

# OWNER'S MANUAL



# Pentair



## Eco-Chlor SM CHLORINATOR

Should you the installer or owner be unfamiliar with the correct installation or operation of this type of equipment you should contact the distributor/manufacturer for the correct advice before proceeding with the installation or operation of the product.

# Relax - you've bought a Pentair

Congratulations on your decision to purchase an Pentair product. Pentair is one of the best know brands in its field, with a proud local and international reputation.

Pentair is a brand for reliability, value for money and technological innovation. You will find Pentair product wherever people need to move water in 3 broad markets covering:



Technologically advanced solutions for moving and treating water in the Home, Garden, Pool and Spa.

## Residential



Innovative Stock and Crop water management solutions for Primary Industries.

## Agricultural



Water movement products for Building services, Emergency services and Original Equipment Manufacturers.

## Process

## **1. Continual Product Improvement**

We employ the best engineers both in Australia and around the world to develop new and better ways to take water further.

## **2. Operational Excellence**

There is only one standard that we set ourselves for both product quality and the quality of our service. That standard is excellence... to have no-one better than us at what we do... nothing short of that is acceptable. Our commitment to quality is reinforced with our ISO 9001:2008 accreditation.

## **3. A Fair Price**

Pentair products are neither the cheapest nor the most expensive in their field. Our products do, on the other hand, always represent very good value for money; they always have and they always will.

## **4. Our Team of Dealers**

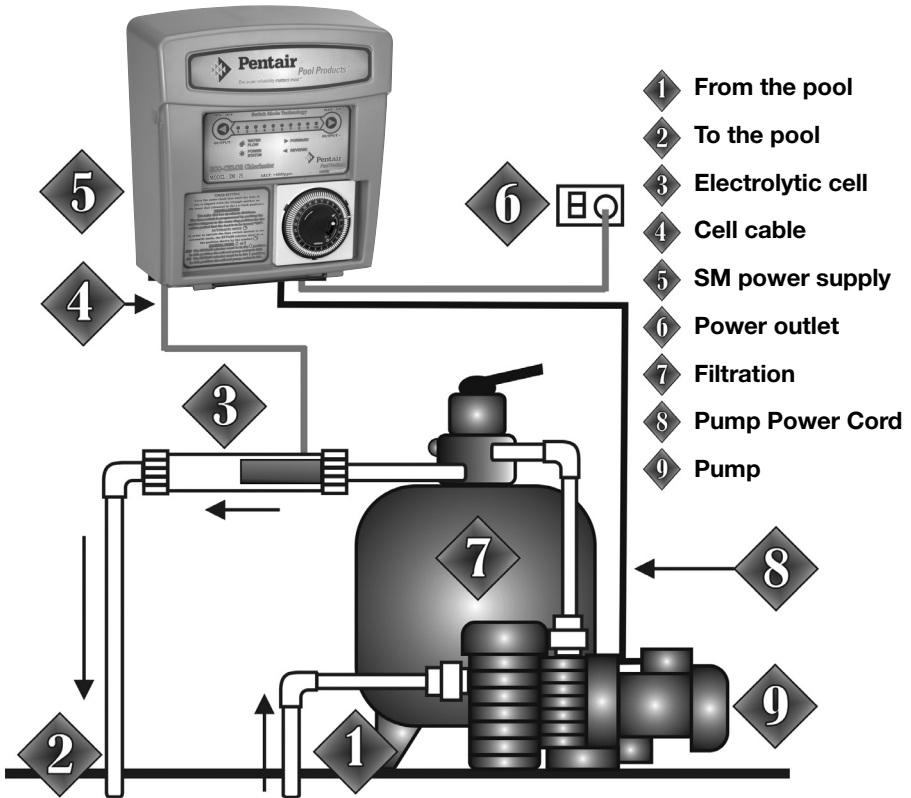
The hand picked authorised Pentair dealer network throughout Australia and worldwide are second to none. We invest considerable time and resources training and supporting them through the Pentair Training Academy.



# Installation

## IMPORTANT!

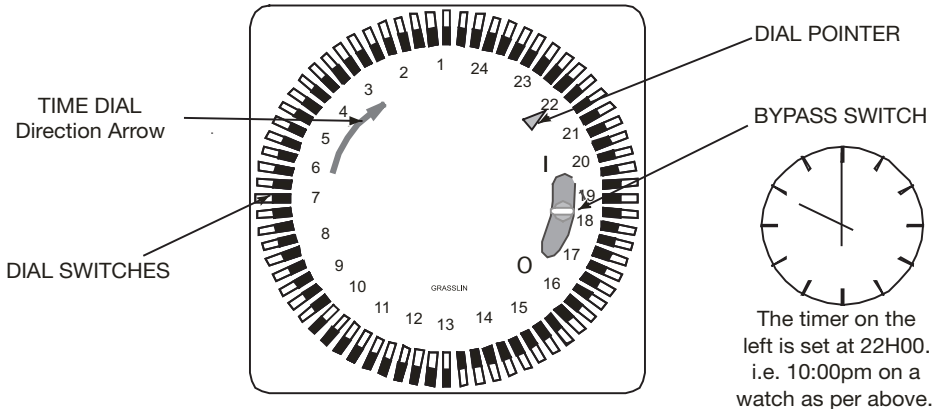
Chlorinator must be installed according to the following instructions.



Cell must be installed correctly as per instructions:

# Mechanical Timer Setup Procedure

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## 1. Clock setting

Be sure to turn the "TIME DIAL" in the Direction of the arrow.

**DO NOT** turn in the reverse direction! Line up the correct time of Day on the DIAL with the POINTER. Each HOUR is divided into 4 x 15 Minute divisions (4x1/4 Hour)

**NOTE: The above time is set to 10:00pm (i.e. 22H00)**

## 2. Timer setting

Set ON Times by moving DIAL SWITCHES to the outer edge. Each SWITCH represents 1/4 Hour(15min) running. For one hour of running 4 switches will be set to the outer edge.

**NOTE: The above example is set to run from 10AM to 1PM (3hours). All pins from 10 to 13 on the Dial will be extended out**

**(OPTIONAL) BYPASS SWITCH.**

## 3. Center Position:

This is the normal Timer Position (Automatic) In this position the timer will operate as normal with automatic switching on during the time set by the DIAL SWITCHES

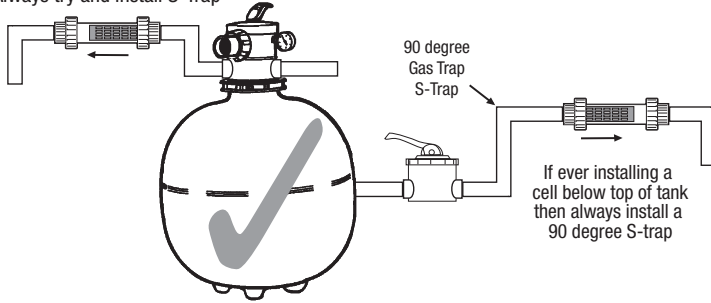
**Upper Position (1):** In this position the TIMER is always ON regardless of the SWITCH settings

**Lower Position (0):** In this Position the TIMER is always OFF regardless of the SWITCH settings

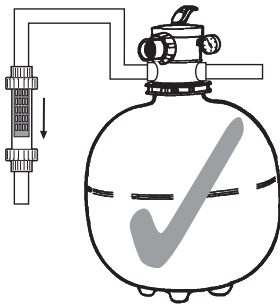
# Cell Housing Installation

## Sand Filter

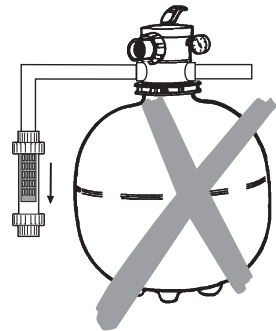
**BEST** - Above filter tank  
Always try and install S-Trap



**OK** - If you install the cell vertically then ensure that you have an S-Trap above the top of the filter

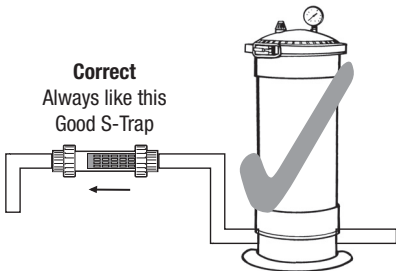


**Incorrect**  
Gas can build up back into the filter as there is no gas trap

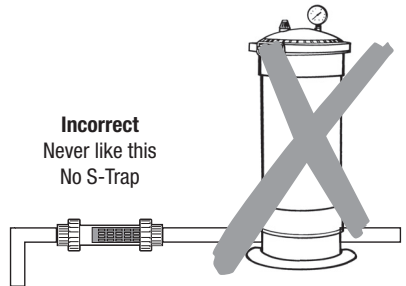


## Cartridge Filter

**Correct**  
Always like this  
Good S-Trap



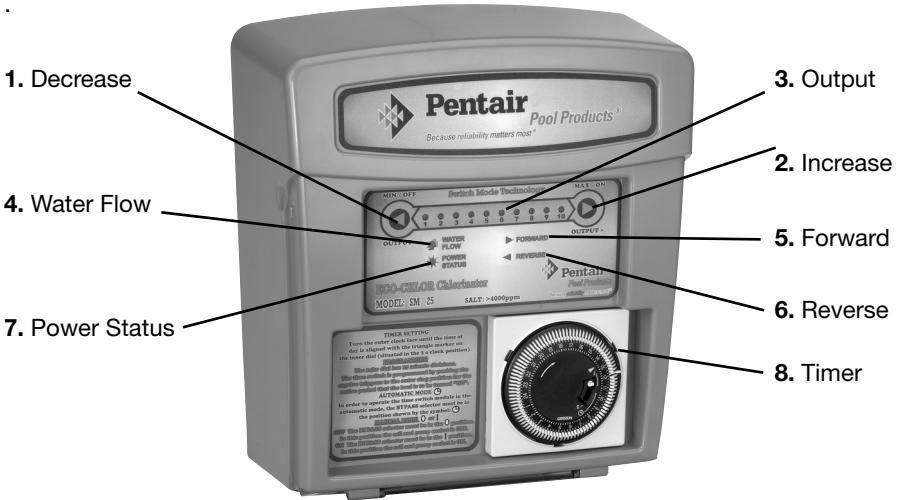
**Incorrect**  
Never like this  
No S-Trap



# Power Supply Installation

The power supply is mounted above the cell assembly and flush to a wall with the fastener provided. It is preferable that the power supply, as all pool filtration equipment, is installed in a weatherproof location, but well ventilated.

The power supply must be mounted no further than 1.5 metres from the chlorinator cell, and positioned so as easy access is available to the controls/time clock.



## Power Supply Functions

- BUTTON 1** Single press of this button decreases chlorine production by approx. 5%. In order to turn OFF the chlorinator it is necessary to press the button several times to make sure all Chlorine Production Indicators are OFF.
- BUTTON 2** Single press of the button increases chlorine production by approx. 5%. When all lights are ON the chlorine production is 100%.
- BUTTON 3** Chlorine Production Indicators. There are 10 indicators. Each indicator corresponds to 10% of Chlorine production.
- BUTTON 4** If the water flow indicator is flashing or ON, the chlorinator is in the Stand By mode and there is no water flowing through the cell. Please ensure that the pump is running and there is water passing through the cell. Takes a few minutes to reset.

# Water Balance

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## Water Balance requirements:

Salt 4000ppm – 6000ppm

Total Alkalinity 90 ppm – 150 ppm

Chlorine 1.5 ppm – 2.0 ppm

pH 7.2 – 7.4

Cyanuric Acid 40 ppm – 65 ppm

## Cleaning

**Reverse Polarity Chlorinators** have self-cleaning cells which means the maintenance required is minimal. In exceptional cases, when the calcium content is abnormally high, the chlorination may not totally remove all of the deposit. In this case the calcium level must be adjusted to normal levels and the cell must be cleaned.

**Procedure:** Turn off the chlorinator, disconnect cell cable, and remove cell. The dirty cell should be placed in a container with hydrochloric acid (HCl) solution: 8 parts water to one part of HCl (30-33%). Calcium deposits will react with the HCl — producing gas. When gas production has stopped, it means that the cell is completely cleaned and all the calcium has dissolved. Rinse in fresh water as soon as possible — Leaving the cell in HCl solution for a longer period will damage the cell! When cleaning is complete, dry the connections and reinstall.

## Special Note

The chlorine production is regulated with the output control and daily running time. Your chlorinator manufactures chlorine at a constant rate (i.e. the SM20 produces 20 grams of chlorine per hour), and this is ideal for routine daily chlorination.

If during peak use the pool water loses its sparkle and looks “tired”, it probably needs to be “shocked” or super chlorinated.

In situation such as this we recommend the use of liquid chlorine or sodium dichlorois cyanurate, (sodium dichlor) to supplement and maintain chlorine levels.

The use of powdered calcium hypochlorite chlorine is not recommended.

If the residual chlorine in the pool is low, check:

- a) chlorinator is not working long enough
- b) the level of the chlorine stabiliser is too low
- c) the cell needs to be cleaned
- d) the pH of the water is too high
- e) salt level too low



**Do not open unit - LIVE Components inside - danger of electric shock.**

**If supply cord is damaged, it shall be replaced by the manufacturer or its service agent or similarly qualified person in order to avoid a hazard**



# Echo-Chlor Sizing Chart

SM35																					
SM25																					
SM15																					
'000 Lt	<30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	

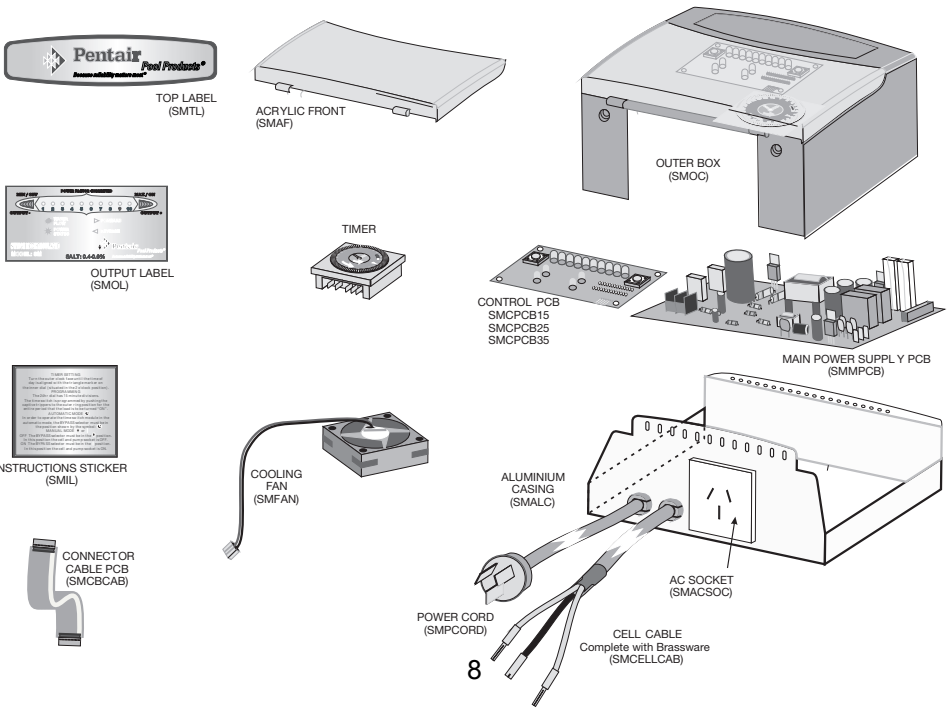
- Tropical Climates (Noosa & North)
- Warmer Climates (Sydney to Brisbane)
- Cooler Climates (Melborne, Adalaide, etc.)

All measurements are based on 8 hour per day and balance chemistry.  
Always try and oversize by 20-30%

## CHLORINE PRODUCTION

Model	Production per Hour		Production in 8 Hours	
	Chlorine Output	Sod. Hypo Equiv.	Chlorine Output	Sod. Hypo Equiv.
SM15	15 grams/hr	23 grams/hr	120 gr / 8hrs	184 gr / 8hrs
SM25	25 grams/hr	38 grams/hr	200 gr / 8hrs	304 gr / 8hrs
SM35	35 grams/hr	54 grams/hr	280 gr / 8hrs	432 gr / 8hrs

# Echo-Chlor Spares



# Calcium Build up Procedure

**In summary:** Despite what some distributors and manufacturers claim, saltwater chlorine generators are not completely maintenance free systems. Your salt water chlorinator requires some regular inspections and service.

You need to inspect the level of calcium build-up occurring on the electrodes of the cell. Depending on your water balance and type of salt water chlorinator you have, this build-up can range from 1-2 mm in a year to 1 cm in 2-4 weeks (really extremes).

**Two factors**, which affect the amount of calcium builds up are, total running time of your chlorinator and water chemistry. Running time is simple - the longer the machine runs the greater the amount of calcium on the cell. The chemical balance of your pool water on the other hand is a lot more complex and often overlooked as a cause.

It may not be enough to only check chlorine residuals and PH levels. Another factor, which has a large effect on scaling, is Calcium Saturation Index (CSI).

See the following webpage: [www.tdconsulting.com.au/calcium\\_saturation\\_index.php](http://www.tdconsulting.com.au/calcium_saturation_index.php)

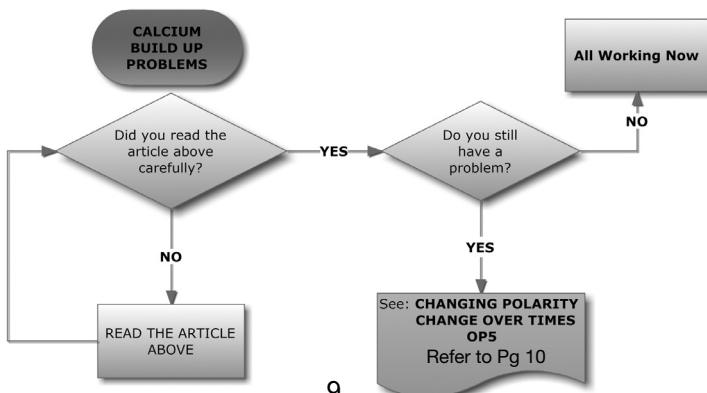
## Actions in case of excessive calcium build-up

1. Clean your cell as described below
2. Take a water sample to an experienced pool technician for a test or do the tests yourself as described in the article about Calcium Saturation Index.
3. If water chemistry is correct or there is nothing that can be done about it - reduce the reversal time. However, care must be taken when reducing the reversing time cycle, as it will reduce the life span of the electrolytic cell. Normally, a reduction in the recycle times should be taken one step at a time. Reduce the setting 1 step and operate the machine for 8-10 weeks to see the result. If this is not sufficient, reduce the setting 1 step further.

## Cell cleaning procedure for cleaning your cell

1. Turn off the chlorinator
2. Disconnect cell cable, and remove cell
3. The dirty cell should be placed in a container with hydrochloric acid. (HCl) solution: 8 to 9 parts water to one part of HCl(30-33%).
4. Calcium deposits will react with the HCl- producing gas
5. When gas production has stopped, it means that the cell is completely cleaned and all the calcium has dissolved (or all the acid is neutralised and you need to repeat previous steps with fresh acid).
6. Rinse in fresh water as soon as possible - leaving cell in HCl solution for longer period will damage cell!
7. When cleaning is complete, dry the connections and reinstall the cell.

**Do not use sharp objects to clean the cell, this may scratch the surface and void your warranty.**



# Fault finding

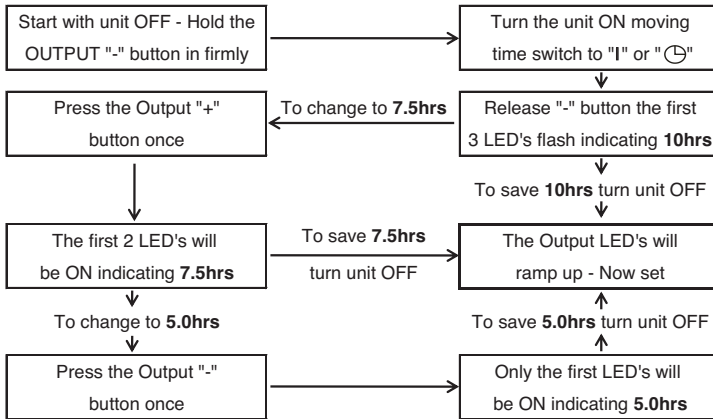
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## Changing Polarity

The polarity will change every 10 hours in normal operation (factory set). This polarity change can be permanently set to 10hrs, 7.5hrs or 5hrs if required. Only lower this time if cell is not cleaning (mainly due to very high calcium levels)

**IMPORTANT: Cell life is reduced with quicker change over times.**

### Permanent Change Over Time



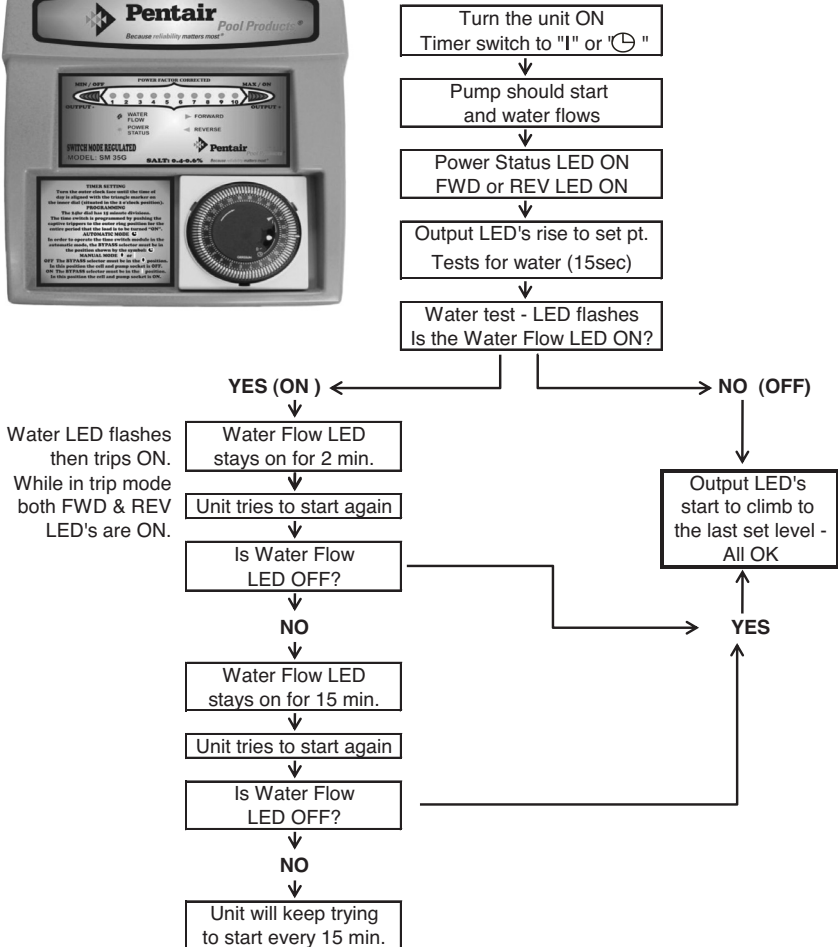
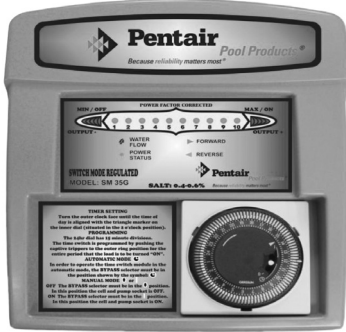
### Note

In order to reset to Normal Mode, turn unit off for 5 seconds and turn back on.

# Fault finding

## Water Flow Detection

The unit uses an Electronic “Smart” Water Detection System



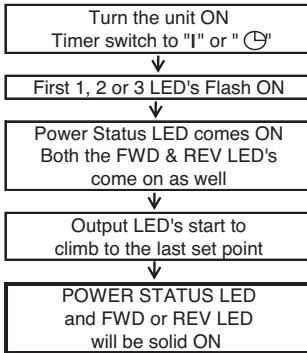
### Notes

1. At any stage while the unit is in “Water Flow Trip” (i.e. Water flow LED is ON) and the OUTPUT “+” or “-” button is pressed then the unit tries to start up again.
2. The output set point will return to it last reading unless you press “+” or “-” again.
3. Pressing “+” or “-” once during ramp up or down then that will be the new set point.

# Fault finding

## Power, Superchlorinate & Boost

### POWER STATUS LED



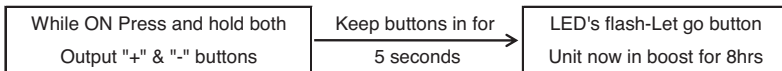
#### NOTE:

In normal operation the LED light is on steady then all is OK, if it flashes then:

1. Output set too low (<30%) needs turning up.
2. Salt level low. Only add salt after poolshop test.
3. Cell is failing and new cell is needed to lift output.

### SUPERCHLORINATE / BOOST MODE

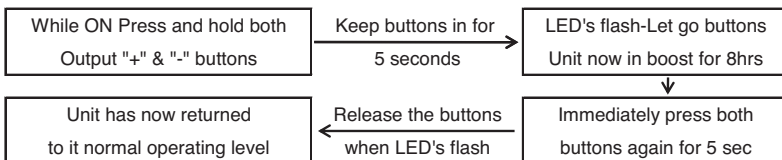
There is a boost facility whereby the output is increased by 25% for either 8hrs or until the timer turns the power off. It's suggested to keep timer on if needed.



**Note:** If this mode is used often then it will reduce the cell life.

### RETURNING TO NORMAL MODE

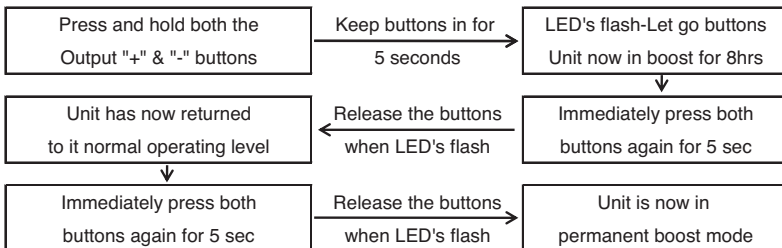
If you want to return to normal output while in boost (i.e. The designed 100% output).



### PERMANENT BOOST MODE

Sometimes a real problem pool might need to be placed in permanent boost mode.

This will mean that the unit is constantly running at 25% higher output.



#### Note

When used in this mode the cell life will be reduced. It might not be noticed.

## Pentair Water Product Warranty

Pentair Water warrants that, when this product is used for the purpose it was designed, is correctly housed and vented against weather, vermin, dust etc., that it will be free of material and manufacturing defects at the time of the original purchase. **This warranty is limited to the cost of the product and does not cover third party costs including the costs of electricians, plumbers, etc. unless authorised by Pentair Water.**

### **TERMS AND CONDITIONS APPLICABLE INTERNATIONALLY**

#### **How long the warranty is effective Internationally**

- 1) This Pentair Water product is warranted for 12 months for all parts from the date of the first consumer purchase. Should any parts fail as a result of such defects within the specified period, the part will be replaced free of charge. (This does not include travel charges, removal and reinstallation charges.)

### **TERMS AND CONDITIONS APPLICABLE IN AUSTRALIA AND NEW ZEALAND**

- 1) YOU SHOULD CAREFULLY READ THE INSTRUCTIONS SUPPLIED PRIOR TO USING THIS PENTAIR WATER PRODUCT.  
**This product is to be installed and operated in accordance with the instructions provided.**  
**This warranty will not apply if it is used in a manner other than in accordance with the instructions.**

#### **What the warranty covers:**

Pentair Water warrants its products to be free of defects in material and workmanship during the warranty period. If a product proves to be defective in material or workmanship during the warranty period, then Pentair Water will, at its sole option repair or replace the product with a like product. Replacement product or parts may include re-manufactured or refurbished parts or components.

#### **How long the warranty is effective:**

- 1) Chlorinators (models sm15, sm25, sm35) will have twenty four (24) months warranty for the power pack and 5 years pro-rata for the cell, in an 8 hr per day domestic installation. In a commercial installation both power pack and cell are twelve (12) months
- 2) Authorised workshop labour will be free of charge for the first 12 month period from date of the first consumer purchase when unit is found to have failed due to defective workmanship or material supplied by Pentair Water Australia.  
Infield service by an authorised Pentair Water Service Agent will incur a travel, removal & reinstallation fee payable by customer.
- 3) Where this Pentair Water product is sold for commercial application as defined in the relevant Trade Practices and Consumer Protection legislation the warranty shall be for a period of 12 months from the date of purchase by the end user.

#### **Who the warranty protects:**

This warranty is valid only for the consumer purchaser.

#### **What the warranty does not cover:**

- 1) Damage, deterioration or malfunction resulting from:
  - a) accident, misuse, negligence, fire, water, lightning, or other acts of nature, unauthorised product modification or failure to follow instructions supplied with the product;
  - b) repair or attempted repair by anyone not authorised by Pentair Water;
  - c) any damage to the product due to shipment;
  - d) removal or installation of the product;
  - e) causes external to the product such as electric power fluctuations or failure;
  - f) use of supplies or parts not meeting Pentair Water specifications;
  - g) normal wear and tear;
  - h) water ingress or exposure to abnormal corrosive conditions or "run dry" conditions;
  - i) any other cause which does not relate to a product defect.

## Pentair Water Product Warranty (Continued)

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- 2) Damage caused to the product as a consequence of use of another manufacturer's product used in conjunction with Pentair Water and affiliate companies.
- 3) Ingress of insects into the unit causing electrical malfunction is not warranted, care should be taken to avoid this occurrence.

### **Spare Parts:**

Spare parts are usually stocked for a reasonable period of time following last production.

Pentair Water does not warrant that spare parts will be made available for the whole of the reasonable period and reserves its right to cease supplying spare parts or providing facilities for repair of spare parts in circumstances which are beyond its control including the requirement to remove spare parts from sale as a consequence of changes in the law or otherwise as it deems fit.

### **How to get service:**

In Australia please contact 1800 664 266 In New Zealand please contact 0800 664 269

Claims under this warranty must give evidence of date of purchase, model and serial number of the product and the claimants name, address and telephone number.

- 1) To obtain warranted service, you will be required to provide to either Pentair Water state office or recommended service agent:-
  - a) the product;
  - b) confirmation in writing specifying the nature of your claim;
  - c) proof providing date of original purchase;
  - d) full contact details including name and address;
  - e) the serial number of the product if any.
- 2) The product is to be forwarded by the customer freight paid to an Authorised Pentair Water service agent.
- 3) Warranty service work will be denied or suspended, on equipment not readily accessible to service personnel, that is products that are behind barriers, tiled or bricked in, installed in roofs or second story external walls including inaccessible power points.
- 4) Any service of any product which is found to be faulty due to abuse, fair wear & tear, misuse or improper installation will be charged to the owner at the service agents current servicing hourly rate.

### **Limitation of implied warranties:**

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION CONTAINED HEREIN INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

### **Exclusion of damages:**

PENTAIR WATER'S LIABILITY IS LIMITED TO THE COST OF REPAIR OR REPLACEMENT OF THE PRODUCT. PENTAIR SHALL NOT BE LIABLE FOR:

- 1) DAMAGE TO OTHER PROPERTY CAUSED BY ANY DEFECTS IN THE PRODUCT, DAMAGES BASED UPON INCONVENIENCE, LOSS OF USE OF THE PRODUCT, LOSS OF TIME, LOSS OF PROFITS, LOSS OF BUSINESS OPPORTUNITY, LOSS OF GOODWILL, INTERFERENCE OF BUSINESS RELATIONSHIPS, OR OTHER COMMERCIAL LOSS, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
- 2) ANY OTHER DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE.
- 3) ANY CLAIM AGAINST THE CUSTOMER BY ANY OTHER PARTY.

### **Effective law:**

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Nothing in this warranty limits or restricts, or is intended to derogate from, any right or remedy which the purchaser or ultimate user of the product may have pursuant to Australian state and/or Australian federal consumer protection legislation, New Zealand Sale of Goods Act, Consumer Guarantees Act, Fair Trading Act or any other relevant and applicable New Zealand legislation or authority and where necessary shall so be read and construed.

**IMPORTANT**

Please attach your sales invoice/docket here as proof of purchase should warranty service be required.

Please do not return Warranty - Retain for your records.

Purchased From .....

Purchase Date..... Serial No..... Model No.....



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Pentair Water reserves the right to change specifications