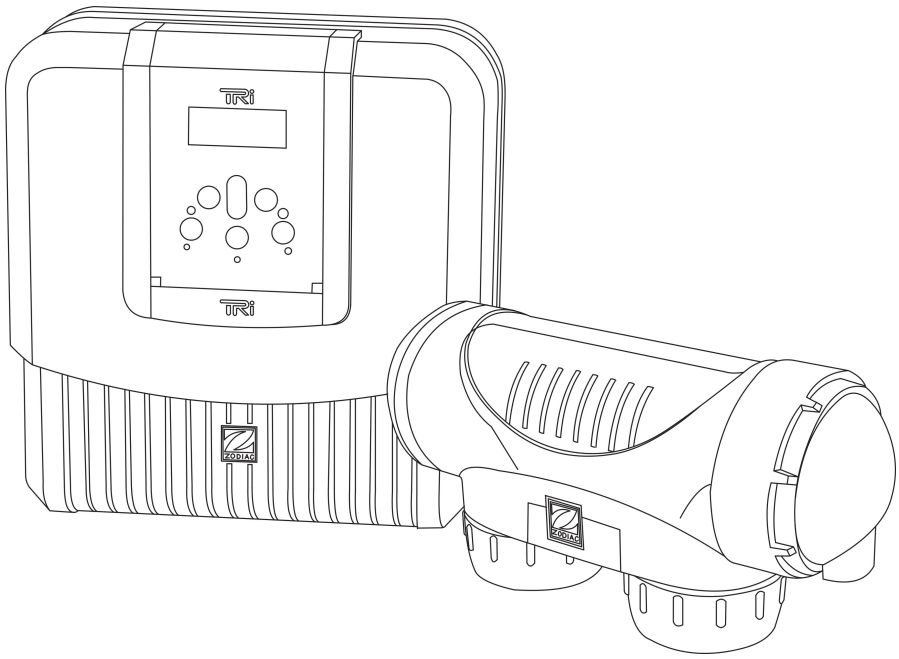
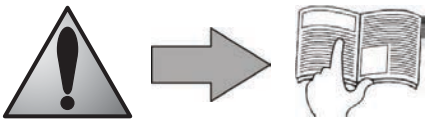
ZODIAC®

TRi

Instructions for installation and use
English

EN





H0412400.A - 2013/02

- **Read this notice carefully before installing, maintaining or repairing this appliance!**
- **The symbol  indicates important information that it is imperative to take into consideration in order to avoid all risks of harm to persons or damage to the appliance.**
- **The symbol  indicates useful information.**



Warnings

- **As part of a continuous improvement process our products may be modified without prior notice.**
- **Exclusive use: salt water chlorination system for pools (must not be used for any other purpose).**
- **The appliance must be installed by a qualified technician in compliance with the manufacturer's instructions and with applicable local standards. The installer is liable for the installation of the appliance and the compliance with local regulations in matters of installation. Under no circumstances can the manufacturer be held liable in the event of failure to comply with applicable local standards.**



- **It is important that this appliance is handled by skilled and apt persons (both physically and mentally), with prior knowledge of the usage instructions (by having read this manual). All persons not meeting these criteria must not approach the appliance in order to avoid exposure to dangerous elements.**
- **If the appliance suffers a malfunction: do not try to repair the appliance yourself, contact your installer.**
- **Before working on the appliance, make sure it is powered off and that all equipment connected to it is powered off.**
- **Before all connections, make sure that the voltage indicated on the plate on the appliance corresponds to the mains voltage.**
- **Eliminating or shunting one of the safety devices automatically voids the warranty, as does the replacement of parts using parts not manufactured by ourselves.**
- **Wrong installation may cause serious damage to property or serious injuries (possibly causing death).**
- **Keep the appliance out of the reach of children.**

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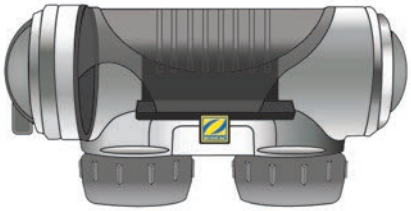
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1. Information before installing

1.1 General delivery terms and conditions

All equipment, even postage and packing paid, travels at the risks and perils of the recipient. Written reserves should be made on the transporter's delivery documents if damage during transport is discovered by the recipient (confirmed by registered letter to the transporter within 48 hours).

1.2 Contents

			
TRi® Control box	TRi® cell	Flow controller kit	Bag of accessories

1.3 Technical specifications

Power supply voltage	230Vac-50Hz	
Electric power	195W	
Protection index	IP23	
Box size (l x h x d)	31 x 33 x 11 cm	
Cell size (L x d)	30 x 10 cm	
Weight (box + cell)	7 Kg	
	Minimum	Maximum
Flow through the cell	5m³/h	18m³/h
Pressure in the cell	/	2,75 bars
Operating water temperature	5 °C	40 °C

2. Installation

2.1 Preparing the pool: water balance

The TRi® is designed to disinfect pool water using its salt water chlorination function.
It is essential that the pool water balance is controlled and adjusted before installing the appliance. Making sure that the pool water balance is correct from the very start will reduce the likelihood of encountering problems on the first days of operation or during the season the pool is in use.

Even though it is an autonomous system, it is essential to regularly analyse the water to check the water balance parameters.

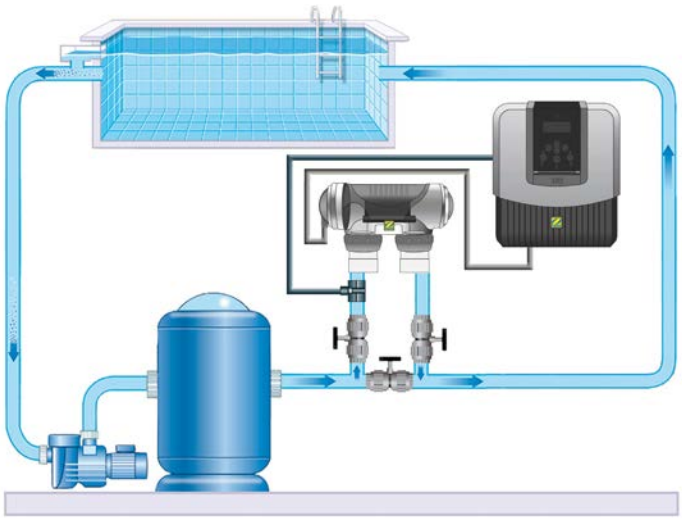
	Unit	Recommended values	To increase	To reduce	Test frequency (in the season)
pH	/	7,2 – 7,4	Add pH+ or use automatic regulation	Add pH- or use automatic regulation	Weekly
Free chlorine	mg/L or ppm	0,5 – 2	Increase the TRi's® chlorine production or use the Boost mode	Reduce chlorine production	Weekly
TAC (alkalinity or buffer power)	°f (ppm)	8 – 15 (80 – 150)	Add alkaline corrector (Alca+ or TAC+)	Add hydrochloric acid	Monthly

	Unit	Recommended values	To increase	To reduce	Test frequency (in the season)
HL (level of calcium carbonate)	°f (ppm)	10 – 30 (100 – 300)	Add calcium chloride	Add a calcium carbonate sequestering agent (Calci-) or carry out carbonate removal	Monthly
Cyanuric acid (stabiliser)	mg/L or ppm	< 30	Only add cyanuric acid if necessary (Chlor Stab)	Partially empty the pool and refill it	Quarterly
Salinity	g/L or kg/m³	4	Add salt	Leave as such or partially empty the pool and refill it	Quarterly
Metals (Cu, Fe, Mn…)	mg/L or ppm	± 0	/	Add a metal fixer (Metal Free)	Quarterly

2.2 Installing the control box

- The control box must be installed in a ventilated technical room, free from all traces of damp, free from stored pool maintenance products and free from freezing temperatures.
- It must not be installed more than 1.8 metres from the cell (maximum cable length).
- If the box is fixed to a post, a watertight panel must be fixed behind the control box (350x400 mm minimum).
- Fix the support solidly to the wall or the watertight panel, and place the control box on it using the screws provided.

2.3 Installing the cell



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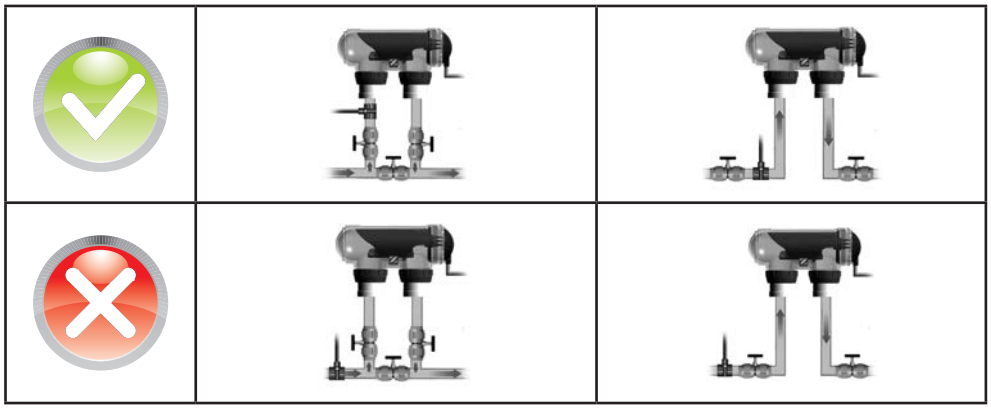
- The cell must be installed on the piping after the filtering, after any measurement sensors, and after eventual heating systems.
- Make sure that the cell is placed HORIZONTALLY. Ideally the water should flow from the electric connections towards the opposite side.
- Use the screw-on fittings to fix the cell to the pipes. For Ø63 mm pipes, glue them directly to the screw-on fittings. For Ø50 mm pipes, use glue-on PVC adapters of the corresponding diameter (grey models; the white models are for 1 ½'' UK pipes). In the case of Ø63 mm pipes, glue them directly to the screw-on fittings.
- Connect the cell power supply cable following the wire colour codes (red, black and blue connectors) and then refit the protective cap.

- The cell must always be the last element placed on the pool return pipe (see diagram).
- It is always recommended to install the cell on a by-pass. This assembly is MANDATORY if the flow is in excess of 18 m³/hour to avoid load loss.
- If you installed the cell on a by-pass, it is recommended to fit a check valve downstream from the cell and not a manual valve, to avoid any risk of incorrect handling.
- The two red wires can be connected to one or the other red terminals on the electrode.

2.4 Installing the flow controller

The flow controller and its fixture collar (Ø50 mm) must imperatively be installed on the piping close to the TRi® cell and upstream from it. Use the supplied threaded adapter and Teflon tape to install the flow controller on its fixture collar.

- TRi® cell installed on a by-pass: the flow controller must be installed on the cell by-pass between the upstream isolation valve and the cell itself.
- TRi® cell installed in line: the flow controller must be installed just in front of the cell and after a possible valve.





- Failure to follow these instructions could lead to the destruction of the cell (see §2.3)! The manufacturer cannot be liable in this case.
- The flow detector has a direction for installation (arrow indicated on it showing the flow direction for the water). Make sure that is is correctly placed on its fixture collar so that it stops the TRi® salt water chlorinator production when filtering is stopped (red «Flow» indicator on showing the absence of flow, see §5).

2.5 Electric connections

2.5.1 Connecting the control box

The salt water chlorinator can be connected in several different ways (in compliance with the applicable standards in the country of installation).

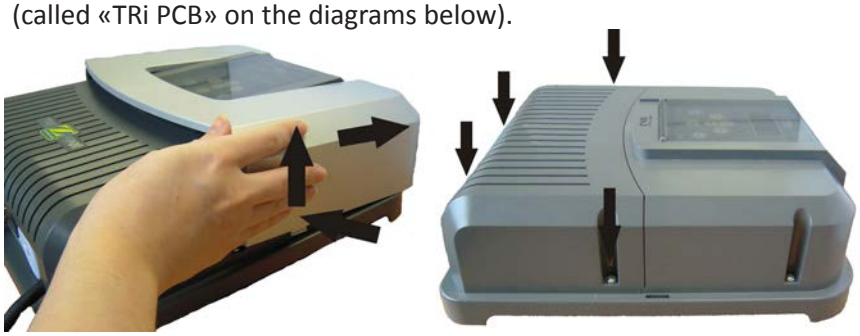
- Preferred connection: the appliance is connected to a permanent power supply separated from the filtering thanks to the presence of the flow controller (power supply protected by a specific 30mA ground fault circuit breaker).
- Possible connection: directly coupled to the pool filtering (the appliance is only supplied with power when filtering is operating).
- Optional connection: the female connector located under the TRi® box is designed for the direct connection of a filtering pump (230Vac-50Hz, maximum consumption 9A). In this case, use the supplied corresponding male connector (which will allow the chlorinator programmer to control both filtering and chlorination times).
- When all connections have been completed and all glued assemblies have dried, reconnect the mains power supply to power on the appliance.

Whichever connection is used, it is mandatory to programme the TRi® operating times (called «Timers») (see §3.2.2).

2.5.2 Connection to an electric roll-on shutter

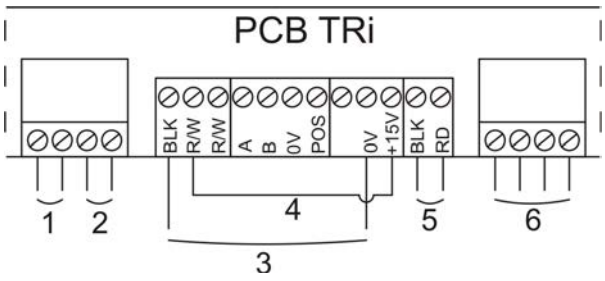
If the pool is fitted with an electric roll-on shutter, it can be connected to the TRi® chlorinator so that the latter automatically adapts its chlorine production when the shutter is closed (see §3.1.2).

- Make sure the TRi® is powered off.
- Remove the silver protective cover.
- Remove the 4 lower module fixture screws and remove the module. The bottom of the electric board is now visible (called «TRi PCB» on the diagrams below).

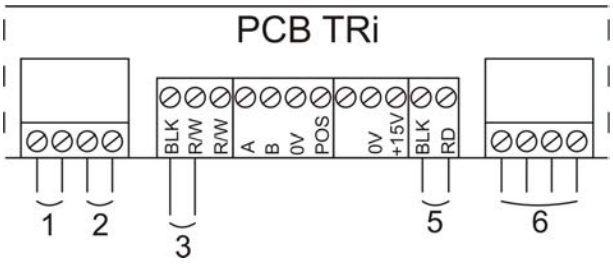


The TRi® chlorinator is compatible with several different types of electric shutter. However, certain systems may not be compatible. In those cases activate the «Low» mode manually using its specific button on the chlorinator control panel (see §3.1.2).

(1) = cell power supply
(2) = flow controller
(3) = shutter connection
(4) = shunt
(5) = ventilator
(6) = 230V - 50Hz power supply



Shutter with an end of run dry contact:
(shutter closed = contact closed)
Shunt the left hand «R/W» and «+15V» terminals, then connect the dry contact from the shutter to the «BLK» and «0V» terminals (3).



Shutter sending a closure signal:
(shutter closed = LV 12-24 V dc)
Connect the casing to the «BLK» terminal» and the positive (12-24 Vdc) to the left «R/W» terminal (3).

2.5.3 Connection of an external controller (Automation/Domotics)

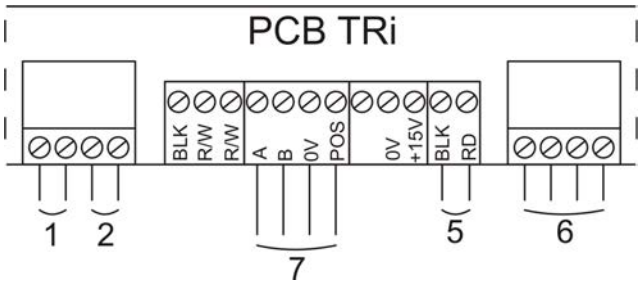
The Zodiac TRi® chlorinator is compatible with certain types of remote control for pools («automation»). It has especially been designed to operate on the Zodiac AquaLink TRi® system.



- Make sure the TRi® is powered off.
- Remove the silver protective cover and the lower module (see §2.5.2). If the appliance is already fitted with a TRi® pH or TRi® PRO module, carefully disconnect its connection braid before removing the module.
- Remove the small white cap covering the hole designed to pass the «RS485» type connection cable (available as an accessory) between the TRi® and the automation system.
- Pass the «RS485» cable from the automation system through the hole. Place a cable tie on the controller wire to prevent it from being pulled off.
- Depending on the brand and type of external automation system, complete the following connections for the connection cable (7):

Zodiac AquaLink TRi®, Jandy AquaLink® and Polaris EOS:
- A Terminal = black wire
- B Terminal = yellow wire
- 0V Terminal = green wire
- POS Terminal = red wire

Pentair® Intellitouch:
- A Terminal = yellow wire
- B Terminal = green wire
- 0V Terminal = black wire
- POS Terminal = red wire



- Close the TRi® control box cover.
- Make sure the automation system is switched off, then power on the TRi®.
- Go to the «CONTROLLER» menu on the TRi® and select the corresponding model from the list (see §3.2.4). The default setting is «AQUALINK TRi»
- Switch on the automation system and wait for a few seconds.
- If the connection is successful the «‡» symbol will appear in the top right corner of the TRi® screen:



- If the connection fails, switch off both the automation system and the TRi®, check all the electric connections and repeat the test. It may be necessary to reinitialise the TRi®. To do this press on and simultaneously: the appliance will restart and the TRi® clock we have to be reset to the correct time. Consult the automation system user manual if necessary.
- Once the TRi® is connected to an automation system it will only be possible to access its menu via its control panel. The modification of all chlorine production related settings will from now on be managed using the automation system user interfaces.

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3. Use

3.1 User interface presentation



	Access the user menu or return
	From the home screen: increase or reduction in chlorine production. On the user menu: navigation in the menu options and value changes when a choice is proposed.
	Validate a selection or access a sub-menu
	Start or stop chlorine production
	Activate super-chlorination for a total period of 24 hours (blue indicator on)
	Blocks chlorine production at 10% (blue indicator on)
FLOW	Red indicator showing the absence of flow
POWER	Blue indicator showing chlorine production (flashes if an error message is displayed, see §5)
SALT	Orange indicator showing a water conductivity problem (not enough salt, water too cold, etc.)

If the language displayed on the screen when the TRi® chlorinator is first powered is not appropriate, see §3.2.5.

3.1.1 «Boost» mode

In certain cases your pool may need higher than normal chlorination (stormy weather, high number of bathers, etc.). The «Boost» mode is used to quickly increase chlorine levels.

- Press the  button: «BOOST» is displayed on the screen and 100% chlorine production starts.

- When the «Boost» mode is activated, the rated chlorine production settings are temporarily overridden and the TRi® chlorinator will operate for a total of 24 hours at a 100% chlorine production level. The number of days will then depend on the TRi® operating times (see §3.2.2).
- The «Boost» mode cannot be started or stopped in the following conditions:
  - if the TRi® is stopped,
  - if the TRi® is connected to an automation system (the «Boost» mode is then driven from the automation system user interface).

3.1.2 «Low» mode

If your pool has a covering system (shelter, shutter, cover, etc.), «Low» mode is designed to adapt chlorine production to situations where the pool is covered (lower needs).
This mode is also called «Shutter» or «Winter» mode. Its effect is to limit chlorine production to 10%.
Manual activation (shelter, cover, winter use, etc...):

- Press the  button: «LOW MODE 10%» is displayed on the screen and chlorine production is reduced to 10%.
- To stop this mode: press the  button again.

Automatic activation (compatible electric roll-on cover):

- Make sure the cover is compatible and connected to the TRi® chlorinator (see §2.5.2).
- «Low» mode will automatically be activated when the shutter is closed.
- «Low» mode will stop as soon as the cover is completely open (after a timer of a few minutes).

«Low» mode cannot be started or stopped in the following conditions:
- if the TRi® is stopped,
- if the TRi® is connected to an automation system but is not connected to a roll-on shutter («Low» mode is then driven from the automation system user interface).

3.2 Settings

3.2.1 Clock Menu

The TRi® chlorinator is fitted with an internal memory. When the appliance is first switched on it is important to leave it powered on continuously for at least 24 hours in order to initially charge the accumulator (permanent separate power supply or filtering on permanently). Once loaded the accumulator has several weeks of autonomy in the event of a power failure.

- Power on the TRi® and wait for the screen start-up sequence to complete.
- Press button to access the main menu.
- Use the and buttons to reach the «CLOCK» line and press to validate.
- Use the and buttons to set the hour, then press to memorise.
- Use the and buttons to set the minutes, then press to memorise. The TRi® will then automatically return to the main menu.
- Press the button to return to the home screen.

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The time is displayed in a 24 hour format.

3.2.2 Programming Menu (Timers)

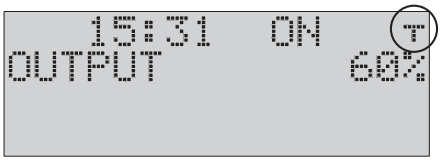
The TRi® chlorinator has two programmers to control chlorine production times. These are called «Timers or «Operating time intervals».

«Timer» programming is used to define the TRi® operating times within the filtering system operation times. The daily operating times must be sufficient to correctly treat the water.
A reminder of the calculation rule: the ideal daily filtering time is obtained by dividing the required pool water temperature (measured in °C) by 2.
Example: for water at 28°C - 28/2 - 14 hours per day

Creating a «Timer»:

- On the home screen press the button.
- Use the and buttons to reach the «PROGRAMMING» line and press to display the programming settings menu.
- Use the and buttons to select the timer to set («TIMER 1» or «TIMER 2»), then press .
- Use the and buttons to set the starting time hour, then press to memorise.
- Use the and buttons to set the starting time minutes, then press to memorise.
- Use the and buttons to set the stopping time hour, then press to memorise.
- Use the and buttons to set the stopping time minutes, then press to memorise. The TRi® returns to the «PROGRAMMING» menu automatically.

The «T» symbol is displayed in the upper right hand corner of the LCD display on the home screen if the programming is valid.



Deleting a «Timer»:

- From the home screen press the button.
- Use the and buttons to reach the «PROGRAMMING» line, then press to display the programming settings menu.
- Use the and buttons to reach «RAZ TIMERS», then press . A message confirming the deletion will be shown on the screen.

The TRi® chlorinator is fitted with a safety device to prevent chlorine overproduction. It switches off the appliance after 30 hours of continuous chlorination (no «Timers(s)» memorised and filtering in continuous mode (manual mode)). Pressing the button will restart chlorine production if necessary.

3.2.3 Troubleshooting menu

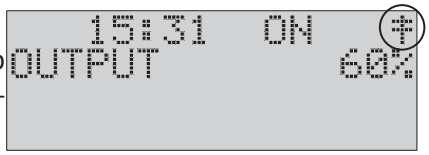
The TRi® chlorinator automatically notifies you of any problems using error messages. To help with the understanding of these messages the appliance has a troubleshooting assistance menu which gives the meanings and the action to take to solve the problem.

- From the home screen press the button.
- Use the and buttons to reach the «TROUBLESHOOTING» line, then press to display the list of error messages.
- Use the and buttons to select the error message, then press .
- A certain number of suggestions and solutions will automatically be scrolled to explain what to do. Once the automatic scrolling is complete, the TRi® automatically returns to the «TROUBLESHOOTING» menu.

3.2.4 External controller menu (Automation/Domotics)

The automation system must imperatively have its settings positioned before the connection becomes active (external controller switched off, see §2.5.2).

- From the home screen press the button.
- Use the and buttons to reach the «EXTERNAL CONTROLLER» line, then press to display the different models.
- Use the and buttons to select the version of the external controller used, then press to memorise the choice. The TRi® will then automatically return to the main menu.
- Press the button to return to the home screen.
- Switch on the automation system and wait for the «‡» symbol to appear in the top right hand corner of the TRi® home screen, meaning that the connection was successful.



By default the TRi® is set to be connected to a Zodiac AquaLink TRi® system.

3.2.5 Language Menu

By default the TRi® chlorinator is set to display in French. Seven languages are available: English, French, Spanish, German, Italian and Dutch.

- From the home screen press the button.
- Use the and buttons to reach the «LANGUAGES» line, then press to display the list of languages.
- Use the and buttons to select the required language, then press to memorise the choice. The TRi® will then automatically return to the main menu.

4. Maintenance

4.1 Cleaning the electrode

The TRi® is equipped with a smart polarity inversion system designed to prevent the electrode plates from scaling. However cleaning may be required in regions where the water is very hard.

- Turn off the TRi® and the filtering, close the isolation valves, remove the protection cover and disconnect the cell power cable.
- Unscrew the tightening ring and remove the electrode from the body of the cell. The ring is crenelated thus allowing a lever to be used in the event of it jamming. Place the electrode in a cleaning solution without immersing the connection terminals.
- Leave the cleaning solution to dissolve the scale deposit for about 15 minutes. Dispose of the cleaning solution at an approved waste recycling site, never pour into the rainwater drainage system or into the sewers.
- Rinse the electrode using clean water and refit it into the body of the cell (there is a fail-safe on the alignment).
- Refit the tightening ring, reconnect the cell cable and refit the protective cover. Open the isolation valves and restart the filtering and TRi® chlorinator.

- If you do not use a commercially available cleaning solution, you can manufacture it yourself by carefully mixing 1 volume of hydrochloric acid with 9 volumes of water (Warning: always pour the acid into the water and not the opposite and wear suitable protective equipment!).
- If the water is too hard (high carbonate content, HL>40 °f or 400 ppm), it is possible to change the polarity inversion cycle times on your TRi® chlorinator to have more effective electrode self-cleaning. Consult your reseller if you are in this situation (professional access).

4.2 Wintering

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The TRi® chlorinator has a protective system to limit chlorine production under bad operating conditions such as cold water (winter) or a lack of salt.

- Active wintering = filtering operational in winter: below 10°C it is preferable to switch off the TRi®. Above this temperature you can leave it running.
- Passive wintering = lower water level and drained piping: leave the electrode dry in its cell with its isolation valves open.

5. Troubleshooting

Message	Possible causes	Solutions
CHECK SALT (orange «SALT» indicator on)	• Lack of salt (< 4g/l) due to water loss or dilution (filter counterwash, water renewal, rain, leaks, etc.). • Pool water temperature too low (< 18 °C, variable).	• Add salt to the pool to keep the level at 4 g/l. If you do not know the salt level or how to test it, consult your reseller • Basic production limitation signal when the water is too cold. Reduce chlorine production or add salt to compensate.
CHECK CELL	• Calcium carbonate level (HL) too high • Electrode too old • Scaled cell	• Clean and/or check the filtering system (pump and filter) • Check the calcium carbonate levels (HL) and add calcium carbonate sequestrant if necessary (Calci-) • Replace the electrode • Clean the cell
PUMP FLOW CONTROLLER FAULT («Flow» indicator red and lit) The messages are displayed alternatively every 3 minutes.	• Failure of the filtering pump • The filter and/or the skimmer(s) are dirty • By-pass valves closed • Flow controller and/or cell disconnected or defective	• Check the pump, the filter, the skimmer(s), and the by-pass valves. Clean them if necessary • Check the cable connections (cell and flow controller) • Check that the flow controller is working correctly (replace it if necessary)

Message	Possible causes	Solutions
PROD. FAULT	• Cell power supply cable disconnected or not properly connected • Internal electronic problem in the control box following an external electric incident	• Switch off the TRi® chlorinator (button) and switch off the power supply to the control box, then check that all the cables are properly connected (mains power supply, cell, etc.) • Contact your reseller
INVERSION	The self-cleaning cycle is automatic; this message is not an error code but an information message	Wait for about 10 minutes and chlorine production will resume automatically at the previously set level

To cancel the «CHECK CELL» and «PROD. FAULT» error messages, press for 3 or 4 seconds on when the message appears.
The other codes are only information messages that disappear automatically when the operating conditions return to optimal.

6. Registering the product

Register your product on our website:
- You will be the first to be informed of new Zodiac products and special offers,
- You can help us to constantly improve our product quality.

Australia – New Zealand	www.zodiac.com.au
Europe, South Africa & Rest of the World	www.zodiac-poolcare.com

ZODIAC GROUP AUSTRALIA PTY LTD

CONFORMITY DECLARATION

The Company ZODIAC GROUP AUSTRALIA P/L 219 Wood Park Road Smithfield NSW 2164 AUSTRALIA, herewith declares under its sole responsibility that the products listed below, to which this declaration relate, are in conformity with the following European Directives and Harmonized standards.

EN6000-6-1: 2006. Electromagnetic Compatibility EMC – Part 6-1 Generic Standards – Immunity for residential, commercial and light-industrial environments.

EN6000-6-3: 2007. Electromangnetic Compatability EMC- part 6-3 Generic Standards – Emission standard for residential, commercial and light industrial environments.

IEC 61558-2-6: 1997. Safety of power transformers, power supply units,reactors and similar products.Particular requirements for safety isolating transformers and power supply units incorporating safety isolating transformers

AS/ NZ 3136-2001. Approval and Test Specification – Electrical Equipment for spa baths and spa and swimming pools, Incorporating :

- IEC 60065 Audio,video and similar electronic equipment safety requirements
- IEC 60335-2-60 Safety of household and similar electrical appliances- Particular requirements – Whirlpool baths

Products Covered by this Declaration:

Zodiac TRi series - Saltwater Chlorinators
TRi product names : TRi10, TRi18, TRi22, TRi35
TRi part numbers : W382500, W382510, W382530, W382540

Zodiac TRi series - Modules
TRi module Product name ; TRi pH Module, TRi Pro Module
TRi module part numbers : W197525 & W197515

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Engineering Manager
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