summer operating periods are usually in the early morning and later evening. This allows a chlorine residual to build up for pool use during the day.

**The filter system should always be running when the pool is being used.**

When chlorine is added to water the pH always changes – this is because chlorine is not a neutral chemical. The pH will slowly rise as chlorine is produced in a salt water system. A rise in pH greatly reduces the effectiveness of the chlorine as a sanitiser, so it is important to ensure that the pH remains in the correct range.

The pH of the water can be lowered by the addition of acid – and if your SaltiGem® has the optional pH control, this can be done automatically. The SaltiGem® uses a sophisticated algorithm to calculate how much chlorine has been produced by the cell, and how much acid needs to be dosed to correct the resultant pH rise.

# Installation Guide

## Installation Diagrams

For most installations please refer to Installation Diagram 1.

If your SaltiGem® is to be installed **below water level** please refer to Installation Diagram 2. Installation Diagram 4 may also be helpful in this type of application if you have the optional pH control and a peristaltic pump is being used to feed acid.

Installation Diagrams 3 or 4 may apply if your SaltiGem® unit is installed with a **heat pump or gas heater** and your unit has the optional pH control. If this is the case, you may need to install a venturi injector to produce a vacuum for valve operation or alternatively, use a peristaltic pump to achieve the acid dosing.

## Choosing a good location

The SaltiGem® is manufactured from weather resistant materials and is designed for operation in full sun and rain. However, your SaltiGem® will benefit if it is protected from the weather.

Choose a well ventilated area to allow for efficient cooling. Installing the unit in a hot and closed shed or box may lead to overheating and activate the internal protective thermal cut-out.

The SaltiGem® Power Supply should not be mounted in areas where chemicals are stored (eg acid and chlorine) as vapours from these chemicals are corrosive and may damage the electronic controls within the unit

Insect intrusion (particularly ants) can cause problems with all equipment. Ensure that the pool equipment area is kept free of insects as much as possible. Insect intrusion is not covered under the warranty.

## Installing the SaltiGem® Power Supply

Locate the SaltiGem® Power Supply close to the Cell/Housing and filtration pump so that both may be connected easily.

Connect the SaltiGem® Power Supply to the mains power outlet of the pool area and make sure this outlet meets all applicable Australian Standard at the time of installation.

Mount the SaltiGem® Power Supply at least 1.5m above the ground and at least 3m from the pool water. A mounting template has been provided with the SaltiGem® shows you where to place screws on either a wall or post.

The PUMP socket outlet in the base of the SaltiGem® Power Supply 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.



## **Installing the SaltiGem® Cell**

The SaltiGem® cell housing assembly should be plumbed into the pool return line after all other accessories (and prior to any heating take-offs).

Remember that the cell will need to be removed from its housing periodically for cleaning – do not place it where its removal will be obstructed.

Note any water flow direction on the cell housing.

Connect the cell cable to the cell connector on the base of the SaltiGem® Power Supply. Ensure that all 3 connections (2 for cell power and 1 for gas sensing) are colour matched and not loose.

### **pH Control (optional)**

Units with pH control have an injection fitting and valve (or in some cases a peristaltic pump) which must be installed. Refer to Installation Diagram 3 or 4 for more details.

The valve or pump should be mounted on a wall or post close enough to allow connection to the base of the SaltiGem® Power Supply.

Install the acid drum away from the pool equipment to avoid possible corrosion.

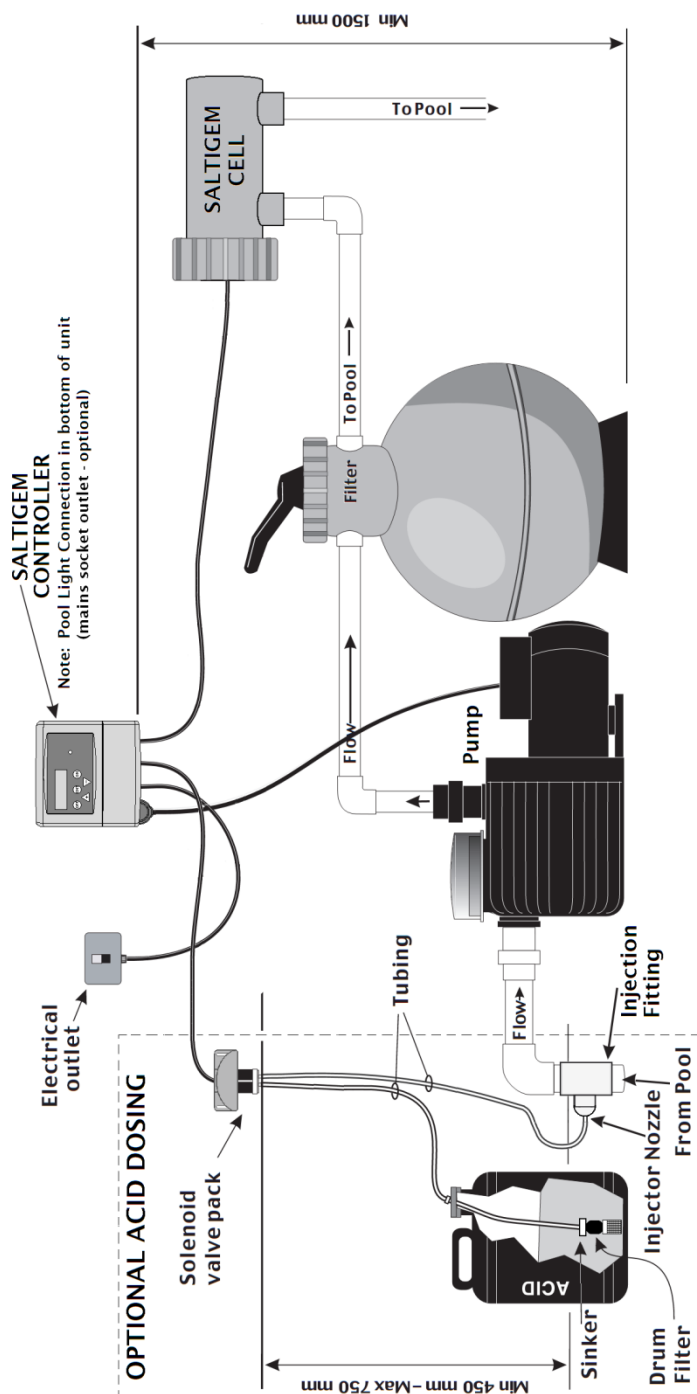
### **Pool Light Outlet (optional)**

If your SaltiGem® has a light power outlet on its base, this can be used to run one or two 150W pool light power supplies. This outlet is timed, allowing pool lights to be set to come on and turn off automatically.

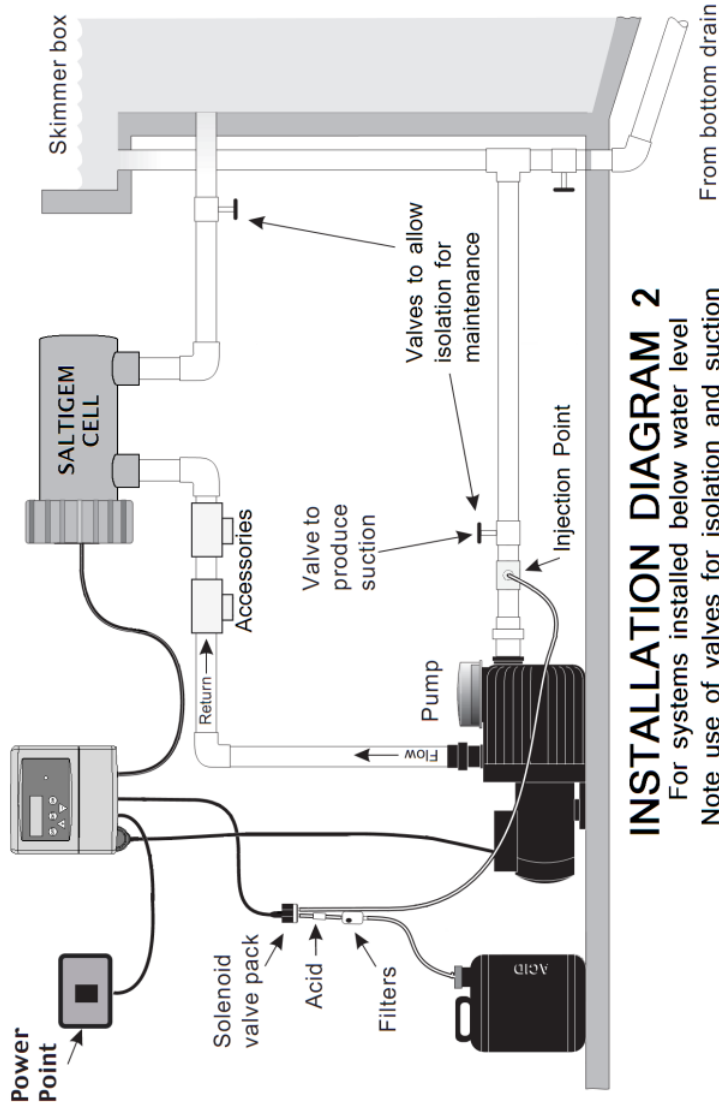
### **Auxiliary Power Outlet (optional)**

If your SaltiGem® has a third power outlet on its base, this can be used to run other pool equipment, such as a Delta UV unit. This outlet is also timed, so accessories can be set to come on and turn off automatically.

# INSTALLATION DIAGRAM



NOTE: FILTER NOT SHOWN

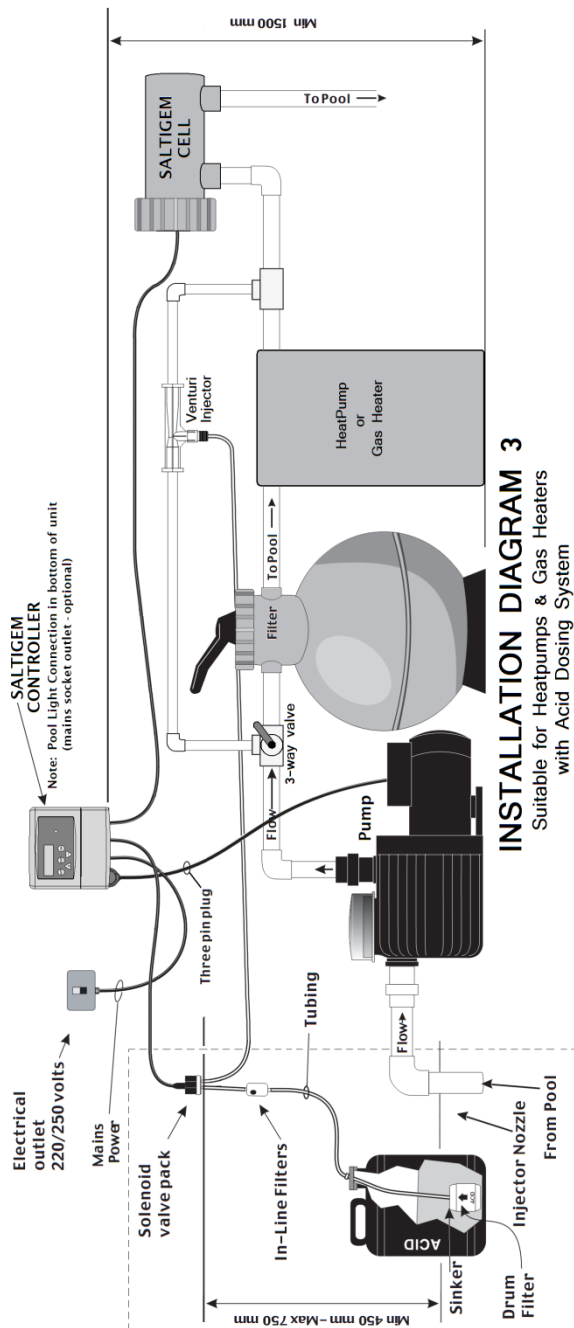


## INSTALLATION DIAGRAM 2

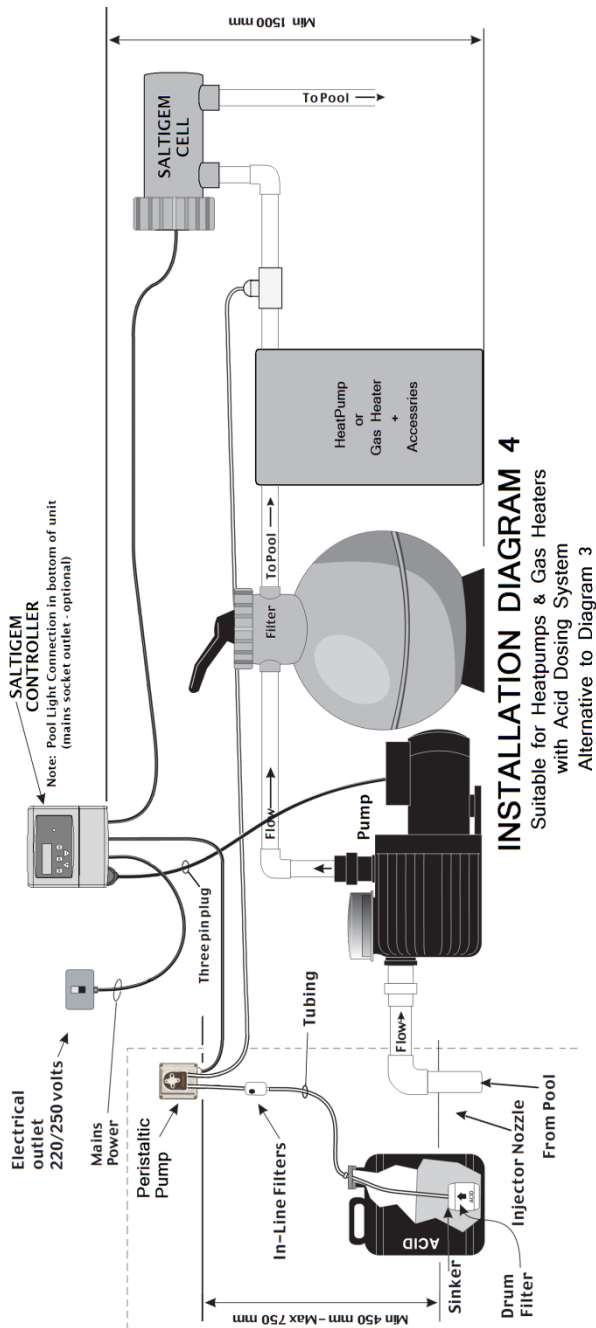
For systems installed below water level

Note use of valves for isolation and suction

Not suitable for Heatpumps & Gas Heaters  
with Acid Dosing System - see Diagram 3



**INSTALLATION DIAGRAM 3**  
Suitable for Heatpumps & Gas Heaters  
with Acid Dosing System



## Initial pool balance

Before you begin using the SaltiGem<sup>®</sup> make sure your pool water is balanced as follows:

### Salt

There should be between 3000 and 5000ppm of salt in the pool ideally 4000ppm. This is achieved by adding 4kg of salt for every 1000 litres (1m<sup>3</sup>) of pool volume. Note that this amount of salt will take time to dissolve.

***Note: keep salt below 7500ppm to avoid overloading the cell and causing shutdown.***

### Chlorine

If it is a new installation, add enough chlorine (liquid or granular) to achieve a reading of 3ppm on an appropriate test kit.

### Stabiliser

If the pool is outdoors, it is vital that stabiliser (also known as cyanurate and cyanuric acid) be added and maintained at 40ppm to 60ppm. This compound reduces chlorine destruction due to sunlight. However, too much stabiliser will reduce the effectiveness of chlorine and can result in poor quality water so ensure stabiliser does not exceed 80ppm.

### pH

For chlorine to be effective, the pH must be within a certain range. This is usually between 6.8 (fibreglass/liner pools) or 7.2 (concrete/plaster) and 7.8.

Adjust pH down with acid – powder, liquid sulphuric or liquid hydrochloric. Be very careful with acid as it can be harmful and corrosive.

### Total Alkalinity (TA)

Total alkalinity is also known as carbonate hardness or TA for short. The recommended level is between 80 and 120ppm.

TA is related to pH in that it stops the pH from varying quickly with small additions of acidic or alkaline chemicals. When the TA is low it is almost impossible to control the pH. To raise the TA, buffer (sodium bicarbonate) is added. This must be done slowly as buffer will also cause the pH to rise. As an approximate rule every increase of 20ppm of TA will also cause a 0.1 rise in pH. Once buffer is added it should be left to mix in the pool for a few hours before reducing the pH.

## The SaltiGem Front Panel

### SaltiGem® Display

The SaltiGem® uses a two line LCD display to provide the user with information.



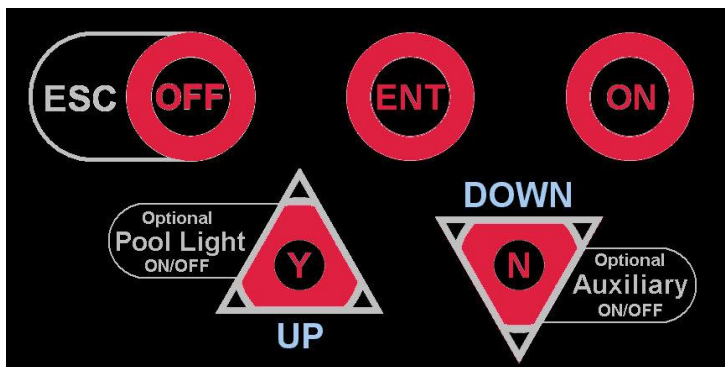
The first line of the display shows the current time and the cell status and output. In the example above the time is 10.15am and the Cell is “OFF”. If the Cell is on, the output of the Cell will be displayed. If the output of the Cell has been set at lower than 100%, “CELL OFF” will be displayed intermittently even while the unit is running as the Cell regulates output. (See Chlorine Output Menu on page 18 for more details)

The second line of the display shows the automatic timer status. In the example above, the automatic timer status is “OFF” and the display is telling you that the SaltiGem® will turn on again at 17:00 or 5pm.

SaltiGem®

## SaltiGem Operational Buttons

Your SaltiGem® has 5 buttons that allow you to control the various functions available via the SaltiGem® Menu system.



Each button is labelled with its primary function either on the button itself, or adjacent to it. Secondary functions are labelled within a curved white outline next to the relevant button. The buttons are backlit to show which are active at any given time, although the ESC/OFF button is always available to take you back to the home screen.

### ON Button

#### Turn the System On Manually

Press the ON button once to switch the SaltiGem® and the pool pump on manually. The SaltiGem® will default back to AUTO and turn itself off automatically at the end of the next programmed FILTER CYCLE (and this will be displayed on the LCD).

#### Increasing Manual Run-time in Hourly Increments

Press the ON button repeatedly (or hold the button down) to increase the manual run time in hourly increments. The run time is displayed on the LCD. When the desired run time has been reached, press the ENT button to confirm your selection and the system will commence operation.

### ESC/OFF Button

#### Turn the System Off Manually

If the SaltiGem and pool pump are running, pressing this button will turn them off manually. The SaltiGem® will automatically turn on again at the start of the next FILTER CYCLE (and this will be displayed on the LCD).

#### Return to Home Screen

If you have unintentionally accessed a SaltiGem® Menu that you don't actually require, pressing the ESC/OFF button allows you to return to the home screen at any time.



## ENT Button

Use this button to enter the SaltiGem® Menu system and to access the various options in each Menu. Use the Y/UP and N/DOWN buttons to scroll through menu options and when your desired menu option is displayed on the LCD, press ENT to access that option.

## Y/UP Button and Optional Pool Light

If you have accessed the SaltiGem® Menu by pressing the ENT button, press the Y/UP button to scroll upwards through the various menu options. Some menu options will prompt a yes or no answer. If you wish to answer “yes”, press the Y/UP button.

If your SaltiGem® also controls your pool lighting (optional), you can turn the lights on or off manually by pressing the Y/UP button. For multi-coloured lights, hold the Y/UP button down to cycle through the various colours and release once the desired colour is reached.

## Navigating the SaltiGem Menu System

There are two aspects to the general SaltiGem® Menu system – the Timer Menu and the Chlorine Output Menu. In addition, there is the ADVANCED menu, which is explained in detail on pages 19-29.

Access the general SaltiGem® Menu system by pressing the ENT button and following the prompts on the LCD. If you find you have ended up in a part of the Menu system unintentionally, you can return to the Home Screen by pressing the ESC/OFF button at any time.

Use the Y/UP and N/DOWN buttons to scroll through the various menu options until the desired option is displayed on the LCD. Use the ENT button to confirm that you wish to select that option.

Once accessed, use the Y/UP and N/DOWN buttons to adjust operational settings up or down – and confirm adjustments by pressing ENT. To cancel any adjustments, simply press ESC/OFF to return to the Home Screen.

## Timer Menu

### Setting the time

Once you have installed your SaltiGem and turned it on, you will need to set the correct time on the SaltiGem's 24 hour clock.

First, access the Menu System by pressing the ENT button.

The LCD will display the word TIMER MENU. Select this by pressing the ENT button once more.

Line 2 on the LCD will now read SET TIME HOURS. Use the Y/UP and N/DOWN buttons to adjust the hours on the LCD. Confirm the correct hours value by pressing ENT again.

The LCD will now show SET TIME MINUTES. Adjust the minutes using the Y/UP and N/DOWN buttons. When complete, press ENT to return to normal operation.

## Adjust Cycles Menu

Your SaltiGem® has two filter cycles pre-programmed as factory defaults as follows:

Filter Cycle 1:	ON at 7:00 (7am)	OFF at 11:00 (11am)
Filter Cycle 2:	ON at 18:00 (6pm)	OFF at 22:00 (10pm)

You can change the start and finish times of each filter cycle to meet your sanitiser requirements and to suit your lifestyle.

To adjust filter cycle start and finish times, press ENT to access the SaltiGem® Menu system. Press ENT again to select the TIMER menu and then scroll down using the N/DOWN button until ADJUST CYCLES is displayed on the LCD.

Select this option by pressing ENT and the LCD will show the start (ON) time of the filter cycle being adjusted. Use the Y/UP and N/DOWN buttons to adjust the start time. Press ENT to confirm your selection and then the LCD will show the end (OFF) time for that filter cycle. Adjust the OFF time in the same way as the ON time and press ENT to confirm.

After ON and OFF times for the first filter cycle have been adjusted, the ON time for the second filter cycle is shown on the LCD. This can be adjusted in the same way, or if you do not wish to make any changes, simply press ENT to confirm the time shown on the LCD. Follow the same process to either adjust or confirm the OFF time for the second filter cycle, and once this has been confirmed the LCD will display the home screen.

Note: an additional 2 filter cycles can be enabled and programmed via the FILTER CYCLES sub-menu - see page 28.

## Running Times

We recommend your system be operated for ***at least 8 hours per day and always run the system when using the pool.***

The amount of chlorine being added to the pool each day is determined by the cell size, the chlorine output settings (See Chlorine Output Menu below) and the number of hours that the SaltiGem® is operated. As sunlight destroys chlorine, it is recommended that the SaltiGem® be run mostly in the evening.

Chlorine is added for sanitation but the filter is needed to remove pollutant particles (dust, sand etc) and keep the water looking good. The filter must operate for a reasonable number of hours per day to remove pollutants.

In very hot weather and/or with large bather loads, the pool may need to run for even longer and if necessary, extra chlorine should also be added manually. If there are adverse local conditions – such as windborne dust and debris - the chlorine demand will be higher than normal and you will likely need to operate the system for longer periods to adequately filter the water.

## Light Timer Menu

You can use your SaltiGem® to turn your pool or garden lighting on and off automatically, you can set the ON and OFF times using the light timer menu.

Press ENT to access the SaltiGem® Menu system. Press ENT again to select the TIMER menu and then scroll down using the N/DOWN button until LIGHT MENU is displayed on the LCD.

Line 2 on the LCD will now read "AUTO? Y/N". To enable automatic light operation press the Y/UP-button. Line2 will read "Auto ON" for short period before displaying "ON hh:mm".

Adjust the ON time using the Y/UP and N/DOWN-buttons and confirm by pressing ENT. The LCD will now prompt you to set the OFF-time, which is accomplished using the Y/UP and N/DOWN-buttons as before. Press ENT-to confirm the new OFF-time and the LCD will return to the home screen.

To disable automatic light operation, access the LIGHT menu in the way described above and when asked "AUTO? Y/N" - press the N/DOWN button. Line 2 will read "Auto OFF" for short period then the system will return to normal operation and the light can only be operated manually (see below for how to do this).

The Light Timer menu can also be accessed via the Advance Settings Menu – see page 26.

## Manual Light Operation

If the SaltiGem® is turned on, the light can be turned on or off manually by pressing the Y/UP-button.

If you have multi-coloured LED lights that cycle through different colours and requiring a power pulse to change effects, you can hold down the Y/UP-button to cycle through the options and release when the desired colour or effect is achieved.

## Controlling the Chlorine Residual

There are two ways of controlling the amount of chlorine entering the pool – by altering the running times and by reducing the SaltiGem® Output. If the pool chlorine residual tests high you can reduce the operating time and/or decrease the Output. If the chlorine residual tests low and the output is already at maximum you will need to increase the operating time and/or add supplementary chlorine.

### SaltiGem® Output Control

The LCD display usually shows the amount of chlorine being produced by the Cell as a percentage of its maximum.

However, this is not the same as the SaltiGem® Output. The Output Control turns the Cell ON/OFF over a short period of time. The Output setting determines how long the ON time is – for example if the Output setting is 60% the Cell will be ON for 60% of the period and OFF for 40% of the period. This is why the Cell will turn ON/OFF if the SaltiGem® Output is below 100%.

### Chlorine Output Menu

To adjust the chlorine output on your SaltiGem, press ENT to access the SaltiGem® Menu system. Scroll down using the N/DOWN button until CHLORINE OUTPUT is displayed. Press ENT again to select this menu and then use the Y/UP and N/DOWN buttons to adjust the output level. Confirm the adjusted settings by pressing ENT once more.

### Superchlorination

When bathers enter a pool there is a reaction between nitrogen/ammonia compounds from the bathers and the chlorine in the pool. These reactions form chloramines (also called combined chlorine) which are responsible for the “chlorine” odour and for some minor irritations.

These compounds can be broken down by adding free chlorine to a level above 5ppm by the addition of a shock dose of chlorine – also known as superchlorination.

Levels of chlorine immediately adjacent to the SaltiGem® Cell anodes far exceed 5ppm and so a lot of chloramines are destroyed as water passes the Cell.

If the chloramine levels still become high, simply add a shock dose of chlorine or run the SaltiGem® for a long period overnight.

## Optional Add Acid Menu for pH models

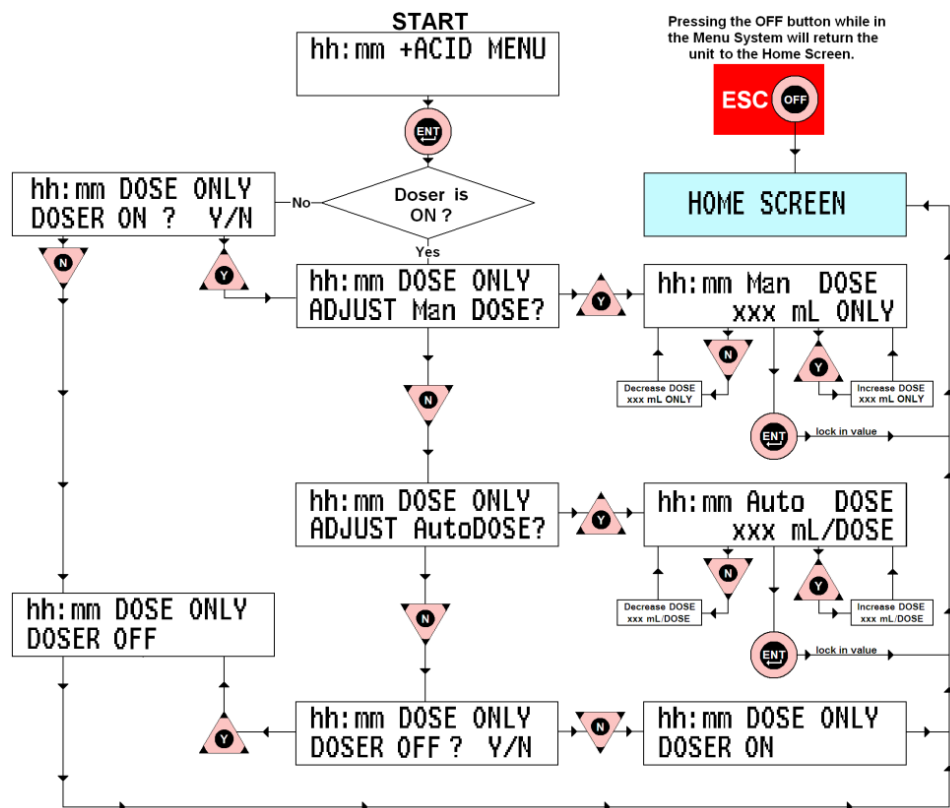
The Add Acid (+ACID) menu will only appear if your SaltiGem® has the optional pH control.

As chlorine is produced the pool pH will go up slowly. This can be offset by small doses of acid added to the pool. The +ACID menu is used to select and adjust the acid dosing system, using either a vacuum valve or peristaltic pump to dose the pool with small amounts of acid.

An algorithm calculates the amount of acid that is needed per dose, and once the system has been adjusted to suit your pool, maintenance should be minimal.

The +ACID menu is relatively long compared to the other menus, but operates in the same way as the other SaltiGem® menus. The Y/UP and N/DOWN buttons are used to adjust settings and the ENT button is used to confirm selections. If you are worried about making a change, press ESC/OFF to return to the Home Screen.

The +ACID menu is illustrated schematically below.



## Accessing the +ACID Menu

It is only possible to access the +ACID menu if you have a pH model and when a dosing device is attached.

Press ENT to access the SaltiGem® Menu system and use the Y/UP or N/DOWN buttons to scroll through the menu until the LCD Line1 reads “hh:mm +ACID MENU” – press ENT to select.

## Acid Dosing System – Turning it ON and OFF

If you have a SaltiGem® pH model, the default setting is for the acid dosing system to be ON.

To turn the Acid Dosing System OFF, access the +ACID MENU as described above and Line 2 of the LCD will read “ADJUST Man DOSE?”. Press the N/DOWN button to answer “no”.

The LCD will now show “ADJUST AutoDOSE?” Press N/DOWN to answer “no” and the LCD will ask “DOSER OFF? Y/N”. Press Y/UP if you wish to turn the Acid Dosing System off.

To turn the Acid Dosing System back on, access the +ACID MENU as described above and Line2 of the LCD will read “DOSER ON? Y/N”. Press Y/UP to answer “yes” and the Acid Dosing System will be re-enabled.

## Initial Pool Balance and Adjustments

Ensure that the pool water is correctly balanced as described on page 9 of this Manual. Test the pH of your pool regularly (at least weekly) and if necessary, adjust the amount of the automatic acid dose. (See below for how to do this).

## Adding Acid Manually – the ADJUST Man DOSE Sub-Menu

When you first re-enable the Acid Dosing System, the LCD will ask “ADJUST Man DOSE?”

This sub-menu allows you to adjust the amount of acid added as a manual (immediate) dose. Adjustment is from 0mL (OFF) to 750mL in 15mL increments. This function is useful for priming acid lines after an acid drum change, and for adding a large dose of acid after adding buffer.

If you wish to make a manual dose, or adjust settings, press Y/UP to access this sub-menu.

Line1 of the LCD will display: “hh:mm Man DOSE”;  
Line2 of the LCD will display:           xxx mL/DOSE”

Use the Y/UP and/or the N/DOWN buttons to adjust the amount of acid to be dosed manually. Press ENT to confirm and return to the Home Screen. Dosing should begin in approximately 5 seconds.

## Automatically Dose Acid – the ADJUST AutoDOSE Sub-MENU

This sub-menu allows you to adjust the amount of acid added as an automatic dose.

Your SaltiGem® will automatically dose the pool with acid to reflect the number of hours of cell operation. The default dose can be increased from 10mL per dose to 250mL per dose (in 10mL increments).

To adjust the amount of the automatic dose, access the +ACID menu and press Y/UP when Line 2 of the LCD asks “ADJUST Auto DOSE?” to enter this sub-menu.

Line1 of the LCD will display: “hh:mm      Auto DOSE”;

Line2 of the LCD will display:    <nn>      xxx mL/dose”

The <nn> value is the default dose amount and the xxx value is the actual dose.

Use the Y/UP and/or the N/DOWN buttons to adjust the amount of acid to be dosed automatically. Press ENT to confirm and return to the Home Screen and normal operation.

**Note: If you make adjustments to the Autodose amount, do so in small increments and monitor the pH changes in your pool daily until a balance is achieved. Make sure the Total Alkalinity is also within the correct range.**

## Optional Auxiliary Timer Menu (AUX Menu)

The AUX MENU is used to select and adjust the timing system for a power separator – a device used to control the power from a separate power outlet on the base of certain SaltiGem models. Examples of how this might be used are for an auxiliary pump for an in-floor cleaning system or for a pressure cleaner.

The menu will only appear when a power separator device is attached to the SaltiGem. When it first detects the power separator, the SaltiGem’s LCD will ask “EXTRA TIME MENUS REQUIRED? Y/N” – if you press the Y/UP button, you will be able to access the AUX Menu from the Basic Menu system.

The AUX System is designed to run the power separator in conjunction with main pump timing. The timing of the AUX system is tied to Filter Cycles 1&3 and operating times of 30, 60, 90 or 120 minutes can be selected. Filter Cycles 1 & 3 must be set to run for the same period or longer.

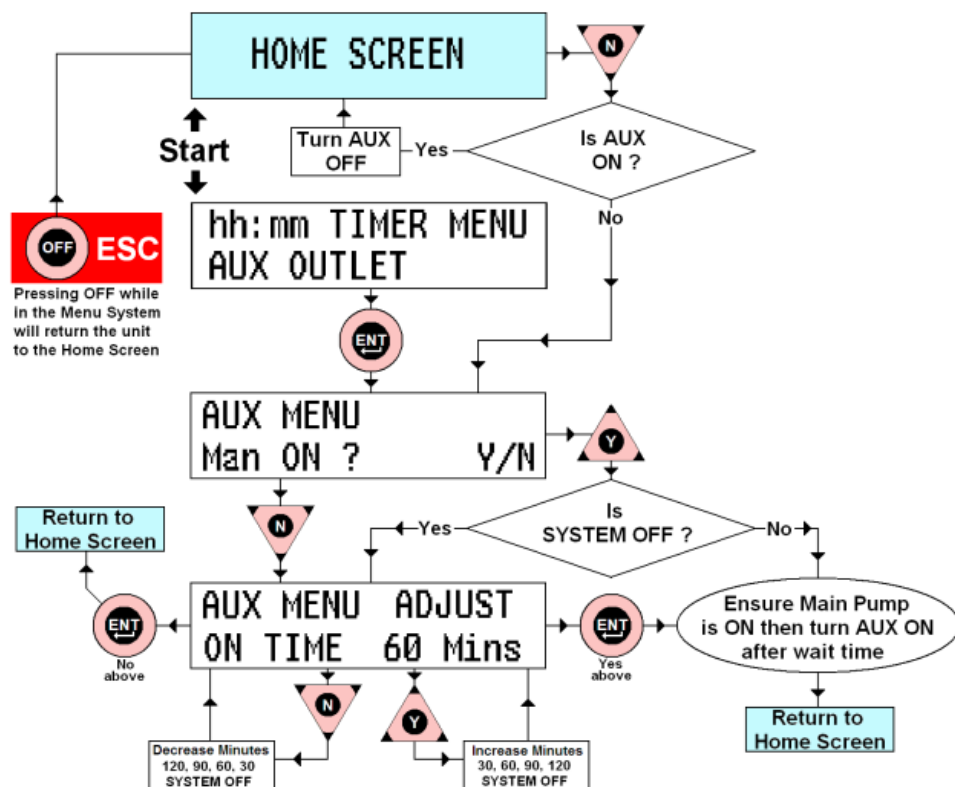
## Manual Operation

The power separator can be controlled from the Home Screen by a pressing N/DOWN.

If the power separator is ON, then this will turn it OFF.

If it is OFF, the AUX MENU is activated and Line2 of the LCD will read “Man ON? Y/N” – press Y/UP to turn it ON and select running time. This will also turn on the main pump if it is not already on.

The AUX menu is illustrated schematically below.





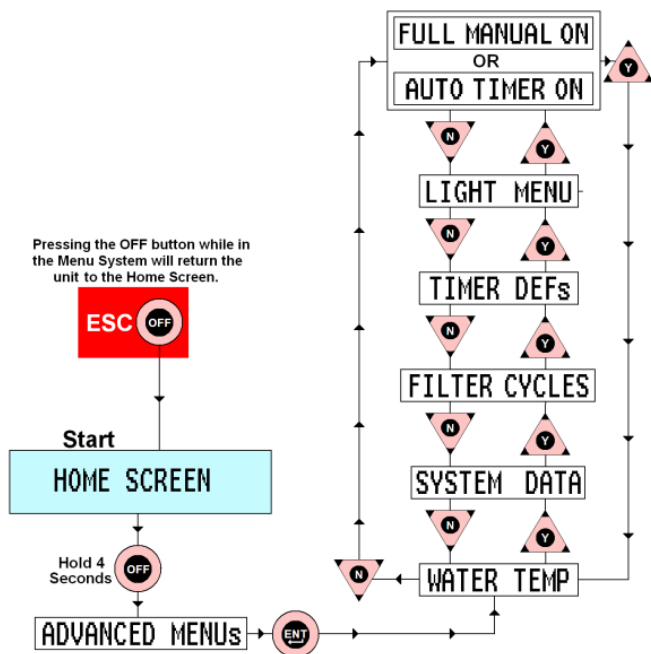
## Advanced Settings Menu

To access the ADVANCED menu from the Home Screen, press and hold the OFF button for 4 seconds. The LCD will display "ADVANCED MENUS" – press ENT to select.

Advanced Settings comprise:

- FULL MANUAL ON or AUTO TIMER ON – use when the SaltiGem® is being run as a "slave" to another controller.
- LIGHT controls automatic light operation
- TIMER DEFAULTS allows advanced programming of the timer for 4 FILTER CYCLES and is very useful for seasonal timer adjustments
- FILTER CYCLES - allows for up to 4 Filter Cycles to be activated and is useful for seasonal timer adjustments.
- SYSTEM DATA - shows service information
- WATER TEMP - allows you to compensate for cold water

The ADVANCED menus are illustrated schematically below.

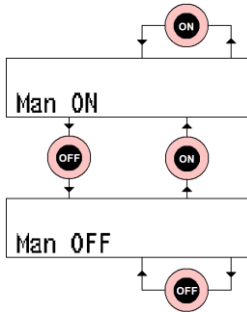


Once you have selected the ADVANCED menu, use the Y/UP and N/DOWN buttons to scroll through the various options. When the name of the sub-menu you require is displayed on the LCD, press ENT to access that sub-menu.

If you wish to return to the Home Screen at any time, press the ESC/OFF button once.

# Full Manual Mode or Auto Timer Mode

## Full Manual Mode (FMM)



FMM is used when an external timer is controlling the SaltiGem®.

If FMM is selected, the pump system is either turned ON or OFF whenever power is supplied to the SaltiGem®. The SaltiGem's timer is effectively disabled.

Line 2 of the LCD will indicate that the SaltiGem® is in manual mode with either the message "Man ON" or "Man OFF".

## AutoMode

When running in Auto Mode, the SaltiGem® has up to 4 adjustable Filter Cycles. Factory default settings have Filter Cycle 1 and Filter Cycle 2 enabled.

Filter Cycle 1 is always enabled. The other 3 Filter Cycles can be enabled or disabled (in order) allowing you to increase or decrease running times quickly without adjusting the Filter Cycle ON/OFF times – simply add or remove cycles !

When you first turn on the SaltiGem® in AutoMode, the pump will be off even if the time is in the middle of a programmed Filter Cycle. The SaltiGem will wait for the next available ON-time to start the pump and the rest of the system.

If there is an extended power failure, the SaltiGem® will continue to keep time for a number of days. During this time the pump ON/OFF-times will still be checked. When power is restored, the system will wake up and turn the pump ON if it is during a Filter Cycle.

## Automatic Operation

AutoOFF→ON016:30  
OR

AutoON→OFF022:00

In AutoMode, Line2 of the LCD will display whether the Pump is ON or OFF and the next OFF or ON time.

In the first example on the left, the LCD indicates that the SaltiGem® is currently OFF, and will turn on automatically at 4.30pm.

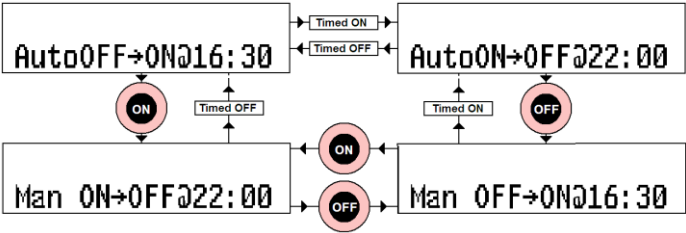
In the second example, it is currently ON and will turn off at 10pm

## Manual Operation while In AutoMode

You can override the AutoMode settings manually by pressing either the ON button (to turn ON if the system is off automatically) or OFF to stop the pump if it is on automatically. The SaltiGem® is still in AutoMode and will respond to the next AutoOFF/ON time.

In the first example on the left below, the system is OFF and due to turn on automatically at 16:30 (4.30pm). A manual press of the ON button turns the system on, and line 2 of the LCD tells you that it will turn OFF automatically at 22:00 (10pm).

In the second example on the right below, the system is ON and due to turn off automatically at 22:00 (10pm). A manual press of the OFF button turns the system OFF, but it remains scheduled to turn on automatically at 16:30 (4.30pm).



## Light Menu

You can use your SaltiGem® to turn your pool or garden lighting on and off automatically, you can set the ON and OFF times using the light timer menu. This menu can be accessed via the general TIMER menu (see page 17) or via the Advanced Settings Menu.

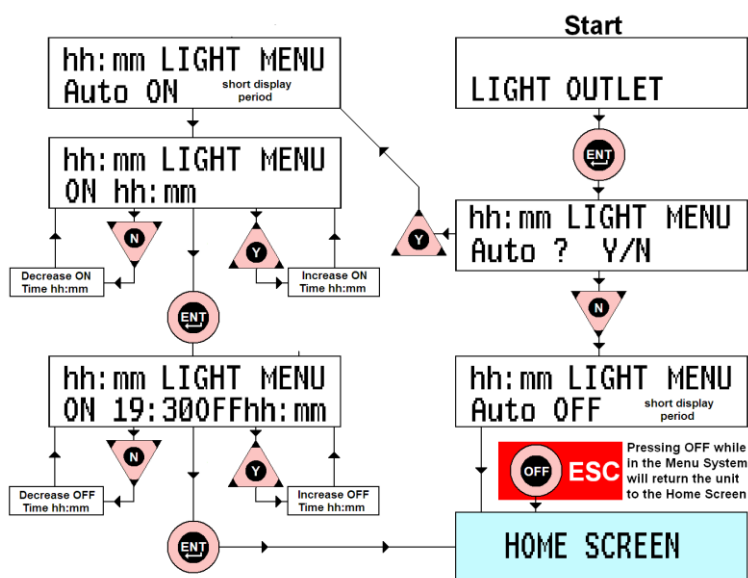
From the Advanced Settings Menu, scroll down using the N/DOWN button until LIGHT MENU is displayed on the LCD.

Line 2 on the LCD will now read "AUTO? Y/N". To enable automatic light operation press the Y/UP-button. Line2 will read "Auto ON" for short period before displaying "ON hh:mm".

Adjust the ON time using the Y/UP and N/DOWN-buttons and confirm by pressing ENT. The LCD will now prompt you to set the OFF-time, which is accomplished using the Y/UP and N/DOWN-buttons as before. Press ENT-to confirm the new OFF-time and the LCD will return to the home screen.

To disable automatic light operation, access the LIGHT menu in the way described above and when asked "AUTO? Y/N" - press the N/DOWN button. Line 2 will read "Auto OFF" for short period then the system will return to normal operation and the light can only be operated manually by pressing the Y/UP button (see page 17 for more details).

The LIGHT menu is illustrated schematically below.



## Timer Defaults Menu

The factory default Timer Settings are for 2 Filter Cycles of 4 hours each, giving a total of 8 hours per day operation – (FC1 = 7:00 to 11:00 and FC2 = 18:00 to 22:00).

Up to 4 Filter Cycles can be enabled (or disabled) to make seasonal adjustment easy.

There are 9 alternative timer settings available in the TIMER DEF menu, which combine different combinations of Filter Cycles and run times to give you 8 hours running time per day. You can choose the one that best suits your lifestyle – or you can further customise your system by choosing how many Filter Cycles to enable and programming the ON and OFF times for each.

Details of the different options are set out in the table below:

Def No.	Total Time	Run Times
1	8 hrs	6:00-8:00 and 17:00-23:00
2	8 hrs	6:00-10:00 and 18:00-22:00
3	10hrs	6:00-9:00 and 17:00-24:00 (midnight)
4	8 hrs	9:00-17:00 (solar)
5	6 hrs	6:00-8:00 and 17:00-21:00
6	10hrs	6:00-11:00 and 18:00-23:00
7	8 hrs	8:00-12:00(noon) and 14:00-1800
8	8 hrs	8:00-12:00(noon) and 15:00-19:00
9	8 hrs	22:00-6:00 (offpeak)

From the TIMER DEF menu, press ENT to select the default setting that you require.

These times can be further adjusted if desired, (see ADJUST CYCLES menu on page 16 for how to adjust ON and OFF times) or Filter Cycles can be enabled/disabled to suit (see FILTER CYCLES Menu on the next page).

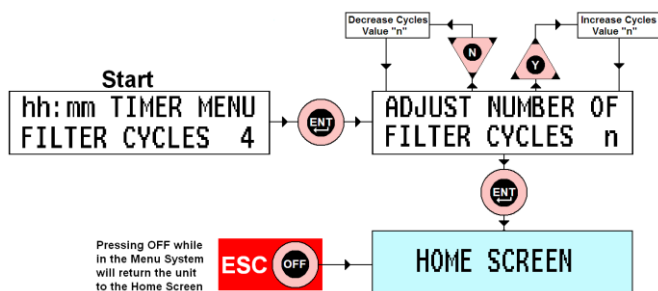
## Filter Cycles Menu

From the ADVANCED SETTINGS MENU, use the Y/UP button to scroll up to the FILTER CYCLES Sub-MENU and select by pressing ENT.

The LCD will display the number of enabled Filter Cycles in the lower right hand corner. In the example below, all 4 Filter Cycles are enabled. This number can be adjusted using the Y/UP or N/DOWN buttons, followed by the ENT button to save changes.

Remember that if you wish to return to the Home Screen at any time, simply press the ESC/OFF button.

The FILTER CYCLES menu is illustrated schematically below.



## System Data Menu

This part of the SaltiGem<sup>®</sup> software stores information such as hours of operation and should only be accessed by authorised service technicians.

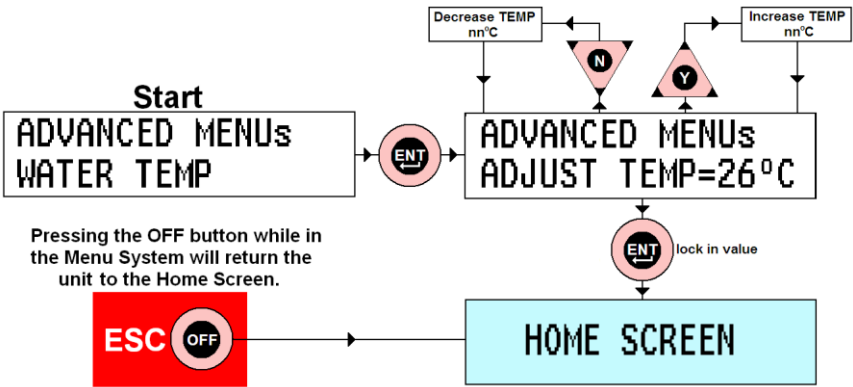
# Water Temperature

The WATER TEMP is used to adjust a temperature compensation value that helps to maintain the accuracy of the STATUS warnings when the water temperature gets lower over the colder months.

## Setting the Water Temperature

The display will now read “ADJUST TEMP=26°C”. The UP/DOWN-pads will allow adjustment from 12°C to 26°C in 2°C steps. This value is used to provide system compensation for colder water – when water temperature reduces (eg in winter) the conductivity will decrease. Without compensation the unit will warn of Low Conductivity before it should.

The WATER TEMP menu is illustrated schematically below.



## SaltiGem Status Indicator, Warnings and Safety Shutdowns

There is a STATUS indicator on the front panel that simply shows green (OK) and red (WARNING). The reason for any WARNING will be written on the LCD display. Possible warnings are explained below.

### Low Water Temperature & Salinity



Low water temperature and lower than recommended salt levels can both cause low conductivity of the water to be detected.

The SaltiGem® will, however, continue to function and will display this without a red warning indication. Simply check the salt level and make sure it is well above 3000ppm (ideally around 4000ppm).

Check the temperature of the water, and if it is lower than 20°C, you may wish to adjust the Water Temperature setting using Advanced Settings Menus (information on Advanced Settings available via [www.poolcontrols.com.au](http://www.poolcontrols.com.au) or by calling Pool Controls Service on 1300 550 010.

### Gas Detection & Dry-Run Pump Shutdown

This is an important safety feature of the SaltiGem® as a build up of chlorine gas can be dangerous.



The display above left shows the Cell being turned OFF after chlorine gas is detected for approximately 10 seconds. If gas is still detected after approximately 2 minutes the pump will also be turned OFF – and the display will read as shown above right.

To re-start the pump, simply press the ON-button (as instructed by the display). This will reset the warnings and allow the pump to run (for a maximum of 3 minutes if gas is still detected).



## High Salt

Too much salt in the water results in high conductivity and the SaltiGem® Cell may over heat. The SaltiGem® will shut down to prevent this.



If the above warning is present, the SaltiGem® will have shut down to avoid an overload (mandated by electrical standards).

Check the salinity and water temperature. Salinity should be kept below 7,500ppm, and ideally will be around 4000ppm.

**The SaltiGem® is not designed for operation in seawater or brine.**

## Operation Following a Power Failure

The SaltiGem® unit comes with a timer function built into the operating software. The timer is a 24-hour type with quartz-crystal control. This Timer is backed-up by a Real-Time Clock (RTC) similar to those found in computers.

During a power failure the SaltiGem® will keep time and maintain AutoMode functions.

If a Filter Cycle is active when power is returned the pump will be turned ON within 1 minute. The SaltiGem® will keep all its settings and will not need to be re-programmed.

The SaltiGem® is ideal for use in systems where repeated power cuts occur, such as off-peak power circuits and Queensland's Tarriff33 system.

## Maintenance

Like all equipment the SaltiGem® will look better and last longer if it is maintained and operated in accordance with these instructions.

### The SaltiGem® Power Supply

The Power Supply has been design for operation in full sun and weather. However, it will benefit from being under cover. There is little maintenance required however – some Do's and Don'ts –

#### Don't:

- Install it in a small sealed enclosure (so it does not overheat)
- Install it in a very hot unventilated shed (so it does not overheat)
- Allow insects to nest in the unit (because they will prevent it from functioning)
- Install chemical drums under or close to the unit (to prevent corrosion)
- Forget about the unit once installed – it should be checked regularly to ensure that it is working for you

#### Do:

- Install it as per the instructions
- Check it regularly
- Make sure the pool balance is checked regularly

### The SaltiGem® Cell

The Cell does not have an unlimited life because its anodes (active electrodes) will wear away slowly as it produces chlorine.

Scale forms on the SaltiGem® Cell cathodes (negative electrodes). Scale is a combination of calcium and other mineral salts (usually carbonates). The rate of scale build-up is determined by the amount of use, the pH/calcium hardness/TA and the temperature of the pool water. Generally concrete and plaster pools will scale much faster than fibreglass pools due to higher calcium levels in the water caused by leaching of minerals from the pool surface.

The Cell is manufactured from extremely expensive materials so if it fails early due to lack of maintenance, the pool operating cost will not be as economical as it could have been. Note that bore water generally contains far more minerals than scheme water. If bore water is used it is likely that faster Cell scaling will be seen.

## Cell Cleaning

The SaltiGem® Cell is self-cleaning, however, some conditions such as very hard water can cause the cell to become scaled over time.

The SaltiGem® Cell uses an electronic means (polarity reversal) to remove scale from its cathodes. This system works very well in most pools unless there is extreme hardness and/or mineral levels. Even in the extreme cases where scaling does occur the rate at which it occurs is far slower than for normal Cells.

If scale has become thick enough to nearly bridge between the Cell electrodes, it is time to clean the Cell. Cells can be cleaned in a solution of hydrochloric acid.

***Please read the warnings and instructions on the acid container.***

To make the acid solution, add 1 part hydrochloric acid to 4 parts water in a suitable container. This solution can be used a number of times so a re-useable container with a lid can be used, but make sure it is stored safely.

Alternatively a commercial Cell Cleaning solution can be used according to the manufacturer's instructions.

The SaltiGem® unit should be turned off so that any AutoMode functions can not turn it back on until after the Cell is clean and back in its housing.

Remove the Cell from its housing and immerse in the acid solution. Note that it may foam up and overflow the sides of the container – so take care!

The Cell should not take longer than a few minutes to clean. It may also be possible to remove some or most of the scale with a jet of water.

***Never use a stiff brush or hard implement to clean the cell because this will damage the coating.***

## Trouble-shooting

Before requesting service, you may wish to run through the check list below but feel free to call Pool Controls Service on 1300 550 010 or log a service call via our website – [www.poolcontrols.com.au](http://www.poolcontrols.com.au).

### If there appears to be low or no Chlorine Residual:

1. Check stabiliser level is 40ppm – 60ppm. Add if necessary and wait for it to dissolve.
2. Have you added any chemical additives recently?
3. Check pool for phosphates and remove if necessary
4. Is the unit turned on and operating the filter pump?
5. Are the operating hours sufficient?
6. Is the Output set to 100%?
7. When running is the Cell ON? Is it reading 100?
8. Is there enough salt in the water? (4000ppm)
9. Is the temperature of the water low?
10. Is the Cell scaled heavily?

If the Cell is ON but not reading 100, check the Temperature Compensation setting in the WATER TEMP sub-menu (located in the ADVANCED menu – see page 29). Also double-check the pool salinity is within correct range.

If the unit is not running at all **check the fuse** in the bottom of the unit.