



# User Manual

## SG Series

### Saltwater & Mineral Chlorinators



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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.*

**Never add salt/minerals before testing levels**

Serial Number.....  
Date of Installation.....  
Installed by.....



# Manufacturer's Warranty

## **Pool Controls 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.

## **3 Year Warranty on New Domestic Installations**

Pool Controls warrants all its products used in new domestic installations to be free from defects in material and/or workmanship for a period of 3 years from the original date of purchase or installation.

## **2 Year Warranty on Replacement Parts**

Pool Controls warrants replacement parts used in domestic installations, including multi-electrodes (probes), solenoid valves and electrolytic cells (but excluding wearing parts such as tubing and squeeze tubing) to be free from defects in material and/or workmanship for a period of 2 years following purchase.

## **Exclusion for Wearing Parts**

This warranty does not extend to wearing parts, in particular the squeeze tubes fitted in dosing pumps. Squeeze tubes should be replaced every **twelve months** by a suitably qualified technician. Pool Controls is not liable for any failure of its products or other damage caused by failure of a squeeze tube that has been used for more than twelve months.

## **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 repair or replace **that item** at the option of the warranty holder.

## **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;
- 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**

- This is a "Back to Base" Warranty, which means that 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 is for domestic installations only. Where Pool Controls products are installed for a commercial application this warranty does not apply.
- 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; or
  - product failure resulting from misuse, freezing, accident, negligence, improper installation or inadequate maintenance.
- 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 to fill in your details.

### **CONTACT POOL CONTROLS**

Pool Controls is based at 58 Prosperity Avenue, Wangara, 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: +61 8 9240 4400

## What's in the box?

- SG Series Power Supply, Cell and Cables
- User Manual
- 40/50 Bushes and Mounting hardware (raw plugs, screws and paper template)

## How it works:

A salt or mineral chlorinator works by putting a dc current through an electrolytic cell in a flow of salted water. Salt/minerals is made up of sodium/magnesium and chloride ions. Electrolysis of these salts 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.

Your Pool Controls Chlorinator 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 saltwater or mineral 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. If a pool cover/blanket is used the chlorine demand will be greatly reduced. To avoid over-chlorination use the Pool Cover Mode On/Off button. See also pages 4, 11 and 15.**

### pH Control

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/mineral 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 chlorinator has the optional pH control, this can be done automatically. Pool Controls' pH Control System 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.

The algorithm can be adjusted if installed on a concrete/plaster pool. When adjustments are made it should be in small values with the pool then monitored for effectiveness.

**Note:** while the algorithmic pH control is effective it does not measure pH. pH measurement and checking must be done manually to make sure the pH is correct.

## Initial pool balance

Before you begin using the Chlorinator, make sure your pool water is balanced as follows:

### **Salt and Minerals – only add salt/minerals after checking the levels**

There should be between 3000 and 5000ppm of TDS 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/minerals below 7500ppm to avoid overloading the cell and causing shutdown. Only add after checking the level.**

**Minerals:** the conductivity of minerals is different to pure salt. All TDS testers are calibrated for sodium chloride salt. You will need less weight of minerals to achieve an equivalent TDS to salt – follow the mineral instructions.

### **Chlorine**

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

### **Chlorine Demand and Pool Cover Blankets**

Most of the chlorine demand for a pool comes from the action of sunlight on the chlorinated water. When a cover blanket is used it is possible for the chlorine residual to build up to a higher level that can be damaging to the blanket and possibly the pool and fittings.

This unit can adjust the output to compensate for the use of a cover blanket – simply push the button and the display will flash COVER. While the cover is on the chlorine output will be reduced. When the cover blanket is removed simply push the button again and the unit will revert to its normal chlorine output. See also pages 11,15 and 19.

### **Stabiliser**

If the pool is outdoors, it is vital that stabiliser (also known as cyanurate and cyanuric acid) be added and maintained at 50ppm. 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.

**Minerals and pH:** the magnesium in mineral salts can form a soft scale on the cell even though it is reversing polarity. This is minimised by keeping the pH at the lower range for your pool type. The use of hydrochloric acid is recommended for magnesium mineral systems.

## **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.

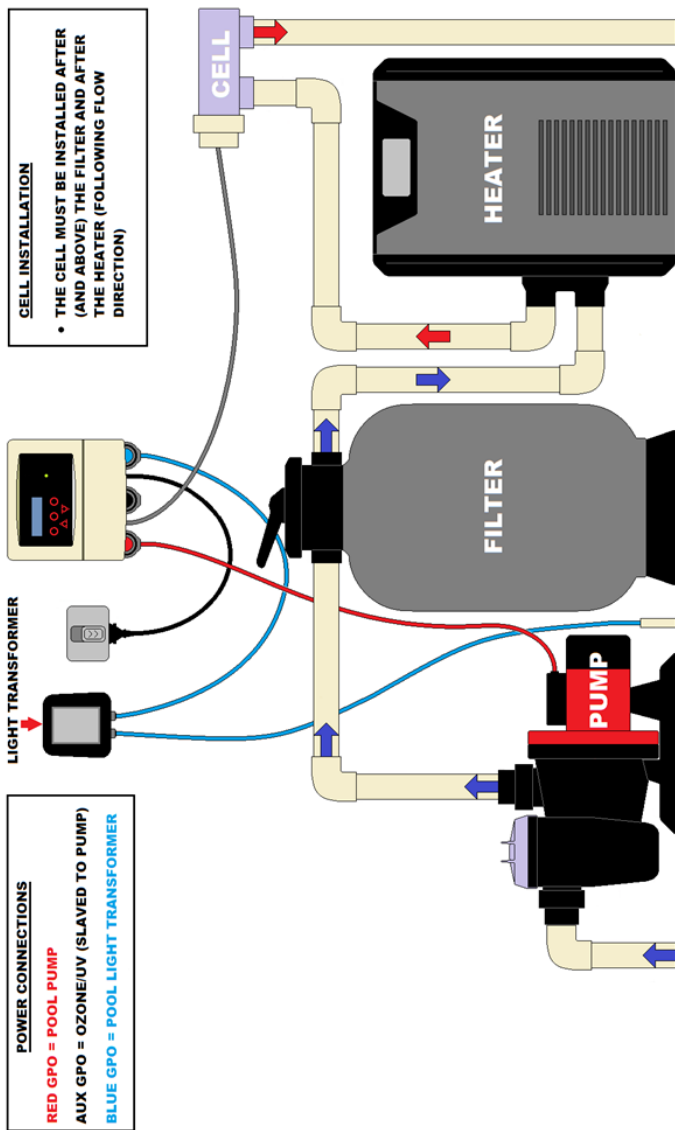
## **Phosphates and Nitrates**

Phosphate and ammonia nitrogen will make your garden green – and they will do the same thing to your pool. Check for phosphates and add phosphate remover if necessary. Don't let fertiliser get into your pool! Phosphates are also in some cleaning products – check the label if using around your pool.



# Installation Guide

## INSTALLATION DIAGRAM



## **Choosing a good location**

Pool Controls chlorinators are manufactured from weather resistant materials and are designed for operation in full sun and rain. However, your machine 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 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 Power Supply**

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

Mount the Power Supply at least 1.5m above the ground and at least 3m from the pool water.

Connect 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.

The PUMP socket outlet in the base of the 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 Cell**

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

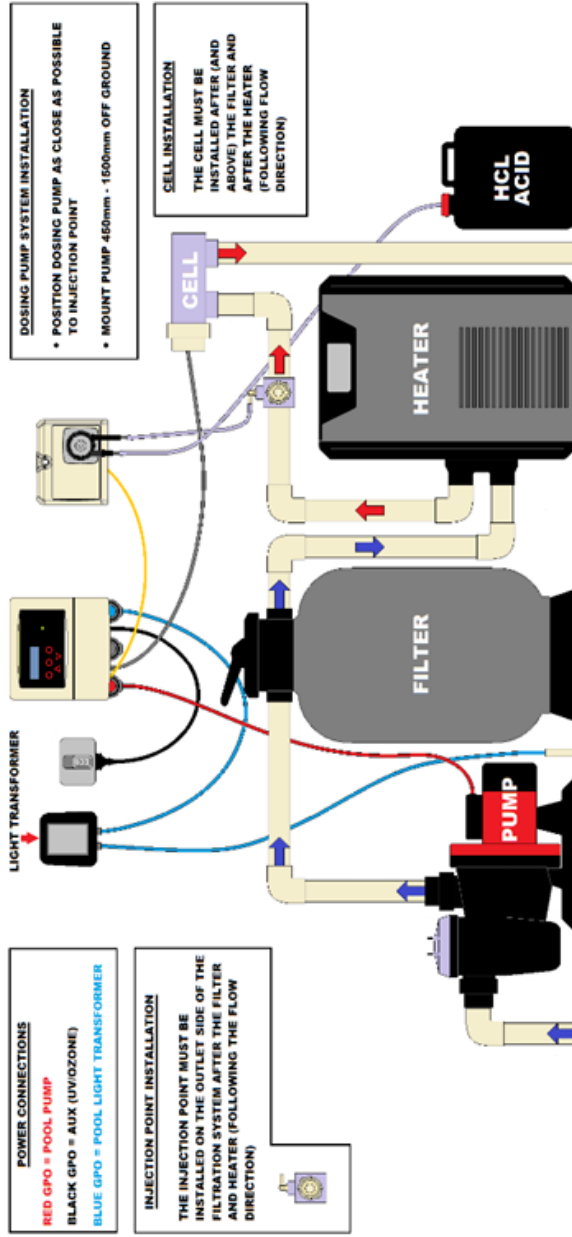
Remember that the cell will need to be removed from its housing periodically for cleaning – do not place it where its removal will be obstructed.

Note any water flow direction on the cell housing and ensure the cell housing is installed so that water will flow in this direction.

## **Installing the pH Control System**

Units with pH control have an injection fitting and a peristaltic pump which must be installed. Refer to the installation diagram overleaf for details.

# Installation Diagram for pH Control System



## Installing the pH Controls System (continued)

Position the dosing pump as indicated in the installation diagram above, ensuring it is NOT too close to other equipment or power outlets (due to corrosive fumes from the acid). Attach the dosing pump to the wall and connect it to the power supply where indicated in the photograph below.



Fit the injection point, avoiding high pressure areas (ie not between pump and filter). It can go prior to the cell if necessary.

Cut a length of tubing that will reach from the base of the peristaltic pump to the injection fitting. Connect one end of the tubing to the outlet side of the peristaltic pump (the direction of flow is indicated by an arrow on the front cover of the pump.) Connect the other end of the tube to the injection point.

Cut another length of tubing that will reach from the base of the peristaltic pump to the base of the acid drum. Position the acid drum in a safe and secure location, preferably about 2 metres from the Power Supply Unit

Connect the one end of this tube to the inlet side of the peristaltic pump (the direction of flow is indicated by an arrow on the front cover of the peristaltic pump.)

Drill an 8mm hole in the lid of the acid drum and pass the tubing through the hole in the drum lid. Place a sinker on to the end of the tubing that will be in the drum and then attach the drum filter. Note that the drum filter incorporates a non-return valve to prevent back-flow into the chemical drum.

Before placing the tubing into the drum, measure the tubing against the outside of the drum and measure the feed tubing so that the drum filter will be 10-15mm above the bottom of the drum. Lower the drum filter and sinker into the drum and screw on the lid.

Turn on the Power Supply, which will recognise that a pH Control System has been connected and when first installed the LCD will ask "dilute acid?" If full strength is to be used press "N". If you are using diluted acid then press "Y". (See page 17 and also Advanced Menu Settings Supplementary Manual for details of the Acid Dilution Menu)

## Front Panel

### Display

A two-line LCD display is used to provide the user with information.



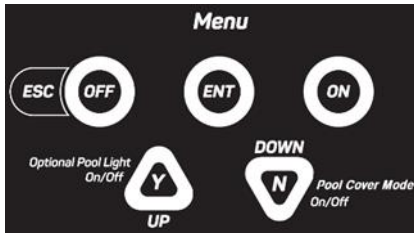
The first line of the display shows the current time and the cell status and output. In the example above the time is 10.15am and the Cell is "OFF". If the Cell is on, the output of the Cell will be displayed. If the output of the Cell has been set at lower than 100%, "CELL OFF" will be displayed intermittently even while the unit is running as the Cell regulates output. (See Chlorine Output Menu on page 15 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 chlorinator will turn on again at 17:00 or 5pm.

Note that the time is displayed using a 24-hour clock.

### Operational Buttons

There are 5 buttons that allow you to control the various functions available via the 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 chlorinator and the pool pump on manually. The unit will default back to AUTO and turn itself off automatically at the end of the next programmed FILTER CYCLE (and this time 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 chlorinator and pool pump are running, pressing this button will turn them off manually. The system 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 Menu that you don't require, pressing the ESC/OFF button allows you to return to the home screen.

### **ENT/Menu Button**

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

### **Y/UP Button and Optional Pool Light**

In the Menu system Y/UP will scroll upwards through menu options. Some menu options will prompt a yes or no answer. If you wish to answer "yes", press Y/UP.

If your machine 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

### **N/DOWN Button and Cover Blanket On/Off**

In the Menu system N/DOWN will scroll downwards through menu options. Some menu options will prompt a yes or no answer. If you wish to answer "no", press N/DOWN.

Pool Cover Mode On/Off: When not in the Menu system, N/Down will cause the Pool Cover Mode to be toggled – that is, it will go from Off to On or On to Off. Pool Cover Mode setting changes the amount of chlorine produced. See also pages 4,15 and 19.

## Navigating the Menu System

There are two aspects to the general Menu system – the Timer Menu and the Chlorine Output Menu.

Access the 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 Pool Controls chlorinator and turned it on, you will need to check that the correct time is displayed on the LCD. You may need to adjust the factory pre-set time.

To adjust the time, 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. Press ENT to select this option and then 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.

### Filter Cycles Menu

Two filter cycles are pre-programmed as factory defaults as follows:

Filter Cycle 1:    ON at 07:00 (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 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 Advance Settings Menu – see Advanced Settings Supplementary User Manual, which can be downloaded from [poolcontrols.com.au](http://poolcontrols.com.au).

## 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 system is operated. As sunlight destroys chlorine, it is recommended that the system 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 system 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 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).

## Manual Light Operation

If the system 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 chlorine 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.

### 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 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 periodically if the Output is set below 100%.

## Chlorine Output Menu

To adjust the chlorine output on your system, press ENT to access the 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 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 chlorinator for a long period overnight.

## Pool Cover Mode On/Off – when chlorine demand is reduced

To adjust the chlorine output to compensate for the use of a cover blanket the unit must be made aware that a cover blanket is in place over the pool. simply push the button marked “Pool Cover Mode On/Off” for on and off selection. When the Pool Cover Mode is activated, the word COVER will flash in the display and the chlorine output will be reduced.



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

*Note: fiberglass and liner pools are unlikely to need to need adjustment of auto dose amounts.*

This sub-menu allows you to adjust the amount of acid added as an automatic dose. Adjustment of the DOSE# is in increments of 10. 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: “<90> 90 DOSE#” (note that <nn> denotes the default value)

Use the Y/UP and/or the N/DOWN buttons to adjust the amount of acid to be dosed automatically. The value will be used by the algorithm to determine how much acid and when to add it automatically.

Press ENT to confirm and return to the Home Screen and normal operation.

## Priming the Dosing Pump

To prime the acid feed line – go to the +ACID Menu and do a manual feed of 100mL (or more if necessary due to length of feed tube). Note: the dosing pump will only start after the filtration system has been running for 2 minutes’ “start delay”. Once the dosing pump is running, double check the pump rotor direction and ensure it is correct (otherwise water will be pumped into the acid drum.)

## Adjusting the pH Control for Dilute Acid (Advanced Settings Menu)

If a unit has been installed with the pH Control Dose Pump this setting has likely already been made by the installer.

To enter the Advanced Settings Menu hold the OFF-button down for approximately 4 seconds and when Advanced appears in the display press ENTER. Use Y/UP or N/DOWN buttons to scroll through the menu until LCD Line2 shows “ACID Dilution” and press ENTER. The LCD will show:

“Dilution NO”

“Dilution Y/N?” Press Y/UP for dilute acid use.

There are three possible dilution rates to select from using the Y/UP and N/DOWN buttons:

“Acid approx 10%”

“Acid approx 14 - 16%”

“Acid approx 20%”

“1 Acid : 2 WATER”

“1 Acid : 1 WATER”

“2 Acid : 1 WATER”

Note that undilute acid is generally 28 – 32%. Note also that dose pump run times are longer when dilute acid is used.

## 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/mineral levels can both cause low conductivity of the water to be detected.

The system 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 the menus detailed in the Advanced Settings Supplementary User Manual, which can be downloaded from [poolcontrols.com.au](http://poolcontrols.com.au).

### Gas Detection & Dry-Run Pump Shutdown

This is an important safety feature 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/mineral in the water results in high conductivity and the cell may overheat. The system will shut down to prevent this.

A blue rectangular box with white text that reads "Hi SALT LEVEL" on the top line and "→ ON TO RESET" on the bottom line.

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

Check the salinity/TDS and water temperature. Salinity/TDS should be kept below 7,500ppm, and ideally will be above 3000ppm.

**Pool Controls chlorinators are not designed for operation in seawater or brine.**

## Pool Cover Mode On/Off

When Pool Cover Mode has been activated the display will alternate between time and COVER:

A blue rectangular box with white text that reads "10:15 CELL OFF" on the top line and "AutoOFF→ON@17:00" on the bottom line.A blue rectangular box with white text that reads "COVER CELL OFF" on the top line and "AutoOFF→ON@17:00" on the bottom line.

The Status LED will alternate orange (red + green) when COVER is displayed.

## Operation Following a Power Failure

Pool Controls' chlorination systems come 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 system 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 system will keep all its settings and will not need to be re-programmed.

These systems are 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 your chlorinator will look better and last longer if it is maintained and operated in accordance with these instructions.

### Power Supply

The Power Supply has been designed 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 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 cell cathodes (negative electrodes). Scale is a combination of calcium/magnesium 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.

When the cell polarity is reversed any scale comes off the electrodes in crystal "sheets". This scale is almost insoluble and can sometimes be seen as white flakes near the pool returns. This is normal for a reverse polarity saltwater chlorinator. If an automated cleaner is used it may not be noticed at all as it is picked up.

## Cell Cleaning

Pool Controls' cells are self-cleaning, however, some conditions such as very hard water can cause the cell to become scaled over time.

The self-cleaning system 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.

**Minerals:** the magnesium in mineral salts can form a soft scale on the cell even though it is reversing polarity. This is minimised by keeping the pH at the lower range for your pool type. Soft mineral scale can generally be hosed off with a strong jet of water.

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 power supply unit should be turned off so that any AutoMode functions cannot turn it back on until after the cell is clean and back in its housing.

Remove the cell from its outer 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.***

***Never hit the cell against a hard object to try to dislodge scale because this will break the inner electrode housing.***



## Trouble-shooting

Before requesting service, you may wish to run through the check list below but feel free to call Pool Controls Service on +61 8 9240 4400 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. Is the Cover setting on when the cover isn't over the pool? if yes turn Cover setting off.
3. Have you added any chemical additives recently?
4. Check pool for phosphates and remove if necessary. Has fertiliser entered the pool?
5. Is the unit turned on and operating the filter pump?
6. Are the operating hours sufficient?
7. Is the Output set to 100%?
8. When running is the Cell ON? Is it reading 100?
9. Is there enough salt in the water? (4000ppm)
10. Is the temperature of the water low?
11. Is the Cell scaled heavily?

If the Cell is ON but not reading 100, check the pool salinity is within correct range. Also check the Temperature Compensation setting in the WATER TEMP MENU – see Advanced Settings Supplementary User Manual.

If the unit is not running at all **check the fuse** in the bottom of the unit. Note that the fuse is a ceramic (HRC) slow-blow type, see example below:



Fuse size is M205 (20mm x 5mm), TD6.5A (TD – Time Delay / slow-blow), HRC (High Rupture Capacity).

Do not use standard glass fuses as these may rupture under current in-rush conditions.

## Advanced Settings Menu

If you are interested in learning more about the Advanced Settings, please download a copy of the Advanced Settings Supplementary User Manual from [www.poolcontrols.com.au](http://www.poolcontrols.com.au)

Advanced Settings comprise:

- FULL MANUAL MODE – allows you to change from AUTO MODE
- WATER TEMP – allows you to compensate for cold water
- SYSTEM DATA – shows service information
- FILTER CYCLES – unlocks 2 additional filter cycles
- LIGHT – controls automatic light operation
- ACID DILUTION –allows adjustment for use of diluted acid in pH Control