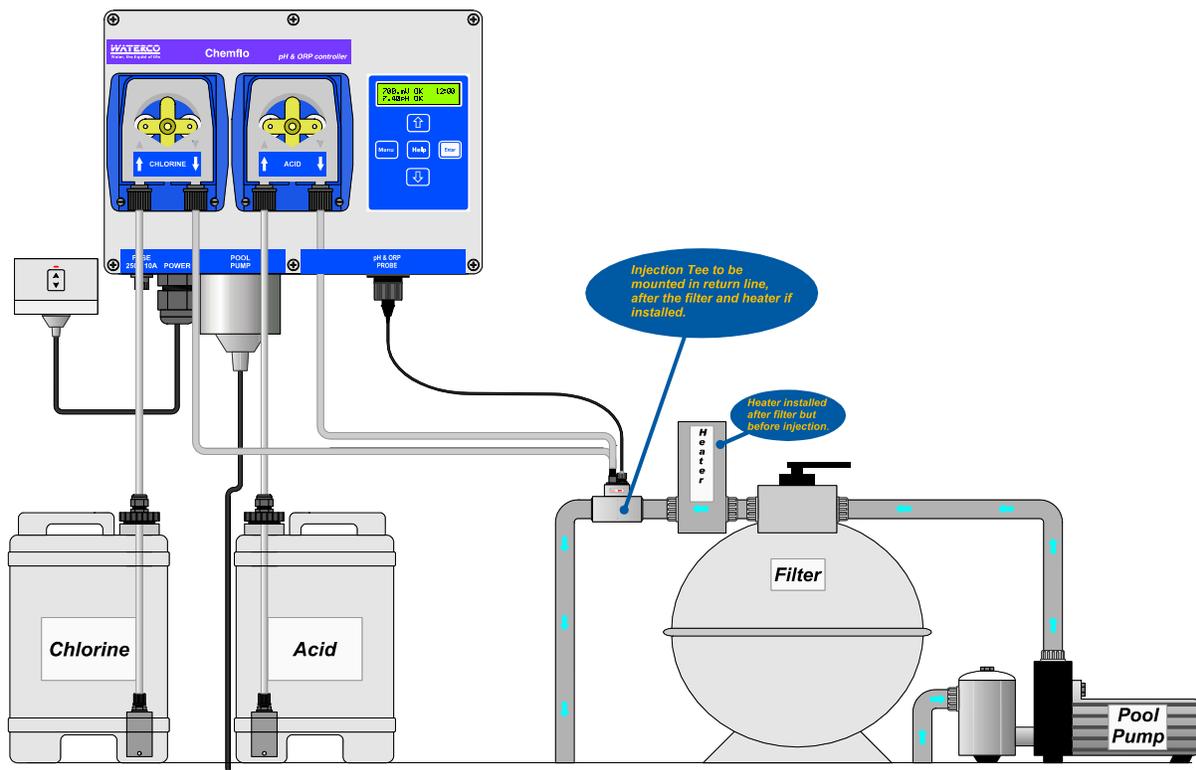


## Chemflo 25850 pH & ORP Pool Controller



**Chlorine & Acid controller with dosing pumps and timer for pool pump**



### Rainbow Pool Products

PO Box 2388, Mansfield Qld 4122

Telephone STD 61-7-3849 5385

Facsimile STD 61-7-3849 5384

Email: [info@rainbowpoolproducts.com.au](mailto:info@rainbowpoolproducts.com.au)

Web: [www.rainbowpoolproducts.com.au](http://www.rainbowpoolproducts.com.au)

**Chemflo 25850 pH & ORP Controller Manual**

Date : 01-Sep-2007

Version : 1.0

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## Section 1. – Introduction

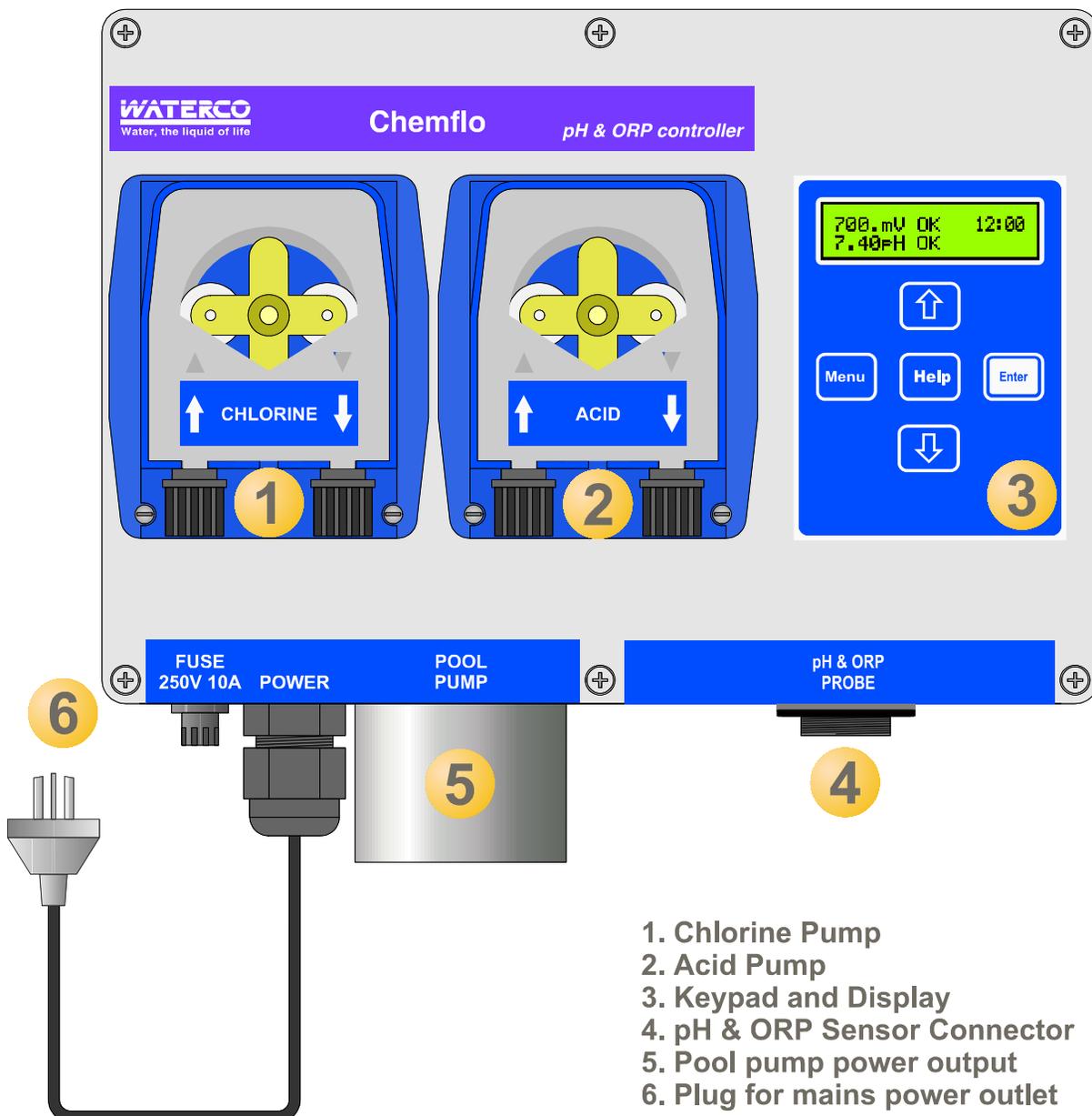
Thank you for purchasing a **Chemflo** controller.

The **Chemflo** is a high quality pH and ORP controller, designed for maximum reliability to give you many years of service.

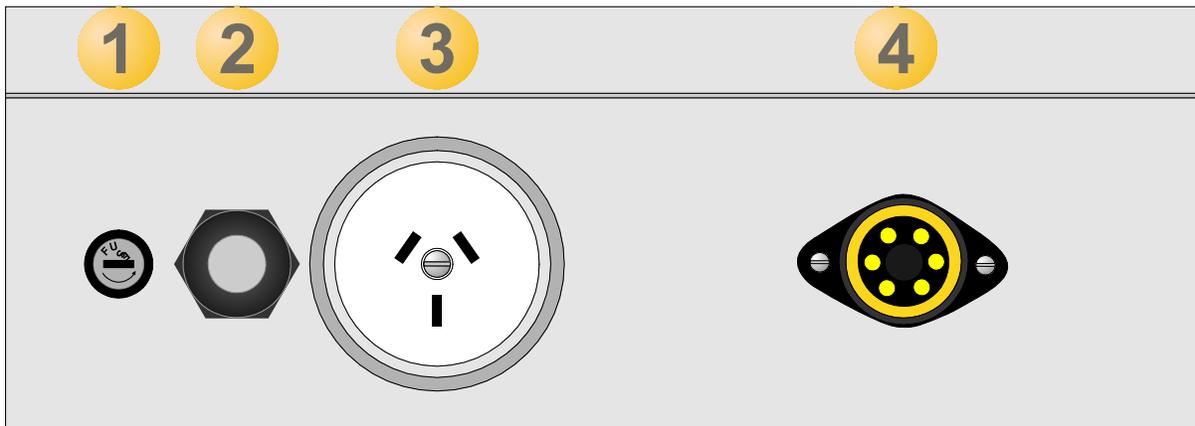
The **Chemflo** is easy to operate. This manual has been designed to help you get started, and also contains some helpful tips. If at any stage you require assistance, please contact your local Dealer.

Please note that the **Chemflo** must be serviced or repaired by authorised personnel only. Opening the unit by unauthorised persons may cause an electrical shock, resulting in serious injury or death. If the power lead becomes damaged, the unit must be returned to your dealer or repaired by an authorised person only.

### 1.1 Chemflo Display and Controls



## 1.2 Chemflo Connectors



1. Fuse for Pool Pump output. 250V, 10A, M205
2. Mains Power input. Connect to 240V, 10A outlet (weatherproof outlet covered by earth leakage detector recommended)
3. Pool Pump Output. 240V, 9.5 A max

4. pH & ORP Sensor Connector

## 1.3 Summary of Keypad Buttons



Press to access the Menu. Also used as an “escape” key to quit menus and data entry screens without saving changes.



Press to scroll up when setting data or making menu selections.



Press to scroll down when setting data or making menu selections.



Press to select and save new data and system settings.

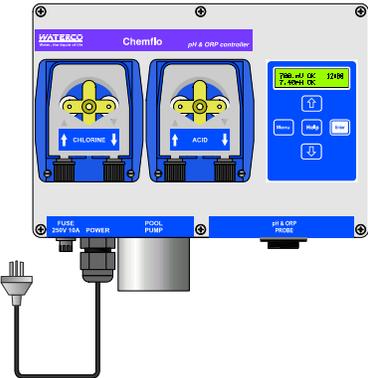
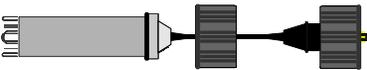
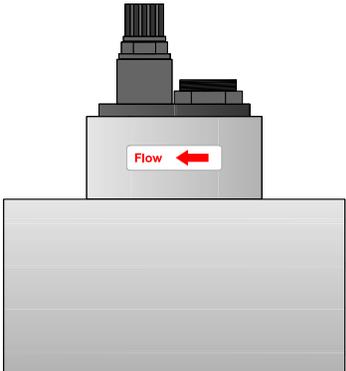
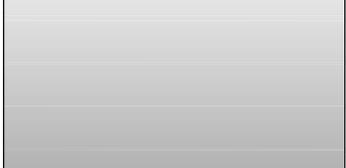
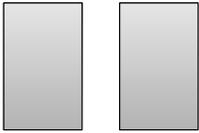


Press this key to display helpful information at any time including a guide to Alarms if any are present.

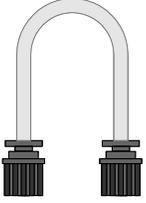
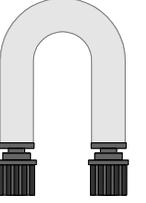
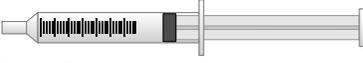
### 1.4 Unpacking Information

Please check that you have received all of the items that should have been included with your new Chemflo.

#### Standard Chemflo Kit...

|   |  |  |
|---|--|--|
|  <p><b>Chemflo pH &amp; ORP Controller.</b><br/>Part No : 25850</p>    |  <p>ph &amp; ORP Probe, 1.8m cable<br/>Part No : 121290</p> |  <p>Drum lid with gland fitting<br/>Part No : 116362</p>  <p>Probe &amp; Injection Tee, 50mm<br/>Part No : 117903</p>  <p>50 to 40mm reduction bushes x 2<br/>Part No : NPRB5040</p> |
|  <p>Peristaltic Pump Input and Output Tube, 4m, Part No : 116360</p> |  <p><b>Chemflo Handbook</b><br/>Part No : 130050</p>      |  |

#### Spare Parts, not included in standard kit...

|  |  |  |
|--|--|--|
|  <p>Pump tube assembly, 1.8 L/Hr<br/>Part No : 116353</p> |  <p>Pump tube assembly, 6.1 L/Hr<br/>Part No : 116352</p> |  <p>Pump Tube Lubricant, 3mL<br/>Part No : 130103</p> |
|--|--|--|

## Section 2. – Installation

The Chemflo is supplied with an installation guide. Installers should refer to this guide.

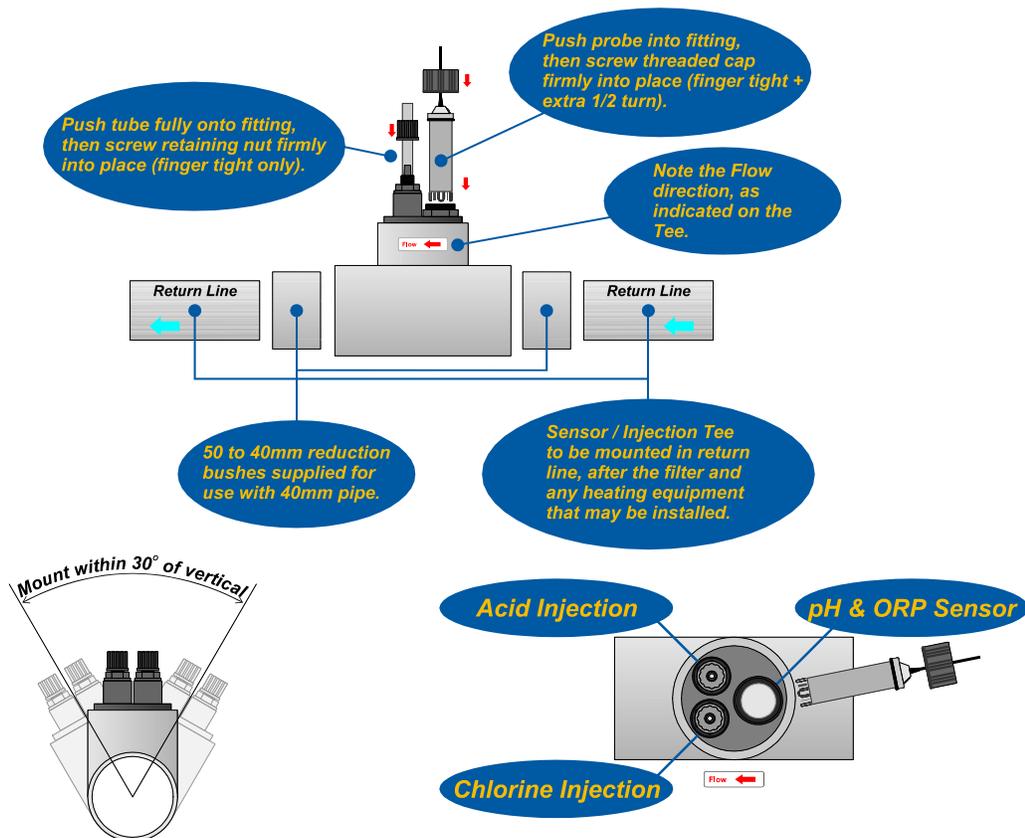
### 2.1 Plan the installation

Ensure that...

1. The Chemflo controller is installed in a sheltered location.
2. The Chemflo controller is close enough to the expected location of the Probe / Injection Tee for the Probe cable and pump output tubing to reach without straining.
3. The maximum suction height from the bottom of the chemical drums to the dosing pumps is 2 metres.
4. The mains power lead from the pool pump reaches the Chemflo without straining.
5. The mains power lead from the Chemflo reaches a mains power outlet. If the controller is mounted in a wet area, a weatherproof power outlet must be used. It is recommended that you use an earth leakage circuit breaker with this power outlet. Please consult a qualified electrician if you are not sure if this is fitted.

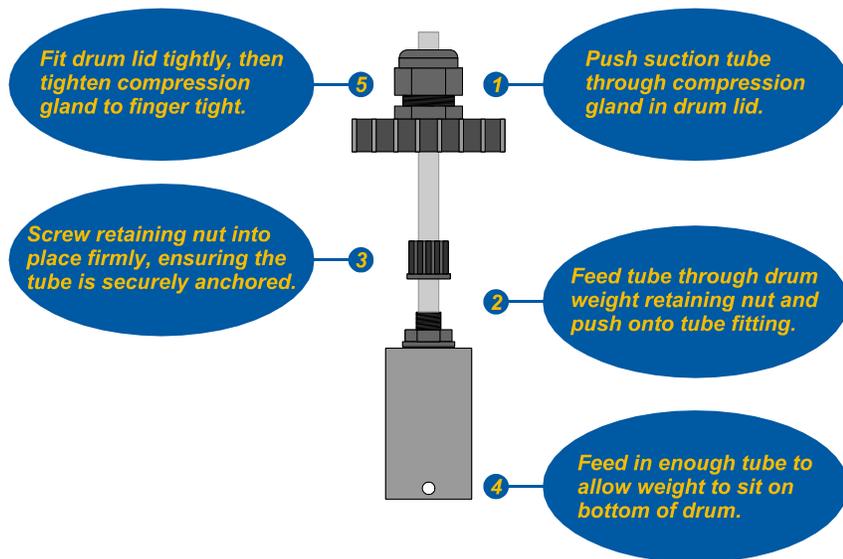
### 2.2 Install the Probe and Injection Tee

Install the Probe and Injection Tee as per the diagrams below. Use a suitable PVC joining compound. The Tee is installed in the return line to the pool, as the pressure is low and the Probe will only be exposed to clean, filtered water.



### 2.3 Fit Tubing into Chemical Drums

Insert the suction tubing through the chemical drum lid supplied and fit the drum weight, as per the diagram below. Be sure to use the correct type of chemical resistant drum. Your pool professional can advise on this. For installations where the lid provided is not compatible with the container, drill a 1/2" or 13mm hole into the lid of the container and fit the compression fitting. Drill a second 2mm diameter vent hole to avoid suction build-up.



#### IMPORTANT INFORMATION REGARDING ACID

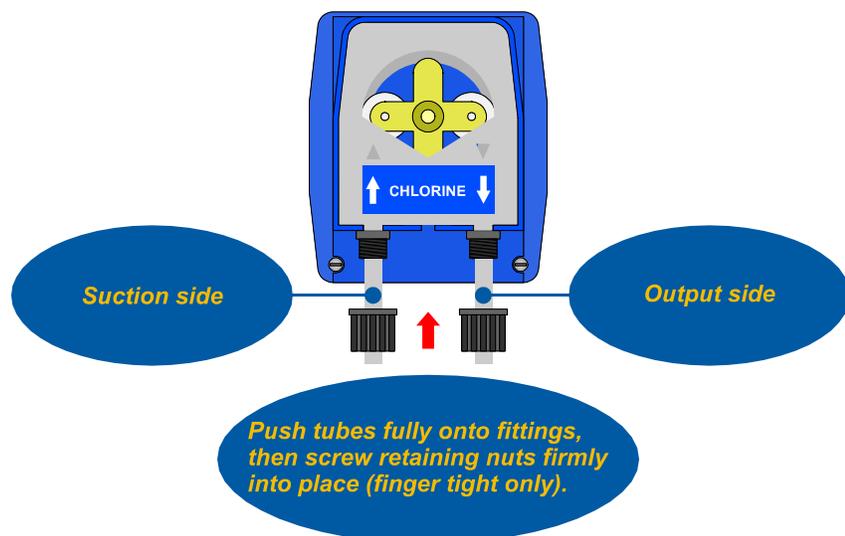
- Always use dilute Hydrochloric Acid.
- Add 5 Litres of Acid to 20 to 25 Litres of water.
- NEVER ADD WATER TO ACID
- Using concentrated acid may damage your equipment and void the warranty

### 2.4 Fit Tubing to Dosing Pumps

Insert the suction tubing from the chemical drum to the left hand side compression fitting of the dosing pump. Screw the retaining nut into place firmly, ensuring the tube is securely anchored.

Repeat for the tubing on the right hand side of the pump.

**Ensure that the Chlorine drum is connected to the Chlorine pump, and the Acid drum is connected to the Acid pump.**

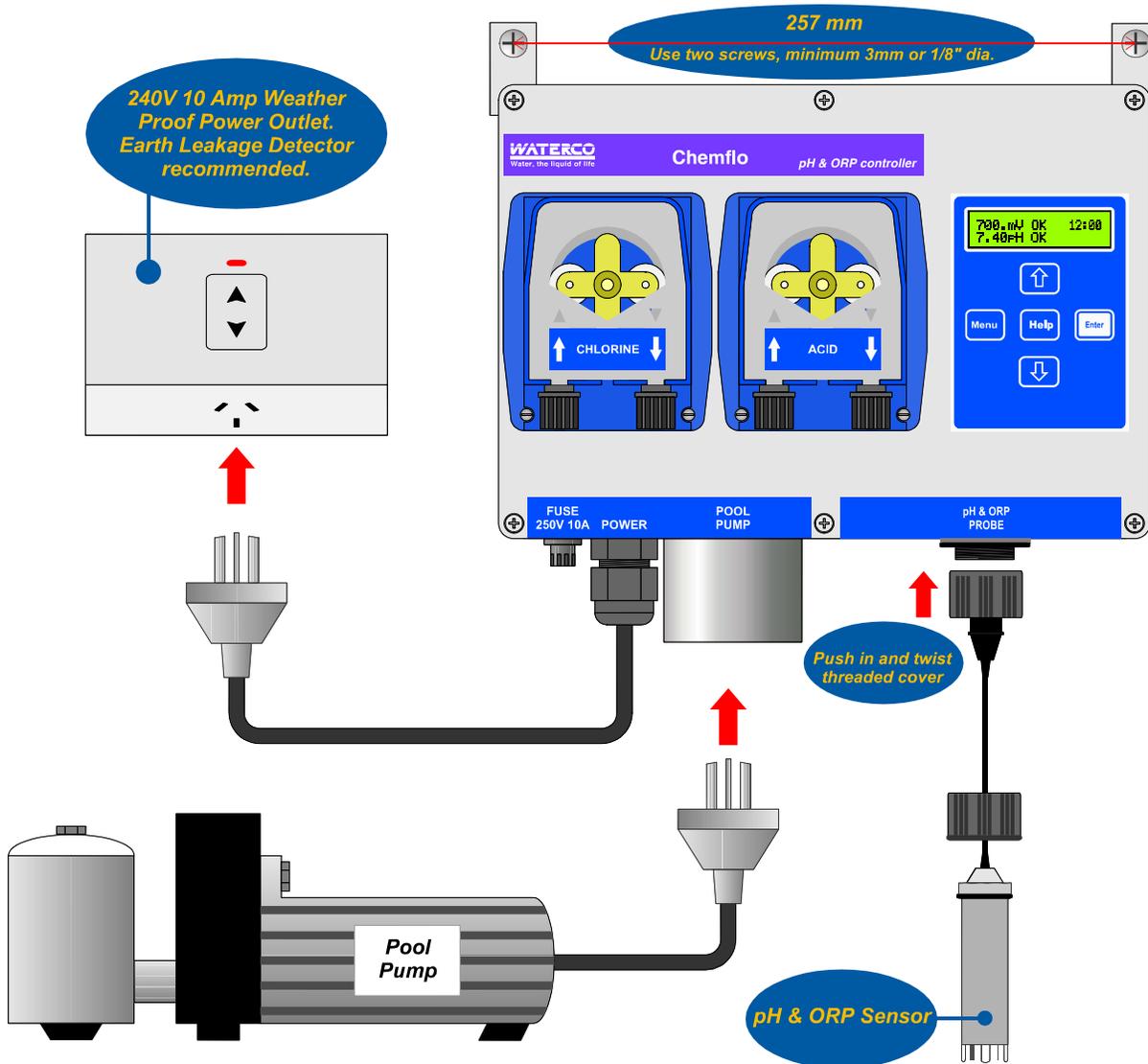


### 2.5 Mount Controller and Make Electrical Connections

Mount the Chemflo controller on a sturdy wall or post using minimum 3mm or 1/8" stainless steel bolts, screws or masonry anchors.

The Chemflo controller MUST be installed in a sheltered location.

Connect the probe and pool pump to the Chemflo. Plug the Chemflo into a suitable power outlet.



## 2.6 Check Pool Size

The **Chemflo** is supplied pre-configured to suit pools of approximately 50,000 litre capacities. If this does not suit your application the **Chemflo** can be re-configured for the following sizes: Spa, 20,000 litres, 50,000 litres and 100,000 litres. To change pool size, please refer to section 9.2 .

The Pool Size set-up adjusts the Control Setup and the Emergency ShutOFF Timer to the ideal values for that pool size. For more details on these topics, see sections 9.3 and 9.6.

## 2.7 Prime the Dosing Pumps

This step is optional, as the peristaltic dosing pumps are self priming and will operate correctly when the **Chemflo** is switched on. The pump priming function has been included for those installers who wish to check the operation of the dosing pumps when installation is complete.

1. Press .
2. Press  until “→**Prime Dosers**” is selected and press .
3. Press  or  to select the Chlorine Pump, Acid Pump, or Both Pumps and press .
4. The **Chemflo** will now run the selected pump(s) for 3 minutes. This is enough time to suck the chemical (or water) through the suction tube, through the pump and feed it through the output tube...



Priming Dosers  
for 3 mins 3:00

Note the countdown timer which is provided on the screen.

Press  to quit pump priming.

5. The **Chemflo** will resume the normal pool pump cycle and dosing at the end of the 3 minutes.

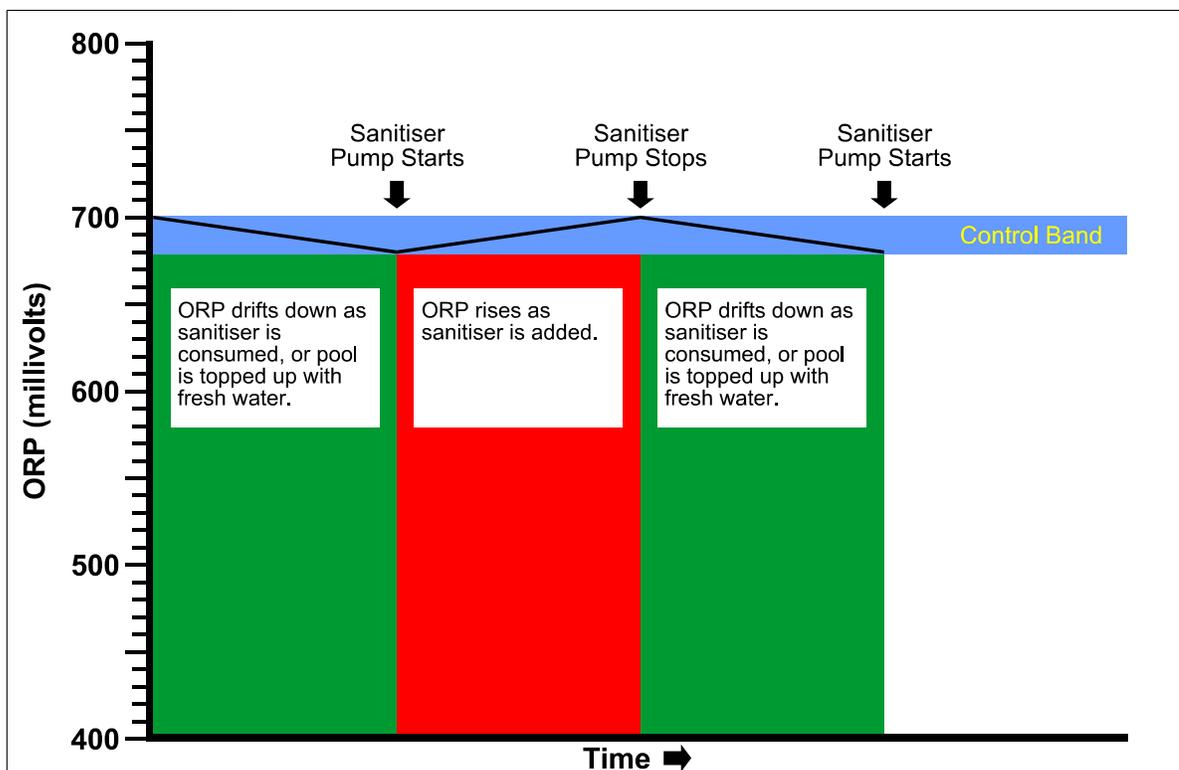
## Section 3. – Operating Instructions

### 3.1 Checking and Setting the ORP Set Point

1. Press .
2. Press  until “→Set Points” is selected and press .
3. “→ORP Set Point” is displayed, press .
4. Use the  and  keys to change the ORP Set Point.
5. Press  to save the new ORP Set Point.
6. To quit without making or saving changes, simply press .

#### Notes

1. The **Chemflo** controls ORP within a 20 mV “control band”. If the Set Point is 700 mV, the Chlorine pump will start when the reading drops to 680 mV and stop again when the reading reaches 700 mV. The control band stops the pump being rapidly switched on and off when the reading is close to the Set Point, thereby increasing the pump’s life.



2. The exact ORP Set Point to achieve the correct Chlorine level will vary depending on other chemical factors such as pH, Alkalinity and Cyanuric Acid (stabiliser) levels.

***It is imperative that the pool water is checked regularly to ensure that all other chemical parameters are correct.***

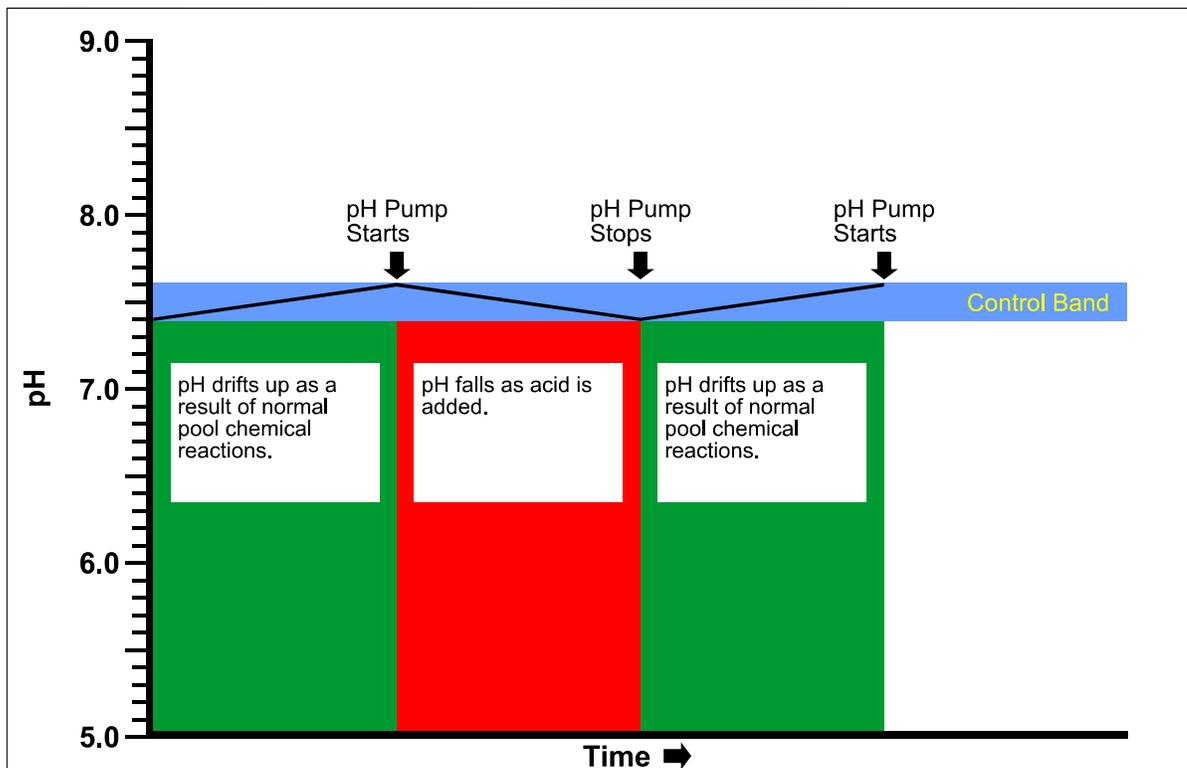
3. When first installing the **Chemflo**, check the Chlorine levels every few days using a Chlorine test kit. Increase the ORP Set Point if the Chlorine level is low and decrease it if the Chlorine level is high. Once the pool has been fine-tuned over a week or two, the controller will accurately maintain the correct Chlorine level.

### 3.2 Checking and Setting the pH Set Point

1. Press .
2. Press  until “→Set Points” is selected and press .
3. Press  until “→pH Set Point” is selected and press .
4. Use the  and  keys to change the pH Set Point.
5. Press  to save the new pH Set Point.
6. To quit without making or saving changes, simply press .

#### Notes

1. The **Chemflo** controls pH within a 0.2 pH control band”. If the Set Point is 7.40 pH, the Acid pump will start when the rises above 7.60 pH and stop again when the reading reaches 7.40 pH. The control band stops the pump being rapidly switched on and off when the reading is close to the Set Point, thereby increasing the pump’s life.



2. The recommended pH range for swimming pools is pH7.40 to pH7.80. This pH range provides the best combination of Chlorine effectiveness and compatibility with human skin and eyes.
3. The pH must be measuring correctly and the pH Set Point must be set correctly in order for the Chlorine control system to work effectively.

### 3.3 Selecting Auto or Standby Modes

#### 3.3.1 Selecting Automatic Mode

1. Press .
2. Press  until “→Dosing Mode” is selected and press .
3. “→Automatic” is displayed, press .

***Auto mode should be selected for normal operation.***

#### 3.3.2 Selecting Standby Mode

1. Press .
2. Press  until “→Dosing Mode” is selected and press .
3. Press  until “→Standby” is selected and press .

In this mode, the unit will measure the pH and ORP levels of the pool, but it will NOT add any chemicals, even if they are required.

***Standby mode should only be used to stop the dosing pumps operating, such as when refilling chemical drums. Long term use of this mode will make your pool unfit for swimming.***

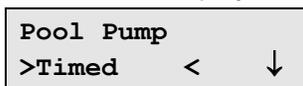
### 3.4 Selecting the Pool Pump Timer Cycle

The **Chemflo** is fitted with a 240V 10A mains power outlet for your pool pump which is controlled by a Pump Timer within the unit. To make its operation as simple as possible, this timer has several automatic pre-sets. A custom program can also be entered, if required, see section 9.3.

#### 3.4.1 To select the default Summer/Winter program

The **Chemflo** is provided with an automatic Summer and Winter timer program for the pool pump. This program reduces the amount of time that the pump operates in Winter, as less filtration is required when the pool is not in use.

1. Press , “→**Pump Timer**” is displayed.
2. Press  to display the Pump Timer menu...



3. Select ‘→**Timed**’ from the menu and press  to select the default Timer program.

#### *The default program operates the Pool Pump as follows...*

Summer : 06:00 to 10:00 and 15:00 to 19:00.

Winter : 06:00 to 10:00 only.

#### *For the Southern Hemisphere...*

The **Chemflo** changes to Winter mode on the 15<sup>th</sup> of May.

The **Chemflo** changes to back to Summer mode on the 15<sup>th</sup> of August.

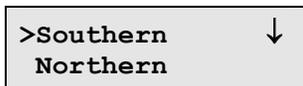
#### *For the Northern Hemisphere...*

The **Chemflo** changes to Winter mode on the 15<sup>th</sup> of November.

The **Chemflo** changes to back to Summer mode on the 15<sup>th</sup> of February.

#### *To change between Southern and Northern Hemisphere...*

1. Press  to access the menu.
2. Press  until ‘→**Summer/Winter**’ is selected and press  ...



3. Press  or  to select ‘**Southern**’ or ‘**Northern**’ as required and press .

*To change Winter Start and Winter End dates...*

1. Press  to access the Menu.
2. Press  until '→**Summer/Winter**' is selected and press  ...
3. Press  until '**Custom**' is selected and press .
4. The **Chemflo** will now prompt you to enter the **Winter Start** date...

```
Winter Start  
15-May ↑↓ Enter
```

Use the  and  keys to set the date and press .

Use the  and  keys to set the month and press .

5. The **Chemflo** will now prompt you to enter the **Winter Finish** date...

```
Winter Finish  
15-Aug ↑↓ Enter
```

Use the  and  keys to set the date and press .

Use the  and  keys to set the month and press .

### 3.5 To Switch the Pool Pump ON manually

The pool pump can be switched ON manually using the **Chemflo** any time.

1. Press , “→**Pump Timer**” is displayed.
2. Press  to display the Pump Timer menu...

```
Pool Pump
>Timed < ↓
```

3. Press  until ‘>**ON** <’ is selected and press . The word ‘**ON**’ is now displayed in the top right of the screen to indicate that the pool pump has been switched ON manually...

```
700.mV OK ON
7.40pH OK
```

#### Notes

1. The pool pump will remain ON until the next time it is due to be switched OFF by the Timer cycle.
2. To stop the pump, press , press , select ‘Timed’ or ‘OFF’ and press .

### 3.6 To Switch the Pool Pump OFF manually

The pool pump can be switched OFF manually using the **Chemflo** any time.

1. Press , “→**Pump Timer**” is displayed.
2. Press  to display the Pump Timer menu...

```
Pool Pump
>Timed < ↓
```

3. Press  until ‘>**OFF** <’ is selected and press . The **Chemflo** will now display the ‘Pump OFF’ message with the current time, and also indicate when the next pump cycle is due.

```
Pump OFF 12:00      Alternates every 2 secs      Next Pump Cycle
                    ↔                               06:00 > 10:00
```

#### Notes

1. The pool pump will remain OFF until the next time it is due to be switched ON by the Timer cycle.
2. To re-start the pump, press , press , select ‘Timed’ or ‘ON’ and press .

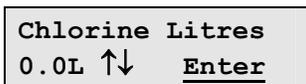
### 3.7 Super-Chlorinating

From time to time, your pool service professional may ask you to super-chlorinate your pool. This is necessary when the level of Chloramines becomes too high. Chloramines are the undesirable compounds that form as a result of Chlorine killing bacteria and algae. Chloramines are the compounds that cause the “Chlorine” smell and itchy eyes and skin. They will form in all pools, including those using salt chlorinators. Super-Chlorinating oxidises these Chloramines back to useful Chlorine.

Super-chlorinating is simply the process of adding a large amount of Chlorine in one dose. Your pool professional will let you know how much Chlorine is required for your size pool. The **Chemflo** does the work for you by adding the amount of Chlorine that is needed. You do not need to handle the Chlorine.

To Super-chlorinate your pool...

1. Press .
2. Press  until “→**SuperChlorine**” is selected and press .
3. The Super-chlorination menu is now displayed, for example...



```
Chlorine Litres
0.0L ↑↓  Enter
```

Press  and  to enter the number of Litres of Chlorine that you wish to add to the pool and press . The maximum dose that can be added is 25 Litres.

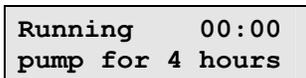
4. The **Chemflo** now proceeds to add the Chlorine. The display shows how much has been added so far and how much will be added in total, for example...



```
Chlorine 0.0L
Enter Stops 0.7L
```

**To stop adding the Chlorine immediately, press .**

5. When the **Chemflo** has finished adding the Chlorine or if the user stopped the dosing prematurely, the **Chemflo** will continue to operate the main pool pump for a further 4 hours. This will ensure that the Chlorine that was added will be thoroughly mixed. No ORP or pH monitoring or chemical addition will occur during the 4 hours.



```
Running 00:00
pump for 4 hours
```

The time on the top right hand side of the display will count up to the 4 hours so that you know how long it has been operating.

Press  to stop the 4 hour pumping cycle immediately. Note that the Chlorine may not have mixed properly if pumping is stopped early.

Normal operation of the **Chemflo** will now resume. It is normal for the pH reading to be quite high due to the large dose of Chlorine that was just added. This will return to normal within a few days, when the Chlorine is back to normal levels. To avoid unnecessary chemical usage, the **Chemflo** will not add any acid until the ORP reading has returned to normal.

### 3.8 Pumping to Waste

From time to time, all pool users need to pump some water to waste. This is normally the case when there has been heavy rainfall. The **Chemflo** will not add any chemicals while the water is being pumped to waste. To pump to waste...

1. Press  to access the Menu.
2. Press  until '→**Pump to Waste**' is selected and press . The following screen is displayed...

```
Set filter to
Waste      Enter
```

The pool pump is now switched OFF. Set the control on your filter to its “Pump to Waste” setting, then press .

3. The pool pump is now pumping pool water to waste. The following screen is displayed...

```
Pumping to Waste
Enter Stops
```

Press  to stop the pool pump.

4. The **Chemflo** now prompts you to return the pool filter to its normal filtration setting...

```
Re-set filter to
Normal      Enter
```

Re-set the filter, then press .

5. The **Chemflo** displays the following message before returning to the normal pump timer cycle and chemical dosing...

```
Resuming Pump
Cycle & Dosing
```

#### Notes

1. The pool pump will remain ON until the user presses  to stop it. Care must be taken to avoid pumping too much pool water to waste.

### 3.9 Backwashing the Pool Filter

Some pool filters need to be backwashed regularly. Consult your pool professional to determine how often this should be done for your pool. The **Chemflo** will not add any chemicals while the water is being pumped to waste. To backwash...

**NOTE** Press  any time during the following procedure to quit and return to normal operation. A prompt will be provided to return the filter to normal filtration before switching the pool pump back on.

1. Press  to access the Menu.
2. Press  until '→Backwash' is selected and press . The following screen is displayed...

```
Set filter to
Backwash  Enter
```

The pool pump is now switched OFF. Set the control on your filter to its "Backwash" setting, then press .

3. The pool pump will now backwash the filter to waste for 60 seconds. A countdown is provided on the screen...

```
Backwashing  60
Filter
```

4. When the countdown is complete, the **Chemflo** prompts you to set the control on your filter to its rinse setting...

```
Set filter to
Rinse  Enter
```

The pool pump is now switched OFF. Set the control on your filter to its "Rinse" setting, then press .

5. The pool pump will now rinse the filter to waste for 15 seconds. A countdown is provided on the screen...

```
Rinsing  15
Filter
```

6. Steps 2 to 5 will be repeated 2 more times, as it has been found that most filters will be cleaner and perform better after 3 backwash and rinse cycles. After the third rinse the **Chemflo** will prompt you to return the pool filter to its normal filtration setting...

```
Re-set filter to
Normal  Enter
```

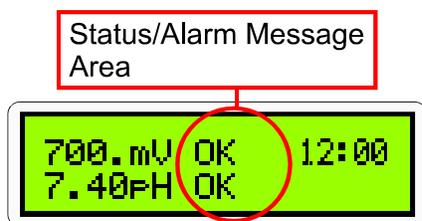
Re-set the filter, then press .

7. The **Chemflo** displays the following message before returning to the normal pump timer cycle and chemical dosing...

```
Resuming Pump
Cycle & Dosing
```

### 3.10 Chemflo Display Messages

The **Chemflo** features a user-friendly text display. As well as showing the pH and ORP readings, it is also used to provide status and alarm messages, as per the following example.



The meanings of the messages are detailed below...

| Status/Alarm Message           | Meaning   |
|--------------------------------|---|
| OK                             | Reading is within Set Point and no chemical dosing is required.   |
| High or Low                    | Reading is outside Set Point and chemical is being added.   |
| Stby                           | Unit is in Standby mode. No dosing of chemicals will occur. See section 3.3.  |
| sOFF                           | Emergency ShutOFF timer has been tripped. See section 6.2.  |
| OFF + OVR for reading          | Dosing Pump is off-line, due to the reading being Over-Range.   |
| Alarm                          | Reading is outside the Alarm margin. See section 6.4  |
| Pump                           | Dosing Pump High Current Error. See section 4.3   |
| Waiting for Pump Re-Start Time | Whenever the pool pump is switched off by the <b>Chemflo</b> , the unit will wait a minimum of 10 seconds before switching it back on. If any function is used less than 10 seconds after the pool pump was last switched off, this message is displayed. |

## Section 4. – Peristaltic Dosing Pumps

### 4.1 Lubricating the Pump Tubing

The **Chemflo** is shipped with silicone lubrication on the peristaltic pump tubing. If this lubrication needs to be re-applied, suitable Silicon lubricant is available from your dealer in a 3mL syringe (part no 130103).

To lubricate the pump tubing...

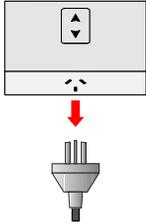
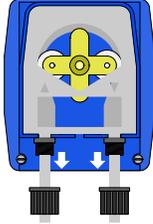
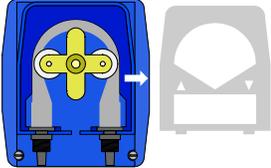
1. Remove the pump tubing, as per the details in section 4.2, below.
2. Smear a small quantity of Silicon grease all around the tube. A thin film is all that is required.

**DO NOT** use petroleum based oil or lubricants, as these will cause the Santoprene rubber to perish. Use only Silicon based lubricant.

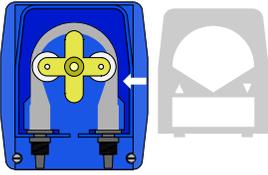
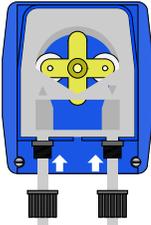
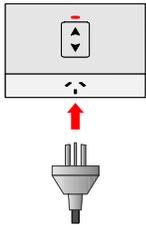
### 4.2 Replacing the Pump Tubing

Replace the Pump Tubing if it gets worn, begins to leak, or pumping volume is reduced. The Pump Tubing is available from your dealer: part No. 116353 for the Small Tube or part No. 116352 for the Large Tube.

**To remove the old Pump Tube...**

|  |   |  |  |
|--|---|--|--|
| <p style="text-align: center;"><b>1</b></p> <p style="text-align: center;"><b><u>IMPORTANT</u></b></p> <p>Place the pump suction tubing into a bucket of fresh water. Use the pump priming function (section 2.7) to prime the pump(s) with water. This ensures that there are no dangerous chemicals in the tubes when they are disconnected.</p> | <p style="text-align: center;"><b>2</b></p>  <p>Switch off the power and disconnect the power cord from the mains power outlet.</p>   | <p style="text-align: center;"><b>3</b></p>  <p>Remove the Input and Output tubing from the compression fittings. This is simply a reversal of the procedure detailed in section 2.4.</p> | <p style="text-align: center;"><b>4</b></p>  <p>Remove the see-through cover on the front of the pump.</p> |
| <p style="text-align: center;"><b>5</b></p>   | <p>Turn the roller holder so that the rollers are in a horizontal line. Pull the left hand side compression fitting from its seat. Begin turning the roller holder clockwise, so that the roller holder acts as a lever which pulls the pump tube out as it turns. After approximately 3/4 of a turn, the right hand side compression fitting can be pulled out.</p> <p>The old pump tube has now been removed.</p> |  |  |

**To fit a new Pump Tube...**

|   |  |  |   |
|---|--|--|---|
| <p style="text-align: center;"><b>1</b></p>  <p>Turn the roller holder so that the rollers are in a horizontal line. Push the left hand side compression fitting into its seat, round side facing in. Begin turning the roller holder clockwise, so that the roller holder acts as a lever which pulls the pump tube in as it turns. After approximately 3/4 of a turn, the right hand side compression fitting can be pushed in, round facing in.</p> <p>The new pump tube has now been fitted.</p> | <p style="text-align: center;"><b>2</b></p>  <p>Replace the see-through cover on the front of the pump. This is essential to protect the rollers and tube from dirt and moisture.</p> | <p style="text-align: center;"><b>3</b></p>  <p>Re-fit the Input and Output tubing to the compression fittings. See the procedure detailed in section 2.4.</p> | <p style="text-align: center;"><b>4</b></p>  <p>The power to the <b>Chemflo</b> can now be re-connected and switched on.</p> |
|---|--|--|---|

**4.3 Dosing Pump Error Message**

The **Chemflo** monitors the dosing pump current usage and will detect problems with the pump before damage can occur. If excess current is detected the unit will beep and display **Pump** in the status window for pH or ORP. No further dosing of the chemical will occur and steps should be taken to eliminate the fault.

Turn the unit OFF and check the pump tubing for kinks and ensure that the output tube is not obstructed. A worn / faulty gearbox and motor can cause high current usage and will require replacement.

The error message will be reset by turning the unit off or by pressing the Menu key. The fault will re-occur the next time dosing is required if the cause has not been eliminated.

## Section 5. – Probe Calibration

Your **Chemflo** is supplied pre-calibrated. However the calibration of the pH probe should be checked periodically.

### 5.1 pH Calibration

#### 5.1.1 pH Calibration Procedure

1. Press .
2. Press  until “→**Dosing Mode**” is selected and press .

The pH Calibration screen is now displayed. For example...

|        |              |
|--------|--------------|
| 7.19pH | Read&Set     |
| 7.19pH | <u>Enter</u> |

3. Obtain a value of the pool water pH using a pool test kit or have the water tested.
4. Press  or  to input the pH value.
5. Press  when the pH reading on the top line becomes stable.

#### 5.1.2 pH Calibration Notes

1. The **Chemflo** pH probe has an allowable Asymmetry range of –1.00 to +1.00 pH. If calibration fails due to the Asymmetry being outside these limits, please consult the Troubleshooting guide (section 7.4) for possible remedies.
2. All calibration information is retained in memory when the **Chemflo** is switched off, even when the power supply is removed.

#### 5.1.3 pH Calibration Messages

1. If a calibration has been successfully performed, the **Chemflo** will display the following message and the asymmetry of the probe. For example...

|              |
|--------------|
| Calibrate OK |
| Asym=0.10pH  |

2. If a calibration has failed, the **Chemflo** will display the following message and the failed asymmetry value of the probe. For example...

|                  |
|------------------|
| Calibrate Failed |
| Asym=1.10pH      |

## Section 6. – Chemflo Settings

### 6.1 Setting the Clock

1. Select the Clock setting menu (Press , then select '→Set Clock').
2. The Clock setting screen is now displayed, with the current date and time. The cursor is on the day of the month. For example...

|                |
|----------------|
| 31/12/01 12:00 |
| ↑↓:Set →:Enter |

Use the  and  keys to set the day of the month.

Press the  key to move to the month, then use the  and  keys to set the month.

Press the  key to move to the year, then use the  and  keys to set the year.

Press the  key to move to the hours, then use the  and  keys to set the hours.

Press the  key to move to the minutes, then use the  and  keys to set the minutes.

3. Press  to save the new date and time or Press  to quit.

#### **Notes**

1. The **Chemflo** tests that a valid day of the month is entered. If an invalid date is entered (eg. 31/09/01), the **Chemflo** beeps and displays the message 'Invalid Date'. The meter then returns to the clock setting screen so that the correct date can be entered.
2. The **Chemflo** also tests for leap years.

## 6.2 Emergency ShutOFF timer

The emergency ShutOFF timer shuts the pH and/or ORP pumps down if they have operated continuously for a preset time without the pH and/or ORP values coming back to within the limits. For example, this condition could occur if the chemical drum is empty, the probe is faulty and giving an incorrect reading, or if added chemicals were not within detection of the probe. The ShutOFF feature provides a safeguard against dosing entire Chlorine and/or Acid drums to the pool.

The Pool Size set-up adjusts the Emergency ShutOFF Timer to the ideal values for that pool size. For more details or to change the ShutOFF Times, see section 9.6.

### 6.2.1 Procedure in event of ShutOFF timer being tripped

When the ShutOFF timer has been tripped, the word 'sOFF' is displayed as the status for the relevant reading and the **Chemflo** beeps.

To re-set the ShutOFF timer, press the  key.

**No further automatic control will occur for that reading until the  key is pressed.**

The condition that caused the ShutOFF timer to trip must be rectified to avoid it being tripped again. This may involve one or more of the following...

- Re-fill the Chlorine or Acid drum if they were empty.
- Check that the pH / ORP reading is correct. Use a test kit or have the water tested.
- Consider selecting a larger pool size to allow longer ON time for the Dosing pumps.

### 6.3 Control Setup

#### 6.3.1 Control ON and OFF Times

The Control ON and OFF times are set when the Pool Size is entered. (section 2.6).

For more details or to change the Control settings, see section 9.3.

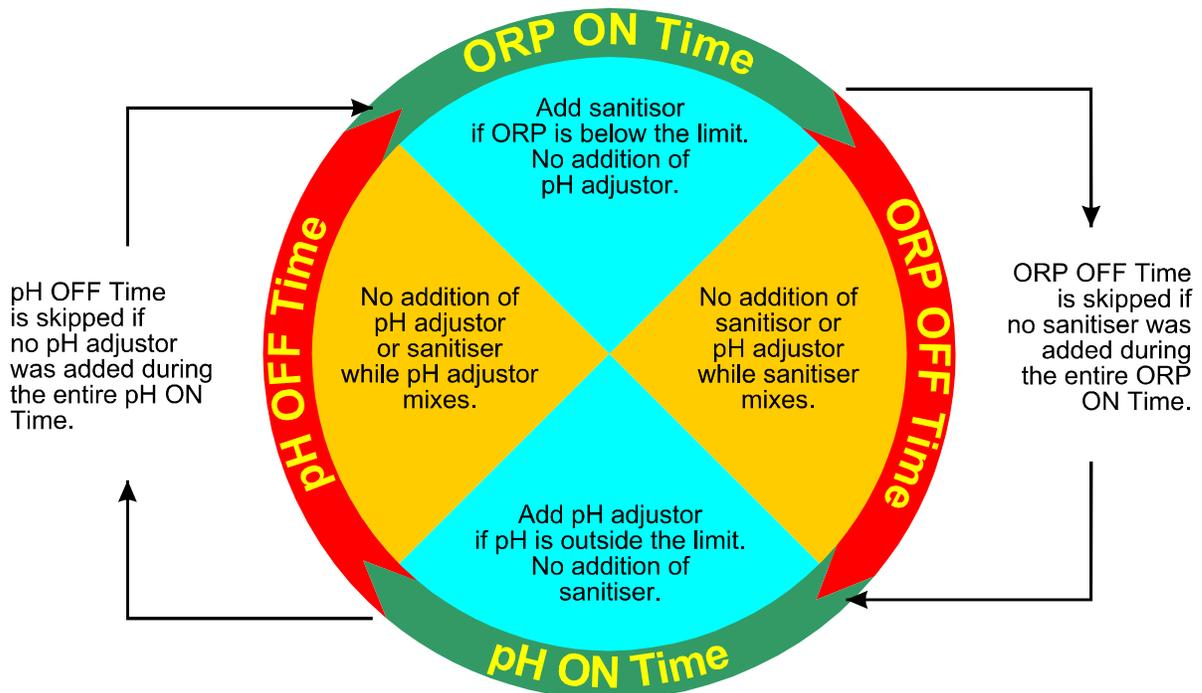
The ON time is the maximum amount of time the pump will operate continuously. For example, if the ORP ON time is set to 6 minutes, the ORP pump will add Chlorine for a maximum of 6 minutes and then wait for the OFF time. Of course, if the ORP gets back within the limit earlier, the pump will stop before the end of the 6 minutes.

The OFF time is the waiting time between ON cycles. Even if the ORP or pH go outside their normal limits during the OFF time, the **Chemflo** will not activate the relevant pump until the entire OFF time has elapsed.

The ON and OFF cycles for ORP and pH run sequentially. This allows time for mixing for each of the chemicals, and avoids the problem of the Chlorine affecting the pH reading or the Acid affecting the ORP reading. If no chemical has been added for the entire ON Time for either reading, the **Chemflo** skips the following OFF Time and goes straight to the ON Time for the other reading. This is because mixing time is not required when no chemical has been added. The diagram below illustrates the ORP and pH control cycle.

For example, if the ON times are both set to 5 minutes and the OFF times are set to 10 minutes., the unit will dose for a maximum of 5 minutes, then wait for 10 minutes. These ON and OFF times cycle repetitively. At all times, the ORP and pH pumps will only operate when the readings are outside the limits.

The ON and OFF cycles will avoid overdosing problems.



## 6.4 Alarms

The **Chemflo** has an alarm function for the ORP and pH readings. The alarm trips if the ORP reading is above or below the Set Point by at least 30 mV. It also trips if the pH reading is above or below the Set Point by at least 0.3 pH. This alarm is useful, as it can provide forewarning of a potential system problem.

The **Chemflo** continues to operate as normal while the Alarm is displayed, as it will continue to try to rectify the condition.

### 6.4.1 Procedure in event of Alarm function being tripped

When the alarm function has been tripped, the message “**Alarm**” flashes next to the ORP and/or pH reading (whichever has tripped the alarm).

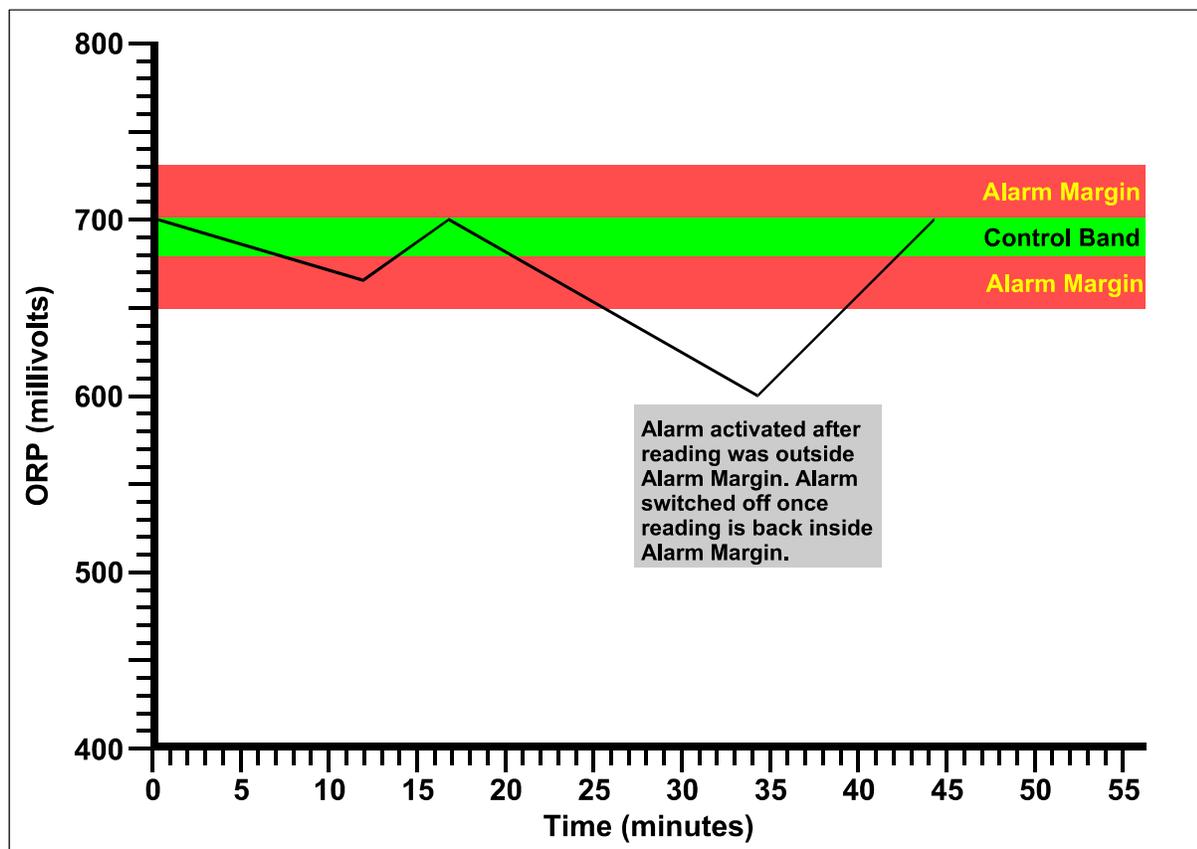
**Automatic control will continue even while the alarm is activated, as the Chemflo will attempt to correct the alarm condition.**

The condition that caused the alarm function to trip must be rectified to avoid it being tripped again. This may involve one or more of the following...

- Check that the pH / ORP reading is correct. Use a test kit or have the water tested.
- Consider selecting a different pool size to allow long dosing times.
- The pH and/or ORP levels in the pool may have changed too rapidly for the dosing pumps to keep up. If this was due to a singular event (eg. top up pool with fresh water), then the alarm may be ignored. If this was due to normal operation and none of the above suggestions have worked, contact your dealer.

### 6.4.2 Alarm Set-up Examples

The following diagram illustrates the ORP alarm function of the **Chemflo**. The Set Point is 700 mV.

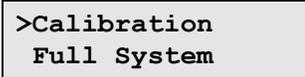


## 6.5 Resetting the Chemflo

The **Chemflo** settings and / or probe calibration can be reset to factory defaults if required. All user settings and / or probe calibration will be erased and restored to factory defaults, so any custom settings will need to be input again and the probe calibrated.

To reset the **Chemflo**...

1. Press .
2. Press  until “→**Reset**” is selected and press .
3. The Reset menu is now displayed, for example...



```
>Calibration
Full System
```

Select “**Calibration**” and press  to reset only the calibration information to factory values.

**It will be necessary to re-calibrate the pH probe after this is done.**

Select “**Full System**” and press  to reset all calibration, and system settings to factory values. It will be necessary to re-calibrate the pH probe and re-enter your pool size and any other custom settings after this is done.

## Section 7. – Troubleshooting

### 7.1 General Error Messages from the Chemflo

| Error Message                            | Possible Causes  | Remedy   |
|--|--|--|
| <b>Fact Cal Failure maybe Inaccurate</b> | The EEPROM chip which contains the factory calibration information has failed. | The unit must be returned for service.<br>Contact your dealer.                                 |
| <b>EEPROM Failure Factory repair</b>     | User calibration settings have been lost or corrupted.                         | Switch the meter OFF and switch back ON. If the problem persists, return the unit for service. |

### 7.2 General Faults

| Symptom  | Possible Causes   | Remedy  |
|--|---|---|
| <b>Main Pool Pump does not operate when Chemflo activates output</b> | <ol style="list-style-type: none"> <li>1. Pool pump power lead not correctly connected to <b>POOL PUMP</b> socket.</li> <li>2. Output Fuse is blown.</li> </ol> | <p>Ensure that the Pool Pump's power plug is firmly connected to the <b>POOL PUMP</b> output socket.</p> <p>Replace output fuse, as per details in section 7.6. If fuses continue to blow, your Pool Pump may be drawing too much power, or it may be faulty.</p> |
| <b>Not Dosing. "Pump" Error message displayed.</b>                   | Excess Dosing pump current detected.  | Press Menu to reset error. If error re-occurs dosing pump will require service.   |

### 7.3 ORP Troubleshooting

| Symptom   | Possible Causes  | Remedy  |
|---|--|---|
| ORP reading inaccurate                              | <ol style="list-style-type: none"> <li>1. Platinum tip of ORP probe dirty.</li> <li>2. Reference junction of probe dirty.</li> </ol> | <p>Clean Platinum tip of ORP probe using a low abrasion crème cleanser and cotton swab.</p> <p>If problem persists, adjust the set point to compensate for variation in reading.</p> <p>Dip the probe into a 1:10 mix of Hydrochloric acid for 20 seconds.</p> <p>If problem persists, adjust the set point to compensate for variation in reading.</p>   |
| ORP reading seems low compared to Chlorine test kit | Pool water is out of balance   | <p>Have sample of pool water tested by a pool professional to check its chemical balance. Check at least the following...</p> <ul style="list-style-type: none"> <li>• Cyanuric Acid (sunscreen)</li> <li>• Alkalinity</li> <li>• pH (your <b>Chemflo</b>) tests this).</li> <li>• Free and Combined Chlorine levels.</li> </ul> <p>Once the above have been rectified, it may be necessary to Super-chlorinate your pool to oxidise undesirable Chloramine compounds. Your pool professional can advise on this. See section <b>Error! Reference source not found.</b> for details on using the <b>Chemflo</b> for super-chlorinating your pool.</p> |

## 7.4 pH Troubleshooting

| Symptom   | Possible Causes  | Remedy   |
|---|--|--|
| Unit fails to calibrate, even with new probe.                     | Calibration settings outside of allowable limits due to previous failed calibration.   | Reset the unit. See section 6.5.   |
| 1 Point calibration fails (Asymmetry is greater than +/-1.00 pH). | Reference junction blocked.  | Clean reference junction as per instructions supplied with the probe.  |
| Unstable readings.  | <ol style="list-style-type: none"> <li>Reference junction blocked.</li> <li>Glass bulb not clean.</li> <li>Bubble in glass bulb.</li> <li>Faulty connection to meter.</li> </ol> | Clean reference junction as per instructions supplied with the probe.<br>Clean glass bulb using the cleaning stick supplied with the probe.<br>Flick the probe to release bubble.<br>Check connectors. Replace if necessary. |
| Inaccurate readings, even when calibration is successful.         | Reference junction blocked.  | Clean reference junction as per instructions supplied with the probe.  |
| Displays 7.00 for all solutions.                                  | Electrical short in connector.   | <ol style="list-style-type: none"> <li>Check connector. Replace if necessary.</li> <li>Replace probe.</li> </ol>   |
| Displays 4.00 - 5.00 pH for all solutions.                        | Glass bulb or internal stem cracked.   | Replace probe.   |

## 7.5 Instrument firmware version number

If you need to phone or fax your dealer for any further technical assistance, the firmware version number and serial number of your **Chemflo** may help them to assist you. The version and serial numbers are displayed by the **Chemflo** at turn-on. The firmware version is “V1.0” and the serial number is “**S1234**” in the example below...

```
Chemflo 25850
V1.0 S1234
```

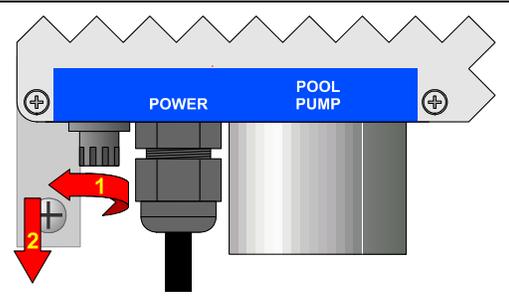
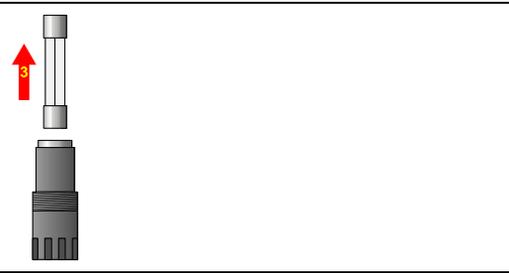
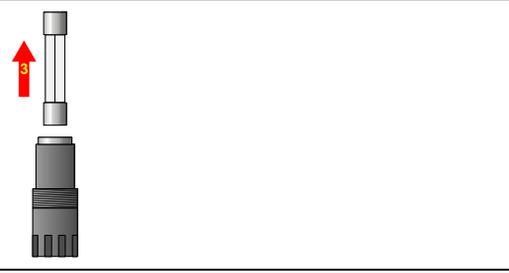
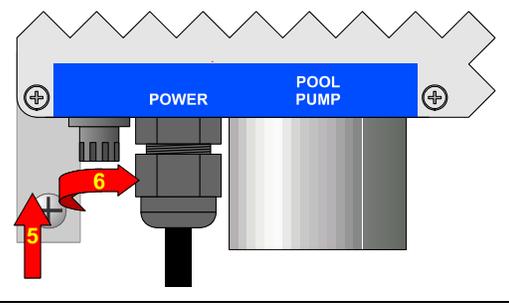
## 7.6 Output Fuse Replacement

The **Chemflo** has a 10 Amp fuse to protect the instrument from excessive power consumption by the main Pool Pump. This can occur due to any of the following reasons...

- The Pool Pump has a power rating higher than 10 Amps.
- The Pool Pump has a larger than normal start-up current, which exceeds 10 Amps long enough for the fuse to blow.
- The Pool Pump is faulty.

Other factors can also cause the fuse to blow, but these are the most common.

To replace the fuse...

|   |  |
|---|--|
| <p>1. Switch off the <b>Chemflo</b> at the mains power outlet and unplug the power lead.</p> <p>2. Locate the fuse holder on the left hand underneath side of the unit. Un-screw it anti-clockwise until it can be removed.</p> |    |
| <p>3. Fully remove the glass fuse from the fuse holder.</p>   |   |
| <p>4. Replace the fuse with a 3AG type 250V 10A fuse. This should be the standard “fast blow” type.<br/>A “slow blow” type fuse may be used if the unit blows fuses consistently when the pool pump starts.</p>                 |  |
| <p>5. Insert the fuse holder into the <b>Chemflo</b>. Push it into place then screw clockwise until it is firmly fastened in place.<br/><b>DO NOT OVERTIGHTEN.</b></p>  |  |
| <p>6. The <b>Chemflo</b> can now be connected to the mains power outlet and switched on.</p>  |  |
| <p>7. If fuses continue to blow, the problem causing this situation must be rectified. Please consult the pool pump supplier or your dealer.</p>  |  |

**Section 8. – Chemflo Specifications**

|            | <b>Range</b>    | <b>Resolution</b> | <b>Accuracy</b> |
|------------|-----------------|-------------------|-----------------|
| <b>ORP</b> | 500 to 999 mV   | 1 mV              | ±1 mV           |
| <b>pH</b>  | 5.00 to 9.00 pH | 0.01 pH           | ±0.02 pH        |

**Calibration**

pH Asymmetry Range : -1.00 to +1.00 pH

**Calendar Clock**

- 24 Hour Calendar Clock.
- Tests for valid day of the month when setting (eg. 31/09/99 is not valid).
- Adjusts for leap years.

**Peristaltic Pumps**

- The **Chemflo** has 2 x built-in Peristaltic Pumps for ORP and pH control.
- Chemical resistant Santoprene pump tube.
- Standard small pump tube produces 1.8 Litres / Hour  
Large pump tube produces 6.1 Litres / Hour (High demand pools only).

## Section 9. – Custom Settings Menu

The Custom Settings Menu provides access to settings which may need adjustment to suit non-standard installations. Care must be taken when altering these settings as poor or incorrect pool control may occur.

An alternative pH Calibration method using a 7.00 pH Buffer is also available in the Custom Settings Menu.

### 9.1 Accessing the Custom Settings Menu

1. Plug the **Chemflo** mains lead into the mains power outlet.
2. Switch the power ON while pressing the  key.
3. The Custom Settings Menu will now be displayed.
4. The **Chemflo** will remain in the Custom Settings Menu until the  is pressed.

### 9.2 Select Pool Size

1. Access the Custom Settings Menu. See section 9.1
2. Press  until “→**Pool Size**” is selected and press .
3. Press  or  until the desired pool size is selected and press . If in doubt, select a size that is larger than the pool.

The Pool Size set-up adjusts the Emergency ShutOFF Timer and Control Setup to the ideal values for that pool size. For more details on these topics, see sections 9.3 and 9.6.

### 9.3 Pool Pump Timer Cycle

#### 9.3.1 To select a pre-set Timer program

Those users who do not wish to use the default Summer/Winter Timer program can select the Summer **or** Winter program to operate all year round...

1. Access the Custom Settings Menu. See section 9.1
2. Press  until “→**Set Timer**” is selected and press .



3. Press  until the desired choice is selected and press .

'**Auto**' is the default program, and operates the pool pump as per the details in section 3.4.1.

The '**Summer**' program operates the pool pump from 06:00 to 10:00 and from 15:00 to 19:00 every day. This cycle operates all year round if selected.

The '**Winter**' program operates the pool pump from 06:00 to 10:00 every day. This cycle operates all year round if selected.

The '**Custom**' program is covered in section 9.3.3.

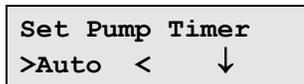
To operate the pump 24 hours per day, select '**Continuous**'. This is covered in the next section.

### 9.3.2 To select the Continuous program

The Continuous program is available for installations where the pool pump will be operating 24 hours per day, or some other external timer device is used to control the pool pump. When an external timer device is being used to control the pool pump, ensure that the **Chemflo** is also controlled by the same device. This will ensure that Chlorine and/or Acid is only dosed when the pool pump is actually running.

To select the Continuous program...

1. Press  to access the menu.
2. Press  until “→Set Timer” is selected and press .



3. Press  until '>Continuous<' is selected and press .

The **Chemflo** will now provide mains power to the **POOL PUMP** output socket continuously when the **Chemflo** is switched on.

### 9.3.3 Setting a Custom Timer program

Those users who do not wish to use any of the pre-set programs can enter their own custom Timer program. Two ON and OFF cycles per day can be entered. These are labelled 'AM' and 'PM', although any time of day can be entered for either. The custom program will operate all year round.

1. Press  to access the menu.
2. Press  until "→Set Timer" is selected and press .

```
Set Pump Timer
>Auto < ↓
```

3. Press  until '>Custom<' is selected and press .

The AM ON screen is now displayed...

```
AM ON : 06:00
↑↓:Set >:Enter
```

Press  or  to set the hours for when the pool pump will turn ON and press .

Press  or  to set the minutes for when the pool pump will turn ON and press .

4. The AM OFF screen is now displayed...

```
AM OFF : 10:00
↑↓:Set >:Enter
```

Press  or  to set the hours for when the pool pump will turn OFF and press .

Press  or  to set the minutes for when the pool pump will turn OFF and press .

5. The PM ON screen is now displayed...

```
PM ON : 15:00
↑↓:Set >:Enter
```

Press  or  to set the hours for when the pool pump will turn ON and press .

Press  or  to set the minutes for when the pool pump will turn ON and press .

6. The PM OFF screen is now displayed...

```
PM OFF : 19:00
↑↓:Set >:Enter
```

Press  or  to set the hours for when the pool pump will turn OFF and press .

Press  or  to set the minutes for when the pool pump will turn OFF and press .

7. The Custom Timer program has now been set and will operate your pool pump accordingly.

#### Notes

1. Enter 00:00 for the AM **or** PM ON and OFF times to avoid the pump operating for that cycle. Enter 00:00 for **both** the AM **and** PM ON and OFF times to avoid using the pool pump output entirely. In this case the pool pump would need to be connected to an alternative power outlet.

## 9.4 Dosing Pump Tube Size

The **Chemflo** can be fitted with larger 6.1 litre/hr Dosing Pump Tubes for applications requiring a higher Dose rate. **The Chemflo must be configured to the tube size fitted to the Dosing Pump.** No change is required unless the tube size is changed.

### 9.4.1 Setting the ORP Dosing Pump Tube Size

1. Access the Custom Settings Menu. See section 9.1
2. Press  until “→ORP Tube Size” is selected and press .
3. Press  or  until the desired tube size is selected and press .

### 9.4.2 Setting the pH Dosing Pump Tube Size

1. Access the Custom Settings Menu. See section 9.1
2. Press  until “→pH Tube Size” is selected and press .
3. Press  or  until the desired tube size is selected and press .

## 9.5 Control Setup

### 9.5.1 Setting the Control Direction, On Time, and Off Time

For most applications, the default Control Direction, On Times and Off Times will be ideal for the selected pool size. However, some installations may need more On time if there is a continuously heavy bather load etc and the pump is not keeping up with demand. Other installations may need more Off time if, for example, the pump is overdosing due to a slow pool turnover time.

#### 9.5.1.1 Setting up the ORP Control function

1. Access the Custom Settings Menu. See section 9.1
2. Press  until “→ORP Control” is selected and press .
3. The Control Direction menu is now displayed, for example...

```

Too High      ↑↓
>Too Low     Enter
  
```

The current selection is highlighted by the arrow.

“Too Low” means that the Chemflo will add Chlorine when the reading gets too low.

“Too High” This is rare, and not normally used in pool and spa applications.

Press  or  until the desired setting is selected and press .

4. The current Control On Time is now displayed, for example...

```

ORP ON Time
6 min ↑↓ Enter
  
```

Press  or  until the desired On Time is set and press .

Enter Zero minutes On time to disable the ORP pump.

5. The current Control Off Time is now displayed, for example...

```

ORP OFF Time
5 min ↑↓ Enter
  
```

Press  or  until the desired Off Time is set and press .

#### 9.5.1.2 Default ORP Control Settings for Pool Sizes

The following table details the default ORP control settings for the various pool sizes...

|              | Spa    |        | 20,000 Litres |        | 50,000 Litres |        | 100,000 Litres |         |
|--------------|--------|--------|---------------|--------|---------------|--------|----------------|---------|
| Tube Size    | Small  | Large  | Small         | Large  | Small         | Large  | Small          | Large   |
| ORP On Time  | 3 mins | 1 min  | 6 mins        | 1 min  | 6 mins        | 2 mins | 15 mins        | 5 mins  |
| ORP Off Time | 5 mins | 5 mins | 5 mins        | 5 mins | 5 mins        | 5 mins | 15 mins        | 15 mins |

**9.5.1.3 Setting up the pH Control function**

1. Access the Custom Settings Menu. See section 9.1
2. Press  until “→pH Control” is selected and press .
3. The Control Direction menu is now displayed, for example...



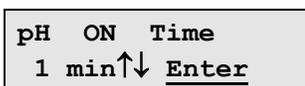
The current selection is highlighted by the arrow.

“**Too High**” means that the **Chemflo** will add acid to reduce the pH when it gets too high. This is the normal setting for pools using Sodium Hypochlorite as Chlorine.

“**Too Low**” means that the **Chemflo** will add alkali when the reading gets too low.

Press  or  until the desired setting is selected and press .

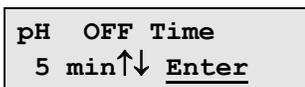
4. The current Control On Time is now displayed, for example...



Press  or  until the desired On Time is set and press .

Enter Zero minutes On time to disable the pH pump.

5. The current Control Off Time is now displayed, for example...



Press  or  until the desired Off Time is set and press .

**9.5.1.4 Default pH Control Settings for Pool Sizes**

The following table details the default pH control settings for the various pool sizes...

| Tube Size   | Spa    |         | 20,000 Litres |        | 50,000 Litres |        | 100,000 Litres |         |
|-------------|--------|---------|---------------|--------|---------------|--------|----------------|---------|
|             | Small  | Large   | Small         | Large  | Small         | Large  | Small          | Large   |
| pH On Time  | 1 min  | 30 secs | 3 mins        | 1 min  | 3 mins        | 1 min  | 6 mins         | 2 mins  |
| pH Off Time | 5 mins | 5 mins  | 5 mins        | 5 mins | 5 mins        | 5 mins | 15 mins        | 15 mins |

## 9.6 ShutOFF Times

### 9.6.1 Setting the ShutOFF Times

1. Access the Custom Settings Menu. See section 9.1
2. Press  until “→ShutOFF” is selected and press .
3. The **Chemflo** now allows you to enter the maximum time for which the ORP pump will operate without getting back to within the limit...

```
ORP ShutOFF
70mins ↑↓ Enter
```

Use the  and  keys to set the required time, from 1 to 240 minutes.

Press and hold the  or  key to scroll rapidly.

4. Press  to save the ShutOFF timer setting for the ORP pump.  
Press  to quit and retain the current setting.
5. If  was pressed above, the **Chemflo** will now allow you to enter the maximum time for which the pH pump will operate without getting back to within the limit...

```
pH ShutOFF
30mins ↑↓ Enter
```

Use the  and  keys to set the required time, from 1 to 240 minutes.

Press and hold the  or  key to scroll rapidly.

6. Press  to save the ShutOFF timer setting for the pH pump.  
Press  to quit and retain the current setting.

### 9.6.2 Default ShutOFF Times for Pool Sizes

The following table details the default ORP and pH ShutOFF times for the various pool sizes...

|                  | Spa     |         | 20,000 Litres |         | 50,000 Litres |         | 100,000 Litres |         |
|------------------|---------|---------|---------------|---------|---------------|---------|----------------|---------|
| Tube Size        | Small   | Large   | Small         | Large   | Small         | Large   | Small          | Large   |
| ORP ShutOFF Time | 45 mins | 15 mins | 70 mins       | 20 mins | 70 mins       | 30 mins | 120 mins       | 60 mins |
| pH ShutOFF Time  | 30 mins | 5 mins  | 30 mins       | 10 mins | 30 mins       | 10 mins | 45 mins        | 20 mins |

### 9.6.3 Disabling the Emergency ShutOFF Timer

Extreme caution should be exercised when disabling the ShutOFF timer, as this could allow an entire drum of Chlorine and/or Acid to be dosed into the pool in the event of a malfunction. Overdosing Acid can cause serious pool, equipment and health hazards.

To disable the ShutOFF timer, set the ShutOFF time to 0 minutes.

## 9.7 7.00 pH Buffer Calibration

To assist Dealer Troubleshooting the Chemflo has a 7.00 pH Buffer Calibration for pH. This procedure can be used to determine the Asymmetry (or Offset) of the pH Probe. A 7.00pH Buffer solution (not supplied) is required for this calibration.

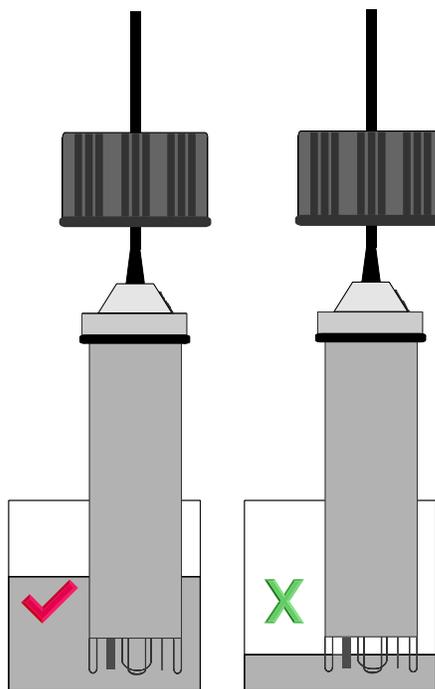
### 9.7.1 7.00 pH Buffer Calibration Procedure

1. Switch the pool pump OFF with the Pump Timer function (see section 3.6), and unplug it from the **POOL PUMP** socket.

Remove the pH / ORP probe from the Tee fitting. For installations where this fitting is below the level of the pool, close the Isolation valve before removing the probe.

2. Plug the pH / ORP probe into the **pH & ORP Probe** socket (if not already connected).
3. Remove the wetting cap from the pH / ORP probe (if fitted). Rinse probe in distilled water. Shake off as much water as possible. Blot the outside of the probe dry.
4. Place the pH / ORP probe into a small sample of pH 7.00 buffer. Ensure that the entire bulb and reference junction are immersed, as per the diagram below.

**DO NOT** place probe directly into buffer bottles.



5. Access the Custom Settings Menu. See section 9.1
  6. Press  until “→Buffer Cal pH” is selected and press .
- The 7.00 pH Calibration screen is now displayed. For example...

```
pH7 Calibration
7.00pH      Enter
```

Press  when the pH reading on the bottom line becomes totally stable.

7. The pH measurement of the **Chemflo** is now calibrated. The **Chemflo** will now prompt you to re-fit the probe into the Tee fitting...

```
Re-Fit Probe  
into Pipe Enter
```

8. **Re-fit the probe into the Tee fitting, as per section 2.2.**  
**Return the pool pump to its normal Pump Timer setting, as per section 3.4.**  
Press  to return the **Chemflo** to Automatic dosing when finished calibrating.

### 9.7.2 pH Calibration Notes

1. The **Chemflo** has an allowable Asymmetry range of  $-1.00$  to  $+1.00$  pH. If calibration fails due to the Asymmetry being outside these limits, please consult the Troubleshooting guide (section 7.4) for possible remedies.
2. All calibration information is retained in memory when the **Chemflo** is switched off, even when the power supply is removed.

### 9.7.3 pH Calibration Messages

1. If a 7.00 pH has been successfully performed, the **Chemflo** will display the following message and the asymmetry of the probe. Note that the slope value from the last calibration is also shown. For example...

```
pH7 Cal. OK  
Asym=0.10pH
```

2. If a 7.00 calibration has failed, the **Chemflo** will display the following message and the failed asymmetry value of the probe. For example...

```
pH7 Cal. Failed  
Asym=1.10pH
```

## Section 10. – Warranty

### Warranty Terms and Conditions

#### PLEASE READ

1. These terms and conditions carefully, as failure to comply may affect your legal rights under this warranty; and

Any installation and operation instructions carefully before commencing use of any product manufactured by Waterco Limited ("Waterco").

2. Waterco manufactures quality pool and spa products to the highest standards using the most advanced technology and production procedures available.

#### WARRANTY COVER

If a defect occurs in any Waterco product, Waterco will at its discretion, repair the product or replace and install the defective part, free of charge provided that the defect results solely from poor workmanship or materials and subject to these terms and conditions.

Labour is covered by this warranty for a period of 12 months from the date of purchase or installation, within a 25 km radius of an authorized Waterco Service Agent.

The purchaser is responsible for any freight incurred.

#### WARRANTY PERIOD

All products sold by Waterco are covered by a one year warranty. The exceptions to this are the products listed in the schedule (which also specifies relevant warranty periods). All warranty periods commence on the date of purchase by the end user.

The provisions of this warranty are not transferable and are in addition to and not in modification of or subtraction from any applicable statutory warranties, rights or remedies.

#### CONDITIONS OF WARRANTY

*This warranty only applies where:*

1. The products have been installed and operated in accordance with written instructions supplied by Waterco;
2. The purchaser is able to provide proof of purchase that specifies the date of purchase;
3. The product has been serviced or maintained regularly. (at least once a month).

*Any pool and spa equipment has been used in water:*

1. With a temperature not exceeding 40 degrees Celsius;
2. With a pH range maintained between 7.2 – 7.6;
3. That has been chemically balanced in accordance with the Langelier saturation index within a range of - 0.2 to + 0.2 to ensure that it is not corrosive or scale forming;
4. That is not salt water (other than mild saline water conditions which are compatible with swimming pool salt water chlorination systems) – unless otherwise stated by Waterco in both the respective product labels and brochures that it is suitable for seawater applications; and
5. That has been regularly treated with a sanitizing system using bromine, chlorine in one of its compound forms, or generated in-situ, in concentrations (doses) recommended by the relative state or territory health departments. (In areas outside of Australia please refer to the local health department recommendations before use);

Pressure gauges have not been exposed to frosting and freezing conditions and due care has been exercised when attaching them to any Waterco products;

Electrical equipment has been adequately protected from salt air environments and from salt water; and

Any pump used on a filter does not have a shut-off head that exceeds the pressure rating of the filter installed.

All repairs and replacements shall be carried out by Waterco or its authorized service dealer, unless otherwise authorized in writing by Waterco.

If an authorized service dealer is not available within 25 km of the purchaser's area:

- The purchaser must contact the place of purchase or Waterco for further instructions and;
- The purchaser is responsible for any freight or infield labour costs.

### **EXCLUSIONS**

This warranty does not cover, and Waterco will not be responsible for, any defect or damage caused or contributed to by:

- (a) installation or use of the product other than in accordance with Waterco's written instructions, any statutory requirements and these terms and conditions;
- (b) use of the product for a purpose other than for which it was designed or sold;
- (c) abuse, misuse, corrosion, internal and external, or normal wear and tear;
- (d) any repairs or modifications whatsoever carried out by any person, other than a Waterco authorized service dealer;
- (e) exposure to water not caused by a defect in the product; and
- (f) transit of the product over which Waterco has no control.
- (g) inadequate ventilation
- (h) cement, pebbles, render or other pool surface finishes blocking the pump's impeller
- (i) insect infestation

Some three phase pumps are not supplied with thermal overload protection. It is the purchaser's responsibility to have this provision installed by appropriately licensed electricians prior to the initial installation of the pump. All electrical work must comply with any appropriate statutory requirements. Warranty for installation of thermal overload protection is the sole responsibility of the licensed electrical contractor and not Waterco.

Waterco excludes all liability it may have to the purchaser for indirect, special or consequential loss arising from or related to any defect in any Waterco product, or any act or omission of Waterco, including, but not limited to, loss of business, loss of profit, loss of revenue, lost opportunity, inconvenience, and damage to any property other than the Waterco product.

Waterco excludes all other conditions, warranties, liabilities or representations which might, but for these terms and conditions, be implied by law or otherwise. These terms and conditions do not exclude or modify any implied condition or warranty, or any liability imposed on Waterco by any law (including the Trade Practices Act), if to do so would contravene that law or make any part of these terms and conditions void.

To the extent permitted by law, Waterco excludes all conditions and warranties implied into these terms and conditions and limits its liability for breach of any such condition or warranty that it cannot exclude to the greater of (at Waterco's option);

(a) for goods:

- Repairing or replacing those goods; or
- Paying the cost of having those goods repaired or replaced; and

(b) for services:

- Resupplying the services; or
- Paying the cost of having those services resupplied.

**GENERAL**

The chemical balance of the water is a relationship between total alkalinity, pH, Calcium hardness and temperature. Waterco recommends that you have your water tested regularly by your local pool professional. A record of testing should always be kept for reference.

Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so any such limitation may not apply.

This warranty gives specific legal rights. The purchaser may have other rights depending on the jurisdiction in which the Waterco product was purchased or the purchaser is located.

**SCHEDULE WARRANTY PERIODS**

**Residential Applications:**

|                     |           |
|---------------------|-----------|
| Controller / Feeder | 2 years   |
| Sensor              | 18 months |
| Labour              | 1 year    |

**Commercial Applications:**

|                     |        |
|---------------------|--------|
| Controller / Feeder | 1 year |
| Sensor              | 1 year |
| Labour              | 1 year |

**WARRANTY LIMITATIONS:**

The provisions of this warranty are not transferable from the original purchaser and are in addition to and not in modification of or subtraction from any applicable statutory warranties, rights or remedies.

Labour is covered by this warranty for a period of 12 months from the date of purchase or installation, within a 25 km radius of an authorized Waterco Service Agent.

Spare parts used in the repair of products are covered by a 12 month warranty and are not covered by the original warranty from date of purchase or installation.

The purchaser is responsible for any freight incurred.