

# PIRONIZER®

IONISING SYSTEM

## Installation & Operation

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## Introduction

The principle of the PURONIZER® is to reduce the free chlorine level in a swimming pool by up to 60%. The method of using copper (cu) and silver (ag) ions as a sanitiser in water is not new. Ancient Greeks found that when water was stored in copper containers, no algae grew. Since then it has been discovered that when copper and silver ions are released into water by electrolysis it produces an extremely efficient method of sterilising swimming pool water, which equates to a reduction of chemicals required to keep the pool water in **pure sparkling condition**.

The working principle of the PURONIZER® is to raise the free copper and silver content in your swimming pool. This is achieved by a flow of water through a cell unit which contains copper and silver probes. Copper and silver ions are then released by electrolysis into the flow of the filtration system. The silver ions released by the probe are very effective in killing bacteria while the copper ions released by the probe are very effective in killing algae. When a total copper measurement in the swimming pool is reached (between 0.3-0.5 ppm (mg/l) using your test kit), your Puronizer® will virtually give you automated control with only limited maintenance required. Because copper and silver ions are not affected by temperature and sunlight, you will have constant control over your swimming pool water. This is a considerable advantage over most chemicals on the market which often require high levels of a sanitiser to render the pool hygienic for bathing. Due to the reduction in disinfectant there will be no more unpleasant reactions caused to the eyes, nose and skin. This is noticeable on an indoor installation where pungent smells are often present.

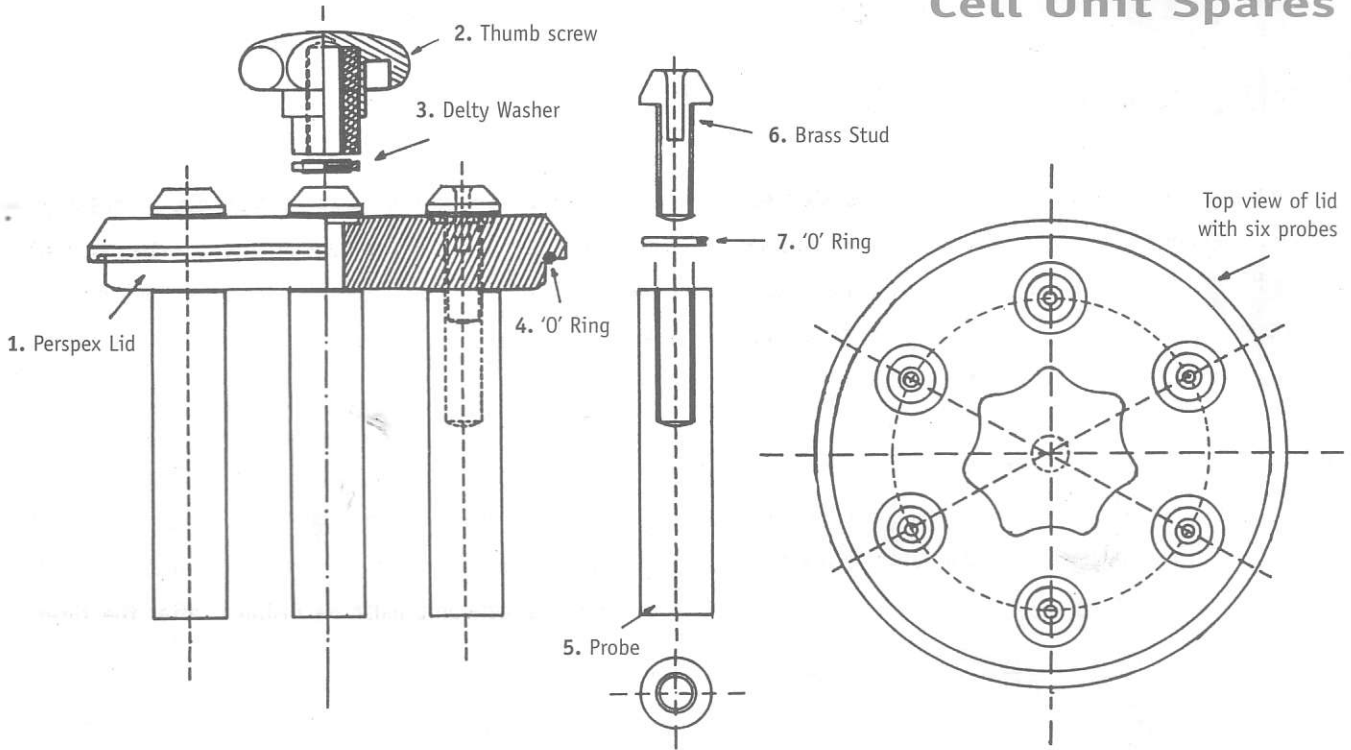
**For your protection read all instructions carefully before installation and operation.**

## General Precautions

1. Do not remove the low voltage lead from the cell unit when the pump is in operation. This may cause the reset button to trip out on the control box.
2. **Do not try to remove the clear cell lid when the pump is in operation (see page 11)**
3. When removing the lid of the cell unit to clean the probes, always allow air to enter the system. This allows the cell lid to be removed more easily.
4. **Never** allow complete depletion of the probes.
5. **Never** use other replacement parts, always use original PURONIZER® spare parts otherwise damage to the unit or self injury may occur. Warranty will automatically be void.
6. **Do not remove the front panel** of the control box. Warranty will be void.
7. It is not recommended to use ionisers with: Baquacil, bromine or flocculants.
8. Sodium bicarbonate should be used for pH<sup>+</sup> and TA control.

*No liability whatsoever will be accepted by the manufacturer due to misuse of this product or misuse of chemicals used.*

# Cell Unit Spares



Detail of cover with six probes

- 1. Perspex Lid
- 2. Thumb Screw
- 3. Delty Washer
- 4. Perspex Lid 'O' Ring
- 5. Copper & Silver Probe
- 6. Brass Fixing Stud for Probes
- 7. Brass Stud 'O' Ring

## Unpacking

Immediately upon receipt of the carton, carefully check the carton for damage. Make sure to open the carton the right side up otherwise parts may become loose and damaged. If there is any internal damage to the PURONIZER®, contact your supplier or carrier. Once you have opened the carton check that the following items are enclosed:

- 1 - PURONIZER® Control Box
- 1 - PURONIZER® Cell Unit complete with Probes
- 1 - Test Kit
- 1 - Key for Control Box
- 1 - High Voltage Plug for Control Box
- 1 - Low voltage Lead for connection between Control Box and Cell Unit
- 1 - Set of Mounting Brackets for Control Box
- 1 - Cleaning Brush for Probes
- 2 - 1½" Socket Unions

## Installation

Installation should be carried out by a qualified electrician & swimming pool engineer. The system is quick and simple to install, normally no extensive pipe work alteration is required as the Cell Unit is very compact in size. Fittings are supplied for quick installation. First determine whether the filtration system has a sand filter, DE-filter, cartridge filter or Zeoclore filter, this will decide where the Cell Unit should be installed. If you have a DE-filter, cartridge filter or Zeoclore filter the Stainless Steel Cell Unit must be installed **after** the filter in the return to pool line, refer to diagram A.

In most circumstances a High Rate Sand filter is installed and the Cell Unit can be installed pre-filter, after the pump outlet and before the filter inlet, refer to diagram B, or as per diagram A, post filter.

When you have installed the Cell in the correct location, find a convenient place to mount the control box. A 1.5m low voltage lead is supplied which in most cases is long enough to reach the Cell Unit. In the rare event that the lead is not long enough, your BZC dealer can supply leads up to 30ft. (10m).

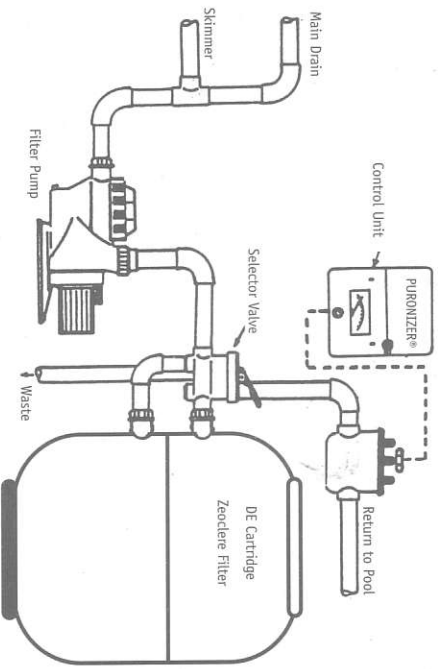
## Electrical - ALL WIRING TO BE CARRIED OUT BY QUALIFIED ELECTRICIAN

All wiring must comply with the local electrical wiring codes. The control box has a protection classification rating of IP65. The mains supply into the control box is through a 500mA fuse for mains protection. A re-settable trip protects the output of the low voltage lead should there be a short circuit. Make sure all power supplies are off before attempting any wiring.

The mains supply to the control box must come from the same supply as the filter pump so that when the filter pump is on it will also activate the PURONIZER®. Use the connector supplied for mains connection to the control box. There is no internal wiring necessary and entering the control box panel immediately voids the warranty.

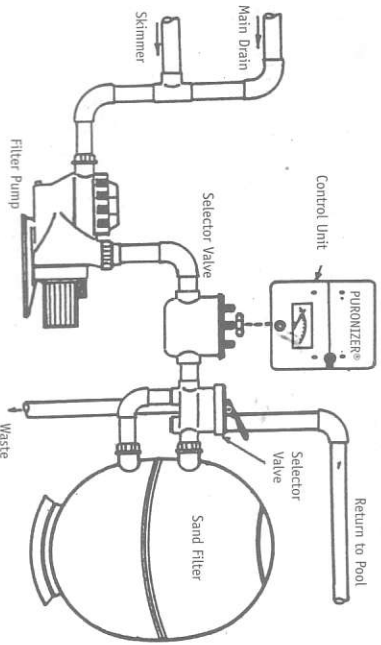
**Typical Installation of unit for DE-CARTRIDGE - ZEOCLERE Cell Unit MUST BE after the Filter**

DIAGRAM A



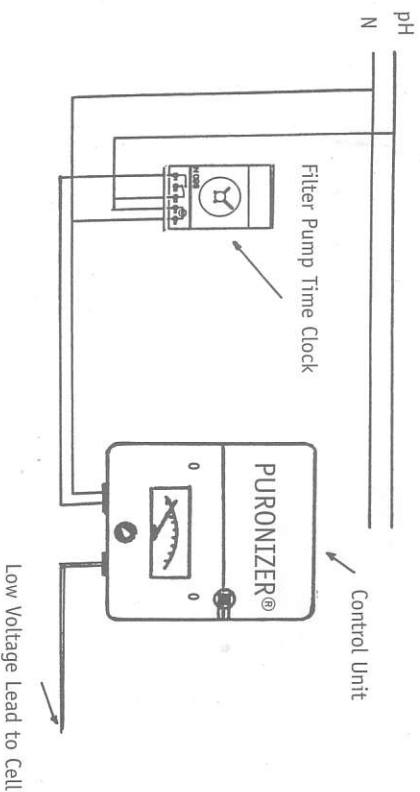
**Installation of unit for SAND FILTERS - If required (Cell can be installed after filter)**

DIAGRAM B



Connect the low voltage lead into control box and place the leads into the correct probes - colour coded i.e., Red to Red / Black to Black. Installation is now complete.

**CONTROL UNIT ILLUSTRATION**



**Installation Check List**

1. DE-filter, Cartridge or Zeoclere-30 filter :- Cell Unit **MUST** be installed after the filter in the return line to pool. If a heater is installed a check valve **MUST** be installed to stop hot water build up when the system is off.
2. Sand Filter:-Cell Unit can be installed pre-filter or post filter.
3. Make sure all wiring complies with local electrical coding. Check all wiring connections before power on.
4. Make sure low and high voltage leads are properly plugged into the control box and that there is no strain on the cables. Make sure low voltage Leads are correctly placed on the probes - colour coded, Red/Red and Black/Black.
5. Make sure the Cell lid is properly sealed and that the lid and unions are tight.
6. Insure probes are NOT in direct flow of water - Turn lid accordingly

**Preparation and Operation**

On a new or newly re-plastered pool, it is recommended that the plaster is allowed to mature for 2 yrs to allow salts and alkalis to be released **before** increasing copper level over 0.3.

**Water Preparation**

**Water chemistry:-** For any system to work properly, the unit itself must be properly installed and maintained. The water chemistry should be checked regularly. When ready to start the PURONIZER®, adjust the pH of the pool water to 7.2 - 7.6 and continue to maintain the free chlorine at your normal levels until copper rises in the pool to between 0.3 - 0.5mg/l.

## PURONIZER® Start up

With the filtration system on, the mains supply to the PURONIZER® control box is indicated by the power ON light on the control panel. Every 7-10 minutes the two lights (red and green) will alternate, this is fully automatic, no adjustment is required. Copper & silver ions are now being released into your pool. The copper/silver increase depends on :

1. How long the filtration system is on.
2. How high the dosing meter is set.
3. The pH of the swimming pool water.

Firstly turn dosing knob to maximum. If you live in a hard water area the copper dosing will quickly come to the required level of 0.3 - 0.5mg/l. Use the test kit provided to check levels. Generally, during the start up period we suggest the copper is checked every 6 hours.

Once 0.3 - 0.5mg/l has been achieved dosing output should be reduced to 10µA on the dial. If over the next week the copper level remains between 0.3 - 0.5mg/l then 10µA on the dial is your set point. Sometimes fine adjustment of the dosing knob may be required if copper levels are below or above the 0.3 - 0.5mg/l range. This is easily determined by using the test kit.

Soft water - The same procedure as above but the copper build up in the water will take longer. Therefore turn the dosing knob to maximum and check pool water every 12 hours. In some areas the full copper level may take up to 14 days.

**Once the dosing level has been reached, lock the control box and hide the key from unwanted "adjustment personnel".**

Periodic adjustment of the setting may need to be made after backwashing or topping up the pool water.

### Note:

1. The set-point is the position of the dosing knob where the copper reading is stable, i.e. neither rising nor lowering. Once set very little adjustment is required, if any, for the season.
2. Dosing over 0.5mg/l copper can, in some instances, create discolouration of plastered surfaces and grouting.
3. You can allow the free chlorine level in the swimming pool to fall to 0.5-1mg/l. During hot spells and high bathing load, you may have to raise the chlorine - use the table on the back page as a guide.

## OWNER RESPONSIBILITY

### Probes

- Require cleaning when they become coated in green verdigris normally every 3/4 weeks. Always take note of their size. Change probes when the size of a man's little finger. (Part number: BZEP/CS)

### Cell Unit

- Periodic lubrication to the centre stem rod, Delti washer and lid 'o' ring.

### Control Box

- Check all leads are in place and have not been snagged thus causing bad connections.

### Water Chemistry

- Test pool water for pH and free chlorine at least once a week. Maintain free chlorine between 0.5 - 1.0ppm (mg/l) during prolonged spells of hot weather and high bathing load. Test copper levels once every 2 weeks. Maintain test results between:

pH	7.2 - 7.6 (IMPORTANT)
chlorine	0.5 - 1.0 ppm (mg/l)
copper	0.3 - 0.5 ppm (mg/l)

## Removing the Cell Lid & Cleaning

### Probes - every 3/4 weeks

1. You Must Switch off filtration system
2. Remove low voltage leads from Cell Unit
3. Carefully Unscrew thumb knob anti clockwise on cell lid
4. Allow air into system. This releases any vacuum on the lid and aids removal.
5. Remove clear cell lid. The probes will be coated in a green verdigris. Brushing the probes with a small brush under tap water will remove the coating. When clean, replace the lid & 'o' ring, replace the thumb knob and tighten down (DO NOT over tighten). Replace the low voltage lead in the correct sequence Red/Red and Black/Black and then switch on the filtration system. **If YOU do not clean the probes the system will not function correctly and the probe life will be reduced.**

## Trouble Shooting

### Problem

### What to do

No copper rise

- a. Check all wiring.
- b. Check the power ON light, on the control panel is illuminated.
- c. Check reset button on control panel by pressing once.
- d. Check probes - Do they need replacing or cleaning?

Copper rise slow

- a. Make sure filtration is on 24hrs.
- b. Some soft water areas may take up to 14 days.
- c. Marbleite needs to cure before PURONIZER® can operate fully.

Pool water turns cloudy

- a. Test pool water more frequently, Check pH levels are correct.
- b. Backwash filters more frequently.
- c. Check probes for cleaning or depletion.
- d. Raise free chlorine to oxidise dead algae, bacteria and cosmetics etc.

**SPECIFICATIONS**

ELECTRICAL CHARACTERISTICS	BZC BP2CS	BZC BP4CS	BZC BP6CS
Voltage Rating	110/240V 50/60Hz	110/240V 50/60Hz	110/240V 50/60Hz
Power Consumption	0/32v 1A 500mA/1A	0/32v 1A 500mA/1A	0/32v 1A 500mA/1A
Fused: Input/Output	0.75mm 2core	0.75mm 4core	0.75mm 6core
Low Voltage Lead			

**WATER CHARACTERISTICS UNDER NORMAL WORKING CONDITIONS**

Max Water Flow Through Cell	3,000 G.P.H	3,000 G.P.H	3,000 G.P.H
Max Working Pressure	2.5 bar	2.5 bar	2.5 bar
Max Working Temperature	110°F/45C	110°F/45C	110°F/45C
Map Imp Galls for Treatment	20,000 Galls Imp	30,000 Galls Imp	40,000 Galls Imp
Cell Inlet/Outlet Size	1.5" MT/BSP	1.5" MT/BSP	1.5" MT/BSP

**WATER CHEMISTRY WITH ALL MODELS**

	7.2/7.6	7.2/7.6	7.2/7.6
pH	7.2/7.6	7.2/7.6	7.2/7.6
Total Alkalinity	100/150ppm(mg/l)	100/150ppm(mg/l)	100/150ppm(mg/l)
Co/Ca Hardness	100/150ppm(mg/l)	100/150ppm(mg/l)	100/150ppm(mg/l)
Copper Tons	0.3/0.5ppm(mg/l)	0.3/0.5ppm(mg/l)	0.3/0.5ppm(mg/l)
Oxidiser (Cl)	0.3/1.0ppm(mg/l)	0.3/1.0ppm(mg/l)	0.3/1.0ppm(mg/l)
Environmentally Friendly	Non Toxic Non Irritant	Non Toxic Non Irritant	Non Toxic Non Irritant

# PURIONIZER®

I O N I S I N G S Y S T E M

INSTALLATION & OPERATION

MANUAL



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