



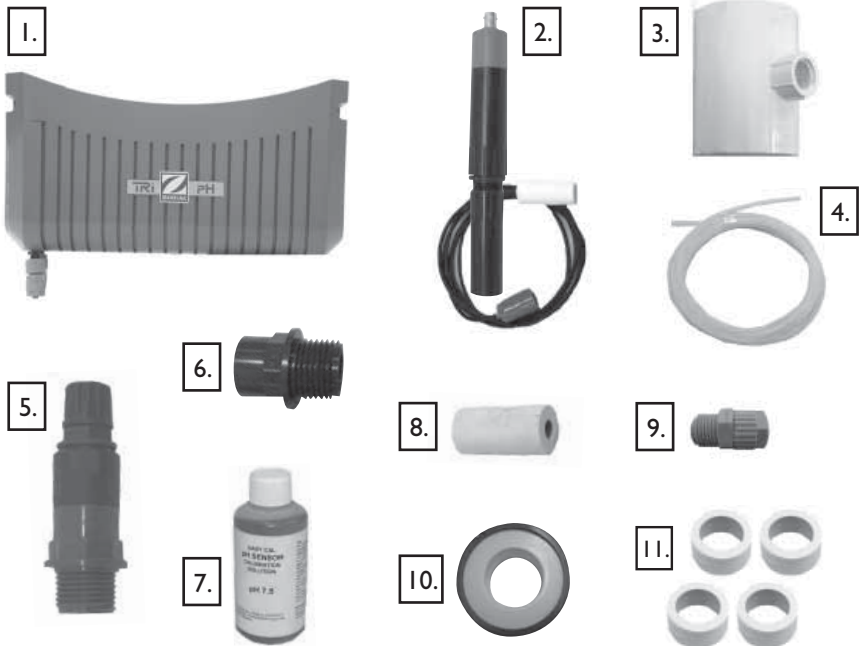
# ZODIAC

## PH UPGRADE INSTRUCTION MANUAL AND WARRANTY CARD



## THIS KIT CONTAINS:

Part:	Qty:	Description:
1.	1	pH upgrade module (if purchased as an upgrade)
2.	1	pH Sensor and sensor cable
3.	2	50mm T-pc (1 x Injection point, 1 x Sensor point)
4.	1	Length of PVC tubing (for acid)
5.	1	One Way valve assembly
6.	1	Acid injection point fitting
7.	1	Calibration fluid
8.	1	Ceramic weight
9.	1	Ceramic weight barb fitting
10.	1	Teflon tape
11.	4	40mm reducing bushes



## WELCOME TO ZODIAC

Congratulations on your purchase of a product from the Zodiac range of pool care products. Zodiac products are designed to let you spend more time enjoying your pool and less on maintenance.

### **IMPORTANT INFORMATION**

**YOU MUST READ THIS INFORMATION BEFORE INSTALLATION. ALWAYS READ THE LABEL AND OPERATION MANUAL BEFORE USING. PLEASE KEEP YOUR MANUAL AS IT CONTAINS YOUR WARRANTY.**

## ZODIAC BELIEVES IN SAFETY FIRST

At Zodiac, we take safety seriously. Always exercise caution when using electrical appliances and follow the instructions. Failure to do so could result in permanent injury, electrocution or drowning.

### **GENERAL WARNINGS**

Zodiac salt chlorinators are designed for domestic swimming pool use only. Contrary use could affect performance and void warranty.

Operating a chlorinator without water flowing through the cell may cause a build up of flammable gases, resulting in fire or explosion.

Keep equipment out of reach of children.

A damaged supply cord should only be replaced by the manufacturer, service agent or electrician.

When installing and using this electrical equipment, always follow basic safety precautions.

Before performing installation, disconnect all power.

Connect to a circuit that is protected by a ground fault circuit interrupter (GFCI).

For swimming pools, a minimum of 1 Part Per Million (ppm) of free available chlorine must be maintained at all times.

Service to Zodiac equipment should only be carried out by qualified pool professionals.

# ZODIAC BELIEVES IN SAFETY FIRST

## **CHILD SAFETY**

Children should not be allowed to operate or perform maintenance on this product.

No one, particularly children, should sit, step, lean, or climb on any of your pool's operational system.

In the interests of child safety, all components of a pool's operational system should be located at least 3 meters away from the pool.

## **ELECTRICAL HAZARD**

To avoid accidental contact with lawn mowers and hedge trimmers, power cords should remain within sight and above ground at all times.

The Zodiac TRI Power pack must not come into contact with water and should be installed at least 3 meters from the inside wall of your swimming pool.

Should a lack of water be detected, the unit's electronic flow switch is designed to turn off the system. Interfering with the electronic flow switch could result in personal injury and/or damage to the cell.

One pump per electrical socket only (no ancillary equipment should be connected to the same outlet).

## QUICK START INSTALLATION GUIDE

The following steps will help you get up and running with your new Zodiac Tri pH Upgrade Module. If you purchase your Zodiac TRi pH as a complete unit go straight to section - Installing Sensors.

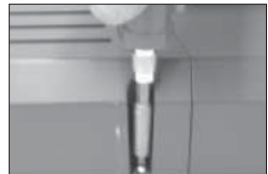
### IF YOU HAVE PURCHASED THE TRI PH UPGRADE:

How to install the Tri pH upgrade unit:

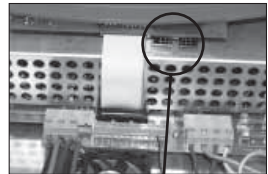
1. Turn mains power off and remove the existing top cover.



2. Unscrew the bottom 2 screws on the main body panel and remove the bottom cover.



3. Plug the ribbon cable from the pH unit into the pH connector on the TRI unit.



4. Refit the 2 removed screws as well as the top cover with the new pH unit installed.

## PREPARING PH SENSOR

Before installation you will need to prepare the sensor.

1. Carefully remove the sensor from its package and check that it is undamaged.
2. Gently remove the wetting cap end by unscrewing it.
3. Save the cap for long-term storage.

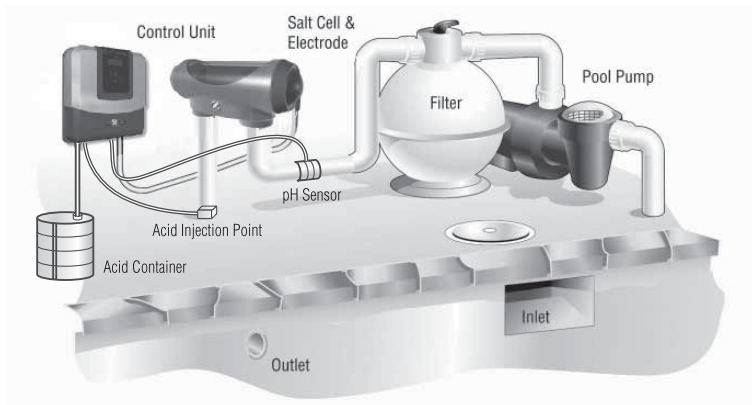


## INSTALLING THE PH SENSOR

Sensors should be mounted at a 45° angle (between vertical and horizontal) between the filter and the salt cell on a straight pipe.

It is best to keep the sensors more than 200mm from a bend in the pipe.

Sensors that have been fitted incorrectly may result in inaccurate pH readings.



## PREPARING PH SENSOR

### TO INSTALL SENSORS:

1. Fit the T piece (use provided reducers if using 40 mm pipe) on the pipe after the filter but before the TRi cell



2. Ensure the T-piece is mounted above horizontal, preferably between 45-90°
3. **Remove the protective shroud from the end of the sensor by unscrewing – discard shroud.**
4. Apply Teflon tape to the thread on the sensor.
5. Screw the sensor directly into the threaded section of the T-piece (this will not screw all the way in, so just screw in firmly but **do not over tighten**)



6. Once the sensor is installed on the pipe, it can be plugged into the TRi unit using the interconnect cable provided. Fit one end of the sensor cable to the sensor and to the power pack and the other end to the sensor.

Be sure to locate the rubber covers over the connections at each end to prevent water damage.

**NOTE:** Try to avoid the sensor cable being too close to or touching other cables (cell/mains, etc).



# ACID FEED LINE

## ACID DELIVERY LINE:

**Warning: When handling acid always use appropriate safety equipment**

The acid feed line delivers acid from the unit to the pool. To install the acid delivery line:

1. Fit the T piece (use provided reducers if using 40mm pipe) on the water pipe after the cell (and heater if fitted). This should be the last thing on the return pipe.

2. Apply Teflon tape to the One Way valve assembly and screw firmly into the Acid injection point fitting.

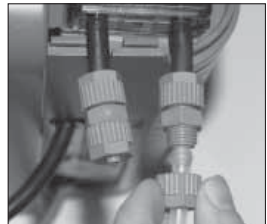


3. Apply Teflon tape to the thread on the Acid injection point fitting. Now fit the Acid injection point fitting into the T piece for the acid delivery line.

4. Cut a suitable length of tube to reach from the acid pump on the power pack to the previously fitted Acid injection point assembly.

5. Remove the acid pump cover from the pH upgrade unit.

6. Fit the tubing to the screw coupling on the outlet of the pump as shown. (Pump outlet is indicated by a downward arrow on the pump casing).



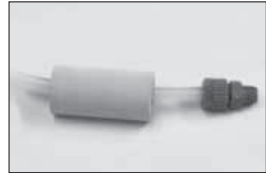
7. Fit the other end of the tubing to the Acid injection point fitting

*NOTE: It may be necessary to warm the tubing in hot water prior to making the above connections.*



### ACID SUPPLY LINE:

1. Cut a suitable length of tube to reach from the acid pump on the power pack to the acid supply source.
2. Fit one end of the tubing to the inlet of the pump. (Pump inlet is indicated by an upward arrow on the pump casing).
3. Drill a suitable hole in the lid of the acid supply bottle, and a smaller 'air hole' to stop the container from crumpling
4. Thread the other end of the tubing through the lid of the acid supply and attach the ceramic weight and fitting
5. Ensure ALL connections are secure and that all connections are firmly placed in their couplings
6. Fill the acid container with a suitable acid. Zodiac recommends Hydrochloric acid.
7. Now place the tubing with the weight into the acid container and screw the lid back down firmly
8. Replace the acid pump cover.










## TESTING / PRIMING THE ACID PUMP

After installation it's recommended the acid pump be tested and the acid pump 'primed'.

**WARNING!** Before testing the pump, ensure all acid supply and delivery connections are secure. Always use appropriate safety equipment when handling acid.

To test the Acid Pump:

1. Press the  button.
2. Press  /  buttons to move arrow to 'pH/SETUP'.
3. Press  to enter the 'pH/SETUP' menu.
4. Use the  /  buttons to highlight 'TEST ACID'.
5. A warning will momentarily be displayed, then press  to start the pump.

The acid pump will run for approximately 30 seconds and automatically switch off. (If the pump needs to be turned off immediately, press the

 button)

6. Verify that the pump 'primes' with acid (acid will be visible in the plastic tubing).

*NOTE: Steps 1 to 5 may require repeating several times depending on the length of the acid supply tube.*

The following information about pH is critical to the successful operation of your swimming pool.

For advice and supply of the correct products, consult your local pool care professional.

## PREPARING THE POOL

The Tri-pH unit is designed to maintain the pH of the pool.

By ensuring that the pool is correctly balanced at the outset will decrease the chance of problems, during the first days of operation.

## PH LEVELS

Ideal pH range for most pools is 7.2 – 7.6

All chemical balances in the pool are affected by pH, making it the single most important element of swimming pool chemistry.

1. To lower pH level use diluted hydrochloric acid or phosphoric acid (*this will be done automatically by the TRI-pH once connected*).
2. To raise pH. Use soda ash.

## TOTAL ALKALINITY (TA) LEVELS

Ideal TA level range: 80-140 parts per million (PPM)

Total Alkalinity is a measure of alkaline chemicals in your pool and can be used as a “buffer” to control pH levels.

If TA levels are too low, it may stain pool surfaces and make controlling pH levels difficult.

If TA levels are too high, scaling may be evident on pool walls and in the chlorinator cells.

1. To raise total alkalinity. Add pH buffer or stabilizer, according to manufacturer’s instructions.
2. To lower total alkalinity. Add approximately 400ml of hydrochloric acid daily.
3. When total alkalinity has stabilized within the prescribed ideal range, you may need to adjust the pool’s pH.

## CHLORINE LEVELS

Ideal chlorine level range: 1-3 parts per million (PPM).

Prior to starting the Tri-pH the chlorine level can be raised using either liquid or granulated chlorine.

## SALT LEVELS

Ideal Salt level range: 3000 – 5000 parts per million (PPM).

Efficient and correct operation of the electrolytic cell requires a sufficient amount of salt in the water.

Not enough salt may cause a reduced chlorine output level and a reduced life of the cell.

Too much salt will cause eye irritation and a salty taste in the pool water.

### **Filter / Skimmer**

In addition to the pool chemistry being important, the condition of the filtration system and skimmer baskets must be assessed. If required, backwash the filter and remove debris from the pool skimmer basket(s).

## AUTOMATIC DETECTION

When the Zodiac Tri Unit automatically detects the presence of a Tri pH module it displays the pool's pH set point.










1. The message 'pH CONTROL' appears on the third line of the screen.
2. The pool's pH "set point" is displayed at the bottom left of the screen.

*NOTE: From factory, the acid delivery is disabled and the pH set point will be displayed as "—". Refer to 'Enabling and disabling the Acid Pump' for more information. When the acid delivery is enabled, the pH set point is displayed at the bottom left of the screen.*

## PH CALIBRATION

With pH sensor and acid delivery components successfully set up, the TRi unit needs to be calibrated and set up for pH control.











Ensure that mains power is supplied to the TRi, turn the pool pump off and isolate the pool water so the pH sensor can be safely removed.

1. Remove the pH sensor and clean if necessary using soapy water. (Avoid touching the glass tip of the sensor). Rinse off with fresh water.
2. Place the pH sensor in a sample of pH calibration solution with a pH level of 7.5.
3. Leave the sensor immersed in the solution for a minimum of 5 minutes to settle.
4. From the default operating screen, press .
5. Use the  /  buttons to highlight 'pH SETUP', then press .
6. Use the  /  buttons to highlight 'CALIBRATE pH', then press .
7. Observe the 'CURRENT' pH reading. If the reading is above 8.2 or below 6.4, there may be a problem with the sensor or pH unit. **DO NOT CONTINUE** and refer to your local pool professional for assistance.
8. If the CURRENT reading is within the above limits, press the  button to begin calibration.
9. When calibration is complete, note the new pH reading. If the reading is not 7.5, repeat the previous 5 steps. (If the current pH still doesn't read 7.5 refer to your local pool professional for assistance.)
10. Press the  button twice or wait 30 seconds and the TRi unit will return to the default operating screen.

## PH SET POINT

The default pH setting of your Zodiac TRi is 7.2. This can be changed according to your pool's requirements.

To change the pH set point:

1. Calibrate the pH sensor.
2. From the default operating screen, press .
3. Use the  /  buttons to highlight 'pH SETUP', then press .
4. Use the  /  buttons to highlight 'pH SETPOINT', then press .
5. Use the  /  buttons until the desired "set point" is achieved.
6. Press the  button twice or wait 30 seconds for the TRi to return to the default operating screen.

## SETTING THE POOL SIZE











In the interests of safety the default setting for the pool size is 1 (Minimum). This setting controls the maximum amount of acid which is delivered to the pool daily.

The recommended settings for various size pools are as follows:

- 1: For small pools up to 60 000 litres
- 2: For medium pools 60 000 to 90 000 litres
- 3: For large pools 90 000 to 120 000 litres
- 4: For over size pools above 120 000 litres

The above settings are a guideline only. It is recommended that a lower setting be selected initially – this setting can be increased at a later time if insufficient acid is being dosed to maintain the correct pH level.

To set the pool size, follow the procedure below:

1. From the default operating screen, press .
2. Use the  /  buttons to highlight 'pH/SETUP', then press .
3. Use the  /  buttons to highlight 'POOL SIZE, then press .
4. Use the  /  buttons to select the pool size to the desired value. (default: 1)
5. Press the  button twice OR wait for 10 seconds for the TRi to return to the default operating screen.

**NOTE:** Acid is dosed into the pool every two hours (while the chlorinator and filtration system are running).

## PH SET POINT

**WARNING!** It is advised that the pool size be set as low as possible to avoid overdosing acid into the pool.

### USING PH CONTROL

The TRi-pH is now ready for use with automatic pH control.

1. Set 'ON' and 'OFF' times.
2. Select desired chlorine output level.
3. Enable the Acid Pump (Refer to Enabling and disabling the Acid Pump.)

The TRi unit will now automatically maintain the pH level of the pool.

## REGULAR CHECK UPS

Although automatic pH control reduces the need for regular testing, there are still a number of checks to ensure the safe operation of the system and a pleasant swimming experience.

Always check:

Acid supply levels.

Total Alkalinity.

The accuracy of the pH sensor by manually checking the pH level.

That the pH sensor is cleaned and re-calibrated.

The condition of the acid delivery and supply tubes

The condition of the black pump tube

## ADJUSTING TOTAL ALKALINITY (TA)

As acid is added automatically over time, total alkalinity levels will decrease and may result in inconsistent pH levels.

It may be necessary to add a “buffer” element to the water in your pool.

As it is not recommended to add acid after adding a “buffer”, temporarily disable the acid pump (refer to Enabling and disabling the acid pump).

### ENABLING AND DISABLING THE ACID PUMP.









In the interests of safety, the Zodiac Tri-pH is shipped with the acid pump disabled.

When a TRi-pH is connected, the acid pump is programmed to begin operation after approximately 8 hours of being activated. This can be overridden by disabling the acid pump.

When the acid pump is disabled, the set point reading will be replaced with “--” until the acid pump is re-enabled.

After 8 hours, the deactivated pump will automatically re-enable itself.

To start the acid pump manually:

1. From the default operating screen.
2. Press the  button.
3. Press  /  buttons to move arrow to 'pH SETUP'.
4. Press  to enter the pH menu.
5. Use the  /  buttons to highlight 'ENABLE ACID' (OR 'DISABLE ACID').
6. Press  to toggle between 'ENABLE ACID' and 'DISABLE ACID'.
7. Once the appropriate selection has been made, press  twice or wait ~30 seconds for the TRi to revert back to the default operating screen.

## PH MODULE MAINTENANCE

When using automatic pH control, the requirement for regular pool chemistry checks is lowered. It is however, necessary to regularly check a number of critical things to ensure safe and correct operation of the system:

### **CLEANING THE PH SENSOR**

When cleaning the sensor avoid using solvents such as acetone. Always calibrate after cleaning.

To clean the sensor:

If the electrode has become coated with oil or grease, carefully wash the electrode under warm tap water using dish-washing detergent. Rinse the sensor thoroughly with clean tap water.

If the above procedure does not work, soak the sensor in a diluted hydrochloric acid (HCL) solution for 10 seconds.

This can be purchased from your local pool professional or made by carefully adding one (1) part of Hydrochloric (Muriatic) acid to ten (10) parts water in a suitable container. **ALWAYS ADD ACID TO THE WATER.** After soaking, rinse the sensor thoroughly in clean tap water and re calibrate before use.

If the above two procedures fail to restore the sensor, the sensor should be replaced.

## **ERRORS AND WARNINGS. WHAT THEY MEAN.**

### **PH LOW**

Diagnosis: the pH Level in the pool is more than 0.4pH units below the set point. This could indicate the Pool setting is too high, causing acid to overdose or the pH sensor is faulty or needs calibration and/or cleaning. Manually test the pool's pH before further investigation.

### **PH HIGH**

Diagnosis: the pH Level in the pool is more than 0.4pH units above the set point. This could indicate a rapid increase in pH has occurred, a pH sensor is faulty or needing calibration/cleaning, the pool setting is too low, the acid supply drained or the Acid pump faulty.

### **PH ERROR**

Diagnosis: the acid pump has operated for 3 complete dosing cycles without reaching the set point. This could indicate the acid supply is empty, the pH sensor is faulty or needing calibration/cleaning, the Pool size is set too low or the acid pump is faulty.

**Additional information about this product can be found at [zodiac.com.au](http://zodiac.com.au)**

For further information and assistance please consult your local pool professional.

**Your Local Dealer:**

## WARRANTY

Like all Zodiac Pool products, the TRi Chlorinator is tested under local conditions and comes with a limited warranty. This warranty is only applicable if the product has been installed by an accredited Zodiac TRi Installer. The warranty may be void if this has not been adhered to.

### **Cell Warranty**

A total of 4 (four) years conditional warranty, if used in a domestic/residential pool. Refer fine print in TRi manual for exceptions and exclusions.

### **Power Pack**

A total of 4 (four) years conditional warranty, if used in a domestic/residential pool. Refer fine print in TRi manual for exceptions and exclusions.

### **Peristaltic pump, sensors and other extraneous equipment.**

All other components of the TRi-pH such as the pump, sensor, tubing, fittings etc are covered by a 12mth conditional\* warranty if used in a domestic/residential pool.

\* Fair wear and tear is not considered to be warranty nor if the equipment has been installed incorrectly or by an unauthorized installer.





# ZODIAC



Zodiac is a registered trademark of Zodiac Group Australia Pty Ltd  
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Due to constant developments and improvements,  
specifications may change without notice.  
Improper use could affect performance and void warranty.

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